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2014  
EDITION

## CO<sub>2</sub> EMISSIONS FROM FUEL COMBUSTION



International  
Energy Agency

**2014**  
EDITION

## **CO<sub>2</sub> EMISSIONS FROM FUEL COMBUSTION**

In recognition of fundamental changes in the way governments approach energy-related environmental issues, the IEA has prepared this publication on CO<sub>2</sub> emissions from fuel combustion. This annual publication was first published in 1997 and has become an essential tool for analysts and policy makers in many international fora such as the Conference of the Parties.

The twentieth session of the Conference of the Parties to the Climate Change Convention (COP 20), in conjunction with the tenth meeting of the Parties to the Kyoto Protocol (CMP 10), will be meeting in Lima, Peru from 1 to 12 December 2014.

The data in this book are designed to assist in understanding the evolution of the emissions of CO<sub>2</sub> from 1971 to 2012 for more than 140 countries and regions by sector and by fuel. Emissions were calculated using IEA energy databases and the default methods and emission factors from the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*.

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**CO<sub>2</sub> EMISSIONS  
FROM FUEL COMBUSTION**

# INTERNATIONAL ENERGY AGENCY

The International Energy Agency (IEA), an autonomous agency, was established in November 1974. Its primary mandate was – and is – two-fold: to promote energy security amongst its member countries through collective response to physical disruptions in oil supply, and provide authoritative research and analysis on ways to ensure reliable, affordable and clean energy for its 29 member countries and beyond. The IEA carries out a comprehensive programme of energy co-operation among its member countries, each of which is obliged to hold oil stocks equivalent to 90 days of its net imports. The Agency's aims include the following objectives:

- Secure member countries' access to reliable and ample supplies of all forms of energy; in particular, through maintaining effective emergency response capabilities in case of oil supply disruptions.
- Promote sustainable energy policies that spur economic growth and environmental protection in a global context – particularly in terms of reducing greenhouse-gas emissions that contribute to climate change.
- Improve transparency of international markets through collection and analysis of energy data.
  - Support global collaboration on energy technology to secure future energy supplies and mitigate their environmental impact, including through improved energy efficiency and development and deployment of low-carbon technologies.
    - Find solutions to global energy challenges through engagement and dialogue with non-member countries, industry, international organisations and other stakeholders.

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# FOREWORD

Recent years have witnessed a fundamental change in the way governments approach energy-related environmental issues. Promoting sustainable development and combating climate change have become integral aspects of energy planning, analysis and policy making in many countries, including all IEA member states.

In recognition of the importance attached to the environmental aspects of energy, the IEA Secretariat has prepared this edition of its published statistics on CO<sub>2</sub> emissions from fossil-fuel combustion. These data are also available on CD-ROM and on the Internet.

The purpose of this volume is to put our best and most current information in the hands of those who need it, including in particular the participants in the UNFCCC process. The IEA Secretariat is a contributor to the official Intergovernmental Panel on Climate Change (IPCC) methodologies for estimating greenhouse-gas emissions. The IEA's energy data are the figures most often cited in the field. For these reasons, we felt it appropriate to publish this information in a comprehensive form.

It is our hope that this book will assist the reader in better understanding the evolution of CO<sub>2</sub> emissions from fuel combustion from 1971 to 2012 for more than 140 countries and regions, by sector and by fuel. This publication incorporates comments and suggestions received since the first edition in November 1997.

Most of the data presented in this publication are only for energy-related CO<sub>2</sub>. Thus they may differ from countries' official submissions of emissions inventories to the UNFCCC Secretariat.

In addition, summary data for CO<sub>2</sub> from non-energy-related sources and gas flaring, and emissions of CH<sub>4</sub>, N<sub>2</sub>O, HFC, PFC and SF<sub>6</sub> are shown in Part III in cooperation with the PBL Netherlands Environmental Assessment Agency and the Joint Research Centre of the European Commission (JRC).

The publication also includes information on "Key Sources" from fuel combustion, as developed in the *IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*.

This report is published under my responsibility as Executive Director of the IEA and does not necessarily reflect the views of IEA member countries.

**Maria Van der Hoeven**  
Executive Director

## What's New?

### Geographical coverage

- As Estonia became an IEA member in May 2014, it is now included within the aggregate IEA Total, starting in 1990.
- The European Union aggregate now also includes Croatia, an EU member since 1 July 2013.
- The IEA continues to expand the coverage of its statistics reports and encourage more countries to collaborate on data exchange. This year data have become available for Mauritius from 1971 to 2012 and these data are presented in this edition of the publication. Therefore, Mauritius, presented individually, has been removed from the region Other Africa.
- In accordance with article 27 (1) of the Kyoto Protocol to the UNFCCC, the Government of Canada notified the Secretary-General of the United Nations of its decision to withdraw from the Kyoto Protocol. This action became effective for Canada on 15 December 2012 in accordance with article 27 (2). In this edition, Canada has been removed from the aggregates Annex I Kyoto Parties, as specified in Part I, Chapter 4: *Geographical coverage*.

### Indicators

The GDP PPP data, as taken from external sources as specified in Part I, Chapter 3: *Indicator sources and methods*, have been revised to reflect the changes to purchasing power parity rates based on the 2011 International Comparison Program (ICP) published in 2014. The ICP has worked for six years to better estimate the value of the PPP basket of goods for all countries for which the World Bank calculates GDP PPP. For many countries this value has changed significantly in comparison to previous ICP exercises. This leads to significant revisions to GDP PPP for many countries compared to previous publications.

Due to these revisions, the CO<sub>2</sub> / GDP PPP indicator consequently shows significant revisions for some countries and regions compared with the previous edition of this publication.

### Products

The product aggregate “coal/peat” has been renamed as “coal”. In the tables and figures presented in this publication, “coal” refers to the aggregate of coal, peat and oil shale.

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### Kyoto Protocol base years

The year 1990 should be the base year for the estimation and reporting of inventories. According to the provisions of Article 4.6 of the Convention and Decisions 9/CP.2 and 11/CP.4, the following Annex I Parties that are undergoing the process of transition to a market economy, are allowed to use a base year or a period of years other than 1990, as follows:

Bulgaria:	to use 1988
Hungary:	to use the average of the years 1985 to 1987
Poland:	to use 1988
Romania:	to use 1989
Slovenia:	to use 1986

## ABBREVIATIONS

Btu:	British thermal unit
GJ:	gigajoule
GtC:	gigatonnes of carbon
GWh:	gigawatt hour
J:	joule
kcal:	kilocalorie
kg:	kilogramme
kt:	thousand tonnes
ktoe:	thousand tonnes of oil equivalent
kWh:	kilowatt hour
MJ:	megajoule
Mt:	million tonnes
MtCO <sub>2</sub> :	million tonnes of carbon dioxide
Mtoe:	million tonnes of oil equivalent
m <sup>3</sup> :	cubic metre
PJ:	petajoule
t:	metric ton = tonne = 1 000 kg
tC:	tonne of carbon
Tcal:	teracalorie
TJ:	terajoule
toe:	tonne of oil equivalent = 10 <sup>7</sup> kcal
BKB:	brown coal briquettes (braunkohlebriketts)
CEF:	carbon emission factor
CHP:	combined heat and power
GCV:	gross calorific value
GDP:	gross domestic product
HHV:	higher heating value = GCV
LHV:	lower heating value = NCV
NCV:	net calorific value
PPP:	purchasing power parity
TPES:	total primary energy supply
Annex I:	See Chapter 4, <i>Geographical coverage</i>
Annex II:	See Chapter 4, <i>Geographical coverage</i>
CDM:	Clean Development Mechanism
Convention:	United Nations Framework Convention on Climate Change
COP:	Conference of the Parties to the Convention
EITs:	Economies in Transition (see Chapter 4, <i>Geographical coverage</i> )
IEA:	International Energy Agency
IPCC:	Intergovernmental Panel on Climate Change
OECD:	Organisation for Economic Co-operation and Development
UN:	United Nations
UNECE:	United Nations Economic Commission for Europe
UNFCCC:	United Nations Framework Convention on Climate Change
e	estimated
..	not available
-	nil
x	not applicable
+	growth greater than 1 000%

### Important cautionary notes

- The estimates of CO<sub>2</sub> emissions from fuel combustion presented in this publication are calculated using the IEA energy balances and the default methods and emission factors from the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*. There are many reasons why **the IEA Secretariat estimates may not be the same as the figures that a country submits to the UNFCCC**, even if a country has accounted for all of its energy use and correctly applied the *IPCC Guidelines*.
- In this publication, the IEA Secretariat presents CO<sub>2</sub> emissions calculated using both the IPCC Reference Approach and the IPCC Tier 1 Sectoral Approach. In some of the OECD non-member countries, there can be **large differences between the two sets of calculations** due to various problems in some energy data. As a consequence, this can lead to different emission trends between 1990 and 2012 for certain countries. Please see Chapter 1: *IEA emissions estimates* for further details.
- Information on “key sources” from fuel combustion, as developed in the *IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*, are only given for combustion sources and will not include key sources from fugitive emissions, industrial processes, solvents, agriculture and waste. Please see Chapter 1: *IEA emissions estimates* and Chapter 5: *IPCC methodologies* for further information.

Energy data on OECD member and non-member countries<sup>1</sup> are collected by the Energy Data Centre (EDC) of the IEA Secretariat, headed by Mr. Jean-Yves Garnier. The IEA would like to thank and acknowledge the dedication and professionalism of the statisticians working on energy data in the countries. Mr. Aidan Kennedy was responsible for the CO<sub>2</sub> emissions from fuel combustion estimates and for the preparation of the publication. Desktop publishing support was provided by Ms. Sharon Burghgraeve. Ms. Roberta Quadrelli had overall responsibility for this publication.

CO<sub>2</sub> emission estimates from 1960 to 2012 for the Annex II countries and from 1971 to 2012 for all

other countries are available on CD-ROM suitable for use on Windows-based systems. To order, please see the information provided at the end of this publication.

In addition, a data service is available on the Internet. It includes unlimited access through an annual subscription as well as the possibility to obtain data on a pay-per-view basis. Details are available at [www.iea.org](http://www.iea.org).

Enquiries about data or methodology should be addressed to:

Energy Data Centre – CO<sub>2</sub> emissions  
Telephone: (+33-1) 40-57-66-01  
E-mail: [emissions@iea.org](mailto:emissions@iea.org)

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# 2012 CO<sub>2</sub> EMISSIONS OVERVIEW



# RECENT TRENDS IN CO<sub>2</sub> EMISSIONS FROM FUEL COMBUSTION

## The growing importance of energy-related emissions

Climate scientists have observed that carbon dioxide (CO<sub>2</sub>) concentrations in the atmosphere have been increasing significantly over the past century, compared to the rather steady level of the pre-industrial era (about 280 parts per million in volume, or ppmv). The 2013 concentration of CO<sub>2</sub> (396 ppmv) was about 40% higher than in the mid-1800s, with an average growth of 2 ppmv/year in the last ten years. Significant increases have also occurred in levels of methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O).

The *Fifth Assessment Report* from the Intergovernmental Panel on Climate Change (Working Group I) states that human influence on the climate system is clear (IPCC, 2013). Some impacts of the increased GHG concentrations may be slow to become apparent since stability is an inherent characteristic of the interacting climate, ecological and socio-economic systems. Even after stabilisation of the atmospheric concentration of CO<sub>2</sub>, anthropogenic warming and sea level rise would continue for centuries due to the time scales associated with climate processes and feedbacks. Some changes in the climate system would be irreversible in the course of a human lifespan.

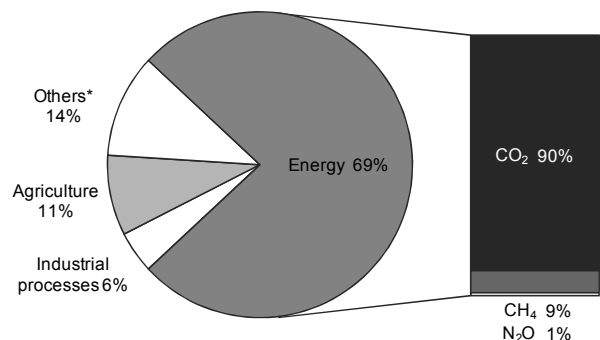
Given the long lifetime of CO<sub>2</sub> in the atmosphere, stabilising concentrations of greenhouse gases at any level would require large reductions of global CO<sub>2</sub> emissions from current levels. The lower the chosen level for stabilisation, the sooner the decline in global CO<sub>2</sub> emissions would need to begin, or the deeper the emission reduction would need to be over time. The United Nations Framework Convention on Climate Change (UNFCCC) provides a structure for inter-governmental efforts to tackle the challenge posed by

climate change. The Convention's ultimate objective is to stabilise GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The Conference of Parties (COP) further recognised that deep cuts in global GHG emissions are required, with a view to hold the increase in global average temperature below 2°C above preindustrial levels, and that Parties should take urgent action to meet this long-term goal, consistent with science and on the basis of equity.

## Energy use and greenhouse gases

Among the many human activities that produce greenhouse gases, the use of energy represents by far the largest source of emissions. Smaller shares correspond to agriculture, producing mainly CH<sub>4</sub> and N<sub>2</sub>O from domestic livestock and rice cultivation, and to industrial processes not related to energy, producing mainly fluorinated gases and N<sub>2</sub>O (Figure 1).

Figure 1. Shares of global anthropogenic GHG, 2010\*



\* Others include large-scale biomass burning, post-burn decay, peat decay, indirect N<sub>2</sub>O emissions from non-agricultural emissions of NO<sub>x</sub> and NH<sub>3</sub>, Waste, and Solvent Use.

Source: IEA estimates for CO<sub>2</sub> from fuel combustion and EDGAR 4.2 FT2010 estimates for all other sources, (see Part III).

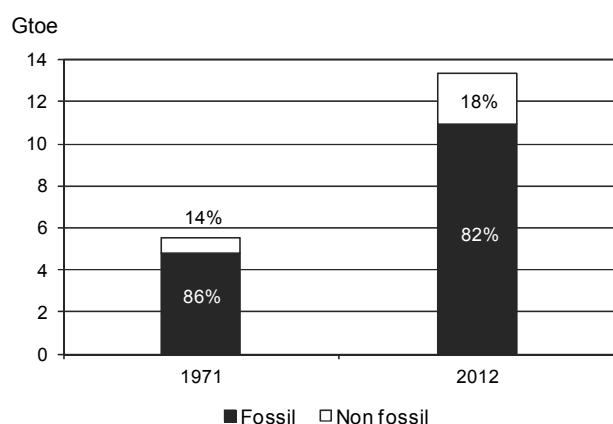
*Key point: Energy emissions, mostly CO<sub>2</sub>, account for the largest share of global GHG emissions.*

Within the energy sector<sup>1</sup>, CO<sub>2</sub> resulting from the oxidation of carbon in fuels during combustion dominates the total GHG emissions.

CO<sub>2</sub> from energy represents about three quarters of the anthropogenic GHG emissions for Annex I<sup>2</sup> countries, and almost 70% of global emissions. This percentage varies greatly by country, due to diverse national structures.

Increasing demand for energy comes from worldwide economic growth and development. Global total primary energy supply (TPES) more than doubled between 1971 and 2012, mainly relying on fossil fuels (Figure 2).

**Figure 2. World primary energy supply\***



\* World primary energy supply includes international bunkers.

*Key point: Fossil fuels still account for most – over 80% – of the world energy supply.*

Despite the growth of non-fossil energy (such as nuclear and hydropower), considered as non-emitting,<sup>3</sup>

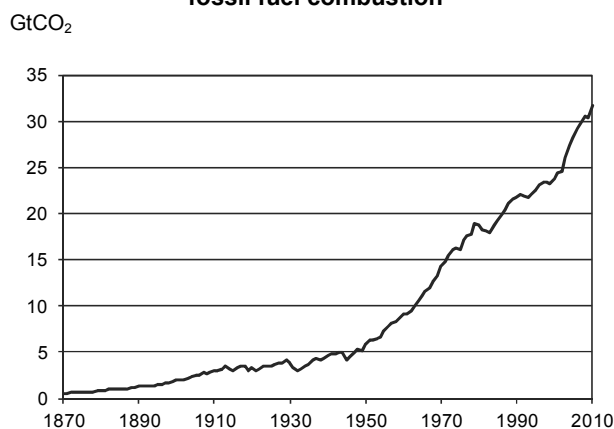
1. The energy sector includes emissions from “fuel combustion” (the large majority) and “fugitive emissions”, which are intentional or unintentional releases of gases resulting from production, processes, transmission, storage and use of fuels (e.g. CH<sub>4</sub> emissions from coal mining).

2. The Annex I Parties to the 1992 UN Framework Convention on Climate Change (UNFCCC) are: Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Croatia, the Czech Republic, Denmark, Estonia, European Economic Community, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, the Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russian Federation, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom and United States. See [www.unfccc.int](http://www.unfccc.int). For country coverage of Annex I Economies in Transition (EIT) and Annex II, see *Geographical Coverage*.

3. Excluding the life cycle of all non-emitting sources and excluding combustion of biofuels (considered as non-emitting CO<sub>2</sub>, based on the assumption that the released carbon will be reabsorbed by biomass regrowth, under balanced conditions).

the share of fossil fuels within the world energy supply is relatively unchanged over the past 41 years. In 2012, fossil sources accounted for 82% of the global TPES.

**Figure 3. Trend in CO<sub>2</sub> emissions from fossil fuel combustion**



Source: Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, US Department of Energy, Oak Ridge, Tenn., United States.

*Key point: Since 1870, CO<sub>2</sub> emissions from fuel combustion have risen exponentially.*

Growing world energy demand from fossil fuels plays a key role in the upward trend in CO<sub>2</sub> emissions (Figure 3). Since the Industrial Revolution, annual CO<sub>2</sub> emissions from fuel combustion dramatically increased from near zero to almost 32 GtCO<sub>2</sub> in 2012.

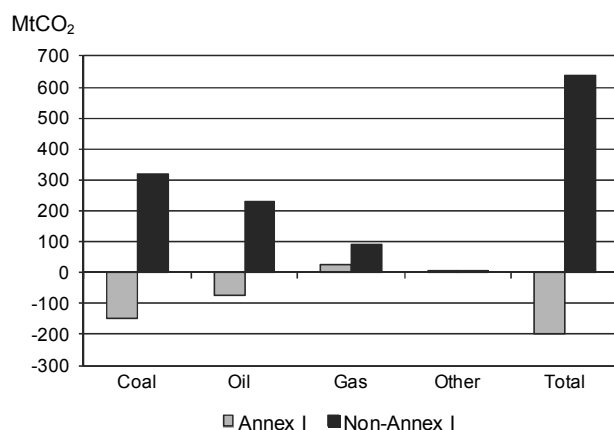
The next section provides a brief overview of recent trends in energy-related CO<sub>2</sub> emissions, as well as in some of the socio-economic drivers of emissions.

## Recent emissions trends

In 2012, global CO<sub>2</sub> emissions were 31.7 GtCO<sub>2</sub>. This represents a 1.2% year-on-year increase in emissions, about half the average annual growth rate since 2000, and four percentage points less than in 2010, year of initial recovery after the financial crisis.

Emissions in non-Annex I countries continued to increase (3.8%), albeit at a lower rate than in 2011, while emissions in Annex I countries decreased by 1.5%. In absolute terms, global CO<sub>2</sub> emissions increased by 0.4 GtCO<sub>2</sub> in 2012, driven primarily by increased emissions from coal and oil in non-Annex I countries (Figure 4).

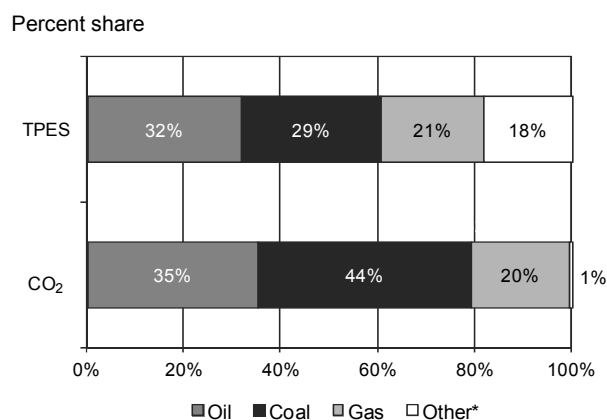


**Figure 4. Change in CO<sub>2</sub> emissions (2011-12)**

*Key point: In 2012, emissions from coal and oil increased in non-Annex I countries and decreased in Annex I countries.*

### Emissions by fuel

Although coal represented 29% of the world TPES in 2012, it accounted for 44% of the global CO<sub>2</sub> emissions due to its heavy carbon content per unit of energy released, and to the fact that 18% of the TPES derives from carbon-neutral fuels (Figure 5). As compared to gas, coal is nearly twice as emission intensive on average.<sup>4</sup>

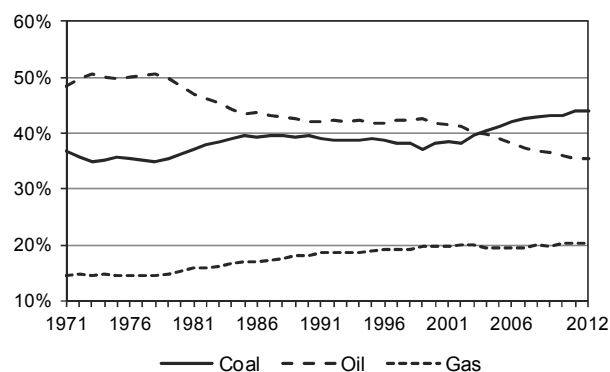
**Figure 5. World primary energy supply and CO<sub>2</sub> emissions: shares by fuel in 2012**

\* Other includes nuclear, hydro, geothermal, solar, tide, wind, biofuels and waste.

*Key point: Globally, coal combustion generates the largest share of CO<sub>2</sub> emissions, although oil still is the largest energy source.*

4. Default carbon emission factors from the *Revised 1996 IPCC Guidelines*: 15.3 tC/TJ for gas, 16.8 to 27.5 tC/TJ for oil products, 25.8 to 29.1 tC/TJ for primary coal products.

Those shares evolved significantly during the last decade, following ten years of rather stable relative contributions among fuels. In 2002 in fact, oil still held the largest share of emissions (41%), three percentage points ahead of coal (Figure 6).

**Figure 6. Fuel shares in global CO<sub>2</sub> emissions**

*Key point: The fossil fuel mix changed significantly in the last 10 years, with coal replacing oil as the largest source of CO<sub>2</sub> emissions.*

In 2012, CO<sub>2</sub> emissions from the combustion of coal increased by 1.3% to 13.9 GtCO<sub>2</sub>. Currently, coal fills much of the growing energy demand of those developing countries (such as China and India) where energy-intensive industrial production is growing rapidly and large coal reserves exist with limited reserves of other energy sources.

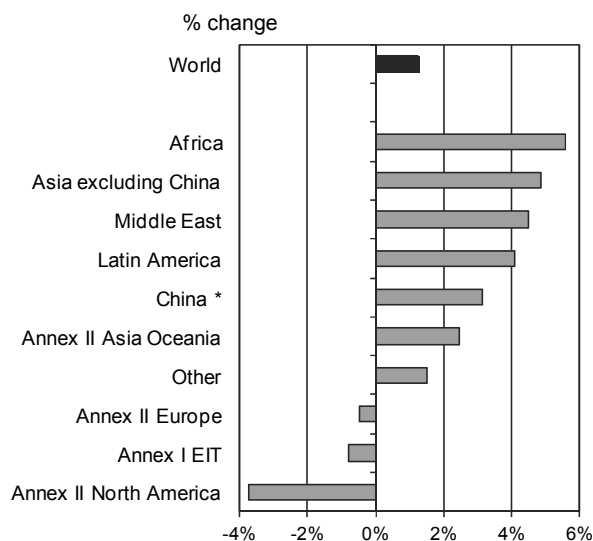
### Emissions by region

Non-Annex I countries, collectively, represented 55% of global CO<sub>2</sub> emissions in 2012. At the regional level, annual growth rates varied greatly: emissions growth in China (3.1%) was lower than in previous years, however, emissions grew strongly in Africa (5.6%), Asia excluding China (4.9%) and the Middle East (4.5%). Emissions in Latin America<sup>5</sup> (4.1%) and Annex II Asia Oceania (2.5%) grew at a more moderate rate, while emissions decreased in Annex II North America (-3.7%), Annex II Europe (-0.5%) and Annex I EIT (-0.8%) (Figure 7).

Regional differences in contributions to global emissions conceal even larger differences among individual countries. Nearly two-thirds of global emissions for 2012 originated from just ten countries, with the shares of China (26%) and the United States (16%) far surpassing those of all others. Combined, these two countries alone produced 13.3 GtCO<sub>2</sub>. The top-10 emitting countries include five Annex I countries and five non-Annex I countries (Figure 8).

5. For the purposes of this discussion, Latin America includes non-OECD Americas and Chile.

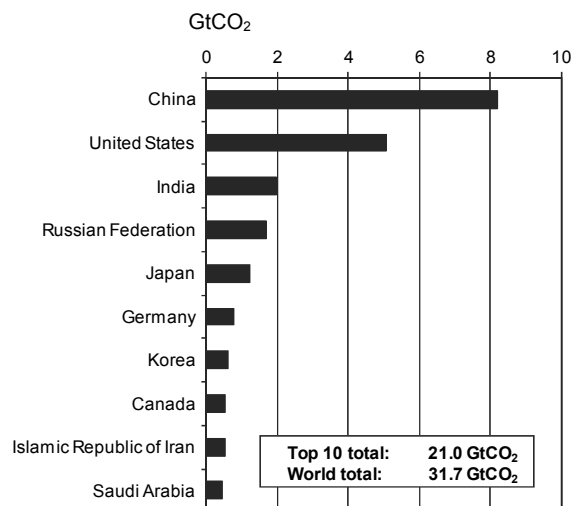
**Figure 7. Change in CO<sub>2</sub> emissions by region (2011-12)**



\* China includes Hong Kong, China.

*Key point: Emissions in Annex II North America fell in 2012; emissions in all non-Annex I regions grew, with Africa showing the largest relative increase.*

**Figure 8. Top 10 emitting countries in 2012**



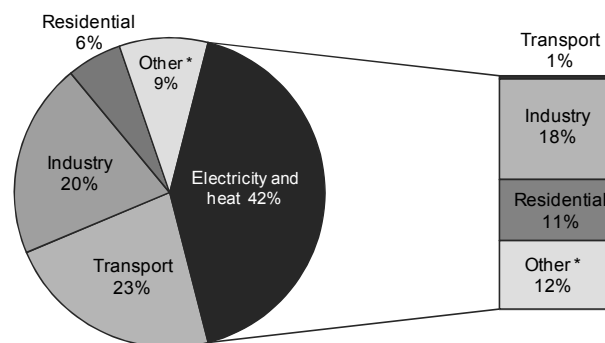
*Key point: The top 10 emitting countries account for two-thirds of global CO<sub>2</sub> emissions.*

As different regions and countries have contrasting economic and social structures, the picture would change significantly when moving from absolute emissions to indicators such as emissions per capita or per GDP. A more comprehensive analysis is given in the section *Coupling emissions with socio-economic indicators* later in this chapter.

## Emissions by sector

Two sectors produced nearly two-thirds of global CO<sub>2</sub> emissions in 2012: electricity and heat generation, by far the largest, accounted for 42%, while transport accounted for 23% (Figure 9).

**Figure 9. World CO<sub>2</sub> emissions by sector in 2012**



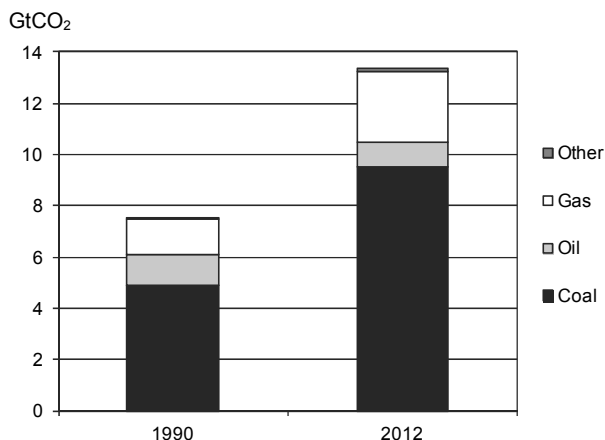
Note: Also shows allocation of electricity and heat to end-use sectors.

\* Other includes commercial/public services, agriculture/forestry, fishing, energy industries other than electricity and heat generation, and other emissions not specified elsewhere.

*Key point: Two sectors combined, generation of electricity and heat and transport, represented nearly two-thirds of global emissions in 2012.*

Generation of electricity and heat worldwide relies heavily on coal, the most carbon-intensive fossil fuel. Countries such as Australia, China, India, Poland and South Africa produce over two-thirds of their electricity and heat through the combustion of coal.

**Figure 10. CO<sub>2</sub> emissions from electricity and heat generation\***



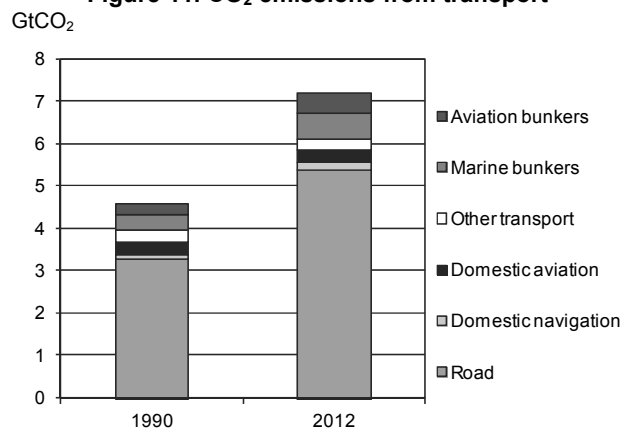
\* Refers to main activity producers and autoproducers of electricity and heat.

*Key point: CO<sub>2</sub> emissions from electricity and heat almost doubled between 1990 and 2012, driven by the large increase of generation from coal.*

Between 2011 and 2012, CO<sub>2</sub> emissions from electricity and heat increased by 1.8%, faster than total emissions. While the share of oil in electricity and heat emissions has declined steadily since 1990, the share of gas increased slightly, and the share of coal increased significantly, from 65% in 1990 to 72% in 2012 (Figure 10). Carbon intensity developments for this sector will strongly depend on the fuel mix used to generate electricity, including the share of non-emitting sources, such as renewables and nuclear, as well as on the potential penetration of CCS technologies.

As for transport, the fast emissions growth was driven by emissions from the road sector, which increased by 64% since 1990 and accounted for about three quarters of transport emissions in 2012 (Figure 11). It is interesting to note that despite efforts to limit emissions from international transport, emissions from marine and aviation bunkers, 66% and 80% higher in 2012 than in 1990 respectively, grew even faster than those from road.

**Figure 11. CO<sub>2</sub> emissions from transport**



*Key point: CO<sub>2</sub> emissions from road are driving the growth of transport emissions.*

## Coupling emissions with socio-economic indicators<sup>6</sup>

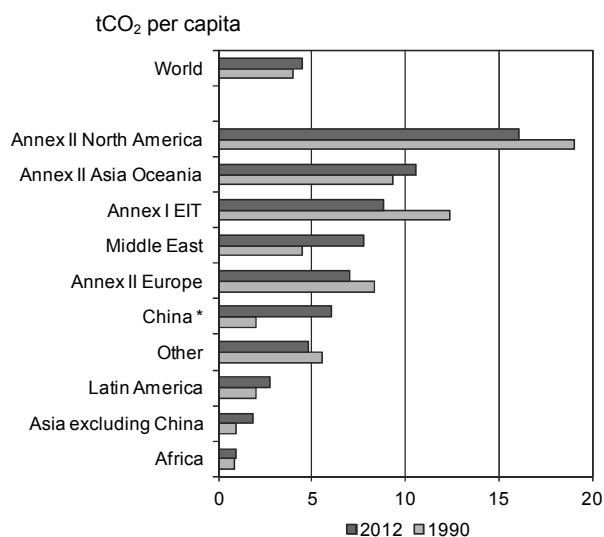
Indicators such as those briefly discussed in this section strongly reflect energy constraints and choices made to support the economic activities of each country. They also reflect sectors that predominate in different countries' economies.

The range of per-capita emission levels across the world is very large, highlighting wide divergences in the way different countries and regions use energy

6. No single indicator can provide a complete picture of a country's CO<sub>2</sub> emissions performance or its relative capacity to reduce emissions. The indicators discussed here are certainly incomplete and should only be used to provide a rough description of the situation in a country.

(Figure 12). For example, among the five largest emitters, the levels of per-capita emissions were very diverse, ranging from 1.6 tCO<sub>2</sub> for India and 6.1 tCO<sub>2</sub> for China to 16.1 tCO<sub>2</sub> for the United States. On average, industrialised countries emit far larger amounts of CO<sub>2</sub> per capita than developing countries. The lowest levels worldwide are in Asia excluding China and in Africa.

**Figure 12. CO<sub>2</sub> emissions per capita by major world regions**



\* China includes Hong Kong, China.

*Key point: Emissions per capita generally decreased in time across regions.*

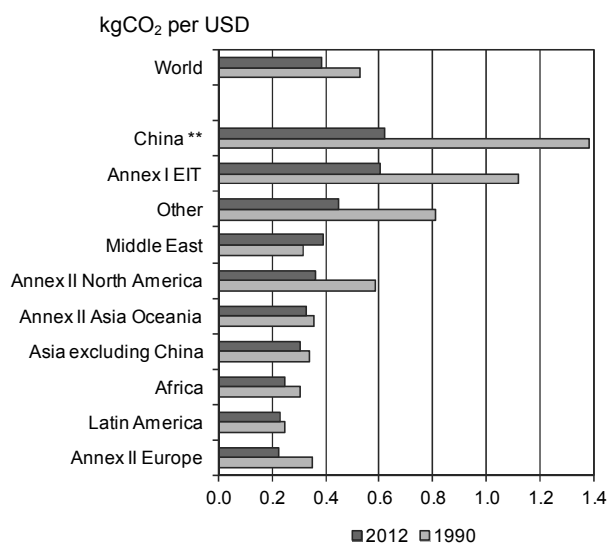
Emissions per unit of GDP<sup>7</sup> are also very variable across regions (Figure 13). Although climate, economic structure and other variables can affect energy use, relatively high values of emissions per GDP indicate a potential for decoupling CO<sub>2</sub> emissions from economic growth. Possible improvements can derive from fuel switching away from carbon-intensive sources or from energy efficiency at all stages of the energy value chain (from raw material extraction to energy end-use).<sup>8</sup>

All the five largest emitters have shown reductions of emissions per unit of GDP between 1990 and 2012, in line with the average reduction observed globally (28%). This decreasing trend was most pronounced

7. Throughout this analysis, GDP refers to GDP in 2005 USD, using purchasing power parities. A note of caution is necessary concerning the indicator of CO<sub>2</sub> emissions per GDP. It can be very useful to measure efforts over time for one country, but has limitations when comparing countries, as it is very sensitive to the base year used for the GDP purchasing power parity (PPP).

8. The IEA's Policies and Measures Databases offer access to information on energy-related policies and measures taken or planned to reduce GHG emissions, improve energy efficiency and support renewable energy development and deployment. The online databases can be consulted at: [www.iea.org/policiesandmeasures/](http://www.iea.org/policiesandmeasures/).

**Figure 13. CO<sub>2</sub> emissions per GDP\* by major world regions**



\* GDP in 2005 USD, using purchasing power parities.

\*\* China includes Hong Kong, China.

*Key point: Emission intensities in economic terms vary greatly around the world.*

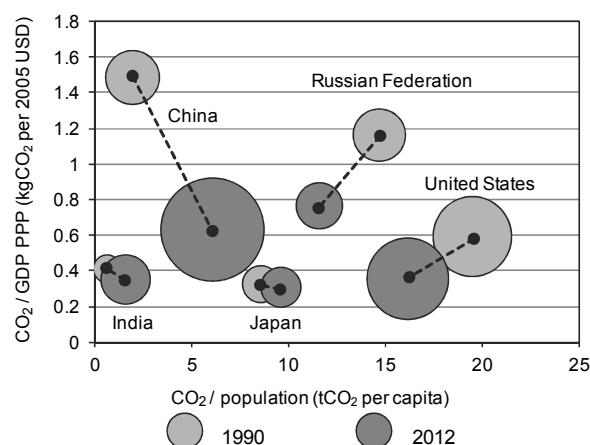
for China and the Russian Federation, whose 1990 levels were significantly higher than those of other countries (Figure 14), and for the United States.

Per-capita emissions, which increased by 13% globally between 1990 and 2012, showed instead contrasting trends among the top five emitting countries. For example, China tripled its per-capita emissions, while India more than doubled theirs, as did some other rapidly expanding economies. Conversely, per-capita emissions decreased significantly in both the Russian Federation (21%) and the United States (17%), although following very different patterns. Values for Russia dramatically dropped in the early nineties, and have progressively increased in recent years, while values for the United States started to decrease from 2008 onwards, having remained stable for many years.

On a global level, CO<sub>2</sub> emissions grew by 51% between 1990 and 2012. A simple decomposition<sup>9</sup> shows the main driving factors of the world CO<sub>2</sub> emissions trend. Globally, the economic growth partially decoupled from energy use, as energy intensity decreased by 27% over the period. However, with a practically unchanged carbon intensity of the energy

9. CO<sub>2</sub> emissions can be decomposed into the product of four factors: population, per capita GDP, TPES/GDP, CO<sub>2</sub>/TPES. For a more detailed description of the Kaya decomposition, see Part I, Methodology, Chapter 1: *IEA emissions estimates*.

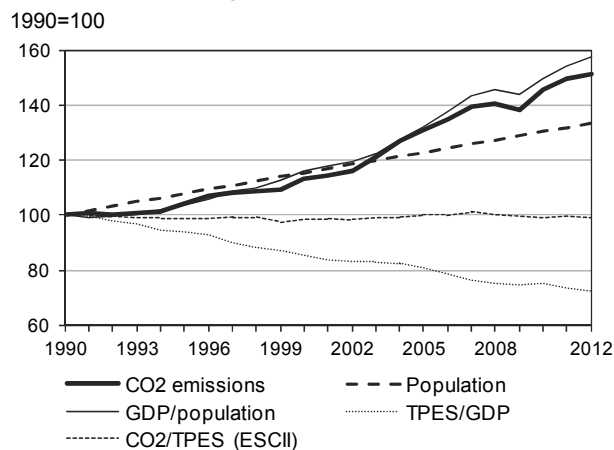
**Figure 14. Trends in CO<sub>2</sub> emission intensities for the top five emitting countries\***



\* The size of the circle represents the total CO<sub>2</sub> emissions from the country in that year.

*Key point: All top five emitters reduced their emissions per unit of GDP between 1990 and 2012, while emissions per capita showed contrasting trends.*

**Figure 15. Global CO<sub>2</sub> emissions and drivers (Kaya decomposition)**



*Key point: Despite some decoupling between economic growth and energy use, increasing wealth and population, with an unchanged carbon intensity of the mix, drove dramatic CO<sub>2</sub> emissions increases*

mix<sup>10</sup>, the combined growth in population (33%) and in per capita GDP (57%) led to a dramatic increase in global CO<sub>2</sub> emissions between 1990 and 2012.

Such behaviour varies greatly among countries and regions. Understanding the factors driving CO<sub>2</sub> emissions trends will be essential to designing sound and effective policies aiming at emissions reductions.

10. Also known, in its index form, as Energy Sector Carbon Intensity Index (ESCII), as in the IEA publication *Tracking Clean Energy Progress 2014*.

## Developing a low-carbon world

Traditionally, industrialised countries have emitted the large majority of anthropogenic greenhouse gases (GHGs). More recently, shares of developing country emissions surpassed those of industrialised countries, and have kept rising very rapidly. To shift towards a low-carbon world, mitigation efforts must occur across all countries: decarbonising the energy supplies of industrialised countries, and shifting developing countries onto a low-carbon development path.

The first binding commitments to reduce greenhouse gas emissions were set under the Kyoto Protocol's first commitment period (2008-12). Participating industrialised countries were required (as a group) to curb domestic emissions by about 5% relative to 1990 over this period. Thirty-eight countries have also agreed to take commitments under a second commitment period which will run from 2013 to 2020. The amendments to the Kyoto Protocol bringing the second commitment period into force require ratification by 144 countries (two-thirds of those participating); as of September 2014 only 18 have ratified.

Countries comply with their Kyoto Protocol targets by reducing emissions from fossil fuel combustion, reducing emission in other sectors (*i.e.* land-use or direct industrial emissions), or through use of the Kyoto Protocol's "flexible mechanisms" by which industrialised countries can earn emission credits from emissions reduction projects in participating developing countries and economies in transition (EITs).

Data on CO<sub>2</sub> emissions from fuel combustion are now available for the Kyoto Protocol's first commitment period (Table 1). According to IEA estimates, in 2012, CO<sub>2</sub> emissions from fuel combustion across all Parties with Kyoto Protocol targets were 14% below 1990 levels. Emissions in the EU-15 were 8% below 1990 levels, in line with their economy-wide goal of an 8% reduction. Some industrialised countries have seen significant increases, led by Australia (+48%), New Zealand (+44%)<sup>11</sup> and Spain (30%). To comply

with their Kyoto Protocol obligations, these countries will need to offset these increases by reductions in other sectors, or use the Kyoto Protocol's flexibility mechanisms<sup>12</sup>.

Despite its extensive participation (192 countries), the Kyoto Protocol is limited in its potential to address global emissions. The United States remains outside of the Protocol's jurisdiction, and developing countries do not face emissions targets. The Kyoto Protocol implies action on less than one-quarter of global CO<sub>2</sub> emissions, as measured in 2012.

Through its flexibility mechanisms and provisions for international trading, the Kyoto Protocol has made CO<sub>2</sub> a tradable commodity, and has been a key driver for the development of national emissions trading schemes.

### Building future international action

Recognising that the Kyoto Protocol framework is inadequate to deliver the global goal of limiting global temperature increase to less than 2°C above pre-industrial levels, countries are now negotiating a new climate agreement, to be finalised at COP21 in Paris in December 2015, and to apply from 2020. If agreement can be reached, this will be the first international climate agreement to extend mitigation obligations to all countries, both developed and developing.

This will build on the voluntary emissions reduction pledges for 2020 that were made at COP15 in Copenhagen. Developed and developing countries that submitted pledges under the Copenhagen Accord collectively account for over 80% of global emissions. Although the ambition of these pledges is currently insufficient to limit temperature rise to 2°C above pre-industrial levels, the breadth of participation in mitigation commitments marks a significant improvement on the coverage of the Kyoto Protocol.

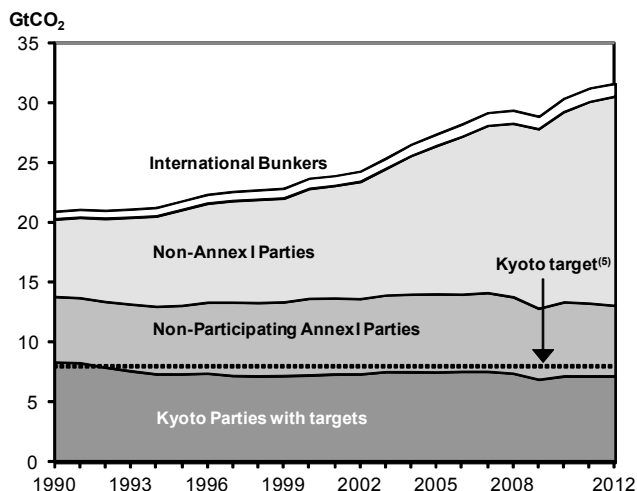
In order to respect countries' different responsibilities and capabilities, mitigation contributions in the 2015 climate agreement will be nationally determined. A key challenge in designing the new agreement will be how to, over time, bring these nationally-determined targets to levels consistent with the collective global goal of keeping temperature rise below 2°C.

11. Note that for some countries (e.g. Australia and New Zealand), the share of non-CO<sub>2</sub> emissions may be very significant. Therefore, the trend in CO<sub>2</sub> emissions from fuel combustion may differ substantially from the trend in total greenhouse gas emissions.

12. For Spain, a 15% increase is allowed under the EU effort-sharing arrangements.

**Table 1. World CO<sub>2</sub> emissions from fuel combustion and Kyoto Protocol targets<sup>(1)</sup>**

	1990 MtCO <sub>2</sub>	2012 MtCO <sub>2</sub>	% change 90-12	Kyoto Target		1990 MtCO <sub>2</sub>	2012 MtCO <sub>2</sub>	% change 90-12	Kyoto Target
<b>KYOTO PARTIES WITH TARGETS<sup>(1)</sup></b>	<b>8,339.6</b>	<b>7,157.0</b>	<b>-14.2%</b>	<b>-4.6%<sup>(2)</sup></b>	<b>OTHER COUNTRIES</b>	<b>12,014.7</b>	<b>23,497.4</b>	<b>95.6%</b>	
<i>Europe</i>	3,154.5	2,906.4	-7.9%		<i>Non-participating</i>				
Austria	56.4	64.7	14.8%	-13%	<i>Annex I Parties</i>	5,550.9	5,983.9	7.8%	
Belgium	107.9	104.6	-3.1%	-7.5%	Belarus	124.8	71.1	-43.0%	-8%
Denmark	50.6	37.1	-26.7%	-21%	Canada <sup>(1)</sup>	428.2	533.7	24.6%	-6%
Finland	54.4	49.4	-9.1%	0%	Malta	2.3	2.5	10.4%	none
France <sup>(3)</sup>	352.8	333.9	-5.4%	0%	Turkey	126.9	302.4	138.3%	none
Germany	949.7	755.3	-20.5%	-21%	United States	4,868.7	5,074.1	4.2%	-7%
Greece	70.1	77.5	10.5%	+25%	<i>Other Regions</i>	6,352.7	17,334.0	172.9%	none
Iceland	1.9	1.8	-2.5%	+10%	Africa	545.0	1,032.4	89.4%	none
Ireland	30.6	35.5	16.3%	+13%	Middle East	549.9	1,647.1	199.5%	none
Italy	397.4	374.8	-5.7%	-6.5%	N-OECD Eur. & Eurasia <sup>(4)</sup>	630.0	528.8	-16.1%	none
Luxembourg	10.4	10.2	-1.3%	-28%	Latin America <sup>(4)</sup>	842.5	1,583.3	87.9%	none
Netherlands	155.8	173.8	11.5%	-6%	Asia (excl. China) <sup>(4)</sup>	1,507.5	4,291.4	184.7%	none
Norway	28.3	36.2	27.9%	+1%	China	2,277.7	8,250.8	262.2%	none
Portugal	39.4	45.9	16.4%	+27%					
Spain	205.2	266.6	29.9%	+15%					
Sweden	52.8	40.4	-23.4%	+4%	<b>INTL. MARINE BUNKERS</b>	<b>363.2</b>	<b>602.2</b>	<b>65.8%</b>	
Switzerland	41.6	41.3	-0.8%	-8%	<b>INTL. AVIATION BUNKERS</b>	<b>256.3</b>	<b>477.8</b>	<b>86.4%</b>	
United Kingdom	549.3	457.5	-16.7%	-12.5%					
European Union - 15	3,082.7	2,827.1	-8.3%	-8%	<b>WORLD</b>	<b>20,973.9</b>	<b>31,734.3</b>	<b>51.3%</b>	
<i>Asia Oceania</i>	1,339.5	1,641.7	22.6%						
Australia	260.5	386.3	48.3%	+8%					
Japan	1,056.7	1,223.3	15.8%	-6%					
New Zealand	22.3	32.1	44.0%	0%					
<i>Economies in Transition</i>	3,845.6	2,608.8	-32.2%						
Bulgaria	74.9	44.3	-40.9%	-8%					
Croatia	21.5	17.2	-20.1%	-5%					
Czech Republic	148.8	107.8	-27.6%	-8%					
Estonia	35.8	16.3	-54.3%	-8%					
Hungary	66.4	43.6	-34.4%	-6%					
Latvia	18.6	7.0	-62.4%	-8%					
Lithuania	33.1	13.3	-59.8%	-8%					
Poland	342.1	293.8	-14.1%	-6%					
Romania	167.5	79.0	-52.9%	-8%					
Russian Federation	2,178.8	1,659.0	-23.9%	0%					
Slovak Republic	56.7	31.9	-43.8%	-8%					
Slovenia	13.3	14.6	9.6%	-8%					
Ukraine	687.9	281.1	-59.1%	0%					



(1) On 15 December 2011, Canada withdrew from the Kyoto Protocol. This action became effective for Canada on 15 December 2012.

(2) The actual country targets apply to a basket of six greenhouse gases and allow sinks and international credits to be used for compliance. The overall "Kyoto target" is estimated for this publication by applying the country targets to IEA data for CO<sub>2</sub> emissions from fuel combustion, and is only shown as an indication. The overall target for the combined EU-15 under the Protocol is -8%, but the member countries have agreed on a burden-sharing arrangement as listed.

(3) Emissions from Monaco are included with France.

(4) Composition of regions differs from elsewhere in this publication to take into account countries that are not Kyoto Parties.

(5) The Kyoto target is calculated as percentage of the 1990 CO<sub>2</sub> emissions from fuel combustion only, therefore it does not represent the total target for the six-gas basket. This assumes that the reduction targets are spread equally across all gases.

*Key point: The existing targets under the Kyoto Protocol are not sufficiently comprehensive to lead to reductions in global CO<sub>2</sub> emissions from fuel combustion.*

The nationally-determined targets will be complemented by an agreed framework for measuring, reporting and verifying emissions, and accounting for achievement of targets, and by enhanced actions on adaptation, technology development and on the provision of financial resources. While obligations are to start from 2020, emissions from the energy sector need to peak by 2020 if there is to be a reasonable chance of limiting temperature rise to below 2°C (IEA, 2012). This highlights the need for an ambitious start point in 2020, but also the importance of complementary initiatives outside the UNFCCC that can constrain emissions in the period up to 2020.

### **Action beyond the UNFCCC**

Alongside the UNFCCC process, progress toward a low-carbon future is being made in numerous other multilateral fora. The challenge of post-2012 discussions is the need to engage all countries with approaches, possibly including the carbon market, that suit their capacity and their legitimate aspiration for economic and social development. The G8 2005 Gleneagles Plan of Action, the G20 Clean Energy and Energy Efficiency (C3E) Working Group, and the Major Economies Forum on Energy and Climate (MEF) and Clean Energy Ministerial (CEM) processes have sought to involve developed and developing countries in common measures to address climate change. Other international fora gathering both developed and developing countries have emerged that can further mitigate efforts in specific areas, such as the International Renewable Energy Agency (IRENA), and the International Partnership for Energy Efficiency Co-operation (IPEEC).

In addition to international multilateral efforts, action on climate change is increasingly being taken unilaterally by individual countries, regions, and cities. A 2014 survey showed that 61 of the 66 countries surveyed now have climate change and clean energy legislation in place and that developing and emerging economies have been taking the lead in bringing forward new climate change laws and regulation. There was legislative progress in 2013 in Bolivia, El Salvador, Ecuador, Costa Rica, China, Indonesia, Kazakhstan, Micronesia, Poland, Switzerland, Jordan, United Arab Emirates, Kenya, Mozambique, Tanzania, and Nigeria (Nachmany et al., 2014).

The most significant development in 2013-14 has been the launch of pilot emissions trading systems in five Chinese cities (Shenzhen, Beijing, Tianjin, Chongqing, and Shanghai) and two provinces (Hubei

and Guangdong). Together these cover over 1.2Gt of greenhouse gas emissions, second only to the size of the EU emissions trading system (World Bank, 2014). China has also announced an intention to implement a nation-wide ETS after 2016, building on the experience gained in these pilots.

There has also been progress with other carbon pricing mechanisms in 2014, including the launch of the Kazakhstan ETS (after a one-year trial period in 2013), formal linking of the California and Quebec trading systems, and the announcement of proposals to reform the EU ETS, which covers the 29 member states of the European Union plus Norway, Liechtenstein and Iceland. The European Commission has proposed to establish a reserve mechanism that would withdraw allowances from auction when the system is oversupplied, with the intention of creating better balance between supply and demand. Looking ahead to 2015, trading will begin in Korea's emissions trading system. This system is designed to assist in delivering Korea's target of a 30% improvement on business-as-usual (BAU) emissions by 2020. Progress has not all been positive for carbon pricing however: despite early indications of its effectiveness, the Australian ETS legislation was repealed in 2014.

Action at the level of cities and regions is also accelerating. In addition to emissions trading systems in California and Quebec, the Regional Greenhouse Gas Initiative caps electricity sector emissions in nine north-eastern US states. A successful carbon tax is in place in the Canadian province of British Columbia, and there are emissions trading systems in Alberta, Canada and the city of Tokyo in Japan.

An important development in extending emissions trading to developing economies has been the World Bank's Partnership for Market Readiness, which provides funding and technical assistance to developing countries for capacity building toward the development and piloting of market-based instruments for GHG reduction. Brazil, Chile, China, Columbia, Costa Rica, India, Indonesia, Mexico, Morocco, Peru, South Africa, Thailand, Turkey, Ukraine and Viet Nam are currently participating as implementing countries.

In all these efforts, timely and accurate CO<sub>2</sub> and other GHG statistics will prove central to ascertaining compliance with international agreements and to informing policy makers and carbon market participants. The ability of countries to monitor and review emissions from their sources is essential in their engagement towards national and global GHG mitigation.

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# PART I:

# METHODOLOGY

Note	See multilingual glossary at the end of the publication.
Attention	Voir le glossaire en plusieurs langues à la fin du présent recueil.
Hinweis	Deutsches Glossar auf der letzten Umschlagseite.
Attenzione	Riferirsi al glossario multilingue alla fine del libro.
注意事項	巻末の日本語用語集を参照。
Nota	Véase el glosario plurilingüe al final del libro.
Примеч.	Смотрите многоязычный словарь в конце книги.
注	请参考本书最后的多语种术语表。



# 1. IEA EMISSIONS ESTIMATES

The estimates of CO<sub>2</sub> emissions from fuel combustion presented in this publication are calculated using the IEA energy data<sup>1</sup> and the default methods and emission factors from the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, IPCC/OECD/IEA, Paris, 1997 (*1996 IPCC Guidelines*).

Although the IPCC approved the *2006 Guidelines* at the 25<sup>th</sup> session of the IPCC in April 2006 in Mauritius, many countries (as well as the IEA Secretariat) are still calculating their inventories using the *1996 IPCC Guidelines* since this was the version used for the Kyoto Protocol. In December 2011 in Durban, the Parties adopted Decision 15/CP.17 to update their reporting tables so as to implement the *2006 Guidelines*. The new reporting tables will be used by Annex I Parties from 15 April 2015.

The IEA Secretariat reviews its energy databases each year. In the light of new assessments, important revisions may be made to the time series of individual countries. Therefore, certain data in this publication may have been revised with respect to previous editions.

## Inventory quality

The *IPCC Guidelines* allow Parties under the UNFCCC to prepare and periodically update national inventories that are accurate, complete, comparable and transparent. Inventory quality is an important issue since countries are now implementing legally-binding commitments.

One way to assess inventory quality is to do comparisons among inventories, methodologies and input data. The *IPCC Guidelines* recommend that countries which have used a detailed Sectoral Approach for

CO<sub>2</sub> emissions from energy combustion also use the Reference Approach for verification purposes. This will identify areas where a full accounting of emissions may not have been made (see Chapter 5: *IPCC methodologies*).

## Reference Approach vs. Sectoral Approach

The Reference Approach and the Sectoral Approach often give different results because the Reference Approach is a top-down approach using a country's energy supply data and has no detailed information on how the individual fuels are used in each sector.

The Reference Approach provides estimates of CO<sub>2</sub> to compare with estimates derived using a Sectoral Approach. Theoretically, it indicates an upper bound to the Sectoral Approach "1A fuel combustion", because some of the carbon in the fuel is not combusted but will be emitted as fugitive emissions (as leakage or evaporation in the production and/or transformation stage).

Calculating CO<sub>2</sub> emissions inventories with the two approaches can lead to different results for some countries. In general the gap between the two approaches is relatively small (5 per cent or less) when compared to the total carbon flows involved. In cases where 1) fugitive emissions are proportional to the mass flows entering production and/or transformation processes, 2) stock changes at the level of the final consumer are not significant and 3) statistical differences in the energy data are limited, the Reference Approach and the Sectoral Approach should lead to similar evaluations of the CO<sub>2</sub> emissions trends.

When significant discrepancies and/or large time-series deviations do occur, they may be due to various reasons such as:

1. Published in *Energy Statistics of OECD Countries, Energy Balances of OECD Countries, Energy Statistics of Non-OECD Countries and Energy Balances of Non-OECD Countries*, IEA, Paris, 2014.

**Large statistical differences** between the energy supply and the energy consumption in the basic energy data. Statistical differences arise from the collection of data from different parts of the fuel flow from its supply origins to the various stages of downstream conversion and use. They are a normal part of a fuel balance. Large random statistical differences must always be examined to determine the reason for the difference, but equally importantly smaller statistical differences which systematically show an excess of supply over demand (or vice versa) should be pursued.

**Significant mass imbalances** between crude oil and other feedstock entering refineries and the (gross) oil products manufactured.

**The use of aggregate net calorific and carbon content values** for primary fuels which are converted rather than combusted. For example, it may appear that there is not conservation of energy or carbon depending on the calorific value and/or the carbon content chosen for the crude oil entering refineries and for the mix of products produced from the refinery for a particular year. This may cause an overestimation or underestimation of the emissions associated with the Reference Approach.

**The misallocation of the quantities of fuels used for conversion into derived products** (other than power or heat) **or quantities combusted in energy industry own use.** When reconciling differences between the Reference Approach and a Sectoral Approach it is important to ensure that the quantities reported in transformation and energy industry own use (e.g. for coke ovens) reflect correctly the quantities used for conversion and for fuel use, respectively, and that no misallocation has occurred. Note that the quantities of fuels converted to derived products should have been reported in transformation in the energy balance. If any derived products are used to fuel the conversion process, the amounts involved should have been reported in energy industry own use of the energy balance. In a Sectoral Approach the inputs to transformation should not be included in the activity data used to estimate emissions.

**Missing information on certain transformation outputs.** Emissions from combustion of secondary fuels produced in integrated processes (for example, coke oven gas) may be overlooked in a Tier 1 Sectoral Approach if data are poor or unavailable. The use of secondary fuels (the output from the transformation process) should be included in the Sectoral Approach. Failure to do so will result in an underestimation of the Sectoral Approach.

**Simplifications in the Reference Approach.** Certain quantities of carbon should be included in the Reference Approach because their emissions fall under fuel

combustion. These quantities have been excluded where the flows are small or not represented by a major statistic available within energy data. Examples of quantities not accounted for in the Reference Approach include lubricants used in two-stroke engines, blast furnace and other by-product gases which are used for fuel combustion outside their source category of production and combustion of waxed products in waste plants with heat recovery. On the other hand, certain flows of carbon should be excluded from the Reference Approach, but for reasons similar to the above no practical means can be found to exclude them without over complicating the calculations. These include coals and other hydrocarbons injected into blast furnaces as well as cokes used as reductants in the manufacture of inorganic chemicals. These simplifications will determine discrepancies between the Reference Approach and a Sectoral Approach. If data are available, the magnitudes of these effects can be estimated.

**Missing information on stock changes** that may occur at the final consumer level. The relevance of consumer stocks depends on the method used for the Sectoral Approach. If delivery figures are used (this is often the case) then changes in consumers' stocks are irrelevant. If, however, the Sectoral Approach is using actual consumption of the fuel, then this could cause either an overestimation or an underestimation of the Reference Approach.

**High distribution losses or unrecorded consumption** for natural gas may mean that the emissions are overestimated by the Reference Approach or underestimated by the Sectoral Approach.

**The treatment of transfers and reclassifications of energy products** may cause a difference in the Sectoral Approach estimation since different net calorific values and emission factors may be used depending on how the fuel is classified.

## Differences between IEA estimates and UNFCCC submissions

It is possible to use the IEA CO<sub>2</sub> estimates for comparison with the greenhouse-gas (GHG) inventories reported by countries to the UNFCCC Secretariat. In this way, problems in methods, input data or emission factors may become apparent. However, care should be used in interpreting the results of any comparison since the IEA estimates may differ from a country's official submission for many reasons.

A recent comparison of the IEA estimates with the inventories submitted to the UNFCCC showed that for most Annex II countries, the two calculations were within 5-10% depending on the coverage of the fuel combustion sector in the national inventory. For some EIT and non-Annex I countries, differences between the IEA estimates and national inventories were larger. In some of the countries the underlying energy data were different, suggesting that more work is needed on the collecting and reporting of energy statistics for those countries.

Some countries have incorrectly defined bunkers as fuel used abroad by their own ships and planes. Still other countries have made calculation errors for carbon oxidation or have included international bunkers in their totals. Since all of the above will affect the national totals of CO<sub>2</sub> emissions from fuel combustion, a systematic comparison with the IEA estimates would allow countries to verify their calculations and produce more internationally comparable inventories.

In addition, the main bias in the energy data and emission factors will probably be systematic and not random. This means that the emission trends will usually be more reliable than the absolute emission levels. By comparing trends in the IEA estimates with trends in emissions as reported to the UNFCCC, it should be possible to identify definition problems or changes in the calculations, which were not reflected in the base year.

For many reasons the IEA estimates may differ from the numbers that a country submits to the UNFCCC, even if a country has accounted for all of its energy use and correctly applied the *IPCC Guidelines*. No attempt has been made to quantify the effects of these differences. In most cases these differences will be relatively small. Some of the reasons for these differences are:

- **The IEA uses a Tier 1 method.**

The IEA uses a Tier 1 Sectoral Approach based on the *1996 IPCC Guidelines*. Countries may be using a Tier 2 or Tier 3 method that takes into account different technologies.

- **The IEA is using the *1996 IPCC Guidelines*.**

The IEA continues to use the *1996 IPCC Guidelines*. Some countries may have already started using the *2006 IPCC Guidelines*.

- **Energy activity data are extracted from the IEA energy balances and may differ from those used for the UNFCCC calculations.**

Countries often have several “official” data sources such as a Ministry, a Central Bureau of Statistics, a nationalised electricity company, etc. Data can also be

collected from the energy suppliers, the energy consumers or customs statistics. The IEA Secretariat tries to collect the most accurate data, but does not necessarily have access to the complete data set that may be available to national experts calculating emission inventories for the UNFCCC. In addition to different sources, the methodology used by the national bodies providing the data to the IEA and to the UNFCCC may differ. For example, general surveys, specific surveys, questionnaires, estimations, combined methods and classifications of data used in national statistics and in their subsequent reclassification according to international standards may result in different series.

- **The IEA uses average net calorific values.**

The IEA uses an average net calorific value (NCV) for each secondary oil product. These NCVs are region-specific and constant over time. Country-specific NCVs that can vary over time are used for NGL, refinery feedstocks and additives. Crude oil NCVs are further split into production, imports, exports and average. Different coal types have specific NCVs for production, imports, exports, inputs to main activity power plants and coal used in coke ovens, blast furnaces and industry, and can vary over time for each country.

Country experts may have the possibility of going into much more detail when calculating the heat content of the fuels. This in turn could produce different values than the IEA.

- **The IEA uses average emission factors.**

The IEA uses the default emission factors which are given in the *1996 IPCC Guidelines*. Country experts may have better information available.

- **The IEA does not have detailed information for the stored carbon calculation.**

The IEA does not have complete information on the non-energy use of fuels. The amount of carbon stored is estimated using the default values given in the *1996 IPCC Guidelines*. For “other products” in the stored carbon calculation, the IEA assumes that 100% of kerosene, white spirit and petroleum coke that is reported as non-energy use in the energy balance is also stored. Country experts calculating the inventories may have more detailed information.

- **The IEA cannot allocate emissions from auto-producers into the end-use sectors.**

The *1996 IPCC Guidelines* recommend that emissions from autoproduction should be included with emissions from other fuel use by end-consumers. At the same time, the emissions from the autoproduction of electricity and heat should be excluded from the

energy transformation source category to avoid double counting. The IEA is not able to allocate the fuel use from autoproducers between industry and *other*. Therefore, this publication shows a category called “Unallocated autoproducers”. However, this should not affect the total emissions for a country.

- **Military emissions may be treated differently.**

According to the *1996 IPCC Guidelines*, military emissions should be reported in Source/Sink Category 1 A 5, *Other (not elsewhere specified)*. Previously, the IEA questionnaires requested that warships be included in international marine bunkers and that the military use of aviation fuels be included in domestic air. All other military use should have been reported in *non-specified other*.

At the IEA/Eurostat/UNECE Energy Statistics Working Group meeting (Paris, November 2004), participants decided to harmonise the definitions used to collect energy data on the joint IEA/Eurostat/UNECE questionnaires with those used by the IPCC to report GHG inventories. As a result, starting in the 2006 edition of this publication, all military consumption should be reported in *non-specified other*. Sea-going versus coastal is no longer a criterion for splitting international and domestic navigation.

However, it is not clear whether countries are reporting on the new basis, and if they are, whether they will be able to revise their historical data. The IEA has found that in practice most countries consider information on military consumption as confidential and therefore either combine it with other information or do not include it at all.

- **The IEA estimates include emissions from coke inputs into blast furnaces. Countries may have included these emissions in the IPCC category industrial processes.**

National GHG inventories submitted to the UNFCCC divide emissions according to source categories. Two of these IPCC Source/Sink Categories are energy and industrial processes. The IPCC Reference Approach estimates national emissions from fuel combustion based on the supply of fuel to a country and by implication includes emissions from coke inputs to blast furnaces in energy industry own use. However, within detailed sectoral calculations certain non-energy processes can be distinguished. In the reduction of iron in a blast furnace through the combustion of coke, the primary purpose of coke oxidation is to produce pig iron and the emissions can be considered as an industrial process. Care must be taken not to double count these emissions in both energy and industrial processes. The IEA estimates of emissions from fuel

combustion in this publication include the coke inputs to blast furnaces.

- **The units may be different.**

The *1996 IPCC Guidelines* and the UNFCCC *Reporting Guidelines on Annual Inventories* both ask that CO<sub>2</sub> emissions be reported in Gg of CO<sub>2</sub>. A million tonnes of CO<sub>2</sub> is equal to 1 000 Gg of CO<sub>2</sub>, so to compare the numbers in this publication with national inventories expressed in Gg, the IEA emissions must be multiplied by 1 000.

## Identifying key sources

In May 2000, the IPCC Plenary accepted the report on *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*. The report provides good practice guidance to assist countries in determining their key source categories. By identifying these key sources in the national inventory, inventory agencies can prioritise their efforts and improve their overall estimates.

**The *Good Practice Guidance* identifies a key source category as one that is prioritised within the national inventory system because its estimate has a significant influence on a country’s total inventory of direct greenhouse gases in terms of the absolute level of emissions, the trend in emissions, or both.**

For a more complete description of the IPCC methodology for determining key sources, see Chapter 5: *IPCC methodologies*.

In the *Good Practice Guidance*, the recommendation for choosing the level of the key source analysis is to “disaggregate to the level where emission factors are distinguished. In most inventories, this will be the main fuel types. If emission factors are determined independently for some sub-source categories, these should be distinguished in the analysis.”

Since the emission estimates in this publication were produced using the default emission factors from the *1996 IPCC Guidelines*, this means that the fuel combustion categories would have been divided into:

- stationary combustion – coal
- stationary combustion – oil
- stationary combustion – gas
- mobile combustion – coal
- mobile combustion – oil
- mobile combustion – gas

Clearly this level of aggregation is not particularly useful in identifying where additional work is needed

in refining the inventory. It does not take into account the possibility of improving data collection methods, improving emission factors or using a higher tier calculation for certain key sectors within the energy from fuel combustion source category. For this reason the IEA has disaggregated the key source analysis to the same level of detail presented in the country tables of this publication. For each country, the nine largest sources, split by coal, oil, gas and other, are shown in the key sources table.

For the level assessment, the CO<sub>2</sub> emissions from fuel combustion as calculated by the IEA are supplemented, where possible, by the figures that were submitted by the Annex I Parties to the UNFCCC in the 2014 submission of the Common Reporting Format for CO<sub>2</sub> (only fugitive), CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs and SF<sub>6</sub>, not taking into account CO<sub>2</sub> emissions/removals from land use, land use change and forestry.<sup>2</sup>

For the non-Annex I Parties, CO<sub>2</sub> emissions from fuel combustion were from the IEA and the rest of the 2012 emissions were estimated by JRC and PBL (See Part III for further information).

## Identifying drivers of CO<sub>2</sub> emissions trends

In this edition, new graphs and tables present the decomposition of CO<sub>2</sub> emissions into four driving factors following the Kaya identity<sup>3</sup>, which is generally presented in the form:

$$\text{Kaya identity} \\ C = P (G/P) (E/G) (C/E)$$

where:

**C** = CO<sub>2</sub> emissions;

**P** = population;

**G** = GDP;

**E** = primary energy consumption.

The identity expresses, for a given time, CO<sub>2</sub> emissions as the product of population, per capita economic output (G/P), energy intensity of the economy (E/G) and carbon intensity of the energy mix (C/E). Because of possible non-linear interactions between

terms, the sum of the percentage changes of the four factors, e.g. (P<sub>y</sub>-P<sub>x</sub>)/P<sub>x</sub>, will not generally add up to the percentage change of CO<sub>2</sub> emissions (C<sub>y</sub>-C<sub>x</sub>)/C<sub>x</sub>. However, relative changes of CO<sub>2</sub> emissions in time can be obtained from relative changes of the four factors as follows:

$$\text{Kaya identity: relative changes in time} \\ C_y/C_x = P_y/P_x (G/P)_y/(G/P)_x (C/E)_y/(C/E)_x$$

where x and y represent for example two different years.

In this publication, the Kaya decomposition is presented as:

$$\text{CO}_2 \text{ emissions and drivers} \\ \text{CO}_2 = P (GDP/P) (TPES/GDP) (CO_2/TPES)$$

where:

**CO<sub>2</sub>** = CO<sub>2</sub> emissions;

**P** = population;

**GDP<sup>4</sup>/P** = GDP/population;

**TPES/GDP<sup>4</sup>** = Total Primary Energy Supply per GDP;

**CO<sub>2</sub>/TPES** = CO<sub>2</sub> emissions per unit TPES.

Indices of all terms (1990 = 100 unless otherwise specified) are shown for each country and regional aggregate in Part II, both in the Summary tables and in the individual country/region pages (Table 1, Key indicators, and Figure 6, CO<sub>2</sub> emissions and drivers). Note that in its index form, CO<sub>2</sub>/TPES corresponds to the Energy Sector Carbon Intensity Index (ESCI)<sup>5</sup>.

The Kaya identity can be used to discuss the primary driving forces of CO<sub>2</sub> emissions. For example, it shows that, globally, increases in population and GDP per capita have been driving upwards trends in CO<sub>2</sub> emissions, more than offsetting the reduction in energy intensity. In fact, the carbon intensity of the energy mix is almost unchanged, due to the continued dominance of fossil fuels - particularly coal - in the energy mix, and to the slow uptake of low-carbon technologies.

However, it should be noted that there are important caveats in the use of the Kaya identity. Most important, the four terms on the right-hand side of equation should be considered neither as fundamental driving forces in themselves, nor as generally independent from each other.

2. As recommended in the IPCC *Good Practice Guidance*.

3. Yamaji, K., Matsuhashi, R., Nagata, Y. Kaya, Y., *An integrated system for CO<sub>2</sub>/Energy/GNP analysis: case studies on economic measures for CO<sub>2</sub> reduction in Japan*. Workshop on CO<sub>2</sub> reduction and removal: measures for the next century, March 19, 1991, International Institute for Applied Systems Analysis, Laxenburg, Austria.

4. GDP based on purchasing power parities (PPP).

5. See the IEA publication *Tracking Clean Energy Progress 2014*.

## Notes on tables and graphs

In the tables and figures presented in this publication, peat and oil shale are aggregated with *coal*; the product *gas* refers to natural gas; and with the exception of figure 4, the product *other* includes industrial waste and non-renewable municipal waste.

In figure 4, the product *other* includes geothermal, solar, wind, combustible renewables, waste, etc.

### Table 1: Key indicators

**Row 1:** *CO<sub>2</sub> Sectoral Approach* presents total CO<sub>2</sub> emissions from fuel combustion as calculated using the IPCC Tier 1 Sectoral Approach, and corresponds to IPCC Source/Sink Category 1 A. Emissions calculated using a Sectoral Approach include emissions only when the fuel is actually combusted.

**Row 2:** *TPES* presents the Total Primary Energy Supply, calculated as production + imports - exports - international marine bunkers - international aviation bunkers ± stock changes.

**Row 3:** *GDP* presents the Gross Domestic Product in 2005 US dollars using exchange rates. For notes on methods and sources, please see Chapter 3: *Indicator sources and methods*.

**Row 4:** *GDP PPP* presents the Gross Domestic Product in 2005 US dollars using purchasing power parities. For notes on methods and sources, see Chapter 3: *Indicator sources and methods*.

**Row 5:** *Population*. For notes on sources see Chapter 3: *Indicator sources and methods*.

**Row 6:** *CO<sub>2</sub>/TPES* presents the carbon intensity of the energy mix. For notes on methods see Chapter 3: *Indicator sources and methods*.

**Row 7:** *CO<sub>2</sub>/GDP* presents the carbon intensity of the economy, using exchange rates. For notes on methods and sources, see Chapter 3: *Indicator sources and methods*.

**Row 8:** *CO<sub>2</sub>/GDP PPP* presents the carbon intensity of the economy, using purchasing power parities. For notes on methods and sources, see Chapter 3: *Indicator sources and methods*.

**Row 9:** *CO<sub>2</sub>/population* presents the per capita CO<sub>2</sub> emissions, based on CO<sub>2</sub> Sectoral approach. For notes on sources, see Chapter 3: *Indicator sources and methods*.

**Row 10-14:** *CO<sub>2</sub> emissions and drivers - Kaya decomposition* present indices of CO<sub>2</sub> emissions, population, GDP/population, TPES/GDP and CO<sub>2</sub>/TPES, (based on GDP PPP time series). It represents the decomposition of CO<sub>2</sub> emissions into drivers (Kaya identity) explained earlier in this chapter, in the section *Identifying drivers of CO<sub>2</sub> emissions trends*.

### Table 2: CO<sub>2</sub> emissions by sector

**Row 1:** *Sectoral Approach*: as in Row 1 of Table 1.

**Row 2:** *Main activity producer electricity and heat* contains the sum of emissions from main activity producer electricity generation, combined heat and power generation and heat plants. Main activity producers are defined as those undertakings whose primary activity is to supply the public. They may be publicly or privately owned. Emissions from own on-site use of fuel are included. This corresponds to IPCC Source/Sink Category 1 A 1 a.

**Row 3:** *Unallocated autoproducers* contains the emissions from the generation of electricity and/or heat by autoproducers. Autoproducers are defined as undertakings that generate electricity and/or heat, wholly or partly for their own use as an activity which supports their primary activity. They may be privately or publicly owned. In the *1996 IPCC Guidelines*, these emissions would normally be distributed between industry, transport and *other*.

**Row 4:** *Other energy industry own use* contains emissions from fuel combusted in oil refineries, for the manufacture of solid fuels, coal mining, oil and gas extraction and other energy-producing industries. This corresponds to the IPCC Source/Sink Categories 1 A 1 b and 1 A 1 c. According to the *1996 IPCC Guidelines*, emissions from coke inputs to blast furnaces can either be counted here or in the industrial processes source/sink category. Within detailed sectoral calculations, certain non-energy processes can be distinguished. In the reduction of iron in a blast furnace through the combustion of coke, the primary purpose of the coke oxidation is to produce pig iron and the emissions can be considered as an industrial process. Care must be taken not to double count these emissions in both energy and industrial processes. In the IEA estimations, emissions from energy industry own use in blast furnaces have been included in this category.

**Row 5:** *Manufacturing industries and construction* contains the emissions from combustion of fuels in industry. The IPCC Source/Sink Category 1 A 2 includes these emissions. However, in the *1996 IPCC Guidelines*, the



IPCC category also includes emissions from industry autoproducers that generate electricity and/or heat. The IEA data are not collected in a way that allows the energy consumption to be *split* by specific end-use and therefore, this publication shows autoproducers as a separate item. See Row 3, *Unallocated autoproducers*. *Manufacturing industries and construction* also includes some emissions from coke inputs into blast furnaces, which may be reported either in transformation, energy industry own use, industry or the separate IPCC Source/Sink Category 2, industrial processes.

**Row 6:** *Transport* contains emissions from the combustion of fuel for all transport activity, regardless of the sector, except for *international marine bunkers* and *international aviation bunkers*, which are not included in *transport* emissions at a national or regional level (except for World transport emissions). This includes domestic aviation, domestic navigation, road, rail and pipeline transport, and corresponds to IPCC Source/Sink Category 1 A 3. The IEA data are not collected in a way that allows the autoproducer consumption to be split by specific end-use and therefore, this publication shows autoproducers as a separate item. See Row 3, *Unallocated autoproducers*.

Note: Starting in the 2006 edition, military consumption previously included in *domestic aviation* and in *road* should be in *non-specified other*. See the section on *Differences between IEA estimates and UNFCCC submissions*, for further details.

**Row 7:** *Road* contains the emissions arising from fuel use in road vehicles, including the use of agricultural vehicles on highways. This corresponds to the IPCC Source/Sink Category 1 A 3 b.

**Row 8:** *Other* contains the emissions from commercial/institutional activities, agriculture/forestry, fishing, residential and other emissions not specified elsewhere that are included in the IPCC Source/Sink Categories 1 A 4 and 1 A 5. In the *1996 IPCC Guidelines*, the category also includes emissions from autoproducers in commercial/public services, residential and agriculture that generate electricity and/or heat. The IEA data are not collected in a way that allows the energy consumption to be split by specific end-use, and therefore, this publication shows autoproducers as a separate item. See Row 3, *Unallocated autoproducers*.

**Row 9:** *Residential* contains all emissions from fuel combustion in households. This corresponds to IPCC Source/Sink Category 1 A 4 b.

**Row 10:** *Reference Approach* contains total CO<sub>2</sub> emissions from fuel combustion as calculated using the IPCC Reference Approach. The Reference Approach is based on the supply of energy in a country and as a result, all inventories calculated using this method include fugitive emissions from energy transformation (e.g. from oil refineries) which are normally included in Category 1 B. For this reason, Reference Approach estimates are likely to overestimate national CO<sub>2</sub> emissions. In these tables, the difference between the Sectoral Approach and the Reference Approach includes statistical differences, product transfers, transformation losses and distribution losses.

**Row 11:** *Differences due to losses and/or transformation* contains emissions that result from the transformation of energy from a primary fuel to a secondary or tertiary fuel. Included here are solid fuel transformation, oil refineries, gas works and other fuel transformation industries. These emissions are normally reported as fugitive emissions in the IPCC Source/Sink Category 1 B, but will be included in 1 A in inventories that are calculated using the IPCC Reference Approach. Theoretically, this category should show relatively small emissions representing the loss of carbon by other ways than combustion, such as evaporation or leakage.

Negative emissions for one product and positive emissions for another product would imply a change in the classification of the emission source as a result of an energy transformation between coal and gas, between coal and oil, etc. In practice, however, it often proves difficult to correctly account for all inputs and outputs in energy transformation industries, and to separate energy that is transformed from energy that is combusted. Therefore, the row *Differences due to losses and/or transformation* sometimes shows quite large positive emissions or even negative ones due to problems in the underlying energy data.

**Row 12:** *Statistical differences* can be due to unexplained discrepancies in the underlying energy data. They can also be caused by differences between emissions calculated using the Reference Approach and the Sectoral Approach.

**Row 13:** *International marine bunkers* contains emissions from fuels burned by ships of all flags that are engaged in international navigation. The international navigation may take place at sea, on inland lakes and waterways, and in coastal waters. Consumption by ships engaged in domestic navigation is excluded. The domestic/international split is determined on the basis

of port of departure and port of arrival, and not by the flag or nationality of the ship. Consumption by fishing vessels and by military forces is also excluded. Emissions from international marine bunkers should be excluded from the national totals. This corresponds to IPCC Source/Sink Category 1 A 3 d i.

**Row 14:** *International aviation bunkers* contains emissions from fuels used by aircraft for international aviation. Fuels used by airlines for their road vehicles are excluded. The domestic/international split should be determined on the basis of departure and landing locations and not by the nationality of the airline. Emissions from international aviation should be excluded from the national totals. This corresponds to IPCC Source/Sink Category 1 A 3 a i.

### Table 3: Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

See section *Identifying key sources* earlier in this chapter for methodological explanations. This table only shows the nine largest key sources of CO<sub>2</sub> from fuel combustion. As a result, in most cases the cumulative contribution will not be 95% as recommended in the *Good Practice Guidance*. Key sources from fugitive emissions, industrial processes, solvents, agriculture and waste are not shown. The percentage of CO<sub>2</sub> emissions from fuel combustion in total GHG emissions is included as a memo item at the bottom of the table.

### Figure 1: CO<sub>2</sub> emissions by fuel

Based on Sectoral approach CO<sub>2</sub> emissions. The product *coal* refers to the aggregate of coal, peat and oil shale. The product *gas* refers to natural gas. The product *other* includes industrial waste and non-renewable municipal waste.

### Figure 2: CO<sub>2</sub> emissions by sector

Based on Sectoral approach CO<sub>2</sub> emissions. The sector *other* includes emissions from commercial/public services, agriculture/forestry and fishing. Emissions from unallocated autoproducers are included in *Electricity and heat*.

### Figure 3: Reference vs Sectoral approach

Also includes CO<sub>2</sub> estimates as submitted by national administrations to the UNFCCC, either in National Communications or in national GHG inventories submissions.

### Figure 4: Electricity generation by fuel

The product *other* includes geothermal, solar, wind, combustible renewables and waste, etc. Electricity generation includes both main activity producer and autoproducer electricity.

### Figure 5: Changes in selected indicators

Presents average annual changes, computed as compounded annual growth rates, for three different periods, for the following variables: CO<sub>2</sub> emissions, CO<sub>2</sub>/TPES, CO<sub>2</sub>/GDP PPP, CO<sub>2</sub>/population. For notes on methodologies and sources, see Chapter 3: *Indicator sources and methods*.

### Figure 6: CO<sub>2</sub> emissions and drivers

Presents indices of CO<sub>2</sub> emissions and of four drivers of emission trends, as identified in the Kaya identity: population, GDP/population, TPES/GDP, CO<sub>2</sub>/TPES (1990=100 unless otherwise specified), based on GDP PPP time series. For methodology, see section *Identifying drivers of CO<sub>2</sub> emissions trends* earlier in this chapter. For notes on sources, see Chapter 3: *Indicator sources and methods*.

## Country notes

### Australia

In the 2013 edition, data for Australia were revised back to 2003 due to the adoption of the National Greenhouse and Energy reporting (NGER) as the main energy consumption data source for the Australian energy Statistics. As a result, there are breaks in the time series for many data between 2002 and 2003. The revisions have also introduced some methodological problems. The national statistics appear to have problems identifying inputs and outputs to certain transformation processes such as gas works plants, electricity plants and CHP plants. Energy industry own use and inputs to the transformation processes are sometimes not reported separately in the correct categories. More detailed information is given in the online data documentation of *Energy Balances of OECD countries*, Chapter 5: *Country notes*.<sup>6</sup>

6. Available at: [www.iea.org/statistics/topics/energybalances/](http://www.iea.org/statistics/topics/energybalances/).

## Cambodia

The break in the CO<sub>2</sub>/TPES and TPES/GDP timeseries between 2008 and 2009 is due to a break in the timeseries for solid biofuels which creates an artificial increase in TPES between those years.

## People's Republic of China

In 2012, the National Bureau of Statistics (NBS) revised the format and detail of their energy balance. New expanded questionnaires have allowed for data collection at a more detailed level than in previous years for some products and flows. However, the increase in data availability has not been completely uniform, with more information for energy supply than for energy demand. This may lead to increased statistical differences for some products from 2010 to 2012, in particular for coal. As a result, significant differences between CO<sub>2</sub> emissions computed according to the Reference and Sectoral approaches may occur.

In this edition, emissions from diesel consumption in road transportation from 2000 to 2012 were revised based on information on the definition for diesel consumption in various sectors. Portions of consumption from the residential and the commercial and public services sectors were allocated to road transportation consumption to conform to the definitions for respective consumption flows used in calculating emissions in this publication.

## Cuba

International marine bunkers for residual fuel oil in the period 1971-1983 were estimated on the basis of 1984 figures and the data reported as domestic navigation in the energy balance.

## France

The methodology for calculating main activity electricity and heat production from gas changed in 2000.

## Italy

Prior to 1990, gas use in commercial/public services was included in residential.

## Japan

Between 2004 and 2007, the IEA received revisions from the Japanese Administration. The first set of revisions received in 2004 increased the 1990 supply by 5% for coal, 2% for natural gas and 0.7% for oil compared to the previous data. This led to an increase of 2.5% in 1990 CO<sub>2</sub> emissions calculated using the

Reference Approach while the Sectoral Approach remained fairly constant. For the 2006 edition, the IEA received revisions to the coal and oil data which had a significant impact on both the energy data and the CO<sub>2</sub> emissions. The most significant revisions occurred for coke oven coke, naphtha, blast furnace gas and petroleum coke. These revisions affected consumption rather than supply in the years concerned. As a result, the sectoral approach CO<sub>2</sub> emissions increased for all the years, however at different rates. For example, the sectoral approach CO<sub>2</sub> emissions for 1990 were 4.6% higher than those calculated for the 2005 edition while the 2003 emissions were 1.1% higher than those of the previous edition. Due to the impact these successive revisions have had on the final energy balance as well as on CO<sub>2</sub> emissions, the IEA was in close contact with the Japanese Administration to better understand the reasons behind these changes. These changes are mainly due to the Government of Japan's efforts to improve the input-output balances in the production of oil products and coal products in response to inquiries from the UNFCCC Secretariat. To cope with this issue, the Japanese Administration established a working group in March 2004. The working group completed its work in April 2006. Many of its conclusions were incorporated in the 2006 edition but some further revisions to the time series (especially in industry and *other*) were submitted for the 2007 edition.

## Democratic People's Republic of Korea

Time series data for 2011 for primary coals were revised based on new information received in 2014. This may lead to breaks in the time series between 2010 and 2011 and differences in trends compared to previous editions for some products.

## Malta

Large discrepancies were observed by the IEA secretariat in the 2012 questionnaires received from Malta, these included unbalanced interproduct transfers in 2012, and breaks in time series for heat and waste production between 2011 and 2012. These discrepancies in the underlying energy data are reflected in the CO<sub>2</sub> emissions estimates. No responses were received from Malta when questions were raised about these issues. The IEA hopes to obtain explanations from Malta for its next edition.

Malta reported the use of motor gasoline in international marine bunkers for the first time in 2011. These data relate to unleaded petrol used by outboard engines in small vessels.

In 2011, a new power generation station fuelled by municipal and industrial waste became operation in Malta. This may lead to breaks in time series for some products and flows.

### **Netherlands Antilles**

Prior to 1992, the Reference Approach overstates emissions since data for lubricants and bitumen (which store carbon) are not available.

### **Norway**

Discrepancies between Reference and Sectoral Approach estimates and the difference in the resulting growth rates arise from statistical differences between supply and consumption data for oil and natural gas. For Norway, supply of these fuels is the residual of two very large and opposite terms, production and exports.

### **Singapore**

Due to Singapore's large trade volume in comparison to its final consumption, a slight misalignment of trade figures can have a significant impact on the Energy balance of Singapore. As a result, large discrepancies between the Reference and Sectoral Approach estimates arise from statistical differences between supply and consumption of oil and oil products.

The IEA secretariat, the Energy Market Authority and the National Climate Change Secretariat (NCCS) are working closely together on improving data quality for Singapore. Efforts are continuing on this project, therefore breaks in time series between 2008 and 2009 and differences in trends when compared to previous publications may occur for some products.

Further revisions are expected in future editions, as energy data coverage is further extended by Singapore.

### **South Africa**

Large differences between the Reference and Sectoral Approach estimates are due to losses associated with coal-to-liquid and to a lesser extent gas-to-liquid transformation.

### **Switzerland**

The sectoral breakdown for gas/diesel oil used in residential before 1978 was estimated on the basis of commercial and residential consumption in 1978 and

the data reported as commercial consumption in the energy balance in previous years.

### **Togo**

Official energy data were submitted by Togo in 2014 for the years 2009-2012. Breaks in time series between 2008 and 2009, or differences in trends compared to previous publications may occur for this reason. The IEA continues to work with the Ministry of Mines and Energy in Togo to better understand the reasons for the breaks in time series and to reassess the historical data.

### **Ukraine**

To provide a better Reference Approach estimate of CO<sub>2</sub> emissions in 2010, for the purposes of this publication, the IEA Secretariat has adjusted the stock change and statistical difference of natural gas to better match international definitions.

### **United Kingdom**

For reasons of confidentiality, gas for main activity electricity is included in autoproducers for 1990.

Breaks occur in the international marine bunkers and domestic navigation time series in 2008, after which a different methodology is used for the fuel split. Emissions from international marine bunkers may be underestimated for previous years.

### **United States**

For the 2014 edition of this publication, end-use energy consumption data for the United States show a break in series with historical data due to a change in methodology. The break in series occurs between 2011 and 2012 for oil, and between 2001 and 2002 for electricity and natural gas. The new methodology is based on the last historical year of the most recent Annual Energy Outlook (AEO) publication. Changes occur primarily in reported end-use energy consumption in the industrial sector and its subsectors, including non-manufacturing industries of mining, construction and agriculture. Historical revisions are pending.

### **Viet Nam**

A detailed sectoral breakdown is available starting in 1980.

## 2. UNITS AND CONVERSIONS

### General conversion factors for energy

To:	TJ	Gcal	Mtoe	MBtu	GWh
From:	multiply by:				
terajoule (TJ)	1	238.8	$2.388 \times 10^{-5}$	947.8	0.2778
gigacalorie (Gcal)	$4.1868 \times 10^{-3}$	1	$10^{-7}$	3.968	$1.163 \times 10^{-3}$
million tonne of oil equivalent (Mtoe)	$4.1868 \times 10^4$	$10^7$	1	$3.968 \times 10^7$	11630
million British thermal unit (MBtu)	$1.0551 \times 10^{-3}$	0.252	$2.52 \times 10^{-8}$	1	$2.931 \times 10^{-4}$
gigawatt hour (GWh)	3.6	860	$8.6 \times 10^{-5}$	3412	1

### Conversion factors for mass

To:	kg	t	lt	st	lb
From:	multiply by:				
kilogramme (kg)	1	0.001	$9.84 \times 10^{-4}$	$1.102 \times 10^{-3}$	2.2046
tonne (t)	1000	1	0.984	1.1023	2204.6
long ton (lt)	1016	1.016	1	1.120	2240.0
short ton (st)	907.2	0.9072	0.893	1	2000.0
pound (lb)	0.454	$4.54 \times 10^{-4}$	$4.46 \times 10^{-4}$	$5.0 \times 10^{-4}$	1

### Conversion factors for volume

To:	gal U.S.	gal U.K.	bbl	ft <sup>3</sup>	l	m <sup>3</sup>
From:	multiply by:					
U.S. gallon (gal)	1	0.8327	0.02381	0.1337	3.785	0.0038
U.K. gallon (gal)	1.201	1	0.02859	0.1605	4.546	0.0045
barrel (bbl)	42.0	34.97	1	5.615	159.0	0.159
cubic foot (ft <sup>3</sup> )	7.48	6.229	0.1781	1	28.3	0.0283
litre (l)	0.2642	0.220	0.0063	0.0353	1	0.001
cubic metre (m <sup>3</sup> )	264.2	220.0	6.289	35.3147	1000.0	1

## Decimal prefixes

10 <sup>1</sup>	deca (da)	10 <sup>-1</sup>	deci (d)
10 <sup>2</sup>	hecto (h)	10 <sup>-2</sup>	centi (c)
10 <sup>3</sup>	kilo (k)	10 <sup>-3</sup>	milli (m)
10 <sup>6</sup>	mega (M)	10 <sup>-6</sup>	micro (μ)
10 <sup>9</sup>	giga (G)	10 <sup>-9</sup>	nano (n)
10 <sup>12</sup>	tera (T)	10 <sup>-12</sup>	pico (p)
10 <sup>15</sup>	peta (P)	10 <sup>-15</sup>	femto (f)
10 <sup>18</sup>	exa (E)	10 <sup>-18</sup>	atto (a)

## Tonne of CO<sub>2</sub>

The *1996 IPCC Guidelines* and the *UNFCCC Reporting Guidelines on Annual Inventories* both ask that CO<sub>2</sub> emissions be reported in Gg (gigagrammes) of CO<sub>2</sub>. A million tonnes of CO<sub>2</sub> is equal to 1 000 Gg of CO<sub>2</sub>, so to compare the numbers in this publication with national inventories expressed in Gg, multiply the IEA emissions by 1 000.

Other organisations may present CO<sub>2</sub> emissions in tonnes of carbon instead of tonnes of CO<sub>2</sub>. To convert from tonnes of carbon, multiply by 44/12, which is the molecular weight ratio of CO<sub>2</sub> to C.

## 3. INDICATOR SOURCES AND METHODS

### Population

The main source of the 1970 to 2012 population data for the OECD member countries is *National Accounts of OECD Countries, Volume 2014, Issue 1, Main Aggregates*, OECD 2014. Population data for **Australia**, **France** and the **United Kingdom** (1960 to 1969) and **Denmark** (1966 to 1969) were taken directly from the most recent volume of OECD *National Accounts*. For all other countries, data for the period 1960 to 1969 have been estimated using the growth rates from the population series published in the *OECD Factbook 2014*. Growth rates from the population series in the *OECD Factbook 2014* were also the data source for **Chile** (1970 to 1985), **Estonia** (1990 to 1992), **Israel** (1970 to 1994), the **Slovak Republic** (1970 to 1989) and **Slovenia** (1989 to 1994).

The main source of the population data for the OECD non-member countries is *World Development Indicators*, World Bank, Washington D.C., 2014. Population data for **Gibraltar**, **Netherlands Antilles**,<sup>7</sup> **Former Soviet Union** (before 1990), **Chinese Taipei**, **Former Yugoslavia** (before 1990), and for a few countries within the regions **Other Africa**, **Other Non-OECD Americas** and **Other Asia** are based on the CHELEM-CEPII online database, 2014. Population data for **Cyprus**<sup>7</sup> are calculated using the 2012 population growth rate given by Eurostat, 2014.

### GDP and GDP PPP

The main source of the 1970 to 2012 GDP series for the OECD member countries is *National Accounts of OECD Countries, Volume 1*, 2014. GDP data for **Australia**, **France**, **Greece** and **Sweden** (1960-1969)

and **Denmark** (1966-1969) and the **Netherlands** (1969) come directly from the same source. GDP data for 1960 to 1969 for the other countries have been estimated using the growth rates from the series in the *OECD Economic Outlook No. 76* and data previously published by the OECD Secretariat. Growth rates from these sources were also used to estimate data for the **Czech Republic** (1970-1989), **Hungary** (1970-1990), **Poland** (1970-1989) and the **Slovak Republic** (1970-1991). All data for **Chile** (prior to 1986) and **Estonia** (prior to 1992) are IEA Secretariat estimates based on GDP growth rates from the World Bank. The GDP data have been compiled for individual countries at market prices in local currency and annual rates. These data have been scaled up/down to the price levels of 2005 and then converted to US dollars using the yearly average 2005 exchange rates or purchasing power parities (PPPs).<sup>8</sup>

For the OECD member countries, the PPPs selected to convert the GDP from national currencies to US dollars were aggregated using the Èttetö, Köves and Szulc (EKS) Eurostat-OECD method and rebased on the United States. For a more detailed description of the methodology please see *OECD-Eurostat Methodological Manual on Purchasing Power Parities*, 2012 edition, EU/OECD, 2012 and *Measuring the Real Size of the World Economy: The Framework, Methodology and Results of the International Comparison Program (ICP)*, World Bank 2013.

The main source of the GDP series for the non-OECD member countries is *World Development Indicators*,

8. Purchasing power parities are the rates of currency conversion that equalise the purchasing power of different currencies. A given sum of money, when converted into different currencies at the PPP rates, buys the same basket of goods and services in all countries. In other words, PPPs are the rates of currency conversion which eliminate the differences in price levels between different countries.

7. Please refer to Part I, Chapter 4: *Geographical coverage*.

World Bank, Washington D.C., 2014. GDP figures for **Gibraltar, Democratic People's Republic of Korea, Kosovo, Myanmar, Netherlands Antilles,**<sup>7</sup> **Former Soviet Union** (before 1990), **Syrian Arab Republic** (after 2007), **Chinese Taipei, Former Yugoslavia** (before 1990) and a few countries within the regions<sup>9</sup> **Other Africa, Other Non-OECD Americas** and **Other Asia** are based on the CHELEM-CEPII online databases, Bureau van Dijk, Paris, 2014.

The main source of the GDP PPP data for the non-OECD member countries is *World Development Indicators*, The World Bank, Washington, D.C., 2014. However, this source is only available for GDP PPP (constant 2011 USD) from 1980. Therefore, prior to 1980, GDP PPP data have been calculated based on the PPP conversion factor (GDP) to market exchange rate ratio. GDP PPP figures for **Argentina, Cuba, Gibraltar, Jamaica, Democratic People's Republic of Korea, Libya, Myanmar, Netherlands Antilles,**<sup>7</sup> **Former Soviet Union** (before 1990), **Syrian Arab Republic, Chinese Taipei, Former Yugoslavia** (before 1990), **Zimbabwe** and a few countries within the regions<sup>10</sup> **Other Africa, Other Non-OECD Americas** and **Other Asia** are based on the CHELEM-CEPII online databases, Bureau van Dijk, Paris, 2014.

GDP PPP figures for **Bosnia and Herzegovina** (up to 1993) and **Croatia** (up to 1994) have been estimated based on the growth rates of the CHELEM-CEPII online databases, Bureau van Dijk, Paris, 2014. The GDP PPP data have been converted from GDP using purchasing power parity rates. These data have been scaled to the price levels of 2005.

The GDP PPP reflect the changes to purchasing power parity rates based on the 2011 International Comparison Program (ICP), published in 2014. The ICP has worked for six years to better estimate the value of the PPP 'basket of goods' for all countries for which the World Bank calculates GDP PPP. For many countries this value has significantly changed in comparison to previous ICP exercises. This leads to significant revisions to GDP PPP for many countries compared to previous publications.

<sup>9</sup> Due to lack of complete time series, figures for population and for GDP of Other Non-OECD Americas do not include British Virgin Islands, Cayman Islands, Falkland Islands (Malvinas), Martinique, Montserrat, Saint Pierre and Miquelon, and Turks and Caicos Islands; and figures for population and GDP of Other Asia do not include Cook Islands.

## CO<sub>2</sub> emissions

The estimates of CO<sub>2</sub> emissions in this publication are based on the *1996 IPCC Guidelines* and represent the total emissions from fuel combustion. Emissions have been calculated using both the IPCC Reference Approach and the IPCC Sectoral Approach (which corresponds to IPCC Source/Sink Category 1 A). Reference Approach totals may include certain fugitive emissions from energy transformation which should normally be included in Category 1 B. National totals do not include emissions from international marine and aviation bunkers. See the Country Notes in Chapter 1 for further details.

## Electricity output

Total output (shown in the summary tables section) includes electricity generated using fossil fuels, nuclear, hydro (excluding pumped storage), geothermal, solar, biofuels, etc.

Both **main activity**<sup>10</sup> **producer** and **autoproducer**<sup>11</sup> **plants** have been included where available.

Data include the total amount of electricity in TWh generated by both **electricity plants** and **CHP plants**. Heat production from CHP plants is not included.

## CO<sub>2</sub> / TPES

This ratio is expressed in tonnes of CO<sub>2</sub> per terajoule. It has been calculated using the Sectoral Approach CO<sub>2</sub> emissions and total primary energy supply (including biofuels and other non-fossil forms of energy).

## CO<sub>2</sub> / GDP

This ratio is expressed in kilogrammes of CO<sub>2</sub> per 2005 US dollar. It has been calculated using the Sectoral Approach CO<sub>2</sub> emissions and is shown with

<sup>10</sup> Main activity producers generate electricity and/or heat for sale to third parties, *as their primary activity*. They may be privately or publicly owned. Note that the sale need not take place through the public grid.

<sup>11</sup> Autoproducer undertakings generate electricity and/or heat, wholly or partly for their own use as an activity which supports their primary activity. They may be privately or publicly owned.



both GDP calculated using exchange rates and GDP calculated using purchasing power parities.

## CO<sub>2</sub> / population

This ratio is expressed in tonnes of CO<sub>2</sub> per capita. It has been calculated using the Sectoral approach CO<sub>2</sub> emissions.

## Per capita CO<sub>2</sub> emissions by sector

These ratios are expressed in kilogrammes of CO<sub>2</sub> per capita. They have been calculated in two different ways. In the first ratio, the emissions from electricity and heat production are shown separately. In the second ratio, the emissions from electricity and heat have been allocated to final consuming sectors in proportion to the electricity and heat consumed by those sectors.

## CO<sub>2</sub> emissions per kWh

### The indicator: definition

In the total CO<sub>2</sub> emissions per kWh, the numerator presents the CO<sub>2</sub> emissions from fossil fuels consumed for electricity generation, while the denominator presents the total electricity generated, coming from fossil fuels, but also from nuclear, hydro, geothermal, solar, biofuels, etc. As a result, the emissions per kWh vary a lot across countries and from year to year, depending on the generation mix.

In the CO<sub>2</sub> emissions per kWh **by fuel**:

- Coal includes primary and secondary coal, and coal gases. Peat and oil shale have also been aggregated with coal, where applicable.
- Oil includes oil products (and crude oil for some countries).
- Gas represents natural gas.

Note: Emissions per kWh should be used with caution due to data quality problems relating to electricity efficiencies for some countries.

### Methodological choices: electricity-only versus combined electricity and heat

In previous editions of this publication, the IEA had published a combined electricity and heat CO<sub>2</sub>

emissions per kWh indicator. The indicator was useful as an overall carbon intensity measure of a country's electricity and heat generating sectors, and it was easy to calculate. However, there were a number of drawbacks. As the efficiency of heat generation is almost always higher than electricity generation, countries with large amounts of district heating (generally colder countries) tended to have a higher efficiency (therefore lower CO<sub>2</sub> intensity) than warmer countries with less district heating. Further, the applications of a combined indicator for electricity and heat are limited; many users have been searching for an electricity-only CO<sub>2</sub> emissions per kWh indicator.

Unfortunately, it is not possible to obtain such an electricity-only indicator directly from IEA energy balance data without any assumption. In fact, for combined heat and power (CHP) plants, there is only one combined input available. While various methods exist to split this input into separate amounts for electricity and heat generation, none has previously been used by the IEA for the purposes of calculating a CO<sub>2</sub> emissions per kWh indicator.

It would be possible to calculate an electricity-only indicator using data for electricity-only plants, which would not encounter the problem of assigning CHP inputs between electricity and heat. However, this would not allow a fair cross-country comparison; some countries get a majority of their electricity from CHP, while others from electricity-only plants. As non-thermal renewables are solely electricity-only plants, and over 99% of non-emitting global nuclear generation is from electricity-only plants, then calculating this electricity-only plants indicator would significantly understate the electricity carbon intensity for many countries.

### Electricity-only indicator: allocation of emissions from CHP plants

To allocate the CHP input to electricity and heat separately, the simplest method would be a **proportionality approach**, allocating inputs based on the proportion of electricity and heat in the output, also used by the IEA electricity questionnaire. This is equivalent to fixing the efficiency of electricity and heat to be equal. With the advantage of simplicity and transparency, the proportionality approach however tends to overstate electricity efficiency and to understate heat efficiency. For example, for CHP generation in OECD countries, total efficiency is around 60%. However, total electricity-only plant efficiency is around 41% in OECD countries. Similarly, 60% is quite low for heat generation (given typical heat-only plant efficiencies of 80-95%).

**Fixed-heat-efficiency approach**

$$\text{CO}_2\text{kWh} = \frac{\text{CO}_{2\text{ELE}} + (\text{CO}_{2\text{CHP}} \times \% \text{ from elec.}) + \text{OWNUSE}_{\text{ELE}}}{\text{ELoutput}_{\text{ELE}} + \text{ELoutput}_{\text{CHP}}}$$

where:

$$\% \text{ from elec.} = \frac{\text{CHPinputs} - ((\text{HEoutput}_{\text{CHP}} \times 0.02388) \div \text{EFF}_{\text{HEAT}})}{\text{CHPinputs}}$$

and:

$$\text{OWNUSE}_{\text{ELE}} = \text{OWNUSE} \times \frac{\text{ELoutput}}{\text{ELoutput} + (\text{HEoutput} \div 3.6)}$$

$\text{CO}_{2\text{ELE}}$  = CO<sub>2</sub> emissions from electricity only plants in ktCO<sub>2</sub>

$\text{CO}_{2\text{CHP}}$  = CO<sub>2</sub> emissions from CHP plants in ktCO<sub>2</sub>

OWNUSE = CO<sub>2</sub> emissions from own use in electricity, CHP and heat plants in ktCO<sub>2</sub>

ELoutput = total electricity output from electricity and CHP plants in GWh

ELoutput<sub>ELE</sub> = electricity output from electricity only plants in GWh

ELoutput<sub>CHP</sub> = electricity output from CHP plants in GWh

HEoutput = total heat output from CHP and heat plants in TJ

HEoutput<sub>CHP</sub> = heat output from CHP plants in TJ

CHPinputs = energy inputs to CHP plants in ktoe

EFF<sub>HEAT</sub> = efficiency of heat generation - assumed to be 0.9 (*i.e.* 90%) except when the observed efficiency of CHP generation is higher than 90%, in which case emissions are allocated using the proportionality approach (EFF<sub>HEAT</sub> = EFF<sub>ELEC</sub> = EFF<sub>CHP</sub>).

An alternative method to avoid unrealistic efficiencies is a **fixed-heat-efficiency approach**, fixing the efficiency of heat generation to compute the input to heat, and calculating the input to electricity as a residual from the total input. The standard heat efficiency was set to that of a typical heat boiler, 90%.

Implementation problems arise in two cases: i) when the observed efficiency is over 100% (*i.e.* there are problems in data quality), and ii) when the observed efficiency is between 90% and 100% (the total efficiency may be correct or it may be overstated).

In the first case, when the total efficiency is over 100% because the data are not reported correctly, it is not possible to use the fixed-heat-efficiency approach and by default the proportionality approach was used to allocate the inputs based on the output shares.

In the second case, where the total CHP efficiency was between 90% and 100% (which may or may not indicate a data quality problem), assuming a 90% efficiency for heat generation would incorrectly imply that the efficiency of power generation was equal to or higher than that of heat generation. However, as the real heat efficiency cannot be determined, the proportionality approach was used also here by default.

In general, the fixed-heat-efficiency approach attributes larger emissions to electricity than the proportionality approach, with values much closer to those of electricity-only plants. The IEA has already used the fixed-heat-efficiency approach for several editions of its *World Energy Outlook*.

### Comparison between electricity-only and combined electricity and heat ratios

For the majority of OECD countries, the electricity-only indicator is not significantly different from the combined electricity and heat indicator, shown in previous editions of this publication and in the online database. For the OECD total in 2012, the electricity-only indicator is 3% higher, while 20 of the OECD's 34 countries saw a change of 5% or less. Of the 14 countries changing more than 5%, six countries had large amounts of non-emitting electricity generation, giving them a small ratio to begin with (thus more prone to change). In addition, non-emitting generation is generally electricity-only, and so when the heat-only and heat CHP emissions are removed from the calculation, greater weight is attached to the non-emitting generation, with a lower level for the final indicator.

The countries in the OECD with larger differences are generally coal-intensive countries with large amounts of heat generation. As mentioned, in general, heat plants are more efficient than electricity-only or CHP plants; therefore, excluding heat plants from the calculation increases CO<sub>2</sub> intensity. The same is true if we allocate a high efficiency to the heat part of CHP generation; this decreases the efficiency of the electricity part and thus increases electricity's carbon intensity. Further, CHP and heat plants are more likely to be powered by CO<sub>2</sub>-light natural gas while electricity-only plants tend to be powered by CO<sub>2</sub>-heavy coal, making the new ratio more CO<sub>2</sub> intensive for these countries.

### Specific country examples

The country with the largest difference between the two ratios within the OECD was **Sweden**; in 2012, the electricity only indicator was 63% lower than the combined electricity and heat indicator. This is due to the high share of non-emitting sources such as hydro (47%) and nuclear (38%) in Sweden's electricity generation mix.

Similarly, the electricity only indicator for **Norway** in 2012 was 47% lower than the combined indicator, as the vast majority of the electricity output (97%) is from non-emitting hydroelectric generation.

Conversely, for **Estonia** in 2012 the electricity-only indicator was 39% higher than the combined electricity and heat indicator. This can be explained by the fact that the majority of electricity-only generation comes from oil shale, a fuel with a relatively high carbon emission factor, while heat plants (with a relatively large share of output) are largely fuelled by natural gas.

Another OECD country with a high ratio increase was **Denmark** (20% higher in 2012). The majority of fossil generation in Denmark is from CHP and the output from these plants is approximately half electricity and half heat. In addition, CHP plants in Denmark have efficiencies of 60-70%. When the heat part of CHP is set to be 90%, the efficiency of the electricity generation is lowered and the indicator is increased.

In many non-member countries, heat data are either zero or not available, which leads to changes of less than 1% in almost 80% of the non-member countries in 2012. The majority of countries which do change are the European and former Soviet Union countries (where district heating is often present).

### Implied carbon emission factors from electricity generation (CO<sub>2</sub> / kWh) for selected products

Average implied carbon emission factors from electricity generation by product are presented below, for selected products. Those values are given as a complement of the CO<sub>2</sub> emissions per kWh from electricity generation by country presented in the Summary tables of Part II. The values below represent the average amount of CO<sub>2</sub> per kWh of electricity produced in OECD member countries between 2010 and 2012. As they are very sensitive to the quality of underlying data, including net calorific values, and of reported input/output efficiencies, they should be taken as indicative; actual values may vary considerably.

Product	gCO <sub>2</sub> / kWh
Anthracite *	935
Coking coal *	765
Other bituminous coal	855
Sub-bituminous coal	920
Lignite	1015
Gas works gas *	415
Coke oven gas *	415
Blast furnace gas *	2190
Other recovered gases *	2090
Oil shale *	1120
Peat *	740
Natural gas	400
Crude oil *	635
Refinery gas *	460
Liquefied petroleum gases *	535
Kerosene *	630
Gas/diesel oil *	725
Fuel oil	660
Petroleum coke *	985
Municipal waste (non-renew.) *	1400

\* The electricity output from these products represents less than 1% of electricity output in the average of OECD member countries for the years 2010-2012. Values will be less reliable and should be used with caution.

As **China** has no (reported) CHP generation, the current IEA energy balance shows electricity-only and heat-only plants, not CHP plants. Heat-only plants are in general much more efficient per unit of energy than electricity-only plants and this explains why the new ratio is 6% higher in 2012.

In the **Russian Federation**, a large amount (33% of total power output) comes from heat-only plants, whose relatively efficient generation is excluded from the new ratio. The large amount of heat output

generated by CHP plants also explains why the new ratio is 31% higher in 2012.

The electricity only indicators calculated for the following non-member countries are also lower than the combined electricity and heat indicator: **Kyrgyzstan**, **Latvia** and **Tajikistan**. This is because their electricity production is mainly or exclusively clean hydro, while their CHP and heat-only production is fossil based. Implementing the new electricity-only indicator using the fixed-heat-efficiency approach increased hydro's weight (therefore decreasing the carbon intensity).

## 4. GEOGRAPHICAL COVERAGE

**Africa** includes Algeria, Angola, Benin, Botswana (from 1981), Cameroon, Congo, Democratic Republic of Congo, Côte d'Ivoire, Egypt, Eritrea, Ethiopia, Gabon, Ghana, Kenya, Libya, Mauritius, Morocco, Mozambique, Namibia (from 1991), Nigeria, Senegal, South Africa, Sudan<sup>12</sup>, United Republic of Tanzania, Togo, Tunisia, Zambia, Zimbabwe and **Other Africa**.

**Other Africa** includes Botswana (until 1980), Burkina Faso, Burundi, Cape Verde, Central African Republic, Chad, Comoros, Djibouti, Equatorial Guinea, Gambia, Guinea, Guinea-Bissau, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Namibia (until 1990), Niger, Reunion, Rwanda, Sao Tome and Principe, Seychelles, Sierra Leone, Somalia, Swaziland, Uganda and Western Sahara (from 1990).

**Middle East** includes Bahrain, Islamic Republic of Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, United Arab Emirates and Yemen.

**Non-OECD Europe and Eurasia** includes Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus<sup>13</sup>, Former Yugoslav Republic of Macedonia (FYROM), Georgia,

Gibraltar, Kazakhstan, Kosovo, Kyrgyzstan, Latvia, Lithuania, Malta, Republic of Moldova, Montenegro, Romania, Russian Federation, Serbia<sup>14</sup>, Tajikistan, Turkmenistan, Ukraine, Uzbekistan, Former Soviet Union<sup>15</sup> (prior to 1990) and Former Yugoslavia<sup>14</sup> (prior to 1990).

**Non-OECD Americas** includes Argentina, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Netherlands Antilles<sup>16</sup>, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, Uruguay, Venezuela and **Other Non-OECD Americas**.

**Other Non-OECD Americas** includes Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, British Virgin Islands, Cayman Islands, Dominica, Falkland Islands (Malvinas), French Guyana, Grenada, Guadeloupe, Guyana, Martinique, Montserrat, Puerto Rico<sup>17</sup> (for natural gas and electricity), St. Kitts and Nevis, Saint Lucia, St. Pierre and Miquelon, St. Vincent and the Grenadines, Suriname, and Turks and Caicos Islands.

**China** includes the People's Republic of China and Hong Kong, China but excludes Macau, China.

**Asia** includes Bangladesh, Brunei Darussalam, Cambodia (from 1995), India, Indonesia, DPR of Korea, Malaysia, Mongolia (from 1985), Myanmar, Nepal,

12. As only aggregated data were available until 2011, the data for Sudan also include South Sudan.

13. Note by Turkey: *The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus" issue.*

Note by all the European Union Member States of the OECD and the European Union: *The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this report relates to the area under the effective control of the Government of the Republic of Cyprus.*

14. Serbia includes Kosovo from 1990 to 1999 and Montenegro from 1990 to 2004.

15. Prior to 1990, Former Soviet Union includes Estonia and Former Yugoslavia includes Kosovo, Montenegro and Slovenia.

16. The Netherlands Antilles was dissolved on 10 October 2010 resulting in two new constituent countries, Curaçao and Saint Maarten, with the other islands joining the Netherlands. However, due to lack of detailed data, the IEA data and estimates under Netherlands Antilles cover the whole territory of the Netherlands Antilles.

17. Oil statistics as well as coal trade statistics for Puerto Rico are included under the United States.

Pakistan, Philippines, Singapore, Sri Lanka, Chinese Taipei, Thailand, Viet Nam and **Other Asia**.

**Other Asia** includes Afghanistan; Bhutan; Cambodia (until 1994); Cook Islands; East Timor; Fiji; French Polynesia; Kiribati; Laos; Macau, China; Maldives; Mongolia (until 1984); New Caledonia; Palau (from 1994); Papua New Guinea; Samoa; Solomon Islands; Tonga and Vanuatu.

The **Organisation for Economic Co-Operation and Development (OECD)** includes Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia<sup>18</sup>, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel<sup>19</sup>, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia<sup>18</sup>, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States.

Within the **OECD**:

**Australia** excludes the overseas territories.

**Denmark** excludes Greenland and the Danish Faroes, except prior to 1990, where data on oil for Greenland were included with the Danish statistics. The National Administration is planning to revise the series back to 1974 to exclude these amounts.

**France** includes Monaco, and excludes the following overseas departments and territories: Guadeloupe, Guyana, Martinique, New Caledonia, French Polynesia, Reunion and St. Pierre and Miquelon.

**Germany** includes the new federal states of Germany from 1970 onwards.

The statistical data for **Israel** are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

**Italy** includes San Marino and the Vatican.

**Japan** includes Okinawa.

The **Netherlands** excludes Suriname and the Netherlands Antilles.

18. Estonia and Slovenia are included in OECD totals starting in 1990. Prior to 1990, data for Estonia are included in Former Soviet Union and data for Slovenia in Former Yugoslavia.

19. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

**Portugal** includes the Azores and Madeira.

**Spain** includes the Canary Islands.

**Switzerland** includes Liechtenstein for oil data only. Data for other fuels do not include Liechtenstein.

Shipments of coal and oil to the Channel Islands and the Isle of Man from the **United Kingdom** are not classed as exports. Supplies of coal and oil to these islands are, therefore, included as part of UK supply. Exports of natural gas to the Isle of Man are included with the exports to Ireland.

**United States** includes the 50 states and the District of Columbia. Oil statistics as well as coal trade statistics also include Puerto Rico<sup>20</sup>, Guam, the Virgin Islands, American Samoa, Johnston Atoll, Midway Islands, Wake Island and the Northern Mariana Islands.

**OECD Americas** includes Canada, Chile, Mexico and the United States.

**OECD Asia Oceania** includes Australia, Israel<sup>19</sup>, Japan, Korea and New Zealand.

**OECD Europe** includes Austria, Belgium, the Czech Republic, Denmark, Estonia<sup>18</sup>, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, the Slovak Republic, Slovenia<sup>18</sup>, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

The **European Union - 28 (EU-28)** includes Austria, Belgium, Bulgaria, Croatia, Cyprus<sup>21</sup>, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, the Slovak Republic, Slovenia, Spain, Sweden and the United Kingdom.

The **International Energy Agency (IEA)** includes Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Korea, Luxembourg, the Netherlands, New Zealand, Norway, Poland,

20. Natural gas and electricity data for Puerto Rico are included under Other Non-OECD Americas.

21. Note by Turkey: *The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus" issue.*

Note by all the European Union Member States of the OECD and the European Union: *The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this report relates to the area under the effective control of the Government of the Republic of Cyprus.*

Portugal, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States.

**Annex I Parties** includes Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Croatia, the Czech Republic<sup>22</sup>, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Liechtenstein (not available in this publication)<sup>23</sup>, Lithuania, Luxembourg, Malta, Monaco (included with France), the Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russian Federation, the Slovak Republic<sup>22</sup>, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom and the United States.

*The countries that are listed above are included in Annex I of the United Nations Framework Convention on Climate Change as amended on 11 December 1997 by the 12<sup>th</sup> Plenary meeting of the Third Conference of the Parties in Decision 4/CP.3. This includes the countries that were members of the OECD at the time of the signing of the Convention, the EEC, and fourteen countries in Central and Eastern Europe and the Former Soviet Union that were undergoing the process of transition to market economies. At its fifteenth session, the Conference of the Parties decided to amend Annex I to the Convention to include Malta (Decision 3/CP.15). The amendment entered into force on 26 October 2010.*

**Annex II Parties** includes Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom and the United States.

*According to Decision 26/CP.7 in document FCCC/CP/2001/13/Add.4, Turkey has been deleted from the list of Annex II countries to the Convention. This amendment entered into force on 28 June 2002.*

**Annex II North America** includes Canada and the United States.

**Annex II Europe** includes Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway,

Portugal, Spain, Sweden, Switzerland and the United Kingdom.

**Annex II Asia Oceania** includes Australia, Japan and New Zealand.

**Economies in Transition (EITs)** are those countries in Annex I that were undergoing the process of transition to a market economy. This includes Belarus, Bulgaria, Croatia, the Czech Republic<sup>22</sup>, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russian Federation, the Slovak Republic<sup>22</sup>, Slovenia and Ukraine.

**Annex I Kyoto Parties** includes Australia, Austria, Belgium, Bulgaria, Croatia, the Czech Republic<sup>22</sup>, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Liechtenstein (not available in this publication)<sup>23</sup>, Lithuania, Luxembourg, Monaco (included with France), the Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russian Federation, the Slovak Republic<sup>22</sup>, Slovenia, Spain, Sweden, Switzerland, Ukraine and the United Kingdom.

*Membership in the Kyoto Protocol is almost identical to that of Annex I, except for Malta and Turkey which did not agree to a target under the Protocol; Belarus, whose commitment to a target under Decision 10/CMP.2 did not enter into force; the United States which has expressed the intention not to ratify the Protocol; and Canada, which in accordance with article 27 (1) of the Kyoto Protocol to the UNFCCC, notified the Secretary-General of the United Nations of its decision to withdraw from the Kyoto Protocol. The action became effective for Canada on 15 December 2012 in accordance with article 27 (2). In this edition, Canada has been removed from the Annex I Kyoto Parties.*

Please note that the following countries have not been considered due to lack of complete data:

**Africa:** Saint Helena.

**Asia and Oceania:** Christmas Island, Nauru, Niue and Tuvalu.

**Non-OECD Americas:** Anguilla.

**Non-OECD Europe and Eurasia:** Andorra, Liechtenstein<sup>23</sup> (except for oil data).

22. Czechoslovakia was in the original list of Annex I countries.

23. Oil data for Liechtenstein are included under Switzerland.





## 5. IPCC METHODOLOGIES

### General notes

The ultimate objective of the UNFCCC (the Convention) is the stabilisation of GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The Convention also calls for all Parties to commit themselves to the following objectives:

- to develop, update periodically, publish and make available to the Conference of the Parties (COP) their national inventories of anthropogenic emissions by sources and removals by sinks, of all greenhouse gases not controlled by the Montreal Protocol.
- to use comparable methodologies for inventories of GHG emissions and removals, to be agreed upon by the COP.

As a response to the objectives of the UNFCCC, the IEA Secretariat, together with the IPCC, the OECD and numerous international experts, has helped to develop and refine an internationally-agreed methodology for the calculation and reporting of national GHG emissions from fuel combustion. This methodology was published in 1995 in the *IPCC Guidelines for National Greenhouse Gas Inventories*. After the initial dissemination of the methodology, revisions were added to several chapters, and published as the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories (1996 IPCC Guidelines)*. In April 2006, the IPCC approved the *2006 Guidelines* at the 25<sup>th</sup> session of the IPCC in Mauritius. For now, many countries (as well as the IEA Secretariat) are still calculating their inventories using the *1996 IPCC Guidelines* since this was the version used for the Kyoto Protocol.<sup>24</sup> In December 2011 in Durban, the

Parties adopted Decision 15/CP.17 to update their reporting tables so as to implement the *2006 Guidelines*. These tables are currently under development and there will be a trial period that runs until end May 2013. The new reporting tables will be mandatory from 15 April 2015.

Since the IPCC methodology for fuel combustion is largely based on energy balances, the IEA estimates for CO<sub>2</sub> from fuel combustion published in this document have been calculated using the IEA energy balances and the default IPCC methodology. However, other possibly more detailed methodologies may be used by Parties to calculate their inventories. This may lead to different estimates of emissions. See Chapter 1: *IEA emissions estimates*, for further details.

The calculation of CO<sub>2</sub> emissions from fuel combustion may be done at three different levels referred to as Tiers 1, 2 and 3. The Tier 1 methods estimate the emissions from the carbon content of fuels supplied to the country as a whole (the Reference Approach) or to the main fuel combustion activities (Sectoral Approach). The following chapter summarises the IPCC Tier 1 methodology from the *1996 IPCC Guidelines*.

### Reference Approach

#### Introduction

Carbon dioxide emissions are produced when carbon-based fuels are burned. National emissions estimates are based on the amounts of fuels used and on the carbon content of fuels.

Fuel combustion is widely dispersed throughout most activities in national economies and compiling a complete record of the quantities of each fuel type consumed in each end-use activity is a considerable

24. Both the *Revised 1996 IPCC Guidelines* and the *2006 IPCC Guidelines* are available from the IPCC Greenhouse Gas Inventories Programme ([www.ipcc-nggip.iges.or.jp](http://www.ipcc-nggip.iges.or.jp)).

task, which some countries have not undertaken. Fortunately, it is possible to obtain a relatively accurate estimate of national CO<sub>2</sub> emissions by accounting for the carbon in fuels supplied to the economy. The supply of fuels is straightforward and the statistics are more likely to be available in many countries.

In accounting for fuels supplied<sup>25</sup> it is important to distinguish between *primary fuels* (i.e. fuels which are found in nature such as coal, crude oil, natural gas), and *secondary fuels* or fuel products, such as gasoline and lubricants, which are derived from primary fuels.

Accounting for carbon is based mainly on the supply of primary fuels and the net quantities of secondary fuels brought into the country.

To calculate supply of fuels to the country necessitates the following data for each fuel and year chosen:

- the amounts of primary fuels produced (production of secondary fuels is excluded);
- the amounts of primary and secondary fuels imported;
- the amounts of primary and secondary fuels exported;
- the amounts of fuel used for international marine and aviation bunkers (hereafter referred to as bunkers);
- the net increases or decreases in stocks of the fuels.

For each fuel, the production (where appropriate) and imports are added together and the exports, bunkers, and stock changes are subtracted to calculate the apparent consumption of the fuels. In cases where exports of secondary fuels exceed imports or stock increases exceed net imports, negative numbers will result.

The manufacture of secondary fuels is ignored in the main calculation, as the carbon in these fuels has already been accounted for in the supply of primary fuels from which they are derived. However, information on production of some secondary fuel products is required to adjust for carbon stored in these products.

Three other important points influence the accounting methodology:

#### • **Stored carbon**

Not all fuel supplied to an economy is burned for heat energy. Some is used as a raw material (or feedstock) for manufacture of products such as plastics or in a non-energy use (e.g. bitumen for road construction), without oxidation (emissions) of the carbon. This is called *stored carbon*, and is deducted from the carbon emissions calculation. Estimation of the stored carbon requires data for fuel use by activities using the fuel as raw material.

#### • **International bunker fuels**

The procedures given for calculating emissions ensure that emissions from the use of fuels for **international** marine and air transport are excluded from national emissions totals. However, for information purposes, the quantities and types of fuels delivered and the corresponding emissions from international marine and aviation bunkers should be separately reported.

#### • **Biofuels**

In the IPCC methodology, biofuels (fuels derived from biomass) are not included in the CO<sub>2</sub> emissions from fuel combustion and are only shown for informational purposes. This is because for the purpose of calculating CO<sub>2</sub> emissions, biomass consumption for fuel is assumed to equal its regrowth. Any departures from this hypothesis are counted within the land use, land use change and forestry module of the *1996 IPCC Guidelines*. For this reason, emissions from the burning of biomass for energy are not included in the CO<sub>2</sub> emissions from fuel combustion in this publication.

### **Methodology**

The IPCC methodology breaks the calculation of carbon dioxide emissions from fuel combustion into six steps:

- Step 1: Estimate apparent fuel consumption in original units
- Step 2: Convert to a common energy unit
- Step 3: Multiply by emission factors to compute the carbon content
- Step 4: Compute carbon stored
- Step 5: Correct for carbon unoxidised
- Step 6: Convert carbon oxidised to CO<sub>2</sub> emissions

25. The following discussion excludes all non-carbon energy sources such as nuclear, hydro, geothermal, solar, etc.

## Completing Worksheet 1

This section is from the Workbook of the *1996 IPCC Guidelines* and provides step-by-step instructions for calculating emissions at the detailed fuels and fuel products level. Worksheet 1 can be consulted on the IPCC website<sup>26</sup>.

NOTE: The main worksheet allows CO<sub>2</sub> emissions from biofuels to be calculated but it does not include them in the national total.

### Step 1 Estimating apparent fuel consumption

1 Apparent consumption is the basis for calculating the carbon supply for the country. To calculate apparent consumption (or total fuel supplied) for each fuel, the following data for primary fuels are entered:

- Production (Column A)
- Imports (Column B)
- Exports (Column C)
- International bunkers (Column D)
- Stock change (Column E)

For secondary fuels and products, the only figures entered are:

- Imports (Column B)
- Exports (Column C)
- International bunkers (Column D)
- Stock change (Column E)

These allow the overall calculation to account for all consumption.

Amounts of all fuels can be expressed in joules (J), megajoules (MJ), gigajoules (GJ), terajoules (TJ) or thousands of tonnes of oil equivalent (ktoe). Solid or liquid fuels can be expressed as thousands of tonnes (kt) and dry natural gas can be expressed as teracalories (Tcal) or cubic metres (m<sup>3</sup>).

NOTE: The figure for production of natural gas, used in Worksheet 1, **does not** include quantities of gas vented, flared or re-injected into the well.

Quantities are expressed in terms of the net calorific values (NCV) of the fuels concerned. NCV is sometimes referred to as the lower heating value (LHV). NCVs are approximately 95% of the gross calorific value (GCV) for liquid fossil, solid fossil and biofuels, and 90% of the GCV for natural gas.

2 Apparent consumption is calculated for each fuel using this formula:

Apparent consumption =

Production + Imports - Exports - International bunkers - Stock change

The results are entered in Column F.

Particular attention is given to the algebraic sign of “stock change” as it is entered in Column E. When more fuel is added to stock than is taken from it during the year there is a net stock build and the quantity is entered in Column E with a plus sign. In the converse case (a stock draw) the quantity is entered in Column E with a minus sign.

### Step 2 Converting to a common energy unit (TJ)

- 1 The conversion factor used for each fuel is entered in Column G.
- 2 The Apparent consumption is multiplied by the relevant conversion factor (NCV or scaling factor) to give apparent consumption in terajoules. The result is entered in Column H.

**TABLE 1**  
**CONVERSION FACTORS**

<i>Unit</i>	<i>Conversion factor</i>
J, MJ or GJ	Number is divided by the appropriate factor, 10 <sup>12</sup> , 10 <sup>6</sup> or 10 <sup>3</sup> respectively, to convert to TJ.
10 <sup>6</sup> toe	Number is multiplied by the conversion factor, 41868 TJ/10 <sup>6</sup> toe, to convert to TJ.
Tcal	Number is multiplied by the conversion factor, 4.1868 TJ/Tcal.
10 <sup>3</sup> t	The net calorific value of each fuel is used (see Table 2).

26. Please refer to: [www.ipcc-nggip.iges.or.jp/public/gl/invs5a.html](http://www.ipcc-nggip.iges.or.jp/public/gl/invs5a.html)

<b>TABLE 2</b>	
<b>SELECTED NET CALORIFIC VALUES</b>	
	<i>Factors (TJ/10<sup>3</sup> tonnes)</i>
<b>Refined petroleum products</b>	
Gasoline	44.80
Jet kerosene	44.59
Other kerosene	44.75
Shale oil	36.00
Gas/diesel oil	43.33
Fuel oil	40.19
LPG	47.31
Ethane	47.49
Naphtha	45.01
Bitumen	40.19
Lubricants	40.19
Petroleum coke	31.00
Refinery feedstocks	44.80
Refinery gas	48.15
Other oil products	40.19
<b>Other products</b>	
Coal oils and tars derived from coking coals	28.00
Oil shale	9.40
Orimulsion	27.50

NOTE: When converting from 10<sup>3</sup> t, for anthracite, coking coal, other bituminous coal, sub-bituminous coal and lignite, separate country-specific net calorific values are used for production (Column A), imports (Column B), and exports (Column C). For these fuels, apparent consumption is calculated by converting production, imports, exports, and stock changes to TJ first. For international bunkers (Column D) and stock change (Column E), either a weighted average net calorific value or a factor appropriate to the dominant source of supply is used.

### Step 3 Multiplying by carbon emission factors

- The carbon emission factor (CEF) used to convert apparent consumption into carbon content is entered in Column I.

Table 3 shows the default values used in this publication.

<b>TABLE 3</b>	
<b>CARBON EMISSION FACTORS (CEF)</b>	
<i>Fuel</i>	<i>Carbon emission factor (tC/TJ)</i>
<b>LIQUID FOSSIL</b>	
<i>Primary fuels</i>	
Crude oil	20.0
Orimulsion	22.0
Natural gas liquids	17.2
<i>Secondary fuels/products</i>	
Gasoline	18.9
Jet kerosene	19.5
Other kerosene	19.6
Shale oil	20.0
Gas/diesel oil	20.2
Fuel oil	21.1
LPG	17.2
Ethane	16.8
Naphtha	(20.0) <sup>(a)</sup>
Bitumen	22.0
Lubricants	(20.0) <sup>(a)</sup>
Petroleum coke	27.5
Refinery feedstocks	(20.0) <sup>(a)</sup>
Refinery gas	18.2 <sup>(b)</sup>
Other oil	(20.0) <sup>(a)</sup>
<b>SOLID FOSSIL</b>	
<i>Primary fuels</i>	
Anthracite	26.8
Coking coal	25.8
Other bituminous coal	25.8
Sub-bituminous coal	26.2
Lignite	27.6
Oil shale	29.1
Peat	28.9
<i>Secondary fuels/products</i>	
BKB & patent fuel	(25.8) <sup>(a)</sup>
Coke oven / gas coke	29.5
Coke oven gas	13.0 <sup>(b)</sup>
Blast furnace gas	66.0 <sup>(b)</sup>
<b>GASEOUS FOSSIL</b>	
Natural gas (dry)	15.3
<b>BIOFUELS<sup>(c)</sup></b>	
Solid biofuels	29.9
Liquid biofuels	(20.0) <sup>(a)</sup>
Biogases	(30.6) <sup>(a)</sup>

**Notes to Table 3**

(a) This value is a default value until a fuel specific CEF is determined. For biogases, the CEF is based on the assumption that 50% of the carbon in the biomass is converted to methane and 50% is emitted as CO<sub>2</sub>. The CO<sub>2</sub> emissions from biogases should not be included in national inventories. If biogases are released and not combusted, 50% of the carbon content should be included as methane.

(b) For use in the sectoral calculations.

(c) Emissions from the use of biofuels are not shown in this publication.

- 2 The apparent consumption in TJ (in Column H) is multiplied by the carbon emission factor (in Column I) to give the carbon content in tonnes of C. The result is entered in Column J.
- 3 The carbon content in tonnes C is divided by 10<sup>3</sup> to give gigagrammes of carbon. The result is entered in Column K.

**Step 4 Calculating carbon stored****1 Estimating fuel quantities***Bitumen and lubricants*

Domestic production for bitumen and lubricants is added to the apparent consumption (shown in Column F of the main Worksheet 1) for these products and the sum is entered in Column A of Auxiliary Worksheet 1.

*Coal oils and tars*

For coking coal, the default assumption is that 6% of the carbon in coking coal consumed is converted to oils and tars. The apparent consumption for coking coal (from Worksheet 1, Column F) is multiplied by 0.06.

Starting with the 2006 edition, the IEA Secretariat has requested coal tar data on its annual coal questionnaire. In cases where this information has been provided, to be consistent with the *1996 IPCC Guidelines*, 75% of the part reported as non-energy was considered to be stored and the default 6% of coking coal was not applied.

*Natural gas, LPG, ethane, naphtha and gas/diesel oil*

The amount of these fuels used as a feedstock for non-energy purposes is entered in Column A.

**2 Converting to TJ**

The appropriate conversion factors are inserted in Column B of Auxiliary Worksheet 1. The estimated fuel quantities (Column A) are multiplied by the relevant conversion factor to give the estimated fuel quantities in TJ. The result is entered in Column C.

**3 Calculating carbon content**

The estimated fuel quantities in TJ (Column C of Auxiliary Worksheet 1) are multiplied by the emission factor in tonnes of carbon per terajoule (Column D) to give the carbon content in tonnes of C (Column E). The figures are divided by 10<sup>3</sup> to express the amount as gigagrammes of carbon. The results are entered in Column F.

**4 Calculating actual carbon stored**

The carbon content (Column F of Auxiliary Worksheet 1) is multiplied by the fraction of carbon stored (Column G) to give the carbon stored. The result is entered in Column H.

**When Auxiliary Worksheet 1 is completed**

- 5 The values for carbon stored for the relevant fuels/products are entered in Column L of the main Worksheet 1.
- 6 The values for carbon stored (Column L) are subtracted from carbon content (Column K) to give net carbon emissions. The results are entered in Column M.

**Step 5 Correcting for carbon unoxidised**

- 1 The values for fraction of carbon oxidised are entered in Column N of Worksheet 1. Table 4 provides information on typical values measured from various facilities and suggests global default values for solid, liquid and gaseous fuels.
- 2 Net carbon emissions (Column M) are multiplied by the fraction of carbon oxidised (Column N) and the results are entered in Column O, actual carbon emissions.

**TABLE 4**  
**FRACTION OF CARBON OXIDISED**

Coal <sup>1</sup>	0.98
Oil and oil products	0.99
Natural gas	0.995
Peat for electricity generation <sup>2</sup>	0.99

1. This figure is a global average but varies for different types of coal, and can be as low as 0.91.

2. The fraction for peat used in households may be much lower.

## Step 6 Converting to CO<sub>2</sub> emissions

- 1 Actual carbon emissions (Column O) are multiplied by 44/12 (which is the molecular weight ratio of CO<sub>2</sub> to C) to find total carbon dioxide (CO<sub>2</sub>) emitted from fuel combustion. The results are entered in Column P.
- 2 The sum is total national emissions of carbon dioxide from fuel combustion. These are the numbers shown for total CO<sub>2</sub> emissions from fuel combustion in this publication.

## Sectoral Approach

### Introduction

A sectoral breakdown of national CO<sub>2</sub> emissions using the defined IPCC Source/Sink Categories is needed for monitoring and abatement policy discussions. The IPCC Reference Approach provides a rapid estimate of the total CO<sub>2</sub> emissions from fuels supplied to the country but it does not break down the emissions by sector.

The more detailed calculations used for the Sectoral Approach are essentially similar in content to those used for the Reference Approach.

### Completing Worksheet 2

This section is from the Workbook of the *1996 IPCC Guidelines* and provides step-by-step instructions for calculating emissions by fuels for each of the main source categories using the IPCC Tier 1 Sectoral Approach. Worksheet 2 can be consulted on the IPCC website<sup>27</sup>.

## Step 1 Estimating sectoral fuel consumption

The amount of each fuel consumed by sector is entered in Column A.

### Energy industries and transformation

Special care needs to be taken when considering the fuel use of energy industries and transformation so that double counting is avoided.

Fuel use in energy industries and transformation can be divided into three groups:

#### Transformation

- 1 Fuels transformed into secondary fuels by physical or chemical processes not involving combustion (e.g. crude oil to petroleum products in refineries, coal to coke and coke oven gas in coke ovens);
- 2 Fuels combusted to generate electricity and/or heat (excluding fuels used for autoproduction of electricity and heat, which are reported in the sector where they are used);

#### Energy industries

- 3 Fuels combusted by energy industries (for energy extraction and transformation) for heating, pumping, traction and lighting purposes (e.g. refinery gas for heating distillation columns, use of colliery methane at mines for heating purposes).

In this worksheet, only fuel use by Groups 2 and 3 (fuels that are combusted) is included. However, see Step 4 for the reporting of lubricants used by energy industries. For emissions resulting from fuel use by Group 1, no worksheets are available. They should be reported under the IPCC Source/Sink Category 1B: fugitive emissions from fuels. It is most important that this distinction be appreciated. The quantities of *primary* fuels reported in Column A will understate the quantities used for Group 1 activities. The reported quantities cover only the combustion needs of these industries.

## Step 2 Converting to a common energy unit (TJ)

- 1 The conversion factor (NCV or scaling factor) to convert to terajoules is entered in Column B.
- 2 The consumption is multiplied by the relevant conversion factor to give consumption in terajoules. The result is entered in Column C.

## Step 3 Multiplying by carbon emission factors

- 1 The carbon emission factor used to convert consumption into carbon content is entered in Column D.
- 2 The consumption in TJ (in Column C) is multiplied by the carbon emission factor (in Column D) to give the carbon content in tonnes of carbon. The result is entered in Column E.

27. Please refer to: [www.ipcc-nggip.iges.or.jp/public/gl/invs5a.html](http://www.ipcc-nggip.iges.or.jp/public/gl/invs5a.html).

- 3 The carbon content in tonnes of carbon is divided by 10<sup>3</sup> to be expressed as gigagrammes of carbon. The result is entered in Column F.

#### Step 4 Calculating carbon stored

For the calculation of carbon stored, fuels are distinguished into four groups:

- Fuels used as feedstocks, such as naphtha, natural gas, gas/diesel oil, LPG or ethane;
- Lubricants;
- Bitumen and coal tars;
- Fuels for which no carbon is stored.

#### Fuels used as feedstocks, such as naphtha, natural gas, gas/diesel oil, LPG or ethane:

This subsection on feedstocks applies only to the industry source category.

##### 1 Estimating fuel quantities

The amount of fuel used as a feedstock for non-energy purposes is entered in Column A of Auxiliary Worksheet 2.

##### 2 Converting to TJ

The appropriate conversion factor is inserted in Column B. Feedstock use (Column A) is multiplied by the relevant conversion factor to give the feedstock use in TJ. The result is entered in Column C of Auxiliary Worksheet 2.

##### 3 Calculating carbon content

The feedstock use in TJ (Column C) is multiplied by the emission factor in tonnes of carbon per terajoule (Column D) to give the carbon content in tonnes C (Column E). The figures are divided by 10<sup>3</sup> to express the amount as gigagrammes of carbon. The results are entered in Column F of Auxiliary Worksheet 2.

##### 4 Calculating actual carbon stored

The carbon content (Column F) is multiplied by the fraction of carbon stored (Column G) to give the carbon stored. The result is entered in Column H of Auxiliary Worksheet 2.

#### After completion of Auxiliary Worksheet 2

- 5 The amount of carbon stored for the relevant fuel/product is entered in Column H of Worksheet 2 for the industry source category.
- 6 The amount of carbon stored (Column H) is subtracted from the carbon content (Column F) to give net carbon emissions. The results are entered in Column I.

#### Lubricants:

It has been estimated that during the first use, recycling and final disappearance of lubricants, approximately half of the production is oxidised as CO<sub>2</sub>.

- 1 For each sector where lubricants are used, the fraction of carbon stored for lubricants is entered in Column G. The default value of 0.5 is used for this publication.
- 2 The carbon content (Column F) is multiplied by the fraction of carbon stored (Column G) to obtain the amount of carbon stored. The result is entered in Column H.
- 3 The amount of carbon stored (Column H) is subtracted from the carbon content (Column F) to obtain the net carbon emissions. The result is entered in Column I.

#### Bitumen and coal tars:

Bitumen and coal tars are usually not combusted but used in a manner that stores almost all of the carbon. Emissions of non-methane volatile organic compounds (NMVOCs) from the use of bitumen for road paving are estimated in the industrial processes chapter.

#### Fuels for which no carbon is stored:

Step 4 is skipped and the values from Column F are entered in Column I before continuing with Step 5.

#### Step 5 Correcting for carbon unoxidised

- 1 Values for fraction of carbon oxidised are entered in Column J of Worksheet 2. Table 4 provides information on typical values measured from coal facilities and suggests global default values for solid, liquid and gaseous fuels.
- 2 Net carbon emissions (Column I) are multiplied by fraction of carbon oxidised (Column J) and the results are entered in Column K, actual carbon emissions.

#### Step 6 Converting to CO<sub>2</sub> emissions

- 1 Actual carbon emissions (Column K) are multiplied by 44/12 (which is the molecular weight ratio of CO<sub>2</sub> to C) to find actual carbon dioxide (CO<sub>2</sub>) emissions. The results are entered in Column L and correspond to the sectoral emissions included in the present publication.

## Key sources

In May 2000, the IPCC Plenary, at its 16<sup>th</sup> session held in Montreal, accepted the report on *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*.<sup>28</sup> The report provides good practice guidance to assist countries in producing inventories that are neither over nor underestimates so far as can be judged, and in which uncertainties are reduced as far as practicable. It supports the development of inventories that are transparent, documented, consistent over time, complete, comparable, assessed for uncertainties, subject to quality control and quality assurance, and efficient in the use of resources. The report does not revise or replace the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, but provides a reference that complements and is consistent with those guidelines.

Methodological choice for individual source categories is important in managing overall inventory uncertainty. Generally, inventory uncertainty is lower when emissions are estimated using the most rigorous methods, but due to finite resources, this may not be feasible for every source category. To make the most efficient use of available resources, it is good practice to identify those source categories that have the greatest contribution to overall inventory uncertainty. By identifying these key source categories in the national inventory, inventory agencies can prioritise their efforts and improve their overall estimates. Such a process will lead to improved inventory quality, as well as greater confidence in the resulting emissions estimates. It is good practice for each inventory agency to identify its national key source categories in a systematic and objective manner.

**A key source category is one that is prioritised within the national inventory system because its estimate has a significant influence on a country's total inventory of direct greenhouse gases in terms of the absolute level of emissions, the trend in emissions, or both.**

Any inventory agency that has prepared an emissions inventory will be able to identify key source categories

in terms of their contribution to the absolute level of national emissions. For those inventory agencies that have prepared a time series, the quantitative determination of key source categories should include evaluation of both the absolute level and the trend in emissions. Evaluating only the influence of a source category on the overall level of emissions provides limited information about why the source category is key. Some key source categories may not be identified if the influence of their trend is not taken into account.

The *Good Practice Guidance* describes both a basic Tier 1 approach and a Tier 2 approach. The basic difference between the two approaches is that the Tier 2 approach accounts for uncertainty.

In each country's national inventory, certain source categories are particularly significant in terms of their contribution to the overall uncertainty of the inventory. It is important to identify these key source categories so that the resources available for inventory preparation may be prioritised and the best possible estimates prepared for the most significant source categories.

The results of the key source category determination will be most useful if the analysis is done at the appropriate level of detail. The *Good Practice Guidance* suggests at which levels of details the various IPCC Source Categories should be analysed. For example, the combustion of fossil fuels is a large emission source category that can be broken down into sub-source categories, and even to the level of individual plants or boilers. The following guidance describes good practice in determining the appropriate level of analysis to identify key source categories:

- The analysis should be performed at the level of IPCC source categories (*i.e.* at the level at which the IPCC methods are described). The analysis should be performed using CO<sub>2</sub>-equivalent emissions calculated using the global warming potentials (GWPs) specified for the preparation of national GHG inventories by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories (*UNFCCC Guidelines*).
- Each greenhouse gas emitted from a single source category should be considered separately, unless there are specific methodological reasons for treating gases collectively. For example, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) are

28. The report on *IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories* is available from the IPCC Greenhouse Gas Inventories Programme ([www.ipcc-nggip.iges.or.jp](http://www.ipcc-nggip.iges.or.jp)).



emitted from mobile sources. The key source category evaluation should be performed for each of these gases separately because methods, emission factors and related uncertainties differ for each gas. In contrast, a collective evaluation of hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs) may be appropriate for some source categories, such as emissions from substitutes for Ozone Depleting Substances (ODS substitutes).

- Source categories that use the same emission factors based on common assumptions should be aggregated before analysis. This approach can also help deal with cross-correlations between source categories in the uncertainty analysis. The same pattern of aggregation should be used both to quantify uncertainties and to identify key source categories unless the associated activity data uncertainties are very different.

### Quantitative approaches to identify key source categories

It is good practice for each inventory agency to identify its national key source categories in a systematic and objective manner, by performing a quantitative analysis of the relationships between the level and the trend of each source category's emissions and total national emissions.

Any inventory agency that has developed an emissions inventory will be able to perform the Tier 1 Level Assessment and identify the source categories whose level has a significant effect on total national emissions. Those inventory agencies that have developed emissions inventories for more than one year will also be able to perform the Tier 1 Trend Assessment and identify sources that are key because of their contribution to the total trend of national emissions. Both assessments are described in detail in the *Good Practice Guidance*.

For CO<sub>2</sub> emissions from stationary combustion, the *Good Practice Guidance* suggests that the emissions be disaggregated to the level where emission factors are distinguished. In most inventories, this will be the main fuel types. If emission factors are determined independently for some sub-source categories, these should be distinguished in the analysis.

When using the Tier 1 approach, key source categories are identified using a pre-determined cumulative emissions threshold. The pre-determined threshold is

based on an evaluation of several inventories, and is aimed at establishing a general level where 90% of inventory uncertainty will be covered by key source categories.

The Tier 1 method to identify key source categories of the national emissions inventory assesses the impacts of various source categories on the level and, if possible, on the trend. When national inventory estimates are available for several years, it is good practice to assess the contribution of each source category to both the level and trend of the national inventory. If only a single year's inventory is available, only a Level Assessment can be performed.

For the **Tier 1 Level Assessment**, the contribution of each source category to the total national inventory level is calculated according to Equation 1:

**EQUATION 1**

**Source Category Level Assessment =**  
**Source Category Estimate / Total Estimate**

$$L_{x,t} = E_{x,t} / E_t$$

Where:

$L_{x,t}$  is the Level Assessment for source x in year t

**Source category estimate** ( $E_{x,t}$ ) is the emission estimate of source category x in year t

**Total estimate** ( $E_t$ ) is the total inventory estimate in year t

The value of the source category Level Assessment should be calculated separately for each source category, and the cumulative sum of all the entries is calculated. Key source categories are those that, when summed together in descending order of magnitude, add up to over 95% of the total. Any source category that meets the 95% threshold in any year should be identified as a key source category.

The **Tier 1 Trend Assessment** calculates the contribution of each source category trend to the trend in the total national inventory. This assessment will identify source categories that have a different trend to the trend of the overall inventory. As differences in trend are more significant to the overall inventory level for larger source categories, the result of the trend difference (i.e. the source category trend minus

total trend) is multiplied by the result of the level assessment ( $L_{x,t}$  from Equation 1) to provide appropriate weighting. Thus, key source categories will be those where the source category trend diverges significantly from the total trend, weighted by the emission level of the source category.

If nationally derived source-level uncertainties are available, inventory agencies can use **Tier 2** to identify

key source categories. The Tier 2 approach is a more detailed analysis that builds on the Tier 1 approach, and it is likely to reduce the number of key source categories. Under Tier 2, the results of the Tier 1 analysis are multiplied by the relative uncertainty of each source category. In this case, the pre-determined threshold applies to the cumulative uncertainty and not to the cumulative emissions. Key source categories are those that together represent 90% of total uncertainty.

# **PART II:**

# **CO<sub>2</sub> EMISSIONS FROM FUEL COMBUSTION**



# SUMMARY TABLES

CO<sub>2</sub> emissions: Sectoral Approach

 million tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>World *</b>	<b>14 084.8</b>	<b>15 689.1</b>	<b>18 062.4</b>	<b>18 644.2</b>	<b>20 973.9</b>	<b>21 841.1</b>	<b>23 755.6</b>	<b>27 494.0</b>	<b>30 482.1</b>	<b>31 344.8</b>	<b>31 734.3</b>	<b>51.3%</b>
<i>Annex I Parties</i>	..	..	..	..	13 890.5	13 149.4	13 735.2	14 096.5	13 449.9	13 337.4	13 140.9	-5.4%
<i>Annex II Parties</i>	8 607.0	8 884.3	9 544.4	9 172.7	9 790.9	10 187.2	10 986.7	11 275.7	10 566.4	10 347.1	10 156.0	3.7%
<i>North America</i>	4 630.9	4 738.8	5 088.5	4 948.0	5 296.9	5 599.6	6 226.7	6 322.6	5 958.5	5 825.1	5 607.9	5.9%
<i>Europe</i>	3 059.8	3 092.8	3 350.8	3 106.0	3 154.5	3 139.7	3 223.1	3 339.2	3 055.5	2 920.0	2 906.4	-7.9%
<i>Asia Oceania</i>	916.4	1 052.7	1 105.1	1 118.7	1 339.5	1 447.9	1 536.9	1 613.9	1 552.3	1 602.1	1 641.7	22.6%
<i>Annex I EIT</i>	..	..	..	..	3 970.4	2 807.1	2 545.8	2 601.8	2 615.1	2 702.1	2 680.0	-32.5%
<i>Non-Annex I Parties</i>	..	..	..	..	6 463.9	7 981.5	9 180.5	12 412.4	15 921.0	16 874.4	17 513.5	170.9%
<i>Annex I Kyoto Parties</i>	..	..	..	..	8 339.6	7 333.0	7 247.4	7 493.0	7 158.5	7 158.5	7 157.0	-14.2%
<b>Intl. marine bunkers</b>	<b>345.2</b>	<b>332.5</b>	<b>348.4</b>	<b>298.5</b>	<b>363.2</b>	<b>421.9</b>	<b>488.1</b>	<b>566.1</b>	<b>653.5</b>	<b>659.4</b>	<b>602.2</b>	<b>65.8%</b>
<b>Intl. aviation bunkers</b>	<b>167.5</b>	<b>172.1</b>	<b>200.1</b>	<b>222.6</b>	<b>256.3</b>	<b>288.3</b>	<b>351.8</b>	<b>419.0</b>	<b>457.8</b>	<b>473.7</b>	<b>477.8</b>	<b>86.4%</b>
<b>Non-OECD Total **</b>	<b>4 202.3</b>	<b>5 386.1</b>	<b>6 803.4</b>	<b>7 679.1</b>	<b>9 214.4</b>	<b>9 466.2</b>	<b>10 300.3</b>	<b>13 504.0</b>	<b>16 879.6</b>	<b>17 885.5</b>	<b>18 508.3</b>	<b>100.9%</b>
<b>OECD Total ***</b>	<b>9 369.8</b>	<b>9 798.4</b>	<b>10 710.5</b>	<b>10 444.0</b>	<b>11 139.9</b>	<b>11 664.7</b>	<b>12 615.4</b>	<b>13 005.0</b>	<b>12 491.3</b>	<b>12 326.3</b>	<b>12 146.1</b>	<b>9.0%</b>
Canada	339.6	377.9	426.9	402.2	428.2	460.9	528.6	549.1	531.4	536.7	533.7	24.6%
Chile	20.8	17.0	21.2	19.4	30.8	38.7	52.1	58.2	69.8	76.0	77.8	152.4%
Mexico	97.0	138.7	212.1	251.6	265.3	297.0	349.6	385.8	417.9	432.5	435.8	64.3%
United States	4 291.3	4 360.8	4 661.6	4 545.7	4 868.7	5 138.7	5 698.1	5 773.5	5 427.1	5 288.4	5 074.1	4.2%
<b>OECD Americas</b>	<b>4 748.7</b>	<b>4 894.5</b>	<b>5 321.8</b>	<b>5 219.0</b>	<b>5 592.9</b>	<b>5 935.2</b>	<b>6 628.3</b>	<b>6 766.6</b>	<b>6 446.2</b>	<b>6 333.6</b>	<b>6 121.4</b>	<b>9.4%</b>
Australia	144.1	180.0	208.0	221.0	260.5	286.0	335.4	371.9	387.3	388.3	386.3	48.3%
Israel	14.4	17.1	19.6	24.5	33.5	46.3	55.2	59.9	68.1	67.2	73.3	118.5%
Japan	758.8	856.3	880.7	878.1	1 056.7	1 136.7	1 170.6	1 208.1	1 134.0	1 183.4	1 223.3	15.8%
Korea	52.1	76.8	124.4	153.3	229.3	358.7	437.7	469.1	564.5	589.9	592.9	158.6%
New Zealand	13.4	16.4	16.4	19.6	22.3	25.3	30.9	33.9	31.0	30.4	32.1	44.0%
<b>OECD Asia Oceania</b>	<b>982.9</b>	<b>1 146.5</b>	<b>1 249.1</b>	<b>1 296.5</b>	<b>1 602.4</b>	<b>1 852.8</b>	<b>2 029.8</b>	<b>2 142.9</b>	<b>2 184.9</b>	<b>2 259.2</b>	<b>2 307.9</b>	<b>44.0%</b>
Austria	48.7	50.2	55.7	54.3	56.4	59.3	61.7	74.6	69.4	67.7	64.7	14.8%
Belgium	116.8	115.6	125.7	101.9	107.9	115.2	118.8	113.2	109.6	110.5	104.6	-3.1%
Czech Republic	151.0	152.6	165.8	173.1	148.8	125.0	122.4	120.1	114.3	112.9	107.8	-27.6%
Denmark	55.0	52.5	62.5	60.5	50.6	58.1	50.8	48.4	47.4	42.1	37.1	-26.7%
Estonia	..	..	..	..	35.8	16.0	14.6	16.9	18.5	17.5	16.3	-54.3%
Finland	39.8	44.4	55.2	48.6	54.4	56.0	55.2	55.1	62.4	55.4	49.4	-9.1%
France	431.9	430.6	461.4	360.3	352.8	354.2	378.7	388.2	355.1	328.6	333.9	-5.4%
Germany	978.6	975.5	1 055.6	1 014.6	949.7	867.8	825.0	799.6	769.9	742.2	755.3	-20.5%
Greece	25.2	34.5	45.3	54.6	70.1	75.8	87.4	95.0	84.2	82.8	77.5	10.5%
Hungary	60.3	70.7	83.7	80.8	66.4	57.3	54.2	56.4	48.9	47.4	43.6	-34.4%
Iceland	1.4	1.6	1.7	1.6	1.9	2.0	2.1	2.2	1.9	1.9	1.8	-2.5%
Ireland	21.7	21.2	26.0	26.5	30.6	33.0	41.1	43.9	38.9	34.9	35.5	16.3%
Italy	292.9	319.6	359.8	347.5	397.4	409.4	426.0	460.8	399.2	393.0	374.8	-5.7%
Luxembourg	15.4	12.1	11.9	9.9	10.4	8.0	8.0	11.4	10.6	10.4	10.2	-1.3%
Netherlands	129.6	140.8	166.7	154.0	155.8	170.9	172.1	180.1	187.0	174.9	173.8	11.5%
Norway	23.5	24.1	28.0	27.2	28.3	32.8	33.6	36.4	39.4	37.8	36.2	27.9%
Poland	286.7	338.2	413.1	419.5	342.1	331.1	290.9	292.9	306.4	300.8	293.8	-14.1%
Portugal	14.4	18.1	23.8	24.6	39.4	48.2	59.2	62.8	48.1	47.5	45.9	16.4%
Slovak Republic	39.1	43.8	55.3	54.4	56.7	40.8	37.4	38.1	35.2	33.9	31.9	-43.8%
Slovenia	..	..	..	..	13.3	14.0	14.1	15.6	15.4	15.2	14.6	9.6%
Spain	119.9	156.5	187.7	175.2	205.2	232.7	283.9	339.4	267.9	270.4	266.6	29.9%
Sweden	82.4	79.4	73.4	58.8	52.8	57.6	52.7	50.3	47.2	43.4	40.4	-23.4%
Switzerland	38.9	36.7	39.2	41.4	41.6	41.8	42.5	44.6	43.8	39.9	41.3	-0.8%
Turkey	41.4	59.2	70.9	94.6	126.9	152.7	200.6	216.4	265.9	285.7	302.4	138.3%
United Kingdom	623.5	579.5	571.1	544.5	549.3	516.6	524.3	532.9	473.6	436.5	457.5	-16.7%
<b>OECD Europe ***</b>	<b>3 638.2</b>	<b>3 757.4</b>	<b>4 139.6</b>	<b>3 928.5</b>	<b>3 944.6</b>	<b>3 876.7</b>	<b>3 957.3</b>	<b>4 095.5</b>	<b>3 860.2</b>	<b>3 733.4</b>	<b>3 716.8</b>	<b>-5.8%</b>
<i>European Union - 28</i>	..	..	..	..	4 067.8	3 864.4	3 852.1	3 988.3	3 678.9	3 547.7	3 504.9	-13.8%

\* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.

\*\* Includes Estonia and Slovenia prior to 1990.

\*\*\* Excludes Estonia and Slovenia prior to 1990.

CO<sub>2</sub> emissions: Sectoral Approachmillion tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>Non-OECD Total *</b>	<b>4 202.3</b>	<b>5 386.1</b>	<b>6 803.4</b>	<b>7 679.1</b>	<b>9 214.4</b>	<b>9 466.2</b>	<b>10 300.3</b>	<b>13 504.0</b>	<b>16 879.6</b>	<b>17 885.5</b>	<b>18 508.3</b>	<b>100.9%</b>
Albania	3.9	4.5	7.6	7.2	6.2	1.9	3.1	4.0	3.9	4.1	3.8	-38.8%
Armenia	..	..	..	..	20.5	3.4	3.4	4.1	4.0	4.7	5.4	-73.5%
Azerbaijan	..	..	..	..	55.0	33.9	27.9	30.8	23.8	26.8	29.3	-46.8%
Belarus	..	..	..	..	124.8	61.7	58.5	61.8	64.5	65.6	71.1	-43.0%
Bosnia and Herzegovina	..	..	..	..	23.7	3.2	13.5	15.6	20.0	22.8	21.2	-10.3%
Bulgaria	62.8	72.2	83.8	81.1	74.9	53.3	42.4	46.3	44.2	49.1	44.3	-40.9%
Croatia	..	..	..	..	21.5	15.8	17.7	20.7	19.0	18.8	17.2	-20.1%
Cyprus **	1.8	1.7	2.6	2.8	3.9	5.0	6.3	7.0	7.2	6.9	6.5	67.5%
FYR of Macedonia	..	..	..	..	8.5	8.2	8.4	8.8	8.2	9.3	8.7	2.0%
Georgia	..	..	..	..	33.3	8.1	4.6	4.3	4.9	6.3	6.8	-79.5%
Gibraltar	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.5	0.5	0.5	0.5	202.4%
Kazakhstan	..	..	..	..	236.4	167.5	113.0	157.1	217.3	230.9	225.8	-4.5%
Kosovo ***	..	..	..	..	..	..	5.0	6.5	8.6	8.5	8.0	..
Kyrgyzstan	..	..	..	..	22.5	4.4	4.4	4.9	6.0	7.2	9.5	-57.6%
Latvia	..	..	..	..	18.6	8.9	6.8	7.6	8.1	7.3	7.0	-62.4%
Lithuania	..	..	..	..	33.1	14.2	11.2	13.5	13.3	13.3	13.3	-59.8%
Malta	0.6	0.6	1.0	1.1	2.3	2.4	2.1	2.7	2.5	2.5	2.5	10.4%
Republic of Moldova	..	..	..	..	30.2	11.8	6.5	7.7	7.9	7.9	7.6	-74.8%
Montenegro ***	..	..	..	..	..	..	..	2.0	2.5	2.5	2.3	..
Romania	114.9	140.6	176.1	173.3	167.5	117.5	87.0	94.5	75.4	81.6	79.0	-52.9%
Russian Federation	..	..	..	..	2 178.8	1 558.7	1 496.7	1 511.8	1 580.2	1 653.2	1 659.0	-23.9%
Serbia ***	..	..	..	..	61.4	44.0	42.5	49.2	45.8	49.8	44.1	-28.2%
Tajikistan	..	..	..	..	10.9	2.4	2.2	2.3	2.3	2.4	2.7	-74.9%
Turkmenistan	..	..	..	..	44.5	33.2	36.6	47.8	56.6	61.5	63.8	43.5%
Ukraine	..	..	..	..	687.9	392.8	292.0	305.6	271.7	285.4	281.1	-59.1%
Uzbekistan	..	..	..	..	119.8	101.6	118.0	108.6	100.2	109.2	111.1	-7.3%
Former Soviet Union ****	1 995.8	2 567.9	3 056.0	3 197.5	..	..	..	..	..	..	..	..
Former Yugoslavia ****	63.2	75.2	87.6	121.7	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>2 243.2</b>	<b>2 862.7</b>	<b>3 414.8</b>	<b>3 584.8</b>	<b>3 986.3</b>	<b>2 654.1</b>	<b>2 410.0</b>	<b>2 525.5</b>	<b>2 598.6</b>	<b>2 738.2</b>	<b>2 731.8</b>	<b>-31.5%</b>
Algeria	8.9	14.0	28.4	43.4	52.7	56.7	63.5	79.4	97.5	103.9	114.3	116.9%
Angola	1.7	2.0	2.7	2.9	4.0	4.0	5.1	6.5	15.7	15.7	16.5	310.3%
Benin	0.3	0.5	0.4	0.5	0.3	0.2	1.4	2.7	4.5	4.7	4.9	+
Botswana	..	..	..	1.5	2.8	3.1	4.0	4.2	4.8	4.5	4.5	61.6%
Cameroon	0.7	1.0	1.7	2.4	2.7	2.5	2.8	2.9	5.0	5.2	5.4	102.6%
Congo	0.6	0.6	0.7	0.8	0.6	0.5	0.5	0.8	1.8	2.1	2.2	252.9%
Dem. Rep. of Congo	2.5	2.6	3.1	3.2	3.0	1.1	0.8	1.3	1.8	2.3	2.4	-18.4%
Côte d'Ivoire	2.4	3.0	3.4	3.0	2.7	3.3	6.3	5.8	6.2	5.8	7.8	188.2%
Egypt	20.6	26.1	42.5	65.7	79.5	84.2	102.5	150.3	184.0	190.5	196.9	147.6%
Eritrea	..	..	..	..	..	0.8	0.6	0.6	0.5	0.5	0.5	..
Ethiopia	1.3	1.2	1.4	1.4	2.2	2.4	3.3	4.6	6.1	7.0	7.9	258.8%
Gabon	0.5	0.8	1.3	1.7	0.9	1.3	1.5	1.7	2.4	2.5	2.5	173.6%
Ghana	1.9	2.3	2.3	2.2	2.7	3.3	5.1	6.5	10.5	11.0	12.8	372.6%
Kenya	3.2	3.5	4.5	4.6	5.5	5.8	7.8	7.5	11.4	11.6	10.6	93.2%
Libya	3.7	9.2	18.6	22.5	27.4	35.1	39.5	45.3	51.1	35.3	44.2	61.6%
Mauritius	0.3	0.4	0.6	0.6	1.2	1.5	2.4	2.9	3.6	3.6	3.7	220.8%
Morocco	6.8	9.9	14.0	16.5	19.6	26.0	29.4	39.5	46.3	50.2	51.8	163.9%
Mozambique	2.9	2.3	2.3	1.5	1.1	1.1	1.3	1.5	2.4	2.8	2.6	139.7%
Namibia	..	..	..	..	..	1.8	1.9	2.3	3.0	3.0	3.2	..
Nigeria	5.9	11.7	26.7	32.4	29.0	33.8	44.0	57.9	56.4	61.8	64.6	122.6%
Senegal	1.2	1.6	2.0	2.1	2.1	2.5	3.6	4.7	5.4	5.8	5.6	165.0%
South Africa	156.7	201.5	208.8	228.8	253.7	274.5	297.1	329.5	376.3	361.5	376.1	48.3%
Sudan	3.3	3.3	3.7	4.2	5.5	4.6	5.8	10.2	15.5	14.6	14.5	162.8%
United Rep. of Tanzania	1.5	1.5	1.6	1.5	1.7	2.5	2.6	5.1	6.2	7.4	8.9	421.2%
Togo	0.3	0.3	0.4	0.3	0.6	0.6	0.9	1.0	2.1	1.9	1.6	184.0%
Tunisia	3.7	4.8	7.8	9.6	12.1	14.2	18.0	20.2	23.1	21.9	23.0	90.7%
Zambia	3.4	4.4	3.4	2.8	2.6	2.0	1.7	2.1	1.7	2.1	2.8	6.0%
Zimbabwe	7.2	7.2	8.0	9.6	16.0	14.8	13.1	10.1	8.7	9.5	10.0	-37.6%
Other Africa	8.5	9.7	13.4	11.0	12.9	14.7	17.5	22.1	28.3	29.4	30.5	136.1%
<b>Africa</b>	<b>250.2</b>	<b>325.5</b>	<b>403.5</b>	<b>476.7</b>	<b>545.0</b>	<b>598.9</b>	<b>684.0</b>	<b>829.0</b>	<b>982.3</b>	<b>978.0</b>	<b>1 032.4</b>	<b>89.4%</b>

\* Includes Estonia and Slovenia prior to 1990.

\*\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

\*\*\* Serbia includes Kosovo from 1990 to 1999 and Montenegro from 1990 to 2004.

\*\*\*\* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

CO<sub>2</sub> emissions: Sectoral Approachmillion tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
Bangladesh	3.2	4.7	7.2	8.8	13.6	20.3	25.1	35.1	52.5	55.5	59.6	338.9%
Brunei Darussalam	0.4	1.4	2.6	2.9	3.2	4.5	4.4	4.8	7.6	8.3	8.4	158.5%
Cambodia	..	..	..	..	..	1.5	2.0	2.6	3.8	4.0	4.2	..
India	200.8	241.7	283.6	411.4	580.5	772.5	978.1	1 191.1	1 749.3	1 828.8	1 954.0	236.6%
Indonesia	25.1	38.0	68.9	88.0	146.1	214.4	272.8	335.7	392.4	400.3	435.5	198.2%
DPR of Korea	67.5	76.7	105.6	126.4	114.0	74.9	68.6	73.8	64.2	45.2	45.4	-60.2%
Malaysia	12.7	16.1	24.3	34.2	50.4	85.3	117.7	157.5	187.1	192.4	195.9	288.6%
Mongolia	..	..	..	11.6	12.7	10.1	8.8	9.5	12.5	13.0	14.2	12.3%
Myanmar	4.6	4.0	5.2	5.9	4.1	6.9	9.4	10.6	8.0	8.3	11.7	187.6%
Nepal	0.2	0.3	0.5	0.5	0.9	1.7	3.1	3.0	4.1	4.3	4.9	453.5%
Pakistan	16.6	20.9	26.1	39.1	58.6	79.5	99.2	120.5	135.4	136.4	137.4	134.5%
Philippines	23.0	29.0	33.3	28.5	37.9	56.9	67.4	70.6	76.1	76.7	79.5	109.5%
Singapore	6.1	8.5	12.7	17.2	30.3	39.1	44.4	42.7	48.9	50.3	49.7	64.4%
Sri Lanka	2.7	2.6	3.6	3.5	3.6	5.4	10.4	13.3	12.2	14.5	15.9	335.3%
Chinese Taipei	31.0	42.5	72.1	71.7	114.6	158.3	218.7	262.7	270.2	264.1	256.6	123.9%
Thailand	16.2	21.2	33.6	41.9	80.4	140.2	154.7	210.8	236.2	241.7	256.7	219.2%
Viet Nam	16.1	16.7	14.8	17.1	17.2	27.8	44.0	79.8	129.4	134.3	142.9	730.6%
Other Asia	10.5	12.7	16.5	10.1	10.2	9.4	11.3	15.4	22.1	24.3	26.2	155.6%
<b>Asia (excl. China)</b>	<b>436.8</b>	<b>536.9</b>	<b>710.6</b>	<b>918.8</b>	<b>1 278.2</b>	<b>1 708.4</b>	<b>2 140.2</b>	<b>2 639.5</b>	<b>3 412.0</b>	<b>3 502.2</b>	<b>3 698.5</b>	<b>189.3%</b>
People's Rep. of China	815.6	1 068.5	1 425.4	1 724.5	2 244.9	3 021.6	3 310.1	5 403.1	7 252.8	7 954.8	8 205.9	265.5%
Hong Kong, China	9.2	10.8	14.5	22.0	32.9	36.0	40.2	41.2	42.1	45.6	45.0	36.8%
<b>China</b>	<b>824.7</b>	<b>1 079.3</b>	<b>1 440.0</b>	<b>1 746.5</b>	<b>2 277.7</b>	<b>3 057.6</b>	<b>3 350.3</b>	<b>5 444.3</b>	<b>7 294.9</b>	<b>8 000.4</b>	<b>8 250.8</b>	<b>262.2%</b>
Argentina	82.8	85.5	95.6	88.2	99.9	119.8	141.8	152.6	176.3	183.7	188.5	88.8%
Bolivia	2.2	3.2	4.2	4.3	5.2	6.9	7.1	9.4	14.1	15.2	16.3	216.6%
Brazil	90.2	135.7	177.6	164.2	192.4	235.6	303.6	322.7	388.5	408.0	440.2	128.8%
Colombia	26.7	28.3	35.0	39.6	46.2	58.4	59.2	58.1	61.8	67.9	67.4	45.7%
Costa Rica	1.3	1.7	2.2	2.0	2.6	4.4	4.5	5.7	6.5	6.7	6.8	159.8%
Cuba	20.6	23.9	30.2	31.9	33.8	22.4	27.3	25.3	29.9	28.6	28.8	-14.7%
Dominican Republic	3.4	5.2	6.3	6.2	7.4	11.2	16.1	17.3	18.9	19.2	19.8	167.7%
Ecuador	3.5	5.9	10.5	11.7	13.4	17.0	19.3	24.5	32.0	31.7	33.1	147.4%
El Salvador	1.4	2.0	1.7	1.8	2.2	4.6	5.2	6.3	5.8	6.0	6.2	175.4%
Guatemala	2.3	3.0	4.2	3.2	3.2	5.8	8.5	10.5	10.2	10.4	10.5	226.7%
Haiti	0.4	0.4	0.6	0.8	0.9	0.9	1.4	2.0	2.1	2.1	2.1	119.4%
Honduras	1.1	1.3	1.7	1.7	2.2	3.5	4.4	7.1	7.3	7.6	8.2	278.4%
Jamaica	5.5	7.4	6.5	4.6	7.2	8.3	9.7	10.2	6.9	7.3	7.1	-1.2%
Netherlands Antilles	14.4	10.2	8.7	4.6	2.8	2.8	4.5	4.7	4.1	4.7	4.8	73.6%
Nicaragua	1.5	1.8	1.8	1.8	1.8	2.5	3.5	4.0	4.4	4.5	4.3	134.7%
Panama	2.5	3.1	2.9	2.7	2.6	4.1	4.9	6.8	8.9	9.7	9.9	284.8%
Paraguay	0.6	0.7	1.4	1.4	1.9	3.5	3.3	3.4	4.7	4.9	5.1	164.2%
Peru	15.6	18.4	20.5	18.2	19.2	23.7	26.5	28.9	41.8	44.7	45.8	138.6%
Trinidad and Tobago	6.1	5.8	7.9	9.6	11.4	12.3	18.2	31.0	38.4	37.9	37.1	226.2%
Uruguay	5.2	5.5	5.6	3.1	3.7	4.5	5.3	5.3	6.2	7.4	8.4	123.7%
Venezuela	52.1	62.8	92.4	95.2	105.1	118.3	126.7	147.9	182.4	160.6	178.3	69.6%
Other Non-OECD Americas	8.1	10.8	10.2	9.2	12.3	13.2	15.0	16.0	18.8	18.8	19.1	55.5%
<b>Non-OECD Americas</b>	<b>347.6</b>	<b>422.8</b>	<b>527.8</b>	<b>505.9</b>	<b>577.3</b>	<b>683.9</b>	<b>816.0</b>	<b>899.7</b>	<b>1 070.0</b>	<b>1 087.6</b>	<b>1 147.6</b>	<b>98.8%</b>
Bahrain	3.0	5.3	7.4	10.1	12.4	15.4	17.8	22.5	28.1	28.1	28.8	131.5%
Islamic Republic of Iran	41.7	71.5	90.2	146.4	178.7	251.4	315.1	421.6	508.5	525.8	532.2	197.8%
Iraq	10.4	15.5	27.0	36.8	53.4	97.5	70.3	74.9	101.2	108.2	119.0	122.8%
Jordan	1.3	2.1	4.3	7.4	9.2	12.2	14.4	18.0	18.8	19.8	21.7	134.7%
Kuwait	14.0	15.1	26.6	37.1	28.7	36.1	49.1	70.1	80.3	84.7	91.3	217.8%
Lebanon	4.5	5.7	6.6	6.5	5.5	12.8	14.1	14.5	18.3	18.5	21.0	285.3%
Oman	0.3	0.7	2.2	5.7	10.1	14.7	20.1	25.9	57.7	65.7	67.6	566.8%
Qatar	2.2	4.9	7.7	12.2	14.3	18.8	24.0	36.4	60.6	67.1	75.8	430.6%
Saudi Arabia	12.7	22.5	99.1	122.6	151.1	192.6	236.3	299.3	414.9	429.8	458.8	203.7%
Syrian Arab Republic	6.0	9.0	13.1	21.1	28.2	32.8	39.8	54.9	57.5	53.3	40.0	42.2%
United Arab Emirates	2.4	4.9	19.1	35.6	51.9	69.6	85.6	109.1	152.3	158.5	171.0	229.5%
Yemen	1.2	1.7	3.4	4.8	6.4	9.3	13.2	18.6	23.7	19.9	20.0	210.6%
<b>Middle East</b>	<b>99.8</b>	<b>159.0</b>	<b>306.7</b>	<b>446.4</b>	<b>549.9</b>	<b>763.2</b>	<b>899.7</b>	<b>1 165.9</b>	<b>1 521.7</b>	<b>1 579.2</b>	<b>1 647.1</b>	<b>199.5%</b>



CO<sub>2</sub> emissions: Sectoral Approach - Coalmillion tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>World *</b>	<b>5 195.4</b>	<b>5 612.4</b>	<b>6 569.6</b>	<b>7 384.4</b>	<b>8 317.0</b>	<b>8 537.0</b>	<b>9 074.2</b>	<b>11 321.6</b>	<b>13 136.3</b>	<b>13 751.8</b>	<b>13 923.8</b>	<b>67.4%</b>
<i>Annex I Parties</i>	..	..	..	..	5 097.8	4 572.4	4 690.4	4 725.5	4 392.5	4 302.3	4 156.2	-18.5%
<i>Annex II Parties</i>	2 645.7	2 605.0	2 962.7	3 318.3	3 479.0	3 391.2	3 643.6	3 714.2	3 358.8	3 227.6	3 067.6	-11.8%
<i>North America</i>	1 140.6	1 253.8	1 481.2	1 725.0	1 892.1	1 995.3	2 248.9	2 236.4	2 031.9	1 915.3	1 684.6	-11.0%
<i>Europe</i>	1 233.9	1 059.0	1 182.8	1 223.9	1 155.5	925.8	843.5	844.4	703.9	716.4	768.5	-33.5%
<i>Asia Oceania</i>	271.2	292.2	298.7	369.4	431.5	470.1	551.1	633.4	623.1	595.9	614.4	42.4%
<i>Annex I EIT</i>	..	..	..	..	1 560.2	1 120.4	957.9	925.1	914.0	949.6	949.7	-39.1%
<i>Non-Annex I Parties</i>	..	..	..	..	3 219.1	3 964.6	4 383.8	6 596.1	8 743.8	9 449.5	9 767.6	203.4%
<i>Annex I Kyoto Parties</i>	..	..	..	..	3 137.7	2 510.8	2 348.7	2 400.4	2 238.7	2 259.5	2 329.7	-25.8%
<b>Intl. marine bunkers</b>	<b>0.1</b>	-	-	-	-	-	-	-	-	<b>0.0</b>	-	-
<b>Intl. aviation bunkers</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Non-OECD Total **</b>	<b>2 062.2</b>	<b>2 478.1</b>	<b>2 971.1</b>	<b>3 353.5</b>	<b>4 175.4</b>	<b>4 520.1</b>	<b>4 756.5</b>	<b>6 918.6</b>	<b>8 968.9</b>	<b>9 688.5</b>	<b>10 019.5</b>	<b>140.0%</b>
<b>OECD Total ***</b>	<b>3 133.1</b>	<b>3 134.3</b>	<b>3 598.5</b>	<b>4 030.9</b>	<b>4 141.5</b>	<b>4 016.9</b>	<b>4 317.7</b>	<b>4 403.0</b>	<b>4 167.4</b>	<b>4 063.3</b>	<b>3 904.3</b>	<b>-5.7%</b>
Canada	61.9	57.4	80.5	99.4	94.7	98.9	123.8	112.7	91.2	84.9	71.9	-24.1%
Chile	5.0	3.5	4.7	4.8	9.6	8.7	11.4	10.0	17.2	20.9	24.1	152.0%
Mexico	5.1	6.6	7.2	11.6	14.6	25.8	26.8	38.1	39.5	41.0	40.7	178.4%
United States	1 078.7	1 196.4	1 400.7	1 625.5	1 797.4	1 896.4	2 125.1	2 123.7	1 940.7	1 830.4	1 612.8	-10.3%
<b>OECD Americas</b>	<b>1 150.7</b>	<b>1 263.9</b>	<b>1 493.2</b>	<b>1 741.4</b>	<b>1 916.2</b>	<b>2 029.8</b>	<b>2 287.1</b>	<b>2 284.4</b>	<b>2 088.6</b>	<b>1 977.3</b>	<b>1 749.5</b>	<b>-8.7%</b>
Australia	73.2	90.3	104.0	116.7	137.5	152.8	185.9	202.5	198.6	190.6	188.2	36.9%
Israel	0.0	0.0	0.0	7.2	9.3	16.1	25.0	30.1	28.7	29.8	33.0	255.9%
Japan	194.1	197.7	190.8	248.8	290.6	313.9	360.9	422.1	419.1	400.1	419.7	44.4%
Korea	21.2	30.6	48.1	80.2	86.3	101.6	173.6	195.0	276.9	297.9	291.2	237.3%
New Zealand	3.9	4.2	3.8	3.9	3.3	3.3	4.3	8.7	5.3	5.2	6.5	96.2%
<b>OECD Asia Oceania</b>	<b>292.4</b>	<b>322.8</b>	<b>346.9</b>	<b>456.7</b>	<b>527.1</b>	<b>587.9</b>	<b>749.8</b>	<b>858.5</b>	<b>928.7</b>	<b>923.6</b>	<b>938.7</b>	<b>78.1%</b>
Austria	15.9	13.5	13.7	16.9	16.1	13.8	14.4	15.9	14.5	15.2	13.9	-13.4%
Belgium	42.2	37.0	40.2	37.8	39.0	33.4	29.2	19.8	13.4	12.5	11.1	-71.6%
Czech Republic	129.2	121.7	129.5	136.1	114.2	89.6	84.5	76.7	73.2	73.9	69.4	-39.2%
Denmark	6.0	8.0	23.8	28.4	23.7	25.3	15.4	14.4	15.3	12.8	10.0	-57.7%
Estonia	..	..	..	..	24.1	11.3	10.5	12.0	14.2	13.3	12.0	-50.2%
Finland	8.4	9.3	19.6	19.8	21.1	23.2	21.0	20.1	27.7	22.9	18.4	-13.1%
France	135.3	104.2	121.2	91.3	73.6	57.5	57.4	53.8	42.4	35.7	40.2	-45.3%
Germany	554.1	494.5	552.2	580.7	504.6	370.1	337.2	326.0	307.2	306.9	317.5	-37.1%
Greece	6.8	11.0	13.4	24.9	33.4	36.4	37.6	37.8	32.9	32.7	33.0	-1.3%
Hungary	34.9	32.9	36.3	34.5	23.8	17.0	15.2	12.2	10.4	10.5	10.2	-57.2%
Iceland	0.0	-	0.1	0.3	0.3	0.2	0.4	0.4	0.4	0.4	0.4	44.3%
Ireland	8.8	7.2	8.0	10.6	14.5	12.3	10.5	10.8	8.0	8.0	9.2	-36.6%
Italy	31.7	30.2	43.0	58.1	55.1	44.9	43.3	62.8	51.8	58.4	60.4	9.7%
Luxembourg	11.3	7.5	7.9	6.3	4.9	2.0	0.4	0.3	0.3	0.2	0.2	-95.7%
Netherlands	14.4	11.5	13.8	23.1	31.8	33.1	29.1	30.3	28.2	27.3	30.4	-4.5%
Norway	3.7	3.9	3.9	4.4	3.4	4.1	4.2	3.0	2.7	2.9	2.8	-17.4%
Poland	252.5	289.7	350.9	359.8	285.6	268.1	216.8	206.6	208.6	203.4	198.7	-30.4%
Portugal	2.4	1.6	1.6	2.9	10.6	13.9	14.7	13.1	6.4	8.7	11.4	7.2%
Slovak Republic	23.5	23.7	32.0	33.3	30.7	21.1	16.0	15.6	14.1	13.9	12.8	-58.2%
Slovenia	..	..	..	..	6.5	5.7	5.5	6.3	5.9	6.0	5.7	-12.6%
Spain	36.8	37.4	47.7	69.1	73.5	71.3	81.5	80.0	31.4	49.9	58.4	-20.5%
Sweden	5.4	6.9	5.4	10.6	10.4	9.4	8.1	9.8	8.9	8.3	7.2	-30.7%
Switzerland	2.0	1.0	1.4	2.0	1.4	0.8	0.6	0.6	0.6	0.6	0.5	-63.2%
Turkey	16.0	20.7	26.8	45.1	57.9	60.7	88.9	86.3	119.7	125.1	138.9	139.9%
United Kingdom	348.4	274.2	266.1	236.8	238.2	174.1	138.6	145.5	111.7	113.1	143.5	-39.8%
<b>OECD Europe ***</b>	<b>1 690.0</b>	<b>1 547.6</b>	<b>1 758.5</b>	<b>1 832.8</b>	<b>1 698.2</b>	<b>1 399.3</b>	<b>1 280.8</b>	<b>1 260.1</b>	<b>1 150.1</b>	<b>1 162.4</b>	<b>1 216.2</b>	<b>-28.4%</b>
<i>European Union - 28</i>	..	..	..	..	1 731.9	1 406.5	1 243.7	1 236.8	1 087.7	1 104.7	1 136.7	-34.4%

\* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.

\*\* Includes Estonia and Slovenia prior to 1990.

\*\*\* Excludes Estonia and Slovenia prior to 1990.

CO<sub>2</sub> emissions: Sectoral Approach - Coalmillion tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>Non-OECD Total *</b>	<b>2 062.2</b>	<b>2 478.1</b>	<b>2 971.1</b>	<b>3 353.5</b>	<b>4 175.4</b>	<b>4 520.1</b>	<b>4 756.5</b>	<b>6 918.6</b>	<b>8 968.9</b>	<b>9 688.5</b>	<b>10 019.5</b>	<b>140.0%</b>
Albania	1.2	1.6	2.5	3.7	2.4	0.1	0.1	0.1	0.4	0.6	0.7	-72.4%
Armenia	..	..	..	..	1.0	0.0	-	-	0.0	-	0.0	-99.5%
Azerbaijan	..	..	..	..	0.3	0.0	-	-	-	-	-	-100.0%
Belarus	..	..	..	..	9.4	5.5	3.8	2.5	2.2	2.3	3.0	-68.2%
Bosnia and Herzegovina	..	..	..	..	17.3	1.4	9.9	11.7	15.2	17.9	16.7	-4.0%
Bulgaria	33.2	35.0	37.8	42.2	36.8	29.6	25.4	27.9	28.1	33.2	28.2	-23.3%
Croatia	..	..	..	..	3.3	0.7	1.7	2.7	2.7	2.8	2.5	-25.9%
Cyprus **	-	-	-	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	-99.8%
FYR of Macedonia	..	..	..	..	5.5	5.9	5.5	6.1	5.4	6.4	5.8	5.2%
Georgia	..	..	..	..	3.4	0.1	0.0	0.0	0.1	0.3	0.5	-86.6%
Gibraltar	..	..	..	..	-	-	-	-	-	-	-	-
Kazakhstan	..	..	..	..	153.3	111.6	75.6	102.8	134.2	142.1	144.3	-5.9%
Kosovo ***	..	..	..	..	..	..	4.0	5.1	7.0	6.7	6.4	..
Kyrgyzstan	..	..	..	..	10.0	1.3	1.8	2.2	2.8	3.0	4.2	-58.6%
Latvia	..	..	..	..	2.8	1.1	0.5	0.3	0.4	0.4	0.4	-87.0%
Lithuania	..	..	..	..	3.1	1.0	0.4	0.7	0.8	0.9	0.9	-69.9%
Malta	-	-	-	0.5	0.7	0.1	-	-	-	-	-	-100.0%
Republic of Moldova	..	..	..	..	7.8	2.3	0.4	0.3	0.4	0.4	0.4	-94.4%
Montenegro ***	..	..	..	..	..	..	..	1.2	1.7	1.8	1.6	..
Romania	31.2	38.0	48.9	57.6	49.7	40.5	28.7	35.2	29.0	33.9	31.1	-37.5%
Russian Federation	..	..	..	..	687.2	468.1	432.6	403.0	391.9	411.1	425.2	-38.1%
Serbia ***	..	..	..	..	41.3	36.2	35.0	33.3	31.7	35.9	31.2	-24.4%
Tajikistan	..	..	..	..	2.5	0.1	0.0	0.2	0.3	0.4	0.7	-70.3%
Turkmenistan	..	..	..	..	1.2	-	-	-	-	-	-	-100.0%
Ukraine	..	..	..	..	283.0	161.2	116.3	123.4	132.3	144.0	149.6	-47.1%
Uzbekistan	..	..	..	..	13.7	4.4	5.1	4.6	5.4	5.6	5.7	-58.5%
Former Soviet Union ****	875.2	1 028.9	1 141.8	982.9	..	..	..	..	..	..	..	..
Former Yugoslavia ****	35.8	40.5	42.6	72.4	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>976.6</b>	<b>1 143.9</b>	<b>1 273.5</b>	<b>1 159.5</b>	<b>1 335.9</b>	<b>871.1</b>	<b>747.2</b>	<b>763.3</b>	<b>792.1</b>	<b>849.6</b>	<b>858.9</b>	<b>-35.7%</b>
Algeria	0.4	0.3	0.2	1.0	1.3	1.4	0.7	1.0	0.7	0.6	0.6	-53.4%
Angola	-	-	-	-	-	-	-	-	-	-	-	-
Benin	-	-	-	-	-	-	-	-	-	-	-	-
Botswana	..	..	..	1.0	1.8	2.0	2.3	2.2	2.2	1.8	1.6	-11.9%
Cameroon	-	-	-	-	-	-	-	-	-	-	-	-
Congo	-	-	-	-	-	-	-	-	-	-	-	-
Dem. Rep. of Congo	1.0	0.8	0.8	0.8	0.9	-	-	-	-	-	-	-100.0%
Côte d'Ivoire	-	-	-	-	-	-	-	-	-	-	-	-
Egypt	1.3	2.2	2.1	2.7	2.7	3.0	3.0	3.2	1.6	1.6	1.5	-45.1%
Eritrea	..	..	..	..	..	..	..	..	..	..	..	..
Ethiopia	-	-	-	-	-	-	-	-	0.1	0.4	0.8	x
Gabon	-	-	-	-	-	-	-	-	-	-	-	-
Ghana	-	-	-	-	-	-	-	-	-	-	-	-
Kenya	0.2	0.1	0.0	0.2	0.4	0.4	0.3	0.3	0.6	0.9	0.8	127.2%
Libya	-	-	-	-	-	-	-	-	-	-	-	-
Mauritius	-	-	-	0.1	0.1	0.2	0.6	0.9	1.6	1.5	1.6	+
Morocco	1.2	1.7	1.6	2.7	4.1	6.7	10.3	12.7	10.8	11.6	11.7	184.3%
Mozambique	1.5	1.2	0.7	0.2	0.1	0.1	-	-	0.0	0.1	0.0	-72.4%
Namibia	..	..	..	..	..	0.0	0.0	0.0	0.1	0.0	0.0	..
Nigeria	0.5	0.6	0.4	0.2	0.2	0.0	0.0	0.0	0.1	0.1	0.1	-36.8%
Senegal	-	-	-	-	-	-	-	0.4	0.7	1.0	0.8	x
South Africa	129.2	167.4	173.7	189.2	207.2	225.7	247.6	270.1	301.4	283.2	298.4	44.0%
Sudan	-	-	0.0	-	-	-	-	-	-	-	-	-
United Rep. of Tanzania	-	-	0.0	0.0	0.0	0.1	0.2	0.1	-	0.0	0.2	+
Togo	-	-	-	-	-	-	-	-	-	-	-	-
Tunisia	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-	-	-	-	-100.0%
Zambia	2.0	1.9	1.4	1.1	0.9	0.3	0.3	0.3	0.0	0.0	0.2	-76.0%
Zimbabwe	5.6	5.0	6.1	7.5	13.4	11.2	10.1	8.0	6.9	7.5	7.8	-41.4%
Other Africa	0.1	0.2	1.5	0.6	0.8	0.5	1.8	2.1	2.8	2.9	3.0	258.7%
<b>Africa</b>	<b>143.2</b>	<b>181.8</b>	<b>188.8</b>	<b>207.8</b>	<b>234.2</b>	<b>252.0</b>	<b>277.3</b>	<b>301.4</b>	<b>329.6</b>	<b>313.1</b>	<b>329.3</b>	<b>40.6%</b>

\* Includes Estonia and Slovenia prior to 1990.

\*\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

\*\*\* Serbia includes Kosovo from 1990 to 1999 and Montenegro from 1990 to 2004.

\*\*\*\* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

CO<sub>2</sub> emissions: Sectoral Approach - Coalmillion tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
Bangladesh	0.4	0.5	0.5	0.2	1.1	1.2	1.3	1.9	3.1	2.8	3.5	220.6%
Brunei Darussalam	-	-	-	-	-	-	-	-	-	-	-	-
Cambodia	..	..	..	..	..	..	..	..	0.0	0.0	0.0	..
India	142.6	176.1	195.4	283.7	395.9	517.3	623.6	786.8	1 187.3	1 249.0	1 359.3	243.3%
Indonesia	0.5	0.5	0.5	4.5	17.6	26.0	51.4	85.8	106.8	106.6	124.4	608.3%
DPR of Korea	64.9	72.5	97.5	119.0	106.1	70.9	65.4	71.0	61.7	42.5	42.9	-59.6%
Malaysia	0.0	0.0	0.2	1.4	5.1	6.5	9.6	26.7	57.4	57.3	61.6	+
Mongolia	..	..	..	9.4	10.2	9.0	7.5	7.8	10.0	9.9	10.7	5.0%
Myanmar	0.6	0.6	0.6	0.6	0.3	0.1	1.3	1.2	1.6	1.6	1.9	616.8%
Nepal	0.0	0.1	0.2	0.0	0.2	0.3	1.0	1.0	1.2	1.4	1.7	922.9%
Pakistan	2.5	2.2	2.6	4.8	7.1	7.8	6.7	14.3	16.0	15.8	14.2	101.1%
Philippines	0.1	0.2	1.5	5.4	4.9	6.7	19.5	22.2	29.2	32.0	33.6	584.7%
Singapore	0.0	0.0	0.0	0.1	0.1	0.1	-	0.0	0.0	0.0	0.0	-65.4%
Sri Lanka	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	1.4	2.0	+
Chinese Taipei	10.0	8.4	14.6	26.0	42.3	63.7	109.6	145.3	154.8	149.5	147.1	247.7%
Thailand	0.5	0.6	1.9	6.5	16.1	29.4	31.4	46.9	64.2	72.1	68.2	324.4%
Viet Nam	5.6	10.0	9.2	11.3	9.0	13.4	17.6	33.3	59.0	62.8	66.5	642.3%
Other Asia	4.4	4.8	7.7	0.9	0.8	0.6	1.3	1.6	4.4	4.9	5.3	537.5%
<b>Asia (excl. China)</b>	<b>232.1</b>	<b>276.5</b>	<b>332.4</b>	<b>473.9</b>	<b>616.7</b>	<b>753.0</b>	<b>947.3</b>	<b>1 246.0</b>	<b>1 757.0</b>	<b>1 809.7</b>	<b>1 943.0</b>	<b>215.0%</b>
People's Rep. of China	693.1	855.2	1 146.3	1 456.5	1 918.5	2 566.4	2 698.7	4 507.8	5 980.4	6 592.8	6 764.4	252.6%
Hong Kong, China	0.1	0.0	0.0	12.4	23.6	23.3	16.5	25.9	24.7	30.0	29.5	24.9%
<b>China</b>	<b>693.1</b>	<b>855.2</b>	<b>1 146.3</b>	<b>1 468.9</b>	<b>1 942.2</b>	<b>2 589.6</b>	<b>2 715.1</b>	<b>4 533.7</b>	<b>6 005.1</b>	<b>6 622.8</b>	<b>6 794.0</b>	<b>249.8%</b>
Argentina	3.2	3.3	3.0	3.4	3.4	4.7	4.5	5.6	5.6	6.4	5.5	60.8%
Bolivia	-	-	-	0.2	-	-	-	-	-	-	-	-
Brazil	5.9	6.7	14.6	25.6	26.7	31.6	45.1	44.4	52.7	55.0	57.7	116.6%
Colombia	5.9	6.5	8.6	9.9	11.9	13.6	11.9	10.2	10.5	12.3	9.5	-20.7%
Costa Rica	0.0	0.0	0.0	0.0	-	-	0.0	0.1	0.3	0.3	0.3	x
Cuba	0.4	0.3	0.4	0.5	0.6	0.3	0.1	0.1	0.1	0.1	0.1	-88.7%
Dominican Republic	-	-	-	0.5	0.0	0.2	0.2	1.7	3.0	3.1	3.3	+
Ecuador	-	-	-	-	-	-	-	-	-	-	-	-
El Salvador	-	-	0.0	-	-	0.0	0.0	0.0	-	-	-	-
Guatemala	-	-	0.1	-	-	-	0.5	1.0	1.2	1.2	1.2	x
Haiti	-	-	-	0.1	0.0	-	-	-	-	-	-	-100.0%
Honduras	-	-	-	-	0.0	0.0	0.3	0.6	0.5	0.6	0.6	+
Jamaica	-	-	-	-	0.1	0.1	0.1	0.1	0.1	0.2	0.2	40.4%
Netherlands Antilles	-	-	-	-	-	-	-	-	-	-	-	-
Nicaragua	-	-	-	-	-	-	-	-	-	-	-	-
Panama	0.0	0.0	-	0.1	0.1	0.1	0.1	1.0	0.3	0.8	1.3	+
Paraguay	-	-	-	-	-	-	-	-	-	-	-	-
Peru	0.5	0.6	0.6	0.7	0.6	1.4	2.4	3.5	3.5	3.3	3.2	449.8%
Trinidad and Tobago	-	-	-	-	-	-	-	-	-	-	-	-
Uruguay	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-70.5%
Venezuela	0.6	1.0	0.6	0.7	1.8	0.0	0.5	0.1	0.8	0.8	0.8	-54.6%
Other Non-OECD Americas	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5%
<b>Non-OECD Americas</b>	<b>16.7</b>	<b>18.6</b>	<b>28.0</b>	<b>41.8</b>	<b>45.3</b>	<b>52.0</b>	<b>65.9</b>	<b>68.5</b>	<b>78.6</b>	<b>84.0</b>	<b>83.6</b>	<b>84.6%</b>
Bahrain	-	-	-	-	-	-	-	-	-	-	-	-
Islamic Republic of Iran	0.4	2.1	1.9	1.6	1.2	1.8	3.3	4.6	3.3	3.9	3.6	204.3%
Iraq	-	-	-	-	-	-	-	-	-	-	-	-
Jordan	-	-	-	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-	-	-	-
Lebanon	0.0	0.0	0.0	-	-	0.5	0.5	0.5	0.6	0.6	0.6	x
Oman	-	-	-	-	-	-	-	-	-	-	-	-
Qatar	-	-	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	-	-	-	-	-	-	-	-	-	-	-	-
Syrian Arab Republic	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	x
United Arab Emirates	-	-	-	-	-	-	-	0.6	2.8	4.8	6.5	x
Yemen	-	-	-	-	-	-	-	-	-	-	-	-
<b>Middle East</b>	<b>0.4</b>	<b>2.1</b>	<b>2.0</b>	<b>1.6</b>	<b>1.2</b>	<b>2.3</b>	<b>3.8</b>	<b>5.6</b>	<b>6.6</b>	<b>9.3</b>	<b>10.8</b>	<b>812.4%</b>

CO<sub>2</sub> emissions: Sectoral Approach - Oil

 million tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>World *</b>	<b>6 829.8</b>	<b>7 791.1</b>	<b>8 719.3</b>	<b>8 088.2</b>	<b>8 812.7</b>	<b>9 123.1</b>	<b>9 899.9</b>	<b>10 727.3</b>	<b>10 990.4</b>	<b>11 103.0</b>	<b>11 205.4</b>	<b>27.2%</b>
<i>Annex I Parties</i>	..	..	..	..	5 682.7	5 328.6	5 485.4	5 642.8	5 066.8	5 027.4	4 952.5	-12.8%
<i>Annex II Parties</i>	4 522.9	4 773.7	4 914.7	4 232.8	4 481.2	4 620.0	4 847.8	5 009.7	4 433.4	4 360.1	4 283.5	-4.4%
<i>North America</i>	2 232.9	2 341.6	2 427.9	2 164.8	2 251.2	2 265.8	2 516.9	2 697.9	2 419.6	2 372.5	2 322.3	3.2%
<i>Europe</i>	1 657.7	1 700.3	1 750.2	1 431.1	1 478.0	1 561.0	1 568.3	1 571.6	1 382.6	1 321.4	1 279.1	-13.5%
<i>Asia Oceania</i>	632.3	731.8	736.6	636.9	751.9	793.2	762.5	740.2	631.1	666.2	682.1	-9.3%
<i>Annex I EIT</i>	..	..	..	..	1 137.5	627.4	552.9	553.3	558.1	590.1	590.0	-48.1%
<i>Non-Annex I Parties</i>	..	..	..	..	2 510.5	3 084.3	3 574.5	4 099.5	4 812.3	4 942.5	5 172.9	106.1%
<i>Annex I Kyoto Parties</i>	..	..	..	..	3 279.6	2 951.0	2 861.3	2 844.1	2 551.0	2 553.6	2 521.5	-23.1%
<b>Intl. marine bunkers</b>	<b>345.1</b>	<b>332.5</b>	<b>348.4</b>	<b>298.5</b>	<b>363.2</b>	<b>421.9</b>	<b>488.1</b>	<b>566.1</b>	<b>653.5</b>	<b>659.4</b>	<b>602.2</b>	<b>65.8%</b>
<b>Intl. aviation bunkers</b>	<b>167.5</b>	<b>172.1</b>	<b>200.1</b>	<b>222.6</b>	<b>256.3</b>	<b>288.3</b>	<b>351.8</b>	<b>419.0</b>	<b>457.8</b>	<b>473.7</b>	<b>477.8</b>	<b>86.4%</b>
<b>Non-OECD Total **</b>	<b>1 564.6</b>	<b>2 188.5</b>	<b>2 818.4</b>	<b>2 886.6</b>	<b>3 163.5</b>	<b>3 108.0</b>	<b>3 488.1</b>	<b>4 012.4</b>	<b>4 733.6</b>	<b>4 895.2</b>	<b>5 123.7</b>	<b>62.0%</b>
<b>OECD Total ***</b>	<b>4 752.7</b>	<b>5 098.0</b>	<b>5 352.4</b>	<b>4 680.4</b>	<b>5 029.7</b>	<b>5 304.9</b>	<b>5 571.9</b>	<b>5 729.9</b>	<b>5 145.5</b>	<b>5 074.7</b>	<b>5 001.6</b>	<b>-0.6%</b>
Canada	209.8	233.2	246.7	188.8	209.4	212.2	236.2	265.1	260.9	261.2	266.8	27.4%
Chile	14.5	12.4	15.1	13.0	19.1	27.8	30.4	34.1	42.8	44.2	44.3	131.4%
Mexico	71.7	106.5	161.6	186.5	198.6	215.3	256.1	259.3	254.6	261.0	259.8	30.9%
United States	2 023.0	2 108.4	2 181.2	1 976.0	2 041.8	2 053.5	2 280.8	2 432.8	2 158.7	2 111.2	2 055.5	0.7%
<b>OECD Americas</b>	<b>2 319.1</b>	<b>2 460.5</b>	<b>2 604.6</b>	<b>2 364.3</b>	<b>2 468.9</b>	<b>2 508.9</b>	<b>2 803.5</b>	<b>2 991.4</b>	<b>2 717.0</b>	<b>2 677.7</b>	<b>2 626.5</b>	<b>6.4%</b>
Australia	66.8	80.8	87.3	79.9	89.3	94.6	104.7	114.1	119.5	123.5	128.8	44.3%
Israel	14.2	17.0	19.4	17.3	24.2	30.1	30.1	26.6	29.2	28.0	35.3	46.0%
Japan	556.2	639.4	638.6	547.4	650.7	684.3	642.0	608.2	494.2	525.2	535.8	-17.7%
Korea	30.9	46.2	76.2	73.1	135.3	234.1	219.6	203.8	186.7	182.5	183.6	35.7%
New Zealand	9.3	11.6	10.7	9.6	12.0	14.3	15.8	17.9	17.4	17.5	17.5	46.1%
<b>OECD Asia Oceania</b>	<b>677.4</b>	<b>795.0</b>	<b>832.3</b>	<b>727.2</b>	<b>911.5</b>	<b>1 057.4</b>	<b>1 012.3</b>	<b>970.6</b>	<b>847.0</b>	<b>876.8</b>	<b>901.0</b>	<b>-1.1%</b>
Austria	27.2	29.2	33.0	26.9	27.7	29.8	31.2	37.9	33.1	31.2	30.6	10.8%
Belgium	63.3	60.4	65.0	46.7	48.7	55.4	56.9	57.9	54.0	50.6	48.9	0.4%
Czech Republic	19.9	27.9	30.6	27.9	23.2	20.8	20.1	24.9	22.8	22.1	21.7	-6.2%
Denmark	49.0	44.2	38.5	30.2	22.0	24.4	23.5	21.7	19.8	18.6	17.1	-22.2%
Estonia	..	..	..	..	8.9	3.4	2.7	3.1	3.0	3.0	3.1	-65.5%
Finland	31.4	33.6	33.9	26.9	28.2	26.2	26.0	26.2	25.7	24.5	23.8	-15.6%
France	277.3	293.5	292.8	214.5	220.6	227.7	235.9	236.7	211.6	204.6	202.6	-8.2%
Germany	385.7	392.4	385.9	326.6	322.3	344.2	321.9	293.8	265.3	255.0	256.4	-20.5%
Greece	18.4	23.5	32.0	29.6	36.5	39.1	45.7	51.7	43.8	41.2	36.4	-0.2%
Hungary	18.6	27.2	29.8	27.0	22.7	19.8	17.3	16.8	15.9	15.4	14.3	-37.2%
Iceland	1.4	1.6	1.7	1.4	1.6	1.7	1.7	1.8	1.6	1.5	1.5	-10.2%
Ireland	12.9	14.0	16.2	11.4	12.1	15.7	23.0	25.0	20.0	17.4	17.0	39.8%
Italy	237.3	248.6	267.5	229.6	252.3	261.1	248.0	231.8	185.2	181.6	167.4	-33.6%
Luxembourg	4.1	3.8	3.0	2.9	4.4	4.7	5.9	8.2	7.4	7.6	7.4	67.1%
Netherlands	68.1	56.8	83.5	55.6	52.7	57.8	60.7	65.9	65.4	65.6	64.4	22.2%
Norway	19.8	19.8	22.0	19.8	20.0	20.4	21.0	22.8	24.0	22.9	22.5	12.5%
Poland	21.9	33.5	42.8	39.2	34.5	40.9	51.5	58.0	67.1	66.5	63.0	82.6%
Portugal	12.0	16.5	22.2	21.8	28.8	34.3	39.6	40.4	30.6	27.5	24.4	-15.4%
Slovak Republic	12.6	15.2	18.1	14.3	14.4	7.1	6.8	9.1	9.8	9.7	9.3	-35.4%
Slovenia	..	..	..	..	5.0	6.7	6.7	7.2	7.4	7.4	7.1	41.6%
Spain	82.4	117.3	136.9	101.6	120.9	143.1	166.8	191.4	163.7	152.7	142.2	17.5%
Sweden	77.1	72.5	67.6	47.3	40.2	45.5	41.5	36.6	32.8	30.2	28.4	-29.3%
Switzerland	36.9	34.8	36.0	35.8	34.2	33.5	33.2	34.2	32.7	29.5	30.3	-11.4%
Turkey	25.4	38.5	44.1	49.4	62.5	78.9	82.7	77.1	72.8	74.7	76.5	22.4%
United Kingdom	253.5	238.0	212.7	202.5	204.7	196.4	185.8	187.6	165.9	159.1	157.9	-22.9%
<b>OECD Europe ***</b>	<b>1 756.2</b>	<b>1 842.6</b>	<b>1 915.6</b>	<b>1 588.9</b>	<b>1 649.3</b>	<b>1 738.7</b>	<b>1 756.1</b>	<b>1 767.9</b>	<b>1 581.5</b>	<b>1 520.2</b>	<b>1 474.2</b>	<b>-10.6%</b>
<i>European Union - 28</i>	..	..	..	..	1 656.2	1 682.8	1 684.9	1 706.6	1 515.5	1 455.6	1 407.7	-15.0%

\* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.

\*\* Includes Estonia and Slovenia prior to 1990.

\*\*\* Excludes Estonia and Slovenia prior to 1990.

CO<sub>2</sub> emissions: Sectoral Approach - Oilmillion tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>Non-OECD Total *</b>	<b>1 564.6</b>	<b>2 188.5</b>	<b>2 818.4</b>	<b>2 886.6</b>	<b>3 163.5</b>	<b>3 108.0</b>	<b>3 488.1</b>	<b>4 012.4</b>	<b>4 733.6</b>	<b>4 895.2</b>	<b>5 123.7</b>	<b>62.0%</b>
Albania	2.4	2.3	4.4	2.8	3.4	1.7	3.0	3.9	3.4	3.5	3.1	-7.6%
Armenia	..	..	..	..	11.2	0.7	0.8	1.0	1.0	1.0	0.9	-91.8%
Azerbaijan	..	..	..	..	22.6	18.5	17.5	13.1	7.8	9.2	10.0	-55.9%
Belarus	..	..	..	..	87.8	30.6	22.4	20.9	20.9	24.2	29.7	-66.2%
Bosnia and Herzegovina	..	..	..	..	5.4	1.5	3.2	3.2	4.4	4.4	4.1	-24.0%
Bulgaria	29.1	34.9	38.6	28.0	26.1	13.7	10.4	12.0	11.0	10.1	10.6	-59.5%
Croatia	..	..	..	..	13.4	11.0	11.3	12.9	10.6	10.6	9.9	-26.7%
Cyprus **	1.8	1.7	2.6	2.6	3.6	5.0	6.1	6.8	7.1	6.9	6.5	79.1%
FYR of Macedonia	..	..	..	..	3.0	2.3	2.7	2.6	2.6	2.7	2.6	-12.5%
Georgia	..	..	..	..	19.2	5.8	2.3	2.1	2.6	2.8	2.7	-85.7%
Gibraltar	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.5	0.5	0.5	0.5	202.4%
Kazakhstan	..	..	..	..	58.3	32.5	22.1	25.8	29.5	35.5	32.1	-45.0%
Kosovo ***	..	..	..	..	..	..	1.0	1.4	1.6	1.7	1.6	..
Kyrgyzstan	..	..	..	..	8.9	1.4	1.2	1.5	2.8	3.7	4.7	-47.2%
Latvia	..	..	..	..	10.3	5.5	3.8	4.1	4.1	3.7	3.6	-65.2%
Lithuania	..	..	..	..	19.7	9.0	6.5	7.5	7.1	6.8	7.0	-64.3%
Malta	0.6	0.6	1.0	0.7	1.6	2.2	2.1	2.7	2.5	2.5	2.5	61.0%
Republic of Moldova	..	..	..	..	14.8	3.1	1.2	1.9	2.2	2.3	2.0	-86.2%
Montenegro ***	..	..	..	..	..	..	..	0.8	0.8	0.7	0.7	..
Romania	31.5	40.0	51.6	41.1	50.4	32.4	27.3	28.6	22.6	23.4	24.3	-51.9%
Russian Federation	..	..	..	..	625.4	351.2	332.4	309.9	318.4	350.2	350.0	-44.0%
Serbia ***	..	..	..	..	14.1	4.8	4.1	11.5	9.9	9.6	9.0	-36.1%
Tajikistan	..	..	..	..	5.2	1.2	0.7	0.9	1.6	1.6	1.7	-66.7%
Turkmenistan	..	..	..	..	14.7	7.0	11.1	14.5	16.1	16.9	17.8	21.3%
Ukraine	..	..	..	..	195.5	75.4	33.7	38.2	37.3	37.0	36.4	-81.4%
Uzbekistan	..	..	..	..	30.6	19.8	19.6	14.5	11.0	10.2	9.1	-70.4%
Former Soviet Union ****	688.9	1 018.6	1 210.0	1 193.3	..	..	..	..	..	..	..	..
Former Yugoslavia ****	25.5	31.8	39.2	38.3	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>779.9</b>	<b>1 130.0</b>	<b>1 347.5</b>	<b>1 307.0</b>	<b>1 245.4</b>	<b>636.6</b>	<b>546.9</b>	<b>542.9</b>	<b>539.4</b>	<b>581.7</b>	<b>583.2</b>	<b>-53.2%</b>
Algeria	6.2	9.1	14.8	20.8	24.0	22.9	25.2	31.5	43.7	46.8	50.9	111.7%
Angola	1.6	1.9	2.5	2.7	3.0	2.9	4.0	5.2	14.3	14.3	15.0	403.6%
Benin	0.3	0.5	0.4	0.5	0.3	0.2	1.4	2.7	4.5	4.7	4.9	+
Botswana	..	..	..	0.5	1.0	1.2	1.7	2.0	2.6	2.8	2.9	194.4%
Cameroon	0.7	1.0	1.7	2.4	2.7	2.5	2.8	2.9	4.5	4.7	4.9	82.9%
Congo	0.6	0.6	0.7	0.8	0.6	0.5	0.5	0.8	1.6	1.8	1.9	204.5%
Dem. Rep. of Congo	1.5	1.8	2.3	2.4	2.1	1.1	0.8	1.3	1.8	2.3	2.4	14.5%
Côte d'Ivoire	2.4	3.0	3.4	3.0	2.7	3.2	3.4	2.9	3.1	2.8	4.5	65.6%
Egypt	19.1	23.8	37.1	55.0	61.9	58.2	67.1	79.6	102.2	101.1	107.2	73.2%
Eritrea	..	..	..	..	..	0.8	0.6	0.6	0.5	0.5	0.5	..
Ethiopia	1.3	1.2	1.4	1.4	2.2	2.4	3.3	4.6	5.9	6.6	7.1	222.0%
Gabon	0.5	0.8	1.3	1.6	0.7	1.1	1.2	1.4	1.7	1.8	1.7	150.9%
Ghana	1.9	2.3	2.3	2.2	2.7	3.3	5.1	6.5	9.7	9.4	12.0	342.3%
Kenya	3.0	3.4	4.4	4.4	5.1	5.4	7.5	7.2	10.7	10.6	9.8	90.9%
Libya	1.6	6.7	13.1	15.5	18.3	26.6	30.8	34.9	38.8	25.4	33.8	84.3%
Mauritius	0.3	0.4	0.6	0.5	1.0	1.4	1.8	2.0	2.0	2.1	2.1	104.2%
Morocco	5.6	8.1	12.3	13.6	15.4	19.2	19.0	25.9	34.1	37.0	37.6	144.0%
Mozambique	1.4	1.1	1.6	1.2	0.9	1.0	1.3	1.5	2.2	2.5	2.4	150.2%
Namibia	..	..	..	..	..	1.7	1.9	2.3	2.9	3.0	3.2	..
Nigeria	5.0	10.1	23.4	25.2	21.9	24.5	29.4	37.6	36.2	33.8	35.8	63.2%
Senegal	1.2	1.6	2.0	2.1	2.1	2.4	3.6	4.3	4.7	4.8	4.7	124.5%
South Africa	27.5	34.1	35.1	39.6	46.4	48.8	49.5	59.3	70.9	74.3	73.7	58.9%
Sudan	3.3	3.3	3.7	4.2	5.5	4.6	5.8	10.2	15.5	14.6	14.5	162.8%
United Rep. of Tanzania	1.5	1.5	1.6	1.5	1.7	2.4	2.4	4.2	4.7	5.7	6.8	301.2%
Togo	0.3	0.3	0.4	0.3	0.6	0.6	0.9	1.0	2.1	1.9	1.6	184.0%
Tunisia	3.4	4.0	6.7	7.1	9.0	9.4	11.3	12.5	11.9	11.0	11.3	26.1%
Zambia	1.5	2.5	1.9	1.7	1.7	1.7	1.4	1.8	1.7	2.1	2.6	46.4%
Zimbabwe	1.6	2.1	1.8	2.0	2.6	3.6	3.0	2.1	1.9	2.0	2.1	-18.6%
Other Africa	8.4	9.5	11.9	10.4	12.1	14.2	15.7	18.5	23.2	24.1	25.2	108.4%
<b>Africa</b>	<b>101.8</b>	<b>134.7</b>	<b>188.3</b>	<b>222.7</b>	<b>248.4</b>	<b>267.7</b>	<b>302.6</b>	<b>367.1</b>	<b>459.7</b>	<b>454.3</b>	<b>483.3</b>	<b>94.6%</b>

\* Includes Estonia and Slovenia prior to 1990.

\*\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

\*\*\* Serbia includes Kosovo from 1990 to 1999 and Montenegro from 1990 to 2004.

\*\*\*\* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

CO<sub>2</sub> emissions: Sectoral Approach - Oilmillion tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
Bangladesh	2.2	3.3	4.6	4.6	5.2	8.1	9.2	11.0	11.0	14.4	15.4	196.5%
Brunei Darussalam	0.2	0.2	0.5	0.6	0.7	1.1	1.2	1.3	1.7	1.9	2.0	170.1%
Cambodia	..	..	..	..	..	1.5	2.0	2.6	3.7	4.0	4.1	..
India	56.9	63.8	85.6	119.7	163.7	219.8	306.5	336.5	443.5	459.9	489.1	198.7%
Indonesia	24.4	36.4	61.0	70.0	97.9	134.3	166.4	189.2	208.6	216.4	231.4	136.3%
DPR of Korea	2.6	4.2	8.0	7.4	7.9	3.9	3.1	2.8	2.5	2.6	2.5	-68.2%
Malaysia	12.6	16.0	23.9	27.9	37.6	53.2	57.5	64.8	64.3	70.5	68.3	81.9%
Mongolia	..	..	..	2.2	2.4	1.0	1.3	1.7	2.5	3.1	3.5	43.3%
Myanmar	3.9	3.0	3.9	3.5	2.1	4.0	5.4	6.2	3.3	3.5	6.1	195.1%
Nepal	0.2	0.2	0.3	0.5	0.7	1.5	2.1	2.1	2.9	2.9	3.2	347.4%
Pakistan	8.8	11.0	13.2	20.9	30.6	43.7	58.0	49.4	62.2	61.4	64.0	109.0%
Philippines	23.0	28.9	31.8	23.0	33.0	50.1	48.0	41.8	39.8	36.9	38.2	15.8%
Singapore	6.1	8.4	12.6	17.0	29.9	35.4	41.1	28.5	31.0	31.8	29.9	0.3%
Sri Lanka	2.7	2.6	3.6	3.4	3.6	5.4	10.4	13.0	12.0	13.1	13.9	283.4%
Chinese Taipei	19.0	31.3	54.2	43.9	69.0	86.7	95.2	94.5	82.6	78.2	74.9	8.6%
Thailand	15.8	20.6	31.8	28.5	52.7	90.5	82.7	103.4	95.9	99.0	107.4	103.9%
Viet Nam	10.6	6.7	5.6	5.8	8.2	13.9	23.8	35.5	51.4	54.4	57.4	597.9%
Other Asia	5.6	7.4	8.6	8.0	8.8	8.3	9.5	13.2	16.8	18.5	19.9	125.0%
<b>Asia (excl. China)</b>	<b>194.5</b>	<b>244.0</b>	<b>349.3</b>	<b>386.7</b>	<b>554.1</b>	<b>762.5</b>	<b>923.4</b>	<b>997.5</b>	<b>1 135.9</b>	<b>1 172.6</b>	<b>1 231.5</b>	<b>122.2%</b>
People's Rep. of China	115.2	195.9	251.2	246.1	299.5	423.6	568.0	812.4	1 060.5	1 103.2	1 153.7	285.2%
Hong Kong, China	9.0	10.7	14.3	9.3	8.5	11.6	16.7	8.8	9.5	9.2	9.4	11.4%
<b>China</b>	<b>124.2</b>	<b>206.6</b>	<b>265.5</b>	<b>255.3</b>	<b>308.0</b>	<b>435.2</b>	<b>584.7</b>	<b>821.2</b>	<b>1 070.0</b>	<b>1 112.4</b>	<b>1 163.1</b>	<b>277.7%</b>
Argentina	67.3	65.1	70.9	54.4	53.1	61.8	65.6	67.6	81.3	84.3	87.3	64.3%
Bolivia	2.0	2.9	3.6	3.3	3.7	4.6	4.7	5.7	8.0	8.6	9.3	149.9%
Brazil	83.9	127.8	160.9	133.6	158.8	195.2	241.1	240.2	284.0	302.6	322.8	103.3%
Colombia	18.1	18.6	20.7	22.3	26.8	36.4	34.6	33.5	32.9	38.2	39.8	48.7%
Costa Rica	1.3	1.7	2.2	2.0	2.6	4.4	4.4	5.6	6.3	6.4	6.5	149.6%
Cuba	20.1	23.4	29.7	31.2	33.1	22.0	26.1	23.7	27.8	26.6	26.8	-19.0%
Dominican Republic	3.4	5.2	6.3	5.6	7.4	11.0	15.9	15.3	14.4	14.3	14.3	93.9%
Ecuador	3.5	5.9	10.5	11.7	13.4	17.0	19.3	23.9	31.0	30.8	31.9	138.9%
El Salvador	1.4	2.0	1.7	1.8	2.2	4.6	5.2	6.3	5.8	6.0	6.2	175.4%
Guatemala	2.3	3.0	4.2	3.2	3.2	5.8	7.9	9.6	9.1	9.2	9.3	189.7%
Haiti	0.4	0.4	0.6	0.6	0.9	0.9	1.4	2.0	2.1	2.1	2.1	126.2%
Honduras	1.1	1.3	1.7	1.7	2.2	3.5	4.1	6.5	6.8	7.0	7.5	250.2%
Jamaica	5.5	7.4	6.5	4.6	7.1	8.2	9.6	10.0	6.8	7.1	6.9	-1.9%
Netherlands Antilles	14.4	10.2	8.7	4.6	2.8	2.8	4.5	4.7	4.1	4.7	4.8	73.6%
Nicaragua	1.5	1.8	1.8	1.8	1.8	2.5	3.5	4.0	4.4	4.5	4.3	134.7%
Panama	2.5	3.1	2.9	2.6	2.5	4.0	4.8	5.8	8.6	8.9	8.6	246.0%
Paraguay	0.6	0.7	1.4	1.4	1.9	3.5	3.3	3.4	4.7	4.9	5.1	164.2%
Peru	14.4	17.0	18.9	16.2	17.6	21.8	23.0	21.5	25.4	26.3	27.2	54.5%
Trinidad and Tobago	2.7	3.0	2.8	2.5	2.1	2.2	2.7	4.2	4.8	4.6	4.4	110.3%
Uruguay	5.1	5.4	5.5	3.1	3.7	4.5	5.2	5.1	6.0	7.2	8.3	121.8%
Venezuela	30.7	37.5	59.1	56.0	57.0	59.9	64.6	83.8	107.9	99.2	114.4	100.9%
Other Non-OECD Americas	8.0	10.7	10.1	9.1	12.2	13.2	14.3	14.6	17.3	17.3	17.5	43.5%
<b>Non-OECD Americas</b>	<b>290.4</b>	<b>354.3</b>	<b>430.7</b>	<b>373.3</b>	<b>415.9</b>	<b>489.8</b>	<b>565.7</b>	<b>597.1</b>	<b>699.6</b>	<b>720.9</b>	<b>765.1</b>	<b>84.0%</b>
Bahrain	1.2	1.2	1.7	1.8	2.1	2.4	2.5	3.6	4.2	4.1	4.7	124.4%
Islamic Republic of Iran	35.8	61.4	79.7	128.0	140.5	169.6	190.7	223.6	223.9	227.9	236.1	68.0%
Iraq	8.6	12.4	24.6	35.2	49.6	91.4	64.3	71.4	91.4	96.5	107.5	116.5%
Jordan	1.3	2.1	4.3	7.4	9.0	11.7	13.9	14.8	13.4	17.8	20.2	123.8%
Kuwait	4.1	5.2	13.4	27.4	17.2	18.4	30.8	46.7	52.6	52.3	56.6	228.8%
Lebanon	4.5	5.6	6.6	6.5	5.5	12.4	13.6	14.0	17.3	17.8	20.4	273.5%
Oman	0.3	0.7	1.5	3.6	5.2	7.9	8.7	9.9	19.4	22.9	24.6	371.0%
Qatar	0.3	0.7	1.4	1.7	2.1	2.6	3.1	7.0	14.8	12.3	15.9	650.8%
Saudi Arabia	10.0	17.1	77.9	88.5	110.3	141.4	173.3	204.2	296.0	309.5	327.6	196.9%
Syrian Arab Republic	6.0	9.0	13.0	20.8	25.0	28.0	29.4	44.1	40.0	38.5	29.5	18.2%
United Arab Emirates	0.4	1.6	9.5	15.8	18.8	21.1	21.4	28.8	34.3	35.3	36.2	92.8%
Yemen	1.2	1.7	3.4	4.8	6.4	9.3	13.2	18.6	21.7	18.5	18.4	185.9%
<b>Middle East</b>	<b>73.8</b>	<b>118.9</b>	<b>237.0</b>	<b>341.5</b>	<b>391.7</b>	<b>516.2</b>	<b>564.8</b>	<b>686.7</b>	<b>829.0</b>	<b>853.4</b>	<b>897.5</b>	<b>129.1%</b>

CO<sub>2</sub> emissions: Sectoral Approach - Natural gasmillion tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>World *</b>	<b>2 058.6</b>	<b>2 281.6</b>	<b>2 768.3</b>	<b>3 163.7</b>	<b>3 803.0</b>	<b>4 106.8</b>	<b>4 687.6</b>	<b>5 347.8</b>	<b>6 214.8</b>	<b>6 327.3</b>	<b>6 439.8</b>	<b>69.3%</b>
<i>Annex I Parties</i>	..	..	..	..	3 070.2	3 178.2	3 471.5	3 640.7	3 881.8	3 882.4	3 906.1	27.2%
<i>Annex II Parties</i>	1 438.5	1 503.1	1 663.5	1 616.2	1 794.6	2 123.1	2 426.2	2 484.2	2 688.5	2 657.9	2 703.0	50.6%
<i>North America</i>	1 257.4	1 143.4	1 179.4	1 058.1	1 135.1	1 309.4	1 423.0	1 362.3	1 477.2	1 505.6	1 569.3	38.3%
<i>Europe</i>	168.1	331.0	414.3	446.1	505.0	631.3	783.7	886.1	918.8	820.5	796.9	57.8%
<i>Asia Oceania</i>	12.9	28.7	69.8	112.0	154.4	182.4	219.5	235.8	292.5	331.8	336.8	118.1%
<i>Annex I EIT</i>	..	..	..	..	1 269.1	1 042.1	1 016.4	1 103.7	1 120.2	1 138.8	1 116.3	-12.0%
<i>Non-Annex I Parties</i>	..	..	..	..	732.8	928.6	1 216.1	1 707.0	2 333.0	2 444.8	2 533.6	245.7%
<i>Annex I Kyoto Parties</i>	..	..	..	..	1 901.0	1 830.2	1 987.4	2 187.2	2 290.3	2 252.1	2 211.7	16.3%
<b>Intl. marine bunkers</b>	-	-	-	-	-	-	-	-	-	-	-	-
<b>Intl. aviation bunkers</b>	-	-	-	-	-	-	-	-	-	-	-	-
<b>Non-OECD Total **</b>	<b>575.6</b>	<b>719.5</b>	<b>1 013.9</b>	<b>1 439.0</b>	<b>1 875.4</b>	<b>1 825.5</b>	<b>2 040.1</b>	<b>2 553.3</b>	<b>3 136.7</b>	<b>3 256.9</b>	<b>3 318.4</b>	<b>76.9%</b>
<b>OECD Total ***</b>	<b>1 483.1</b>	<b>1 562.1</b>	<b>1 754.3</b>	<b>1 724.7</b>	<b>1 927.6</b>	<b>2 281.3</b>	<b>2 647.6</b>	<b>2 794.4</b>	<b>3 078.1</b>	<b>3 070.4</b>	<b>3 121.4</b>	<b>61.9%</b>
Canada	67.9	87.3	99.7	113.9	123.8	149.1	168.1	170.8	178.5	189.8	194.3	57.0%
Chile	1.3	1.1	1.4	1.6	2.1	2.1	10.3	14.0	9.8	10.9	9.4	346.2%
Mexico	20.2	25.6	43.2	53.6	52.1	55.9	66.6	88.3	123.8	130.5	135.2	159.7%
United States	1 189.5	1 056.1	1 079.7	944.2	1 011.3	1 160.2	1 254.9	1 191.5	1 298.6	1 315.8	1 375.0	36.0%
<b>OECD Americas</b>	<b>1 278.9</b>	<b>1 170.1</b>	<b>1 224.0</b>	<b>1 113.3</b>	<b>1 189.3</b>	<b>1 367.4</b>	<b>1 499.9</b>	<b>1 464.7</b>	<b>1 610.8</b>	<b>1 647.0</b>	<b>1 713.9</b>	<b>44.1%</b>
Australia	4.1	8.9	16.7	24.4	32.8	37.7	43.9	54.8	68.7	73.8	68.8	109.8%
Israel	0.2	0.1	0.2	0.1	0.0	0.0	0.0	3.1	10.1	9.4	4.9	+
Japan	8.5	19.2	51.2	81.5	114.6	137.1	164.8	173.7	215.6	250.4	259.8	126.8%
Korea	-	-	-	-	6.4	19.4	39.9	63.8	90.7	97.8	106.0	+
New Zealand	0.2	0.6	1.8	6.1	7.0	7.6	10.8	7.3	8.2	7.6	8.1	15.7%
<b>OECD Asia Oceania</b>	<b>13.1</b>	<b>28.8</b>	<b>70.0</b>	<b>112.0</b>	<b>160.8</b>	<b>201.8</b>	<b>259.4</b>	<b>302.8</b>	<b>393.4</b>	<b>439.0</b>	<b>447.7</b>	<b>178.3%</b>
Austria	5.6	7.5	9.0	10.1	11.8	14.7	15.0	18.8	18.9	17.9	17.1	44.4%
Belgium	11.3	18.2	20.5	16.9	18.9	24.5	30.7	33.3	38.8	34.9	33.4	76.9%
Czech Republic	1.9	3.1	5.6	9.1	11.5	14.5	17.0	17.8	17.4	15.9	15.6	36.3%
Denmark	-	0.0	0.0	1.5	4.2	7.3	10.3	10.4	10.3	8.8	8.1	95.6%
Estonia	..	..	..	..	2.7	1.3	1.5	1.8	1.3	1.2	1.3	-53.3%
Finland	-	1.5	1.7	1.9	5.0	6.6	7.9	8.3	8.3	7.3	6.5	28.0%
France	19.2	33.0	47.4	54.5	56.1	65.8	81.1	92.5	95.6	82.9	85.3	52.2%
Germany	38.8	86.4	114.9	105.3	118.1	147.0	158.4	171.4	179.7	162.7	163.1	38.1%
Greece	-	-	-	0.1	0.2	0.1	3.9	5.4	7.2	8.8	8.1	+
Hungary	6.8	10.7	17.6	19.2	19.8	20.3	21.6	27.0	22.2	21.1	18.7	-5.6%
Iceland	-	-	-	-	-	-	-	-	-	-	-	-
Ireland	-	-	1.7	4.5	4.0	5.0	7.7	8.1	10.8	9.5	9.2	132.8%
Italy	23.9	40.8	49.3	59.8	89.2	102.8	134.0	163.2	157.4	148.0	142.0	59.2%
Luxembourg	0.0	0.8	1.0	0.7	1.0	1.3	1.6	2.7	2.8	2.4	2.5	145.6%
Netherlands	47.0	72.5	69.4	75.3	70.2	78.6	79.7	80.7	90.1	78.5	75.6	7.6%
Norway	-	0.4	2.0	2.8	4.6	8.1	8.0	10.0	11.9	11.2	9.9	115.3%
Poland	11.4	13.5	17.6	18.2	18.5	18.3	20.6	26.2	27.9	28.1	29.2	58.2%
Portugal	-	-	-	-	-	-	4.6	8.6	10.4	10.6	9.1	x
Slovak Republic	2.9	4.9	5.1	6.7	11.7	11.7	13.1	13.2	11.2	10.1	9.6	-17.7%
Slovenia	..	..	..	..	1.8	1.7	1.8	2.1	2.0	1.7	1.7	-7.6%
Spain	0.7	1.8	3.1	4.5	10.5	17.4	34.7	67.2	72.0	66.9	65.2	518.9%
Sweden	-	-	-	0.2	1.2	1.6	1.6	1.7	3.2	2.6	2.4	88.5%
Switzerland	0.0	1.0	1.9	2.9	3.8	5.1	5.6	6.5	7.0	6.2	6.8	80.8%
Turkey	-	-	-	0.1	6.5	13.0	28.9	52.8	73.2	85.7	86.8	+
United Kingdom	21.6	67.2	92.3	105.2	106.0	145.4	199.0	197.2	194.2	161.3	152.5	43.9%
<b>OECD Europe ***</b>	<b>191.1</b>	<b>363.2</b>	<b>460.3</b>	<b>499.4</b>	<b>577.5</b>	<b>712.1</b>	<b>888.2</b>	<b>1 027.0</b>	<b>1 073.9</b>	<b>984.4</b>	<b>959.8</b>	<b>66.2%</b>
<i>European Union - 28</i>	..	..	..	..	662.6	749.7	894.3	1 007.6	1 025.0	925.2	898.1	35.6%

\* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.

\*\* Includes Estonia and Slovenia prior to 1990.

\*\*\* Excludes Estonia and Slovenia prior to 1990.

CO<sub>2</sub> emissions: Sectoral Approach - Natural gas

 million tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>Non-OECD Total *</b>	<b>575.6</b>	<b>719.5</b>	<b>1 013.9</b>	<b>1 439.0</b>	<b>1 875.4</b>	<b>1 825.5</b>	<b>2 040.1</b>	<b>2 553.3</b>	<b>3 136.7</b>	<b>3 256.9</b>	<b>3 318.4</b>	<b>76.9%</b>
Albania	0.2	0.6	0.8	0.8	0.5	0.1	0.0	0.0	0.0	0.0	0.0	-93.5%
Armenia	..	..	..	..	8.3	2.7	2.6	3.1	3.0	3.7	4.5	-46.0%
Azerbaijan	..	..	..	..	32.1	15.4	10.4	17.7	16.1	17.6	19.3	-39.8%
Belarus	..	..	..	..	27.5	25.6	32.2	38.3	41.2	38.9	38.3	39.2%
Bosnia and Herzegovina	..	..	..	..	0.9	0.3	0.5	0.7	0.5	0.5	0.5	-47.5%
Bulgaria	0.6	2.3	7.4	10.8	12.0	10.0	6.5	6.1	5.1	5.8	5.4	-54.6%
Croatia	..	..	..	..	4.7	4.1	4.7	5.1	5.7	5.4	4.8	2.1%
Cyprus **	..	..	..	..	-	-	-	-	-	-	-	-
FYR of Macedonia	..	..	..	..	-	-	0.1	0.1	0.2	0.3	0.3	x
Georgia	..	..	..	..	10.6	2.2	2.2	2.2	2.2	3.2	3.6	-66.1%
Gibraltar	..	..	..	..	-	-	-	-	-	-	-	-
Kazakhstan	..	..	..	..	24.8	23.5	15.2	28.5	53.7	53.3	49.4	99.1%
Kosovo ***	..	..	..	..	..	..	-	-	-	-	-	..
Kyrgyzstan	..	..	..	..	3.6	1.7	1.3	1.2	0.5	0.6	0.7	-81.2%
Latvia	..	..	..	..	5.6	2.3	2.5	3.2	3.4	3.0	2.8	-49.6%
Lithuania	..	..	..	..	10.3	4.3	4.3	5.3	5.4	5.6	5.4	-48.0%
Malta	..	..	..	..	-	-	-	-	-	-	-	-
Republic of Moldova	..	..	..	..	7.6	6.4	4.8	5.4	5.3	5.2	5.1	-32.2%
Montenegro ***	..	..	..	..	..	..	-	-	-	-	-	..
Romania	52.1	62.6	75.7	74.6	67.4	43.1	30.6	30.2	23.7	24.2	23.5	-65.1%
Russian Federation	..	..	..	..	866.3	728.8	718.1	783.4	851.7	873.5	864.9	-0.2%
Serbia ***	..	..	..	..	6.0	3.0	3.4	4.3	4.1	4.3	3.9	-35.7%
Tajikistan	..	..	..	..	3.2	1.2	1.5	1.3	0.4	0.4	0.3	-91.5%
Turkmenistan	..	..	..	..	28.6	26.2	25.5	33.3	40.5	44.6	46.0	60.7%
Ukraine	..	..	..	..	209.4	156.1	141.9	144.0	102.1	104.3	95.1	-54.6%
Uzbekistan	..	..	..	..	75.5	77.4	93.4	89.4	83.8	93.4	96.4	27.6%
Former Soviet Union ****	431.8	520.4	704.2	1 021.2	..	..	..	..	..	..	..	..
Former Yugoslavia ****	1.9	2.9	5.8	11.0	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>486.6</b>	<b>588.8</b>	<b>793.9</b>	<b>1 118.3</b>	<b>1 405.0</b>	<b>1 134.3</b>	<b>1 101.8</b>	<b>1 203.0</b>	<b>1 248.5</b>	<b>1 287.7</b>	<b>1 270.2</b>	<b>-9.6%</b>
Algeria	2.4	4.6	13.4	21.7	27.4	32.4	37.6	46.9	53.0	56.5	62.9	129.2%
Angola	0.1	0.1	0.2	0.2	1.0	1.1	1.1	1.2	1.4	1.4	1.5	40.7%
Benin	-	-	-	-	-	-	-	-	-	-	-	-
Botswana	..	..	..	..	-	-	-	-	-	-	-	-
Cameroon	..	..	..	..	-	-	-	-	0.5	0.5	0.5	x
Congo	0.0	0.0	-	0.0	-	-	-	0.0	0.2	0.3	0.3	x
Dem. Rep. of Congo	-	-	-	-	-	-	-	-	0.0	0.0	0.0	x
Côte d'Ivoire	-	-	-	-	-	0.1	3.0	2.9	3.1	3.1	3.3	x
Egypt	0.2	0.1	3.4	7.9	14.9	22.9	32.4	67.6	80.3	87.7	88.2	490.5%
Eritrea	..	..	..	..	..	..	-	-	-	-	-	..
Ethiopia	..	..	..	..	-	-	-	-	-	-	-	-
Gabon	-	-	0.0	0.1	0.2	0.3	0.2	0.3	0.6	0.7	0.7	249.6%
Ghana	-	-	-	-	-	-	-	-	0.8	1.6	0.8	x
Kenya	-	-	-	-	-	-	-	-	-	-	-	-
Libya	2.1	2.5	5.5	7.0	9.0	8.5	8.8	10.4	12.3	10.0	10.4	15.3%
Mauritius	..	..	..	..	-	-	-	-	-	-	-	-
Morocco	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.9	1.3	1.7	2.5	+
Mozambique	-	-	-	-	-	0.0	0.0	0.0	0.2	0.2	0.2	x
Namibia	..	..	..	..	..	..	-	-	-	-	-	..
Nigeria	0.4	1.0	2.9	6.9	6.9	9.2	14.6	20.2	20.1	27.9	28.6	316.2%
Senegal	-	-	-	-	0.0	0.1	0.0	0.0	0.0	0.0	0.1	296.5%
South Africa	-	-	-	-	-	-	-	-	4.1	4.0	4.0	x
Sudan	-	-	-	-	-	-	-	-	-	-	-	-
United Rep. of Tanzania	-	-	-	-	-	-	-	0.8	1.5	1.7	1.9	x
Togo	-	-	-	-	-	-	-	-	-	-	-	-
Tunisia	0.0	0.5	0.8	2.2	2.8	4.6	6.4	7.7	11.1	10.9	11.8	319.5%
Zambia	-	-	-	-	-	-	-	-	-	-	-	-
Zimbabwe	-	-	-	-	-	-	-	-	-	-	-	-
Other Africa	-	-	-	-	-	-	0.0	1.5	2.3	2.4	2.3	x
<b>Africa</b>	<b>5.2</b>	<b>9.0</b>	<b>26.3</b>	<b>46.2</b>	<b>62.4</b>	<b>79.2</b>	<b>104.1</b>	<b>160.5</b>	<b>192.9</b>	<b>210.6</b>	<b>219.9</b>	<b>252.5%</b>

\* Includes Estonia and Slovenia prior to 1990.

 \*\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

\*\*\* Serbia includes Kosovo from 1990 to 1999 and Montenegro from 1990 to 2004.

\*\*\*\* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.



CO<sub>2</sub> emissions: Sectoral Approach - Natural gasmillion tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
Bangladesh	0.6	0.9	2.1	4.0	7.3	10.9	14.6	22.2	38.3	38.3	40.7	457.9%
Brunei Darussalam	0.2	1.2	2.1	2.3	2.5	3.4	3.2	3.5	5.8	6.4	6.4	155.0%
Cambodia	..	..	..	..	..	-	-	-	-	-	-	..
India	1.3	1.9	2.6	8.0	20.9	35.3	48.0	67.6	117.8	118.9	104.5	400.9%
Indonesia	0.3	1.0	7.3	13.6	30.6	54.1	55.0	60.7	77.0	77.3	79.6	160.4%
DPR of Korea	-	-	-	-	-	-	-	-	-	-	-	-
Malaysia	0.0	0.1	0.2	4.9	7.7	25.7	50.6	66.0	65.4	64.5	65.9	757.4%
Mongolia	..	..	..	-	-	-	-	-	-	-	-	-
Myanmar	0.1	0.3	0.6	1.8	1.7	2.8	2.7	3.2	3.1	3.2	3.6	112.6%
Nepal	-	-	-	-	-	-	-	-	-	-	-	-
Pakistan	5.3	7.7	10.3	13.4	20.9	28.0	34.5	56.9	57.2	59.2	59.2	183.2%
Philippines	-	-	-	-	-	0.0	0.0	6.7	7.1	7.7	7.6	x
Singapore	0.0	0.1	0.1	0.1	0.1	3.1	2.9	13.3	16.6	17.1	18.4	+
Sri Lanka	-	-	-	-	-	-	-	-	-	-	-	-
Chinese Taipei	1.9	2.7	3.3	1.9	3.3	7.8	12.9	20.7	30.4	33.3	31.5	862.7%
Thailand	-	-	-	6.8	11.7	20.4	40.6	60.6	76.1	70.6	81.1	594.9%
Viet Nam	-	-	-	0.1	0.0	0.4	2.6	11.0	19.0	17.1	18.9	+
Other Asia	0.5	0.5	0.2	1.2	0.6	0.5	0.5	0.5	0.9	0.9	1.0	78.0%
<b>Asia (excl. China)</b>	<b>10.2</b>	<b>16.3</b>	<b>28.8</b>	<b>58.2</b>	<b>107.2</b>	<b>192.4</b>	<b>268.1</b>	<b>392.7</b>	<b>514.7</b>	<b>514.4</b>	<b>518.4</b>	<b>383.6%</b>
People's Rep. of China	7.3	17.3	28.0	21.9	26.9	31.6	43.4	82.9	194.7	238.5	266.2	890.7%
Hong Kong, China	0.1	0.1	0.2	0.4	0.8	1.2	7.0	6.5	7.9	6.5	6.0	694.4%
<b>China</b>	<b>7.4</b>	<b>17.4</b>	<b>28.1</b>	<b>22.3</b>	<b>27.6</b>	<b>32.8</b>	<b>50.5</b>	<b>89.4</b>	<b>202.7</b>	<b>244.9</b>	<b>272.2</b>	<b>885.3%</b>
Argentina	12.3	17.1	21.7	30.5	43.4	53.4	71.7	79.4	89.4	93.0	95.8	120.9%
Bolivia	0.1	0.3	0.6	0.8	1.4	2.3	2.4	3.7	6.0	6.6	7.0	387.8%
Brazil	0.5	1.1	2.2	5.0	7.0	8.8	17.4	38.0	51.8	50.3	59.7	756.9%
Colombia	2.6	3.2	5.7	7.3	7.5	8.3	12.8	14.3	18.4	17.4	18.1	140.6%
Costa Rica	-	-	-	-	-	-	-	-	-	-	-	-
Cuba	0.1	0.2	0.1	0.1	0.1	0.2	1.1	1.5	2.0	1.9	2.0	+
Dominican Republic	-	-	-	-	-	-	-	0.4	1.5	1.7	2.2	x
Ecuador	-	-	-	-	-	-	-	0.6	1.0	0.9	1.1	x
El Salvador	-	-	-	-	-	-	-	-	-	-	-	-
Guatemala	-	-	-	-	-	-	-	-	-	-	-	-
Haiti	-	-	-	-	-	-	-	-	-	-	-	-
Honduras	-	-	-	-	-	-	-	-	-	-	-	-
Jamaica	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands Antilles	-	-	-	-	-	-	-	-	-	-	-	-
Nicaragua	-	-	-	-	-	-	-	-	-	-	-	-
Panama	-	-	-	-	-	-	-	-	-	-	-	-
Paraguay	-	-	-	-	-	-	-	-	-	-	-	-
Peru	0.6	0.8	1.0	1.3	1.0	0.6	1.1	3.9	12.8	15.1	15.5	+
Trinidad and Tobago	3.4	2.8	5.1	7.1	9.3	10.0	15.5	26.8	33.6	33.3	32.7	252.5%
Uruguay	-	-	-	-	-	-	0.1	0.2	0.1	0.2	0.1	x
Venezuela	20.8	24.3	32.6	38.5	46.3	58.4	61.7	64.0	73.7	60.7	63.0	36.1%
Other Non-OECD Americas	0.0	-	0.0	0.0	0.0	0.0	0.7	1.4	1.5	1.5	1.6	+
<b>Non-OECD Americas</b>	<b>40.5</b>	<b>49.9</b>	<b>69.1</b>	<b>90.7</b>	<b>116.1</b>	<b>142.0</b>	<b>184.5</b>	<b>234.1</b>	<b>291.9</b>	<b>282.7</b>	<b>298.8</b>	<b>157.3%</b>
Bahrain	1.8	4.1	5.7	8.3	10.4	13.0	15.3	18.9	23.9	24.0	24.1	132.9%
Islamic Republic of Iran	5.5	8.1	8.5	16.8	37.0	80.0	121.1	193.5	281.3	294.0	292.5	690.6%
Iraq	1.8	3.1	2.4	1.6	3.8	6.0	6.0	3.5	9.8	11.7	11.5	204.6%
Jordan	-	-	-	-	0.2	0.5	0.5	3.2	5.3	2.0	1.5	548.9%
Kuwait	9.9	9.9	13.2	9.7	11.5	17.7	18.3	23.5	27.7	32.4	34.7	201.3%
Lebanon	-	-	-	-	-	-	-	-	0.5	-	-	-
Oman	-	-	0.7	2.1	4.9	6.7	11.4	16.0	38.4	42.7	43.0	774.9%
Qatar	1.9	4.2	6.3	10.5	12.2	16.2	20.9	29.4	45.7	54.8	59.8	392.2%
Saudi Arabia	2.7	5.4	21.2	34.1	40.7	51.1	63.0	95.1	118.9	120.3	131.2	222.1%
Syrian Arab Republic	-	-	0.1	0.3	3.2	4.8	10.4	10.8	17.5	14.8	10.5	229.5%
United Arab Emirates	2.0	3.3	9.6	19.8	33.1	48.5	64.2	79.7	115.2	118.4	128.2	287.2%
Yemen	-	-	-	-	-	-	-	-	2.0	1.4	1.6	x
<b>Middle East</b>	<b>25.6</b>	<b>38.0</b>	<b>67.7</b>	<b>103.3</b>	<b>157.0</b>	<b>244.7</b>	<b>331.1</b>	<b>473.6</b>	<b>686.1</b>	<b>716.5</b>	<b>738.8</b>	<b>370.5%</b>

CO<sub>2</sub> emissions from international marine bunkersmillion tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>World</b>	<b>345.21</b>	<b>332.48</b>	<b>348.40</b>	<b>298.46</b>	<b>363.21</b>	<b>421.93</b>	<b>488.07</b>	<b>566.10</b>	<b>653.49</b>	<b>659.40</b>	<b>602.20</b>	<b>65.8%</b>
<i>Annex I Parties</i>	..	..	..	..	233.42	229.80	250.38	272.45	267.70	269.37	220.17	-5.7%
<i>Annex II Parties</i>	202.63	216.81	234.71	171.25	223.18	226.51	245.25	263.92	254.09	252.92	206.77	-7.4%
<i>North America</i>	26.41	36.12	93.91	56.43	93.55	93.68	92.24	84.59	84.81	85.05	50.41	-46.1%
<i>Europe</i>	120.20	110.37	97.05	87.88	108.79	110.99	132.37	155.80	151.16	151.67	139.49	28.2%
<i>Asia Oceania</i>	56.02	70.31	43.75	26.94	20.84	21.84	20.65	23.53	18.12	16.20	16.87	-19.0%
<i>Annex I EIT</i>	..	..	..	..	9.78	2.58	1.80	3.14	7.82	12.11	8.83	-9.7%
<i>Non-Annex I Parties</i>	..	..	..	..	129.79	192.13	237.69	293.64	385.79	390.04	382.03	194.4%
<i>Annex I Kyoto Parties</i>	..	..	..	..	139.41	135.41	154.81	182.47	177.10	179.98	165.19	18.5%
<b>Non-OECD Total *</b>	<b>138.30</b>	<b>112.26</b>	<b>109.89</b>	<b>121.86</b>	<b>131.63</b>	<b>168.46</b>	<b>203.51</b>	<b>257.37</b>	<b>363.23</b>	<b>371.43</b>	<b>361.36</b>	<b>174.5%</b>
<b>OECD Total **</b>	<b>206.91</b>	<b>220.22</b>	<b>238.51</b>	<b>176.59</b>	<b>231.58</b>	<b>253.47</b>	<b>284.55</b>	<b>308.73</b>	<b>290.26</b>	<b>287.97</b>	<b>240.85</b>	<b>4.0%</b>
Canada	3.07	2.58	4.71	1.18	2.87	3.17	3.34	2.83	2.17	1.60	1.57	-45.1%
Chile	0.60	0.37	0.27	0.09	0.57	1.12	1.94	3.30	1.28	1.57	0.53	-7.2%
Mexico	0.26	0.38	1.00	1.33	..	2.55	3.83	2.70	2.50	2.85	2.87	..
United States	23.34	33.54	89.20	55.26	90.68	90.51	88.90	81.76	82.63	83.46	48.83	-46.1%
<b>OECD Americas</b>	<b>27.27</b>	<b>36.88</b>	<b>95.18</b>	<b>57.85</b>	<b>94.12</b>	<b>97.35</b>	<b>98.02</b>	<b>90.58</b>	<b>88.59</b>	<b>89.48</b>	<b>53.81</b>	<b>-42.8%</b>
Australia	5.10	5.03	3.68	2.28	2.14	2.79	2.96	2.74	2.25	1.99	2.74	28.4%
Israel	..	..	..	0.35	0.38	0.65	0.58	0.81	1.06	0.97	1.01	165.3%
Japan	49.88	64.20	38.90	23.92	17.66	17.92	16.93	19.80	14.80	13.12	12.93	-26.8%
Korea	1.53	0.17	0.31	1.69	5.27	21.35	30.46	33.24	28.75	27.96	27.22	416.6%
New Zealand	1.04	1.08	1.18	0.74	1.04	1.13	0.76	0.99	1.07	1.09	1.19	14.6%
<b>OECD Asia Oceania</b>	<b>57.55</b>	<b>70.48</b>	<b>44.06</b>	<b>28.98</b>	<b>26.49</b>	<b>43.84</b>	<b>51.69</b>	<b>57.58</b>	<b>47.93</b>	<b>45.13</b>	<b>45.10</b>	<b>70.3%</b>
Austria	-	-	-	-	0.04	0.05	0.06	0.06	0.05	0.05	0.05	33.3%
Belgium	8.06	8.64	7.52	7.30	12.91	12.31	17.02	24.40	24.29	21.59	19.31	49.6%
Czech Republic	-	-	-	-	-	-	-	-	-	-	-	-
Denmark	2.09	1.67	1.32	1.34	3.02	4.96	4.03	2.41	2.16	2.19	1.61	-46.5%
Estonia	..	..	..	..	0.57	0.28	0.33	0.38	0.69	0.59	1.26	122.3%
Finland	0.24	0.30	1.84	1.45	1.78	1.04	2.10	1.59	0.66	0.63	0.38	-78.5%
France	12.71	14.53	12.52	7.52	7.72	6.69	8.83	8.11	7.30	7.84	7.41	-4.0%
Germany	12.93	10.52	11.00	10.85	7.79	6.43	6.85	7.83	8.72	8.57	8.01	2.8%
Greece	1.78	2.70	2.63	3.51	7.97	11.17	11.28	9.02	8.60	8.75	7.16	-10.2%
Hungary	-	-	-	-	-	-	-	-	-	-	-	-
Iceland	..	..	..	0.02	0.10	0.14	0.21	0.20	0.18	0.19	0.18	88.6%
Ireland	0.24	0.20	0.23	0.09	0.06	0.36	0.47	0.32	0.26	0.30	0.30	435.9%
Italy	22.80	17.97	13.08	10.75	8.37	7.59	5.16	7.06	9.43	7.90	7.83	-6.4%
Luxembourg	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	28.26	32.86	29.39	27.45	34.29	35.59	41.98	53.31	43.72	46.98	42.75	24.7%
Norway	1.90	1.49	0.87	1.03	1.39	2.19	2.56	2.16	1.21	1.18	1.02	-26.7%
Poland	1.63	2.21	2.22	1.63	1.24	0.44	0.90	1.01	0.68	0.53	0.45	-63.6%
Portugal	2.32	2.00	1.34	1.48	1.91	1.52	2.08	1.82	1.46	1.78	1.93	0.9%
Slovak Republic	-	-	-	-	-	-	-	-	-	-	-	-
Slovenia	..	..	..	..	..	..	..	0.07	0.06	0.10	0.16	..
Spain	5.94	3.44	5.07	6.76	11.46	10.00	18.97	25.00	26.53	27.14	26.50	131.3%
Sweden	3.58	3.45	2.66	1.76	2.09	3.30	4.28	6.12	6.19	5.43	5.33	154.8%
Switzerland	..	..	..	..	0.06	0.05	0.03	0.04	0.03	0.02	0.02	-55.6%
Turkey	0.26	0.29	..	0.25	0.37	0.58	1.25	3.31	1.15	0.47	0.58	56.5%
United Kingdom	17.37	10.60	7.57	6.56	7.84	7.62	6.44	6.34	10.36	11.13	9.68	23.4%
<b>OECD Europe **</b>	<b>122.10</b>	<b>112.87</b>	<b>99.26</b>	<b>89.76</b>	<b>110.97</b>	<b>112.28</b>	<b>134.84</b>	<b>160.56</b>	<b>153.74</b>	<b>153.36</b>	<b>141.94</b>	<b>27.9%</b>
<i>European Union - 28</i>	..	..	..	..	111.43	111.53	134.02	159.53	157.99	157.43	146.11	31.1%

\* Includes Estonia and Slovenia prior to 1990.

\*\* Excludes Estonia and Slovenia prior to 1990.

CO<sub>2</sub> emissions from international marine bunkersmillion tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>Non-OECD Total *</b>	<b>138.30</b>	<b>112.26</b>	<b>109.89</b>	<b>121.86</b>	<b>131.63</b>	<b>168.46</b>	<b>203.51</b>	<b>257.37</b>	<b>363.23</b>	<b>371.43</b>	<b>361.36</b>	<b>174.5%</b>
Albania	..	..	..	..	..	..	..	..	..	..	..	..
Armenia	..	..	..	..	..	..	..	..	..	..	..	..
Azerbaijan	..	..	..	..	..	..	..	..	0.23	0.24	0.27	..
Belarus	..	..	..	..	..	..	..	..	..	..	..	..
Bosnia and Herzegovina	..	..	..	..	..	..	..	..	..	..	..	..
Bulgaria	..	..	..	0.71	0.18	0.85	0.20	0.34	0.30	0.24	0.20	10.0%
Croatia	..	..	..	..	0.15	0.10	0.06	0.08	0.02	0.07	..	-100.0%
Cyprus **	0.01	0.06	0.05	0.11	0.18	0.21	0.60	0.90	0.58	0.61	0.61	239.2%
FYR of Macedonia	..	..	..	..	..	..	..	..	..	..	..	..
Georgia	..	..	..	..	..	0.16	..	..	..	..	..	..
Gibraltar	0.55	0.58	0.41	0.88	1.38	2.70	3.22	4.82	7.76	8.27	8.34	505.0%
Kazakhstan	..	..	..	..	..	..	..	..	..	0.06	..	..
Kosovo ***	..	..	..	..	..	..	..	..	..	..	..	..
Kyrgyzstan	..	..	..	..	..	..	..	..	..	..	..	..
Latvia	..	..	..	..	1.48	0.47	0.02	0.81	0.79	0.67	0.75	-49.2%
Lithuania	..	..	..	..	0.30	0.44	0.29	0.45	0.45	0.45	0.38	29.3%
Malta	0.19	0.08	0.09	0.06	0.09	0.14	2.07	2.09	4.64	3.86	3.99	+
Republic of Moldova	..	..	..	..	..	..	..	..	..	..	..	..
Montenegro ***	..	..	..	..	..	..	..	..	..	..	..	..
Romania	..	..	..	..	..	..	..	..	0.05	0.03	0.04	..
Russian Federation	..	..	..	..	5.87	..	..	..	4.79	9.43	5.58	-4.9%
Serbia ***	..	..	..	..	..	..	..	..	..	..	0.01	..
Tajikistan	..	..	..	..	..	..	..	..	..	..	..	..
Turkmenistan	..	..	..	..	..	..	..	..	..	..	..	..
Ukraine	..	..	..	..	..	..	..	..	..	..	..	..
Uzbekistan	..	..	..	..	..	..	..	..	..	..	..	..
Former Soviet Union ****	13.17	14.09	14.09	13.79	..	..	..	..	..	..	..	..
Former Yugoslavia ****	..	..	..	..	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>13.92</b>	<b>14.81</b>	<b>14.64</b>	<b>15.53</b>	<b>9.62</b>	<b>5.06</b>	<b>6.45</b>	<b>9.50</b>	<b>19.60</b>	<b>23.94</b>	<b>20.18</b>	<b>109.7%</b>
Algeria	0.61	0.77	1.29	1.16	1.36	1.17	0.77	1.17	1.01	0.80	0.82	-39.8%
Angola	0.77	0.48	0.83	0.10	0.02	0.03	..	0.34	0.54	0.49	0.54	+
Benin	..	..	..	..	..	..	..	..	..	..	..	..
Botswana	..	..	..	..	..	..	..	..	..	..	..	..
Cameroon	..	..	0.12	0.03	0.04	0.09	0.06	0.04	0.14	0.14	0.15	260.6%
Congo	..	..	..	..	..	..	..	..	..	..	..	..
Dem. Rep. of Congo	0.40	0.22	0.08	0.09	0.10	0.01	..	..	..	..	..	-100.0%
Côte d'Ivoire	0.06	0.01	1.35	0.73	0.12	0.27	0.29	0.35	0.06	0.04	0.06	-48.9%
Egypt	0.06	1.10	3.24	4.78	5.33	7.85	8.70	8.29	6.98	6.89	5.87	10.1%
Eritrea	..	..	..	..	..	0.42	..	..	..	..	..	..
Ethiopia	0.07	0.02	0.01	0.03	0.03	0.03	..	..	..	..	..	-100.0%
Gabon	0.20	0.14	0.19	0.22	0.08	0.44	0.60	0.60	0.69	0.67	0.65	718.1%
Ghana	0.16	0.14	0.10	..	..	..	0.16	0.12	0.30	0.40	0.52	..
Kenya	1.47	1.05	0.56	0.45	0.55	0.17	0.21	0.00	0.05	0.08	0.04	-92.7%
Libya	0.01	0.01	0.02	0.04	0.25	0.28	0.86	1.15	1.15	0.26	1.10	347.5%
Mauritius	0.05	0.11	0.16	0.22	0.19	0.27	0.69	0.60	0.74	0.89	0.83	340.0%
Morocco	0.24	0.18	0.21	0.04	0.06	0.04	0.05	0.07	0.42	0.42	0.42	568.8%
Mozambique	0.76	0.35	0.27	0.10	0.09	0.01	0.00	0.01	..	..	..	-100.0%
Namibia	..	..	..	..	..	..	..	..	..	..	..	..
Nigeria	0.02	0.11	0.25	0.34	0.58	1.42	1.19	1.27	1.31	1.24	1.26	116.3%
Senegal	2.99	2.09	0.84	0.33	0.11	0.09	0.30	0.36	0.21	0.26	0.22	95.2%
South Africa	10.81	7.15	5.25	3.41	5.95	10.30	8.51	8.52	9.72	10.04	11.15	87.4%
Sudan	..	0.01	0.02	0.02	0.02	0.03	0.03	0.04	0.06	0.07	0.06	171.4%
United Rep. of Tanzania	0.05	0.05	0.12	0.08	0.08	0.07	0.08	0.10	0.14	0.15	0.16	99.8%
Togo	..	..	..	..	..	..	0.01	0.01	0.05	0.04	0.05	..
Tunisia	0.06	0.02	0.02	0.01	0.07	0.06	0.06	0.05	0.04	0.04	0.04	-44.2%
Zambia	..	..	..	..	..	..	..	..	..	..	..	..
Zimbabwe	..	..	..	..	..	..	..	..	..	..	..	..
Other Africa	3.19	1.86	1.56	1.70	1.46	1.09	0.78	0.75	0.77	0.80	0.83	-42.8%
<b>Africa</b>	<b>21.98</b>	<b>15.87</b>	<b>16.50</b>	<b>13.88</b>	<b>16.49</b>	<b>24.11</b>	<b>23.34</b>	<b>23.84</b>	<b>24.38</b>	<b>23.71</b>	<b>24.77</b>	<b>50.2%</b>

\* Includes Estonia and Slovenia prior to 1990.

\*\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

\*\*\* Serbia includes Kosovo from 1990 to 1999 and Montenegro from 1990 to 2004.

\*\*\*\* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

CO<sub>2</sub> emissions from international marine bunkers

 million tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
Bangladesh	0.06	0.05	0.19	0.07	0.06	0.11	0.14	0.18	0.25	0.26	0.28	351.5%
Brunei Darussalam	..	..	0.00	..	0.11	0.21	0.22	0.27	0.28	0.30	0.20	78.4%
Cambodia	..	..	..	..	..	..	..	..	..	..	..	..
India	0.71	0.57	0.72	0.34	1.36	1.69	2.17	3.06	4.13	4.03	3.92	188.1%
Indonesia	0.70	1.09	0.79	0.68	1.68	1.28	0.36	0.42	0.56	0.59	0.63	-62.5%
DPR of Korea	..	..	..	..	..	..	..	..	..	..	..	..
Malaysia	0.11	0.22	0.18	0.31	0.29	0.53	0.69	0.19	0.19	0.64	0.18	-39.1%
Mongolia	..	..	..	..	..	..	..	..	..	..	..	..
Myanmar	0.01	0.00	-	-	-	0.01	0.01	0.01	0.01	0.01	0.01	x
Nepal	-	-	-	-	-	-	-	-	-	-	-	-
Pakistan	0.29	0.21	0.47	0.08	0.11	0.05	0.08	0.25	0.55	0.31	0.29	173.6%
Philippines	1.29	0.45	0.59	0.49	0.21	0.35	0.67	0.38	0.58	0.68	0.58	180.1%
Singapore	8.89	10.43	14.96	15.14	33.87	35.28	57.58	78.60	125.94	133.02	131.57	288.5%
Sri Lanka	1.19	1.29	1.10	1.01	1.21	1.09	0.50	0.53	0.65	0.59	0.86	-29.2%
Chinese Taipei	0.39	0.33	0.66	1.62	4.86	7.57	11.02	7.50	5.45	5.00	3.63	-25.4%
Thailand	0.21	0.25	0.50	0.65	1.70	3.02	2.46	5.18	4.42	3.33	2.46	44.4%
Viet Nam	..	..	..	0.07	0.09	0.22	0.46	0.79	1.02	1.08	1.14	+
Other Asia	0.57	0.53	0.46	0.20	0.21	0.30	0.33	0.44	0.40	0.45	0.48	131.1%
<b>Asia (excl. China)</b>	<b>14.42</b>	<b>15.43</b>	<b>20.62</b>	<b>20.66</b>	<b>45.76</b>	<b>51.71</b>	<b>76.70</b>	<b>97.80</b>	<b>144.44</b>	<b>150.30</b>	<b>146.22</b>	<b>219.5%</b>
People's Rep. of China	0.80	1.36	2.23	2.88	4.29	8.86	8.66	15.89	27.62	29.17	28.46	563.0%
Hong Kong, China	1.96	1.69	2.83	3.11	4.52	7.16	10.61	17.79	38.59	28.98	26.27	480.9%
<b>China</b>	<b>2.76</b>	<b>3.05</b>	<b>5.06</b>	<b>5.99</b>	<b>8.82</b>	<b>16.03</b>	<b>19.28</b>	<b>33.69</b>	<b>66.21</b>	<b>58.15</b>	<b>54.73</b>	<b>520.8%</b>
Argentina	0.66	0.28	1.32	2.00	2.22	1.71	1.48	2.19	3.75	4.32	5.41	143.5%
Bolivia	-	-	-	-	-	-	-	-	-	-	-	-
Brazil	1.00	1.17	1.42	1.71	1.72	3.64	9.16	10.92	12.61	13.53	12.03	600.9%
Colombia	0.95	0.49	0.31	0.22	0.33	0.58	0.74	1.14	2.02	2.27	3.90	+
Costa Rica	0.10	..	0.13	0.14	0.24	0.37	0.34	0.35	0.09	0.08	0.02	-89.7%
Cuba	..	..	..	0.12	0.06	0.04	0.05	0.06	0.08	0.09	0.09	54.5%
Dominican Republic	..	..	..	..	..	..	..	..	..	..	..	..
Ecuador	0.28	..	0.34	0.11	0.49	0.99	0.87	2.16	1.74	1.89	1.65	233.9%
El Salvador	..	..	..	..	..	..	..	..	..	..	..	..
Guatemala	0.18	0.27	0.40	0.38	0.43	0.53	0.64	0.74	0.89	0.93	0.96	124.6%
Haiti	..	..	..	..	..	..	..	..	..	..	..	..
Honduras	..	..	..	..	..	..	..	..	0.00	0.00	0.00	..
Jamaica	0.16	0.26	0.10	0.04	0.10	0.12	0.12	0.26	0.27	0.31	0.26	157.2%
Netherlands Antilles	7.71	7.34	7.27	6.13	5.18	5.32	6.28	6.71	7.18	7.27	7.24	39.8%
Nicaragua	..	..	..	..	..	..	..	..	..	..	..	..
Panama	1.71	3.41	3.10	4.03	4.95	6.43	8.06	7.29	9.46	10.45	10.52	112.5%
Paraguay	-	-	-	-	-	-	-	-	-	-	-	-
Peru	0.10	0.12	0.47	0.62	0.12	0.53	0.31	1.00	0.76	0.77	0.73	519.8%
Trinidad and Tobago	5.12	3.54	1.42	0.31	0.11	0.16	1.19	1.47	1.06	1.17	1.42	+
Uruguay	0.27	0.20	0.24	0.33	0.37	1.21	0.92	1.12	1.41	1.17	0.97	162.8%
Venezuela	9.13	4.82	1.99	1.76	2.50	2.30	2.06	2.33	2.74	2.89	3.00	19.9%
Other Non-OECD Americas	3.22	2.19	2.79	1.87	0.86	0.71	0.79	0.64	0.58	0.58	0.59	-31.7%
<b>Non-OECD Americas</b>	<b>30.57</b>	<b>24.09</b>	<b>21.31</b>	<b>19.77</b>	<b>19.67</b>	<b>24.60</b>	<b>33.01</b>	<b>38.39</b>	<b>44.67</b>	<b>47.72</b>	<b>48.77</b>	<b>148.0%</b>
Bahrain	0.56	0.55	0.60	0.47	0.25	0.25	0.25	0.24	0.25	0.24	0.25	2.5%
Islamic Republic of Iran	1.02	1.23	1.22	0.90	1.23	1.84	2.25	2.95	7.31	7.01	5.98	387.1%
Iraq	0.26	0.29	0.37	0.46	0.40	0.02	0.48	0.32	0.43	0.50	0.56	39.2%
Jordan	..	..	..	..	..	0.03	0.13	0.25	0.05	0.03	0.06	..
Kuwait	6.29	6.32	5.60	2.38	0.55	1.82	1.43	2.15	1.68	3.26	3.41	515.5%
Lebanon	0.71	0.03	..	..	..	0.04	0.05	0.06	0.08	0.08	0.08	..
Oman	3.85	2.54	0.71	0.35	0.06	0.08	0.19	0.12	0.68	0.48	0.07	15.0%
Qatar	..	..	..	..	..	..	..	..	..	..	..	..
Saudi Arabia	40.05	25.86	13.62	28.01	5.74	5.96	6.60	7.09	8.10	8.44	8.80	53.4%
Syrian Arab Republic	0.77	1.26	1.97	2.53	2.82	3.43	3.68	3.17	3.43	2.97	1.55	-45.2%
United Arab Emirates	..	..	5.53	9.69	18.99	33.16	29.38	37.44	41.59	44.28	45.64	140.3%
Yemen	1.13	0.91	2.13	1.24	1.24	0.31	0.30	0.36	0.35	0.32	0.30	-76.1%
<b>Middle East</b>	<b>54.64</b>	<b>39.00</b>	<b>31.76</b>	<b>46.04</b>	<b>31.28</b>	<b>46.95</b>	<b>44.74</b>	<b>54.14</b>	<b>63.94</b>	<b>67.61</b>	<b>66.69</b>	<b>113.2%</b>

CO<sub>2</sub> emissions from international aviation bunkersmillion tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>World</b>	<b>167.48</b>	<b>172.12</b>	<b>200.12</b>	<b>222.64</b>	<b>256.34</b>	<b>288.30</b>	<b>351.82</b>	<b>418.96</b>	<b>457.80</b>	<b>473.67</b>	<b>477.79</b>	<b>86.4%</b>
<i>Annex I Parties</i>	..	..	..	..	168.43	179.29	223.71	253.92	251.97	258.33	255.27	51.6%
<i>Annex II Parties</i>	58.57	61.75	70.77	81.47	131.07	159.81	204.71	229.75	223.75	229.86	226.61	72.9%
<i>North America</i>	16.61	17.53	21.18	21.83	41.50	48.54	60.20	70.69	68.03	67.60	66.22	59.6%
<i>Europe</i>	35.96	37.67	42.70	48.59	70.65	87.32	115.99	127.41	126.93	131.49	129.34	83.1%
<i>Asia Oceania</i>	6.01	6.55	6.90	11.05	18.92	23.96	28.52	31.65	28.79	30.77	31.05	64.0%
<i>Annex I EIT</i>	..	..	..	..	36.61	18.48	17.10	20.70	24.32	24.73	25.31	-30.9%
<i>Non-Annex I Parties</i>	..	..	..	..	87.92	109.01	128.11	165.03	205.83	215.34	222.52	153.1%
<i>Annex I Kyoto Parties</i>	..	..	..	..	126.18	129.75	161.61	179.76	180.04	187.00	185.70	47.2%
<b>Non-OECD Total *</b>	<b>103.84</b>	<b>103.94</b>	<b>119.54</b>	<b>130.53</b>	<b>114.55</b>	<b>114.01</b>	<b>130.20</b>	<b>162.97</b>	<b>203.12</b>	<b>212.97</b>	<b>219.69</b>	<b>91.8%</b>
<b>OECD Total **</b>	<b>63.64</b>	<b>68.18</b>	<b>80.58</b>	<b>92.11</b>	<b>141.80</b>	<b>174.28</b>	<b>221.62</b>	<b>255.99</b>	<b>254.68</b>	<b>260.70</b>	<b>258.11</b>	<b>82.0%</b>
Canada	1.25	1.93	1.35	1.22	2.71	2.58	3.08	2.48	3.37	2.88	2.97	9.9%
Chile	0.43	0.35	0.54	0.49	0.57	0.64	1.04	1.05	1.52	1.31	2.11	273.2%
Mexico	1.39	2.40	4.23	4.53	5.23	6.75	8.05	8.52	8.08	8.12	8.60	64.3%
United States	15.35	15.60	19.83	20.61	38.79	45.96	57.11	68.21	64.66	64.72	63.25	63.0%
<b>OECD Americas</b>	<b>18.43</b>	<b>20.27</b>	<b>25.95</b>	<b>26.85</b>	<b>47.29</b>	<b>55.93</b>	<b>69.29</b>	<b>80.26</b>	<b>77.63</b>	<b>77.03</b>	<b>76.93</b>	<b>62.7%</b>
Australia	1.57	1.89	2.40	2.76	4.29	5.75	7.15	8.08	10.09	10.17	9.43	119.7%
Israel	1.79	1.88	2.21	1.99	1.58	2.12	2.38	3.20	2.40	2.57	2.48	56.6%
Japan	3.80	4.32	3.92	7.63	13.31	16.61	19.57	21.37	16.39	18.28	19.17	44.0%
Korea	-	0.36	0.83	1.69	0.84	2.05	1.70	7.25	11.89	11.99	12.00	+
New Zealand	0.64	0.34	0.57	0.66	1.32	1.60	1.79	2.20	2.31	2.33	2.44	85.0%
<b>OECD Asia Oceania</b>	<b>7.80</b>	<b>8.79</b>	<b>9.93</b>	<b>14.74</b>	<b>21.35</b>	<b>28.13</b>	<b>32.59</b>	<b>42.11</b>	<b>43.08</b>	<b>45.33</b>	<b>45.53</b>	<b>113.2%</b>
Austria	0.28	0.24	0.38	0.65	0.86	1.28	1.63	1.89	1.98	2.09	2.01	134.5%
Belgium	1.21	1.05	1.22	1.62	2.82	2.61	4.37	3.80	4.56	4.36	4.01	42.3%
Czech Republic	0.69	0.58	0.85	0.63	0.65	0.56	0.48	0.94	0.92	0.91	0.86	32.9%
Denmark	1.92	1.56	1.59	1.56	1.70	1.84	2.32	2.55	2.40	2.46	2.48	45.4%
Estonia	..	..	..	..	0.10	0.05	0.06	0.14	0.11	0.10	0.11	5.9%
Finland	0.18	0.40	0.46	0.48	0.97	0.86	1.02	1.24	1.59	1.88	1.81	86.2%
France	4.57	5.71	5.62	6.43	9.32	11.44	15.07	16.10	16.32	17.19	16.71	79.3%
Germany	7.57	8.16	8.22	9.46	13.34	15.76	19.50	22.56	23.98	23.14	24.64	84.6%
Greece	1.29	1.31	2.23	2.33	2.34	2.52	2.41	2.30	2.02	2.19	1.95	-16.6%
Hungary	0.15	0.20	0.36	0.44	0.49	0.54	0.69	0.79	0.70	0.71	0.51	4.4%
Iceland	0.22	0.13	0.09	0.18	0.22	0.20	0.39	0.40	0.37	0.41	0.43	97.2%
Ireland	0.96	0.73	0.60	0.57	1.03	1.11	1.73	2.35	2.14	2.00	1.68	62.5%
Italy	3.47	2.44	4.15	4.33	4.50	5.80	8.38	8.88	9.39	9.63	9.19	104.4%
Luxembourg	0.11	0.15	0.19	0.22	0.39	0.56	0.95	1.28	1.28	1.19	1.10	182.0%
Netherlands	2.01	2.26	2.72	3.47	4.29	7.38	9.65	10.67	10.00	10.39	10.01	133.1%
Norway	0.70	0.51	0.67	0.92	1.24	1.09	1.05	1.04	1.28	1.26	1.19	-4.2%
Poland	0.52	0.53	0.67	0.67	0.65	0.80	0.81	0.95	1.51	1.48	1.59	143.7%
Portugal	0.70	0.80	0.88	1.27	1.36	1.55	1.92	2.15	2.60	2.71	2.74	100.7%
Slovak Republic	-	-	-	-	-	0.12	0.08	0.12	0.12	0.13	0.11	x
Slovenia	..	..	..	..	0.08	0.06	0.07	0.07	0.08	0.07	0.07	-11.5%
Spain	1.74	2.77	2.58	2.67	3.32	6.01	8.03	9.18	9.02	10.80	10.67	221.3%
Sweden	0.33	0.33	0.49	0.51	1.07	1.76	2.06	1.87	2.04	2.19	2.09	94.3%
Switzerland	1.63	1.80	2.02	2.41	3.00	3.63	4.57	3.48	4.16	4.47	4.54	51.4%
Turkey	0.09	0.14	0.12	0.18	0.53	0.78	1.54	3.21	3.60	3.45	3.05	473.1%
United Kingdom	7.08	7.32	8.59	9.53	18.86	21.92	30.93	35.65	31.80	33.11	32.10	70.3%
<b>OECD Europe **</b>	<b>37.41</b>	<b>39.12</b>	<b>44.70</b>	<b>50.51</b>	<b>73.15</b>	<b>90.22</b>	<b>119.73</b>	<b>133.62</b>	<b>133.97</b>	<b>138.34</b>	<b>135.65</b>	<b>85.4%</b>
<i>European Union - 28</i>	..	..	..	..	71.25	87.43	114.21	127.95	127.27	131.49	129.11	81.2%

\* Includes Estonia and Slovenia prior to 1990.

\*\* Excludes Estonia and Slovenia prior to 1990.

CO<sub>2</sub> emissions from international aviation bunkersmillion tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>Non-OECD Total *</b>	<b>103.84</b>	<b>103.94</b>	<b>119.54</b>	<b>130.53</b>	<b>114.55</b>	<b>114.01</b>	<b>130.20</b>	<b>162.97</b>	<b>203.12</b>	<b>212.97</b>	<b>219.69</b>	<b>91.8%</b>
Albania	-	-	-	-	-	-	0.12	0.17	0.05	0.06	0.06	x
Armenia	..	..	..	..	0.59	0.10	0.19	0.13	0.13	0.13	0.14	-75.8%
Azerbaijan	..	..	..	..	1.03	0.30	0.30	1.10	1.19	1.29	1.13	9.1%
Belarus	..	..	..	..	-	-	-	-	-	-	-	-
Bosnia and Herzegovina	..	..	..	..	0.08	0.11	0.03	0.02	0.02	0.02	0.02	-80.0%
Bulgaria	0.61	0.61	0.91	1.11	0.71	0.98	0.24	0.56	0.50	0.50	0.48	-31.5%
Croatia	..	..	..	..	0.15	0.17	0.10	0.12	0.16	0.16	0.20	37.5%
Cyprus **	0.15	0.02	0.23	0.44	0.72	0.79	0.82	0.89	0.82	0.89	0.80	11.9%
FYR of Macedonia	..	..	..	..	0.02	0.09	0.09	0.02	0.02	0.01	0.01	-60.0%
Georgia	..	..	..	..	0.60	0.01	0.05	0.11	0.12	0.11	0.11	-81.2%
Gibraltar	0.02	0.02	0.01	0.01	0.02	0.01	0.01	0.02	0.02	0.02	0.02	-14.3%
Kazakhstan	..	..	..	..	2.68	0.78	0.23	0.49	0.62	0.48	0.60	-77.6%
Kosovo ***	..	..	..	..	..	..	-	-	0.04	0.04	0.04	..
Kyrgyzstan	..	..	..	..	0.26	0.19	0.12	0.38	0.82	0.16	0.16	-40.7%
Latvia	..	..	..	..	0.22	0.08	0.08	0.17	0.35	0.35	0.35	62.0%
Lithuania	..	..	..	..	0.40	0.12	0.07	0.14	0.14	0.16	0.19	-53.4%
Malta	0.17	0.18	0.23	0.14	0.21	0.22	0.37	0.26	0.30	0.28	0.30	40.0%
Republic of Moldova	..	..	..	..	0.22	0.03	0.06	0.04	0.04	0.04	0.04	-79.8%
Montenegro ***	..	..	..	..	..	..	..	0.04	0.01	0.03	0.04	..
Romania	0.06	0.05	-	-	0.69	0.54	0.37	0.33	0.43	0.38	0.35	-49.3%
Russian Federation	..	..	..	..	26.37	13.99	13.27	15.27	18.49	19.04	19.57	-25.8%
Serbia ***	..	..	..	..	0.43	0.11	0.09	0.15	0.12	0.14	0.12	-72.9%
Tajikistan	..	..	..	..	0.05	0.02	0.01	0.03	0.09	0.09	0.10	120.0%
Turkmenistan	..	..	..	..	0.75	0.61	0.97	1.34	1.61	1.46	1.26	68.0%
Ukraine	..	..	..	..	6.11	0.47	0.78	1.11	0.82	0.73	0.91	-85.1%
Uzbekistan	..	..	..	..	-	-	-	-	-	-	-	-
Former Soviet Union ****	66.66	62.09	70.62	76.70	..	..	..	..	..	..	..	..
Former Yugoslavia ****	0.64	0.88	1.00	0.99	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>68.31</b>	<b>63.86</b>	<b>73.00</b>	<b>79.40</b>	<b>42.29</b>	<b>19.74</b>	<b>18.35</b>	<b>22.88</b>	<b>26.90</b>	<b>26.59</b>	<b>27.00</b>	<b>-36.1%</b>
Algeria	0.29	0.66	0.93	1.31	1.09	0.96	1.17	1.16	1.42	1.43	1.60	46.7%
Angola	0.23	0.31	0.25	0.99	1.03	1.17	1.42	0.56	0.63	0.65	0.68	-34.4%
Benin	0.02	0.01	0.03	0.06	0.05	0.07	0.07	0.03	0.47	0.49	0.51	912.5%
Botswana	..	..	..	0.01	0.03	0.02	0.02	0.03	0.05	0.05	0.06	63.6%
Cameroon	0.17	0.10	0.15	0.15	0.15	0.17	0.18	0.20	0.21	0.21	0.22	47.9%
Congo	-	0.05	0.11	0.09	0.08	0.05	0.10	0.14	0.19	0.18	0.19	150.0%
Dem. Rep. of Congo	0.28	0.24	0.37	0.40	0.32	0.35	0.24	0.50	0.46	0.46	0.48	48.4%
Côte d'Ivoire	0.13	0.21	0.26	0.28	0.27	0.26	0.37	0.28	0.18	0.17	0.18	-31.0%
Egypt	0.21	0.27	0.52	0.13	0.45	0.81	1.75	2.28	2.61	2.49	2.63	482.1%
Eritrea	..	..	..	..	..	0.02	0.03	0.03	0.00	0.00	0.00	..
Ethiopia	0.14	0.16	0.20	0.34	0.53	0.17	0.21	0.39	0.86	0.86	0.93	76.3%
Gabon	0.03	0.04	0.07	0.08	0.20	0.19	0.23	0.21	0.18	0.19	0.20	1.2%
Ghana	0.13	0.15	0.12	0.10	0.14	0.18	0.32	0.39	0.36	0.44	0.46	232.3%
Kenya	0.57	0.89	1.10	0.82	0.83	1.37	1.36	1.76	1.70	2.12	2.12	155.1%
Libya	0.27	0.53	0.89	1.05	0.63	0.91	1.33	0.51	0.61	0.16	0.66	4.0%
Mauritius	0.06	0.09	0.14	0.17	0.21	0.21	0.61	0.72	0.72	0.76	0.78	267.2%
Morocco	0.35	0.44	0.78	0.70	0.79	0.73	0.90	1.16	1.77	1.78	1.60	103.2%
Mozambique	0.12	0.05	0.08	0.09	0.13	0.06	0.13	0.14	0.20	0.19	0.21	58.5%
Namibia	..	..	..	..	..	0.10	0.13	0.03	0.12	0.12	0.13	..
Nigeria	0.24	0.70	1.14	1.33	0.95	1.25	0.58	0.70	0.51	0.57	0.55	-42.1%
Senegal	0.30	0.37	0.58	0.43	0.45	0.45	0.75	0.74	0.68	0.64	0.62	36.2%
South Africa	0.53	0.73	0.87	0.93	1.09	1.58	2.79	2.16	2.40	2.53	2.48	126.5%
Sudan	0.34	0.14	0.20	0.21	0.09	0.10	0.33	0.97	0.84	0.97	0.69	631.3%
United Rep. of Tanzania	0.08	0.20	0.17	0.13	0.22	0.19	0.18	0.26	0.33	0.36	0.38	73.2%
Togo	-	-	-	-	0.10	0.12	0.03	0.15	0.22	0.21	0.22	112.1%
Tunisia	0.39	0.38	0.56	0.30	0.57	0.74	0.85	0.65	0.75	0.72	0.86	52.2%
Zambia	0.04	0.14	0.23	0.12	0.19	0.10	0.13	0.16	0.09	0.10	0.15	-22.2%
Zimbabwe	0.08	0.19	0.21	0.33	0.25	0.35	0.36	0.03	0.03	0.03	0.03	-88.6%
Other Africa	0.39	0.63	0.73	0.71	0.78	0.82	1.22	1.41	1.53	1.59	1.66	112.3%
<b>Africa</b>	<b>5.38</b>	<b>7.68</b>	<b>10.71</b>	<b>11.28</b>	<b>11.63</b>	<b>13.48</b>	<b>17.77</b>	<b>17.77</b>	<b>20.12</b>	<b>20.46</b>	<b>21.27</b>	<b>82.9%</b>

\* Includes Estonia and Slovenia prior to 1990.

\*\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

\*\*\* Serbia includes Kosovo from 1990 to 1999 and Montenegro from 1990 to 2004.

\*\*\*\* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

CO<sub>2</sub> emissions from international aviation bunkersmillion tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
Bangladesh	0.06	0.08	0.15	0.22	0.27	0.30	0.38	0.80	0.91	1.06	0.98	262.8%
Brunei Darussalam	0.00	0.06	0.07	0.05	0.11	0.21	0.21	0.25	0.33	0.34	0.25	122.2%
Cambodia	..	..	..	..	..	0.03	0.04	0.05	0.08	0.08	0.09	..
India	1.68	1.98	2.49	3.21	3.71	4.60	4.97	7.28	11.22	12.23	11.65	214.2%
Indonesia	0.16	0.32	0.73	0.65	0.96	1.17	1.21	1.52	2.02	2.15	2.28	136.7%
DPR of Korea	-	-	-	-	-	-	-	-	-	-	-	-
Malaysia	0.42	0.74	0.77	0.86	1.88	3.44	4.67	5.96	7.07	7.58	7.49	299.2%
Mongolia	..	..	..	-	0.01	0.06	0.06	0.06	0.05	0.08	0.11	800.0%
Myanmar	0.03	0.02	0.03	0.03	0.02	0.02	0.05	0.03	0.06	0.06	0.11	466.6%
Nepal	0.01	0.02	0.04	0.06	0.05	0.11	0.17	0.19	0.26	0.28	0.30	500.0%
Pakistan	1.13	1.08	1.69	1.41	1.39	1.70	0.36	0.63	0.48	0.61	0.56	-59.6%
Philippines	0.70	0.82	0.66	1.02	1.01	1.16	1.42	2.12	2.93	3.17	3.21	218.8%
Singapore	0.70	1.32	2.71	3.19	5.63	7.81	11.89	13.45	17.02	18.33	20.30	260.4%
Sri Lanka	-	0.00	0.00	-	-	-	0.32	0.93	0.35	0.96	1.21	x
Chinese Taipei	1.48	1.62	1.66	0.92	1.79	4.09	5.38	6.46	6.25	6.24	6.55	265.5%
Thailand	1.26	2.17	2.39	3.12	5.58	7.51	8.27	10.17	11.15	12.02	12.05	115.7%
Viet Nam	6.88	2.60	-	-	-	0.12	0.30	0.94	2.01	2.13	2.25	x
Other Asia	0.39	0.27	0.33	0.47	0.51	0.33	0.61	0.83	0.90	0.99	1.07	107.2%
<b>Asia (excl. China)</b>	<b>14.90</b>	<b>13.12</b>	<b>13.71</b>	<b>15.20</b>	<b>22.93</b>	<b>32.67</b>	<b>40.28</b>	<b>51.68</b>	<b>63.07</b>	<b>68.31</b>	<b>70.45</b>	<b>207.2%</b>
People's Rep. of China	-	-	0.10	0.84	1.29	2.19	4.17	10.70	16.45	18.40	19.38	+
Hong Kong, China	1.41	1.83	2.24	2.55	5.62	9.22	8.31	14.71	16.19	17.39	17.16	205.3%
<b>China</b>	<b>1.41</b>	<b>1.83</b>	<b>2.35</b>	<b>3.39</b>	<b>6.91</b>	<b>11.41</b>	<b>12.48</b>	<b>25.41</b>	<b>32.64</b>	<b>35.79</b>	<b>36.55</b>	<b>428.7%</b>
Argentina	-	-	-	-	-	1.58	2.83	2.14	1.85	2.12	2.12	x
Bolivia	-	-	-	-	-	-	0.14	0.15	0.14	0.15	0.13	x
Brazil	-	-	0.61	0.74	1.41	2.06	2.00	3.30	5.78	6.36	6.61	367.8%
Colombia	0.59	0.92	1.31	1.31	1.56	2.14	1.89	1.83	2.34	2.52	2.76	77.2%
Costa Rica	-	-	-	-	0.01	0.31	0.36	0.57	0.49	0.51	0.51	+
Cuba	0.27	0.43	0.65	0.89	0.98	0.53	0.64	0.53	0.43	0.46	0.76	-22.8%
Dominican Republic	0.08	0.10	0.17	0.16	0.11	0.17	1.29	1.33	1.22	1.31	1.47	+
Ecuador	0.27	0.14	0.45	0.45	0.39	0.54	0.48	0.96	1.03	1.05	1.01	159.4%
El Salvador	0.03	0.05	0.06	0.11	0.11	0.16	0.22	0.24	0.34	0.35	0.38	233.3%
Guatemala	0.15	0.11	0.13	0.12	0.13	0.14	0.15	0.23	0.20	0.18	0.13	0.1%
Haiti	0.02	0.03	0.05	0.04	0.07	0.07	0.09	0.07	0.06	0.05	0.16	126.1%
Honduras	0.02	0.03	0.06	0.12	0.09	0.07	0.11	0.07	0.15	0.07	0.15	58.6%
Jamaica	0.42	0.33	0.30	0.39	0.46	0.52	0.53	0.60	0.59	0.57	0.56	21.1%
Netherlands Antilles	0.15	0.13	0.16	0.13	0.12	0.20	0.24	0.26	0.27	0.28	0.27	135.1%
Nicaragua	0.05	0.06	0.06	0.04	0.08	0.06	0.08	0.05	0.05	0.06	0.06	-19.1%
Panama	0.43	1.11	0.41	0.26	0.20	0.31	0.54	0.57	1.07	1.20	1.34	564.1%
Paraguay	0.03	0.04	0.06	0.06	0.03	0.03	0.04	0.05	0.07	0.07	0.08	164.3%
Peru	0.51	0.74	0.92	0.71	0.64	1.10	1.06	0.96	1.94	2.38	2.04	216.2%
Trinidad and Tobago	0.21	0.12	0.17	0.22	0.20	0.17	0.33	1.20	0.84	0.95	0.53	172.6%
Uruguay	-	-	-	-	-	-	0.12	0.12	0.23	0.28	0.28	x
Venezuela	0.32	0.32	1.02	0.81	1.02	1.00	0.94	2.03	1.88	0.42	1.93	89.0%
Other Non-OECD Americas	1.00	0.50	0.90	0.86	1.02	1.06	1.79	1.38	1.51	1.51	1.53	50.9%
<b>Non-OECD Americas</b>	<b>4.58</b>	<b>5.15</b>	<b>7.48</b>	<b>7.42</b>	<b>8.64</b>	<b>12.24</b>	<b>15.87</b>	<b>18.64</b>	<b>22.48</b>	<b>22.88</b>	<b>24.83</b>	<b>187.2%</b>
Bahrain	0.43	0.84	1.53	1.21	1.43	1.15	1.12	1.72	1.97	1.83	1.74	21.6%
Islamic Republic of Iran	7.02	7.01	2.15	1.64	1.48	1.97	2.71	2.69	3.80	3.55	3.52	137.4%
Iraq	0.24	0.81	1.05	0.58	0.98	1.26	1.63	1.98	2.87	2.87	1.15	16.8%
Jordan	0.12	0.18	0.57	0.61	0.66	0.75	0.75	0.96	1.08	0.99	1.08	62.8%
Kuwait	0.34	0.34	1.04	0.97	0.51	1.12	1.15	1.82	2.24	2.16	2.53	394.5%
Lebanon	0.28	0.23	0.15	0.32	0.16	0.66	0.40	0.46	0.70	0.71	0.65	314.0%
Oman	0.01	0.15	0.38	0.57	0.93	0.46	0.65	0.69	1.28	1.18	1.27	36.1%
Qatar	-	0.16	0.23	0.24	0.34	0.43	0.57	1.43	3.48	4.59	5.67	+
Saudi Arabia	0.47	1.40	3.45	4.57	4.79	5.69	5.85	5.44	6.46	6.63	6.86	43.1%
Syrian Arab Republic	0.24	0.65	0.72	0.87	0.87	0.62	0.41	0.33	0.09	0.09	0.07	-91.6%
United Arab Emirates	0.02	0.34	0.80	1.80	9.79	10.08	9.87	8.72	13.57	14.14	14.91	52.3%
Yemen	0.09	0.18	0.21	0.46	0.17	0.28	0.38	0.36	0.36	0.20	0.13	-27.2%
<b>Middle East</b>	<b>9.26</b>	<b>12.31</b>	<b>12.30</b>	<b>13.84</b>	<b>22.13</b>	<b>24.47</b>	<b>25.47</b>	<b>26.60</b>	<b>37.91</b>	<b>38.94</b>	<b>39.59</b>	<b>78.9%</b>

CO<sub>2</sub> emissions by sector in 2012 \*million tonnes of CO<sub>2</sub>

	Total CO <sub>2</sub> emissions from fuel combustion	Electricity and heat production	Other energy ind. own use **	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
<b>World ***</b>	<b>31 734.3</b>	<b>13 346.4</b>	<b>1 557.6</b>	<b>6 456.8</b>	<b>7 187.0</b>	<b>5 373.8</b>	<b>3 186.6</b>	<b>1 819.2</b>
<i>Annex I Parties</i>	13 140.9	5 479.4	677.4	1 879.2	3 377.1	2 898.3	1 727.7	997.1
<i>Annex II Parties</i>	10 156.0	3 942.1	569.2	1 348.2	2 925.5	2 559.8	1 371.0	757.8
<i>North America</i>	5 607.9	2 183.8	341.5	606.9	1 838.6	1 556.2	637.0	340.5
<i>Europe</i>	2 906.4	985.6	153.3	446.6	768.1	721.9	552.8	350.8
<i>Asia Oceania</i>	1 641.7	772.7	74.4	294.7	318.8	281.8	181.2	66.5
<i>Annex I EIT</i>	2 680.0	1 422.1	97.2	476.2	399.1	290.9	285.2	200.5
<i>Non-Annex I Parties</i>	17 513.5	7 867.0	880.2	4 577.6	2 729.9	2 475.5	1 458.9	822.1
<i>Annex I Kyoto Parties</i>	7 157.0	3 150.9	321.3	1 199.0	1 474.5	1 284.4	1 011.4	612.8
<b>Non-OECD Total</b>	<b>18 508.3</b>	<b>8 516.1</b>	<b>860.5</b>	<b>4 811.2</b>	<b>2 766.6</b>	<b>2 418.2</b>	<b>1 553.9</b>	<b>914.3</b>
<b>OECD Total</b>	<b>12 146.1</b>	<b>4 830.3</b>	<b>697.1</b>	<b>1 645.6</b>	<b>3 340.4</b>	<b>2 955.6</b>	<b>1 632.7</b>	<b>904.9</b>
Canada	533.7	97.2	58.5	111.5	171.4	143.2	95.1	39.0
Chile	77.8	33.7	2.8	12.9	22.2	20.1	6.2	3.6
Mexico	435.8	133.3	58.0	58.6	153.1	148.9	32.8	18.9
United States	5 074.1	2 086.6	283.0	495.4	1 667.3	1 413.0	541.9	301.6
<b>OECD Americas</b>	<b>6 121.4</b>	<b>2 350.7</b>	<b>402.3</b>	<b>678.4</b>	<b>2 014.0</b>	<b>1 725.2</b>	<b>676.0</b>	<b>363.0</b>
Australia	386.3	198.8	30.0	48.7	89.7	75.6	19.0	8.4
Israel	73.3	48.3	1.9	1.9	12.9	12.9	8.3	1.7
Japan	1 223.3	566.2	42.7	239.7	215.7	194.0	159.0	57.6
Korea	592.9	304.6	38.6	101.6	88.1	83.0	60.1	33.0
New Zealand	32.1	7.7	1.6	6.3	13.4	12.1	3.2	0.5
<b>OECD Asia Oceania</b>	<b>2 307.9</b>	<b>1 125.6</b>	<b>114.8</b>	<b>398.1</b>	<b>419.8</b>	<b>377.7</b>	<b>249.6</b>	<b>101.1</b>
Austria	64.7	14.8	7.3	12.4	21.3	20.6	8.9	6.7
Belgium	104.6	19.4	5.9	29.7	24.4	23.7	25.2	14.6
Czech Republic	107.8	59.6	2.3	18.1	16.1	15.5	11.6	7.0
Denmark	37.1	14.7	2.4	3.7	11.3	10.4	5.1	2.6
Estonia	16.3	12.3	0.2	1.0	2.2	2.1	0.7	0.2
Finland	49.4	20.5	3.7	8.6	11.7	10.9	5.0	1.5
France	333.9	46.3	14.1	60.7	123.0	117.8	89.8	50.8
Germany	755.3	334.4	24.6	111.7	147.2	142.1	137.3	92.8
Greece	77.5	41.8	3.6	7.0	16.3	13.9	8.8	6.6
Hungary	43.6	14.5	1.5	5.4	10.7	10.5	11.4	7.2
Iceland	1.8	0.0	-	0.5	0.8	0.8	0.6	0.0
Ireland	35.5	12.5	0.3	3.8	10.3	10.0	8.6	6.0
Italy	374.8	127.3	15.3	53.3	102.0	95.9	76.8	50.4
Luxembourg	10.2	1.1	-	0.9	6.6	6.5	1.6	0.9
Netherlands	173.8	53.5	11.4	40.4	32.5	31.7	35.9	17.7
Norway	36.2	2.3	10.3	7.1	13.2	9.4	3.3	0.4
Poland	293.8	154.6	7.2	33.8	45.6	44.4	52.5	33.1
Portugal	45.9	18.0	1.6	6.6	15.7	14.9	4.0	2.0
Slovak Republic	31.9	8.1	4.5	7.8	6.4	5.8	5.0	2.7
Slovenia	14.6	5.9	0.0	1.7	5.5	5.4	1.6	0.9
Spain	266.6	89.8	19.8	42.9	82.0	69.8	32.1	16.5
Sweden	40.4	7.4	2.7	8.2	20.0	19.3	2.1	0.2
Switzerland	41.3	2.9	0.8	5.4	17.0	16.7	15.2	10.0
Turkey	302.4	113.2	11.0	54.7	52.0	47.1	71.5	38.8
United Kingdom	457.5	178.9	29.4	43.8	112.9	107.5	92.4	71.0
<b>OECD Europe</b>	<b>3 716.8</b>	<b>1 353.9</b>	<b>180.0</b>	<b>569.1</b>	<b>906.7</b>	<b>852.8</b>	<b>707.1</b>	<b>440.7</b>
<i>European Union - 28</i>	3 504.9	1 314.5	166.5	527.3	861.7	814.5	634.8	402.7

\* This table shows CO<sub>2</sub> emissions for the same sectors which are present throughout this publication. In particular, the emissions from electricity and heat production are shown separately and not reallocated as in the table on pages II.25-II.27.

\*\* Includes emissions from own use in petroleum refining, the manufacture of solid fuels, coal mining, oil and gas extraction and other energy-producing industries.

\*\*\* World includes international bunkers in the transport sector.



CO<sub>2</sub> emissions by sector in 2012million tonnes of CO<sub>2</sub>

	Total CO <sub>2</sub> emissions from fuel combustion	Electricity and heat production	Other energy ind. own use	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
<b>Non-OECD Total</b>	<b>18 508.3</b>	<b>8 516.1</b>	<b>860.5</b>	<b>4 811.2</b>	<b>2 766.6</b>	<b>2 418.2</b>	<b>1 553.9</b>	<b>914.3</b>
Albania	3.8	-	0.1	1.0	2.2	2.2	0.5	0.2
Armenia	5.4	1.4	-	0.7	1.3	1.3	2.0	1.2
Azerbaijan	29.3	11.7	2.3	2.6	6.4	5.9	6.3	4.8
Belarus	71.1	29.6	3.6	18.6	11.6	10.1	7.8	4.9
Bosnia and Herzegovina	21.2	14.5	0.4	1.8	3.2	3.2	1.5	0.5
Bulgaria	44.3	29.4	1.0	3.8	8.2	7.6	1.9	1.1
Croatia	17.2	4.0	1.7	3.0	5.6	5.2	2.9	1.7
Cyprus *	6.5	3.4	-	0.4	2.0	2.0	0.6	0.4
FYR of Macedonia	8.7	5.5	0.1	1.4	1.4	1.4	0.3	0.1
Georgia	6.8	1.1	0.2	1.3	2.4	2.3	1.7	1.2
Gibraltar	0.5	0.1	-	0.1	0.3	0.3	-	-
Kazakhstan	225.8	85.0	39.8	62.3	14.5	13.2	24.1	12.5
Kosovo	8.0	6.1	-	0.6	1.0	1.0	0.3	0.1
Kyrgyzstan	9.5	1.8	0.0	1.5	3.9	3.9	2.2	0.3
Latvia	7.0	2.0	-	1.1	2.7	2.4	1.2	0.5
Lithuania	13.3	3.0	1.6	3.2	4.3	4.0	1.3	0.7
Malta	2.5	2.0	-	0.0	0.5	0.5	0.1	0.1
Republic of Moldova	7.6	3.5	-	1.0	1.1	1.0	2.0	1.5
Montenegro	2.3	1.6	-	0.1	0.6	0.6	0.0	0.0
Romania	79.0	35.2	4.2	14.4	14.9	13.9	10.3	6.6
Russian Federation	1 659.0	932.1	62.9	293.5	235.2	139.0	135.2	98.6
Serbia	44.1	30.4	0.5	5.0	5.1	4.6	3.2	1.7
Tajikistan	2.7	0.0	-	-	0.3	0.3	2.4	-
Turkmenistan	63.8	18.0	5.3	5.5	6.9	3.5	28.1	-
Ukraine	281.1	131.8	6.3	71.0	30.1	24.8	41.8	35.2
Uzbekistan	111.1	36.5	3.8	19.5	7.8	4.2	43.7	33.4
<b>Non-OECD Europe and Eurasia</b>	<b>2 731.8</b>	<b>1 389.8</b>	<b>133.8</b>	<b>513.3</b>	<b>373.4</b>	<b>258.4</b>	<b>321.4</b>	<b>207.1</b>
Algeria	114.3	31.5	12.5	13.6	36.6	35.1	20.2	16.7
Angola	16.5	2.2	0.2	2.8	7.2	6.5	4.1	1.3
Benin	4.9	0.1	-	0.2	3.5	3.5	1.2	1.2
Botswana	4.5	0.4	-	1.4	2.2	2.1	0.6	0.1
Cameroon	5.4	1.3	0.4	0.4	2.9	2.8	0.4	0.4
Congo	2.2	0.3	-	0.1	1.6	1.6	0.1	0.1
Dem. Rep. of Congo	2.4	0.0	-	0.2	2.2	2.2	0.0	0.0
Côte d'Ivoire	7.8	3.4	0.2	1.0	2.4	2.1	0.9	0.4
Egypt	196.9	72.9	14.7	36.4	50.4	47.6	22.5	15.4
Eritrea	0.5	0.3	-	0.0	0.2	0.2	0.1	0.0
Ethiopia	7.9	0.0	-	3.2	3.2	3.1	1.4	0.8
Gabon	2.5	1.0	0.0	0.7	0.5	0.5	0.2	0.1
Ghana	12.8	3.0	0.2	1.8	6.7	6.2	1.1	0.6
Kenya	10.6	1.9	0.1	2.7	4.8	4.7	1.1	1.0
Libya	44.2	19.3	1.7	4.5	16.6	16.6	2.1	2.1
Mauritius	3.7	2.2	-	0.3	1.0	0.9	0.2	0.1
Morocco	51.8	19.0	1.3	7.6	14.5	14.5	9.5	3.9
Mozambique	2.6	0.0	0.0	0.5	1.9	1.7	0.2	0.1
Namibia	3.2	0.0	-	0.3	1.7	1.6	1.1	-
Nigeria	64.6	11.6	12.0	7.8	25.2	25.1	8.0	1.5
Senegal	5.6	2.1	0.0	1.1	2.1	2.0	0.3	0.3
South Africa	376.1	233.0	3.4	58.8	48.4	45.1	32.5	15.1
Sudan	14.5	1.9	0.2	2.3	8.6	8.6	1.5	0.6
United Rep. of Tanzania	8.9	2.8	-	0.9	4.8	4.8	0.4	0.3
Togo	1.6	0.0	-	0.2	1.2	1.2	0.2	0.2
Tunisia	23.0	8.3	0.1	5.0	6.3	5.6	3.4	1.7
Zambia	2.8	0.0	0.1	1.5	0.9	0.9	0.2	-
Zimbabwe	10.0	3.3	0.1	1.9	1.4	1.2	3.3	0.1
Other Africa	30.5	8.2	0.8	5.0	13.0	11.6	3.5	1.5
<b>Africa</b>	<b>1 032.4</b>	<b>430.2</b>	<b>48.0</b>	<b>162.2</b>	<b>271.9</b>	<b>259.5</b>	<b>120.0</b>	<b>65.7</b>

\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

CO<sub>2</sub> emissions by sector in 2012million tonnes of CO<sub>2</sub>

	Total CO <sub>2</sub> emissions from fuel combustion	Electricity and heat production	Other energy ind. own use	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
Bangladesh	59.6	28.2	0.2	12.4	8.6	6.6	10.1	6.2
Brunei Darussalam	8.4	2.8	2.1	2.0	1.3	1.3	0.1	0.1
Cambodia	4.2	0.8	-	0.7	2.2	1.8	0.6	0.6
India	1 954.0	1 044.2	67.2	473.2	216.2	200.9	153.1	80.6
Indonesia	435.5	158.5	24.9	94.0	128.6	113.6	29.4	17.4
DPR of Korea	45.4	7.3	0.0	28.2	1.3	1.3	8.6	0.1
Malaysia	195.9	90.2	17.3	38.0	42.9	42.7	7.5	1.9
Mongolia	14.2	8.6	0.0	1.9	1.9	1.3	1.8	0.9
Myanmar	11.7	2.3	0.7	3.9	3.1	2.2	1.7	0.0
Nepal	4.9	0.0	-	1.7	2.1	2.1	1.1	0.4
Pakistan	137.4	40.1	1.5	39.3	36.9	34.3	19.6	16.1
Philippines	79.5	36.6	1.5	11.3	24.2	21.2	5.8	2.4
Singapore	49.7	22.2	6.0	14.1	6.9	6.3	0.6	0.2
Sri Lanka	15.9	6.5	0.0	1.1	7.2	7.0	1.0	0.4
Chinese Taipei	256.6	144.3	13.9	54.2	34.9	34.1	9.3	4.4
Thailand	256.7	83.4	21.9	69.5	60.9	60.2	21.0	6.3
Viet Nam	142.9	43.1	1.6	50.6	33.8	33.0	13.8	8.1
Other Asia	26.2	7.8	-	6.0	10.1	8.9	2.3	0.7
<b>Asia (excl. China)</b>	<b>3 698.5</b>	<b>1 727.0</b>	<b>159.0</b>	<b>902.1</b>	<b>623.2</b>	<b>578.6</b>	<b>287.3</b>	<b>146.7</b>
People's Rep. of China	8 205.9	4 104.3	300.6	2 546.1	702.9	563.1	552.0	310.4
Hong Kong, China	45.0	29.4	-	7.7	6.3	6.2	1.6	0.8
<b>China</b>	<b>8 250.8</b>	<b>4 133.7</b>	<b>300.6</b>	<b>2 553.7</b>	<b>709.2</b>	<b>569.4</b>	<b>553.6</b>	<b>311.2</b>
Argentina	188.5	53.5	17.5	33.9	48.3	43.3	35.2	23.0
Bolivia	16.3	3.3	1.4	1.8	6.3	6.0	3.5	1.3
Brazil	440.2	54.2	27.6	121.4	198.9	179.3	38.1	17.4
Colombia	67.4	7.7	7.6	15.6	27.6	26.4	8.9	3.8
Costa Rica	6.8	0.6	0.0	1.0	4.7	4.7	0.4	0.1
Cuba	28.8	16.5	0.6	8.0	2.0	1.8	1.7	0.6
Dominican Republic	19.8	9.4	0.0	2.3	6.6	5.6	1.5	1.3
Ecuador	33.1	7.2	1.7	4.7	16.0	15.3	3.5	2.7
El Salvador	6.2	1.4	0.0	1.0	3.1	3.1	0.6	0.6
Guatemala	10.5	2.4	0.1	1.7	5.5	5.5	0.8	0.7
Haiti	2.1	0.7	-	0.4	1.0	0.5	0.1	0.1
Honduras	8.2	2.8	-	1.3	3.3	3.3	0.9	0.2
Jamaica	7.1	2.7	-	2.2	1.7	1.3	0.5	0.1
Netherlands Antilles	4.8	0.9	1.2	0.9	1.6	1.6	0.2	0.2
Nicaragua	4.3	1.6	0.1	0.5	1.8	1.8	0.3	0.1
Panama	9.9	2.8	-	2.8	3.7	3.6	0.7	0.5
Paraguay	5.1	-	-	0.3	4.5	4.5	0.3	0.2
Peru	45.8	11.4	3.8	9.7	17.7	15.8	3.2	1.9
Trinidad and Tobago	37.1	6.2	8.1	19.4	3.1	2.8	0.3	0.3
Uruguay	8.4	2.9	0.3	0.8	3.3	3.3	1.1	0.4
Venezuela	178.3	33.6	26.9	58.5	52.3	52.3	6.9	5.2
Other Non-OECD Americas	19.1	9.7	-	0.7	5.9	4.9	2.9	0.9
<b>Non-OECD Americas</b>	<b>1 147.6</b>	<b>231.4</b>	<b>96.8</b>	<b>289.1</b>	<b>418.6</b>	<b>386.4</b>	<b>111.6</b>	<b>61.6</b>
Bahrain	28.8	18.7	3.8	2.9	3.2	3.1	0.2	0.2
Islamic Rep. of Iran	532.2	144.6	35.2	106.3	121.4	120.3	124.7	95.1
Iraq	119.0	56.0	4.5	10.3	36.7	36.7	11.5	11.5
Jordan	21.7	10.5	0.7	1.3	6.8	6.8	2.3	1.5
Kuwait	91.3	46.7	14.8	16.8	12.4	12.4	0.6	0.6
Lebanon	21.0	11.9	-	1.2	5.3	5.3	2.5	2.5
Oman	67.6	15.1	8.1	31.6	11.0	11.0	1.9	0.3
Qatar	75.8	17.1	30.0	17.8	10.5	10.5	0.3	0.3
Saudi Arabia	458.8	200.6	21.0	113.8	119.3	117.0	4.2	4.2
Syrian Arab Republic	40.0	18.2	0.9	6.0	9.6	9.4	5.4	3.2
United Arab Emirates	171.0	60.3	2.1	79.7	28.3	27.6	0.5	0.5
Yemen	20.0	4.3	1.1	3.1	5.8	5.8	5.7	1.8
<b>Middle East</b>	<b>1 647.1</b>	<b>603.9</b>	<b>122.2</b>	<b>390.7</b>	<b>370.3</b>	<b>365.9</b>	<b>160.0</b>	<b>121.9</b>

CO<sub>2</sub> emissions with electricity and heat allocated to consuming sectors \* in 2012million tonnes of CO<sub>2</sub>

	Total CO <sub>2</sub> emissions from fuel combustion	Other energy ind. own use **	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
<b>World ***</b>	<b>31 734.3</b>	<b>2 149.6</b>	<b>12 243.3</b>	<b>7 341.9</b>	<b>5 373.8</b>	<b>9 999.6</b>	<b>5 264.6</b>
<i>Annex I Parties</i>	13 140.9	977.6	3 534.2	3 457.7	2 898.3	5 171.4	2 752.5
<i>Annex II Parties</i>	10 156.0	694.1	2 463.8	2 961.9	2 559.8	4 036.2	2 028.8
<i>North America</i>	5 607.9	412.1	1 123.6	1 843.0	1 556.2	2 229.2	1 098.8
<i>Europe</i>	2 906.4	188.3	805.3	785.2	721.9	1 127.6	632.5
<i>Asia Oceania</i>	1 641.7	93.7	534.9	333.7	281.8	679.4	297.5
<i>Annex I EIT</i>	2 680.0	271.4	958.6	442.8	290.9	1 007.2	659.7
<i>Non-Annex I Parties</i>	17 513.5	1 172.0	8 709.1	2 804.2	2 475.5	4 828.2	2 512.1
<i>Annex I Kyoto Parties</i>	7 157.0	547.3	2 270.7	1 549.7	1 284.4	2 789.3	1 575.0
<b>Non-OECD Total</b>	<b>18 508.3</b>	<b>1 294.1</b>	<b>9 094.3</b>	<b>2 878.1</b>	<b>2 418.2</b>	<b>5 241.8</b>	<b>2 875.9</b>
<b>OECD Total</b>	<b>12 146.1</b>	<b>855.4</b>	<b>3 149.0</b>	<b>3 383.8</b>	<b>2 955.6</b>	<b>4 757.8</b>	<b>2 388.7</b>
Canada	533.7	63.9	146.6	172.1	143.2	151.1	66.6
Chile	77.8	3.2	35.5	22.5	20.1	16.7	9.0
Mexico	435.8	61.4	132.3	153.8	148.9	88.2	48.7
United States	5 074.1	348.2	977.0	1 670.9	1 413.0	2 078.1	1 032.2
<b>OECD Americas</b>	<b>6 121.4</b>	<b>476.7</b>	<b>1 291.4</b>	<b>2 019.3</b>	<b>1 725.2</b>	<b>2 334.1</b>	<b>1 156.5</b>
Australia	386.3	40.7	120.6	93.4	75.6	131.7	64.2
Israel	73.3	2.2	13.4	12.9	12.9	44.8	17.7
Japan	1 223.3	51.3	405.3	226.9	194.0	539.8	230.2
Korea	592.9	45.3	253.7	89.3	83.0	204.6	80.3
New Zealand	32.1	1.8	9.0	13.4	12.1	7.9	3.1
<b>OECD Asia Oceania</b>	<b>2 307.9</b>	<b>141.2</b>	<b>802.0</b>	<b>435.9</b>	<b>377.7</b>	<b>928.8</b>	<b>395.5</b>
Austria	64.7	7.5	17.8	21.9	20.6	17.5	11.4
Belgium	104.6	6.8	38.7	24.7	23.7	34.4	18.7
Czech Republic	107.8	6.6	38.6	17.6	15.5	45.0	25.1
Denmark	37.1	2.6	6.0	11.4	10.4	17.1	9.5
Estonia	16.3	0.7	3.4	2.3	2.1	10.0	5.7
Finland	49.4	4.0	17.3	11.8	10.9	16.3	8.0
France	333.9	16.0	71.9	124.2	117.8	121.9	67.3
Germany	755.3	33.0	255.5	153.3	142.1	313.4	181.7
Greece	77.5	4.8	15.9	16.4	13.9	40.4	21.7
Hungary	43.6	2.2	9.3	11.0	10.5	21.1	12.5
Iceland	1.8	0.0	0.5	0.8	0.8	0.6	0.0
Ireland	35.5	0.5	8.5	10.3	10.0	16.3	10.2
Italy	374.8	25.0	105.8	105.7	95.9	138.2	77.5
Luxembourg	10.2	-	1.4	6.6	6.5	2.3	1.1
Netherlands	173.8	15.2	58.6	33.2	31.7	66.8	28.5
Norway	36.2	10.4	7.9	13.3	9.4	4.6	1.1
Poland	293.8	22.8	72.4	47.9	44.4	150.6	89.8
Portugal	45.9	2.6	13.3	15.8	14.9	14.2	6.4
Slovak Republic	31.9	4.9	11.1	6.5	5.8	9.4	5.2
Slovenia	14.6	0.1	4.3	5.5	5.4	4.7	2.6
Spain	266.6	21.7	69.4	83.6	69.8	91.9	44.0
Sweden	40.4	2.8	10.6	20.1	19.3	6.9	3.1
Switzerland	41.3	0.8	6.3	17.1	16.7	17.0	10.9
Turkey	302.4	12.1	111.3	52.5	47.1	126.5	63.3
United Kingdom	457.5	34.5	99.9	115.0	107.5	208.1	131.4
<b>OECD Europe</b>	<b>3 716.8</b>	<b>237.5</b>	<b>1 055.6</b>	<b>928.7</b>	<b>852.8</b>	<b>1 494.9</b>	<b>836.7</b>
<i>European Union - 28</i>	3 504.9	228.2	981.0	884.1	814.5	1 411.6	801.2

\* CO<sub>2</sub> emissions from electricity and heat generation have been allocated to final consuming sectors in proportion to the electricity and heat consumed. The detailed unallocated emissions are shown in the table on pages II.22-II.24.

\*\* Includes emissions from own use in petroleum refining, the manufacture of solid fuels, coal mining, oil and gas extraction and other energy-producing industries.

\*\*\* World includes international bunkers in the transport sector.

CO<sub>2</sub> emissions with electricity and heat allocated to consuming sectors in 2012million tonnes of CO<sub>2</sub>

	Total CO <sub>2</sub> emissions from fuel combustion	Other energy ind. own use	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
<b>Non-OECD Total</b>	<b>18 508.3</b>	<b>1 294.1</b>	<b>9 094.3</b>	<b>2 878.1</b>	<b>2 418.2</b>	<b>5 241.8</b>	<b>2 875.9</b>
Albania	3.8	0.1	1.0	2.2	2.2	0.5	0.2
Armenia	5.4	-	1.0	1.3	1.3	3.1	1.7
Azerbaijan	29.3	4.1	4.4	6.7	5.9	14.1	9.2
Belarus	71.1	6.1	28.1	12.0	10.1	24.9	14.7
Bosnia and Herzegovina	21.2	0.8	6.6	3.3	3.2	10.5	6.9
Bulgaria	44.3	3.2	13.8	8.4	7.6	19.0	11.5
Croatia	17.2	1.8	3.8	5.7	5.2	6.0	3.5
Cyprus *	6.5	0.0	0.8	2.0	2.0	3.6	1.7
FYR of Macedonia	8.7	0.2	3.0	1.4	1.4	4.1	2.7
Georgia	6.8	0.2	1.7	2.5	2.3	2.4	1.6
Gibraltar	0.5	-	0.1	0.3	0.3	0.1	-
Kazakhstan	225.8	47.5	103.2	16.3	13.2	58.9	31.2
Kosovo	8.0	0.0	2.3	1.0	1.0	4.7	3.5
Kyrgyzstan	9.5	0.0	1.8	3.9	3.9	3.8	1.3
Latvia	7.0	-	1.4	2.8	2.4	2.8	1.4
Lithuania	13.3	1.8	4.0	4.3	4.0	3.3	2.0
Malta	2.5	-	0.6	0.5	0.5	1.5	0.7
Republic of Moldova	7.6	0.1	2.2	1.1	1.0	4.3	3.0
Montenegro	2.3	-	1.0	0.6	0.6	0.7	0.6
Romania	79.0	7.2	27.1	15.5	13.9	29.1	19.0
Russian Federation	1 659.0	195.4	620.3	269.0	139.0	574.4	391.4
Serbia	44.1	1.2	13.2	5.5	4.6	24.2	17.6
Tajikistan	2.7	0.0	0.0	0.3	0.3	2.4	0.0
Turkmenistan	63.8	7.6	10.0	7.3	3.5	38.9	2.7
Ukraine	281.1	18.8	121.2	34.2	24.8	106.9	75.4
Uzbekistan	111.1	4.5	27.8	8.5	4.2	70.4	37.3
<b>Non-OECD Europe and Eurasia</b>	<b>2 731.8</b>	<b>300.5</b>	<b>1 000.3</b>	<b>416.5</b>	<b>258.4</b>	<b>1 014.5</b>	<b>640.8</b>
Algeria	114.3	13.0	25.0	37.2	35.1	39.2	27.9
Angola	16.5	0.2	3.5	7.2	6.5	5.5	2.8
Benin	4.9	-	0.2	3.5	3.5	1.3	1.3
Botswana	4.5	-	1.5	2.2	2.1	0.8	0.2
Cameroon	5.4	0.4	1.1	2.9	2.8	1.0	0.7
Congo	2.2	-	0.3	1.6	1.6	0.3	0.3
Dem. Rep. of Congo	2.4	-	0.2	2.2	2.2	0.0	0.0
Côte d'Ivoire	7.8	0.2	2.0	2.4	2.1	3.3	2.0
Egypt	196.9	14.7	57.1	50.6	47.6	74.4	46.4
Eritrea	0.5	-	0.1	0.2	0.2	0.3	0.2
Ethiopia	7.9	-	3.2	3.2	3.1	1.5	0.8
Gabon	2.5	0.1	1.0	0.5	0.5	0.9	0.6
Ghana	12.8	0.2	3.3	6.7	6.2	2.6	1.7
Kenya	10.6	0.1	3.7	4.8	4.7	2.0	1.5
Libya	44.2	1.7	5.5	16.6	16.6	20.4	5.2
Mauritius	3.7	0.0	1.1	1.0	0.9	1.6	0.8
Morocco	51.8	2.0	15.6	14.7	14.5	19.6	10.0
Mozambique	2.6	0.0	0.5	1.9	1.7	0.2	0.1
Namibia	3.2	-	0.3	1.7	1.6	1.1	-
Nigeria	64.6	12.1	9.6	25.2	25.1	17.7	8.2
Senegal	5.6	0.0	1.7	2.1	2.0	1.9	1.0
South Africa	376.1	16.7	189.5	52.7	45.1	117.1	58.3
Sudan	14.5	0.2	2.6	8.6	8.6	3.1	1.6
United Rep. of Tanzania	8.9	0.0	1.6	4.8	4.8	2.5	1.6
Togo	1.6	-	0.2	1.2	1.2	0.2	0.2
Tunisia	23.0	0.1	7.9	6.4	5.6	8.6	4.2
Zambia	2.8	0.1	1.6	0.9	0.9	0.2	0.0
Zimbabwe	10.0	0.1	3.3	1.4	1.2	5.3	1.3
Other Africa	30.5	0.9	6.8	13.0	11.6	9.9	4.5
<b>Africa</b>	<b>1 032.4</b>	<b>62.9</b>	<b>349.8</b>	<b>277.3</b>	<b>259.5</b>	<b>342.5</b>	<b>183.2</b>

\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

CO<sub>2</sub> emissions with electricity and heat allocated to consuming sectors in 2012million tonnes of CO<sub>2</sub>

	Total CO <sub>2</sub> emissions from fuel combustion	Other energy ind. own use	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
Bangladesh	59.6	0.2	27.9	8.6	6.6	22.8	15.8
Brunei Darussalam	8.4	2.4	2.2	1.3	1.3	2.5	1.2
Cambodia	4.2	-	0.8	2.2	1.8	1.2	1.0
India	1 954.0	67.2	934.2	234.8	200.9	717.9	310.0
Indonesia	435.5	24.9	148.9	128.6	113.6	133.1	83.1
DPR of Korea	45.4	0.0	31.8	1.3	1.3	12.2	0.1
Malaysia	195.9	17.3	80.3	43.1	42.7	55.1	20.4
Mongolia	14.2	0.0	4.9	2.0	1.3	7.3	4.1
Myanmar	11.7	0.7	4.6	3.1	2.2	3.3	1.0
Nepal	4.9	-	1.7	2.1	2.1	1.1	0.4
Pakistan	137.4	1.5	50.9	36.9	34.3	48.0	35.0
Philippines	79.5	1.5	23.7	24.3	21.2	30.0	14.6
Singapore	49.7	6.0	22.9	8.1	6.3	12.7	3.5
Sri Lanka	15.9	0.0	3.3	7.2	7.0	5.3	3.0
Chinese Taipei	256.6	16.4	136.0	35.7	34.1	68.5	32.0
Thailand	256.7	21.9	104.0	60.9	60.2	69.8	25.2
Viet Nam	142.9	1.6	75.9	33.8	33.0	31.6	22.0
Other Asia	26.2	-	8.9	10.1	8.9	7.2	2.9
<b>Asia (excl. China)</b>	<b>3 698.5</b>	<b>161.8</b>	<b>1 663.0</b>	<b>644.1</b>	<b>578.6</b>	<b>1 229.5</b>	<b>575.1</b>
People's Rep. of China	8 205.9	530.7	5 172.6	743.6	563.1	1 758.9	965.7
Hong Kong, China	45.0	-	9.8	6.3	6.2	28.9	8.6
<b>China</b>	<b>8 250.8</b>	<b>530.7</b>	<b>5 182.4</b>	<b>749.8</b>	<b>569.4</b>	<b>1 787.9</b>	<b>974.3</b>
Argentina	188.5	17.5	56.5	48.6	43.3	65.9	40.3
Bolivia	16.3	1.4	2.7	6.3	6.0	5.9	2.5
Brazil	440.2	29.7	144.5	199.2	179.3	66.8	30.3
Colombia	67.4	7.6	18.0	27.6	26.4	14.2	7.0
Costa Rica	6.8	0.0	1.1	4.7	4.7	0.9	0.4
Cuba	28.8	0.6	12.5	2.3	1.8	13.5	8.9
Dominican Republic	19.8	0.0	6.5	6.6	5.6	6.6	3.9
Ecuador	33.1	1.7	7.8	16.0	15.3	7.6	4.8
El Salvador	6.2	0.0	1.6	3.1	3.1	1.4	1.0
Guatemala	10.5	0.1	2.7	5.5	5.5	2.2	1.5
Haiti	2.1	-	0.6	1.0	0.5	0.5	0.3
Honduras	8.2	-	2.0	3.3	3.3	2.9	1.3
Jamaica	7.1	-	3.1	1.7	1.3	2.4	1.0
Netherlands Antilles	4.8	1.2	1.4	1.6	1.6	0.6	0.2
Nicaragua	4.3	0.1	1.1	1.8	1.8	1.3	0.6
Panama	9.9	-	3.0	3.7	3.6	3.2	1.4
Paraguay	5.1	-	0.3	4.5	4.5	0.3	0.2
Peru	45.8	3.8	15.7	17.8	15.8	8.6	4.6
Trinidad and Tobago	37.1	8.1	23.2	3.1	2.8	2.8	2.1
Uruguay	8.4	0.3	1.6	3.3	3.3	3.2	1.6
Venezuela	178.3	27.7	73.2	52.5	52.3	24.9	14.7
Other Non-OECD Americas	19.1	-	5.6	6.0	4.9	7.4	4.2
<b>Non-OECD Americas</b>	<b>1 147.6</b>	<b>99.7</b>	<b>384.8</b>	<b>419.8</b>	<b>386.4</b>	<b>243.2</b>	<b>132.7</b>
Bahrain	28.8	3.8	12.9	3.2	3.1	9.0	5.3
Islamic Rep. of Iran	532.2	36.7	157.9	121.7	120.3	215.8	139.1
Iraq	119.0	4.5	20.2	36.7	36.7	57.6	28.0
Jordan	21.7	0.8	3.8	6.8	6.8	10.3	6.1
Kuwait	91.3	21.3	16.8	12.4	12.4	40.7	26.6
Lebanon	21.0	-	4.4	5.3	5.3	11.4	7.1
Oman	67.6	8.1	34.1	11.0	11.0	14.5	7.6
Qatar	75.8	30.0	23.4	10.5	10.5	11.9	5.6
Saudi Arabia	458.8	29.2	139.9	119.3	117.0	170.5	104.7
Syrian Arab Republic	40.0	0.9	12.1	9.6	9.4	17.5	11.5
United Arab Emirates	171.0	2.1	85.4	28.3	27.6	55.2	23.8
Yemen	20.0	1.1	3.2	5.8	5.8	9.9	4.4
<b>Middle East</b>	<b>1 647.1</b>	<b>138.5</b>	<b>514.0</b>	<b>370.5</b>	<b>365.9</b>	<b>624.1</b>	<b>369.8</b>

## Total primary energy supply

petajoules

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>World *</b>	<b>231 440</b>	<b>259 119</b>	<b>301 894</b>	<b>323 797</b>	<b>367 612</b>	<b>386 688</b>	<b>422 003</b>	<b>481 776</b>	<b>539 712</b>	<b>549 683</b>	<b>559 818</b>	<b>52.3%</b>
<i>Annex I Parties</i>	..	..	..	..	233 715	229 402	241 467	250 659	245 232	241 585	239 476	2.5%
<i>Annex II Parties</i>	130 355	138 414	153 268	154 070	167 908	180 281	194 914	201 109	193 137	187 913	185 322	10.4%
<i>North America</i>	72 382	76 179	83 594	82 355	88 912	96 216	105 710	108 418	103 276	102 331	100 137	12.6%
<i>Europe</i>	44 325	46 578	51 959	53 015	56 453	58 865	62 232	65 443	63 082	60 335	60 084	6.4%
<i>Asia Oceania</i>	13 648	15 658	17 715	18 699	22 543	25 200	26 971	27 249	26 778	25 247	25 101	11.3%
<i>Annex I EIT</i>	..	..	..	..	63 570	46 513	43 345	45 987	47 652	48 939	49 231	-22.6%
<i>Non-Annex I Parties</i>	..	..	..	..	125 483	147 652	169 135	217 752	279 423	292 736	305 682	143.6%
<i>Annex I Kyoto Parties</i>	..	..	..	..	140 662	129 542	131 519	137 559	136 362	133 293	133 139	-5.3%
<b>Intl. marine bunkers</b>	<b>4 538</b>	<b>4 372</b>	<b>4 584</b>	<b>3 930</b>	<b>4 792</b>	<b>5 561</b>	<b>6 430</b>	<b>7 445</b>	<b>8 590</b>	<b>8 669</b>	<b>7 910</b>	<b>65.1%</b>
<b>Intl. aviation bunkers</b>	<b>2 368</b>	<b>2 432</b>	<b>2 828</b>	<b>3 146</b>	<b>3 622</b>	<b>4 073</b>	<b>4 971</b>	<b>5 919</b>	<b>6 468</b>	<b>6 692</b>	<b>6 751</b>	<b>86.4%</b>
<b>Non-OECD Total **</b>	<b>83 347</b>	<b>100 862</b>	<b>124 179</b>	<b>144 119</b>	<b>169 859</b>	<b>173 076</b>	<b>189 048</b>	<b>237 731</b>	<b>298 565</b>	<b>312 387</b>	<b>325 363</b>	<b>91.5%</b>
<b>OECD Total ***</b>	<b>141 188</b>	<b>151 453</b>	<b>170 304</b>	<b>172 602</b>	<b>189 339</b>	<b>203 978</b>	<b>221 554</b>	<b>230 680</b>	<b>226 090</b>	<b>221 935</b>	<b>219 795</b>	<b>16.1%</b>
Canada	5 918	6 948	8 036	8 080	8 732	9 662	10 530	11 335	10 522	10 592	10 514	20.4%
Chile	364	320	397	401	587	768	1 054	1 187	1 291	1 410	1 558	165.6%
Mexico	1 799	2 476	3 982	4 547	5 129	5 440	6 063	7 063	7 380	7 687	7 888	53.8%
United States	66 464	69 231	75 558	74 275	80 179	86 554	95 180	97 082	92 754	91 739	89 623	11.8%
<b>OECD Americas</b>	<b>74 546</b>	<b>78 974</b>	<b>87 973</b>	<b>87 304</b>	<b>94 627</b>	<b>102 424</b>	<b>112 827</b>	<b>116 668</b>	<b>111 947</b>	<b>111 428</b>	<b>109 583</b>	<b>15.8%</b>
Australia	2 161	2 528	2 914	3 037	3 616	3 881	4 526	4 751	5 128	5 145	5 371	48.5%
Israel	240	294	328	317	480	649	763	774	971	970	1 016	111.7%
Japan	11 201	12 772	14 424	15 194	18 390	20 696	21 730	21 789	20 884	19 341	18 936	3.0%
Korea	711	1 024	1 727	2 225	3 890	6 061	7 878	8 804	10 467	10 905	11 030	183.5%
New Zealand	286	358	376	469	537	623	715	708	766	761	794	47.8%
<b>OECD Asia Oceania</b>	<b>14 599</b>	<b>16 976</b>	<b>19 770</b>	<b>21 241</b>	<b>26 913</b>	<b>31 910</b>	<b>35 612</b>	<b>36 827</b>	<b>38 216</b>	<b>37 122</b>	<b>37 147</b>	<b>38.0%</b>
Austria	788	842	969	967	1 040	1 120	1 195	1 414	1 429	1 388	1 386	33.3%
Belgium	1 660	1 772	1 958	1 847	2 022	2 251	2 452	2 460	2 535	2 484	2 343	15.9%
Czech Republic	1 900	1 829	1 966	2 062	2 074	1 737	1 716	1 881	1 863	1 803	1 786	-13.9%
Denmark	775	732	801	808	727	812	780	792	815	753	726	-0.1%
Estonia	..	..	..	..	409	218	197	218	235	236	231	-43.5%
Finland	761	825	1 030	1 082	1 188	1 211	1 352	1 436	1 529	1 458	1 394	17.3%
France	6 639	6 907	8 029	8 534	9 379	9 925	10 550	11 331	10 934	10 534	10 565	12.6%
Germany	12 772	13 126	14 954	14 955	14 700	14 081	14 084	14 103	13 710	13 018	13 085	-11.0%
Greece	364	492	627	735	898	949	1 134	1 266	1 156	1 120	1 112	23.8%
Hungary	797	959	1 187	1 246	1 205	1 082	1 047	1 153	1 075	1 046	983	-18.5%
Iceland	38	46	63	74	87	94	130	146	225	240	238	172.7%
Ireland	281	278	345	361	415	445	572	601	598	553	555	33.7%
Italy	4 413	4 889	5 478	5 414	6 136	6 662	7 181	7 693	7 138	7 010	6 649	8.4%
Luxembourg	170	158	149	128	142	132	140	183	177	175	171	20.8%
Netherlands	2 130	2 471	2 695	2 539	2 750	2 962	3 066	3 282	3 493	3 241	3 290	19.6%
Norway	557	611	767	836	879	981	1 092	1 121	1 355	1 172	1 222	39.0%
Poland	3 606	4 314	5 301	5 221	4 317	4 165	3 731	3 870	4 213	4 236	4 097	-5.1%
Portugal	263	322	418	459	703	845	1 030	1 108	984	956	896	27.5%
Slovak Republic	597	702	831	868	893	744	743	788	746	726	697	-21.9%
Slovenia	..	..	..	..	239	254	269	305	303	305	293	22.5%
Spain	1 784	2 407	2 834	2 969	3 771	4 220	5 102	5 942	5 343	5 258	5 232	38.7%
Sweden	1 509	1 634	1 695	1 977	1 976	2 107	1 991	2 159	2 131	2 087	2 100	6.3%
Switzerland	686	719	839	924	1 020	1 009	1 047	1 086	1 097	1 062	1 072	5.1%
Turkey	818	1 120	1 317	1 646	2 207	2 578	3 180	3 526	4 408	4 698	4 894	121.7%
United Kingdom	8 737	8 347	8 308	8 407	8 621	9 057	9 335	9 321	8 433	7 826	8 048	-6.6%
<b>OECD Europe ***</b>	<b>52 044</b>	<b>55 503</b>	<b>62 561</b>	<b>64 058</b>	<b>67 799</b>	<b>69 644</b>	<b>73 115</b>	<b>77 186</b>	<b>75 926</b>	<b>73 385</b>	<b>73 065</b>	<b>7.8%</b>
<i>European Union - 28</i>	..	..	..	..	68 858	68 849	70 868	74 819	72 043	69 487	68 814	-0.1%

\* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.

\*\* Includes Estonia and Slovenia prior to 1990.

\*\*\* Excludes Estonia and Slovenia prior to 1990.

## Total primary energy supply

petajoules

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>Non-OECD Total *</b>	<b>83 347</b>	<b>100 862</b>	<b>124 179</b>	<b>144 119</b>	<b>169 859</b>	<b>173 076</b>	<b>189 048</b>	<b>237 731</b>	<b>298 565</b>	<b>312 387</b>	<b>325 363</b>	<b>91.5%</b>
Albania	72	83	129	114	112	56	74	91	88	94	87	-22.4%
Armenia	..	..	..	..	323	69	84	105	104	114	124	-61.5%
Azerbaijan	..	..	..	..	949	582	473	562	485	526	573	-39.6%
Belarus	..	..	..	..	1 905	1 036	1 029	1 120	1 151	1 229	1 277	-33.0%
Bosnia and Herzegovina	..	..	..	..	294	63	182	211	270	297	279	-5.0%
Bulgaria	797	973	1 189	1 283	1 182	964	782	833	749	804	768	-35.0%
Croatia	..	..	..	..	378	295	326	373	359	353	331	-12.3%
Cyprus **	25	24	36	39	57	71	89	93	102	99	93	63.1%
FYR of Macedonia	..	..	..	..	104	105	112	119	121	130	124	19.8%
Georgia	..	..	..	..	520	156	120	119	131	148	155	-70.2%
Gibraltar	1	1	2	2	2	4	5	6	7	7	7	200.5%
Kazakhstan	..	..	..	..	3 075	2 187	1 494	2 130	2 894	3 238	3 134	1.9%
Kosovo ***	..	..	..	..	..	..	65	81	104	106	99	..
Kyrgyzstan	..	..	..	..	313	100	97	108	115	139	173	-44.8%
Latvia	..	..	..	..	329	192	160	190	194	178	185	-43.8%
Lithuania	..	..	..	..	673	365	299	370	295	306	309	-54.1%
Malta	9	9	13	14	29	30	28	37	36	35	28	-3.5%
Republic of Moldova	..	..	..	..	414	198	121	146	143	139	137	-66.9%
Montenegro ***	..	..	..	..	..	..	..	45	49	47	44	..
Romania	1 764	2 169	2 731	2 719	2 606	1 951	1 517	1 616	1 467	1 498	1 462	-43.9%
Russian Federation	..	..	..	..	36 810	26 655	25 927	27 286	29 456	30 920	31 677	-13.9%
Serbia ***	..	..	..	..	825	577	575	672	650	678	605	-26.6%
Tajikistan	..	..	..	..	222	93	90	98	91	91	95	-57.3%
Turkmenistan	..	..	..	..	733	573	623	802	949	1 035	1 071	46.0%
Ukraine	..	..	..	..	10 550	6 854	5 602	5 982	5 545	5 299	5 136	-51.3%
Uzbekistan	..	..	..	..	1 941	1 786	2 125	1 966	1 804	1 977	2 022	4.1%
Former Soviet Union ****	32 169	39 351	46 453	52 248	..	..	..	..	..	..	..	..
Former Yugoslavia ****	918	1 068	1 411	1 722	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>35 753</b>	<b>43 678</b>	<b>51 963</b>	<b>58 141</b>	<b>64 347</b>	<b>44 961</b>	<b>41 999</b>	<b>45 163</b>	<b>47 360</b>	<b>49 486</b>	<b>49 997</b>	<b>-22.3%</b>
Algeria	145	231	469	743	929	1 009	1 130	1 354	1 679	1 752	1 940	108.8%
Angola	161	173	191	209	246	268	314	382	568	579	598	142.8%
Benin	46	52	57	65	70	77	83	105	153	158	164	135.7%
Botswana	..	..	..	36	51	61	75	79	91	90	91	77.6%
Cameroon	113	127	153	187	209	232	264	295	292	284	292	40.3%
Congo	21	23	26	32	32	32	34	45	64	70	72	120.9%
Dem. Rep. of Congo	280	313	354	417	494	537	583	699	832	883	861	74.2%
Côte d'Ivoire	103	124	150	155	182	216	284	403	423	486	528	190.2%
Egypt	327	410	634	1 077	1 353	1 474	1 703	2 577	3 049	3 196	3 275	141.9%
Eritrea	..	..	..	..	..	42	30	32	31	32	33	..
Ethiopia	534	590	641	739	881	1 044	1 210	1 410	1 722	1 818	1 905	116.2%
Gabon	45	54	58	57	49	56	62	72	88	91	93	87.3%
Ghana	125	153	168	182	222	271	319	329	388	401	424	91.5%
Kenya	220	252	307	362	446	507	588	678	829	849	860	92.8%
Libya	66	153	288	418	468	586	666	746	861	568	718	53.5%
Mauritius	15	17	18	19	28	33	42	49	55	55	56	101.2%
Morocco	124	166	226	259	319	391	462	590	709	762	787	146.7%
Mozambique	289	280	281	267	248	263	300	355	414	430	437	76.2%
Namibia	..	..	..	..	..	37	42	52	63	64	68	..
Nigeria	1 389	1 614	2 046	2 390	2 781	3 085	3 602	4 409	5 023	5 314	5 599	101.3%
Senegal	52	58	65	65	71	78	100	117	164	174	173	144.8%
South Africa	1 902	2 260	2 737	3 617	3 808	4 337	4 575	5 373	5 973	5 941	5 862	53.9%
Sudan	294	313	350	396	445	502	557	627	699	699	697	56.7%
United Rep. of Tanzania	317	321	336	367	407	461	564	718	847	883	928	127.7%
Togo	30	33	37	41	53	66	88	99	130	131	131	147.2%
Tunisia	69	91	137	174	207	243	306	348	422	397	414	100.0%
Zambia	151	168	194	211	228	244	262	305	347	361	380	66.6%
Zimbabwe	228	248	272	310	389	412	419	403	381	391	401	3.0%
Other Africa	945	1 033	1 173	1 299	1 758	1 926	2 129	2 379	2 724	2 809	2 896	64.7%
<b>Africa</b>	<b>7 993</b>	<b>9 256</b>	<b>11 370</b>	<b>14 093</b>	<b>16 375</b>	<b>18 489</b>	<b>20 795</b>	<b>25 031</b>	<b>29 023</b>	<b>29 670</b>	<b>30 681</b>	<b>87.4%</b>

\* Includes Estonia and Slovenia prior to 1990.

\*\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

\*\*\* Serbia includes Kosovo from 1990 to 1999 and Montenegro from 1990 to 2004.

\*\*\*\* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

## Total primary energy supply

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	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
Bangladesh	238	282	352	417	533	666	764	953	1 281	1 327	1 389	160.5%
Brunei Darussalam	7	31	57	75	72	94	100	93	136	162	162	123.7%
Cambodia	..	..	..	..	..	119	143	144	210	223	230	..
India	6 551	7 441	8 589	10 667	13 247	16 071	19 110	22 598	30 251	31 477	32 997	149.1%
Indonesia	1 467	1 722	2 332	2 756	4 129	5 477	6 516	7 527	8 768	8 597	8 942	116.6%
DPR of Korea	813	932	1 271	1 507	1 391	920	826	893	791	586	590	-57.6%
Malaysia	253	306	506	663	928	1 467	2 072	2 787	3 168	3 312	3 401	266.5%
Mongolia	..	..	..	131	143	113	100	110	144	151	165	15.7%
Myanmar	331	351	394	460	447	494	538	620	587	598	639	43.0%
Nepal	153	169	191	213	242	281	339	382	428	442	423	74.5%
Pakistan	713	852	1 037	1 351	1 794	2 242	2 682	3 193	3 534	3 555	3 591	100.1%
Philippines	642	764	938	995	1 202	1 408	1 674	1 627	1 696	1 693	1 782	48.2%
Singapore	114	155	215	283	483	789	782	903	1 064	1 084	1 049	117.4%
Sri Lanka	159	172	190	209	231	251	349	377	406	432	472	104.3%
Chinese Taipei	419	599	1 170	1 391	2 002	2 663	3 554	4 289	4 589	4 510	4 383	118.9%
Thailand	573	726	921	1 036	1 756	2 593	3 026	4 145	4 916	4 988	5 299	201.7%
Viet Nam	554	582	603	668	748	916	1 203	1 736	2 467	2 547	2 715	263.0%
Other Asia	237	272	324	269	289	289	345	398	515	556	590	104.3%
<b>Asia (excl. China)</b>	<b>13 225</b>	<b>15 357</b>	<b>19 090</b>	<b>23 092</b>	<b>29 637</b>	<b>36 853</b>	<b>44 123</b>	<b>52 775</b>	<b>64 949</b>	<b>66 241</b>	<b>68 817</b>	<b>132.2%</b>
People's Rep. of China	16 393	20 257	25 051	28 959	36 454	43 729	48 624	74 344	105 777	115 008	121 178	232.4%
Hong Kong, China	126	152	194	275	362	446	567	538	591	635	613	69.2%
<b>China</b>	<b>16 519</b>	<b>20 409</b>	<b>25 245</b>	<b>29 234</b>	<b>36 816</b>	<b>44 175</b>	<b>49 191</b>	<b>74 882</b>	<b>106 368</b>	<b>115 643</b>	<b>121 791</b>	<b>230.8%</b>
Argentina	1 409	1 505	1 751	1 731	1 929	2 264	2 578	2 804	3 297	3 346	3 359	74.1%
Bolivia	43	62	102	106	109	158	243	266	314	329	356	226.0%
Brazil	2 921	3 815	4 767	5 416	5 870	6 745	7 848	9 016	11 131	11 306	11 795	100.9%
Colombia	580	646	741	837	1 014	1 156	1 081	1 134	1 306	1 308	1 323	30.4%
Costa Rica	34	42	53	53	70	98	120	162	195	195	198	181.8%
Cuba	452	506	627	654	741	466	541	453	482	469	476	-35.7%
Dominican Republic	98	129	144	141	165	215	290	277	298	302	316	91.4%
Ecuador	94	132	209	235	265	330	369	425	561	582	604	127.8%
El Salvador	73	95	105	110	103	141	166	189	177	180	183	77.2%
Guatemala	114	140	159	158	185	223	295	327	427	456	464	151.0%
Haiti	63	72	87	79	65	71	84	143	159	165	170	160.9%
Honduras	58	64	78	84	100	118	125	172	191	200	213	113.3%
Jamaica	84	112	95	72	117	134	160	156	113	120	117	0.8%
Netherlands Antilles	229	161	164	75	61	55	89	88	69	86	86	41.5%
Nicaragua	51	62	64	81	85	95	105	120	124	128	139	64.0%
Panama	69	71	59	65	62	84	108	121	155	170	174	178.5%
Paraguay	57	62	87	95	129	164	161	166	201	204	209	62.6%
Peru	382	434	471	443	408	459	512	571	804	863	909	123.0%
Trinidad and Tobago	110	97	160	213	251	257	412	675	840	826	805	221.1%
Uruguay	101	102	111	84	94	108	129	124	171	185	194	105.5%
Venezuela	819	1 048	1 480	1 654	1 825	2 163	2 365	2 595	3 151	2 955	3 198	75.2%
Other Non-OECD Americas	203	252	242	151	213	210	236	256	292	292	296	39.0%
<b>Non-OECD Americas</b>	<b>8 046</b>	<b>9 608</b>	<b>11 759</b>	<b>12 535</b>	<b>13 861</b>	<b>15 713</b>	<b>18 018</b>	<b>20 238</b>	<b>24 456</b>	<b>24 668</b>	<b>25 584</b>	<b>84.6%</b>
Bahrain	59	89	117	174	219	269	333	434	521	522	528	140.9%
Islamic Republic of Iran	695	1 115	1 594	2 252	2 903	4 238	5 151	7 229	8 688	8 893	9 194	216.7%
Iraq	173	255	404	578	825	1 446	1 086	1 125	1 573	1 672	1 886	128.6%
Jordan	21	32	64	110	137	180	204	280	297	296	319	132.8%
Kuwait	256	271	438	587	381	623	787	1 105	1 348	1 362	1 449	279.9%
Lebanon	77	91	104	98	82	185	206	211	267	266	300	267.2%
Oman	10	10	48	88	177	255	322	465	934	1 069	1 102	523.8%
Qatar	39	85	139	236	273	341	457	698	1 174	1 340	1 588	481.0%
Saudi Arabia	308	367	1 302	1 926	2 429	3 538	4 097	5 131	7 762	7 454	8 384	245.2%
Syrian Arab Republic	100	128	187	328	438	507	660	871	907	837	629	43.6%
United Arab Emirates	42	81	303	574	855	1 159	1 421	1 820	2 586	2 679	2 825	230.3%
Yemen	31	29	53	73	105	143	199	276	350	290	290	175.5%
<b>Middle East</b>	<b>1 811</b>	<b>2 554</b>	<b>4 752</b>	<b>7 024</b>	<b>8 824</b>	<b>12 884</b>	<b>14 922</b>	<b>19 644</b>	<b>26 407</b>	<b>26 678</b>	<b>28 494</b>	<b>222.9%</b>



## Total primary energy supply

million tonnes of oil equivalent

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>World *</b>	<b>5 527.8</b>	<b>6 189.0</b>	<b>7 210.6</b>	<b>7 733.8</b>	<b>8 780.3</b>	<b>9 235.9</b>	<b>10 079.4</b>	<b>11 507.0</b>	<b>12 890.8</b>	<b>13 128.9</b>	<b>13 371.0</b>	<b>52.3%</b>
<i>Annex I Parties</i>	..	..	..	..	5 582.2	5 479.2	5 767.3	5 986.9	5 857.3	5 770.2	5 719.8	2.5%
<i>Annex II Parties</i>	3 113.5	3 306.0	3 660.7	3 679.9	4 010.4	4 305.9	4 655.4	4 803.4	4 613.0	4 488.2	4 426.3	10.4%
<i>North America</i>	1 728.8	1 819.5	1 996.6	1 967.0	2 123.6	2 298.1	2 524.8	2 589.5	2 466.7	2 444.1	2 391.7	12.6%
<i>Europe</i>	1 058.7	1 112.5	1 241.0	1 266.2	1 348.4	1 406.0	1 486.4	1 563.1	1 506.7	1 441.1	1 435.1	6.4%
<i>Asia Oceania</i>	326.0	374.0	423.1	446.6	538.4	601.9	644.2	650.8	639.6	603.0	599.5	11.3%
<i>Annex I EIT</i>	..	..	..	..	1 518.4	1 110.9	1 035.3	1 098.4	1 138.2	1 168.9	1 175.9	-22.6%
<i>Non-Annex I Parties</i>	..	..	..	..	2 997.1	3 526.6	4 039.7	5 200.9	6 673.9	6 991.9	7 301.1	143.6%
<i>Annex I Kyoto Parties</i>	..	..	..	..	3 359.7	3 094.1	3 141.3	3 285.5	3 256.9	3 183.6	3 180.0	-5.3%
<b>Intl. marine bunkers</b>	<b>108.4</b>	<b>104.4</b>	<b>109.5</b>	<b>93.9</b>	<b>114.5</b>	<b>132.8</b>	<b>153.6</b>	<b>177.8</b>	<b>205.2</b>	<b>207.1</b>	<b>188.9</b>	<b>65.1%</b>
<b>Intl. aviation bunkers</b>	<b>56.5</b>	<b>58.1</b>	<b>67.5</b>	<b>75.1</b>	<b>86.5</b>	<b>97.3</b>	<b>118.7</b>	<b>141.4</b>	<b>154.5</b>	<b>159.8</b>	<b>161.2</b>	<b>86.4%</b>
<b>Non-OECD Total **</b>	<b>1 990.7</b>	<b>2 409.0</b>	<b>2 966.0</b>	<b>3 442.2</b>	<b>4 057.0</b>	<b>4 133.9</b>	<b>4 515.3</b>	<b>5 678.1</b>	<b>7 131.1</b>	<b>7 461.2</b>	<b>7 771.2</b>	<b>91.5%</b>
<b>OECD Total ***</b>	<b>3 372.2</b>	<b>3 617.4</b>	<b>4 067.6</b>	<b>4 122.5</b>	<b>4 522.3</b>	<b>4 871.9</b>	<b>5 291.7</b>	<b>5 509.7</b>	<b>5 400.1</b>	<b>5 300.8</b>	<b>5 249.7</b>	<b>16.1%</b>
Canada	141.4	165.9	191.9	193.0	208.6	230.8	251.5	270.7	251.3	253.0	251.1	20.4%
Chile	8.7	7.6	9.5	9.6	14.0	18.3	25.2	28.4	30.8	33.7	37.2	165.6%
Mexico	43.0	59.1	95.1	108.6	122.5	129.9	144.8	168.7	176.3	183.6	188.4	53.8%
United States	1 587.5	1 653.5	1 804.7	1 774.0	1 915.1	2 067.3	2 273.3	2 318.8	2 215.4	2 191.1	2 140.6	11.8%
<b>OECD Americas</b>	<b>1 780.5</b>	<b>1 886.3</b>	<b>2 101.2</b>	<b>2 085.2</b>	<b>2 260.1</b>	<b>2 446.4</b>	<b>2 694.8</b>	<b>2 786.6</b>	<b>2 673.8</b>	<b>2 661.4</b>	<b>2 617.3</b>	<b>15.8%</b>
Australia	51.6	60.4	69.6	72.5	86.4	92.7	108.1	113.5	122.5	122.9	128.3	48.5%
Israel	5.7	7.0	7.8	7.6	11.5	15.5	18.2	18.5	23.2	23.2	24.3	111.7%
Japan	267.5	305.1	344.5	362.9	439.2	494.3	519.0	520.4	498.8	462.0	452.3	3.0%
Korea	17.0	24.5	41.3	53.1	92.9	144.8	188.2	210.3	250.0	260.5	263.4	183.5%
New Zealand	6.8	8.5	9.0	11.2	12.8	14.9	17.1	16.9	18.3	18.2	19.0	47.8%
<b>OECD Asia Oceania</b>	<b>348.7</b>	<b>405.5</b>	<b>472.2</b>	<b>507.3</b>	<b>642.8</b>	<b>762.2</b>	<b>850.6</b>	<b>879.6</b>	<b>912.8</b>	<b>886.6</b>	<b>887.2</b>	<b>38.0%</b>
Austria	18.8	20.1	23.2	23.1	24.8	26.8	28.5	33.8	34.1	33.2	33.1	33.3%
Belgium	39.7	42.3	46.8	44.1	48.3	53.8	58.6	58.7	60.5	59.3	55.9	15.9%
Czech Republic	45.4	43.7	47.0	49.2	49.5	41.5	41.0	44.9	44.5	43.1	42.6	-13.9%
Denmark	18.5	17.5	19.1	19.3	17.4	19.4	18.6	18.9	19.5	18.0	17.3	-0.1%
Estonia	..	..	..	..	9.8	5.2	4.7	5.2	5.6	5.6	5.5	-43.5%
Finland	18.2	19.7	24.6	25.8	28.4	28.9	32.3	34.3	36.5	34.8	33.3	17.3%
France	158.6	165.0	191.8	203.8	224.0	237.1	252.0	270.6	261.2	251.6	252.3	12.6%
Germany	305.0	313.5	357.2	357.2	351.1	336.3	336.4	336.8	327.5	310.9	312.5	-11.0%
Greece	8.7	11.7	15.0	17.6	21.4	22.7	27.1	30.2	27.6	26.7	26.6	23.8%
Hungary	19.0	22.9	28.3	29.8	28.8	25.9	25.0	27.5	25.7	25.0	23.5	-18.5%
Iceland	0.9	1.1	1.5	1.8	2.1	2.3	3.1	3.5	5.4	5.7	5.7	172.7%
Ireland	6.7	6.6	8.2	8.6	9.9	10.6	13.7	14.3	14.3	13.2	13.2	33.7%
Italy	105.4	116.8	130.8	129.3	146.6	159.1	171.5	183.7	170.5	167.4	158.8	8.4%
Luxembourg	4.1	3.8	3.6	3.1	3.4	3.1	3.3	4.4	4.2	4.2	4.1	20.8%
Netherlands	50.9	59.0	64.4	60.6	65.7	70.7	73.2	78.4	83.4	77.4	78.6	19.6%
Norway	13.3	14.6	18.3	20.0	21.0	23.4	26.1	26.8	32.4	28.0	29.2	39.0%
Poland	86.1	103.0	126.6	124.7	103.1	99.5	89.1	92.4	100.6	101.2	97.9	-5.1%
Portugal	6.3	7.7	10.0	11.0	16.8	20.2	24.6	26.5	23.5	22.8	21.4	27.5%
Slovak Republic	14.3	16.8	19.8	20.7	21.3	17.8	17.7	18.8	17.8	17.4	16.6	-21.9%
Slovenia	..	..	..	..	5.7	6.1	6.4	7.3	7.2	7.3	7.0	22.5%
Spain	42.6	57.5	67.7	70.9	90.1	100.8	121.9	141.9	127.6	125.6	125.0	38.7%
Sweden	36.0	39.0	40.5	47.2	47.2	50.3	47.6	51.6	50.9	49.8	50.2	6.3%
Switzerland	16.4	17.2	20.0	22.1	24.4	24.1	25.0	25.9	26.2	25.4	25.6	5.1%
Turkey	19.5	26.8	31.4	39.3	52.7	61.6	76.0	84.2	105.3	112.2	116.9	121.7%
United Kingdom	208.7	199.4	198.4	200.8	205.9	216.3	223.0	222.6	201.4	186.9	192.2	-6.6%
<b>OECD Europe ***</b>	<b>1 243.0</b>	<b>1 325.7</b>	<b>1 494.2</b>	<b>1 530.0</b>	<b>1 619.3</b>	<b>1 663.4</b>	<b>1 746.3</b>	<b>1 843.6</b>	<b>1 813.5</b>	<b>1 752.8</b>	<b>1 745.1</b>	<b>7.8%</b>
<i>European Union - 28</i>	..	..	..	..	1 644.7	1 644.4	1 692.7	1 787.0	1 720.7	1 659.7	1 643.6	-0.1%

\* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.

\*\* Includes Estonia and Slovenia prior to 1990.

\*\*\* Excludes Estonia and Slovenia prior to 1990.

## Total primary energy supply

million tonnes of oil equivalent

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>Non-OECD Total *</b>	<b>1 990.7</b>	<b>2 409.0</b>	<b>2 966.0</b>	<b>3 442.2</b>	<b>4 057.0</b>	<b>4 133.9</b>	<b>4 515.3</b>	<b>5 678.1</b>	<b>7 131.1</b>	<b>7 461.2</b>	<b>7 771.2</b>	<b>91.5%</b>
Albania	1.7	2.0	3.1	2.7	2.7	1.3	1.8	2.2	2.1	2.2	2.1	-22.4%
Armenia	..	..	..	..	7.7	1.6	2.0	2.5	2.5	2.7	3.0	-61.5%
Azerbaijan	..	..	..	..	22.7	13.9	11.3	13.4	11.6	12.6	13.7	-39.6%
Belarus	..	..	..	..	45.5	24.7	24.6	26.8	27.5	29.3	30.5	-33.0%
Bosnia and Herzegovina	..	..	..	..	7.0	1.5	4.3	5.0	6.4	7.1	6.7	-5.0%
Bulgaria	19.0	23.2	28.4	30.6	28.2	23.0	18.7	19.9	17.9	19.2	18.3	-35.0%
Croatia	..	..	..	..	9.0	7.1	7.8	8.9	8.6	8.4	7.9	-12.3%
Cyprus **	0.6	0.6	0.9	0.9	1.4	1.7	2.1	2.2	2.4	2.4	2.2	63.1%
FYR of Macedonia	..	..	..	..	2.5	2.5	2.7	2.8	2.9	3.1	3.0	19.8%
Georgia	..	..	..	..	12.4	3.7	2.9	2.8	3.1	3.5	3.7	-70.2%
Gibraltar	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	200.7%
Kazakhstan	..	..	..	..	73.4	52.2	35.7	50.9	69.1	77.3	74.9	1.9%
Kosovo ***	..	..	..	..	..	..	1.5	1.9	2.5	2.5	2.4	..
Kyrgyzstan	..	..	..	..	7.5	2.4	2.3	2.6	2.8	3.3	4.1	-44.8%
Latvia	..	..	..	..	7.9	4.6	3.8	4.5	4.6	4.3	4.4	-43.8%
Lithuania	..	..	..	..	16.1	8.7	7.1	8.8	7.0	7.3	7.4	-54.1%
Malta	0.2	0.2	0.3	0.3	0.7	0.7	0.7	0.9	0.8	0.8	0.7	-3.5%
Republic of Moldova	..	..	..	..	9.9	4.7	2.9	3.5	3.4	3.3	3.3	-66.9%
Montenegro ***	..	..	..	..	..	..	..	1.1	1.2	1.1	1.1	..
Romania	42.1	51.8	65.2	64.9	62.3	46.6	36.2	38.6	35.0	35.8	34.9	-43.9%
Russian Federation	..	..	..	..	879.2	636.6	619.3	651.7	703.5	738.5	756.6	-13.9%
Serbia ***	..	..	..	..	19.7	13.8	13.7	16.1	15.5	16.2	14.5	-26.6%
Tajikistan	..	..	..	..	5.3	2.2	2.1	2.3	2.2	2.2	2.3	-57.3%
Turkmenistan	..	..	..	..	17.5	13.7	14.9	19.2	22.7	24.7	25.6	46.0%
Ukraine	..	..	..	..	252.0	163.7	133.8	142.9	132.4	126.6	122.7	-51.3%
Uzbekistan	..	..	..	..	46.4	42.7	50.8	47.0	43.1	47.2	48.3	4.1%
Former Soviet Union ****	768.3	939.9	1 109.5	1 247.9	..	..	..	..	..	..	..	..
Former Yugoslavia ****	21.9	25.5	33.7	41.1	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>853.9</b>	<b>1 043.2</b>	<b>1 241.1</b>	<b>1 388.7</b>	<b>1 536.9</b>	<b>1 073.9</b>	<b>1 003.1</b>	<b>1 078.7</b>	<b>1 131.2</b>	<b>1 182.0</b>	<b>1 194.2</b>	<b>-22.3%</b>
Algeria	3.5	5.5	11.2	17.7	22.2	24.1	27.0	32.3	40.1	41.9	46.3	108.8%
Angola	3.9	4.1	4.6	5.0	5.9	6.4	7.5	9.1	13.6	13.8	14.3	142.8%
Benin	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.5	3.7	3.8	3.9	135.7%
Botswana	..	..	..	0.9	1.2	1.4	1.8	1.9	2.2	2.1	2.2	77.6%
Cameroon	2.7	3.0	3.7	4.5	5.0	5.5	6.3	7.1	7.0	6.8	7.0	40.2%
Congo	0.5	0.6	0.6	0.8	0.8	0.8	0.8	1.1	1.5	1.7	1.7	120.9%
Dem. Rep. of Congo	6.7	7.5	8.5	10.0	11.8	12.8	13.9	16.7	19.9	21.1	20.6	74.2%
Côte d'Ivoire	2.5	3.0	3.6	3.7	4.3	5.2	6.8	9.6	10.1	11.6	12.6	190.2%
Egypt	7.8	9.8	15.1	25.7	32.3	35.2	40.7	61.6	72.8	76.3	78.2	141.9%
Eritrea	..	..	..	..	..	1.0	0.7	0.8	0.7	0.8	0.8	..
Ethiopia	12.8	14.1	15.3	17.7	21.0	24.9	28.9	33.7	41.1	43.4	45.5	116.2%
Gabon	1.1	1.3	1.4	1.4	1.2	1.3	1.5	1.7	2.1	2.2	2.2	87.3%
Ghana	3.0	3.7	4.0	4.4	5.3	6.5	7.6	7.9	9.3	9.6	10.1	91.5%
Kenya	5.3	6.0	7.3	8.6	10.7	12.1	14.1	16.2	19.8	20.3	20.5	92.8%
Libya	1.6	3.7	6.9	10.0	11.2	14.0	15.9	17.8	20.6	13.6	17.1	53.5%
Mauritius	0.4	0.4	0.4	0.4	0.7	0.8	1.0	1.2	1.3	1.3	1.3	101.2%
Morocco	3.0	4.0	5.4	6.2	7.6	9.3	11.0	14.1	16.9	18.2	18.8	146.7%
Mozambique	6.9	6.7	6.7	6.4	5.9	6.3	7.2	8.5	9.9	10.3	10.4	76.2%
Namibia	..	..	..	..	..	0.9	1.0	1.3	1.5	1.5	1.6	..
Nigeria	33.2	38.6	48.9	57.1	66.4	73.7	86.0	105.3	120.0	126.9	133.7	101.3%
Senegal	1.2	1.4	1.6	1.6	1.7	1.9	2.4	2.8	3.9	4.2	4.1	144.8%
South Africa	45.4	54.0	65.4	86.4	91.0	103.6	109.3	128.3	142.7	141.9	140.0	53.9%
Sudan	7.0	7.5	8.4	9.5	10.6	12.0	13.3	15.0	16.7	16.7	16.7	56.7%
United Rep. of Tanzania	7.6	7.7	8.0	8.8	9.7	11.0	13.5	17.2	20.2	21.1	22.2	127.7%
Togo	0.7	0.8	0.9	1.0	1.3	1.6	2.1	2.4	3.1	3.1	3.1	147.2%
Tunisia	1.7	2.2	3.3	4.2	4.9	5.8	7.3	8.3	10.1	9.5	9.9	100.0%
Zambia	3.6	4.0	4.6	5.0	5.4	5.8	6.2	7.3	8.3	8.6	9.1	66.6%
Zimbabwe	5.4	5.9	6.5	7.4	9.3	9.8	10.0	9.6	9.1	9.3	9.6	3.0%
Other Africa	22.6	24.7	28.0	31.0	42.0	46.0	50.9	56.8	65.1	67.1	69.2	64.7%
<b>Africa</b>	<b>190.9</b>	<b>221.1</b>	<b>271.6</b>	<b>336.6</b>	<b>391.1</b>	<b>441.6</b>	<b>496.7</b>	<b>597.9</b>	<b>693.2</b>	<b>708.7</b>	<b>732.8</b>	<b>87.4%</b>

\* Includes Estonia and Slovenia prior to 1990.

\*\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

\*\*\* Serbia includes Kosovo from 1990 to 1999 and Montenegro from 1990 to 2004.

\*\*\*\* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

## Total primary energy supply

million tonnes of oil equivalent

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
Bangladesh	5.7	6.7	8.4	9.9	12.7	15.9	18.2	22.8	30.6	31.7	33.2	160.5%
Brunei Darussalam	0.2	0.7	1.3	1.8	1.7	2.2	2.4	2.2	3.2	3.9	3.9	123.7%
Cambodia	..	..	..	..	..	2.8	3.4	3.4	5.0	5.3	5.5	..
India	156.5	177.7	205.2	254.8	316.4	383.9	456.4	539.7	722.5	751.8	788.1	149.1%
Indonesia	35.0	41.1	55.7	65.8	98.6	130.8	155.6	179.8	209.4	205.3	213.6	116.6%
DPR of Korea	19.4	22.3	30.4	36.0	33.2	22.0	19.7	21.3	18.9	14.0	14.1	-57.6%
Malaysia	6.1	7.3	12.1	15.8	22.2	35.0	49.5	66.6	75.7	79.1	81.2	266.5%
Mongolia	..	..	..	3.1	3.4	2.7	2.4	2.6	3.4	3.6	3.9	15.7%
Myanmar	7.9	8.4	9.4	11.0	10.7	11.8	12.8	14.8	14.0	14.3	15.3	43.0%
Nepal	3.7	4.0	4.6	5.1	5.8	6.7	8.1	9.1	10.2	10.6	10.1	74.5%
Pakistan	17.0	20.3	24.8	32.3	42.9	53.5	64.1	76.3	84.4	84.9	85.8	100.1%
Philippines	15.3	18.3	22.4	23.8	28.7	33.6	40.0	38.9	40.5	40.4	42.6	48.2%
Singapore	2.7	3.7	5.1	6.8	11.5	18.8	18.7	21.6	25.4	25.9	25.1	117.4%
Sri Lanka	3.8	4.1	4.5	5.0	5.5	6.0	8.3	9.0	9.7	10.3	11.3	104.3%
Chinese Taipei	10.0	14.3	27.9	33.2	47.8	63.6	84.9	102.5	109.6	107.7	104.7	118.9%
Thailand	13.7	17.3	22.0	24.7	41.9	61.9	72.3	99.0	117.4	119.1	126.6	201.7%
Viet Nam	13.2	13.9	14.4	16.0	17.9	21.9	28.7	41.5	58.9	60.8	64.9	263.0%
Other Asia	5.7	6.5	7.7	6.4	6.9	6.9	8.2	9.5	12.3	13.3	14.1	104.3%
<b>Asia (excl. China)</b>	<b>315.9</b>	<b>366.8</b>	<b>455.9</b>	<b>551.5</b>	<b>707.9</b>	<b>880.2</b>	<b>1 053.9</b>	<b>1 260.5</b>	<b>1 551.3</b>	<b>1 582.1</b>	<b>1 643.7</b>	<b>132.2%</b>
People's Rep. of China	391.6	483.8	598.3	691.7	870.7	1 044.5	1 161.4	1 775.7	2 526.4	2 746.9	2 894.3	232.4%
Hong Kong, China	3.0	3.6	4.6	6.6	8.6	10.6	13.6	12.8	14.1	15.2	14.6	69.2%
<b>China</b>	<b>394.6</b>	<b>487.5</b>	<b>603.0</b>	<b>698.2</b>	<b>879.3</b>	<b>1 055.1</b>	<b>1 174.9</b>	<b>1 788.5</b>	<b>2 540.6</b>	<b>2 762.1</b>	<b>2 908.9</b>	<b>230.8%</b>
Argentina	33.7	35.9	41.8	41.3	46.1	54.1	61.6	67.0	78.7	79.9	80.2	74.1%
Bolivia	1.0	1.5	2.4	2.5	2.6	3.8	5.8	6.4	7.5	7.8	8.5	226.0%
Brazil	69.8	91.1	113.9	129.4	140.2	161.1	187.4	215.3	265.9	270.0	281.7	100.9%
Colombia	13.9	15.4	17.7	20.0	24.2	27.6	25.8	27.1	31.2	31.3	31.6	30.4%
Costa Rica	0.8	1.0	1.3	1.3	1.7	2.3	2.9	3.9	4.6	4.7	4.7	181.8%
Cuba	10.8	12.1	15.0	15.6	17.7	11.1	12.9	10.8	11.5	11.2	11.4	-35.7%
Dominican Republic	2.3	3.1	3.4	3.4	3.9	5.1	6.9	6.6	7.1	7.2	7.6	91.4%
Ecuador	2.2	3.1	5.0	5.6	6.3	7.9	8.8	10.2	13.4	13.9	14.4	127.8%
El Salvador	1.8	2.3	2.5	2.6	2.5	3.4	4.0	4.5	4.2	4.3	4.4	77.2%
Guatemala	2.7	3.3	3.8	3.8	4.4	5.3	7.0	7.8	10.2	10.9	11.1	151.0%
Haiti	1.5	1.7	2.1	1.9	1.6	1.7	2.0	3.4	3.8	3.9	4.1	160.9%
Honduras	1.4	1.5	1.9	2.0	2.4	2.8	3.0	4.1	4.6	4.8	5.1	113.3%
Jamaica	2.0	2.7	2.3	1.7	2.8	3.2	3.8	3.7	2.7	2.9	2.8	0.8%
Netherlands Antilles	5.5	3.8	3.9	1.8	1.5	1.3	2.1	2.1	1.6	2.1	2.1	41.5%
Nicaragua	1.2	1.5	1.5	1.9	2.0	2.3	2.5	2.9	3.0	3.1	3.3	64.0%
Panama	1.7	1.7	1.4	1.6	1.5	2.0	2.6	2.9	3.7	4.1	4.2	178.5%
Paraguay	1.4	1.5	2.1	2.3	3.1	3.9	3.9	4.0	4.8	4.9	5.0	62.6%
Peru	9.1	10.4	11.3	10.6	9.7	11.0	12.2	13.6	19.2	20.6	21.7	123.0%
Trinidad and Tobago	2.6	2.3	3.8	5.1	6.0	6.1	9.8	16.1	20.1	19.7	19.2	221.1%
Uruguay	2.4	2.4	2.6	2.0	2.3	2.6	3.1	3.0	4.1	4.4	4.6	105.5%
Venezuela	19.6	25.0	35.4	39.5	43.6	51.7	56.5	62.0	75.3	70.6	76.4	75.2%
Other Non-OECD Americas	4.9	6.0	5.8	3.6	5.1	5.0	5.6	6.1	7.0	7.0	7.1	39.0%
<b>Non-OECD Americas</b>	<b>192.2</b>	<b>229.5</b>	<b>280.9</b>	<b>299.4</b>	<b>331.1</b>	<b>375.3</b>	<b>430.4</b>	<b>483.4</b>	<b>584.1</b>	<b>589.2</b>	<b>611.1</b>	<b>84.6%</b>
Bahrain	1.4	2.1	2.8	4.2	5.2	6.4	7.9	10.4	12.5	12.5	12.6	140.9%
Islamic Republic of Iran	16.6	26.6	38.1	53.8	69.3	101.2	123.0	172.7	207.5	212.4	219.6	216.7%
Iraq	4.1	6.1	9.7	13.8	19.7	34.5	25.9	26.9	37.6	39.9	45.0	128.6%
Jordan	0.5	0.8	1.5	2.6	3.3	4.3	4.9	6.7	7.1	7.1	7.6	132.8%
Kuwait	6.1	6.5	10.5	14.0	9.1	14.9	18.8	26.4	32.2	32.5	34.6	279.9%
Lebanon	1.8	2.2	2.5	2.3	2.0	4.4	4.9	5.0	6.4	6.3	7.2	267.2%
Oman	0.2	0.2	1.2	2.1	4.2	6.1	7.7	11.1	22.3	25.5	26.3	523.8%
Qatar	0.9	2.0	3.3	5.6	6.5	8.1	10.9	16.7	28.0	32.0	37.9	481.0%
Saudi Arabia	7.4	8.8	31.1	46.0	58.0	84.5	97.9	122.6	185.4	178.0	200.3	245.2%
Syrian Arab Republic	2.4	3.1	4.5	7.8	10.5	12.1	15.8	20.8	21.7	20.0	15.0	43.6%
United Arab Emirates	1.0	1.9	7.2	13.7	20.4	27.7	33.9	43.5	61.8	64.0	67.5	230.3%
Yemen	0.7	0.7	1.3	1.7	2.5	3.4	4.7	6.6	8.3	6.9	6.9	175.5%
<b>Middle East</b>	<b>43.2</b>	<b>61.0</b>	<b>113.5</b>	<b>167.8</b>	<b>210.8</b>	<b>307.7</b>	<b>356.4</b>	<b>469.2</b>	<b>630.7</b>	<b>637.2</b>	<b>680.6</b>	<b>222.9%</b>

**GDP using exchange rates**

billion 2005 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>World</b>	<b>16 254.4</b>	<b>18 832.4</b>	<b>22 741.3</b>	<b>25 801.1</b>	<b>30 530.3</b>	<b>33 922.0</b>	<b>40 184.6</b>	<b>46 339.3</b>	<b>51 855.3</b>	<b>53 327.4</b>	<b>54 587.9</b>	<b>78.8%</b>
<i>Annex I Parties</i>	..	..	..	..	25 234.4	27 289.5	31 879.8	35 597.0	37 253.7	37 894.6	38 401.3	52.2%
<i>Annex II Parties</i>	12 831.5	14 487.8	17 186.0	19 606.0	23 323.8	25 771.0	30 143.2	33 371.0	34 649.8	35 164.5	35 617.9	52.7%
<i>North America</i>	4 900.1	5 445.7	6 523.7	7 656.6	9 003.5	10 192.4	12 585.7	14 259.6	14 835.7	15 118.2	15 524.7	72.4%
<i>Europe</i>	5 965.2	6 719.4	7 820.5	8 475.6	9 944.8	10 832.2	12 512.7	13 663.3	14 175.4	14 394.4	14 348.0	44.3%
<i>Asia Oceania</i>	1 966.2	2 322.8	2 841.8	3 473.8	4 375.5	4 746.3	5 044.8	5 448.0	5 638.6	5 651.9	5 745.1	31.3%
<i>Annex I EIT</i>	..	..	..	..	1 637.5	1 198.3	1 344.4	1 737.1	2 032.2	2 108.6	2 148.9	31.2%
<i>Non-Annex I Parties</i>	..	..	..	..	5 295.9	6 632.5	8 304.8	10 742.3	14 601.6	15 432.8	16 186.6	205.6%
<i>Annex I Kyoto Parties</i>	..	..	..	..	15 934.1	16 761.3	18 880.8	20 818.2	21 803.3	22 109.7	22 196.0	39.3%
<b>Non-OECD Total *</b>	<b>2 640.7</b>	<b>3 350.8</b>	<b>4 318.6</b>	<b>4 765.3</b>	<b>5 454.8</b>	<b>6 088.6</b>	<b>7 430.1</b>	<b>9 871.8</b>	<b>13 592.4</b>	<b>14 384.3</b>	<b>15 098.0</b>	<b>176.8%</b>
<b>OECD Total **</b>	<b>13 613.7</b>	<b>15 481.6</b>	<b>18 422.7</b>	<b>21 035.8</b>	<b>25 075.5</b>	<b>27 833.4</b>	<b>32 754.5</b>	<b>36 467.6</b>	<b>38 262.9</b>	<b>38 943.1</b>	<b>39 490.0</b>	<b>57.5%</b>
Canada	417.4	497.0	596.4	678.5	774.6	842.8	1 026.9	1 164.2	1 240.1	1 271.4	1 293.1	66.9%
Chile	29.4	25.2	35.8	37.4	51.8	78.6	98.4	123.1	147.9	156.5	165.2	218.9%
Mexico	257.5	339.4	468.4	515.6	560.2	604.4	788.2	864.8	952.0	988.6	1 027.5	83.4%
United States	4 482.7	4 948.6	5 927.3	6 978.1	8 228.9	9 349.6	11 558.8	13 095.4	13 595.6	13 846.8	14 231.6	72.9%
<b>OECD Americas</b>	<b>5 187.0</b>	<b>5 810.3</b>	<b>7 027.9</b>	<b>8 209.6</b>	<b>9 615.6</b>	<b>10 875.4</b>	<b>13 472.3</b>	<b>15 247.4</b>	<b>15 935.6</b>	<b>16 263.3</b>	<b>16 717.5</b>	<b>73.9%</b>
Australia	261.4	290.2	336.3	388.8	454.8	532.9	643.1	762.4	870.1	901.6	925.0	103.4%
Israel	32.6	42.4	49.0	57.2	70.9	98.1	124.8	139.1	175.8	183.9	190.0	168.2%
Japan	1 656.4	1 975.5	2 448.1	3 018.2	3 851.3	4 132.2	4 308.1	4 571.9	4 648.5	4 627.4	4 694.4	21.9%
Korea	66.7	95.7	142.5	219.5	360.3	526.7	678.3	844.9	1 019.1	1 056.6	1 078.2	199.3%
New Zealand	48.4	57.1	57.5	66.8	69.5	81.2	93.6	113.8	120.0	122.9	125.8	81.0%
<b>OECD Asia Oceania</b>	<b>2 065.4</b>	<b>2 460.9</b>	<b>3 033.2</b>	<b>3 750.5</b>	<b>4 806.7</b>	<b>5 371.1</b>	<b>5 847.9</b>	<b>6 432.0</b>	<b>6 833.5</b>	<b>6 892.4</b>	<b>7 013.3</b>	<b>45.9%</b>
Austria	127.1	146.7	172.4	185.4	215.3	240.3	280.6	305.0	325.6	334.8	337.7	56.9%
Belgium	170.8	196.2	229.3	240.4	279.8	302.9	348.6	377.4	400.4	407.4	406.8	45.4%
Czech Republic	70.0	79.9	88.9	93.4	101.0	97.2	106.4	130.1	148.5	151.2	149.6	48.1%
Denmark	125.9	133.3	152.6	174.4	187.4	210.3	242.1	257.7	256.8	259.6	258.6	38.0%
Estonia	..	..	..	..	10.1	7.1	9.8	13.9	13.9	15.2	15.8	56.2%
Finland	73.3	88.8	103.7	118.8	140.2	136.0	171.9	195.8	204.2	209.9	207.8	48.2%
France	942.1	1 086.9	1 283.6	1 385.9	1 623.8	1 725.6	1 973.0	2 136.6	2 204.4	2 249.1	2 249.4	38.5%
Germany	1 365.1	1 492.0	1 760.6	1 884.1	2 216.3	2 448.7	2 685.2	2 766.3	2 954.4	3 052.8	3 073.9	38.7%
Greece	100.4	119.0	145.9	146.9	156.3	166.2	197.0	240.1	241.0	223.8	208.2	33.3%
Hungary	51.3	65.7	78.3	85.4	87.7	77.8	90.0	110.3	109.1	110.8	108.9	24.2%
Iceland	4.8	5.8	7.8	8.8	10.3	10.4	13.2	16.3	16.4	16.8	17.1	66.1%
Ireland	35.6	43.7	54.6	61.9	78.0	97.8	159.6	202.6	203.3	207.7	208.0	166.9%
Italy	802.3	920.5	1 144.3	1 244.0	1 450.7	1 547.7	1 701.0	1 786.3	1 763.9	1 771.8	1 729.9	19.2%
Luxembourg	9.5	10.7	11.9	13.5	19.3	23.5	31.6	37.6	40.7	41.5	41.4	114.2%
Netherlands	269.5	305.1	351.2	371.3	437.8	490.4	598.0	638.5	683.1	689.5	680.9	55.5%
Norway	98.8	118.5	147.8	174.2	189.6	227.6	272.7	304.1	315.8	320.0	329.3	73.7%
Poland	136.0	173.9	181.4	183.0	180.1	200.6	261.1	303.9	382.6	399.9	407.6	126.3%
Portugal	67.0	77.8	99.8	104.3	137.4	149.6	184.1	191.8	197.2	194.7	188.4	37.1%
Slovak Republic	23.8	27.1	30.2	32.6	34.9	31.9	37.7	47.9	60.2	62.0	63.1	80.6%
Slovenia	..	..	..	..	24.9	24.2	29.9	35.7	39.0	39.2	38.2	53.6%
Spain	401.0	496.4	547.2	586.4	730.7	787.4	963.1	1 130.8	1 179.2	1 179.8	1 160.5	58.8%
Sweden	176.6	198.7	212.4	234.4	263.8	273.0	324.5	370.6	401.6	413.4	417.2	58.1%
Switzerland	238.8	238.9	259.7	279.9	323.5	325.6	360.6	384.8	427.6	435.2	439.8	35.9%
Turkey	115.0	144.4	162.3	205.8	269.7	315.9	386.6	483.0	565.1	614.7	627.8	132.8%
United Kingdom	956.8	1 040.5	1 135.6	1 260.9	1 484.7	1 669.3	2 005.8	2 321.4	2 360.0	2 386.4	2 393.0	61.2%
<b>OECD Europe **</b>	<b>6 361.2</b>	<b>7 210.4</b>	<b>8 361.6</b>	<b>9 075.7</b>	<b>10 653.3</b>	<b>11 586.9</b>	<b>13 434.2</b>	<b>14 788.1</b>	<b>15 493.7</b>	<b>15 787.4</b>	<b>15 759.2</b>	<b>47.9%</b>
<i>European Union - 28</i>	..	..	..	..	10 068.2	10 878.4	12 582.8	13 837.9	14 430.9	14 668.2	14 614.0	45.2%

\* Includes Estonia and Slovenia prior to 1990.

\*\* Excludes Estonia and Slovenia prior to 1990.

## GDP using exchange rates

billion 2005 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>Non-OECD Total *</b>	<b>2 640.7</b>	<b>3 350.8</b>	<b>4 318.6</b>	<b>4 765.3</b>	<b>5 454.8</b>	<b>6 088.6</b>	<b>7 430.1</b>	<b>9 871.8</b>	<b>13 592.4</b>	<b>14 384.3</b>	<b>15 098.0</b>	<b>176.8%</b>
Albania	3.0	3.8	5.0	5.5	5.6	4.9	6.4	8.4	10.7	11.0	11.2	99.7%
Armenia	..	..	..	..	4.1	2.1	2.8	4.9	5.9	6.2	6.6	63.5%
Azerbaijan	..	..	..	..	11.9	5.0	7.0	13.2	28.3	28.3	29.0	142.3%
Belarus	..	..	..	..	23.7	15.5	21.0	30.2	42.9	45.3	46.0	93.8%
Bosnia and Herzegovina	..	..	..	..	2.3	2.5	8.6	10.9	12.8	13.0	12.9	449.2%
Bulgaria	10.7	14.6	19.7	23.2	25.0	21.9	22.1	28.9	33.0	33.6	33.9	35.6%
Croatia	..	..	..	..	42.1	30.5	36.0	44.8	46.3	45.9	44.9	6.7%
Cyprus **	2.5	3.0	5.3	6.9	9.6	12.0	14.5	17.0	19.2	19.3	18.8	95.2%
FYR of Macedonia	..	..	..	..	6.1	4.8	5.5	6.0	7.1	7.3	7.3	20.6%
Georgia	..	..	..	..	12.0	3.4	4.5	6.4	8.2	8.8	9.3	-22.1%
Gibraltar	0.5	0.5	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.1	1.1	53.7%
Kazakhstan	..	..	..	..	50.2	30.9	34.9	57.1	77.2	83.0	87.2	73.5%
Kosovo ***	..	..	..	..	..	..	2.6	3.7	4.8	5.1	5.3	..
Kyrgyzstan	..	..	..	..	3.1	1.6	2.0	2.5	3.1	3.2	3.2	4.6%
Latvia	..	..	..	..	14.4	8.2	10.8	16.0	15.5	16.3	17.1	19.1%
Lithuania	..	..	..	..	24.8	14.4	17.8	26.0	27.3	29.0	30.1	21.4%
Malta	0.9	1.3	2.3	2.5	3.4	4.5	5.7	6.0	6.7	6.8	6.8	100.5%
Republic of Moldova	..	..	..	..	6.0	2.4	2.1	3.0	3.5	3.7	3.7	-38.0%
Montenegro ***	..	..	..	..	..	..	..	2.3	2.8	2.9	2.9	..
Romania	37.8	57.2	82.5	97.1	88.6	79.6	74.7	99.2	114.1	116.7	117.1	32.2%
Russian Federation	..	..	..	..	843.0	523.7	567.4	764.0	909.2	948.3	980.9	16.4%
Serbia ***	..	..	..	..	35.0	17.4	21.4	25.2	27.9	28.3	27.9	-20.5%
Tajikistan	..	..	..	..	3.8	1.4	1.5	2.3	3.2	3.4	3.7	-3.5%
Turkmenistan	..	..	..	..	8.0	5.1	6.3	8.1	13.3	15.2	16.9	110.4%
Ukraine	..	..	..	..	137.0	65.8	59.5	86.1	90.6	95.3	95.5	-30.3%
Uzbekistan	..	..	..	..	11.2	9.1	11.0	14.3	21.5	23.3	25.2	124.4%
Former Soviet Union ****	645.7	807.3	985.1	1 094.8	..	..	..	..	..	..	..	..
Former Yugoslavia ****	64.0	78.5	105.7	107.6	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>765.2</b>	<b>966.3</b>	<b>1 206.0</b>	<b>1 338.2</b>	<b>1 371.9</b>	<b>867.4</b>	<b>947.3</b>	<b>1 287.7</b>	<b>1 536.3</b>	<b>1 600.4</b>	<b>1 644.5</b>	<b>19.9%</b>
Algeria	25.2	37.7	50.8	64.3	66.8	67.6	78.9	103.2	116.6	119.7	123.6	85.1%
Angola	12.3	12.4	12.5	13.6	16.0	12.7	17.2	28.2	50.4	52.3	55.9	249.7%
Benin	1.3	1.4	1.7	2.1	2.3	2.8	3.6	4.4	5.2	5.4	5.7	149.3%
Botswana	..	..	..	3.0	5.2	6.5	8.3	9.9	12.1	12.9	13.4	159.4%
Cameroon	4.8	6.4	8.7	13.6	12.1	11.0	13.8	16.6	19.2	20.0	20.9	73.3%
Congo	1.6	2.1	2.7	4.4	4.3	4.4	5.0	6.1	7.9	8.1	8.4	94.7%
Dem. Rep. of Congo	9.7	10.3	9.5	10.4	10.4	7.1	5.8	7.2	9.4	10.1	10.8	4.1%
Côte d'Ivoire	7.9	9.9	12.1	12.3	13.0	14.0	16.4	16.4	18.2	17.4	19.0	45.8%
Egypt	15.9	18.2	29.1	40.3	49.5	58.5	75.4	89.7	121.0	123.2	125.9	154.2%
Eritrea	..	..	..	..	..	0.8	1.0	1.1	1.1	1.1	1.2	..
Ethiopia	5.4	5.5	5.6	5.3	6.8	7.1	8.9	12.2	20.4	22.7	24.7	263.1%
Gabon	3.0	6.1	5.6	6.4	6.7	7.8	8.0	8.7	9.7	10.4	11.0	62.4%
Ghana	4.5	4.2	4.5	4.4	5.5	6.8	8.4	10.7	14.8	17.0	18.4	233.5%
Kenya	4.9	6.4	8.7	9.9	13.0	14.1	15.7	18.7	23.5	24.5	25.7	97.2%
Libya	43.0	34.7	54.8	39.1	35.3	34.0	35.9	44.0	53.7	20.9	36.9	4.3%
Mauritius	1.1	1.4	1.8	2.3	3.2	4.1	5.4	6.3	7.8	8.1	8.4	160.9%
Morocco	16.1	19.4	25.3	29.8	37.0	38.7	46.7	59.5	75.5	79.9	83.2	125.1%
Mozambique	2.9	2.4	2.5	1.9	2.5	3.0	4.3	6.6	9.1	9.8	10.5	314.9%
Namibia	..	..	..	..	..	4.8	5.7	7.3	8.9	9.4	9.9	..
Nigeria	44.5	51.1	61.9	53.7	56.4	57.8	67.9	112.2	159.0	166.4	177.6	214.9%
Senegal	3.3	3.8	4.0	4.6	5.1	5.7	6.9	8.7	10.4	10.6	10.9	113.9%
South Africa	110.1	126.3	147.1	157.4	170.9	178.4	204.7	247.1	289.7	299.7	307.3	79.8%
Sudan	6.4	7.9	8.9	9.2	11.3	14.5	19.5	26.5	35.8	34.6	31.1	175.1%
United Rep. of Tanzania	3.9	4.7	5.4	5.6	7.5	8.1	10.1	14.1	19.7	21.0	22.4	200.9%
Togo	1.0	1.1	1.5	1.4	1.6	1.6	2.0	2.1	2.5	2.6	2.7	70.1%
Tunisia	6.2	8.5	11.5	14.1	16.3	19.7	25.9	32.3	40.2	39.4	40.8	149.7%
Zambia	4.2	4.7	4.8	4.9	5.3	4.9	5.7	7.2	9.8	10.5	11.2	111.5%
Zimbabwe	3.7	4.3	4.6	5.7	7.1	7.5	8.4	5.8	5.1	5.6	5.8	-17.9%
Other Africa	31.8	33.9	38.4	39.1	44.6	43.2	55.0	77.1	98.5	102.4	107.3	140.4%
<b>Africa</b>	<b>374.7</b>	<b>424.8</b>	<b>523.9</b>	<b>558.6</b>	<b>615.9</b>	<b>647.6</b>	<b>770.5</b>	<b>989.8</b>	<b>1 255.2</b>	<b>1 265.6</b>	<b>1 330.8</b>	<b>116.1%</b>

\* Includes Estonia and Slovenia prior to 1990.

\*\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

\*\*\* Serbia includes Kosovo from 1990 to 1999 and Montenegro from 1990 to 2004.

\*\*\*\* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

**GDP using exchange rates**

*billion 2005 US dollars*

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
Bangladesh	17.5	16.4	20.1	24.1	29.0	35.9	46.3	60.3	81.5	86.9	92.4	219.0%
Brunei Darussalam	4.2	5.1	8.3	6.9	6.9	8.1	8.6	9.5	9.9	10.1	10.3	49.2%
Cambodia	..	..	..	..	..	2.8	4.0	6.3	8.7	9.3	10.0	..
India	154.2	175.0	204.0	262.3	350.2	448.7	602.7	834.2	1 243.7	1 326.2	1 389.0	296.6%
Indonesia	40.6	55.2	80.9	106.4	150.1	219.2	226.9	285.9	377.9	402.4	427.5	184.8%
DPR of Korea	7.7	12.0	20.7	33.1	39.4	31.0	27.5	28.6	26.6	27.0	27.4	-30.6%
Malaysia	16.0	21.3	32.1	41.1	57.3	90.1	113.9	143.5	178.7	187.8	198.4	246.2%
Mongolia	..	..	..	1.5	1.8	1.6	1.8	2.5	3.5	4.1	4.6	146.6%
Myanmar	1.9	2.1	2.9	3.7	3.3	4.4	6.5	12.0	20.4	21.6	22.8	596.3%
Nepal	2.1	2.4	2.7	3.4	4.2	5.4	6.9	8.1	10.1	10.4	11.0	159.1%
Pakistan	20.2	23.5	31.7	44.0	58.3	73.1	85.8	109.5	129.5	133.1	138.5	137.5%
Philippines	31.2	39.1	52.5	49.3	62.1	69.1	82.4	103.1	131.1	135.9	145.2	133.8%
Singapore	11.1	15.7	23.6	32.9	49.8	75.1	99.4	125.4	172.1	181.0	183.4	268.0%
Sri Lanka	5.3	6.2	8.0	10.2	12.1	15.7	20.1	24.4	33.3	36.0	38.3	217.0%
Chinese Taipei	30.6	46.5	80.1	109.3	167.0	236.8	305.8	364.8	446.5	464.5	481.1	188.0%
Thailand	22.6	28.5	41.8	54.5	88.9	134.5	137.5	176.4	210.1	210.3	223.9	151.8%
Viet Nam	10.7	10.8	11.4	15.7	19.9	29.5	41.3	57.6	78.3	83.2	87.5	340.0%
Other Asia	14.7	16.4	19.1	20.9	25.1	29.2	31.0	43.1	64.4	71.2	76.6	204.7%
<b>Asia (excl. China)</b>	<b>390.4</b>	<b>476.1</b>	<b>639.8</b>	<b>819.3</b>	<b>1 125.6</b>	<b>1 510.1</b>	<b>1 848.3</b>	<b>2 395.3</b>	<b>3 226.1</b>	<b>3 400.9</b>	<b>3 567.8</b>	<b>217.0%</b>
People's Rep. of China	126.6	157.7	216.3	360.0	525.7	937.4	1 417.0	2 256.9	3 838.0	4 194.9	4 522.1	760.2%
Hong Kong, China	23.7	30.3	52.3	69.1	100.2	129.7	147.6	181.6	220.1	230.8	234.3	133.8%
<b>China</b>	<b>150.3</b>	<b>188.0</b>	<b>268.6</b>	<b>429.0</b>	<b>625.9</b>	<b>1 067.1</b>	<b>1 564.7</b>	<b>2 438.5</b>	<b>4 058.1</b>	<b>4 425.7</b>	<b>4 756.4</b>	<b>659.9%</b>
Argentina	97.9	107.9	123.9	109.0	106.4	146.2	166.0	183.2	253.7	276.2	287.9	170.5%
Bolivia	4.0	5.1	5.6	5.1	5.7	6.9	8.2	9.5	12.0	12.6	13.2	133.4%
Brazil	253.7	371.7	513.4	541.8	598.5	696.1	769.0	882.2	1 096.8	1 126.7	1 136.6	89.9%
Colombia	41.1	51.1	66.3	74.1	94.3	115.5	122.7	146.5	182.9	195.0	203.3	115.5%
Costa Rica	4.7	5.9	7.7	7.7	9.8	12.8	16.3	20.0	25.0	26.1	27.5	179.8%
Cuba	18.3	22.0	25.8	38.9	38.5	26.7	33.4	42.6	55.3	56.1	56.9	47.7%
Dominican Republic	7.0	9.7	12.5	13.8	15.9	20.5	28.6	34.0	47.8	50.0	51.9	227.7%
Ecuador	11.3	16.7	20.7	23.4	26.8	31.0	32.8	41.5	48.8	52.6	55.3	106.2%
El Salvador	8.4	10.1	10.1	8.8	9.7	13.1	15.2	17.1	18.3	18.7	19.1	97.0%
Guatemala	8.7	10.9	14.4	13.6	15.7	19.3	23.4	27.2	32.6	33.9	34.9	123.1%
Haiti	3.2	3.4	4.5	4.3	4.3	3.8	4.3	4.2	4.3	4.5	4.7	8.8%
Honduras	2.7	3.1	4.4	4.8	5.6	6.6	7.7	9.7	11.5	12.0	12.5	123.3%
Jamaica	7.2	7.6	6.5	6.6	8.4	10.2	10.1	11.1	11.1	11.2	11.3	34.5%
Netherlands Antilles	1.1	1.2	1.4	1.5	1.7	1.9	2.3	2.5	2.7	2.7	2.7	57.3%
Nicaragua	4.4	5.5	4.4	4.6	3.9	4.2	5.4	6.3	7.3	7.7	8.1	108.5%
Panama	4.9	5.6	6.7	7.9	7.6	10.0	12.5	15.5	23.1	25.6	28.4	271.2%
Paraguay	1.9	2.5	4.2	4.7	6.3	7.8	7.9	8.7	11.1	11.6	11.5	83.4%
Peru	34.6	42.4	47.4	48.2	43.8	57.2	64.7	79.4	112.2	120.0	127.6	191.3%
Trinidad and Tobago	6.1	6.9	10.1	9.0	8.0	8.6	11.0	16.1	19.0	18.7	19.0	136.5%
Uruguay	9.2	9.9	12.3	10.2	12.3	14.9	17.2	17.4	23.0	24.5	25.5	106.7%
Venezuela	74.8	85.2	96.2	91.8	104.3	123.6	128.3	145.5	174.6	181.8	192.1	84.1%
Other Non-OECD Americas	13.6	14.1	18.9	19.8	25.8	27.2	32.9	37.0	38.5	38.5	38.9	50.7%
<b>Non-OECD Americas</b>	<b>618.6</b>	<b>798.3</b>	<b>1 017.4</b>	<b>1 049.5</b>	<b>1 153.4</b>	<b>1 364.3</b>	<b>1 519.8</b>	<b>1 757.2</b>	<b>2 211.5</b>	<b>2 306.9</b>	<b>2 368.7</b>	<b>105.4%</b>
Bahrain	2.1	3.8	6.2	5.8	7.2	10.1	12.4	16.0	20.9	21.4	22.1	205.2%
Islamic Republic of Iran	67.3	95.5	82.7	100.2	101.5	120.0	146.3	192.0	242.7	250.0	245.2	141.6%
Iraq	94.9	120.6	181.5	116.1	61.9	23.7	48.7	50.0	67.3	73.7	80.5	30.0%
Jordan	2.3	2.2	4.6	5.9	5.6	7.9	9.2	12.6	17.0	17.5	17.9	220.3%
Kuwait	46.0	38.1	40.3	31.8	36.6	49.5	54.4	80.8	85.6	91.0	96.6	164.2%
Lebanon	14.3	14.1	11.9	16.7	9.5	16.9	18.2	21.9	30.0	30.9	31.3	229.4%
Oman	4.1	5.4	7.0	14.2	16.6	22.0	26.0	30.9	41.9	43.8	46.0	178.0%
Qatar	15.9	16.1	18.7	15.8	15.5	17.2	30.3	44.5	101.9	116.3	123.5	696.3%
Saudi Arabia	72.5	151.0	211.0	167.1	197.8	227.8	258.6	328.5	436.0	473.4	497.6	151.6%
Syrian Arab Republic	4.7	8.1	11.1	12.8	13.8	20.3	22.7	28.9	36.6	35.9	28.7	107.8%
United Arab Emirates	15.5	39.9	83.2	77.6	88.3	106.2	139.1	180.6	204.4	212.4	221.7	151.1%
Yemen	1.9	2.7	4.7	6.7	7.9	10.6	13.6	16.8	20.7	18.5	18.6	136.3%
<b>Middle East</b>	<b>341.5</b>	<b>497.3</b>	<b>662.8</b>	<b>570.7</b>	<b>562.2</b>	<b>632.2</b>	<b>779.6</b>	<b>1 003.3</b>	<b>1 305.2</b>	<b>1 384.7</b>	<b>1 429.9</b>	<b>154.3%</b>

## GDP using purchasing power parities

billion 2005 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>World</b>	<b>20 433.8</b>	<b>24 222.4</b>	<b>29 735.5</b>	<b>33 457.8</b>	<b>39 510.3</b>	<b>44 221.5</b>	<b>53 126.3</b>	<b>64 076.9</b>	<b>77 110.6</b>	<b>80 201.7</b>	<b>82 900.6</b>	<b>109.8%</b>
<i>Annex I Parties</i>	..	..	..	..	25 711.7	27 037.5	31 586.0	35 651.3	37 605.1	38 335.1	38 879.8	51.2%
<i>Annex II Parties</i>	11 951.8	13 494.2	16 015.9	18 270.3	21 725.2	24 035.3	28 203.6	31 268.9	32 474.5	32 959.7	33 394.5	53.7%
<i>North America</i>	4 899.4	5 444.9	6 522.8	7 655.6	9 002.3	10 191.1	12 584.1	14 257.8	14 833.8	15 116.2	15 522.7	72.4%
<i>Europe</i>	5 351.8	6 042.1	7 040.1	7 618.4	8 953.2	9 750.9	11 261.2	12 297.2	12 754.2	12 942.5	12 889.2	44.0%
<i>Asia Oceania</i>	1 700.5	2 007.2	2 453.1	2 996.3	3 769.7	4 093.3	4 358.3	4 713.9	4 886.5	4 900.9	4 982.6	32.2%
<i>Annex I EIT</i>	..	..	..	..	3 545.5	2 485.0	2 749.0	3 592.6	4 207.1	4 371.6	4 460.2	25.8%
<i>Non-Annex I Parties</i>	..	..	..	..	13 798.6	17 184.0	21 540.3	28 425.7	39 505.5	41 866.6	44 020.8	219.0%
<i>Annex I Kyoto Parties</i>	..	..	..	..	16 195.0	16 281.3	18 303.4	20 510.3	21 714.9	22 074.8	22 189.7	37.0%
<b>Non-OECD Total *</b>	<b>7 251.7</b>	<b>9 171.9</b>	<b>11 797.5</b>	<b>12 984.6</b>	<b>15 122.5</b>	<b>17 085.3</b>	<b>21 002.4</b>	<b>28 162.0</b>	<b>39 220.0</b>	<b>41 574.0</b>	<b>43 698.2</b>	<b>189.0%</b>
<b>OECD Total **</b>	<b>13 182.2</b>	<b>15 050.5</b>	<b>17 938.0</b>	<b>20 473.2</b>	<b>24 387.8</b>	<b>27 136.2</b>	<b>32 123.9</b>	<b>35 915.0</b>	<b>37 890.6</b>	<b>38 627.7</b>	<b>39 202.4</b>	<b>60.7%</b>
Canada	416.7	496.3	595.4	677.5	773.4	841.5	1 025.3	1 162.4	1 238.1	1 269.4	1 291.1	66.9%
Chile	49.4	42.3	60.1	62.8	86.9	131.8	165.1	206.4	248.1	262.5	276.7	218.3%
Mexico	393.7	519.0	716.2	788.4	856.7	924.2	1 205.3	1 322.4	1 455.8	1 511.7	1 571.2	83.4%
United States	4 482.7	4 948.6	5 927.3	6 978.1	8 228.9	9 349.6	11 558.8	13 095.4	13 595.6	13 846.8	14 231.6	72.9%
<b>OECD Americas</b>	<b>5 342.6</b>	<b>6 006.2</b>	<b>7 299.0</b>	<b>8 506.8</b>	<b>9 945.9</b>	<b>11 247.1</b>	<b>13 954.5</b>	<b>15 786.6</b>	<b>16 537.6</b>	<b>16 890.5</b>	<b>17 370.6</b>	<b>74.7%</b>
Australia	246.6	273.7	317.2	366.7	428.9	502.6	606.6	719.1	820.7	850.3	872.4	103.4%
Israel	39.3	51.2	59.1	69.0	85.6	118.4	150.7	167.9	212.3	222.0	229.4	168.1%
Japan	1 409.2	1 680.7	2 082.7	2 567.8	3 276.5	3 515.5	3 665.2	3 889.6	3 954.8	3 936.8	3 993.8	21.9%
Korea	86.6	124.3	184.9	284.9	467.7	683.8	880.5	1 096.7	1 322.9	1 371.6	1 399.7	199.3%
New Zealand	44.7	52.8	53.2	61.8	64.3	75.1	86.6	105.3	111.1	113.7	116.4	81.0%
<b>OECD Asia Oceania</b>	<b>1 826.4</b>	<b>2 182.7</b>	<b>2 697.1</b>	<b>3 350.2</b>	<b>4 323.0</b>	<b>4 895.5</b>	<b>5 389.6</b>	<b>5 978.6</b>	<b>6 421.7</b>	<b>6 494.5</b>	<b>6 611.7</b>	<b>52.9%</b>
Austria	115.3	133.1	156.4	168.2	195.3	218.0	254.6	276.7	295.3	303.7	306.3	56.9%
Belgium	152.7	175.4	205.0	214.9	250.1	270.7	311.6	337.3	357.9	364.2	363.6	45.4%
Czech Republic	117.2	133.7	148.8	156.3	169.1	162.6	178.1	217.7	248.5	253.0	250.4	48.1%
Denmark	87.9	93.0	106.5	121.8	130.8	146.8	169.0	179.9	179.3	181.2	180.6	38.0%
Estonia	..	..	..	..	16.2	11.4	15.8	22.3	22.3	24.4	25.4	56.2%
Finland	60.3	73.0	85.4	97.8	115.4	111.9	141.5	161.1	168.0	172.7	171.0	48.2%
France	820.5	946.5	1 117.9	1 207.0	1 414.2	1 502.8	1 718.3	1 860.7	1 919.8	1 958.7	1 959.0	38.5%
Germany	1 266.2	1 384.0	1 633.2	1 747.7	2 055.8	2 271.4	2 490.8	2 566.0	2 740.5	2 831.8	2 851.3	38.7%
Greece	113.1	134.0	164.3	165.5	176.0	187.2	221.8	270.4	271.4	252.1	234.5	33.3%
Hungary	79.6	102.0	121.5	132.6	136.1	120.8	139.6	171.2	169.3	171.9	169.1	24.2%
Iceland	3.0	3.7	5.0	5.6	6.5	6.6	8.4	10.4	10.4	10.7	10.9	66.1%
Ireland	28.3	34.8	43.5	49.3	62.1	77.8	127.1	161.2	161.8	165.3	165.6	166.9%
Italy	744.4	854.1	1 061.8	1 154.2	1 346.0	1 436.0	1 578.3	1 657.4	1 636.6	1 644.0	1 605.1	19.2%
Luxembourg	8.0	9.0	10.1	11.4	16.3	19.8	26.7	31.8	34.3	35.0	34.9	114.2%
Netherlands	241.8	273.7	315.1	333.2	392.9	440.0	536.5	572.9	612.9	618.7	611.0	55.5%
Norway	71.5	85.8	107.1	126.1	137.3	164.8	197.5	220.2	228.7	231.8	238.5	73.7%
Poland	235.4	301.1	314.0	316.7	311.8	347.2	452.0	526.1	662.3	692.2	705.6	126.3%
Portugal	78.7	91.5	117.3	122.6	161.5	175.7	216.3	225.4	231.7	228.8	221.4	37.1%
Slovak Republic	43.2	49.3	54.9	59.3	63.6	58.0	68.6	87.1	109.5	112.8	114.8	80.6%
Slovenia	..	..	..	..	32.7	31.8	39.3	47.0	51.2	51.6	50.3	53.6%
Spain	421.6	521.9	575.2	616.5	768.1	827.7	1 012.5	1 188.8	1 239.7	1 240.3	1 219.9	58.8%
Sweden	140.7	158.4	169.2	186.7	210.2	217.5	258.6	295.3	320.0	329.4	332.5	58.1%
Switzerland	170.6	170.7	185.6	200.0	231.1	232.7	257.6	274.9	305.5	311.0	314.2	35.9%
Turkey	186.0	233.6	262.5	332.9	436.2	510.9	625.3	781.2	914.1	994.3	1 015.4	132.8%
United Kingdom	827.2	899.6	981.7	1 090.1	1 283.6	1 443.2	1 734.1	2 006.9	2 404.3	2 063.1	2 068.9	61.2%
<b>OECD Europe **</b>	<b>6 013.2</b>	<b>6 861.7</b>	<b>7 941.8</b>	<b>8 616.2</b>	<b>10 118.9</b>	<b>10 993.6</b>	<b>12 779.9</b>	<b>14 149.8</b>	<b>14 931.3</b>	<b>15 242.7</b>	<b>15 220.2</b>	<b>50.4%</b>
<i>European Union - 28</i>	..	..	..	..	9 707.3	10 407.0	12 034.2	13 315.6	13 973.6	14 207.2	14 156.7	45.8%

\* Includes Estonia and Slovenia prior to 1990.

\*\* Excludes Estonia and Slovenia prior to 1990.

## GDP using purchasing power parities

billion 2005 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>Non-OECD Total *</b>	<b>7 251.7</b>	<b>9 171.9</b>	<b>11 797.5</b>	<b>12 984.6</b>	<b>15 122.5</b>	<b>17 085.3</b>	<b>21 002.4</b>	<b>28 162.0</b>	<b>39 220.0</b>	<b>41 574.0</b>	<b>43 698.2</b>	<b>189.0%</b>
Albania	6.9	8.6	11.3	12.5	12.9	11.3	14.7	19.2	24.5	25.3	25.7	99.7%
Armenia	..	..	..	..	11.8	6.2	8.0	14.2	17.2	18.0	19.3	63.5%
Azerbaijan	..	..	..	..	54.3	22.7	32.0	60.2	128.7	128.8	131.7	142.3%
Belarus	..	..	..	..	73.4	47.9	65.1	93.5	132.9	140.2	142.3	93.8%
Bosnia and Herzegovina	..	..	..	..	5.1	5.5	18.8	24.0	28.0	28.4	28.2	449.2%
Bulgaria	28.1	38.3	51.6	60.9	65.6	57.5	58.1	75.9	86.7	88.2	89.0	35.6%
Croatia	..	..	..	..	64.0	46.3	54.8	68.1	70.3	69.7	68.3	6.7%
Cyprus **	2.8	3.3	5.7	7.5	10.5	13.1	15.8	18.5	20.9	21.0	20.5	95.2%
FYR of Macedonia	..	..	..	..	16.3	12.8	14.8	16.0	19.1	19.7	19.6	20.6%
Georgia	..	..	..	..	34.4	9.7	12.9	18.4	23.6	25.3	26.8	-22.1%
Gibraltar	0.4	0.4	0.4	0.5	0.6	0.6	0.8	0.9	0.9	0.9	0.9	59.7%
Kazakhstan	..	..	..	..	185.5	113.9	128.8	210.9	285.2	306.6	321.9	73.5%
Kosovo ***	..	..	..	..	..	..	6.6	9.4	12.1	12.7	13.2	..
Kyrgyzstan	..	..	..	..	13.6	6.9	9.1	10.9	13.6	14.4	14.2	4.6%
Latvia	..	..	..	..	26.9	15.4	20.2	30.0	29.0	30.5	32.1	19.1%
Lithuania	..	..	..	..	46.2	26.8	33.3	48.5	51.1	54.1	56.1	21.4%
Malta	1.3	1.9	3.3	3.6	4.8	6.3	8.1	8.5	9.4	9.6	9.7	100.5%
Republic of Moldova	..	..	..	..	21.2	8.5	7.6	10.6	12.5	13.3	13.2	-38.0%
Montenegro ***	..	..	..	..	..	..	..	5.2	6.4	6.6	6.6	..
Romania	77.4	117.2	168.9	198.7	181.5	163.0	152.9	203.1	233.6	239.0	239.8	32.2%
Russian Federation	..	..	..	..	1 872.3	1 163.0	1 260.1	1 696.7	2 019.3	2 105.9	2 178.4	16.4%
Serbia ***	..	..	..	..	88.0	43.7	53.8	63.4	70.0	71.2	70.0	-20.5%
Tajikistan	..	..	..	..	17.2	6.5	6.5	10.4	14.3	15.4	16.6	-3.5%
Turkmenistan	..	..	..	..	27.3	17.3	21.5	27.5	45.1	51.7	57.5	110.4%
Ukraine	..	..	..	..	486.0	233.3	211.2	305.5	321.3	338.0	338.6	-30.3%
Uzbekistan	..	..	..	..	55.6	45.1	54.5	70.9	106.6	115.4	124.9	124.4%
Former Soviet Union ****	1 521.5	1 902.2	2 321.1	2 579.6	..	..	..	..	..	..	..	..
Former Yugoslavia ****	114.0	140.0	188.3	191.8	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>1 752.4</b>	<b>2 211.8</b>	<b>2 750.8</b>	<b>3 055.1</b>	<b>3 375.1</b>	<b>2 083.5</b>	<b>2 269.9</b>	<b>3 120.5</b>	<b>3 782.4</b>	<b>3 949.8</b>	<b>4 064.9</b>	<b>20.4%</b>
Algeria	89.4	133.5	180.2	228.0	236.8	239.8	279.8	366.0	413.6	424.3	438.3	85.1%
Angola	30.1	30.3	30.4	33.2	39.0	30.9	42.0	68.8	122.8	127.6	136.3	249.7%
Benin	3.3	3.6	4.4	5.5	6.1	7.4	9.4	11.5	13.8	14.3	15.1	149.2%
Botswana	..	..	..	5.7	9.9	12.4	16.0	19.1	23.3	24.8	25.8	159.4%
Cameroon	11.3	15.1	20.5	32.1	28.5	25.9	32.6	39.1	45.3	47.2	49.3	73.3%
Congo	4.1	5.5	7.0	11.4	11.2	11.4	12.9	15.7	20.3	21.0	21.8	94.7%
Dem. Rep. of Congo	23.6	25.1	23.3	25.5	25.4	17.4	14.3	17.6	23.1	24.7	26.4	4.1%
Côte d'Ivoire	20.3	25.3	31.0	31.4	33.3	35.8	41.8	41.8	46.6	44.4	48.6	45.8%
Egypt	97.0	111.3	177.6	246.0	302.5	357.5	460.5	547.7	739.2	752.2	768.8	154.2%
Eritrea	..	..	..	..	..	4.4	5.1	5.8	5.5	6.0	6.4	..
Ethiopia	21.6	22.1	22.7	21.4	27.4	28.8	36.0	49.2	82.4	91.6	99.6	263.1%
Gabon	7.1	14.5	13.5	15.2	16.1	18.8	19.0	20.7	23.2	24.8	26.2	62.4%
Ghana	20.3	19.0	19.9	19.5	24.7	30.4	37.6	48.1	66.3	76.2	82.3	233.5%
Kenya	15.6	20.3	27.6	31.3	41.2	44.5	49.5	59.2	74.3	77.6	81.2	97.2%
Libya	79.0	63.8	100.7	71.8	65.0	62.6	66.0	80.9	98.6	38.4	67.8	4.3%
Mauritius	2.3	3.1	4.0	5.0	7.1	9.1	12.0	14.0	17.4	18.1	18.6	160.9%
Morocco	39.3	47.3	61.7	72.6	90.1	94.3	113.7	145.0	184.0	194.6	202.8	125.1%
Mozambique	6.0	5.1	5.2	4.0	5.3	6.2	8.9	13.6	18.9	20.3	21.8	314.9%
Namibia	..	..	..	..	..	8.9	10.6	13.5	16.6	17.5	18.4	..
Nigeria	205.2	235.5	285.5	247.3	260.0	266.5	312.7	517.3	732.8	766.9	818.7	214.9%
Senegal	8.1	9.1	9.6	11.1	12.4	13.8	16.8	21.2	25.2	25.7	26.6	113.9%
South Africa	200.2	229.7	267.5	286.1	310.7	324.3	372.1	449.1	526.6	544.8	558.7	79.8%
Sudan	22.9	28.3	31.8	32.9	40.6	52.1	69.8	95.2	128.5	124.3	111.7	175.1%
United Rep. of Tanzania	11.9	14.2	16.4	17.2	22.7	24.9	30.7	43.1	60.2	64.0	68.4	200.9%
Togo	2.7	3.2	4.0	4.0	4.5	4.5	5.6	5.9	6.9	7.2	7.6	70.1%
Tunisia	15.6	21.2	28.8	35.3	40.8	49.3	64.9	80.7	100.4	98.4	101.9	149.7%
Zambia	14.0	15.7	16.0	16.4	17.7	16.5	19.0	24.0	32.7	35.0	37.5	111.4%
Zimbabwe	2.5	2.9	3.1	3.8	4.8	5.1	5.7	3.9	3.4	3.8	3.9	-17.9%
Other Africa	86.7	91.4	103.2	106.0	120.7	119.1	149.9	205.8	262.4	272.7	285.8	136.7%
<b>Africa</b>	<b>1 040.2</b>	<b>1 196.3</b>	<b>1 495.6</b>	<b>1 619.6</b>	<b>1 804.5</b>	<b>1 922.8</b>	<b>2 315.1</b>	<b>3 023.6</b>	<b>3 914.4</b>	<b>3 988.5</b>	<b>4 176.5</b>	<b>131.5%</b>

\* Includes Estonia and Slovenia prior to 1990.

\*\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

\*\*\* Serbia includes Kosovo from 1990 to 1999 and Montenegro from 1990 to 2004.

\*\*\*\* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.



## GDP using purchasing power parities

billion 2005 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
Bangladesh	61.8	57.8	70.9	85.1	102.2	126.7	163.3	212.7	287.5	306.8	326.0	219.0%
Brunei Darussalam	10.6	13.0	21.0	17.5	17.5	20.5	21.8	24.2	25.0	25.6	26.1	49.2%
Cambodia	..	..	..	..	..	10.5	14.9	23.3	32.2	34.5	37.0	..
India	618.0	701.2	817.5	1 051.3	1 403.7	1 798.4	2 415.4	3 343.4	4 984.5	5 315.4	5 567.1	296.6%
Indonesia	185.0	251.9	368.7	484.9	684.2	999.1	1 034.5	1 303.2	1 722.8	1 834.6	1 948.8	184.8%
DPR of Korea	28.7	45.0	77.6	124.2	148.0	116.2	103.2	107.5	99.8	101.3	102.8	-30.6%
Malaysia	45.9	61.2	92.2	118.3	164.8	259.2	327.5	412.8	513.9	540.3	570.7	246.2%
Mongolia	..	..	..	7.0	8.4	7.3	8.4	11.4	15.7	18.4	20.7	146.6%
Myanmar	7.8	8.7	11.9	15.0	13.5	17.9	26.9	49.2	83.9	88.5	93.8	596.4%
Nepal	10.2	11.3	12.7	16.1	20.1	25.9	32.8	38.7	48.1	49.8	52.2	159.1%
Pakistan	101.4	118.1	159.4	221.3	293.3	367.7	431.6	550.7	651.3	669.5	696.4	137.5%
Philippines	111.2	139.6	187.4	175.7	221.4	246.5	293.7	367.5	467.6	484.6	517.6	133.8%
Singapore	20.6	28.9	43.6	60.8	92.0	138.6	183.4	231.5	317.7	334.1	338.5	268.0%
Sri Lanka	22.1	26.0	33.6	42.8	50.7	65.9	84.2	102.3	139.4	150.9	160.6	217.0%
Chinese Taipei	50.9	77.3	133.2	181.7	277.8	393.8	508.5	606.8	742.5	772.5	800.2	188.0%
Thailand	81.5	102.8	150.9	196.7	321.2	485.8	496.8	637.0	758.9	759.5	808.8	151.8%
Viet Nam	47.5	48.0	50.7	69.9	88.3	131.0	183.4	255.9	347.6	369.3	388.7	340.0%
Other Asia	38.7	42.5	49.6	51.8	58.4	65.4	70.2	100.1	153.8	170.8	186.8	219.6%
<b>Asia (excl. China)</b>	<b>1 441.9</b>	<b>1 733.2</b>	<b>2 281.0</b>	<b>2 920.1</b>	<b>3 965.6</b>	<b>5 276.3</b>	<b>6 400.2</b>	<b>8 378.5</b>	<b>11 392.4</b>	<b>12 026.3</b>	<b>12 642.7</b>	<b>218.8%</b>
People's Rep. of China	363.1	452.2	620.3	1 032.4	1 507.5	2 688.2	4 063.8	6 472.3	11 006.6	12 030.2	12 968.6	760.2%
Hong Kong, China	32.4	41.5	71.6	94.5	137.2	177.6	202.2	248.6	301.4	316.0	320.7	133.8%
<b>China</b>	<b>395.5</b>	<b>493.7</b>	<b>691.9</b>	<b>1 126.9</b>	<b>1 644.7</b>	<b>2 865.8</b>	<b>4 266.0</b>	<b>6 720.9</b>	<b>11 308.0</b>	<b>12 346.2</b>	<b>13 289.3</b>	<b>708.0%</b>
Argentina	223.8	246.8	283.4	249.3	243.5	334.4	379.7	419.0	580.4	631.9	658.6	170.5%
Bolivia	16.0	20.2	22.4	20.3	22.7	27.7	32.8	38.2	47.8	50.3	52.9	133.4%
Brazil	565.2	828.2	1 143.8	1 207.2	1 333.5	1 551.1	1 713.4	1 965.6	2 443.7	2 510.5	2 532.4	89.9%
Colombia	100.5	124.9	162.2	181.2	230.7	282.4	299.9	358.2	447.2	476.9	497.0	115.5%
Costa Rica	9.6	12.1	15.6	15.6	20.0	26.2	33.4	40.8	51.1	53.3	56.1	179.9%
Cuba	20.8	24.9	29.3	44.1	43.7	30.3	37.8	48.3	62.6	63.6	64.5	47.7%
Dominican Republic	13.6	18.9	24.4	26.8	30.8	39.8	55.5	66.0	93.0	97.1	100.9	227.7%
Ecuador	28.0	41.3	51.3	57.9	66.3	76.7	81.0	102.7	120.6	130.1	136.7	106.2%
El Salvador	18.3	22.1	22.1	19.2	21.2	28.6	33.3	37.4	40.1	41.0	41.8	97.0%
Guatemala	23.5	29.2	38.6	36.5	42.1	51.9	63.0	73.2	87.6	91.3	94.0	123.1%
Haiti	9.7	10.3	13.6	13.3	13.1	11.5	13.0	12.7	13.2	13.9	14.3	8.8%
Honduras	6.8	7.8	11.0	12.0	14.0	16.7	19.4	24.3	29.0	30.1	31.3	123.3%
Jamaica	12.1	12.9	10.9	11.1	14.2	17.2	16.9	18.6	18.6	18.9	19.1	34.5%
Netherlands Antilles	0.9	1.1	1.2	1.3	1.5	1.7	2.1	2.2	2.4	2.4	2.4	57.2%
Nicaragua	12.5	15.5	12.5	12.9	10.9	11.9	15.2	17.8	20.5	21.6	22.7	108.5%
Panama	9.7	11.1	13.3	15.7	15.2	19.9	24.9	30.8	46.0	51.0	56.5	271.1%
Paraguay	7.1	9.4	15.7	17.6	23.4	29.1	29.7	32.7	41.7	43.5	43.0	83.4%
Peru	84.1	103.0	115.3	117.2	106.5	139.0	157.2	193.0	272.8	291.7	310.1	191.3%
Trinidad and Tobago	11.1	12.6	18.4	16.4	14.7	15.7	20.0	29.4	34.7	34.2	34.7	136.5%
Uruguay	19.5	21.1	26.4	21.8	26.3	31.9	36.8	37.1	49.1	52.3	54.4	106.7%
Venezuela	183.5	209.0	235.9	225.1	255.8	303.1	314.6	356.9	428.1	446.0	471.1	84.1%
Other Non-OECD Americas	16.6	17.3	21.9	22.4	27.9	30.3	36.3	41.2	44.2	45.1	46.2	65.7%
<b>Non-OECD Americas</b>	<b>1 393.0</b>	<b>1 799.6</b>	<b>2 289.2</b>	<b>2 345.0</b>	<b>2 578.0</b>	<b>3 077.2</b>	<b>3 416.0</b>	<b>3 946.0</b>	<b>4 974.4</b>	<b>5 196.6</b>	<b>5 340.5</b>	<b>107.2%</b>
Bahrain	4.4	8.2	13.4	12.5	15.6	21.7	26.8	34.5	45.2	46.2	47.8	205.2%
Islamic Republic of Iran	288.9	410.2	355.4	430.5	436.0	515.3	628.3	824.7	1 042.4	1 073.7	1 053.3	141.6%
Iraq	497.2	632.0	950.6	608.3	324.5	124.2	255.2	261.7	352.4	386.0	421.9	30.0%
Jordan	8.0	7.9	16.4	21.1	19.9	28.1	32.9	44.8	60.7	62.2	63.9	220.3%
Kuwait	116.2	96.1	101.6	80.3	92.3	125.1	137.4	204.0	216.1	229.7	243.9	164.2%
Lebanon	29.8	29.2	24.8	34.7	19.8	35.1	37.7	45.4	62.3	64.2	65.1	229.4%
Oman	11.8	15.4	20.0	40.6	47.3	62.9	74.3	88.3	119.8	125.2	131.4	178.0%
Qatar	31.8	32.2	37.4	31.5	31.0	34.4	60.7	89.1	204.0	232.8	247.2	696.4%
Saudi Arabia	186.7	388.6	543.0	430.1	509.1	586.3	665.6	845.4	1 122.1	1 218.3	1 280.7	151.6%
Syrian Arab Republic	12.6	21.3	29.5	34.0	36.6	53.6	60.0	76.4	96.9	95.0	76.0	107.8%
United Arab Emirates	32.7	84.2	175.6	163.8	186.4	224.4	293.8	381.4	431.8	448.5	468.1	151.1%
Yemen	8.6	12.2	21.3	30.5	36.0	48.5	62.4	76.7	94.8	84.9	85.0	136.3%
<b>Middle East</b>	<b>1 228.7</b>	<b>1 737.4</b>	<b>2 289.0</b>	<b>1 917.9</b>	<b>1 754.5</b>	<b>1 859.7</b>	<b>2 335.2</b>	<b>2 972.4</b>	<b>3 848.5</b>	<b>4 066.7</b>	<b>4 184.3</b>	<b>138.5%</b>

## Population

millions

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>World</b>	<b>3 760.0</b>	<b>4 062.0</b>	<b>4 435.1</b>	<b>4 837.2</b>	<b>5 273.5</b>	<b>5 692.8</b>	<b>6 093.7</b>	<b>6 481.7</b>	<b>6 876.1</b>	<b>6 956.3</b>	<b>7 037.1</b>	<b>33.4%</b>
<i>Annex I Parties</i>	..	..	..	..	1 175.8	1 207.2	1 231.5	1 256.9	1 286.4	1 291.6	1 297.6	10.4%
<i>Annex II Parties</i>	705.3	729.4	755.0	775.9	799.3	827.6	853.0	881.7	910.1	914.5	919.2	15.0%
<i>North America</i>	229.7	239.1	252.2	264.3	277.9	295.9	313.1	328.2	343.9	346.5	349.2	25.7%
<i>Europe</i>	354.6	361.4	367.7	371.3	377.3	384.4	389.9	401.1	411.4	412.9	414.9	10.0%
<i>Asia Oceania</i>	121.0	128.8	135.0	140.2	144.2	147.3	150.0	152.4	154.9	155.0	155.1	7.6%
<i>Annex I EIT</i>	..	..	..	..	321.1	319.5	313.9	306.2	302.9	302.8	303.0	-5.6%
<i>Non-Annex I Parties</i>	..	..	..	..	4 097.6	4 485.6	4 862.2	5 224.8	5 589.8	5 664.7	5 739.5	40.1%
<i>Annex I Kyoto Parties</i>	..	..	..	..	832.3	841.0	843.8	850.0	859.6	861.3	863.6	3.8%
<b>Non-OECD Total *</b>	<b>2 861.9</b>	<b>3 123.3</b>	<b>3 450.5</b>	<b>3 811.9</b>	<b>4 203.6</b>	<b>4 578.1</b>	<b>4 939.4</b>	<b>5 285.7</b>	<b>5 636.8</b>	<b>5 709.6</b>	<b>5 782.8</b>	<b>37.6%</b>
<b>OECD Total **</b>	<b>898.2</b>	<b>938.7</b>	<b>984.6</b>	<b>1 025.4</b>	<b>1 069.8</b>	<b>1 114.6</b>	<b>1 154.3</b>	<b>1 196.0</b>	<b>1 239.3</b>	<b>1 246.7</b>	<b>1 254.3</b>	<b>17.2%</b>
Canada	22.0	23.1	24.5	25.8	27.7	29.3	30.7	32.2	34.1	34.5	34.9	26.0%
Chile	9.7	10.4	11.2	12.1	13.2	14.4	15.4	16.3	17.1	17.2	17.4	32.1%
Mexico	53.4	60.8	70.4	78.8	87.1	94.5	100.9	107.2	114.3	115.7	117.1	34.4%
United States	207.7	216.0	227.7	238.5	250.2	266.6	282.4	296.0	309.8	312.0	314.3	25.6%
<b>OECD Americas</b>	<b>292.8</b>	<b>310.3</b>	<b>333.8</b>	<b>355.2</b>	<b>378.1</b>	<b>404.8</b>	<b>429.4</b>	<b>451.7</b>	<b>475.3</b>	<b>479.5</b>	<b>483.6</b>	<b>27.9%</b>
Australia	13.2	14.0	14.8	15.9	17.2	18.2	19.3	20.5	22.4	22.8	23.1	34.7%
Israel	3.0	3.5	3.9	4.2	4.7	5.5	6.3	7.0	7.6	7.8	7.9	69.6%
Japan	105.0	111.8	117.1	121.0	123.6	125.4	126.8	127.8	128.0	127.8	127.6	3.2%
Korea	32.9	35.3	38.1	40.8	42.9	45.1	47.0	48.1	49.4	49.8	50.0	16.6%
New Zealand	2.9	3.1	3.1	3.3	3.4	3.7	3.9	4.1	4.4	4.4	4.4	31.8%
<b>OECD Asia Oceania</b>	<b>157.0</b>	<b>167.6</b>	<b>177.0</b>	<b>185.3</b>	<b>191.7</b>	<b>198.0</b>	<b>203.3</b>	<b>207.5</b>	<b>211.9</b>	<b>212.5</b>	<b>213.0</b>	<b>11.1%</b>
Austria	7.5	7.6	7.5	7.6	7.7	7.9	8.0	8.2	8.4	8.4	8.4	9.7%
Belgium	9.7	9.8	9.9	9.9	10.0	10.1	10.2	10.5	10.9	11.0	11.1	10.9%
Czech Republic	9.8	10.1	10.3	10.3	10.4	10.3	10.3	10.2	10.5	10.5	10.5	1.4%
Denmark	5.0	5.1	5.1	5.1	5.1	5.2	5.3	5.4	5.5	5.6	5.6	8.8%
Estonia	..	..	..	..	1.6	1.4	1.4	1.3	1.3	1.3	1.3	-15.6%
Finland	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.2	5.4	5.4	5.4	8.6%
France	52.4	53.9	55.1	56.6	58.1	59.4	60.7	63.0	64.8	65.1	65.4	12.5%
Germany	78.3	78.7	78.3	77.7	79.4	81.7	82.2	82.5	81.8	81.8	81.9	3.2%
Greece	9.0	9.2	9.8	10.1	10.3	10.6	10.9	11.1	11.2	11.1	11.1	7.3%
Hungary	10.4	10.5	10.7	10.6	10.4	10.3	10.2	10.1	10.0	10.0	9.9	-4.3%
Iceland	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	25.9%
Ireland	3.0	3.2	3.4	3.5	3.5	3.6	3.8	4.2	4.6	4.6	4.6	30.9%
Italy	54.1	55.4	56.4	56.6	56.7	56.8	56.9	58.6	60.5	60.7	60.9	7.4%
Luxembourg	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	39.3%
Netherlands	13.2	13.7	14.1	14.5	14.9	15.5	15.9	16.3	16.6	16.7	16.8	12.1%
Norway	3.9	4.0	4.1	4.2	4.2	4.4	4.5	4.6	4.9	5.0	5.0	18.3%
Poland	32.8	34.0	35.6	37.2	38.0	38.3	38.3	38.2	38.5	38.5	38.5	1.3%
Portugal	8.7	9.2	9.9	10.1	10.0	10.0	10.2	10.5	10.6	10.6	10.6	5.8%
Slovak Republic	4.6	4.7	5.0	5.2	5.3	5.4	5.4	5.4	5.4	5.4	5.4	2.0%
Slovenia	..	..	..	..	2.0	2.0	2.0	2.0	2.0	2.1	2.1	3.0%
Spain	34.3	35.7	37.7	38.6	39.0	39.4	40.3	43.4	46.1	46.1	46.2	18.3%
Sweden	8.1	8.2	8.3	8.4	8.6	8.8	8.9	9.0	9.4	9.5	9.5	11.2%
Switzerland	6.3	6.4	6.4	6.5	6.8	7.1	7.2	7.5	7.8	7.9	7.9	16.7%
Turkey	36.2	40.1	44.4	50.3	55.1	59.8	64.3	68.6	73.0	74.0	74.9	35.9%
United Kingdom	55.9	56.2	56.3	56.6	57.2	58.0	58.9	60.2	62.3	62.7	63.7	11.3%
<b>OECD Europe **</b>	<b>448.4</b>	<b>460.9</b>	<b>473.8</b>	<b>484.9</b>	<b>500.0</b>	<b>511.9</b>	<b>521.7</b>	<b>536.8</b>	<b>552.2</b>	<b>554.7</b>	<b>557.6</b>	<b>11.5%</b>
<i>European Union - 28</i>	..	..	..	..	477.6	483.3	487.4	496.1	504.7	505.7	507.4	6.2%

\* Includes Estonia and Slovenia prior to 1990.

\*\* Excludes Estonia and Slovenia prior to 1990.

## Population

millions

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>Non-OECD Total *</b>	<b>2 861.9</b>	<b>3 123.3</b>	<b>3 450.5</b>	<b>3 811.9</b>	<b>4 203.6</b>	<b>4 578.1</b>	<b>4 939.4</b>	<b>5 285.7</b>	<b>5 636.8</b>	<b>5 709.6</b>	<b>5 782.8</b>	<b>37.6%</b>
Albania	2.2	2.4	2.7	3.1	3.4	3.4	3.3	3.2	3.2	3.2	3.2	-8.3%
Armenia	..	..	..	..	3.5	3.2	3.1	3.0	3.0	3.0	3.0	-16.2%
Azerbaijan	..	..	..	..	7.2	7.7	8.0	8.4	9.1	9.2	9.3	29.9%
Belarus	..	..	..	..	10.2	10.2	10.0	9.7	9.5	9.5	9.5	-7.1%
Bosnia and Herzegovina	..	..	..	..	4.5	3.5	3.8	3.9	3.8	3.8	3.8	-15.3%
Bulgaria	8.5	8.7	8.9	9.0	8.7	8.4	8.2	7.7	7.4	7.3	7.3	-16.2%
Croatia	..	..	..	..	4.8	4.7	4.4	4.4	4.4	4.3	4.3	-10.7%
Cyprus **	0.6	0.5	0.5	0.5	0.6	0.6	0.7	0.7	0.8	0.8	0.9	50.4%
FYR of Macedonia	..	..	..	..	2.0	2.0	2.1	2.1	2.1	2.1	2.1	4.8%
Georgia	..	..	..	..	4.8	4.7	4.4	4.4	4.5	4.5	4.5	-6.5%
Gibraltar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.3%
Kazakhstan	..	..	..	..	16.3	15.8	14.9	15.1	16.3	16.6	16.8	2.7%
Kosovo ***	..	..	..	..	..	..	1.7	1.7	1.8	1.8	1.8	..
Kyrgyzstan	..	..	..	..	4.4	4.6	4.9	5.2	5.4	5.5	5.6	27.7%
Latvia	..	..	..	..	2.7	2.5	2.4	2.2	2.1	2.1	2.0	-23.6%
Lithuania	..	..	..	..	3.7	3.6	3.5	3.3	3.1	3.0	3.0	-19.2%
Malta	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	18.4%
Republic of Moldova	..	..	..	..	3.7	3.7	3.6	3.6	3.6	3.6	3.6	-3.7%
Montenegro ***	..	..	..	..	..	..	..	0.6	0.6	0.6	0.6	..
Romania	20.5	21.3	22.2	22.8	23.2	22.7	22.4	21.3	20.2	20.1	20.1	-13.5%
Russian Federation	..	..	..	..	148.3	148.1	146.3	143.2	142.4	143.0	143.5	-3.2%
Serbia ***	..	..	..	..	10.1	10.4	8.1	7.4	7.3	7.3	7.2	-28.2%
Tajikistan	..	..	..	..	5.3	5.8	6.2	6.8	7.6	7.8	8.0	51.2%
Turkmenistan	..	..	..	..	3.7	4.2	4.5	4.7	5.0	5.1	5.2	41.0%
Ukraine	..	..	..	..	51.9	51.5	49.2	47.1	45.9	45.7	45.6	-12.1%
Uzbekistan	..	..	..	..	20.5	22.8	24.7	26.2	28.6	29.3	29.8	45.2%
Former Soviet Union ****	243.9	253.2	264.5	276.4	..	..	..	..	..	..	..	..
Former Yugoslavia ****	20.2	20.9	21.7	22.4	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>296.2</b>	<b>307.4</b>	<b>320.9</b>	<b>334.5</b>	<b>343.9</b>	<b>344.4</b>	<b>340.8</b>	<b>336.5</b>	<b>338.1</b>	<b>339.6</b>	<b>341.0</b>	<b>-0.8%</b>
Algeria	15.1	16.8	19.5	22.8	26.2	29.3	31.7	34.0	37.1	37.8	38.5	46.7%
Angola	6.0	6.6	7.6	9.1	10.3	12.1	13.9	16.5	19.5	20.2	20.8	101.5%
Benin	3.0	3.3	3.7	4.3	5.0	6.0	6.9	8.2	9.5	9.8	10.1	101.0%
Botswana	..	..	..	1.2	1.4	1.6	1.8	1.9	2.0	2.0	2.0	44.8%
Cameroon	6.9	7.7	8.9	10.4	12.1	13.9	15.9	18.1	20.6	21.2	21.7	79.8%
Congo	1.4	1.6	1.8	2.1	2.4	2.7	3.1	3.5	4.1	4.2	4.3	82.0%
Dem. Rep. of Congo	20.6	22.9	26.4	30.0	34.9	42.0	46.9	54.0	62.2	63.9	65.7	88.2%
Côte d'Ivoire	5.5	6.6	8.3	10.2	12.1	14.2	16.1	17.4	19.0	19.4	19.8	63.8%
Egypt	37.2	40.4	44.9	50.3	56.3	61.2	66.1	71.8	78.1	79.4	80.7	43.3%
Eritrea	..	..	..	..	..	3.4	3.9	4.9	5.7	5.9	6.1	..
Ethiopia	29.2	32.6	35.2	40.8	48.0	57.0	66.0	76.2	87.1	89.4	91.7	90.9%
Gabon	0.6	0.6	0.7	0.8	0.9	1.1	1.2	1.4	1.6	1.6	1.6	72.4%
Ghana	8.8	9.8	10.8	12.7	14.6	16.8	18.8	21.4	24.3	24.8	25.4	73.4%
Kenya	11.7	13.5	16.3	19.7	23.4	27.4	31.3	35.8	40.9	42.0	43.2	84.2%
Libya	2.2	2.5	3.1	3.7	4.3	4.7	5.2	5.6	6.0	6.1	6.2	44.5%
Mauritius	0.8	0.9	1.0	1.0	1.1	1.1	1.2	1.2	1.3	1.3	1.3	21.9%
Morocco	16.3	17.7	19.8	22.3	24.7	26.8	28.7	30.1	31.6	32.1	32.5	31.8%
Mozambique	9.7	10.6	12.1	13.3	13.6	16.0	18.3	21.0	24.0	24.6	25.2	85.8%
Namibia	..	..	..	..	..	1.7	1.9	2.0	2.2	2.2	2.3	..
Nigeria	57.5	63.6	73.7	83.9	95.6	108.4	122.9	139.6	159.7	164.2	168.8	76.6%
Senegal	4.3	4.9	5.6	6.4	7.5	8.7	9.9	11.3	13.0	13.3	13.7	82.7%
South Africa	22.6	24.7	27.6	31.3	35.2	39.1	44.0	47.6	50.9	51.6	52.3	48.5%
Sudan	14.3	16.2	19.1	22.5	25.8	30.0	34.4	39.6	45.6	46.8	48.0	86.4%
United Rep. of Tanzania	14.0	16.0	18.7	21.9	25.5	29.9	34.0	38.8	45.0	46.4	47.8	87.5%
Togo	2.2	2.4	2.7	3.3	3.8	4.3	4.9	5.5	6.3	6.5	6.6	75.4%
Tunisia	5.2	5.6	6.4	7.3	8.2	9.0	9.6	10.0	10.5	10.7	10.8	32.2%
Zambia	4.3	5.0	5.8	6.8	7.8	8.8	10.1	11.5	13.2	13.6	14.1	79.4%
Zimbabwe	5.4	6.2	7.3	8.9	10.5	11.6	12.5	12.7	13.1	13.4	13.7	31.2%
Other Africa	68.9	75.6	87.4	98.1	113.8	125.1	146.0	169.0	196.2	202.1	208.1	82.9%
<b>Africa</b>	<b>373.7</b>	<b>414.3</b>	<b>474.4</b>	<b>545.1</b>	<b>625.0</b>	<b>714.0</b>	<b>807.3</b>	<b>910.7</b>	<b>1 030.3</b>	<b>1 056.3</b>	<b>1 083.1</b>	<b>73.3%</b>

\* Includes Estonia and Slovenia prior to 1990.

\*\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

\*\*\* Serbia includes Kosovo from 1990 to 1999 and Montenegro from 1990 to 2004.

\*\*\*\* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

## Population

millions

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
Bangladesh	67.6	72.3	82.5	94.3	107.4	119.9	132.4	143.1	151.1	152.9	154.7	44.1%
Brunei Darussalam	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	60.3%
Cambodia	..	..	..	..	..	10.8	12.2	13.4	14.4	14.6	14.9	..
India	567.8	622.2	699.0	781.7	868.9	955.8	1 042.3	1 127.1	1 205.6	1 221.2	1 236.7	42.3%
Indonesia	117.0	129.2	145.5	162.5	178.6	194.1	208.9	224.5	240.7	243.8	246.9	38.2%
DPR of Korea	14.8	16.3	17.4	18.8	20.2	21.8	22.8	23.8	24.5	24.6	24.8	22.6%
Malaysia	11.2	12.3	13.8	15.8	18.2	20.7	23.4	25.8	28.3	28.8	29.2	60.6%
Mongolia	..	..	..	1.9	2.2	2.3	2.4	2.5	2.7	2.8	2.8	28.0%
Myanmar	27.8	30.6	34.5	38.5	42.1	45.3	48.5	50.2	51.9	52.4	52.8	25.3%
Nepal	11.8	12.9	14.4	16.1	18.1	20.6	23.2	25.3	26.8	27.2	27.5	51.7%
Pakistan	60.8	68.2	80.0	94.8	111.1	126.7	143.8	158.0	173.1	176.2	179.2	61.3%
Philippines	36.9	41.3	47.4	54.3	61.9	69.6	77.7	85.8	93.4	95.1	96.7	56.1%
Singapore	2.1	2.3	2.4	2.7	3.0	3.5	4.0	4.3	5.1	5.2	5.3	74.3%
Sri Lanka	12.7	13.5	14.7	15.8	17.0	18.1	19.1	19.6	20.7	20.9	20.3	19.5%
Chinese Taipei	14.9	16.1	17.9	19.3	20.4	21.4	22.3	22.8	23.2	23.2	23.4	14.9%
Thailand	38.0	42.3	47.4	52.0	56.6	59.0	62.3	65.6	66.4	66.6	66.8	18.0%
Viet Nam	43.7	48.0	53.7	58.9	66.0	72.0	77.6	82.4	86.9	87.8	88.8	34.5%
Other Asia	27.7	30.3	31.0	30.0	32.9	31.3	35.7	41.5	46.9	48.0	49.1	49.1%
<b>Asia (excl. China)</b>	<b>1 055.0</b>	<b>1 157.9</b>	<b>1 301.7</b>	<b>1 457.8</b>	<b>1 625.0</b>	<b>1 793.1</b>	<b>1 959.0</b>	<b>2 116.1</b>	<b>2 262.2</b>	<b>2 291.4</b>	<b>2 320.2</b>	<b>42.8%</b>
People's Rep. of China	841.1	916.4	981.2	1 051.0	1 135.2	1 204.9	1 262.6	1 303.7	1 337.7	1 344.1	1 350.7	19.0%
Hong Kong, China	4.0	4.5	5.1	5.5	5.7	6.2	6.7	6.8	7.0	7.1	7.2	25.4%
<b>China</b>	<b>845.2</b>	<b>920.9</b>	<b>986.3</b>	<b>1 056.5</b>	<b>1 140.9</b>	<b>1 211.0</b>	<b>1 269.3</b>	<b>1 310.5</b>	<b>1 344.7</b>	<b>1 351.2</b>	<b>1 357.9</b>	<b>19.0%</b>
Argentina	24.4	26.1	28.1	30.3	32.6	34.8	36.9	38.6	40.4	40.7	41.1	25.9%
Bolivia	4.3	4.8	5.4	6.0	6.8	7.6	8.5	9.4	10.2	10.3	10.5	54.5%
Brazil	98.4	108.2	121.7	136.2	149.6	161.9	174.5	186.1	195.2	196.9	198.7	32.7%
Colombia	21.9	24.0	26.9	30.1	33.3	36.6	39.9	43.2	46.4	47.1	47.7	43.2%
Costa Rica	1.9	2.1	2.3	2.7	3.1	3.5	3.9	4.3	4.7	4.7	4.8	56.1%
Cuba	8.9	9.4	9.8	10.1	10.6	10.9	11.1	11.3	11.3	11.3	11.3	6.3%
Dominican Republic	4.7	5.2	5.8	6.5	7.2	8.0	8.7	9.3	10.0	10.1	10.3	41.8%
Ecuador	6.2	6.9	7.9	9.0	10.1	11.3	12.5	13.8	15.0	15.2	15.5	53.0%
El Salvador	3.8	4.2	4.7	5.0	5.3	5.7	6.0	6.1	6.2	6.3	6.3	17.8%
Guatemala	5.6	6.2	7.0	7.9	8.9	10.0	11.2	12.7	14.3	14.7	15.1	69.7%
Haiti	4.8	5.1	5.7	6.4	7.1	7.8	8.6	9.3	9.9	10.0	10.2	43.1%
Honduras	2.8	3.1	3.6	4.2	4.9	5.6	6.2	6.9	7.6	7.8	7.9	61.8%
Jamaica	1.9	2.0	2.1	2.3	2.4	2.5	2.6	2.6	2.7	2.7	2.7	13.3%
Netherlands Antilles	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	21.2%
Nicaragua	2.5	2.8	3.3	3.7	4.1	4.7	5.1	5.5	5.8	5.9	6.0	44.8%
Panama	1.6	1.8	2.0	2.2	2.5	2.8	3.1	3.4	3.7	3.7	3.8	52.9%
Paraguay	2.5	2.8	3.2	3.7	4.3	4.8	5.4	5.9	6.5	6.6	6.7	57.3%
Peru	13.6	15.2	17.3	19.5	21.8	23.9	26.0	27.7	29.3	29.6	30.0	37.7%
Trinidad and Tobago	1.0	1.0	1.1	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3	9.4%
Uruguay	2.8	2.8	2.9	3.0	3.1	3.2	3.3	3.3	3.4	3.4	3.4	9.2%
Venezuela	11.1	12.7	15.1	17.3	19.7	22.1	24.4	26.7	29.0	29.5	30.0	51.7%
Other Non-OECD Americas	2.6	2.7	2.8	2.9	3.0	3.2	3.4	3.6	3.8	3.8	3.9	28.6%
<b>Non-OECD Americas</b>	<b>227.3</b>	<b>249.3</b>	<b>279.0</b>	<b>310.6</b>	<b>342.0</b>	<b>372.4</b>	<b>402.7</b>	<b>431.2</b>	<b>456.9</b>	<b>462.1</b>	<b>467.2</b>	<b>36.6%</b>
Bahrain	0.2	0.3	0.4	0.4	0.5	0.6	0.7	0.9	1.3	1.3	1.3	165.7%
Islamic Republic of Iran	29.4	32.9	38.9	47.5	56.4	60.5	65.9	70.2	74.5	75.4	76.4	35.6%
Iraq	10.3	11.7	13.7	15.6	17.5	20.4	23.8	27.4	31.0	31.8	32.6	86.0%
Jordan	1.6	1.8	2.2	2.6	3.2	4.2	4.8	5.4	6.0	6.2	6.3	99.3%
Kuwait	0.8	1.1	1.4	1.7	2.1	1.6	1.9	2.3	3.0	3.1	3.3	57.8%
Lebanon	2.4	2.6	2.6	2.7	2.7	3.0	3.2	4.0	4.3	4.4	4.4	63.7%
Oman	0.7	0.9	1.2	1.5	1.8	2.2	2.2	2.5	2.8	3.0	3.3	83.1%
Qatar	0.1	0.2	0.2	0.4	0.5	0.5	0.6	0.8	1.8	1.9	2.1	330.0%
Saudi Arabia	6.1	7.4	9.8	13.3	16.2	18.6	20.1	24.7	27.3	27.8	28.3	74.6%
Syrian Arab Republic	6.6	7.6	9.0	10.7	12.5	14.3	16.4	18.2	21.5	22.0	22.4	79.9%
United Arab Emirates	0.3	0.5	1.0	1.3	1.8	2.3	3.0	4.1	8.4	8.9	9.2	409.7%
Yemen	6.2	6.7	7.9	9.7	11.8	15.0	17.5	20.1	22.8	23.3	23.9	102.3%
<b>Middle East</b>	<b>64.6</b>	<b>73.5</b>	<b>88.2</b>	<b>107.4</b>	<b>126.9</b>	<b>143.1</b>	<b>160.2</b>	<b>180.6</b>	<b>204.6</b>	<b>209.1</b>	<b>213.4</b>	<b>68.2%</b>

CO<sub>2</sub> emissions / TPEStonnes CO<sub>2</sub> / terajoule

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>World *</b>	<b>60.9</b>	<b>60.5</b>	<b>59.8</b>	<b>57.6</b>	<b>57.1</b>	<b>56.5</b>	<b>56.3</b>	<b>57.1</b>	<b>56.5</b>	<b>57.0</b>	<b>56.7</b>	<b>-0.6%</b>
<i>Annex I Parties</i>	..	..	..	..	59.4	57.3	56.9	56.2	54.8	55.2	54.9	-7.7%
<i>Annex II Parties</i>	66.0	64.2	62.3	59.5	58.3	56.5	56.4	56.1	54.7	55.1	54.8	-6.0%
<i>North America</i>	64.0	62.2	60.9	60.1	59.6	58.2	58.9	58.3	57.7	56.9	56.0	-6.0%
<i>Europe</i>	69.0	66.4	64.5	58.6	55.9	53.3	51.8	51.0	48.4	48.4	48.4	-13.4%
<i>Asia Oceania</i>	67.1	67.2	62.4	59.8	59.4	57.5	57.0	59.2	58.0	63.5	65.4	10.1%
<i>Annex I EIT</i>	..	..	..	..	62.5	60.4	58.7	56.6	54.9	55.2	54.4	-12.8%
<i>Non-Annex I Parties</i>	..	..	..	..	51.5	54.1	54.3	57.0	57.0	57.6	57.3	11.2%
<i>Annex I Kyoto Parties</i>	..	..	..	..	59.3	56.6	55.1	54.5	52.5	53.7	53.8	-9.3%
<b>Non-OECD Total **</b>	<b>50.4</b>	<b>53.4</b>	<b>54.8</b>	<b>53.3</b>	<b>54.2</b>	<b>54.7</b>	<b>54.5</b>	<b>56.8</b>	<b>56.5</b>	<b>57.3</b>	<b>56.9</b>	<b>4.9%</b>
<b>OECD Total ***</b>	<b>66.4</b>	<b>64.7</b>	<b>62.9</b>	<b>60.5</b>	<b>58.8</b>	<b>57.2</b>	<b>56.9</b>	<b>56.4</b>	<b>55.2</b>	<b>55.5</b>	<b>55.3</b>	<b>-6.1%</b>
Canada	57.4	54.4	53.1	49.8	49.0	47.7	50.2	48.4	50.5	50.7	50.8	3.5%
Chile	57.2	53.1	53.5	48.5	52.5	50.3	49.4	49.0	54.0	53.9	49.9	-5.0%
Mexico	53.9	56.0	53.3	55.3	51.7	54.6	57.7	54.6	56.6	56.3	55.3	6.8%
United States	64.6	63.0	61.7	61.2	60.7	59.4	59.9	59.5	58.5	57.6	56.6	-6.8%
<b>OECD Americas</b>	<b>63.7</b>	<b>62.0</b>	<b>60.5</b>	<b>59.8</b>	<b>59.1</b>	<b>57.9</b>	<b>58.7</b>	<b>58.0</b>	<b>57.6</b>	<b>56.8</b>	<b>55.9</b>	<b>-5.5%</b>
Australia	66.7	71.2	71.4	72.8	72.0	73.7	74.1	78.3	75.5	75.5	71.9	-0.1%
Israel	60.0	58.0	59.9	77.3	69.9	71.3	72.3	77.4	70.1	69.3	72.1	3.2%
Japan	67.7	67.0	61.1	57.8	57.5	54.9	53.9	55.4	54.3	61.2	64.6	12.4%
Korea	73.3	74.9	72.0	68.9	58.9	59.2	55.6	53.3	53.9	54.1	53.8	-8.8%
New Zealand	47.1	45.8	43.7	41.9	41.6	40.6	43.2	47.8	40.5	39.9	40.5	-2.6%
<b>OECD Asia Oceania</b>	<b>67.3</b>	<b>67.5</b>	<b>63.2</b>	<b>61.0</b>	<b>59.5</b>	<b>58.1</b>	<b>57.0</b>	<b>58.2</b>	<b>57.2</b>	<b>60.9</b>	<b>62.1</b>	<b>4.4%</b>
Austria	61.8	59.5	57.4	56.2	54.3	53.0	51.6	52.8	48.6	48.8	46.7	-13.9%
Belgium	70.4	65.2	64.2	55.2	53.4	51.2	48.5	46.0	43.2	44.5	44.6	-16.4%
Czech Republic	79.4	83.4	84.3	84.0	71.7	72.0	71.3	63.9	61.4	62.6	60.4	-15.9%
Denmark	71.0	71.7	78.1	74.9	69.7	71.6	65.1	61.2	58.1	55.9	51.1	-26.6%
Estonia	..	..	..	..	87.3	73.6	74.1	77.3	78.5	74.3	70.7	-19.0%
Finland	52.3	53.8	53.6	44.9	45.8	46.2	40.9	38.4	40.8	38.0	35.4	-22.5%
France	65.1	62.3	57.5	42.2	37.6	35.7	35.9	34.3	32.5	31.2	31.6	-16.0%
Germany	76.6	74.3	70.6	67.8	64.6	61.6	58.6	56.7	56.2	57.0	57.7	-10.7%
Greece	69.2	70.3	72.3	74.3	78.1	79.9	77.1	75.0	72.8	74.0	69.7	-10.8%
Hungary	75.7	73.8	70.5	64.9	55.1	52.9	51.8	48.9	45.5	45.3	44.3	-19.6%
Iceland	37.0	34.7	27.7	21.8	21.6	20.7	16.5	15.0	8.6	7.7	7.7	-64.2%
Ireland	77.2	76.1	75.3	73.3	73.6	74.2	71.9	73.1	65.0	63.1	64.1	-13.0%
Italy	66.4	65.4	65.7	64.2	64.8	61.5	59.3	59.9	55.9	56.1	56.4	-13.0%
Luxembourg	90.7	76.6	80.0	77.4	73.0	61.1	57.3	62.1	59.8	59.7	59.7	-18.3%
Netherlands	60.8	57.0	61.9	60.7	56.7	57.7	56.1	54.9	53.5	54.0	52.8	-6.8%
Norway	42.2	39.4	36.5	32.5	32.2	33.4	30.7	32.4	29.1	32.3	29.6	-8.0%
Poland	79.5	78.4	77.9	80.3	79.3	79.5	78.0	75.7	72.7	71.0	71.7	-9.5%
Portugal	55.0	56.3	56.9	53.7	56.1	57.0	57.5	56.7	48.9	49.7	51.2	-8.7%
Slovak Republic	65.4	62.4	66.6	62.7	63.5	54.9	50.3	48.3	47.2	46.6	45.7	-28.0%
Slovenia	..	..	..	..	55.8	55.2	52.5	51.1	50.8	50.0	49.9	-10.5%
Spain	67.2	65.0	66.2	59.0	54.4	55.1	55.6	57.1	50.1	51.4	50.9	-6.4%
Sweden	54.6	48.6	43.3	29.7	26.7	27.3	26.5	23.3	22.2	20.8	19.2	-28.0%
Switzerland	56.8	51.0	46.8	44.8	40.8	41.5	40.6	41.1	40.0	37.5	38.5	-5.7%
Turkey	50.6	52.9	53.8	57.5	57.5	59.2	63.1	61.4	60.3	60.8	61.8	7.5%
United Kingdom	71.4	69.4	68.7	64.8	63.7	57.0	56.2	57.2	56.2	55.8	56.8	-10.8%
<b>OECD Europe ***</b>	<b>69.9</b>	<b>67.7</b>	<b>66.2</b>	<b>61.3</b>	<b>58.2</b>	<b>55.7</b>	<b>54.1</b>	<b>53.1</b>	<b>50.8</b>	<b>50.9</b>	<b>50.9</b>	<b>-12.6%</b>
<i>European Union - 28</i>	..	..	..	..	59.1	56.1	54.4	53.3	51.1	51.1	50.9	-13.8%

\* The ratio for the world has been calculated to include international marine bunkers and international aviation bunkers.

\*\* Includes Estonia and Slovenia prior to 1990.

\*\*\* Excludes Estonia and Slovenia prior to 1990.

CO<sub>2</sub> emissions / TPEStonnes CO<sub>2</sub> / terajoule

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>Non-OECD Total *</b>	<b>50.4</b>	<b>53.4</b>	<b>54.8</b>	<b>53.3</b>	<b>54.2</b>	<b>54.7</b>	<b>54.5</b>	<b>56.8</b>	<b>56.5</b>	<b>57.3</b>	<b>56.9</b>	<b>4.9%</b>
Albania	54.0	53.5	59.0	63.2	55.8	33.4	41.3	43.8	44.1	44.1	44.1	-21.1%
Armenia	..	..	..	..	63.4	49.6	40.4	39.2	38.9	41.0	43.6	-31.2%
Azerbaijan	..	..	..	..	58.0	58.2	59.0	54.8	49.1	50.9	51.1	-11.9%
Belarus	..	..	..	..	65.5	59.6	56.8	55.1	56.0	53.4	55.7	-15.0%
Bosnia and Herzegovina	..	..	..	..	80.5	51.7	74.2	74.1	74.3	76.9	76.0	-5.6%
Bulgaria	78.9	74.2	70.5	63.2	63.4	55.2	54.1	55.6	59.0	61.1	57.7	-9.1%
Croatia	..	..	..	..	56.9	53.5	54.2	55.6	53.0	53.1	51.9	-8.9%
Cyprus **	72.2	70.8	71.9	72.3	67.5	70.9	70.1	75.3	70.4	70.1	69.3	2.7%
FYR of Macedonia	..	..	..	..	82.1	78.2	75.3	73.8	68.1	71.3	70.0	-14.8%
Georgia	..	..	..	..	64.0	51.8	38.4	36.4	37.5	42.3	43.9	-31.4%
Gibraltar	72.1	72.4	73.6	72.8	72.5	72.9	72.9	72.9	73.0	73.0	73.0	0.7%
Kazakhstan	..	..	..	..	76.9	76.6	75.6	73.7	75.1	71.3	72.0	-6.3%
Kosovo ***	..	..	..	..	..	..	77.8	80.3	82.0	80.1	80.7	..
Kyrgyzstan	..	..	..	..	71.6	44.3	45.4	45.3	52.3	51.9	55.0	-23.2%
Latvia	..	..	..	..	56.7	46.0	42.5	40.0	41.6	41.2	37.9	-33.1%
Lithuania	..	..	..	..	49.2	38.9	37.5	36.4	45.1	43.4	43.2	-12.3%
Malta	73.5	73.6	73.9	79.6	78.5	79.2	74.4	73.3	69.5	70.7	89.8	14.4%
Republic of Moldova	..	..	..	..	72.9	59.8	53.9	52.4	55.3	56.7	55.5	-23.8%
Montenegro ***	..	..	..	..	..	..	..	43.5	50.4	52.9	51.7	..
Romania	65.1	64.8	64.5	63.7	64.3	60.2	57.4	58.5	51.4	54.5	54.0	-15.9%
Russian Federation	..	..	..	..	59.2	58.5	57.7	55.4	53.6	53.5	52.4	-11.5%
Serbia ***	..	..	..	..	74.4	76.2	74.0	73.1	70.4	73.5	72.8	-2.1%
Tajikistan	..	..	..	..	49.0	26.2	24.1	23.9	25.0	26.2	28.8	-41.2%
Turkmenistan	..	..	..	..	60.6	57.9	58.7	59.6	59.6	59.5	59.6	-1.7%
Ukraine	..	..	..	..	65.2	57.3	52.1	51.1	49.0	53.9	54.7	-16.1%
Uzbekistan	..	..	..	..	61.7	56.9	55.5	55.2	55.5	55.2	55.0	-10.9%
Former Soviet Union ****	62.0	65.3	65.8	61.2	..	..	..	..	..	..	..	..
Former Yugoslavia ****	68.9	70.4	62.1	70.7	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>62.7</b>	<b>65.5</b>	<b>65.7</b>	<b>61.7</b>	<b>62.0</b>	<b>59.0</b>	<b>57.4</b>	<b>55.9</b>	<b>54.9</b>	<b>55.3</b>	<b>54.6</b>	<b>-11.8%</b>
Algeria	61.5	60.7	60.6	58.5	56.8	56.2	56.2	58.6	58.1	59.3	59.0	3.9%
Angola	10.3	11.6	14.0	13.8	16.3	14.8	16.2	16.9	27.7	27.2	27.5	69.0%
Benin	6.5	8.8	6.9	7.2	3.6	2.8	17.0	25.3	29.5	29.8	30.2	727.6%
Botswana	..	..	..	41.1	54.3	51.9	53.3	53.8	52.7	50.6	49.4	-9.0%
Cameroon	6.4	8.2	10.8	13.0	12.8	10.8	10.5	9.9	17.2	18.3	18.5	44.5%
Congo	27.1	26.3	26.8	23.7	19.1	14.5	14.6	18.2	28.3	29.3	30.4	59.7%
Dem. Rep. of Congo	9.0	8.2	8.8	7.7	6.0	2.1	1.5	1.8	2.2	2.6	2.8	-53.2%
Côte d'Ivoire	23.2	24.3	22.5	19.6	14.9	15.2	22.2	14.4	14.7	12.0	14.8	-0.7%
Egypt	63.2	63.5	67.1	61.0	58.7	57.1	60.2	58.3	60.4	59.6	60.1	2.3%
Eritrea	..	..	..	..	..	18.5	20.6	18.1	15.3	15.9	16.2	..
Ethiopia	2.5	2.0	2.2	1.9	2.5	2.3	2.7	3.2	3.5	3.8	4.2	66.0%
Gabon	10.6	14.0	22.4	29.6	18.2	23.6	23.9	23.9	26.7	27.1	26.6	46.1%
Ghana	15.4	15.3	13.5	11.9	12.2	12.2	15.9	19.8	27.1	27.5	30.2	146.8%
Kenya	14.6	13.8	14.5	12.8	12.3	11.4	13.3	11.1	13.7	13.6	12.4	0.2%
Libya	56.8	59.8	64.3	53.9	58.5	60.0	59.3	60.7	59.3	62.2	61.6	5.3%
Mauritius	17.0	25.0	31.4	32.7	41.2	46.8	56.8	60.1	65.4	65.1	65.7	59.4%
Morocco	55.2	59.9	61.6	63.7	61.6	66.5	63.7	66.9	65.3	65.9	65.9	7.0%
Mozambique	10.0	8.4	8.2	5.6	4.4	4.3	4.4	4.3	5.7	6.5	5.9	36.0%
Namibia	..	..	..	..	..	47.4	46.0	44.5	47.4	46.8	47.0	..
Nigeria	4.3	7.3	13.1	13.5	10.4	11.0	12.2	13.1	11.2	11.6	11.5	10.6%
Senegal	23.3	27.6	31.2	32.3	30.1	31.7	35.4	39.8	33.0	33.0	32.6	8.3%
South Africa	82.4	89.2	76.3	63.2	66.6	63.3	64.9	61.3	63.0	60.9	64.2	-3.7%
Sudan	11.1	10.5	10.6	10.6	12.4	9.1	10.4	16.3	22.1	20.9	20.7	67.7%
United Rep. of Tanzania	4.8	4.7	4.7	4.2	4.2	5.5	4.7	7.1	7.4	8.3	9.6	128.9%
Togo	11.2	9.6	9.8	7.1	10.8	8.8	10.7	9.8	15.8	14.3	12.4	14.9%
Tunisia	53.1	52.7	57.3	55.0	58.3	58.5	58.9	58.0	54.6	55.1	55.6	-4.6%
Zambia	22.7	26.2	17.3	13.3	11.4	8.4	6.5	6.9	5.0	5.8	7.3	-36.4%
Zimbabwe	31.8	29.0	29.3	30.9	41.1	36.0	31.3	25.1	22.9	24.4	24.9	-39.5%
Other Africa	9.0	9.4	11.4	8.5	7.4	7.7	8.2	9.3	10.4	10.4	10.5	43.3%
<b>Africa</b>	<b>31.3</b>	<b>35.2</b>	<b>35.5</b>	<b>33.8</b>	<b>33.3</b>	<b>32.4</b>	<b>32.9</b>	<b>33.1</b>	<b>33.8</b>	<b>33.0</b>	<b>33.7</b>	<b>1.1%</b>

\* Includes Estonia and Slovenia prior to 1990.

\*\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

\*\*\* Serbia includes Kosovo from 1990 to 1999 and Montenegro from 1990 to 2004.

\*\*\*\* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

CO<sub>2</sub> emissions / TPEStonnes CO<sub>2</sub> / terajoule

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
Bangladesh	13.4	16.5	20.5	21.2	25.4	30.4	32.8	36.8	41.0	41.8	42.9	68.5%
Brunei Darussalam	53.7	45.4	46.5	39.3	44.9	47.7	44.4	51.9	55.7	51.0	51.9	15.6%
Cambodia	..	..	..	..	..	12.3	13.7	18.3	17.9	18.0	18.2	..
India	30.6	32.5	33.0	38.6	43.8	48.1	51.2	52.7	57.8	58.1	59.2	35.1%
Indonesia	17.1	22.0	29.5	31.9	35.4	39.1	41.9	44.6	44.8	46.6	48.7	37.7%
DPR of Korea	83.1	82.3	83.0	83.8	82.0	81.3	83.1	82.7	81.2	77.1	77.0	-6.0%
Malaysia	50.1	52.6	48.1	51.5	54.3	58.2	56.8	56.5	59.1	58.1	57.6	6.0%
Mongolia	..	..	..	88.7	88.7	89.1	87.8	86.3	87.1	86.2	86.1	-2.9%
Myanmar	13.8	11.4	13.1	12.7	9.1	13.9	17.4	17.1	13.7	13.8	18.2	101.2%
Nepal	1.2	1.9	2.7	2.6	3.6	6.2	9.0	7.9	9.5	9.8	11.6	217.2%
Pakistan	23.3	24.5	25.2	29.0	32.7	35.5	37.0	37.7	38.3	38.4	38.3	17.2%
Philippines	35.9	38.0	35.5	28.6	31.6	40.4	40.3	43.4	44.9	45.3	44.6	41.3%
Singapore	53.7	54.5	59.1	60.6	62.7	49.6	56.8	47.3	46.0	46.4	47.4	-24.4%
Sri Lanka	17.2	15.2	18.9	16.5	15.8	21.5	29.9	35.2	30.1	33.4	33.6	113.1%
Chinese Taipei	74.0	70.9	61.7	51.6	57.2	59.4	61.5	61.2	58.9	58.5	58.6	2.3%
Thailand	28.3	29.2	36.5	40.4	45.8	54.1	51.1	50.9	48.0	48.5	48.4	5.8%
Viet Nam	29.2	28.7	24.5	25.6	23.0	30.3	36.6	46.0	52.5	52.7	52.6	128.8%
Other Asia	44.2	46.5	51.0	37.6	35.5	32.4	32.8	38.7	42.8	43.8	44.4	25.1%
<b>Asia (excl. China)</b>	<b>33.0</b>	<b>35.0</b>	<b>37.2</b>	<b>39.8</b>	<b>43.1</b>	<b>46.4</b>	<b>48.5</b>	<b>50.0</b>	<b>52.5</b>	<b>52.9</b>	<b>53.7</b>	<b>24.6%</b>
People's Rep. of China	49.7	52.7	56.9	59.5	61.6	69.1	68.1	72.7	68.6	69.2	67.7	10.0%
Hong Kong, China	72.9	71.1	75.0	80.0	90.8	80.8	70.9	76.6	71.3	71.8	73.4	-19.1%
<b>China</b>	<b>49.9</b>	<b>52.9</b>	<b>57.0</b>	<b>59.7</b>	<b>61.9</b>	<b>69.2</b>	<b>68.1</b>	<b>72.7</b>	<b>68.6</b>	<b>69.2</b>	<b>67.7</b>	<b>9.5%</b>
Argentina	58.7	56.8	54.6	51.0	51.8	52.9	55.0	54.4	53.5	54.9	56.1	8.4%
Bolivia	50.9	51.9	41.0	40.6	47.1	43.7	29.4	35.4	44.8	46.4	45.8	-2.9%
Brazil	30.9	35.6	37.3	30.3	32.8	34.9	38.7	35.8	34.9	36.1	37.3	13.9%
Colombia	46.0	43.8	47.2	47.3	45.6	50.5	54.8	51.2	47.3	51.9	50.9	11.7%
Costa Rica	37.3	41.7	41.5	37.7	37.0	44.7	37.0	35.2	33.6	34.3	34.1	-7.8%
Cuba	45.6	47.4	48.1	48.7	45.6	48.1	50.4	55.8	62.1	60.9	60.5	32.6%
Dominican Republic	35.2	40.0	43.6	43.8	44.8	51.9	55.8	62.5	63.6	63.4	62.7	39.9%
Ecuador	37.8	45.0	50.2	49.9	50.5	51.7	52.2	57.6	57.0	54.4	54.8	8.6%
El Salvador	19.4	21.3	16.6	16.0	21.6	32.9	31.4	33.2	33.1	33.6	33.6	55.4%
Guatemala	20.0	21.8	26.6	20.3	17.4	26.1	28.7	32.3	24.0	22.7	22.6	30.2%
Haiti	5.9	5.7	7.0	10.0	14.5	12.8	16.7	13.9	13.1	13.0	12.2	-15.9%
Honduras	19.2	20.4	21.5	19.8	21.6	29.9	35.4	41.1	38.0	38.2	38.4	77.4%
Jamaica	65.5	66.0	68.2	64.3	61.6	62.2	60.6	65.5	61.1	60.5	60.4	-1.9%
Netherlands Antilles	63.0	63.1	53.2	60.9	45.0	51.4	50.3	53.0	60.1	54.7	55.2	22.6%
Nicaragua	28.9	29.7	27.9	22.3	21.7	26.4	33.4	33.7	35.2	35.0	31.0	43.1%
Panama	36.5	44.3	49.6	41.1	41.1	49.2	45.9	56.5	57.5	56.9	56.8	38.2%
Paraguay	10.0	11.3	15.6	15.0	14.9	21.0	20.2	20.7	23.3	24.0	24.2	62.4%
Peru	40.7	42.5	43.6	41.2	47.1	51.6	51.8	50.5	51.9	51.8	50.4	7.0%
Trinidad and Tobago	55.7	60.0	49.5	45.1	45.4	47.7	44.2	45.9	45.7	45.9	46.1	1.6%
Uruguay	51.6	53.3	50.2	37.3	39.8	42.0	40.7	42.8	36.0	39.9	43.3	8.8%
Venezuela	63.5	59.9	62.4	57.5	57.6	54.7	53.6	57.0	57.9	54.4	55.8	-3.2%
Other Non-OECD Americas	39.8	42.8	42.2	61.0	57.7	63.0	63.7	62.7	64.6	64.4	64.5	11.9%
<b>Non-OECD Americas</b>	<b>43.2</b>	<b>44.0</b>	<b>44.9</b>	<b>40.4</b>	<b>41.6</b>	<b>43.5</b>	<b>45.3</b>	<b>44.5</b>	<b>43.8</b>	<b>44.1</b>	<b>44.9</b>	<b>7.7%</b>
Bahrain	51.1	59.5	63.0	57.9	56.8	57.2	53.6	51.8	53.8	53.7	54.6	-3.9%
Islamic Republic of Iran	59.9	64.1	56.6	65.0	61.6	59.3	61.2	58.3	58.5	59.1	57.9	-6.0%
Iraq	59.9	60.8	66.8	63.7	64.7	67.4	64.7	66.6	64.3	64.7	63.1	-2.5%
Jordan	64.9	67.5	67.1	67.7	67.4	67.7	70.5	64.5	63.1	66.9	68.0	0.8%
Kuwait	54.8	55.6	60.7	63.2	75.3	58.0	62.4	63.4	59.6	62.2	63.0	-16.4%
Lebanon	58.6	62.4	63.6	67.1	66.7	69.6	68.7	68.6	68.6	69.5	70.0	4.9%
Oman	26.6	71.5	46.3	64.3	57.4	57.4	62.3	55.7	61.8	61.4	61.4	6.9%
Qatar	57.5	57.3	55.4	51.8	52.3	55.2	52.4	52.2	51.6	50.1	47.7	-8.7%
Saudi Arabia	41.3	61.3	76.1	63.7	62.2	54.4	57.7	58.3	53.4	57.7	54.7	-12.0%
Syrian Arab Republic	60.5	70.6	70.3	64.3	64.3	64.7	60.3	63.1	63.4	63.7	63.7	-0.9%
United Arab Emirates	57.8	60.2	63.1	62.0	60.7	60.1	60.2	59.9	58.9	59.2	60.5	-0.2%
Yemen	38.7	60.0	64.6	66.1	61.1	65.3	66.5	67.6	67.7	68.5	68.9	12.8%
<b>Middle East</b>	<b>55.1</b>	<b>62.2</b>	<b>64.5</b>	<b>63.6</b>	<b>62.3</b>	<b>59.2</b>	<b>60.3</b>	<b>59.4</b>	<b>57.6</b>	<b>59.2</b>	<b>57.8</b>	<b>-7.2%</b>

CO<sub>2</sub> emissions / GDP using exchange rateskilogrammes CO<sub>2</sub> / US dollar using 2005 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>World *</b>	<b>0.87</b>	<b>0.83</b>	<b>0.79</b>	<b>0.72</b>	<b>0.69</b>	<b>0.64</b>	<b>0.59</b>	<b>0.59</b>	<b>0.59</b>	<b>0.59</b>	<b>0.58</b>	<b>-15.4%</b>
<i>Annex I Parties</i>	..	..	..	..	0.55	0.48	0.43	0.40	0.36	0.35	0.34	-37.8%
<i>Annex II Parties</i>	0.67	0.61	0.56	0.47	0.42	0.40	0.36	0.34	0.30	0.29	0.29	-32.1%
<i>North America</i>	0.95	0.87	0.78	0.65	0.59	0.55	0.49	0.44	0.40	0.39	0.36	-38.6%
<i>Europe</i>	0.51	0.46	0.43	0.37	0.32	0.29	0.26	0.24	0.22	0.20	0.20	-36.1%
<i>Asia Oceania</i>	0.47	0.45	0.39	0.32	0.31	0.31	0.30	0.30	0.28	0.28	0.29	-6.6%
<i>Annex I EIT</i>	..	..	..	..	2.42	2.34	1.89	1.50	1.29	1.28	1.25	-48.6%
<i>Non-Annex I Parties</i>	..	..	..	..	1.22	1.20	1.11	1.16	1.09	1.09	1.08	-11.3%
<i>Annex I Kyoto Parties</i>	..	..	..	..	0.52	0.44	0.38	0.36	0.33	0.32	0.32	-38.4%
<b>Non-OECD Total **</b>	<b>1.59</b>	<b>1.61</b>	<b>1.58</b>	<b>1.61</b>	<b>1.69</b>	<b>1.55</b>	<b>1.39</b>	<b>1.37</b>	<b>1.24</b>	<b>1.24</b>	<b>1.23</b>	<b>-27.4%</b>
<b>OECD Total ***</b>	<b>0.69</b>	<b>0.63</b>	<b>0.58</b>	<b>0.50</b>	<b>0.44</b>	<b>0.42</b>	<b>0.39</b>	<b>0.36</b>	<b>0.33</b>	<b>0.32</b>	<b>0.31</b>	<b>-30.8%</b>
Canada	0.81	0.76	0.72	0.59	0.55	0.55	0.51	0.47	0.43	0.42	0.41	-25.3%
Chile	0.71	0.67	0.59	0.52	0.59	0.49	0.53	0.47	0.47	0.49	0.47	-20.8%
Mexico	0.38	0.41	0.45	0.49	0.47	0.49	0.44	0.45	0.44	0.44	0.42	-10.4%
United States	0.96	0.88	0.79	0.65	0.59	0.55	0.49	0.44	0.40	0.38	0.36	-39.7%
<b>OECD Americas</b>	<b>0.92</b>	<b>0.84</b>	<b>0.76</b>	<b>0.64</b>	<b>0.58</b>	<b>0.55</b>	<b>0.49</b>	<b>0.44</b>	<b>0.40</b>	<b>0.39</b>	<b>0.37</b>	<b>-37.0%</b>
Australia	0.55	0.62	0.62	0.57	0.57	0.54	0.52	0.49	0.45	0.43	0.42	-27.1%
Israel	0.44	0.40	0.40	0.43	0.47	0.47	0.44	0.43	0.39	0.37	0.39	-18.5%
Japan	0.46	0.43	0.36	0.29	0.27	0.28	0.27	0.26	0.24	0.26	0.26	-5.0%
Korea	0.78	0.80	0.87	0.70	0.64	0.68	0.65	0.56	0.55	0.56	0.55	-13.6%
New Zealand	0.28	0.29	0.29	0.29	0.32	0.31	0.33	0.30	0.26	0.25	0.26	-20.4%
<b>OECD Asia Oceania</b>	<b>0.48</b>	<b>0.47</b>	<b>0.41</b>	<b>0.35</b>	<b>0.33</b>	<b>0.35</b>	<b>0.35</b>	<b>0.33</b>	<b>0.32</b>	<b>0.33</b>	<b>0.33</b>	<b>-1.3%</b>
Austria	0.38	0.34	0.32	0.29	0.26	0.25	0.22	0.24	0.21	0.20	0.19	-26.8%
Belgium	0.68	0.59	0.55	0.42	0.39	0.38	0.34	0.30	0.27	0.27	0.26	-33.4%
Czech Republic	2.16	1.91	1.86	1.85	1.47	1.29	1.15	0.92	0.77	0.75	0.72	-51.1%
Denmark	0.44	0.39	0.41	0.35	0.27	0.28	0.21	0.19	0.18	0.16	0.14	-46.9%
Estonia	..	..	..	..	3.53	2.25	1.49	1.21	1.33	1.15	1.03	-70.7%
Finland	0.54	0.50	0.53	0.41	0.39	0.41	0.32	0.28	0.31	0.26	0.24	-38.7%
France	0.46	0.40	0.36	0.26	0.22	0.21	0.19	0.18	0.16	0.15	0.15	-31.7%
Germany	0.72	0.65	0.60	0.54	0.43	0.35	0.31	0.29	0.26	0.24	0.25	-42.7%
Greece	0.25	0.29	0.31	0.37	0.45	0.46	0.44	0.40	0.35	0.37	0.37	-17.1%
Hungary	1.18	1.08	1.07	0.95	0.76	0.74	0.60	0.51	0.45	0.43	0.40	-47.2%
Iceland	0.29	0.28	0.22	0.18	0.18	0.19	0.16	0.13	0.12	0.11	0.11	-41.3%
Ireland	0.61	0.48	0.48	0.43	0.39	0.34	0.26	0.22	0.19	0.17	0.17	-56.4%
Italy	0.37	0.35	0.31	0.28	0.27	0.26	0.25	0.26	0.23	0.22	0.22	-20.9%
Luxembourg	1.63	1.14	1.00	0.74	0.54	0.34	0.25	0.30	0.26	0.25	0.25	-53.9%
Netherlands	0.48	0.46	0.47	0.41	0.36	0.35	0.29	0.28	0.27	0.25	0.26	-28.3%
Norway	0.24	0.20	0.19	0.16	0.15	0.14	0.12	0.12	0.12	0.12	0.11	-26.3%
Poland	2.11	1.94	2.28	2.29	1.90	1.65	1.11	0.96	0.80	0.75	0.72	-62.1%
Portugal	0.22	0.23	0.24	0.24	0.29	0.32	0.32	0.33	0.24	0.24	0.24	-15.1%
Slovak Republic	1.64	1.62	1.83	1.67	1.62	1.28	0.99	0.80	0.59	0.55	0.51	-68.9%
Slovenia	..	..	..	..	0.54	0.58	0.47	0.44	0.40	0.39	0.38	-28.7%
Spain	0.30	0.32	0.34	0.30	0.28	0.30	0.29	0.30	0.23	0.23	0.23	-18.2%
Sweden	0.47	0.40	0.35	0.25	0.20	0.21	0.16	0.14	0.12	0.11	0.10	-51.6%
Switzerland	0.16	0.15	0.15	0.15	0.13	0.13	0.12	0.12	0.10	0.09	0.09	-27.1%
Turkey	0.36	0.41	0.44	0.46	0.47	0.48	0.52	0.45	0.47	0.46	0.48	2.4%
United Kingdom	0.65	0.56	0.50	0.43	0.37	0.31	0.26	0.23	0.20	0.18	0.19	-48.3%
<b>OECD Europe ***</b>	<b>0.57</b>	<b>0.52</b>	<b>0.50</b>	<b>0.43</b>	<b>0.37</b>	<b>0.33</b>	<b>0.29</b>	<b>0.28</b>	<b>0.25</b>	<b>0.24</b>	<b>0.24</b>	<b>-36.3%</b>
<i>European Union - 28</i>	..	..	..	..	0.40	0.36	0.31	0.29	0.25	0.24	0.24	-40.6%

\* The ratio for the world has been calculated to include international marine bunkers and international aviation bunkers.

\*\* Includes Estonia and Slovenia prior to 1990.

\*\*\* Excludes Estonia and Slovenia prior to 1990.



CO<sub>2</sub> emissions / GDP using exchange rateskilogrammes CO<sub>2</sub> / US dollar using 2005 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>Non-OECD Total *</b>	<b>1.59</b>	<b>1.61</b>	<b>1.58</b>	<b>1.61</b>	<b>1.69</b>	<b>1.55</b>	<b>1.39</b>	<b>1.37</b>	<b>1.24</b>	<b>1.24</b>	<b>1.23</b>	<b>-27.4%</b>
Albania	1.30	1.19	1.53	1.31	1.11	0.38	0.47	0.47	0.36	0.37	0.34	-69.3%
Armenia	..	..	..	..	5.04	1.59	1.24	0.84	0.68	0.75	0.82	-83.8%
Azerbaijan	..	..	..	..	4.60	6.78	3.96	2.33	0.84	0.95	1.01	-78.0%
Belarus	..	..	..	..	5.26	3.98	2.78	2.05	1.50	1.45	1.55	-70.6%
Bosnia and Herzegovina	..	..	..	..	10.09	1.28	1.57	1.43	1.57	1.76	1.65	-83.7%
Bulgaria	5.88	4.95	4.26	3.50	3.00	2.44	1.92	1.60	1.34	1.46	1.31	-56.4%
Croatia	..	..	..	..	0.51	0.52	0.49	0.46	0.41	0.41	0.38	-25.1%
Cyprus **	0.70	0.56	0.49	0.40	0.40	0.42	0.43	0.41	0.37	0.36	0.34	-14.2%
FYR of Macedonia	..	..	..	..	1.40	1.71	1.52	1.47	1.15	1.26	1.19	-15.4%
Georgia	..	..	..	..	2.77	2.38	1.02	0.68	0.59	0.71	0.73	-73.7%
Gibraltar	0.22	0.20	0.21	0.19	0.25	0.41	0.43	0.45	0.51	0.49	0.48	96.7%
Kazakhstan	..	..	..	..	4.71	5.43	3.24	2.75	2.81	2.78	2.59	-45.0%
Kosovo ***	..	..	..	..	..	..	1.90	1.75	1.78	1.67	1.52	..
Kyrgyzstan	..	..	..	..	7.32	2.85	2.16	1.98	1.97	2.22	2.96	-59.5%
Latvia	..	..	..	..	1.30	1.08	0.63	0.47	0.52	0.45	0.41	-68.4%
Lithuania	..	..	..	..	1.34	0.99	0.63	0.52	0.49	0.46	0.44	-66.9%
Malta	0.70	0.48	0.42	0.45	0.67	0.53	0.37	0.45	0.37	0.36	0.37	-44.9%
Republic of Moldova	..	..	..	..	5.06	4.94	3.06	2.57	2.25	2.12	2.06	-59.3%
Montenegro ***	..	..	..	..	..	..	..	0.87	0.89	0.86	0.80	..
Romania	3.04	2.46	2.13	1.79	1.89	1.48	1.17	0.95	0.66	0.70	0.67	-64.3%
Russian Federation	..	..	..	..	2.58	2.98	2.64	1.98	1.74	1.74	1.69	-34.6%
Serbia ***	..	..	..	..	1.75	2.53	1.98	1.95	1.64	1.76	1.58	-9.7%
Tajikistan	..	..	..	..	2.86	1.69	1.50	1.01	0.72	0.70	0.75	-74.0%
Turkmenistan	..	..	..	..	5.53	6.53	5.78	5.90	4.26	4.04	3.77	-31.8%
Ukraine	..	..	..	..	5.02	5.97	4.90	3.55	3.00	3.00	2.94	-41.4%
Uzbekistan	..	..	..	..	10.68	11.16	10.73	7.59	4.66	4.69	4.41	-58.7%
Former Soviet Union ****	3.09	3.18	3.10	2.92	..	..	..	..	..	..	..	..
Former Yugoslavia ****	0.99	0.96	0.83	1.13	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>2.93</b>	<b>2.96</b>	<b>2.83</b>	<b>2.68</b>	<b>2.91</b>	<b>3.06</b>	<b>2.54</b>	<b>1.96</b>	<b>1.69</b>	<b>1.71</b>	<b>1.66</b>	<b>-42.8%</b>
Algeria	0.35	0.37	0.56	0.68	0.79	0.84	0.81	0.77	0.84	0.87	0.93	17.1%
Angola	0.13	0.16	0.22	0.21	0.25	0.31	0.29	0.23	0.31	0.30	0.29	17.3%
Benin	0.24	0.34	0.23	0.23	0.11	0.08	0.40	0.61	0.86	0.87	0.87	682.6%
Botswana	..	..	..	0.50	0.54	0.49	0.48	0.43	0.40	0.35	0.33	-37.7%
Cameroon	0.15	0.16	0.19	0.18	0.22	0.23	0.20	0.18	0.26	0.26	0.26	16.9%
Congo	0.37	0.28	0.26	0.17	0.14	0.11	0.10	0.14	0.23	0.25	0.26	81.2%
Dem. Rep. of Congo	0.26	0.25	0.33	0.31	0.29	0.16	0.15	0.18	0.19	0.23	0.22	-21.6%
Côte d'Ivoire	0.30	0.30	0.28	0.25	0.21	0.23	0.39	0.35	0.34	0.34	0.41	97.7%
Egypt	1.30	1.43	1.46	1.63	1.61	1.44	1.36	1.68	1.52	1.55	1.56	-2.6%
Eritrea	..	..	..	..	..	0.93	0.63	0.53	0.45	0.44	0.44	..
Ethiopia	0.25	0.22	0.25	0.27	0.33	0.33	0.37	0.37	0.30	0.31	0.32	-1.2%
Gabon	0.16	0.12	0.23	0.26	0.13	0.17	0.19	0.20	0.24	0.24	0.23	68.4%
Ghana	0.43	0.55	0.51	0.50	0.49	0.49	0.60	0.61	0.71	0.65	0.70	41.7%
Kenya	0.65	0.54	0.51	0.47	0.42	0.41	0.50	0.40	0.48	0.47	0.41	-2.0%
Libya	0.09	0.26	0.34	0.58	0.77	1.03	1.10	1.03	0.95	1.69	1.20	54.9%
Mauritius	0.25	0.30	0.32	0.27	0.36	0.38	0.44	0.46	0.46	0.44	0.44	22.9%
Morocco	0.42	0.51	0.55	0.55	0.53	0.67	0.63	0.66	0.61	0.63	0.62	17.2%
Mozambique	1.00	0.96	0.93	0.76	0.43	0.38	0.31	0.23	0.26	0.29	0.25	-42.2%
Namibia	..	..	..	..	..	0.37	0.34	0.32	0.34	0.32	0.32	..
Nigeria	0.13	0.23	0.43	0.60	0.51	0.58	0.65	0.52	0.35	0.37	0.36	-29.3%
Senegal	0.36	0.43	0.51	0.46	0.42	0.44	0.51	0.53	0.52	0.54	0.51	23.9%
South Africa	1.42	1.59	1.42	1.45	1.48	1.54	1.45	1.33	1.30	1.21	1.22	-17.5%
Sudan	0.51	0.42	0.42	0.46	0.49	0.31	0.30	0.39	0.43	0.42	0.46	-4.5%
United Rep. of Tanzania	0.39	0.32	0.29	0.27	0.23	0.31	0.26	0.36	0.32	0.35	0.40	73.2%
Togo	0.36	0.27	0.25	0.21	0.35	0.36	0.47	0.46	0.83	0.73	0.59	67.0%
Tunisia	0.59	0.57	0.68	0.68	0.74	0.72	0.69	0.63	0.57	0.56	0.57	-23.6%
Zambia	0.82	0.94	0.70	0.57	0.49	0.41	0.30	0.29	0.18	0.20	0.25	-49.9%
Zimbabwe	1.96	1.68	1.73	1.69	2.25	1.97	1.55	1.76	1.72	1.71	1.71	-24.0%
Other Africa	0.27	0.29	0.35	0.28	0.29	0.34	0.32	0.29	0.29	0.29	0.28	-1.8%
<b>Africa</b>	<b>0.67</b>	<b>0.77</b>	<b>0.77</b>	<b>0.85</b>	<b>0.88</b>	<b>0.92</b>	<b>0.89</b>	<b>0.84</b>	<b>0.78</b>	<b>0.77</b>	<b>0.78</b>	<b>-12.3%</b>

\* Includes Estonia and Slovenia prior to 1990.

\*\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

\*\*\* Serbia includes Kosovo from 1990 to 1999 and Montenegro from 1990 to 2004.

\*\*\*\* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

CO<sub>2</sub> emissions / GDP using exchange rateskilogrammes CO<sub>2</sub> / US dollar using 2005 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
Bangladesh	0.18	0.28	0.36	0.37	0.47	0.56	0.54	0.58	0.64	0.64	0.64	37.6%
Brunei Darussalam	0.10	0.28	0.32	0.43	0.47	0.56	0.51	0.51	0.77	0.82	0.82	73.3%
Cambodia	..	..	..	..	..	0.52	0.49	0.42	0.43	0.43	0.42	..
India	1.30	1.38	1.39	1.57	1.66	1.72	1.62	1.43	1.41	1.38	1.41	-15.1%
Indonesia	0.62	0.69	0.85	0.83	0.97	0.98	1.20	1.17	1.04	0.99	1.02	4.7%
DPR of Korea	8.82	6.40	5.10	3.82	2.89	2.42	2.49	2.58	2.42	1.67	1.66	-42.6%
Malaysia	0.80	0.76	0.76	0.83	0.88	0.95	1.03	1.10	1.05	1.02	0.99	12.2%
Mongolia	..	..	..	7.53	6.85	6.24	4.78	3.76	3.63	3.20	3.12	-54.4%
Myanmar	2.39	1.88	1.79	1.61	1.23	1.57	1.43	0.88	0.39	0.38	0.51	-58.7%
Nepal	0.09	0.13	0.19	0.16	0.21	0.32	0.44	0.37	0.40	0.42	0.45	113.6%
Pakistan	0.82	0.89	0.82	0.89	1.00	1.09	1.16	1.10	1.05	1.02	0.99	-1.2%
Philippines	0.74	0.74	0.63	0.58	0.61	0.82	0.82	0.68	0.58	0.56	0.55	-10.4%
Singapore	0.55	0.54	0.54	0.52	0.61	0.52	0.45	0.34	0.28	0.28	0.27	-55.3%
Sri Lanka	0.52	0.42	0.45	0.34	0.30	0.34	0.52	0.54	0.37	0.40	0.41	37.3%
Chinese Taipei	1.01	0.91	0.90	0.66	0.69	0.67	0.72	0.72	0.61	0.57	0.53	-22.2%
Thailand	0.72	0.74	0.81	0.77	0.90	1.04	1.13	1.20	1.12	1.15	1.15	26.8%
Viet Nam	1.51	1.55	1.30	1.09	0.86	0.94	1.07	1.38	1.65	1.62	1.63	88.8%
Other Asia	0.71	0.77	0.87	0.48	0.41	0.32	0.36	0.36	0.34	0.34	0.34	-16.1%
<b>Asia (excl. China)</b>	<b>1.12</b>	<b>1.13</b>	<b>1.11</b>	<b>1.12</b>	<b>1.14</b>	<b>1.13</b>	<b>1.16</b>	<b>1.10</b>	<b>1.06</b>	<b>1.03</b>	<b>1.04</b>	<b>-8.7%</b>
People's Rep. of China	6.44	6.78	6.59	4.79	4.27	3.22	2.34	2.39	1.89	1.90	1.81	-57.5%
Hong Kong, China	0.39	0.36	0.28	0.32	0.33	0.28	0.27	0.23	0.19	0.20	0.19	-41.5%
<b>China</b>	<b>5.49</b>	<b>5.74</b>	<b>5.36</b>	<b>4.07</b>	<b>3.64</b>	<b>2.87</b>	<b>2.14</b>	<b>2.23</b>	<b>1.80</b>	<b>1.81</b>	<b>1.73</b>	<b>-52.3%</b>
Argentina	0.85	0.79	0.77	0.81	0.94	0.82	0.85	0.83	0.69	0.67	0.65	-30.2%
Bolivia	0.54	0.64	0.75	0.84	0.91	0.99	0.87	0.99	1.18	1.21	1.23	35.6%
Brazil	0.36	0.37	0.35	0.30	0.32	0.34	0.39	0.37	0.35	0.36	0.39	20.5%
Colombia	0.65	0.55	0.53	0.53	0.49	0.51	0.48	0.40	0.34	0.35	0.33	-32.4%
Costa Rica	0.27	0.29	0.28	0.26	0.26	0.34	0.27	0.29	0.26	0.26	0.25	-7.2%
Cuba	1.12	1.09	1.17	0.82	0.88	0.84	0.82	0.59	0.54	0.51	0.51	-42.3%
Dominican Republic	0.49	0.53	0.50	0.45	0.47	0.55	0.57	0.51	0.40	0.38	0.38	-18.3%
Ecuador	0.31	0.35	0.51	0.50	0.50	0.55	0.59	0.59	0.66	0.60	0.60	20.0%
El Salvador	0.17	0.20	0.17	0.20	0.23	0.35	0.34	0.37	0.32	0.32	0.32	39.8%
Guatemala	0.26	0.28	0.29	0.24	0.20	0.30	0.36	0.39	0.31	0.31	0.30	46.5%
Haiti	0.12	0.12	0.14	0.18	0.22	0.24	0.33	0.48	0.48	0.47	0.44	101.5%
Honduras	0.41	0.42	0.38	0.35	0.39	0.53	0.58	0.73	0.63	0.64	0.66	69.4%
Jamaica	0.77	0.97	1.00	0.70	0.85	0.82	0.97	0.92	0.62	0.65	0.63	-26.5%
Netherlands Antilles	13.67	8.49	6.36	3.13	1.60	1.47	1.90	1.87	1.55	1.74	1.77	10.4%
Nicaragua	0.33	0.33	0.40	0.39	0.47	0.59	0.65	0.64	0.60	0.58	0.53	12.6%
Panama	0.52	0.56	0.44	0.34	0.34	0.41	0.39	0.44	0.39	0.38	0.35	3.7%
Paraguay	0.30	0.28	0.32	0.30	0.31	0.44	0.41	0.39	0.42	0.42	0.44	44.0%
Peru	0.45	0.44	0.43	0.38	0.44	0.41	0.41	0.36	0.37	0.37	0.36	-18.1%
Trinidad and Tobago	1.01	0.85	0.79	1.07	1.42	1.43	1.66	1.92	2.02	2.03	1.96	38.0%
Uruguay	0.57	0.55	0.45	0.31	0.30	0.30	0.31	0.31	0.27	0.30	0.33	8.2%
Venezuela	0.70	0.74	0.96	1.04	1.01	0.96	0.99	1.02	1.04	0.88	0.93	-7.9%
Other Non-OECD Americas	0.60	0.77	0.54	0.46	0.48	0.49	0.46	0.43	0.49	0.49	0.49	3.2%
<b>Non-OECD Americas</b>	<b>0.56</b>	<b>0.53</b>	<b>0.52</b>	<b>0.48</b>	<b>0.50</b>	<b>0.50</b>	<b>0.54</b>	<b>0.51</b>	<b>0.48</b>	<b>0.47</b>	<b>0.48</b>	<b>-3.2%</b>
Bahrain	1.47	1.40	1.19	1.74	1.72	1.53	1.43	1.41	1.34	1.31	1.30	-24.1%
Islamic Republic of Iran	0.62	0.75	1.09	1.46	1.76	2.10	2.15	2.20	2.10	2.10	2.17	23.3%
Iraq	0.11	0.13	0.15	0.32	0.86	4.11	1.44	1.50	1.50	1.47	1.48	71.3%
Jordan	0.59	0.96	0.93	1.25	1.65	1.54	1.55	1.43	1.10	1.13	1.21	-26.7%
Kuwait	0.31	0.40	0.66	1.17	0.79	0.73	0.90	0.87	0.94	0.93	0.94	20.3%
Lebanon	0.32	0.40	0.55	0.39	0.57	0.76	0.78	0.66	0.61	0.60	0.67	17.0%
Oman	0.06	0.13	0.32	0.40	0.61	0.67	0.77	0.84	1.38	1.50	1.47	139.9%
Qatar	0.14	0.30	0.41	0.78	0.92	1.09	0.79	0.82	0.59	0.58	0.61	-33.4%
Saudi Arabia	0.18	0.15	0.47	0.73	0.76	0.85	0.91	0.91	0.95	0.91	0.92	20.7%
Syrian Arab Republic	1.27	1.12	1.18	1.64	2.04	1.62	1.75	1.90	1.57	1.49	1.40	-31.6%
United Arab Emirates	0.16	0.12	0.23	0.46	0.59	0.66	0.62	0.60	0.74	0.75	0.77	31.2%
Yemen	0.63	0.65	0.74	0.72	0.82	0.88	0.97	1.11	1.14	1.07	1.08	31.5%
<b>Middle East</b>	<b>0.29</b>	<b>0.32</b>	<b>0.46</b>	<b>0.78</b>	<b>0.98</b>	<b>1.21</b>	<b>1.15</b>	<b>1.16</b>	<b>1.17</b>	<b>1.14</b>	<b>1.15</b>	<b>17.8%</b>

CO<sub>2</sub> emissions / GDP using purchasing power paritieskilogrammes CO<sub>2</sub> / US dollar using 2005 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>World *</b>	<b>0.69</b>	<b>0.65</b>	<b>0.61</b>	<b>0.56</b>	<b>0.53</b>	<b>0.49</b>	<b>0.45</b>	<b>0.43</b>	<b>0.40</b>	<b>0.39</b>	<b>0.38</b>	<b>-27.9%</b>
<i>Annex I Parties</i>	..	..	..	..	0.54	0.49	0.43	0.40	0.36	0.35	0.34	-37.4%
<i>Annex II Parties</i>	0.72	0.66	0.60	0.50	0.45	0.42	0.39	0.36	0.33	0.31	0.30	-32.5%
<i>North America</i>	0.95	0.87	0.78	0.65	0.59	0.55	0.49	0.44	0.40	0.39	0.36	-38.6%
<i>Europe</i>	0.57	0.51	0.48	0.41	0.35	0.32	0.29	0.27	0.24	0.23	0.23	-36.0%
<i>Asia Oceania</i>	0.54	0.52	0.45	0.37	0.36	0.35	0.35	0.34	0.32	0.33	0.33	-7.3%
<i>Annex I EIT</i>	..	..	..	..	1.12	1.13	0.93	0.72	0.62	0.62	0.60	-46.3%
<i>Non-Annex I Parties</i>	..	..	..	..	0.47	0.46	0.43	0.44	0.40	0.40	0.40	-15.1%
<i>Annex I Kyoto Parties</i>	..	..	..	..	0.52	0.45	0.40	0.37	0.33	0.32	0.32	-37.4%
<b>Non-OECD Total **</b>	<b>0.58</b>	<b>0.59</b>	<b>0.58</b>	<b>0.59</b>	<b>0.61</b>	<b>0.55</b>	<b>0.49</b>	<b>0.48</b>	<b>0.43</b>	<b>0.43</b>	<b>0.42</b>	<b>-30.5%</b>
<b>OECD Total ***</b>	<b>0.71</b>	<b>0.65</b>	<b>0.60</b>	<b>0.51</b>	<b>0.46</b>	<b>0.43</b>	<b>0.39</b>	<b>0.36</b>	<b>0.33</b>	<b>0.32</b>	<b>0.31</b>	<b>-32.2%</b>
Canada	0.81	0.76	0.72	0.59	0.55	0.55	0.52	0.47	0.43	0.42	0.41	-25.3%
Chile	0.42	0.40	0.35	0.31	0.35	0.29	0.32	0.28	0.28	0.29	0.28	-20.7%
Mexico	0.25	0.27	0.30	0.32	0.31	0.32	0.29	0.29	0.29	0.29	0.28	-10.4%
United States	0.96	0.88	0.79	0.65	0.59	0.55	0.49	0.44	0.40	0.38	0.36	-39.7%
<b>OECD Americas</b>	<b>0.89</b>	<b>0.81</b>	<b>0.73</b>	<b>0.61</b>	<b>0.56</b>	<b>0.53</b>	<b>0.48</b>	<b>0.43</b>	<b>0.39</b>	<b>0.38</b>	<b>0.35</b>	<b>-37.3%</b>
Australia	0.58	0.66	0.66	0.60	0.61	0.57	0.55	0.52	0.47	0.46	0.44	-27.1%
Israel	0.37	0.33	0.33	0.36	0.39	0.39	0.37	0.36	0.32	0.30	0.32	-18.5%
Japan	0.54	0.51	0.42	0.34	0.32	0.32	0.32	0.31	0.29	0.30	0.31	-5.0%
Korea	0.60	0.62	0.67	0.54	0.49	0.52	0.50	0.43	0.43	0.43	0.42	-13.6%
New Zealand	0.30	0.31	0.31	0.32	0.35	0.34	0.36	0.32	0.28	0.27	0.28	-20.4%
<b>OECD Asia Oceania</b>	<b>0.54</b>	<b>0.53</b>	<b>0.46</b>	<b>0.39</b>	<b>0.37</b>	<b>0.38</b>	<b>0.38</b>	<b>0.36</b>	<b>0.34</b>	<b>0.35</b>	<b>0.35</b>	<b>-5.8%</b>
Austria	0.42	0.38	0.36	0.32	0.29	0.27	0.24	0.27	0.24	0.22	0.21	-26.8%
Belgium	0.77	0.66	0.61	0.47	0.43	0.43	0.38	0.34	0.31	0.30	0.29	-33.4%
Czech Republic	1.29	1.14	1.11	1.11	0.88	0.77	0.69	0.55	0.46	0.45	0.43	-51.1%
Denmark	0.63	0.56	0.59	0.50	0.39	0.40	0.30	0.27	0.26	0.23	0.21	-46.9%
Estonia	..	..	..	..	2.20	1.41	0.93	0.76	0.83	0.72	0.64	-70.7%
Finland	0.66	0.61	0.65	0.50	0.47	0.50	0.39	0.34	0.37	0.32	0.29	-38.7%
France	0.53	0.45	0.41	0.30	0.25	0.24	0.22	0.21	0.19	0.17	0.17	-31.7%
Germany	0.77	0.70	0.65	0.58	0.46	0.38	0.33	0.31	0.28	0.26	0.26	-42.6%
Greece	0.22	0.26	0.28	0.33	0.40	0.41	0.39	0.35	0.31	0.33	0.33	-17.1%
Hungary	0.76	0.69	0.69	0.61	0.49	0.47	0.39	0.33	0.29	0.28	0.26	-47.2%
Iceland	0.46	0.44	0.35	0.29	0.29	0.30	0.26	0.21	0.19	0.17	0.17	-41.3%
Ireland	0.77	0.61	0.60	0.54	0.49	0.42	0.32	0.27	0.24	0.21	0.21	-56.4%
Italy	0.39	0.37	0.34	0.30	0.30	0.29	0.27	0.28	0.24	0.24	0.23	-20.9%
Luxembourg	1.93	1.35	1.19	0.87	0.64	0.41	0.30	0.36	0.31	0.30	0.29	-53.9%
Netherlands	0.54	0.51	0.53	0.46	0.40	0.39	0.32	0.31	0.31	0.28	0.28	-28.3%
Norway	0.33	0.28	0.26	0.22	0.21	0.20	0.17	0.17	0.17	0.16	0.15	-26.4%
Poland	1.22	1.12	1.32	1.32	1.10	0.95	0.64	0.56	0.46	0.43	0.42	-62.1%
Portugal	0.18	0.20	0.20	0.20	0.24	0.27	0.27	0.28	0.21	0.21	0.21	-15.1%
Slovak Republic	0.90	0.89	1.01	0.92	0.89	0.70	0.55	0.44	0.32	0.30	0.28	-68.9%
Slovenia	..	..	..	..	0.41	0.44	0.36	0.33	0.30	0.30	0.29	-28.6%
Spain	0.28	0.30	0.33	0.28	0.27	0.28	0.28	0.29	0.22	0.22	0.22	-18.2%
Sweden	0.59	0.50	0.43	0.31	0.25	0.26	0.20	0.17	0.15	0.13	0.12	-51.6%
Switzerland	0.23	0.22	0.21	0.21	0.18	0.18	0.16	0.16	0.14	0.13	0.13	-27.0%
Turkey	0.22	0.25	0.27	0.28	0.29	0.30	0.32	0.28	0.29	0.29	0.30	2.4%
United Kingdom	0.75	0.64	0.58	0.50	0.43	0.36	0.30	0.27	0.23	0.21	0.22	-48.3%
<b>OECD Europe ***</b>	<b>0.61</b>	<b>0.55</b>	<b>0.52</b>	<b>0.46</b>	<b>0.39</b>	<b>0.35</b>	<b>0.31</b>	<b>0.29</b>	<b>0.26</b>	<b>0.24</b>	<b>0.24</b>	<b>-37.4%</b>
<i>European Union - 28</i>	..	..	..	..	0.42	0.37	0.32	0.30	0.26	0.25	0.25	-40.9%

\* The ratio for the world has been calculated to include international marine bunkers and international aviation bunkers.

\*\* Includes Estonia and Slovenia prior to 1990.

\*\*\* Excludes Estonia and Slovenia prior to 1990.

CO<sub>2</sub> emissions / GDP using purchasing power paritieskilogrammes CO<sub>2</sub> / US dollar using 2005 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>Non-OECD Total *</b>	<b>0.58</b>	<b>0.59</b>	<b>0.58</b>	<b>0.59</b>	<b>0.61</b>	<b>0.55</b>	<b>0.49</b>	<b>0.48</b>	<b>0.43</b>	<b>0.43</b>	<b>0.42</b>	<b>-30.5%</b>
Albania	0.57	0.52	0.67	0.57	0.49	0.16	0.21	0.21	0.16	0.16	0.15	-69.3%
Armenia	..	..	..	..	1.73	0.55	0.43	0.29	0.24	0.26	0.28	-83.8%
Azerbaijan	..	..	..	..	1.01	1.49	0.87	0.51	0.19	0.21	0.22	-78.0%
Belarus	..	..	..	..	1.70	1.29	0.90	0.66	0.49	0.47	0.50	-70.6%
Bosnia and Herzegovina	..	..	..	..	4.61	0.58	0.72	0.65	0.72	0.80	0.75	-83.7%
Bulgaria	2.24	1.88	1.62	1.33	1.14	0.93	0.73	0.61	0.51	0.56	0.50	-56.4%
Croatia	..	..	..	..	0.34	0.34	0.32	0.30	0.27	0.27	0.25	-25.1%
Cyprus **	0.64	0.51	0.45	0.37	0.37	0.38	0.40	0.38	0.34	0.33	0.32	-14.2%
FYR of Macedonia	..	..	..	..	0.52	0.64	0.57	0.55	0.43	0.47	0.44	-15.4%
Georgia	..	..	..	..	0.97	0.83	0.36	0.24	0.21	0.25	0.25	-73.7%
Gibraltar	0.26	0.24	0.26	0.24	0.30	0.51	0.50	0.52	0.58	0.56	0.57	89.4%
Kazakhstan	..	..	..	..	1.27	1.47	0.88	0.74	0.76	0.75	0.70	-45.0%
Kosovo ***	..	..	..	..	..	..	0.76	0.70	0.71	0.67	0.61	..
Kyrgyzstan	..	..	..	..	1.65	0.64	0.49	0.45	0.45	0.50	0.67	-59.5%
Latvia	..	..	..	..	0.69	0.58	0.34	0.25	0.28	0.24	0.22	-68.4%
Lithuania	..	..	..	..	0.72	0.53	0.34	0.28	0.26	0.25	0.24	-66.9%
Malta	0.49	0.34	0.30	0.32	0.47	0.37	0.26	0.32	0.26	0.26	0.26	-44.9%
Republic of Moldova	..	..	..	..	1.42	1.39	0.86	0.72	0.63	0.59	0.58	-59.3%
Montenegro ***	..	..	..	..	..	..	..	0.38	0.39	0.38	0.35	..
Romania	1.48	1.20	1.04	0.87	0.92	0.72	0.57	0.47	0.32	0.34	0.33	-64.3%
Russian Federation	..	..	..	..	1.16	1.34	1.19	0.89	0.78	0.79	0.76	-34.6%
Serbia ***	..	..	..	..	0.70	1.01	0.79	0.78	0.65	0.70	0.63	-9.6%
Tajikistan	..	..	..	..	0.63	0.37	0.33	0.22	0.16	0.16	0.17	-74.0%
Turkmenistan	..	..	..	..	1.63	1.92	1.70	1.74	1.26	1.19	1.11	-31.8%
Ukraine	..	..	..	..	1.42	1.68	1.38	1.00	0.85	0.84	0.83	-41.4%
Uzbekistan	..	..	..	..	2.15	2.25	2.17	1.53	0.94	0.95	0.89	-58.7%
Former Soviet Union ****	1.31	1.35	1.32	1.24	..	..	..	..	..	..	..	..
Former Yugoslavia ****	0.55	0.54	0.47	0.63	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>1.28</b>	<b>1.29</b>	<b>1.24</b>	<b>1.17</b>	<b>1.18</b>	<b>1.27</b>	<b>1.06</b>	<b>0.81</b>	<b>0.69</b>	<b>0.69</b>	<b>0.67</b>	<b>-43.1%</b>
Algeria	0.10	0.11	0.16	0.19	0.22	0.24	0.23	0.22	0.24	0.24	0.26	17.2%
Angola	0.06	0.07	0.09	0.09	0.10	0.13	0.12	0.09	0.13	0.12	0.12	17.3%
Benin	0.09	0.13	0.09	0.09	0.04	0.03	0.15	0.23	0.33	0.33	0.33	681.9%
Botswana	..	..	..	0.26	0.28	0.25	0.25	0.22	0.21	0.18	0.17	-37.7%
Cameroon	0.06	0.07	0.08	0.08	0.09	0.10	0.09	0.07	0.11	0.11	0.11	16.9%
Congo	0.14	0.11	0.10	0.07	0.06	0.04	0.04	0.05	0.09	0.10	0.10	81.4%
Dem. Rep. of Congo	0.11	0.10	0.13	0.13	0.12	0.07	0.06	0.07	0.08	0.09	0.09	-21.6%
Côte d'Ivoire	0.12	0.12	0.11	0.10	0.08	0.09	0.15	0.14	0.13	0.13	0.16	97.5%
Egypt	0.21	0.23	0.24	0.27	0.26	0.24	0.22	0.27	0.25	0.25	0.26	-2.6%
Eritrea	..	..	..	..	..	0.18	0.12	0.10	0.09	0.08	0.08	..
Ethiopia	0.06	0.05	0.06	0.07	0.08	0.08	0.09	0.09	0.07	0.08	0.08	-1.2%
Gabon	0.07	0.05	0.10	0.11	0.06	0.07	0.08	0.08	0.10	0.10	0.09	68.5%
Ghana	0.10	0.12	0.11	0.11	0.11	0.11	0.14	0.14	0.16	0.14	0.16	41.7%
Kenya	0.21	0.17	0.16	0.15	0.13	0.13	0.16	0.13	0.15	0.15	0.13	-2.0%
Libya	0.05	0.14	0.18	0.31	0.42	0.56	0.60	0.56	0.52	0.92	0.65	54.9%
Mauritius	0.11	0.13	0.14	0.12	0.16	0.17	0.20	0.21	0.21	0.20	0.20	23.0%
Morocco	0.17	0.21	0.23	0.23	0.22	0.28	0.26	0.27	0.25	0.26	0.26	17.2%
Mozambique	0.48	0.46	0.45	0.37	0.21	0.18	0.15	0.11	0.12	0.14	0.12	-42.2%
Namibia	..	..	..	..	..	0.20	0.18	0.17	0.18	0.17	0.17	..
Nigeria	0.03	0.05	0.09	0.13	0.11	0.13	0.14	0.11	0.08	0.08	0.08	-29.2%
Senegal	0.15	0.18	0.21	0.19	0.17	0.18	0.21	0.22	0.22	0.22	0.21	23.9%
South Africa	0.78	0.88	0.78	0.80	0.82	0.85	0.80	0.73	0.71	0.66	0.67	-17.5%
Sudan	0.14	0.12	0.12	0.13	0.14	0.09	0.08	0.11	0.12	0.12	0.13	-4.5%
United Rep. of Tanzania	0.13	0.11	0.10	0.09	0.08	0.10	0.09	0.12	0.10	0.12	0.13	73.3%
Togo	0.13	0.10	0.09	0.07	0.13	0.13	0.17	0.17	0.30	0.26	0.21	66.9%
Tunisia	0.24	0.23	0.27	0.27	0.30	0.29	0.28	0.25	0.23	0.22	0.23	-23.6%
Zambia	0.25	0.28	0.21	0.17	0.15	0.12	0.09	0.09	0.05	0.06	0.07	-49.9%
Zimbabwe	2.90	2.48	2.55	2.50	3.33	2.91	2.29	2.60	2.54	2.53	2.53	-24.0%
Other Africa	0.10	0.11	0.13	0.10	0.11	0.12	0.12	0.11	0.11	0.11	0.11	-0.3%
<b>Africa</b>	<b>0.24</b>	<b>0.27</b>	<b>0.27</b>	<b>0.29</b>	<b>0.30</b>	<b>0.31</b>	<b>0.30</b>	<b>0.27</b>	<b>0.25</b>	<b>0.25</b>	<b>0.25</b>	<b>-18.1%</b>

\* Includes Estonia and Slovenia prior to 1990.

\*\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

\*\*\* Serbia includes Kosovo from 1990 to 1999 and Montenegro from 1990 to 2004.

\*\*\*\* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

CO<sub>2</sub> emissions / GDP using purchasing power paritieskilogrammes CO<sub>2</sub> / US dollar using 2005 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
Bangladesh	0.05	0.08	0.10	0.10	0.13	0.16	0.15	0.17	0.18	0.18	0.18	37.6%
Brunei Darussalam	0.04	0.11	0.13	0.17	0.19	0.22	0.20	0.20	0.30	0.32	0.32	73.3%
Cambodia	..	..	..	..	..	0.14	0.13	0.11	0.12	0.12	0.11	..
India	0.32	0.34	0.35	0.39	0.41	0.43	0.40	0.36	0.35	0.34	0.35	-15.1%
Indonesia	0.14	0.15	0.19	0.18	0.21	0.21	0.26	0.26	0.23	0.22	0.22	4.7%
DPR of Korea	2.35	1.70	1.36	1.02	0.77	0.64	0.66	0.69	0.64	0.45	0.44	-42.6%
Malaysia	0.28	0.26	0.26	0.29	0.31	0.33	0.36	0.38	0.36	0.36	0.34	12.2%
Mongolia	..	..	..	1.66	1.51	1.38	1.05	0.83	0.80	0.71	0.69	-54.4%
Myanmar	0.58	0.46	0.44	0.39	0.30	0.38	0.35	0.22	0.10	0.09	0.12	-58.7%
Nepal	0.02	0.03	0.04	0.03	0.04	0.07	0.09	0.08	0.08	0.09	0.09	113.7%
Pakistan	0.16	0.18	0.16	0.18	0.20	0.22	0.23	0.22	0.21	0.20	0.20	-1.2%
Philippines	0.21	0.21	0.18	0.16	0.17	0.23	0.23	0.19	0.16	0.16	0.15	-10.4%
Singapore	0.30	0.29	0.29	0.28	0.33	0.28	0.24	0.18	0.15	0.15	0.15	-55.3%
Sri Lanka	0.12	0.10	0.11	0.08	0.07	0.08	0.12	0.13	0.09	0.10	0.10	37.4%
Chinese Taipei	0.61	0.55	0.54	0.39	0.41	0.40	0.43	0.43	0.36	0.34	0.32	-22.3%
Thailand	0.20	0.21	0.22	0.21	0.25	0.29	0.31	0.33	0.31	0.32	0.32	26.8%
Viet Nam	0.34	0.35	0.29	0.25	0.19	0.21	0.24	0.31	0.37	0.36	0.37	88.8%
Other Asia	0.27	0.30	0.33	0.20	0.18	0.14	0.16	0.15	0.14	0.14	0.14	-20.0%
<b>Asia (excl. China)</b>	<b>0.30</b>	<b>0.31</b>	<b>0.31</b>	<b>0.31</b>	<b>0.32</b>	<b>0.32</b>	<b>0.33</b>	<b>0.32</b>	<b>0.30</b>	<b>0.29</b>	<b>0.29</b>	<b>-9.2%</b>
People's Rep. of China	2.25	2.36	2.30	1.67	1.49	1.12	0.81	0.83	0.66	0.66	0.63	-57.5%
Hong Kong, China	0.28	0.26	0.20	0.23	0.24	0.20	0.20	0.17	0.14	0.14	0.14	-41.4%
<b>China</b>	<b>2.09</b>	<b>2.19</b>	<b>2.08</b>	<b>1.55</b>	<b>1.38</b>	<b>1.07</b>	<b>0.79</b>	<b>0.81</b>	<b>0.65</b>	<b>0.65</b>	<b>0.62</b>	<b>-55.2%</b>
Argentina	0.37	0.35	0.34	0.35	0.41	0.36	0.37	0.36	0.30	0.29	0.29	-30.2%
Bolivia	0.14	0.16	0.19	0.21	0.23	0.25	0.22	0.25	0.29	0.30	0.31	35.7%
Brazil	0.16	0.16	0.16	0.14	0.14	0.15	0.18	0.16	0.16	0.16	0.17	20.4%
Colombia	0.27	0.23	0.22	0.22	0.20	0.21	0.20	0.16	0.14	0.14	0.14	-32.4%
Costa Rica	0.13	0.14	0.14	0.13	0.13	0.17	0.13	0.14	0.13	0.13	0.12	-7.2%
Cuba	0.99	0.96	1.03	0.72	0.77	0.74	0.72	0.52	0.48	0.45	0.45	-42.3%
Dominican Republic	0.25	0.27	0.26	0.23	0.24	0.28	0.29	0.26	0.20	0.20	0.20	-18.3%
Ecuador	0.13	0.14	0.20	0.20	0.20	0.22	0.24	0.24	0.27	0.24	0.24	20.0%
El Salvador	0.08	0.09	0.08	0.09	0.11	0.16	0.16	0.17	0.15	0.15	0.15	39.9%
Guatemala	0.10	0.10	0.11	0.09	0.08	0.11	0.13	0.14	0.12	0.11	0.11	46.5%
Haiti	0.04	0.04	0.05	0.06	0.07	0.08	0.11	0.16	0.16	0.15	0.15	101.5%
Honduras	0.16	0.17	0.15	0.14	0.15	0.21	0.23	0.29	0.25	0.25	0.26	69.5%
Jamaica	0.46	0.58	0.60	0.42	0.51	0.48	0.57	0.55	0.37	0.38	0.37	-26.5%
Netherlands Antilles	15.24	9.47	7.09	3.49	1.79	1.64	2.12	2.08	1.72	1.94	1.97	10.4%
Nicaragua	0.12	0.12	0.14	0.14	0.17	0.21	0.23	0.23	0.21	0.21	0.19	12.6%
Panama	0.26	0.28	0.22	0.17	0.17	0.21	0.20	0.22	0.19	0.19	0.18	3.7%
Paraguay	0.08	0.07	0.09	0.08	0.08	0.12	0.11	0.11	0.11	0.11	0.12	44.1%
Peru	0.19	0.18	0.18	0.16	0.18	0.17	0.17	0.15	0.15	0.15	0.15	-18.1%
Trinidad and Tobago	0.55	0.46	0.43	0.58	0.78	0.78	0.91	1.05	1.11	1.11	1.07	38.0%
Uruguay	0.27	0.26	0.21	0.14	0.14	0.14	0.14	0.14	0.13	0.14	0.15	8.2%
Venezuela	0.28	0.30	0.39	0.42	0.41	0.39	0.40	0.41	0.43	0.36	0.38	-7.9%
Other Non-OECD Americas	0.49	0.62	0.47	0.41	0.44	0.44	0.41	0.39	0.43	0.42	0.41	-6.1%
<b>Non-OECD Americas</b>	<b>0.25</b>	<b>0.23</b>	<b>0.23</b>	<b>0.22</b>	<b>0.22</b>	<b>0.22</b>	<b>0.24</b>	<b>0.23</b>	<b>0.22</b>	<b>0.21</b>	<b>0.21</b>	<b>-4.0%</b>
Bahrain	0.68	0.65	0.55	0.81	0.80	0.71	0.66	0.65	0.62	0.61	0.60	-24.1%
Islamic Republic of Iran	0.14	0.17	0.25	0.34	0.41	0.49	0.50	0.51	0.49	0.49	0.51	23.3%
Iraq	0.02	0.02	0.03	0.06	0.16	0.78	0.28	0.29	0.29	0.28	0.28	71.3%
Jordan	0.17	0.27	0.26	0.35	0.46	0.43	0.44	0.40	0.31	0.32	0.34	-26.7%
Kuwait	0.12	0.16	0.26	0.46	0.31	0.29	0.36	0.34	0.37	0.37	0.37	20.3%
Lebanon	0.15	0.19	0.27	0.19	0.28	0.37	0.37	0.32	0.29	0.29	0.32	17.0%
Oman	0.02	0.05	0.11	0.14	0.21	0.23	0.27	0.29	0.48	0.52	0.51	139.9%
Qatar	0.07	0.15	0.21	0.39	0.46	0.55	0.39	0.41	0.30	0.29	0.31	-33.4%
Saudi Arabia	0.07	0.06	0.18	0.29	0.30	0.33	0.36	0.35	0.37	0.35	0.36	20.7%
Syrian Arab Republic	0.48	0.42	0.45	0.62	0.77	0.61	0.66	0.72	0.59	0.56	0.53	-31.6%
United Arab Emirates	0.07	0.06	0.11	0.22	0.28	0.31	0.29	0.29	0.35	0.35	0.37	31.2%
Yemen	0.14	0.14	0.16	0.16	0.18	0.19	0.21	0.24	0.25	0.23	0.24	31.4%
<b>Middle East</b>	<b>0.08</b>	<b>0.09</b>	<b>0.13</b>	<b>0.23</b>	<b>0.31</b>	<b>0.41</b>	<b>0.39</b>	<b>0.39</b>	<b>0.40</b>	<b>0.39</b>	<b>0.39</b>	<b>25.6%</b>

CO<sub>2</sub> emissions / populationtonnes CO<sub>2</sub> / capita

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>World *</b>	<b>3.75</b>	<b>3.86</b>	<b>4.07</b>	<b>3.85</b>	<b>3.98</b>	<b>3.84</b>	<b>3.90</b>	<b>4.24</b>	<b>4.43</b>	<b>4.51</b>	<b>4.51</b>	<b>13.4%</b>
<i>Annex I Parties</i>	..	..	..	..	11.81	10.89	11.15	11.22	10.46	10.33	10.13	-14.3%
<i>Annex II Parties</i>	12.20	12.18	12.64	11.82	12.25	12.31	12.88	12.79	11.61	11.32	11.05	-9.8%
<i>North America</i>	20.16	19.82	20.17	18.72	19.06	18.92	19.89	19.26	17.33	16.81	16.06	-15.7%
<i>Europe</i>	8.63	8.56	9.11	8.37	8.36	8.17	8.27	8.33	7.43	7.07	7.00	-16.2%
<i>Asia Oceania</i>	7.57	8.17	8.19	7.98	9.29	9.83	10.25	10.59	10.02	10.34	10.58	13.9%
<i>Annex I EIT</i>	..	..	..	..	12.37	8.79	8.11	8.50	8.63	8.92	8.84	-28.5%
<i>Non-Annex I Parties</i>	..	..	..	..	1.58	1.78	1.89	2.38	2.85	2.98	3.05	93.4%
<i>Annex I Kyoto Parties</i>	..	..	..	..	10.02	8.72	8.59	8.81	8.33	8.31	8.29	-17.3%
<b>Non-OECD Total **</b>	<b>1.47</b>	<b>1.72</b>	<b>1.97</b>	<b>2.01</b>	<b>2.19</b>	<b>2.07</b>	<b>2.09</b>	<b>2.55</b>	<b>2.99</b>	<b>3.13</b>	<b>3.20</b>	<b>46.0%</b>
<b>OECD Total ***</b>	<b>10.43</b>	<b>10.44</b>	<b>10.88</b>	<b>10.19</b>	<b>10.41</b>	<b>10.47</b>	<b>10.93</b>	<b>10.87</b>	<b>10.08</b>	<b>9.89</b>	<b>9.68</b>	<b>-7.0%</b>
Canada	15.46	16.33	17.41	15.56	15.46	15.73	17.23	17.03	15.57	15.56	15.30	-1.0%
Chile	2.14	1.63	1.90	1.61	2.34	2.69	3.38	3.58	4.08	4.41	4.47	91.2%
Mexico	1.82	2.28	3.01	3.19	3.05	3.14	3.46	3.60	3.66	3.74	3.72	22.2%
United States	20.66	20.19	20.47	19.06	19.46	19.28	20.18	19.51	17.52	16.95	16.15	-17.0%
<b>OECD Americas</b>	<b>16.22</b>	<b>15.77</b>	<b>15.94</b>	<b>14.69</b>	<b>14.79</b>	<b>14.66</b>	<b>15.44</b>	<b>14.98</b>	<b>13.56</b>	<b>13.21</b>	<b>12.66</b>	<b>-14.4%</b>
Australia	10.92	12.89	14.05	13.90	15.17	15.72	17.40	18.11	17.27	17.06	16.70	10.1%
Israel	4.73	4.94	5.06	5.79	7.20	8.34	8.76	8.61	8.93	8.66	9.27	28.8%
Japan	7.23	7.66	7.52	7.25	8.55	9.06	9.23	9.46	8.86	9.26	9.59	12.2%
Korea	1.58	2.18	3.26	3.76	5.35	7.95	9.31	9.75	11.42	11.85	11.86	121.7%
New Zealand	4.70	5.31	5.23	6.00	6.62	6.85	7.99	8.17	7.08	6.88	7.23	9.3%
<b>OECD Asia Oceania</b>	<b>6.26</b>	<b>6.84</b>	<b>7.06</b>	<b>7.00</b>	<b>8.36</b>	<b>9.36</b>	<b>9.99</b>	<b>10.33</b>	<b>10.31</b>	<b>10.63</b>	<b>10.83</b>	<b>29.6%</b>
Austria	6.49	6.62	7.37	7.18	7.35	7.47	7.70	9.07	8.30	8.07	7.68	4.6%
Belgium	12.09	11.82	12.75	10.34	10.83	11.37	11.60	10.81	10.07	10.06	9.46	-12.7%
Czech Republic	15.35	15.17	16.06	16.75	14.36	12.10	11.92	11.74	10.87	10.75	10.25	-28.6%
Denmark	11.09	10.37	12.21	11.83	9.85	11.12	9.51	8.93	8.54	7.55	6.64	-32.6%
Estonia	..	..	..	..	22.53	11.07	10.66	12.52	13.79	13.06	12.20	-45.9%
Finland	8.62	9.42	11.54	9.91	10.90	10.96	10.67	10.51	11.64	10.28	9.13	-16.3%
France	8.24	7.99	8.37	6.37	6.07	5.97	6.24	6.17	5.48	5.05	5.10	-15.9%
Germany	12.49	12.40	13.48	13.06	11.97	10.63	10.04	9.70	9.42	9.08	9.22	-22.9%
Greece	2.80	3.75	4.62	5.41	6.78	7.13	8.01	8.57	7.55	7.45	6.99	3.0%
Hungary	5.82	6.72	7.82	7.64	6.41	5.55	5.31	5.59	4.89	4.75	4.39	-31.5%
Iceland	6.79	7.37	7.62	6.71	7.39	7.32	7.64	7.40	6.08	5.81	5.73	-22.6%
Ireland	7.29	6.66	7.64	7.47	8.72	9.17	10.81	10.56	8.53	7.63	7.74	-11.1%
Italy	5.42	5.76	6.38	6.14	7.01	7.20	7.48	7.86	6.60	6.47	6.15	-12.2%
Luxembourg	45.11	33.69	32.75	27.03	27.12	19.63	18.31	24.43	20.78	20.09	19.21	-29.1%
Netherlands	9.82	10.31	11.78	10.63	10.43	11.06	10.81	11.04	11.26	10.48	10.37	-0.5%
Norway	6.02	6.01	6.85	6.54	6.67	7.53	7.47	7.87	8.06	7.63	7.21	8.1%
Poland	8.74	9.94	11.61	11.28	9.00	8.65	7.60	7.68	7.95	7.81	7.62	-15.3%
Portugal	1.66	1.97	2.41	2.44	3.94	4.81	5.79	5.95	4.52	4.48	4.34	10.0%
Slovak Republic	8.57	9.25	11.11	10.54	10.71	7.61	6.92	7.07	6.49	6.27	5.90	-44.9%
Slovenia	..	..	..	..	6.68	7.06	7.08	7.79	7.51	7.43	7.11	6.5%
Spain	3.49	4.39	4.98	4.54	5.26	5.91	7.05	7.82	5.81	5.86	5.77	9.8%
Sweden	10.18	9.69	8.84	7.04	6.17	6.53	5.94	5.58	5.03	4.60	4.25	-31.2%
Switzerland	6.14	5.73	6.14	6.34	6.12	5.91	5.89	5.95	5.63	5.07	5.20	-15.0%
Turkey	1.14	1.48	1.60	1.88	2.30	2.55	3.12	3.16	3.64	3.86	4.04	75.3%
United Kingdom	11.15	10.31	10.14	9.63	9.60	8.90	8.90	8.85	7.61	6.96	7.18	-25.2%
<b>OECD Europe ***</b>	<b>8.11</b>	<b>8.15</b>	<b>8.74</b>	<b>8.10</b>	<b>7.89</b>	<b>7.57</b>	<b>7.59</b>	<b>7.63</b>	<b>6.99</b>	<b>6.73</b>	<b>6.67</b>	<b>-15.5%</b>
<i>European Union - 28</i>	..	..	..	..	8.52	8.00	7.90	8.04	7.29	7.02	6.91	-18.9%

\* The ratio for the world has been calculated to include international marine bunkers and international aviation bunkers.

\*\* Includes Estonia and Slovenia prior to 1990.

\*\*\* Excludes Estonia and Slovenia prior to 1990.

CO<sub>2</sub> emissions / populationtonnes CO<sub>2</sub> / capita

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
<b>Non-OECD Total *</b>	<b>1.47</b>	<b>1.72</b>	<b>1.97</b>	<b>2.01</b>	<b>2.19</b>	<b>2.07</b>	<b>2.09</b>	<b>2.55</b>	<b>2.99</b>	<b>3.13</b>	<b>3.20</b>	<b>46.0%</b>
Albania	1.77	1.83	2.78	2.34	1.81	0.55	0.92	1.24	1.24	1.31	1.21	-33.2%
Armenia	..	..	..	..	5.77	1.06	1.11	1.37	1.36	1.57	1.83	-68.4%
Azerbaijan	..	..	..	..	7.68	4.41	3.46	3.67	2.63	2.92	3.15	-59.0%
Belarus	..	..	..	..	12.25	6.05	5.84	6.39	6.79	6.92	7.51	-38.6%
Bosnia and Herzegovina	..	..	..	..	5.22	0.92	3.52	4.03	5.21	5.94	5.54	6.0%
Bulgaria	7.36	8.28	9.46	9.05	8.60	6.34	5.18	5.98	5.98	6.69	6.06	-29.5%
Croatia	..	..	..	..	4.50	3.38	3.99	4.67	4.30	4.39	4.03	-10.5%
Cyprus **	2.88	3.31	5.14	5.17	6.73	7.80	9.09	9.54	8.79	8.27	7.50	11.4%
FYR of Macedonia	..	..	..	..	4.24	4.16	4.10	4.20	3.91	4.41	4.13	-2.6%
Georgia	..	..	..	..	6.93	1.71	1.04	0.99	1.10	1.40	1.52	-78.1%
Gibraltar	3.78	3.76	4.14	4.17	6.24	11.04	13.46	14.97	17.16	16.76	16.52	164.6%
Kazakhstan	..	..	..	..	14.46	10.59	7.59	10.37	13.32	13.95	13.45	-7.0%
Kosovo ***	..	..	..	..	..	..	2.96	3.83	4.82	4.73	4.43	..
Kyrgyzstan	..	..	..	..	5.11	0.97	0.90	0.95	1.11	1.31	1.70	-66.8%
Latvia	..	..	..	..	7.00	3.56	2.88	3.38	3.86	3.56	3.45	-50.8%
Lithuania	..	..	..	..	8.95	3.91	3.20	4.06	4.30	4.39	4.46	-50.2%
Malta	2.14	2.12	3.11	3.42	6.46	6.36	5.53	6.70	5.95	5.94	6.02	-6.7%
Republic of Moldova	..	..	..	..	8.17	3.21	1.79	2.14	2.21	2.21	2.14	-73.8%
Montenegro ***	..	..	..	..	..	..	..	3.17	4.01	4.02	3.70	..
Romania	5.61	6.60	7.92	7.62	7.22	5.18	3.88	4.43	3.73	4.05	3.93	-45.5%
Russian Federation	..	..	..	..	14.69	10.52	10.23	10.56	11.10	11.56	11.56	-21.3%
Serbia ***	..	..	..	..	6.10	4.24	5.23	6.61	6.28	6.86	6.10	0.0%
Tajikistan	..	..	..	..	2.06	0.42	0.35	0.34	0.30	0.31	0.34	-83.4%
Turkmenistan	..	..	..	..	12.12	7.92	8.12	10.07	11.22	12.05	12.34	1.8%
Ukraine	..	..	..	..	13.26	7.63	5.94	6.49	5.92	6.24	6.16	-53.5%
Uzbekistan	..	..	..	..	5.84	4.46	4.79	4.15	3.51	3.72	3.73	-36.1%
Former Soviet Union ****	8.18	10.14	11.55	11.57	..	..	..	..	..	..	..	..
Former Yugoslavia ****	3.12	3.60	4.04	5.44	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>7.57</b>	<b>9.31</b>	<b>10.64</b>	<b>10.72</b>	<b>11.59</b>	<b>7.71</b>	<b>7.07</b>	<b>7.51</b>	<b>7.69</b>	<b>8.06</b>	<b>8.01</b>	<b>-30.9%</b>
Algeria	0.59	0.83	1.46	1.90	2.01	1.93	2.00	2.34	2.63	2.75	2.97	47.9%
Angola	0.27	0.30	0.35	0.32	0.39	0.33	0.36	0.39	0.80	0.78	0.79	103.7%
Benin	0.10	0.14	0.11	0.11	0.05	0.04	0.20	0.32	0.47	0.48	0.49	871.2%
Botswana	..	..	..	1.25	2.00	1.99	2.27	2.25	2.44	2.29	2.23	11.6%
Cameroon	0.10	0.13	0.18	0.23	0.22	0.18	0.17	0.16	0.24	0.25	0.25	12.7%
Congo	0.42	0.39	0.39	0.36	0.26	0.17	0.16	0.23	0.44	0.49	0.50	93.9%
Dem. Rep. of Congo	0.12	0.11	0.12	0.11	0.08	0.03	0.02	0.02	0.03	0.04	0.04	-56.6%
Côte d'Ivoire	0.43	0.46	0.41	0.30	0.22	0.23	0.39	0.33	0.33	0.30	0.39	76.0%
Egypt	0.56	0.65	0.95	1.31	1.41	1.38	1.55	2.09	2.36	2.40	2.44	72.8%
Eritrea	..	..	..	..	..	0.23	0.16	0.12	0.08	0.09	0.09	..
Ethiopia	0.05	0.04	0.04	0.03	0.05	0.04	0.05	0.06	0.07	0.08	0.09	87.8%
Gabon	0.79	1.17	1.77	2.04	0.95	1.23	1.20	1.25	1.52	1.55	1.51	58.7%
Ghana	0.22	0.24	0.21	0.17	0.19	0.20	0.27	0.30	0.43	0.44	0.50	172.6%
Kenya	0.28	0.26	0.27	0.24	0.23	0.21	0.25	0.21	0.28	0.27	0.25	4.9%
Libya	1.73	3.63	6.03	6.02	6.42	7.40	7.63	8.09	8.45	5.78	7.18	11.9%
Mauritius	0.31	0.47	0.59	0.59	1.09	1.37	2.02	2.35	2.82	2.80	2.86	163.1%
Morocco	0.42	0.56	0.70	0.74	0.80	0.97	1.02	1.31	1.46	1.57	1.59	100.3%
Mozambique	0.30	0.22	0.19	0.11	0.08	0.07	0.07	0.07	0.10	0.11	0.10	29.1%
Namibia	..	..	..	..	..	1.07	1.01	1.15	1.37	1.36	1.41	..
Nigeria	0.10	0.18	0.36	0.39	0.30	0.31	0.36	0.41	0.35	0.38	0.38	26.1%
Senegal	0.28	0.33	0.37	0.33	0.28	0.28	0.36	0.41	0.42	0.43	0.41	45.1%
South Africa	6.93	8.15	7.57	7.31	7.21	7.02	6.75	6.92	7.39	7.01	7.20	-0.2%
Sudan	0.23	0.20	0.19	0.19	0.21	0.15	0.17	0.26	0.34	0.31	0.30	41.0%
United Rep. of Tanzania	0.11	0.09	0.08	0.07	0.07	0.08	0.08	0.13	0.14	0.16	0.19	178.2%
Togo	0.16	0.13	0.13	0.09	0.15	0.13	0.19	0.18	0.33	0.29	0.24	61.9%
Tunisia	0.71	0.85	1.23	1.32	1.48	1.59	1.88	2.01	2.19	2.05	2.14	44.3%
Zambia	0.79	0.89	0.57	0.41	0.33	0.23	0.17	0.18	0.13	0.15	0.20	-40.9%
Zimbabwe	1.34	1.17	1.09	1.08	1.53	1.28	1.05	0.80	0.67	0.71	0.73	-52.5%
Other Africa	0.12	0.13	0.15	0.11	0.11	0.12	0.12	0.13	0.14	0.15	0.15	29.0%
<b>Africa</b>	<b>0.67</b>	<b>0.79</b>	<b>0.85</b>	<b>0.87</b>	<b>0.87</b>	<b>0.84</b>	<b>0.85</b>	<b>0.91</b>	<b>0.95</b>	<b>0.93</b>	<b>0.95</b>	<b>9.3%</b>

\* Includes Estonia and Slovenia prior to 1990.

\*\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

\*\*\* Serbia includes Kosovo from 1990 to 1999 and Montenegro from 1990 to 2004.

\*\*\*\* Prior to 1990, data for individual countries are not available separately; FSU includes Estonia and Former Yugoslavia includes Slovenia.

CO<sub>2</sub> emissions / populationtonnes CO<sub>2</sub> / capita

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	% change 90-12
Bangladesh	0.05	0.06	0.09	0.09	0.13	0.17	0.19	0.25	0.35	0.36	0.39	204.8%
Brunei Darussalam	2.93	8.74	13.62	13.16	12.64	15.23	13.34	13.10	18.86	20.32	20.38	61.2%
Cambodia	..	..	..	..	..	0.14	0.16	0.20	0.26	0.28	0.28	..
India	0.35	0.39	0.41	0.53	0.67	0.81	0.94	1.06	1.45	1.50	1.58	136.5%
Indonesia	0.21	0.29	0.47	0.54	0.82	1.10	1.31	1.50	1.63	1.64	1.76	115.8%
DPR of Korea	4.56	4.72	6.08	6.73	5.65	3.44	3.00	3.10	2.62	1.83	1.83	-67.5%
Malaysia	1.14	1.31	1.76	2.17	2.77	4.12	5.03	6.09	6.62	6.69	6.70	142.0%
Mongolia	..	..	..	6.04	5.79	4.37	3.68	3.75	4.62	4.71	5.08	-12.3%
Myanmar	0.16	0.13	0.15	0.15	0.10	0.15	0.19	0.21	0.15	0.16	0.22	129.4%
Nepal	0.02	0.02	0.04	0.03	0.05	0.08	0.13	0.12	0.15	0.16	0.18	265.0%
Pakistan	0.27	0.31	0.33	0.41	0.53	0.63	0.69	0.76	0.78	0.77	0.77	45.4%
Philippines	0.63	0.70	0.70	0.52	0.61	0.82	0.87	0.82	0.81	0.81	0.82	34.2%
Singapore	2.91	3.74	5.26	6.27	9.93	11.09	11.02	10.01	9.64	9.71	9.36	-5.7%
Sri Lanka	0.22	0.19	0.24	0.22	0.21	0.30	0.55	0.68	0.59	0.69	0.78	264.3%
Chinese Taipei	2.07	2.63	4.04	3.71	5.62	7.41	9.82	11.54	11.67	11.37	10.95	95.0%
Thailand	0.43	0.50	0.71	0.80	1.42	2.38	2.48	3.22	3.56	3.63	3.84	170.4%
Viet Nam	0.37	0.35	0.28	0.29	0.26	0.39	0.57	0.97	1.49	1.53	1.61	517.7%
Other Asia	0.38	0.42	0.53	0.34	0.31	0.30	0.32	0.37	0.47	0.51	0.53	71.5%
<b>Asia (excl. China)</b>	<b>0.41</b>	<b>0.46</b>	<b>0.55</b>	<b>0.63</b>	<b>0.79</b>	<b>0.95</b>	<b>1.09</b>	<b>1.25</b>	<b>1.51</b>	<b>1.53</b>	<b>1.59</b>	<b>102.6%</b>
People's Rep. of China	0.97	1.17	1.45	1.64	1.98	2.51	2.62	4.14	5.42	5.92	6.08	207.2%
Hong Kong, China	2.27	2.42	2.87	4.04	5.76	5.85	6.04	6.04	6.00	6.45	6.29	9.1%
<b>China</b>	<b>0.98</b>	<b>1.17</b>	<b>1.46</b>	<b>1.65</b>	<b>2.00</b>	<b>2.52</b>	<b>2.64</b>	<b>4.15</b>	<b>5.42</b>	<b>5.92</b>	<b>6.08</b>	<b>204.4%</b>
Argentina	3.40	3.28	3.40	2.91	3.06	3.44	3.84	3.95	4.37	4.51	4.59	49.9%
Bolivia	0.50	0.68	0.78	0.71	0.76	0.90	0.84	1.01	1.38	1.48	1.55	105.0%
Brazil	0.92	1.25	1.46	1.21	1.29	1.46	1.74	1.73	1.99	2.07	2.22	72.4%
Colombia	1.22	1.18	1.30	1.32	1.39	1.60	1.48	1.34	1.33	1.44	1.41	1.7%
Costa Rica	0.67	0.85	0.93	0.74	0.84	1.26	1.13	1.32	1.40	1.41	1.41	66.5%
Cuba	2.32	2.54	3.07	3.16	3.19	2.05	2.45	2.24	2.65	2.53	2.56	-19.8%
Dominican Republic	0.74	1.00	1.08	0.95	1.02	1.40	1.86	1.86	1.89	1.89	1.93	88.7%
Ecuador	0.57	0.85	1.33	1.31	1.32	1.50	1.54	1.78	2.13	2.08	2.14	61.7%
El Salvador	0.37	0.48	0.38	0.35	0.42	0.81	0.87	1.03	0.94	0.96	0.98	133.7%
Guatemala	0.41	0.49	0.60	0.41	0.36	0.58	0.76	0.83	0.71	0.71	0.70	92.6%
Haiti	0.08	0.08	0.11	0.12	0.13	0.12	0.16	0.21	0.21	0.21	0.20	53.4%
Honduras	0.40	0.42	0.46	0.39	0.44	0.63	0.71	1.03	0.95	0.98	1.03	133.8%
Jamaica	2.91	3.68	3.05	2.01	3.00	3.36	3.75	3.85	2.56	2.69	2.62	-12.8%
Netherlands Antilles	89.64	60.06	50.55	24.88	14.55	14.19	21.20	21.23	18.06	20.62	20.85	43.3%
Nicaragua	0.60	0.66	0.55	0.49	0.44	0.54	0.69	0.74	0.75	0.76	0.72	62.1%
Panama	1.61	1.79	1.47	1.20	1.03	1.49	1.62	2.03	2.43	2.58	2.60	151.7%
Paraguay	0.23	0.25	0.42	0.38	0.45	0.72	0.61	0.58	0.73	0.75	0.76	67.9%
Peru	1.15	1.22	1.19	0.93	0.88	0.99	1.02	1.04	1.43	1.51	1.53	73.2%
Trinidad and Tobago	6.43	5.77	7.31	8.20	9.30	9.78	14.36	23.87	28.92	28.45	27.74	198.2%
Uruguay	1.85	1.93	1.90	1.04	1.21	1.40	1.59	1.59	1.83	2.18	2.47	104.9%
Venezuela	4.69	4.93	6.12	5.49	5.32	5.35	5.19	5.54	6.28	5.45	5.95	11.8%
Other Non-OECD Americas	3.08	4.00	3.64	3.18	4.08	4.13	4.43	4.45	4.95	4.91	4.93	20.9%
<b>Non-OECD Americas</b>	<b>1.53</b>	<b>1.70</b>	<b>1.89</b>	<b>1.63</b>	<b>1.69</b>	<b>1.84</b>	<b>2.03</b>	<b>2.09</b>	<b>2.34</b>	<b>2.35</b>	<b>2.46</b>	<b>45.5%</b>
Bahrain	13.63	19.89	20.54	24.05	25.09	27.28	26.67	25.55	22.41	21.70	21.86	-12.9%
Islamic Republic of Iran	1.42	2.18	2.32	3.08	3.17	4.16	4.78	6.01	6.83	6.97	6.96	119.6%
Iraq	1.01	1.33	1.98	2.36	3.05	4.79	2.95	2.74	3.27	3.41	3.65	19.8%
Jordan	0.85	1.18	1.96	2.81	2.92	2.91	2.99	3.33	3.10	3.20	3.43	17.8%
Kuwait	17.38	14.36	19.38	21.44	13.94	22.77	25.77	30.54	26.84	27.12	28.08	101.4%
Lebanon	1.93	2.19	2.53	2.45	2.02	4.24	4.36	3.63	4.22	4.22	4.75	135.3%
Oman	0.34	0.81	1.93	3.79	5.60	6.80	9.17	10.28	20.60	21.71	20.41	264.2%
Qatar	18.72	29.87	34.29	33.01	29.94	37.57	40.35	44.33	34.61	35.09	36.95	23.4%
Saudi Arabia	2.10	3.05	10.06	9.24	9.32	10.37	11.73	12.12	15.22	15.48	16.22	74.0%
Syrian Arab Republic	0.91	1.19	1.47	1.98	2.26	2.29	2.43	3.02	2.67	2.43	1.79	-20.9%
United Arab Emirates	9.00	9.17	18.83	26.42	28.73	29.68	28.28	26.29	18.04	17.76	18.57	-35.4%
Yemen	0.19	0.26	0.44	0.50	0.55	0.62	0.75	0.93	1.04	0.85	0.84	53.5%
<b>Middle East</b>	<b>1.55</b>	<b>2.16</b>	<b>3.48</b>	<b>4.16</b>	<b>4.34</b>	<b>5.33</b>	<b>5.62</b>	<b>6.46</b>	<b>7.44</b>	<b>7.55</b>	<b>7.72</b>	<b>78.0%</b>



## Per capita emissions by sector in 2012 \*

kilogrammes CO<sub>2</sub> / capita

	Total CO <sub>2</sub> emissions from fuel combustion	Electricity and heat production	Other energy ind. own use **	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
<b>World ***</b>	<b>4 510</b>	<b>1 897</b>	<b>221</b>	<b>918</b>	<b>1 021</b>	<b>764</b>	<b>453</b>	<b>259</b>
<i>Annex I Parties</i>	10 127	4 223	522	1 448	2 603	2 234	1 331	768
<i>Annex II Parties</i>	11 048	4 289	619	1 467	3 183	2 785	1 491	824
<i>North America</i>	16 061	6 254	978	1 738	5 266	4 457	1 824	975
<i>Europe</i>	7 004	2 375	369	1 076	1 851	1 740	1 332	845
<i>Asia Oceania</i>	10 583	4 981	479	1 900	2 055	1 816	1 168	428
<i>Annex I EIT</i>	8 844	4 693	321	1 572	1 317	960	941	661
<i>Non-Annex I Parties</i>	3 051	1 371	153	798	476	431	254	143
<i>Annex I Kyoto Parties</i>	8 287	3 648	372	1 388	1 707	1 487	1 171	710
<b>Non-OECD Total</b>	<b>3 201</b>	<b>1 473</b>	<b>149</b>	<b>832</b>	<b>478</b>	<b>418</b>	<b>269</b>	<b>158</b>
<b>OECD Total</b>	<b>9 684</b>	<b>3 851</b>	<b>556</b>	<b>1 312</b>	<b>2 663</b>	<b>2 356</b>	<b>1 302</b>	<b>721</b>
Canada	15 302	2 786	1 678	3 197	4 913	4 106	2 728	1 117
Chile	4 469	1 936	160	742	1 276	1 155	356	204
Mexico	3 723	1 138	495	500	1 308	1 272	280	162
United States	16 145	6 639	900	1 576	5 305	4 496	1 724	960
<b>OECD Americas</b>	<b>12 658</b>	<b>4 861</b>	<b>832</b>	<b>1 403</b>	<b>4 164</b>	<b>3 567</b>	<b>1 398</b>	<b>751</b>
Australia	16 701	8 597	1 298	2 106	3 878	3 269	822	362
Israel	9 267	6 113	235	237	1 629	1 629	1 054	215
Japan	9 591	4 439	335	1 879	1 691	1 521	1 246	451
Korea	11 858	6 091	771	2 032	1 761	1 661	1 202	659
New Zealand	7 233	1 727	370	1 409	3 016	2 724	711	124
<b>OECD Asia Oceania</b>	<b>10 833</b>	<b>5 284</b>	<b>539</b>	<b>1 869</b>	<b>1 970</b>	<b>1 773</b>	<b>1 172</b>	<b>475</b>
Austria	7 682	1 758	864	1 469	2 531	2 447	1 060	795
Belgium	9 459	1 753	533	2 686	2 204	2 142	2 283	1 320
Czech Republic	10 255	5 672	223	1 718	1 535	1 474	1 108	667
Denmark	6 642	2 634	421	655	2 026	1 854	906	460
Estonia	12 199	9 180	121	710	1 673	1 592	514	145
Finland	9 127	3 781	688	1 588	2 152	2 005	917	285
France	5 103	708	215	928	1 879	1 801	1 372	776
Germany	9 220	4 082	301	1 364	1 797	1 735	1 676	1 133
Greece	6 987	3 769	324	630	1 466	1 251	797	595
Hungary	4 390	1 464	155	541	1 082	1 060	1 149	725
Iceland	5 726	10	-	1 502	2 464	2 369	1 749	19
Ireland	7 745	2 724	75	826	2 235	2 181	1 884	1 309
Italy	6 153	2 090	252	875	1 674	1 575	1 262	828
Luxembourg	19 213	2 104	-	1 755	12 342	12 302	3 012	1 727
Netherlands	10 373	3 192	682	2 414	1 940	1 892	2 144	1 058
Norway	7 210	462	2 045	1 410	2 639	1 877	654	71
Poland	7 623	4 013	186	878	1 183	1 152	1 363	859
Portugal	4 338	1 698	153	625	1 485	1 409	377	191
Slovak Republic	5 898	1 507	834	1 444	1 185	1 081	928	507
Slovenia	7 111	2 867	2	819	2 664	2 644	759	454
Spain	5 775	1 944	429	929	1 777	1 513	696	358
Sweden	4 246	781	281	862	2 104	2 025	217	25
Switzerland	5 202	363	104	675	2 145	2 101	1 915	1 260
Turkey	4 037	1 511	147	731	694	629	954	518
United Kingdom	7 181	2 809	462	688	1 772	1 687	1 450	1 115
<b>OECD Europe</b>	<b>6 666</b>	<b>2 428</b>	<b>323</b>	<b>1 021</b>	<b>1 626</b>	<b>1 529</b>	<b>1 268</b>	<b>790</b>
<i>European Union - 28</i>	6 908	2 591	328	1 039	1 698	1 605	1 251	794

\* This table shows per capita emissions for the same sectors which are present throughout this publication. In particular, the emissions from electricity and heat production are shown separately and not reallocated as in the table on pages II.25-II.27.

\*\* Includes emissions from own use in petroleum refining, the manufacture of solid fuels, coal mining, oil and gas extraction and other energy-producing industries.

\*\*\* World includes international bunkers in the transport sector.

## Per capita emissions by sector in 2012

kilogrammes CO<sub>2</sub> / capita

	Total CO <sub>2</sub> emissions from fuel combustion	Electricity and heat production	Other energy ind. own use	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
<b>Non-OECD Total</b>	<b>3 201</b>	<b>1 473</b>	<b>149</b>	<b>832</b>	<b>478</b>	<b>418</b>	<b>269</b>	<b>158</b>
Albania	1 210	-	31	320	705	684	154	66
Armenia	1 827	480	-	228	435	435	684	389
Azerbaijan	3 149	1 258	250	276	688	632	677	521
Belarus	7 515	3 123	383	1 962	1 223	1 069	823	516
Bosnia and Herzegovina	5 536	3 776	92	459	823	823	384	130
Bulgaria	6 063	4 021	141	524	1 118	1 039	259	150
Croatia	4 029	935	404	692	1 314	1 226	684	402
Cyprus *	7 496	3 974	-	519	2 308	2 307	694	466
FYR of Macedonia	4 128	2 617	25	669	656	646	162	51
Georgia	1 516	253	42	295	541	521	386	264
Gibraltar	16 518	4 117	-	2 045	10 356	10 356	-	-
Kazakhstan	13 447	5 065	2 369	3 711	866	788	1 436	744
Kosovo	4 427	3 386	-	322	551	550	167	65
Kyrgyzstan	1 697	328	2	272	695	695	400	47
Latvia	3 446	966	-	545	1 343	1 198	592	225
Lithuania	4 460	992	548	1 062	1 428	1 327	430	247
Malta	6 021	4 763	-	15	1 093	1 093	151	151
Republic of Moldova	2 140	997	-	286	298	282	558	419
Montenegro	3 703	2 498	-	152	1 012	980	40	26
Romania	3 934	1 755	210	717	740	695	512	327
Russian Federation	11 559	6 494	439	2 045	1 639	969	942	687
Serbia	6 103	4 203	65	695	699	638	440	232
Tajikistan	342	6	-	-	38	38	298	-
Turkmenistan	12 338	3 488	1 019	1 060	1 341	676	5 429	-
Ukraine	6 165	2 890	139	1 558	661	543	916	772
Uzbekistan	3 733	1 225	126	654	261	140	1 466	1 120
<b>Non-OECD Europe and Eurasia</b>	<b>8 011</b>	<b>4 076</b>	<b>392</b>	<b>1 505</b>	<b>1 095</b>	<b>758</b>	<b>942</b>	<b>607</b>
Algeria	2 971	819	324	354	950	911	525	433
Angola	790	105	9	132	348	310	196	64
Benin	492	12	-	15	345	344	121	120
Botswana	2 232	184	-	676	1 086	1 067	285	39
Cameroon	250	61	20	18	133	127	18	17
Congo	503	71	-	26	376	365	30	30
Dem. Rep. of Congo	37	-	-	2	34	34	-	-
Côte d'Ivoire	395	173	9	51	118	105	43	18
Egypt	2 439	904	182	450	624	590	278	190
Eritrea	88	50	-	3	27	27	9	8
Ethiopia	86	-	-	35	35	33	16	8
Gabon	1 511	587	26	458	292	292	148	80
Ghana	505	118	7	72	266	246	42	26
Kenya	246	43	3	63	111	109	27	23
Libya	7 181	3 139	273	735	2 696	2 694	339	339
Mauritius	2 859	1 723	-	253	748	699	135	103
Morocco	1 594	586	39	234	445	445	291	121
Mozambique	103	1	1	20	75	69	6	3
Namibia	1 409	20	-	134	768	722	487	-
Nigeria	382	69	71	46	149	149	48	9
Senegal	411	151	3	81	152	145	24	21
South Africa	7 195	4 457	65	1 125	927	863	621	289
Sudan	301	40	4	48	180	179	30	13
United Rep. of Tanzania	186	59	-	19	101	101	8	6
Togo	243	3	-	23	188	188	30	30
Tunisia	2 138	766	12	463	586	521	311	155
Zambia	196	2	4	109	64	61	16	-
Zimbabwe	727	242	5	142	99	90	240	7
Other Africa	147	39	4	24	62	56	17	7
<b>Africa</b>	<b>953</b>	<b>397</b>	<b>44</b>	<b>150</b>	<b>251</b>	<b>240</b>	<b>111</b>	<b>61</b>

\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

## Per capita emissions by sector in 2012

kilogrammes CO<sub>2</sub> / capita

	Total CO <sub>2</sub> emissions from fuel combustion	Electricity and heat production	Other energy ind. own use	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
Bangladesh	385	182	1	80	56	43	65	40
Brunei Darussalam	20 379	6 893	5 153	4 865	3 229	3 226	239	239
Cambodia	281	51	-	45	145	119	39	39
India	1 580	844	54	383	175	162	124	65
Indonesia	1 764	642	101	381	521	460	119	70
DPR of Korea	1 834	294	2	1 139	53	53	347	5
Malaysia	6 699	3 085	591	1 299	1 469	1 459	255	64
Mongolia	5 084	3 060	12	695	672	469	646	320
Myanmar	221	44	13	73	58	42	33	-
Nepal	178	-	-	61	78	78	38	15
Pakistan	767	224	9	219	206	192	109	90
Philippines	822	379	15	116	251	219	60	25
Singapore	9 365	4 173	1 134	2 652	1 301	1 186	105	35
Sri Lanka	780	317	2	55	355	345	51	21
Chinese Taipei	10 950	6 157	594	2 315	1 489	1 453	395	187
Thailand	3 843	1 249	328	1 040	911	901	315	94
Viet Nam	1 609	486	18	570	381	371	155	91
Other Asia	533	159	-	123	205	181	46	15
<b>Asia (excl. China)</b>	<b>1 594</b>	<b>744</b>	<b>69</b>	<b>389</b>	<b>269</b>	<b>249</b>	<b>124</b>	<b>63</b>
People's Rep. of China	6 075	3 039	223	1 885	520	417	409	230
Hong Kong, China	6 288	4 113	-	1 074	874	872	227	112
<b>China</b>	<b>6 076</b>	<b>3 044</b>	<b>221</b>	<b>1 881</b>	<b>522</b>	<b>419</b>	<b>408</b>	<b>229</b>
Argentina	4 588	1 303	426	825	1 176	1 054	857	561
Bolivia	1 555	311	132	176	598	573	338	121
Brazil	2 216	273	139	611	1 001	903	192	87
Colombia	1 412	160	159	328	578	553	187	80
Costa Rica	1 406	115	7	213	980	977	91	30
Cuba	2 557	1 467	53	710	174	157	152	53
Dominican Republic	1 928	917	3	221	644	544	143	123
Ecuador	2 136	462	108	305	1 035	990	227	176
El Salvador	977	222	6	164	492	492	93	89
Guatemala	695	159	7	116	364	364	50	49
Haiti	204	67	-	36	94	47	7	7
Honduras	1 028	348	-	161	410	410	110	24
Jamaica	2 620	1 015	-	806	618	479	180	53
Netherlands Antilles	20 847	4 114	5 138	3 859	6 807	6 807	929	929
Nicaragua	718	274	10	89	294	293	51	20
Panama	2 599	737	-	724	961	959	177	130
Paraguay	756	-	-	39	678	671	40	31
Peru	1 528	380	126	324	592	526	106	63
Trinidad and Tobago	27 743	4 620	6 049	14 525	2 304	2 071	244	228
Uruguay	2 470	854	99	239	962	958	316	127
Venezuela	5 952	1 121	898	1 953	1 747	1 747	232	173
Other Non-OECD Americas	4 931	2 496	-	181	1 513	1 253	740	220
<b>Non-OECD Americas</b>	<b>2 456</b>	<b>495</b>	<b>207</b>	<b>619</b>	<b>896</b>	<b>827</b>	<b>239</b>	<b>132</b>
Bahrain	21 857	14 184	2 897	2 210	2 391	2 322	176	176
Islamic Rep. of Iran	6 963	1 892	460	1 390	1 589	1 574	1 632	1 244
Iraq	3 652	1 718	137	316	1 127	1 127	354	354
Jordan	3 435	1 670	115	203	1 076	1 070	372	245
Kuwait	28 081	14 362	4 561	5 172	3 814	3 814	172	172
Lebanon	4 752	2 699	-	282	1 195	1 195	575	575
Oman	20 408	4 545	2 436	9 531	3 332	3 332	564	102
Qatar	36 950	8 361	14 606	8 693	5 133	5 133	157	157
Saudi Arabia	16 219	7 090	742	4 021	4 217	4 136	148	148
Syrian Arab Republic	1 788	811	41	266	427	419	243	143
United Arab Emirates	18 571	6 548	229	8 661	3 074	2 994	59	59
Yemen	837	179	46	129	242	242	241	75
<b>Middle East</b>	<b>7 718</b>	<b>2 830</b>	<b>572</b>	<b>1 831</b>	<b>1 735</b>	<b>1 714</b>	<b>750</b>	<b>571</b>

## Electricity output \*

terawatt hours

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	% change 90-12
<b>World</b>	<b>11 825.4</b>	<b>13 243.6</b>	<b>15 426.1</b>	<b>18 282.0</b>	<b>18 991.0</b>	<b>19 829.9</b>	<b>20 221.4</b>	<b>20 164.7</b>	<b>21 470.2</b>	<b>22 166.1</b>	<b>22 668.1</b>	<b>91.7%</b>
<i>Annex I Parties</i>	8 939.6	9 359.6	10 346.6	11 073.7	11 174.7	11 359.5	11 379.3	10 901.1	11 367.3	11 281.8	11 254.3	25.9%
<i>Annex II Parties</i>	7 030.2	7 786.9	8 723.2	9 276.7	9 303.4	9 447.7	9 438.5	9 057.2	9 425.7	9 294.0	9 248.6	31.6%
<i>North America</i>	3 684.9	4 118.4	4 631.5	4 893.8	4 885.6	4 955.4	4 978.3	4 777.5	4 957.1	4 964.5	4 905.1	33.1%
<i>Europe</i>	2 323.3	2 499.4	2 793.6	3 021.7	3 046.7	3 080.1	3 097.8	2 944.2	3 063.0	2 989.7	3 024.2	30.2%
<i>Asia Oceania</i>	1 022.1	1 169.2	1 298.1	1 361.2	1 371.1	1 412.2	1 362.4	1 335.5	1 405.6	1 339.8	1 319.3	29.1%
<i>Annex I EIT</i>	1 850.7	1 484.8	1 496.6	1 632.8	1 692.8	1 717.9	1 740.1	1 646.9	1 728.3	1 756.3	1 763.9	-4.7%
<i>Non-Annex I Parties</i>	2 885.8	3 884.0	5 079.5	7 208.2	7 816.3	8 470.5	8 842.1	9 263.6	10 102.8	10 884.3	11 413.8	295.5%
<i>Annex I Kyoto Parties</i>	5 156.6	5 128.5	5 562.2	5 984.8	6 078.7	6 178.4	6 165.2	5 896.2	6 162.0	6 053.5	6 076.6	17.8%
<b>Non-OECD Total</b>	<b>4 196.9</b>	<b>4 698.9</b>	<b>5 698.4</b>	<b>7 780.8</b>	<b>8 417.3</b>	<b>9 053.6</b>	<b>9 428.3</b>	<b>9 764.4</b>	<b>10 610.0</b>	<b>11 358.4</b>	<b>11 883.4</b>	<b>183.1%</b>
<b>OECD Total</b>	<b>7 628.5</b>	<b>8 544.7</b>	<b>9 727.8</b>	<b>10 501.2</b>	<b>10 573.8</b>	<b>10 776.4</b>	<b>10 793.1</b>	<b>10 400.3</b>	<b>10 860.2</b>	<b>10 807.7</b>	<b>10 784.7</b>	<b>41.4%</b>
Canada	482.0	560.0	605.6	624.9	610.6	631.5	635.3	612.1	602.7	637.9	634.3	31.6%
Chile	18.4	28.0	40.1	52.5	55.3	58.5	59.7	60.7	60.4	65.7	69.8	279.7%
Mexico	115.8	152.2	204.2	243.8	249.5	257.3	261.9	261.0	271.1	295.8	293.9	153.7%
United States	3 202.8	3 558.4	4 025.9	4 268.9	4 275.0	4 323.9	4 343.0	4 165.4	4 354.4	4 326.6	4 270.8	33.3%
<b>OECD Americas</b>	<b>3 819.1</b>	<b>4 298.7</b>	<b>4 875.7</b>	<b>5 190.1</b>	<b>5 190.5</b>	<b>5 271.2</b>	<b>5 299.9</b>	<b>5 099.3</b>	<b>5 288.6</b>	<b>5 326.1</b>	<b>5 268.7</b>	<b>38.0%</b>
Australia	154.3	172.8	209.9	228.3	232.7	243.0	243.1	248.7	252.1	252.6	248.9	61.3%
Israel	20.9	30.4	42.7	48.6	50.6	53.8	57.0	55.0	58.6	59.7	63.0	201.6%
Japan	835.5	960.3	1 049.0	1 089.9	1 094.8	1 125.5	1 075.5	1 043.4	1 108.7	1 042.7	1 026.1	22.8%
Korea	105.4	181.1	288.5	387.9	402.3	425.9	443.9	451.7	496.7	520.1	530.9	403.9%
New Zealand	32.3	36.1	39.2	43.0	43.6	43.7	43.8	43.5	44.9	44.5	44.3	37.3%
<b>OECD Asia Oceania</b>	<b>1 148.3</b>	<b>1 380.7</b>	<b>1 629.3</b>	<b>1 797.7</b>	<b>1 823.9</b>	<b>1 891.9</b>	<b>1 863.3</b>	<b>1 842.2</b>	<b>1 960.9</b>	<b>1 919.5</b>	<b>1 913.3</b>	<b>66.6%</b>
Austria	49.3	55.2	59.9	64.1	62.1	62.6	64.5	66.3	67.9	62.3	68.7	39.4%
Belgium	70.3	73.5	82.8	85.7	84.3	87.5	83.6	89.8	93.8	89.0	81.8	16.3%
Czech Republic	62.3	60.6	72.9	81.9	83.7	87.8	83.2	81.7	85.3	86.9	86.8	39.5%
Denmark	26.0	36.8	36.1	36.2	45.6	39.3	36.6	36.4	38.9	35.2	30.7	18.3%
Estonia	17.2	8.7	8.5	10.2	9.7	12.2	10.6	8.8	13.0	12.9	12.0	-30.3%
Finland	54.4	64.0	70.0	70.6	82.3	81.2	77.4	72.1	80.7	73.5	70.4	29.5%
France	417.2	491.2	536.0	571.4	569.1	564.1	569.2	530.5	564.4	555.3	559.4	34.1%
Germany	547.1	532.0	571.7	615.2	632.1	633.0	633.9	589.6	626.1	606.8	623.2	13.9%
Greece	34.8	41.3	53.4	59.4	60.2	62.7	62.9	61.1	57.4	59.2	60.8	74.8%
Hungary	28.4	34.0	35.2	35.8	35.9	40.0	40.0	35.9	37.4	36.0	34.6	21.6%
Iceland	4.5	5.0	7.7	8.7	9.9	12.0	16.5	16.8	17.1	17.2	17.5	289.1%
Ireland	14.2	17.6	23.7	25.6	27.1	27.8	29.9	28.0	28.4	27.5	27.4	92.4%
Italy	213.1	237.4	270.0	296.8	307.7	308.2	313.5	288.3	298.8	300.7	297.3	39.5%
Luxembourg	0.6	0.5	0.4	3.3	3.5	3.2	2.7	3.2	3.2	2.6	2.8	341.2%
Netherlands	71.9	80.9	89.6	100.2	98.4	105.2	107.6	113.5	118.1	113.0	102.5	42.5%
Norway	121.6	122.2	142.5	137.2	121.2	136.1	141.2	131.0	123.2	126.4	146.8	20.7%
Poland	134.4	137.0	143.2	155.4	160.8	158.8	154.7	151.1	157.1	163.1	161.7	20.3%
Portugal	28.4	33.2	43.4	46.2	48.6	46.9	45.5	49.5	53.7	51.9	45.6	60.7%
Slovak Republic	25.5	26.4	30.8	31.4	31.3	27.9	28.8	25.9	27.5	28.3	28.3	11.1%
Slovenia	12.4	12.9	13.6	15.1	15.1	15.0	16.4	16.4	16.2	15.9	15.5	24.9%
Spain	151.2	165.6	220.9	289.4	295.6	301.8	311.0	291.9	298.3	291.5	293.9	94.4%
Sweden	146.0	148.3	145.2	158.4	143.3	148.8	149.9	136.6	148.5	150.3	166.4	14.0%
Switzerland	55.0	62.2	66.1	57.8	62.1	66.4	67.0	66.7	66.1	62.9	68.2	23.9%
Turkey	57.5	86.2	124.9	162.0	176.3	191.6	198.4	194.8	211.2	229.4	239.5	316.2%
United Kingdom	317.8	332.5	374.4	395.4	393.4	393.0	384.8	373.1	378.6	364.5	360.9	13.6%
<b>OECD Europe</b>	<b>2 661.1</b>	<b>2 865.3</b>	<b>3 222.8</b>	<b>3 513.4</b>	<b>3 559.4</b>	<b>3 613.2</b>	<b>3 629.9</b>	<b>3 458.8</b>	<b>3 610.7</b>	<b>3 562.1</b>	<b>3 602.7</b>	<b>35.4%</b>
<i>European Union - 28</i>	2 575.7	2 721.1	3 005.3	3 289.4	3 334.2	3 349.2	3 354.5	3 189.9	3 332.8	3 266.5	3 264.1	26.7%

\* Includes electricity from both electricity-only and combined heat and power plants, and from both main activity producer and autoproducer plants.

## Electricity output

terawatt hours

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	% change 90-12
<b>Non-OECD Total</b>	<b>4 196.9</b>	<b>4 698.9</b>	<b>5 698.4</b>	<b>7 780.8</b>	<b>8 417.3</b>	<b>9 053.6</b>	<b>9 428.3</b>	<b>9 764.4</b>	<b>10 610.0</b>	<b>11 358.4</b>	<b>11 883.4</b>	<b>183.1%</b>
Albania	3.2	4.4	4.7	5.4	5.5	2.9	3.8	5.2	7.6	4.2	4.7	47.7%
Armenia	10.4	5.6	6.0	6.3	5.9	5.9	5.8	5.7	6.5	7.4	8.0	-22.4%
Azerbaijan	23.2	17.0	18.7	22.9	24.5	21.8	21.6	18.9	18.7	20.3	23.0	-0.7%
Belarus	39.5	24.9	26.1	31.0	31.8	31.8	35.0	30.4	34.9	32.2	30.8	-22.1%
Bosnia and Herzegovina	14.6	4.4	10.4	12.6	13.3	11.8	14.8	15.7	17.1	15.3	14.1	-3.8%
Bulgaria	42.1	41.8	40.6	44.0	45.5	42.9	44.6	42.4	46.0	50.0	46.6	10.5%
Croatia	8.7	8.9	10.7	12.4	12.3	12.1	12.2	12.7	14.0	10.7	10.4	19.6%
Cyprus *	2.0	2.5	3.4	4.4	4.7	4.9	5.1	5.2	5.3	4.9	4.7	139.0%
FYR of Macedonia	5.8	6.1	6.8	6.9	7.0	6.5	6.3	6.8	7.3	6.8	6.3	8.8%
Georgia	13.7	8.2	7.4	7.3	7.3	8.3	8.5	8.6	10.1	10.2	9.7	-29.4%
Gibraltar	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	122.8%
Kazakhstan	87.4	66.7	51.3	67.8	71.7	76.6	80.3	78.7	82.6	86.6	91.2	4.4%
Kosovo **	..	..	3.0	4.5	4.4	4.8	5.2	5.0	5.2	5.8	5.9	..
Kyrgyzstan	15.7	14.3	14.9	14.9	14.5	14.8	11.8	11.1	12.1	15.2	15.2	-3.6%
Latvia	6.6	4.0	4.1	4.9	4.9	4.8	5.3	5.6	6.6	6.1	6.2	-7.2%
Lithuania	28.4	13.5	11.1	14.4	12.1	13.5	13.3	14.6	5.0	4.2	4.5	-84.1%
Malta	1.1	1.6	1.9	2.2	2.3	2.3	2.3	2.2	2.1	2.2	2.3	108.2%
Republic of Moldova	16.2	7.6	5.6	6.0	6.1	5.9	6.0	6.2	6.1	5.8	5.8	-64.2%
Montenegro **	..	..	..	2.9	3.0	2.1	2.8	2.8	4.0	2.7	2.8	..
Romania	64.3	59.3	51.9	59.4	62.7	61.7	65.0	57.7	60.6	62.0	58.8	-8.6%
Russian Federation	1 082.2	859.0	876.5	951.2	993.9	1 013.4	1 038.4	990.0	1 036.1	1 053.0	1 069.3	-1.2%
Serbia **	40.9	34.5	34.1	36.5	36.5	36.6	36.8	37.7	37.4	38.0	36.2	-11.7%
Tajikistan	18.1	14.8	14.2	17.1	16.9	17.5	16.1	16.1	16.4	16.2	17.0	-6.5%
Turkmenistan	14.6	9.8	9.8	12.8	13.7	14.9	15.0	16.0	16.7	17.2	17.8	21.5%
Ukraine	298.6	193.8	171.3	185.9	193.2	196.1	192.6	173.6	188.6	194.9	198.4	-33.6%
Uzbekistan	56.3	47.5	46.9	49.2	50.9	49.0	49.4	50.0	51.7	52.4	52.5	-6.8%
<b>Non-OECD Europe and Eurasia</b>	<b>1 893.8</b>	<b>1 450.2</b>	<b>1 431.7</b>	<b>1 582.9</b>	<b>1 644.7</b>	<b>1 663.0</b>	<b>1 698.3</b>	<b>1 618.9</b>	<b>1 699.0</b>	<b>1 724.5</b>	<b>1 742.3</b>	<b>-8.0%</b>
Algeria	16.1	19.7	25.4	33.9	35.2	37.2	40.2	38.5	45.7	51.2	57.4	256.4%
Angola	0.8	1.0	1.4	2.8	3.3	3.2	4.2	4.7	5.4	5.7	5.6	567.4%
Benin	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	676.2%
Botswana	0.9	1.0	0.9	0.9	1.0	0.8	0.7	0.6	0.5	0.4	0.3	-72.4%
Cameroon	2.7	2.8	3.5	4.0	5.1	5.2	5.7	5.8	5.9	6.1	6.3	133.7%
Congo	0.5	0.4	0.3	0.4	0.5	0.4	0.5	0.5	0.8	1.3	1.3	172.2%
Dem. Rep. of Congo	5.7	6.2	6.0	7.4	7.5	7.9	7.5	7.8	7.9	7.9	8.0	41.0%
Côte d'Ivoire	2.0	2.9	4.8	5.7	5.7	5.6	5.8	5.9	6.0	6.1	7.0	253.8%
Egypt	42.3	52.0	78.1	108.7	115.4	125.1	131.0	139.0	146.8	157.4	164.4	289.0%
Eritrea	..	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	..
Ethiopia	1.2	1.5	1.7	2.8	3.3	3.5	3.8	4.0	5.0	6.3	6.7	457.4%
Gabon	1.0	1.1	1.3	1.6	1.7	1.7	1.8	1.9	2.0	2.1	2.2	124.6%
Ghana	5.7	6.1	7.2	6.8	8.4	7.0	8.3	9.0	10.2	11.2	12.0	110.2%
Kenya	3.2	4.1	4.2	6.0	6.5	6.7	6.8	6.9	7.5	7.8	8.3	156.3%
Libya	10.2	11.4	15.5	22.7	24.8	26.2	30.7	31.0	32.8	27.6	34.0	234.2%
Mauritius	0.8	1.2	1.8	2.3	2.4	2.5	2.6	2.6	2.7	2.7	2.8	258.6%
Morocco	9.6	12.1	12.9	19.3	19.9	19.9	20.6	21.1	23.7	25.0	27.3	183.9%
Mozambique	0.5	0.4	9.7	13.3	14.7	16.1	15.1	17.0	16.7	16.8	15.2	+
Namibia	..	1.2	1.4	1.7	1.6	1.6	1.6	1.5	1.3	1.4	1.6	..
Nigeria	13.5	15.9	14.7	23.5	23.1	23.0	21.1	19.8	26.1	27.0	28.7	113.2%
Senegal	0.9	1.1	1.6	2.5	2.4	2.7	2.8	2.9	3.1	3.2	3.5	265.1%
South Africa	165.4	185.4	207.8	242.1	250.9	260.5	255.5	246.8	256.6	259.6	255.1	54.2%
Sudan	1.5	1.9	2.6	3.8	4.5	5.0	5.5	6.5	7.5	8.5	9.4	522.8%
United Rep. of Tanzania	1.6	1.9	2.5	3.6	3.4	4.2	4.4	4.7	5.2	5.2	5.8	256.0%
Togo	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	-29.7%
Tunisia	5.8	7.7	10.6	12.7	13.1	13.7	14.4	15.3	16.7	16.5	18.0	209.5%
Zambia	8.0	7.9	7.8	8.9	9.9	9.8	9.7	10.4	11.3	11.5	11.9	47.9%
Zimbabwe	9.4	7.8	7.0	9.4	8.0	7.6	7.6	7.3	8.6	9.1	9.1	-2.9%
Other Africa	6.7	7.9	10.4	13.1	13.2	14.1	14.9	15.5	16.1	16.7	17.5	161.7%
<b>Africa</b>	<b>316.1</b>	<b>363.1</b>	<b>441.6</b>	<b>560.3</b>	<b>586.0</b>	<b>612.1</b>	<b>623.4</b>	<b>627.5</b>	<b>672.6</b>	<b>695.0</b>	<b>719.8</b>	<b>127.7%</b>

\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

\*\* Serbia includes Kosovo from 1990 to 1999 and Montenegro from 1990 to 2004.

## Electricity output

terawatt hours

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	% change 90-12
Bangladesh	7.7	10.8	15.8	26.4	29.5	31.0	34.3	37.2	41.8	44.2	49.0	534.2%
Brunei Darussalam	1.2	2.0	2.5	3.3	3.3	3.4	3.4	3.6	3.8	3.7	3.9	235.3%
Cambodia	..	0.2	0.4	1.0	1.2	1.5	1.5	1.3	1.0	1.1	1.4	..
India	292.7	423.7	569.7	715.7	773.8	823.6	848.4	917.3	979.4	1 074.5	1 127.6	285.2%
Indonesia	32.7	59.2	93.3	127.7	133.8	143.5	150.4	156.8	169.8	183.4	195.9	499.7%
DPR of Korea	27.7	23.0	19.4	22.9	22.4	21.5	23.2	21.1	21.7	19.2	19.2	-30.6%
Malaysia	23.0	45.5	69.3	82.7	89.8	97.5	97.8	116.0	124.8	129.3	134.4	483.9%
Mongolia	3.3	2.6	2.9	3.4	3.5	3.7	4.0	4.0	4.3	4.5	4.8	43.8%
Myanmar	2.5	4.1	5.1	6.0	6.2	6.4	6.6	7.0	7.5	9.9	10.7	333.1%
Nepal	0.9	1.2	1.7	2.5	2.7	2.8	2.8	3.1	3.2	3.5	3.6	304.6%
Pakistan	37.7	57.0	68.1	93.6	98.2	95.7	91.6	95.4	94.4	95.1	96.1	155.2%
Philippines	26.3	33.6	45.3	56.6	56.8	59.6	60.8	61.9	67.7	69.2	72.9	177.0%
Singapore	15.7	22.2	31.7	38.2	39.4	41.1	41.7	41.8	45.4	46.0	46.9	198.6%
Sri Lanka	3.2	4.8	7.0	9.3	9.5	9.9	10.0	10.0	10.8	11.7	11.9	277.8%
Chinese Taipei	88.4	129.1	180.6	223.5	231.6	239.2	234.8	226.4	243.9	249.1	247.4	179.9%
Thailand	44.2	80.1	96.0	132.2	138.7	143.4	147.4	148.4	159.5	156.0	166.6	277.2%
Viet Nam	8.7	14.6	26.6	53.7	60.5	67.0	73.4	83.2	94.9	105.1	122.8	+
Other Asia	8.4	9.0	13.8	16.7	18.4	20.3	20.6	20.8	20.9	23.1	24.8	194.7%
<b>Asia (excl. China)</b>	<b>624.3</b>	<b>922.5</b>	<b>1 249.1</b>	<b>1 615.4</b>	<b>1 719.5</b>	<b>1 811.1</b>	<b>1 852.8</b>	<b>1 955.3</b>	<b>2 094.9</b>	<b>2 228.5</b>	<b>2 340.2</b>	<b>274.9%</b>
People's Rep. of China	621.2	1 007.8	1 356.2	2 502.5	2 869.8	3 287.5	3 482.0	3 742.0	4 197.3	4 704.9	4 984.8	702.4%
Hong Kong, China	28.9	27.9	31.3	38.5	38.6	39.0	38.0	38.7	38.4	39.1	38.8	34.2%
<b>China</b>	<b>650.1</b>	<b>1 035.7</b>	<b>1 387.6</b>	<b>2 540.9</b>	<b>2 908.4</b>	<b>3 326.5</b>	<b>3 520.0</b>	<b>3 780.7</b>	<b>4 235.7</b>	<b>4 744.0</b>	<b>5 023.6</b>	<b>672.7%</b>
Argentina	50.7	67.0	88.9	105.5	106.9	107.4	121.6	121.9	125.3	129.6	134.8	165.6%
Bolivia	2.3	3.0	3.9	4.9	5.3	5.7	5.8	6.1	6.9	7.2	7.7	231.4%
Brazil	222.8	275.6	348.9	403.0	419.3	445.1	463.1	466.1	515.7	531.8	552.5	147.9%
Colombia	36.4	42.7	43.1	50.3	53.8	55.2	55.9	57.1	59.4	61.0	62.3	71.5%
Costa Rica	3.5	4.9	6.9	8.3	8.7	9.1	9.5	9.3	9.6	9.8	10.2	193.4%
Cuba	15.0	12.5	15.0	15.3	16.5	17.6	17.7	17.7	17.4	17.8	18.4	22.7%
Dominican Republic	3.7	5.5	8.5	12.7	13.9	14.3	14.7	14.4	15.3	15.9	17.0	358.8%
Ecuador	6.3	8.4	10.6	12.7	14.1	16.4	18.8	18.6	19.6	20.6	22.8	259.9%
El Salvador	2.2	3.3	3.4	4.8	5.7	5.8	6.0	5.8	6.0	5.8	5.9	164.5%
Guatemala	2.2	3.5	6.0	8.0	8.2	8.8	8.7	9.0	8.9	9.2	9.4	330.6%
Haiti	0.6	0.5	0.5	0.6	0.6	0.5	0.5	0.7	0.6	0.9	1.2	92.6%
Honduras	2.3	2.7	3.7	5.6	6.0	6.3	6.5	6.6	6.8	7.2	7.6	227.4%
Jamaica	2.5	5.8	6.6	7.4	7.5	6.0	4.2	4.4	4.3	4.4	4.3	74.0%
Netherlands Antilles	0.8	1.0	1.1	1.2	1.2	1.3	1.2	1.3	1.3	1.3	1.3	68.7%
Nicaragua	1.5	1.9	2.4	3.1	3.1	3.2	3.4	3.5	3.7	3.8	4.0	176.7%
Panama	2.7	3.5	4.9	5.8	6.0	6.5	6.4	7.0	7.4	7.9	8.6	223.4%
Paraguay	27.2	42.2	53.5	51.2	53.8	53.7	55.5	55.0	54.1	57.6	60.2	121.6%
Peru	13.8	16.1	19.9	25.5	27.4	29.9	32.4	32.9	35.9	39.2	39.9	189.0%
Trinidad and Tobago	3.6	4.3	5.5	7.1	7.2	7.7	7.7	7.8	8.5	8.8	9.1	155.3%
Uruguay	7.4	6.3	7.6	7.7	5.6	9.4	8.8	8.9	11.0	10.3	10.6	42.4%
Venezuela	59.3	73.4	85.3	105.5	110.4	114.6	119.3	119.6	118.4	122.1	126.5	113.3%
Other Non-OECD Americas	22.2	27.7	32.5	37.7	38.1	38.4	37.0	37.1	37.7	37.7	38.2	72.2%
<b>Non-OECD Americas</b>	<b>489.0</b>	<b>612.0</b>	<b>758.8</b>	<b>883.9</b>	<b>919.2</b>	<b>962.8</b>	<b>1 004.9</b>	<b>1 010.9</b>	<b>1 073.7</b>	<b>1 109.8</b>	<b>1 152.5</b>	<b>135.7%</b>
Bahrain	8.0	11.6	13.9	19.4	21.0	21.7	22.8	22.6	23.4	23.8	24.8	210.2%
Islamic Republic of Iran	59.1	85.0	121.4	178.1	192.7	204.0	214.5	221.4	233.0	240.1	254.3	330.2%
Iraq	24.0	29.7	31.9	30.4	33.8	33.2	36.8	45.6	50.2	54.2	61.7	157.1%
Jordan	3.6	5.6	7.4	9.7	11.1	13.0	13.8	14.3	14.8	14.6	16.6	356.2%
Kuwait	18.5	23.7	32.3	43.7	47.6	48.8	51.7	53.2	57.0	57.5	62.7	239.1%
Lebanon	1.5	5.3	9.8	12.4	11.6	12.1	13.4	13.8	15.7	16.4	14.8	888.4%
Oman	4.5	6.5	9.1	12.7	13.7	14.6	16.0	18.4	19.8	21.9	25.0	455.8%
Qatar	4.8	6.0	9.1	14.4	17.1	19.5	21.6	24.2	28.1	30.7	34.8	622.0%
Saudi Arabia	69.2	97.8	126.2	176.1	181.4	190.5	204.2	217.1	240.1	250.1	271.7	292.6%
Syrian Arab Republic	11.6	16.6	25.2	34.9	37.3	38.6	41.0	43.3	46.4	42.0	31.2	168.6%
United Arab Emirates	17.1	25.0	39.9	60.7	66.8	76.1	86.3	90.6	97.7	99.1	100.9	490.9%
Yemen	1.7	2.4	3.4	4.8	5.4	6.0	6.5	6.7	7.8	6.2	6.6	295.6%
<b>Middle East</b>	<b>223.6</b>	<b>315.3</b>	<b>429.6</b>	<b>597.3</b>	<b>639.5</b>	<b>678.1</b>	<b>728.8</b>	<b>771.1</b>	<b>834.0</b>	<b>856.6</b>	<b>905.0</b>	<b>304.8%</b>

CO<sub>2</sub> emissions per kWh from electricity generation \*grammes CO<sub>2</sub> / kilowatt hour

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	average 10-12
<b>World</b>	<b>525</b>	<b>527</b>	<b>528</b>	<b>542</b>	<b>543</b>	<b>547</b>	<b>539</b>	<b>534</b>	<b>530</b>	<b>537</b>	<b>533</b>	<b>533</b>
<i>Annex I Parties</i>	493	472	466	461	454	461	446	425	425	428	421	424
<i>Annex II Parties</i>	484	469	465	459	448	456	439	418	418	416	411	415
<i>North America</i>	531	534	544	526	508	515	500	473	480	460	438	459
<i>Europe</i>	408	367	335	332	334	335	312	297	289	289	291	290
<i>Asia Oceania</i>	482	461	465	496	489	514	505	492	479	541	585	535
<i>Annex I EIT</i>	527	484	464	474	483	480	472	449	455	480	467	467
<i>Non-Annex I Parties</i>	625	660	654	666	671	664	659	662	649	650	644	648
<i>Annex I Kyoto Parties</i>	465	422	399	408	410	416	399	383	378	399	405	394
<b>Non-OECD Total</b>	<b>574</b>	<b>606</b>	<b>611</b>	<b>641</b>	<b>649</b>	<b>644</b>	<b>641</b>	<b>641</b>	<b>629</b>	<b>635</b>	<b>628</b>	<b>631</b>
<b>OECD Total</b>	<b>498</b>	<b>483</b>	<b>478</b>	<b>467</b>	<b>458</b>	<b>466</b>	<b>449</b>	<b>433</b>	<b>433</b>	<b>433</b>	<b>428</b>	<b>431</b>
Canada	196	176	216	200	198	209	193	172	179	168	151	166
Chile	444	257	338	318	304	379	400	372	410	441	483	445
Mexico	549	539	559	509	482	479	431	455	457	450	453	454
United States	582	590	593	574	552	560	545	517	522	503	481	502
<b>OECD Americas</b>	<b>532</b>	<b>532</b>	<b>543</b>	<b>524</b>	<b>505</b>	<b>512</b>	<b>495</b>	<b>471</b>	<b>478</b>	<b>459</b>	<b>439</b>	<b>459</b>
Australia	817	810	836	862	861	850	850	872	808	788	799	798
Israel	827	820	765	800	774	770	712	698	687	726	767	727
Japan	435	412	402	430	420	454	439	415	418	498	551	489
Korea	520	554	529	487	491	481	487	525	534	546	540	540
New Zealand	109	89	165	237	231	196	215	168	151	141	173	155
<b>OECD Asia Oceania</b>	<b>492</b>	<b>481</b>	<b>484</b>	<b>503</b>	<b>497</b>	<b>514</b>	<b>507</b>	<b>507</b>	<b>499</b>	<b>548</b>	<b>578</b>	<b>542</b>
Austria	238	206	170	219	217	204	187	163	194	210	165	189
Belgium	347	361	291	275	263	249	250	212	220	196	212	209
Czech Republic	744	794	728	614	606	636	621	588	589	590	552	577
Denmark	669	588	450	370	459	426	399	399	358	315	257	310
Estonia	944	1 073	1 063	1 048	965	1 048	1 084	1 078	1 014	947	912	958
Finland	188	223	173	164	265	238	177	190	230	191	134	185
France	105	73	75	79	72	75	68	73	74	61	69	68
Germany	607	582	526	496	490	512	479	471	465	473	475	471
Greece	990	946	820	779	731	752	748	725	718	707	685	703
Hungary	496	512	469	372	367	368	351	313	317	317	314	316
Iceland	1	1	0	0	0	1	1	0	0	0	0	0
Ireland	740	726	642	583	536	509	470	450	457	424	457	446
Italy	575	545	498	486	479	475	452	411	406	402	385	398
Luxembourg	2 552	1 738	496	347	346	347	340	346	343	343	340	342
Netherlands	607	546	478	455	453	455	443	420	415	405	441	420
Norway	1	2	1	2	3	4	3	11	16	13	8	12
Poland	988	905	866	818	821	820	817	801	783	783	756	774
Portugal	519	576	486	521	431	396	394	379	255	303	364	308
Slovak Republic	389	364	245	221	214	221	208	210	197	200	194	197
Slovenia	429	382	343	349	362	375	332	318	325	338	331	332
Spain	427	454	432	396	369	387	327	297	237	292	305	278
Sweden	12	22	22	19	23	17	18	19	26	17	12	19
Switzerland	24	23	25	32	33	30	29	26	27	30	28	28
Turkey	568	512	529	438	452	494	511	496	460	472	459	463
United Kingdom	672	529	472	491	515	506	490	441	445	435	479	453
<b>OECD Europe</b>	<b>453</b>	<b>410</b>	<b>377</b>	<b>367</b>	<b>370</b>	<b>375</b>	<b>354</b>	<b>339</b>	<b>330</b>	<b>333</b>	<b>331</b>	<b>331</b>
<i>European Union - 28</i>	493	443	401	388	390	397	373	355	346	350	350	349

\* CO<sub>2</sub> emissions from fossil fuels consumed for electricity generation, in both electricity-only and combined heat and power plants, divided by the output of electricity generated from all fossil and non-fossil sources. Both main activity producers and autoproducers have been included in the calculation.

CO<sub>2</sub> emissions per kWh from electricity generationgrammes CO<sub>2</sub> / kilowatt hour

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	average 10-12
<b>Non-OECD Total</b>	<b>574</b>	<b>606</b>	<b>611</b>	<b>641</b>	<b>649</b>	<b>644</b>	<b>641</b>	<b>641</b>	<b>629</b>	<b>635</b>	<b>628</b>	<b>631</b>
Albania	162	38	43	26	26	31	-	1	2	7	-	4
Armenia	495	211	238	131	130	157	159	102	92	123	177	131
Azerbaijan	574	696	739	536	519	549	518	481	431	455	494	460
Belarus	548	500	472	459	461	452	464	465	449	441	425	438
Bosnia and Herzegovina	713	176	824	797	852	1 007	830	805	723	974	974	890
Bulgaria	761	582	478	506	493	597	560	534	539	590	532	553
Croatia	382	263	313	330	337	422	367	290	236	334	311	294
Cyprus *	838	822	838	788	758	761	759	746	705	732	726	721
FYR of Macedonia	917	879	799	791	783	870	904	798	684	860	853	799
Georgia	574	510	225	101	147	161	79	123	69	102	117	96
Gibraltar	737	738	760	740	751	751	757	757	744	770	749	754
Kazakhstan	611	621	730	597	866	683	566	441	409	431	461	434
Kosovo **	..	..	1 316	1 121	1 126	1 089	1 088	1 286	1 287	1 109	1 026	1 141
Kyrgyzstan	165	99	78	54	53	51	87	74	37	31	35	34
Latvia	115	134	135	88	113	106	114	96	120	133	91	114
Lithuania	158	65	99	101	100	88	83	84	338	270	271	293
Malta	1 587	957	819	1 034	954	1 012	849	850	871	861	872	868
Republic of Moldova	723	712	642	489	473	485	487	500	486	486	497	490
Montenegro **	..	..	..	386	430	460	533	290	422	655	545	541
Romania	855	741	579	493	521	542	512	472	412	499	481	464
Russian Federation	406	363	394	436	445	428	426	402	412	437	429	426
Serbia **	892	1 001	886	764	817	734	733	740	711	784	760	752
Tajikistan	68	25	26	21	21	7	6	4	1	1	1	1
Turkmenistan	686	931	872	872	872	872	927	865	954	983	987	975
Ukraine	654	566	400	397	430	440	432	411	416	450	460	442
Uzbekistan	624	572	629	588	582	609	543	566	550	558	546	551
<b>Non-OECD Europe and Eurasia</b>	<b>500</b>	<b>449</b>	<b>441</b>	<b>451</b>	<b>475</b>	<b>463</b>	<b>452</b>	<b>426</b>	<b>427</b>	<b>459</b>	<b>451</b>	<b>446</b>
Algeria	631	633	620	606	621	597	596	638	546	556	549	550
Angola	343	177	499	273	260	300	330	465	430	390	391	404
Benin	1 200	951	601	709	698	662	679	719	720	717	721	719
Botswana	1 649	1 648	1 719	1 897	1 273	1 273	1 481	1 483	1 480	1 482	1 479	1 480
Cameroon	13	10	10	40	83	162	161	196	207	206	209	207
Congo	6	9	-	103	102	130	100	245	267	230	230	242
Dem. Rep. of Congo	4	4	1	1	2	3	4	3	3	3	3	3
Côte d'Ivoire	205	275	379	457	385	409	449	391	461	437	490	463
Egypt	525	445	344	475	470	439	462	467	424	421	444	430
Eritrea	..	1 703	1 333	975	962	941	802	833	850	849	849	850
Ethiopia	136	42	11	3	3	44	119	122	7	7	7	7
Gabon	270	255	326	380	346	422	349	359	408	436	436	427
Ghana	-	3	66	147	276	360	215	188	295	215	249	253
Kenya	51	63	455	247	259	249	322	397	274	294	223	264
Libya	779	1 131	1 022	902	883	779	692	705	680	636	569	628
Mauritius	553	538	641	679	775	794	778	771	807	790	795	797
Morocco	783	928	831	830	819	802	787	698	683	726	697	702
Mozambique	241	64	5	1	1	1	0	1	1	1	1	1
Namibia	..	37	4	25	90	105	148	71	59	24	27	37
Nigeria	420	337	453	336	366	366	366	387	380	393	403	392
Senegal	889	881	905	741	751	635	624	719	672	619	602	631
South Africa	849	884	893	851	831	827	948	906	927	869	914	903
Sudan	325	465	508	615	659	580	601	413	143	194	202	180
United Rep. of Tanzania	152	283	131	378	457	329	280	253	282	437	487	402
Togo	422	185	561	352	459	404	206	229	372	124	171	222
Tunisia	651	588	574	468	492	505	494	488	463	461	459	461
Zambia	11	7	7	6	5	3	3	2	2	3	3	3
Zimbabwe	714	920	740	627	473	432	335	365	336	347	365	349
Other Africa	340	285	402	443	474	460	462	462	469	469	469	469
<b>Africa</b>	<b>670</b>	<b>688</b>	<b>654</b>	<b>636</b>	<b>625</b>	<b>610</b>	<b>655</b>	<b>630</b>	<b>613</b>	<b>585</b>	<b>598</b>	<b>598</b>

\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

\*\* Serbia includes Kosovo from 1990 to 1999 and Montenegro from 1990 to 2004.



CO<sub>2</sub> emissions per kWh from electricity generationgrammes CO<sub>2</sub> / kilowatt hour

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	average 10-12
Bangladesh	554	601	555	551	568	575	569	569	582	566	575	574
Brunei Darussalam	924	880	795	800	839	739	791	789	730	717	723	723
Cambodia	..	805	834	793	797	805	820	816	804	793	529	708
India	817	907	906	902	890	937	947	961	934	891	926	917
Indonesia	679	592	654	716	732	761	742	746	711	750	809	757
DPR of Korea	566	481	584	522	533	469	481	515	468	379	378	409
Malaysia	691	575	536	655	633	643	688	628	759	673	671	701
Mongolia	719	1 292	1 117	911	866	988	881	887	983	877	884	915
Myanmar	510	508	457	395	374	357	308	199	262	190	216	223
Nepal	-	26	12	5	4	2	2	3	1	-	4	2
Pakistan	408	405	480	381	414	433	451	458	425	410	418	417
Philippines	341	463	493	491	429	443	483	475	481	492	502	492
Singapore	910	937	764	516	504	494	478	474	489	494	472	485
Sri Lanka	2	51	448	476	335	394	387	409	312	439	542	431
Chinese Taipei	463	533	625	649	657	653	648	635	624	601	583	603
Thailand	626	605	567	535	511	546	529	513	513	522	500	512
Viet Nam	552	301	427	447	435	426	406	384	432	383	351	389
Other Asia	348	264	278	411	357	327	311	316	315	315	315	315
<b>Asia (excl. China)</b>	<b>668</b>	<b>709</b>	<b>726</b>	<b>718</b>	<b>713</b>	<b>741</b>	<b>746</b>	<b>750</b>	<b>742</b>	<b>719</b>	<b>736</b>	<b>732</b>
People's Rep. of China	897	904	889	869	863	823	797	790	760	766	734	754
Hong Kong, China	828	855	712	755	754	775	757	763	722	766	758	749
<b>China</b>	<b>894</b>	<b>903</b>	<b>885</b>	<b>867</b>	<b>862</b>	<b>822</b>	<b>797</b>	<b>790</b>	<b>760</b>	<b>766</b>	<b>734</b>	<b>753</b>
Argentina	394	337	338	307	330	377	364	359	359	383	397	380
Bolivia	308	400	314	329	326	334	375	393	419	433	426	426
Brazil	55	55	88	84	81	73	90	64	86	68	98	84
Colombia	208	205	160	131	127	127	107	176	178	104	123	135
Costa Rica	20	155	8	28	55	72	63	40	56	64	54	58
Cuba	765	858	690	832	767	750	733	1 063	1 014	944	897	952
Dominican Republic	868	895	782	633	620	612	628	620	596	594	555	582
Ecuador	187	308	215	374	418	344	259	328	387	338	313	346
El Salvador	67	391	324	303	312	317	270	273	220	244	238	234
Guatemala	74	296	392	394	373	369	343	349	282	268	254	268
Haiti	408	327	346	307	305	513	494	358	467	291	592	450
Honduras	10	327	281	409	266	418	409	342	330	368	363	354
Jamaica	757	888	824	572	485	614	649	641	651	662	643	652
Netherlands Antilles	717	714	714	711	710	708	707	707	708	706	707	707
Nicaragua	345	473	591	481	522	533	480	506	460	471	407	446
Panama	170	317	231	275	310	317	273	345	373	396	326	365
Paraguay	0	3	-	-	-	-	-	-	-	-	-	-
Peru	184	186	154	209	183	199	240	253	290	298	286	291
Trinidad and Tobago	708	711	685	759	723	754	699	709	699	703	676	693
Uruguay	43	53	57	103	296	104	307	253	79	196	273	183
Venezuela	323	219	191	208	214	208	203	207	258	234	265	252
Other Non-OECD Americas	..	..	..	..	..	..	..	..	..	..	..	..
<b>Non-OECD Americas</b>	<b>184</b>	<b>174</b>	<b>174</b>	<b>178</b>	<b>179</b>	<b>179</b>	<b>185</b>	<b>184</b>	<b>195</b>	<b>182</b>	<b>201</b>	<b>193</b>
Bahrain	840	791	815	769	789	752	765	784	762	768	755	762
Islamic Republic of Iran	603	606	574	541	549	546	582	578	565	577	569	570
Iraq	569	1 678	641	573	387	423	671	932	1 002	902	907	937
Jordan	815	834	708	660	626	588	594	584	575	637	636	616
Kuwait	887	578	780	799	786	782	778	870	758	787	745	763
Lebanon	1 835	678	737	591	706	662	715	717	709	707	806	740
Oman	762	830	795	693	694	682	662	647	638	615	602	618
Qatar	1 077	1 131	771	618	617	565	534	507	493	490	493	492
Saudi Arabia	831	813	805	739	749	726	736	757	737	754	738	743
Syrian Arab Republic	553	586	567	607	612	623	627	629	594	600	582	592
United Arab Emirates	743	737	728	844	820	720	748	631	598	597	597	598
Yemen	746	946	930	841	781	679	636	630	649	622	650	641
<b>Middle East</b>	<b>736</b>	<b>808</b>	<b>702</b>	<b>672</b>	<b>666</b>	<b>646</b>	<b>675</b>	<b>687</b>	<b>668</b>	<b>674</b>	<b>667</b>	<b>670</b>

CO<sub>2</sub> emissions per kWh from electricity generation using coal \*grammes CO<sub>2</sub> / kilowatt hour

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	average 10-12
<b>World</b>	<b>983</b>	<b>997</b>	<b>977</b>	<b>992</b>	<b>991</b>	<b>984</b>	<b>977</b>	<b>978</b>	<b>967</b>	<b>961</b>	<b>962</b>	<b>964</b>
<i>Annex I Parties</i>	954	947	920	932	931	942	922	920	921	927	924	924
<i>Annex II Parties</i>	927	943	921	921	918	931	914	913	910	913	915	913
<i>North America</i>	913	947	921	917	911	928	909	908	907	909	912	909
<i>Europe</i>	927	916	897	912	912	925	909	893	893	901	903	899
<i>Asia Oceania</i>	1 023	983	963	951	956	951	944	958	948	946	941	945
<i>Annex I EIT</i>	1 088	960	901	1 009	1 011	1 002	956	949	968	992	962	974
<i>Non-Annex I Parties</i>	1 074	1 108	1 082	1 065	1 056	1 024	1 028	1 024	1 002	984	985	990
<i>Annex I Kyoto Parties</i>	997	943	915	951	954	956	935	931	934	944	932	937
<b>Non-OECD Total</b>	<b>1 085</b>	<b>1 084</b>	<b>1 062</b>	<b>1 074</b>	<b>1 064</b>	<b>1 034</b>	<b>1 031</b>	<b>1 026</b>	<b>1 005</b>	<b>986</b>	<b>989</b>	<b>993</b>
<b>OECD Total</b>	<b>939</b>	<b>950</b>	<b>926</b>	<b>922</b>	<b>921</b>	<b>930</b>	<b>916</b>	<b>916</b>	<b>917</b>	<b>923</b>	<b>918</b>	<b>919</b>
Canada	960	943	907	920	961	953	939	910	905	900	901	902
Chile	998	846	954	923	866	745	910	865	887	947	869	901
Mexico	921	1 110	1 046	974	963	959	1 003	971	972	974	964	970
United States	911	948	922	917	909	927	908	907	907	909	912	909
<b>OECD Americas</b>	<b>913</b>	<b>948</b>	<b>922</b>	<b>918</b>	<b>912</b>	<b>927</b>	<b>910</b>	<b>908</b>	<b>908</b>	<b>910</b>	<b>912</b>	<b>910</b>
Australia	946	932	944	1 000	1 000	999	999	1 035	992	989	994	992
Israel	882	847	851	830	834	836	837	838	838	847	852	845
Japan	1 103	1 025	975	919	926	921	907	905	919	917	909	915
Korea	2 017	1 250	1 010	990	999	913	908	940	962	1 009	925	966
New Zealand	901	793	1 319	1 045	1 076	1 154	1 052	1 125	1 294	1 259	1 128	1 227
<b>OECD Asia Oceania</b>	<b>1 082</b>	<b>1 011</b>	<b>967</b>	<b>954</b>	<b>961</b>	<b>937</b>	<b>930</b>	<b>947</b>	<b>947</b>	<b>961</b>	<b>931</b>	<b>947</b>
Austria	951	1 061	894	997	1 010	1 066	1 011	1 048	1 058	1 032	1 058	1 049
Belgium	1 002	1 038	992	1 180	1 259	1 251	1 389	1 048	1 233	1 298	1 318	1 283
Czech Republic	960	1 061	941	944	953	973	987	974	994	1 017	1 009	1 006
Denmark	705	658	614	637	693	688	668	657	641	634	580	618
Estonia	1 028	1 092	1 127	1 105	1 021	1 081	1 141	1 162	1 124	1 060	1 050	1 078
Finland	636	666	707	721	761	741	736	685	722	721	661	702
France	1 053	1 111	1 018	966	1 003	1 012	940	935	856	910	1 046	937
Germany	932	936	879	894	903	919	905	898	899	898	895	897
Greece	1 137	1 126	992	1 009	1 019	991	1 009	1 000	1 025	1 018	1 024	1 022
Hungary	1 168	1 066	1 037	1 099	1 046	1 049	1 060	1 075	1 101	1 066	1 085	1 084
Iceland	-	-	-	-	-	-	-	-	-	-	-	-
Ireland	917	923	898	872	842	854	809	828	865	816	858	846
Italy	963	987	974	998	990	1 008	1 019	963	968	954	900	941
Luxembourg	3 170	3 701	-	-	-	-	-	-	-	-	-	-
Netherlands	884	864	842	857	821	839	842	810	830	830	913	858
Norway	1 411	863	1 041	1 060	1 057	1 065	1 118	1 156	1 153	1 265	1 192	1 203
Poland	1 005	916	882	858	863	866	877	875	869	881	874	875
Portugal	886	854	865	857	859	849	848	853	873	870	862	868
Slovak Republic	954	1 031	947	982	1 000	1 012	991	1 012	1 001	1 007	1 044	1 017
Slovenia	1 252	993	985	971	978	993	984	964	953	970	953	959
Spain	936	911	917	886	901	943	901	926	937	956	928	940
Sweden	637	525	866	988	905	827	690	780	678	608	705	664
Switzerland	665	-	-	-	-	-	-	-	-	-	-	-
Turkey	1 199	1 132	1 085	918	1 017	1 039	1 038	1 023	1 059	1 037	1 025	1 040
United Kingdom	910	880	927	941	933	938	904	890	881	895	893	890
<b>OECD Europe</b>	<b>950</b>	<b>934</b>	<b>910</b>	<b>911</b>	<b>916</b>	<b>930</b>	<b>922</b>	<b>909</b>	<b>912</b>	<b>920</b>	<b>917</b>	<b>917</b>
<i>European Union - 28</i>	953	939	908	919	918	932	922	910	910	920	916	915

\* CO<sub>2</sub> emissions from coal, peat and oil shale consumed for electricity generation, in both electricity-only and combined heat and power (CHP) plants, divided by the output of electricity generated from coal, peat and oil shale. Both main activity producers and autoproducers have been included in the calculation. This indicator is set as not available when the electricity output is very small or when values do not fall within expected ranges due to data quality.

CO<sub>2</sub> emissions per kWh from electricity generation using coalgrammes CO<sub>2</sub> / kilowatt hour

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	average 10-12
<b>Non-OECD Total</b>	<b>1 085</b>	<b>1 084</b>	<b>1 062</b>	<b>1 074</b>	<b>1 064</b>	<b>1 034</b>	<b>1 031</b>	<b>1 026</b>	<b>1 005</b>	<b>986</b>	<b>989</b>	<b>993</b>
Albania	-	-	-	-	-	-	-	-	-	-	-	-
Armenia	-	-	-	-	-	-	-	-	-	-	-	-
Azerbaijan	-	-	-	-	-	-	-	-	-	-	-	-
Belarus	-	-	-	1 484	1 884	1 260	1 886	1 396	1 111	1 490	1 487	1 362
Bosnia and Herzegovina	896	977	1 615	1 532	1 532	1 535	1 236	1 345	1 368	1 372	1 395	1 378
Bulgaria	1 237	1 138	1 033	1 142	1 119	1 080	1 031	1 034	1 061	1 045	1 043	1 050
Croatia	971	1 043	894	896	863	862	858	882	866	840	869	858
Cyprus *	-	-	-	-	-	-	-	-	-	-	-	-
FYR of Macedonia	964	1 010	972	1 007	1 036	1 054	1 050	990	1 033	1 105	1 069	1 069
Georgia	-	-	-	-	-	-	-	-	-	-	-	-
Gibraltar	-	-	-	-	-	-	-	-	-	-	-	-
Kazakhstan	632	694	828	648	1 046	766	616	457	436	460	492	462
Kosovo **	..	..	1 341	1 151	1 154	1 112	1 106	1 319	1 330	1 127	1 041	1 166
Kyrgyzstan	576	678	814	367	362	357	625	1 053	358	358	443	386
Latvia	855	1 241	1 504	-	-	..	..	..	..	..	..	..
Lithuania	-	-	-	-	945	1 013	1 113	-	-	-	-	-
Malta	1 167	1 382	-	-	-	-	-	-	-	-	-	-
Republic of Moldova	878	816	1 178	-	-	-	-	-	-	-	-	-
Montenegro **	..	..	..	1 102	1 052	1 135	1 162	1 160	1 328	1 195	1 133	1 219
Romania	1 045	1 242	1 032	1 066	1 053	1 098	1 089	1 089	1 063	1 105	1 056	1 075
Russian Federation	1 115	761	792	1 068	1 088	1 045	914	919	960	999	936	965
Serbia **	1 213	1 573	1 388	1 176	1 189	1 032	999	1 024	1 058	1 033	1 031	1 040
Tajikistan	-	-	-	-	-	-	-	-	-	-	-	-
Turkmenistan	-	-	-	-	-	-	-	-	-	-	-	-
Ukraine	1 183	1 257	1 070	1 203	1 115	1 121	1 065	1 008	1 037	1 075	1 057	1 056
Uzbekistan	1 817	1 582	1 566	1 567	1 565	1 566	1 565	1 565	1 566	1 566	1 566	1 566
<b>Non-OECD Europe and Eurasia</b>	<b>1 065</b>	<b>957</b>	<b>927</b>	<b>1 041</b>	<b>1 097</b>	<b>1 028</b>	<b>932</b>	<b>906</b>	<b>919</b>	<b>946</b>	<b>919</b>	<b>928</b>
Algeria	-	-	-	-	-	-	-	-	-	-	-	-
Angola	-	-	-	-	-	-	-	-	-	-	-	-
Benin	-	-	-	-	-	-	-	-	-	-	-	-
Botswana	1 724	1 660	1 738	1 903	1 274	1 275	1 481	1 483	1 480	1 482	1 479	1 480
Cameroon	-	-	-	-	-	-	-	-	-	-	-	-
Congo	-	-	-	-	-	-	-	-	-	-	-	-
Dem. Rep. of Congo	-	-	-	-	-	-	-	-	-	-	-	-
Côte d'Ivoire	-	-	-	-	-	-	-	-	-	-	-	-
Egypt	-	-	-	-	-	-	-	-	-	-	-	-
Eritrea	..	-	-	-	-	-	-	-	-	-	-	-
Ethiopia	-	-	-	-	-	-	-	-	-	-	-	-
Gabon	-	-	-	-	-	-	-	-	-	-	-	-
Ghana	-	-	-	-	-	-	-	-	-	-	-	-
Kenya	-	-	-	-	-	-	-	-	-	-	-	-
Libya	-	-	-	-	-	-	-	-	-	-	-	-
Mauritius	1 794	1 354	1 509	1 337	1 388	1 331	1 292	1 353	1 479	1 332	1 350	1 387
Morocco	1 242	1 020	938	951	971	971	967	961	989	983	987	986
Mozambique	883	-	-	-	-	-	-	-	-	-	-	-
Namibia	..	1 346	..	..	1 603	..	1 335	1 322	1 339	1 367	1 403	1 370
Nigeria	1 656	-	-	-	-	-	-	-	-	-	-	-
Senegal	-	-	-	-	-	-	-	-	-	-	-	-
South Africa	900	944	960	900	878	869	1 005	963	983	927	973	961
Sudan	-	-	-	-	-	-	-	-	-	-	-	-
United Rep. of Tanzania	-	1 116	1 107	1 108	1 096	1 130	1 133	-	-	-	-	-
Togo	-	-	-	-	-	-	-	-	-	-	-	-
Tunisia	-	-	-	-	-	-	-	-	-	-	-	-
Zambia	1 703	1 718	1 636	1 575	1 636	2 290	2 290	2 290	-	-	-	-
Zimbabwe	1 338	1 287	1 358	1 314	1 483	1 528	1 412	1 507	1 039	810	903	918
Other Africa	955	956	956	956	956	956	956	956	956	956	956	956
<b>Africa</b>	<b>923</b>	<b>961</b>	<b>970</b>	<b>915</b>	<b>893</b>	<b>884</b>	<b>1 009</b>	<b>969</b>	<b>986</b>	<b>930</b>	<b>975</b>	<b>964</b>

\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

\*\* Serbia includes Kosovo from 1990 to 1999 and Montenegro from 1990 to 2004.

CO<sub>2</sub> emissions per kWh from electricity generation using coalgrammes CO<sub>2</sub> / kilowatt hour

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	average 10-12
Bangladesh	-	-	-	1 393	1 392	1 390	884	924	1 328	1 062	1 037	1 142
Brunei Darussalam	-	-	-	-	-	-	-	-	-	-	-	-
Cambodia	..	-	-	-	-	-	-	1 070	1 027	1 046	1 063	1 045
India	1 124	1 175	1 196	1 233	1 222	1 309	1 275	1 303	1 267	1 228	1 219	1 238
Indonesia	938	941	974	1 023	998	1 051	1 078	1 069	1 084	1 065	1 112	1 087
DPR of Korea	1 294	1 253	1 217	1 208	1 208	1 208	1 208	1 252	1 216	1 191	1 256	1 221
Malaysia	1 077	1 077	754	1 076	1 076	1 076	1 196	1 069	1 173	953	984	1 037
Mongolia	710	1 315	1 124	908	860	987	876	882	981	869	876	909
Myanmar	1 196	-	-	1 036	1 035	1 035	1 032	1 032	1 034	958	940	977
Nepal	-	-	-	-	-	-	-	-	-	-	-	-
Pakistan	1 836	1 581	1 491	2 434	2 694	2 705	2 189	2 452	2 457	2 459	2 334	2 417
Philippines	1 020	1 436	960	1 138	1 021	989	1 221	1 138	920	955	937	937
Singapore	-	-	-	-	-	-	-	-	-	-	-	-
Sri Lanka	-	-	-	-	-	-	-	-	-	1 034	1 210	1 122
Chinese Taipei	983	853	941	925	934	931	945	928	926	885	879	897
Thailand	957	984	965	974	800	975	938	923	932	1 012	1 011	985
Viet Nam	1 790	1 415	1 479	988	988	988	987	987	988	987	988	988
Other Asia	-	-	980	983	981	982	981	980	980	982	981	981
<b>Asia (excl. China)</b>	<b>1 102</b>	<b>1 122</b>	<b>1 124</b>	<b>1 147</b>	<b>1 132</b>	<b>1 195</b>	<b>1 190</b>	<b>1 203</b>	<b>1 181</b>	<b>1 141</b>	<b>1 144</b>	<b>1 155</b>
People's Rep. of China	1 164	1 161	1 093	1 073	1 053	999	997	991	962	950	949	954
Hong Kong, China	832	856	869	881	888	891	898	888	885	893	887	888
<b>China</b>	<b>1 144</b>	<b>1 151</b>	<b>1 089</b>	<b>1 070</b>	<b>1 051</b>	<b>998</b>	<b>997</b>	<b>990</b>	<b>962</b>	<b>949</b>	<b>948</b>	<b>953</b>
Argentina	3 655	2 026	1 226	1 367	1 291	1 226	1 303	1 229	1 160	1 134	1 165	1 153
Bolivia	-	-	-	-	-	-	-	-	-	-	-	-
Brazil	1 691	1 565	1 507	1 505	1 617	1 571	1 407	1 456	1 549	1 165	1 409	1 375
Colombia	1 170	1 155	1 101	1 150	1 068	952	1 054	1 090	1 104	1 043	960	1 035
Costa Rica	-	-	-	-	-	-	-	-	-	-	-	-
Cuba	-	-	-	-	-	-	-	-	-	-	-	-
Dominican Republic	946	952	955	954	953	954	953	954	953	953	954	954
Ecuador	-	-	-	-	-	-	-	-	-	-	-	-
El Salvador	-	-	-	-	-	-	-	-	-	-	-	-
Guatemala	-	-	954	919	928	949	947	959	1 004	989	960	984
Haiti	-	-	-	-	-	-	-	-	-	-	-	-
Honduras	-	-	-	-	-	-	-	-	-	930	927	929
Jamaica	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands Antilles	-	-	-	-	-	-	-	-	-	-	-	-
Nicaragua	-	-	-	-	-	-	-	-	-	-	-	-
Panama	-	-	-	-	-	-	-	-	-	1 112	1 113	1 112
Paraguay	-	-	-	-	-	-	-	-	-	-	-	-
Peru	-	-	1 112	1 112	1 112	1 113	1 112	1 279	1 309	1 315	1 174	1 266
Trinidad and Tobago	-	-	-	-	-	-	-	-	-	-	-	-
Uruguay	-	-	-	-	-	-	-	-	-	-	-	-
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-
Other Non-OECD Americas	..	..	..	..	..	..	..	..	..	..	..	..
<b>Non-OECD Americas</b>	<b>1 617</b>	<b>1 480</b>	<b>1 385</b>	<b>1 355</b>	<b>1 376</b>	<b>1 309</b>	<b>1 267</b>	<b>1 278</b>	<b>1 329</b>	<b>1 121</b>	<b>1 240</b>	<b>1 230</b>
Bahrain	-	-	-	-	-	-	-	-	-	-	-	-
Islamic Republic of Iran	601	605	..	..	..	..	..	..	..	..	..	..
Iraq	-	-	-	-	-	-	-	-	-	-	-	-
Jordan	-	-	-	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-	-	-	-
Lebanon	-	-	-	-	-	-	-	-	-	-	-	-
Oman	-	-	-	-	-	-	-	-	-	-	-	-
Qatar	-	-	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	-	-	-	-	-	-	-	-	-	-	-	-
Syrian Arab Republic	-	-	-	-	-	-	-	-	-	-	-	-
United Arab Emirates	-	-	-	-	-	-	-	-	-	-	-	-
Yemen	-	-	-	-	-	-	-	-	-	-	-	-
<b>Middle East</b>	<b>601</b>	<b>605</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>..</b>

CO<sub>2</sub> emissions per kWh from electricity generation using oil \*grammes CO<sub>2</sub> / kilowatt hour

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	average 10-12
<b>World</b>	<b>743</b>	<b>740</b>	<b>737</b>	<b>753</b>	<b>748</b>	<b>741</b>	<b>745</b>	<b>778</b>	<b>783</b>	<b>779</b>	<b>778</b>	<b>780</b>
<i>Annex I Parties</i>	685	637	696	706	693	691	680	671	670	669	662	667
<i>Annex II Parties</i>	670	645	690	701	689	685	672	661	661	652	645	652
<i>North America</i>	678	570	797	772	806	763	731	725	738	728	708	725
<i>Europe</i>	675	656	644	694	676	712	721	705	712	712	697	707
<i>Asia Oceania</i>	663	678	644	626	612	624	609	579	577	606	615	599
<i>Annex I EIT</i>	716	586	708	714	686	697	700	695	723	774	774	757
<i>Non-Annex I Parties</i>	838	847	767	784	776	768	776	820	822	822	825	823
<i>Annex I Kyoto Parties</i>	684	649	654	668	653	664	662	651	646	656	654	652
<b>Non-OECD Total</b>	<b>806</b>	<b>819</b>	<b>775</b>	<b>795</b>	<b>785</b>	<b>783</b>	<b>794</b>	<b>834</b>	<b>836</b>	<b>832</b>	<b>838</b>	<b>835</b>
<b>OECD Total</b>	<b>685</b>	<b>669</b>	<b>698</b>	<b>704</b>	<b>691</b>	<b>684</b>	<b>665</b>	<b>665</b>	<b>670</b>	<b>670</b>	<b>665</b>	<b>668</b>
Canada	721	641	627	820	945	885	801	845	904	930	882	905
Chile	849	1 550	938	1 088	1 073	686	618	651	672	756	984	804
Mexico	781	770	780	780	754	761	731	758	755	758	697	737
United States	671	559	819	767	786	744	719	700	711	694	671	692
<b>OECD Americas</b>	<b>710</b>	<b>657</b>	<b>791</b>	<b>779</b>	<b>792</b>	<b>755</b>	<b>718</b>	<b>730</b>	<b>740</b>	<b>744</b>	<b>718</b>	<b>734</b>
Australia	832	898	912	947	936	962	979	702	576	618	679	624
Israel	772	777	578	848	866	844	705	797	840	1 129	870	946
Japan	661	675	640	619	603	618	597	573	577	605	614	599
Korea	765	714	560	589	610	570	544	569	576	553	649	593
New Zealand	..	857	-	781	679	-	734	694	-	-	1 041	1 041
<b>OECD Asia Oceania</b>	<b>675</b>	<b>688</b>	<b>623</b>	<b>629</b>	<b>621</b>	<b>622</b>	<b>605</b>	<b>581</b>	<b>583</b>	<b>613</b>	<b>634</b>	<b>610</b>
Austria	753	590	517	541	545	583	614	606	541	601	578	574
Belgium	458	439	741	752	742	720	575	669	537	544	508	530
Czech Republic	848	573	1 044	719	710	965	1 134	1 191	975	1 152	926	1 018
Denmark	610	665	694	492	494	518	500	509	666	630	602	633
Estonia	371	..	588	832	748	886	904	763	818	590	841	749
Finland	459	425	493	568	602	562	460	478	430	477	570	493
France	603	506	547	869	787	796	791	925	852	950	623	808
Germany	817	522	641	646	621	588	633	639	576	577	607	586
Greece	746	737	731	714	695	731	753	764	769	757	738	754
Hungary	734	751	688	913	977	935	861	701	860	1 263	851	991
Iceland	520	694	624	624	781	..	..	..	..	..	1 041	1 041
Ireland	756	732	696	741	758	653	656	727	703	722	710	712
Italy	672	663	704	710	745	778	782	718	823	781	757	787
Luxembourg	1 021	1 226	-	-	-	-	..	760	-	..	..	..
Netherlands	695	729	646	488	527	505	504	461	513	543	703	586
Norway	..	-	406	356	359	485	431	397	331	338	304	325
Poland	820	650	608	519	523	506	504	488	463	489	484	479
Portugal	707	737	635	648	623	615	632	607	559	526	529	538
Slovak Republic	380	519	477	408	422	407	435	614	674	710	767	717
Slovenia	480	1 375	689	634	607	811	811	687	1 049	761	1 041	950
Spain	805	795	630	696	603	723	718	671	674	712	709	698
Sweden	322	335	361	392	393	395	382	672	385	364	398	382
Switzerland	718	714	365	398	405	412	390	395	436	485	425	449
Turkey	899	951	870	681	758	686	723	796	779	766	643	729
United Kingdom	660	672	468	682	623	701	733	819	728	733	762	741
<b>OECD Europe</b>	<b>675</b>	<b>667</b>	<b>658</b>	<b>689</b>	<b>675</b>	<b>705</b>	<b>714</b>	<b>704</b>	<b>706</b>	<b>706</b>	<b>691</b>	<b>701</b>
<i>European Union - 28</i>	704	661	653	698	680	714	717	703	707	716	705	709

\* CO<sub>2</sub> emissions from oil consumed for electricity generation, in both electricity-only and combined heat and power plants, divided by the output of electricity generated from oil. Both main activity producers and autoproducers have been included in the calculation. This indicator is set as not available when the electricity output is very small or when values do not fall within expected ranges due to data quality.

CO<sub>2</sub> emissions per kWh from electricity generation using oilgrammes CO<sub>2</sub> / kilowatt hour

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	average 10-12
<b>Non-OECD Total</b>	<b>806</b>	<b>819</b>	<b>775</b>	<b>795</b>	<b>785</b>	<b>783</b>	<b>794</b>	<b>834</b>	<b>836</b>	<b>832</b>	<b>838</b>	<b>835</b>
Albania	877	618	1 349	2 013	1 515	1 234	-	..	..	..	-	..
Armenia	578	306	-	-	-	-	-	-	-	-	-	-
Azerbaijan	996	837	839	839	616	816	816	814	674	771	628	691
Belarus	687	696	653	585	586	620	640	588	625	571	583	593
Bosnia and Herzegovina	947	1 977	1 085	1 043	1 041	1 041	-	836	766	726	766	752
Bulgaria	469	622	707	750	718	750	768	703	835	957	782	858
Croatia	703	642	707	680	676	690	665	647	544	605	639	596
Cyprus *	838	822	838	789	758	761	761	750	714	760	768	747
FYR of Macedonia	1 189	912	780	1 215	759	777	840	790	804	823	801	809
Georgia	..	..	..	..	..	..	..	..	..	..	-	..
Gibraltar	737	738	760	740	751	751	757	757	744	770	749	754
Kazakhstan	1 217	345	312	343	654	666	383	311	306	307	302	305
Kosovo **	..	..	1 138	1 030	959	897	843	821	841	1 132	1 110	1 028
Kyrgyzstan	-	-	-	917	917	942	909	935	918	915	936	923
Latvia	503	493	699	336	819	655	407	604	854	432	702	663
Lithuania	511	595	545	786	816	609	525	520	522	559	916	666
Malta	2 119	932	819	1 034	954	1 012	849	850	872	866	881	873
Republic of Moldova	926	1 990	2 918	763	765	-	697	682	..	..	..	..
Montenegro **	..	..	..	-	-	-	-	-	-	-	-	-
Romania	1 272	648	605	596	581	622	671	634	608	880	721	736
Russian Federation	634	515	733	761	715	729	753	755	837	800	802	813
Serbia **	902	914	914	780	1 080	703	784	988	746	684	463	631
Tajikistan	-	-	-	-	-	-	-	-	-	-	-	-
Turkmenistan	-	-	-	-	-	-	-	-	-	-	-	-
Ukraine	856	805	630	966	989	965	653	919	687	952	750	797
Uzbekistan	3 012	795	777	778	777	778	778	780	789	786	784	786
<b>Non-OECD Europe and Eurasia</b>	<b>789</b>	<b>630</b>	<b>744</b>	<b>763</b>	<b>717</b>	<b>754</b>	<b>724</b>	<b>731</b>	<b>770</b>	<b>792</b>	<b>786</b>	<b>782</b>
Algeria	1 050	1 178	863	948	961	916	914	936	998	910	935	948
Angola	..	..	1 353	1 339	1 341	1 342	1 342	1 343	1 343	1 342	1 343	1 343
Benin	1 200	951	616	716	716	671	688	725	724	722	725	724
Botswana	1 091	1 054	1 051	1 026	1 026	1 026	-	-	-	-	-	-
Cameroon	852	893	919	698	739	705	739	711	858	859	860	859
Congo	1 058	1 587	-	-	-	1 411	-	1 092	1 050	1 058	1 058	1 056
Dem. Rep. of Congo	1 012	1 219	1 058	907	1 058	907	747	1 058	1 058	1 058	1 058	1 058
Côte d'Ivoire	616	692	970	1 333	968	1 037	1 047	786	944	939	929	937
Egypt	964	818	..	821	835	835	835	834	835	835	835	835
Eritrea	..	1 703	1 340	978	969	948	808	839	856	854	854	855
Ethiopia	1 164	641	828	794	953	960	959	1 094	1 127	1 116	1 111	1 118
Gabon	895	803	777	699	709	689	659	729	712	716	715	714
Ghana	-	836	771	860	827	772	842	812	1 043	869	870	927
Kenya	712	619	899	901	900	900	899	900	899	899	898	899
Libya	779	1 290	1 144	995	1 051	951	752	814	814	773	858	815
Mauritius	707	695	667	665	695	691	635	643	635	636	629	633
Morocco	773	932	741	921	843	794	810	744	734	776	724	745
Mozambique	504	907	1 058	907	794	1 058	-	-	-	-	-	-
Namibia	..	833	-	-	999	1 110	999	1 110	1 110	1 110	1 110	1 110
Nigeria	772	550	-	-	-	-	-	-	-	-	-	-
Senegal	941	980	1 006	917	871	709	708	818	785	724	710	740
South Africa	-	819	-	-	-	753	748	771	751	751	762	755
Sudan	884	972	942	917	945	816	818	821	830	827	676	778
United Rep. of Tanzania	3 135	1 485	922	1 097	1 088	947	937	969	1 011	1 049	1 052	1 037
Togo	1 058	1 058	1 309	589	798	842	847	918	811	933	1 118	954
Tunisia	831	921	907	781	741	731	718	727	..	..	-	..
Zambia	1 091	917	922	847	884	996	865	878	865	862	871	866
Zimbabwe	-	-	1 539	1 984	2 117	2 117	2 117	2 117	2 117	2 117	2 117	2 117
Other Africa	673	556	821	839	823	812	815	771	789	788	789	788
<b>Africa</b>	<b>854</b>	<b>925</b>	<b>679</b>	<b>902</b>	<b>906</b>	<b>851</b>	<b>808</b>	<b>827</b>	<b>837</b>	<b>826</b>	<b>834</b>	<b>832</b>

\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

\*\* Serbia includes Kosovo from 1990 to 1999 and Montenegro from 1990 to 2004.

CO<sub>2</sub> emissions per kWh from electricity generation using oilgrammes CO<sub>2</sub> / kilowatt hour

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	average 10-12
Bangladesh	1 101	1 004	1 077	942	922	780	1 027	664	827	597	599	674
Brunei Darussalam	866	847	690	766	819	770	770	772	752	858	858	823
Cambodia	..	805	836	845	843	842	856	851	839	840	839	840
India	1 179	1 214	951	853	971	1 003	1 010	952	934	942	1 098	992
Indonesia	817	889	786	740	714	792	739	753	771	758	869	800
DPR of Korea	1 308	1 379	1 379	1 379	1 378	1 380	1 380	1 379	1 380	1 380	1 380	1 380
Malaysia	907	831	846	817	813	829	981	776	625	732	720	692
Mongolia	820	765	882	1 012	1 023	1 004	1 012	1 027	1 031	1 023	1 038	1 031
Myanmar	741	894	868	840	794	840	794	847	770	836	809	805
Nepal	-	827	755	850	781	753	753	781	1 129	-	713	921
Pakistan	890	757	755	700	753	720	731	763	768	709	703	727
Philippines	563	656	685	751	723	664	722	695	662	744	726	711
Singapore	909	1 151	834	761	754	750	691	781	755	785	827	789
Sri Lanka	1 231	696	826	759	657	658	662	674	666	690	677	678
Chinese Taipei	692	696	688	804	782	829	825	911	879	839	908	875
Thailand	786	740	748	728	738	763	728	761	715	682	688	695
Viet Nam	924	900	914	1 044	1 015	998	1 241	1 150	1 078	1 083	1 083	1 082
Other Asia	771	582	696	895	878	920	955	936	952	952	952	952
<b>Asia (excl. China)</b>	<b>833</b>	<b>832</b>	<b>800</b>	<b>783</b>	<b>791</b>	<b>817</b>	<b>811</b>	<b>811</b>	<b>811</b>	<b>792</b>	<b>843</b>	<b>815</b>
People's Rep. of China	817	817	863	826	828	834	858	836	780	766	752	766
Hong Kong, China	619	825	788	798	805	829	836	983	1 076	1 027	756	953
<b>China</b>	<b>815</b>	<b>818</b>	<b>863</b>	<b>826</b>	<b>828</b>	<b>834</b>	<b>858</b>	<b>838</b>	<b>782</b>	<b>770</b>	<b>755</b>	<b>769</b>
Argentina	1 093	632	1 013	808	767	764	750	746	735	727	732	731
Bolivia	941	948	953	943	938	943	940	946	945	939	942	942
Brazil	827	825	805	762	722	714	692	677	719	683	727	710
Colombia	890	891	864	877	874	871	871	893	894	916	921	910
Costa Rica	807	916	965	852	900	896	888	820	833	726	666	742
Cuba	853	915	766	913	838	819	809	1 204	1 134	1 040	989	1 054
Dominican Republic	966	1 017	857	744	703	695	691	686	667	668	617	651
Ecuador	873	794	761	966	1 012	923	735	727	780	845	753	792
El Salvador	984	927	773	726	731	723	722	625	630	715	663	669
Guatemala	888	881	780	694	716	625	697	634	650	619	641	637
Haiti	1 980	669	716	587	582	764	786	502	669	333	687	563
Honduras	556	845	737	610	422	670	659	619	632	641	637	637
Jamaica	819	936	866	594	505	646	691	692	706	726	705	712
Netherlands Antilles	717	714	714	711	710	708	707	707	708	706	707	707
Nicaragua	892	868	751	736	746	751	745	732	730	713	711	718
Panama	1 157	1 027	781	769	780	735	721	792	864	789	813	822
Paraguay	898	925	-	-	-	-	-	-	-	-	-	-
Peru	802	963	881	1 134	919	1 372	1 047	910	946	980	905	944
Trinidad and Tobago	..	..	..	..	..	..	..	..	661	918	790	790
Uruguay	844	826	860	824	843	807	786	811	645	707	715	689
Venezuela	895	1 200	890	907	998	930	886	889	900	912	942	918
Other Non-OECD Americas	..	..	..	..	..	..	..	..	..	..	..	..
<b>Non-OECD Americas</b>	<b>682</b>	<b>666</b>	<b>635</b>	<b>639</b>	<b>629</b>	<b>635</b>	<b>639</b>	<b>676</b>	<b>681</b>	<b>670</b>	<b>671</b>	<b>674</b>
Bahrain	-	-	-	-	1 312	1 314	1 231	-	-	-	-	-
Islamic Republic of Iran	907	910	912	908	904	906	906	906	904	902	906	904
Iraq	667	2 025	690	980	619	672	1 234	2 067	2 376	2 301	1 946	2 208
Jordan	855	860	717	730	699	912	850	923	754	687	670	704
Kuwait	1 197	665	917	917	942	939	977	1 008	855	918	842	872
Lebanon	2 753	784	773	645	751	696	736	754	766	744	864	791
Oman	1 056	1 056	1 056	1 054	910	843	791	858	906	817	766	830
Qatar	-	-	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	834	831	876	840	828	776	795	832	823	842	820	828
Syrian Arab Republic	789	777	730	802	789	758	740	762	750	801	802	784
United Arab Emirates	971	968	953	1 194	1 194	1 194	1 194	1 190	1 194	1 195	1 196	1 195
Yemen	746	946	930	841	781	679	636	630	685	641	701	676
<b>Middle East</b>	<b>877</b>	<b>1 035</b>	<b>840</b>	<b>859</b>	<b>839</b>	<b>813</b>	<b>856</b>	<b>934</b>	<b>929</b>	<b>927</b>	<b>915</b>	<b>924</b>

**CO<sub>2</sub> emissions per kWh from electricity generation using natural gas \***

 grammes CO<sub>2</sub> / kilowatt hour

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	average 10-12
<b>World</b>	<b>480</b>	<b>505</b>	<b>482</b>	<b>466</b>	<b>460</b>	<b>455</b>	<b>454</b>	<b>452</b>	<b>450</b>	<b>449</b>	<b>449</b>	<b>449</b>
<i>Annex I Parties</i>	445	472	449	430	420	420	418	415	415	421	421	419
<i>Annex II Parties</i>	501	488	442	416	403	404	400	399	400	401	402	401
<i>North America</i>	546	536	483	449	415	421	413	406	409	408	407	408
<i>Europe</i>	454	418	386	361	368	362	362	365	366	359	356	360
<i>Asia Oceania</i>	448	447	438	440	443	445	447	448	443	446	446	445
<i>Annex I EIT</i>	378	435	481	485	487	485	490	483	478	504	501	494
<i>Non-Annex I Parties</i>	607	591	555	528	528	515	514	508	501	491	490	494
<i>Annex I Kyoto Parties</i>	403	434	434	421	425	422	422	422	421	431	435	429
<b>Non-OECD Total</b>	<b>462</b>	<b>524</b>	<b>536</b>	<b>529</b>	<b>531</b>	<b>520</b>	<b>522</b>	<b>517</b>	<b>509</b>	<b>509</b>	<b>504</b>	<b>507</b>
<b>OECD Total</b>	<b>502</b>	<b>488</b>	<b>439</b>	<b>413</b>	<b>401</b>	<b>403</b>	<b>398</b>	<b>397</b>	<b>399</b>	<b>398</b>	<b>402</b>	<b>400</b>
Canada	403	405	455	449	463	510	527	469	487	474	475	479
Chile	777	574	370	465	414	463	501	450	383	410	438	410
Mexico	555	513	489	420	428	420	417	400	419	405	407	410
United States	549	541	484	449	413	417	408	403	405	404	403	404
<b>OECD Americas</b>	<b>546</b>	<b>535</b>	<b>481</b>	<b>446</b>	<b>417</b>	<b>421</b>	<b>414</b>	<b>406</b>	<b>410</b>	<b>408</b>	<b>407</b>	<b>408</b>
Australia	565	558	584	531	530	529	533	537	480	508	522	503
Israel	-	516	541	559	481	499	440	433	442	436	365	414
Japan	436	437	428	432	437	437	439	437	438	439	438	438
Korea	496	436	379	369	370	372	367	364	370	368	420	386
New Zealand	507	510	463	428	415	415	397	401	415	418	412	415
<b>OECD Asia Oceania</b>	<b>450</b>	<b>446</b>	<b>433</b>	<b>429</b>	<b>430</b>	<b>432</b>	<b>431</b>	<b>433</b>	<b>427</b>	<b>430</b>	<b>439</b>	<b>432</b>
Austria	437	493	395	329	333	335	328	320	306	302	320	309
Belgium	513	436	385	372	335	331	332	339	332	299	313	315
Czech Republic	251	414	465	459	434	347	422	449	405	423	419	416
Denmark	292	271	286	282	288	278	273	279	260	257	270	262
Estonia	253	252	252	245	238	245	239	237	273	267	240	260
Finland	270	331	242	239	267	243	243	236	236	238	241	239
France	337	335	288	264	314	318	322	463	520	472	458	483
Germany	464	446	415	351	364	350	353	359	346	341	331	340
Greece	459	435	505	459	416	416	423	385	490	401	388	426
Hungary	561	544	457	396	382	405	393	360	365	367	371	367
Iceland	-	-	-	-	-	-	-	-	-	-	-	-
Ireland	499	480	460	412	408	413	392	395	398	391	385	392
Italy	475	466	431	393	382	380	376	374	374	372	371	372
Luxembourg	662	633	580	348	349	354	348	355	354	351	358	354
Netherlands	444	353	311	322	338	330	334	332	331	316	300	316
Norway	-	302	302	302	301	341	312	302	374	336	339	349
Poland	527	444	507	346	360	354	346	339	320	338	337	332
Portugal	-	-	372	357	353	352	355	361	359	355	351	355
Slovak Republic	813	837	490	316	295	305	310	339	385	347	336	356
Slovenia	..	345	273	291	268	332	345	395	378	374	372	375
Spain	423	469	311	319	356	339	349	353	360	360	357	359
Sweden	217	218	249	218	219	215	216	209	209	208	214	210
Switzerland	269	242	240	248	260	257	261	261	253	272	258	261
Turkey	488	419	356	374	356	362	364	371	376	371	373	373
United Kingdom	521	426	396	393	400	388	387	390	385	379	387	383
<b>OECD Europe</b>	<b>461</b>	<b>424</b>	<b>385</b>	<b>363</b>	<b>367</b>	<b>362</b>	<b>362</b>	<b>366</b>	<b>367</b>	<b>360</b>	<b>359</b>	<b>362</b>
<i>European Union - 28</i>	486	434	392	363	369	364	363	366	365	358	357	360

\* CO<sub>2</sub> emissions from natural gas consumed for electricity generation, in both electricity-only and combined heat and power plants, divided by the output of electricity generated from natural gas. Both main activity producers and autoproducers have been included in the calculation. This indicator is set as not available when the electricity output is very small or when values do not fall within expected ranges due to data quality.



CO<sub>2</sub> emissions per kWh from electricity generation using natural gasgrammes CO<sub>2</sub> / kilowatt hour

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	average 10-12
<b>Non-OECD Total</b>	<b>462</b>	<b>524</b>	<b>536</b>	<b>529</b>	<b>531</b>	<b>520</b>	<b>522</b>	<b>517</b>	<b>509</b>	<b>509</b>	<b>504</b>	<b>507</b>
Albania	-	-	-	-	-	-	-	-	-	-	-	-
Armenia	600	359	526	454	525	620	609	504	416	384	417	406
Azerbaijan	396	490	682	525	563	564	554	540	528	519	534	527
Belarus	421	424	460	455	455	451	460	439	445	441	423	436
Bosnia and Herzegovina	-	-	-	-	-	-	-	630	632	698	694	675
Bulgaria	645	638	571	270	288	391	322	299	238	288	312	279
Croatia	460	568	491	403	422	460	416	417	367	363	366	365
Cyprus *	-	-	-	-	-	-	-	-	-	-	-	-
FYR of Macedonia	-	-	..	..	..	-	-	613	483	490	352	441
Georgia	521	854	887	520	508	847	476	766	727	434	459	540
Gibraltar	-	-	-	-	-	-	-	-	-	-	-	-
Kazakhstan	381	559	1 009	778	574	574	574	574	574	574	574	574
Kosovo **	..	..	-	-	-	-	-	-	-	-	-	-
Kyrgyzstan	383	383	434	259	247	216	446	448	223	213	448	295
Latvia	306	372	314	280	254	250	281	254	258	259	257	258
Lithuania	350	..	461	376	379	386	402	401	424	386	350	387
Malta	-	-	-	-	-	-	-	-	-	-	-	-
Republic of Moldova	515	566	650	521	505	518	520	529	521	518	522	520
Montenegro **	..	..	..	..	..	..	..	..	..	..	..	..
Romania	704	514	506	471	428	428	462	369	332	331	393	352
Russian Federation	357	429	487	503	503	499	505	499	494	524	520	513
Serbia **	402	579	580	307	438	490	463	..	..	656	474	565
Tajikistan	..	..	..	..	..	..	286	265	337	331	294	321
Turkmenistan	720	931	872	872	872	872	927	865	954	983	987	975
Ukraine	383	400	422	393	417	411	393	348	370	409	372	383
Uzbekistan	467	565	644	644	643	643	644	642	642	643	643	643
<b>Non-OECD Europe and Eurasia</b>	<b>391</b>	<b>455</b>	<b>511</b>	<b>512</b>	<b>512</b>	<b>510</b>	<b>516</b>	<b>511</b>	<b>506</b>	<b>529</b>	<b>527</b>	<b>521</b>
Algeria	613	621	614	609	618	594	594	638	538	541	529	536
Angola	-	-	-	-	-	-	-	-	-	-	-	-
Benin	-	-	-	-	-	-	-	-	-	-	-	-
Botswana	-	-	-	-	-	-	-	-	-	-	-	-
Cameroon	-	-	-	-	-	538	538	538	538	538	538	538
Congo	-	-	-	573	572	575	576	574	574	584	584	581
Dem. Rep. of Congo	-	-	-	-	574	573	573	573	573	573	573	573
Côte d'Ivoire	-	736	598	627	539	617	687	625	636	623	643	634
Egypt	490	490	490	490	476	450	460	453	407	413	418	413
Eritrea	..	-	-	-	-	-	-	-	-	-	-	-
Ethiopia	-	-	-	-	-	-	-	-	-	-	-	-
Gabon	1 038	876	929	978	977	1 014	709	738	778	748	764	763
Ghana	-	-	-	-	-	-	-	525	758	594	567	640
Kenya	-	-	-	-	-	-	-	-	-	-	-	-
Libya	-	591	591	662	626	562	595	530	529	529	383	480
Mauritius	-	-	-	-	-	-	-	-	-	-	-	-
Morocco	-	-	-	397	394	409	350	375	414	387	377	392
Mozambique	-	..	..	724	684	573	502	711	600	763	854	739
Namibia	..	-	-	-	-	-	-	-	-	-	-	-
Nigeria	584	502	734	502	502	502	502	502	502	502	502	502
Senegal	591	604	628	519	516	513	513	694	550	560	368	493
South Africa	-	-	-	-	-	-	-	-	-	-	-	-
Sudan	-	-	-	-	-	-	-	-	-	-	-	-
United Rep. of Tanzania	-	-	-	569	616	769	647	549	538	549	542	543
Togo	-	-	-	-	-	-	-	-	-	-	-	-
Tunisia	559	533	536	470	477	482	484	485	483	471	473	476
Zambia	-	-	-	-	-	-	-	-	-	-	-	-
Zimbabwe	-	-	-	-	-	-	-	-	-	-	-	-
Other Africa	-	-	-	502	502	502	502	502	502	501	501	502
<b>Africa</b>	<b>554</b>	<b>539</b>	<b>561</b>	<b>526</b>	<b>519</b>	<b>500</b>	<b>508</b>	<b>504</b>	<b>466</b>	<b>466</b>	<b>457</b>	<b>463</b>

\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

\*\* Serbia includes Kosovo from 1990 to 1999 and Montenegro from 1990 to 2004.

CO<sub>2</sub> emissions per kWh from electricity generation using natural gasgrammes CO<sub>2</sub> / kilowatt hour

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	average 10-12
Bangladesh	602	586	547	538	554	557	556	561	570	566	573	570
Brunei Darussalam	924	881	796	801	839	739	791	789	730	716	722	722
Cambodia	-	-	-	-	-	-	-	-	-	-	-	-
India	812	539	386	443	437	425	420	485	509	457	440	469
Indonesia	670	509	519	493	584	517	522	572	502	506	530	512
DPR of Korea	-	-	-	-	-	-	-	-	-	-	-	-
Malaysia	574	559	555	558	538	515	549	486	595	508	495	533
Mongolia	-	-	-	-	-	-	-	-	-	-	-	-
Myanmar	1 041	843	686	725	725	725	725	725	725	725	725	725
Nepal	-	-	-	-	-	-	-	-	-	-	-	-
Pakistan	662	594	550	537	536	573	586	562	557	541	580	559
Philippines	-	854	-	345	330	338	341	349	329	355	359	347
Singapore	-	447	446	425	427	422	418	396	398	400	398	399
Sri Lanka	-	-	-	-	-	-	-	-	-	-	-	-
Chinese Taipei	504	508	464	429	429	424	429	422	423	426	384	411
Thailand	503	468	483	465	465	459	450	446	444	420	410	425
Viet Nam	-	514	591	434	444	431	428	415	404	404	404	404
Other Asia	-	502	502	502	502	502	502	502	502	502	502	502
<b>Asia (excl. China)</b>	<b>632</b>	<b>534</b>	<b>494</b>	<b>477</b>	<b>479</b>	<b>467</b>	<b>470</b>	<b>474</b>	<b>484</b>	<b>458</b>	<b>452</b>	<b>465</b>
People's Rep. of China	524	517	519	519	519	518	518	518	518	518	518	518
Hong Kong, China	-	859	468	454	454	454	454	454	454	454	432	446
<b>China</b>	<b>524</b>	<b>525</b>	<b>485</b>	<b>488</b>	<b>490</b>	<b>502</b>	<b>500</b>	<b>506</b>	<b>507</b>	<b>510</b>	<b>508</b>	<b>508</b>
Argentina	614	597	514	448	536	533	469	496	469	474	476	473
Bolivia	581	697	643	554	552	560	629	636	636	672	634	647
Brazil	513	740	488	473	451	450	440	438	424	461	428	438
Colombia	646	646	534	496	486	546	463	469	470	502	452	475
Costa Rica	-	-	-	-	-	-	-	-	-	-	-	-
Cuba	502	502	502	502	502	502	502	502	502	502	502	502
Dominican Republic	-	-	-	471	457	465	464	465	459	458	458	459
Ecuador	-	-	-	452	452	452	452	452	452	452	491	465
El Salvador	-	-	-	-	-	-	-	-	-	-	-	-
Guatemala	-	-	-	-	-	-	-	-	-	-	-	-
Haiti	-	-	-	-	-	-	-	-	-	-	-	-
Honduras	-	-	-	-	-	-	-	-	-	-	-	-
Jamaica	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands Antilles	-	-	-	-	-	-	-	-	-	-	-	-
Nicaragua	-	-	-	-	-	-	-	-	-	-	-	-
Panama	-	-	-	-	-	-	-	-	-	-	-	-
Paraguay	-	-	-	-	-	-	-	-	-	-	-	-
Peru	671	670	670	548	534	462	472	550	598	612	586	599
Trinidad and Tobago	714	716	688	708	714	736	701	705	700	702	676	693
Uruguay	-	-	-	469	536	578	466	505	499	501	496	499
Venezuela	841	675	644	658	655	631	625	607	606	606	606	606
Other Non-OECD Americas	505	505	502	502	502	502	502	502	502	502	502	502
<b>Non-OECD Americas</b>	<b>702</b>	<b>641</b>	<b>552</b>	<b>505</b>	<b>543</b>	<b>543</b>	<b>498</b>	<b>522</b>	<b>504</b>	<b>521</b>	<b>503</b>	<b>509</b>
Bahrain	840	791	815	769	776	746	765	784	762	768	755	762
Islamic Republic of Iran	505	525	492	520	514	505	513	510	502	479	473	485
Iraq	502	502	502	331	331	331	331	331	331	331	331	331
Jordan	548	681	671	610	600	525	549	555	508	515	499	508
Kuwait	502	502	502	446	446	446	418	529	574	574	574	574
Lebanon	-	-	-	-	-	-	-	502	502	-	-	502
Oman	696	776	741	685	690	678	659	642	632	610	598	613
Qatar	1 077	1 131	771	618	617	565	534	507	493	490	493	492
Saudi Arabia	827	792	723	661	679	676	673	665	636	640	637	638
Syrian Arab Republic	543	543	543	543	543	543	543	543	543	543	543	543
United Arab Emirates	735	730	721	836	812	711	740	622	589	589	589	589
Yemen	-	-	-	-	-	-	-	-	551	551	551	551
<b>Middle East</b>	<b>692</b>	<b>673</b>	<b>622</b>	<b>624</b>	<b>620</b>	<b>595</b>	<b>596</b>	<b>572</b>	<b>556</b>	<b>549</b>	<b>547</b>	<b>551</b>

CO<sub>2</sub> emissions and drivers (Kaya decomposition) \*

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	avg. ch. ref-12**
<b>World ***</b>												
CO <sub>2</sub> emissions	67	75	86	89	100	104	113	131	145	149	151	1.9%
Population	71	77	84	92	100	108	116	123	130	132	133	1.3%
GDP per population (GDP per capita)	73	80	89	92	100	104	116	132	150	154	157	2.1%
Energy intensity (TPES/GDP)	122	115	109	104	100	94	85	81	75	74	73	-1.4%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	107	106	105	101	100	99	99	100	99	100	99	-0.0%
<b>Annex I Parties</b>												
CO <sub>2</sub> emissions	..	..	..	..	100	95	99	101	97	96	95	-0.3%
Population	..	..	..	..	100	103	105	107	109	110	110	0.4%
GDP per population (GDP per capita)	..	..	..	..	100	102	117	130	134	136	137	1.4%
Energy intensity (TPES/GDP)	..	..	..	..	100	93	84	77	72	69	68	-1.8%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	100	96	96	95	92	93	92	-0.4%
<b>Annex II Parties</b>												
CO <sub>2</sub> emissions	88	91	97	94	100	104	112	115	108	106	104	0.2%
Population	88	91	94	97	100	104	107	110	114	114	115	0.6%
GDP per population (GDP per capita)	62	68	78	87	100	107	122	130	131	133	134	1.3%
Energy intensity (TPES/GDP)	141	133	124	109	100	97	89	83	77	74	72	-1.5%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	113	110	107	102	100	97	97	96	94	94	94	-0.3%
<b>Annex II North America</b>												
CO <sub>2</sub> emissions	87	89	96	93	100	106	118	119	112	110	106	0.3%
Population	83	86	91	95	100	106	113	118	124	125	126	1.0%
GDP per population (GDP per capita)	66	70	80	89	100	106	124	134	133	135	137	1.4%
Energy intensity (TPES/GDP)	150	142	130	109	100	96	85	77	70	69	65	-1.9%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	107	104	102	101	100	98	99	98	97	96	94	-0.3%
<b>Annex II Europe</b>												
CO <sub>2</sub> emissions	97	98	106	98	100	100	102	106	97	93	92	-0.4%
Population	94	96	97	98	100	102	103	106	109	109	110	0.4%
GDP per population (GDP per capita)	64	70	81	86	100	107	122	129	131	132	131	1.2%
Energy intensity (TPES/GDP)	131	122	117	110	100	96	88	84	78	74	74	-1.4%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	124	119	115	105	100	95	93	91	87	87	87	-0.7%
<b>Annex II Asia Oceania</b>												
CO <sub>2</sub> emissions	68	79	83	84	100	108	115	120	116	120	123	0.9%
Population	84	89	94	97	100	102	104	106	107	108	108	0.3%
GDP per population (GDP per capita)	54	60	69	82	100	106	111	118	121	121	123	0.9%
Energy intensity (TPES/GDP)	134	130	121	104	100	103	103	97	92	86	84	-0.8%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	113	113	105	101	100	97	96	100	98	107	110	0.4%
<b>Annex I EIT</b>												
CO <sub>2</sub> emissions	..	..	..	..	100	71	64	66	66	68	67	-1.8%
Population	..	..	..	..	100	99	98	95	94	94	94	-0.3%
GDP per population (GDP per capita)	..	..	..	..	100	70	79	106	126	131	133	1.3%
Energy intensity (TPES/GDP)	..	..	..	..	100	104	88	71	63	62	62	-2.2%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	100	97	94	91	88	88	87	-0.6%
<b>Non-Annex I Parties</b>												
CO <sub>2</sub> emissions	..	..	..	..	100	123	142	192	246	261	271	4.6%
Population	..	..	..	..	100	109	119	128	136	138	140	1.5%
GDP per population (GDP per capita)	..	..	..	..	100	114	132	162	210	219	228	3.8%
Energy intensity (TPES/GDP)	..	..	..	..	100	94	86	84	78	77	76	-1.2%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	100	105	105	111	111	112	111	0.5%
<b>Annex I Kyoto Parties</b>												
CO <sub>2</sub> emissions	..	..	..	..	100	88	87	90	86	86	86	-0.7%
Population	..	..	..	..	100	101	101	102	103	103	104	0.2%
GDP per population (GDP per capita)	..	..	..	..	100	99	111	124	130	132	132	1.3%
Energy intensity (TPES/GDP)	..	..	..	..	100	92	83	77	72	70	69	-1.7%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	100	95	93	92	89	91	91	-0.4%

\* Please see Part I, Chapter 1 for methodological notes.

\*\* Average annual percentage change between the reference year and 2012. The reference year is 1990 unless otherwise specified.

\*\*\* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.

CO<sub>2</sub> emissions and drivers (Kaya decomposition) \*

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	avg. ch. ref-12**
<b>Non-OECD Total</b>												
CO <sub>2</sub> emissions	46	58	74	83	100	103	112	147	183	194	201	3.2%
Population	68	74	82	91	100	109	118	126	134	136	138	1.5%
GDP per population (GDP per capita)	70	82	95	95	100	104	118	148	193	202	210	3.4%
Energy intensity (TPES/GDP)	102	98	94	99	100	90	80	75	68	67	66	-1.9%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	93	98	101	98	100	101	100	105	104	106	105	0.2%
<b>OECD Total</b>												
CO <sub>2</sub> emissions	84	88	96	94	100	105	113	117	112	111	109	0.4%
Population	84	88	92	96	100	104	108	112	116	117	117	0.7%
GDP per population (GDP per capita)	64	70	80	88	100	107	122	132	134	136	137	1.4%
Energy intensity (TPES/GDP)	138	130	122	109	100	97	89	83	77	74	72	-1.5%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	113	110	107	103	100	97	97	96	94	94	94	-0.3%
<b>Canada</b>												
CO <sub>2</sub> emissions	79	88	100	94	100	108	123	128	124	125	125	1.0%
Population	79	84	89	93	100	106	111	116	123	125	126	1.1%
GDP per population (GDP per capita)	68	77	87	94	100	103	120	129	130	132	133	1.3%
Energy intensity (TPES/GDP)	126	124	120	106	100	102	91	86	75	74	72	-1.5%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	117	111	108	102	100	97	102	99	103	103	104	0.2%
<b>Chile</b>												
CO <sub>2</sub> emissions	68	55	69	63	100	125	169	189	226	247	252	4.3%
Population	74	79	85	92	100	109	117	123	130	131	132	1.3%
GDP per population (GDP per capita)	77	62	82	79	100	139	163	192	220	231	241	4.1%
Energy intensity (TPES/GDP)	109	112	98	95	100	86	95	85	77	80	83	-0.8%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	109	101	102	92	100	96	94	93	103	103	95	-0.2%
<b>Mexico</b>												
CO <sub>2</sub> emissions	37	52	80	95	100	112	132	145	158	163	164	2.3%
Population	61	70	81	90	100	109	116	123	131	133	134	1.4%
GDP per population (GDP per capita)	75	87	103	102	100	99	121	125	129	133	136	1.4%
Energy intensity (TPES/GDP)	76	80	93	96	100	98	84	89	85	85	84	-0.8%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	104	108	103	107	100	106	111	106	109	109	107	0.3%
<b>United States</b>												
CO <sub>2</sub> emissions	88	90	96	93	100	106	117	119	111	109	104	0.2%
Population	83	86	91	95	100	107	113	118	124	125	126	1.0%
GDP per population (GDP per capita)	66	70	79	89	100	107	124	135	133	135	138	1.5%
Energy intensity (TPES/GDP)	152	144	131	109	100	95	85	76	70	68	65	-2.0%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	106	104	102	101	100	98	99	98	96	95	93	-0.3%
<b>OECD Americas</b>												
CO <sub>2</sub> emissions	85	88	95	93	100	106	119	121	115	113	109	0.4%
Population	77	82	88	94	100	107	114	119	126	127	128	1.1%
GDP per population (GDP per capita)	69	74	83	91	100	106	124	133	132	134	137	1.4%
Energy intensity (TPES/GDP)	147	138	127	108	100	96	85	78	71	69	66	-1.9%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	108	105	102	101	100	98	99	98	97	96	95	-0.3%
<b>Australia</b>												
CO <sub>2</sub> emissions	55	69	80	85	100	110	129	143	149	149	148	1.8%
Population	77	81	86	93	100	106	112	120	131	133	135	1.4%
GDP per population (GDP per capita)	75	78	86	92	100	111	126	140	146	150	151	1.9%
Energy intensity (TPES/GDP)	104	110	109	98	100	92	88	78	74	72	73	-1.4%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	93	99	99	101	100	102	103	109	105	105	100	-0.0%
<b>Israel</b>												
CO <sub>2</sub> emissions	43	51	58	73	100	138	165	178	203	200	218	3.6%
Population	65	74	83	91	100	119	135	149	164	167	170	2.4%
GDP per population (GDP per capita)	70	81	83	89	100	116	130	132	152	156	158	2.1%
Energy intensity (TPES/GDP)	109	102	99	82	100	98	90	82	82	78	79	-1.1%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	86	83	86	111	100	102	103	111	100	99	103	0.1%

\* Please see Part I, Chapter 1 for methodological notes.

\*\* Average annual percentage change between the reference year and 2012. The reference year is 1990 unless otherwise specified.

CO<sub>2</sub> emissions and drivers (Kaya decomposition) \*

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	avg. ch. ref-12**
<b>Japan</b>												
CO <sub>2</sub> emissions	72	81	83	83	100	108	111	114	107	112	116	0.7%
Population	85	90	95	98	100	101	103	103	104	103	103	0.1%
GDP per population (GDP per capita)	51	57	67	80	100	106	109	115	117	116	118	0.8%
Energy intensity (TPES/GDP)	142	135	123	105	100	105	106	100	94	88	84	-0.8%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	118	117	106	101	100	96	94	96	94	106	112	0.5%
<b>Korea</b>												
CO <sub>2</sub> emissions	23	33	54	67	100	156	191	205	246	257	259	4.4%
Population	77	82	89	95	100	105	110	112	115	116	117	0.7%
GDP per population (GDP per capita)	24	32	44	64	100	139	172	209	245	253	257	4.4%
Energy intensity (TPES/GDP)	99	99	112	94	100	107	108	97	95	96	95	-0.2%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	124	127	122	117	100	100	94	90	91	92	91	-0.4%
<b>New Zealand</b>												
CO <sub>2</sub> emissions	60	73	74	88	100	113	138	152	139	136	144	1.7%
Population	85	92	93	97	100	109	115	123	130	131	132	1.3%
GDP per population (GDP per capita)	82	90	89	99	100	107	117	133	133	135	137	1.5%
Energy intensity (TPES/GDP)	76	81	85	91	100	99	99	81	83	80	82	-0.9%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	113	110	105	101	100	98	104	115	97	96	97	-0.1%
<b>OECD Asia Oceania</b>												
CO <sub>2</sub> emissions	61	72	78	81	100	116	127	134	136	141	144	1.7%
Population	82	87	92	97	100	103	106	108	111	111	111	0.5%
GDP per population (GDP per capita)	52	58	68	80	100	110	118	128	134	135	138	1.5%
Energy intensity (TPES/GDP)	128	125	118	102	100	105	106	99	96	92	90	-0.5%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	113	113	106	103	100	98	96	98	96	102	104	0.2%
<b>Austria</b>												
CO <sub>2</sub> emissions	86	89	99	96	100	105	109	132	123	120	115	0.6%
Population	98	99	98	99	100	104	104	107	109	109	110	0.4%
GDP per population (GDP per capita)	60	69	81	87	100	108	125	132	139	142	143	1.6%
Energy intensity (TPES/GDP)	128	119	116	108	100	97	88	96	91	86	85	-0.7%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	114	110	106	103	100	98	95	97	90	90	86	-0.7%
<b>Belgium</b>												
CO <sub>2</sub> emissions	108	107	116	94	100	107	110	105	102	102	97	-0.1%
Population	97	98	99	99	100	102	103	105	109	110	111	0.5%
GDP per population (GDP per capita)	63	71	83	87	100	106	121	128	131	132	131	1.2%
Energy intensity (TPES/GDP)	135	125	118	106	100	103	97	90	88	84	80	-1.0%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	132	122	120	103	100	96	91	86	81	83	84	-0.8%
<b>Czech Republic</b>												
CO <sub>2</sub> emissions	101	103	111	116	100	84	82	81	77	76	72	-1.5%
Population	95	97	100	100	100	100	99	99	101	101	101	0.1%
GDP per population (GDP per capita)	73	81	88	93	100	96	106	130	145	148	146	1.7%
Energy intensity (TPES/GDP)	132	112	108	108	100	87	79	70	61	58	58	-2.4%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	111	116	118	117	100	100	99	89	86	87	84	-0.8%
<b>Denmark</b>												
CO <sub>2</sub> emissions	109	104	124	120	100	115	100	96	94	83	73	-1.4%
Population	97	98	100	99	100	102	104	105	108	108	109	0.4%
GDP per population (GDP per capita)	70	72	82	94	100	110	124	130	127	128	127	1.1%
Energy intensity (TPES/GDP)	159	141	135	119	100	100	83	79	82	75	72	-1.5%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	102	103	112	108	100	103	93	88	83	80	73	-1.4%
<b>Estonia</b>												
CO <sub>2</sub> emissions	..	..	..	..	100	45	41	47	52	49	46	-3.5%
Population	..	..	..	..	100	91	86	85	84	84	84	-0.8%
GDP per population (GDP per capita)	..	..	..	..	100	77	112	162	162	178	185	2.8%
Energy intensity (TPES/GDP)	..	..	..	..	100	76	50	39	42	38	36	-4.5%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	100	84	85	89	90	85	81	-1.0%

\* Please see Part I, Chapter 1 for methodological notes.

\*\* Average annual percentage change between the reference year and 2012. The reference year is 1990 unless otherwise specified.

CO<sub>2</sub> emissions and drivers (Kaya decomposition) \*

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	avg. ch. ref-12**
<b>Finland</b>												
CO <sub>2</sub> emissions	73	82	102	89	100	103	102	101	115	102	91	-0.4%
Population	92	94	96	98	100	102	104	105	108	108	109	0.4%
GDP per population (GDP per capita)	56	67	77	86	100	95	118	133	135	139	136	1.4%
Energy intensity (TPES/GDP)	123	110	117	107	100	105	93	87	88	82	79	-1.1%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	114	118	117	98	100	101	89	84	89	83	77	-1.2%
<b>France</b>												
CO <sub>2</sub> emissions	122	122	131	102	100	100	107	110	101	93	95	-0.3%
Population	90	93	95	97	100	102	104	108	111	112	113	0.5%
GDP per population (GDP per capita)	64	72	83	88	100	104	116	122	122	124	123	0.9%
Energy intensity (TPES/GDP)	122	110	108	107	100	100	93	92	86	81	81	-0.9%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	173	166	153	112	100	95	95	91	86	83	84	-0.8%
<b>Germany</b>												
CO <sub>2</sub> emissions	103	103	111	107	100	91	87	84	81	78	80	-1.0%
Population	99	99	99	98	100	103	104	104	103	103	103	0.1%
GDP per population (GDP per capita)	62	68	81	87	100	107	117	120	129	134	134	1.4%
Energy intensity (TPES/GDP)	141	133	128	120	100	87	79	77	70	64	64	-2.0%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	119	115	109	105	100	95	91	88	87	88	89	-0.5%
<b>Greece</b>												
CO <sub>2</sub> emissions	36	49	65	78	100	108	125	136	120	118	111	0.5%
Population	87	89	95	98	100	103	106	107	108	108	107	0.3%
GDP per population (GDP per capita)	74	86	98	96	100	103	119	143	143	133	124	1.0%
Energy intensity (TPES/GDP)	63	72	75	87	100	99	100	92	84	87	93	-0.3%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	89	90	93	95	100	102	99	96	93	95	89	-0.5%
<b>Hungary ***</b>												
CO <sub>2</sub> emissions	75	88	104	101	83	72	68	70	61	59	54	-2.3%
Population	98	100	102	100	98	98	97	96	95	95	94	-0.2%
GDP per population (GDP per capita)	60	75	88	97	102	91	106	132	131	134	132	1.1%
Energy intensity (TPES/GDP)	108	102	105	101	96	97	81	73	69	66	63	-1.8%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	119	116	111	102	87	83	81	77	71	71	70	-1.4%
<b>Iceland</b>												
CO <sub>2</sub> emissions	74	85	92	86	100	104	114	116	103	98	97	-0.1%
Population	81	85	89	95	100	105	110	116	125	125	126	1.1%
GDP per population (GDP per capita)	58	66	85	91	100	97	117	137	128	131	132	1.3%
Energy intensity (TPES/GDP)	93	94	94	99	100	106	115	105	161	168	164	2.3%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	172	161	129	101	100	96	77	70	40	36	36	-4.6%
<b>Ireland</b>												
CO <sub>2</sub> emissions	71	69	85	87	100	108	135	144	127	114	116	0.7%
Population	85	91	97	101	100	103	109	119	130	131	131	1.2%
GDP per population (GDP per capita)	54	62	72	79	100	122	189	219	201	204	204	3.3%
Energy intensity (TPES/GDP)	149	120	119	110	100	86	67	56	55	50	50	-3.1%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	105	103	102	99	100	101	98	99	88	86	87	-0.6%
<b>Italy</b>												
CO <sub>2</sub> emissions	74	80	91	87	100	103	107	116	100	99	94	-0.3%
Population	95	98	99	100	100	100	100	103	107	107	107	0.3%
GDP per population (GDP per capita)	58	65	79	86	100	106	117	119	114	114	111	0.5%
Energy intensity (TPES/GDP)	130	126	113	103	100	102	100	102	96	94	91	-0.4%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	103	101	101	99	100	95	92	92	86	87	87	-0.6%
<b>Luxembourg</b>												
CO <sub>2</sub> emissions	149	117	115	96	100	78	77	110	102	101	99	-0.1%
Population	90	94	95	96	100	107	114	122	133	136	139	1.5%
GDP per population (GDP per capita)	55	59	65	73	100	113	143	160	158	158	154	2.0%
Energy intensity (TPES/GDP)	244	202	170	130	100	77	60	66	59	57	56	-2.6%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	124	105	110	106	100	84	78	85	82	82	82	-0.9%

\* Please see Part I, Chapter 1 for methodological notes.

\*\* Average annual percentage change between the reference year and 2012. The reference year is 1990 unless otherwise specified.

\*\*\* The reference year for Hungary corresponds to its base year under the Convention (the average of 1985-1987).

CO<sub>2</sub> emissions and drivers (Kaya decomposition) \*

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	avg. ch. ref-12**
<b>Netherlands</b>												
CO <sub>2</sub> emissions	83	90	107	99	100	110	110	116	120	112	111	0.5%
Population	88	91	95	97	100	103	107	109	111	112	112	0.5%
GDP per population (GDP per capita)	70	76	85	88	100	108	128	134	140	141	139	1.5%
Energy intensity (TPES/GDP)	126	129	122	109	100	96	82	82	81	75	77	-1.2%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	107	101	109	107	100	102	99	97	94	95	93	-0.3%
<b>Norway</b>												
CO <sub>2</sub> emissions	83	85	99	96	100	116	119	129	139	134	128	1.1%
Population	92	94	96	98	100	103	106	109	115	117	118	0.8%
GDP per population (GDP per capita)	57	66	81	94	100	117	136	147	145	145	147	1.8%
Energy intensity (TPES/GDP)	121	111	112	103	100	93	86	79	93	79	80	-1.0%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	131	123	113	101	100	104	95	101	90	100	92	-0.4%
<b>Poland ***</b>												
CO <sub>2</sub> emissions	67	79	96	98	80	77	68	68	71	70	68	-1.6%
Population	87	90	94	98	100	101	101	101	102	102	102	0.1%
GDP per population (GDP per capita)	78	96	96	92	89	98	128	150	187	195	199	2.9%
Energy intensity (TPES/GDP)	96	90	106	104	87	76	52	46	40	39	37	-4.1%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	102	101	100	104	102	102	100	98	94	91	92	-0.3%
<b>Portugal</b>												
CO <sub>2</sub> emissions	37	46	60	62	100	122	150	159	122	121	116	0.7%
Population	87	92	99	101	100	100	102	106	106	106	106	0.3%
GDP per population (GDP per capita)	56	62	74	75	100	108	131	132	135	133	130	1.2%
Energy intensity (TPES/GDP)	77	81	82	86	100	111	109	113	98	96	93	-0.3%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	98	100	101	96	100	102	102	101	87	89	91	-0.4%
<b>Slovak Republic</b>												
CO <sub>2</sub> emissions	69	77	98	96	100	72	66	67	62	60	56	-2.6%
Population	86	89	94	97	100	101	102	102	102	102	102	0.1%
GDP per population (GDP per capita)	79	87	92	96	100	90	106	135	168	174	177	2.6%
Energy intensity (TPES/GDP)	98	101	108	104	100	91	77	64	49	46	43	-3.7%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	103	98	105	99	100	86	79	76	74	73	72	-1.5%
<b>Slovenia ****</b>												
CO <sub>2</sub> emissions	..	..	..	..	93	97	98	108	107	106	101	0.1%
Population	..	..	..	..	101	100	100	101	103	104	104	0.1%
GDP per population (GDP per capita)	..	..	..	..	112	109	135	161	171	172	167	2.0%
Energy intensity (TPES/GDP)	..	..	..	..	86	94	81	77	70	70	69	-1.4%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	95	94	89	87	86	85	85	-0.6%
<b>Spain</b>												
CO <sub>2</sub> emissions	58	76	91	85	100	113	138	165	131	132	130	1.2%
Population	88	91	97	99	100	101	103	111	118	118	118	0.8%
GDP per population (GDP per capita)	62	74	78	81	100	107	128	139	137	137	134	1.3%
Energy intensity (TPES/GDP)	86	94	100	98	100	104	103	102	88	86	87	-0.6%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	124	119	122	108	100	101	102	105	92	95	94	-0.3%
<b>Sweden</b>												
CO <sub>2</sub> emissions	156	150	139	111	100	109	100	95	89	82	77	-1.2%
Population	95	96	97	98	100	103	104	106	110	110	111	0.5%
GDP per population (GDP per capita)	71	79	83	91	100	100	119	133	139	142	142	1.6%
Energy intensity (TPES/GDP)	114	110	107	113	100	103	82	78	71	67	67	-1.8%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	204	182	162	111	100	102	99	87	83	78	72	-1.5%
<b>Switzerland</b>												
CO <sub>2</sub> emissions	94	88	94	100	100	101	102	107	105	96	99	-0.0%
Population	93	94	94	96	100	104	106	110	115	116	117	0.7%
GDP per population (GDP per capita)	79	78	85	90	100	97	105	108	115	116	117	0.7%
Energy intensity (TPES/GDP)	91	96	102	105	100	98	92	90	81	77	77	-1.2%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	139	125	115	110	100	102	99	101	98	92	94	-0.3%

\* Please see Part I, Chapter 1 for methodological notes.

\*\* Average annual percentage change between the reference year and 2012. The reference year is 1990 unless otherwise specified.

\*\*\* The reference year for Poland corresponds to its base year under the Convention (1988).

\*\*\*\* The reference year for Slovenia corresponds to its base year under the Convention (1986).

**CO<sub>2</sub> emissions and drivers (Kaya decomposition) \***

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	avg. ch. ref-12**
<b>Turkey</b>												
CO <sub>2</sub> emissions	33	47	56	75	100	120	158	170	209	225	238	4.0%
Population	66	73	81	91	100	108	117	124	132	134	136	1.4%
GDP per population (GDP per capita)	65	74	75	84	100	108	123	144	158	170	171	2.5%
Energy intensity (TPES/GDP)	87	95	99	98	100	100	101	89	95	93	95	-0.2%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	88	92	94	100	100	103	110	107	105	106	107	0.3%
<b>United Kingdom</b>												
CO <sub>2</sub> emissions	114	106	104	99	100	94	95	97	86	79	83	-0.8%
Population	98	98	98	99	100	101	103	105	109	110	111	0.5%
GDP per population (GDP per capita)	66	71	78	86	100	111	131	149	146	147	145	1.7%
Energy intensity (TPES/GDP)	157	138	126	115	100	93	80	69	62	56	58	-2.5%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	112	109	108	102	100	90	88	90	88	88	89	-0.5%
<b>OECD Europe</b>												
CO <sub>2</sub> emissions	92	95	105	100	100	98	100	104	98	95	94	-0.3%
Population	90	92	95	97	100	102	104	107	110	111	112	0.5%
GDP per population (GDP per capita)	66	74	83	88	100	106	121	130	134	136	135	1.4%
Energy intensity (TPES/GDP)	129	121	118	111	100	95	85	81	76	72	72	-1.5%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	120	116	114	105	100	96	93	91	87	87	87	-0.6%
<b>European Union - 28</b>												
CO <sub>2</sub> emissions	..	..	..	..	100	95	95	98	90	87	86	-0.7%
Population	..	..	..	..	100	101	102	104	106	106	106	0.3%
GDP per population (GDP per capita)	..	..	..	..	100	106	121	132	136	138	137	1.5%
Energy intensity (TPES/GDP)	..	..	..	..	100	93	83	79	73	69	69	-1.7%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	100	95	92	90	86	86	86	-0.7%
<b>Albania</b>												
CO <sub>2</sub> emissions	62	71	122	115	100	30	49	64	62	66	61	-2.2%
Population	64	70	79	89	100	97	96	93	91	92	92	-0.4%
GDP per population (GDP per capita)	84	95	111	109	100	90	120	161	209	215	218	3.6%
Energy intensity (TPES/GDP)	121	111	130	104	100	57	58	54	41	43	39	-4.2%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	97	96	106	113	100	60	74	78	79	79	79	-1.1%
<b>Armenia</b>												
CO <sub>2</sub> emissions	..	..	..	..	100	17	17	20	20	23	27	-5.9%
Population	..	..	..	..	100	91	87	85	84	84	84	-0.8%
GDP per population (GDP per capita)	..	..	..	..	100	58	78	142	174	182	195	3.1%
Energy intensity (TPES/GDP)	..	..	..	..	100	40	39	27	22	23	24	-6.4%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	100	78	64	62	61	65	69	-1.7%
<b>Azerbaijan</b>												
CO <sub>2</sub> emissions	..	..	..	..	100	62	51	56	43	49	53	-2.8%
Population	..	..	..	..	100	107	112	117	126	128	130	1.2%
GDP per population (GDP per capita)	..	..	..	..	100	39	52	95	187	185	187	2.9%
Energy intensity (TPES/GDP)	..	..	..	..	100	147	85	53	22	23	25	-6.1%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	100	100	102	95	85	88	88	-0.6%
<b>Belarus</b>												
CO <sub>2</sub> emissions	..	..	..	..	100	49	47	50	52	53	57	-2.5%
Population	..	..	..	..	100	100	98	95	93	93	93	-0.3%
GDP per population (GDP per capita)	..	..	..	..	100	65	90	134	194	205	209	3.4%
Energy intensity (TPES/GDP)	..	..	..	..	100	83	61	46	33	34	35	-4.7%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	100	91	87	84	85	81	85	-0.7%
<b>Bosnia and Herzegovina</b>												
CO <sub>2</sub> emissions	..	..	..	..	100	14	57	66	85	96	90	-0.5%
Population	..	..	..	..	100	78	85	86	85	85	85	-0.8%
GDP per population (GDP per capita)	..	..	..	..	100	139	433	545	643	652	649	8.9%
Energy intensity (TPES/GDP)	..	..	..	..	100	20	17	15	17	18	17	-7.7%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	100	64	92	92	92	96	94	-0.3%

\* Please see Part I, Chapter 1 for methodological notes.

\*\* Average annual percentage change between the reference year and 2012. The reference year is 1990 unless otherwise specified.



CO<sub>2</sub> emissions and drivers (Kaya decomposition) \*

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	avg. ch. ref-12**
<b>Bulgaria ***</b>												
CO <sub>2</sub> emissions	77	88	102	99	91	65	52	56	54	60	54	-2.5%
Population	95	97	99	100	97	94	91	86	82	82	81	-0.9%
GDP per population (GDP per capita)	40	53	70	82	91	82	86	118	141	145	147	1.6%
Energy intensity (TPES/GDP)	161	145	131	120	102	95	77	62	49	52	49	-2.9%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	126	119	113	101	101	88	87	89	94	98	92	-0.3%
<b>Croatia</b>												
CO <sub>2</sub> emissions	..	..	..	..	100	73	82	96	88	87	80	-1.0%
Population	..	..	..	..	100	98	93	93	92	90	89	-0.5%
GDP per population (GDP per capita)	..	..	..	..	100	74	92	115	119	122	120	0.8%
Energy intensity (TPES/GDP)	..	..	..	..	100	108	101	93	86	86	82	-0.9%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	100	94	95	98	93	93	91	-0.4%
<b>Cyprus ****</b>												
CO <sub>2</sub> emissions	46	43	67	72	100	130	163	181	187	180	168	2.4%
Population	108	88	88	94	100	113	120	128	143	147	150	1.9%
GDP per population (GDP per capita)	24	35	62	76	100	111	125	138	139	136	130	1.2%
Energy intensity (TPES/GDP)	164	133	116	94	100	100	104	92	90	87	84	-0.8%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	107	105	106	107	100	105	104	112	104	104	103	0.1%
<b>FYR of Macedonia</b>												
CO <sub>2</sub> emissions	..	..	..	..	100	96	99	103	97	109	102	0.1%
Population	..	..	..	..	100	98	102	104	105	105	105	0.2%
GDP per population (GDP per capita)	..	..	..	..	100	81	89	95	112	116	115	0.6%
Energy intensity (TPES/GDP)	..	..	..	..	100	128	118	116	99	104	99	-0.0%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	100	95	92	90	83	87	85	-0.7%
<b>Georgia</b>												
CO <sub>2</sub> emissions	..	..	..	..	100	24	14	13	15	19	20	-7.0%
Population	..	..	..	..	100	99	92	91	93	93	94	-0.3%
GDP per population (GDP per capita)	..	..	..	..	100	29	41	59	74	79	83	-0.8%
Energy intensity (TPES/GDP)	..	..	..	..	100	106	62	43	37	39	38	-4.3%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	100	81	60	57	59	66	69	-1.7%
<b>Gibraltar</b>												
CO <sub>2</sub> emissions	56	56	66	67	100	183	223	265	304	297	302	5.2%
Population	93	93	100	100	100	104	104	111	111	111	114	0.6%
GDP per population (GDP per capita)	69	75	76	85	100	105	129	139	142	143	140	1.5%
Energy intensity (TPES/GDP)	88	80	86	79	100	168	167	172	192	186	188	2.9%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	99	100	102	100	100	100	101	101	101	101	101	0.0%
<b>Kazakhstan</b>												
CO <sub>2</sub> emissions	..	..	..	..	100	71	48	66	92	98	96	-0.2%
Population	..	..	..	..	100	97	91	93	100	101	103	0.1%
GDP per population (GDP per capita)	..	..	..	..	100	63	76	123	154	163	169	2.4%
Energy intensity (TPES/GDP)	..	..	..	..	100	116	70	61	61	64	59	-2.4%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	100	100	98	96	98	93	94	-0.3%
<b>Kosovo *****</b>												
CO <sub>2</sub> emissions	..	..	..	..	..	..	100	130	170	169	159	3.9%
Population	..	..	..	..	..	..	100	100	104	105	106	0.5%
GDP per population (GDP per capita)	..	..	..	..	..	..	100	141	175	182	187	5.4%
Energy intensity (TPES/GDP)	..	..	..	..	..	..	100	89	89	85	77	-2.1%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	..	..	100	103	105	103	104	0.3%
<b>Kyrgyzstan</b>												
CO <sub>2</sub> emissions	..	..	..	..	100	20	20	22	27	32	42	-3.8%
Population	..	..	..	..	100	104	112	118	124	126	128	1.1%
GDP per population (GDP per capita)	..	..	..	..	100	49	60	68	80	84	82	-0.9%
Energy intensity (TPES/GDP)	..	..	..	..	100	63	47	43	37	42	53	-2.9%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	100	62	63	63	73	73	77	-1.2%

\* Please see Part I, Chapter 1 for methodological notes.

\*\* Average annual percentage change between the reference year and 2012. The reference year is 1990 unless otherwise specified.

\*\*\* The reference year for Bulgaria corresponds to its base year under the Convention (1988).

\*\*\*\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

\*\*\*\*\* Serbia includes Kosovo from 1990 to 1999 and Montenegro from 1990 to 2004. The reference year for Kosovo is the first year of available data (2000).

CO<sub>2</sub> emissions and drivers (Kaya decomposition) \*

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	avg. ch. ref-12**
<b>Latvia</b>												
CO <sub>2</sub> emissions	..	..	..	..	100	47	37	41	43	39	38	-4.3%
Population	..	..	..	..	100	93	89	84	79	77	76	-1.2%
GDP per population (GDP per capita)	..	..	..	..	100	61	85	133	137	147	156	2.0%
Energy intensity (TPES/GDP)	..	..	..	..	100	103	65	52	55	48	47	-3.4%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	100	81	75	70	73	73	67	-1.8%
<b>Lithuania</b>												
CO <sub>2</sub> emissions	..	..	..	..	100	43	34	41	40	40	40	-4.1%
Population	..	..	..	..	100	98	95	90	84	82	81	-1.0%
GDP per population (GDP per capita)	..	..	..	..	100	59	76	117	132	143	150	1.9%
Energy intensity (TPES/GDP)	..	..	..	..	100	94	62	53	40	39	38	-4.3%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	100	79	76	74	92	88	88	-0.6%
<b>Malta</b>												
CO <sub>2</sub> emissions	28	28	43	50	100	103	92	118	108	108	110	0.5%
Population	86	86	90	95	100	105	108	114	117	118	118	0.8%
GDP per population (GDP per capita)	32	46	76	78	100	125	156	154	166	169	169	2.4%
Energy intensity (TPES/GDP)	111	76	67	67	100	78	58	72	63	60	48	-3.3%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	94	94	94	101	100	101	95	93	88	90	114	0.6%
<b>Republic of Moldova</b>												
CO <sub>2</sub> emissions	..	..	..	..	100	39	22	25	26	26	25	-6.1%
Population	..	..	..	..	100	99	98	97	96	96	96	-0.2%
GDP per population (GDP per capita)	..	..	..	..	100	40	36	52	61	65	64	-2.0%
Energy intensity (TPES/GDP)	..	..	..	..	100	119	82	71	59	54	53	-2.8%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	100	82	74	72	76	78	76	-1.2%
<b>Montenegro ***</b>												
CO <sub>2</sub> emissions	..	..	..	..	..	..	..	100	127	128	118	2.4%
Population	..	..	..	..	..	..	..	100	101	101	101	0.1%
GDP per population (GDP per capita)	..	..	..	..	..	..	..	100	123	127	127	3.4%
Energy intensity (TPES/GDP)	..	..	..	..	..	..	..	100	88	82	78	-3.5%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	..	..	..	100	116	122	119	2.5%
<b>Romania ****</b>												
CO <sub>2</sub> emissions	61	75	94	92	89	63	46	50	40	43	42	-3.7%
Population	88	92	96	98	100	98	97	92	87	87	87	-0.6%
GDP per population (GDP per capita)	46	66	91	105	94	87	82	115	139	143	144	1.6%
Energy intensity (TPES/GDP)	151	123	107	91	95	79	66	53	42	42	40	-3.9%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	100	100	99	98	99	93	88	90	79	84	83	-0.8%
<b>Russian Federation</b>												
CO <sub>2</sub> emissions	..	..	..	..	100	72	69	69	73	76	76	-1.2%
Population	..	..	..	..	100	100	99	97	96	96	97	-0.1%
GDP per population (GDP per capita)	..	..	..	..	100	62	68	94	112	117	120	0.8%
Energy intensity (TPES/GDP)	..	..	..	..	100	117	105	82	74	75	74	-1.4%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	100	99	98	94	91	90	88	-0.6%
<b>Serbia ***</b>												
CO <sub>2</sub> emissions	..	..	..	..	100	72	69	80	75	81	72	-1.5%
Population	..	..	..	..	100	103	81	74	72	72	72	-1.5%
GDP per population (GDP per capita)	..	..	..	..	100	48	76	97	110	112	111	0.5%
Energy intensity (TPES/GDP)	..	..	..	..	100	141	114	113	99	102	92	-0.4%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	100	102	99	98	95	99	98	-0.1%
<b>Tajikistan</b>												
CO <sub>2</sub> emissions	..	..	..	..	100	22	20	21	21	22	25	-6.1%
Population	..	..	..	..	100	109	117	128	144	148	151	1.9%
GDP per population (GDP per capita)	..	..	..	..	100	35	33	47	58	61	64	-2.0%
Energy intensity (TPES/GDP)	..	..	..	..	100	110	106	73	49	46	44	-3.6%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	100	53	49	49	51	53	59	-2.4%

\* Please see Part I, Chapter 1 for methodological notes.

\*\* Average annual percentage change between the reference year and 2012. The reference year is 1990 unless otherwise specified.

\*\*\* Serbia includes Kosovo from 1990 to 1999 &amp; Montenegro from 1990 to 2004. The reference year for Montenegro is the first year of available data (2005).

\*\*\*\* The reference year for Romania corresponds to its base year under the Convention (1989).

CO<sub>2</sub> emissions and drivers (Kaya decomposition) \*

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	avg. ch. ref-12**
<b>Turkmenistan</b>												
CO <sub>2</sub> emissions	..	..	..	..	100	75	82	108	127	138	144	1.7%
Population	..	..	..	..	100	114	123	129	137	139	141	1.6%
GDP per population (GDP per capita)	..	..	..	..	100	55	64	78	120	136	149	1.8%
Energy intensity (TPES/GDP)	..	..	..	..	100	124	108	109	78	74	69	-1.6%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	100	95	97	98	98	98	98	-0.1%
<b>Ukraine</b>												
CO <sub>2</sub> emissions	..	..	..	..	100	57	42	44	39	41	41	-4.0%
Population	..	..	..	..	100	99	95	91	88	88	88	-0.6%
GDP per population (GDP per capita)	..	..	..	..	100	48	46	69	75	79	79	-1.0%
Energy intensity (TPES/GDP)	..	..	..	..	100	135	122	90	80	72	70	-1.6%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	100	88	80	78	75	83	84	-0.8%
<b>Uzbekistan</b>												
CO <sub>2</sub> emissions	..	..	..	..	100	85	98	91	84	91	93	-0.3%
Population	..	..	..	..	100	111	120	128	139	143	145	1.7%
GDP per population (GDP per capita)	..	..	..	..	100	73	82	100	138	145	155	2.0%
Energy intensity (TPES/GDP)	..	..	..	..	100	113	112	79	49	49	46	-3.4%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	100	92	90	89	90	89	89	-0.5%
<b>Non-OECD Europe and Eurasia</b>												
CO <sub>2</sub> emissions	56	72	86	90	100	67	60	63	65	69	69	-1.7%
Population	86	89	93	97	100	100	99	98	98	99	99	-0.0%
GDP per population (GDP per capita)	60	73	87	93	100	62	68	94	114	119	121	0.9%
Energy intensity (TPES/GDP)	107	104	99	100	100	113	97	76	66	66	65	-2.0%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	101	106	106	100	100	95	93	90	89	89	88	-0.6%
<b>Algeria</b>												
CO <sub>2</sub> emissions	17	27	54	82	100	108	120	151	185	197	217	3.6%
Population	58	64	74	87	100	112	121	129	141	144	147	1.8%
GDP per population (GDP per capita)	66	88	103	111	100	91	98	119	124	125	126	1.1%
Energy intensity (TPES/GDP)	41	44	66	83	100	107	103	94	104	105	113	0.5%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	108	107	107	103	100	99	99	103	102	104	104	0.2%
<b>Angola</b>												
CO <sub>2</sub> emissions	41	50	67	72	100	99	127	161	392	392	410	6.6%
Population	59	64	74	88	100	117	135	160	189	195	201	3.2%
GDP per population (GDP per capita)	132	121	106	97	100	68	80	110	167	168	174	2.5%
Energy intensity (TPES/GDP)	85	90	99	99	100	137	118	88	73	72	69	-1.6%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	63	71	86	85	100	91	99	104	170	167	169	2.4%
<b>Benin</b>												
CO <sub>2</sub> emissions	119	180	154	184	100	86	556	1044	1775	1851	1950	14.5%
Population	59	65	74	86	100	120	139	164	190	196	201	3.2%
GDP per population (GDP per capita)	92	91	98	106	100	103	112	116	120	121	124	1.0%
Energy intensity (TPES/GDP)	121	126	112	102	100	90	77	79	96	96	95	-0.3%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	179	241	189	199	100	78	466	694	807	816	828	10.1%
<b>Botswana</b>												
CO <sub>2</sub> emissions	..	..	..	53	100	114	144	153	174	164	162	2.2%
Population	..	..	..	86	100	114	127	136	142	144	145	1.7%
GDP per population (GDP per capita)	..	..	..	67	100	109	127	142	165	173	179	2.7%
Energy intensity (TPES/GDP)	..	..	..	123	100	95	91	80	76	71	68	-1.7%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	76	100	96	98	99	97	93	91	-0.4%
<b>Cameroon</b>												
CO <sub>2</sub> emissions	27	39	62	91	100	93	104	110	188	194	203	3.3%
Population	58	64	74	86	100	115	132	150	171	175	180	2.7%
GDP per population (GDP per capita)	69	82	97	131	100	79	87	91	93	95	96	-0.2%
Energy intensity (TPES/GDP)	136	115	102	79	100	122	111	103	88	82	81	-1.0%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	50	64	84	101	100	84	82	77	135	142	144	1.7%

\* Please see Part I, Chapter 1 for methodological notes.

\*\* Average annual percentage change between the reference year and 2012. The reference year is 1990 unless otherwise specified.

CO<sub>2</sub> emissions and drivers (Kaya decomposition) \*

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	avg. ch. ref-12**
<b>Congo</b>												
CO <sub>2</sub> emissions	93	98	112	122	100	76	80	134	292	333	353	5.9%
Population	58	65	75	87	100	114	131	149	173	177	182	2.8%
GDP per population (GDP per capita)	63	76	83	116	100	90	88	95	105	106	107	0.3%
Energy intensity (TPES/GDP)	181	144	128	97	100	98	91	100	108	115	113	0.6%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	142	138	141	124	100	76	76	96	149	154	160	2.2%
<b>Dem. Rep. of Congo</b>												
CO <sub>2</sub> emissions	85	87	105	109	100	39	29	43	62	78	82	-0.9%
Population	59	66	75	86	100	120	134	155	178	183	188	2.9%
GDP per population (GDP per capita)	158	151	121	117	100	57	42	45	51	53	55	-2.7%
Energy intensity (TPES/GDP)	61	64	78	84	100	159	210	204	185	184	167	2.4%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	151	137	146	129	100	36	24	30	37	43	47	-3.4%
<b>Côte d'Ivoire</b>												
CO <sub>2</sub> emissions	88	111	124	112	100	120	233	214	228	215	288	4.9%
Population	45	55	68	84	100	117	133	144	157	160	164	2.3%
GDP per population (GDP per capita)	135	139	137	113	100	92	94	87	89	83	89	-0.5%
Energy intensity (TPES/GDP)	93	90	88	90	100	110	124	176	166	201	199	3.2%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	155	163	151	131	100	102	149	96	98	80	99	-0.0%
<b>Egypt</b>												
CO <sub>2</sub> emissions	26	33	54	83	100	106	129	189	231	240	248	4.2%
Population	66	72	80	89	100	109	117	127	139	141	143	1.6%
GDP per population (GDP per capita)	49	51	74	91	100	109	130	142	176	176	177	2.6%
Energy intensity (TPES/GDP)	75	82	80	98	100	92	83	105	92	95	95	-0.2%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	108	108	114	104	100	97	102	99	103	101	102	0.1%
<b>Eritrea ***</b>												
CO <sub>2</sub> emissions	..	..	..	..	..	178	141	133	110	118	125	1.1%
Population	..	..	..	..	..	102	118	146	172	178	184	3.1%
GDP per population (GDP per capita)	..	..	..	..	..	138	139	128	104	110	113	0.6%
Energy intensity (TPES/GDP)	..	..	..	..	..	80	49	47	47	45	43	-4.1%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	..	157	175	153	129	135	137	1.6%
<b>Ethiopia ***</b>												
CO <sub>2</sub> emissions	60	54	63	64	100	108	147	206	275	317	359	6.0%
Population	61	68	73	85	100	119	137	159	181	186	191	3.0%
GDP per population (GDP per capita)	129	119	113	92	100	89	95	113	166	179	190	3.0%
Energy intensity (TPES/GDP)	77	83	88	108	100	113	105	89	65	62	60	-2.3%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	99	80	86	77	100	91	107	129	141	153	166	2.3%
<b>Gabon</b>												
CO <sub>2</sub> emissions	53	84	143	187	100	147	164	192	262	274	274	4.7%
Population	63	68	77	87	100	114	129	146	164	168	172	2.5%
GDP per population (GDP per capita)	70	132	109	108	100	102	91	88	87	91	94	-0.3%
Energy intensity (TPES/GDP)	205	122	139	122	100	98	106	114	125	120	115	0.6%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	58	77	123	163	100	130	131	131	147	149	146	1.7%
<b>Ghana</b>												
CO <sub>2</sub> emissions	71	87	84	80	100	122	187	240	388	407	473	7.3%
Population	60	67	74	87	100	115	129	146	166	170	173	2.5%
GDP per population (GDP per capita)	136	115	109	91	100	108	118	133	162	182	192	3.0%
Energy intensity (TPES/GDP)	69	90	94	104	100	99	95	76	65	59	57	-2.5%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	126	125	110	97	100	100	130	162	222	225	247	4.2%
<b>Kenya</b>												
CO <sub>2</sub> emissions	58	63	81	84	100	105	142	137	207	210	193	3.0%
Population	50	58	69	84	100	117	133	153	174	179	184	2.8%
GDP per population (GDP per capita)	76	86	97	91	100	93	90	94	104	105	107	0.3%
Energy intensity (TPES/GDP)	130	114	103	107	100	105	110	106	103	101	98	-0.1%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	118	112	117	104	100	92	107	90	111	110	100	0.0%

\* Please see Part I, Chapter 1 for methodological notes.

\*\* Average annual percentage change between the reference year and 2012. The reference year is 1990 unless otherwise specified.

\*\*\* Data for Ethiopia include Eritrea until 1991. The reference year for Eritrea is the first year of available data (1992).

CO<sub>2</sub> emissions and drivers (Kaya decomposition) \*

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	avg. ch. ref-12**
<b>Libya</b>												
CO <sub>2</sub> emissions	14	34	68	82	100	128	144	166	187	129	162	2.2%
Population	51	59	72	88	100	111	122	131	142	143	144	1.7%
GDP per population (GDP per capita)	240	165	214	126	100	86	84	95	107	41	72	-1.5%
Energy intensity (TPES/GDP)	12	33	40	81	100	130	140	128	121	205	147	1.8%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	97	102	110	92	100	103	101	104	101	106	105	0.2%
<b>Mauritius</b>												
CO <sub>2</sub> emissions	22	36	49	53	100	133	209	254	314	313	321	5.4%
Population	79	84	91	96	100	106	112	117	121	121	122	0.9%
GDP per population (GDP per capita)	41	52	61	73	100	120	150	166	201	208	214	3.5%
Energy intensity (TPES/GDP)	166	137	116	95	100	92	90	89	81	78	77	-1.2%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	41	61	76	79	100	114	138	146	159	158	159	2.1%
<b>Morocco</b>												
CO <sub>2</sub> emissions	35	51	71	84	100	132	150	201	236	256	264	4.5%
Population	66	72	80	90	100	109	116	122	128	130	132	1.3%
GDP per population (GDP per capita)	66	73	85	89	100	96	109	132	159	166	171	2.5%
Energy intensity (TPES/GDP)	89	99	104	101	100	117	115	115	109	111	110	0.4%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	90	97	100	103	100	108	104	109	106	107	107	0.3%
<b>Mozambique</b>												
CO <sub>2</sub> emissions	267	216	214	137	100	106	122	140	217	258	240	4.1%
Population	71	78	89	98	100	118	135	155	177	181	186	2.9%
GDP per population (GDP per capita)	160	123	110	78	100	101	126	168	204	213	223	3.7%
Energy intensity (TPES/GDP)	102	117	115	140	100	89	71	55	46	45	42	-3.8%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	229	192	188	128	100	100	100	97	130	149	136	1.4%
<b>Namibia ***</b>												
CO <sub>2</sub> emissions	..	..	..	..	..	158	172	208	267	269	284	5.1%
Population	..	..	..	..	..	113	129	138	149	151	154	2.1%
GDP per population (GDP per capita)	..	..	..	..	..	104	108	128	146	152	157	2.2%
Energy intensity (TPES/GDP)	..	..	..	..	..	122	115	113	111	107	107	0.3%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	..	111	107	104	111	109	110	0.4%
<b>Nigeria</b>												
CO <sub>2</sub> emissions	20	40	92	112	100	117	152	200	194	213	223	3.7%
Population	60	66	77	88	100	113	129	146	167	172	177	2.6%
GDP per population (GDP per capita)	131	136	142	108	100	90	94	136	169	172	178	2.7%
Energy intensity (TPES/GDP)	63	64	67	90	100	108	108	80	64	65	64	-2.0%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	41	70	125	130	100	105	117	126	108	112	111	0.5%
<b>Senegal</b>												
CO <sub>2</sub> emissions	57	75	96	99	100	116	167	219	255	270	265	4.5%
Population	58	65	74	86	100	116	131	150	172	177	183	2.8%
GDP per population (GDP per capita)	113	113	105	104	100	96	103	113	118	117	117	0.7%
Energy intensity (TPES/GDP)	113	112	119	104	100	100	105	97	115	119	114	0.6%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	77	92	104	107	100	105	118	132	110	110	108	0.4%
<b>South Africa</b>												
CO <sub>2</sub> emissions	62	79	82	90	100	108	117	130	148	143	148	1.8%
Population	64	70	78	89	100	111	125	135	145	147	149	1.8%
GDP per population (GDP per capita)	100	105	110	104	100	94	96	107	117	120	121	0.9%
Energy intensity (TPES/GDP)	78	80	84	103	100	109	100	98	93	89	86	-0.7%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	124	134	115	95	100	95	97	92	95	91	96	-0.2%
<b>Sudan</b>												
CO <sub>2</sub> emissions	59	60	67	76	100	83	105	186	281	265	263	4.5%
Population	55	63	74	87	100	116	133	154	177	182	186	2.9%
GDP per population (GDP per capita)	102	111	105	93	100	110	129	152	179	168	148	1.8%
Energy intensity (TPES/GDP)	117	101	101	110	100	88	73	60	50	51	57	-2.5%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	90	85	85	86	100	73	84	132	179	169	168	2.4%
<b>United Rep. of Tanzania</b>												
CO <sub>2</sub> emissions	89	88	93	89	100	148	154	298	365	432	521	7.8%
Population	55	63	73	86	100	117	133	152	176	182	187	2.9%
GDP per population (GDP per capita)	95	100	99	88	100	93	101	125	150	155	161	2.2%
Energy intensity (TPES/GDP)	148	126	114	119	100	104	102	93	79	77	76	-1.3%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	115	112	113	99	100	130	112	169	176	199	229	3.8%

\* Please see Part I, Chapter 1 for methodological notes.

\*\* Average annual percentage change between the reference year and 2012. The reference year is 1990 unless otherwise specified.

\*\*\* The reference year for Namibia is the first year of available data (1991).

CO<sub>2</sub> emissions and drivers (Kaya decomposition) \*

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	avg. ch. ref-12**
<b>Togo</b>												
CO <sub>2</sub> emissions	60	55	64	52	100	101	166	172	362	331	284	4.9%
Population	58	64	72	86	100	113	128	146	166	171	175	2.6%
GDP per population (GDP per capita)	103	112	125	103	100	89	97	90	92	94	97	-0.1%
Energy intensity (TPES/GDP)	97	86	78	88	100	124	135	143	160	154	145	1.7%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	104	90	91	66	100	81	99	91	147	133	115	0.6%
<b>Tunisia</b>												
CO <sub>2</sub> emissions	30	40	65	79	100	118	149	167	191	181	191	3.0%
Population	64	69	78	89	100	110	117	123	129	131	132	1.3%
GDP per population (GDP per capita)	60	75	90	97	100	110	135	161	190	184	189	2.9%
Energy intensity (TPES/GDP)	87	85	94	97	100	97	93	85	83	80	80	-1.0%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	91	90	98	94	100	100	101	99	94	94	95	-0.2%
<b>Zambia</b>												
CO <sub>2</sub> emissions	132	169	129	108	100	79	65	80	67	81	106	0.3%
Population	55	63	75	87	100	113	129	146	168	174	179	2.7%
GDP per population (GDP per capita)	142	140	121	106	100	83	83	92	110	113	118	0.7%
Energy intensity (TPES/GDP)	84	83	94	100	100	115	107	99	82	80	79	-1.1%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	199	230	152	117	100	74	57	60	44	51	64	-2.0%
<b>Zimbabwe</b>												
CO <sub>2</sub> emissions	45	45	50	60	100	93	82	63	55	60	62	-2.1%
Population	51	59	70	85	100	111	120	121	125	128	131	1.2%
GDP per population (GDP per capita)	101	102	93	94	100	95	100	67	57	61	63	-2.1%
Energy intensity (TPES/GDP)	113	105	107	100	100	100	90	128	137	128	126	1.0%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	77	71	71	75	100	88	76	61	56	59	61	-2.3%
<b>Other Africa</b>												
CO <sub>2</sub> emissions	66	75	103	85	100	114	135	171	218	227	236	4.0%
Population	61	66	77	86	100	110	128	149	172	178	183	2.8%
GDP per population (GDP per capita)	119	114	111	102	100	90	97	115	126	127	129	1.2%
Energy intensity (TPES/GDP)	75	78	78	84	100	111	98	79	71	71	70	-1.6%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	122	127	155	115	100	104	112	127	141	142	143	1.6%
<b>Africa</b>												
CO <sub>2</sub> emissions	46	60	74	87	100	110	126	152	180	179	189	2.9%
Population	60	66	76	87	100	114	129	146	165	169	173	2.5%
GDP per population (GDP per capita)	96	100	109	103	100	93	99	115	132	131	134	1.3%
Energy intensity (TPES/GDP)	85	85	84	96	100	106	99	91	82	82	81	-1.0%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	94	106	107	102	100	97	99	100	102	99	101	0.1%
<b>Bangladesh</b>												
CO <sub>2</sub> emissions	23	34	53	65	100	149	185	259	387	409	439	7.0%
Population	63	67	77	88	100	112	123	133	141	142	144	1.7%
GDP per population (GDP per capita)	96	84	90	95	100	111	130	156	200	211	221	3.7%
Energy intensity (TPES/GDP)	74	93	95	94	100	101	90	86	85	83	82	-0.9%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	53	65	80	83	100	120	129	145	161	164	169	2.4%
<b>Brunei Darussalam</b>												
CO <sub>2</sub> emissions	12	43	81	90	100	138	136	148	233	255	258	4.4%
Population	53	63	75	87	100	115	129	143	156	158	160	2.2%
GDP per population (GDP per capita)	114	118	160	115	100	102	97	97	92	92	93	-0.3%
Energy intensity (TPES/GDP)	17	58	65	104	100	111	111	93	131	154	150	1.9%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	120	101	104	88	100	106	99	116	124	114	116	0.7%
<b>Cambodia ***</b>												
CO <sub>2</sub> emissions	..	..	..	..	..	100	134	180	256	275	285	6.3%
Population	..	..	..	..	..	100	114	124	133	136	138	1.9%
GDP per population (GDP per capita)	..	..	..	..	..	100	125	179	230	243	256	5.7%
Energy intensity (TPES/GDP)	..	..	..	..	..	100	85	54	58	57	55	-3.5%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	..	..	100	111	149	145	146	147	2.3%

\* Please see Part I, Chapter 1 for methodological notes.

\*\* Average annual percentage change between the reference year and 2012. The reference year is 1990 unless otherwise specified.

\*\*\* The reference year for Cambodia is the first year of available data (1995).

CO<sub>2</sub> emissions and drivers (Kaya decomposition) \*

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	avg. ch. ref-12**
<b>India</b>												
CO <sub>2</sub> emissions	35	42	49	71	100	133	169	205	301	315	337	5.7%
Population	65	72	80	90	100	110	120	130	139	141	142	1.6%
GDP per population (GDP per capita)	67	70	72	83	100	116	143	184	256	269	279	4.8%
Energy intensity (TPES/GDP)	112	112	111	108	100	95	84	72	64	63	63	-2.1%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	70	74	75	88	100	110	117	120	132	133	135	1.4%
<b>Indonesia</b>												
CO <sub>2</sub> emissions	17	26	47	60	100	147	187	230	269	274	298	5.1%
Population	65	72	81	91	100	109	117	126	135	136	138	1.5%
GDP per population (GDP per capita)	41	51	66	78	100	134	129	152	187	196	206	3.3%
Energy intensity (TPES/GDP)	131	113	105	94	100	91	104	96	84	78	76	-1.2%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	48	62	83	90	100	111	118	126	127	132	138	1.5%
<b>DPR of Korea</b>												
CO <sub>2</sub> emissions	59	67	93	111	100	66	60	65	56	40	40	-4.1%
Population	73	81	86	93	100	108	113	118	121	122	123	0.9%
GDP per population (GDP per capita)	26	38	61	90	100	73	62	62	56	56	57	-2.6%
Energy intensity (TPES/GDP)	301	220	174	129	100	84	85	88	84	62	61	-2.2%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	101	100	101	102	100	99	101	101	99	94	94	-0.3%
<b>Malaysia</b>												
CO <sub>2</sub> emissions	25	32	48	68	100	169	234	312	371	382	389	6.4%
Population	61	68	76	87	100	114	129	142	155	158	161	2.2%
GDP per population (GDP per capita)	45	55	74	83	100	138	154	176	201	208	216	3.6%
Energy intensity (TPES/GDP)	98	89	97	100	100	101	112	120	109	109	106	0.3%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	92	97	88	95	100	107	105	104	109	107	106	0.3%
<b>Mongolia</b>												
CO <sub>2</sub> emissions	..	..	..	92	100	79	70	75	99	103	112	0.5%
Population	..	..	..	88	100	105	110	116	124	126	128	1.1%
GDP per population (GDP per capita)	..	..	..	95	100	83	91	118	150	174	193	3.0%
Energy intensity (TPES/GDP)	..	..	..	110	100	91	70	56	54	48	47	-3.4%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	..	..	..	100	100	100	99	97	98	97	97	-0.1%
<b>Myanmar</b>												
CO <sub>2</sub> emissions	113	99	128	145	100	169	231	261	198	204	288	4.9%
Population	66	73	82	92	100	108	115	119	123	124	125	1.0%
GDP per population (GDP per capita)	88	89	108	122	100	123	173	307	505	529	556	8.1%
Energy intensity (TPES/GDP)	127	121	100	92	100	83	60	38	21	20	21	-6.9%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	152	126	145	141	100	153	192	188	151	152	201	3.2%
<b>Nepal</b>												
CO <sub>2</sub> emissions	21	36	58	62	100	197	346	343	460	491	553	8.1%
Population	65	71	79	89	100	114	128	140	148	150	152	1.9%
GDP per population (GDP per capita)	78	79	79	90	100	113	127	138	161	165	171	2.5%
Energy intensity (TPES/GDP)	125	124	125	110	100	90	86	82	74	74	67	-1.8%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	34	51	74	70	100	170	247	217	261	269	317	5.4%
<b>Pakistan</b>												
CO <sub>2</sub> emissions	28	36	45	67	100	136	169	206	231	233	235	4.0%
Population	55	61	72	85	100	114	129	142	156	159	161	2.2%
GDP per population (GDP per capita)	63	66	76	88	100	110	114	132	142	144	147	1.8%
Energy intensity (TPES/GDP)	115	118	106	100	100	100	102	95	89	87	84	-0.8%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	71	75	77	89	100	109	113	116	117	117	117	0.7%
<b>Philippines</b>												
CO <sub>2</sub> emissions	61	77	88	75	100	150	178	186	201	202	209	3.4%
Population	59	67	77	88	100	112	125	139	151	153	156	2.0%
GDP per population (GDP per capita)	84	95	111	90	100	99	106	120	140	143	150	1.9%
Energy intensity (TPES/GDP)	106	101	92	104	100	105	105	82	67	64	63	-2.0%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	114	120	112	91	100	128	128	138	142	143	141	1.6%
<b>Singapore</b>												
CO <sub>2</sub> emissions	20	28	42	57	100	129	147	141	162	166	164	2.3%
Population	69	74	79	90	100	116	132	140	167	170	174	2.6%
GDP per population (GDP per capita)	32	42	60	74	100	130	151	180	207	214	211	3.5%
Energy intensity (TPES/GDP)	106	102	94	89	100	108	81	74	64	62	59	-2.4%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	86	87	94	97	100	79	91	75	73	74	76	-1.3%

\* Please see Part I, Chapter 1 for methodological notes.

\*\* Average annual percentage change between the reference year and 2012. The reference year is 1990 unless otherwise specified.

CO<sub>2</sub> emissions and drivers (Kaya decomposition) \*

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	avg. ch. ref-12**
<b>Sri Lanka</b>												
CO <sub>2</sub> emissions	75	72	99	95	100	148	286	364	336	397	435	6.9%
Population	75	79	87	93	100	107	112	115	121	123	119	0.8%
GDP per population (GDP per capita)	59	65	77	91	100	122	148	175	227	243	265	4.5%
Energy intensity (TPES/GDP)	158	145	124	107	100	84	91	81	64	63	64	-2.0%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	109	96	120	105	100	136	189	223	191	212	213	3.5%
<b>Chinese Taipei</b>												
CO <sub>2</sub> emissions	27	37	63	63	100	138	191	229	236	230	224	3.7%
Population	73	79	88	95	100	105	109	112	114	114	115	0.6%
GDP per population (GDP per capita)	25	35	55	69	100	135	168	196	235	244	251	4.3%
Energy intensity (TPES/GDP)	114	108	122	106	100	94	97	98	86	81	76	-1.2%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	129	124	108	90	100	104	108	107	103	102	102	0.1%
<b>Thailand</b>												
CO <sub>2</sub> emissions	20	26	42	52	100	174	192	262	294	301	319	5.4%
Population	67	75	84	92	100	104	110	116	117	118	118	0.8%
GDP per population (GDP per capita)	38	43	56	67	100	145	140	171	201	201	213	3.5%
Energy intensity (TPES/GDP)	129	129	112	96	100	98	111	119	118	120	120	0.8%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	62	64	80	88	100	118	112	111	105	106	106	0.3%
<b>Viet Nam</b>												
CO <sub>2</sub> emissions	94	97	86	100	100	162	256	464	753	781	831	10.1%
Population	66	73	81	89	100	109	118	125	132	133	134	1.4%
GDP per population (GDP per capita)	81	75	71	89	100	136	177	232	299	314	327	5.5%
Energy intensity (TPES/GDP)	138	143	140	113	100	83	77	80	84	81	82	-0.9%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	127	125	107	111	100	132	159	200	228	229	229	3.8%
<b>Other Asia</b>												
CO <sub>2</sub> emissions	102	124	161	99	100	91	110	150	215	238	256	4.4%
Population	84	92	94	91	100	95	108	126	142	146	149	1.8%
GDP per population (GDP per capita)	79	79	90	97	100	118	111	136	185	201	214	3.5%
Energy intensity (TPES/GDP)	124	130	132	105	100	89	100	81	68	66	64	-2.0%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	125	131	144	106	100	91	92	109	121	123	125	1.0%
<b>Asia (excl. China)</b>												
CO <sub>2</sub> emissions	34	42	56	72	100	134	167	206	267	274	289	4.9%
Population	65	71	80	90	100	110	121	130	139	141	143	1.6%
GDP per population (GDP per capita)	56	61	72	82	100	121	134	162	206	215	223	3.7%
Energy intensity (TPES/GDP)	123	119	112	106	100	93	92	84	76	74	73	-1.4%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	77	81	86	92	100	107	112	116	122	123	125	1.0%
<b>People's Rep. of China</b>												
CO <sub>2</sub> emissions	36	48	63	77	100	135	147	241	323	354	366	6.1%
Population	74	81	86	93	100	106	111	115	118	118	119	0.8%
GDP per population (GDP per capita)	33	37	48	74	100	168	242	374	620	674	723	9.4%
Energy intensity (TPES/GDP)	187	185	167	116	100	67	49	48	40	40	39	-4.2%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	81	86	92	97	100	112	111	118	111	112	110	0.4%
<b>Hong Kong, China</b>												
CO <sub>2</sub> emissions	28	33	44	67	100	110	122	125	128	139	137	1.4%
Population	71	78	89	96	100	108	117	119	123	124	125	1.0%
GDP per population (GDP per capita)	33	39	59	72	100	120	126	152	178	186	186	2.9%
Energy intensity (TPES/GDP)	147	139	103	110	100	95	106	82	74	76	72	-1.5%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	80	78	83	88	100	89	78	84	79	79	81	-1.0%
<b>China (incl. Hong Kong, China)</b>												
CO <sub>2</sub> emissions	36	47	63	77	100	134	147	239	320	351	362	6.0%
Population	74	81	86	93	100	106	111	115	118	118	119	0.8%
GDP per population (GDP per capita)	32	37	49	74	100	164	233	356	583	634	679	9.1%
Energy intensity (TPES/GDP)	187	185	163	116	100	69	52	50	42	42	41	-4.0%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	81	85	92	97	100	112	110	118	111	112	109	0.4%

\* Please see Part I, Chapter 1 for methodological notes.

\*\* Average annual percentage change between the reference year and 2012. The reference year is 1990 unless otherwise specified.



CO<sub>2</sub> emissions and drivers (Kaya decomposition) \*

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	avg. ch. ref-12**
<b>Argentina</b>												
CO <sub>2</sub> emissions	83	86	96	88	100	120	142	153	177	184	189	2.9%
Population	75	80	86	93	100	107	113	118	124	125	126	1.1%
GDP per population (GDP per capita)	123	127	135	110	100	129	138	145	193	208	215	3.5%
Energy intensity (TPES/GDP)	79	77	78	88	100	85	86	84	72	67	64	-2.0%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	113	110	105	98	100	102	106	105	103	106	108	0.4%
<b>Bolivia</b>												
CO <sub>2</sub> emissions	42	62	81	83	100	134	138	183	273	296	317	5.4%
Population	64	70	79	89	100	112	125	138	150	152	154	2.0%
GDP per population (GDP per capita)	111	127	125	101	100	109	116	122	141	146	151	1.9%
Energy intensity (TPES/GDP)	55	64	95	108	100	118	153	144	136	135	140	1.5%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	108	110	87	86	100	93	62	75	95	98	97	-0.1%
<b>Brazil</b>												
CO <sub>2</sub> emissions	47	71	92	85	100	122	158	168	202	212	229	3.8%
Population	66	72	81	91	100	108	117	124	130	132	133	1.3%
GDP per population (GDP per capita)	64	86	105	99	100	108	110	119	140	143	143	1.6%
Energy intensity (TPES/GDP)	117	105	95	102	100	99	104	104	103	102	106	0.3%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	94	109	114	93	100	107	118	109	107	110	114	0.6%
<b>Colombia</b>												
CO <sub>2</sub> emissions	58	61	76	86	100	126	128	126	134	147	146	1.7%
Population	66	72	81	90	100	110	120	130	139	141	143	1.6%
GDP per population (GDP per capita)	66	75	87	87	100	112	109	120	139	146	150	1.9%
Energy intensity (TPES/GDP)	131	118	104	105	100	93	82	72	66	62	61	-2.3%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	101	96	104	104	100	111	120	112	104	114	112	0.5%
<b>Costa Rica</b>												
CO <sub>2</sub> emissions	48	67	84	77	100	169	171	219	251	257	260	4.4%
Population	61	67	76	88	100	113	128	140	152	154	156	2.0%
GDP per population (GDP per capita)	79	91	102	89	100	116	130	145	168	173	179	2.7%
Energy intensity (TPES/GDP)	100	98	96	96	100	107	103	113	109	104	101	0.0%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	101	113	112	102	100	121	100	95	91	93	92	-0.4%
<b>Cuba</b>												
CO <sub>2</sub> emissions	61	71	89	94	100	66	81	75	89	85	85	-0.7%
Population	84	89	93	95	100	103	105	107	106	106	106	0.3%
GDP per population (GDP per capita)	57	64	72	106	100	67	82	104	135	137	139	1.5%
Energy intensity (TPES/GDP)	128	120	126	87	100	91	84	55	45	44	44	-3.7%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	100	104	105	107	100	105	111	122	136	133	133	1.3%
<b>Dominican Republic</b>												
CO <sub>2</sub> emissions	47	70	85	83	100	151	218	234	256	259	268	4.6%
Population	64	71	80	90	100	110	120	129	138	140	142	1.6%
GDP per population (GDP per capita)	69	86	98	97	100	117	151	166	218	225	231	3.9%
Energy intensity (TPES/GDP)	135	127	110	98	100	101	97	78	60	58	58	-2.4%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	79	89	97	98	100	116	124	139	142	141	140	1.5%
<b>Ecuador</b>												
CO <sub>2</sub> emissions	26	44	79	88	100	127	144	183	239	237	247	4.2%
Population	61	68	78	89	100	112	124	136	148	151	153	2.0%
GDP per population (GDP per capita)	69	91	99	99	100	104	99	114	123	130	135	1.4%
Energy intensity (TPES/GDP)	84	80	102	102	100	107	114	104	116	112	110	0.5%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	75	89	99	99	100	102	103	114	113	108	109	0.4%
<b>El Salvador</b>												
CO <sub>2</sub> emissions	64	90	78	79	100	207	233	281	262	270	275	4.7%
Population	72	79	87	94	100	108	112	114	116	117	118	0.7%
GDP per population (GDP per capita)	120	131	119	96	100	125	141	155	162	165	167	2.4%
Energy intensity (TPES/GDP)	82	88	98	118	100	101	102	104	90	90	90	-0.5%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	90	98	77	74	100	152	145	154	153	155	155	2.0%

\* Please see Part I, Chapter 1 for methodological notes.

\*\* Average annual percentage change between the reference year and 2012. The reference year is 1990 unless otherwise specified.

CO<sub>2</sub> emissions and drivers (Kaya decomposition) \*

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	avg. ch. ref-12**
<b>Guatemala</b>												
CO <sub>2</sub> emissions	71	95	132	100	100	181	264	329	319	323	327	5.5%
Population	63	70	79	89	100	112	126	143	161	165	170	2.4%
GDP per population (GDP per capita)	89	100	116	97	100	110	119	122	129	131	132	1.3%
Energy intensity (TPES/GDP)	111	109	94	99	100	98	107	102	111	114	113	0.5%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	115	125	153	117	100	150	165	186	138	131	130	1.2%
<b>Haiti</b>												
CO <sub>2</sub> emissions	40	43	65	83	100	96	149	210	221	226	219	3.6%
Population	67	72	80	90	100	110	121	130	139	141	143	1.6%
GDP per population (GDP per capita)	109	109	129	113	100	80	82	74	72	75	76	-1.2%
Energy intensity (TPES/GDP)	131	140	129	119	100	124	130	226	243	238	240	4.1%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	41	39	49	69	100	88	116	96	91	90	84	-0.8%
<b>Honduras</b>												
CO <sub>2</sub> emissions	52	61	78	77	100	164	206	328	337	354	378	6.2%
Population	56	63	74	86	100	114	127	141	155	159	162	2.2%
GDP per population (GDP per capita)	86	88	106	99	100	104	109	123	133	136	138	1.5%
Energy intensity (TPES/GDP)	121	116	100	98	100	100	91	100	93	93	96	-0.2%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	89	94	99	91	100	138	164	190	176	177	177	2.6%
<b>Jamaica</b>												
CO <sub>2</sub> emissions	77	103	91	65	100	116	135	142	96	101	99	-0.1%
Population	79	84	89	97	100	104	108	111	113	113	113	0.6%
GDP per population (GDP per capita)	107	108	86	81	100	117	110	119	116	118	119	0.8%
Energy intensity (TPES/GDP)	85	106	107	79	100	95	115	102	74	77	75	-1.3%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	106	107	111	104	100	101	98	106	99	98	98	-0.1%
<b>Netherlands Antilles</b>												
CO <sub>2</sub> emissions	525	369	318	166	100	103	162	170	150	172	174	2.5%
Population	85	89	92	97	100	105	111	116	121	121	121	0.9%
GDP per population (GDP per capita)	72	78	88	88	100	106	123	125	129	130	130	1.2%
Energy intensity (TPES/GDP)	610	378	336	144	100	80	106	99	72	89	90	-0.5%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	140	140	118	135	100	114	112	118	133	122	123	0.9%
<b>Nicaragua</b>												
CO <sub>2</sub> emissions	80	100	98	98	100	137	192	220	238	245	235	4.0%
Population	60	68	79	90	100	113	123	132	141	143	145	1.7%
GDP per population (GDP per capita)	191	210	146	132	100	97	113	124	134	139	144	1.7%
Energy intensity (TPES/GDP)	53	51	66	81	100	102	89	87	78	77	79	-1.1%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	133	137	129	103	100	122	154	155	162	161	143	1.6%
<b>Panama</b>												
CO <sub>2</sub> emissions	99	122	114	105	100	160	192	266	348	376	385	6.3%
Population	63	71	80	90	100	111	123	135	148	150	153	1.9%
GDP per population (GDP per capita)	101	104	109	115	100	118	133	149	205	223	243	4.1%
Energy intensity (TPES/GDP)	174	155	109	101	100	103	105	96	82	81	75	-1.3%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	89	108	120	100	100	120	112	137	140	138	138	1.5%
<b>Paraguay</b>												
CO <sub>2</sub> emissions	30	36	71	74	100	181	170	180	245	256	264	4.5%
Population	60	66	75	87	100	113	126	139	152	155	157	2.1%
GDP per population (GDP per capita)	50	60	89	86	100	110	101	100	117	120	117	0.7%
Energy intensity (TPES/GDP)	148	120	101	98	100	103	99	92	88	85	89	-0.5%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	67	76	105	100	100	141	136	139	157	162	162	2.2%
<b>Peru</b>												
CO <sub>2</sub> emissions	81	96	107	95	100	124	138	150	217	233	239	4.0%
Population	62	70	80	90	100	110	119	127	134	136	138	1.5%
GDP per population (GDP per capita)	127	139	136	123	100	119	124	142	191	201	212	3.5%
Energy intensity (TPES/GDP)	119	110	107	99	100	86	85	77	77	77	77	-1.2%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	86	90	93	87	100	110	110	107	110	110	107	0.3%

\* Please see Part I, Chapter 1 for methodological notes.

\*\* Average annual percentage change between the reference year and 2012. The reference year is 1990 unless otherwise specified.

CO<sub>2</sub> emissions and drivers (Kaya decomposition) \*

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	avg. ch. ref-12**
<b>Trinidad and Tobago</b>												
CO <sub>2</sub> emissions	54	51	70	84	100	108	160	272	338	334	326	5.5%
Population	78	83	89	96	100	103	104	106	109	109	109	0.4%
GDP per population (GDP per capita)	97	104	141	117	100	104	132	189	218	214	216	3.6%
Energy intensity (TPES/GDP)	58	45	51	76	100	96	120	134	142	141	136	1.4%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	123	132	109	99	100	105	97	101	101	101	102	0.1%
<b>Uruguay</b>												
CO <sub>2</sub> emissions	139	146	148	83	100	121	140	141	165	197	224	3.7%
Population	91	91	94	97	100	104	107	107	108	109	109	0.4%
GDP per population (GDP per capita)	82	88	107	85	100	117	131	132	172	183	189	2.9%
Energy intensity (TPES/GDP)	144	135	117	107	100	94	98	93	97	99	99	-0.0%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	130	134	126	94	100	106	102	107	91	100	109	0.4%
<b>Venezuela</b>												
CO <sub>2</sub> emissions	50	60	88	91	100	113	121	141	174	153	170	2.4%
Population	56	65	76	88	100	112	124	135	147	149	152	1.9%
GDP per population (GDP per capita)	128	127	121	100	100	106	99	103	114	117	121	0.9%
Energy intensity (TPES/GDP)	63	70	88	103	100	100	105	102	103	93	95	-0.2%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	110	104	108	100	100	95	93	99	101	94	97	-0.1%
<b>Other Non-OECD Americas</b>												
CO <sub>2</sub> emissions	66	88	83	75	100	108	122	131	153	153	156	2.0%
Population	87	90	93	96	100	106	113	120	126	127	129	1.2%
GDP per population (GDP per capita)	68	69	85	83	100	102	116	124	126	127	129	1.2%
Energy intensity (TPES/GDP)	160	190	144	88	100	91	85	81	86	85	84	-0.8%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	69	74	73	106	100	109	110	109	112	112	112	0.5%
<b>Non-OECD Americas</b>												
CO <sub>2</sub> emissions	60	73	91	88	100	118	141	156	185	188	199	3.2%
Population	66	73	82	91	100	109	118	126	134	135	137	1.4%
GDP per population (GDP per capita)	81	96	109	100	100	110	113	121	144	149	152	1.9%
Energy intensity (TPES/GDP)	107	99	96	99	100	95	98	95	91	88	89	-0.5%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	104	106	108	97	100	104	109	107	105	106	108	0.3%
<b>Bahrain</b>												
CO <sub>2</sub> emissions	24	43	59	81	100	124	143	181	225	225	232	3.9%
Population	45	54	73	84	100	114	135	177	252	261	266	4.5%
GDP per population (GDP per capita)	64	98	118	94	100	122	127	124	115	113	115	0.6%
Energy intensity (TPES/GDP)	95	78	63	100	100	88	89	90	82	81	79	-1.1%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	90	105	111	102	100	101	94	91	95	95	96	-0.2%
<b>Islamic Republic of Iran</b>												
CO <sub>2</sub> emissions	23	40	50	82	100	141	176	236	285	294	298	5.1%
Population	52	58	69	84	100	107	117	124	132	134	136	1.4%
GDP per population (GDP per capita)	127	161	118	117	100	110	123	152	181	184	178	2.7%
Energy intensity (TPES/GDP)	36	41	67	79	100	124	123	132	125	124	131	1.2%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	97	104	92	106	100	96	99	95	95	96	94	-0.3%
<b>Iraq</b>												
CO <sub>2</sub> emissions	19	29	51	69	100	182	132	140	189	202	223	3.7%
Population	59	67	78	89	100	116	136	156	177	181	186	2.9%
GDP per population (GDP per capita)	262	292	376	211	100	33	58	52	61	66	70	-1.6%
Energy intensity (TPES/GDP)	14	16	17	37	100	458	167	169	176	170	176	2.6%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	93	94	103	98	100	104	100	103	99	100	97	-0.1%
<b>Jordan</b>												
CO <sub>2</sub> emissions	14	23	46	80	100	132	155	195	203	214	235	4.0%
Population	50	57	69	83	100	132	151	171	191	195	199	3.2%
GDP per population (GDP per capita)	81	69	119	127	100	107	109	132	159	160	161	2.2%
Energy intensity (TPES/GDP)	37	58	57	75	100	93	90	91	71	69	73	-1.4%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	96	100	99	100	100	100	105	96	94	99	101	0.0%

\* Please see Part I, Chapter 1 for methodological notes.

\*\* Average annual percentage change between the reference year and 2012. The reference year is 1990 unless otherwise specified.

**CO<sub>2</sub> emissions and drivers (Kaya decomposition) \***

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2011	2012	avg. ch. ref-12**
<b>Kuwait</b>												
CO <sub>2</sub> emissions	49	52	93	129	100	126	171	244	280	295	318	5.4%
Population	39	51	67	84	100	77	93	111	145	152	158	2.1%
GDP per population (GDP per capita)	321	204	165	104	100	176	161	198	161	164	167	2.4%
Energy intensity (TPES/GDP)	53	68	104	177	100	120	139	131	151	143	144	1.7%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	73	74	81	84	100	77	83	84	79	83	84	-0.8%
<b>Lebanon</b>												
CO <sub>2</sub> emissions	83	104	121	120	100	235	259	265	336	339	385	6.3%
Population	87	95	96	99	100	112	120	148	161	162	164	2.3%
GDP per population (GDP per capita)	173	155	130	177	100	158	159	156	196	200	201	3.2%
Energy intensity (TPES/GDP)	63	75	101	68	100	127	132	112	104	100	111	0.5%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	88	93	95	101	100	104	103	103	103	104	105	0.2%
<b>Oman</b>												
CO <sub>2</sub> emissions	3	7	22	56	100	145	198	256	569	648	667	9.0%
Population	41	49	64	83	100	119	121	139	155	167	183	2.8%
GDP per population (GDP per capita)	60	67	66	104	100	112	130	134	164	158	152	1.9%
Energy intensity (TPES/GDP)	22	17	64	58	100	109	116	141	209	229	224	3.7%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	46	124	81	112	100	100	109	97	108	107	107	0.3%
<b>Qatar</b>												
CO <sub>2</sub> emissions	16	34	54	86	100	132	168	255	424	470	531	7.9%
Population	25	34	47	78	100	105	125	172	367	401	430	6.9%
GDP per population (GDP per capita)	410	302	257	131	100	106	157	167	179	187	185	2.8%
Energy intensity (TPES/GDP)	14	30	42	85	100	113	86	89	65	65	73	-1.4%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	110	110	106	99	100	106	100	100	99	96	91	-0.4%
<b>Saudi Arabia</b>												
CO <sub>2</sub> emissions	8	15	66	81	100	127	156	198	275	284	304	5.2%
Population	37	46	61	82	100	115	124	152	168	171	175	2.6%
GDP per population (GDP per capita)	98	168	176	103	100	101	105	109	131	140	144	1.7%
Energy intensity (TPES/GDP)	35	20	50	94	100	126	129	127	145	128	137	1.4%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	66	98	122	102	100	87	93	94	86	93	88	-0.6%
<b>Syrian Arab Republic</b>												
CO <sub>2</sub> emissions	21	32	47	75	100	116	141	195	204	189	142	1.6%
Population	53	61	72	86	100	115	131	146	173	176	180	2.7%
GDP per population (GDP per capita)	65	96	112	109	100	127	125	143	153	147	116	0.7%
Energy intensity (TPES/GDP)	66	50	53	80	100	79	92	95	78	74	69	-1.7%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	94	110	109	100	100	101	94	98	99	99	99	-0.0%
<b>United Arab Emirates</b>												
CO <sub>2</sub> emissions	5	9	37	69	100	134	165	210	293	305	330	5.6%
Population	15	30	56	75	100	130	168	230	467	494	510	7.7%
GDP per population (GDP per capita)	117	153	168	118	100	93	94	89	50	49	49	-3.2%
Energy intensity (TPES/GDP)	28	21	38	76	100	113	105	104	131	130	132	1.3%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	95	99	104	102	100	99	99	99	97	97	100	-0.0%
<b>Yemen</b>												
CO <sub>2</sub> emissions	19	27	54	75	100	145	205	290	368	309	311	5.3%
Population	53	57	67	82	100	127	149	171	193	198	202	3.3%
GDP per population (GDP per capita)	46	60	88	104	100	106	117	125	137	119	117	0.7%
Energy intensity (TPES/GDP)	122	81	85	82	100	101	109	123	126	117	117	0.7%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	63	98	106	108	100	107	109	111	111	112	113	0.5%
<b>Middle East</b>												
CO <sub>2</sub> emissions	18	29	56	81	100	139	164	212	277	287	300	5.1%
Population	51	58	69	85	100	113	126	142	161	165	168	2.4%
GDP per population (GDP per capita)	138	171	188	129	100	94	105	119	136	141	142	1.6%
Energy intensity (TPES/GDP)	29	29	41	73	100	138	127	131	136	130	135	1.4%
Carbon intensity: ESCII (CO <sub>2</sub> /TPES)	88	100	104	102	100	95	97	95	92	95	93	-0.3%

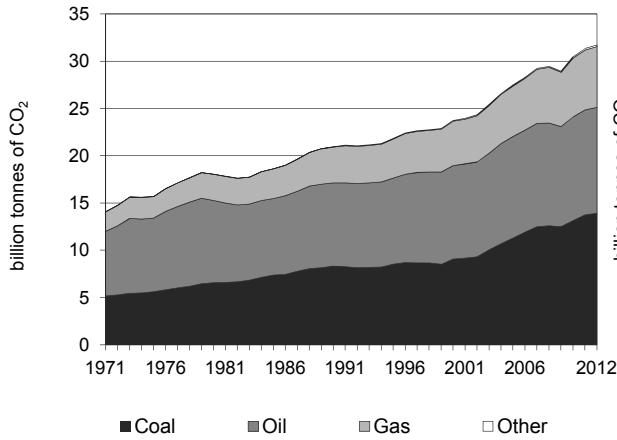
\* Please see Part I, Chapter 1 for methodological notes.

\*\* Average annual percentage change between the reference year and 2012. The reference year is 1990 unless otherwise specified.

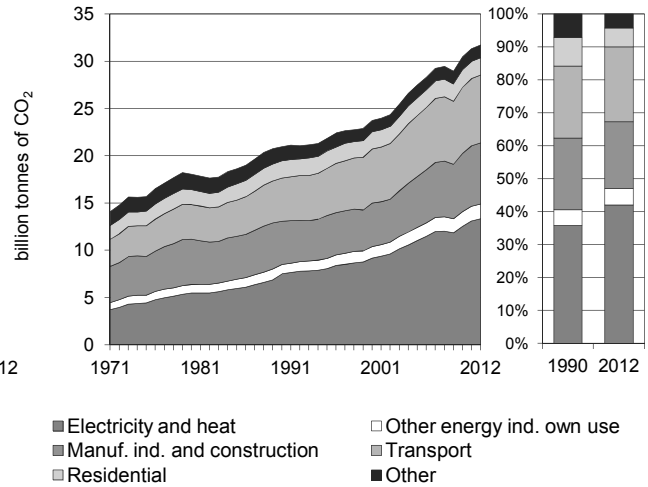
# GLOBAL AND REGIONAL TOTALS

## World

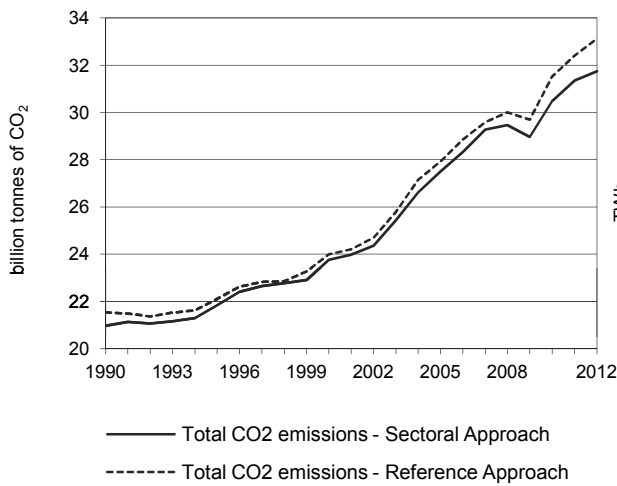
**Figure 1. CO<sub>2</sub> emissions by fuel**



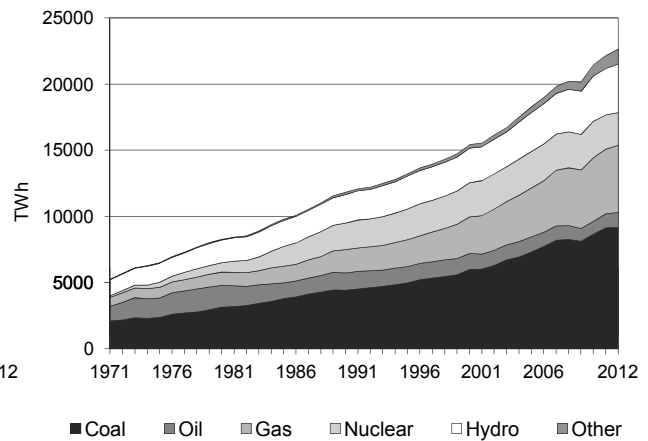
**Figure 2. CO<sub>2</sub> emissions by sector**



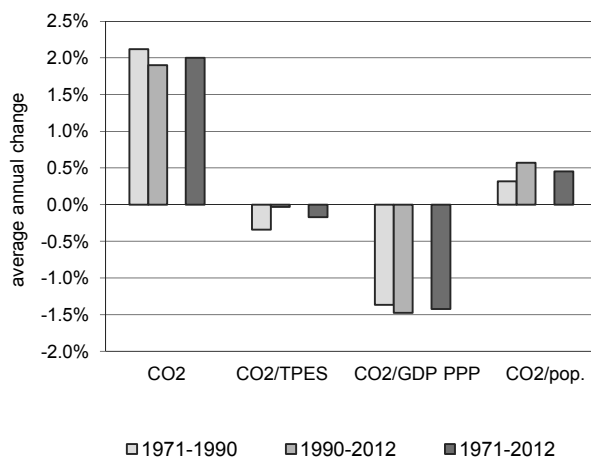
**Figure 3. Reference vs Sectoral Approach**



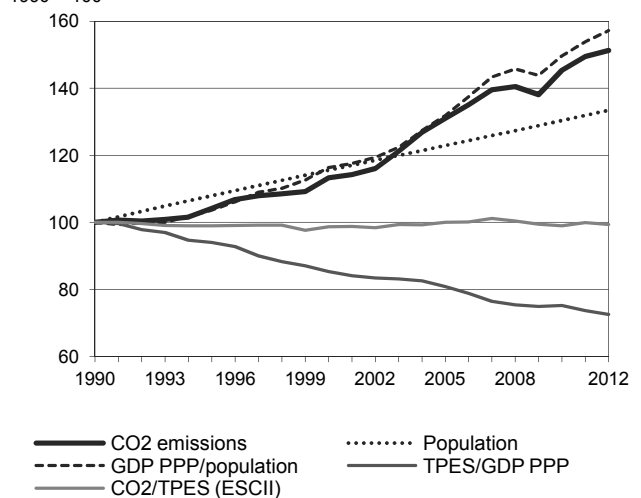
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## World

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	20 973.9	21 841.1	23 755.6	27 494.0	30 482.1	31 344.8	31 734.3	51.3%
TPES (PJ)	367 612	386 688	422 003	481 776	539 712	549 683	559 818	52.3%
GDP (billion 2005 USD)	30 530.3	33 922.0	40 184.6	46 339.3	51 855.3	53 327.4	54 587.9	78.8%
GDP PPP (billion 2005 USD)	39 510.3	44 221.5	53 126.3	64 076.9	77 110.6	80 201.7	82 900.6	109.8%
Population (millions)	5 273.5	5 692.8	6 093.7	6 481.7	6 876.1	6 956.3	7 037.1	33.4%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	57.1	56.5	56.3	57.1	56.5	57.0	56.7	-0.6%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.69	0.64	0.59	0.59	0.59	0.59	0.58	-15.4%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.53	0.49	0.45	0.43	0.40	0.39	0.38	-27.9%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	3.98	3.84	3.90	4.24	4.43	4.51	4.51	13.4%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	104	113	131	145	149	151	51.3%
Population index	100	108	116	123	130	132	133	33.4%
GDP PPP per population index	100	104	116	132	150	154	157	57.2%
Energy intensity index - TPES / GDP PPP	100	94	85	81	75	74	73	-27.4%
Carbon intensity index - CO <sub>2</sub> / TPES	100	99	99	100	99	100	99	-0.6%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach ***</b>	<b>13 923.8</b>	<b>11 205.4</b>	<b>6 439.8</b>	<b>165.4</b>	<b>31 734.3</b>	<b>51.3%</b>
Main activity producer elec. and heat	9 031.0	765.3	2 287.5	45.1	12 128.9	83.3%
Unallocated autoproducers	515.5	176.3	452.0	73.7	1 217.5	36.2%
Other energy industry own use	310.8	596.6	649.1	1.0	1 557.6	56.1%
Manufacturing industries and construction	3 516.0	1 444.5	1 455.6	40.6	6 456.8	41.5%
Transport ***	12.7	6 963.0	211.2	-	7 187.0	56.9%
<i>of which: road</i>	-	5 296.0	77.8	-	5 373.8	64.1%
Other	537.7	1 259.6	1 384.3	5.0	3 186.6	-4.1%
<i>of which: residential</i>	295.6	581.7	941.9	0.0	1 819.2	0.5%
<b>Reference Approach ***</b>	<b>15 103.3</b>	<b>11 348.0</b>	<b>6 504.6</b>	<b>165.9</b>	<b>33 121.8</b>	<b>53.7%</b>
Diff. due to losses and/or transformation	399.0	103.7	82.3	0.0	585.0	
Statistical differences	780.6	39.0	- 17.5	0.4	802.5	
<i>Memo: international marine bunkers</i>	-	602.2	-	-	602.2	65.8%
<i>Memo: international aviation bunkers</i>	-	477.8	-	-	477.8	86.4%

\*\* Other includes industrial waste and non-renewable municipal waste.

\*\*\* World includes international marine bunkers and international aviation bunkers.

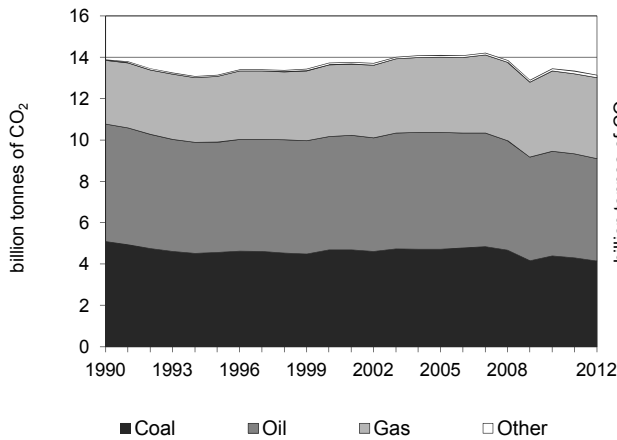
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ****	Cumulative total (%)
Main activity prod. elec. and heat - coal	9 031.0	98.5%	19.4	19.4
Road - oil	5 296.0	61.9%	11.4	30.9
Manufacturing industries - coal	3 516.0	58.4%	7.6	38.4
Main activity prod. elec. and heat - gas	2 287.5	121.9%	4.9	43.4
Other transport - oil	1 667.0	47.8%	3.6	46.9
Manufacturing industries - gas	1 455.6	48.1%	3.1	50.1
Manufacturing industries - oil	1 444.5	6.7%	3.1	53.2
Residential - gas	941.9	46.9%	2.0	55.2
Main activity prod. elec. and heat - oil	765.3	-25.6%	1.6	56.9
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>31 734.3</i>	<i>51.3%</i>	<i>68.3</i>	<i>68.3</i>

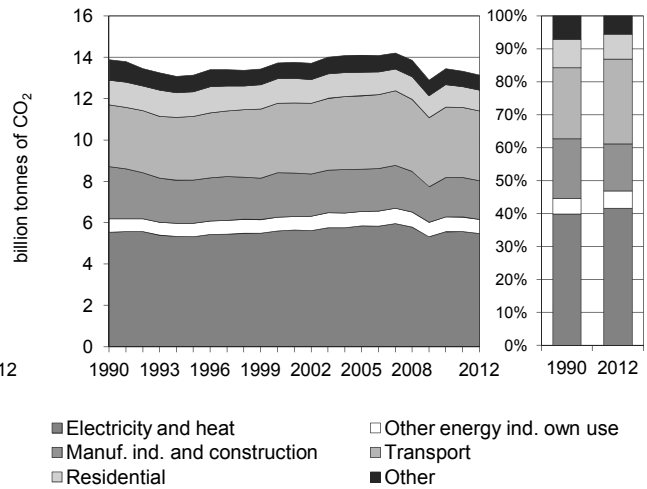
\*\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

### Annex I Parties

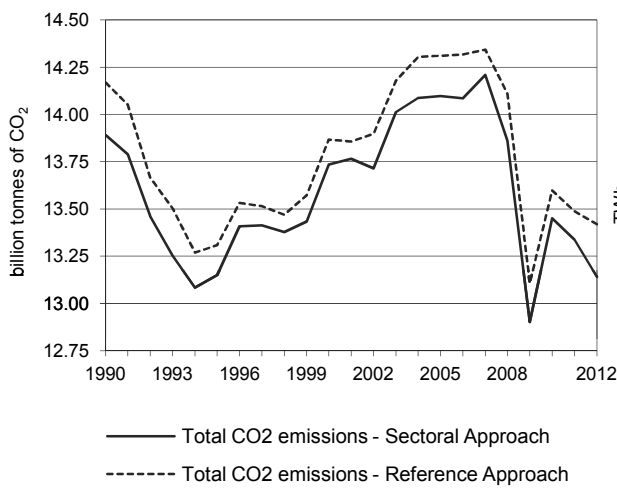
**Figure 1. CO<sub>2</sub> emissions by fuel**



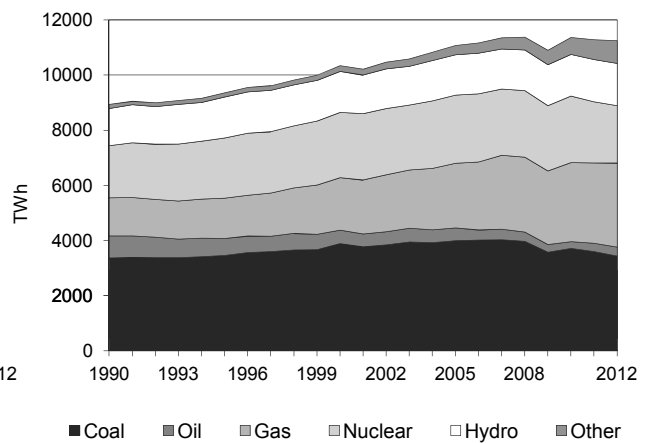
**Figure 2. CO<sub>2</sub> emissions by sector**



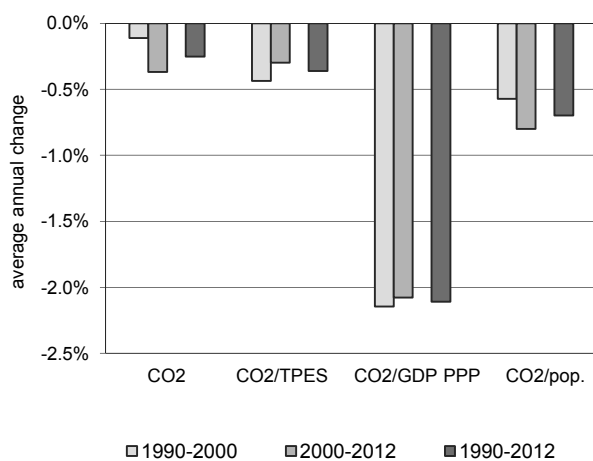
**Figure 3. Reference vs Sectoral Approach**



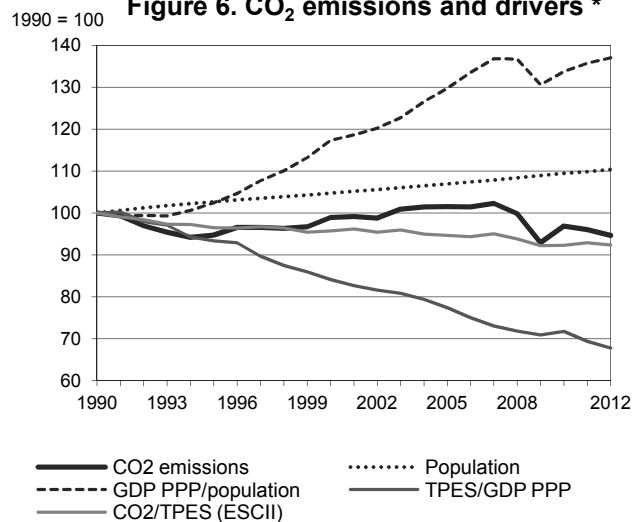
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Annex I Parties

## Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	13 890.5	13 149.4	13 735.2	14 096.5	13 449.9	13 337.4	13 140.9	-5.4%
TPES (PJ)	233 715	229 402	241 467	250 659	245 232	241 585	239 476	2.5%
GDP (billion 2005 USD)	25 234.4	27 289.5	31 879.8	35 597.0	37 253.7	37 894.6	38 401.3	52.2%
GDP PPP (billion 2005 USD)	25 711.7	27 037.5	31 586.0	35 651.3	37 605.1	38 335.1	38 879.8	51.2%
Population (millions)	1 175.8	1 207.2	1 231.5	1 256.9	1 286.4	1 291.6	1 297.6	10.4%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	59.4	57.3	56.9	56.2	54.8	55.2	54.9	-7.7%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.55	0.48	0.43	0.40	0.36	0.35	0.34	-37.8%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.54	0.49	0.43	0.40	0.36	0.35	0.34	-37.4%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	11.81	10.89	11.15	11.22	10.46	10.33	10.13	-14.3%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	95	99	101	97	96	95	-5.4%
Population index	100	103	105	107	109	110	110	10.4%
GDP PPP per population index	100	102	117	130	134	136	137	37.0%
Energy intensity index - TPES / GDP PPP	100	93	84	77	72	69	68	-32.2%
Carbon intensity index - CO <sub>2</sub> / TPES	100	96	96	95	92	93	92	-7.7%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>4 156.2</b>	<b>4 952.5</b>	<b>3 906.1</b>	<b>126.1</b>	<b>13 140.9</b>	<b>-5.4%</b>
Main activity producer elec. and heat	3 201.4	189.4	1 377.7	43.6	4 812.2	0.7%
Unallocated autoproducers	215.4	72.9	334.4	44.4	667.2	-13.1%
Other energy industry own use	73.1	321.5	281.8	1.0	677.4	4.0%
Manufacturing industries and construction	556.2	534.7	754.3	34.1	1 879.2	-25.5%
Transport	0.7	3 252.4	124.0	-	3 377.1	12.9%
<i>of which: road</i>	-	2 892.9	5.4	-	2 898.3	19.0%
Other	109.4	581.5	1 033.9	2.9	1 727.7	-20.8%
<i>of which: residential</i>	65.8	260.6	670.6	0.0	997.1	-16.4%
<b>Reference Approach</b>	<b>4 355.3</b>	<b>5 012.7</b>	<b>3 922.7</b>	<b>126.6</b>	<b>13 417.3</b>	<b>-5.3%</b>
Diff. due to losses and/or transformation	85.4	61.9	28.3	0.0	175.7	
Statistical differences	113.7	-1.7	-11.7	0.5	100.8	
<i>Memo: international marine bunkers</i>	-	220.2	-	-	220.2	-5.7%
<i>Memo: international aviation bunkers</i>	-	255.3	-	-	255.3	51.6%

\*\* Other includes industrial waste and non-renewable municipal waste.

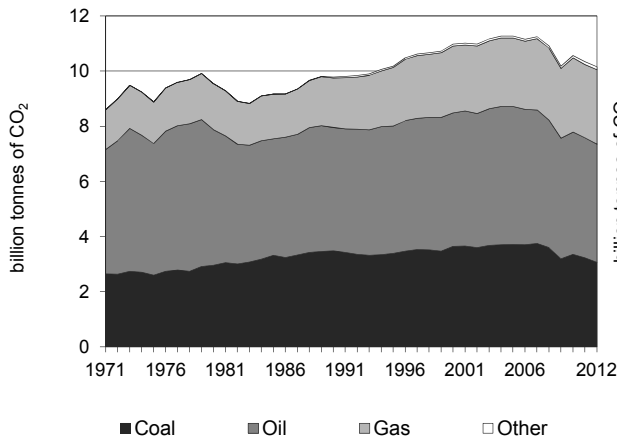
Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	3 201.4	-4.0%	18.6	18.6
Road - oil	2 892.9	18.9%	16.8	35.4
Main activity prod. elec. and heat - gas	1 377.7	70.2%	8.0	43.4
Manufacturing industries - gas	754.3	-1.8%	4.4	47.7
Residential - gas	670.6	11.8%	3.9	51.6
Manufacturing industries - coal	556.2	-40.7%	3.2	54.9
Manufacturing industries - oil	534.7	-34.1%	3.1	58.0
Non-specified other - gas	363.2	26.0%	2.1	60.1
Other transport - oil	359.5	-16.9%	2.1	62.2
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>13 140.9</i>	<i>-5.4%</i>	<i>76.3</i>	<i>76.3</i>

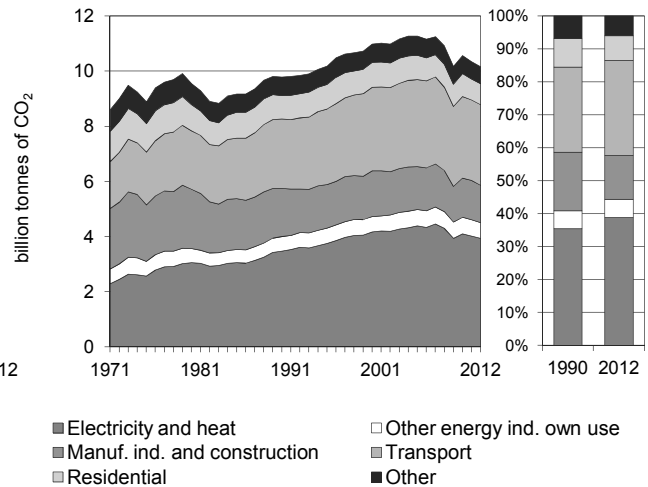
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Annex II Parties

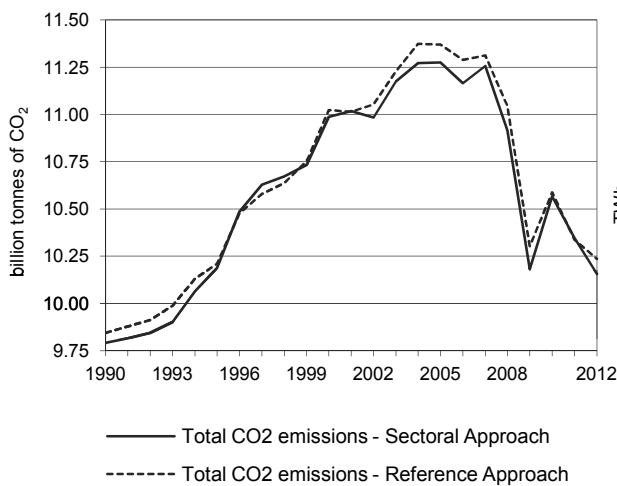
**Figure 1. CO<sub>2</sub> emissions by fuel**



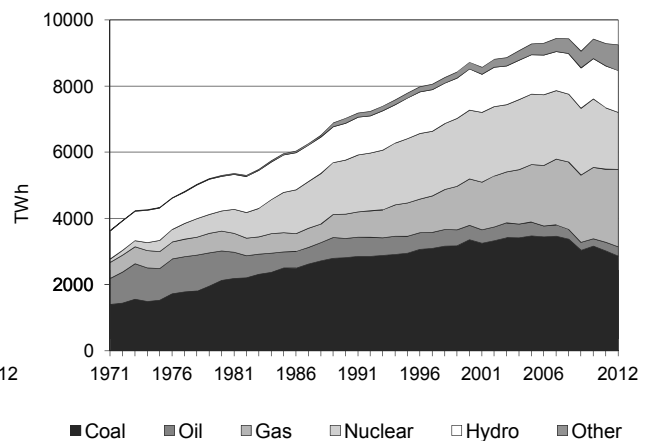
**Figure 2. CO<sub>2</sub> emissions by sector**



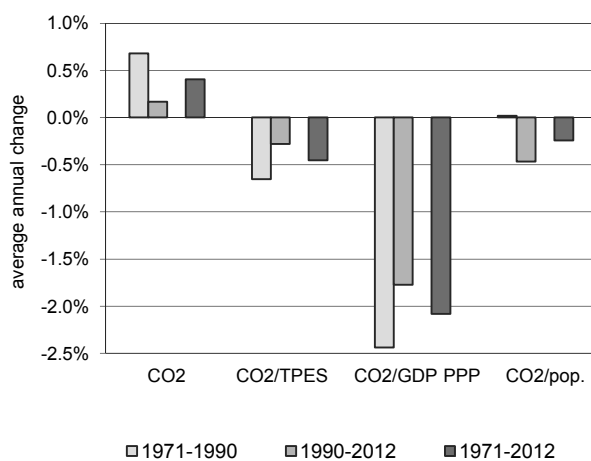
**Figure 3. Reference vs Sectoral Approach**



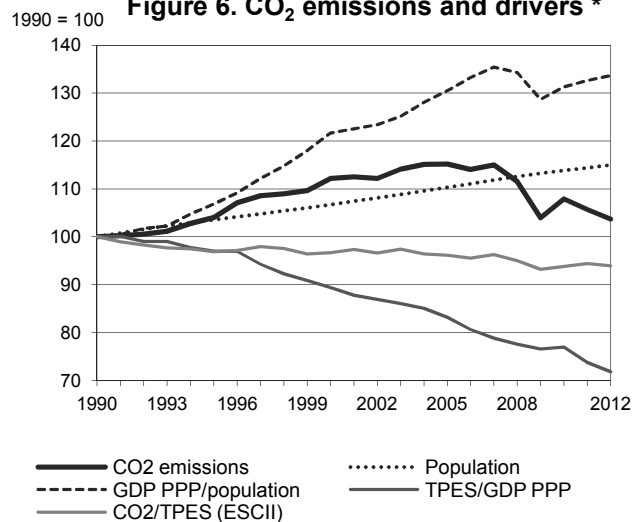
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Annex II Parties

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	9 790.9	10 187.2	10 986.7	11 275.7	10 566.4	10 347.1	10 156.0	3.7%
TPES (PJ)	167 908	180 281	194 914	201 109	193 137	187 913	185 322	10.4%
GDP (billion 2005 USD)	23 323.8	25 771.0	30 143.2	33 371.0	34 649.8	35 164.5	35 617.9	52.7%
GDP PPP (billion 2005 USD)	21 725.2	24 035.3	28 203.6	31 268.9	32 474.5	32 959.7	33 394.5	53.7%
Population (millions)	799.3	827.6	853.0	881.7	910.1	914.5	919.2	15.0%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	58.3	56.5	56.4	56.1	54.7	55.1	54.8	-6.0%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.42	0.40	0.36	0.34	0.30	0.29	0.29	-32.1%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.45	0.42	0.39	0.36	0.33	0.31	0.30	-32.5%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	12.25	12.31	12.88	12.79	11.61	11.32	11.05	-9.8%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	104	112	115	108	106	104	3.7%
Population index	100	104	107	110	114	114	115	15.0%
GDP PPP per population index	100	107	122	130	131	133	134	33.7%
Energy intensity index - TPES / GDP PPP	100	97	89	83	77	74	72	-28.2%
Carbon intensity index - CO <sub>2</sub> / TPES	100	97	97	96	94	94	94	-6.0%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>3 067.6</b>	<b>4 283.5</b>	<b>2 703.0</b>	<b>101.9</b>	<b>10 156.0</b>	<b>3.7%</b>
Main activity producer elec. and heat	2 559.2	156.6	900.4	43.3	3 659.5	15.1%
Unallocated autoproducers	103.5	40.3	111.0	27.8	282.6	-3.5%
Other energy industry own use	54.2	266.7	248.2	0.1	569.2	7.5%
Manufacturing industries and construction	333.6	441.3	544.7	28.6	1 348.2	-22.7%
Transport	0.6	2 872.0	53.0	-	2 925.5	15.9%
<i>of which: road</i>	-	2 555.0	4.9	-	2 559.8	20.0%
Other	16.5	506.6	845.7	2.2	1 371.0	-9.8%
<i>of which: residential</i>	8.6	236.5	512.7	0.0	757.8	-10.1%
<b>Reference Approach</b>	<b>3 153.8</b>	<b>4 281.0</b>	<b>2 698.7</b>	<b>102.0</b>	<b>10 235.6</b>	<b>4.0%</b>
Diff. due to losses and/or transformation	34.9	1.1	8.0	0.0	44.0	
Statistical differences	51.4	- 3.6	- 12.3	0.0	35.5	
<i>Memo: international marine bunkers</i>	-	206.8	-	-	206.8	-7.4%
<i>Memo: international aviation bunkers</i>	-	226.6	-	-	226.6	72.9%

\*\* Other includes industrial waste and non-renewable municipal waste.

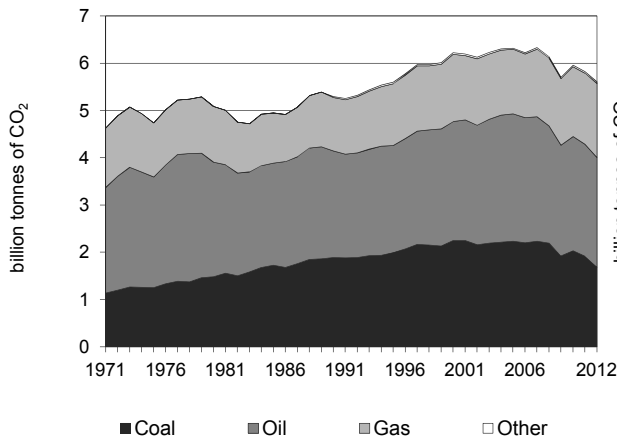
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	2 559.2	1.5%	19.9	19.9
Road - oil	2 555.0	19.8%	19.9	39.8
Main activity prod. elec. and heat - gas	900.4	197.8%	7.0	46.8
Manufacturing industries - gas	544.7	4.0%	4.2	51.1
Residential - gas	512.7	15.1%	4.0	55.1
Manufacturing industries - oil	441.3	-26.1%	3.4	58.5
Manufacturing industries - coal	333.6	-46.1%	2.6	61.1
Non-specified other - gas	333.0	34.0%	2.6	63.7
Other transport - oil	317.0	-8.9%	2.5	66.2
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>10 156.0</i>	<i>3.7%</i>	<i>79.1</i>	<i>79.1</i>

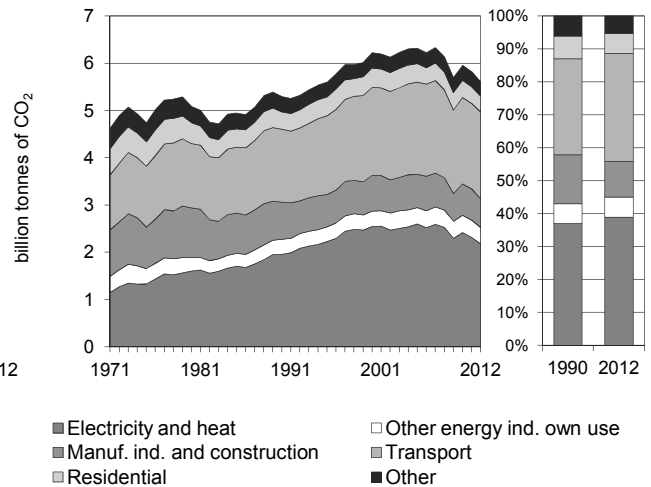
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Annex II: North America

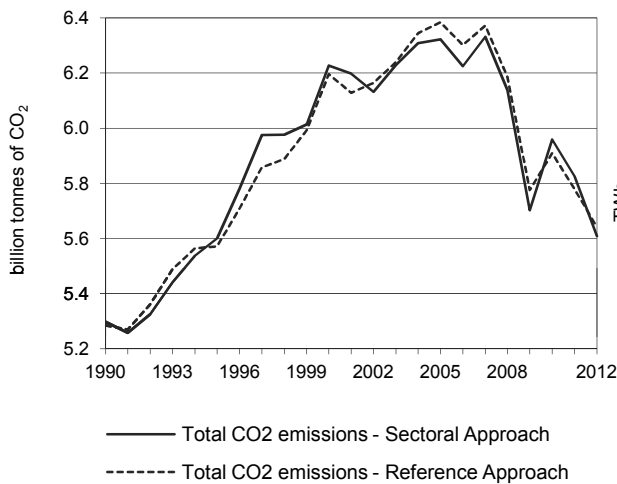
**Figure 1. CO<sub>2</sub> emissions by fuel**



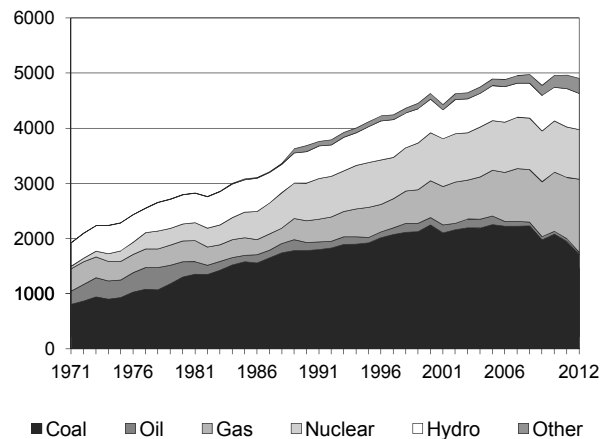
**Figure 2. CO<sub>2</sub> emissions by sector**



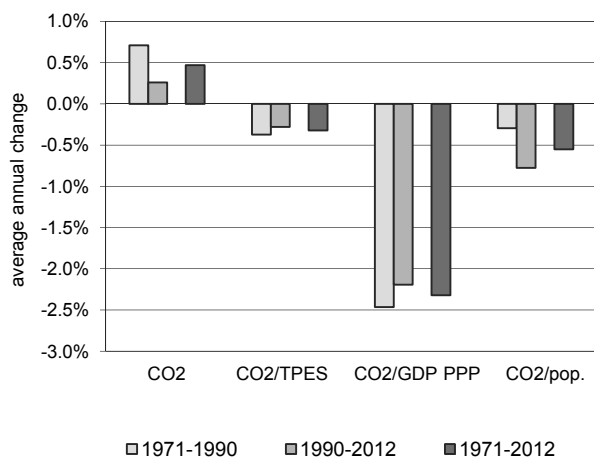
**Figure 3. Reference vs Sectoral Approach**



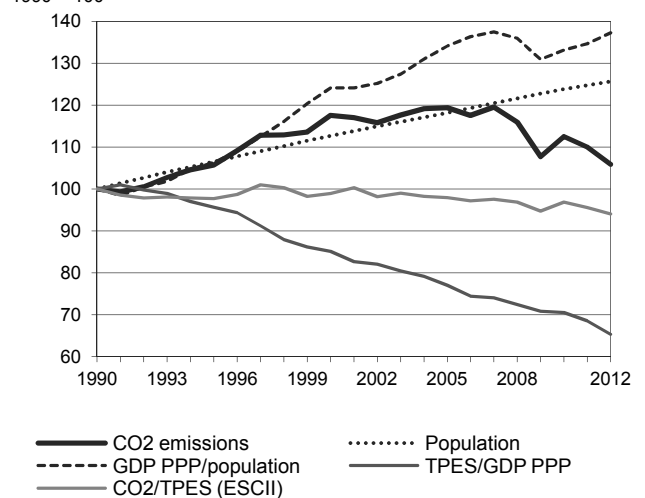
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Annex II: North America

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	5 296.9	5 599.6	6 226.7	6 322.6	5 958.5	5 825.1	5 607.9	5.9%
TPES (PJ)	88 912	96 216	105 710	108 418	103 276	102 331	100 137	12.6%
GDP (billion 2005 USD)	9 003.5	10 192.4	12 585.7	14 259.6	14 835.7	15 118.2	15 524.7	72.4%
GDP PPP (billion 2005 USD)	9 002.3	10 191.1	12 584.1	14 257.8	14 833.8	15 116.2	15 522.7	72.4%
Population (millions)	277.9	295.9	313.1	328.2	343.9	346.5	349.2	25.7%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	59.6	58.2	58.9	58.3	57.7	56.9	56.0	-6.0%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.59	0.55	0.49	0.44	0.40	0.39	0.36	-38.6%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.59	0.55	0.49	0.44	0.40	0.39	0.36	-38.6%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	19.06	18.92	19.89	19.26	17.33	16.81	16.06	-15.7%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	106	118	119	112	110	106	5.9%
Population index	100	106	113	118	124	125	126	25.7%
GDP PPP per population index	100	106	124	134	133	135	137	37.2%
Energy intensity index - TPES / GDP PPP	100	96	85	77	70	69	65	-34.7%
Carbon intensity index - CO <sub>2</sub> / TPES	100	98	99	98	97	96	94	-6.0%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>1 684.6</b>	<b>2 322.3</b>	<b>1 569.3</b>	<b>31.6</b>	<b>5 607.9</b>	<b>5.9%</b>
Main activity producer elec. and heat	1 546.3	22.5	519.4	15.6	2 103.8	12.7%
Unallocated autoproducers	18.4	9.1	45.3	7.1	80.0	-16.0%
Other energy industry own use	10.6	137.6	193.3	-	341.5	8.3%
Manufacturing industries and construction	105.8	168.0	325.4	7.8	606.9	-23.0%
Transport	-	1 791.7	46.9	-	1 838.6	19.1%
<i>of which: road</i>	-	1 554.5	1.7	-	1 556.2	26.2%
Other	3.6	193.4	438.9	1.1	637.0	-7.4%
<i>of which: residential</i>	0.1	83.4	257.1	-	340.5	-6.6%
<b>Reference Approach</b>	<b>1 737.4</b>	<b>2 298.5</b>	<b>1 573.8</b>	<b>31.6</b>	<b>5 641.2</b>	<b>6.8%</b>
Diff. due to losses and/or transformation	16.2	-9.7	6.1	-	12.6	
Statistical differences	36.5	-14.1	-1.7	0.0	20.7	
<i>Memo: international marine bunkers</i>	-	50.4	-	-	50.4	-46.1%
<i>Memo: international aviation bunkers</i>	-	66.2	-	-	66.2	59.6%

\*\* Other includes industrial waste and non-renewable municipal waste.

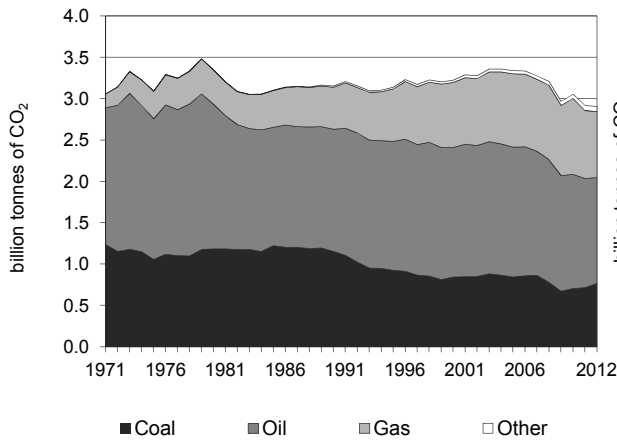
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	1 554.5	26.0%	21.9	21.9
Main activity prod. elec. and heat - coal	1 546.3	-4.1%	21.7	43.6
Main activity prod. elec. and heat - gas	519.4	233.8%	7.3	50.9
Manufacturing industries - gas	325.4	0.7%	4.6	55.5
Residential - gas	257.1	-3.4%	3.6	59.1
Other transport - oil	237.2	-11.4%	3.3	62.4
Other energy industry own use - gas	193.3	54.6%	2.7	65.2
Non-specified other - gas	181.8	11.0%	2.6	67.7
Manufacturing industries - oil	168.0	-30.7%	2.4	70.1
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>5 607.9</i>	<i>5.9%</i>	<i>78.9</i>	<i>78.9</i>

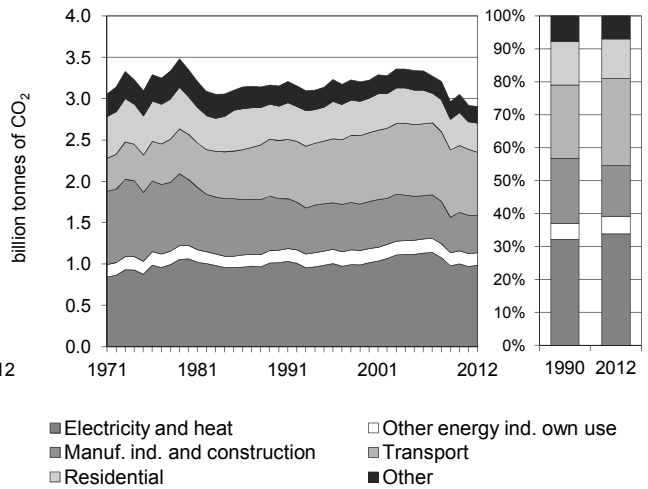
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Annex II: Europe

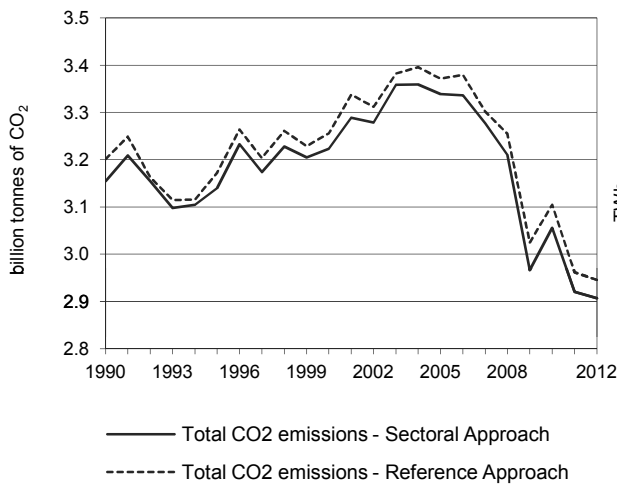
**Figure 1. CO<sub>2</sub> emissions by fuel**



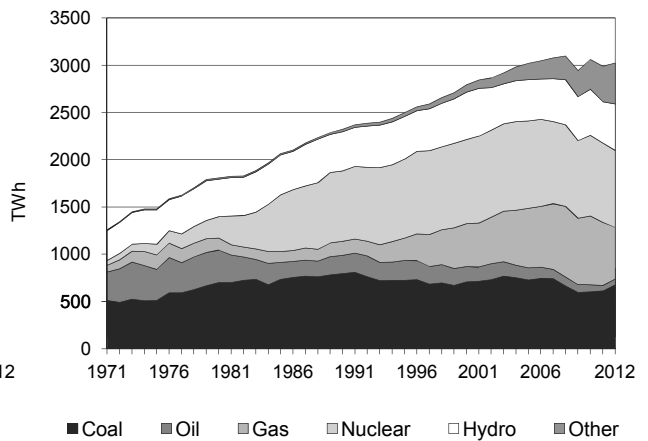
**Figure 2. CO<sub>2</sub> emissions by sector**



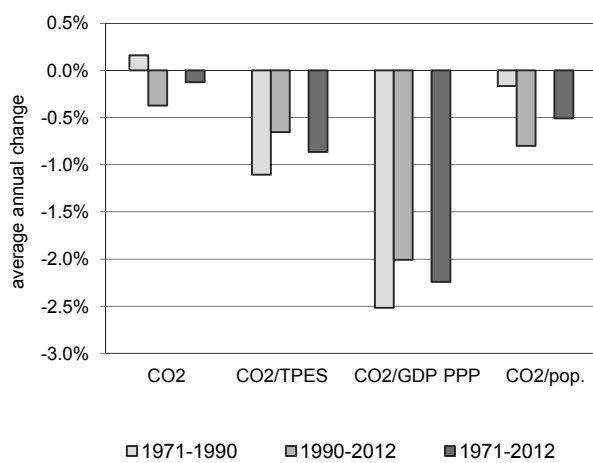
**Figure 3. Reference vs Sectoral Approach**



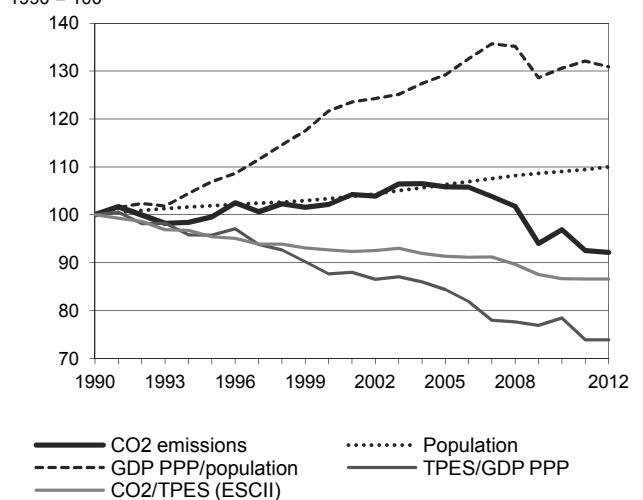
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Annex II: Europe

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	3 154.5	3 139.7	3 223.1	3 339.2	3 055.5	2 920.0	2 906.4	-7.9%
TPES (PJ)	56 453	58 865	62 232	65 443	63 082	60 335	60 084	6.4%
GDP (billion 2005 USD)	9 944.8	10 832.2	12 512.7	13 663.3	14 175.4	14 394.4	14 348.0	44.3%
GDP PPP (billion 2005 USD)	8 953.2	9 750.9	11 261.2	12 297.2	12 754.2	12 942.5	12 889.2	44.0%
Population (millions)	377.3	384.4	389.9	401.1	411.4	412.9	414.9	10.0%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	55.9	53.3	51.8	51.0	48.4	48.4	48.4	-13.4%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.32	0.29	0.26	0.24	0.22	0.20	0.20	-36.1%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.35	0.32	0.29	0.27	0.24	0.23	0.23	-36.0%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	8.36	8.17	8.27	8.33	7.43	7.07	7.00	-16.2%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	100	102	106	97	93	92	-7.9%
Population index	100	102	103	106	109	109	110	10.0%
GDP PPP per population index	100	107	122	129	131	132	131	30.9%
Energy intensity index - TPES / GDP PPP	100	96	88	84	78	74	74	-26.1%
Carbon intensity index - CO <sub>2</sub> / TPES	100	95	93	91	87	87	87	-13.4%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>768.5</b>	<b>1 279.1</b>	<b>796.9</b>	<b>62.0</b>	<b>2 906.4</b>	<b>-7.9%</b>
Main activity producer elec. and heat	611.5	35.4	188.0	25.8	860.7	-2.3%
Unallocated autoproducers	36.7	15.9	54.4	17.9	125.0	-8.1%
Other energy industry own use	22.6	94.7	35.9	0.1	153.3	-0.3%
Manufacturing industries and construction	87.2	163.5	178.8	17.1	446.6	-28.2%
Transport	0.0	763.1	4.9	-	768.1	9.5%
<i>of which: road</i>	-	718.9	3.0	-	721.9	10.8%
Other	10.4	206.5	334.8	1.1	552.8	-16.2%
<i>of which: residential</i>	8.5	116.0	226.3	0.0	350.8	-15.8%
<b>Reference Approach</b>	<b>788.7</b>	<b>1 293.0</b>	<b>801.6</b>	<b>62.0</b>	<b>2 945.2</b>	<b>-8.0%</b>
Diff. due to losses and/or transformation	12.0	13.1	4.7	-	29.8	
Statistical differences	8.2	0.7	- 0.0	0.0	8.9	
<i>Memo: international marine bunkers</i>	-	139.5	-	-	139.5	28.2%
<i>Memo: international aviation bunkers</i>	-	129.3	-	-	129.3	83.1%

\*\* Other includes industrial waste and non-renewable municipal waste.

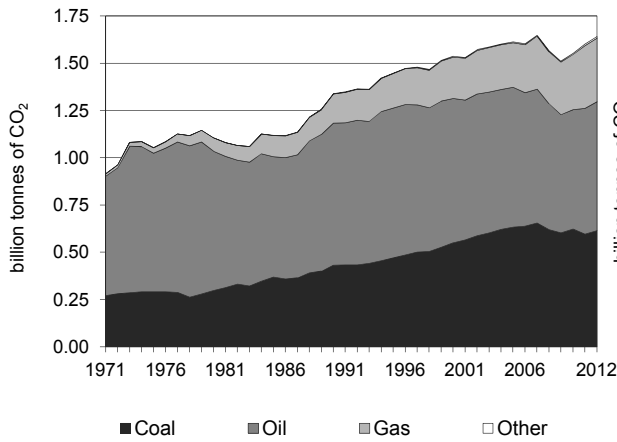
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	718.9	10.4%	19.2	19.2
Main activity prod. elec. and heat - coal	611.5	-12.3%	16.3	35.5
Residential - gas	226.3	43.8%	6.0	41.5
Main activity prod. elec. and heat - gas	188.0	216.0%	5.0	46.5
Manufacturing industries - gas	178.8	2.7%	4.8	51.3
Manufacturing industries - oil	163.5	-23.2%	4.4	55.6
Residential - oil	116.0	-37.0%	3.1	58.7
Non-specified other - gas	108.5	47.5%	2.9	61.6
Other energy industry own use - oil	94.7	-10.7%	2.5	64.2
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>2 906.4</i>	<i>-7.9%</i>	<i>77.5</i>	<i>77.5</i>

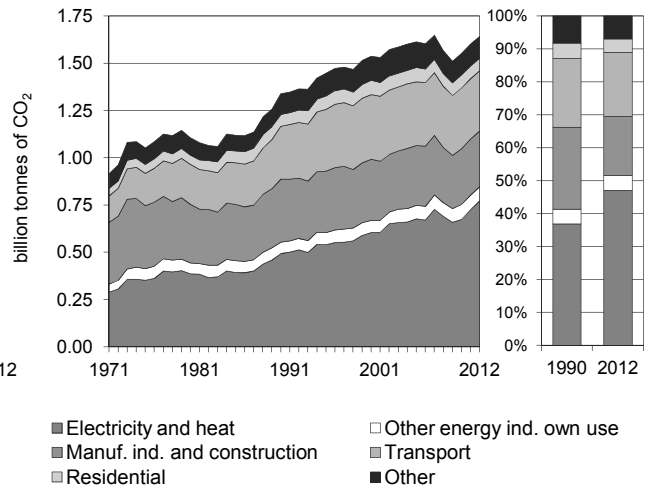
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Annex II: Asia Oceania

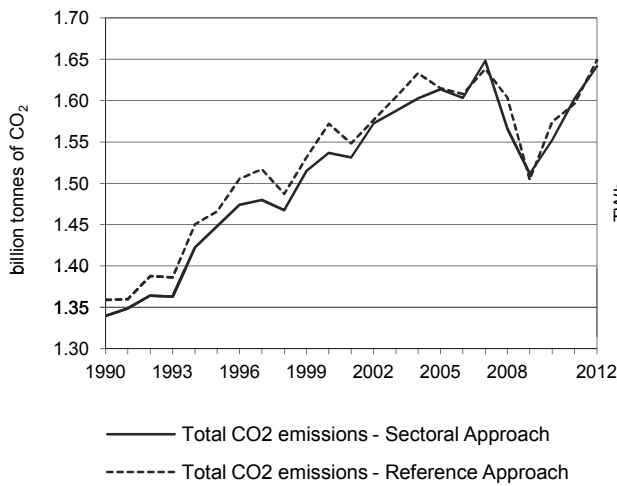
**Figure 1. CO<sub>2</sub> emissions by fuel**



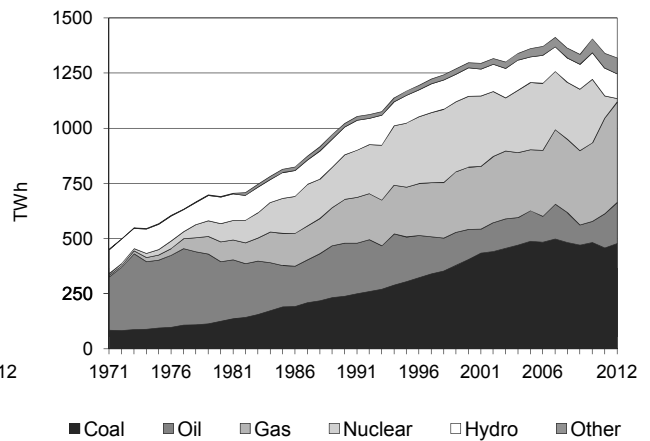
**Figure 2. CO<sub>2</sub> emissions by sector**



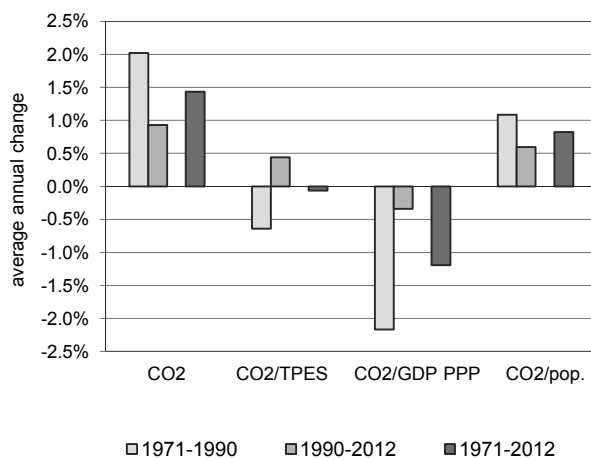
**Figure 3. Reference vs Sectoral Approach**



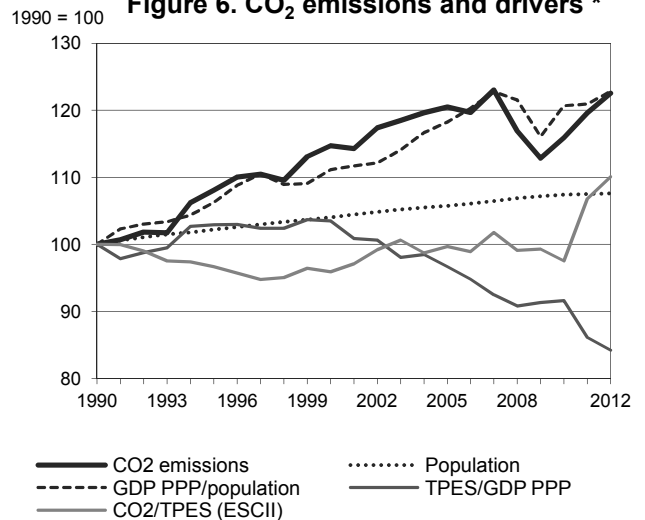
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Annex II: Asia Oceania

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	1 339.5	1 447.9	1 536.9	1 613.9	1 552.3	1 602.1	1 641.7	22.6%
TPES (PJ)	22 543	25 200	26 971	27 249	26 778	25 247	25 101	11.3%
GDP (billion 2005 USD)	4 375.5	4 746.3	5 044.8	5 448.0	5 638.6	5 651.9	5 745.1	31.3%
GDP PPP (billion 2005 USD)	3 769.7	4 093.3	4 358.3	4 713.9	4 886.5	4 900.9	4 982.6	32.2%
Population (millions)	144.2	147.3	150.0	152.4	154.9	155.0	155.1	7.6%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	59.4	57.5	57.0	59.2	58.0	63.5	65.4	10.1%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.31	0.31	0.30	0.30	0.28	0.28	0.29	-6.6%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.36	0.35	0.35	0.34	0.32	0.33	0.33	-7.3%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	9.29	9.83	10.25	10.59	10.02	10.34	10.58	13.9%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	108	115	120	116	120	123	22.6%
Population index	100	102	104	106	107	108	108	7.6%
GDP PPP per population index	100	106	111	118	121	121	123	22.8%
Energy intensity index - TPES / GDP PPP	100	103	103	97	92	86	84	-15.8%
Carbon intensity index - CO <sub>2</sub> / TPES	100	97	96	100	98	107	110	10.1%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>614.4</b>	<b>682.1</b>	<b>336.8</b>	<b>8.4</b>	<b>1 641.7</b>	<b>22.6%</b>
Main activity producer elec. and heat	401.3	98.7	193.0	2.0	695.0	60.7%
Unallocated autoproducers	48.4	15.3	11.3	2.7	77.7	26.4%
Other energy industry own use	21.0	34.4	18.9	-	74.4	23.1%
Manufacturing industries and construction	140.6	109.8	40.5	3.7	294.7	-11.5%
Transport	0.6	317.1	1.1	-	318.8	14.0%
<i>of which: road</i>	-	281.6	0.1	-	281.8	13.3%
Other	2.5	106.7	71.9	-	181.2	5.0%
<i>of which: residential</i>	0.0	37.1	29.3	-	66.5	7.2%
<b>Reference Approach</b>	<b>627.7</b>	<b>689.6</b>	<b>323.3</b>	<b>8.5</b>	<b>1 649.1</b>	<b>21.3%</b>
Diff. due to losses and/or transformation	6.7	-2.3	-2.8	0.0	1.6	
Statistical differences	6.6	9.8	-10.6	0.0	5.9	
<i>Memo: international marine bunkers</i>	-	16.9	-	-	16.9	-19.0%
<i>Memo: international aviation bunkers</i>	-	31.0	-	-	31.0	64.0%

\*\* Other includes industrial waste and non-renewable municipal waste.

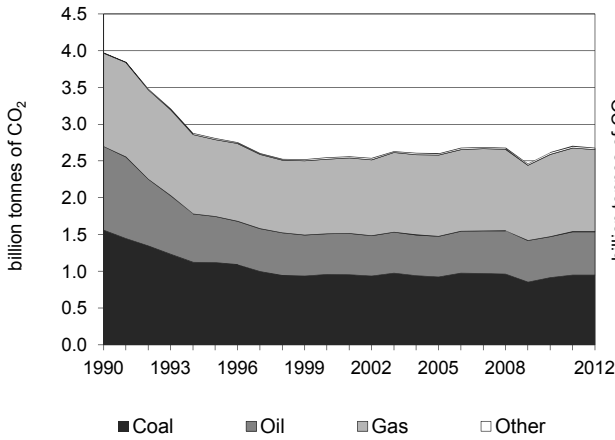
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	401.3	89.8%	20.2	20.2
Road - oil	281.6	13.3%	14.2	34.4
Main activity prod. elec. and heat - gas	193.0	121.2%	9.7	44.1
Manufacturing industries - coal	140.6	-14.2%	7.1	51.2
Manufacturing industries - oil	109.8	-22.8%	5.5	56.8
Main activity prod. elec. and heat - oil	98.7	-26.0%	5.0	61.7
Non-specified other - oil	69.6	-26.7%	3.5	65.2
Unallocated autoproducers - coal	48.4	47.4%	2.4	67.7
Non-specified other - gas	42.6	283.4%	2.1	69.8
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>1 641.7</i>	<i>22.6%</i>	<i>82.7</i>	<i>82.7</i>

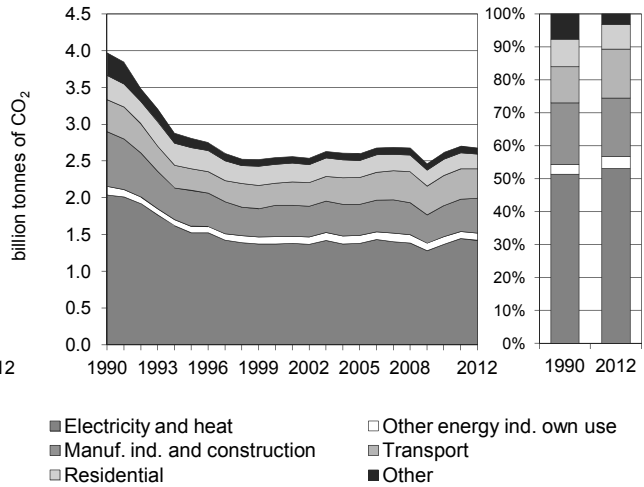
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Economies in Transition

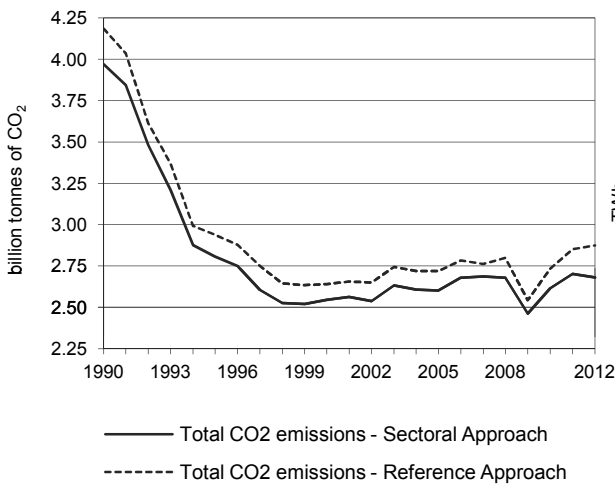
**Figure 1. CO<sub>2</sub> emissions by fuel**



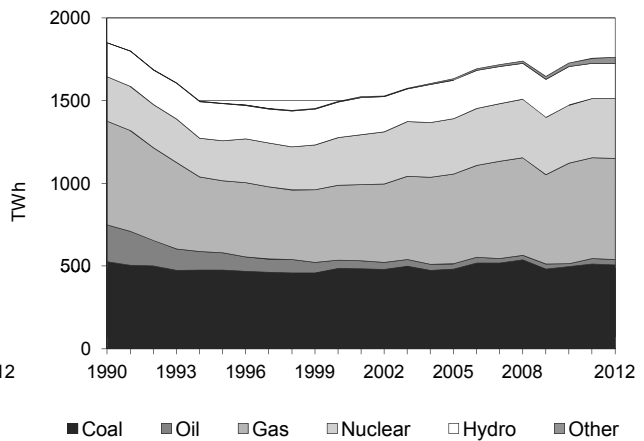
**Figure 2. CO<sub>2</sub> emissions by sector**



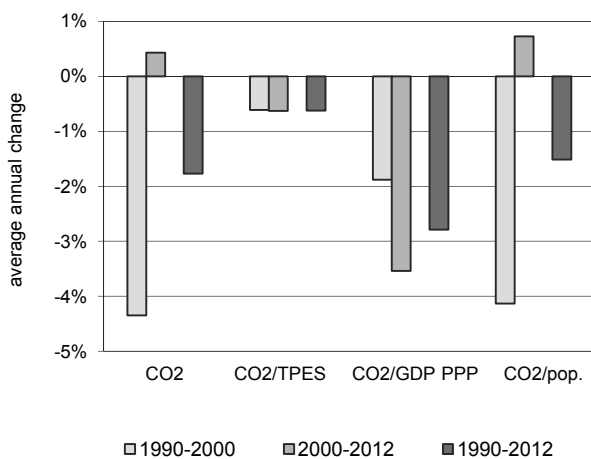
**Figure 3. Reference vs Sectoral Approach**



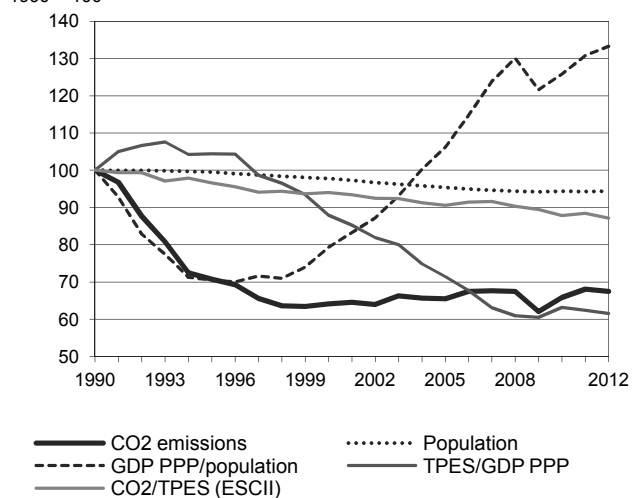
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Economies in Transition

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	3 970.4	2 807.1	2 545.8	2 601.8	2 615.1	2 702.1	2 680.0	-32.5%
TPES (PJ)	63 570	46 513	43 345	45 987	47 652	48 939	49 231	-22.6%
GDP (billion 2005 USD)	1 637.5	1 198.3	1 344.4	1 737.1	2 032.2	2 108.6	2 148.9	31.2%
GDP PPP (billion 2005 USD)	3 545.5	2 485.0	2 749.0	3 592.6	4 207.1	4 371.6	4 460.2	25.8%
Population (millions)	321.1	319.5	313.9	306.2	302.9	302.8	303.0	-5.6%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	62.5	60.4	58.7	56.6	54.9	55.2	54.4	-12.8%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	2.42	2.34	1.89	1.50	1.29	1.28	1.25	-48.6%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	1.12	1.13	0.93	0.72	0.62	0.62	0.60	-46.3%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	12.37	8.79	8.11	8.50	8.63	8.92	8.84	-28.5%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	71	64	66	66	68	67	-32.5%
Population index	100	99	98	95	94	94	94	-5.6%
GDP PPP per population index	100	70	79	106	126	131	133	33.3%
Energy intensity index - TPES / GDP PPP	100	104	88	71	63	62	62	-38.4%
Carbon intensity index - CO <sub>2</sub> / TPES	100	97	94	91	88	88	87	-12.8%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>949.7</b>	<b>590.0</b>	<b>1 116.3</b>	<b>24.0</b>	<b>2 680.0</b>	<b>-32.5%</b>
Main activity producer elec. and heat	579.1	30.1	439.7	0.3	1 049.2	-33.2%
Unallocated autoproducers	105.2	32.1	219.1	16.5	372.9	-20.5%
Other energy industry own use	13.7	51.7	30.9	0.9	97.2	-16.1%
Manufacturing industries and construction	194.4	86.0	190.4	5.5	476.2	-36.0%
Transport	0.1	328.4	70.6	-	399.1	-8.6%
<i>of which: road</i>	-	290.5	0.4	-	290.9	5.2%
Other	57.3	61.6	165.6	0.7	285.2	-55.0%
<i>of which: residential</i>	37.8	21.7	140.9	-	200.5	-39.1%
<b>Reference Approach</b>	<b>1 062.4</b>	<b>650.1</b>	<b>1 137.2</b>	<b>24.4</b>	<b>2 874.0</b>	<b>-31.3%</b>
Diff. due to losses and/or transformation	49.0	62.1	20.3	-	131.4	
Statistical differences	63.6	-2.0	0.6	0.4	62.6	
<i>Memo: international marine bunkers</i>	-	8.8	-	-	8.8	-9.7%
<i>Memo: international aviation bunkers</i>	-	25.3	-	-	25.3	-30.9%

\*\* Other includes industrial waste and non-renewable municipal waste.

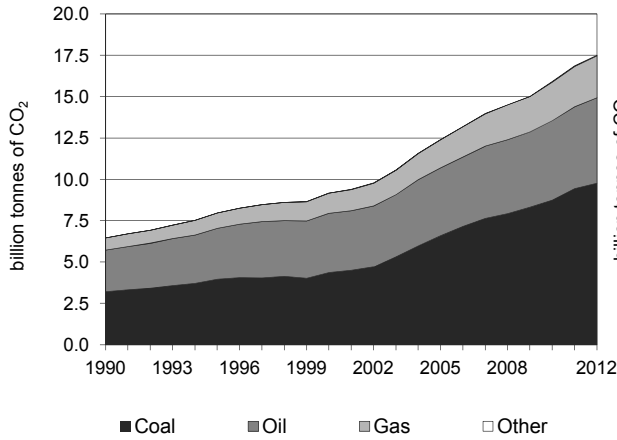
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	579.1	-26.9%	14.7	14.7
Main activity prod. elec. and heat - gas	439.7	-12.4%	11.1	25.8
Road - oil	290.5	6.1%	7.4	33.2
Unallocated autoproducers - gas	219.1	-0.8%	5.6	38.7
Manufacturing industries - coal	194.4	-34.8%	4.9	43.7
Manufacturing industries - gas	190.4	-21.6%	4.8	48.5
Residential - gas	140.9	-8.6%	3.6	52.1
Unallocated autoproducers - coal	105.2	-35.9%	2.7	54.7
Manufacturing industries - oil	86.0	-57.1%	2.2	56.9
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>2 680.0</i>	<i>-32.5%</i>	<i>67.9</i>	<i>67.9</i>

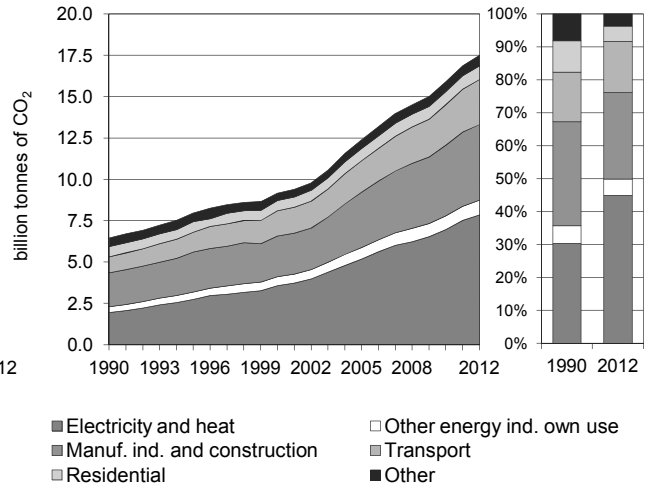
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

### Non-Annex I Parties

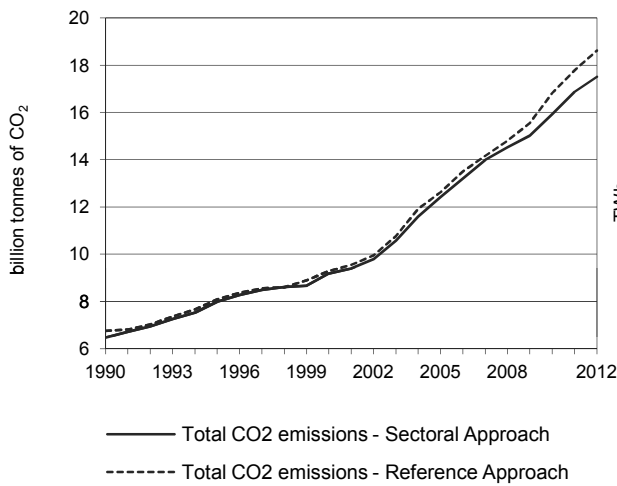
**Figure 1. CO<sub>2</sub> emissions by fuel**



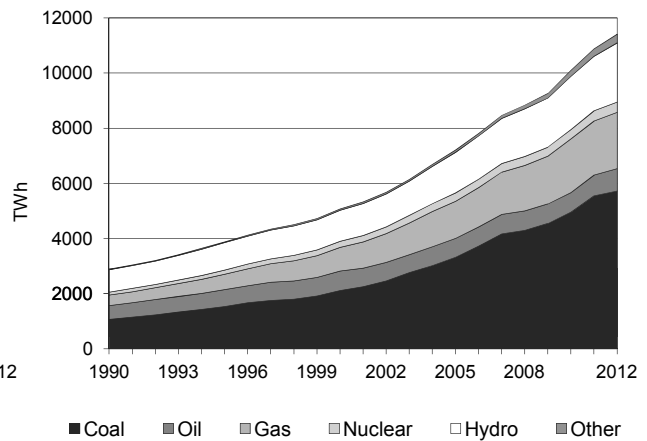
**Figure 2. CO<sub>2</sub> emissions by sector**



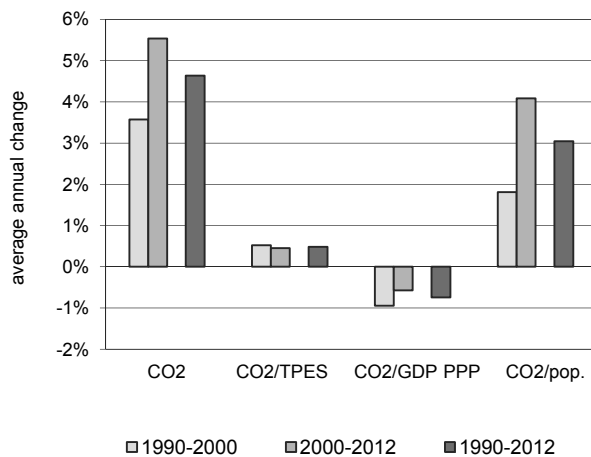
**Figure 3. Reference vs Sectoral Approach**



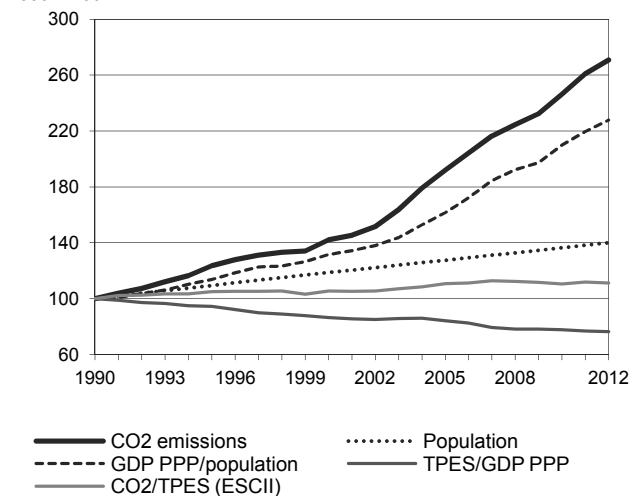
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Non-Annex I Parties

## Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	6 463.9	7 981.5	9 180.5	12 412.4	15 921.0	16 874.4	17 513.5	170.9%
TPES (PJ)	125 483	147 652	169 135	217 752	279 423	292 736	305 682	143.6%
GDP (billion 2005 USD)	5 295.9	6 632.5	8 304.8	10 742.3	14 601.6	15 432.8	16 186.6	205.6%
GDP PPP (billion 2005 USD)	13 798.6	17 184.0	21 540.3	28 425.7	39 505.5	41 866.6	44 020.8	219.0%
Population (millions)	4 097.6	4 485.6	4 862.2	5 224.8	5 589.8	5 664.7	5 739.5	40.1%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	51.5	54.1	54.3	57.0	57.0	57.6	57.3	11.2%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	1.22	1.20	1.11	1.16	1.09	1.09	1.08	-11.3%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.47	0.46	0.43	0.44	0.40	0.40	0.40	-15.1%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	1.58	1.78	1.89	2.38	2.85	2.98	3.05	93.4%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	123	142	192	246	261	271	170.9%
Population index	100	109	119	128	136	138	140	40.1%
GDP PPP per population index	100	114	132	162	210	219	228	127.8%
Energy intensity index - TPES / GDP PPP	100	94	86	84	78	77	76	-23.6%
Carbon intensity index - CO <sub>2</sub> / TPES	100	105	105	111	111	112	111	11.2%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>9 767.6</b>	<b>5 172.9</b>	<b>2 533.6</b>	<b>39.3</b>	<b>17 513.5</b>	<b>170.9%</b>
Main activity producer elec. and heat	5 829.6	575.9	909.7	1.4	7 316.7	298.2%
Unallocated autoproducers	300.1	103.4	117.6	29.2	550.3	337.0%
Other energy industry own use	237.7	275.1	367.4	-	880.2	153.9%
Manufacturing industries and construction	2 959.9	909.8	701.3	6.5	4 577.6	124.3%
Transport	12.0	2 630.6	87.2	-	2 729.9	181.4%
<i>of which: road</i>	-	2 403.1	72.4	-	2 475.5	195.1%
Other	428.3	678.0	350.4	2.1	1 458.9	27.7%
<i>of which: residential</i>	229.8	321.1	271.2	-	822.1	33.1%
<b>Reference Approach</b>	<b>10 748.1</b>	<b>5 255.3</b>	<b>2 581.9</b>	<b>39.2</b>	<b>18 624.5</b>	<b>175.6%</b>
Diff. due to losses and/or transformation	313.6	41.7	53.9	-	409.3	
Statistical differences	666.9	40.7	- 5.7	- 0.1	701.7	
<i>Memo: international marine bunkers</i>	-	382.0	-	-	382.0	194.4%
<i>Memo: international aviation bunkers</i>	-	222.5	-	-	222.5	153.1%

\*\* Other includes industrial waste and non-renewable municipal waste.

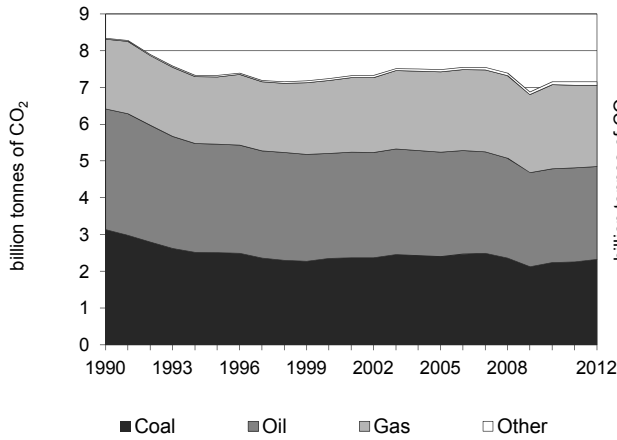
Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	5 829.6	379.7%	20.7	20.7
Manufacturing industries - coal	2 959.9	130.7%	10.5	31.3
Road - oil	2 403.1	186.7%	8.5	39.8
Manufacturing industries - oil	909.8	67.6%	3.2	43.0
Main activity prod. elec. and heat - gas	909.7	310.4%	3.2	46.3
Manufacturing industries - gas	701.3	226.9%	2.5	48.8
Main activity prod. elec. and heat - oil	575.9	43.8%	2.0	50.8
Other energy industry own use - gas	367.4	201.7%	1.3	52.1
Non-specified other - oil	357.0	38.9%	1.3	53.4
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>17 513.5</i>	<i>170.9%</i>	<i>62.3</i>	<i>62.3</i>

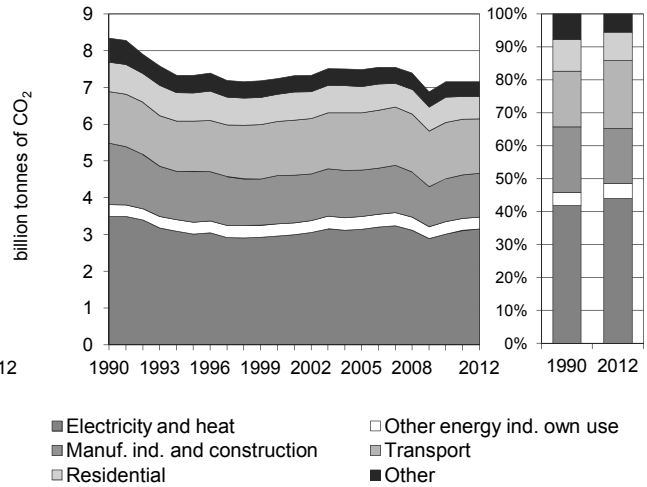
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Annex I Kyoto Parties

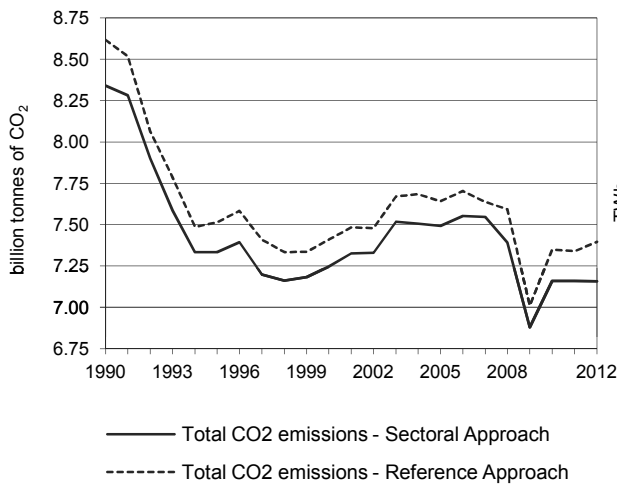
**Figure 1. CO<sub>2</sub> emissions by fuel**



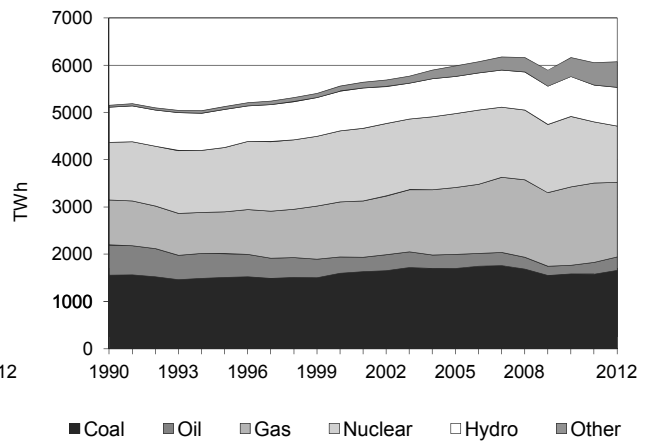
**Figure 2. CO<sub>2</sub> emissions by sector**



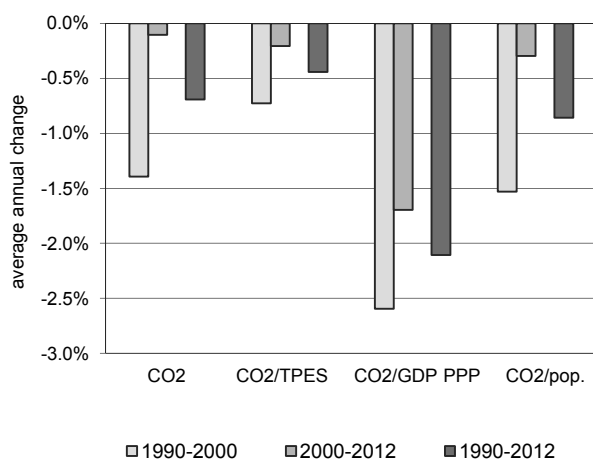
**Figure 3. Reference vs Sectoral Approach**



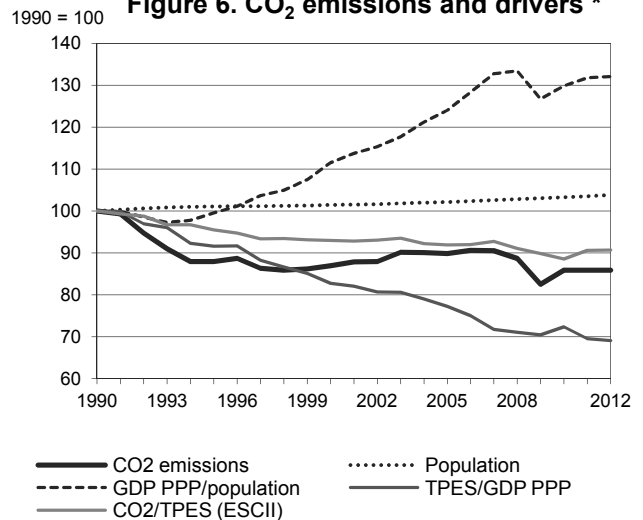
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Annex I Kyoto Parties

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	8 339.6	7 333.0	7 247.4	7 493.0	7 158.5	7 158.5	7 157.0	-14.2%
TPES (PJ)	140 662	129 542	131 519	137 559	136 362	133 293	133 139	-5.3%
GDP (billion 2005 USD)	15 934.1	16 761.3	18 880.8	20 818.2	21 803.3	22 109.7	22 196.0	39.3%
GDP PPP (billion 2005 USD)	16 195.0	16 281.3	18 303.4	20 510.3	21 714.9	22 074.8	22 189.7	37.0%
Population (millions)	832.3	841.0	843.8	850.0	859.6	861.3	863.6	3.8%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	59.3	56.6	55.1	54.5	52.5	53.7	53.8	-9.3%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.52	0.44	0.38	0.36	0.33	0.32	0.32	-38.4%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.52	0.45	0.40	0.37	0.33	0.32	0.32	-37.4%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	10.02	8.72	8.59	8.81	8.33	8.31	8.29	-17.3%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	88	87	90	86	86	86	-14.2%
Population index	100	101	101	102	103	103	104	3.8%
GDP PPP per population index	100	99	111	124	130	132	132	32.0%
Energy intensity index - TPES / GDP PPP	100	92	83	77	72	70	69	-30.9%
Carbon intensity index - CO <sub>2</sub> / TPES	100	95	93	92	89	91	91	-9.3%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>2 329.7</b>	<b>2 521.5</b>	<b>2 211.7</b>	<b>94.2</b>	<b>7 157.0</b>	<b>-14.2%</b>
Main activity producer elec. and heat	1 591.7	163.5	798.0	28.0	2 581.3	-9.2%
Unallocated autoproducers	190.0	62.7	279.9	37.0	569.6	-12.5%
Other energy industry own use	57.2	177.8	85.2	1.0	321.3	-1.1%
Manufacturing industries and construction	421.0	347.3	404.4	26.3	1 199.0	-28.0%
Transport	0.7	1 398.0	75.8	-	1 474.5	4.8%
<i>of which: road</i>	-	1 280.9	3.5	-	1 284.4	10.0%
Other	69.0	372.2	568.3	1.8	1 011.4	-30.2%
<i>of which: residential</i>	45.4	174.5	392.8	0.0	612.8	-23.5%
<b>Reference Approach</b>	<b>2 475.7</b>	<b>2 601.9</b>	<b>2 223.5</b>	<b>94.7</b>	<b>7 395.8</b>	<b>-14.2%</b>
Diff. due to losses and/or transformation	67.6	71.9	21.9	0.0	161.4	
Statistical differences	78.4	8.6	- 10.1	0.5	77.4	
<i>Memo: international marine bunkers</i>	-	165.2	-	-	165.2	18.5%
<i>Memo: international aviation bunkers</i>	-	185.7	-	-	185.7	47.2%

\*\* Other includes industrial waste and non-renewable municipal waste.

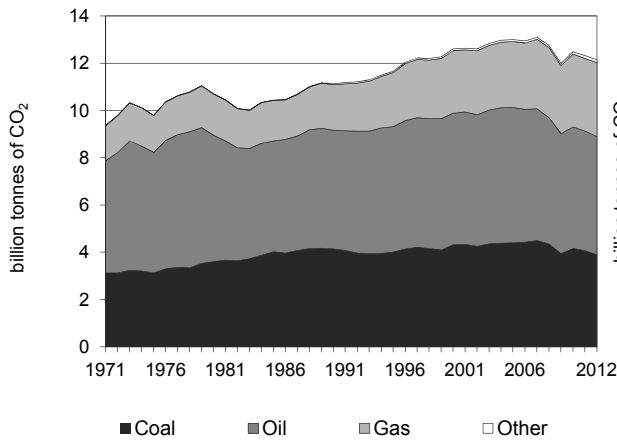
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	1 591.7	-6.4%	15.4	15.4
Road - oil	1 280.9	10.0%	12.4	27.8
Main activity prod. elec. and heat - gas	798.0	26.2%	7.7	35.6
Manufacturing industries - coal	421.0	-39.4%	4.1	39.7
Manufacturing industries - gas	404.4	-7.7%	3.9	43.6
Residential - gas	392.8	18.5%	3.8	47.4
Manufacturing industries - oil	347.3	-34.1%	3.4	50.8
Unallocated autoproducers - gas	279.9	17.2%	2.7	53.5
Non-specified other - oil	197.7	-41.4%	1.9	55.4
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>7 157.0</i>	<i>-14.2%</i>	<i>69.4</i>	<i>69.4</i>

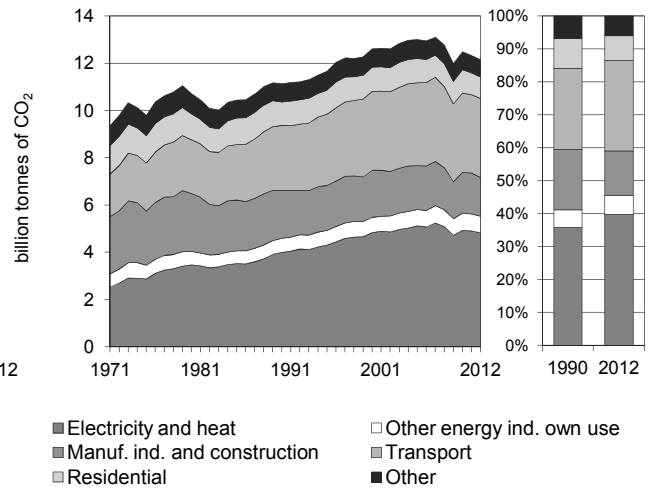
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

### OECD Total \*

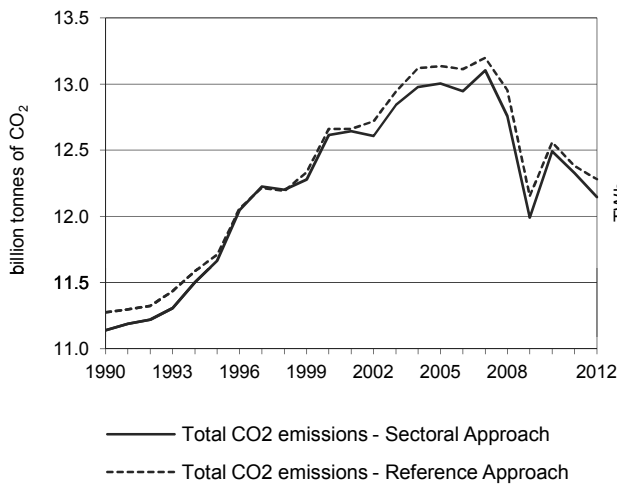
**Figure 1. CO<sub>2</sub> emissions by fuel**



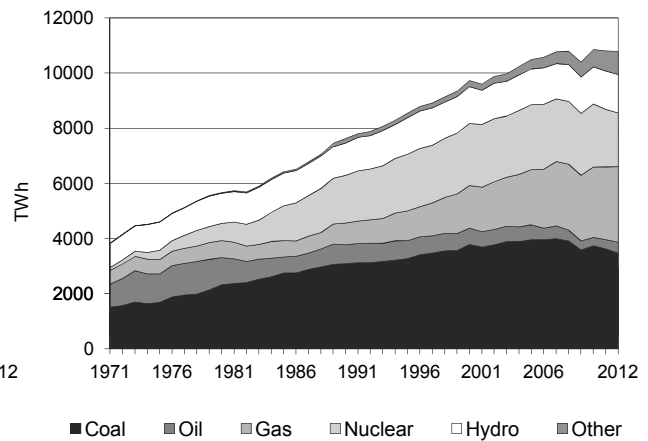
**Figure 2. CO<sub>2</sub> emissions by sector**



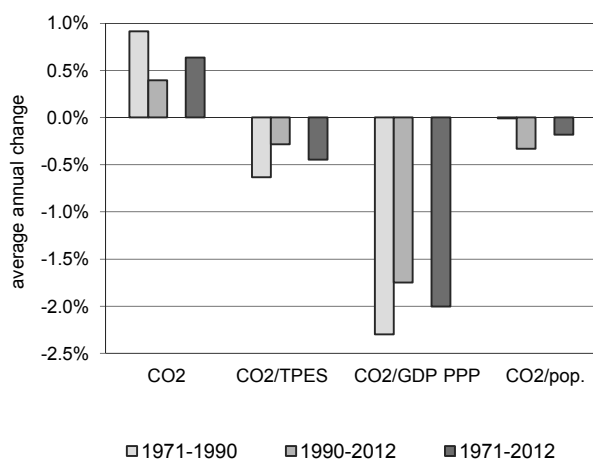
**Figure 3. Reference vs Sectoral Approach**



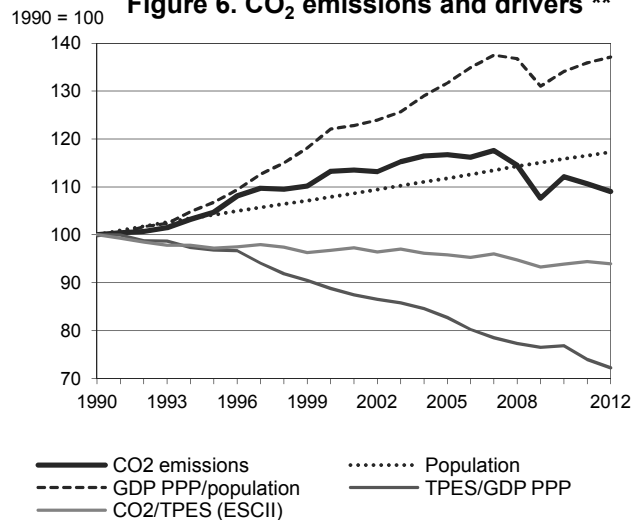
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \*\***



**Figure 6. CO<sub>2</sub> emissions and drivers \*\***



\* Excludes Estonia and Slovenia prior to 1990.

\*\* Based on GDP in 2005 USD, using purchasing power parities.



## OECD Total

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	11 139.9	11 664.7	12 615.4	13 005.0	12 491.3	12 326.3	12 146.1	9.0%
TPES (PJ)	189 339	203 978	221 554	230 680	226 090	221 935	219 795	16.1%
GDP (billion 2005 USD)	25 075.5	27 833.4	32 754.5	36 467.6	38 262.9	38 943.1	39 490.0	57.5%
GDP PPP (billion 2005 USD)	24 387.8	27 136.2	32 123.9	35 915.0	37 890.6	38 627.7	39 202.4	60.7%
Population (millions)	1 069.8	1 114.6	1 154.3	1 196.0	1 239.3	1 246.7	1 254.3	17.2%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	58.8	57.2	56.9	56.4	55.2	55.5	55.3	-6.1%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.44	0.42	0.39	0.36	0.33	0.32	0.31	-30.8%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.46	0.43	0.39	0.36	0.33	0.32	0.31	-32.2%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	10.41	10.47	10.93	10.87	10.08	9.89	9.68	-7.0%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	105	113	117	112	111	109	9.0%
Population index	100	104	108	112	116	117	117	17.2%
GDP PPP per population index	100	107	122	132	134	136	137	37.1%
Energy intensity index - TPES / GDP PPP	100	97	89	83	77	74	72	-27.8%
Carbon intensity index - CO <sub>2</sub> / TPES	100	97	97	96	94	94	94	-6.1%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>3 904.3</b>	<b>5 001.6</b>	<b>3 121.4</b>	<b>118.8</b>	<b>12 146.1</b>	<b>9.0%</b>
Main activity producer elec. and heat	3 127.8	218.0	1 064.3	43.6	4 453.7	23.8%
Unallocated autoproducers	159.8	57.9	127.0	31.9	376.5	-5.3%
Other energy industry own use	90.7	307.8	298.5	0.1	697.1	17.4%
Manufacturing industries and construction	435.5	532.8	638.6	38.7	1 645.6	-19.4%
Transport	0.6	3 282.4	57.4	-	3 340.4	21.9%
<i>of which: road</i>	-	2 947.9	7.8	-	2 955.6	27.1%
Other	89.9	602.7	935.7	4.4	1 632.7	-7.8%
<i>of which: residential</i>	57.8	271.5	575.6	0.0	904.9	-9.5%
<b>Reference Approach</b>	<b>4 000.4</b>	<b>5 045.3</b>	<b>3 117.7</b>	<b>118.7</b>	<b>12 282.1</b>	<b>8.9%</b>
Diff. due to losses and/or transformation	58.7	20.3	7.6	0.0	86.6	
Statistical differences	37.3	23.4	- 11.2	- 0.1	49.4	
<i>Memo: international marine bunkers</i>	-	240.8	-	-	240.8	4.0%
<i>Memo: international aviation bunkers</i>	-	258.1	-	-	258.1	82.0%

\*\* Other includes industrial waste and non-renewable municipal waste.

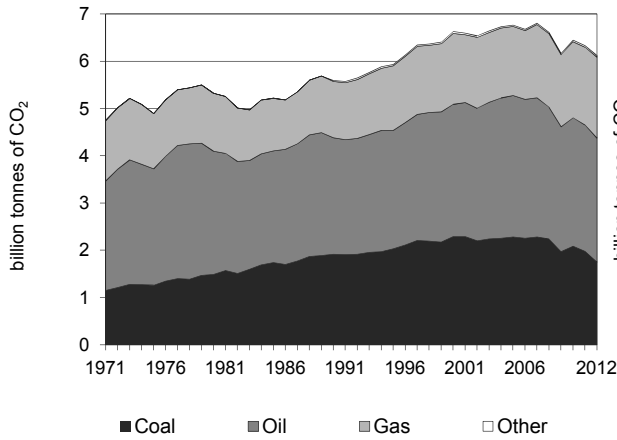
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	3 127.8	10.5%	20.2	20.2
Road - oil	2 947.9	26.8%	19.1	39.3
Main activity prod. elec. and heat - gas	1 064.3	223.2%	6.9	46.2
Manufacturing industries - gas	638.6	9.4%	4.1	50.3
Residential - gas	575.6	24.0%	3.7	54.0
Manufacturing industries - oil	532.8	-25.2%	3.4	57.5
Manufacturing industries - coal	435.5	-41.0%	2.8	60.3
Non-specified other - gas	360.1	39.9%	2.3	62.6
Other transport - oil	334.5	-9.6%	2.2	64.8
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>12 146.1</i>	<i>9.0%</i>	<i>78.6</i>	<i>78.6</i>

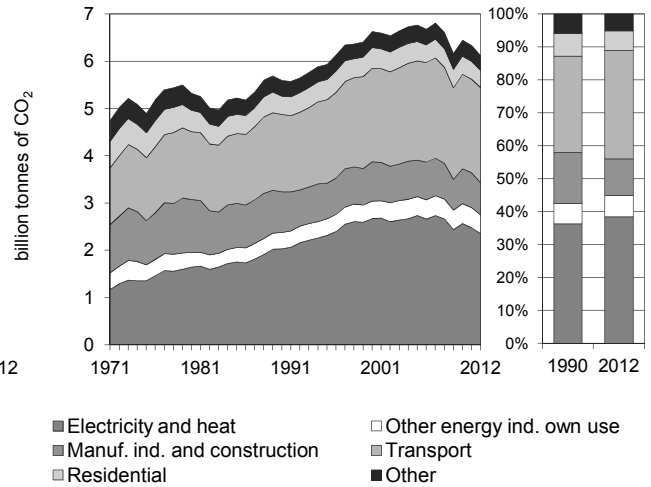
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## OECD Americas

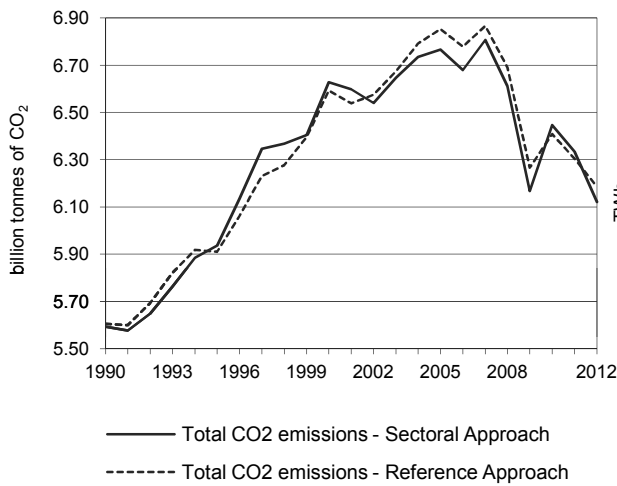
**Figure 1. CO<sub>2</sub> emissions by fuel**



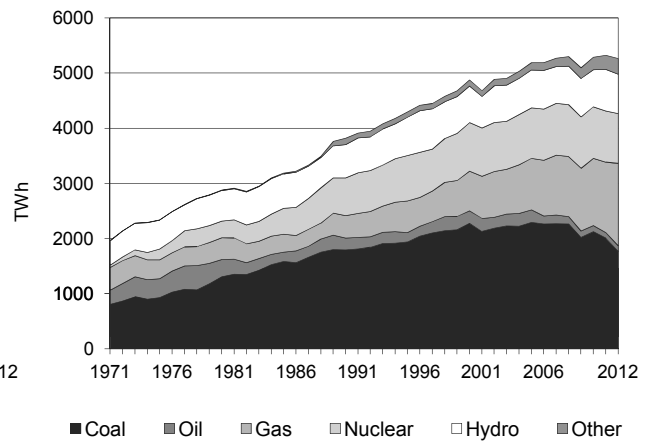
**Figure 2. CO<sub>2</sub> emissions by sector**



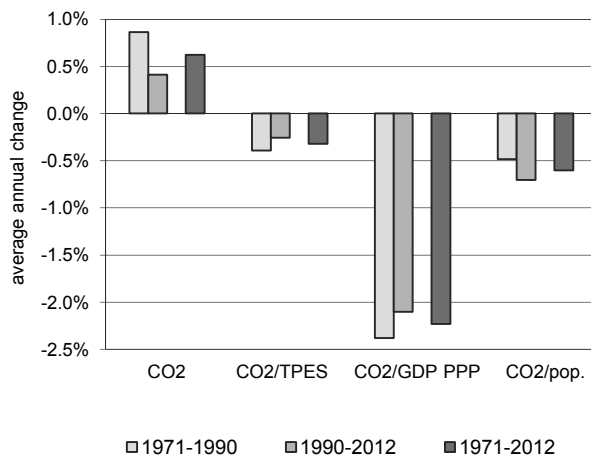
**Figure 3. Reference vs Sectoral Approach**



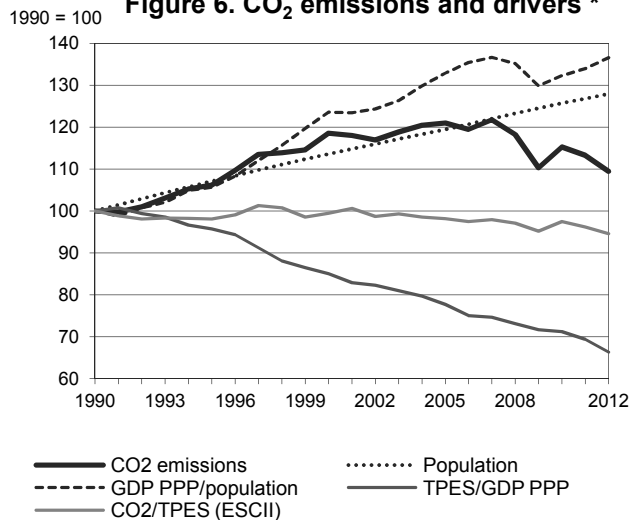
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## OECD Americas

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	5 592.9	5 935.2	6 628.3	6 766.6	6 446.2	6 333.6	6 121.4	9.4%
TPES (PJ)	94 627	102 424	112 827	116 668	111 947	111 428	109 583	15.8%
GDP (billion 2005 USD)	9 615.6	10 875.4	13 472.3	15 247.4	15 935.6	16 263.3	16 717.5	73.9%
GDP PPP (billion 2005 USD)	9 945.9	11 247.1	13 954.5	15 786.6	16 537.6	16 890.5	17 370.6	74.7%
Population (millions)	378.1	404.8	429.4	451.7	475.3	479.5	483.6	27.9%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	59.1	57.9	58.7	58.0	57.6	56.8	55.9	-5.5%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.58	0.55	0.49	0.44	0.40	0.39	0.37	-37.0%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.56	0.53	0.48	0.43	0.39	0.38	0.35	-37.3%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	14.79	14.66	15.44	14.98	13.56	13.21	12.66	-14.4%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	106	119	121	115	113	109	9.5%
Population index	100	107	114	119	126	127	128	27.9%
GDP PPP per population index	100	106	124	133	132	134	137	36.6%
Energy intensity index - TPES / GDP PPP	100	96	85	78	71	69	66	-33.7%
Carbon intensity index - CO <sub>2</sub> / TPES	100	98	99	98	97	96	95	-5.5%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>1 749.5</b>	<b>2 626.5</b>	<b>1 713.9</b>	<b>31.6</b>	<b>6 121.4</b>	<b>9.4%</b>
Main activity producer elec. and heat	1 600.5	60.1	578.3	15.6	2 254.5	16.5%
Unallocated autoproducers	19.3	16.3	53.5	7.1	96.3	-1.9%
Other energy industry own use	12.1	153.8	236.4	-	402.3	16.1%
Manufacturing industries and construction	113.9	200.5	356.2	7.8	678.4	-21.1%
Transport	-	1 966.9	47.0	-	2 014.0	23.1%
<i>of which: road</i>	-	1 723.3	1.8	-	1 725.2	30.6%
Other	3.6	228.8	442.5	1.1	676.0	-5.7%
<i>of which: residential</i>	0.1	103.1	259.8	-	363.0	-6.0%
<b>Reference Approach</b>	<b>1 798.0</b>	<b>2 638.0</b>	<b>1 717.8</b>	<b>31.6</b>	<b>6 185.4</b>	<b>10.4%</b>
Diff. due to losses and/or transformation	18.0	3.1	4.8	-	25.8	
Statistical differences	30.6	8.4	- 0.8	0.0	38.2	
<i>Memo: international marine bunkers</i>	-	53.8	-	-	53.8	-42.8%
<i>Memo: international aviation bunkers</i>	-	76.9	-	-	76.9	62.7%

\*\* Other includes industrial waste and non-renewable municipal waste.

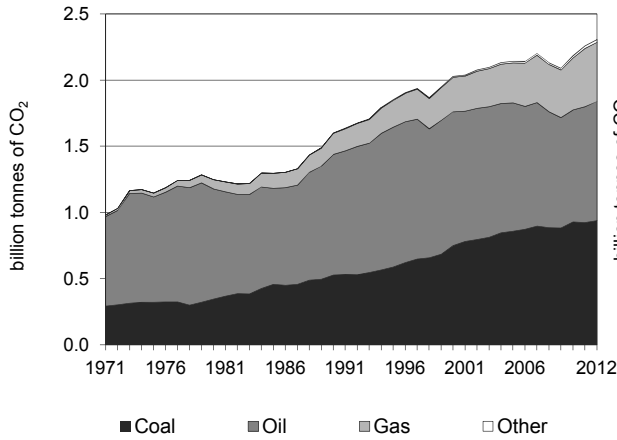
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	1 723.3	30.4%	22.0	22.0
Main activity prod. elec. and heat - coal	1 600.5	-1.4%	20.4	42.4
Main activity prod. elec. and heat - gas	578.3	253.2%	7.4	49.8
Manufacturing industries - gas	356.2	0.7%	4.5	54.3
Residential - gas	259.8	-3.2%	3.3	57.6
Other transport - oil	243.6	-10.5%	3.1	60.7
Other energy industry own use - gas	236.4	70.8%	3.0	63.7
Manufacturing industries - oil	200.5	-26.9%	2.6	66.3
Non-specified other - gas	182.7	11.5%	2.3	68.6
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>6 121.4</i>	<i>9.4%</i>	<i>78.1</i>	<i>78.1</i>

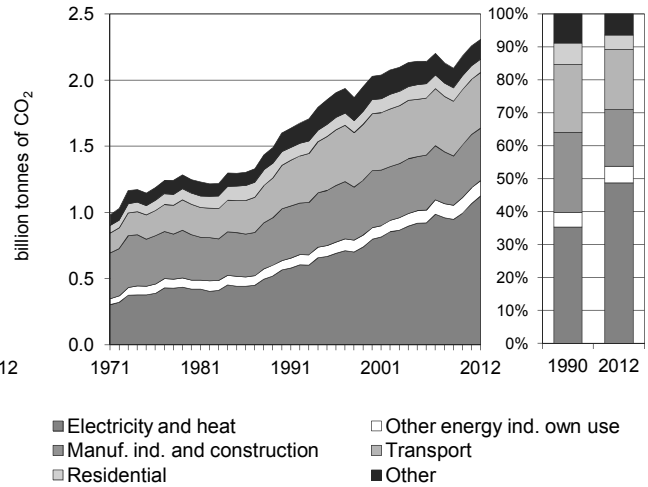
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## OECD Asia Oceania

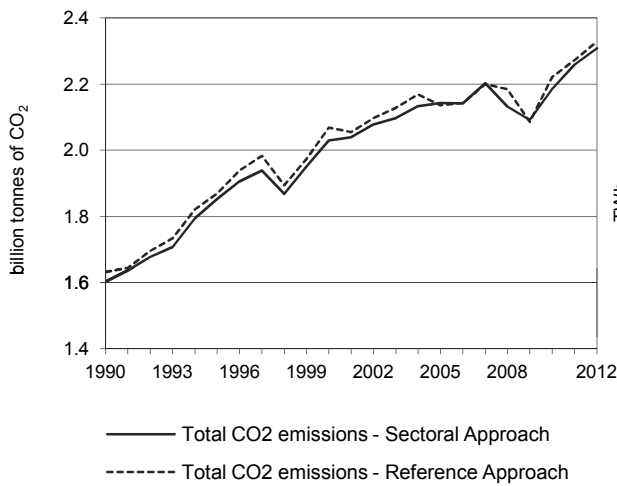
**Figure 1. CO<sub>2</sub> emissions by fuel**



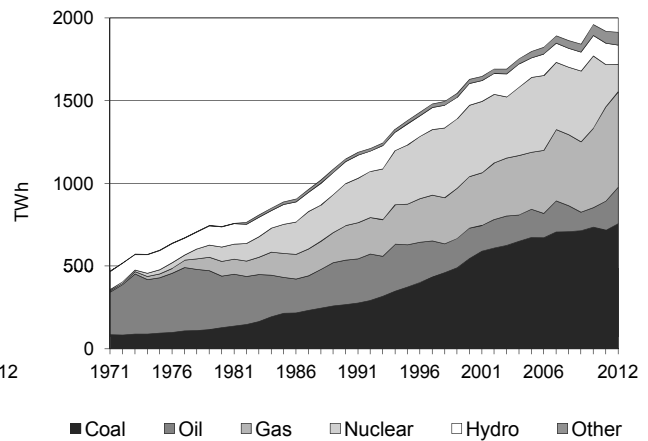
**Figure 2. CO<sub>2</sub> emissions by sector**



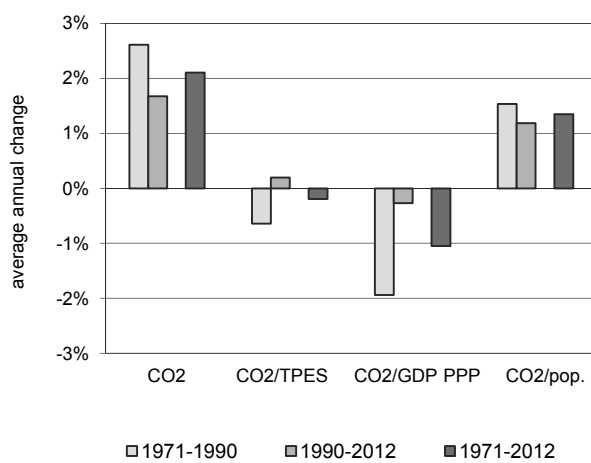
**Figure 3. Reference vs Sectoral Approach**



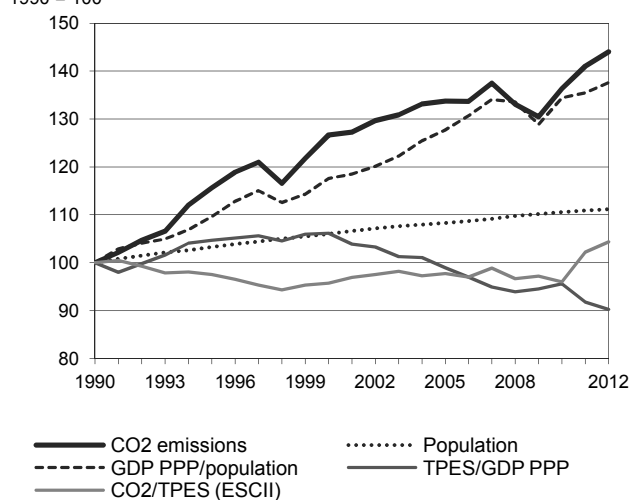
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## OECD Asia Oceania

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	1 602.4	1 852.8	2 029.8	2 142.9	2 184.9	2 259.2	2 307.9	44.0%
TPES (PJ)	26 913	31 910	35 612	36 827	38 216	37 122	37 147	38.0%
GDP (billion 2005 USD)	4 806.7	5 371.1	5 847.9	6 432.0	6 833.5	6 892.4	7 013.3	45.9%
GDP PPP (billion 2005 USD)	4 323.0	4 895.5	5 389.6	5 978.6	6 421.7	6 494.5	6 611.7	52.9%
Population (millions)	191.7	198.0	203.3	207.5	211.9	212.5	213.0	11.1%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	59.5	58.1	57.0	58.2	57.2	60.9	62.1	4.4%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.33	0.35	0.35	0.33	0.32	0.33	0.33	-1.3%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.37	0.38	0.38	0.36	0.34	0.35	0.35	-5.8%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	8.36	9.36	9.99	10.33	10.31	10.63	10.83	29.6%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	116	127	134	136	141	144	44.0%
Population index	100	103	106	108	111	111	111	11.1%
GDP PPP per population index	100	110	118	128	134	135	138	37.6%
Energy intensity index - TPES / GDP PPP	100	105	106	99	96	92	90	-9.8%
Carbon intensity index - CO <sub>2</sub> / TPES	100	98	96	98	96	102	104	4.4%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>938.7</b>	<b>901.0</b>	<b>447.7</b>	<b>20.5</b>	<b>2 307.9</b>	<b>44.0%</b>
Main activity producer elec. and heat	626.6	120.0	246.9	2.0	995.5	105.8%
Unallocated autoproducers	86.8	23.9	13.1	6.2	130.1	58.1%
Other energy industry own use	44.7	49.9	20.2	-	114.8	62.6%
Manufacturing industries and construction	174.3	151.0	62.6	10.2	398.1	1.8%
Transport	0.6	415.4	3.8	-	419.8	27.4%
<i>of which: road</i>	-	374.8	2.8	-	377.7	31.7%
Other	5.7	140.8	101.0	2.1	249.6	1.7%
<i>of which: residential</i>	3.2	47.3	50.6	-	101.1	-2.9%
<b>Reference Approach</b>	<b>959.9</b>	<b>915.2</b>	<b>433.3</b>	<b>20.5</b>	<b>2 328.9</b>	<b>42.7%</b>
Diff. due to losses and/or transformation	18.0	4.9	- 4.1	0.0	18.8	
Statistical differences	3.2	9.3	- 10.2	- 0.1	2.2	
<i>Memo: international marine bunkers</i>	-	45.1	-	-	45.1	70.3%
<i>Memo: international aviation bunkers</i>	-	45.5	-	-	45.5	113.2%

\*\* Other includes industrial waste and non-renewable municipal waste.

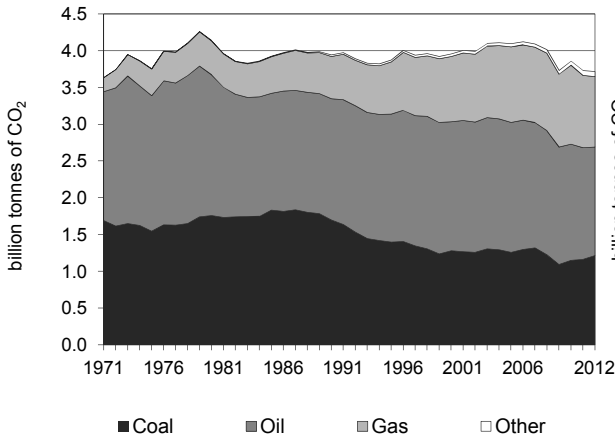
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	626.6	165.6%	22.8	22.8
Road - oil	374.8	30.8%	13.6	36.4
Main activity prod. elec. and heat - gas	246.9	168.4%	9.0	45.4
Manufacturing industries - coal	174.3	-2.2%	6.3	51.8
Manufacturing industries - oil	151.0	-18.1%	5.5	57.3
Main activity prod. elec. and heat - oil	120.0	-22.8%	4.4	61.6
Non-specified other - oil	93.4	-25.5%	3.4	65.0
Unallocated autoproducers - coal	86.8	63.3%	3.2	68.2
Manufacturing industries - gas	62.6	137.1%	2.3	70.5
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>2 307.9</i>	<i>44.0%</i>	<i>84.0</i>	<i>84.0</i>

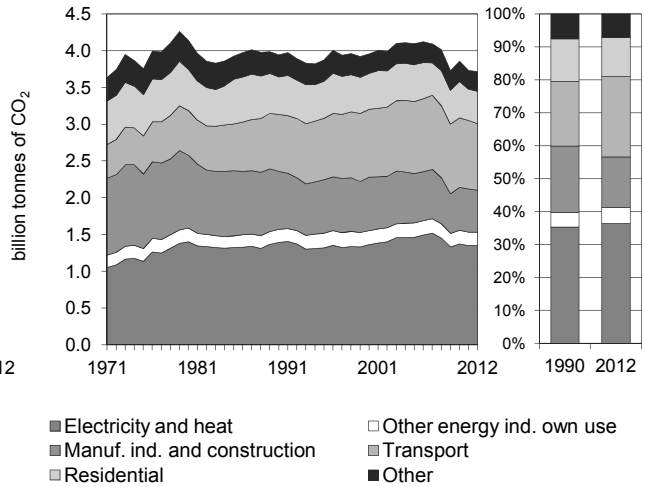
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

### OECD Europe \*

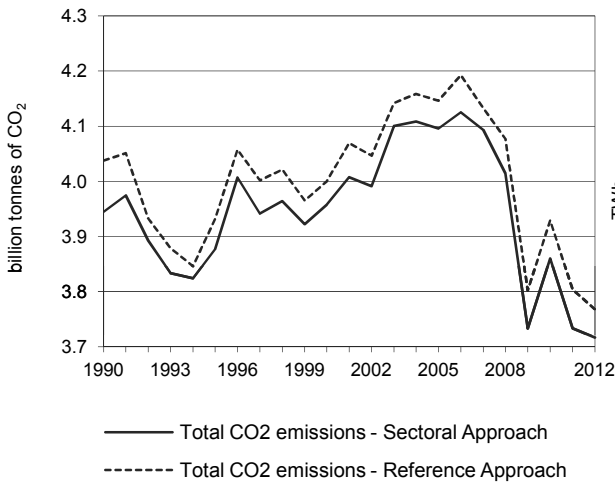
**Figure 1. CO<sub>2</sub> emissions by fuel**



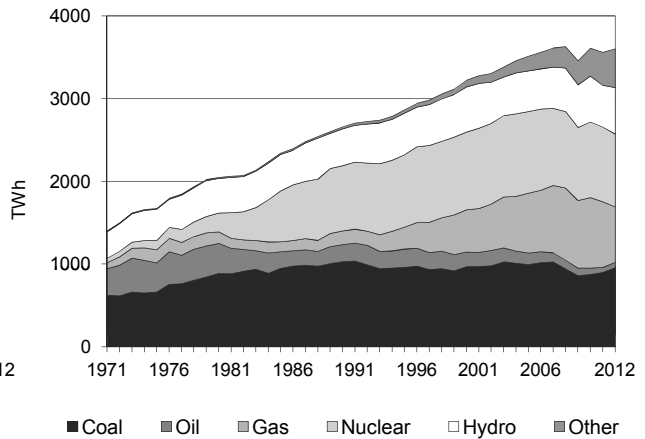
**Figure 2. CO<sub>2</sub> emissions by sector**



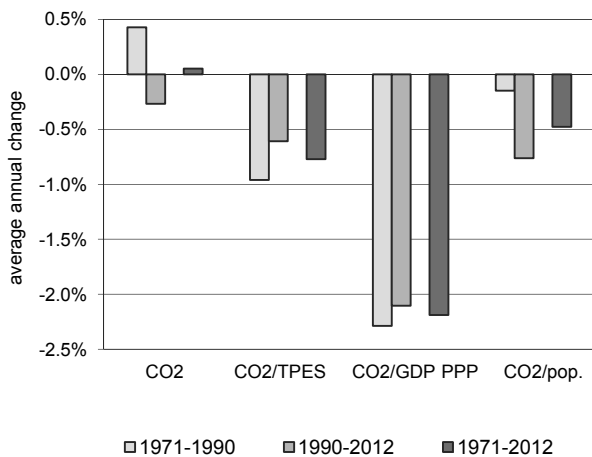
**Figure 3. Reference vs Sectoral Approach**



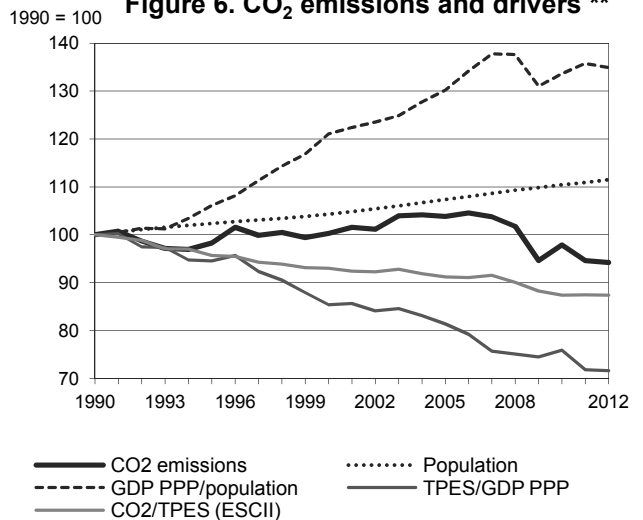
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \*\***



**Figure 6. CO<sub>2</sub> emissions and drivers \*\***



\* Excludes Estonia and Slovenia prior to 1990.

\*\* Based on GDP in 2005 USD, using purchasing power parities.

## OECD Europe

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	3 944.6	3 876.7	3 957.3	4 095.5	3 860.2	3 733.4	3 716.8	-5.8%
TPES (PJ)	67 799	69 644	73 115	77 186	75 926	73 385	73 065	7.8%
GDP (billion 2005 USD)	10 653.3	11 586.9	13 434.2	14 788.1	15 493.7	15 787.4	15 759.2	47.9%
GDP PPP (billion 2005 USD)	10 118.9	10 993.6	12 779.9	14 149.8	14 931.3	15 242.7	15 220.2	50.4%
Population (millions)	500.0	511.9	521.7	536.8	552.2	554.7	557.6	11.5%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	58.2	55.7	54.1	53.1	50.8	50.9	50.9	-12.6%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.37	0.33	0.29	0.28	0.25	0.24	0.24	-36.3%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.39	0.35	0.31	0.29	0.26	0.24	0.24	-37.4%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	7.89	7.57	7.59	7.63	6.99	6.73	6.67	-15.5%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	98	100	104	98	95	94	-5.8%
Population index	100	102	104	107	110	111	112	11.5%
GDP PPP per population index	100	106	121	130	134	136	135	34.9%
Energy intensity index - TPES / GDP PPP	100	95	85	81	76	72	72	-28.4%
Carbon intensity index - CO <sub>2</sub> / TPES	100	96	93	91	87	87	87	-12.6%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>1 216.2</b>	<b>1 474.2</b>	<b>959.8</b>	<b>66.7</b>	<b>3 716.8</b>	<b>-5.8%</b>
Main activity producer elec. and heat	900.6	37.9	239.1	26.1	1 203.7	2.1%
Unallocated autoproducers	53.6	17.7	60.4	18.6	150.2	-30.8%
Other energy industry own use	34.0	104.1	41.8	0.1	180.0	2.1%
Manufacturing industries and construction	147.4	181.3	219.8	20.7	569.1	-28.0%
Transport	0.0	900.1	6.6	-	906.7	17.1%
<i>of which: road</i>	-	849.7	3.1	-	852.8	18.8%
Other	80.5	233.2	392.1	1.2	707.1	-12.6%
<i>of which: residential</i>	54.5	121.1	265.2	0.0	440.7	-13.4%
<b>Reference Approach</b>	<b>1 242.6</b>	<b>1 492.1</b>	<b>966.5</b>	<b>66.7</b>	<b>3 767.8</b>	<b>-6.7%</b>
Diff. due to losses and/or transformation	22.8	12.3	6.9	-	42.0	
Statistical differences	3.6	5.6	-0.2	0.0	9.0	
<i>Memo: international marine bunkers</i>	-	141.9	-	-	141.9	27.9%
<i>Memo: international aviation bunkers</i>	-	135.7	-	-	135.7	85.4%

\*\* Other includes industrial waste and non-renewable municipal waste.

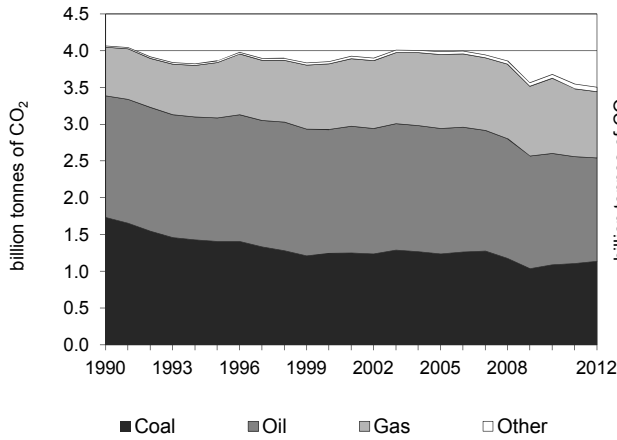
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	900.6	-7.4%	18.5	18.5
Road - oil	849.7	18.5%	17.4	35.9
Residential - gas	265.2	53.3%	5.4	41.4
Main activity prod. elec. and heat - gas	239.1	225.0%	4.9	46.3
Manufacturing industries - gas	219.8	7.9%	4.5	50.8
Manufacturing industries - oil	181.3	-28.5%	3.7	54.5
Manufacturing industries - coal	147.4	-55.1%	3.0	57.5
Non-specified other - gas	127.0	54.6%	2.6	60.2
Residential - oil	121.1	-38.9%	2.5	62.6
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>3 716.8</i>	<i>-5.8%</i>	<i>76.3</i>	<i>76.3</i>

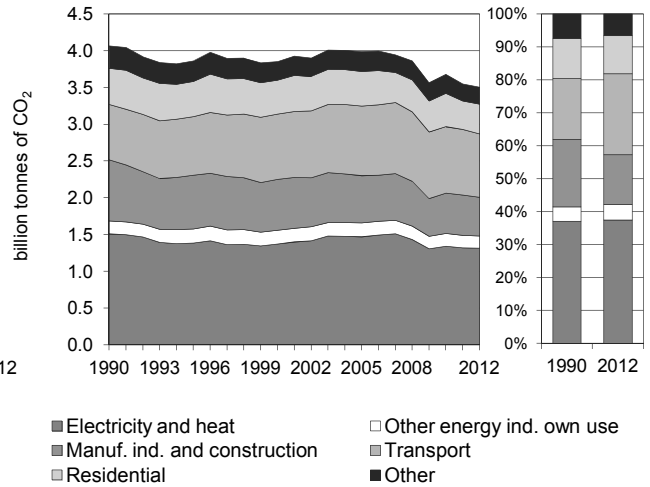
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## European Union - 28

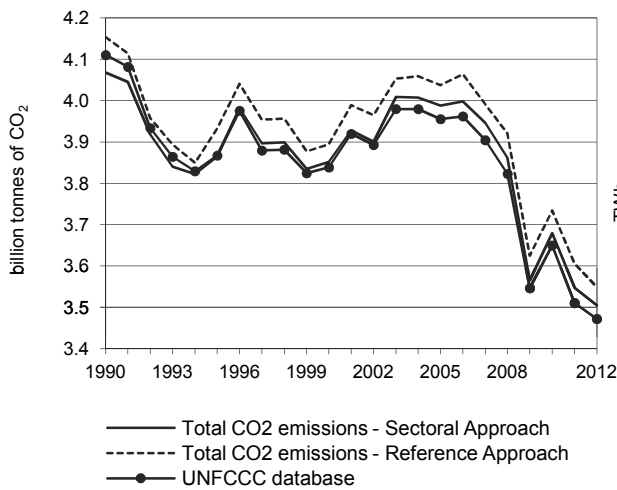
**Figure 1. CO<sub>2</sub> emissions by fuel**



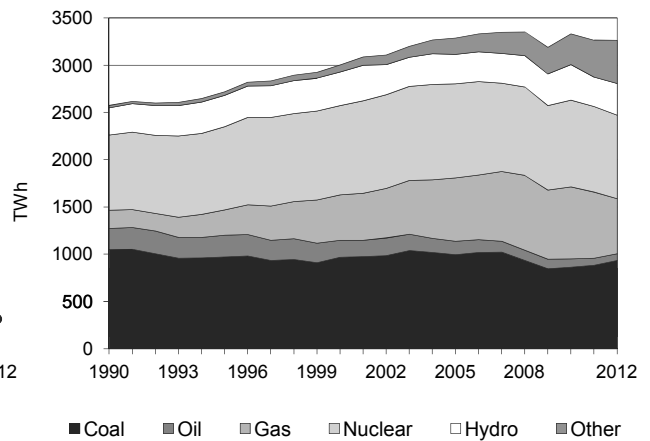
**Figure 2. CO<sub>2</sub> emissions by sector**



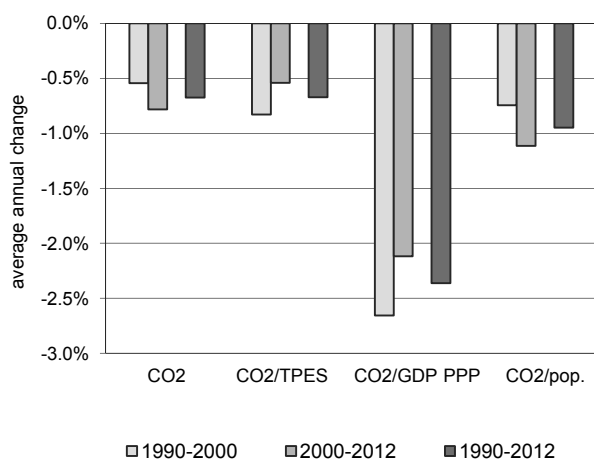
**Figure 3. Reference vs Sectoral Approach**



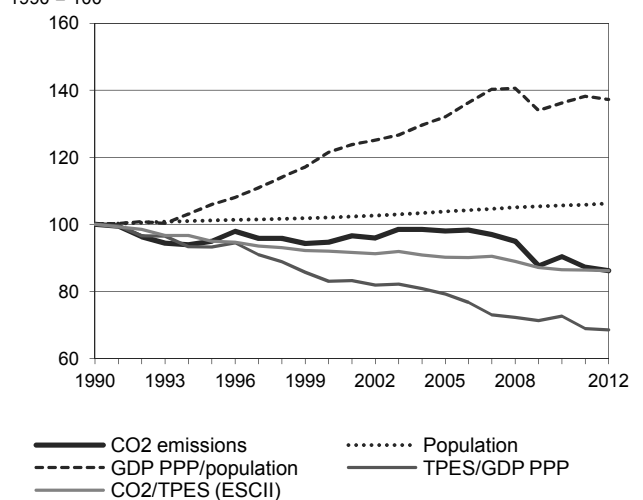
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## European Union - 28

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	4 067.8	3 864.4	3 852.1	3 988.3	3 678.9	3 547.7	3 504.9	-13.8%
TPES (PJ)	68 858	68 849	70 868	74 819	72 043	69 487	68 814	-0.1%
GDP (billion 2005 USD)	10 068.2	10 878.4	12 582.8	13 837.9	14 430.9	14 668.2	14 614.0	45.2%
GDP PPP (billion 2005 USD)	9 707.3	10 407.0	12 034.2	13 315.6	13 973.6	14 207.2	14 156.7	45.8%
Population (millions)	477.6	483.3	487.4	496.1	504.7	505.7	507.4	6.2%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	59.1	56.1	54.4	53.3	51.1	51.1	50.9	-13.8%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.40	0.36	0.31	0.29	0.25	0.24	0.24	-40.6%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.42	0.37	0.32	0.30	0.26	0.25	0.25	-40.9%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	8.52	8.00	7.90	8.04	7.29	7.02	6.91	-18.9%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	95	95	98	90	87	86	-13.8%
Population index	100	101	102	104	106	106	106	6.2%
GDP PPP per population index	100	106	121	132	136	138	137	37.3%
Energy intensity index - TPES / GDP PPP	100	93	83	79	73	69	69	-31.5%
Carbon intensity index - CO <sub>2</sub> / TPES	100	95	92	90	86	86	86	-13.8%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>1 136.7</b>	<b>1 407.7</b>	<b>898.1</b>	<b>62.4</b>	<b>3 504.9</b>	<b>-13.8%</b>
Main activity producer elec. and heat	890.7	45.0	214.5	25.3	1 175.4	-8.1%
Unallocated autoproducers	49.1	17.5	56.5	16.1	139.1	-39.7%
Other energy industry own use	28.8	104.6	33.1	0.1	166.5	-5.3%
Manufacturing industries and construction	121.6	174.2	211.4	20.1	527.3	-36.7%
Transport	0.0	855.1	6.5	-	861.7	14.4%
<i>of which: road</i>	-	811.4	3.1	-	814.5	16.5%
Other	46.5	211.3	376.1	0.9	634.8	-20.3%
<i>of which: residential</i>	36.4	112.8	253.4	0.0	402.7	-18.1%
<b>Reference Approach</b>	<b>1 162.7</b>	<b>1 415.8</b>	<b>907.1</b>	<b>62.4</b>	<b>3 548.0</b>	<b>-14.6%</b>
Diff. due to losses and/or transformation	21.5	14.0	8.5	-	44.0	
Statistical differences	4.5	- 5.9	0.5	0.0	- 0.9	
<i>Memo: international marine bunkers</i>	-	146.1	-	-	146.1	31.1%
<i>Memo: international aviation bunkers</i>	-	129.1	-	-	129.1	81.2%

\*\* Other includes industrial waste and non-renewable municipal waste.

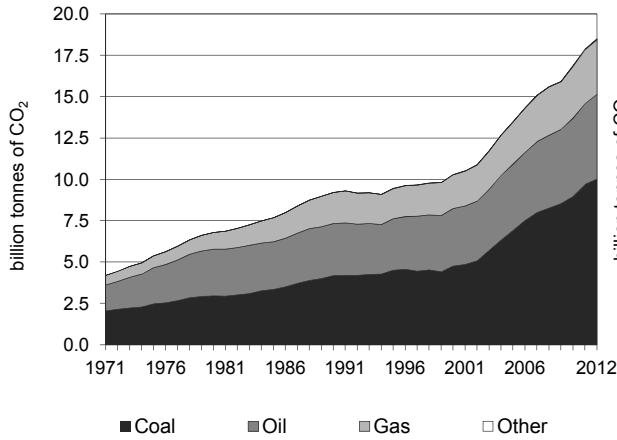
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	890.7	-11.5%	19.5	19.5
Road - oil	811.4	16.2%	17.7	37.2
Residential - gas	253.4	42.4%	5.5	42.7
Main activity prod. elec. and heat - gas	214.5	104.4%	4.7	47.4
Manufacturing industries - gas	211.4	-16.0%	4.6	52.0
Manufacturing industries - oil	174.2	-31.2%	3.8	55.8
Non-specified other - gas	122.7	44.7%	2.7	58.5
Manufacturing industries - coal	121.6	-62.5%	2.7	61.1
Residential - oil	112.8	-37.5%	2.5	63.6
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>3 504.9</i>	<i>-13.8%</i>	<i>76.5</i>	<i>76.5</i>

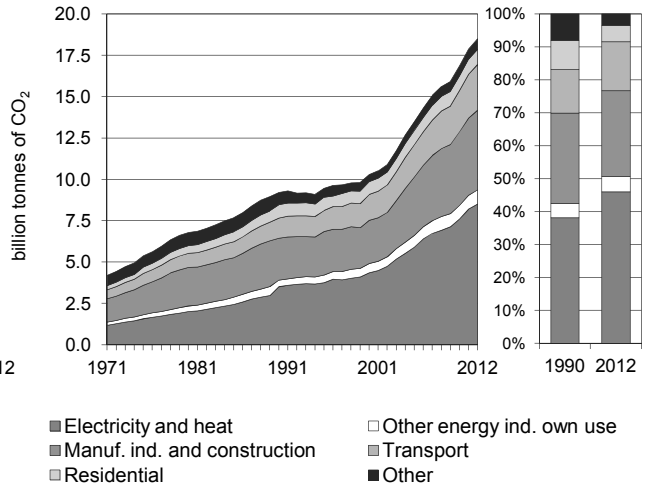
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Non-OECD Total

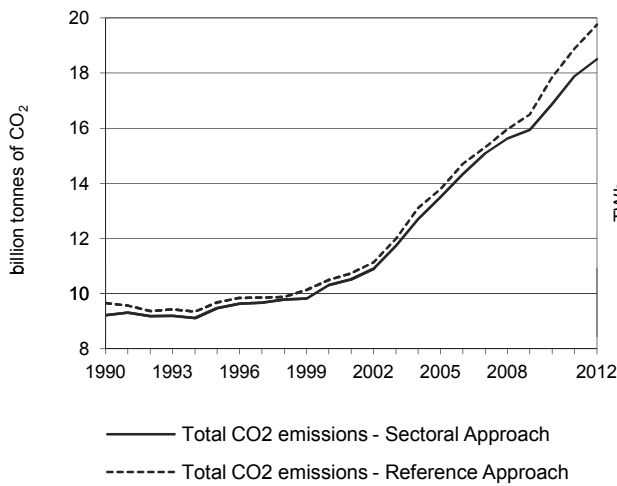
**Figure 1. CO<sub>2</sub> emissions by fuel**



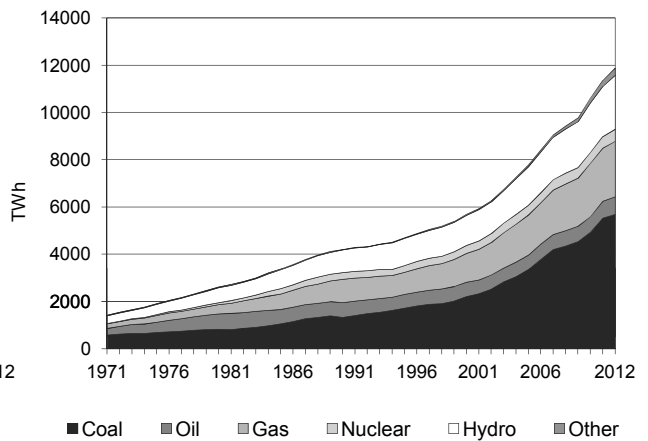
**Figure 2. CO<sub>2</sub> emissions by sector**



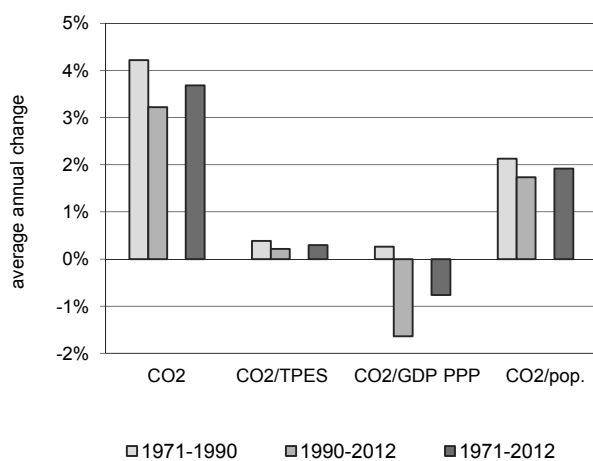
**Figure 3. Reference vs Sectoral Approach**



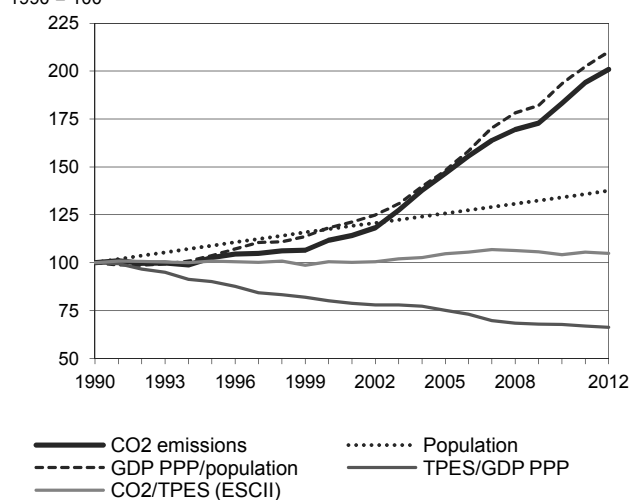
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Non-OECD Total

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	9 214.4	9 466.2	10 300.3	13 504.0	16 879.6	17 885.5	18 508.3	100.9%
TPES (PJ)	169 859	173 076	189 048	237 731	298 565	312 387	325 363	91.5%
GDP (billion 2005 USD)	5 454.8	6 088.6	7 430.1	9 871.8	13 592.4	14 384.3	15 098.0	176.8%
GDP PPP (billion 2005 USD)	15 122.5	17 085.3	21 002.4	28 162.0	39 220.0	41 574.0	43 698.2	189.0%
Population (millions)	4 203.6	4 578.1	4 939.4	5 285.7	5 636.8	5 709.6	5 782.8	37.6%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	54.3	54.7	54.5	56.8	56.5	57.3	56.9	4.9%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	1.69	1.55	1.39	1.37	1.24	1.24	1.23	-27.4%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.61	0.55	0.49	0.48	0.43	0.43	0.42	-30.5%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	2.19	2.07	2.09	2.55	2.99	3.13	3.20	46.0%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	103	112	147	183	194	201	100.9%
Population index	100	109	118	126	134	136	138	37.6%
GDP PPP per population index	100	104	118	148	193	202	210	110.1%
Energy intensity index - TPES / GDP PPP	100	90	80	75	68	67	66	-33.7%
Carbon intensity index - CO <sub>2</sub> / TPES	100	101	100	105	104	106	105	4.9%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>10 019.5</b>	<b>5 123.7</b>	<b>3 318.4</b>	<b>46.7</b>	<b>18 508.3</b>	<b>100.9%</b>
Main activity producer elec. and heat	5 903.3	547.3	1 223.2	1.4	7 675.2	154.3%
Unallocated autoproducers	355.7	118.4	325.1	41.8	840.9	69.4%
Other energy industry own use	220.0	288.9	350.7	0.9	860.5	112.9%
Manufacturing industries and construction	3 080.5	911.7	817.0	1.9	4 811.2	90.8%
Transport	12.1	2 600.7	153.8	-	2 766.6	126.6%
<i>of which: road</i>	-	2 348.1	70.0	-	2 418.2	154.7%
Other	447.8	656.9	448.6	0.6	1 553.9	0.0%
<i>of which: residential</i>	237.8	310.2	366.3	-	914.3	12.7%
<b>Reference Approach</b>	<b>11 102.9</b>	<b>5 222.7</b>	<b>3 386.9</b>	<b>47.1</b>	<b>19 759.7</b>	<b>104.8%</b>
Diff. due to losses and/or transformation	340.3	83.4	74.7	-	498.3	
Statistical differences	743.2	15.6	- 6.2	0.5	753.1	
<i>Memo: international marine bunkers</i>	-	361.4	-	-	361.4	174.5%
<i>Memo: international aviation bunkers</i>	-	219.7	-	-	219.7	91.8%

\*\* Other includes industrial waste and non-renewable municipal waste.

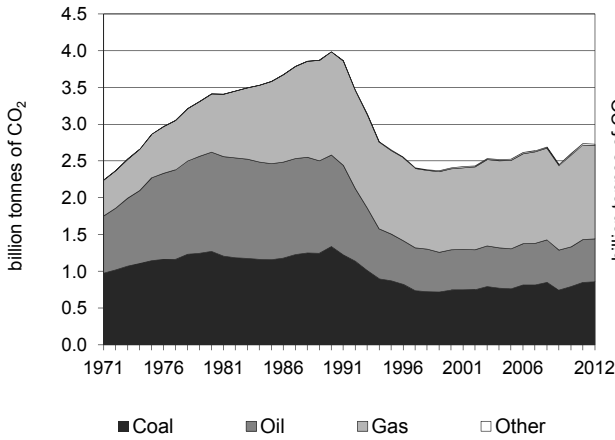
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	5 903.3	243.6%	19.7	19.7
Manufacturing industries - coal	3 080.5	107.9%	10.3	30.1
Road - oil	2 348.1	148.2%	7.9	37.9
Main activity prod. elec. and heat - gas	1 223.2	74.3%	4.1	42.0
Manufacturing industries - oil	911.7	42.2%	3.0	45.1
Manufacturing industries - gas	817.0	104.9%	2.7	47.8
Main activity prod. elec. and heat - oil	547.3	-8.5%	1.8	49.6
Residential - gas	366.3	107.3%	1.2	50.8
Unallocated autoproducers - coal	355.7	166.1%	1.2	52.0
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>18 508.3</i>	<i>100.9%</i>	<i>61.9</i>	<i>61.9</i>

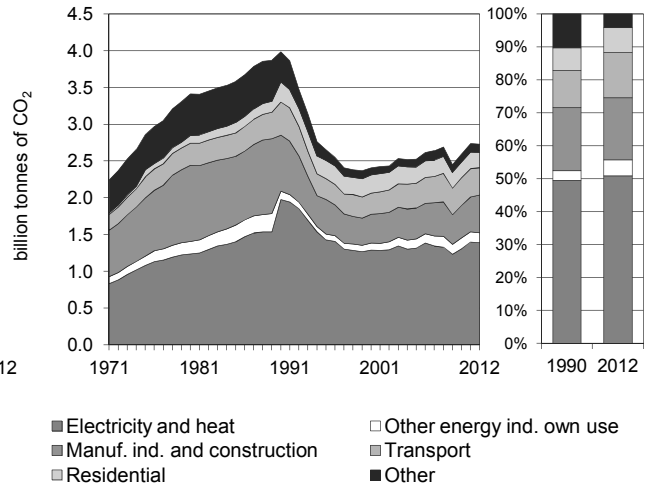
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

### Non-OECD Europe and Eurasia \*

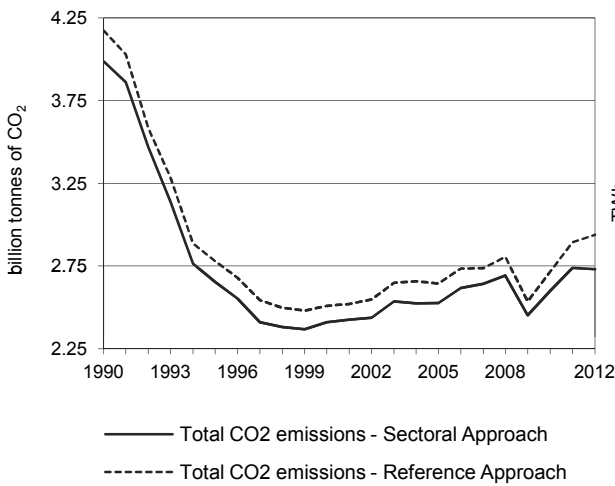
**Figure 1. CO<sub>2</sub> emissions by fuel**



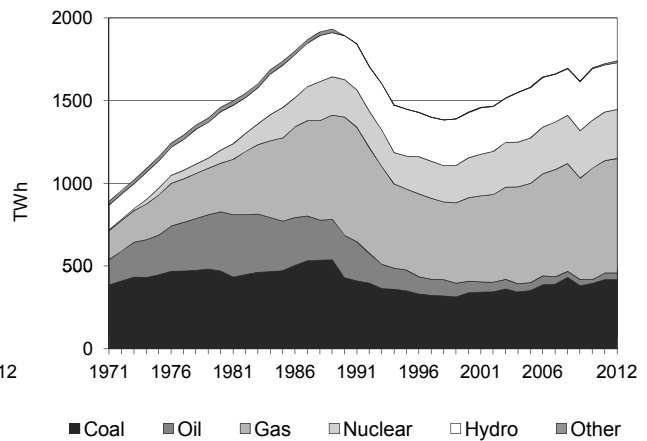
**Figure 2. CO<sub>2</sub> emissions by sector**



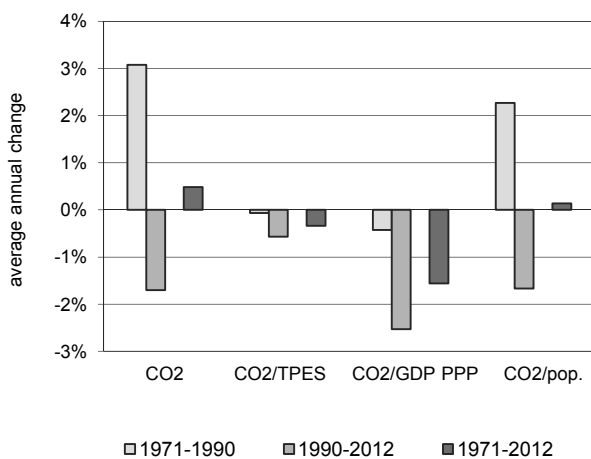
**Figure 3. Reference vs Sectoral Approach**



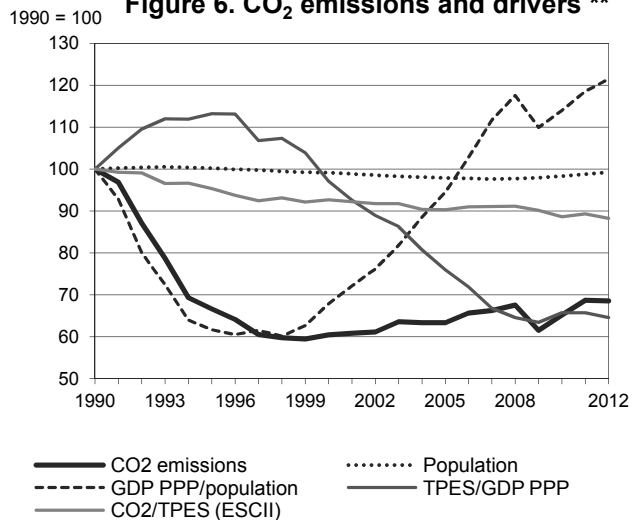
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \*\***



**Figure 6. CO<sub>2</sub> emissions and drivers \*\***



\* Includes Estonia and Slovenia prior to 1990.

\*\* Based on GDP in 2005 USD, using purchasing power parities.

## Non-OECD Europe and Eurasia

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	3 986.3	2 654.1	2 410.0	2 525.5	2 598.6	2 738.2	2 731.8	-31.5%
TPES (PJ)	64 347	44 961	41 999	45 163	47 360	49 486	49 997	-22.3%
GDP (billion 2005 USD)	1 371.9	867.4	947.3	1 287.7	1 536.3	1 600.4	1 644.5	19.9%
GDP PPP (billion 2005 USD)	3 375.1	2 083.5	2 269.9	3 120.5	3 782.4	3 949.8	4 064.9	20.4%
Population (millions)	343.9	344.4	340.8	336.5	338.1	339.6	341.0	-0.8%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	62.0	59.0	57.4	55.9	54.9	55.3	54.6	-11.8%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	2.91	3.06	2.54	1.96	1.69	1.71	1.66	-42.8%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	1.18	1.27	1.06	0.81	0.69	0.69	0.67	-43.1%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	11.59	7.71	7.07	7.51	7.69	8.06	8.01	-30.9%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	67	60	63	65	69	69	-31.5%
Population index	100	100	99	98	98	99	99	-0.8%
GDP PPP per population index	100	62	68	94	114	119	121	21.4%
Energy intensity index - TPES / GDP PPP	100	113	97	76	66	66	65	-35.5%
Carbon intensity index - CO <sub>2</sub> / TPES	100	95	93	90	89	89	88	-11.8%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>858.9</b>	<b>583.2</b>	<b>1 270.2</b>	<b>19.5</b>	<b>2 731.8</b>	<b>-31.5%</b>
Main activity producer elec. and heat	488.9	36.2	502.1	-	1 027.2	-35.0%
Unallocated autoproducers	96.5	31.1	219.0	16.1	362.7	-8.3%
Other energy industry own use	8.8	52.1	71.9	0.9	133.8	17.8%
Manufacturing industries and construction	220.8	91.7	198.9	1.9	513.3	-32.6%
Transport	0.3	296.1	77.0	-	373.4	-17.4%
<i>of which: road</i>	-	256.9	1.5	-	258.4	-9.6%
Other	43.6	76.0	201.2	0.6	321.4	-52.9%
<i>of which: residential</i>	19.2	26.0	162.0	-	207.1	-24.5%
<b>Reference Approach</b>	<b>969.2</b>	<b>649.0</b>	<b>1 299.9</b>	<b>19.9</b>	<b>2 937.9</b>	<b>-29.6%</b>
Diff. due to losses and/or transformation	51.4	69.3	26.5	-	147.2	
Statistical differences	58.9	- 3.6	3.2	0.4	58.9	
<i>Memo: international marine bunkers</i>	-	20.2	-	-	20.2	109.7%
<i>Memo: international aviation bunkers</i>	-	27.0	-	-	27.0	-36.1%

\*\* Other includes industrial waste and non-renewable municipal waste.

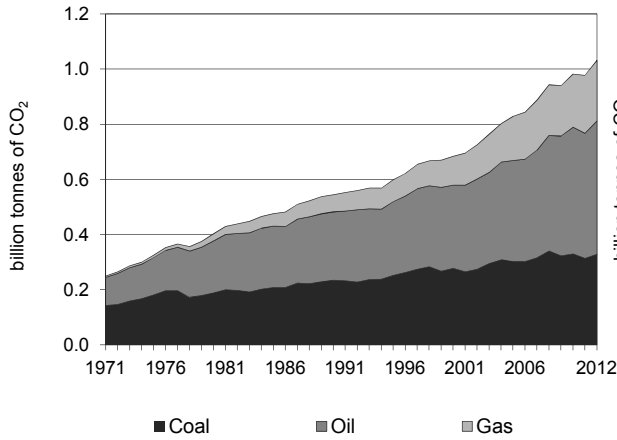
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - gas	502.1	-10.3%	12.2	12.2
Main activity prod. elec. and heat - coal	488.9	-30.2%	11.9	24.1
Road - oil	256.9	-9.2%	6.2	30.3
Manufacturing industries - coal	220.8	-26.3%	5.4	35.7
Unallocated autoproducers - gas	219.0	0.5%	5.3	41.0
Manufacturing industries - gas	198.9	-17.0%	4.8	45.9
Residential - gas	162.0	8.7%	3.9	49.8
Unallocated autoproducers - coal	96.5	-2.4%	2.3	52.2
Manufacturing industries - oil	91.7	-58.8%	2.2	54.4
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>2 731.8</i>	<i>-31.5%</i>	<i>66.4</i>	<i>66.4</i>

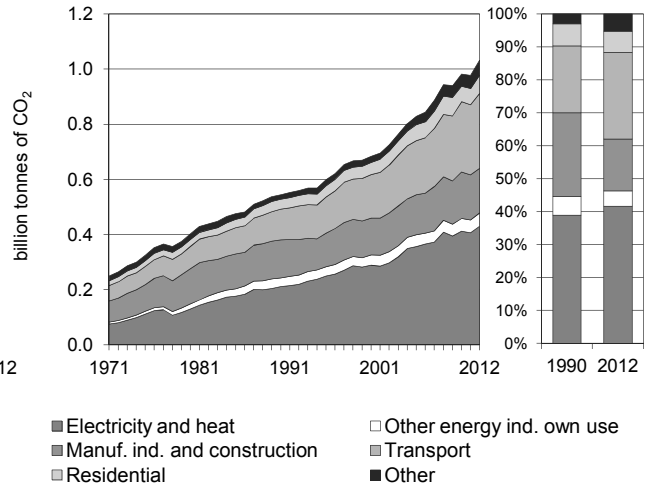
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Africa

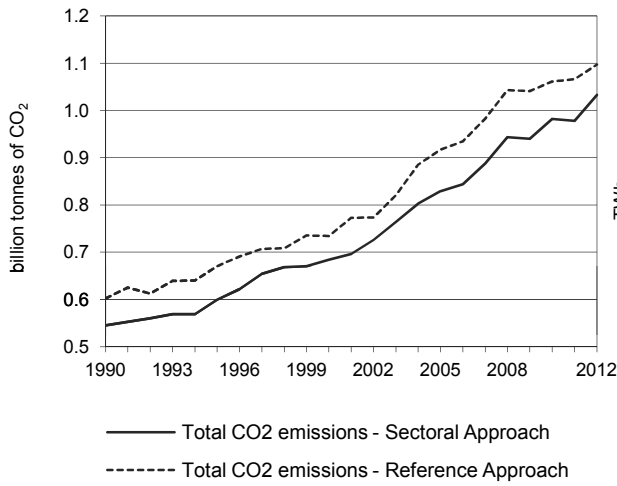
**Figure 1. CO<sub>2</sub> emissions by fuel**



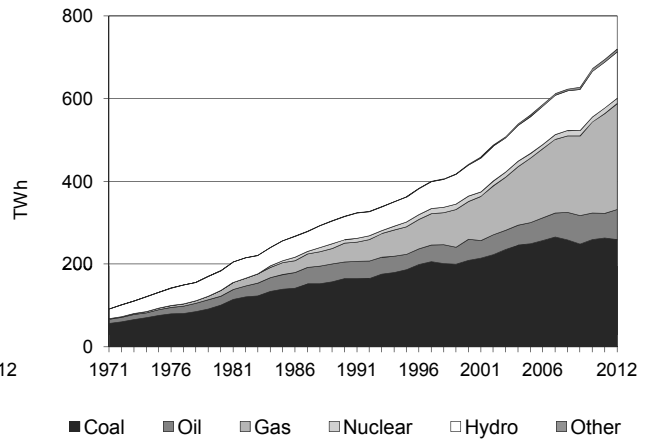
**Figure 2. CO<sub>2</sub> emissions by sector**



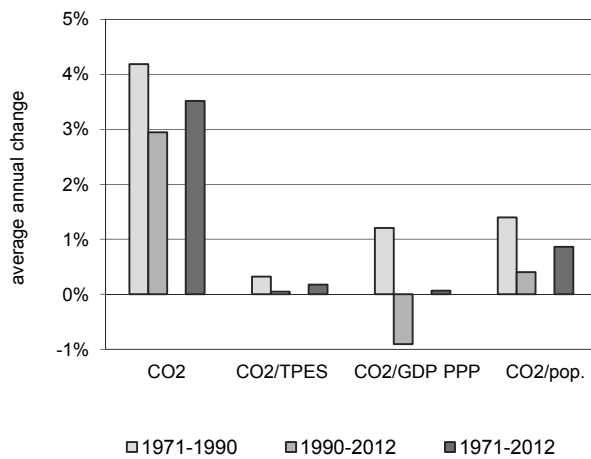
**Figure 3. Reference vs Sectoral Approach**



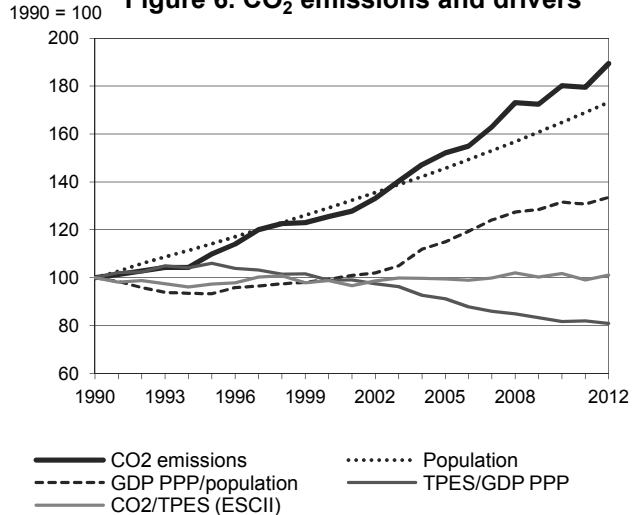
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Africa

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	545.0	598.9	684.0	829.0	982.3	978.0	1 032.4	89.4%
TPES (PJ)	16 375	18 489	20 795	25 031	29 023	29 670	30 681	87.4%
GDP (billion 2005 USD)	615.9	647.6	770.5	989.8	1 255.2	1 265.6	1 330.8	116.1%
GDP PPP (billion 2005 USD)	1 804.5	1 922.8	2 315.1	3 023.6	3 914.4	3 988.5	4 176.5	131.5%
Population (millions)	625.0	714.0	807.3	910.7	1 030.3	1 056.3	1 083.1	73.3%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	33.3	32.4	32.9	33.1	33.8	33.0	33.7	1.1%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.88	0.92	0.89	0.84	0.78	0.77	0.78	-12.3%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.30	0.31	0.30	0.27	0.25	0.25	0.25	-18.1%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.87	0.84	0.85	0.91	0.95	0.93	0.95	9.3%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	110	126	152	180	179	189	89.4%
Population index	100	114	129	146	165	169	173	73.3%
GDP PPP per population index	100	93	99	115	132	131	134	33.6%
Energy intensity index - TPES / GDP PPP	100	106	99	91	82	82	81	-19.0%
Carbon intensity index - CO <sub>2</sub> / TPES	100	97	99	100	102	99	101	1.1%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>329.3</b>	<b>483.3</b>	<b>219.9</b>	-	<b>1 032.4</b>	<b>89.4%</b>
Main activity producer elec. and heat	241.3	52.6	112.9	-	406.8	103.8%
Unallocated autoproducers	11.1	8.1	4.2	-	23.4	90.3%
Other energy industry own use	0.1	13.3	34.6	-	48.0	53.7%
Manufacturing industries and construction	49.3	64.7	48.3	-	162.2	17.4%
Transport	0.1	268.8	3.0	-	271.9	145.6%
<i>of which: road</i>	-	258.6	0.9	-	259.5	145.7%
Other	27.4	75.7	16.9	-	120.0	127.0%
<i>of which: residential</i>	13.3	37.5	14.9	-	65.7	79.1%
<b>Reference Approach</b>	<b>408.1</b>	<b>462.1</b>	<b>226.8</b>	-	<b>1 097.0</b>	<b>82.3%</b>
Diff. due to losses and/or transformation	85.7	- 13.7	6.7	-	78.7	
Statistical differences	- 6.9	- 7.5	0.1	-	- 14.2	
<i>Memo: international marine bunkers</i>	-	24.8	-	-	24.8	50.2%
<i>Memo: international aviation bunkers</i>	-	21.3	-	-	21.3	82.9%

\*\* Other includes industrial waste and non-renewable municipal waste.

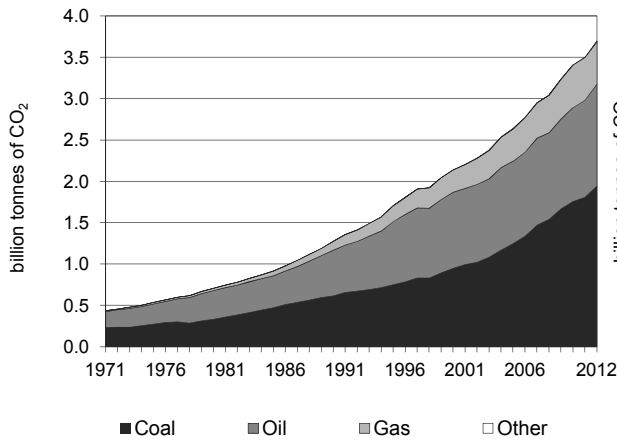
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	258.6	144.8%	9.2	9.2
Main activity prod. elec. and heat - coal	241.3	68.5%	8.6	17.9
Main activity prod. elec. and heat - gas	112.9	352.2%	4.0	21.9
Manufacturing industries - oil	64.7	19.8%	2.3	24.2
Main activity prod. elec. and heat - oil	52.6	67.3%	1.9	26.1
Manufacturing industries - coal	49.3	-29.1%	1.8	27.8
Manufacturing industries - gas	48.3	228.5%	1.7	29.6
Non-specified other - oil	38.2	255.5%	1.4	30.9
Residential - oil	37.5	34.4%	1.3	32.3
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>1 032.4</i>	<i>89.4%</i>	<i>36.9</i>	<i>36.9</i>

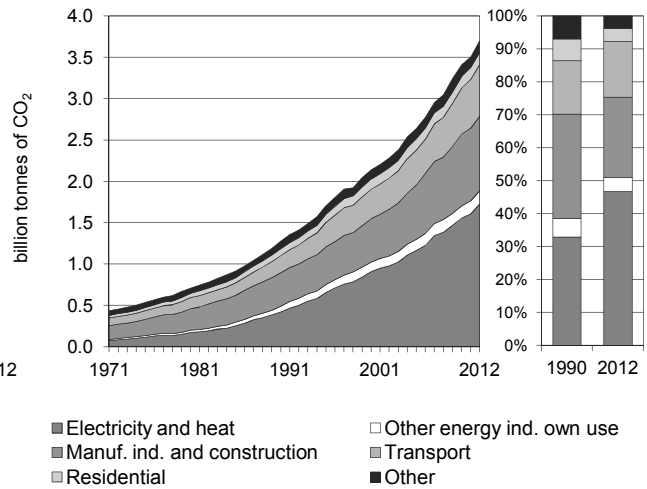
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

### Asia (excluding China)

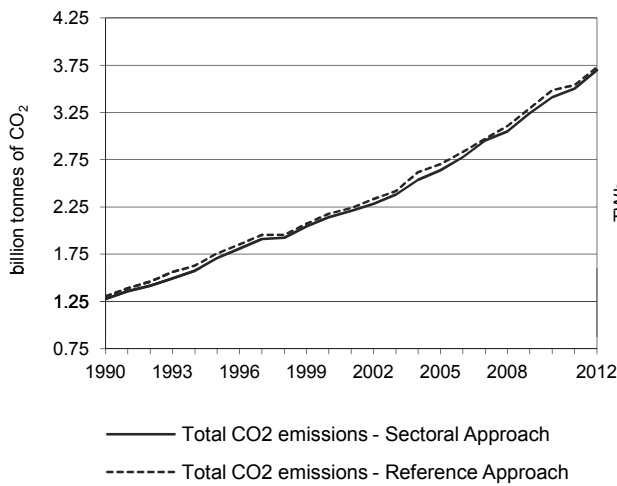
**Figure 1. CO<sub>2</sub> emissions by fuel**



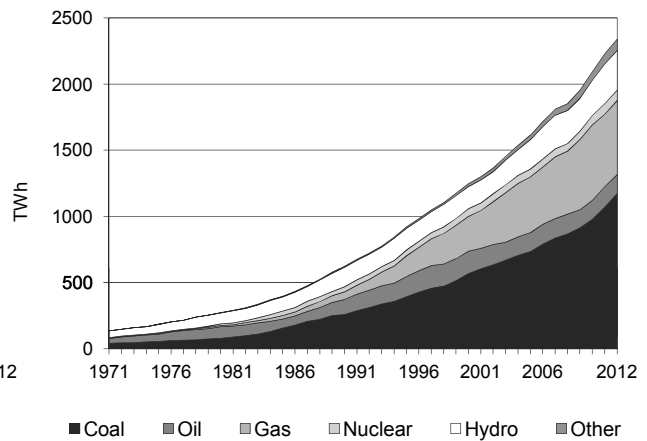
**Figure 2. CO<sub>2</sub> emissions by sector**



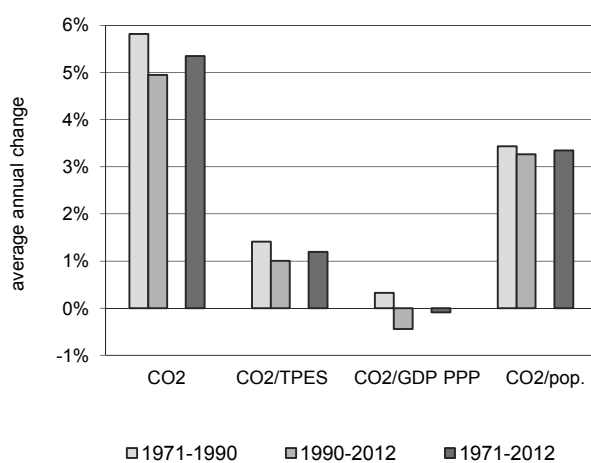
**Figure 3. Reference vs Sectoral Approach**



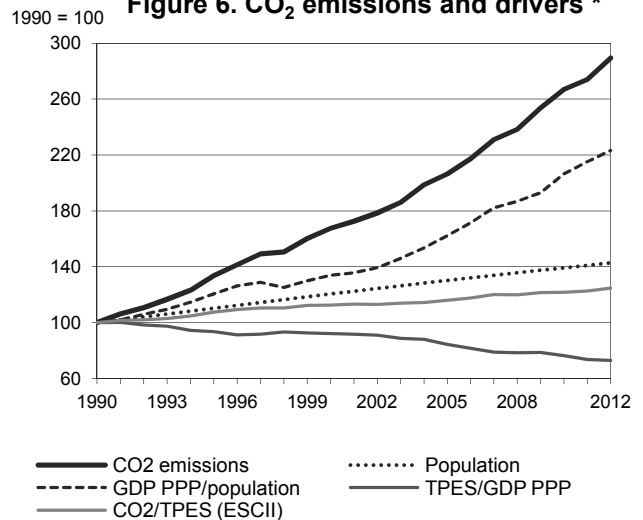
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Asia (excluding China)

## Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	1 278.2	1 708.4	2 140.2	2 639.5	3 412.0	3 502.2	3 698.5	189.3%
TPES (PJ)	29 637	36 853	44 123	52 775	64 949	66 241	68 817	132.2%
GDP (billion 2005 USD)	1 125.6	1 510.1	1 848.3	2 395.3	3 226.1	3 400.9	3 567.8	217.0%
GDP PPP (billion 2005 USD)	3 965.6	5 276.3	6 400.2	8 378.5	11 392.4	12 026.3	12 642.7	218.8%
Population (millions)	1 625.0	1 793.1	1 959.0	2 116.1	2 262.2	2 291.4	2 320.2	42.8%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	43.1	46.4	48.5	50.0	52.5	52.9	53.7	24.6%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	1.14	1.13	1.16	1.10	1.06	1.03	1.04	-8.7%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.32	0.32	0.33	0.32	0.30	0.29	0.29	-9.2%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.79	0.95	1.09	1.25	1.51	1.53	1.59	102.6%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	134	167	206	267	274	289	189.3%
Population index	100	110	121	130	139	141	143	42.8%
GDP PPP per population index	100	121	134	162	206	215	223	123.3%
Energy intensity index - TPES / GDP PPP	100	93	92	84	76	74	73	-27.2%
Carbon intensity index - CO <sub>2</sub> / TPES	100	107	112	116	122	123	125	24.6%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>1 943.0</b>	<b>1 231.5</b>	<b>518.4</b>	<b>5.7</b>	<b>3 698.5</b>	<b>189.3%</b>
Main activity producer elec. and heat	1 169.6	85.5	223.0	1.4	1 479.6	275.6%
Unallocated autoproducers	178.4	33.8	31.0	4.2	247.4	812.2%
Other energy industry own use	10.6	78.3	70.1	-	159.0	122.3%
Manufacturing industries and construction	523.5	234.7	143.8	0.0	902.1	122.9%
Transport	0.1	605.4	17.7	-	623.2	200.2%
<i>of which: road</i>	-	560.9	17.7	-	578.6	224.0%
Other	60.8	193.7	32.8	-	287.3	65.8%
<i>of which: residential</i>	18.1	100.9	27.7	-	146.7	75.2%
<b>Reference Approach</b>	<b>1 957.5</b>	<b>1 240.7</b>	<b>523.9</b>	<b>5.7</b>	<b>3 727.7</b>	<b>185.7%</b>
Diff. due to losses and/or transformation	10.9	5.8	9.7	-	26.4	
Statistical differences	3.6	3.4	- 4.2	0.0	2.9	
<i>Memo: international marine bunkers</i>	-	146.2	-	-	146.2	219.5%
<i>Memo: international aviation bunkers</i>	-	70.4	-	-	70.4	207.2%

\*\* Other includes industrial waste and non-renewable municipal waste.

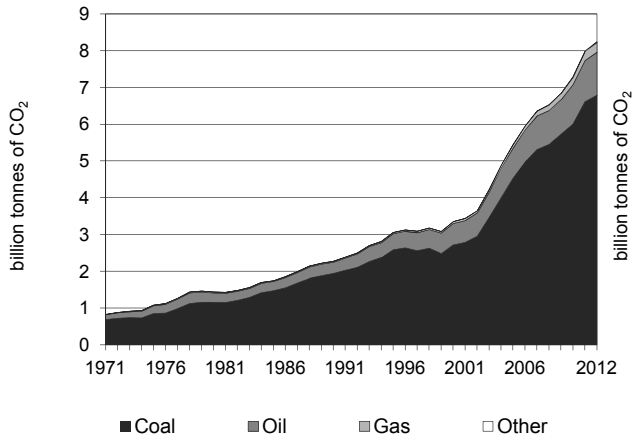
Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	1 169.6	329.7%	18.5	18.5
Road - oil	560.9	214.0%	8.9	27.4
Manufacturing industries - coal	523.5	110.8%	8.3	35.7
Manufacturing industries - oil	234.7	92.7%	3.7	39.4
Main activity prod. elec. and heat - gas	223.0	544.5%	3.5	42.9
Unallocated autoproducers - coal	178.4	982.9%	2.8	45.8
Manufacturing industries - gas	143.8	316.2%	2.3	48.0
Residential - oil	100.9	54.7%	1.6	49.6
Non-specified other - oil	92.7	129.6%	1.5	51.1
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<b>3 698.5</b>	<b>189.3%</b>	<b>58.6</b>	<b>58.6</b>

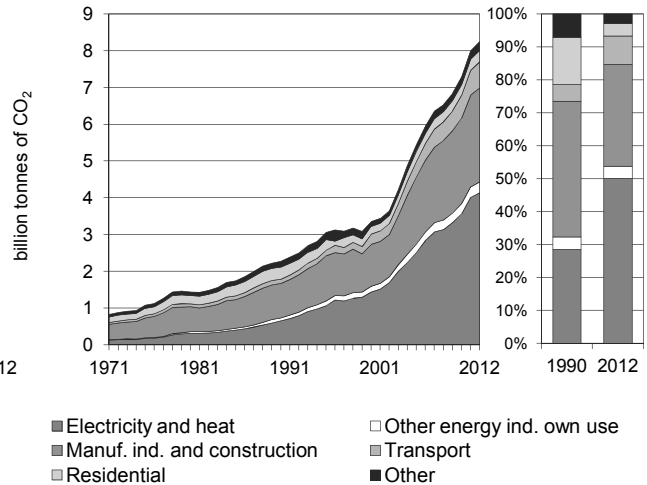
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## China (incl. Hong Kong, China)

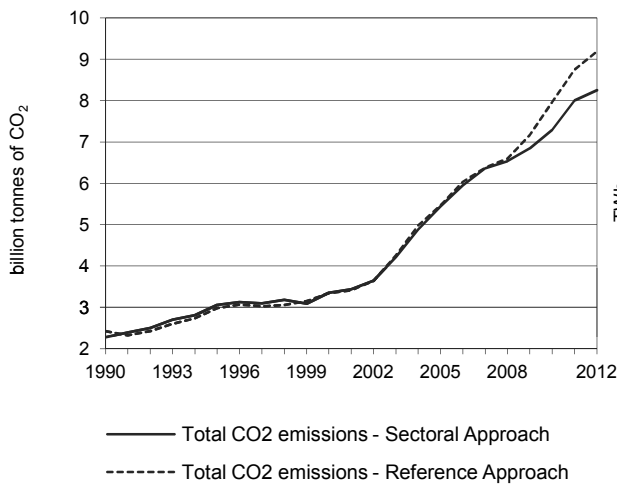
**Figure 1. CO<sub>2</sub> emissions by fuel**



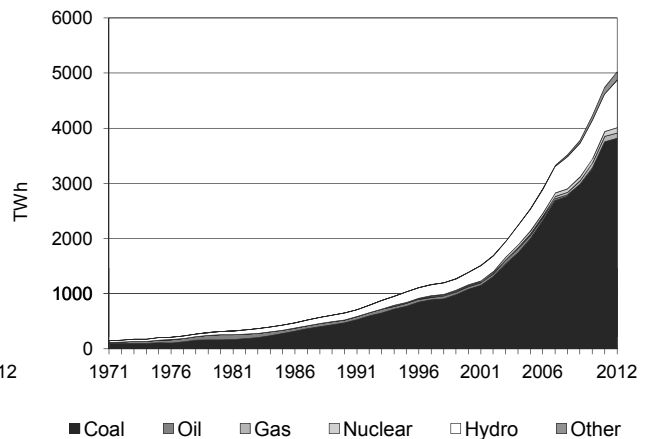
**Figure 2. CO<sub>2</sub> emissions by sector**



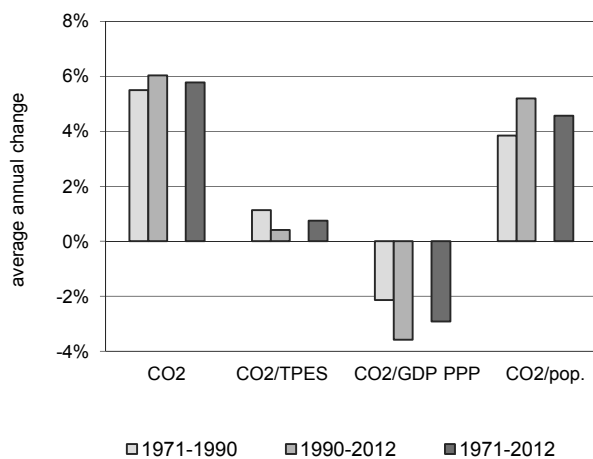
**Figure 3. Reference vs Sectoral Approach**



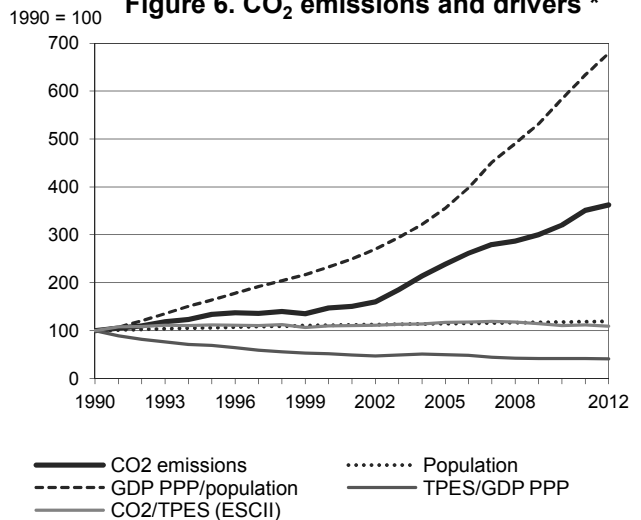
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## China (incl. Hong Kong, China)

## Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	2 277.7	3 057.6	3 350.3	5 444.3	7 294.9	8 000.4	8 250.8	262.2%
TPES (PJ)	36 816	44 175	49 191	74 882	106 368	115 643	121 791	230.8%
GDP (billion 2005 USD)	625.9	1 067.1	1 564.7	2 438.5	4 058.1	4 425.7	4 756.4	659.9%
GDP PPP (billion 2005 USD)	1 644.7	2 865.8	4 266.0	6 720.9	11 308.0	12 346.2	13 289.3	708.0%
Population (millions)	1 140.9	1 211.0	1 269.3	1 310.5	1 344.7	1 351.2	1 357.9	19.0%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	61.9	69.2	68.1	72.7	68.6	69.2	67.7	9.5%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	3.64	2.87	2.14	2.23	1.80	1.81	1.73	-52.3%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	1.38	1.07	0.79	0.81	0.65	0.65	0.62	-55.2%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	2.00	2.52	2.64	4.15	5.42	5.92	6.08	204.4%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	134	147	239	320	351	362	262.2%
Population index	100	106	111	115	118	118	119	19.0%
GDP PPP per population index	100	164	233	356	583	634	679	578.9%
Energy intensity index - TPES / GDP PPP	100	69	52	50	42	42	41	-59.1%
Carbon intensity index - CO <sub>2</sub> / TPES	100	112	110	118	111	112	109	9.5%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>6 794.0</b>	<b>1 163.1</b>	<b>272.2</b>	<b>21.5</b>	<b>8 250.8</b>	<b>262.2%</b>
Main activity producer elec. and heat	3 984.6	9.3	55.7	-	4 049.6	532.4%
Unallocated autoproducers	54.8	7.9	-	21.5	84.1	671.0%
Other energy industry own use	195.9	67.7	37.0	-	300.6	251.4%
Manufacturing industries and construction	2 231.5	242.0	80.3	-	2 553.7	172.2%
Transport	11.7	672.4	25.1	-	709.2	526.5%
<i>of which: road</i>	-	544.6	24.7	-	569.4	811.3%
Other	315.5	163.9	74.2	-	553.6	13.1%
<i>of which: residential</i>	186.9	67.2	57.1	-	311.2	-5.3%
<b>Reference Approach</b>	<b>7 670.8</b>	<b>1 215.1</b>	<b>276.6</b>	<b>21.6</b>	<b>9 184.2</b>	<b>278.7%</b>
Diff. due to losses and/or transformation	189.8	49.1	3.9	-	242.7	
Statistical differences	687.1	3.0	0.5	0.0	690.6	
<i>Memo: international marine bunkers</i>	-	54.7	-	-	54.7	520.8%
<i>Memo: international aviation bunkers</i>	-	36.5	-	-	36.5	428.7%

\*\* Other includes industrial waste and non-renewable municipal waste.

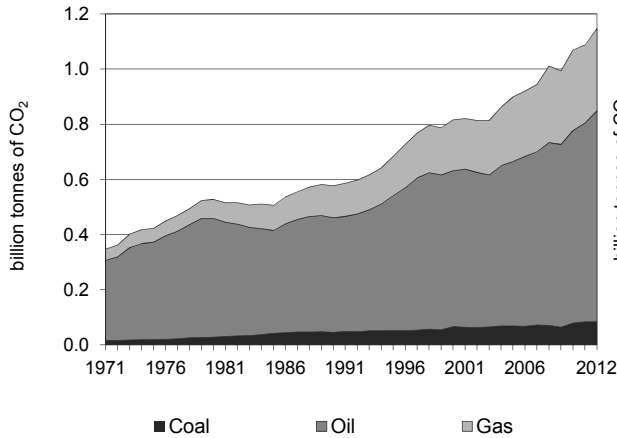
Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	3 984.6	569.1%	33.2	33.2
Manufacturing industries - coal	2 231.5	166.3%	18.6	51.7
Road - oil	544.6	771.7%	4.5	56.3
Manufacturing industries - oil	242.0	177.5%	2.0	58.3
Other energy industry - coal	195.9	286.2%	1.6	59.9
Residential - coal	186.9	-40.9%	1.6	61.5
Non-specified other sectors - coal	128.6	26.1%	1.1	62.5
Other transport - oil	127.7	918.1%	1.1	63.6
Non-specified other - oil	96.7	66.5%	0.8	64.4
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>8 250.8</i>	<i>262.2%</i>	<i>68.7</i>	<i>68.7</i>

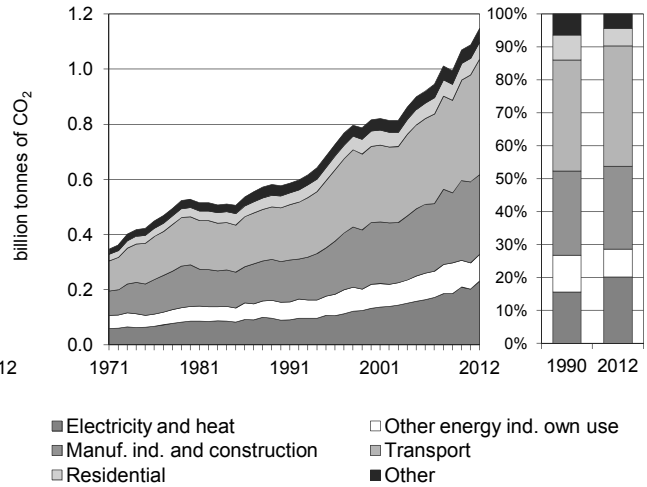
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

### Non-OECD Americas

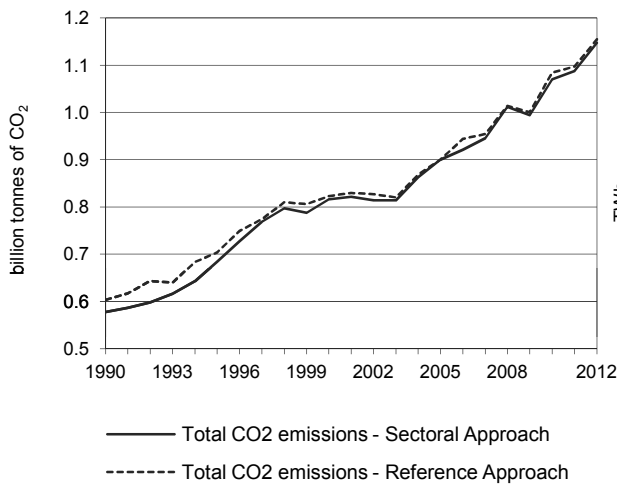
**Figure 1. CO<sub>2</sub> emissions by fuel**



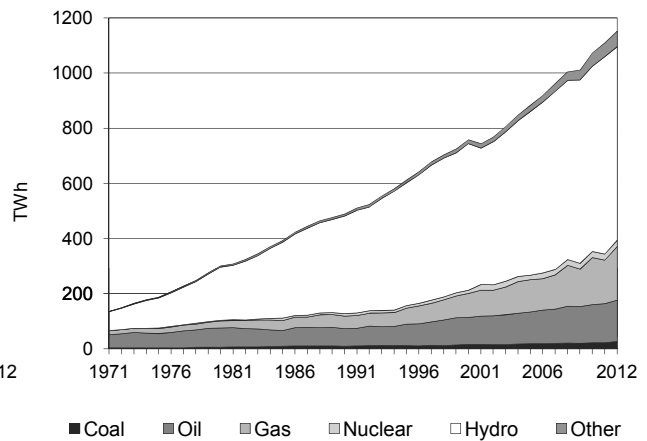
**Figure 2. CO<sub>2</sub> emissions by sector**



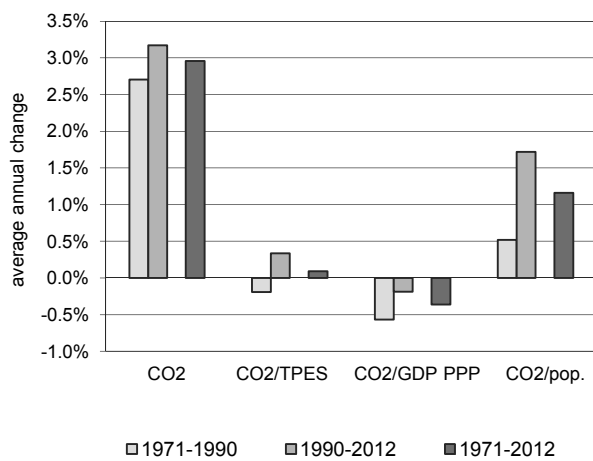
**Figure 3. Reference vs Sectoral Approach**



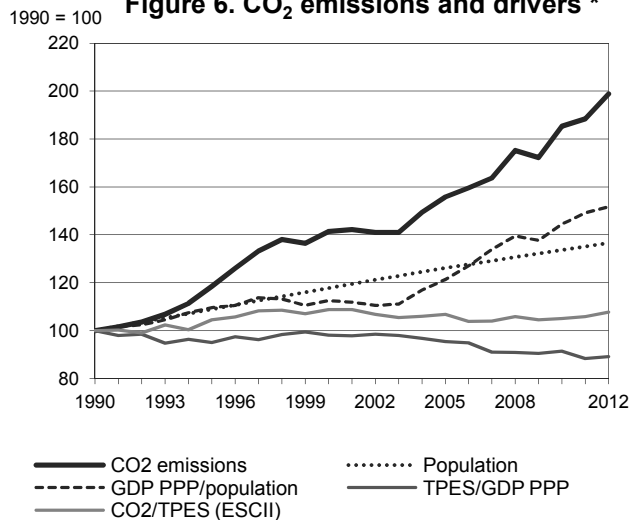
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Non-OECD Americas

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	577.3	683.9	816.0	899.7	1 070.0	1 087.6	1 147.6	98.8%
TPES (PJ)	13 861	15 713	18 018	20 238	24 456	24 668	25 584	84.6%
GDP (billion 2005 USD)	1 153.4	1 364.3	1 519.8	1 757.2	2 211.5	2 306.9	2 368.7	105.4%
GDP PPP (billion 2005 USD)	2 578.0	3 077.2	3 416.0	3 946.0	4 974.4	5 196.6	5 340.5	107.2%
Population (millions)	342.0	372.4	402.7	431.2	456.9	462.1	467.2	36.6%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	41.7	43.5	45.3	44.5	43.8	44.1	44.9	7.7%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.50	0.50	0.54	0.51	0.48	0.47	0.48	-3.2%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.22	0.22	0.24	0.23	0.22	0.21	0.21	-4.0%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	1.69	1.84	2.03	2.09	2.34	2.35	2.46	45.5%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	118	141	156	185	188	199	98.8%
Population index	100	109	118	126	134	135	137	36.6%
GDP PPP per population index	100	110	113	121	144	149	152	51.6%
Energy intensity index - TPES / GDP PPP	100	95	98	95	91	88	89	-10.9%
Carbon intensity index - CO <sub>2</sub> / TPES	100	104	109	107	105	106	108	7.7%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>83.6</b>	<b>765.1</b>	<b>298.8</b>	-	<b>1 147.6</b>	<b>98.8%</b>
Main activity producer elec. and heat	19.0	89.8	83.7	-	192.4	180.1%
Unallocated autoproducers	13.7	11.1	14.2	-	39.0	83.0%
Other energy industry own use	3.6	36.5	56.8	-	96.8	50.0%
Manufacturing industries and construction	47.0	144.6	97.4	-	289.1	96.2%
Transport	0.0	402.2	16.4	-	418.6	114.8%
<i>of which: road</i>	-	374.9	11.5	-	386.4	119.4%
Other	0.4	80.8	30.3	-	111.6	38.6%
<i>of which: residential</i>	0.3	36.1	25.3	-	61.6	41.6%
<b>Reference Approach</b>	<b>85.5</b>	<b>764.8</b>	<b>304.4</b>	-	<b>1 154.7</b>	<b>91.4%</b>
Diff. due to losses and/or transformation	1.4	6.1	5.3	-	12.7	
Statistical differences	0.5	- 6.4	0.3	-	- 5.6	
<i>Memo: international marine bunkers</i>	-	48.8	-	-	48.8	148.0%
<i>Memo: international aviation bunkers</i>	-	24.8	-	-	24.8	187.2%

\*\* Other includes industrial waste and non-renewable municipal waste.

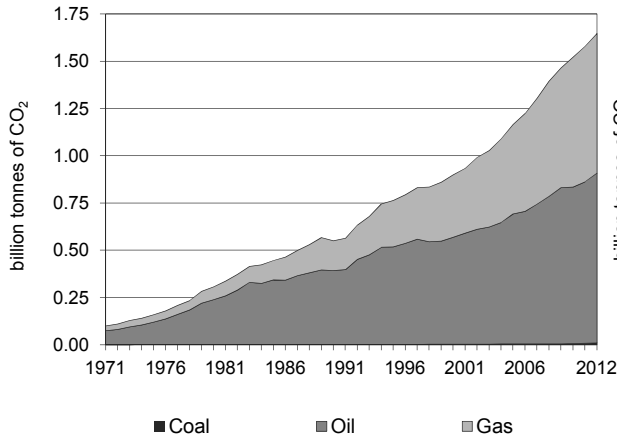
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	374.9	113.4%	15.3	15.3
Manufacturing industries - oil	144.6	76.3%	5.9	21.1
Manufacturing industries - gas	97.4	145.3%	4.0	25.1
Main activity prod. elec. and heat - oil	89.8	151.0%	3.7	28.8
Main activity prod. elec. and heat - gas	83.7	223.5%	3.4	32.2
Other energy industry own use - gas	56.8	88.6%	2.3	34.5
Manufacturing industries - coal	47.0	83.8%	1.9	36.4
Non-specified other - oil	44.8	38.8%	1.8	38.2
Other energy industry own use - oil	36.5	20.9%	1.5	39.7
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>1 147.6</i>	<i>98.8%</i>	<i>46.7</i>	<i>46.7</i>

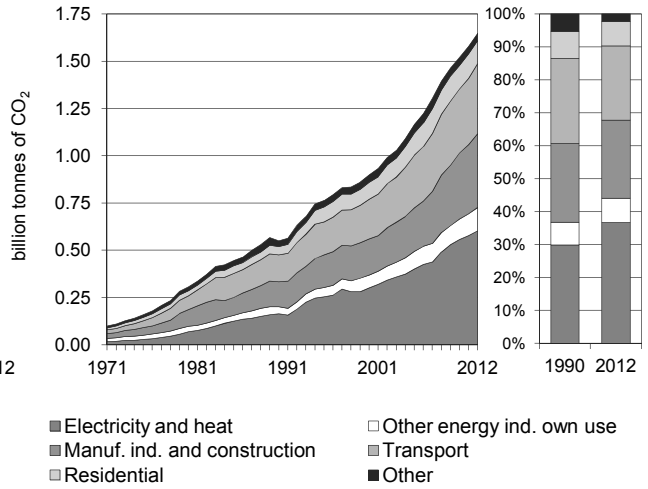
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Middle East

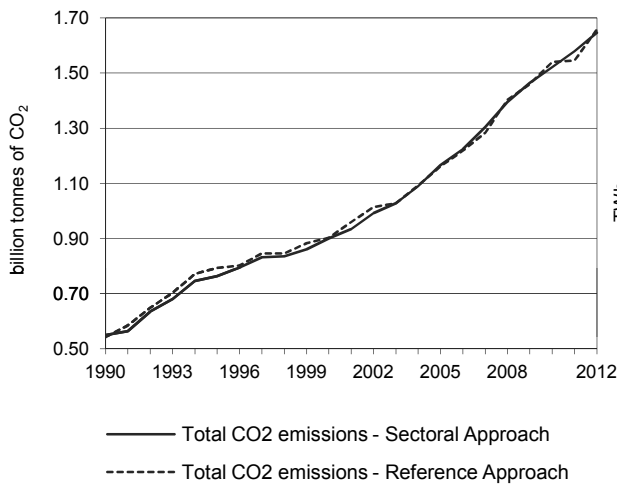
**Figure 1. CO<sub>2</sub> emissions by fuel**



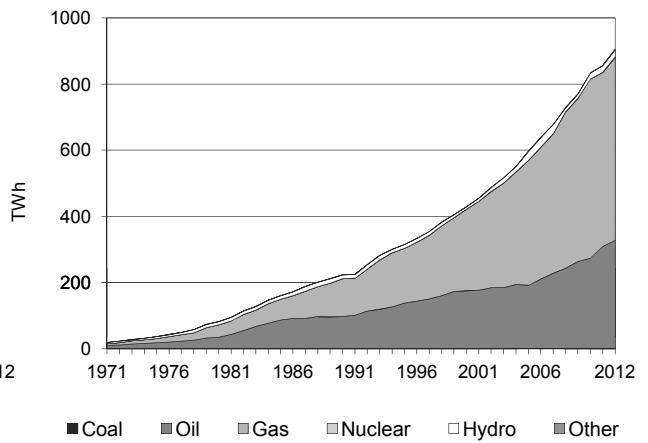
**Figure 2. CO<sub>2</sub> emissions by sector**



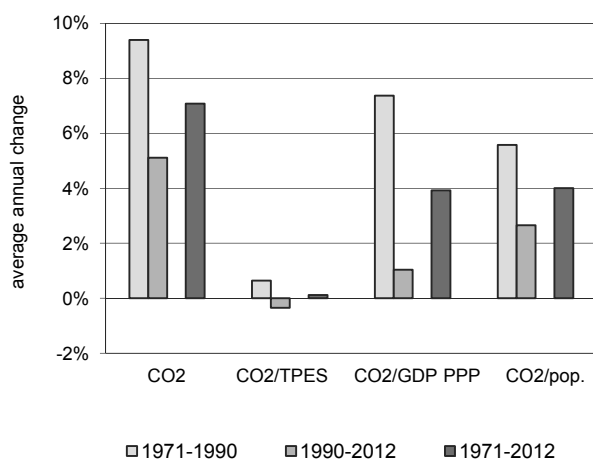
**Figure 3. Reference vs Sectoral Approach**



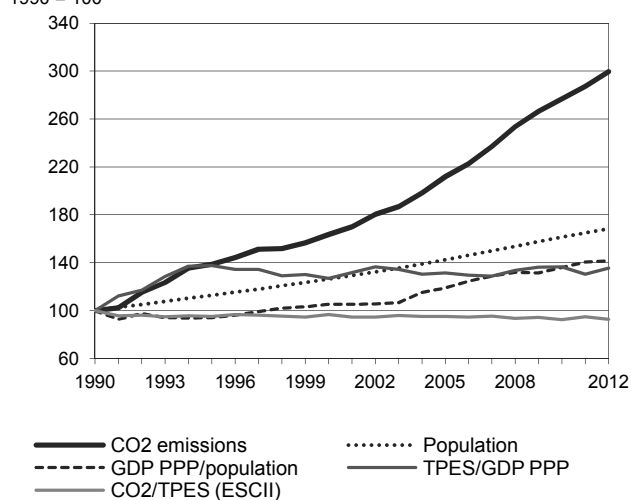
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Middle East

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	549.9	763.2	899.7	1 165.9	1 521.7	1 579.2	1 647.1	199.5%
TPES (PJ)	8 824	12 884	14 922	19 644	26 407	26 678	28 494	222.9%
GDP (billion 2005 USD)	562.2	632.2	779.6	1 003.3	1 305.2	1 384.7	1 429.9	154.3%
GDP PPP (billion 2005 USD)	1 754.5	1 859.7	2 335.2	2 972.4	3 848.5	4 066.7	4 184.3	138.5%
Population (millions)	126.9	143.1	160.2	180.6	204.6	209.1	213.4	68.2%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	62.3	59.2	60.3	59.4	57.6	59.2	57.8	-7.2%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.98	1.21	1.15	1.16	1.17	1.14	1.15	17.8%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.31	0.41	0.39	0.39	0.40	0.39	0.39	25.6%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	4.34	5.33	5.62	6.46	7.44	7.55	7.72	78.0%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	139	164	212	277	287	300	199.5%
Population index	100	113	126	142	161	165	168	68.2%
GDP PPP per population index	100	94	105	119	136	141	142	41.7%
Energy intensity index - TPES / GDP PPP	100	138	127	131	136	130	135	35.4%
Carbon intensity index - CO <sub>2</sub> / TPES	100	95	97	95	92	95	93	-7.2%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>10.8</b>	<b>897.5</b>	<b>738.8</b>	-	<b>1 647.1</b>	<b>199.5%</b>
Main activity producer elec. and heat	-	273.8	245.8	-	519.6	283.7%
Unallocated autoproducers	1.4	26.3	56.6	-	84.3	189.2%
Other energy industry own use	0.9	40.9	80.3	-	122.2	223.9%
Manufacturing industries and construction	8.5	134.0	248.3	-	390.7	197.8%
Transport	-	355.7	14.6	-	370.3	160.2%
<i>of which: road</i>	-	352.2	13.7	-	365.9	160.1%
Other	0.0	66.8	93.2	-	160.0	115.9%
<i>of which: residential</i>	0.0	42.5	79.3	-	121.9	173.5%
<b>Reference Approach</b>	<b>11.9</b>	<b>891.1</b>	<b>755.3</b>	-	<b>1 658.2</b>	<b>205.8%</b>
Diff. due to losses and/or transformation	1.2	- 33.2	22.6	-	- 9.4	
Statistical differences	- 0.1	26.7	- 6.1	-	20.5	
<i>Memo: international marine bunkers</i>	-	66.7	-	-	66.7	113.2%
<i>Memo: international aviation bunkers</i>	-	39.6	-	-	39.6	78.9%

\*\* Other includes industrial waste and non-renewable municipal waste.

### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	352.2	150.4%	16.1	16.1
Main activity prod. elec. and heat - oil	273.8	237.5%	12.5	28.6
Manufacturing industries - gas	248.3	335.5%	11.3	39.9
Main activity prod. elec. and heat - gas	245.8	352.8%	11.2	51.1
Manufacturing industries - oil	134.0	82.1%	6.1	57.2
Other energy industry own use - gas	80.3	516.0%	3.7	60.9
Residential - gas	79.3	+	3.6	64.5
Unallocated autoproducers - gas	56.6	129.6%	2.6	67.1
Residential - oil	42.5	10.5%	1.9	69.0
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>1 647.1</i>	<i>199.5%</i>	<i>75.1</i>	<i>75.1</i>

\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

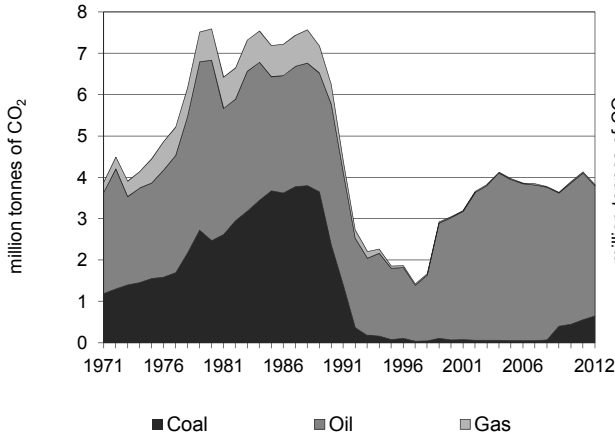




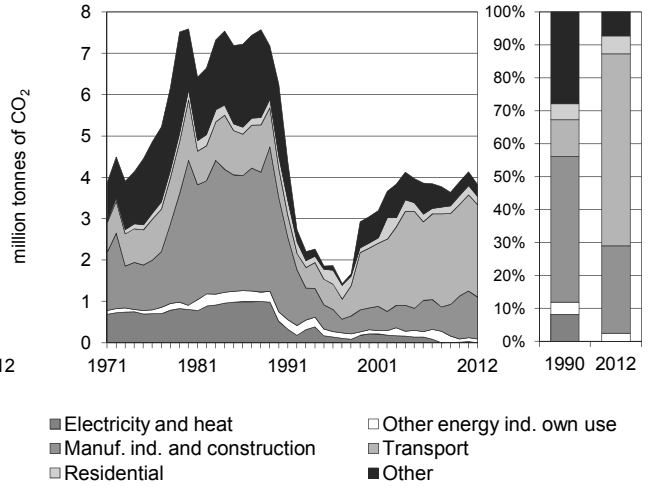
# COUNTRY TABLES

## Albania

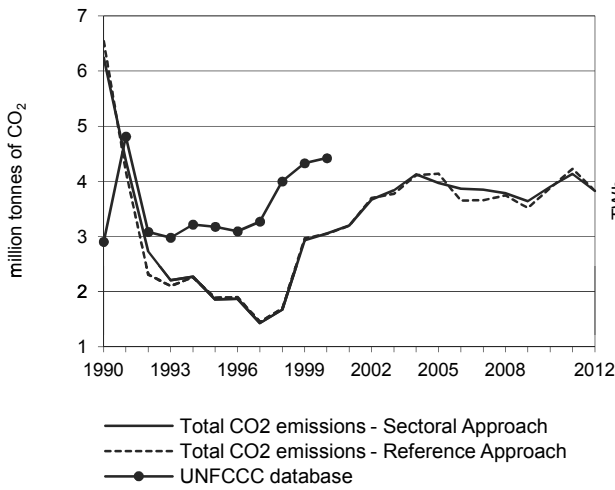
**Figure 1. CO<sub>2</sub> emissions by fuel**



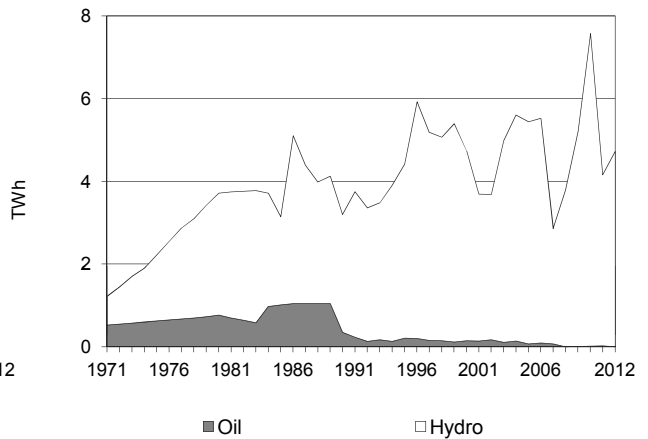
**Figure 2. CO<sub>2</sub> emissions by sector**



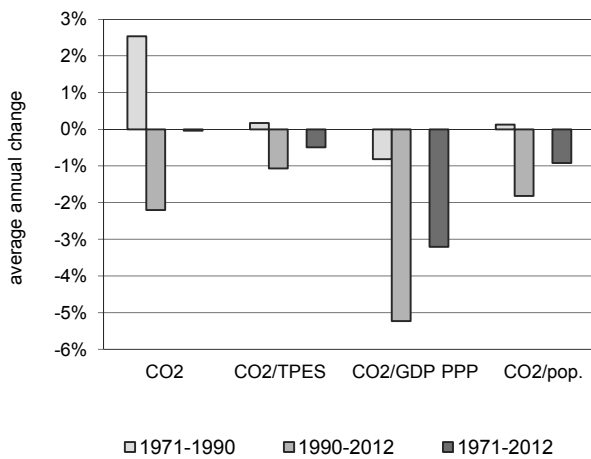
**Figure 3. Reference vs Sectoral Approach**



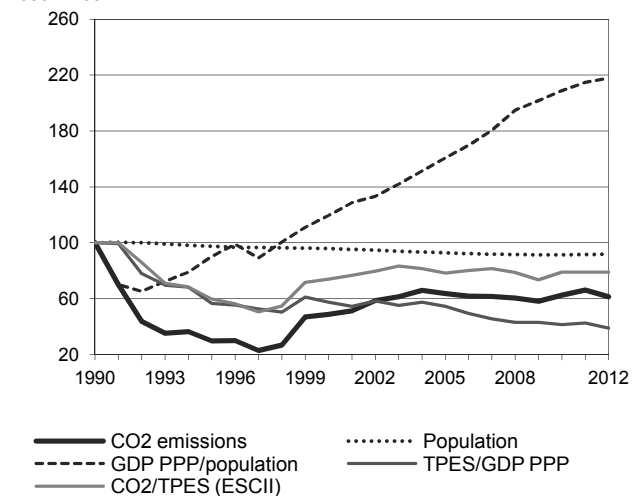
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Albania

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	6.25	1.86	3.05	3.97	3.90	4.13	3.83	-38.8%
TPES (PJ)	112	56	74	91	88	94	87	-22.4%
GDP (billion 2005 USD)	5.62	4.94	6.44	8.38	10.73	11.05	11.22	99.7%
GDP PPP (billion 2005 USD)	12.86	11.30	14.74	19.17	24.55	25.28	25.69	99.7%
Population (millions)	3.45	3.36	3.31	3.20	3.15	3.15	3.16	-8.3%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	55.8	33.4	41.3	43.8	44.1	44.1	44.1	-21.1%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	1.11	0.38	0.47	0.47	0.36	0.37	0.34	-69.3%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.49	0.16	0.21	0.21	0.16	0.16	0.15	-69.3%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	1.81	0.55	0.92	1.24	1.24	1.31	1.21	-33.2%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	30	49	64	62	66	61	-38.8%
Population index	100	97	96	93	91	92	92	-8.3%
GDP PPP per population index	100	90	120	161	209	215	218	117.7%
Energy intensity index - TPES / GDP PPP	100	57	58	54	41	43	39	-61.1%
Carbon intensity index - CO <sub>2</sub> / TPES	100	60	74	78	79	79	79	-21.1%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.65</b>	<b>3.14</b>	<b>0.03</b>	-	<b>3.83</b>	<b>-38.8%</b>
Main activity producer elec. and heat	-	-	-	-	-	-100.0%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.07	0.02	-	0.10	-57.7%
Manufacturing industries and construction	0.65	0.36	0.01	-	1.01	-63.3%
Transport	-	2.23	-	-	2.23	218.5%
<i>of which: road</i>	-	2.16	-	-	2.16	209.2%
Other	0.00	0.48	-	-	0.49	-76.1%
<i>of which: residential</i>	0.00	0.21	-	-	0.21	-31.3%
<b>Reference Approach</b>	<b>0.65</b>	<b>3.14</b>	<b>0.03</b>	-	<b>3.82</b>	<b>-41.6%</b>
Diff. due to losses and/or transformation	-	-0.01	-	-	-0.01	-
Statistical differences	-	0.00	-	-	0.00	-
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.06	-	-	0.06	x

\*\* Other includes industrial waste and non-renewable municipal waste.

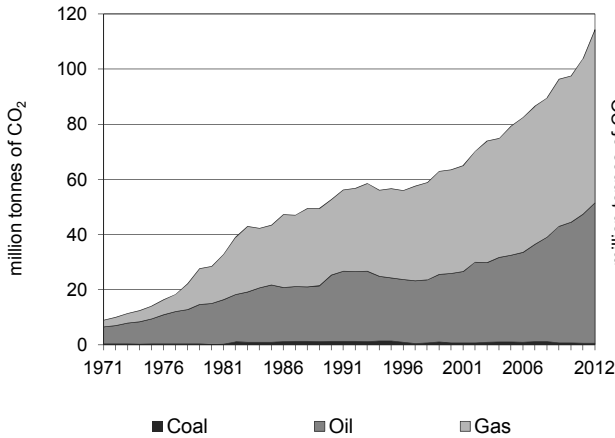
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	2.16	209.2%	26.4	26.4
Manufacturing industries - coal	0.65	-8.1%	7.9	34.4
Manufacturing industries - oil	0.36	-78.7%	4.3	38.7
Non-specified other - oil	0.28	x	3.4	42.1
Residential - oil	0.21	-26.4%	2.5	44.6
Other energy industry own use - oil	0.07	-67.7%	0.9	45.5
Other transport - oil	0.07	x	0.8	46.3
Other energy industry own use - gas	0.02	x	0.3	46.6
Manufacturing industries - gas	0.01	-98.0%	0.1	46.7
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<b>3.83</b>	<b>-38.8%</b>	<b>46.7</b>	<b>46.7</b>

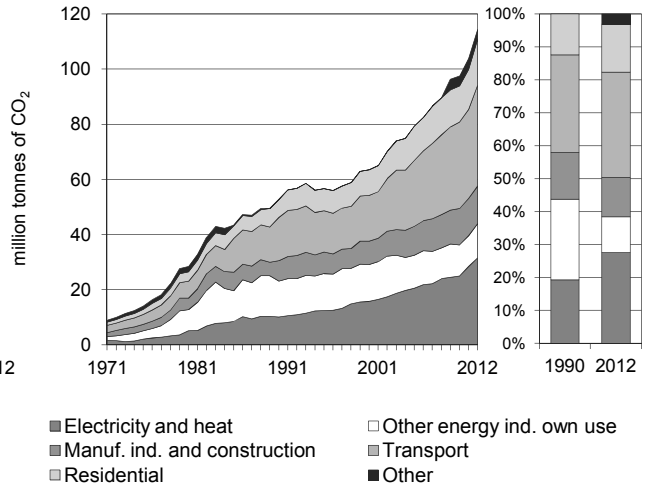
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Algeria

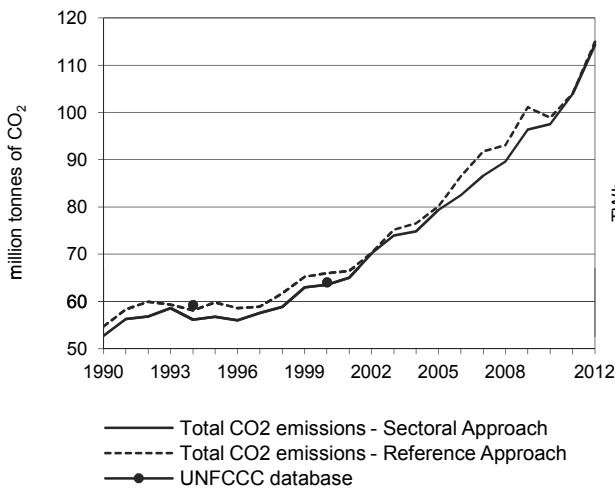
**Figure 1. CO<sub>2</sub> emissions by fuel**



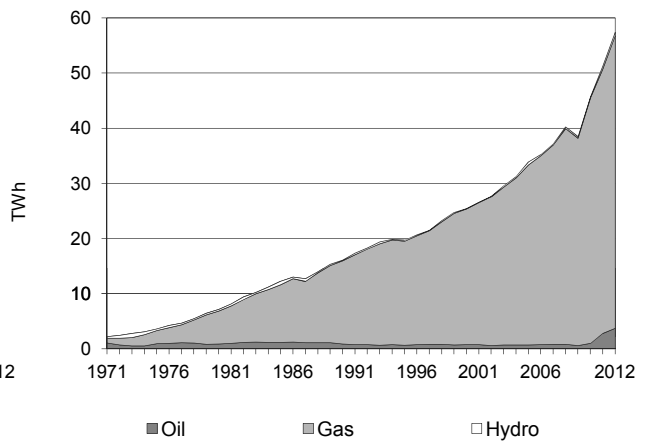
**Figure 2. CO<sub>2</sub> emissions by sector**



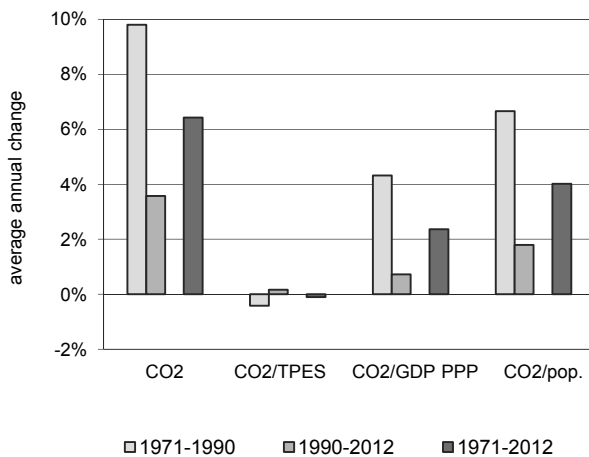
**Figure 3. Reference vs Sectoral Approach**



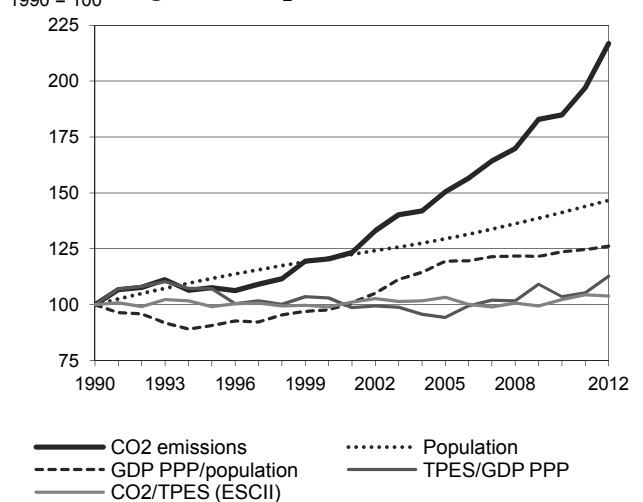
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Algeria

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	52.73	56.72	63.52	79.37	97.51	103.88	114.35	116.9%
TPES (PJ)	929	1 009	1 130	1 354	1 679	1 752	1 940	108.8%
GDP (billion 2005 USD)	66.77	67.63	78.90	103.20	116.63	119.66	123.61	85.1%
GDP PPP (billion 2005 USD)	236.77	239.82	279.78	365.96	413.58	424.33	438.34	85.1%
Population (millions)	26.24	29.32	31.72	33.96	37.06	37.76	38.48	46.7%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	56.8	56.2	56.2	58.6	58.1	59.3	59.0	3.9%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.79	0.84	0.81	0.77	0.84	0.87	0.93	17.1%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.22	0.24	0.23	0.22	0.24	0.24	0.26	17.2%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	2.01	1.93	2.00	2.34	2.63	2.75	2.97	47.9%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	108	120	151	185	197	217	116.9%
Population index	100	112	121	129	141	144	147	46.7%
GDP PPP per population index	100	91	98	119	124	125	126	26.2%
Energy intensity index - TPES / GDP PPP	100	107	103	94	104	105	113	12.8%
Carbon intensity index - CO <sub>2</sub> / TPES	100	99	99	103	102	104	104	3.9%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.58</b>	<b>50.90</b>	<b>62.86</b>	-	<b>114.35</b>	<b>116.9%</b>
Main activity producer elec. and heat	-	0.54	28.04	-	28.58	202.6%
Unallocated autoproducers	-	2.94	-	-	2.94	306.6%
Other energy industry own use	-	2.39	10.07	-	12.47	-3.6%
Manufacturing industries and construction	0.58	3.12	9.90	-	13.61	82.7%
Transport	-	35.14	1.42	-	36.56	133.6%
<i>of which: road</i>	-	35.07	-	-	35.07	134.4%
Other	-	6.76	13.42	-	20.19	208.8%
<i>of which: residential</i>	-	4.83	11.84	-	16.67	155.0%
<b>Reference Approach</b>	<b>1.30</b>	<b>49.53</b>	<b>64.11</b>	-	<b>114.93</b>	<b>110.0%</b>
Diff. due to losses and/or transformation	0.71	0.08	1.17	-	1.96	
Statistical differences	-	- 1.45	0.08	-	- 1.37	
<i>Memo: international marine bunkers</i>	-	0.82	-	-	0.82	-39.8%
<i>Memo: international aviation bunkers</i>	-	1.60	-	-	1.60	46.7%

\*\* Other includes industrial waste and non-renewable municipal waste.

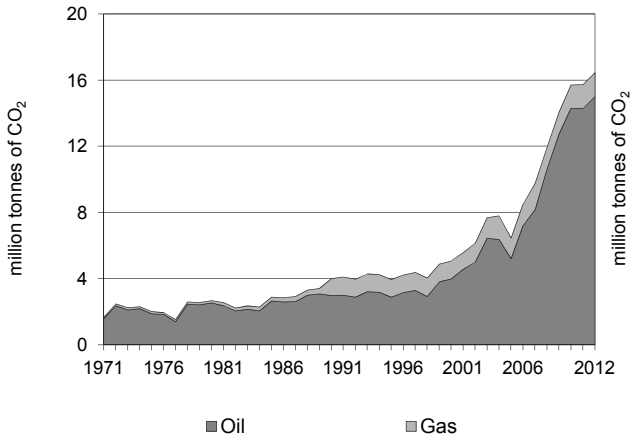
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	35.07	134.4%	18.8	18.8
Main activity prod. elec. and heat - gas	28.04	203.1%	15.1	33.9
Residential - gas	11.84	384.7%	6.4	40.2
Other energy industry own use - gas	10.07	-8.4%	5.4	45.7
Manufacturing industries - gas	9.90	144.8%	5.3	51.0
Residential - oil	4.83	18.0%	2.6	53.6
Manufacturing industries - oil	3.12	45.3%	1.7	55.2
Unallocated autoproducers - oil	2.94	306.6%	1.6	56.8
Other energy industry own use - oil	2.39	24.3%	1.3	58.1
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>114.35</i>	<i>116.9%</i>	<i>61.4</i>	<i>61.4</i>

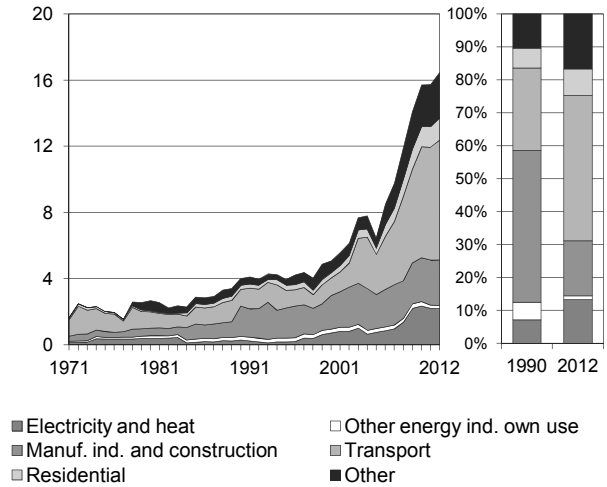
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Angola

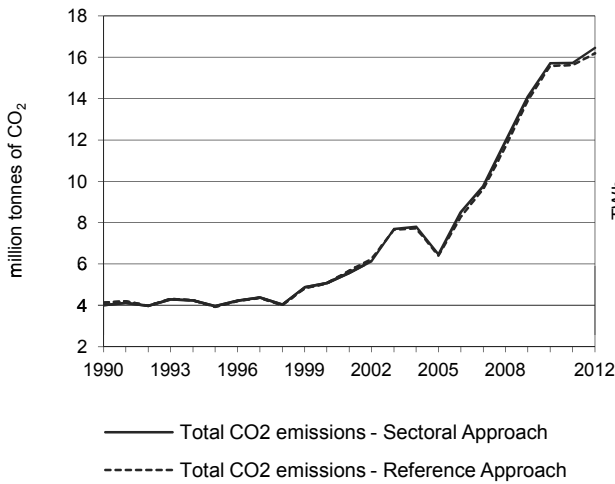
**Figure 1. CO<sub>2</sub> emissions by fuel**



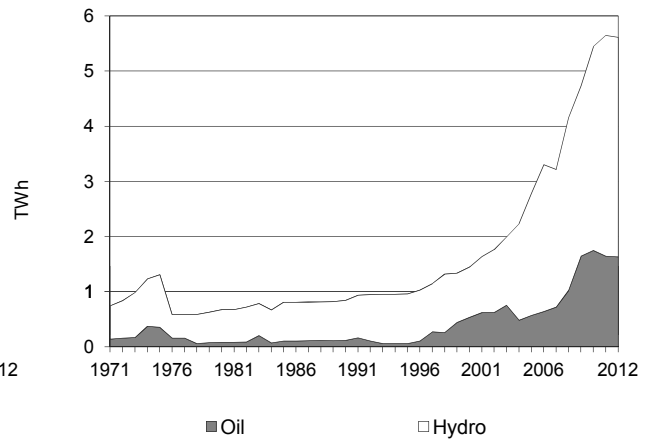
**Figure 2. CO<sub>2</sub> emissions by sector**



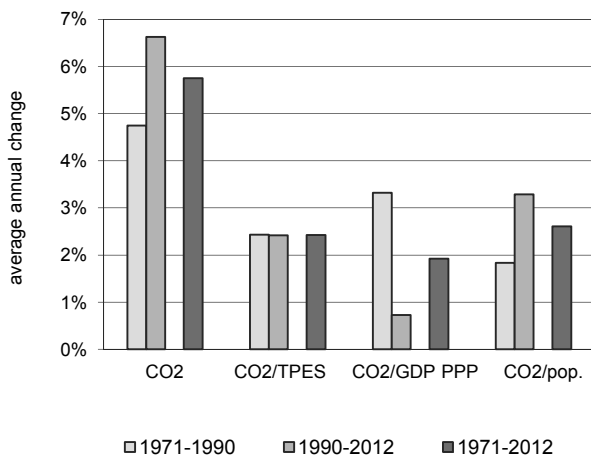
**Figure 3. Reference vs Sectoral Approach**



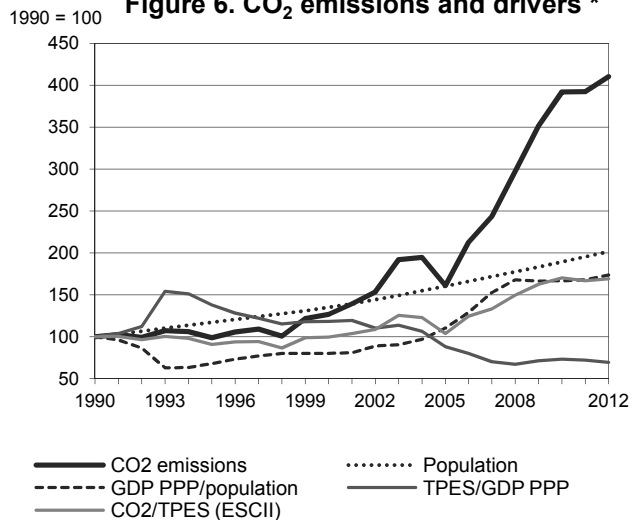
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Angola

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	4.01	3.96	5.08	6.46	15.71	15.73	16.46	310.3%
TPES (PJ)	246	268	314	382	568	579	598	142.8%
GDP (billion 2005 USD)	15.99	12.65	17.25	28.23	50.37	52.35	55.92	249.7%
GDP PPP (billion 2005 USD)	38.98	30.85	42.04	68.83	122.80	127.61	136.33	249.7%
Population (millions)	10.33	12.11	13.93	16.54	19.55	20.18	20.82	101.5%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	16.3	14.8	16.2	16.9	27.7	27.2	27.5	69.0%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.25	0.31	0.29	0.23	0.31	0.30	0.29	17.3%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.10	0.13	0.12	0.09	0.13	0.12	0.12	17.3%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.39	0.33	0.36	0.39	0.80	0.78	0.79	103.7%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	99	127	161	392	392	410	310.3%
Population index	100	117	135	160	189	195	201	101.5%
GDP PPP per population index	100	68	80	110	167	168	174	73.6%
Energy intensity index - TPES / GDP PPP	100	137	118	88	73	72	69	-30.6%
Carbon intensity index - CO <sub>2</sub> / TPES	100	91	99	104	170	167	169	69.0%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>15.01</b>	<b>1.45</b>	-	<b>16.46</b>	<b>310.3%</b>
Main activity producer elec. and heat	-	1.45	-	-	1.45	571.7%
Unallocated autoproducers	-	0.75	-	-	0.75	921.7%
Other energy industry own use	-	0.18	-	-	0.18	-13.4%
Manufacturing industries and construction	-	1.31	1.45	-	2.76	49.3%
Transport	-	7.25	-	-	7.25	620.2%
<i>of which: road</i>	-	6.45	-	-	6.45	541.4%
Other	-	4.08	-	-	4.08	521.0%
<i>of which: residential</i>	-	1.33	-	-	1.33	454.4%
<b>Reference Approach</b>	-	<b>14.74</b>	<b>1.45</b>	-	<b>16.19</b>	<b>292.5%</b>
Diff. due to losses and/or transformation	-	-0.27	-	-	-0.27	
Statistical differences	-	0.00	-	-	0.00	
<i>Memo: international marine bunkers</i>	-	0.54	-	-	0.54	+
<i>Memo: international aviation bunkers</i>	-	0.68	-	-	0.68	-34.4%

\*\* Other includes industrial waste and non-renewable municipal waste.

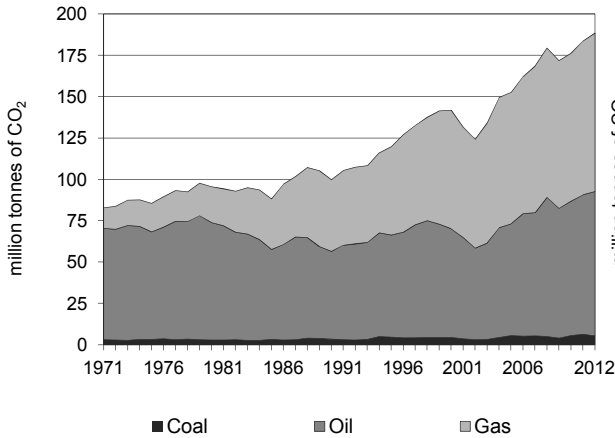
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	6.45	541.4%	12.6	12.6
Non-specified other - oil	2.75	559.2%	5.4	18.0
Manufacturing industries - gas	1.45	40.7%	2.8	20.8
Main activity prod. elec. and heat - oil	1.45	571.7%	2.8	23.6
Residential - oil	1.33	454.4%	2.6	26.2
Manufacturing industries - oil	1.31	60.0%	2.6	28.8
Other transport - oil	0.79	x	1.5	30.3
Unallocated autoproducers - oil	0.75	921.7%	1.5	31.8
Other energy industry own use - oil	0.18	-13.4%	0.4	32.2
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>16.46</i>	<i>310.3%</i>	<i>32.2</i>	<i>32.2</i>

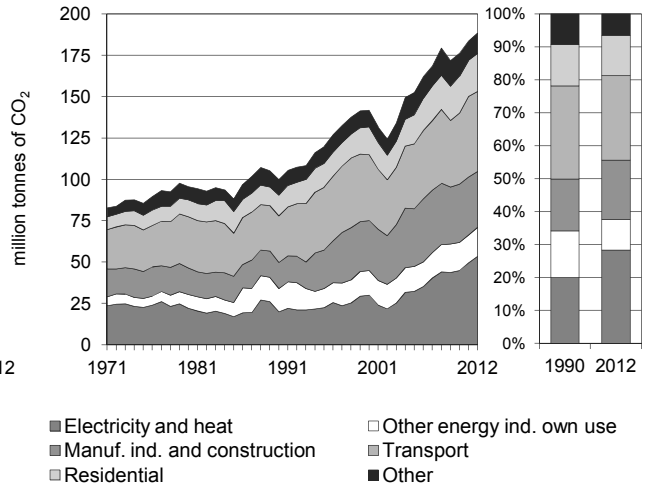
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Argentina

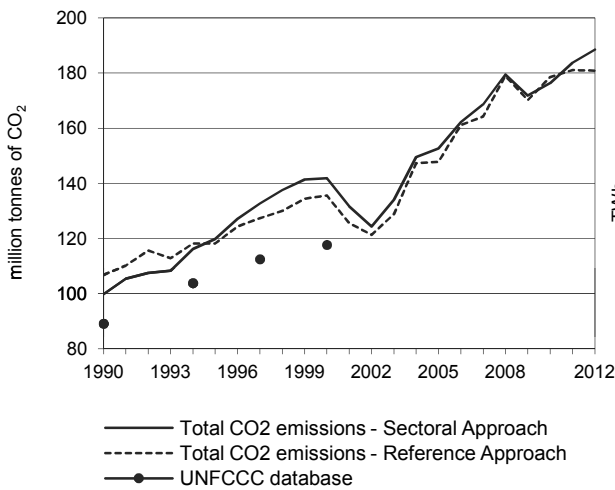
**Figure 1. CO<sub>2</sub> emissions by fuel**



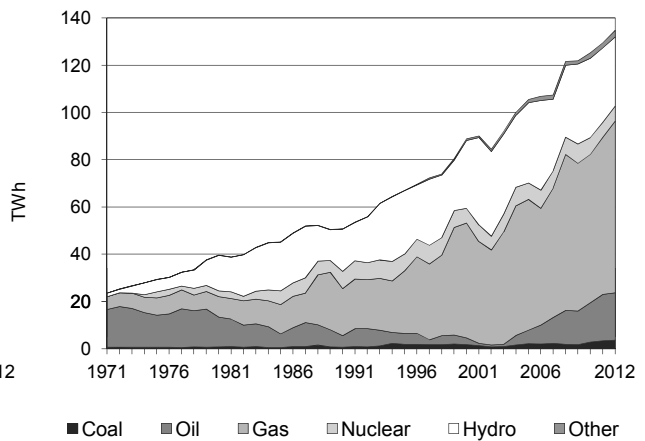
**Figure 2. CO<sub>2</sub> emissions by sector**



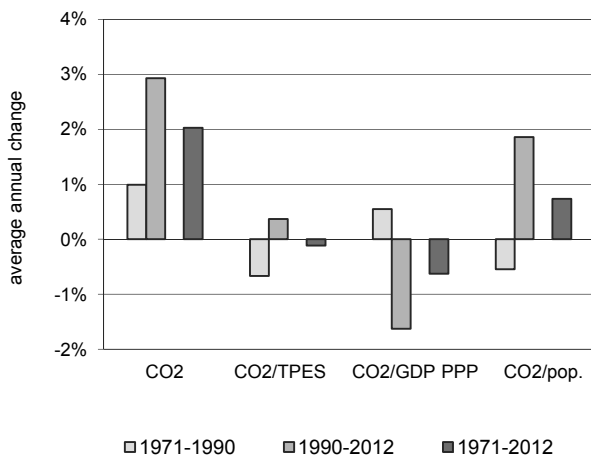
**Figure 3. Reference vs Sectoral Approach**



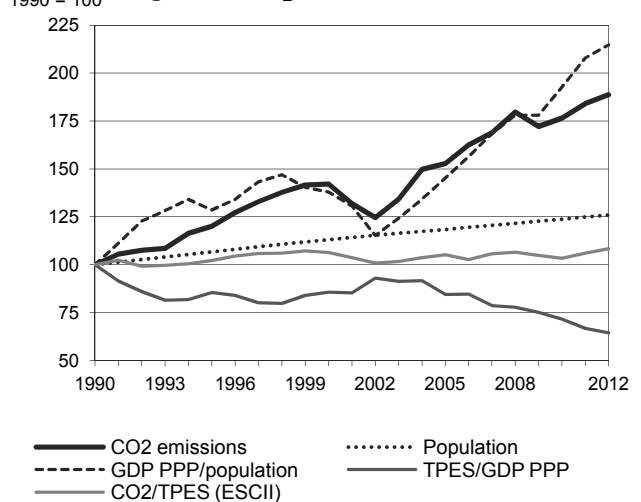
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Argentina

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	99.86	119.83	141.85	152.61	176.33	183.70	188.51	88.8%
TPES (PJ)	1 929	2 264	2 578	2 804	3 297	3 346	3 359	74.1%
GDP (billion 2005 USD)	106.43	146.18	166.01	183.19	253.74	276.25	287.91	170.5%
GDP PPP (billion 2005 USD)	243.46	334.38	379.74	419.05	580.43	631.91	658.58	170.5%
Population (millions)	32.63	34.83	36.90	38.65	40.37	40.73	41.09	25.9%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	51.8	52.9	55.0	54.4	53.5	54.9	56.1	8.4%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.94	0.82	0.85	0.83	0.69	0.67	0.65	-30.2%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.41	0.36	0.37	0.36	0.30	0.29	0.29	-30.2%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	3.06	3.44	3.84	3.95	4.37	4.51	4.59	49.9%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	120	142	153	177	184	189	88.8%
Population index	100	107	113	118	124	125	126	25.9%
GDP PPP per population index	100	129	138	145	193	208	215	114.8%
Energy intensity index - TPES / GDP PPP	100	85	86	84	72	67	64	-35.6%
Carbon intensity index - CO <sub>2</sub> / TPES	100	102	106	105	103	106	108	8.4%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>5.48</b>	<b>87.25</b>	<b>95.78</b>	-	<b>188.51</b>	<b>88.8%</b>
Main activity producer elec. and heat	2.69	14.06	27.76	-	44.51	190.6%
Unallocated autoproducers	1.59	0.62	6.81	-	9.02	92.1%
Other energy industry own use	-	4.13	13.39	-	17.51	24.4%
Manufacturing industries and construction	1.20	15.24	17.48	-	33.91	115.0%
Transport	-	40.28	8.04	-	48.32	71.6%
<i>of which: road</i>	-	37.83	5.46	-	43.29	65.9%
Other	-	12.92	22.30	-	35.23	61.2%
<i>of which: residential</i>	-	3.37	19.67	-	23.04	84.1%
<b>Reference Approach</b>	<b>4.37</b>	<b>80.41</b>	<b>96.02</b>	-	<b>180.80</b>	<b>69.3%</b>
Diff. due to losses and/or transformation	- 1.70	0.51	0.63	-	- 0.55	
Statistical differences	0.58	- 7.36	- 0.39	-	- 7.16	
<i>Memo: international marine bunkers</i>	-	5.41	-	-	5.41	143.5%
<i>Memo: international aviation bunkers</i>	-	2.12	-	-	2.12	x

\*\* Other includes industrial waste and non-renewable municipal waste.

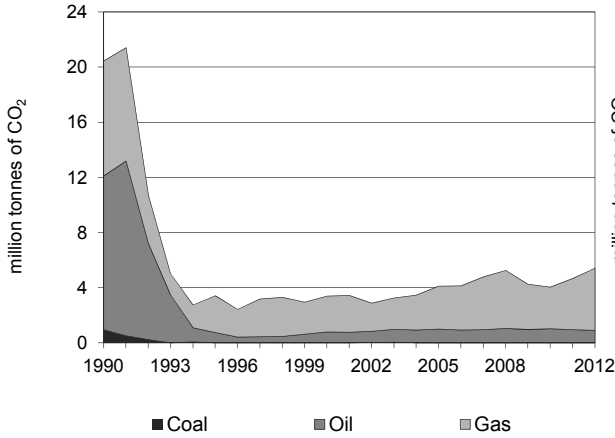
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	37.83	47.4%	11.6	11.6
Main activity prod. elec. and heat - gas	27.76	166.7%	8.5	20.2
Residential - gas	19.67	133.4%	6.1	26.2
Manufacturing industries - gas	17.48	75.8%	5.4	31.6
Manufacturing industries - oil	15.24	212.7%	4.7	36.3
Main activity prod. elec. and heat - oil	14.06	208.9%	4.3	40.6
Other energy industry own use - gas	13.39	50.6%	4.1	44.8
Non-specified other - oil	9.55	62.5%	2.9	47.7
Unallocated autoproducers - gas	6.81	277.9%	2.1	49.8
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>188.51</i>	<i>88.8%</i>	<i>58.0</i>	<i>58.0</i>

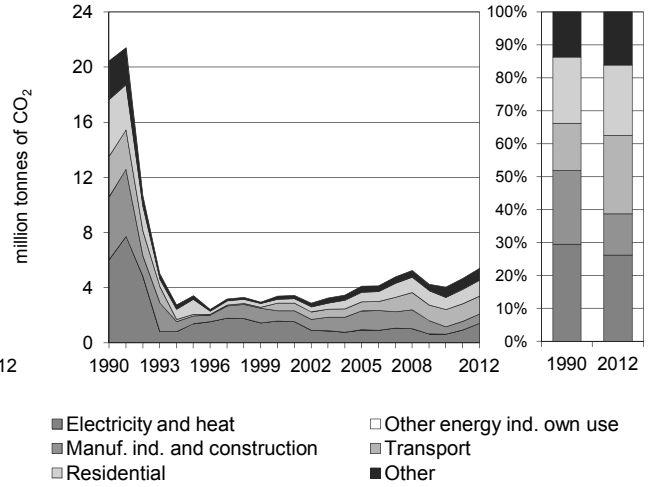
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Armenia

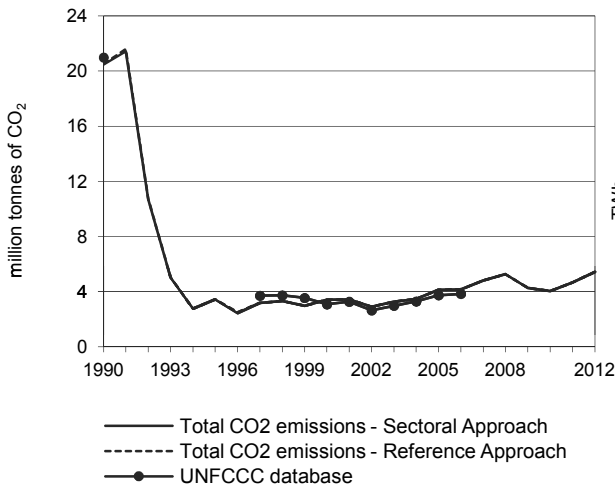
**Figure 1. CO<sub>2</sub> emissions by fuel**



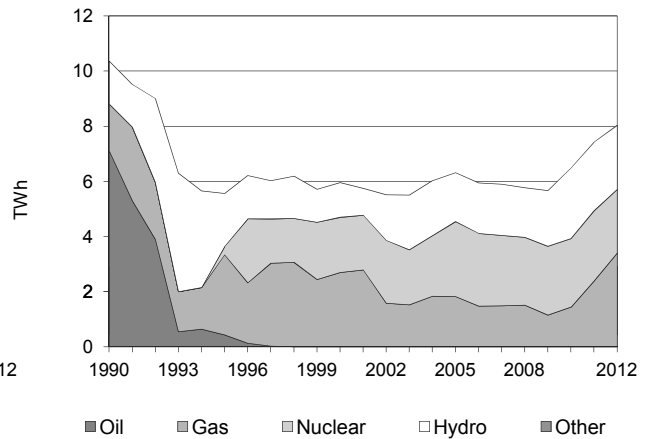
**Figure 2. CO<sub>2</sub> emissions by sector**



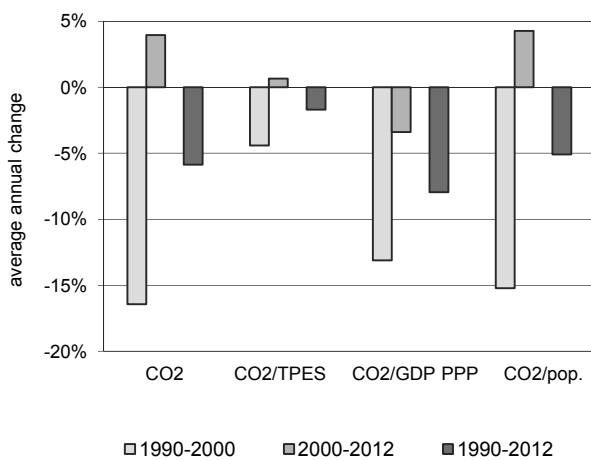
**Figure 3. Reference vs Sectoral Approach**



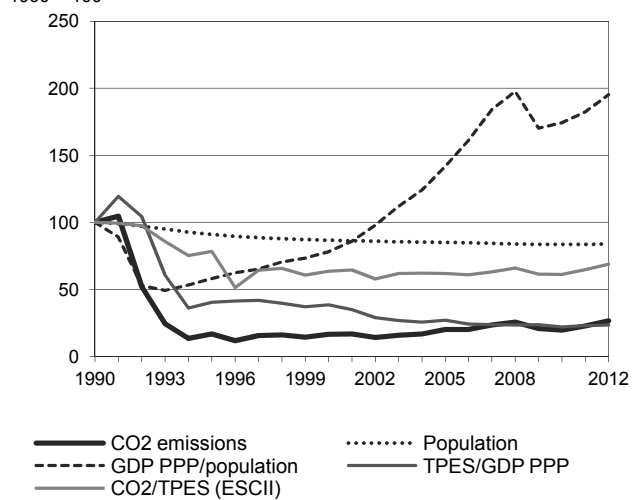
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Armenia

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	20.46	3.42	3.40	4.12	4.04	4.66	5.42	-73.5%
TPES (PJ)	323	69	84	105	104	114	124	-61.5%
GDP (billion 2005 USD)	4.06	2.15	2.76	4.90	5.92	6.20	6.64	63.5%
GDP PPP (billion 2005 USD)	11.80	6.23	8.00	14.24	17.19	18.00	19.30	63.5%
Population (millions)	3.55	3.22	3.08	3.02	2.96	2.96	2.97	-16.2%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	63.4	49.6	40.4	39.2	38.9	41.0	43.6	-31.2%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	5.04	1.59	1.24	0.84	0.68	0.75	0.82	-83.8%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	1.73	0.55	0.43	0.29	0.24	0.26	0.28	-83.8%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	5.77	1.06	1.11	1.37	1.36	1.57	1.83	-68.4%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	17	17	20	20	23	27	-73.5%
Population index	100	91	87	85	84	84	84	-16.2%
GDP PPP per population index	100	58	78	142	174	182	195	95.2%
Energy intensity index - TPES / GDP PPP	100	40	39	27	22	23	24	-76.4%
Carbon intensity index - CO <sub>2</sub> / TPES	100	78	64	62	61	65	69	-31.2%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.00</b>	<b>0.91</b>	<b>4.50</b>	-	<b>5.42</b>	<b>-73.5%</b>
Main activity producer elec. and heat	-	-	1.42	-	1.42	-76.4%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.02	0.66	-	0.68	-85.2%
Transport	-	0.41	0.88	-	1.29	-55.9%
<i>of which: road</i>	-	0.41	0.88	-	1.29	-55.9%
Other	0.00	0.49	1.54	-	2.03	-70.6%
<i>of which: residential</i>	0.00	-	1.15	-	1.16	-71.9%
<b>Reference Approach</b>	<b>0.00</b>	<b>0.91</b>	<b>4.50</b>	-	<b>5.42</b>	<b>-73.6%</b>
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.14	-	-	0.14	-75.8%

\*\* Other includes industrial waste and non-renewable municipal waste.

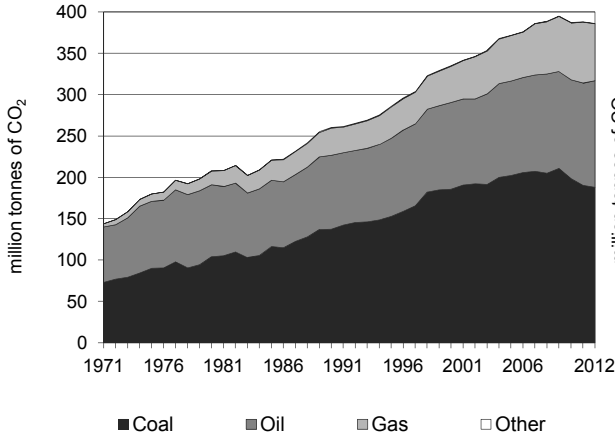
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - gas	1.42	-25.8%	13.0	13.0
Residential - gas	1.15	-56.4%	10.5	23.5
Road - gas	0.88	x	8.0	31.5
Manufacturing industries - gas	0.66	-70.8%	6.0	37.6
Non-specified other - oil	0.49	-62.0%	4.5	42.0
Road - oil	0.41	-86.0%	3.7	45.8
Non-specified other - gas	0.39	-74.5%	3.5	49.3
Manufacturing industries - oil	0.02	-99.3%	0.1	49.4
Residential - coal	0.00	-99.5%	0.0	49.5
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>5.42</i>	<i>-73.5%</i>	<i>49.5</i>	<i>49.5</i>

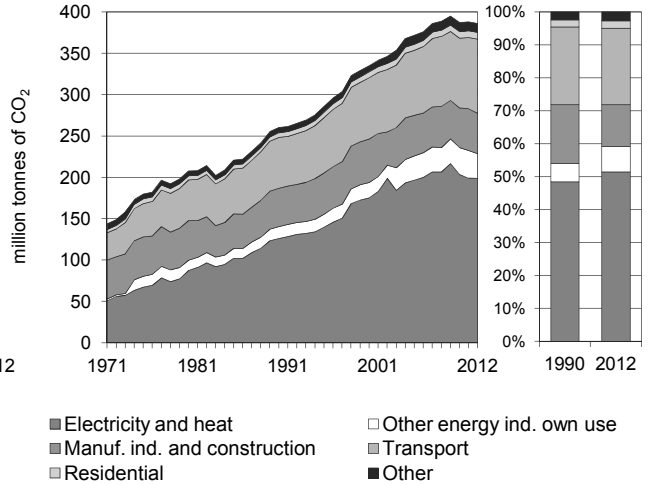
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Australia

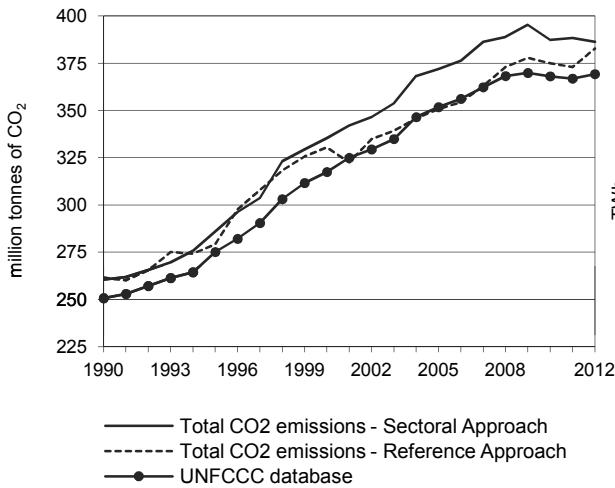
**Figure 1. CO<sub>2</sub> emissions by fuel**



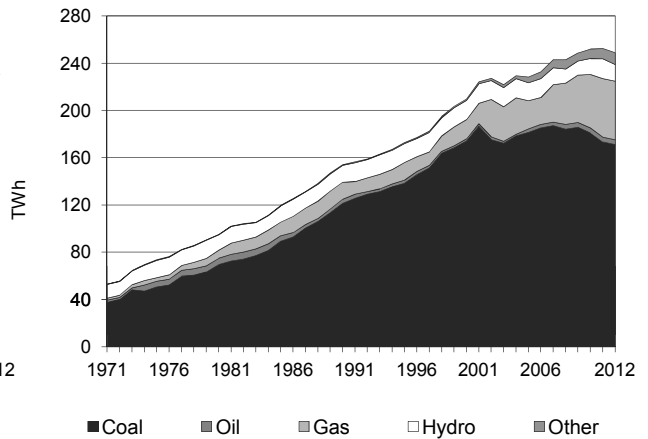
**Figure 2. CO<sub>2</sub> emissions by sector**



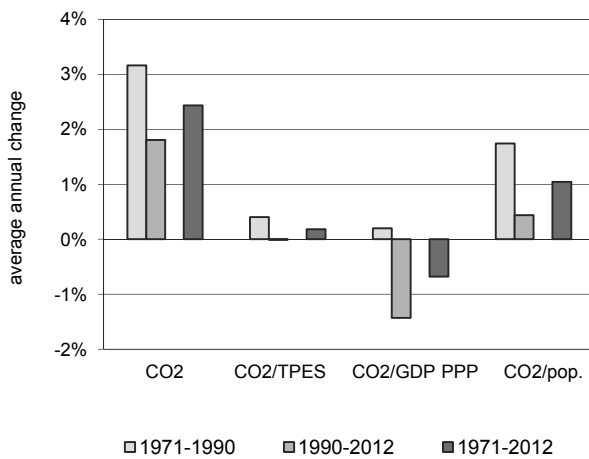
**Figure 3. Reference vs Sectoral Approach**



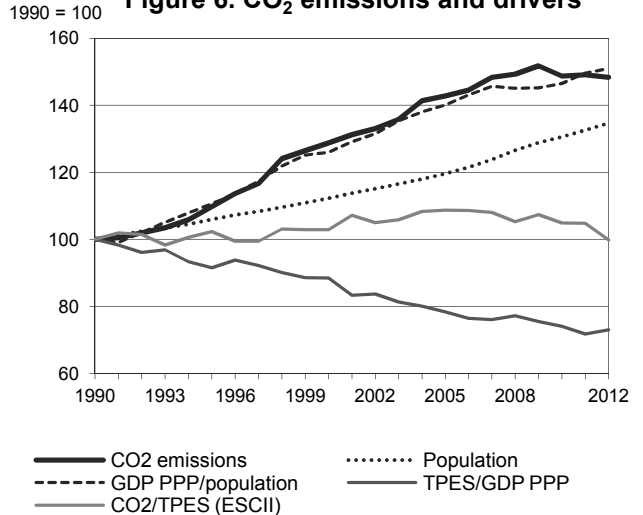
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Australia

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	260.46	285.96	335.35	371.92	387.30	388.32	386.27	48.3%
TPES (PJ)	3 616	3 881	4 526	4 751	5 128	5 145	5 371	48.5%
GDP (billion 2005 USD)	454.76	532.93	643.13	762.38	870.10	901.56	924.97	103.4%
GDP PPP (billion 2005 USD)	428.92	502.65	606.59	719.06	820.66	850.33	872.42	103.4%
Population (millions)	17.17	18.19	19.27	20.54	22.43	22.76	23.13	34.7%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	72.0	73.7	74.1	78.3	75.5	75.5	71.9	-0.1%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.57	0.54	0.52	0.49	0.45	0.43	0.42	-27.1%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.61	0.57	0.55	0.52	0.47	0.46	0.44	-27.1%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	15.17	15.72	17.40	18.11	17.27	17.06	16.70	10.1%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	110	129	143	149	149	148	48.3%
Population index	100	106	112	120	131	133	135	34.7%
GDP PPP per population index	100	111	126	140	146	150	151	51.0%
Energy intensity index - TPES / GDP PPP	100	92	88	78	74	72	73	-27.0%
Carbon intensity index - CO <sub>2</sub> / TPES	100	102	103	109	105	105	100	-0.1%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>188.17</b>	<b>128.82</b>	<b>68.84</b>	<b>0.44</b>	<b>386.27</b>	<b>48.3%</b>
Main activity producer elec. and heat	169.49	0.73	19.82	-	190.03	56.9%
Unallocated autoproducers	0.68	2.04	6.08	-	8.80	69.5%
Other energy industry own use	3.70	11.80	14.52	-	30.02	108.7%
Manufacturing industries and construction	13.61	17.38	17.28	0.44	48.71	4.9%
Transport	0.58	88.00	1.11	-	89.69	46.1%
<i>of which: road</i>	-	75.47	0.13	-	75.61	38.7%
Other	0.10	8.88	10.03	-	19.02	58.8%
<i>of which: residential</i>	0.01	0.78	7.57	-	8.36	48.6%
<b>Reference Approach</b>	<b>186.99</b>	<b>126.31</b>	<b>69.08</b>	<b>0.44</b>	<b>382.82</b>	<b>46.4%</b>
Diff. due to losses and/or transformation	0.96	- 5.25	0.71	-	- 3.58	
Statistical differences	- 2.14	2.74	- 0.47	-	0.13	
<i>Memo: international marine bunkers</i>	-	2.74	-	-	2.74	28.4%
<i>Memo: international aviation bunkers</i>	-	9.43	-	-	9.43	119.7%

\*\* Other includes industrial waste and non-renewable municipal waste.

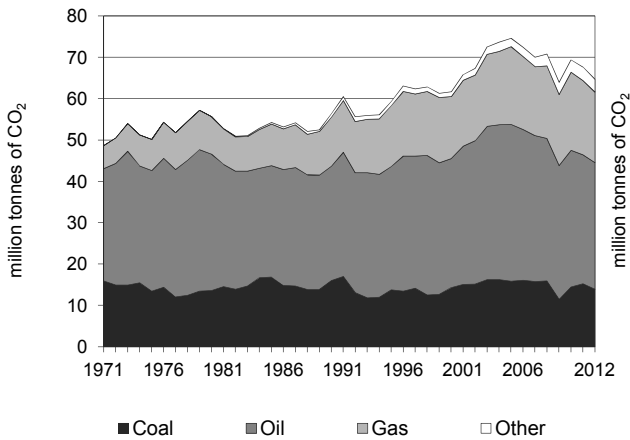
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	169.49	50.5%	30.2	30.2
Road - oil	75.47	38.5%	13.5	43.7
Main activity prod. elec. and heat - gas	19.82	180.2%	3.5	47.2
Manufacturing industries - oil	17.38	34.9%	3.1	50.3
Manufacturing industries - gas	17.28	25.7%	3.1	53.4
Other energy industry own use - gas	14.52	201.2%	2.6	56.0
Manufacturing industries - coal	13.61	-28.2%	2.4	58.4
Other transport - oil	12.52	90.3%	2.2	60.7
Other energy industry own use - oil	11.80	63.8%	2.1	62.8
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>386.27</i>	<i>48.3%</i>	<i>68.9</i>	<i>68.9</i>

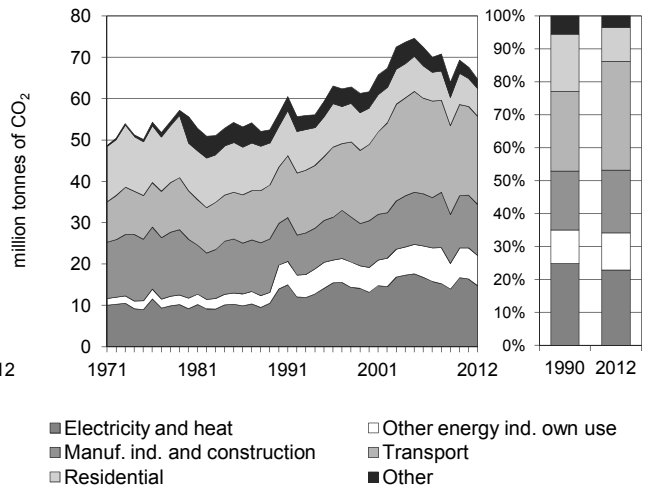
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Austria

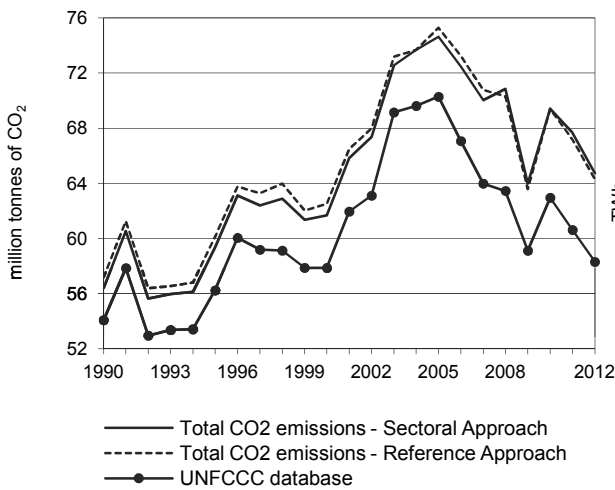
**Figure 1. CO<sub>2</sub> emissions by fuel**



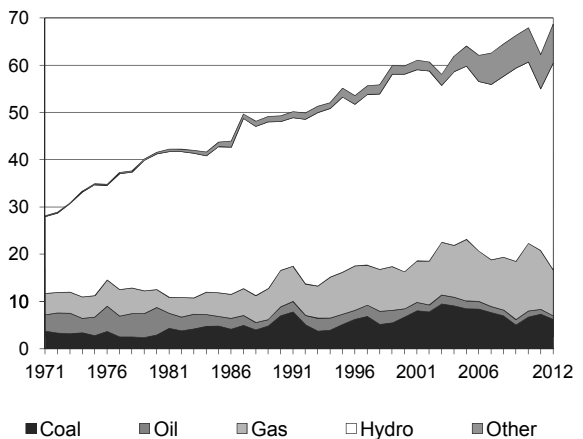
**Figure 2. CO<sub>2</sub> emissions by sector**



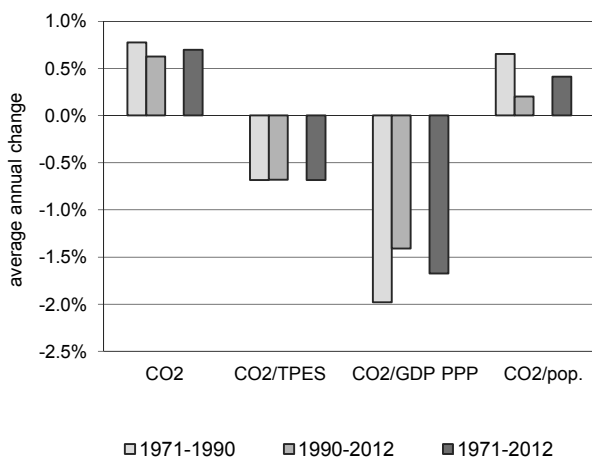
**Figure 3. Reference vs Sectoral Approach**



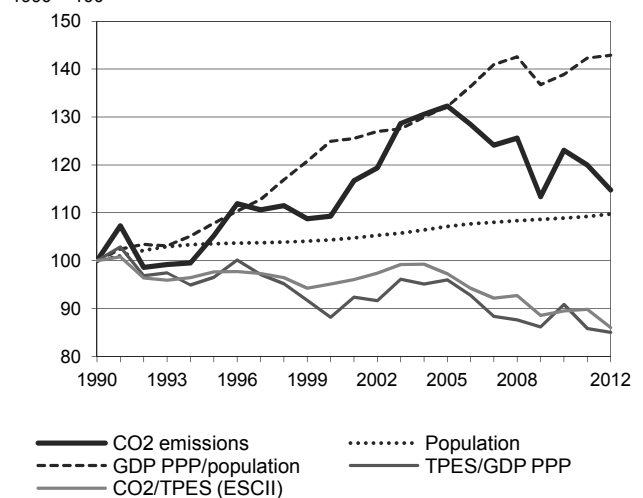
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Austria

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	56.41	59.35	61.66	74.63	69.40	67.68	64.73	14.8%
TPES (PJ)	1 040	1 120	1 195	1 414	1 429	1 388	1 386	33.3%
GDP (billion 2005 USD)	215.29	240.29	280.62	304.98	325.55	334.78	337.69	56.9%
GDP PPP (billion 2005 USD)	195.31	217.99	254.57	276.67	295.33	303.70	306.34	56.9%
Population (millions)	7.68	7.95	8.01	8.23	8.36	8.39	8.43	9.7%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	54.3	53.0	51.6	52.8	48.6	48.8	46.7	-13.9%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.26	0.25	0.22	0.24	0.21	0.20	0.19	-26.8%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.29	0.27	0.24	0.27	0.24	0.22	0.21	-26.8%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	7.35	7.47	7.70	9.07	8.30	8.07	7.68	4.6%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	105	109	132	123	120	115	14.8%
Population index	100	104	104	107	109	109	110	9.7%
GDP PPP per population index	100	108	125	132	139	142	143	42.9%
Energy intensity index - TPES / GDP PPP	100	97	88	96	91	86	85	-15.0%
Carbon intensity index - CO <sub>2</sub> / TPES	100	98	95	97	90	90	86	-13.9%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>13.91</b>	<b>30.65</b>	<b>17.07</b>	<b>3.10</b>	<b>64.73</b>	<b>14.8%</b>
Main activity producer elec. and heat	3.46	0.21	4.07	0.92	8.66	-17.1%
Unallocated autoproducers	3.56	0.64	1.06	0.89	6.15	73.6%
Other energy industry own use	4.92	1.50	0.85	-	7.28	25.7%
Manufacturing industries and construction	1.78	2.76	6.55	1.29	12.38	22.8%
Transport	-	20.91	0.41	-	21.32	56.7%
<i>of which: road</i>	-	20.60	0.02	-	20.61	58.4%
Other	0.18	4.63	4.12	0.00	8.94	-30.9%
<i>of which: residential</i>	0.16	3.67	2.87	-	6.70	-31.9%
<b>Reference Approach</b>	<b>13.08</b>	<b>31.04</b>	<b>17.08</b>	<b>3.10</b>	<b>64.29</b>	<b>12.4%</b>
Diff. due to losses and/or transformation	-0.84	0.39	-	-	-0.45	
Statistical differences	0.00	0.00	0.01	-	0.01	
<i>Memo: international marine bunkers</i>	-	0.05	-	-	0.05	33.3%
<i>Memo: international aviation bunkers</i>	-	2.01	-	-	2.01	134.5%

\*\* Other includes industrial waste and non-renewable municipal waste.

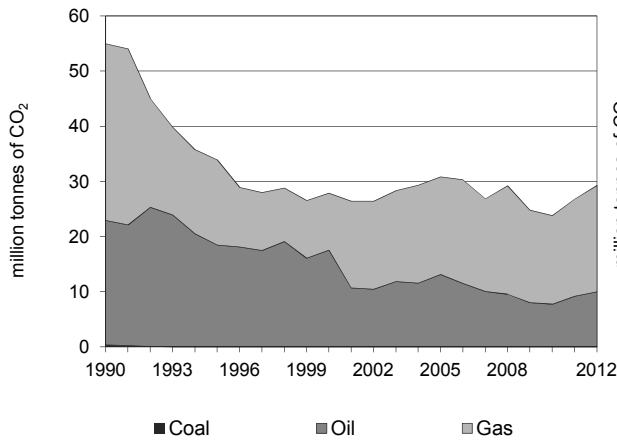
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	20.60	58.3%	23.8	23.8
Manufacturing industries - gas	6.55	50.1%	7.6	31.4
Other energy industry - coal	4.92	63.2%	5.7	37.1
Main activity prod. elec. and heat - gas	4.07	23.9%	4.7	41.8
Residential - oil	3.67	-30.6%	4.2	46.0
Unallocated autoproducers - coal	3.56	142.8%	4.1	50.2
Main activity prod. elec. and heat - coal	3.46	-40.7%	4.0	54.2
Residential - gas	2.87	60.8%	3.3	57.5
Manufacturing industries - oil	2.76	6.5%	3.2	60.7
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>64.73</i>	<i>14.8%</i>	<i>74.8</i>	<i>74.8</i>

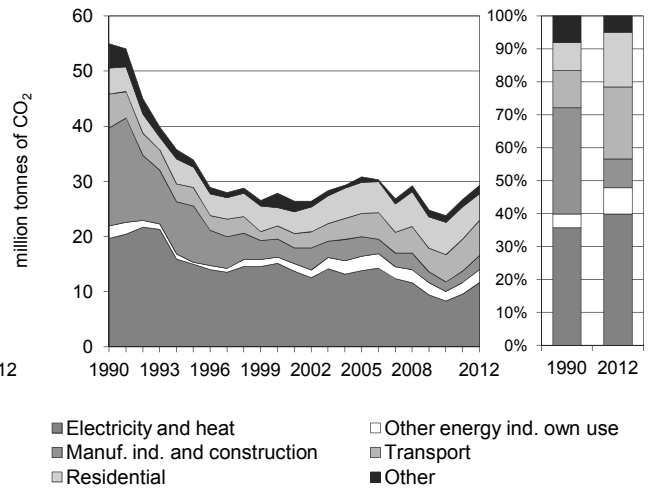
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Azerbaijan

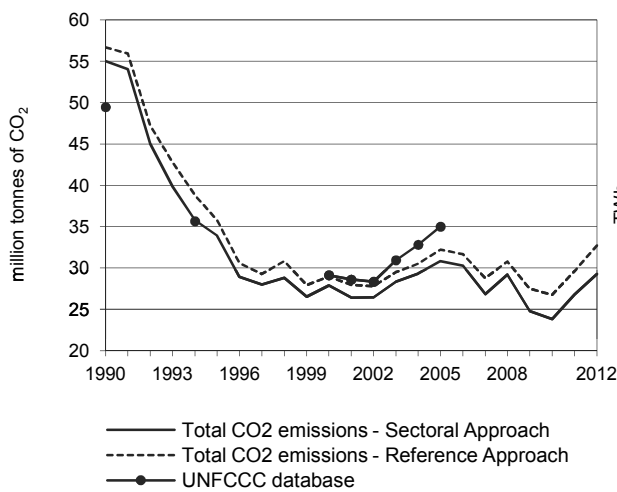
**Figure 1. CO<sub>2</sub> emissions by fuel**



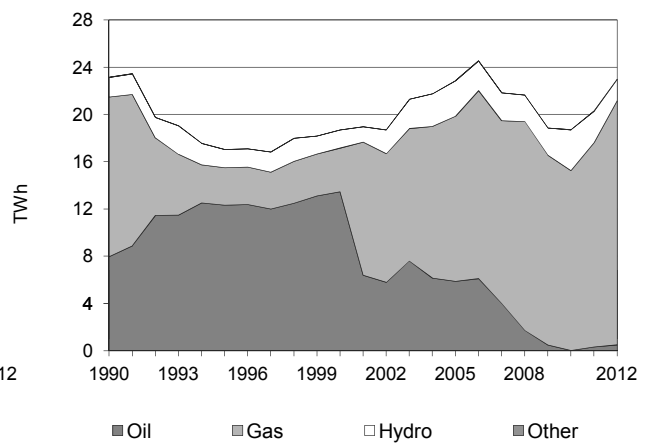
**Figure 2. CO<sub>2</sub> emissions by sector**



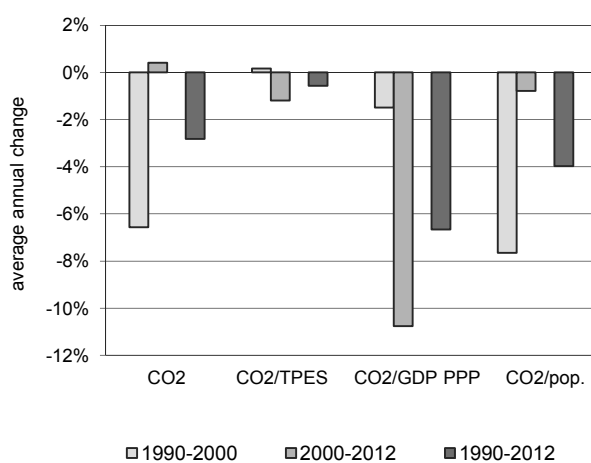
**Figure 3. Reference vs Sectoral Approach**



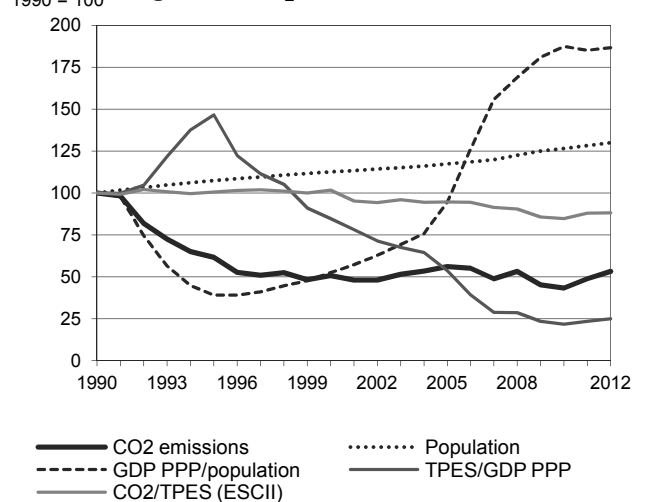
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Azerbaijan

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	55.01	33.90	27.88	30.81	23.82	26.79	29.27	-46.8%
TPES (PJ)	949	582	473	562	485	526	573	-39.6%
GDP (billion 2005 USD)	11.95	5.00	7.04	13.25	28.31	28.33	28.95	142.3%
GDP PPP (billion 2005 USD)	54.33	22.74	31.99	60.23	128.74	128.82	131.65	142.3%
Population (millions)	7.16	7.69	8.05	8.39	9.05	9.17	9.30	29.9%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	58.0	58.2	59.0	54.8	49.1	50.9	51.1	-11.9%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	4.60	6.78	3.96	2.33	0.84	0.95	1.01	-78.0%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	1.01	1.49	0.87	0.51	0.19	0.21	0.22	-78.0%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	7.68	4.41	3.46	3.67	2.63	2.92	3.15	-59.0%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	62	51	56	43	49	53	-46.8%
Population index	100	107	112	117	126	128	130	29.9%
GDP PPP per population index	100	39	52	95	187	185	187	86.6%
Energy intensity index - TPES / GDP PPP	100	147	85	53	22	23	25	-75.1%
Carbon intensity index - CO <sub>2</sub> / TPES	100	100	102	95	85	88	88	-11.9%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>9.98</b>	<b>19.30</b>	-	<b>29.27</b>	<b>-46.8%</b>
Main activity producer elec. and heat	-	0.31	10.30	-	10.61	-46.1%
Unallocated autoproducers	-	0.01	1.07	-	1.09	x
Other energy industry own use	-	1.46	0.87	-	2.33	3.3%
Manufacturing industries and construction	-	0.58	1.98	-	2.56	-85.6%
Transport	-	6.40	-	-	6.40	3.5%
<i>of which: road</i>	-	5.88	-	-	5.88	13.2%
Other	-	1.22	5.08	-	6.30	-31.1%
<i>of which: residential</i>	-	0.15	4.69	-	4.84	3.2%
<b>Reference Approach</b>	-	<b>11.59</b>	<b>21.11</b>	-	<b>32.70</b>	<b>-42.3%</b>
Diff. due to losses and/or transformation	-	0.45	1.75	-	2.19	
Statistical differences	-	1.16	0.07	-	1.23	
<i>Memo: international marine bunkers</i>	-	0.27	-	-	0.27	..
<i>Memo: international aviation bunkers</i>	-	1.13	-	-	1.13	9.1%

\*\* Other includes industrial waste and non-renewable municipal waste.

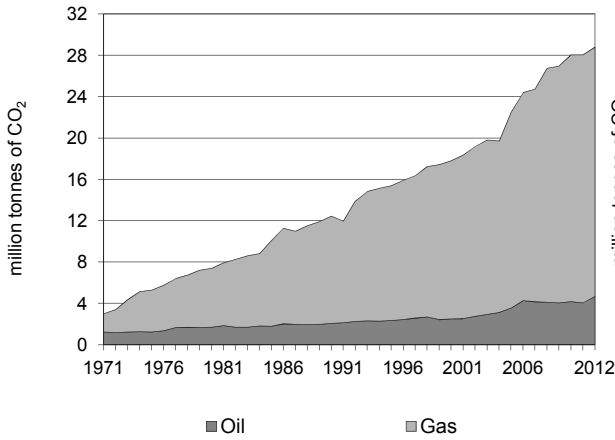
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - gas	10.30	-0.6%	19.4	19.4
Road - oil	5.88	15.9%	11.1	30.5
Residential - gas	4.69	2.4%	8.8	39.3
Manufacturing industries - gas	1.98	-86.5%	3.7	43.1
Other energy industry own use - oil	1.46	-35.1%	2.8	45.8
Unallocated autoproducers - gas	1.07	x	2.0	47.9
Non-specified other - oil	1.07	-47.4%	2.0	49.9
Other energy industry own use - gas	0.87	x	1.6	51.5
Manufacturing industries - oil	0.58	-81.4%	1.1	52.6
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	29.27	-46.8%	55.2	55.2

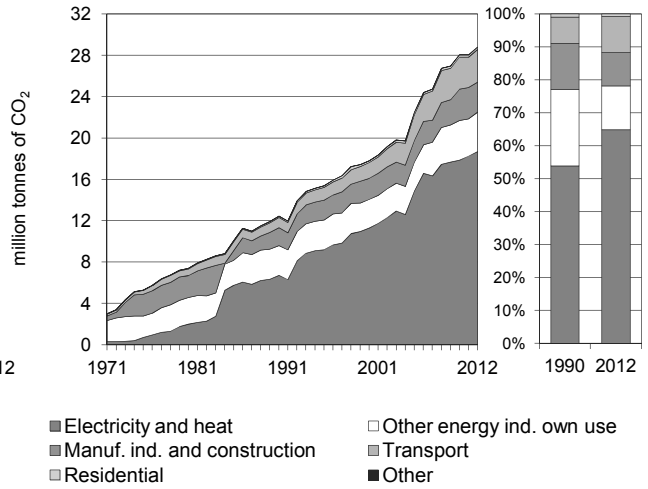
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Bahrain

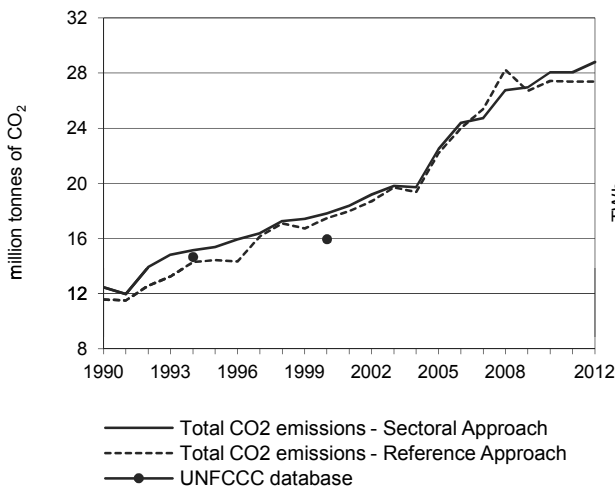
**Figure 1. CO<sub>2</sub> emissions by fuel**



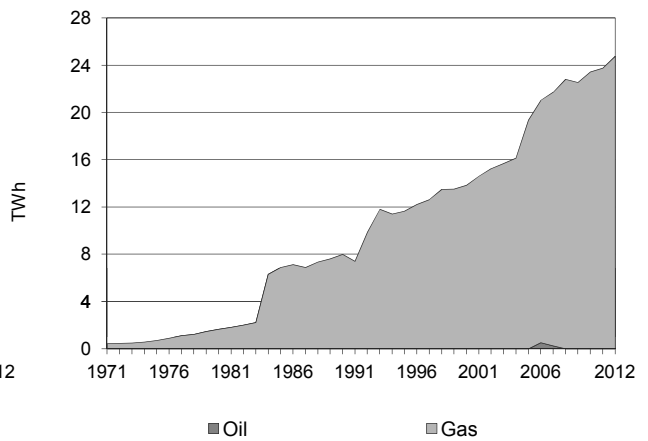
**Figure 2. CO<sub>2</sub> emissions by sector**



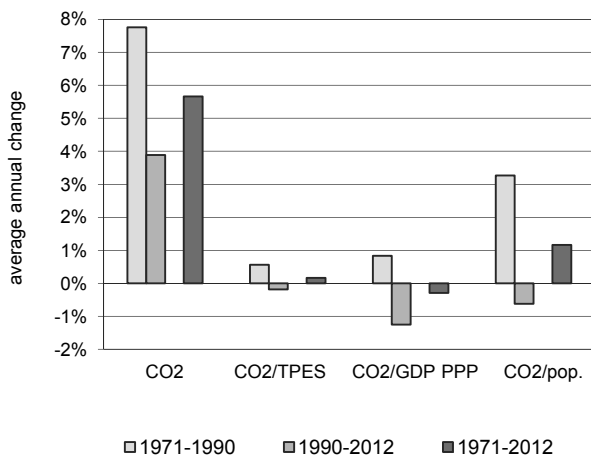
**Figure 3. Reference vs Sectoral Approach**



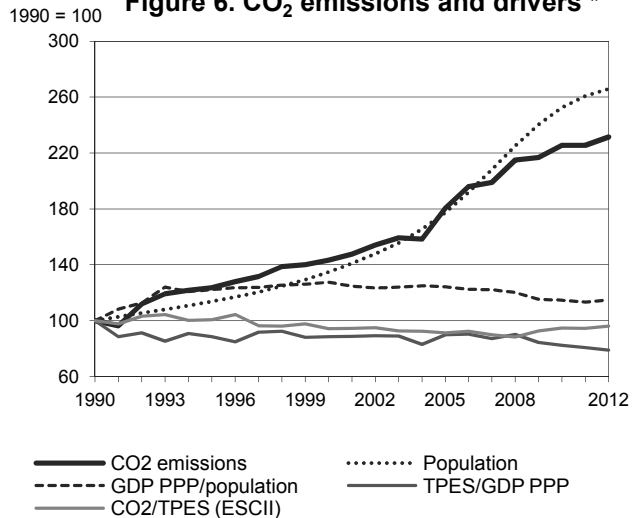
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Bahrain

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	12.44	15.39	17.81	22.49	28.06	28.06	28.81	131.5%
TPES (PJ)	219	269	333	434	521	522	528	140.9%
GDP (billion 2005 USD)	7.24	10.05	12.42	15.97	20.93	21.37	22.09	205.2%
GDP PPP (billion 2005 USD)	15.65	21.73	26.84	34.52	45.24	46.19	47.76	205.2%
Population (millions)	0.50	0.56	0.67	0.88	1.25	1.29	1.32	165.7%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	56.8	57.2	53.6	51.8	53.8	53.7	54.6	-3.9%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	1.72	1.53	1.43	1.41	1.34	1.31	1.30	-24.1%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.80	0.71	0.66	0.65	0.62	0.61	0.60	-24.1%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	25.09	27.28	26.67	25.55	22.41	21.70	21.86	-12.9%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	124	143	181	225	225	232	131.5%
Population index	100	114	135	177	252	261	266	165.7%
GDP PPP per population index	100	122	127	124	115	113	115	14.9%
Energy intensity index - TPES / GDP PPP	100	88	89	90	82	81	79	-21.1%
Carbon intensity index - CO <sub>2</sub> / TPES	100	101	94	91	95	95	96	-3.9%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>4.67</b>	<b>24.14</b>	-	<b>28.81</b>	<b>131.5%</b>
Main activity producer elec. and heat	-	-	11.66	-	11.66	215.6%
Unallocated autoproducers	-	-	7.04	-	7.04	133.3%
Other energy industry own use	-	0.85	2.97	-	3.82	32.3%
Manufacturing industries and construction	-	0.44	2.47	-	2.91	67.9%
Transport	-	3.15	-	-	3.15	218.3%
<i>of which: road</i>	-	3.06	-	-	3.06	209.0%
Other	-	0.23	-	-	0.23	85.9%
<i>of which: residential</i>	-	0.23	-	-	0.23	85.9%
<b>Reference Approach</b>	-	<b>3.50</b>	<b>23.88</b>	-	<b>27.38</b>	<b>136.9%</b>
Diff. due to losses and/or transformation	-	-1.17	-	-	-1.17	
Statistical differences	-	-0.00	-0.26	-	-0.26	
<i>Memo: international marine bunkers</i>	-	0.25	-	-	0.25	2.5%
<i>Memo: international aviation bunkers</i>	-	1.74	-	-	1.74	21.6%

\*\* Other includes industrial waste and non-renewable municipal waste.

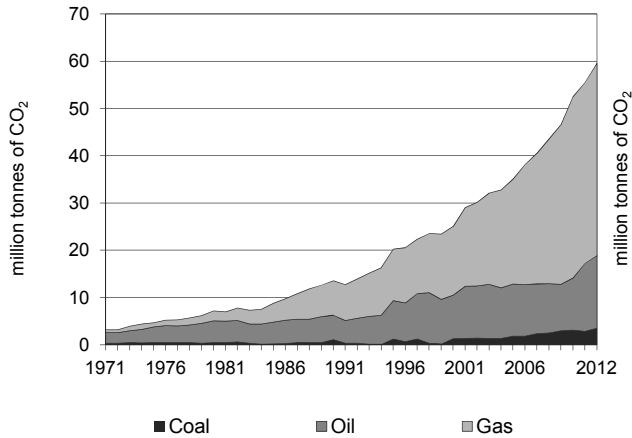
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - gas	11.66	215.6%	35.5	35.5
Unallocated autoproducers - gas	7.04	133.3%	21.4	56.9
Road - oil	3.06	209.0%	9.3	66.2
Other energy industry own use - gas	2.97	54.9%	9.0	75.2
Manufacturing industries - gas	2.47	42.4%	7.5	82.7
Other energy industry own use - oil	0.85	-12.5%	2.6	85.3
Manufacturing industries - oil	0.44	x	1.3	86.7
Residential - oil	0.23	85.9%	0.7	87.4
Other transport - oil	0.09	x	0.3	87.6
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>28.81</i>	<i>131.5%</i>	<i>87.6</i>	<i>87.6</i>

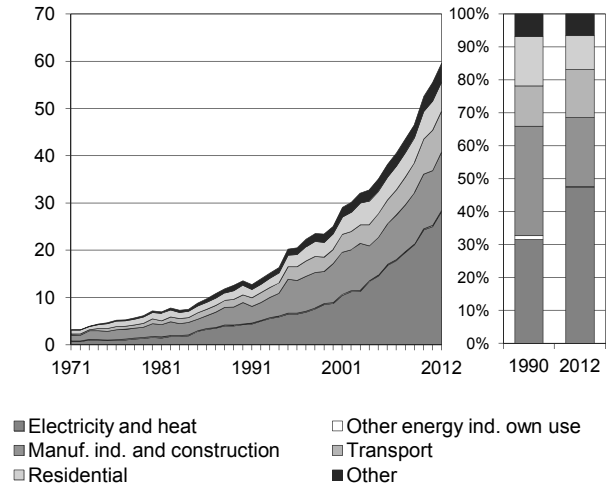
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Bangladesh

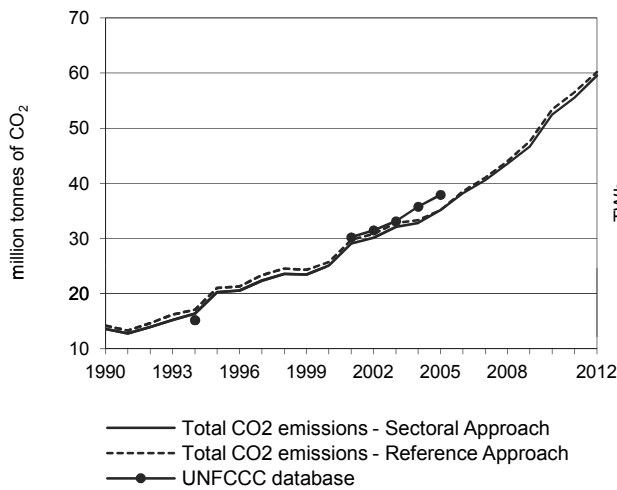
**Figure 1. CO<sub>2</sub> emissions by fuel**



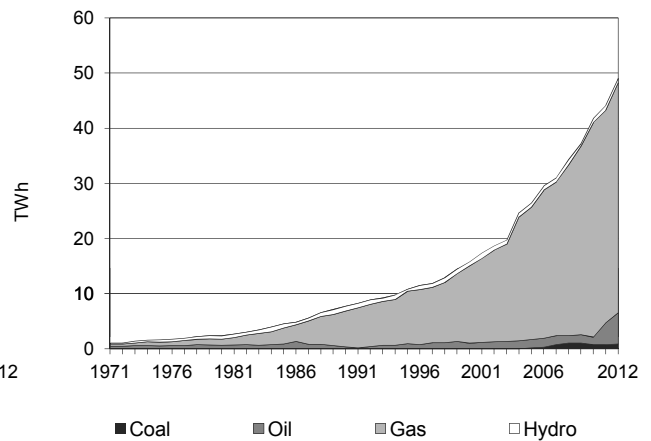
**Figure 2. CO<sub>2</sub> emissions by sector**



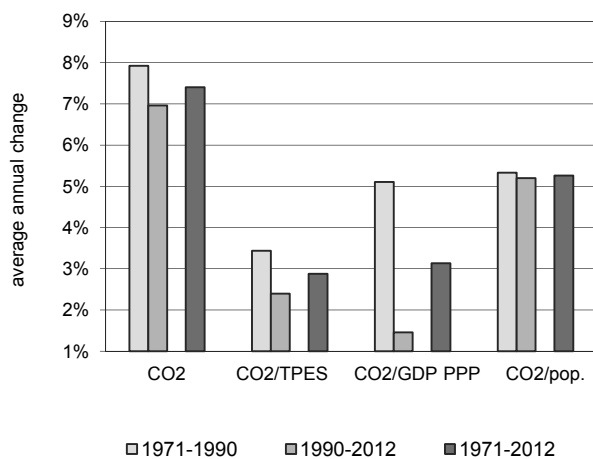
**Figure 3. Reference vs Sectoral Approach**



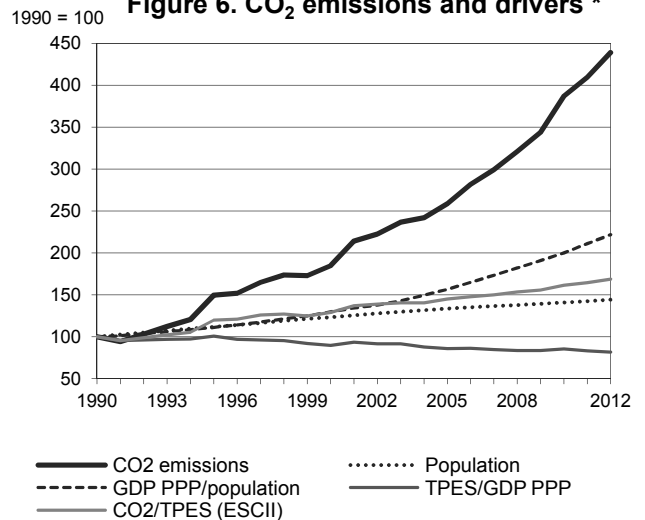
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Bangladesh

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	13.57	20.25	25.06	35.10	52.50	55.52	59.55	338.9%
TPES (PJ)	533	666	764	953	1 281	1 327	1 389	160.5%
GDP (billion 2005 USD)	28.95	35.89	46.27	60.28	81.47	86.94	92.36	219.0%
GDP PPP (billion 2005 USD)	102.19	126.68	163.30	212.74	287.55	306.83	325.96	219.0%
Population (millions)	107.39	119.87	132.38	143.14	151.13	152.86	154.70	44.1%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	25.4	30.4	32.8	36.8	41.0	41.8	42.9	68.5%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.47	0.56	0.54	0.58	0.64	0.64	0.64	37.6%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.13	0.16	0.15	0.17	0.18	0.18	0.18	37.6%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.13	0.17	0.19	0.25	0.35	0.36	0.39	204.8%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	149	185	259	387	409	439	338.9%
Population index	100	112	123	133	141	142	144	44.1%
GDP PPP per population index	100	111	130	156	200	211	221	121.4%
Energy intensity index - TPES / GDP PPP	100	101	90	86	85	83	82	-18.3%
Carbon intensity index - CO <sub>2</sub> / TPES	100	120	129	145	161	164	169	68.5%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>3.50</b>	<b>15.36</b>	<b>40.69</b>	-	<b>59.55</b>	<b>338.9%</b>
Main activity producer elec. and heat	0.92	3.38	16.81	-	21.11	392.4%
Unallocated autoproducers	-	-	7.10	-	7.10	x
Other energy industry own use	-	0.21	-	-	0.21	37.2%
Manufacturing industries and construction	2.59	0.59	9.26	-	12.43	175.6%
Transport	-	6.51	2.13	-	8.63	423.1%
<i>of which: road</i>	-	4.47	2.13	-	6.60	454.2%
Other	-	4.68	5.40	-	10.08	239.5%
<i>of which: residential</i>	-	1.27	4.89	-	6.16	202.4%
<b>Reference Approach</b>	<b>3.51</b>	<b>14.87</b>	<b>41.79</b>	-	<b>60.17</b>	<b>325.5%</b>
Diff. due to losses and/or transformation	-	- 0.06	1.10	-	1.05	
Statistical differences	0.00	- 0.43	-	-	- 0.43	
<i>Memo: international marine bunkers</i>	-	0.28	-	-	0.28	351.5%
<i>Memo: international aviation bunkers</i>	-	0.98	-	-	0.98	262.8%

\*\* Other includes industrial waste and non-renewable municipal waste.

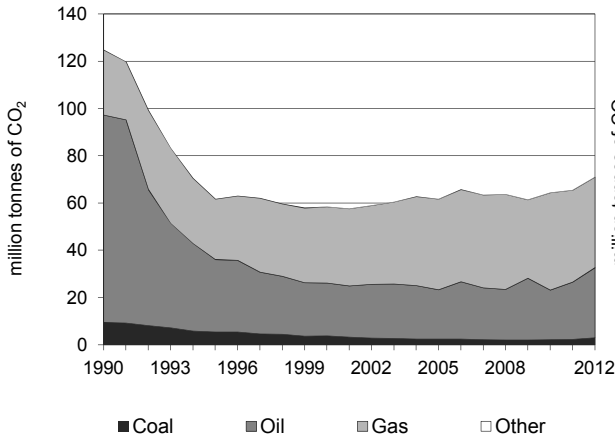
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - gas	16.81	328.8%	8.3	8.3
Manufacturing industries - gas	9.26	244.9%	4.6	12.9
Unallocated autoproducers - gas	7.10	x	3.5	16.5
Residential - gas	4.89	823.7%	2.4	18.9
Road - oil	4.47	275.3%	2.2	21.1
Non-specified other - oil	3.41	341.6%	1.7	22.8
Main activity prod. elec. and heat - oil	3.38	823.1%	1.7	24.5
Manufacturing industries - coal	2.59	136.8%	1.3	25.8
Road - gas	2.13	x	1.1	26.8
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>59.55</i>	<i>338.9%</i>	<i>29.6</i>	<i>29.6</i>

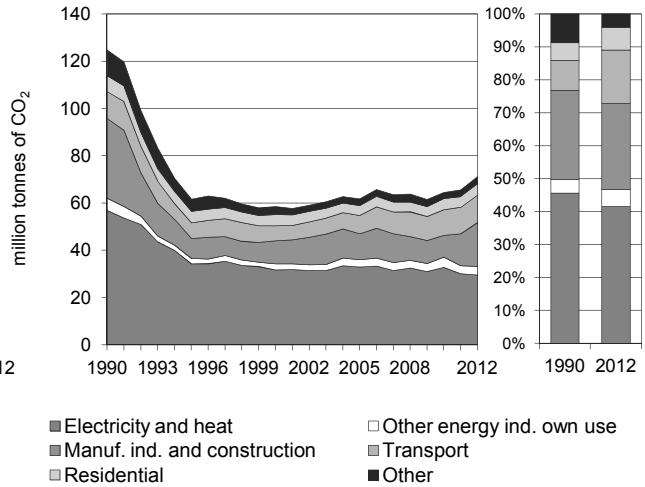
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Belarus

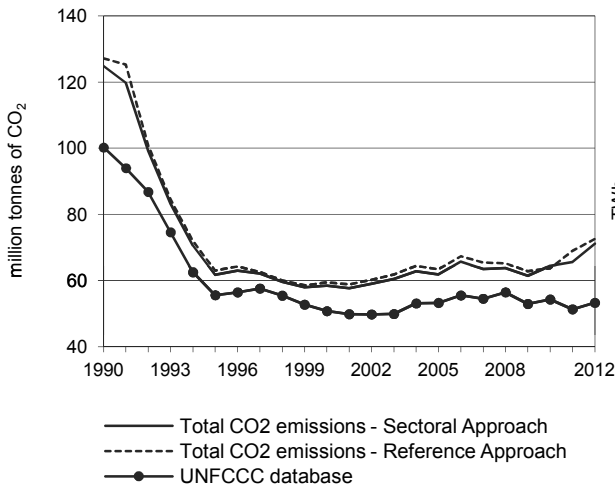
**Figure 1. CO<sub>2</sub> emissions by fuel**



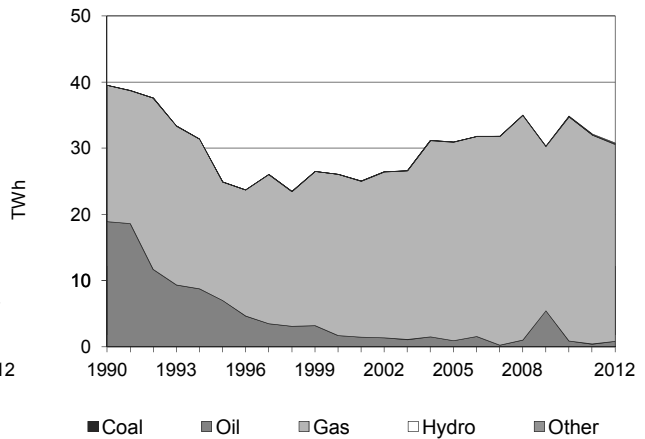
**Figure 2. CO<sub>2</sub> emissions by sector**



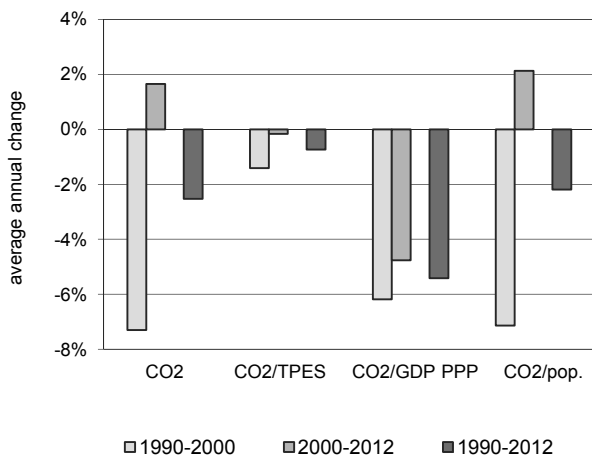
**Figure 3. Reference vs Sectoral Approach**



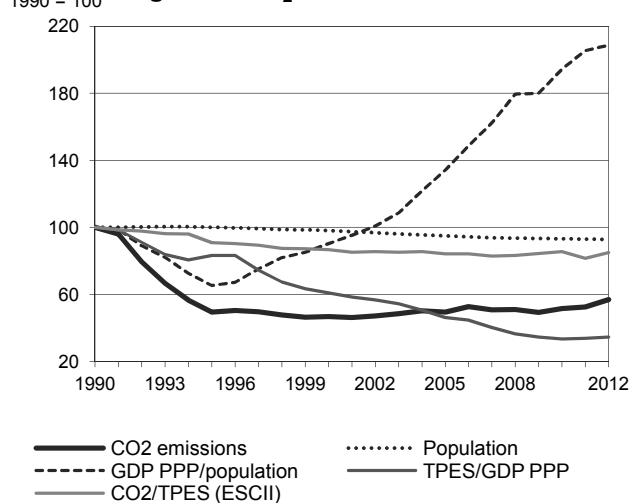
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Belarus

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	124.80	61.70	58.47	61.78	64.48	65.60	71.12	-43.0%
TPES (PJ)	1 905	1 036	1 029	1 120	1 151	1 229	1 277	-33.0%
GDP (billion 2005 USD)	23.72	15.49	21.03	30.21	42.94	45.30	45.98	93.8%
GDP PPP (billion 2005 USD)	73.41	47.93	65.10	93.50	132.89	140.20	142.31	93.8%
Population (millions)	10.19	10.19	10.01	9.66	9.49	9.47	9.46	-7.1%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	65.5	59.6	56.8	55.1	56.0	53.4	55.7	-15.0%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	5.26	3.98	2.78	2.05	1.50	1.45	1.55	-70.6%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	1.70	1.29	0.90	0.66	0.49	0.47	0.50	-70.6%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	12.25	6.05	5.84	6.39	6.79	6.92	7.51	-38.6%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	49	47	50	52	53	57	-43.0%
Population index	100	100	98	95	93	93	93	-7.1%
GDP PPP per population index	100	65	90	134	194	205	209	108.7%
Energy intensity index - TPES / GDP PPP	100	83	61	46	33	34	35	-65.4%
Carbon intensity index - CO <sub>2</sub> / TPES	100	91	87	84	85	81	85	-15.0%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>3.00</b>	<b>29.69</b>	<b>38.30</b>	<b>0.12</b>	<b>71.12</b>	<b>-43.0%</b>
Main activity producer elec. and heat	0.24	0.74	22.59	-	23.57	-43.1%
Unallocated autoproducers	0.34	0.62	4.94	0.10	5.99	-61.4%
Other energy industry own use	0.06	3.05	0.52	-	3.63	-29.0%
Manufacturing industries and construction	1.15	11.95	5.45	0.02	18.57	-45.1%
Transport	0.05	10.75	0.77	-	11.57	1.8%
<i>of which: road</i>	-	10.09	0.03	-	10.12	7.5%
Other	1.16	2.59	4.03	-	7.79	-55.7%
<i>of which: residential</i>	0.93	0.28	3.68	-	4.89	-27.0%
<b>Reference Approach</b>	<b>3.15</b>	<b>30.72</b>	<b>38.58</b>	<b>0.12</b>	<b>72.58</b>	<b>-42.9%</b>
Diff. due to losses and/or transformation	0.15	1.01	0.28	-	1.44	
Statistical differences	-0.00	0.02	-0.00	-	0.02	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	-	-	-	-	-

\*\* Other includes industrial waste and non-renewable municipal waste.

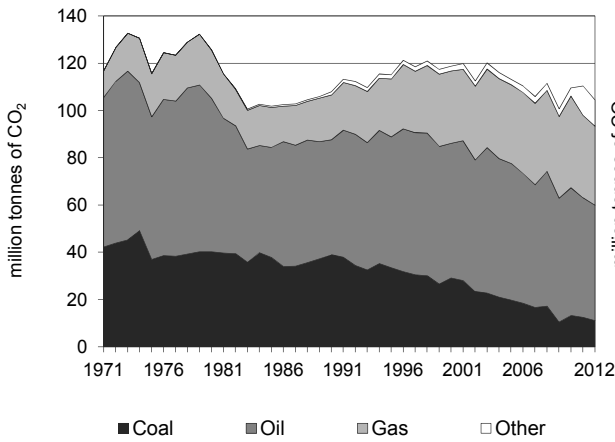
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - gas	22.59	37.6%	21.1	21.1
Manufacturing industries - oil	11.95	-57.6%	11.2	32.2
Road - oil	10.09	9.0%	9.4	41.7
Manufacturing industries - gas	5.45	1.4%	5.1	46.7
Unallocated autoproducers - gas	4.94	125.2%	4.6	51.4
Residential - gas	3.68	113.7%	3.4	54.8
Other energy industry own use - oil	3.05	-36.1%	2.8	57.6
Non-specified other - oil	2.32	-68.7%	2.2	59.8
Manufacturing industries - coal	1.15	281.8%	1.1	60.9
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>71.12</i>	<i>-43.0%</i>	<i>66.4</i>	<i>66.4</i>

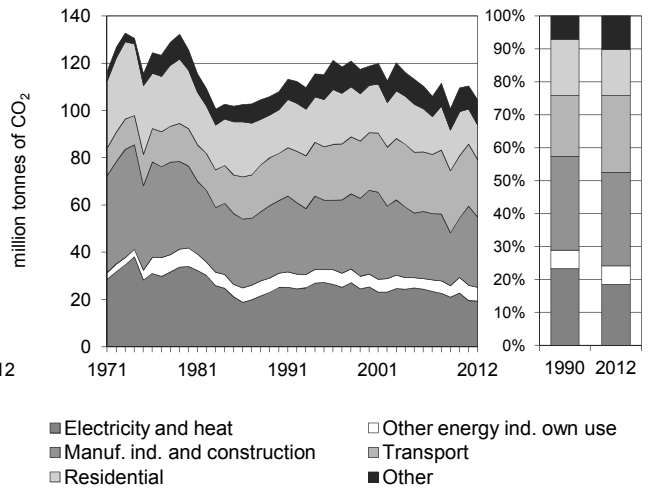
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Belgium

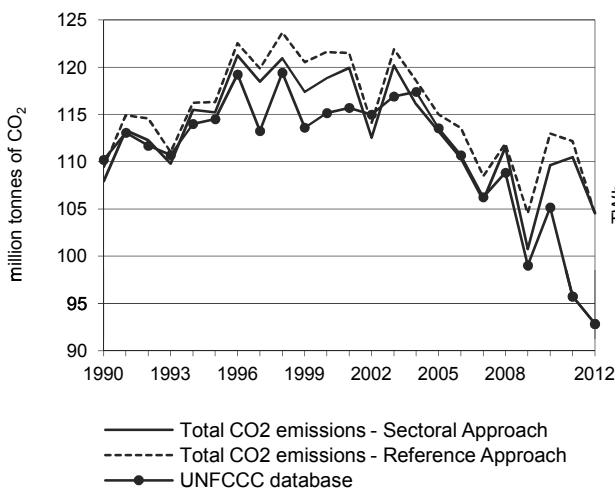
**Figure 1. CO<sub>2</sub> emissions by fuel**



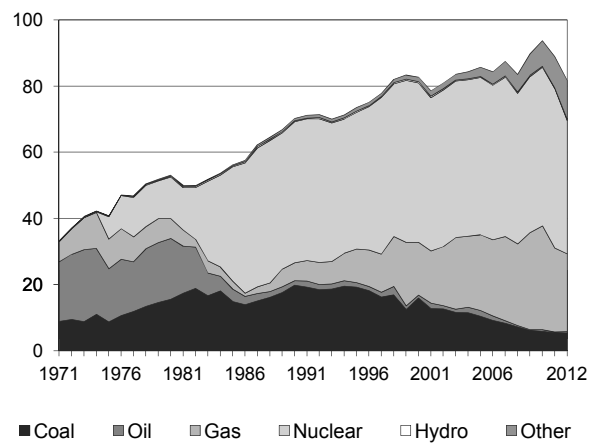
**Figure 2. CO<sub>2</sub> emissions by sector**



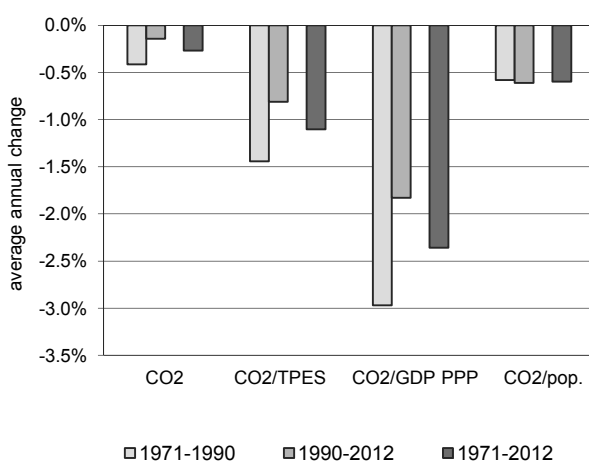
**Figure 3. Reference vs Sectoral Approach**



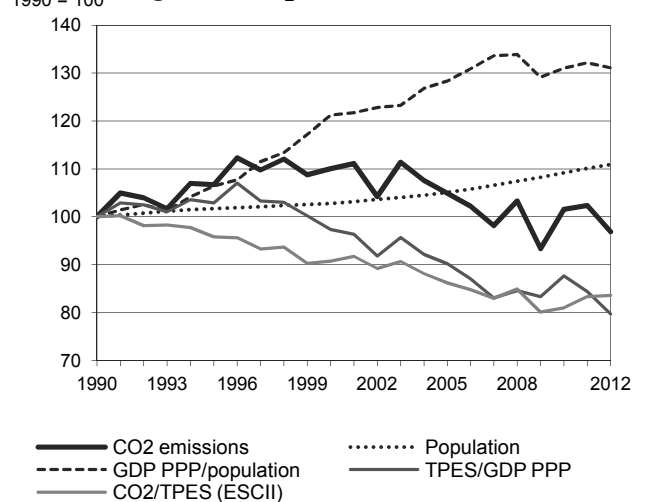
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Belgium

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	107.95	115.21	118.83	113.22	109.62	110.46	104.56	-3.1%
TPES (PJ)	2 022	2 251	2 452	2 460	2 535	2 484	2 343	15.9%
GDP (billion 2005 USD)	279.85	302.86	348.63	377.35	400.38	407.41	406.82	45.4%
GDP PPP (billion 2005 USD)	250.15	270.71	311.63	337.30	357.89	364.17	363.64	45.4%
Population (millions)	9.97	10.14	10.25	10.47	10.88	10.98	11.05	10.9%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	53.4	51.2	48.5	46.0	43.2	44.5	44.6	-16.4%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.39	0.38	0.34	0.30	0.27	0.27	0.26	-33.4%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.43	0.43	0.38	0.34	0.31	0.30	0.29	-33.4%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	10.83	11.37	11.60	10.81	10.07	10.06	9.46	-12.7%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	107	110	105	102	102	97	-3.1%
Population index	100	102	103	105	109	110	111	10.9%
GDP PPP per population index	100	106	121	128	131	132	131	31.1%
Energy intensity index - TPES / GDP PPP	100	103	97	90	88	84	80	-20.3%
Carbon intensity index - CO <sub>2</sub> / TPES	100	96	91	86	81	83	84	-16.4%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>11.06</b>	<b>48.89</b>	<b>33.43</b>	<b>11.17</b>	<b>104.56</b>	<b>-3.1%</b>
Main activity producer elec. and heat	6.98	0.05	8.23	2.75	18.00	-18.0%
Unallocated autoproducers	0.23	0.21	0.94	-	1.37	-56.8%
Other energy industry own use	1.61	4.24	0.05	-	5.90	-3.0%
Manufacturing industries and construction	1.83	8.29	11.13	8.43	29.69	-3.2%
Transport	-	24.31	0.05	-	24.36	21.8%
<i>of which: road</i>	-	23.65	0.02	-	23.67	22.9%
Other	0.42	11.80	13.02	-	25.24	-3.1%
<i>of which: residential</i>	0.42	7.85	6.32	-	14.59	-21.0%
<b>Reference Approach</b>	<b>11.04</b>	<b>48.78</b>	<b>33.45</b>	<b>11.17</b>	<b>104.43</b>	<b>-4.6%</b>
Diff. due to losses and/or transformation	0.30	1.39	-	-	1.69	
Statistical differences	-0.33	-1.50	0.01	-	-1.81	
<i>Memo: international marine bunkers</i>	-	19.31	-	-	19.31	49.6%
<i>Memo: international aviation bunkers</i>	-	4.01	-	-	4.01	42.3%

\*\* Other includes industrial waste and non-renewable municipal waste.

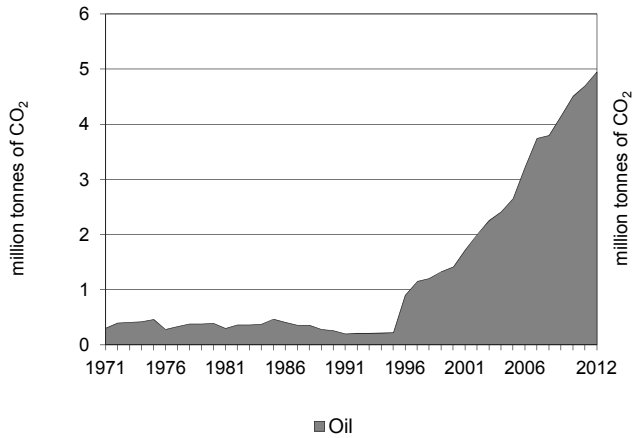
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	23.65	22.8%	18.4	18.4
Manufacturing industries - gas	11.13	50.6%	8.7	27.1
Manufacturing industries - other	8.43	+	6.6	33.7
Manufacturing industries - oil	8.29	5.4%	6.5	40.2
Main activity prod. elec. and heat - gas	8.23	204.4%	6.4	46.6
Residential - oil	7.85	-26.0%	6.1	52.7
Main activity prod. elec. and heat - coal	6.98	-61.0%	5.4	58.1
Non-specified other - gas	6.70	177.3%	5.2	63.4
Residential - gas	6.32	8.9%	4.9	68.3
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>104.56</i>	<i>-3.1%</i>	<i>81.5</i>	<i>81.5</i>

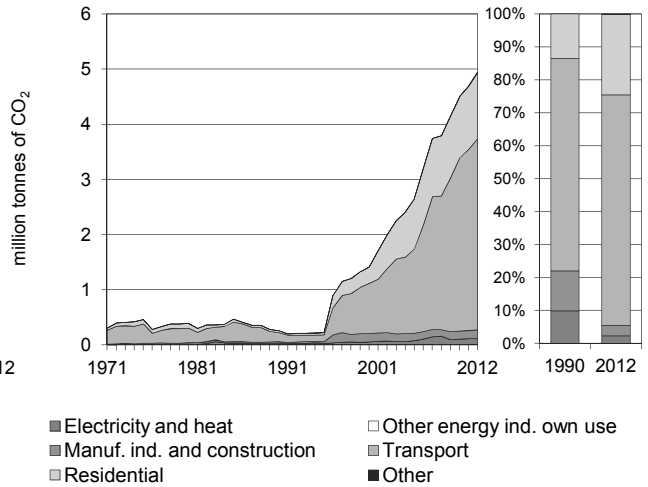
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Benin

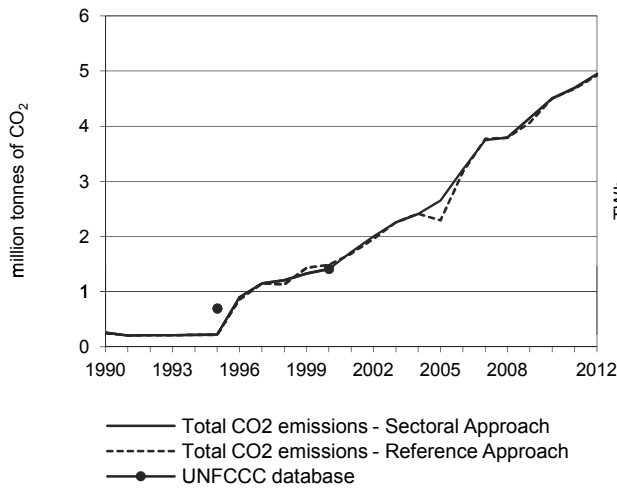
**Figure 1. CO<sub>2</sub> emissions by fuel**



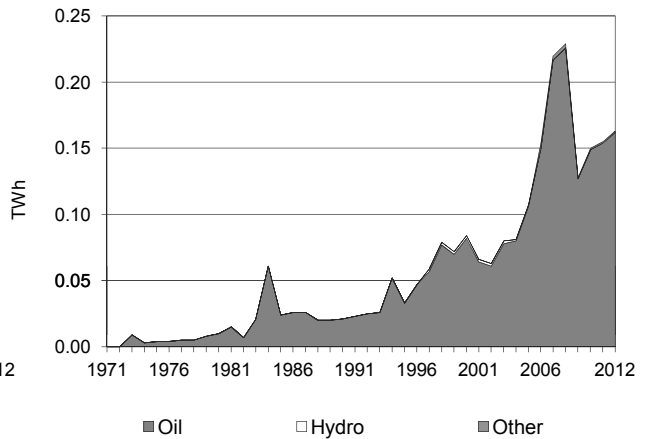
**Figure 2. CO<sub>2</sub> emissions by sector**



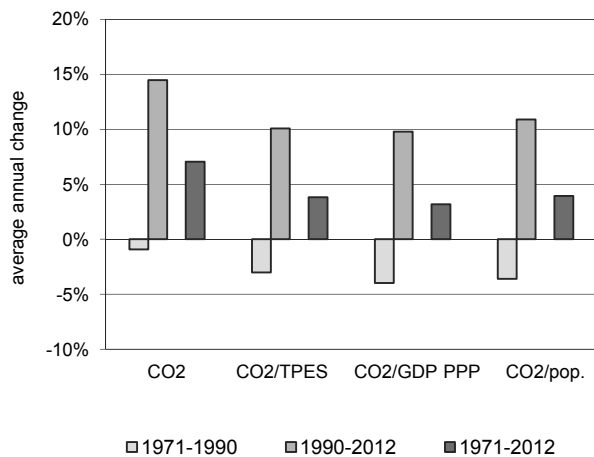
**Figure 3. Reference vs Sectoral Approach**



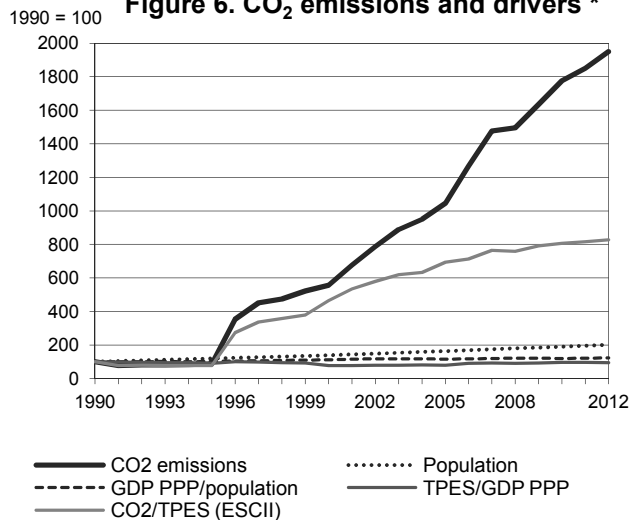
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Benin

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	0.25	0.22	1.41	2.65	4.50	4.70	4.95	+
TPES (PJ)	70	77	83	105	153	158	164	135.7%
GDP (billion 2005 USD)	2.29	2.81	3.57	4.36	5.23	5.42	5.71	149.3%
GDP PPP (billion 2005 USD)	6.06	7.45	9.44	11.54	13.85	14.34	15.11	149.2%
Population (millions)	5.00	5.99	6.95	8.18	9.51	9.78	10.05	101.0%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	3.7	2.8	17.0	25.3	29.5	29.8	30.2	727.6%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.11	0.08	0.40	0.61	0.86	0.87	0.87	682.6%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.04	0.03	0.15	0.23	0.33	0.33	0.33	681.9%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.05	0.04	0.20	0.32	0.47	0.48	0.49	871.2%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	86	556	1044	1775	1851	1950	1850.4%
Population index	100	120	139	164	190	196	201	101.0%
GDP PPP per population index	100	103	112	116	120	121	124	24.0%
Energy intensity index - TPES / GDP PPP	100	90	77	79	96	96	95	-5.4%
Carbon intensity index - CO <sub>2</sub> / TPES	100	78	466	694	807	816	828	727.6%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>4.95</b>	-	-	<b>4.95</b>	<b>+</b>
Main activity producer elec. and heat	-	0.10	-	-	0.10	290.5%
Unallocated autoproducers	-	0.02	-	-	0.02	x
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.15	-	-	0.15	400.6%
Transport	-	3.46	-	-	3.46	+
<i>of which: road</i>	-	3.46	-	-	3.46	+
Other	-	1.21	-	-	1.21	+
<i>of which: residential</i>	-	1.20	-	-	1.20	+
<b>Reference Approach</b>	-	<b>4.92</b>	-	-	<b>4.92</b>	<b>+</b>
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-0.03	-	-	-0.03	-
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.51	-	-	0.51	912.5%

\*\* Other includes industrial waste and non-renewable municipal waste.

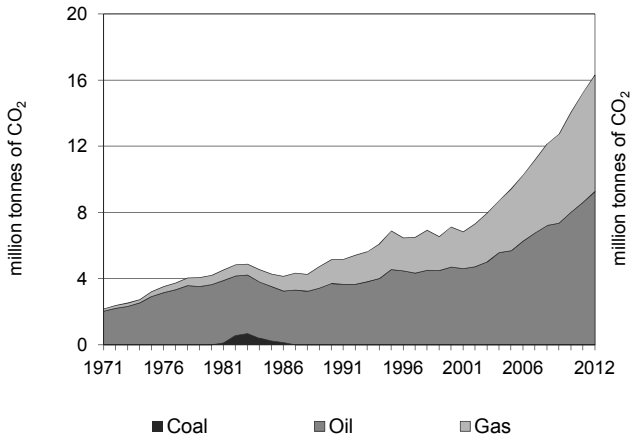
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	3.46	+	19.3	19.3
Residential - oil	1.20	+	6.7	26.0
Manufacturing industries - oil	0.15	400.6%	0.9	26.8
Main activity prod. elec. and heat - oil	0.10	290.5%	0.5	27.4
Unallocated autoproducers - oil	0.02	x	0.1	27.5
Non-specified other - oil	0.01	x	0.0	27.5
Other transport - oil	0.00	x	0.0	27.6
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<b>4.95</b>	<b>+</b>	<b>27.6</b>	<b>27.6</b>

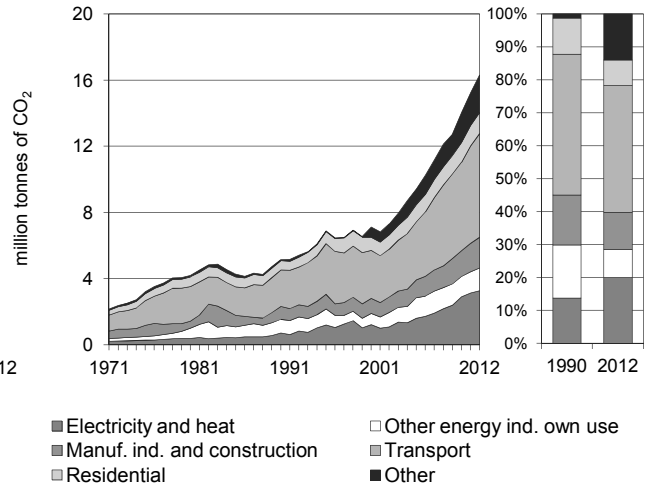
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Bolivia

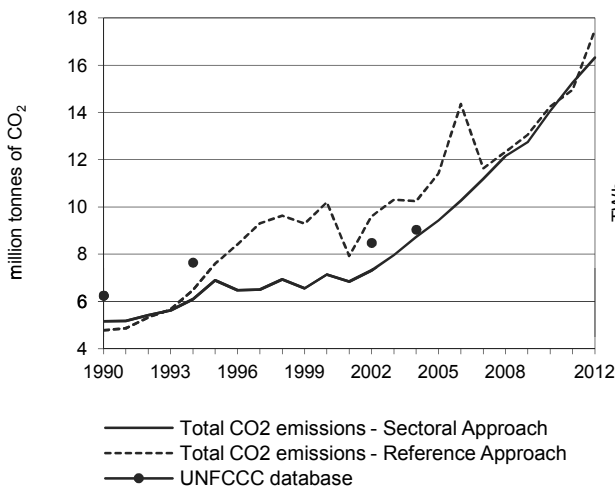
**Figure 1. CO<sub>2</sub> emissions by fuel**



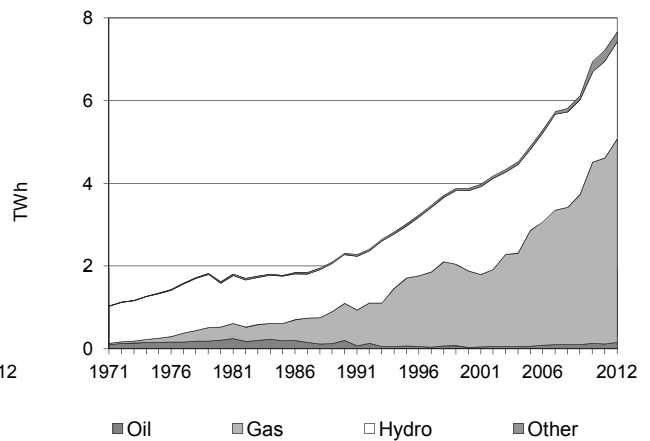
**Figure 2. CO<sub>2</sub> emissions by sector**



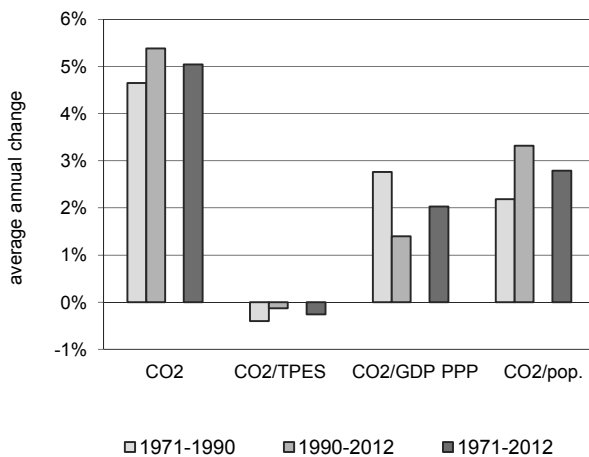
**Figure 3. Reference vs Sectoral Approach**



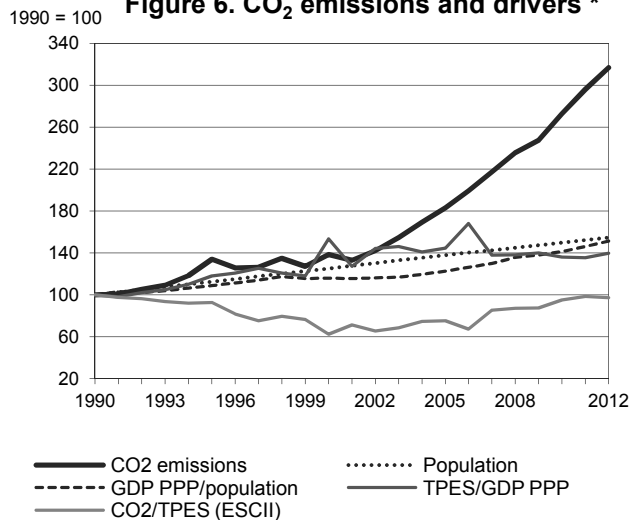
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Bolivia

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	5.15	6.89	7.13	9.43	14.06	15.25	16.32	216.6%
TPES (PJ)	109	158	243	266	314	329	356	226.0%
GDP (billion 2005 USD)	5.67	6.93	8.20	9.55	11.95	12.57	13.22	133.4%
GDP PPP (billion 2005 USD)	22.65	27.69	32.79	38.18	47.79	50.27	52.87	133.4%
Population (millions)	6.79	7.64	8.50	9.36	10.16	10.32	10.50	54.5%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	47.1	43.7	29.4	35.4	44.8	46.4	45.8	-2.9%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.91	0.99	0.87	0.99	1.18	1.21	1.23	35.6%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.23	0.25	0.22	0.25	0.29	0.30	0.31	35.7%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.76	0.90	0.84	1.01	1.38	1.48	1.55	105.0%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	134	138	183	273	296	317	216.6%
Population index	100	112	125	138	150	152	154	54.5%
GDP PPP per population index	100	109	116	122	141	146	151	51.1%
Energy intensity index - TPES / GDP PPP	100	118	153	144	136	135	140	39.7%
Carbon intensity index - CO <sub>2</sub> / TPES	100	93	62	75	95	98	97	-2.9%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>9.27</b>	<b>7.05</b>	-	<b>16.32</b>	<b>216.6%</b>
Main activity producer elec. and heat	-	0.15	3.12	-	3.27	409.3%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industry own use	-	0.34	1.05	-	1.39	67.3%
Manufacturing industries and construction	-	0.31	1.53	-	1.84	136.9%
Transport	-	5.16	1.12	-	6.27	184.7%
<i>of which: road</i>	-	4.89	1.12	-	6.01	223.9%
Other	-	3.31	0.23	-	3.55	462.1%
<i>of which: residential</i>	-	1.12	0.15	-	1.27	124.0%
<b>Reference Approach</b>	-	<b>10.42</b>	<b>7.08</b>	-	<b>17.50</b>	<b>266.7%</b>
Diff. due to losses and/or transformation	-	0.53	0.03	-	0.56	
Statistical differences	-	0.62	0.00	-	0.62	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.13	-	-	0.13	x

\*\* Other includes industrial waste and non-renewable municipal waste.

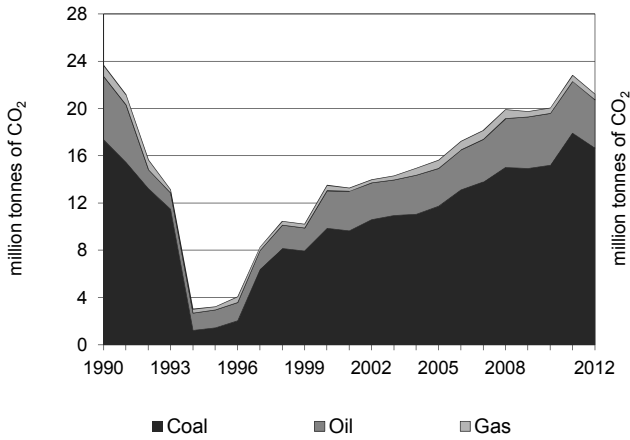
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	4.89	163.7%	9.4	9.4
Main activity prod. elec. and heat - gas	3.12	495.7%	6.0	15.4
Non-specified other - oil	2.19	+	4.2	19.6
Manufacturing industries - gas	1.53	296.7%	2.9	22.6
Residential - oil	1.12	97.3%	2.2	24.7
Road - gas	1.12	x	2.1	26.9
Other energy industry own use - gas	1.05	96.1%	2.0	28.9
Other energy industry own use - oil	0.34	15.1%	0.7	29.5
Manufacturing industries - oil	0.31	-20.1%	0.6	30.1
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	16.32	216.6%	31.4	31.4

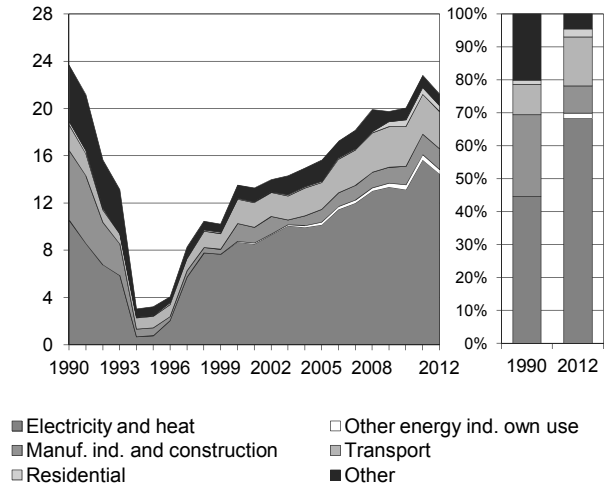
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Bosnia and Herzegovina

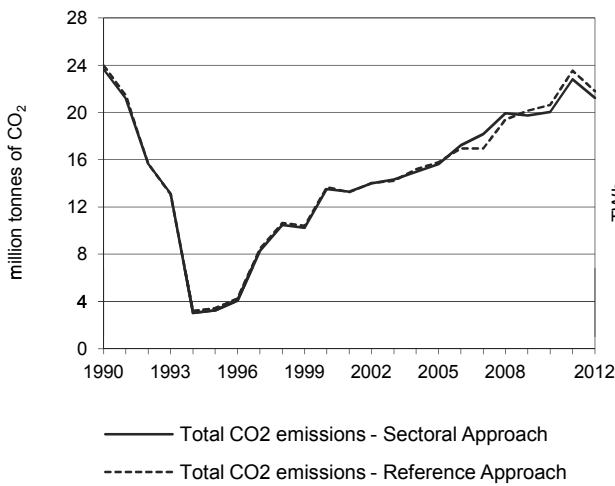
**Figure 1. CO<sub>2</sub> emissions by fuel**



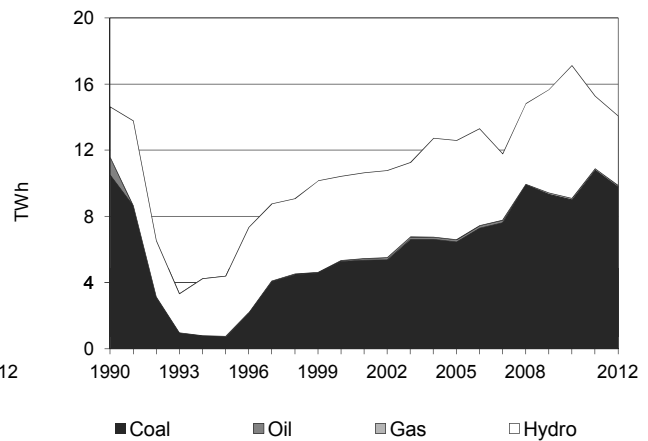
**Figure 2. CO<sub>2</sub> emissions by sector**



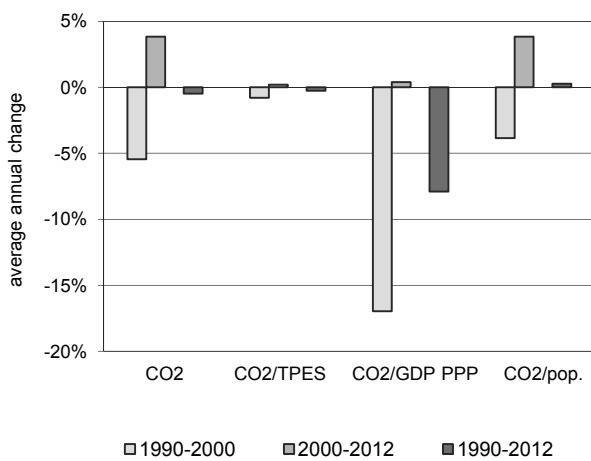
**Figure 3. Reference vs Sectoral Approach**



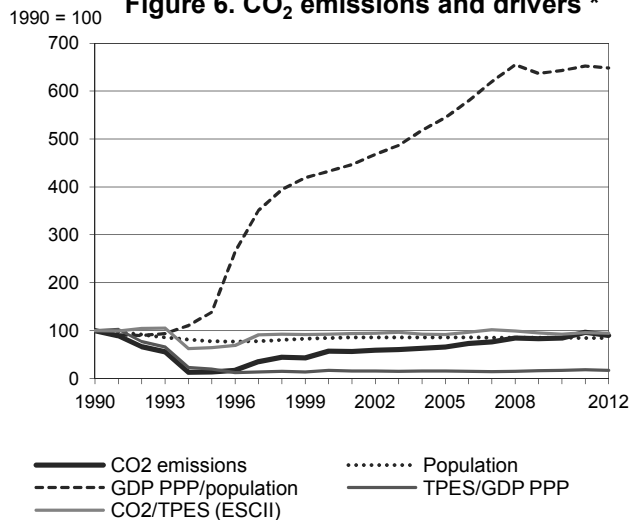
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Bosnia and Herzegovina

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	23.65	3.24	13.51	15.63	20.05	22.81	21.22	-10.3%
TPES (PJ)	294	63	182	211	270	297	279	-5.0%
GDP (billion 2005 USD)	2.35	2.53	8.60	10.95	12.80	12.97	12.88	449.2%
GDP PPP (billion 2005 USD)	5.14	5.55	18.82	23.98	28.04	28.40	28.20	449.2%
Population (millions)	4.53	3.52	3.83	3.88	3.85	3.84	3.83	-15.3%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	80.5	51.7	74.2	74.1	74.3	76.9	76.0	-5.6%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	10.09	1.28	1.57	1.43	1.57	1.76	1.65	-83.7%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	4.61	0.58	0.72	0.65	0.72	0.80	0.75	-83.7%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	5.22	0.92	3.52	4.03	5.21	5.94	5.54	6.0%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	14	57	66	85	96	90	-10.3%
Population index	100	78	85	86	85	85	85	-15.3%
GDP PPP per population index	100	139	433	545	643	652	649	548.5%
Energy intensity index - TPES / GDP PPP	100	20	17	15	17	18	17	-82.7%
Carbon intensity index - CO <sub>2</sub> / TPES	100	64	92	92	92	96	94	-5.6%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>16.65</b>	<b>4.08</b>	<b>0.49</b>	-	<b>21.22</b>	<b>-10.3%</b>
Main activity producer elec. and heat	13.31	0.12	0.10	-	13.53	42.0%
Unallocated autoproducers	0.91	0.00	0.04	-	0.95	-6.3%
Other energy industry own use	0.26	0.10	-	-	0.35	x
Manufacturing industries and construction	1.48	0.08	0.20	-	1.76	-70.1%
Transport	-	3.16	-	-	3.16	45.6%
<i>of which: road</i>	-	3.16	-	-	3.16	45.6%
Other	0.69	0.63	0.15	-	1.47	-70.8%
<i>of which: residential</i>	0.41	-	0.09	-	0.50	70.3%
<b>Reference Approach</b>	<b>17.23</b>	<b>4.08</b>	<b>0.49</b>	-	<b>21.80</b>	<b>-9.0%</b>
Diff. due to losses and/or transformation	0.52	0.10	0.00	-	0.62	
Statistical differences	0.06	-0.10	0.00	-	-0.04	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.02	-	-	0.02	-80.0%

\*\* Other includes industrial waste and non-renewable municipal waste.

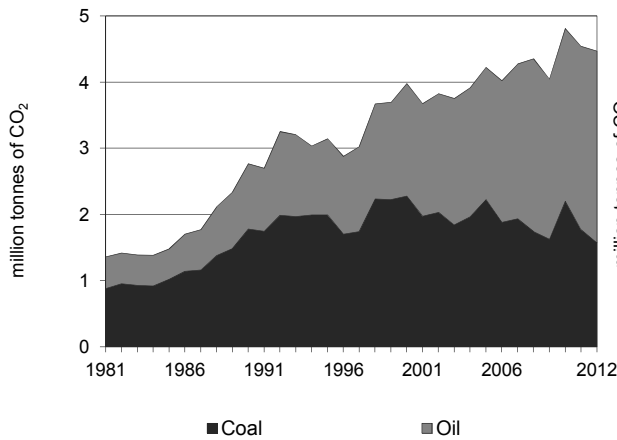
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	13.31	41.4%	48.5	48.5
Road - oil	3.16	45.6%	11.5	60.0
Manufacturing industries - coal	1.48	-53.4%	5.4	65.3
Unallocated autoproducers - coal	0.91	x	3.3	68.7
Non-specified other - oil	0.63	x	2.3	71.0
Residential - coal	0.41	x	1.5	72.5
Non-specified other sectors - coal	0.29	-93.9%	1.1	73.5
Other energy industry - coal	0.26	x	0.9	74.4
Manufacturing industries - gas	0.20	-72.6%	0.7	75.2
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>21.22</i>	<i>-10.3%</i>	<i>77.3</i>	<i>77.3</i>

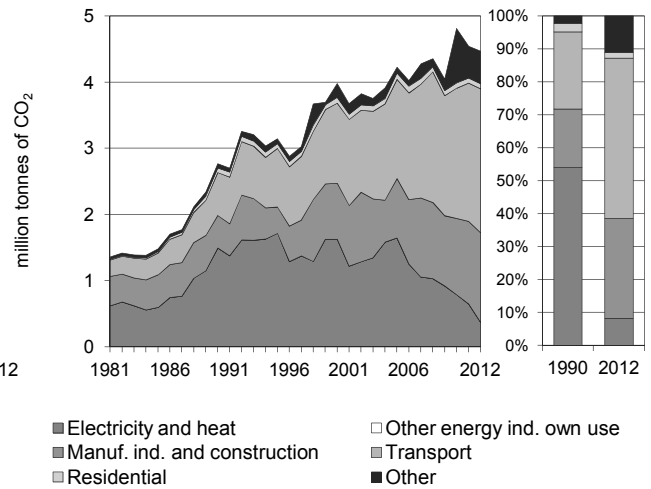
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Botswana

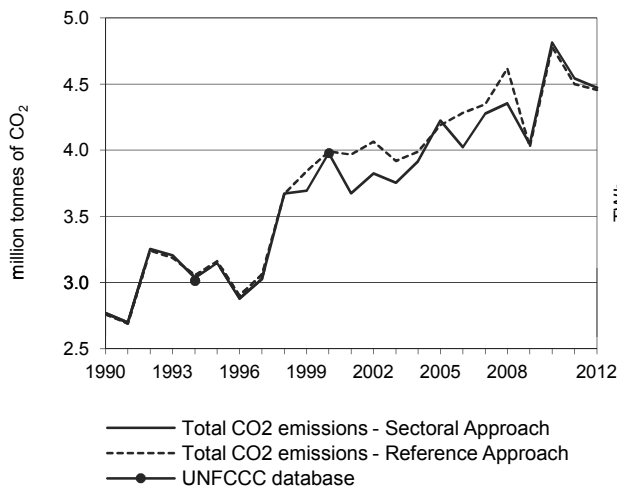
**Figure 1. CO<sub>2</sub> emissions by fuel**



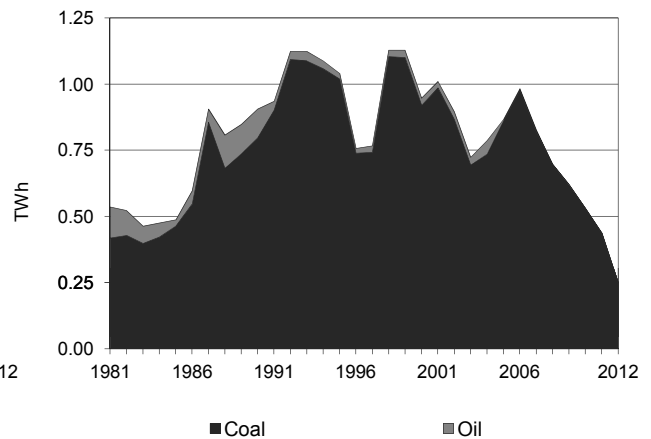
**Figure 2. CO<sub>2</sub> emissions by sector**



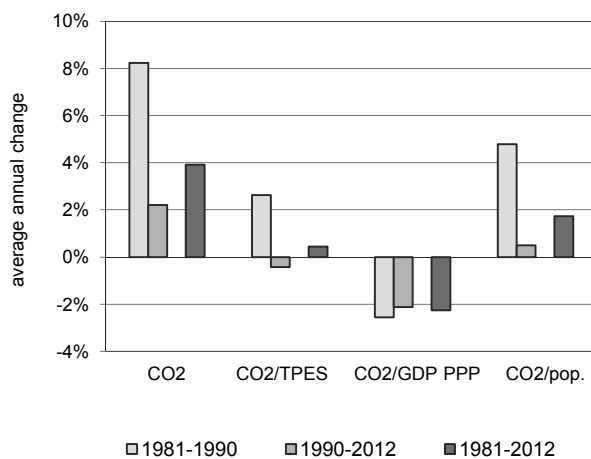
**Figure 3. Reference vs Sectoral Approach**



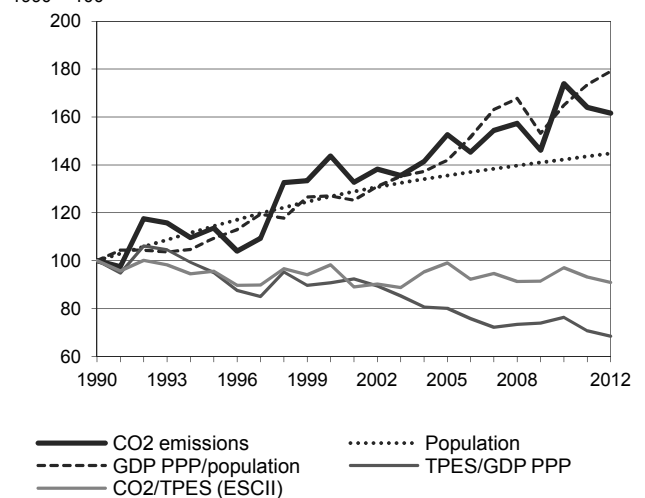
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Botswana

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	2.77	3.15	3.98	4.22	4.81	4.54	4.47	61.6%
TPES (PJ)	51	61	75	79	91	90	91	77.6%
GDP (billion 2005 USD)	5.16	6.45	8.31	9.93	12.12	12.86	13.39	159.4%
GDP PPP (billion 2005 USD)	9.95	12.43	16.01	19.13	23.34	24.77	25.80	159.4%
Population (millions)	1.38	1.58	1.76	1.88	1.97	1.99	2.00	44.8%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	54.3	51.9	53.3	53.8	52.7	50.6	49.4	-9.0%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.54	0.49	0.48	0.43	0.40	0.35	0.33	-37.7%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.28	0.25	0.25	0.22	0.21	0.18	0.17	-37.7%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	2.00	1.99	2.27	2.25	2.44	2.29	2.23	11.6%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	114	144	153	174	164	162	61.6%
Population index	100	114	127	136	142	144	145	44.8%
GDP PPP per population index	100	109	127	142	165	173	179	79.2%
Energy intensity index - TPES / GDP PPP	100	95	91	80	76	71	68	-31.5%
Carbon intensity index - CO <sub>2</sub> / TPES	100	96	98	99	97	93	91	-9.0%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>1.57</b>	<b>2.90</b>	-	-	<b>4.47</b>	<b>61.6%</b>
Main activity producer elec. and heat	0.37	-	-	-	0.37	-68.9%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	0.80	0.56	-	-	1.35	174.6%
Transport	-	2.18	-	-	2.18	236.3%
<i>of which: road</i>	-	2.14	-	-	2.14	256.2%
Other	0.40	0.17	-	-	0.57	326.5%
<i>of which: residential</i>	-	0.08	-	-	0.08	7.4%
<b>Reference Approach</b>	<b>1.57</b>	<b>2.89</b>	-	-	<b>4.46</b>	<b>61.4%</b>
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	0.00	-0.02	-	-	-0.02	-
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.06	-	-	0.06	63.6%

\*\* Other includes industrial waste and non-renewable municipal waste.

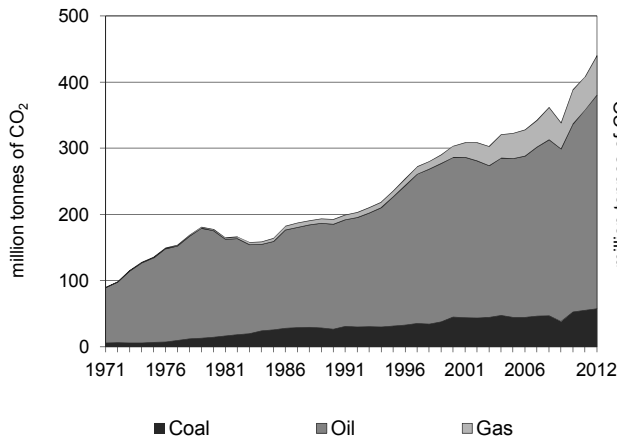
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	2.14	256.2%	17.9	17.9
Manufacturing industries - coal	0.80	102.8%	6.7	24.6
Manufacturing industries - oil	0.56	458.9%	4.7	29.3
Non-specified other sectors - coal	0.40	+	3.4	32.7
Main activity prod. elec. and heat - coal	0.37	-65.4%	3.1	35.8
Non-specified other - oil	0.09	59.0%	0.8	36.5
Residential - oil	0.08	22.2%	0.7	37.2
Other transport - oil	0.04	-16.9%	0.3	37.5
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>4.47</i>	<i>61.6%</i>	<i>37.5</i>	<i>37.5</i>

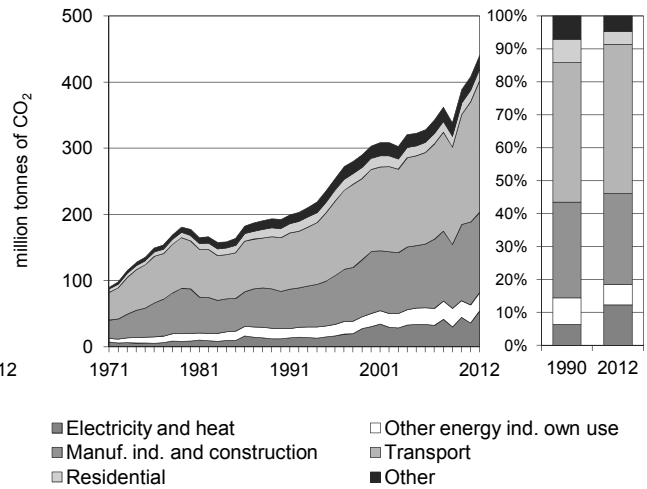
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Brazil

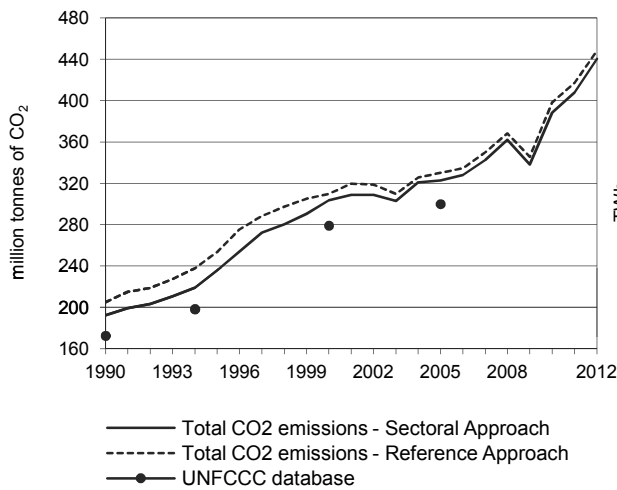
**Figure 1. CO<sub>2</sub> emissions by fuel**



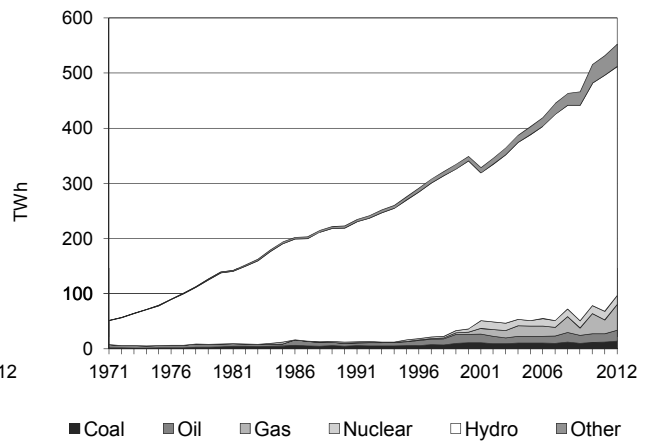
**Figure 2. CO<sub>2</sub> emissions by sector**



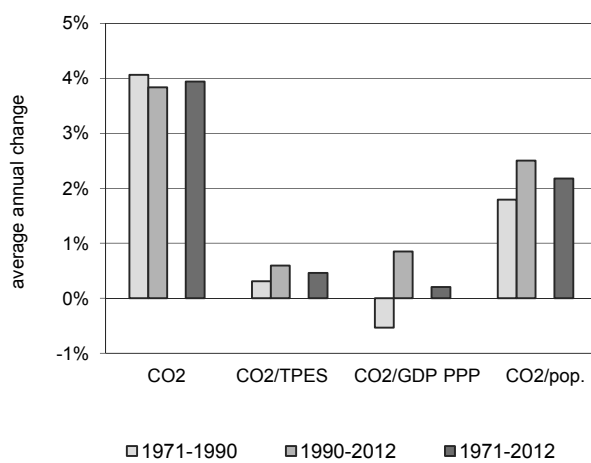
**Figure 3. Reference vs Sectoral Approach**



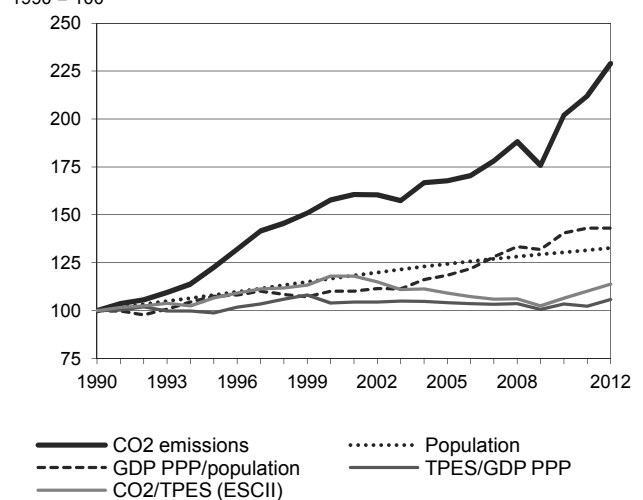
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Brazil

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	192.38	235.57	303.58	322.68	388.52	408.00	440.24	128.8%
TPES (PJ)	5 870	6 745	7 848	9 016	11 131	11 306	11 795	100.9%
GDP (billion 2005 USD)	598.51	696.14	768.99	882.19	1 096.75	1 126.72	1 136.56	89.9%
GDP PPP (billion 2005 USD)	1 333.54	1 551.08	1 713.40	1 965.60	2 443.68	2 510.46	2 532.37	89.9%
Population (millions)	149.65	161.89	174.51	186.14	195.21	196.94	198.66	32.7%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	32.8	34.9	38.7	35.8	34.9	36.1	37.3	13.9%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.32	0.34	0.39	0.37	0.35	0.36	0.39	20.5%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.14	0.15	0.18	0.16	0.16	0.16	0.17	20.4%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	1.29	1.46	1.74	1.73	1.99	2.07	2.22	72.4%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	122	158	168	202	212	229	128.8%
Population index	100	108	117	124	130	132	133	32.7%
GDP PPP per population index	100	108	110	119	140	143	143	43.1%
Energy intensity index - TPES / GDP PPP	100	99	104	104	103	102	106	5.8%
Carbon intensity index - CO <sub>2</sub> / TPES	100	107	118	109	107	110	114	13.9%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>57.73</b>	<b>322.78</b>	<b>59.73</b>	-	<b>440.24</b>	<b>128.8%</b>
Main activity producer elec. and heat	8.85	10.46	14.82	-	34.13	434.5%
Unallocated autoproducers	11.12	3.78	5.21	-	20.11	240.6%
Other energy industry own use	3.54	13.36	10.66	-	27.56	77.6%
Manufacturing industries and construction	34.13	64.20	23.11	-	121.44	117.2%
Transport	-	194.13	4.75	-	198.89	144.6%
<i>of which: road</i>	-	175.56	3.78	-	179.34	154.6%
Other	0.10	36.84	1.18	-	38.12	39.4%
<i>of which: residential</i>	-	16.71	0.65	-	17.36	26.3%
<b>Reference Approach</b>	<b>59.99</b>	<b>325.24</b>	<b>62.98</b>	-	<b>448.21</b>	<b>118.6%</b>
Diff. due to losses and/or transformation	2.26	- 0.71	3.40	-	4.95	
Statistical differences	- 0.00	3.18	- 0.16	-	3.02	
<i>Memo: international marine bunkers</i>	-	12.03	-	-	12.03	600.9%
<i>Memo: international aviation bunkers</i>	-	6.61	-	-	6.61	367.8%

\*\* Other includes industrial waste and non-renewable municipal waste.

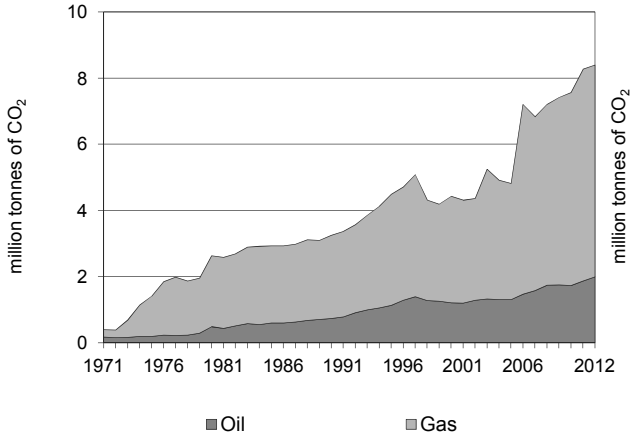
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	175.56	149.3%	15.1	15.1
Manufacturing industries - oil	64.20	79.5%	5.5	20.6
Manufacturing industries - coal	34.13	118.6%	2.9	23.6
Manufacturing industries - gas	23.11	410.2%	2.0	25.6
Non-specified other - oil	20.13	50.7%	1.7	27.3
Other transport - oil	18.57	70.8%	1.6	28.9
Residential - oil	16.71	24.5%	1.4	30.3
Main activity prod. elec. and heat - gas	14.82	+	1.3	31.6
Other energy industry own use - oil	13.36	23.5%	1.1	32.8
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>440.24</i>	<i>128.8%</i>	<i>37.9</i>	<i>37.9</i>

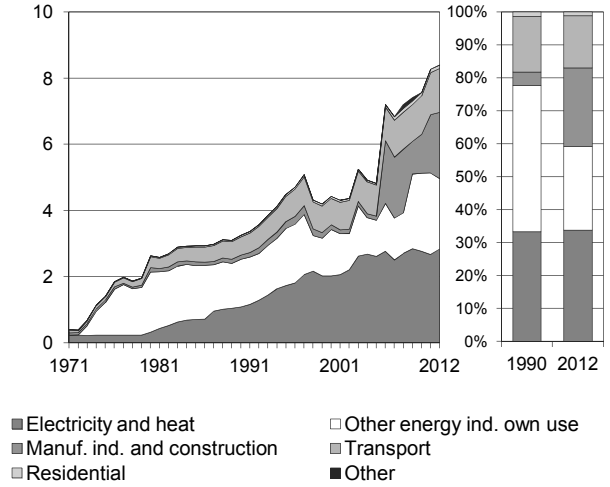
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Brunei Darussalam

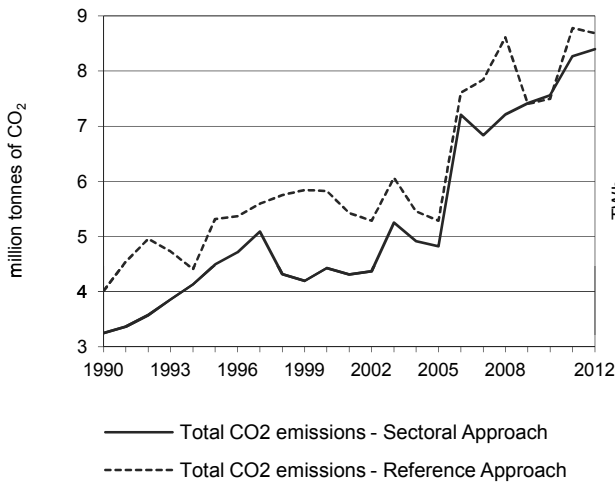
**Figure 1. CO<sub>2</sub> emissions by fuel**



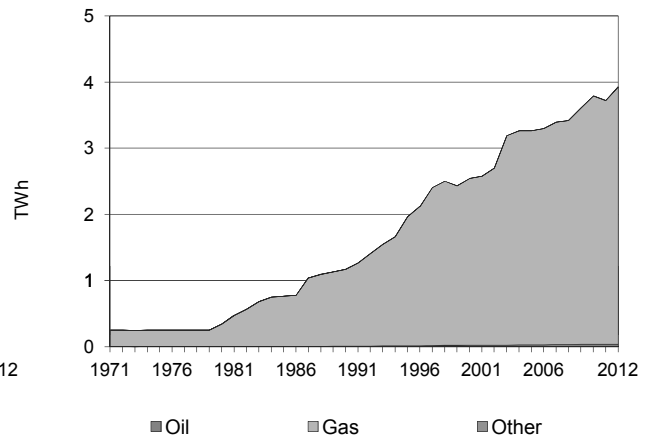
**Figure 2. CO<sub>2</sub> emissions by sector**



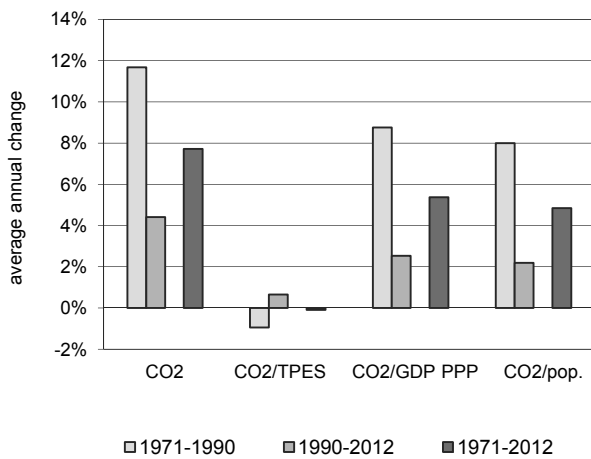
**Figure 3. Reference vs Sectoral Approach**



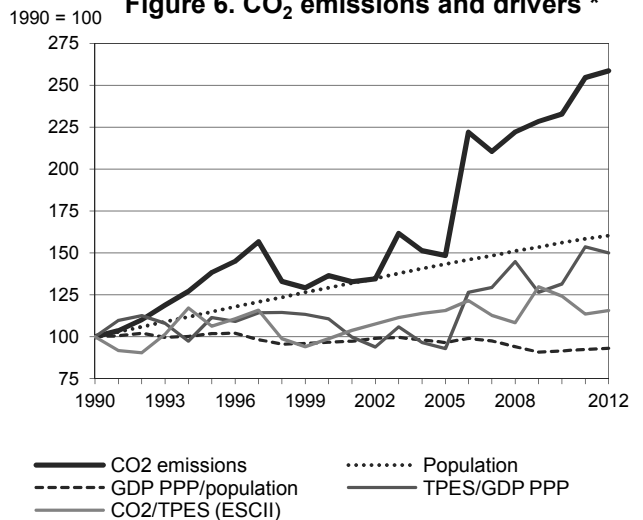
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Brunei Darussalam

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	3.25	4.49	4.43	4.82	7.56	8.27	8.40	158.5%
TPES (PJ)	72	94	100	93	136	162	162	123.7%
GDP (billion 2005 USD)	6.89	8.05	8.60	9.53	9.85	10.07	10.28	49.2%
GDP PPP (billion 2005 USD)	17.51	20.45	21.85	24.21	25.02	25.57	26.12	49.2%
Population (millions)	0.26	0.30	0.33	0.37	0.40	0.41	0.41	60.3%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	44.9	47.7	44.4	51.9	55.7	51.0	51.9	15.6%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.47	0.56	0.51	0.51	0.77	0.82	0.82	73.3%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.19	0.22	0.20	0.20	0.30	0.32	0.32	73.3%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	12.64	15.23	13.34	13.10	18.86	20.32	20.38	61.2%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	138	136	148	233	255	258	158.5%
Population index	100	115	129	143	156	158	160	60.3%
GDP PPP per population index	100	102	97	97	92	92	93	-6.9%
Energy intensity index - TPES / GDP PPP	100	111	111	93	131	154	150	49.9%
Carbon intensity index - CO <sub>2</sub> / TPES	100	106	99	116	124	114	116	15.6%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>1.99</b>	<b>6.40</b>	-	<b>8.40</b>	<b>158.5%</b>
Main activity producer elec. and heat	-	0.03	2.35	-	2.38	119.9%
Unallocated autoproducers	-	-	0.46	-	0.46	x
Other energy industry own use	-	0.03	2.09	-	2.12	47.3%
Manufacturing industries and construction	-	0.55	1.45	-	2.00	+
Transport	-	1.33	-	-	1.33	142.9%
<i>of which: road</i>	-	1.33	-	-	1.33	142.6%
Other	-	0.04	0.05	-	0.10	117.8%
<i>of which: residential</i>	-	0.04	0.05	-	0.10	117.8%
<b>Reference Approach</b>	-	<b>2.07</b>	<b>6.62</b>	-	<b>8.69</b>	<b>116.4%</b>
Diff. due to losses and/or transformation	-	0.10	0.17	-	0.27	
Statistical differences	-	-0.03	0.05	-	0.02	
<i>Memo: international marine bunkers</i>	-	0.20	-	-	0.20	78.4%
<i>Memo: international aviation bunkers</i>	-	0.25	-	-	0.25	122.2%

\*\* Other includes industrial waste and non-renewable municipal waste.

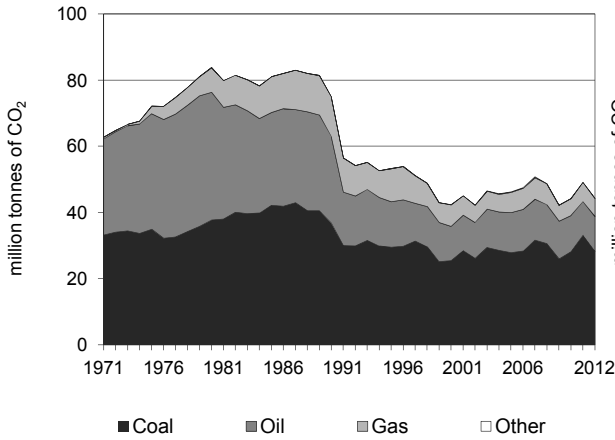
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - gas	2.35	118.9%	16.9	16.9
Other energy industry own use - gas	2.09	45.2%	15.0	31.9
Manufacturing industries - gas	1.45	x	10.4	42.3
Road - oil	1.33	142.6%	9.5	51.9
Manufacturing industries - oil	0.55	317.4%	4.0	55.8
Unallocated autoproducers - gas	0.46	x	3.3	59.1
Residential - gas	0.05	x	0.4	59.5
Residential - oil	0.04	-2.2%	0.3	59.8
Other energy industry own use - oil	0.03	999.9%	0.3	60.1
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<b>8.40</b>	<b>158.5%</b>	<b>60.3</b>	<b>60.3</b>

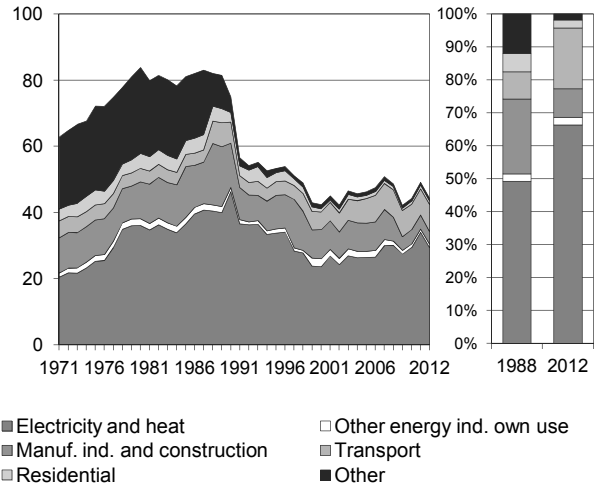
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Bulgaria

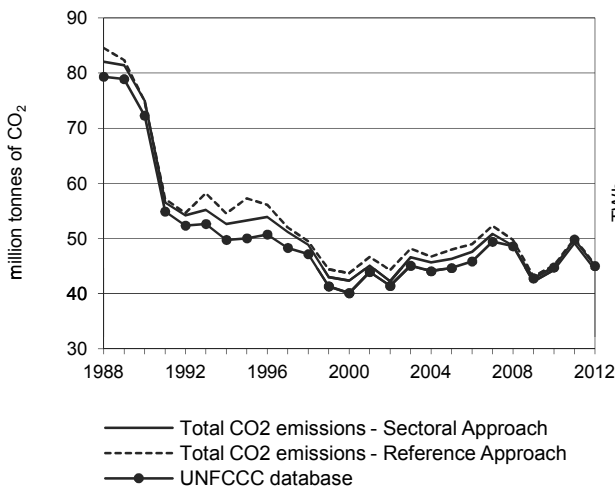
**Figure 1. CO<sub>2</sub> emissions by fuel**



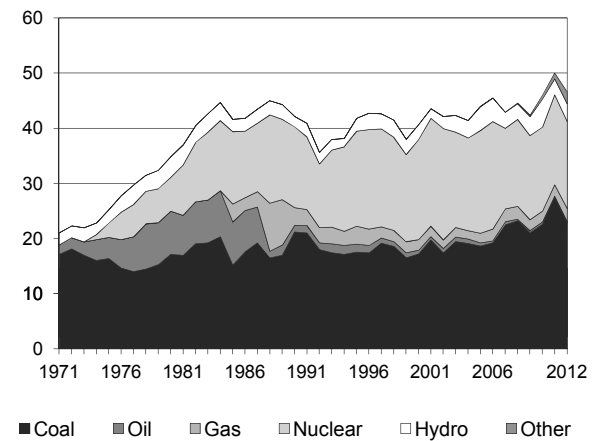
**Figure 2. CO<sub>2</sub> emissions by sector**



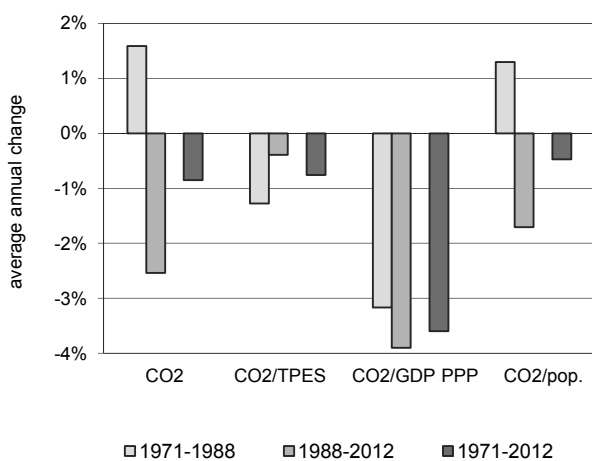
**Figure 3. Reference vs Sectoral Approach**



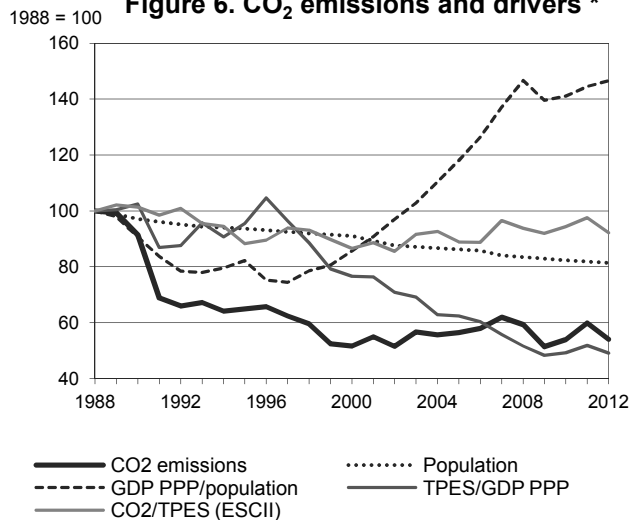
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Bulgaria \*

### Key indicators

	1988	1990	1995	2005	2010	2011	2012	% change 88-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	82.07	74.94	53.27	46.30	44.23	49.12	44.30	-46.0%
TPES (PJ)	1 312	1 182	964	833	749	804	768	-41.4%
GDP (billion 2005 USD)	28.40	24.97	21.87	28.90	32.99	33.59	33.85	19.2%
GDP PPP (billion 2005 USD)	74.63	65.60	57.46	75.92	86.69	88.25	88.95	19.2%
Population (millions)	8.98	8.72	8.41	7.74	7.40	7.35	7.31	-18.7%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	62.6	63.4	55.2	55.6	59.0	61.1	57.7	-7.8%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	2.89	3.00	2.44	1.60	1.34	1.46	1.31	-54.7%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	1.10	1.14	0.93	0.61	0.51	0.56	0.50	-54.7%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	9.14	8.60	6.34	5.98	5.98	6.69	6.06	-33.7%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1988=100) **</b>								
CO <sub>2</sub> emissions index	100	91	65	56	54	60	54	-46.0%
Population index	100	97	94	86	82	82	81	-18.7%
GDP PPP per population index	100	91	82	118	141	145	147	46.5%
Energy intensity index - TPES / GDP PPP	100	103	95	62	49	52	49	-50.9%
Carbon intensity index - CO <sub>2</sub> / TPES	100	101	88	89	94	98	92	-7.8%

\* Under the Convention Bulgaria is allowed to use 1988 as the base year. \*\* Please see Part I, Chapter 1 for methodological notes. Based on GDP PPP.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other ***	Total	% change 88-12
<b>Sectoral Approach</b>	<b>28.24</b>	<b>10.58</b>	<b>5.45</b>	<b>0.03</b>	<b>44.30</b>	<b>-46.0%</b>
Main activity producer elec. and heat	26.38	0.68	2.25	-	29.30	-24.2%
Unallocated autoproducers	-	0.00	0.07	-	0.07	-96.1%
Other energy industry own use	0.00	0.94	0.09	-	1.03	-43.8%
Manufacturing industries and construction	0.91	0.83	2.06	0.03	3.83	-79.5%
Transport	-	7.54	0.63	-	8.17	20.4%
<i>of which: road</i>	-	7.44	0.15	-	7.59	11.9%
Other	0.94	0.59	0.37	-	1.90	-86.8%
<i>of which: residential</i>	0.91	0.07	0.12	-	1.10	-75.7%
<b>Reference Approach</b>	<b>28.44</b>	<b>11.19</b>	<b>5.58</b>	<b>0.03</b>	<b>45.25</b>	<b>-46.5%</b>
Diff. due to losses and/or transformation	0.41	0.47	0.10	-	0.98	
Statistical differences	-0.21	0.14	0.04	-	-0.03	
<i>Memo: international marine bunkers</i>	-	0.20	-	-	0.20	-78.8%
<i>Memo: international aviation bunkers</i>	-	0.48	-	-	0.48	-61.8%

\*\*\* Other includes industrial waste and non-renewable municipal waste.

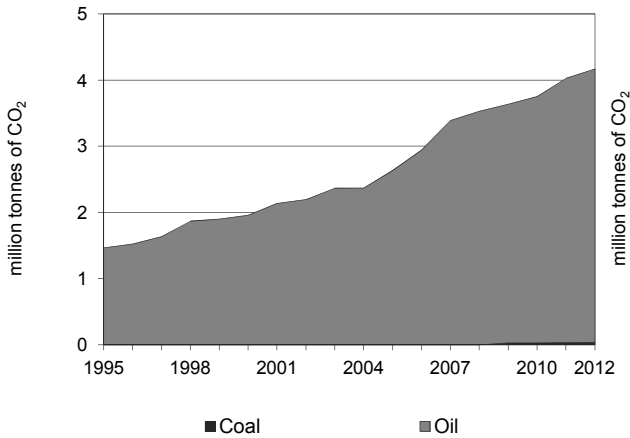
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 88-12	Level assessment (%) ****	Cumulative total (%)
Main activity prod. elec. and heat - coal	26.38	10.3%	43.7	43.7
Road - oil	7.44	9.6%	12.3	56.1
Main activity prod. elec. and heat - gas	2.25	-65.9%	3.7	59.8
Manufacturing industries - gas	2.06	x	3.4	63.2
Other energy industry own use - oil	0.94	-48.7%	1.6	64.7
Manufacturing industries - coal	0.91	-91.7%	1.5	66.3
Residential - coal	0.91	-73.1%	1.5	67.8
Manufacturing industries - oil	0.83	-89.1%	1.4	69.1
Main activity prod. elec. and heat - oil	0.68	-91.7%	1.1	70.3
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>44.30</i>	<i>-46.0%</i>	<i>73.4</i>	<i>73.4</i>

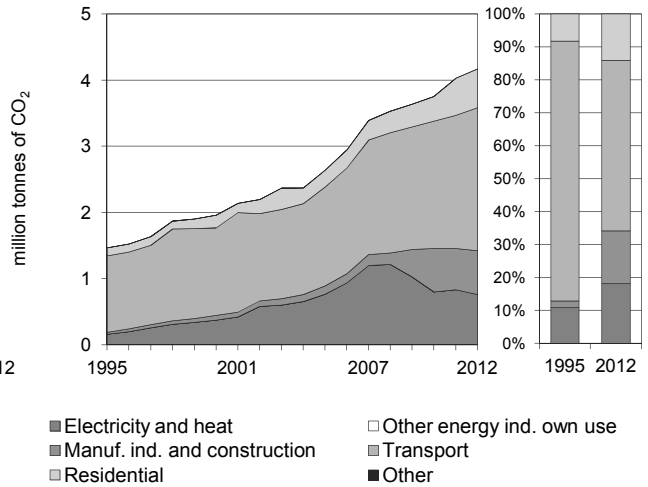
\*\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Cambodia

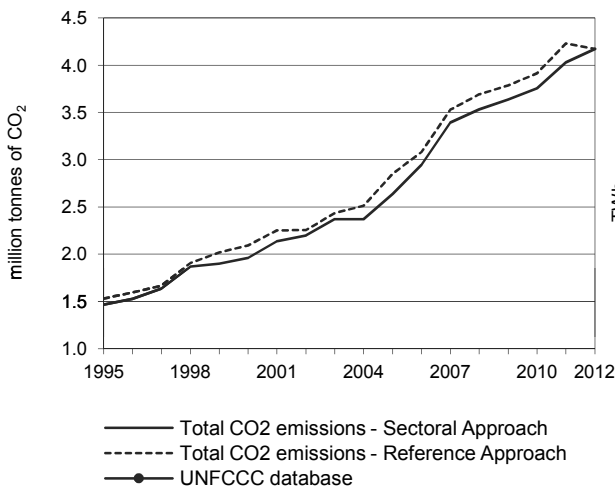
**Figure 1. CO<sub>2</sub> emissions by fuel**



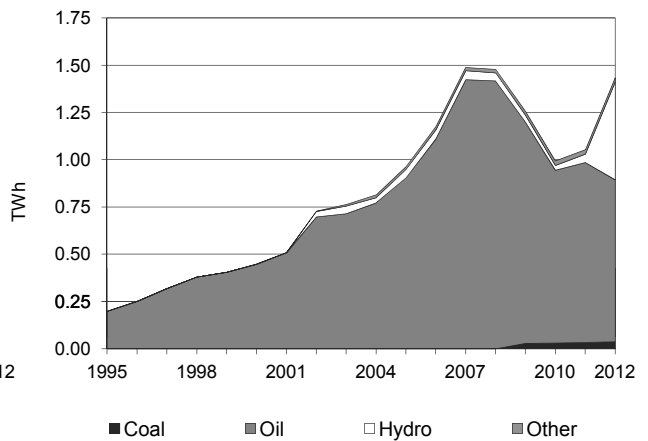
**Figure 2. CO<sub>2</sub> emissions by sector**



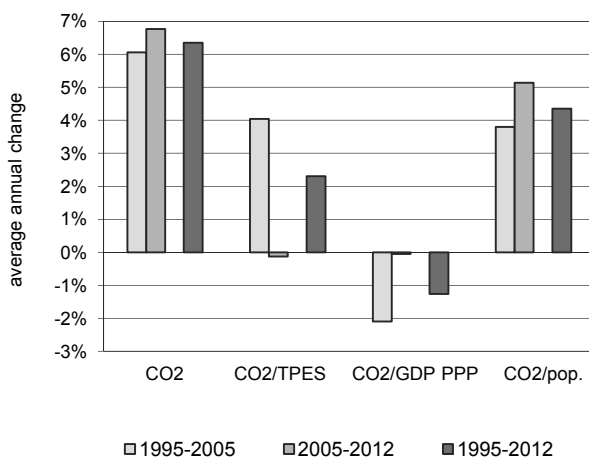
**Figure 3. Reference vs Sectoral Approach**



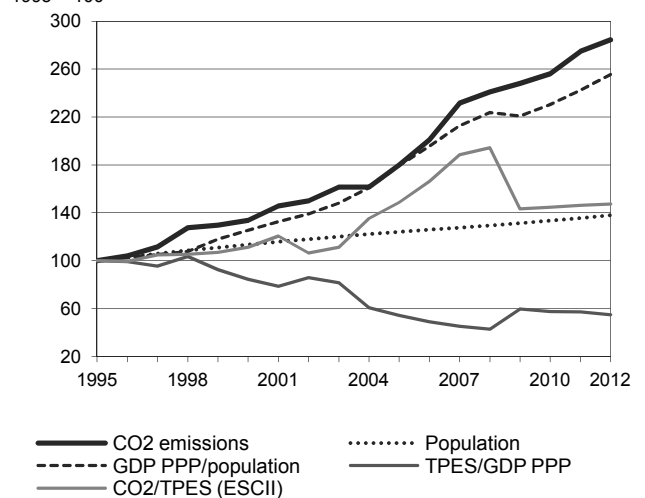
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Cambodia \*

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 95-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	..	1.47	1.96	2.64	3.76	4.03	4.17	184.5%
TPES (PJ)	..	119	143	144	210	223	230	93.2%
GDP (billion 2005 USD)	..	2.83	4.03	6.29	8.69	9.31	9.98	252.8%
GDP PPP (billion 2005 USD)	..	10.47	14.91	23.30	32.18	34.45	36.96	252.8%
Population (millions)	..	10.77	12.22	13.36	14.37	14.61	14.87	38.0%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	..	12.3	13.7	18.3	17.9	18.0	18.2	47.2%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	..	0.52	0.49	0.42	0.43	0.43	0.42	-19.4%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	..	0.14	0.13	0.11	0.12	0.12	0.11	-19.4%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	..	0.14	0.16	0.20	0.26	0.28	0.28	106.2%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1995=100) **</b>								
CO <sub>2</sub> emissions index	..	100	134	180	256	275	285	184.5%
Population index	..	100	114	124	133	136	138	38.0%
GDP PPP per population index	..	100	125	179	230	243	256	155.6%
Energy intensity index - TPES / GDP PPP	..	100	85	54	58	57	55	-45.2%
Carbon intensity index - CO <sub>2</sub> / TPES	..	100	111	149	145	146	147	47.2%

\* Prior to 1995, data for Cambodia were included in Other Asia. \*\* Please see Part I, Chapter 1 for methodological notes. Based on GDP PPP.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other ***	Total	% change 95-12
<b>Sectoral Approach</b>	<b>0.04</b>	<b>4.13</b>	-	-	<b>4.17</b>	<b>184.5%</b>
Main activity producer elec. and heat	0.04	0.72	-	-	0.76	376.1%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.67	-	-	0.67	+
Transport	-	2.16	-	-	2.16	87.2%
<i>of which: road</i>	-	1.78	-	-	1.78	66.8%
Other	-	0.59	-	-	0.59	381.7%
<i>of which: residential</i>	-	0.59	-	-	0.59	381.7%
<b>Reference Approach</b>	<b>0.04</b>	<b>4.13</b>	-	-	<b>4.17</b>	<b>172.4%</b>
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	0.00	-	-	0.00	-
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.09	-	-	0.09	190.0%

\*\*\* Other includes industrial waste and non-renewable municipal waste.

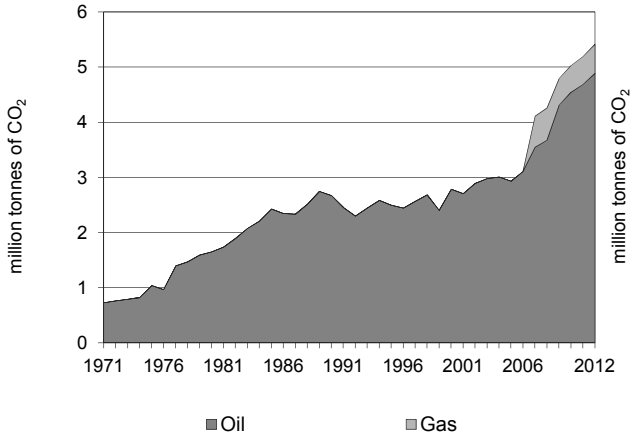
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 95-12	Level assessment (%) ****	Cumulative total (%)
Road - oil	1.78	66.8%	3.0	3.0
Main activity prod. elec. and heat - oil	0.72	351.4%	1.2	4.2
Manufacturing industries - oil	0.67	+	1.1	5.4
Residential - oil	0.59	381.7%	1.0	6.3
Other transport - oil	0.39	325.0%	0.7	7.0
Main activity prod. elec. and heat - coal	0.04	x	0.1	7.1
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>4.17</i>	<i>184.5%</i>	<i>7.1</i>	<i>7.1</i>

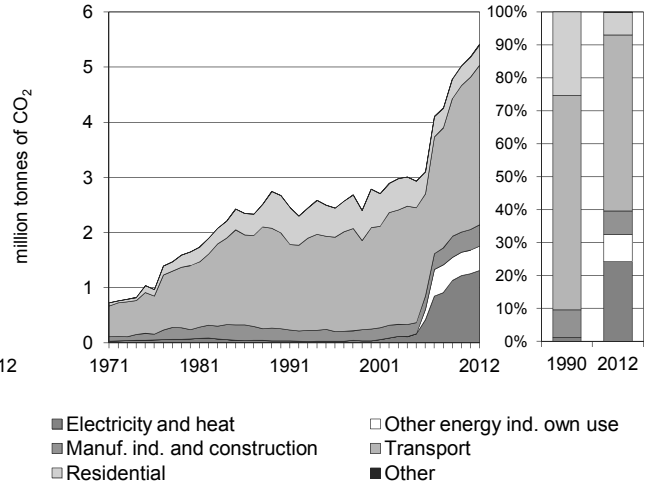
\*\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Cameroon

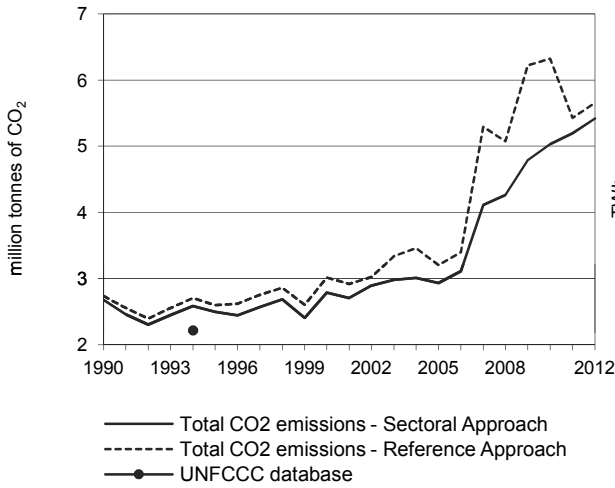
**Figure 1. CO<sub>2</sub> emissions by fuel**



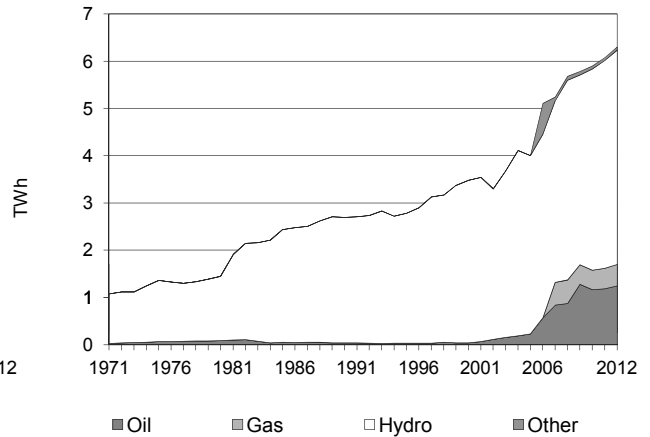
**Figure 2. CO<sub>2</sub> emissions by sector**



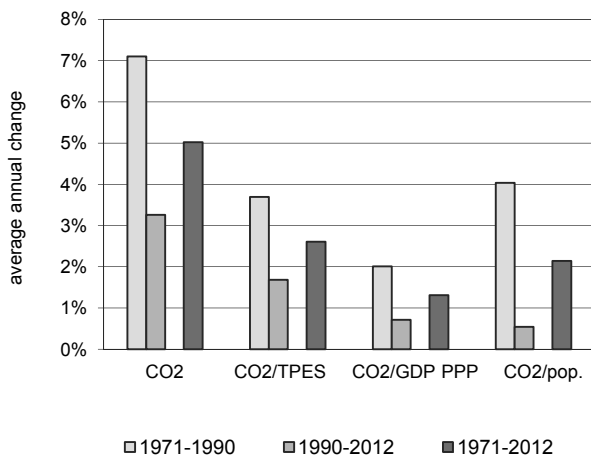
**Figure 3. Reference vs Sectoral Approach**



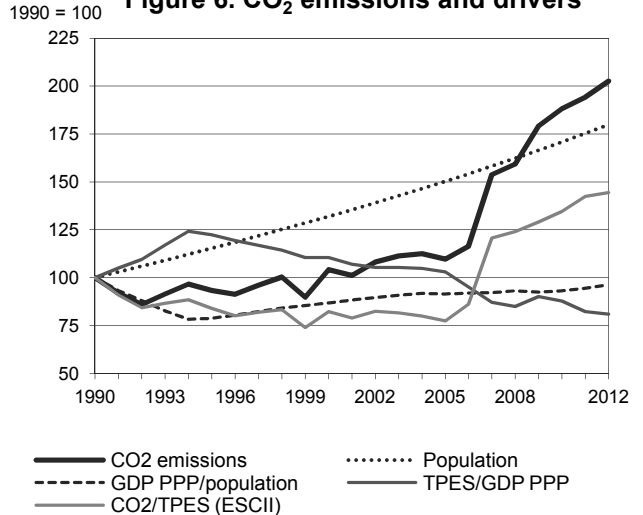
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Cameroon

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	2.67	2.50	2.79	2.93	5.03	5.19	5.42	102.6%
TPES (PJ)	209	232	264	295	292	284	292	40.3%
GDP (billion 2005 USD)	12.07	10.97	13.83	16.59	19.21	20.00	20.91	73.3%
GDP PPP (billion 2005 USD)	28.47	25.87	32.62	39.14	45.32	47.18	49.34	73.3%
Population (millions)	12.07	13.93	15.93	18.14	20.62	21.16	21.70	79.8%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	12.8	10.8	10.5	9.9	17.2	18.3	18.5	44.5%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.22	0.23	0.20	0.18	0.26	0.26	0.26	16.9%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.09	0.10	0.09	0.07	0.11	0.11	0.11	16.9%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.22	0.18	0.17	0.16	0.24	0.25	0.25	12.7%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	93	104	110	188	194	203	102.6%
Population index	100	115	132	150	171	175	180	79.8%
GDP PPP per population index	100	79	87	91	93	95	96	-3.6%
Energy intensity index - TPES / GDP PPP	100	122	111	103	88	82	81	-19.1%
Carbon intensity index - CO <sub>2</sub> / TPES	100	84	82	77	135	142	144	44.5%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>4.89</b>	<b>0.53</b>	-	<b>5.42</b>	<b>102.6%</b>
Main activity producer elec. and heat	-	0.24	-	-	0.24	601.2%
Unallocated autoproducers	-	0.83	0.24	-	1.07	x
Other energy industry own use	-	0.16	0.28	-	0.44	x
Manufacturing industries and construction	-	0.39	-	-	0.39	74.1%
Transport	-	2.89	-	-	2.89	66.6%
<i>of which: road</i>	-	2.76	-	-	2.76	58.9%
Other	-	0.38	-	-	0.38	-43.9%
<i>of which: residential</i>	-	0.37	-	-	0.37	-45.7%
<b>Reference Approach</b>	-	<b>5.00</b>	<b>0.66</b>	-	<b>5.66</b>	<b>107.1%</b>
Diff. due to losses and/or transformation	-	0.11	0.13	-	0.24	
Statistical differences	-	0.00	0.00	-	0.00	
<i>Memo: international marine bunkers</i>	-	0.15	-	-	0.15	260.6%
<i>Memo: international aviation bunkers</i>	-	0.22	-	-	0.22	47.9%

\*\* Other includes industrial waste and non-renewable municipal waste.

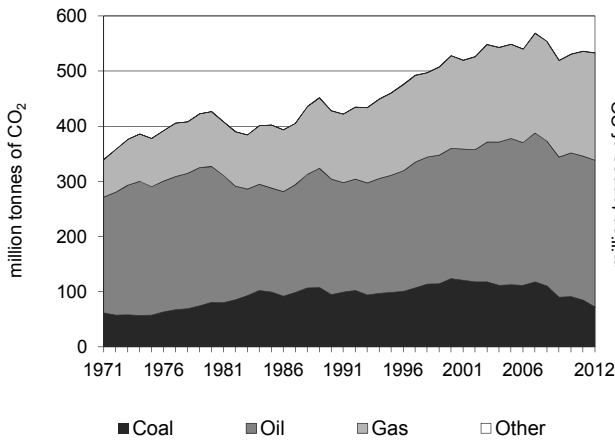
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	2.76	58.9%	6.7	6.7
Unallocated autoproducers - oil	0.83	x	2.0	8.7
Manufacturing industries - oil	0.39	74.1%	0.9	9.7
Residential - oil	0.37	-45.7%	0.9	10.6
Other energy industry own use - gas	0.28	x	0.7	11.3
Main activity prod. elec. and heat - oil	0.24	601.2%	0.6	11.9
Unallocated autoproducers - gas	0.24	x	0.6	12.5
Other energy industry own use - oil	0.16	x	0.4	12.9
Other transport - oil	0.13	x	0.3	13.2
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	5.42	102.6%	13.2	13.2

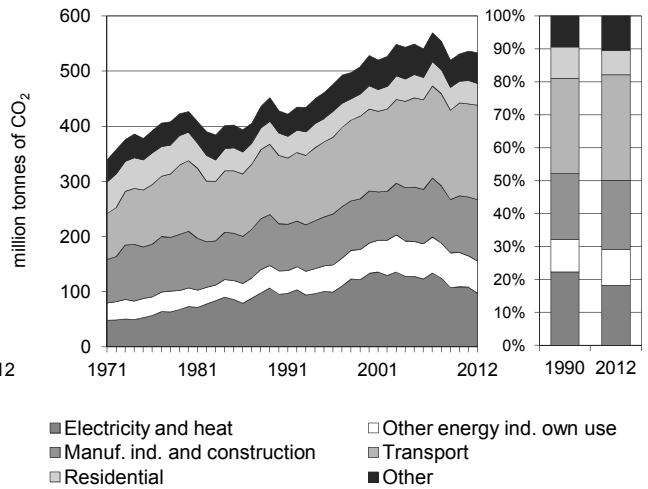
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Canada

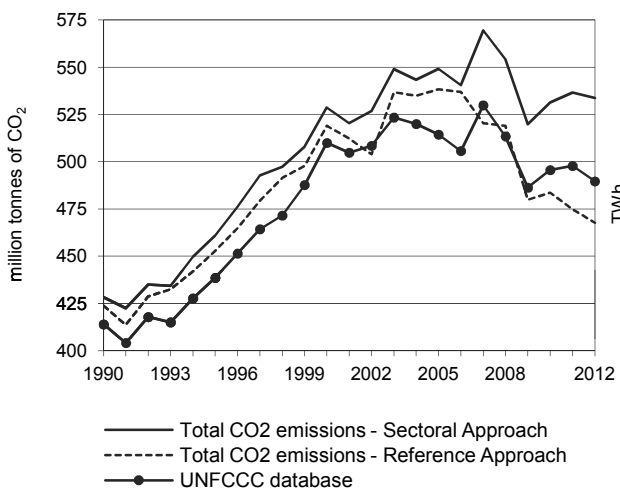
**Figure 1. CO<sub>2</sub> emissions by fuel**



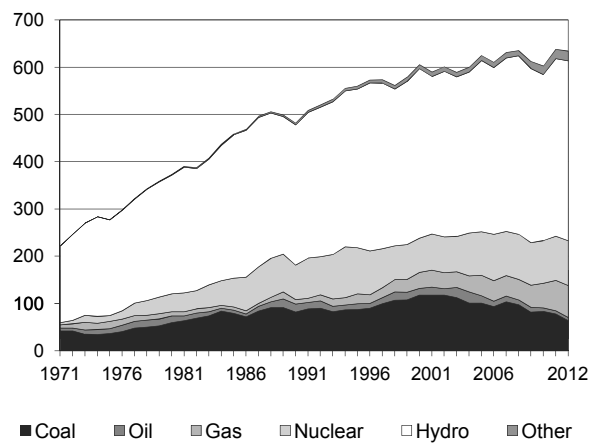
**Figure 2. CO<sub>2</sub> emissions by sector**



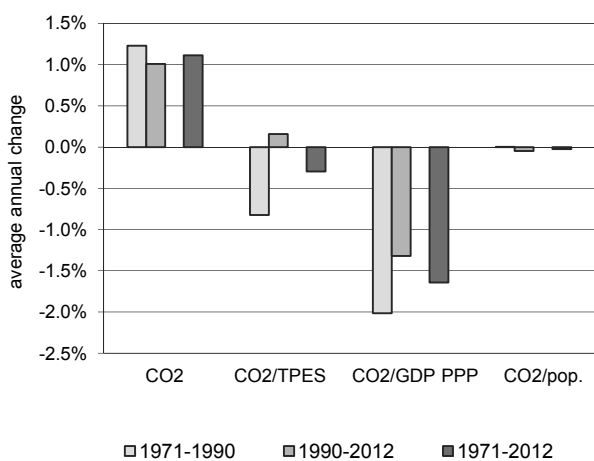
**Figure 3. Reference vs Sectoral Approach**



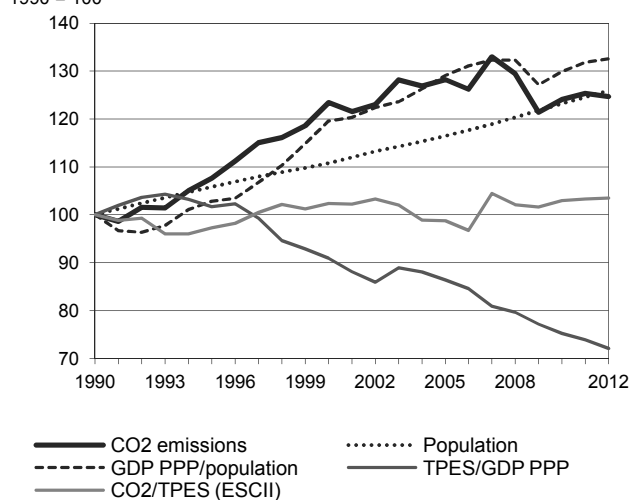
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Canada

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	428.20	460.88	528.57	549.12	531.36	536.66	533.74	24.6%
TPES (PJ)	8 732	9 662	10 530	11 335	10 522	10 592	10 514	20.4%
GDP (billion 2005 USD)	774.59	842.77	1 026.88	1 164.18	1 240.07	1 271.42	1 293.15	66.9%
GDP PPP (billion 2005 USD)	773.38	841.46	1 025.29	1 162.38	1 238.14	1 269.45	1 291.14	66.9%
Population (millions)	27.69	29.30	30.69	32.25	34.13	34.48	34.88	26.0%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	49.0	47.7	50.2	48.4	50.5	50.7	50.8	3.5%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.55	0.55	0.51	0.47	0.43	0.42	0.41	-25.3%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.55	0.55	0.52	0.47	0.43	0.42	0.41	-25.3%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	15.46	15.73	17.23	17.03	15.57	15.56	15.30	-1.0%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	108	123	128	124	125	125	24.6%
Population index	100	106	111	116	123	125	126	26.0%
GDP PPP per population index	100	103	120	129	130	132	133	32.5%
Energy intensity index - TPES / GDP PPP	100	102	91	86	75	74	72	-27.9%
Carbon intensity index - CO <sub>2</sub> / TPES	100	97	102	99	103	103	104	3.5%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>71.88</b>	<b>266.80</b>	<b>194.28</b>	<b>0.77</b>	<b>533.74</b>	<b>24.6%</b>
Main activity producer elec. and heat	57.37	4.58	25.96	-	87.91	-4.8%
Unallocated autoproducers	0.00	1.59	7.47	0.20	9.26	192.6%
Other energy industry own use	-	26.44	32.10	-	58.54	38.2%
Manufacturing industries and construction	14.44	30.50	66.00	0.57	111.52	30.6%
Transport	-	165.57	5.79	-	171.36	38.4%
<i>of which: road</i>	-	143.11	0.09	-	143.20	49.7%
Other	0.07	38.12	56.96	-	95.14	17.4%
<i>of which: residential</i>	0.07	7.14	31.75	-	38.96	-4.5%
<b>Reference Approach</b>	<b>72.15</b>	<b>202.36</b>	<b>192.43</b>	<b>0.77</b>	<b>467.71</b>	<b>10.4%</b>
Diff. due to losses and/or transformation	0.76	-47.02	8.84	-	-37.41	
Statistical differences	-0.49	-17.43	-10.69	-	-28.61	
<i>Memo: international marine bunkers</i>	-	1.57	-	-	1.57	-45.1%
<i>Memo: international aviation bunkers</i>	-	2.97	-	-	2.97	9.9%

\*\* Other includes industrial waste and non-renewable municipal waste.

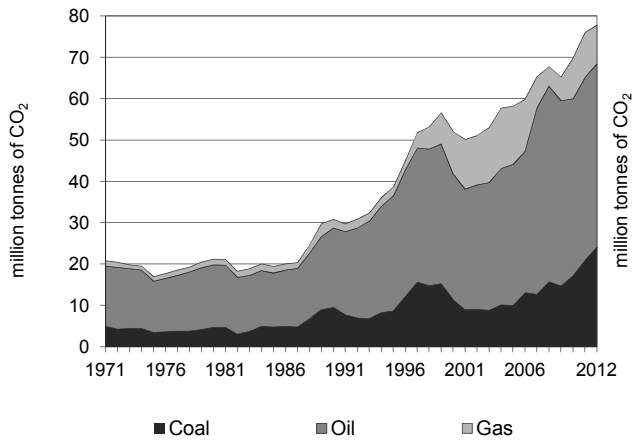
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	143.11	49.7%	19.3	19.3
Manufacturing industries - gas	66.00	47.7%	8.9	28.2
Main activity prod. elec. and heat - coal	57.37	-27.2%	7.7	35.9
Other energy industry own use - gas	32.10	54.2%	4.3	40.2
Residential - gas	31.75	19.6%	4.3	44.5
Non-specified other - oil	30.97	57.6%	4.2	48.6
Manufacturing industries - oil	30.50	20.3%	4.1	52.7
Other energy industry own use - oil	26.44	24.9%	3.6	56.3
Main activity prod. elec. and heat - gas	25.96	780.9%	3.5	59.8
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>533.74</i>	<i>24.6%</i>	<i>71.9</i>	<i>71.9</i>

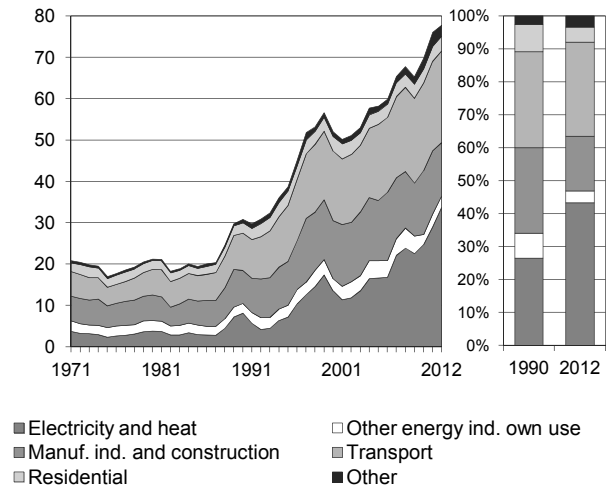
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Chile

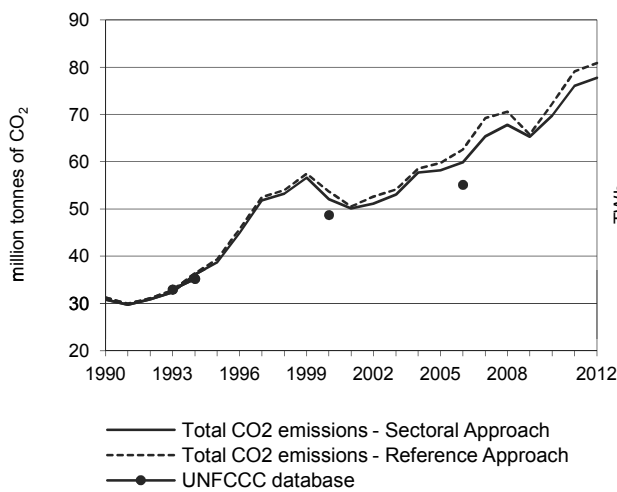
**Figure 1. CO<sub>2</sub> emissions by fuel**



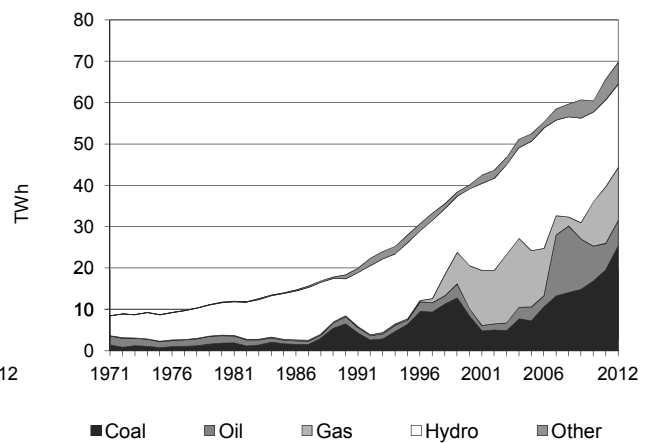
**Figure 2. CO<sub>2</sub> emissions by sector**



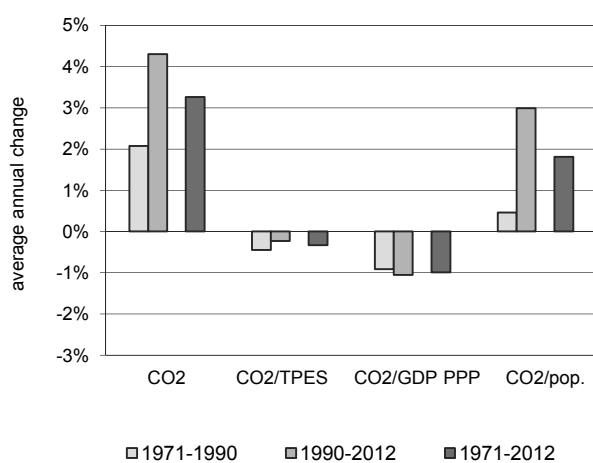
**Figure 3. Reference vs Sectoral Approach**



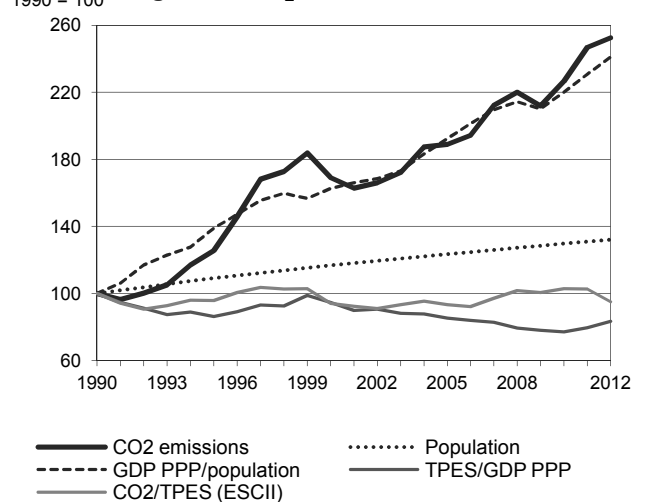
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Chile

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	30.81	38.66	52.06	58.18	69.77	76.02	77.77	152.4%
TPES (PJ)	587	768	1 054	1 187	1 291	1 410	1 558	165.6%
GDP (billion 2005 USD)	51.81	78.58	98.41	123.06	147.87	156.52	165.22	218.9%
GDP PPP (billion 2005 USD)	86.92	131.82	165.09	206.43	248.06	262.54	276.67	218.3%
Population (millions)	13.18	14.40	15.40	16.27	17.09	17.25	17.40	32.1%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	52.5	50.3	49.4	49.0	54.0	53.9	49.9	-5.0%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.59	0.49	0.53	0.47	0.47	0.49	0.47	-20.8%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.35	0.29	0.32	0.28	0.28	0.29	0.28	-20.7%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	2.34	2.69	3.38	3.58	4.08	4.41	4.47	91.2%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	125	169	189	226	247	252	152.5%
Population index	100	109	117	123	130	131	132	32.1%
GDP PPP per population index	100	139	163	192	220	231	241	141.1%
Energy intensity index - TPES / GDP PPP	100	86	95	85	77	80	83	-16.6%
Carbon intensity index - CO <sub>2</sub> / TPES	100	96	94	93	103	103	95	-5.0%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>24.10</b>	<b>44.32</b>	<b>9.35</b>	-	<b>77.77</b>	<b>152.4%</b>
Main activity producer elec. and heat	22.01	4.11	5.46	-	31.58	498.6%
Unallocated autoproducers	-	1.93	0.17	-	2.10	-27.0%
Other energy industry own use	1.29	0.89	0.60	-	2.78	18.7%
Manufacturing industries and construction	0.74	10.30	1.86	-	12.91	61.9%
Transport	-	22.14	0.07	-	22.20	147.0%
<i>of which: road</i>	-	20.03	0.07	-	20.09	159.1%
Other	0.05	4.95	1.20	-	6.20	85.3%
<i>of which: residential</i>	0.02	2.62	0.91	-	3.55	40.1%
<b>Reference Approach</b>	<b>23.90</b>	<b>47.13</b>	<b>9.82</b>	-	<b>80.85</b>	<b>159.0%</b>
Diff. due to losses and/or transformation	0.59	4.22	-0.01	-	4.80	
Statistical differences	-0.79	-1.41	0.48	-	-1.73	
<i>Memo: international marine bunkers</i>	-	0.53	-	-	0.53	-7.2%
<i>Memo: international aviation bunkers</i>	-	2.11	-	-	2.11	273.2%

\*\* Other includes industrial waste and non-renewable municipal waste.

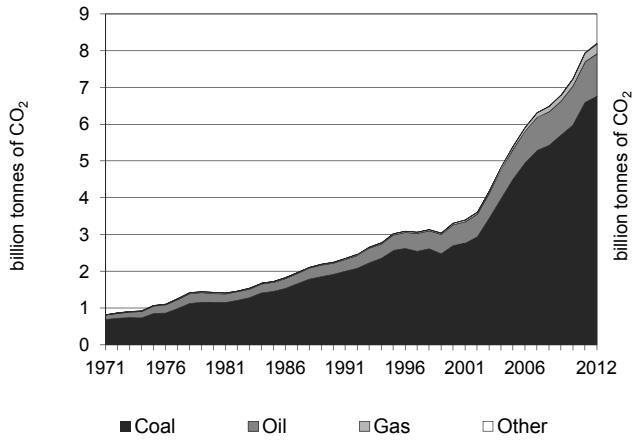
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	22.01	404.1%	20.5	20.5
Road - oil	20.03	158.7%	18.6	39.1
Manufacturing industries - oil	10.30	119.0%	9.6	48.7
Main activity prod. elec. and heat - gas	5.46	+	5.1	53.8
Main activity prod. elec. and heat - oil	4.11	403.5%	3.8	57.7
Residential - oil	2.62	26.1%	2.4	60.1
Non-specified other - oil	2.33	301.4%	2.2	62.3
Other transport - oil	2.11	70.6%	2.0	64.2
Unallocated autoproducers - oil	1.93	182.3%	1.8	66.0
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>77.77</i>	<i>152.4%</i>	<i>72.4</i>	<i>72.4</i>

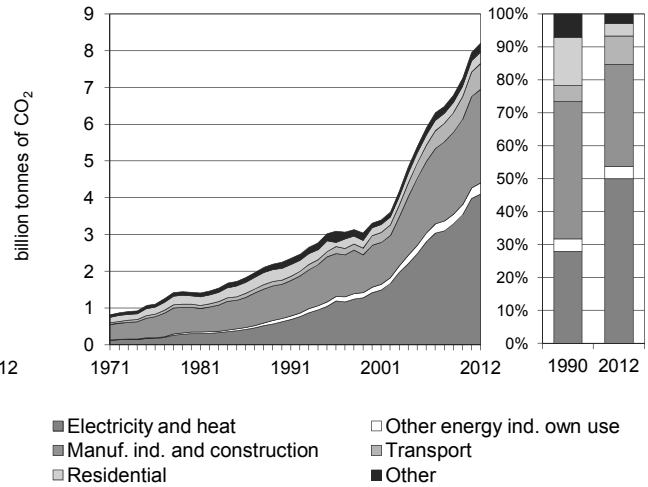
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## People's Republic of China

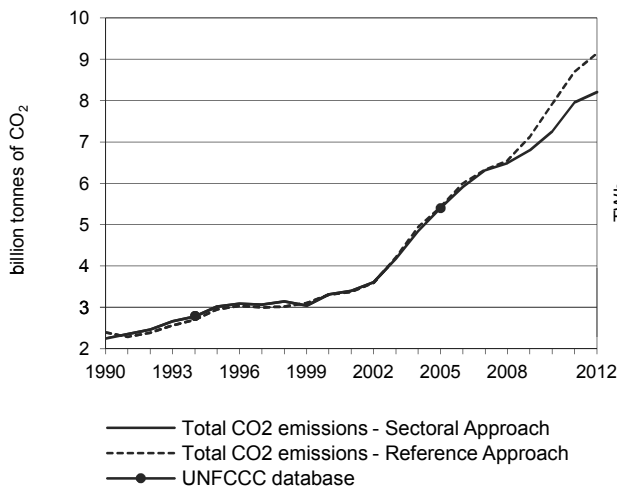
**Figure 1. CO<sub>2</sub> emissions by fuel**



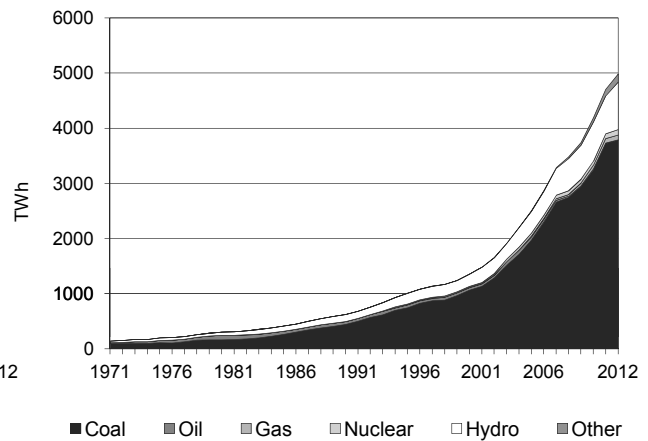
**Figure 2. CO<sub>2</sub> emissions by sector**



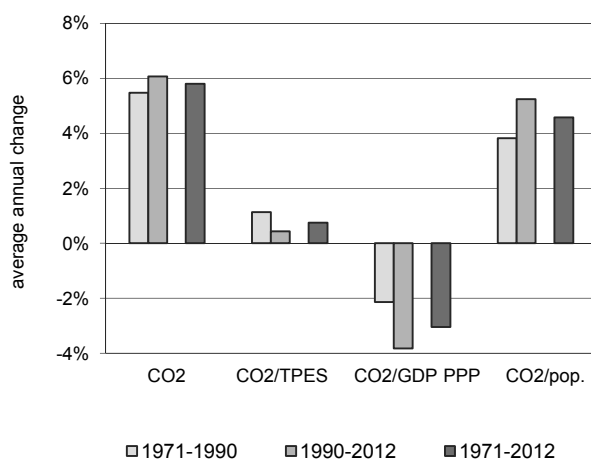
**Figure 3. Reference vs Sectoral Approach**



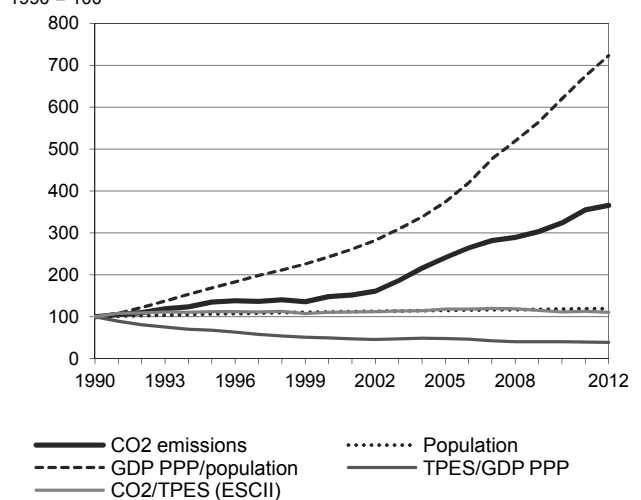
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## People's Republic of China

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	2 244.9	3 021.6	3 310.1	5 403.1	7 252.8	7 954.8	8 205.9	265.5%
TPES (PJ)	36 454	43 729	48 624	74 344	105 777	115 008	121 178	232.4%
GDP (billion 2005 USD)	525.7	937.4	1 417.0	2 256.9	3 838.0	4 194.9	4 522.1	760.2%
GDP PPP (billion 2005 USD)	1 507.6	2 688.2	4 063.8	6 472.3	11 006.6	12 030.2	12 968.6	760.2%
Population (millions)	1 135.2	1 204.9	1 262.6	1 303.7	1 337.7	1 344.1	1 350.7	19.0%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	61.6	69.1	68.1	72.7	68.6	69.2	67.7	10.0%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	4.27	3.22	2.34	2.39	1.89	1.90	1.81	-57.5%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	1.49	1.12	0.81	0.83	0.66	0.66	0.63	-57.5%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	1.98	2.51	2.62	4.14	5.42	5.92	6.08	207.2%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	135	147	241	323	354	366	265.5%
Population index	100	106	111	115	118	118	119	19.0%
GDP PPP per population index	100	168	242	374	620	674	723	623.0%
Energy intensity index - TPES / GDP PPP	100	67	49	48	40	40	39	-61.4%
Carbon intensity index - CO <sub>2</sub> / TPES	100	112	111	118	111	112	110	10.0%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>6 764.4</b>	<b>1 153.7</b>	<b>266.2</b>	<b>21.5</b>	<b>8 205.9</b>	<b>265.5%</b>
Main activity producer elec. and heat	3 960.3	8.7	51.1	-	4 020.2	552.2%
Unallocated autoproducers	54.8	7.9	-	21.5	84.1	671.0%
Other energy industry own use	195.9	67.7	37.0	-	300.6	251.4%
Manufacturing industries and construction	2 226.2	239.7	80.2	-	2 546.1	172.2%
Transport	11.7	666.1	25.1	-	702.9	546.9%
<i>of which: road</i>	-	538.4	24.7	-	563.1	871.8%
Other	315.5	163.6	72.9	-	552.0	13.1%
<i>of which: residential</i>	186.9	67.2	56.4	-	310.4	-5.4%
<b>Reference Approach</b>	<b>7 641.3</b>	<b>1 204.7</b>	<b>271.2</b>	<b>21.6</b>	<b>9 138.8</b>	<b>281.7%</b>
Diff. due to losses and/or transformation	189.8	48.2	4.5	-	242.4	
Statistical differences	687.1	2.8	0.5	0.0	690.5	
<i>Memo: international marine bunkers</i>	-	28.5	-	-	28.5	563.0%
<i>Memo: international aviation bunkers</i>	-	19.4	-	-	19.4	+

\*\* Other includes industrial waste and non-renewable municipal waste.

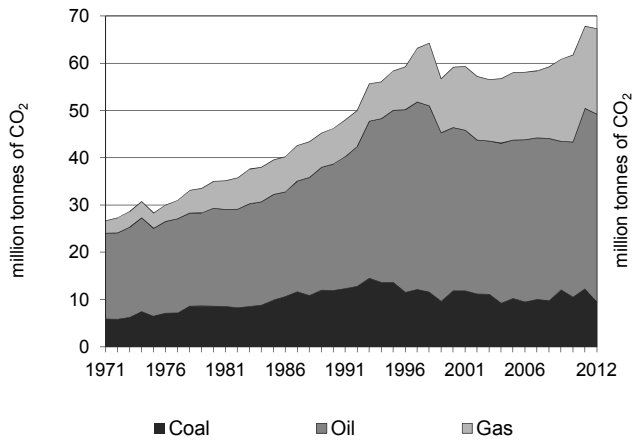
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	3 960.3	592.5%	33.1	33.1
Manufacturing industries - coal	2 226.2	165.6%	18.6	51.7
Road - oil	538.4	829.2%	4.5	56.2
Manufacturing industries - oil	239.7	184.9%	2.0	58.2
Other energy industry - coal	195.9	286.2%	1.6	59.8
Residential - coal	186.9	-40.9%	1.6	61.4
Non-specified other sectors - coal	128.6	26.1%	1.1	62.5
Other transport - oil	127.7	918.4%	1.1	63.6
Non-specified other - oil	96.4	67.6%	0.8	64.4
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>8 205.9</i>	<i>265.5%</i>	<i>68.6</i>	<i>68.6</i>

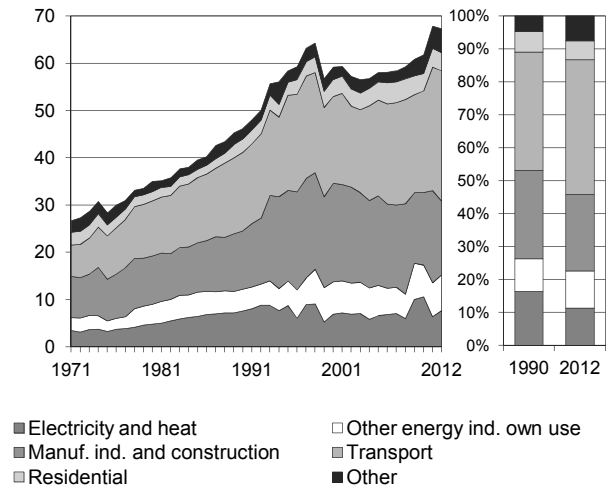
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Colombia

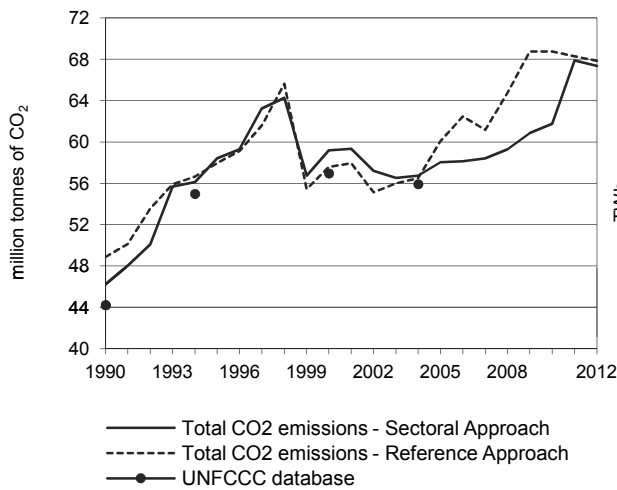
**Figure 1. CO<sub>2</sub> emissions by fuel**



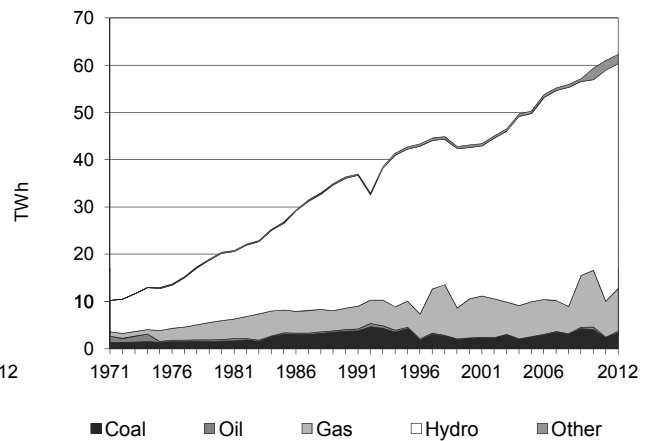
**Figure 2. CO<sub>2</sub> emissions by sector**



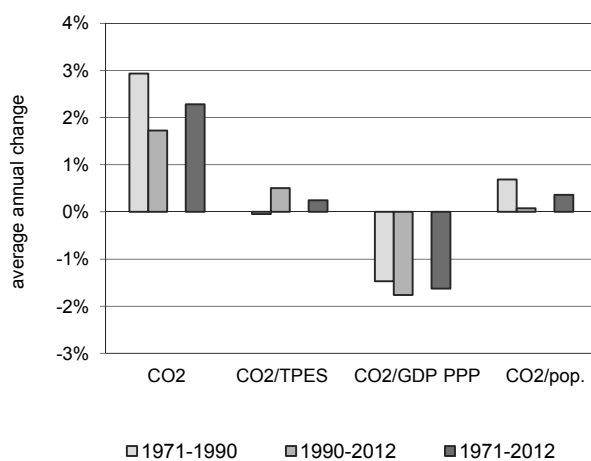
**Figure 3. Reference vs Sectoral Approach**



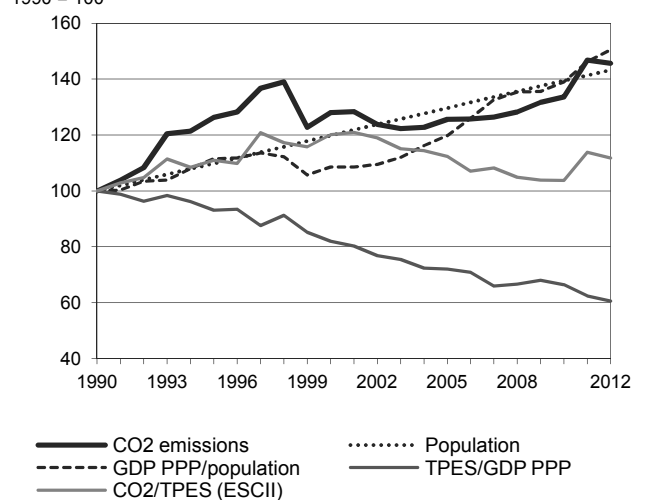
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Colombia

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	46.23	58.41	59.18	58.05	61.76	67.87	67.35	45.7%
TPES (PJ)	1 014	1 156	1 081	1 134	1 306	1 308	1 323	30.4%
GDP (billion 2005 USD)	94.34	115.51	122.66	146.52	182.89	195.05	203.27	115.5%
GDP PPP (billion 2005 USD)	230.66	282.42	299.90	358.24	447.18	476.89	496.98	115.5%
Population (millions)	33.31	36.57	39.90	43.18	46.45	47.08	47.70	43.2%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	45.6	50.5	54.8	51.2	47.3	51.9	50.9	11.7%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.49	0.51	0.48	0.40	0.34	0.35	0.33	-32.4%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.20	0.21	0.20	0.16	0.14	0.14	0.14	-32.4%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	1.39	1.60	1.48	1.34	1.33	1.44	1.41	1.7%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	126	128	126	134	147	146	45.7%
Population index	100	110	120	130	139	141	143	43.2%
GDP PPP per population index	100	112	109	120	139	146	150	50.4%
Energy intensity index - TPES / GDP PPP	100	93	82	72	66	62	61	-39.5%
Carbon intensity index - CO <sub>2</sub> / TPES	100	111	120	112	104	114	112	11.7%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>9.47</b>	<b>39.80</b>	<b>18.09</b>	-	<b>67.35</b>	<b>45.7%</b>
Main activity producer elec. and heat	2.63	0.32	4.02	-	6.96	19.6%
Unallocated autoproducers	0.64	-	0.05	-	0.69	-60.9%
Other energy industry own use	0.06	2.27	5.24	-	7.56	64.7%
Manufacturing industries and construction	5.86	5.18	4.61	-	15.64	26.4%
Transport	0.00	26.41	1.15	-	27.56	65.9%
<i>of which: road</i>	-	25.23	1.15	-	26.38	68.5%
Other	0.28	5.62	3.03	-	8.93	76.4%
<i>of which: residential</i>	0.28	1.40	2.15	-	3.83	34.0%
<b>Reference Approach</b>	<b>10.32</b>	<b>39.03</b>	<b>18.50</b>	-	<b>67.85</b>	<b>38.8%</b>
Diff. due to losses and/or transformation	0.77	0.02	-	-	0.79	
Statistical differences	0.08	-0.78	0.42	-	-0.29	
<i>Memo: international marine bunkers</i>	-	3.90	-	-	3.90	+
<i>Memo: international aviation bunkers</i>	-	2.76	-	-	2.76	77.2%

\*\* Other includes industrial waste and non-renewable municipal waste.

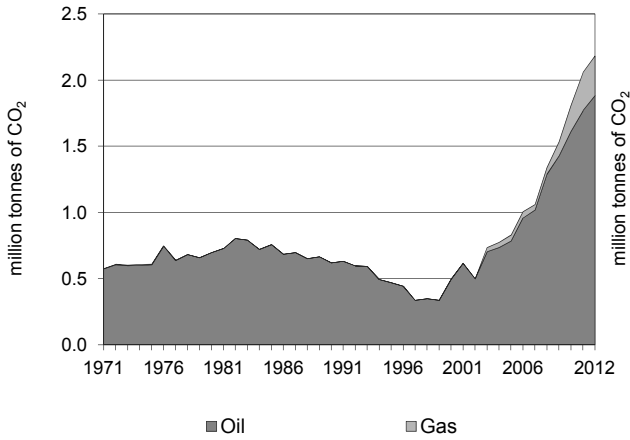
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	25.23	61.1%	14.7	14.7
Manufacturing industries - coal	5.86	0.6%	3.4	18.1
Other energy industry own use - gas	5.24	111.5%	3.0	21.1
Manufacturing industries - oil	5.18	10.3%	3.0	24.2
Manufacturing industries - gas	4.61	148.3%	2.7	26.8
Non-specified other - oil	4.22	94.6%	2.5	29.3
Main activity prod. elec. and heat - gas	4.02	38.3%	2.3	31.6
Main activity prod. elec. and heat - coal	2.63	1.1%	1.5	33.2
Other energy industry own use - oil	2.27	178.6%	1.3	34.5
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>67.35</i>	<i>45.7%</i>	<i>39.2</i>	<i>39.2</i>

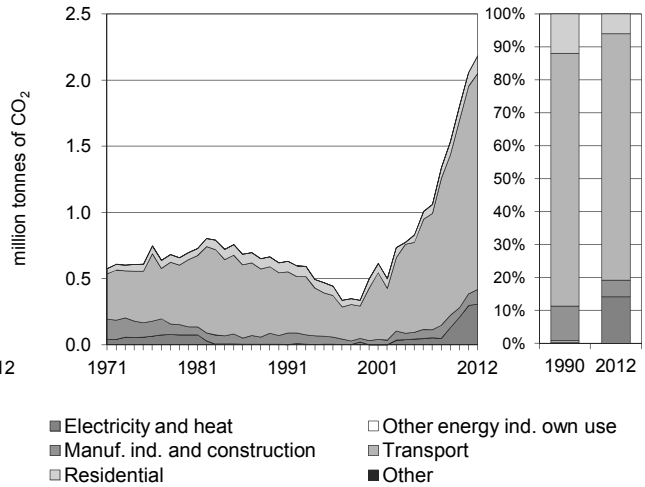
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Congo

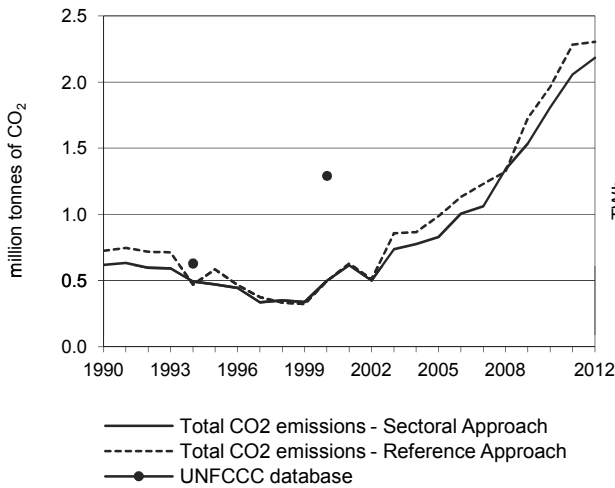
**Figure 1. CO<sub>2</sub> emissions by fuel**



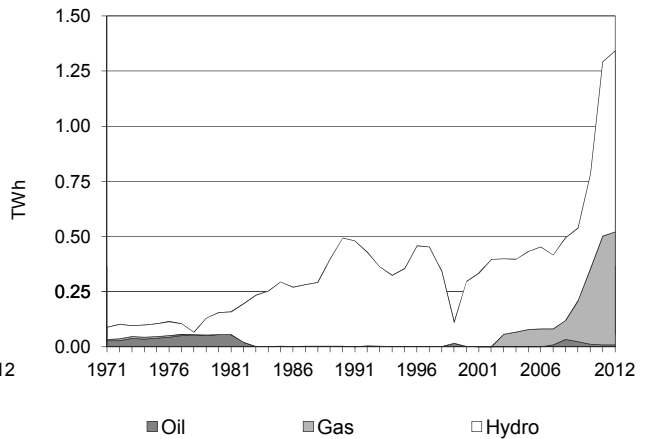
**Figure 2. CO<sub>2</sub> emissions by sector**



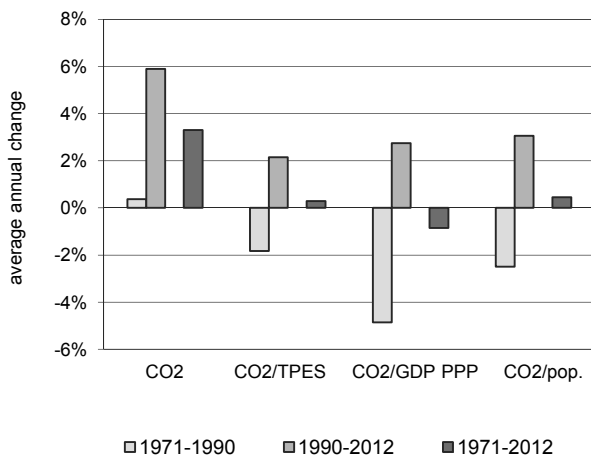
**Figure 3. Reference vs Sectoral Approach**



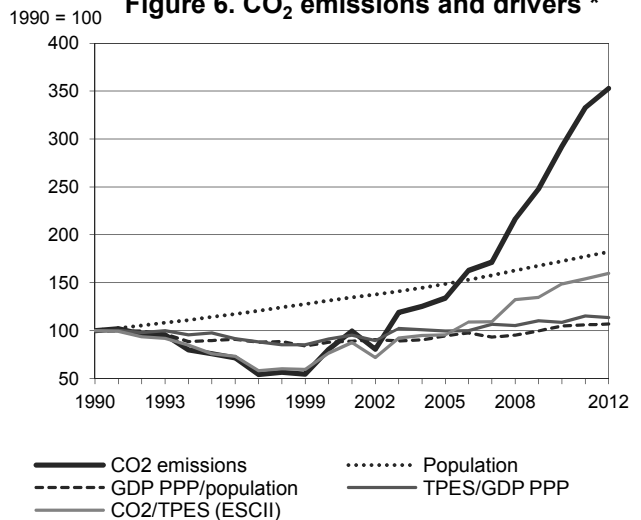
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Congo

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	0.62	0.47	0.50	0.83	1.81	2.06	2.18	252.9%
TPES (PJ)	32	32	34	45	64	70	72	120.9%
GDP (billion 2005 USD)	4.33	4.43	4.99	6.09	7.85	8.12	8.43	94.7%
GDP PPP (billion 2005 USD)	11.18	11.43	12.88	15.72	20.28	20.97	21.77	94.7%
Population (millions)	2.38	2.72	3.13	3.54	4.11	4.23	4.34	82.0%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	19.1	14.5	14.6	18.2	28.3	29.3	30.4	59.7%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.14	0.11	0.10	0.14	0.23	0.25	0.26	81.2%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.06	0.04	0.04	0.05	0.09	0.10	0.10	81.4%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.26	0.17	0.16	0.23	0.44	0.49	0.50	93.9%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	76	80	134	292	333	353	252.9%
Population index	100	114	131	149	173	177	182	82.0%
GDP PPP per population index	100	90	88	95	105	106	107	7.0%
Energy intensity index - TPES / GDP PPP	100	98	91	100	108	115	113	13.5%
Carbon intensity index - CO <sub>2</sub> / TPES	100	76	76	96	149	154	160	59.7%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>1.88</b>	<b>0.30</b>	-	<b>2.18</b>	<b>252.9%</b>
Main activity producer elec. and heat	-	0.01	0.30	-	0.31	+
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	-	0.11	-	-	0.11	73.7%
Transport	-	1.63	-	-	1.63	243.8%
<i>of which: road</i>	-	1.58	-	-	1.58	250.1%
Other	-	0.13	-	-	0.13	78.3%
<i>of which: residential</i>	-	0.13	-	-	0.13	78.3%
<b>Reference Approach</b>	-	<b>2.01</b>	<b>0.30</b>	-	<b>2.30</b>	<b>218.5%</b>
Diff. due to losses and/or transformation	-	0.12	-	-	0.12	
Statistical differences	-	-0.00	-	-	-0.00	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.19	-	-	0.19	150.0%

\*\* Other includes industrial waste and non-renewable municipal waste.

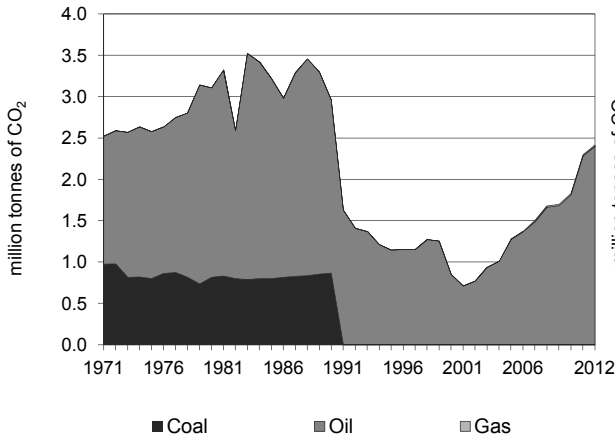
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	1.58	250.1%	9.9	9.9
Main activity prod. elec. and heat - gas	0.30	x	1.9	11.8
Residential - oil	0.13	78.3%	0.8	12.6
Manufacturing industries - oil	0.11	73.7%	0.7	13.3
Other transport - oil	0.05	115.1%	0.3	13.6
Main activity prod. elec. and heat - oil	0.01	200.1%	0.1	13.6
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>2.18</i>	<i>252.9%</i>	<i>13.6</i>	<i>13.6</i>

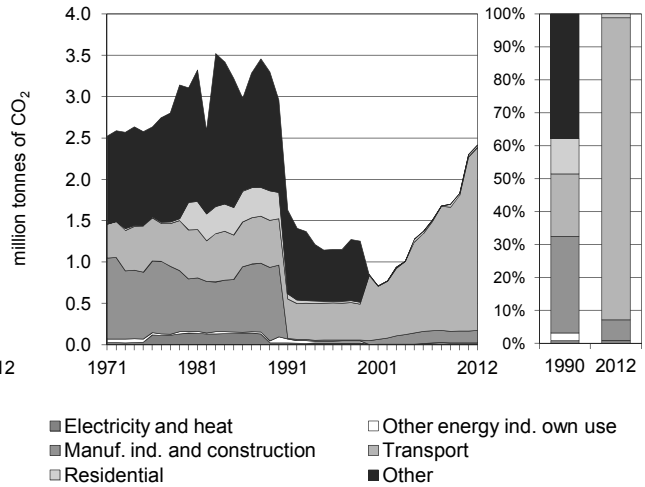
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Democratic Republic of Congo

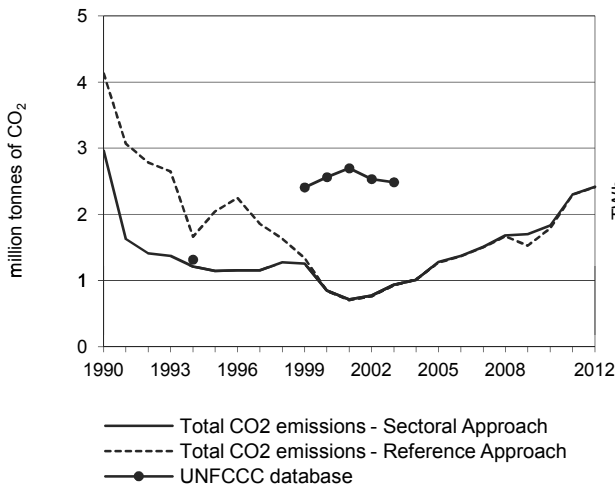
**Figure 1. CO<sub>2</sub> emissions by fuel**



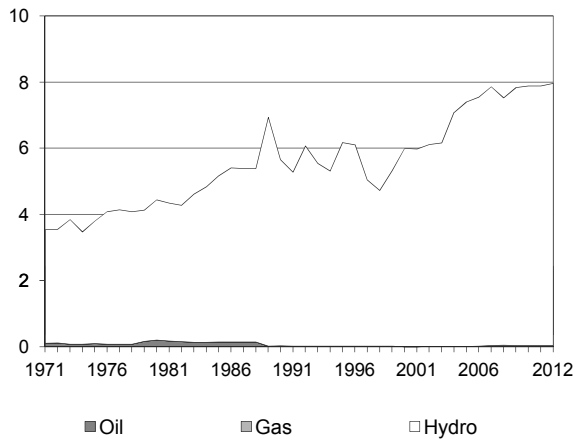
**Figure 2. CO<sub>2</sub> emissions by sector**



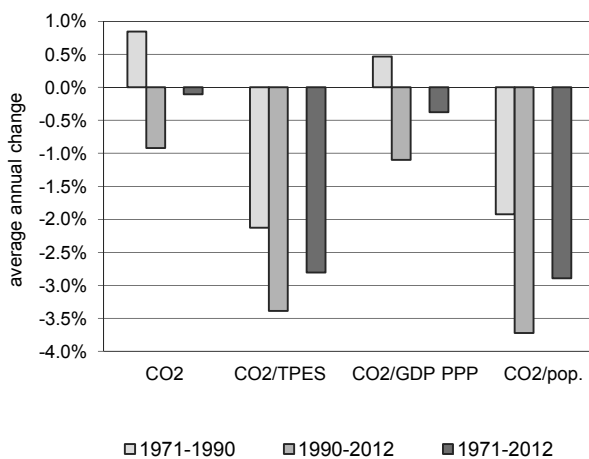
**Figure 3. Reference vs Sectoral Approach**



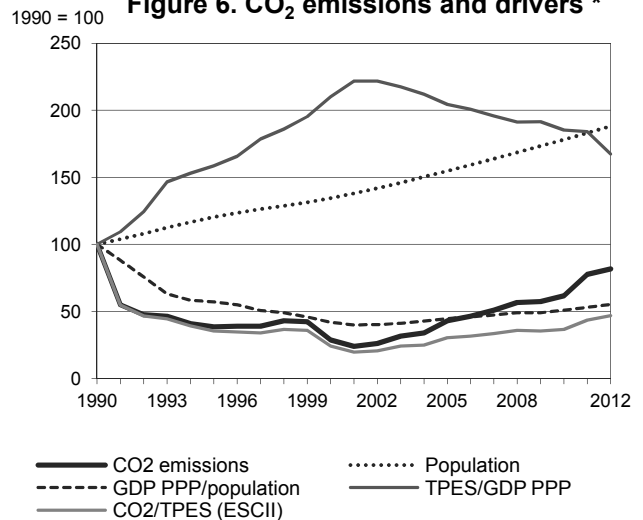
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Democratic Republic of Congo

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	2.96	1.14	0.85	1.28	1.83	2.30	2.42	-18.4%
TPES (PJ)	494	537	583	699	832	883	861	74.2%
GDP (billion 2005 USD)	10.39	7.13	5.84	7.19	9.44	10.09	10.81	4.1%
GDP PPP (billion 2005 USD)	25.39	17.42	14.27	17.58	23.07	24.66	26.42	4.1%
Population (millions)	34.91	42.01	46.95	54.03	62.19	63.93	65.71	88.2%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	6.0	2.1	1.5	1.8	2.2	2.6	2.8	-53.2%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.29	0.16	0.15	0.18	0.19	0.23	0.22	-21.6%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.12	0.07	0.06	0.07	0.08	0.09	0.09	-21.6%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.08	0.03	0.02	0.02	0.03	0.04	0.04	-56.6%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	39	29	43	62	78	82	-18.4%
Population index	100	120	134	155	178	183	188	88.2%
GDP PPP per population index	100	57	42	45	51	53	55	-44.7%
Energy intensity index - TPES / GDP PPP	100	159	210	204	185	184	167	67.4%
Carbon intensity index - CO <sub>2</sub> / TPES	100	36	24	30	37	43	47	-53.2%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>2.40</b>	<b>0.02</b>	-	<b>2.42</b>	<b>-18.4%</b>
Main activity producer elec. and heat	-	0.01	-	-	0.01	-74.9%
Unallocated autoproducers	-	-	0.02	-	0.02	x
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	-	0.15	-	-	0.15	-82.6%
Transport	-	2.22	-	-	2.22	294.6%
<i>of which: road</i>	-	2.22	-	-	2.22	294.6%
Other	-	0.03	-	-	0.03	-98.0%
<i>of which: residential</i>	-	0.03	-	-	0.03	-91.2%
<b>Reference Approach</b>	-	<b>2.39</b>	<b>0.02</b>	-	<b>2.41</b>	<b>-41.6%</b>
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-0.01	-	-	-0.01	-
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.48	-	-	0.48	48.4%

\*\* Other includes industrial waste and non-renewable municipal waste.

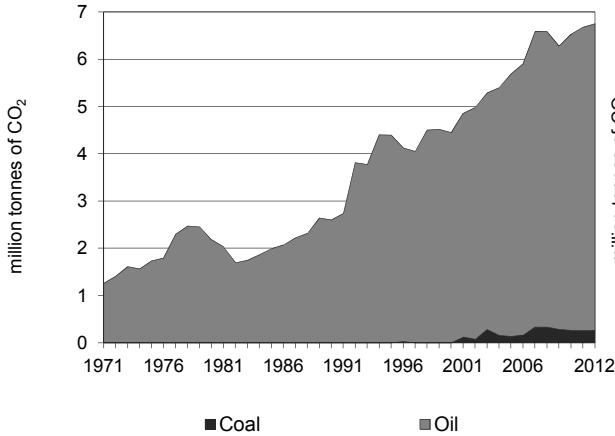
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	2.22	294.6%	1.5	1.5
Manufacturing industries - oil	0.15	-28.6%	0.1	1.6
Residential - oil	0.03	-74.1%	0.0	1.6
Unallocated autoproducers - gas	0.02	x	0.0	1.6
Main activity prod. elec. and heat - oil	0.01	-74.9%	0.0	1.6
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	2.42	-18.4%	1.6	1.6

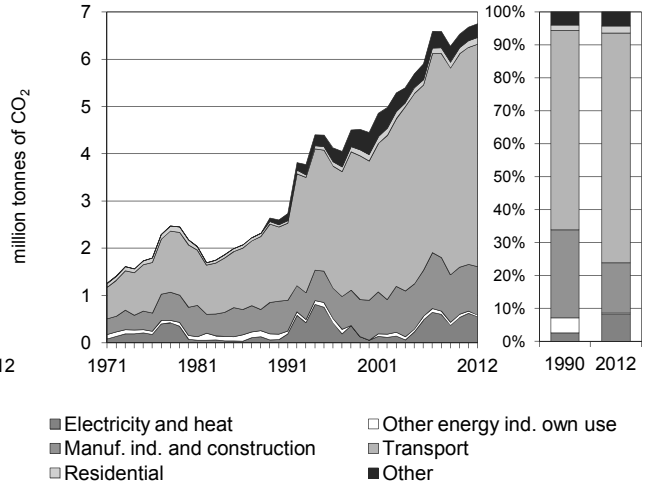
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Costa Rica

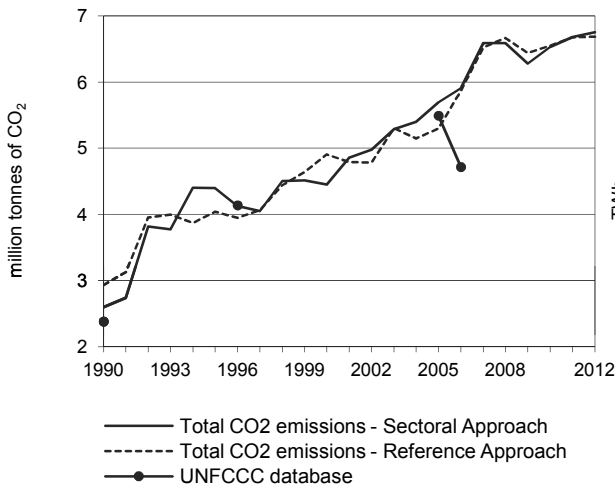
**Figure 1. CO<sub>2</sub> emissions by fuel**



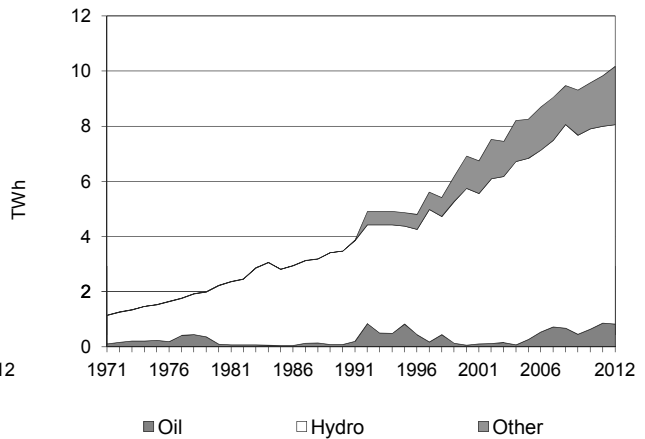
**Figure 2. CO<sub>2</sub> emissions by sector**



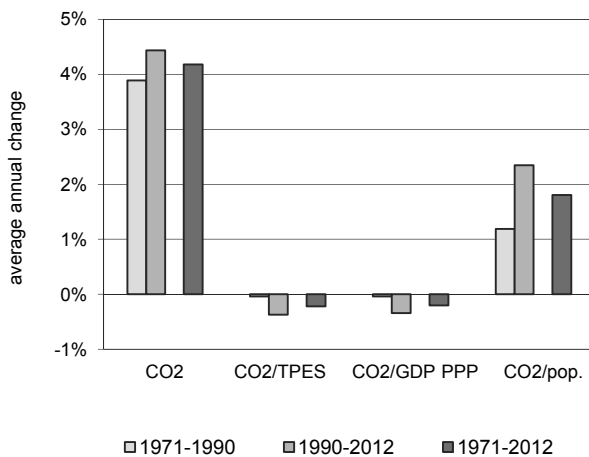
**Figure 3. Reference vs Sectoral Approach**



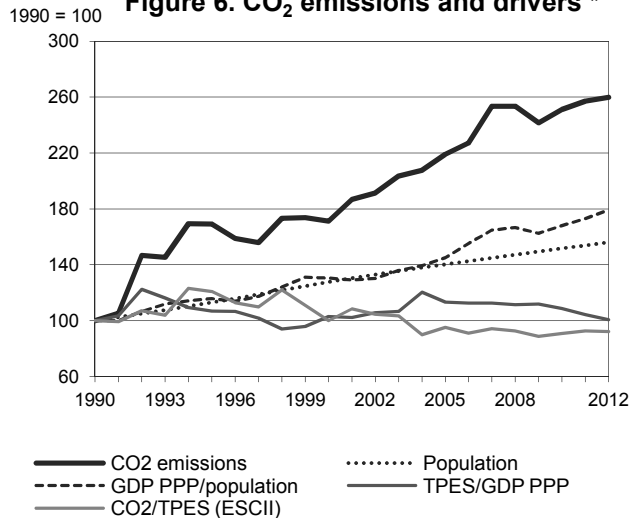
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Costa Rica

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	2.60	4.40	4.45	5.69	6.53	6.68	6.75	159.8%
TPES (PJ)	70	98	120	162	195	195	198	181.8%
GDP (billion 2005 USD)	9.82	12.85	16.34	19.97	25.02	26.13	27.47	179.8%
GDP PPP (billion 2005 USD)	20.04	26.23	33.36	40.76	51.07	53.34	56.08	179.9%
Population (millions)	3.08	3.48	3.93	4.32	4.67	4.74	4.81	56.1%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	37.0	44.7	37.0	35.2	33.6	34.3	34.1	-7.8%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.26	0.34	0.27	0.29	0.26	0.26	0.25	-7.2%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.13	0.17	0.13	0.14	0.13	0.13	0.12	-7.2%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.84	1.26	1.13	1.32	1.40	1.41	1.41	66.5%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	169	171	219	251	257	260	159.8%
Population index	100	113	128	140	152	154	156	56.1%
GDP PPP per population index	100	116	130	145	168	173	179	79.3%
Energy intensity index - TPES / GDP PPP	100	107	103	113	109	104	101	0.7%
Carbon intensity index - CO <sub>2</sub> / TPES	100	121	100	95	91	93	92	-7.8%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.27</b>	<b>6.49</b>	-	-	<b>6.75</b>	<b>159.8%</b>
Main activity producer elec. and heat	-	0.55	-	-	0.55	+
Unallocated autoproducers	..	..	..	..	..	..
Other energy industry own use	-	0.03	-	-	0.03	-71.1%
Manufacturing industries and construction	0.27	0.76	-	-	1.02	47.3%
Transport	-	4.71	-	-	4.71	199.6%
<i>of which: road</i>	-	4.69	-	-	4.69	691.4%
Other	-	0.44	-	-	0.44	195.6%
<i>of which: residential</i>	-	0.15	-	-	0.15	226.1%
<b>Reference Approach</b>	<b>0.29</b>	<b>6.40</b>	-	-	<b>6.68</b>	<b>128.0%</b>
Diff. due to losses and/or transformation	0.02	0.00	-	-	0.03	
Statistical differences	-	-0.10	-	-	-0.10	
<i>Memo: international marine bunkers</i>	-	0.02	-	-	0.02	-89.7%
<i>Memo: international aviation bunkers</i>	-	0.51	-	-	0.51	+

\*\* Other includes industrial waste and non-renewable municipal waste.

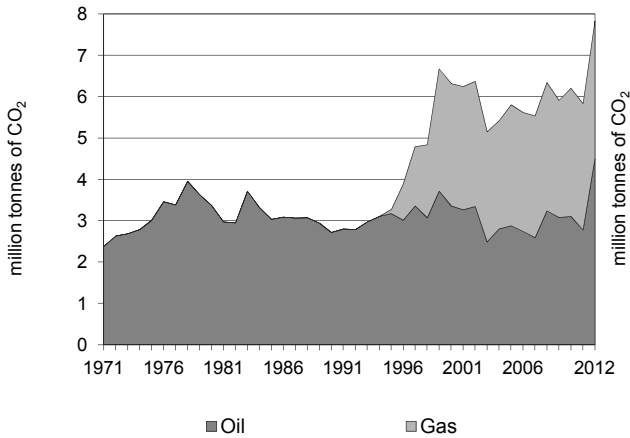
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	4.69	691.4%	40.8	40.8
Manufacturing industries - oil	0.76	9.2%	6.6	47.4
Main activity prod. elec. and heat - oil	0.55	+	4.8	52.2
Non-specified other - oil	0.29	182.3%	2.5	54.7
Manufacturing industries - coal	0.27	x	2.3	57.0
Residential - oil	0.15	226.1%	1.3	58.2
Other energy industry own use - oil	0.03	-71.1%	0.3	58.5
Other transport - oil	0.01	-98.7%	0.1	58.6
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>6.75</i>	<i>159.8%</i>	<i>58.6</i>	<i>58.6</i>

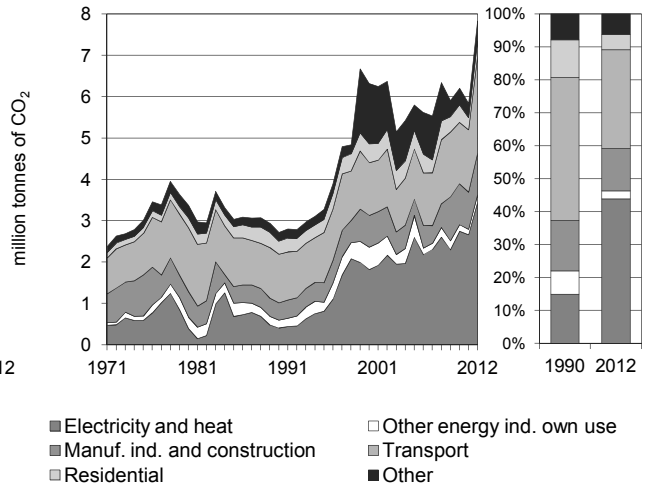
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Côte d'Ivoire

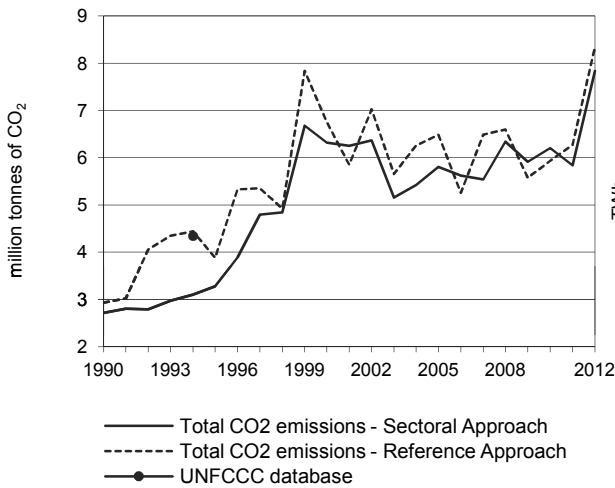
**Figure 1. CO<sub>2</sub> emissions by fuel**



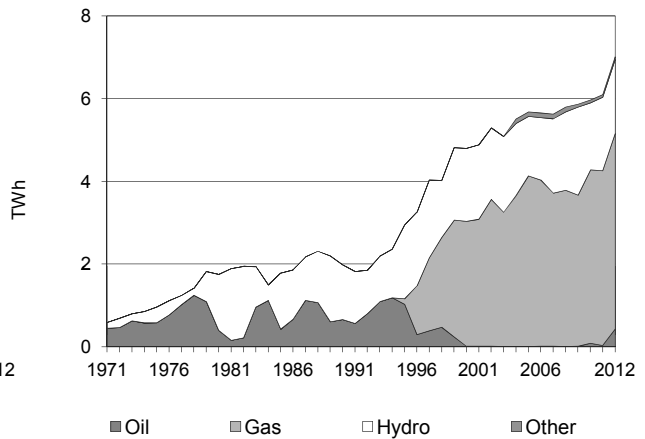
**Figure 2. CO<sub>2</sub> emissions by sector**



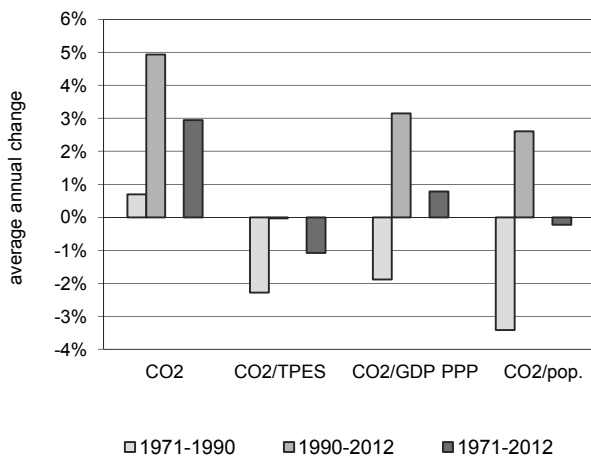
**Figure 3. Reference vs Sectoral Approach**



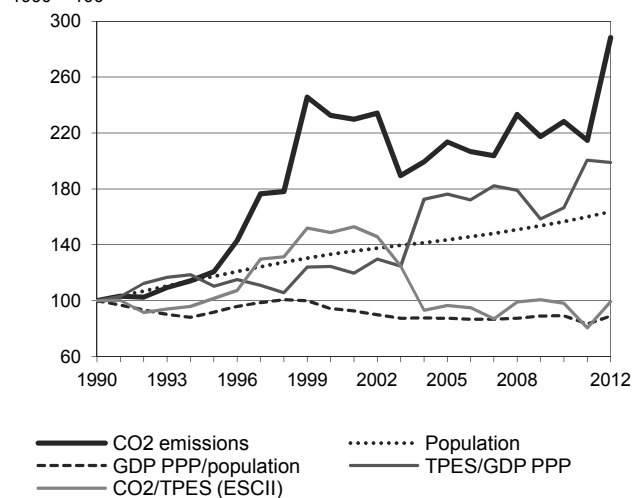
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Côte d'Ivoire

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	2.72	3.27	6.32	5.80	6.21	5.84	7.83	188.2%
TPES (PJ)	182	216	284	403	423	486	528	190.2%
GDP (billion 2005 USD)	13.04	14.02	16.36	16.36	18.22	17.36	19.00	45.8%
GDP PPP (billion 2005 USD)	33.32	35.84	41.83	41.83	46.57	44.37	48.58	45.8%
Population (millions)	12.12	14.22	16.13	17.39	18.98	19.39	19.84	63.8%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	14.9	15.2	22.2	14.4	14.7	12.0	14.8	-0.7%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.21	0.23	0.39	0.35	0.34	0.34	0.41	97.7%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.08	0.09	0.15	0.14	0.13	0.13	0.16	97.5%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.22	0.23	0.39	0.33	0.33	0.30	0.39	76.0%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	120	233	214	228	215	288	188.2%
Population index	100	117	133	144	157	160	164	63.8%
GDP PPP per population index	100	92	94	87	89	83	89	-11.0%
Energy intensity index - TPES / GDP PPP	100	110	124	176	166	201	199	99.0%
Carbon intensity index - CO <sub>2</sub> / TPES	100	102	149	96	98	80	99	-0.7%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>4.50</b>	<b>3.33</b>	-	<b>7.83</b>	<b>188.2%</b>
Main activity producer elec. and heat	-	0.40	3.04	-	3.44	757.6%
Unallocated autoproducers	-	-	0.00	-	0.00	-81.8%
Other energy industry own use	-	0.19	-	-	0.19	-2.3%
Manufacturing industries and construction	-	0.71	0.29	-	1.00	142.0%
Transport	-	2.35	-	-	2.35	99.3%
<i>of which: road</i>	-	2.08	-	-	2.08	103.5%
Other	-	0.85	-	-	0.85	62.3%
<i>of which: residential</i>	-	0.37	-	-	0.37	17.6%
<b>Reference Approach</b>	-	<b>5.01</b>	<b>3.33</b>	-	<b>8.34</b>	<b>184.4%</b>
Diff. due to losses and/or transformation	-	0.59	-	-	0.59	
Statistical differences	-	-0.08	-	-	-0.08	
<i>Memo: international marine bunkers</i>	-	0.06	-	-	0.06	-48.9%
<i>Memo: international aviation bunkers</i>	-	0.18	-	-	0.18	-31.0%

\*\* Other includes industrial waste and non-renewable municipal waste.

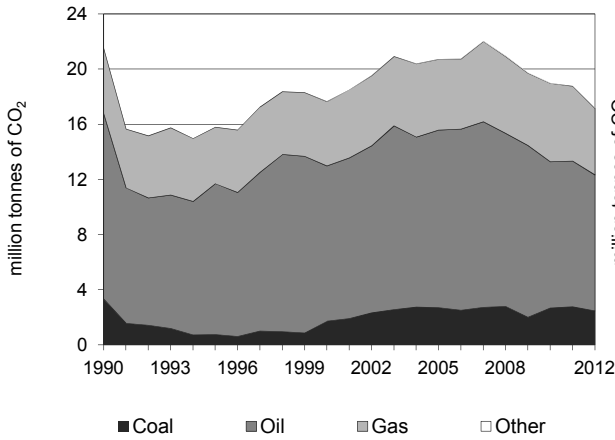
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - gas	3.04	x	8.7	8.7
Road - oil	2.08	103.5%	6.0	14.7
Manufacturing industries - oil	0.71	72.1%	2.1	16.8
Non-specified other - oil	0.48	127.8%	1.4	18.2
Main activity prod. elec. and heat - oil	0.40	-0.9%	1.1	19.3
Residential - oil	0.37	17.6%	1.1	20.4
Manufacturing industries - gas	0.29	x	0.8	21.2
Other transport - oil	0.27	71.7%	0.8	22.0
Other energy industry own use - oil	0.19	-2.3%	0.5	22.5
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<b>7.83</b>	<b>188.2%</b>	<b>22.5</b>	<b>22.5</b>

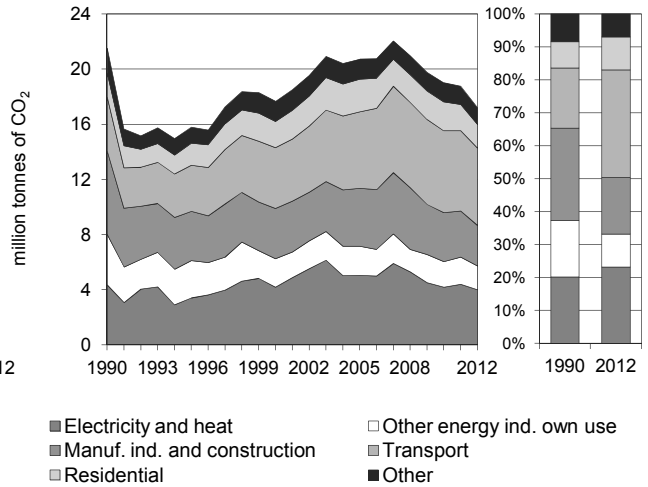
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Croatia

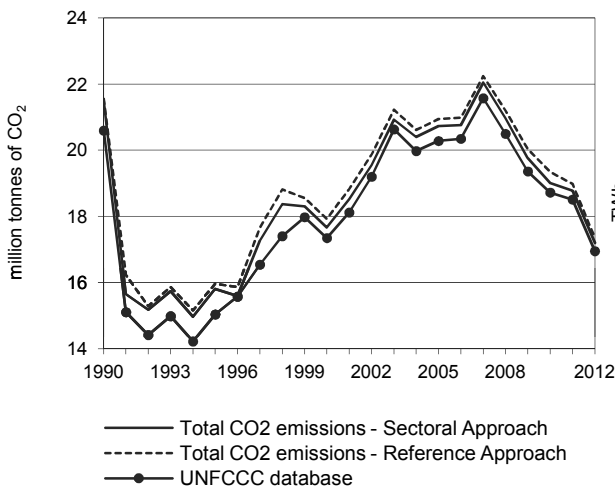
**Figure 1. CO<sub>2</sub> emissions by fuel**



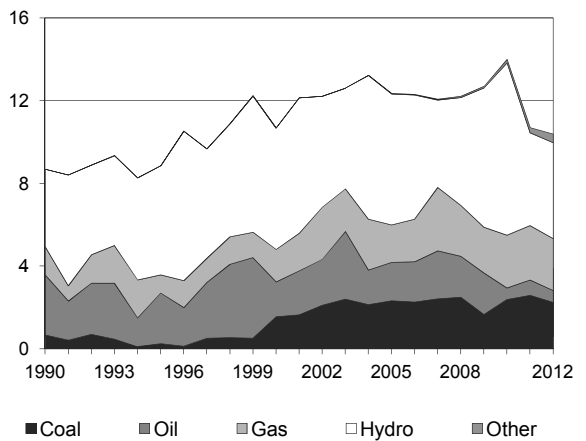
**Figure 2. CO<sub>2</sub> emissions by sector**



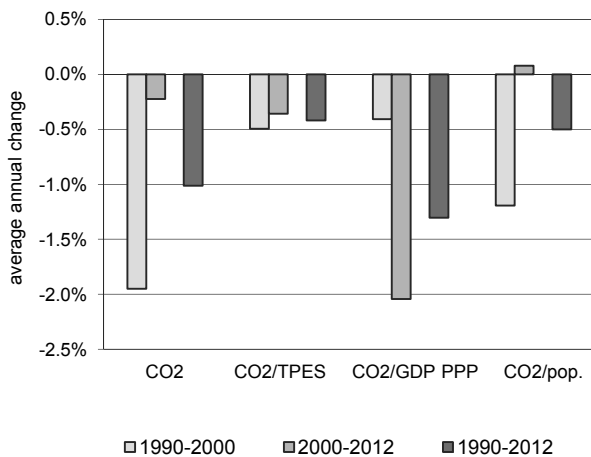
**Figure 3. Reference vs Sectoral Approach**



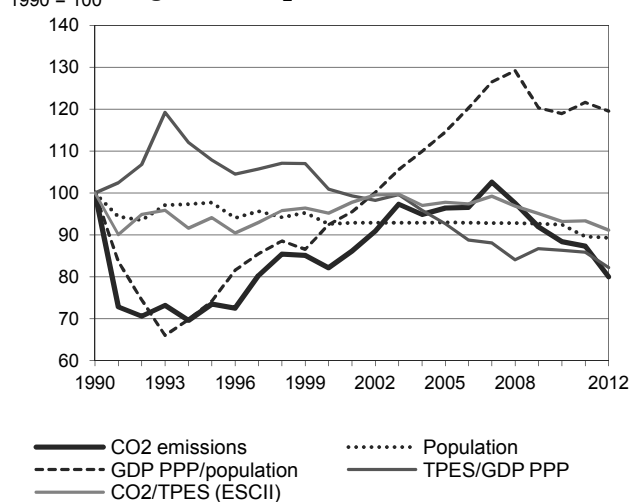
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Croatia

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	21.51	15.80	17.66	20.73	19.01	18.77	17.19	-20.1%
TPES (PJ)	378	295	326	373	359	353	331	-12.3%
GDP (billion 2005 USD)	42.11	30.50	36.03	44.82	46.28	45.85	44.95	6.7%
GDP PPP (billion 2005 USD)	63.99	46.34	54.75	68.10	70.32	69.67	68.29	6.7%
Population (millions)	4.78	4.67	4.43	4.44	4.42	4.28	4.27	-10.7%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	56.9	53.5	54.2	55.6	53.0	53.1	51.9	-8.9%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.51	0.52	0.49	0.46	0.41	0.41	0.38	-25.1%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.34	0.34	0.32	0.30	0.27	0.27	0.25	-25.1%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	4.50	3.38	3.99	4.67	4.30	4.39	4.03	-10.5%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	73	82	96	88	87	80	-20.1%
Population index	100	98	93	93	92	90	89	-10.7%
GDP PPP per population index	100	74	92	115	119	122	120	19.5%
Energy intensity index - TPES / GDP PPP	100	108	101	93	86	86	82	-17.8%
Carbon intensity index - CO <sub>2</sub> / TPES	100	94	95	98	93	93	91	-8.9%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>2.47</b>	<b>9.86</b>	<b>4.83</b>	<b>0.04</b>	<b>17.19</b>	<b>-20.1%</b>
Main activity producer elec. and heat	1.93	0.40	1.45	-	3.78	-3.7%
Unallocated autoproducers	0.01	0.09	0.11	-	0.21	-49.6%
Other energy industry own use	-	1.53	0.19	-	1.72	-53.0%
Manufacturing industries and construction	0.49	0.89	1.53	0.04	2.95	-51.1%
Transport	-	5.61	0.00	-	5.61	43.2%
<i>of which: road</i>	-	5.23	0.00	-	5.23	66.4%
Other	0.03	1.35	1.54	-	2.92	-17.5%
<i>of which: residential</i>	0.02	0.50	1.20	-	1.71	-0.4%
<b>Reference Approach</b>	<b>2.46</b>	<b>9.52</b>	<b>5.33</b>	<b>0.04</b>	<b>17.35</b>	<b>-19.5%</b>
Diff. due to losses and/or transformation	-0.01	-0.32	0.50	-	0.18	
Statistical differences	-0.00	-0.02	0.00	-	-0.03	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.20	-	-	0.20	37.5%

\*\* Other includes industrial waste and non-renewable municipal waste.

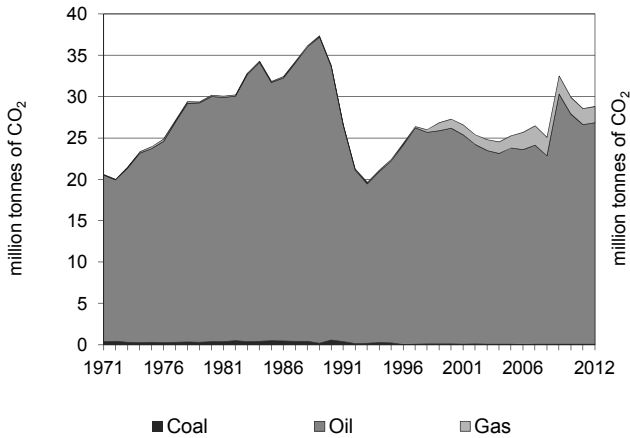
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	5.23	66.3%	19.6	19.6
Main activity prod. elec. and heat - coal	1.93	216.2%	7.2	26.9
Manufacturing industries - gas	1.53	-24.7%	5.7	32.6
Other energy industry own use - oil	1.53	-38.2%	5.7	38.4
Main activity prod. elec. and heat - gas	1.45	35.4%	5.4	43.8
Residential - gas	1.20	213.3%	4.5	48.3
Manufacturing industries - oil	0.89	-59.5%	3.3	51.6
Non-specified other - oil	0.85	-44.6%	3.2	54.8
Residential - oil	0.50	-42.6%	1.9	56.7
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>17.19</i>	<i>-20.1%</i>	<i>64.5</i>	<i>64.5</i>

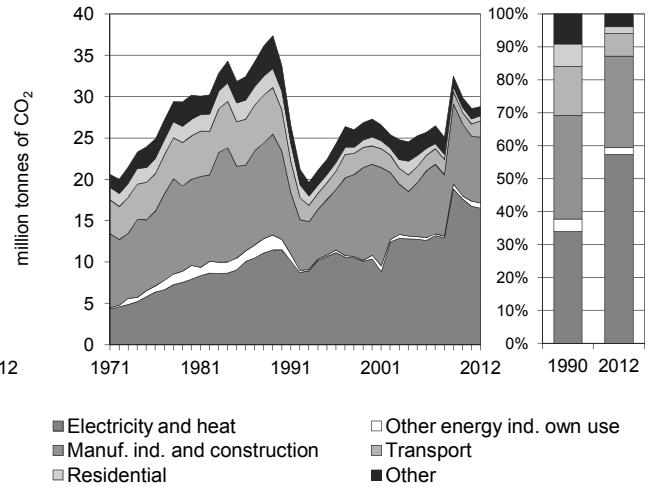
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Cuba

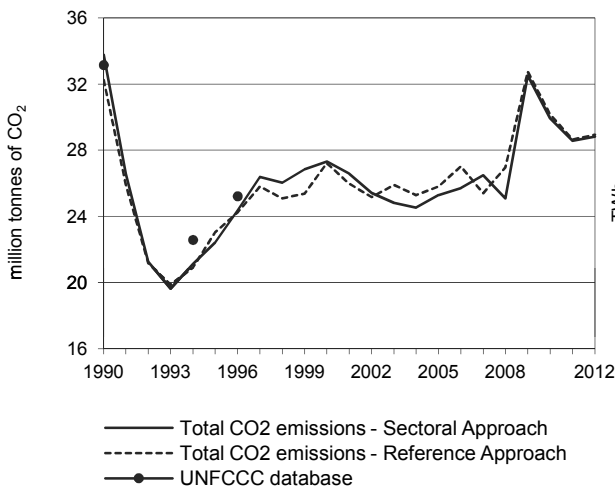
**Figure 1. CO<sub>2</sub> emissions by fuel**



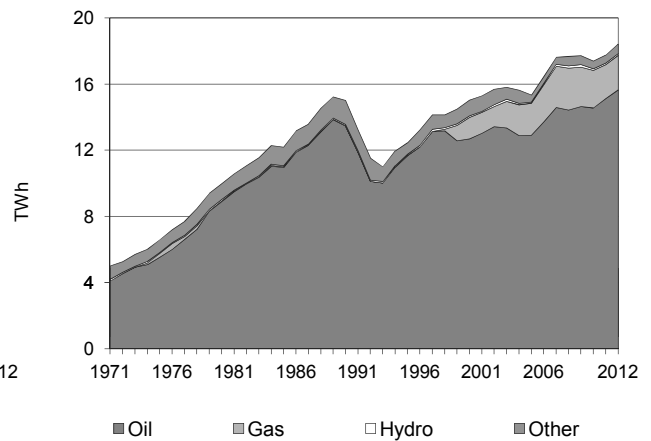
**Figure 2. CO<sub>2</sub> emissions by sector**



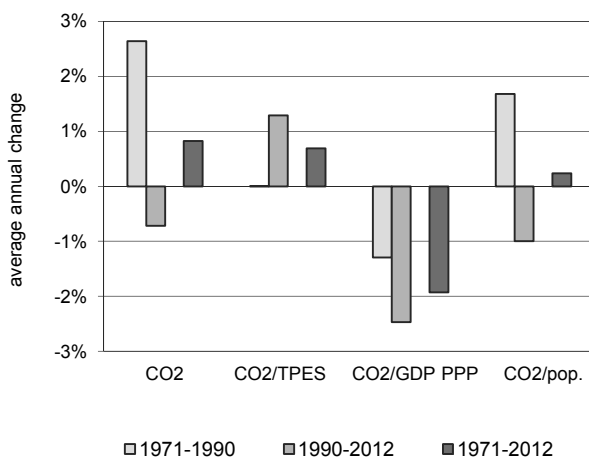
**Figure 3. Reference vs Sectoral Approach**



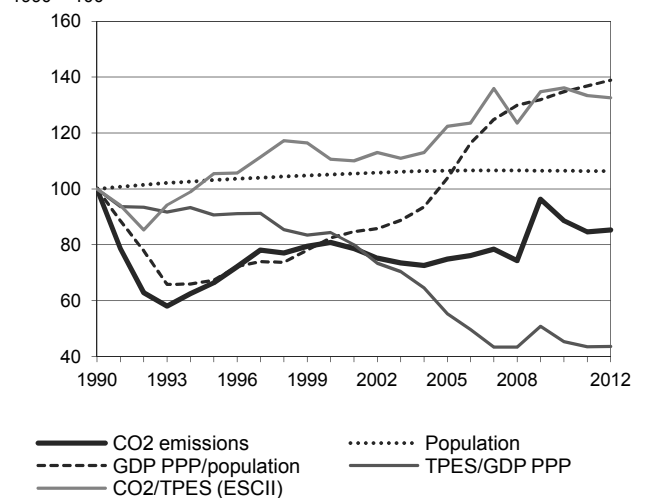
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Cuba

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	33.79	22.41	27.31	25.29	29.93	28.57	28.82	-14.7%
TPES (PJ)	741	466	541	453	482	469	476	-35.7%
GDP (billion 2005 USD)	38.54	26.73	33.38	42.64	55.26	56.09	56.93	47.7%
GDP PPP (billion 2005 USD)	43.68	30.29	37.83	48.33	62.63	63.57	64.52	47.7%
Population (millions)	10.60	10.93	11.14	11.29	11.28	11.28	11.27	6.3%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	45.6	48.1	50.4	55.8	62.1	60.9	60.5	32.6%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.88	0.84	0.82	0.59	0.54	0.51	0.51	-42.3%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.77	0.74	0.72	0.52	0.48	0.45	0.45	-42.3%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	3.19	2.05	2.45	2.24	2.65	2.53	2.56	-19.8%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	66	81	75	89	85	85	-14.7%
Population index	100	103	105	107	106	106	106	6.3%
GDP PPP per population index	100	67	82	104	135	137	139	38.9%
Energy intensity index - TPES / GDP PPP	100	91	84	55	45	44	44	-56.4%
Carbon intensity index - CO <sub>2</sub> / TPES	100	105	111	122	136	133	133	32.6%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.06</b>	<b>26.80</b>	<b>1.96</b>	-	<b>28.82</b>	<b>-14.7%</b>
Main activity producer elec. and heat	-	14.69	1.05	-	15.74	49.0%
Unallocated autoproducers	-	0.79	-	-	0.79	-14.2%
Other energy industry own use	-	0.60	-	-	0.60	-52.3%
Manufacturing industries and construction	0.06	7.17	0.77	-	8.00	-24.9%
Transport	-	1.96	-	-	1.96	-60.9%
<i>of which: road</i>	-	1.76	-	-	1.76	-59.3%
Other	-	1.58	0.13	-	1.71	-68.1%
<i>of which: residential</i>	-	0.47	0.12	-	0.60	-73.8%
<b>Reference Approach</b>	<b>0.07</b>	<b>26.96</b>	<b>1.92</b>	-	<b>28.95</b>	<b>-10.2%</b>
Diff. due to losses and/or transformation	0.00	0.19	-0.04	-	0.16	
Statistical differences	-	-0.03	-0.00	-	-0.03	
<i>Memo: international marine bunkers</i>	-	0.09	-	-	0.09	54.5%
<i>Memo: international aviation bunkers</i>	-	0.76	-	-	0.76	-22.8%

\*\* Other includes industrial waste and non-renewable municipal waste.

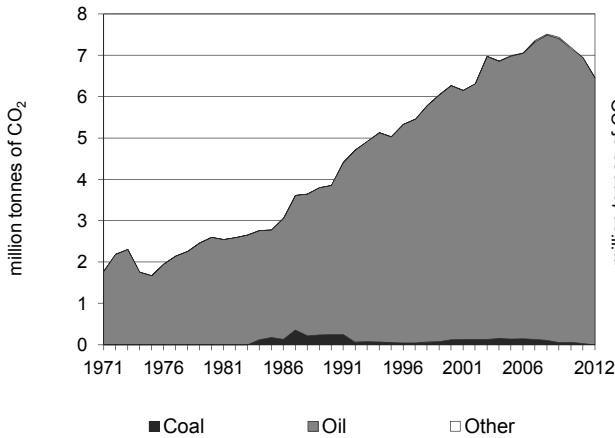
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - oil	14.69	39.2%	32.5	32.5
Manufacturing industries - oil	7.17	-28.9%	15.9	48.4
Road - oil	1.76	-59.3%	3.9	52.3
Non-specified other - oil	1.11	-63.8%	2.5	54.8
Main activity prod. elec. and heat - gas	1.05	+	2.3	57.1
Unallocated autoproducers - oil	0.79	-14.2%	1.8	58.9
Manufacturing industries - gas	0.77	+	1.7	60.6
Other energy industry own use - oil	0.60	-52.3%	1.3	61.9
Residential - oil	0.47	-78.2%	1.0	63.0
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>28.82</i>	<i>-14.7%</i>	<i>63.8</i>	<i>63.8</i>

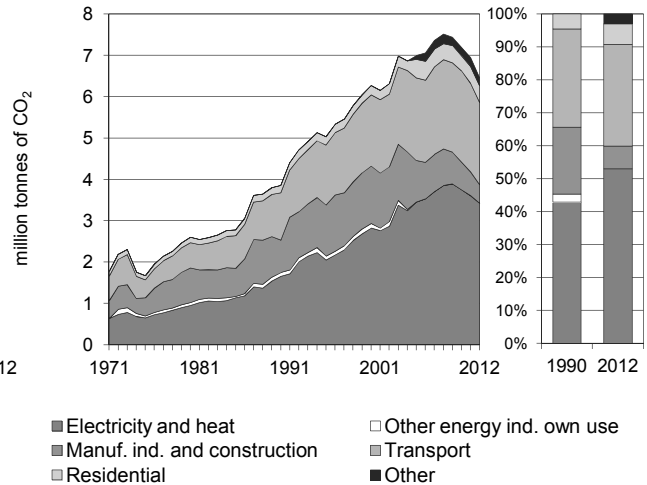
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Cyprus \*

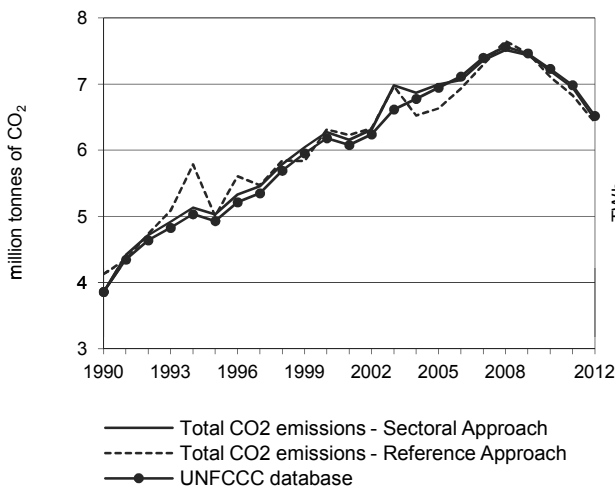
**Figure 1. CO<sub>2</sub> emissions by fuel**



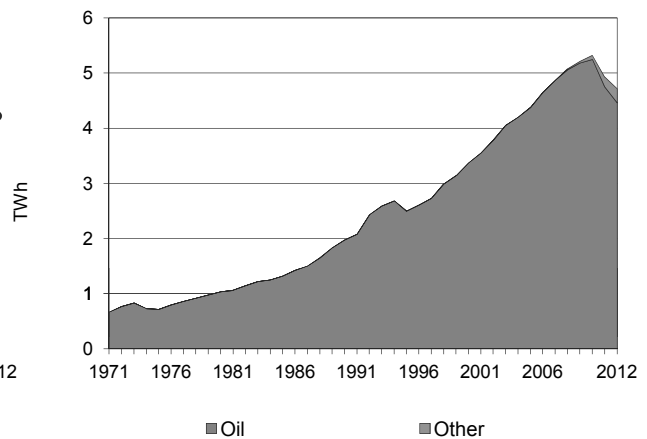
**Figure 2. CO<sub>2</sub> emissions by sector**



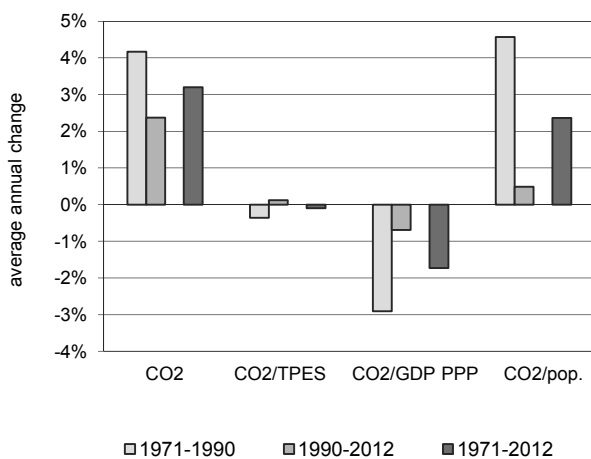
**Figure 3. Reference vs Sectoral Approach**



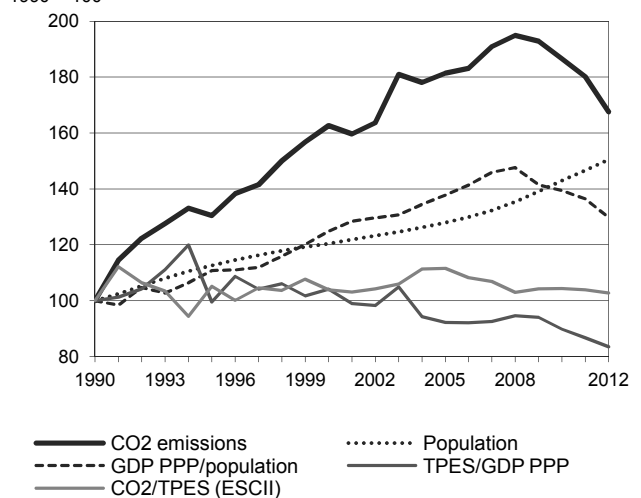
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \*\***



**Figure 6. CO<sub>2</sub> emissions and drivers \*\***



\* Please refer to Part I, Chapter 4, *Geographical Coverage*.

\*\* Based on GDP in 2005 USD, using purchasing power parities.



## Cyprus \*

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	3.86	5.03	6.27	6.99	7.20	6.95	6.46	67.5%
TPES (PJ)	57	71	89	93	102	99	93	63.1%
GDP (billion 2005 USD)	9.64	12.02	14.50	17.00	19.21	19.28	18.82	95.2%
GDP PPP (billion 2005 USD)	10.49	13.08	15.78	18.50	20.90	20.98	20.48	95.2%
Population (millions)	0.57	0.65	0.69	0.73	0.82	0.84	0.86	50.4%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	67.5	70.9	70.1	75.3	70.4	70.1	69.3	2.7%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.40	0.42	0.43	0.41	0.37	0.36	0.34	-14.2%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.37	0.38	0.40	0.38	0.34	0.33	0.32	-14.2%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	6.73	7.80	9.09	9.54	8.79	8.27	7.50	11.4%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) **</b>								
CO <sub>2</sub> emissions index	100	130	163	181	187	180	168	67.5%
Population index	100	113	120	128	143	147	150	50.4%
GDP PPP per population index	100	111	125	138	139	136	130	29.8%
Energy intensity index - TPES / GDP PPP	100	100	104	92	90	87	84	-16.5%
Carbon intensity index - CO <sub>2</sub> / TPES	100	105	104	112	104	104	103	2.7%

\* Please refer to Part I, Chapter 4, *Geographical Coverage*. \*\* Please see Part I, Chapter 1 for methodological notes. Based on GDP PPP.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other ***	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.00</b>	<b>6.46</b>	-	-	<b>6.46</b>	<b>67.5%</b>
Main activity producer elec. and heat	-	3.41	-	-	3.41	106.3%
Unallocated autoproducers	-	0.01	-	-	0.01	x
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	-	0.45	-	-	0.45	-43.0%
Transport	-	1.99	-	-	1.99	73.3%
<i>of which: road</i>	-	1.99	-	-	1.99	73.2%
Other	0.00	0.60	-	-	0.60	237.2%
<i>of which: residential</i>	-	0.40	-	-	0.40	126.5%
<b>Reference Approach</b>	<b>0.00</b>	<b>6.42</b>	-	-	<b>6.42</b>	<b>55.4%</b>
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-0.04	-	-	-0.04	-
<i>Memo: international marine bunkers</i>	-	0.61	-	-	0.61	239.2%
<i>Memo: international aviation bunkers</i>	-	0.80	-	-	0.80	11.9%

\*\*\* Other includes industrial waste and non-renewable municipal waste.

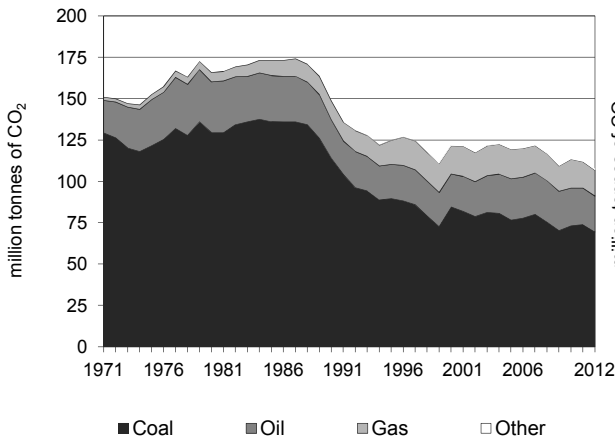
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ****	Cumulative total (%)
Main activity prod. elec. and heat - oil	3.41	106.3%	37.1	37.1
Road - oil	1.99	73.2%	21.6	58.7
Manufacturing industries - oil	0.45	-16.5%	4.9	63.6
Residential - oil	0.40	126.5%	4.4	67.9
Non-specified other - oil	0.20	x	2.1	70.1
Unallocated autoproducers - oil	0.01	x	0.1	70.2
Other transport - oil	0.00	x	0.0	70.2
Non-specified other sectors - coal	0.00	x	0.0	70.2
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>6.46</i>	<i>67.5%</i>	<i>70.2</i>	<i>70.2</i>

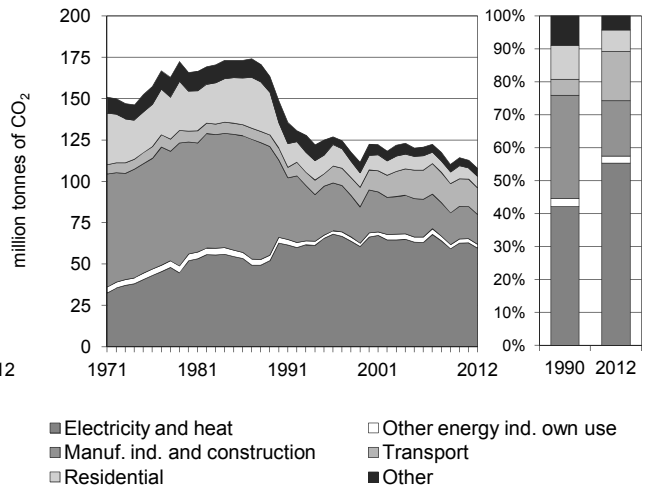
\*\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Czech Republic

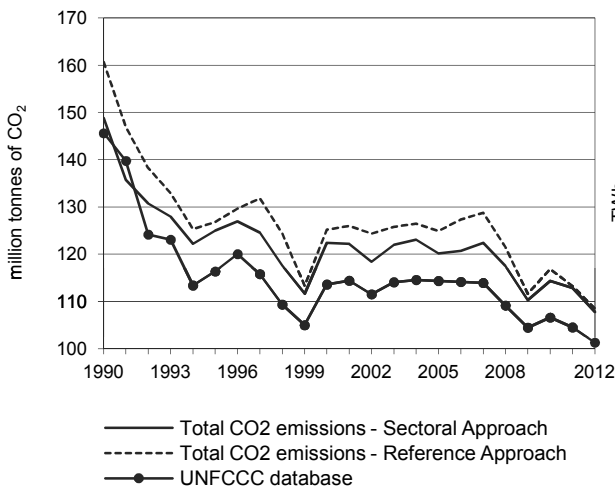
**Figure 1. CO<sub>2</sub> emissions by fuel**



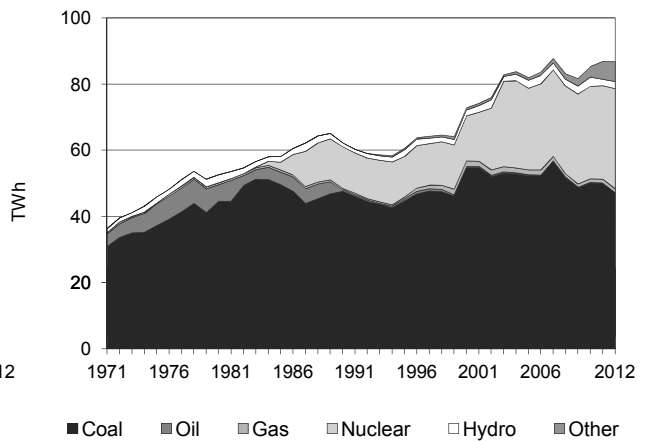
**Figure 2. CO<sub>2</sub> emissions by sector**



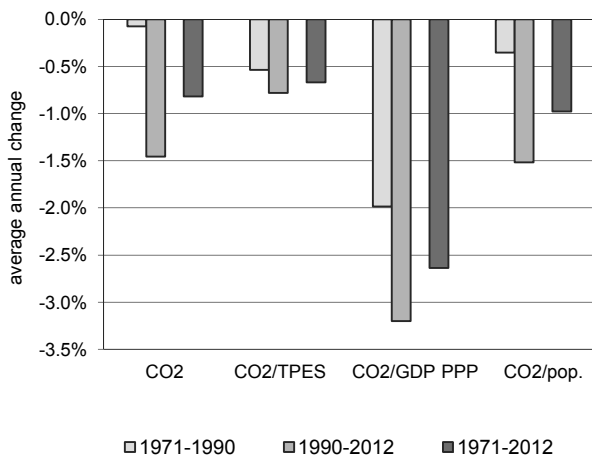
**Figure 3. Reference vs Sectoral Approach**



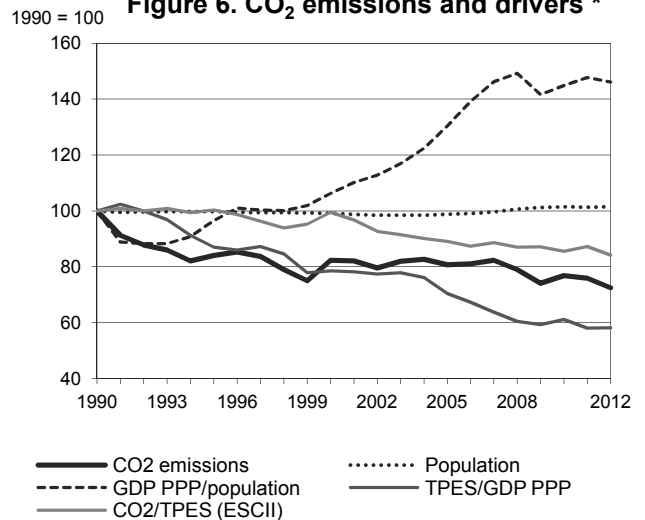
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Czech Republic

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	148.80	124.98	122.41	120.15	114.34	112.87	107.77	-27.6%
TPES (PJ)	2 074	1 737	1 716	1 881	1 863	1 803	1 786	-13.9%
GDP (billion 2005 USD)	101.03	97.17	106.45	130.07	148.48	151.18	149.64	48.1%
GDP PPP (billion 2005 USD)	169.06	162.62	178.13	217.66	248.47	252.99	250.41	48.1%
Population (millions)	10.36	10.33	10.27	10.23	10.52	10.50	10.51	1.4%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	71.7	72.0	71.3	63.9	61.4	62.6	60.4	-15.9%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	1.47	1.29	1.15	0.92	0.77	0.75	0.72	-51.1%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.88	0.77	0.69	0.55	0.46	0.45	0.43	-51.1%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	14.36	12.10	11.92	11.74	10.87	10.75	10.25	-28.6%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	84	82	81	77	76	72	-27.6%
Population index	100	100	99	99	101	101	101	1.4%
GDP PPP per population index	100	96	106	130	145	148	146	46.1%
Energy intensity index - TPES / GDP PPP	100	87	79	70	61	58	58	-41.9%
Carbon intensity index - CO <sub>2</sub> / TPES	100	100	99	89	86	87	84	-15.9%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>69.39</b>	<b>21.75</b>	<b>15.61</b>	<b>1.02</b>	<b>107.77</b>	<b>-27.6%</b>
Main activity producer elec. and heat	52.32	0.13	1.97	0.04	54.47	3.2%
Unallocated autoproducers	4.45	0.06	0.38	0.24	5.13	-48.6%
Other energy industry own use	1.37	0.75	0.22	-	2.34	-32.8%
Manufacturing industries and construction	8.81	3.66	4.93	0.65	18.05	-61.4%
Transport	0.00	16.03	0.10	-	16.13	124.6%
<i>of which: road</i>	-	15.46	0.03	-	15.49	125.2%
Other	2.44	1.12	8.00	0.08	11.64	-59.3%
<i>of which: residential</i>	2.27	0.01	4.73	-	7.01	-54.3%
<b>Reference Approach</b>	<b>69.70</b>	<b>21.80</b>	<b>15.92</b>	<b>1.02</b>	<b>108.45</b>	<b>-32.5%</b>
Diff. due to losses and/or transformation	1.83	0.14	0.31	-	2.28	
Statistical differences	- 1.52	- 0.08	- 0.00	- 0.00	- 1.60	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.86	-	-	0.86	32.9%

\*\* Other includes industrial waste and non-renewable municipal waste.

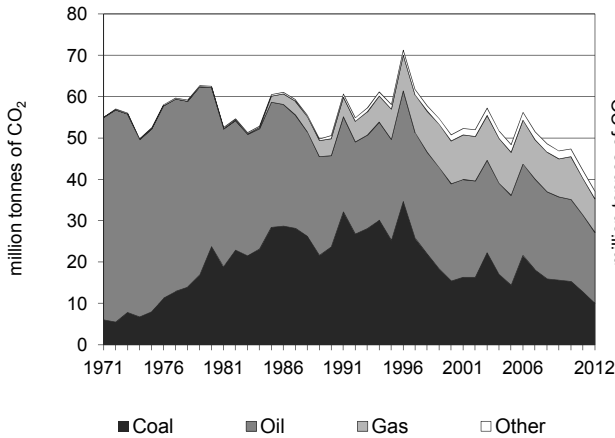
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	52.32	3.5%	37.9	37.9
Road - oil	15.46	124.8%	11.2	49.1
Manufacturing industries - coal	8.81	-71.6%	6.4	55.5
Manufacturing industries - gas	4.93	-12.7%	3.6	59.1
Residential - gas	4.73	120.3%	3.4	62.5
Unallocated autoproducers - coal	4.45	-50.8%	3.2	65.8
Manufacturing industries - oil	3.66	-63.7%	2.7	68.4
Non-specified other - gas	3.28	54.3%	2.4	70.8
Residential - coal	2.27	-82.5%	1.6	72.4
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>107.77</i>	<i>-27.6%</i>	<i>78.1</i>	<i>78.1</i>

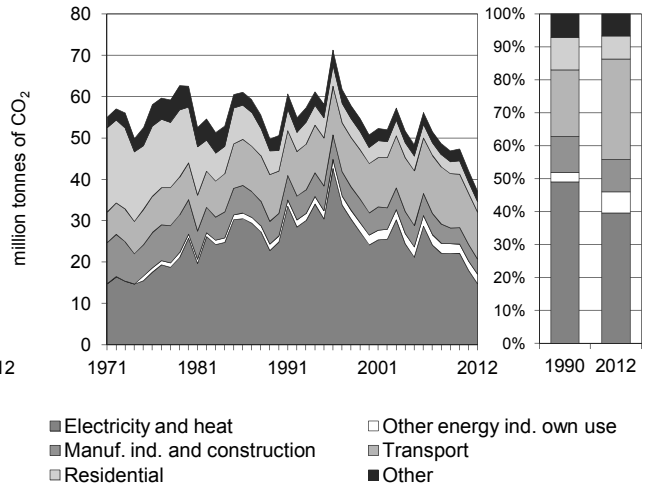
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Denmark

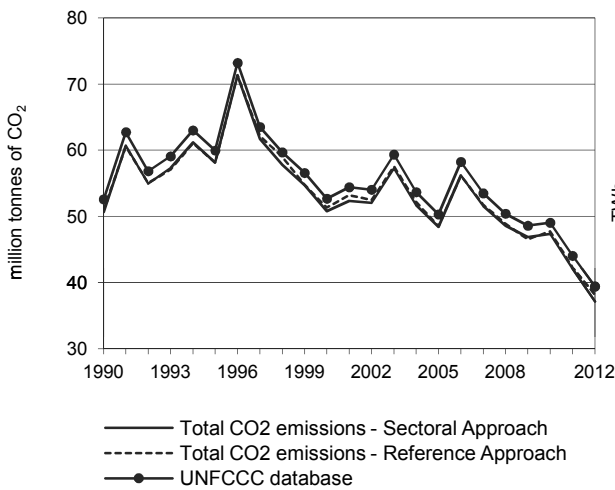
**Figure 1. CO<sub>2</sub> emissions by fuel**



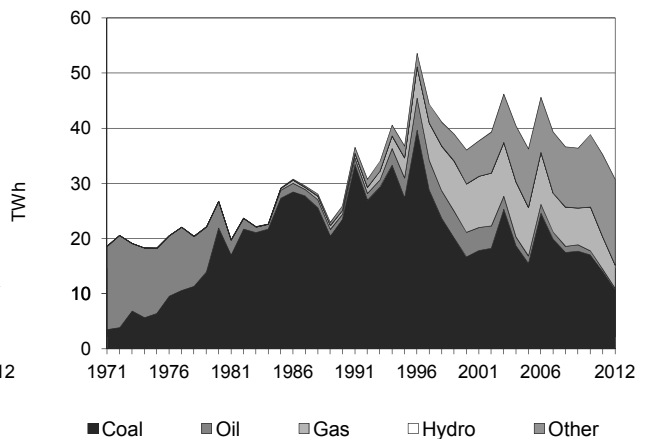
**Figure 2. CO<sub>2</sub> emissions by sector**



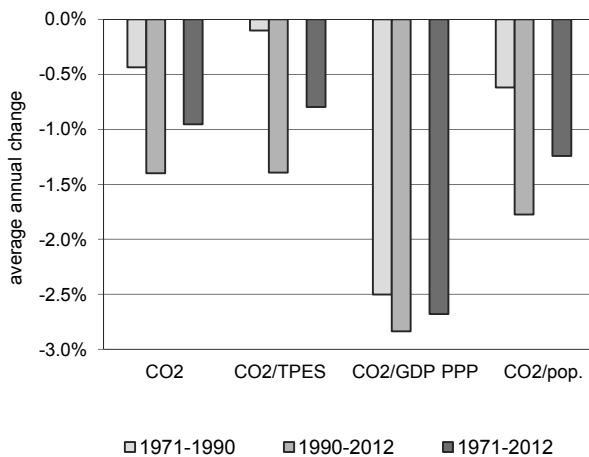
**Figure 3. Reference vs Sectoral Approach**



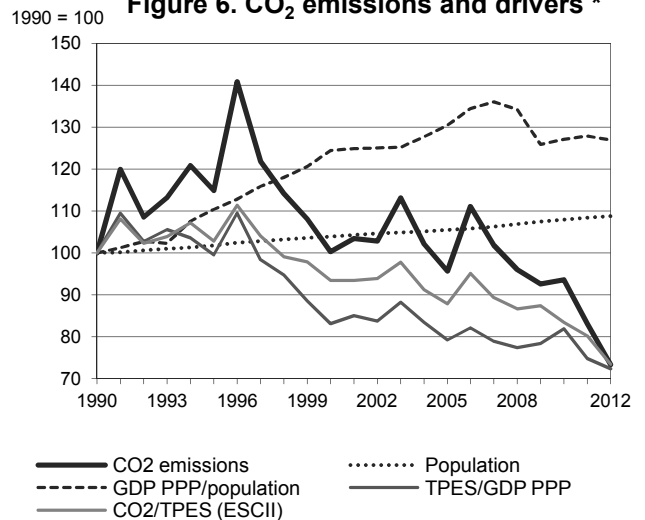
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Denmark

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	50.63	58.14	50.76	48.41	47.36	42.07	37.13	-26.7%
TPES (PJ)	727	812	780	792	815	753	726	-0.1%
GDP (billion 2005 USD)	187.36	210.31	242.10	257.68	256.82	259.57	258.64	38.0%
GDP PPP (billion 2005 USD)	130.80	146.82	169.01	179.89	179.29	181.21	180.56	38.0%
Population (millions)	5.14	5.23	5.34	5.42	5.55	5.57	5.59	8.8%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	69.7	71.6	65.1	61.2	58.1	55.9	51.1	-26.6%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.27	0.28	0.21	0.19	0.18	0.16	0.14	-46.9%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.39	0.40	0.30	0.27	0.26	0.23	0.21	-46.9%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	9.85	11.12	9.51	8.93	8.54	7.55	6.64	-32.6%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	115	100	96	94	83	73	-26.7%
Population index	100	102	104	105	108	108	109	8.8%
GDP PPP per population index	100	110	124	130	127	128	127	26.9%
Energy intensity index - TPES / GDP PPP	100	100	83	79	82	75	72	-27.6%
Carbon intensity index - CO <sub>2</sub> / TPES	100	103	93	88	83	80	73	-26.6%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>10.04</b>	<b>17.14</b>	<b>8.12</b>	<b>1.83</b>	<b>37.13</b>	<b>-26.7%</b>
Main activity producer elec. and heat	9.45	0.33	2.84	0.45	13.06	-45.4%
Unallocated autoproducers	0.00	0.14	0.24	1.28	1.66	76.4%
Other energy industry own use	-	0.96	1.40	-	2.35	61.4%
Manufacturing industries and construction	0.35	1.66	1.57	0.08	3.66	-33.3%
Transport	-	11.32	-	-	11.32	10.5%
<i>of which: road</i>	-	10.37	-	-	10.37	13.8%
Other	0.24	2.73	2.07	0.03	5.07	-41.0%
<i>of which: residential</i>	0.03	1.02	1.52	-	2.57	-47.8%
<b>Reference Approach</b>	<b>9.61</b>	<b>18.57</b>	<b>8.14</b>	<b>1.83</b>	<b>38.15</b>	<b>-25.2%</b>
Diff. due to losses and/or transformation	-0.03	0.95	0.04	-	0.96	
Statistical differences	-0.40	0.49	-0.02	0.00	0.07	
<i>Memo: international marine bunkers</i>	-	1.61	-	-	1.61	-46.5%
<i>Memo: international aviation bunkers</i>	-	2.48	-	-	2.48	45.4%

\*\* Other includes industrial waste and non-renewable municipal waste.

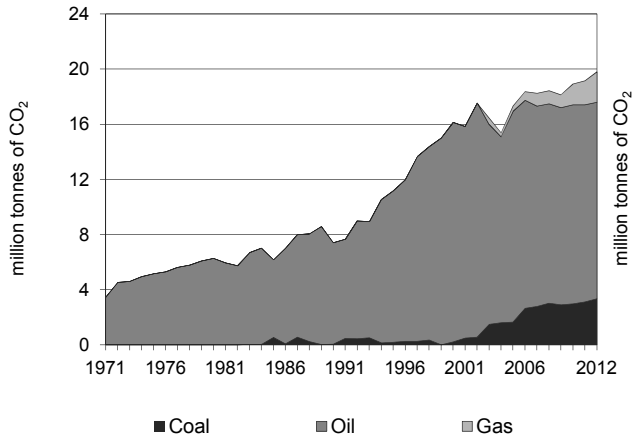
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	10.37	13.8%	20.4	20.4
Main activity prod. elec. and heat - coal	9.45	-56.9%	18.6	39.0
Main activity prod. elec. and heat - gas	2.84	189.7%	5.6	44.6
Non-specified other - oil	1.71	-41.3%	3.4	47.9
Manufacturing industries - oil	1.66	-44.4%	3.3	51.2
Manufacturing industries - gas	1.57	25.9%	3.1	54.3
Residential - gas	1.52	69.5%	3.0	57.3
Other energy industry own use - gas	1.40	174.0%	2.7	60.0
Unallocated autoproducers - other	1.28	104.9%	2.5	62.5
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>37.13</i>	<i>-26.7%</i>	<i>73.0</i>	<i>73.0</i>

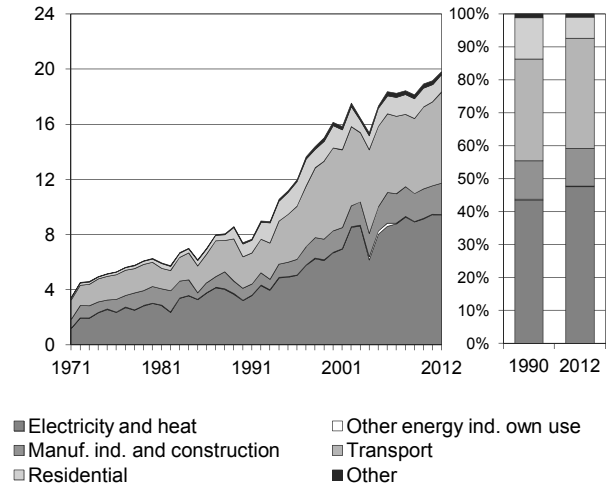
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Dominican Republic

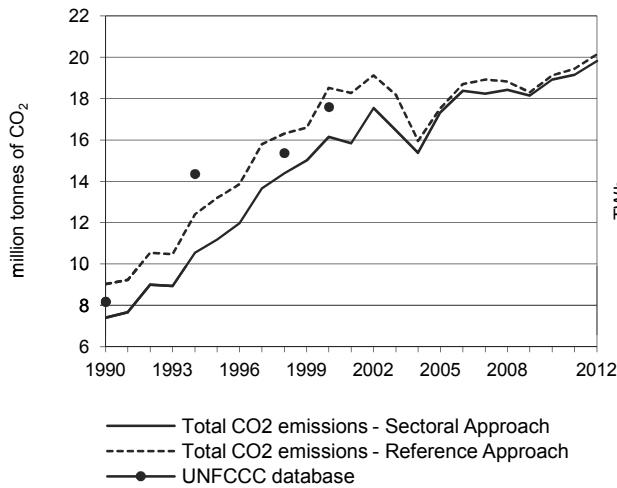
**Figure 1. CO<sub>2</sub> emissions by fuel**



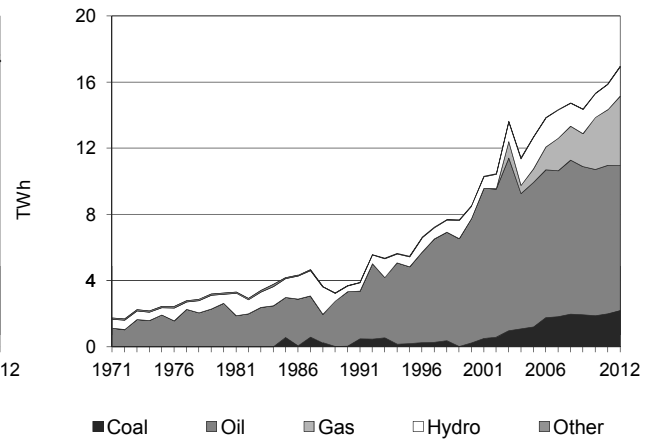
**Figure 2. CO<sub>2</sub> emissions by sector**



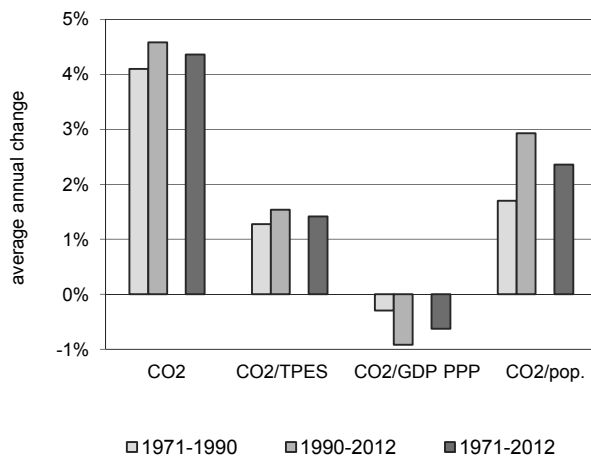
**Figure 3. Reference vs Sectoral Approach**



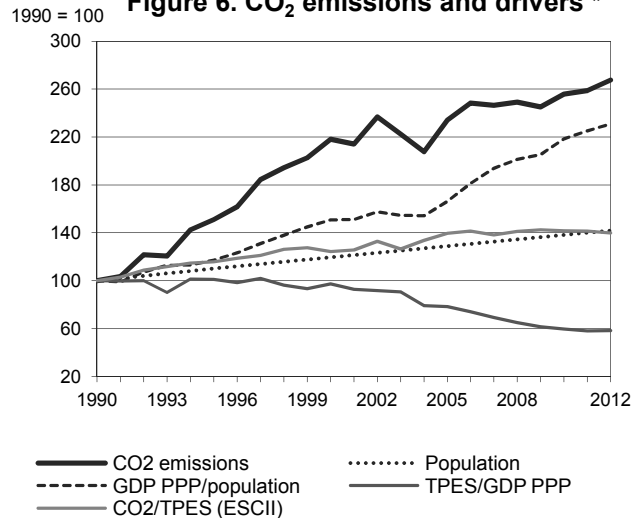
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Dominican Republic

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	7.40	11.18	16.14	17.33	18.93	19.16	19.81	167.7%
TPES (PJ)	165	215	290	277	298	302	316	91.4%
GDP (billion 2005 USD)	15.85	20.46	28.57	33.97	47.85	49.99	51.94	227.7%
GDP PPP (billion 2005 USD)	30.80	39.75	55.50	66.00	92.97	97.13	100.91	227.7%
Population (millions)	7.25	7.98	8.66	9.34	10.02	10.15	10.28	41.8%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	44.8	51.9	55.8	62.5	63.6	63.4	62.7	39.9%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.47	0.55	0.57	0.51	0.40	0.38	0.38	-18.3%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.24	0.28	0.29	0.26	0.20	0.20	0.20	-18.3%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	1.02	1.40	1.86	1.86	1.89	1.89	1.93	88.7%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	151	218	234	256	259	268	167.7%
Population index	100	110	120	129	138	140	142	41.9%
GDP PPP per population index	100	117	151	166	218	225	231	131.0%
Energy intensity index - TPES / GDP PPP	100	101	97	78	60	58	58	-41.6%
Carbon intensity index - CO <sub>2</sub> / TPES	100	116	124	139	142	141	140	39.9%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>3.34</b>	<b>14.27</b>	<b>2.20</b>	-	<b>19.81</b>	<b>167.7%</b>
Main activity producer elec. and heat	2.10	3.76	1.93	-	7.78	338.3%
Unallocated autoproducers	-	1.64	-	-	1.64	14.1%
Other energy industry own use	-	0.03	-	-	0.03	10.0%
Manufacturing industries and construction	1.24	0.79	0.24	-	2.27	164.2%
Transport	-	6.58	0.04	-	6.62	189.2%
<i>of which: road</i>	-	5.59	-	-	5.59	153.7%
Other	-	1.46	-	-	1.46	45.0%
<i>of which: residential</i>	-	1.26	-	-	1.26	36.3%
<b>Reference Approach</b>	<b>3.33</b>	<b>14.61</b>	<b>2.19</b>	-	<b>20.14</b>	<b>123.2%</b>
Diff. due to losses and/or transformation	-	0.31	0.00	-	0.31	
Statistical differences	-0.00	0.03	-0.01	-	0.02	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	1.47	-	-	1.47	+

\*\* Other includes industrial waste and non-renewable municipal waste.

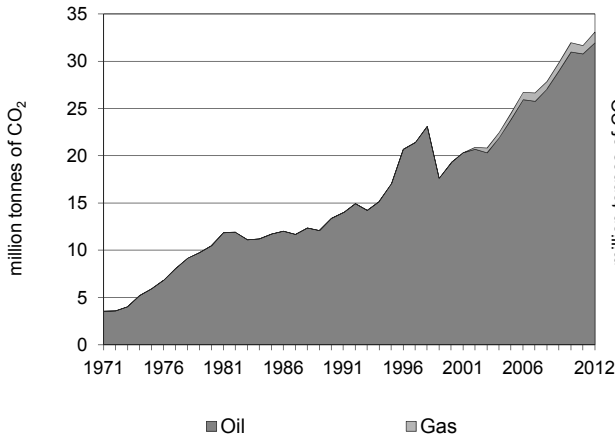
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	5.59	153.7%	18.5	18.5
Main activity prod. elec. and heat - oil	3.76	116.8%	12.4	30.9
Main activity prod. elec. and heat - coal	2.10	+	6.9	37.8
Main activity prod. elec. and heat - gas	1.93	x	6.4	44.1
Unallocated autoproducers - oil	1.64	14.1%	5.4	49.5
Residential - oil	1.26	36.3%	4.2	53.7
Manufacturing industries - coal	1.24	x	4.1	57.8
Other transport - oil	0.99	+	3.3	61.1
Manufacturing industries - oil	0.79	-7.9%	2.6	63.7
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>19.81</i>	<i>167.7%</i>	<i>65.4</i>	<i>65.4</i>

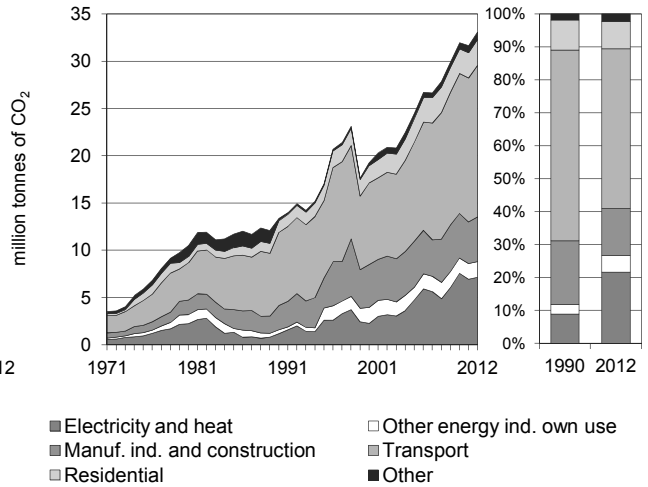
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Ecuador

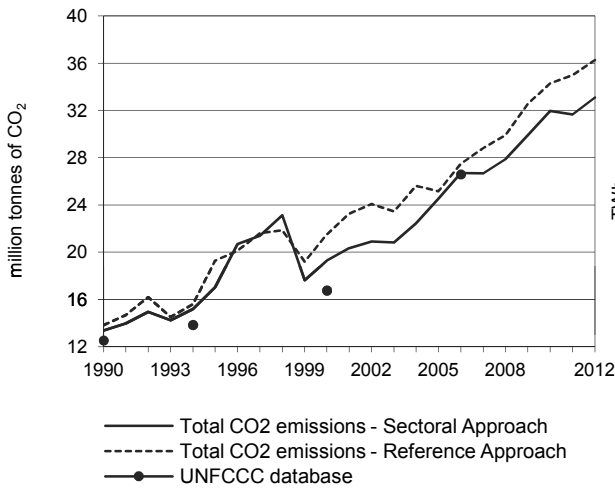
**Figure 1. CO<sub>2</sub> emissions by fuel**



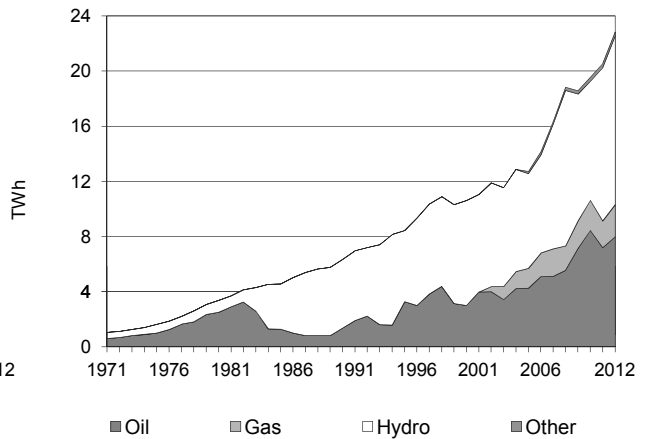
**Figure 2. CO<sub>2</sub> emissions by sector**



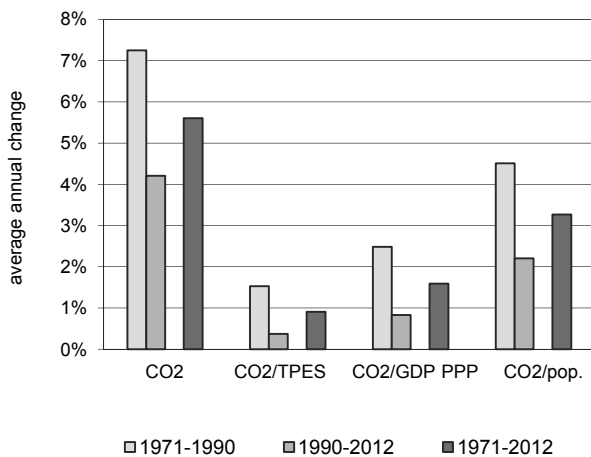
**Figure 3. Reference vs Sectoral Approach**



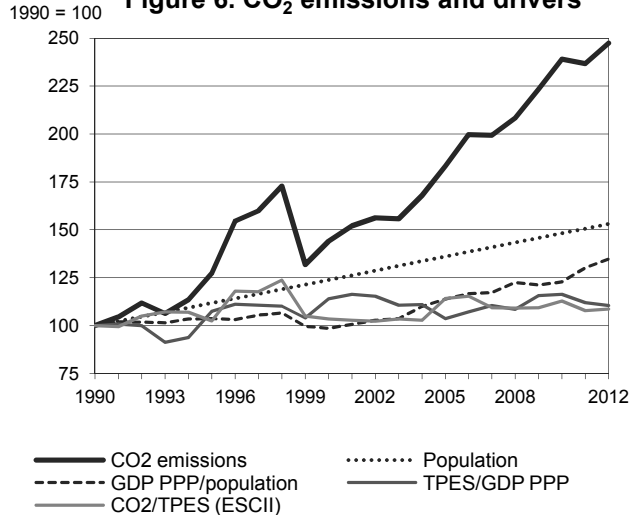
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Ecuador

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	13.38	17.03	19.27	24.52	31.97	31.66	33.10	147.4%
TPES (PJ)	265	330	369	425	561	582	604	127.8%
GDP (billion 2005 USD)	26.80	31.03	32.75	41.51	48.77	52.59	55.28	106.2%
GDP PPP (billion 2005 USD)	66.29	76.75	81.01	102.66	120.61	130.06	136.72	106.2%
Population (millions)	10.12	11.32	12.53	13.78	15.00	15.25	15.49	53.0%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	50.5	51.7	52.2	57.6	57.0	54.4	54.8	8.6%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.50	0.55	0.59	0.59	0.66	0.60	0.60	20.0%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.20	0.22	0.24	0.24	0.27	0.24	0.24	20.0%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	1.32	1.50	1.54	1.78	2.13	2.08	2.14	61.7%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	127	144	183	239	237	247	147.4%
Population index	100	112	124	136	148	151	153	53.0%
GDP PPP per population index	100	104	99	114	123	130	135	34.8%
Energy intensity index - TPES / GDP PPP	100	107	114	104	116	112	110	10.5%
Carbon intensity index - CO <sub>2</sub> / TPES	100	102	103	114	113	108	109	8.6%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>31.95</b>	<b>1.15</b>	-	<b>33.10</b>	<b>147.4%</b>
Main activity producer elec. and heat	-	4.42	0.69	-	5.11	329.8%
Unallocated autoproducers	-	1.58	0.46	-	2.04	x
Other energy industry own use	-	1.67	-	-	1.67	317.1%
Manufacturing industries and construction	-	4.73	-	-	4.73	83.8%
Transport	-	16.03	-	-	16.03	107.0%
<i>of which: road</i>	-	15.34	-	-	15.34	141.6%
Other	-	3.51	-	-	3.51	139.4%
<i>of which: residential</i>	-	2.73	-	-	2.73	123.5%
<b>Reference Approach</b>	-	<b>35.12</b>	<b>1.15</b>	-	<b>36.27</b>	<b>162.2%</b>
Diff. due to losses and/or transformation	-	3.32	-	-	3.32	
Statistical differences	-	-0.15	-	-	-0.15	
<i>Memo: international marine bunkers</i>	-	1.65	-	-	1.65	233.9%
<i>Memo: international aviation bunkers</i>	-	1.01	-	-	1.01	159.4%

\*\* Other includes industrial waste and non-renewable municipal waste.

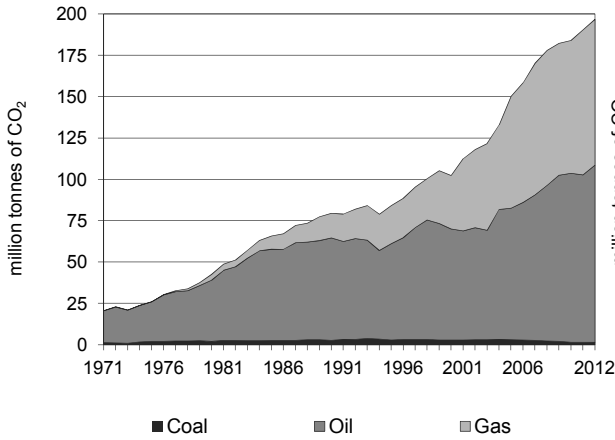
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	15.34	141.6%	25.2	25.2
Manufacturing industries - oil	4.73	83.8%	7.8	33.0
Main activity prod. elec. and heat - oil	4.42	271.7%	7.3	40.3
Residential - oil	2.73	123.5%	4.5	44.8
Other energy industry own use - oil	1.67	317.1%	2.7	47.5
Unallocated autoproducers - oil	1.58	x	2.6	50.1
Non-specified other - oil	0.78	218.9%	1.3	51.4
Other transport - oil	0.70	-50.3%	1.1	52.5
Main activity prod. elec. and heat - gas	0.69	x	1.1	53.7
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>33.10</i>	<i>147.4%</i>	<i>54.4</i>	<i>54.4</i>

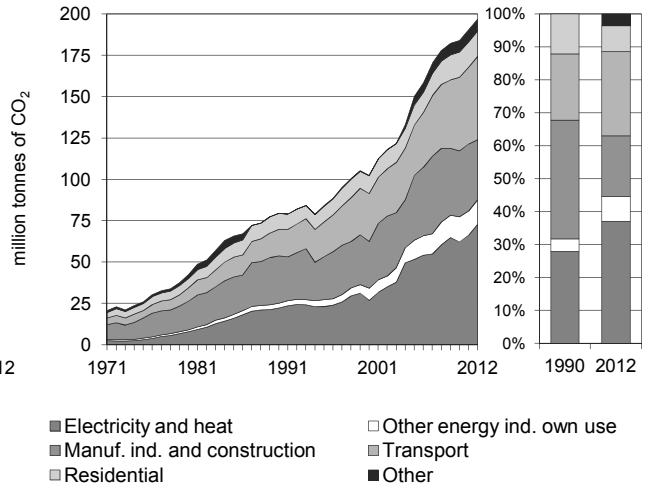
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Egypt

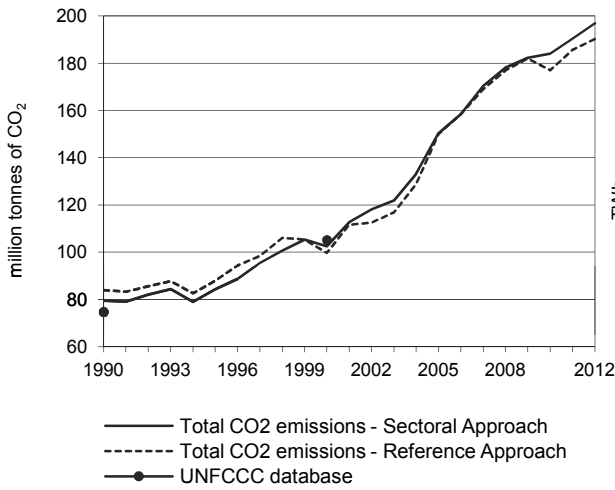
**Figure 1. CO<sub>2</sub> emissions by fuel**



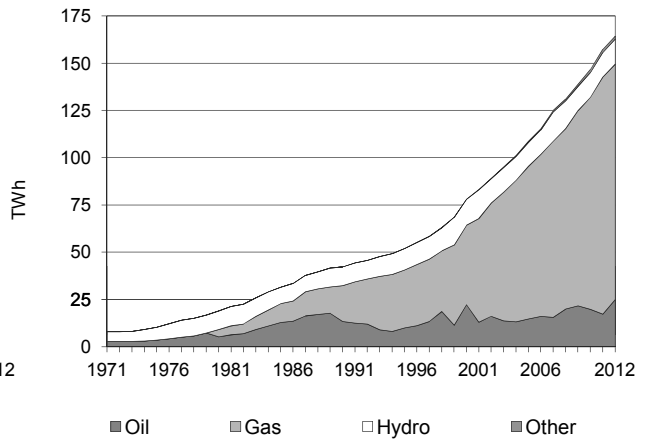
**Figure 2. CO<sub>2</sub> emissions by sector**



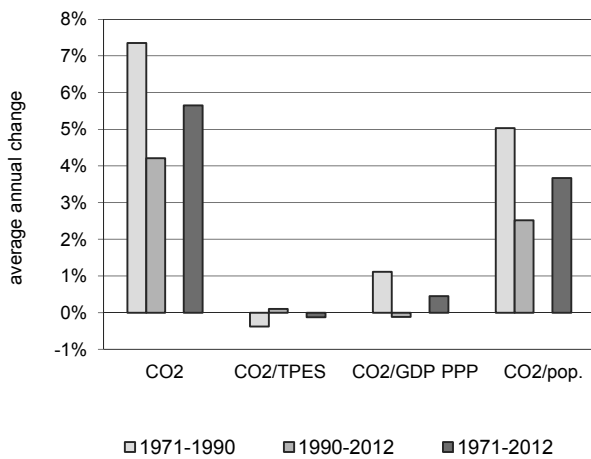
**Figure 3. Reference vs Sectoral Approach**



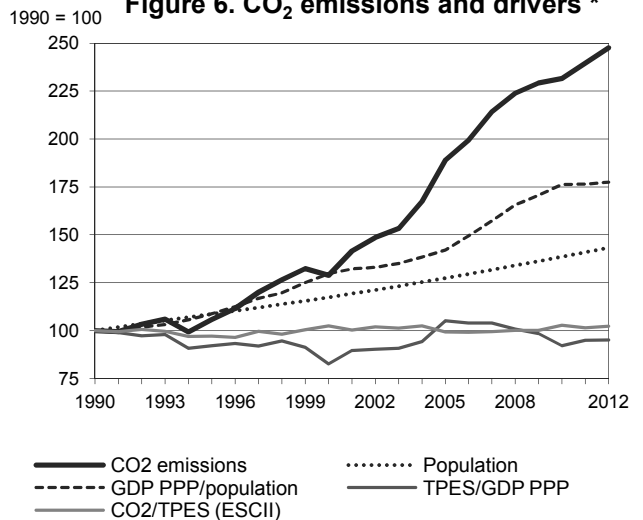
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Egypt

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	79.50	84.15	102.48	150.29	184.04	190.46	196.85	147.6%
TPES (PJ)	1 353	1 474	1 703	2 577	3 049	3 196	3 275	141.9%
GDP (billion 2005 USD)	49.53	58.53	75.40	89.69	121.04	123.17	125.90	154.2%
GDP PPP (billion 2005 USD)	302.48	357.46	460.49	547.71	739.17	752.20	768.85	154.2%
Population (millions)	56.34	61.17	66.14	71.78	78.08	79.39	80.72	43.3%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	58.7	57.1	60.2	58.3	60.4	59.6	60.1	2.3%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	1.61	1.44	1.36	1.68	1.52	1.55	1.56	-2.6%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.26	0.24	0.22	0.27	0.25	0.25	0.26	-2.6%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	1.41	1.38	1.55	2.09	2.36	2.40	2.44	72.8%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	106	129	189	231	240	248	147.6%
Population index	100	109	117	127	139	141	143	43.3%
GDP PPP per population index	100	109	130	142	176	176	177	77.4%
Energy intensity index - TPES / GDP PPP	100	92	83	105	92	95	95	-4.8%
Carbon intensity index - CO <sub>2</sub> / TPES	100	97	102	99	103	101	102	2.3%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>1.47</b>	<b>107.20</b>	<b>88.18</b>	-	<b>196.85</b>	<b>147.6%</b>
Main activity producer elec. and heat	-	20.84	52.10	-	72.94	228.6%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	2.82	11.90	-	14.72	388.9%
Manufacturing industries and construction	1.46	14.33	20.57	-	36.36	26.9%
Transport	-	49.44	0.94	-	50.38	215.2%
<i>of which: road</i>	-	46.67	0.94	-	47.61	210.5%
Other	0.01	19.77	2.67	-	22.46	132.5%
<i>of which: residential</i>	0.01	12.69	2.67	-	15.37	59.1%
<b>Reference Approach</b>	<b>1.54</b>	<b>100.53</b>	<b>88.18</b>	-	<b>190.26</b>	<b>126.7%</b>
Diff. due to losses and/or transformation	0.07	- 1.70	-	-	- 1.64	
Statistical differences	-	- 4.96	-	-	- 4.96	
<i>Memo: international marine bunkers</i>	-	5.87	-	-	5.87	10.1%
<i>Memo: international aviation bunkers</i>	-	2.63	-	-	2.63	482.1%

\*\* Other includes industrial waste and non-renewable municipal waste.

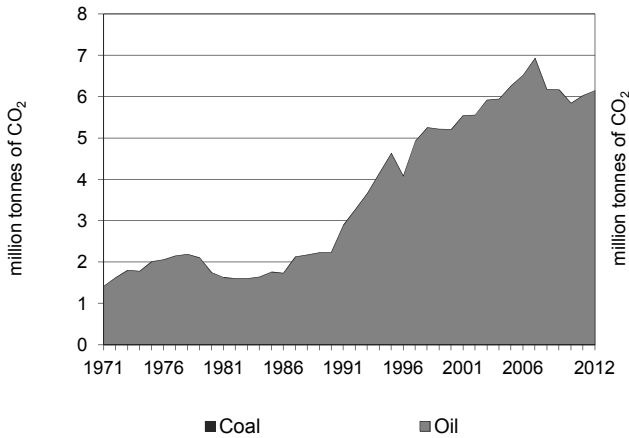
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - gas	52.10	461.4%	17.4	17.4
Road - oil	46.67	204.3%	15.6	33.0
Main activity prod. elec. and heat - oil	20.84	61.4%	7.0	39.9
Manufacturing industries - gas	20.57	337.7%	6.9	46.8
Manufacturing industries - oil	14.33	-32.7%	4.8	51.6
Residential - oil	12.69	33.6%	4.2	55.8
Other energy industry own use - gas	11.90	+	4.0	59.8
Non-specified other - oil	7.09	x	2.4	62.1
Other energy industry own use - oil	2.82	27.7%	0.9	63.1
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>196.85</i>	<i>147.6%</i>	<i>65.7</i>	<i>65.7</i>

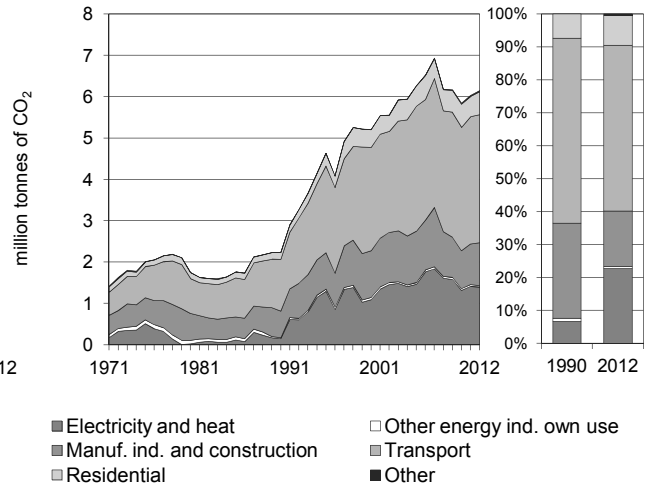
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## El Salvador

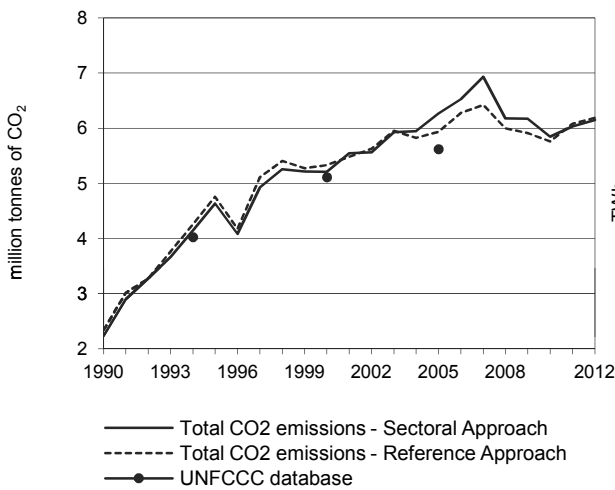
**Figure 1. CO<sub>2</sub> emissions by fuel**



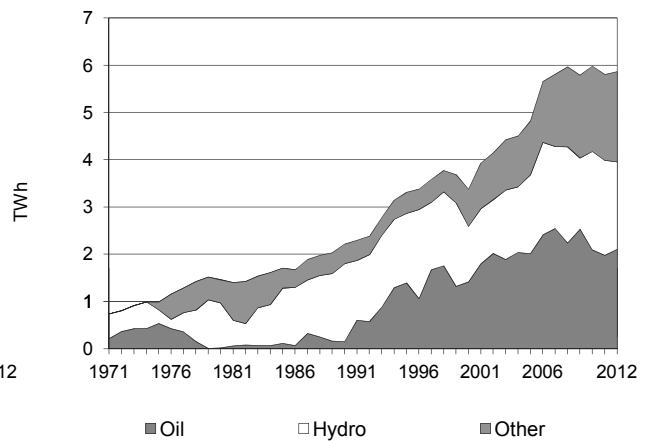
**Figure 2. CO<sub>2</sub> emissions by sector**



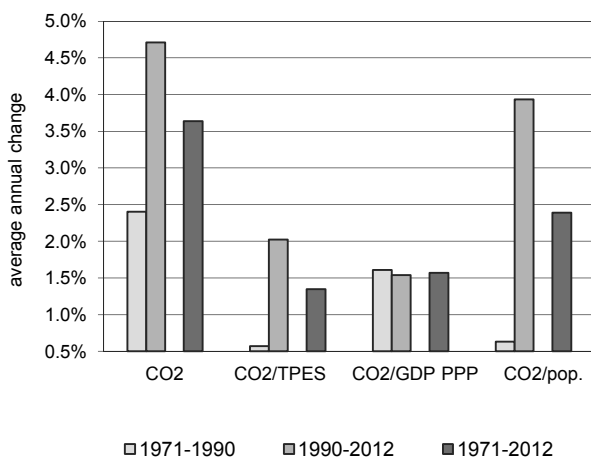
**Figure 3. Reference vs Sectoral Approach**



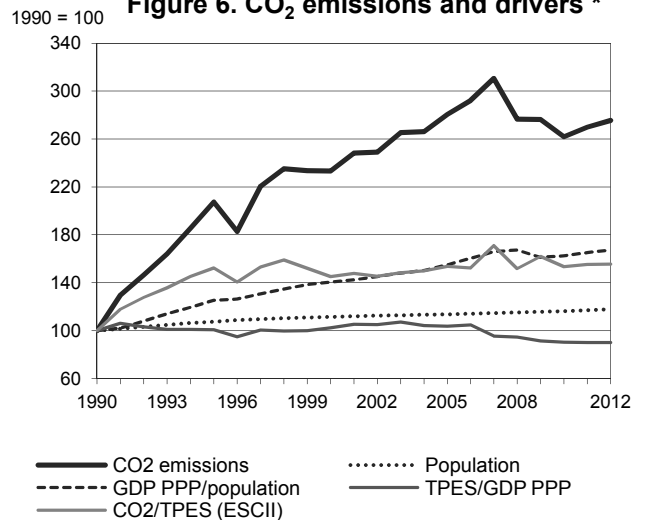
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## El Salvador

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	2.23	4.63	5.21	6.27	5.85	6.03	6.15	175.4%
TPES (PJ)	103	141	166	189	177	180	183	77.2%
GDP (billion 2005 USD)	9.70	13.09	15.22	17.09	18.34	18.75	19.11	97.0%
GDP PPP (billion 2005 USD)	21.22	28.63	33.29	37.39	40.11	41.00	41.79	97.0%
Population (millions)	5.34	5.75	5.96	6.07	6.22	6.26	6.30	17.8%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	21.6	32.9	31.4	33.2	33.1	33.6	33.6	55.4%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.23	0.35	0.34	0.37	0.32	0.32	0.32	39.8%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.11	0.16	0.16	0.17	0.15	0.15	0.15	39.9%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.42	0.81	0.87	1.03	0.94	0.96	0.98	133.7%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	207	233	281	262	270	275	175.4%
Population index	100	108	112	114	116	117	118	17.8%
GDP PPP per population index	100	125	141	155	162	165	167	67.2%
Energy intensity index - TPES / GDP PPP	100	101	102	104	90	90	90	-10.0%
Carbon intensity index - CO <sub>2</sub> / TPES	100	152	145	154	153	155	155	55.4%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>6.15</b>	-	-	<b>6.15</b>	<b>175.4%</b>
Main activity producer elec. and heat	-	1.15	-	-	1.15	671.1%
Unallocated autoproducers	-	0.25	-	-	0.25	x
Other energy industry own use	-	0.04	-	-	0.04	71.4%
Manufacturing industries and construction	-	1.03	-	-	1.03	60.6%
Transport	-	3.10	-	-	3.10	147.0%
<i>of which: road</i>	-	3.10	-	-	3.10	147.0%
Other	-	0.58	-	-	0.58	254.1%
<i>of which: residential</i>	-	0.56	-	-	0.56	238.7%
<b>Reference Approach</b>	-	<b>6.19</b>	-	-	<b>6.19</b>	<b>164.7%</b>
Diff. due to losses and/or transformation	-	0.05	-	-	0.05	
Statistical differences	-	-0.01	-	-	-0.01	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.38	-	-	0.38	233.3%

\*\* Other includes industrial waste and non-renewable municipal waste.

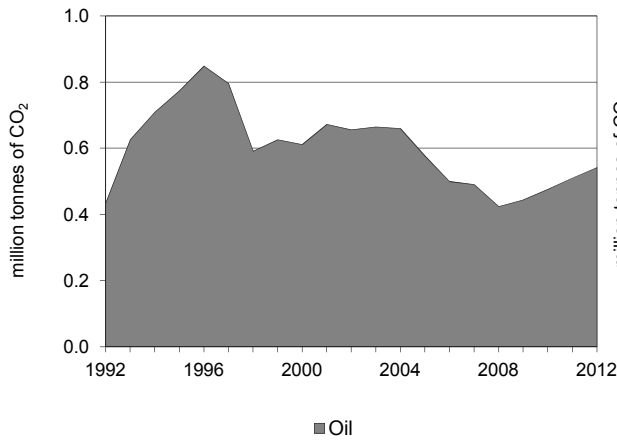
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	3.10	147.0%	28.2	28.2
Main activity prod. elec. and heat - oil	1.15	671.1%	10.4	38.6
Manufacturing industries - oil	1.03	60.6%	9.4	48.0
Residential - oil	0.56	238.7%	5.1	53.1
Unallocated autoproducers - oil	0.25	x	2.3	55.4
Other energy industry own use - oil	0.04	71.4%	0.3	55.7
Non-specified other - oil	0.03	x	0.2	55.9
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<b>6.15</b>	<b>175.4%</b>	<b>55.9</b>	<b>55.9</b>

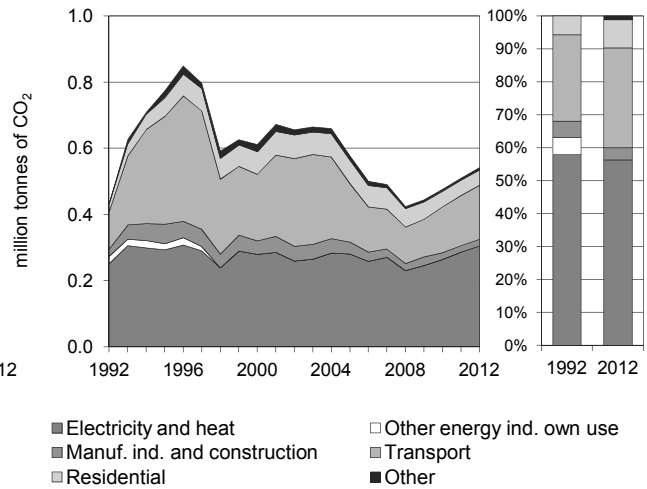
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Eritrea

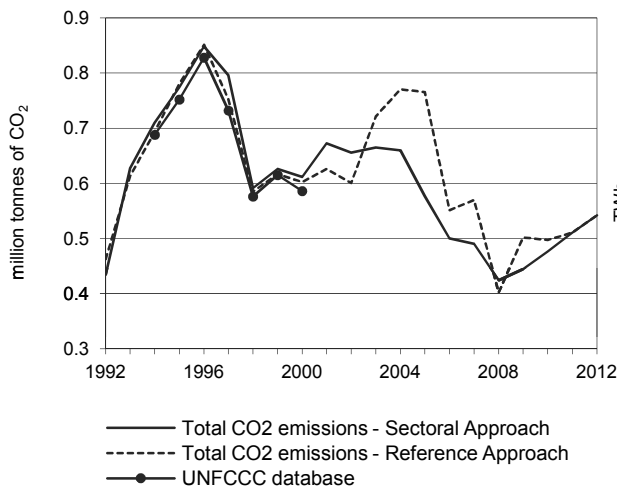
**Figure 1. CO<sub>2</sub> emissions by fuel**



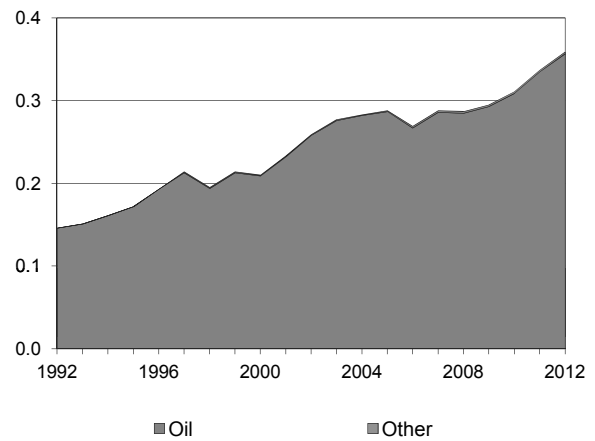
**Figure 2. CO<sub>2</sub> emissions by sector**



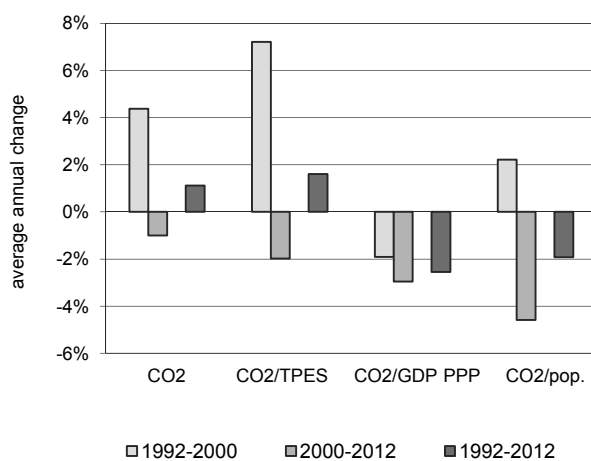
**Figure 3. Reference vs Sectoral Approach**



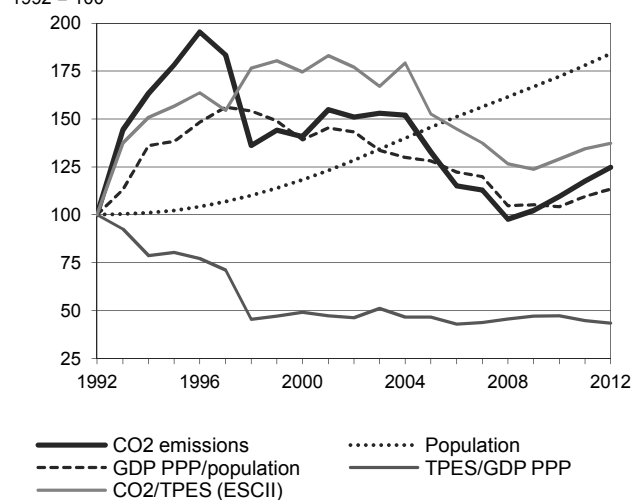
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

**Eritrea \***  
**Key indicators**

	1990	1992	2000	2005	2010	2011	2012	% change 92-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	..	0.43	0.61	0.58	0.48	0.51	0.54	24.8%
TPES (PJ)	..	37	30	32	31	32	33	-9.2%
GDP (billion 2005 USD)	..	0.59	0.97	1.10	1.06	1.15	1.23	108.7%
GDP PPP (billion 2005 USD)	..	3.09	5.08	5.76	5.54	6.03	6.45	108.8%
Population (millions)	..	3.33	3.94	4.85	5.74	5.93	6.13	84.0%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	..	11.8	20.6	18.1	15.3	15.9	16.2	37.4%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	..	0.74	0.63	0.53	0.45	0.44	0.44	-40.2%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	..	0.14	0.12	0.10	0.09	0.08	0.08	-40.3%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	..	0.13	0.16	0.12	0.08	0.09	0.09	-32.2%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1992=100) **</b>								
CO <sub>2</sub> emissions index	..	100	141	133	110	118	125	24.8%
Population index	..	100	118	146	172	178	184	84.0%
GDP PPP per population index	..	100	139	128	104	110	113	13.5%
Energy intensity index - TPES / GDP PPP	..	100	49	47	47	45	43	-56.5%
Carbon intensity index - CO <sub>2</sub> / TPES	..	100	175	153	129	135	137	37.4%

\* Prior to 1992, data for Eritrea were included in Ethiopia. \*\* Please see Part I, Chapter 1 for methodological notes. Based on GDP PPP.

**2012 CO<sub>2</sub> emissions by sector**

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other ***	Total	% change 92-12
<b>Sectoral Approach</b>	-	<b>0.54</b>	-	-	<b>0.54</b>	<b>24.8%</b>
Main activity producer elec. and heat	-	0.29	-	-	0.29	209.3%
Unallocated autoproducers	-	0.01	-	-	0.01	-91.9%
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	-	0.02	-	-	0.02	-7.1%
Transport	-	0.16	-	-	0.16	44.3%
<i>of which: road</i>	-	0.16	-	-	0.16	44.3%
Other	-	0.05	-	-	0.05	111.0%
<i>of which: residential</i>	-	0.05	-	-	0.05	86.2%
<b>Reference Approach</b>	-	<b>0.54</b>	-	-	<b>0.54</b>	<b>17.2%</b>
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-0.00	-	-	-0.00	-
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.00	-	-	0.00	-75.0%

\*\*\* Other includes industrial waste and non-renewable municipal waste.

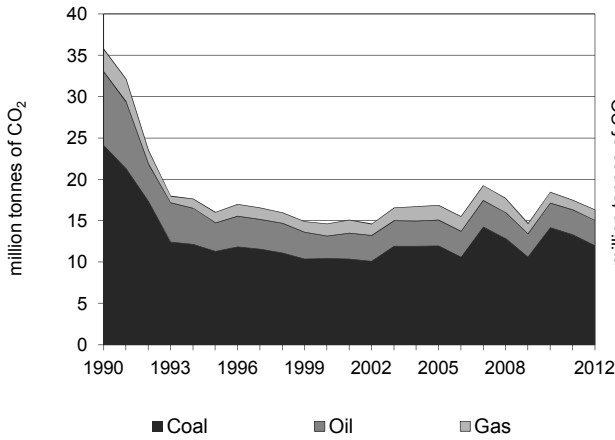
**Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012**

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 92-12	Level assessment (%) ****	Cumulative total (%)
Main activity prod. elec. and heat - oil	0.29	209.3%	6.2	6.2
Road - oil	0.16	44.3%	3.5	9.6
Residential - oil	0.05	86.2%	1.0	10.6
Manufacturing industries - oil	0.02	-7.1%	0.4	11.0
Unallocated autoproducers - oil	0.01	-91.9%	0.3	11.3
Non-specified other - oil	0.01	x	0.1	11.4
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>0.54</i>	<i>24.8%</i>	<i>11.4</i>	<i>11.4</i>

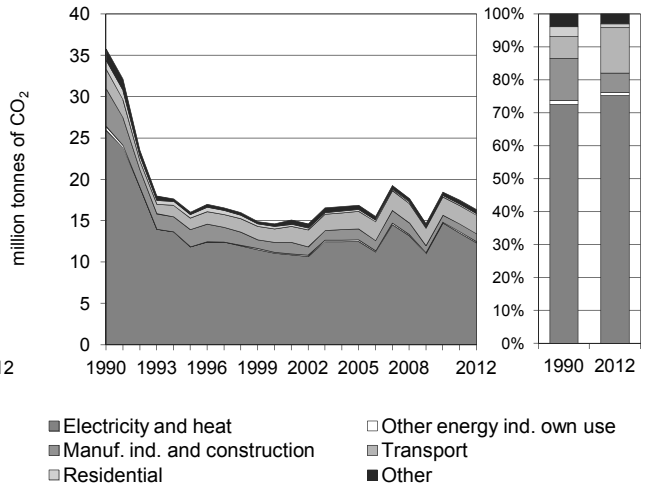
\*\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Estonia

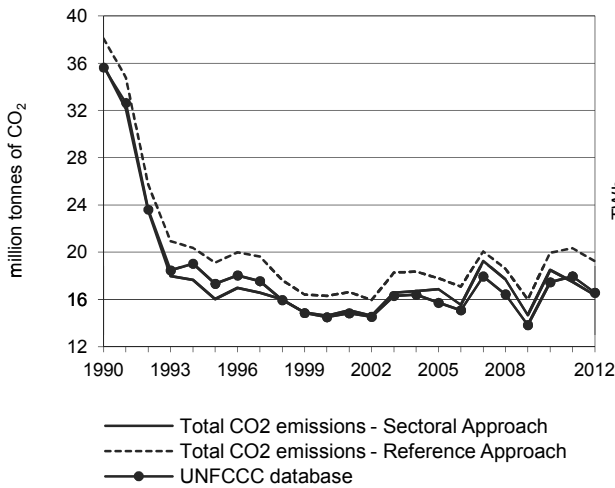
**Figure 1. CO<sub>2</sub> emissions by fuel**



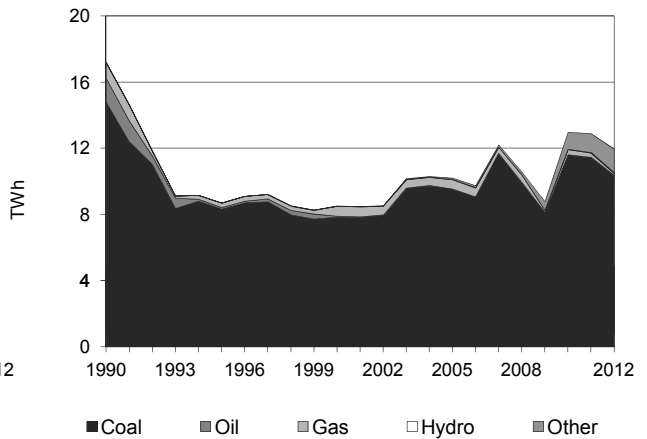
**Figure 2. CO<sub>2</sub> emissions by sector**



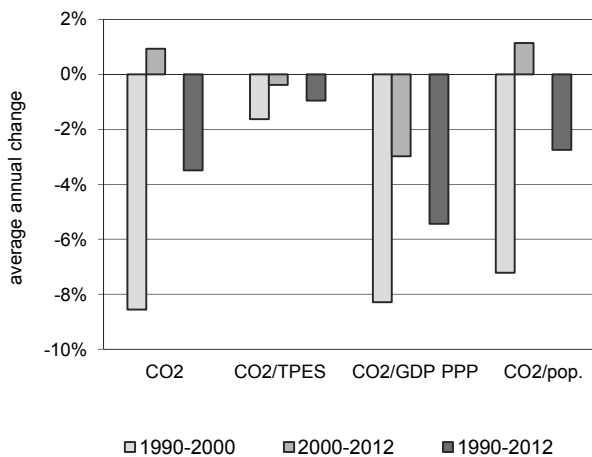
**Figure 3. Reference vs Sectoral Approach**



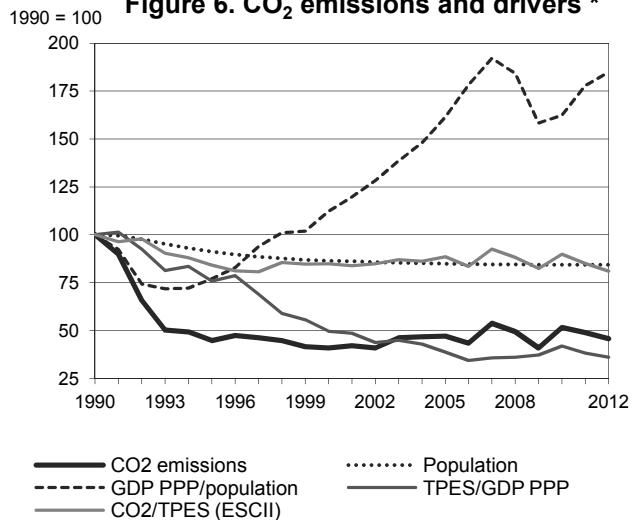
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Estonia

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	35.76	16.04	14.63	16.87	18.48	17.50	16.35	-54.3%
TPES (PJ)	409	218	197	218	235	236	231	-43.5%
GDP (billion 2005 USD)	10.13	7.12	9.84	13.90	13.90	15.22	15.82	56.2%
GDP PPP (billion 2005 USD)	16.23	11.40	15.77	22.28	22.26	24.39	25.35	56.2%
Population (millions)	1.59	1.45	1.37	1.35	1.34	1.34	1.34	-15.6%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	87.3	73.6	74.1	77.3	78.5	74.3	70.7	-19.0%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	3.53	2.25	1.49	1.21	1.33	1.15	1.03	-70.7%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	2.20	1.41	0.93	0.76	0.83	0.72	0.64	-70.7%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	22.53	11.07	10.66	12.52	13.79	13.06	12.20	-45.9%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	45	41	47	52	49	46	-54.3%
Population index	100	91	86	85	84	84	84	-15.6%
GDP PPP per population index	100	77	112	162	162	178	185	84.9%
Energy intensity index - TPES / GDP PPP	100	76	50	39	42	38	36	-63.8%
Carbon intensity index - CO <sub>2</sub> / TPES	100	84	85	89	90	85	81	-19.0%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>12.00</b>	<b>3.08</b>	<b>1.27</b>	-	<b>16.35</b>	<b>-54.3%</b>
Main activity producer elec. and heat	11.38	0.14	0.63	-	12.15	-52.2%
Unallocated autoproducers	0.05	0.01	0.09	-	0.15	-70.9%
Other energy industry own use	0.08	0.06	0.02	-	0.16	-64.9%
Manufacturing industries and construction	0.44	0.22	0.29	-	0.95	-79.1%
Transport	-	2.24	-	-	2.24	-4.9%
<i>of which: road</i>	-	2.13	-	-	2.13	-0.5%
Other	0.05	0.41	0.23	-	0.69	-72.1%
<i>of which: residential</i>	0.04	0.02	0.13	-	0.19	-82.0%
<b>Reference Approach</b>	<b>16.60</b>	<b>1.35</b>	<b>1.27</b>	-	<b>19.22</b>	<b>-49.5%</b>
Diff. due to losses and/or transformation	4.84	-1.75	-	-	3.09	
Statistical differences	-0.23	0.01	0.00	-	-0.22	
<i>Memo: international marine bunkers</i>	-	1.26	-	-	1.26	122.3%
<i>Memo: international aviation bunkers</i>	-	0.11	-	-	0.11	5.9%

\*\* Other includes industrial waste and non-renewable municipal waste.

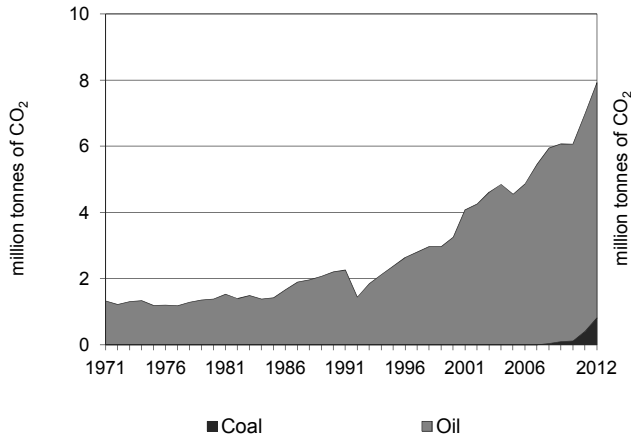
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	11.38	-44.8%	60.0	60.0
Road - oil	2.13	-0.5%	11.2	71.3
Main activity prod. elec. and heat - gas	0.63	-64.8%	3.3	74.6
Manufacturing industries - coal	0.44	-72.5%	2.3	76.9
Non-specified other - oil	0.38	-46.1%	2.0	78.9
Manufacturing industries - gas	0.29	-59.6%	1.6	80.5
Manufacturing industries - oil	0.22	-90.3%	1.1	81.6
Main activity prod. elec. and heat - oil	0.14	-95.2%	0.8	82.4
Residential - gas	0.13	-2.8%	0.7	83.0
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>16.35</i>	<i>-54.3%</i>	<i>86.2</i>	<i>86.2</i>

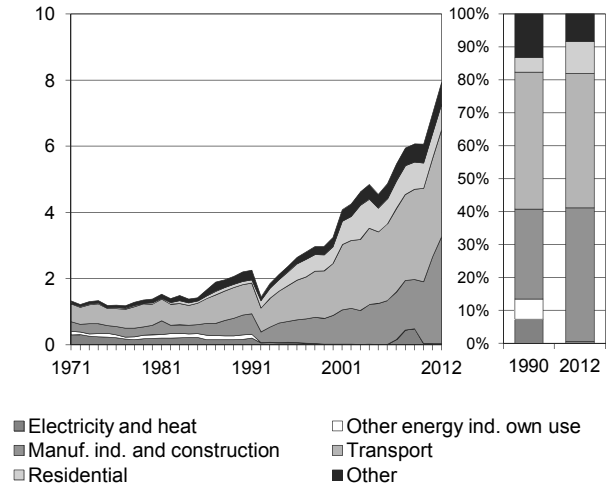
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Ethiopia

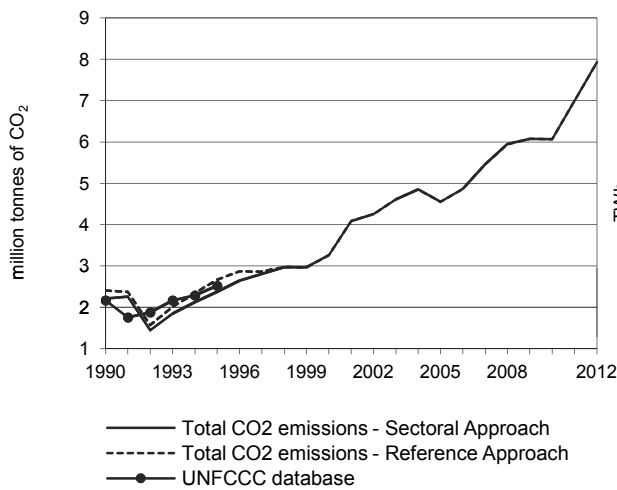
**Figure 1. CO<sub>2</sub> emissions by fuel**



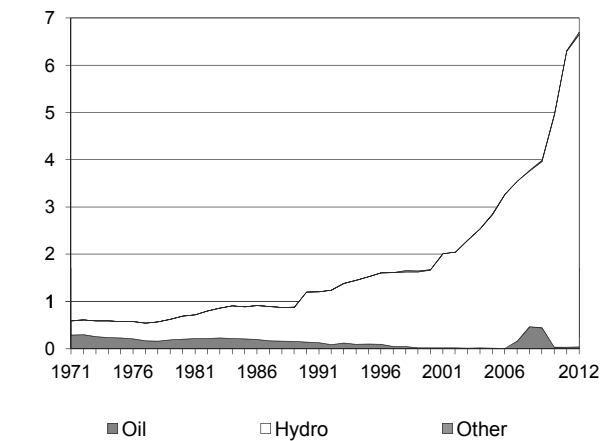
**Figure 2. CO<sub>2</sub> emissions by sector**



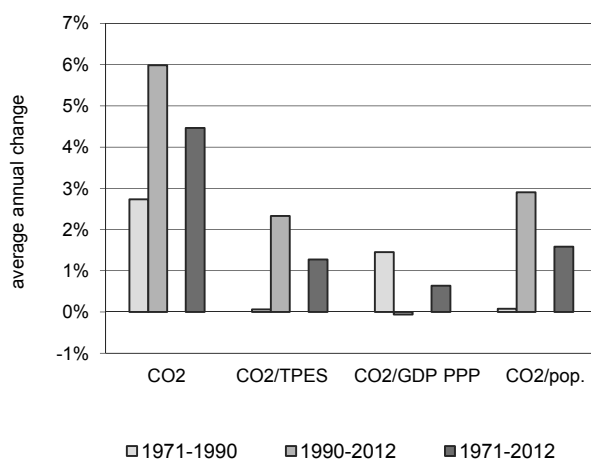
**Figure 3. Reference vs Sectoral Approach**



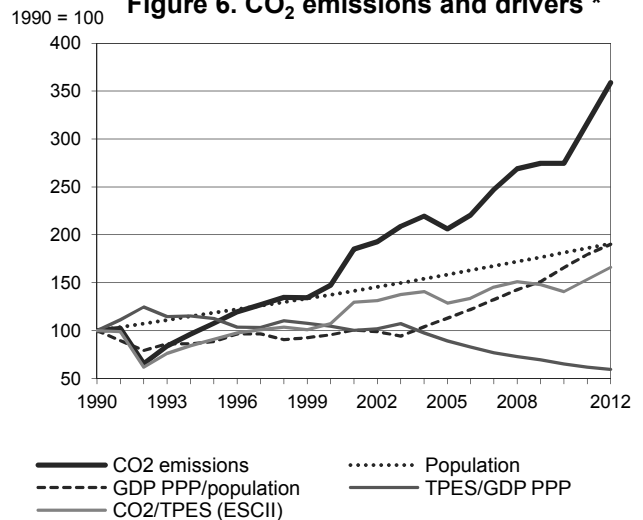
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Ethiopia \*

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	2.21	2.38	3.25	4.55	6.07	7.00	7.93	258.8%
TPES (PJ)	881	1 044	1 210	1 410	1 722	1 818	1 905	116.2%
GDP (billion 2005 USD)	6.79	7.14	8.91	12.17	20.40	22.68	24.66	263.1%
GDP PPP (billion 2005 USD)	27.43	28.83	36.00	49.17	82.41	91.62	99.62	263.1%
Population (millions)	48.04	57.02	66.02	76.17	87.10	89.39	91.73	90.9%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	2.5	2.3	2.7	3.2	3.5	3.8	4.2	66.0%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.33	0.33	0.37	0.37	0.30	0.31	0.32	-1.2%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.08	0.08	0.09	0.09	0.07	0.08	0.08	-1.2%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.05	0.04	0.05	0.06	0.07	0.08	0.09	87.8%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) **</b>								
CO <sub>2</sub> emissions index	100	108	147	206	275	317	359	258.8%
Population index	100	119	137	159	181	186	191	90.9%
GDP PPP per population index	100	89	95	113	166	179	190	90.2%
Energy intensity index - TPES / GDP PPP	100	113	105	89	65	62	60	-40.5%
Carbon intensity index - CO <sub>2</sub> / TPES	100	91	107	129	141	153	166	66.0%

\* Data for Ethiopia include Eritrea until 1991. \*\* Please see Part I, Chapter 1 for methodological notes. Based on GDP PPP.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other ***	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.81</b>	<b>7.12</b>	-	-	<b>7.93</b>	<b>258.8%</b>
Main activity producer elec. and heat	-	0.04	-	-	0.04	-50.6%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.81	2.41	-	-	3.22	434.4%
Transport	-	3.23	-	-	3.23	252.1%
<i>of which: road</i>	-	3.07	-	-	3.07	234.3%
Other	-	1.43	-	-	1.43	266.9%
<i>of which: residential</i>	-	0.77	-	-	0.77	685.6%
<b>Reference Approach</b>	<b>0.81</b>	<b>7.12</b>	-	-	<b>7.93</b>	<b>229.9%</b>
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	0.00	-	-	0.00	-
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.93	-	-	0.93	76.3%

\*\*\* Other includes industrial waste and non-renewable municipal waste.

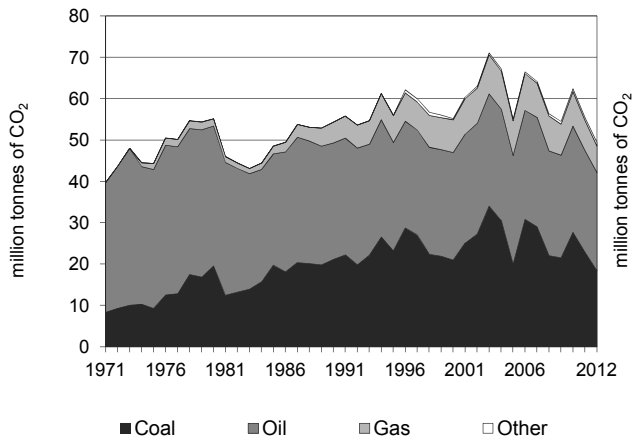
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ****	Cumulative total (%)
Road - oil	3.07	234.3%	2.6	2.6
Manufacturing industries - oil	2.41	299.4%	2.1	4.7
Manufacturing industries - coal	0.81	x	0.7	5.4
Residential - oil	0.77	685.6%	0.7	6.0
Non-specified other - oil	0.66	126.1%	0.6	6.6
Other transport - oil	0.16	x	0.1	6.7
Main activity prod. elec. and heat - oil	0.04	-50.6%	0.0	6.8
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>7.93</i>	<i>258.8%</i>	<i>6.8</i>	<i>6.8</i>

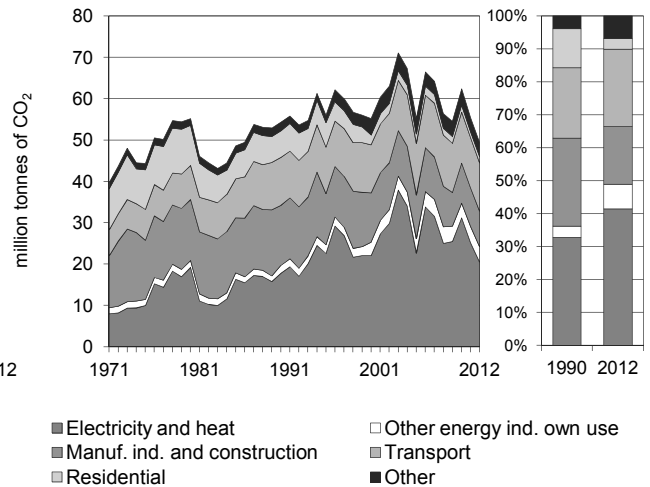
\*\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Finland

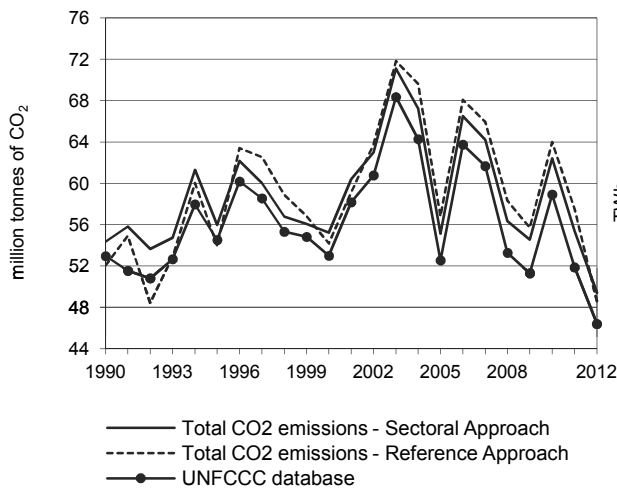
**Figure 1. CO<sub>2</sub> emissions by fuel**



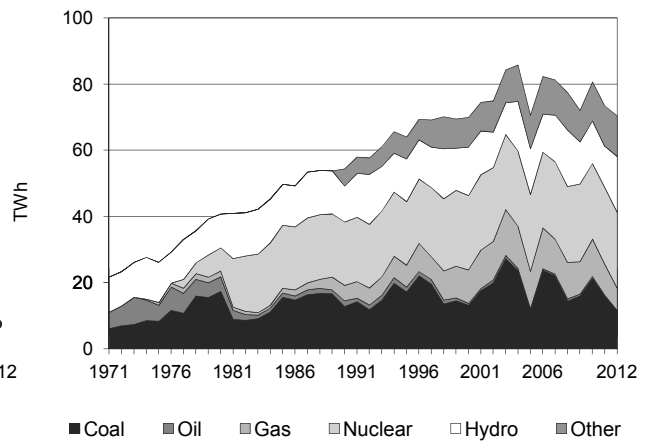
**Figure 2. CO<sub>2</sub> emissions by sector**



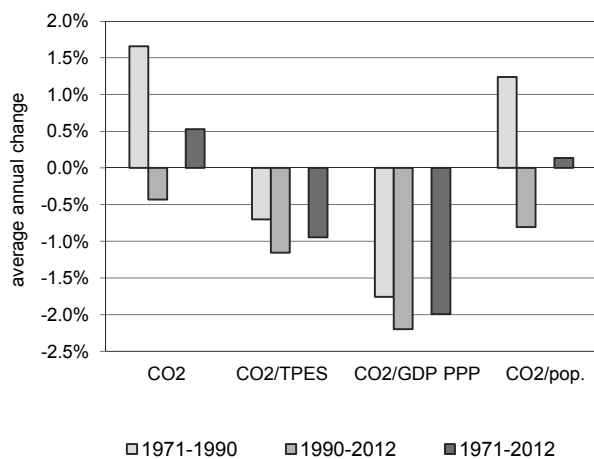
**Figure 3. Reference vs Sectoral Approach**



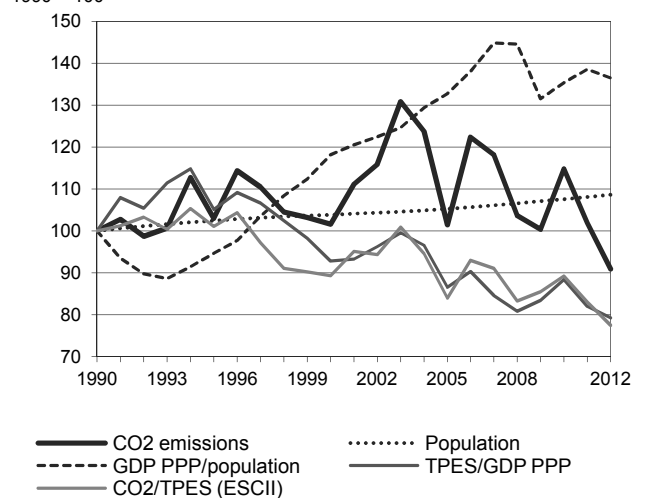
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Finland

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	54.36	55.98	55.22	55.12	62.41	55.38	49.41	-9.1%
TPES (PJ)	1 188	1 211	1 352	1 436	1 529	1 458	1 394	17.3%
GDP (billion 2005 USD)	140.23	135.99	171.94	195.78	204.15	209.92	207.81	48.2%
GDP PPP (billion 2005 USD)	115.39	111.90	141.48	161.10	167.99	172.74	170.99	48.2%
Population (millions)	4.99	5.11	5.18	5.25	5.36	5.39	5.41	8.6%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	45.8	46.2	40.9	38.4	40.8	38.0	35.4	-22.5%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.39	0.41	0.32	0.28	0.31	0.26	0.24	-38.7%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.47	0.50	0.39	0.34	0.37	0.32	0.29	-38.7%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	10.90	10.96	10.67	10.51	11.64	10.28	9.13	-16.3%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	103	102	101	115	102	91	-9.1%
Population index	100	102	104	105	108	108	109	8.6%
GDP PPP per population index	100	95	118	133	135	139	136	36.5%
Energy intensity index - TPES / GDP PPP	100	105	93	87	88	82	79	-20.8%
Carbon intensity index - CO <sub>2</sub> / TPES	100	101	89	84	89	83	77	-22.5%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>18.37</b>	<b>23.76</b>	<b>6.46</b>	<b>0.84</b>	<b>49.41</b>	<b>-9.1%</b>
Main activity producer elec. and heat	12.95	0.88	3.62	0.39	17.84	13.8%
Unallocated autoproducers	1.72	0.17	0.48	0.27	2.63	22.5%
Other energy industry own use	1.17	1.89	0.67	-	3.73	98.1%
Manufacturing industries and construction	2.27	4.67	1.49	0.17	8.60	-40.7%
Transport	-	11.62	0.03	-	11.65	0.5%
<i>of which: road</i>	-	10.84	0.01	-	10.85	1.9%
Other	0.25	4.54	0.17	0.01	4.97	-42.0%
<i>of which: residential</i>	0.02	1.44	0.08	-	1.54	-76.2%
<b>Reference Approach</b>	<b>18.52</b>	<b>22.19</b>	<b>7.00</b>	<b>0.84</b>	<b>48.56</b>	<b>-6.8%</b>
Diff. due to losses and/or transformation	0.20	-0.45	0.55	-	0.30	
Statistical differences	-0.04	-1.11	0.00	-	-1.16	
<i>Memo: international marine bunkers</i>	-	0.38	-	-	0.38	-78.5%
<i>Memo: international aviation bunkers</i>	-	1.81	-	-	1.81	86.2%

\*\* Other includes industrial waste and non-renewable municipal waste.

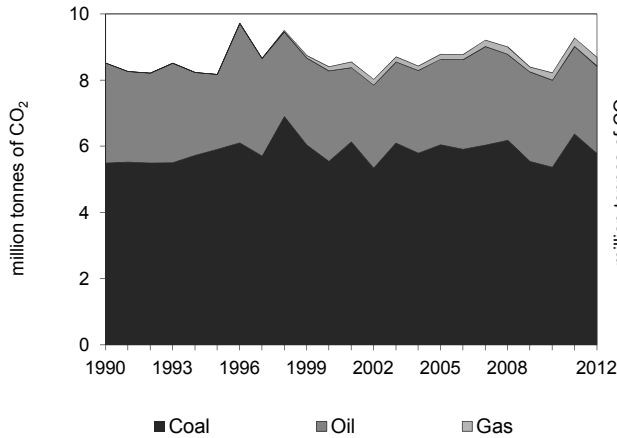
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	12.95	4.2%	20.2	20.2
Road - oil	10.84	1.8%	16.9	37.2
Manufacturing industries - oil	4.67	-8.5%	7.3	44.5
Main activity prod. elec. and heat - gas	3.62	86.1%	5.7	50.1
Non-specified other - oil	3.10	50.2%	4.8	55.0
Manufacturing industries - coal	2.27	-68.7%	3.5	58.5
Other energy industry own use - oil	1.89	39.0%	2.9	61.5
Unallocated autoproducers - coal	1.72	28.3%	2.7	64.2
Manufacturing industries - gas	1.49	-30.7%	2.3	66.5
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>49.41</i>	<i>-9.1%</i>	<i>77.2</i>	<i>77.2</i>

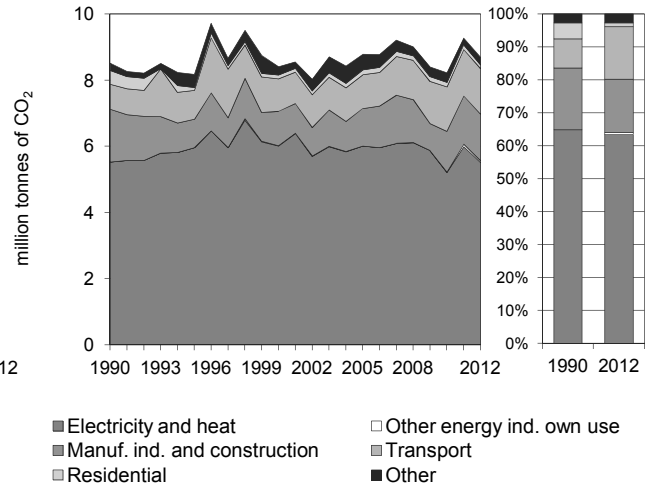
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Former Yugoslav Republic of Macedonia

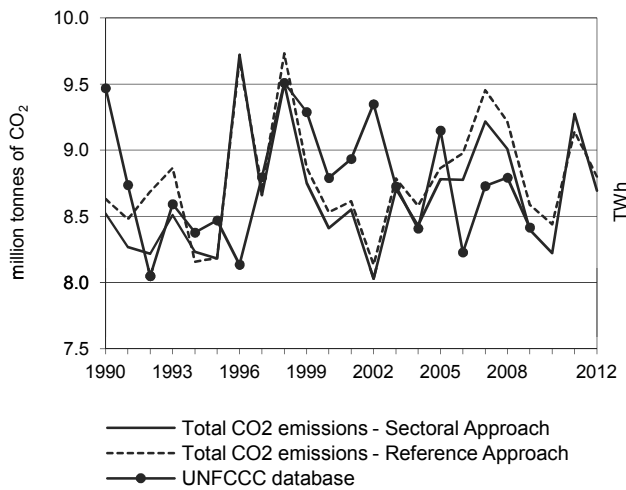
**Figure 1. CO<sub>2</sub> emissions by fuel**



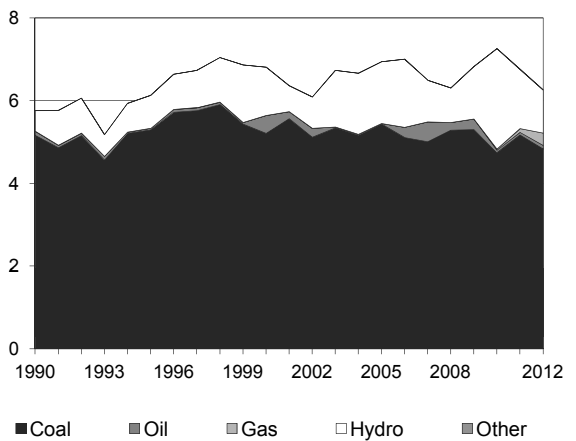
**Figure 2. CO<sub>2</sub> emissions by sector**



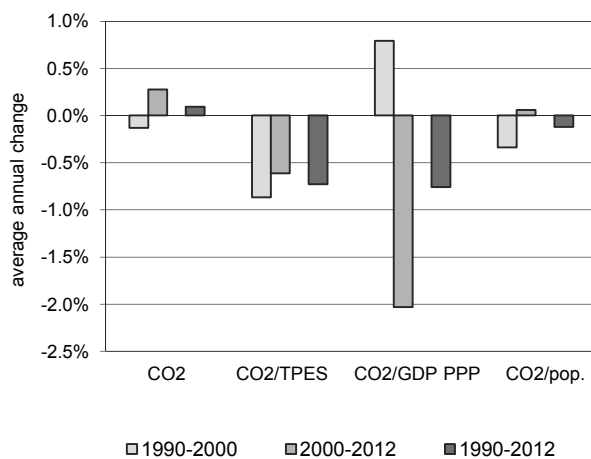
**Figure 3. Reference vs Sectoral Approach**



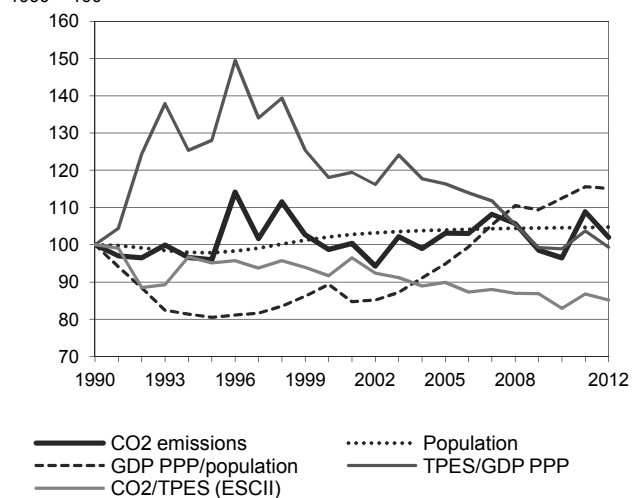
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Former Yugoslav Republic of Macedonia

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	8.52	8.18	8.41	8.78	8.22	9.27	8.69	2.0%
TPES (PJ)	104	105	112	119	121	130	124	19.8%
GDP (billion 2005 USD)	6.07	4.78	5.54	5.99	7.14	7.34	7.32	20.6%
GDP PPP (billion 2005 USD)	16.27	12.82	14.84	16.05	19.14	19.68	19.63	20.6%
Population (millions)	2.01	1.97	2.05	2.09	2.10	2.10	2.11	4.8%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	82.1	78.2	75.3	73.8	68.1	71.3	70.0	-14.8%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	1.40	1.71	1.52	1.47	1.15	1.26	1.19	-15.4%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.52	0.64	0.57	0.55	0.43	0.47	0.44	-15.4%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	4.24	4.16	4.10	4.20	3.91	4.41	4.13	-2.6%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	96	99	103	97	109	102	2.0%
Population index	100	98	102	104	105	105	105	4.8%
GDP PPP per population index	100	81	89	95	112	116	115	15.1%
Energy intensity index - TPES / GDP PPP	100	128	118	116	99	104	99	-0.7%
Carbon intensity index - CO <sub>2</sub> / TPES	100	95	92	90	83	87	85	-14.8%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>5.78</b>	<b>2.65</b>	<b>0.27</b>	-	<b>8.69</b>	<b>2.0%</b>
Main activity producer elec. and heat	5.16	0.12	0.21	-	5.50	7.0%
Unallocated autoproducers	0.01	-	-	-	0.01	-96.1%
Other energy industry own use	-	0.05	-	-	0.05	x
Manufacturing industries and construction	0.59	0.77	0.05	-	1.41	-11.9%
Transport	-	1.38	0.00	-	1.38	82.2%
<i>of which: road</i>	-	1.36	0.00	-	1.36	84.9%
Other	0.02	0.32	0.01	-	0.34	-46.9%
<i>of which: residential</i>	0.01	0.10	-	-	0.11	-74.0%
<b>Reference Approach</b>	<b>5.80</b>	<b>2.73</b>	<b>0.27</b>	-	<b>8.80</b>	<b>2.0%</b>
Diff. due to losses and/or transformation	-	0.08	0.00	-	0.08	
Statistical differences	0.02	-0.00	0.00	-	0.02	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.01	-	-	0.01	-60.0%

\*\* Other includes industrial waste and non-renewable municipal waste.

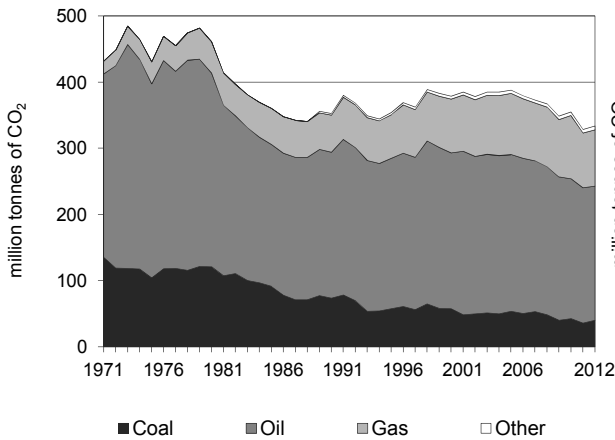
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	5.16	3.9%	45.9	45.9
Road - oil	1.36	84.9%	12.1	58.0
Manufacturing industries - oil	0.77	-34.7%	6.9	64.9
Manufacturing industries - coal	0.59	42.0%	5.2	70.1
Non-specified other - oil	0.22	2.5%	1.9	72.1
Main activity prod. elec. and heat - gas	0.21	x	1.9	74.0
Main activity prod. elec. and heat - oil	0.12	-28.6%	1.1	75.1
Residential - oil	0.10	-74.8%	0.9	76.0
Other energy industry own use - oil	0.05	x	0.5	76.4
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<b>8.69</b>	<b>2.0%</b>	<b>77.4</b>	<b>77.4</b>

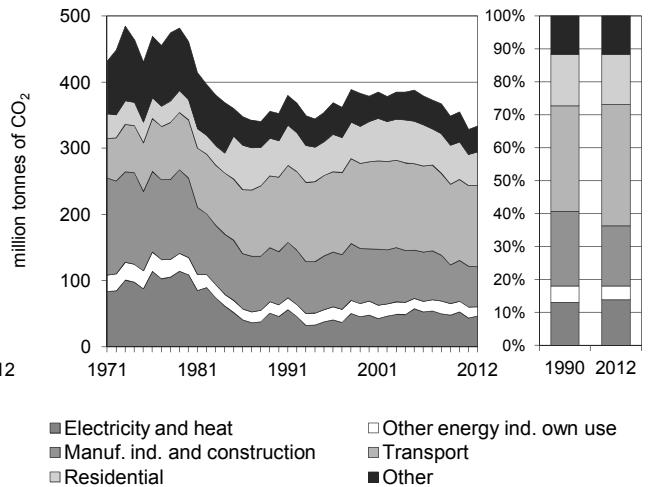
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## France

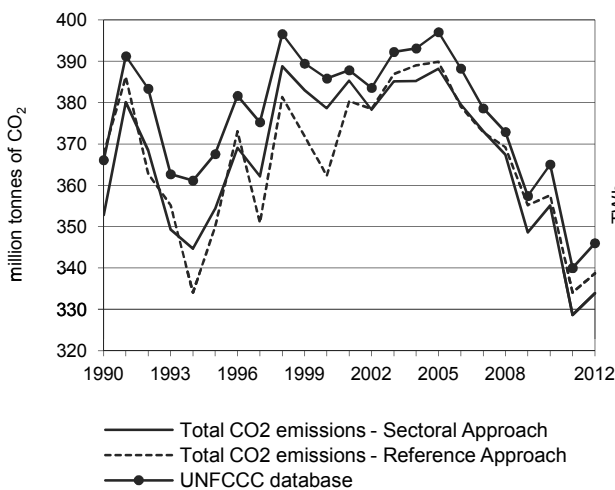
**Figure 1. CO<sub>2</sub> emissions by fuel**



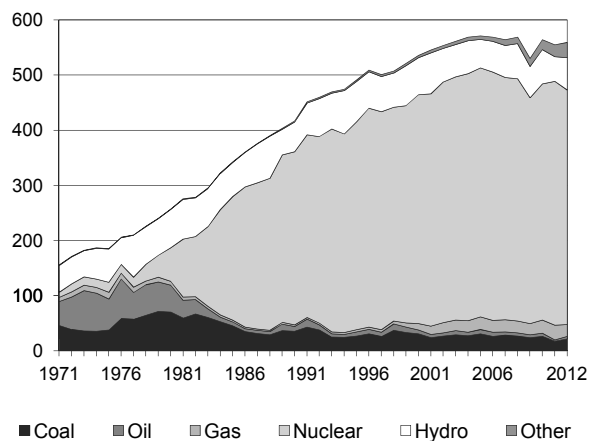
**Figure 2. CO<sub>2</sub> emissions by sector**



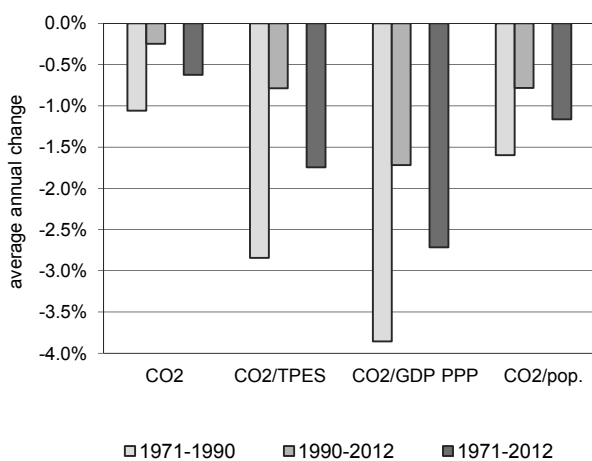
**Figure 3. Reference vs Sectoral Approach**



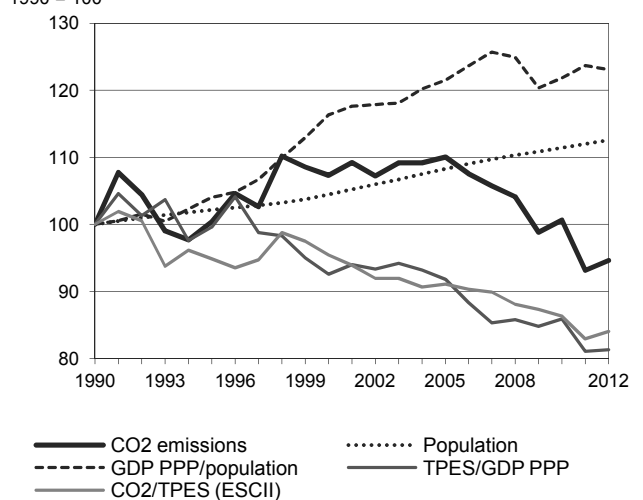
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## France

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	352.81	354.24	378.68	388.20	355.07	328.65	333.89	-5.4%
TPES (PJ)	9 379	9 925	10 550	11 331	10 934	10 534	10 565	12.6%
GDP (billion 2005 USD)	1 623.84	1 725.64	1 973.04	2 136.56	2 204.45	2 249.13	2 249.44	38.5%
GDP PPP (billion 2005 USD)	1 414.18	1 502.84	1 718.30	1 860.70	1 919.83	1 958.74	1 959.01	38.5%
Population (millions)	58.14	59.38	60.73	62.96	64.78	65.12	65.43	12.5%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	37.6	35.7	35.9	34.3	32.5	31.2	31.6	-16.0%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.22	0.21	0.19	0.18	0.16	0.15	0.15	-31.7%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.25	0.24	0.22	0.21	0.19	0.17	0.17	-31.7%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	6.07	5.97	6.24	6.17	5.48	5.05	5.10	-15.9%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	100	107	110	101	93	95	-5.4%
Population index	100	102	104	108	111	112	113	12.5%
GDP PPP per population index	100	104	116	122	122	124	123	23.1%
Energy intensity index - TPES / GDP PPP	100	100	93	92	86	81	81	-18.7%
Carbon intensity index - CO <sub>2</sub> / TPES	100	95	95	91	86	83	84	-16.0%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>40.25</b>	<b>202.57</b>	<b>85.34</b>	<b>5.73</b>	<b>333.89</b>	<b>-5.4%</b>
Main activity producer elec. and heat	20.50	2.77	10.22	0.25	33.73	36.9%
Unallocated autoproducers	2.87	0.79	4.20	4.74	12.60	-41.4%
Other energy industry own use	2.42	10.39	1.15	0.09	14.06	-19.4%
Manufacturing industries and construction	14.01	24.58	22.13	0.00	60.72	-24.2%
Transport	-	122.62	0.36	-	122.97	8.8%
<i>of which: road</i>	-	117.64	0.20	-	117.85	9.4%
Other	0.45	41.43	47.28	0.66	89.81	-6.6%
<i>of which: residential</i>	0.33	20.60	29.87	-	50.80	-7.5%
<b>Reference Approach</b>	<b>44.39</b>	<b>200.43</b>	<b>88.16</b>	<b>5.73</b>	<b>338.71</b>	<b>-7.9%</b>
Diff. due to losses and/or transformation	2.75	-2.10	0.75	-	1.40	
Statistical differences	1.40	-0.04	2.07	-	3.43	
<i>Memo: international marine bunkers</i>	-	7.41	-	-	7.41	-4.0%
<i>Memo: international aviation bunkers</i>	-	16.71	-	-	16.71	79.3%

\*\* Other includes industrial waste and non-renewable municipal waste.

### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

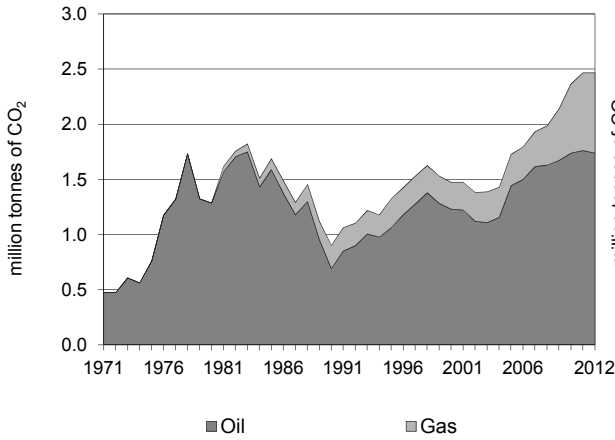
IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	117.64	9.2%	24.3	24.3
Residential - gas ****	29.87	94.0%	6.2	30.5
Manufacturing industries - oil	24.58	-11.5%	5.1	35.5
Manufacturing industries - gas	22.13	-9.5%	4.6	40.1
Non-specified other - oil	20.83	-21.2%	4.3	44.4
Residential - oil	20.60	-37.6%	4.3	48.7
Main activity prod. elec. and heat - coal	20.50	-1.9%	4.2	52.9
Non-specified other - gas	17.41	19.4%	3.6	56.5
Manufacturing industries - coal	14.01	-49.7%	2.9	59.4
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>333.89</i>	<i>-5.4%</i>	<i>69.0</i>	<i>69.0</i>

\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

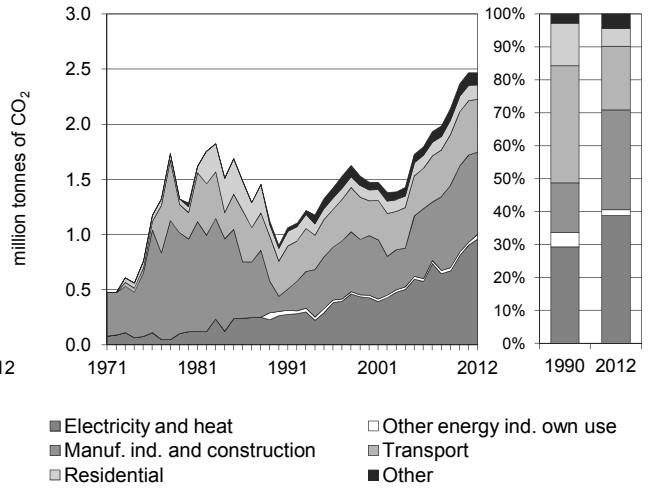
\*\*\*\* The high growth in gas is also due to changes in methodology in 2000.

## Gabon

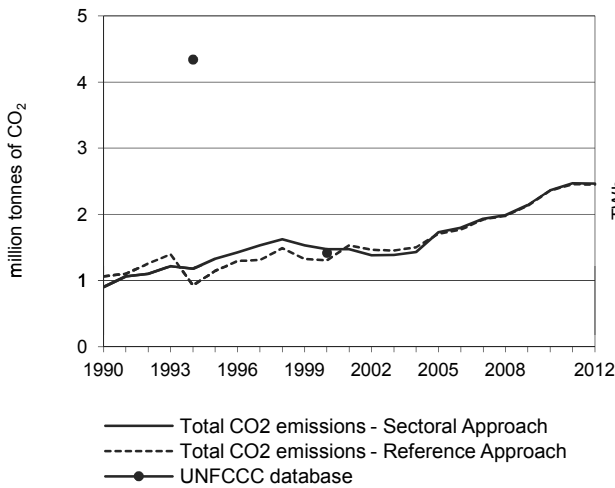
**Figure 1. CO<sub>2</sub> emissions by fuel**



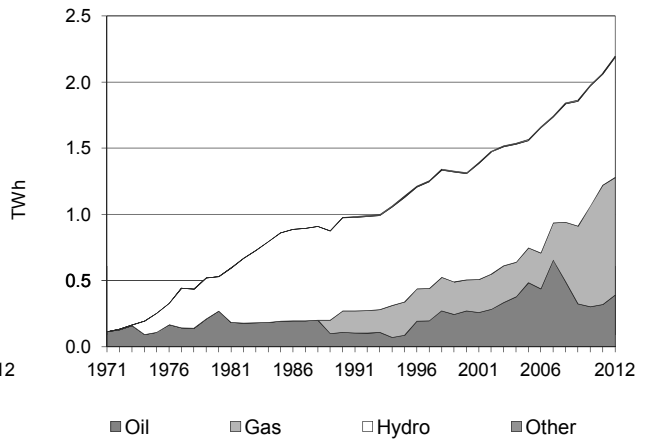
**Figure 2. CO<sub>2</sub> emissions by sector**



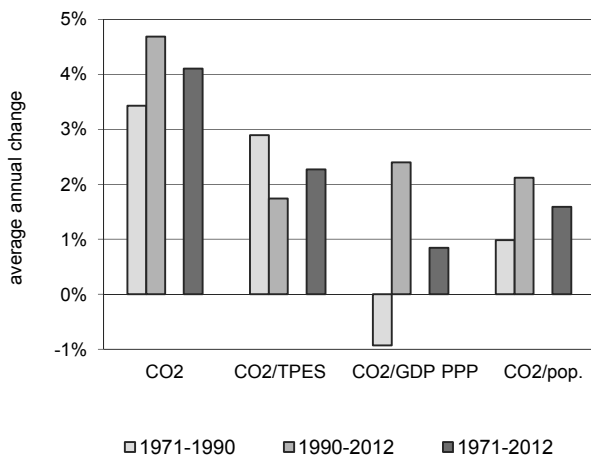
**Figure 3. Reference vs Sectoral Approach**



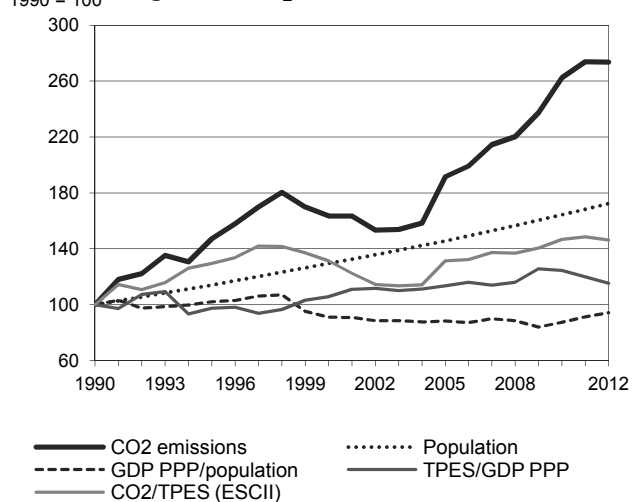
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Gabon

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	0.90	1.33	1.47	1.73	2.37	2.47	2.47	173.6%
TPES (PJ)	49	56	62	72	88	91	93	87.3%
GDP (billion 2005 USD)	6.74	7.85	7.95	8.67	9.69	10.37	10.95	62.4%
GDP PPP (billion 2005 USD)	16.13	18.77	19.01	20.72	23.16	24.80	26.19	62.4%
Population (millions)	0.95	1.08	1.23	1.38	1.56	1.59	1.63	72.4%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	18.2	23.6	23.9	23.9	26.7	27.1	26.6	46.1%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.13	0.17	0.19	0.20	0.24	0.24	0.23	68.4%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.06	0.07	0.08	0.08	0.10	0.10	0.09	68.5%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.95	1.23	1.20	1.25	1.52	1.55	1.51	58.7%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	147	164	192	262	274	274	173.6%
Population index	100	114	129	146	164	168	172	72.4%
GDP PPP per population index	100	102	91	88	87	91	94	-5.8%
Energy intensity index - TPES / GDP PPP	100	98	106	114	125	120	115	15.3%
Carbon intensity index - CO <sub>2</sub> / TPES	100	130	131	131	147	149	146	46.1%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>1.74</b>	<b>0.73</b>	-	<b>2.47</b>	<b>173.6%</b>
Main activity producer elec. and heat	-	0.18	0.59	-	0.77	274.0%
Unallocated autoproducers	-	0.10	0.09	-	0.19	220.8%
Other energy industry own use	-	-	0.04	-	0.04	10.3%
Manufacturing industries and construction	-	0.74	0.00	-	0.75	448.7%
Transport	-	0.48	-	-	0.48	49.2%
<i>of which: road</i>	-	0.48	-	-	0.48	49.2%
Other	-	0.24	-	-	0.24	69.6%
<i>of which: residential</i>	-	0.13	-	-	0.13	11.4%
<b>Reference Approach</b>	-	<b>1.73</b>	<b>0.73</b>	-	<b>2.45</b>	<b>130.4%</b>
Diff. due to losses and/or transformation	-	-0.01	-	-	-0.01	
Statistical differences	-	-0.00	-	-	-0.00	
<i>Memo: international marine bunkers</i>	-	0.65	-	-	0.65	718.1%
<i>Memo: international aviation bunkers</i>	-	0.20	-	-	0.20	1.2%

\*\* Other includes industrial waste and non-renewable municipal waste.

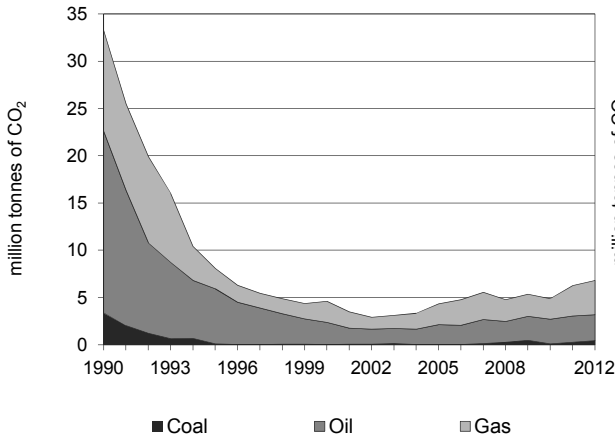
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Manufacturing industries - oil	0.74	456.9%	7.5	7.5
Main activity prod. elec. and heat - gas	0.59	377.1%	6.0	13.5
Road - oil	0.48	49.2%	4.8	18.3
Main activity prod. elec. and heat - oil	0.18	119.2%	1.8	20.2
Residential - oil	0.13	11.4%	1.3	21.5
Non-specified other - oil	0.11	337.5%	1.1	22.6
Unallocated autoproducers - oil	0.10	520.0%	1.0	23.6
Unallocated autoproducers - gas	0.09	108.2%	0.9	24.5
Other energy industry own use - gas	0.04	10.3%	0.4	24.9
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>2.47</i>	<i>173.6%</i>	<i>25.0</i>	<i>25.0</i>

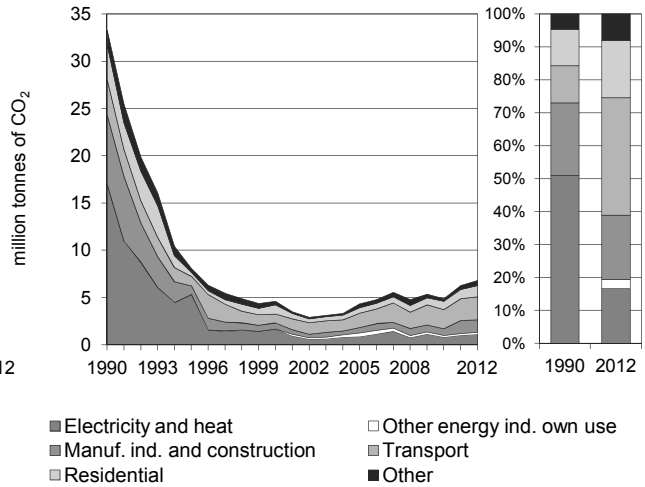
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Georgia

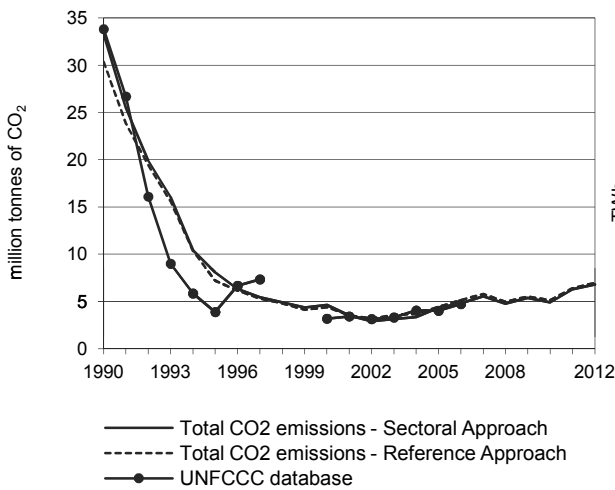
**Figure 1. CO<sub>2</sub> emissions by fuel**



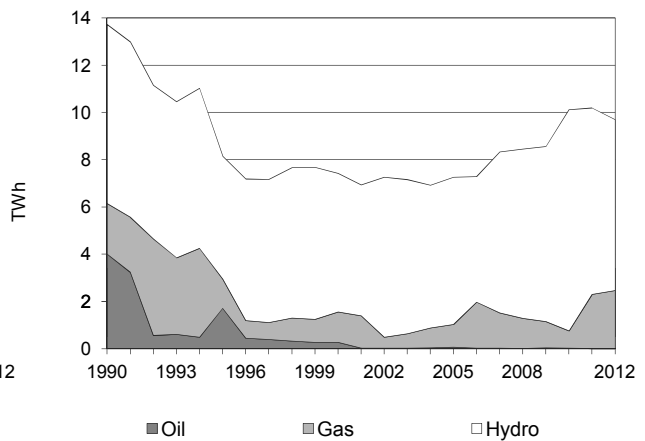
**Figure 2. CO<sub>2</sub> emissions by sector**



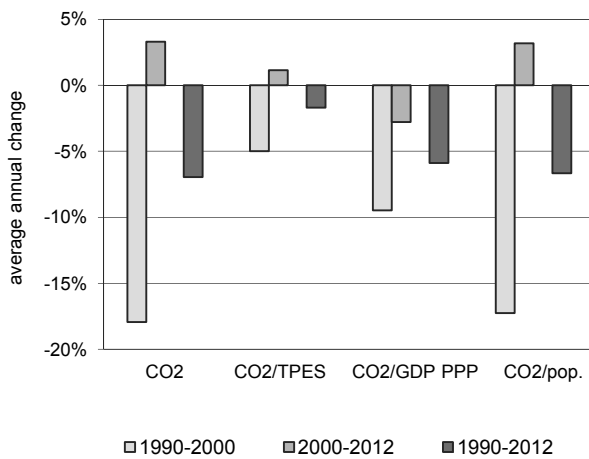
**Figure 3. Reference vs Sectoral Approach**



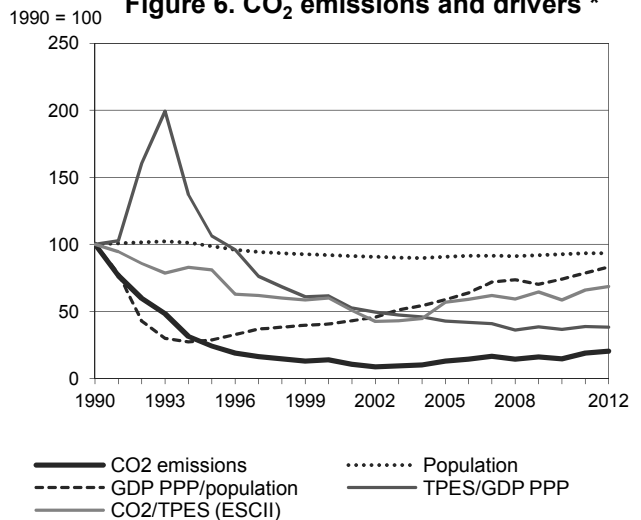
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Georgia

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	33.26	8.08	4.61	4.33	4.90	6.27	6.81	-79.5%
TPES (PJ)	520	156	120	119	131	148	155	-70.2%
GDP (billion 2005 USD)	12.00	3.39	4.50	6.41	8.24	8.81	9.34	-22.1%
GDP PPP (billion 2005 USD)	34.40	9.72	12.90	18.38	23.63	25.27	26.78	-22.1%
Population (millions)	4.80	4.73	4.42	4.36	4.45	4.48	4.49	-6.5%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	64.0	51.8	38.4	36.4	37.5	42.3	43.9	-31.4%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	2.77	2.38	1.02	0.68	0.59	0.71	0.73	-73.7%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.97	0.83	0.36	0.24	0.21	0.25	0.25	-73.7%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	6.93	1.71	1.04	0.99	1.10	1.40	1.52	-78.1%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	24	14	13	15	19	20	-79.5%
Population index	100	99	92	91	93	93	94	-6.5%
GDP PPP per population index	100	29	41	59	74	79	83	-16.8%
Energy intensity index - TPES / GDP PPP	100	106	62	43	37	39	38	-61.7%
Carbon intensity index - CO <sub>2</sub> / TPES	100	81	60	57	59	66	69	-31.4%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.45</b>	<b>2.75</b>	<b>3.61</b>	-	<b>6.81</b>	<b>-79.5%</b>
Main activity producer elec. and heat	-	-	1.13	-	1.13	-93.3%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	0.19	-	0.19	x
Manufacturing industries and construction	0.34	0.04	0.95	-	1.33	-81.9%
Transport	-	2.38	0.05	-	2.43	-35.5%
<i>of which: road</i>	-	2.30	0.03	-	2.34	-32.4%
Other	0.12	0.33	1.28	-	1.73	-66.8%
<i>of which: residential</i>	0.03	0.08	1.07	-	1.19	-67.7%
<b>Reference Approach</b>	<b>0.45</b>	<b>2.76</b>	<b>3.74</b>	-	<b>6.94</b>	<b>-77.1%</b>
Diff. due to losses and/or transformation	-	0.01	0.13	-	0.14	
Statistical differences	0.00	-	-0.00	-	0.00	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.11	-	-	0.11	-81.2%

\*\* Other includes industrial waste and non-renewable municipal waste.

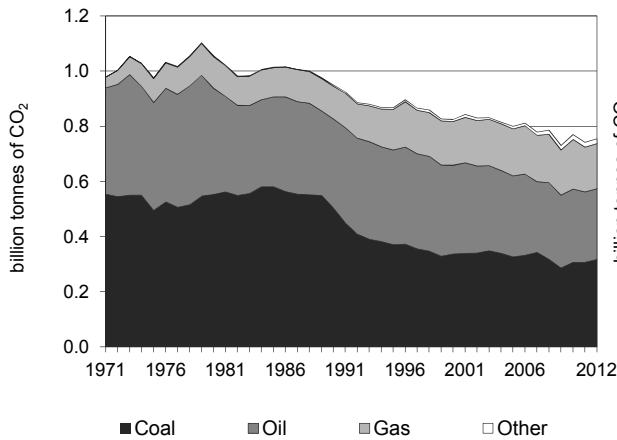
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	2.30	-33.4%	15.9	15.9
Main activity prod. elec. and heat - gas	1.13	-75.2%	7.9	23.8
Residential - gas	1.07	-59.0%	7.4	31.2
Manufacturing industries - gas	0.95	-69.1%	6.6	37.8
Manufacturing industries - coal	0.34	-84.6%	2.3	40.1
Non-specified other - oil	0.25	-77.8%	1.7	41.8
Non-specified other - gas	0.21	-28.8%	1.5	43.3
Other energy industry own use - gas	0.19	x	1.3	44.6
Non-specified other sectors - coal	0.09	-38.9%	0.6	45.2
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>6.81</i>	<i>-79.5%</i>	<i>47.1</i>	<i>47.1</i>

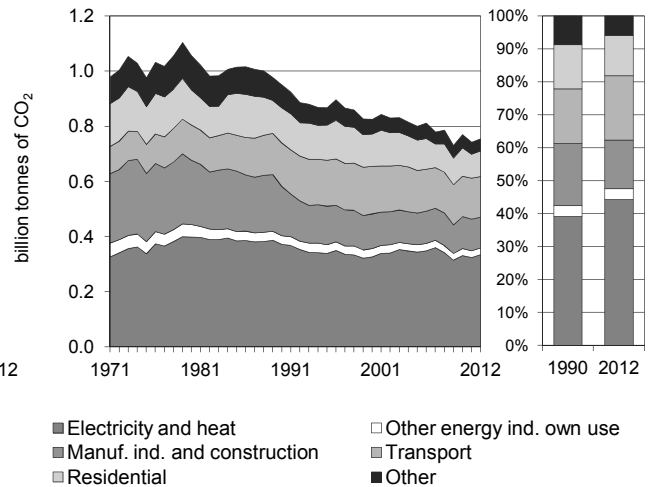
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Germany

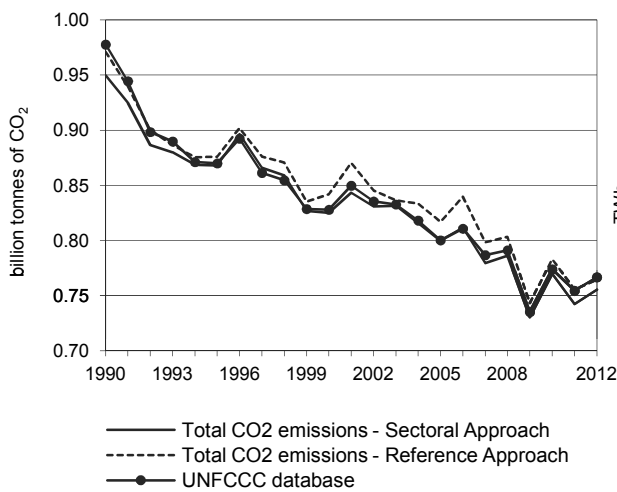
**Figure 1. CO<sub>2</sub> emissions by fuel**



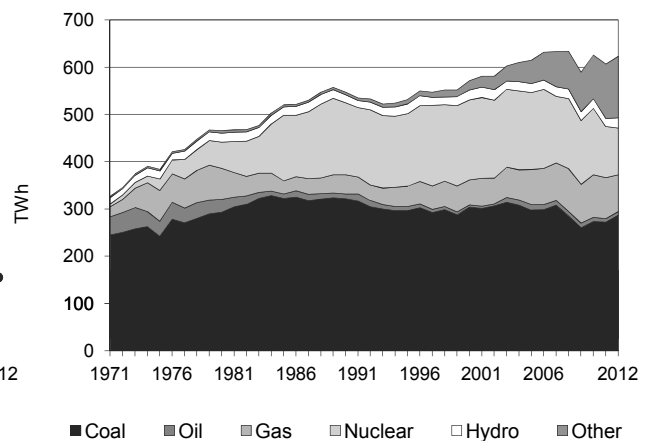
**Figure 2. CO<sub>2</sub> emissions by sector**



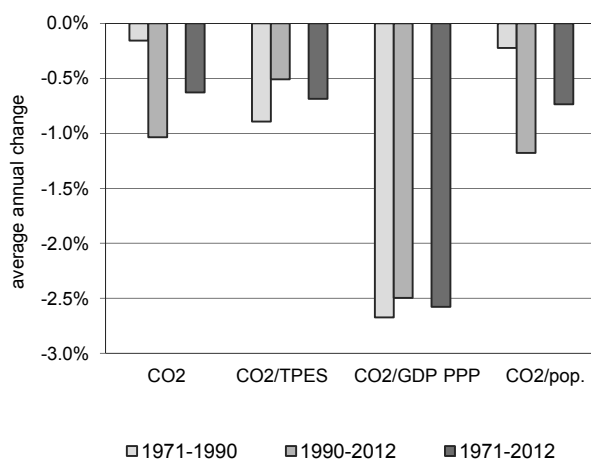
**Figure 3. Reference vs Sectoral Approach**



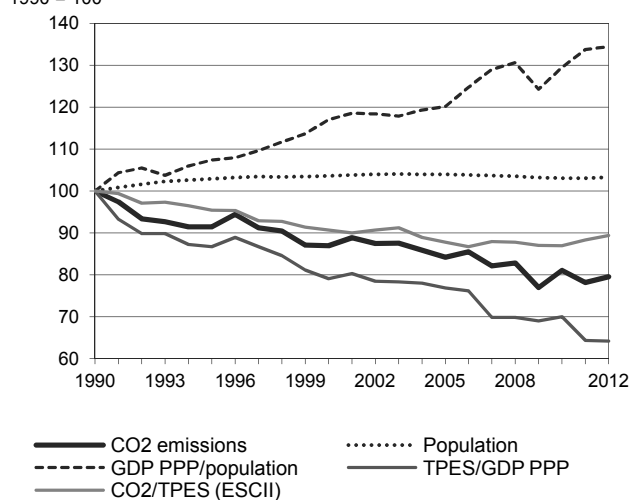
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Germany

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	949.66	867.81	825.04	799.62	769.89	742.23	755.27	-20.5%
TPES (PJ)	14 700	14 081	14 084	14 103	13 710	13 018	13 085	-11.0%
GDP (billion 2005 USD)	2 216.25	2 448.69	2 685.20	2 766.25	2 954.36	3 052.84	3 073.86	38.7%
GDP PPP (billion 2005 USD)	2 055.81	2 271.42	2 490.81	2 566.00	2 740.49	2 831.84	2 851.34	38.7%
Population (millions)	79.36	81.66	82.19	82.46	81.76	81.78	81.92	3.2%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	64.6	61.6	58.6	56.7	56.2	57.0	57.7	-10.7%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.43	0.35	0.31	0.29	0.26	0.24	0.25	-42.7%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.46	0.38	0.33	0.31	0.28	0.26	0.26	-42.6%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	11.97	10.63	10.04	9.70	9.42	9.08	9.22	-22.9%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	91	87	84	81	78	80	-20.5%
Population index	100	103	104	104	103	103	103	3.2%
GDP PPP per population index	100	107	117	120	129	134	134	34.4%
Energy intensity index - TPES / GDP PPP	100	87	79	77	70	64	64	-35.8%
Carbon intensity index - CO <sub>2</sub> / TPES	100	95	91	88	87	88	89	-10.7%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>317.50</b>	<b>256.39</b>	<b>163.13</b>	<b>18.25</b>	<b>755.27</b>	<b>-20.5%</b>
Main activity producer elec. and heat	257.77	2.72	32.31	13.70	306.50	-0.9%
Unallocated autoproducers	17.42	2.59	7.46	0.44	27.92	-55.2%
Other energy industry own use	5.52	16.58	2.52	0.02	24.63	-20.9%
Manufacturing industries and construction	33.49	26.35	47.78	4.09	111.71	-37.7%
Transport	-	146.01	1.20	-	147.22	-6.6%
<i>of which: road</i>	-	141.64	0.50	-	142.14	-4.4%
Other	3.31	62.13	71.85	-	137.29	-34.7%
<i>of which: residential</i>	2.90	39.39	50.51	-	92.80	-27.1%
<b>Reference Approach</b>	<b>321.29</b>	<b>263.32</b>	<b>161.54</b>	<b>18.25</b>	<b>764.39</b>	<b>-21.3%</b>
Diff. due to losses and/or transformation	4.42	8.28	-	-	12.71	
Statistical differences	-0.64	-1.35	-1.59	-0.00	-3.58	
<i>Memo: international marine bunkers</i>	-	8.01	-	-	8.01	2.8%
<i>Memo: international aviation bunkers</i>	-	24.64	-	-	24.64	84.6%

\*\* Other includes industrial waste and non-renewable municipal waste.

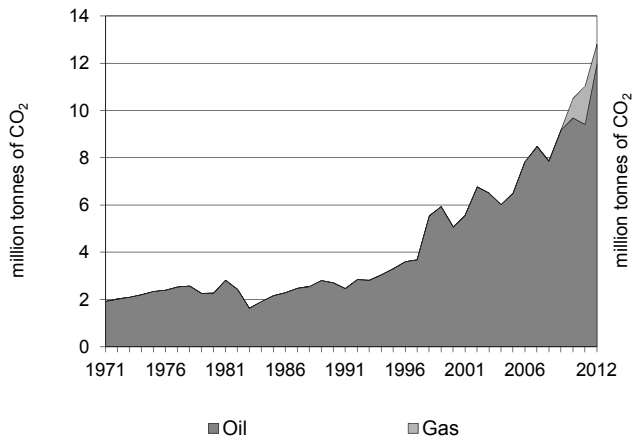
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	257.77	-8.0%	27.8	27.8
Road - oil	141.64	-4.7%	15.3	43.1
Residential - gas	50.51	61.2%	5.4	48.5
Manufacturing industries - gas	47.78	10.2%	5.2	53.6
Residential - oil	39.39	-28.7%	4.2	57.9
Manufacturing industries - coal	33.49	-64.3%	3.6	61.5
Main activity prod. elec. and heat - gas	32.31	75.1%	3.5	65.0
Manufacturing industries - oil	26.35	-37.3%	2.8	67.8
Non-specified other - oil	22.75	-42.5%	2.5	70.3
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>755.27</i>	<i>-20.5%</i>	<i>81.4</i>	<i>81.4</i>

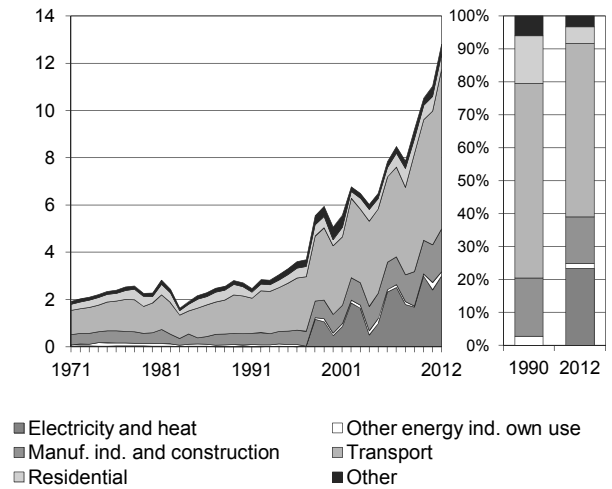
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Ghana

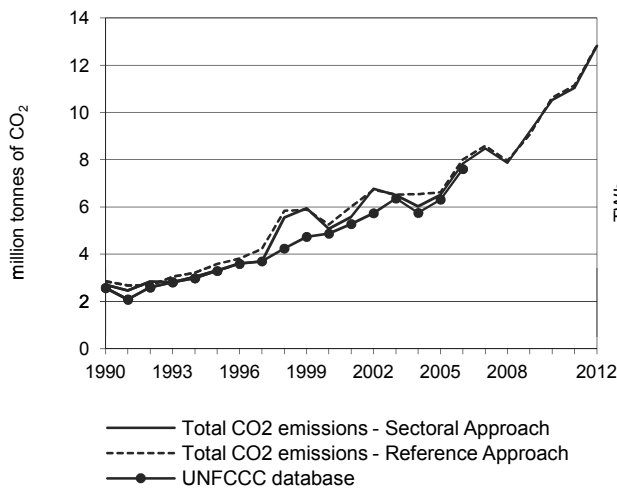
**Figure 1. CO<sub>2</sub> emissions by fuel**



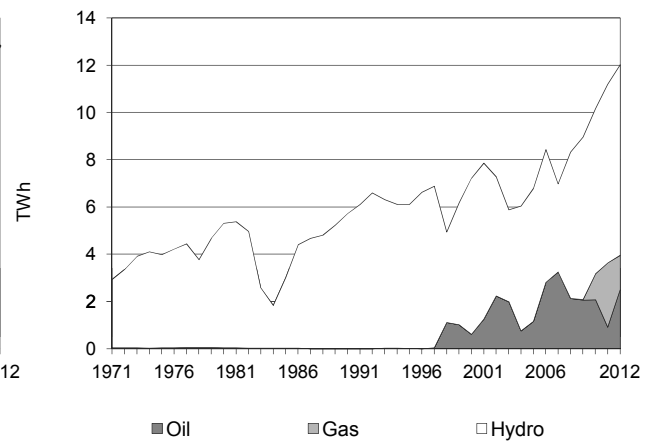
**Figure 2. CO<sub>2</sub> emissions by sector**



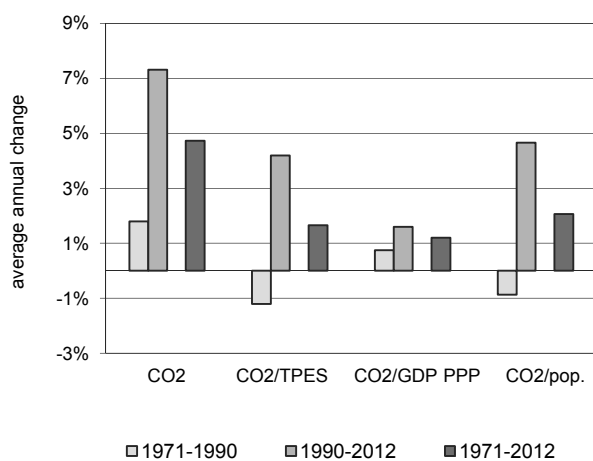
**Figure 3. Reference vs Sectoral Approach**



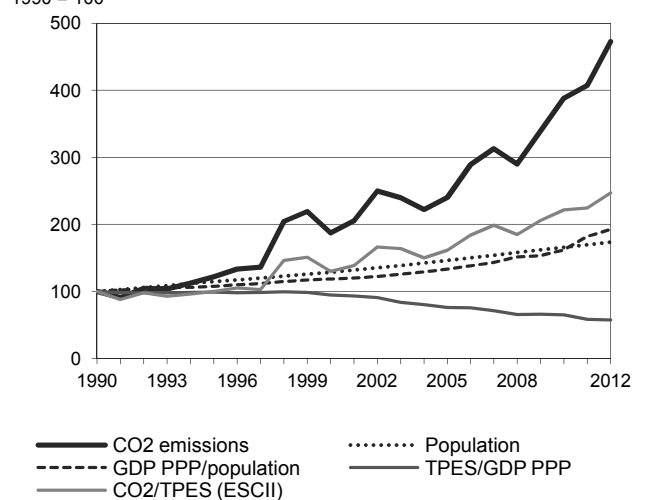
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Ghana

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	2.71	3.31	5.07	6.51	10.51	11.03	12.81	372.6%
TPES (PJ)	222	271	319	329	388	401	424	91.5%
GDP (billion 2005 USD)	5.51	6.79	8.39	10.73	14.81	17.03	18.37	233.5%
GDP PPP (billion 2005 USD)	24.67	30.42	37.58	48.05	66.29	76.24	82.27	233.5%
Population (millions)	14.63	16.76	18.83	21.38	24.26	24.82	25.37	73.4%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	12.2	12.2	15.9	19.8	27.1	27.5	30.2	146.8%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.49	0.49	0.60	0.61	0.71	0.65	0.70	41.7%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.11	0.11	0.14	0.14	0.16	0.14	0.16	41.7%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.19	0.20	0.27	0.30	0.43	0.44	0.50	172.6%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	122	187	240	388	407	473	372.6%
Population index	100	115	129	146	166	170	173	73.4%
GDP PPP per population index	100	108	118	133	162	182	192	92.4%
Energy intensity index - TPES / GDP PPP	100	99	95	76	65	59	57	-42.6%
Carbon intensity index - CO <sub>2</sub> / TPES	100	100	130	162	222	225	247	146.8%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>11.98</b>	<b>0.82</b>	-	<b>12.81</b>	<b>372.6%</b>
Main activity producer elec. and heat	-	2.18	0.82	-	3.00	x
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.18	-	-	0.18	140.3%
Manufacturing industries and construction	-	1.81	-	-	1.81	277.9%
Transport	-	6.74	-	-	6.74	321.5%
<i>of which: road</i>	-	6.23	-	-	6.23	310.8%
Other	-	1.07	-	-	1.07	92.7%
<i>of which: residential</i>	-	0.65	-	-	0.65	65.0%
<b>Reference Approach</b>	-	<b>12.01</b>	<b>0.82</b>	-	<b>12.83</b>	<b>350.5%</b>
Diff. due to losses and/or transformation	-	0.03	-	-	0.03	
Statistical differences	-	0.00	-	-	0.00	
<i>Memo: international marine bunkers</i>	-	0.52	-	-	0.52	..
<i>Memo: international aviation bunkers</i>	-	0.46	-	-	0.46	232.3%

\*\* Other includes industrial waste and non-renewable municipal waste.

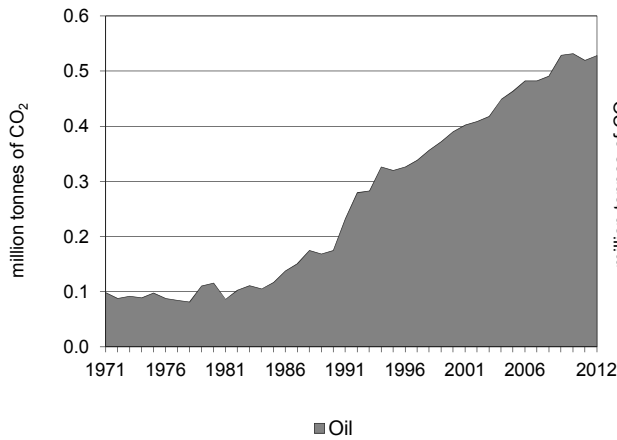
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	6.23	310.8%	11.8	11.8
Main activity prod. elec. and heat - oil	2.18	x	4.1	15.9
Manufacturing industries - oil	1.81	277.9%	3.4	19.3
Main activity prod. elec. and heat - gas	0.82	x	1.6	20.9
Residential - oil	0.65	65.0%	1.2	22.1
Other transport - oil	0.51	519.2%	1.0	23.1
Non-specified other - oil	0.42	159.5%	0.8	23.9
Other energy industry own use - oil	0.18	140.3%	0.3	24.2
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>12.81</i>	<i>372.6%</i>	<i>24.2</i>	<i>24.2</i>

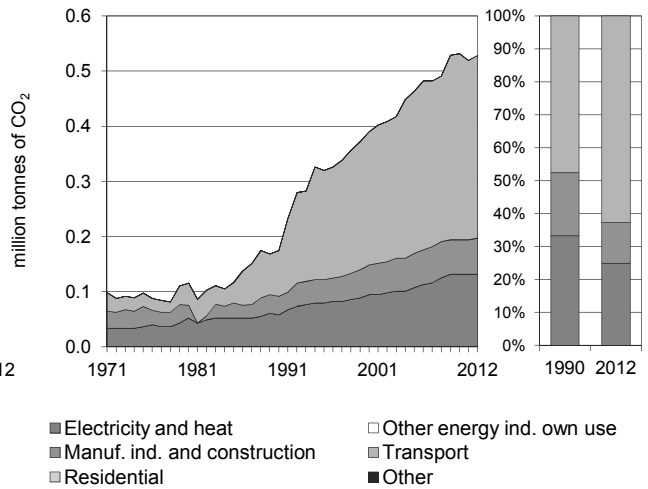
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Gibraltar

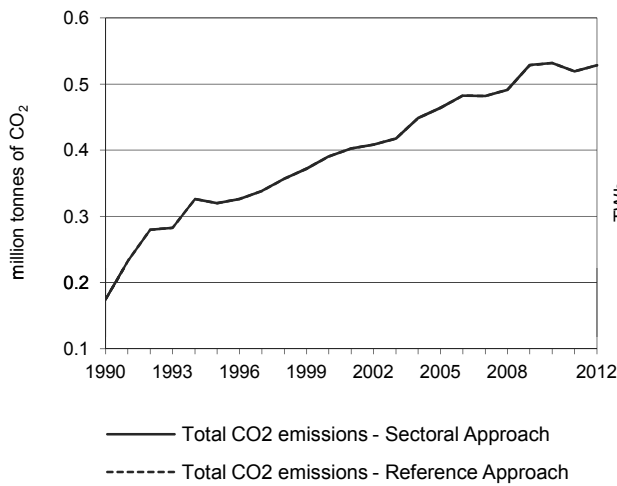
**Figure 1. CO<sub>2</sub> emissions by fuel**



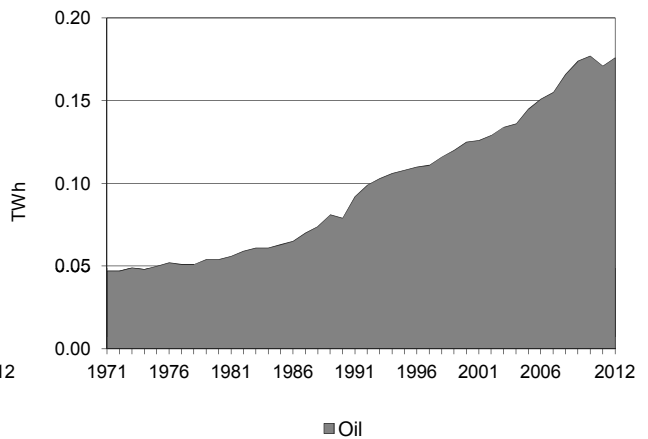
**Figure 2. CO<sub>2</sub> emissions by sector**



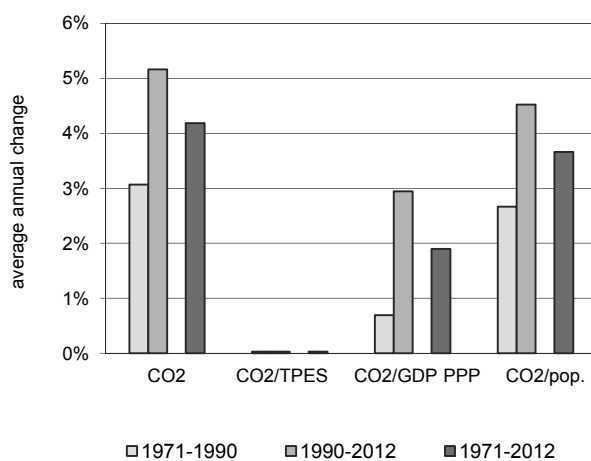
**Figure 3. Reference vs Sectoral Approach**



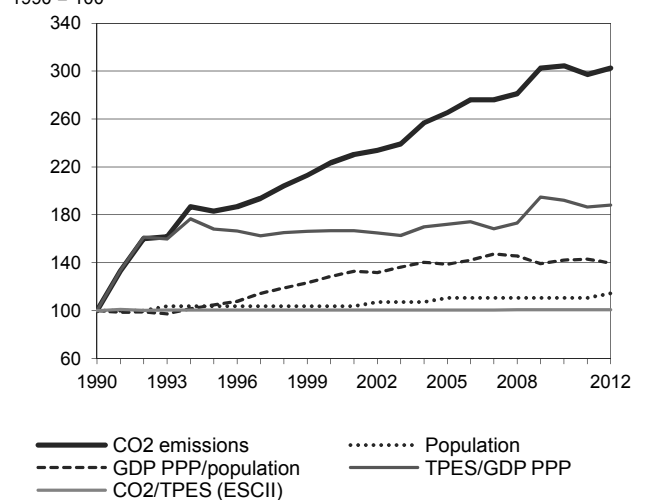
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Gibraltar

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	0.17	0.32	0.39	0.46	0.53	0.52	0.53	202.4%
TPES (PJ)	2	4	5	6	7	7	7	200.5%
GDP (billion 2005 USD)	0.71	0.77	0.91	1.03	1.05	1.07	1.09	53.7%
GDP PPP (billion 2005 USD)	0.58	0.63	0.77	0.89	0.91	0.92	0.93	59.7%
Population (millions)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	14.3%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	72.6	72.9	72.9	72.9	73.0	73.0	73.0	0.7%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.25	0.41	0.43	0.45	0.51	0.49	0.48	96.7%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.30	0.51	0.50	0.52	0.58	0.56	0.57	89.4%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	6.24	11.04	13.46	14.97	17.16	16.76	16.52	164.6%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	183	223	265	304	297	302	202.4%
Population index	100	104	104	111	111	111	114	14.3%
GDP PPP per population index	100	105	129	139	142	143	140	39.8%
Energy intensity index - TPES / GDP PPP	100	168	167	172	192	186	188	88.1%
Carbon intensity index - CO <sub>2</sub> / TPES	100	100	101	101	101	101	101	0.7%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>0.53</b>	-	-	<b>0.53</b>	<b>202.4%</b>
Main activity producer elec. and heat	-	0.13	-	-	0.13	126.3%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.07	-	-	0.07	95.4%
Transport	-	0.33	-	-	0.33	298.9%
<i>of which: road</i>	-	0.33	-	-	0.33	298.9%
Other	-	-	-	-	-	-
<i>of which: residential</i>	-	-	-	-	-	-
<b>Reference Approach</b>	-	<b>0.53</b>	-	-	<b>0.53</b>	<b>202.4%</b>
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-0.00	-	-	-0.00	-
<i>Memo: international marine bunkers</i>	-	8.34	-	-	8.34	505.0%
<i>Memo: international aviation bunkers</i>	-	0.02	-	-	0.02	-14.3%

\*\* Other includes industrial waste and non-renewable municipal waste.

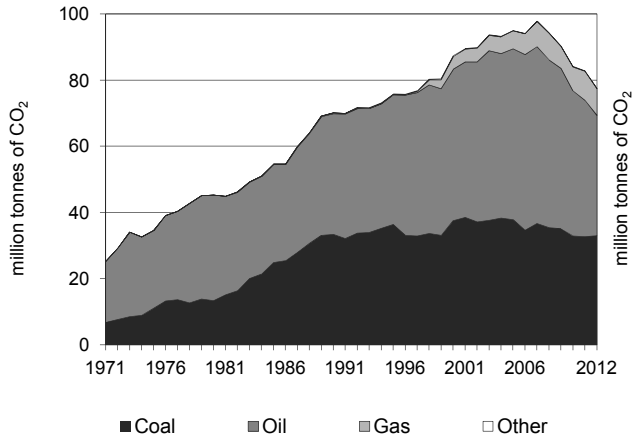
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	0.33	298.9%	60.6	60.6
Main activity prod. elec. and heat - oil	0.13	126.3%	24.1	84.6
Manufacturing industries - oil	0.07	95.4%	12.0	96.6
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>0.53</i>	<i>202.4%</i>	<i>96.6</i>	<i>96.6</i>

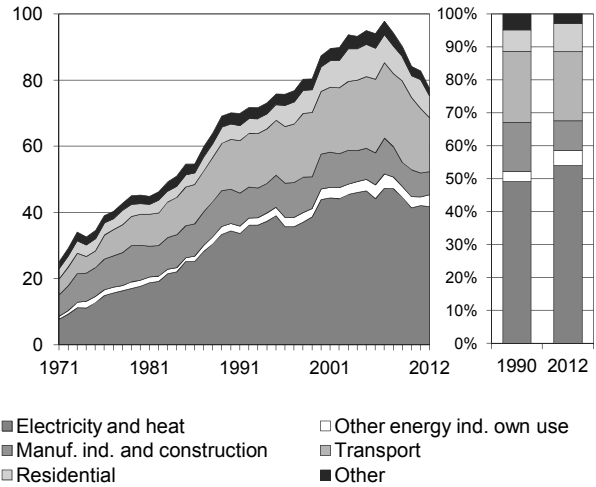
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Greece

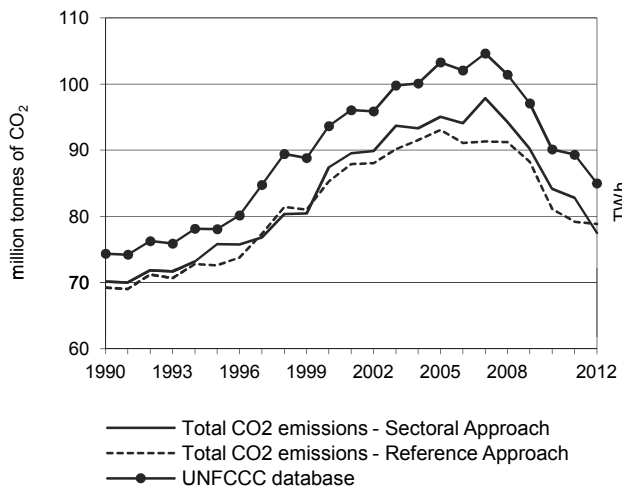
**Figure 1. CO<sub>2</sub> emissions by fuel**



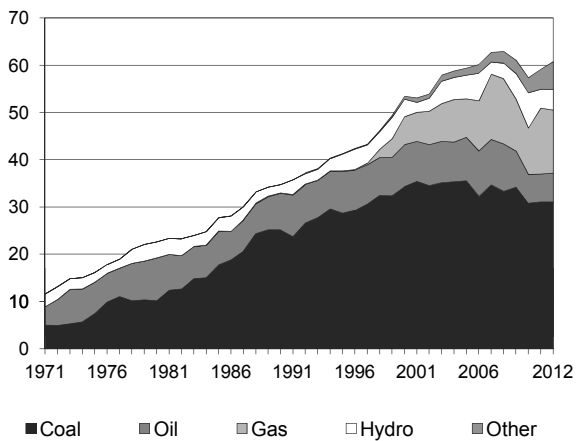
**Figure 2. CO<sub>2</sub> emissions by sector**



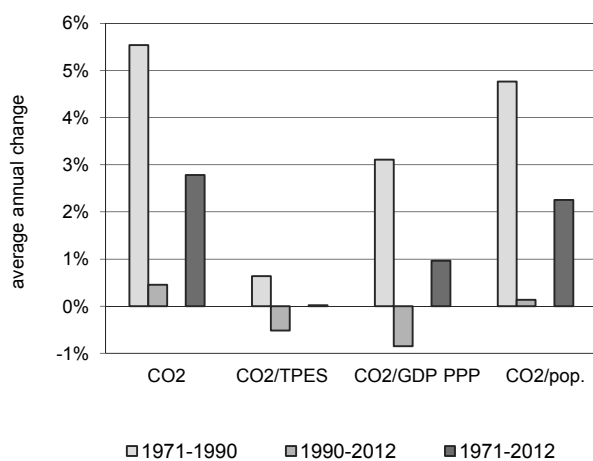
**Figure 3. Reference vs Sectoral Approach**



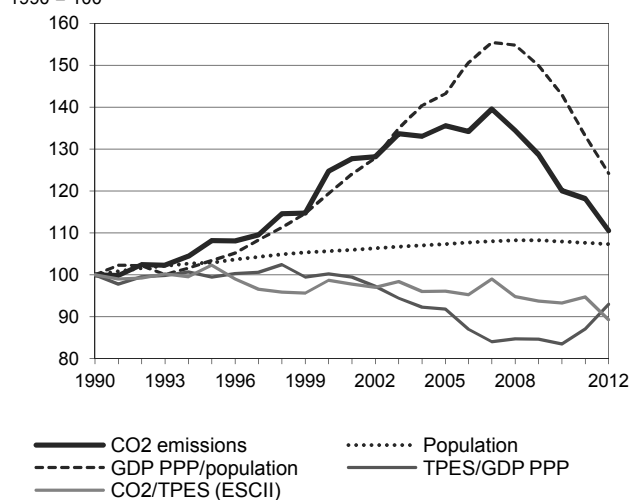
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Greece

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	70.13	75.82	87.43	95.04	84.17	82.84	77.51	10.5%
TPES (PJ)	898	949	1 134	1 266	1 156	1 120	1 112	23.8%
GDP (billion 2005 USD)	156.25	166.24	196.96	240.08	240.95	223.83	208.22	33.3%
GDP PPP (billion 2005 USD)	175.97	187.22	221.81	270.36	271.35	252.07	234.49	33.3%
Population (millions)	10.34	10.63	10.92	11.09	11.15	11.12	11.09	7.3%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	78.1	79.9	77.1	75.0	72.8	74.0	69.7	-10.8%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.45	0.46	0.44	0.40	0.35	0.37	0.37	-17.1%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.40	0.41	0.39	0.35	0.31	0.33	0.33	-17.1%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	6.78	7.13	8.01	8.57	7.55	7.45	6.99	3.0%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	108	125	136	120	118	111	10.5%
Population index	100	103	106	107	108	108	107	7.3%
GDP PPP per population index	100	103	119	143	143	133	124	24.2%
Energy intensity index - TPES / GDP PPP	100	99	100	92	84	87	93	-7.1%
Carbon intensity index - CO <sub>2</sub> / TPES	100	102	99	96	93	95	89	-10.8%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>32.96</b>	<b>36.42</b>	<b>8.06</b>	<b>0.07</b>	<b>77.51</b>	<b>10.5%</b>
Main activity producer elec. and heat	32.08	3.69	4.81	-	40.57	19.5%
Unallocated autoproducers	-	0.80	0.37	0.07	1.24	154.7%
Other energy industry own use	-	3.55	0.05	-	3.60	61.3%
Manufacturing industries and construction	0.88	4.35	1.76	-	6.99	-32.7%
Transport	-	16.23	0.03	-	16.27	7.8%
<i>of which: road</i>	-	13.84	0.03	-	13.88	20.6%
Other	0.00	7.79	1.05	-	8.84	10.6%
<i>of which: residential</i>	0.00	5.87	0.73	-	6.60	43.7%
<b>Reference Approach</b>	<b>33.72</b>	<b>36.76</b>	<b>8.28</b>	<b>0.07</b>	<b>78.83</b>	<b>13.9%</b>
Diff. due to losses and/or transformation	-	-1.77	0.04	-	-1.72	
Statistical differences	0.76	2.11	0.17	-	3.04	
<i>Memo: international marine bunkers</i>	-	7.16	-	-	7.16	-10.2%
<i>Memo: international aviation bunkers</i>	-	1.95	-	-	1.95	-16.6%

\*\* Other includes industrial waste and non-renewable municipal waste.

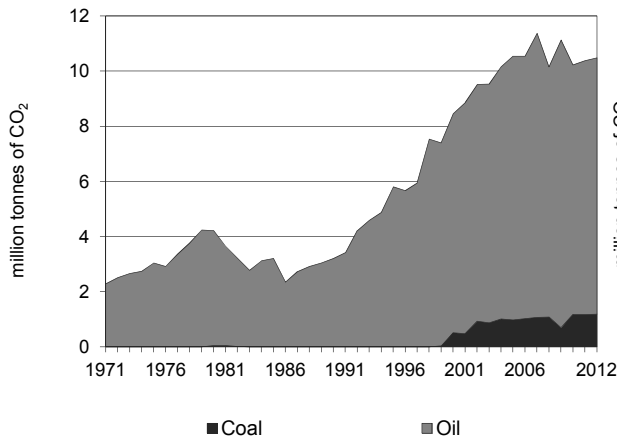
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	32.08	12.1%	31.0	31.0
Road - oil	13.84	20.3%	13.4	44.4
Residential - oil	5.87	30.3%	5.7	50.0
Main activity prod. elec. and heat - gas	4.81	x	4.6	54.7
Manufacturing industries - oil	4.35	-22.0%	4.2	58.9
Main activity prod. elec. and heat - oil	3.69	-30.9%	3.6	62.5
Other energy industry own use - oil	3.55	63.3%	3.4	65.9
Other transport - oil	2.39	-33.3%	2.3	68.2
Non-specified other - oil	1.93	-42.8%	1.9	70.1
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>77.51</i>	<i>10.5%</i>	<i>74.9</i>	<i>74.9</i>

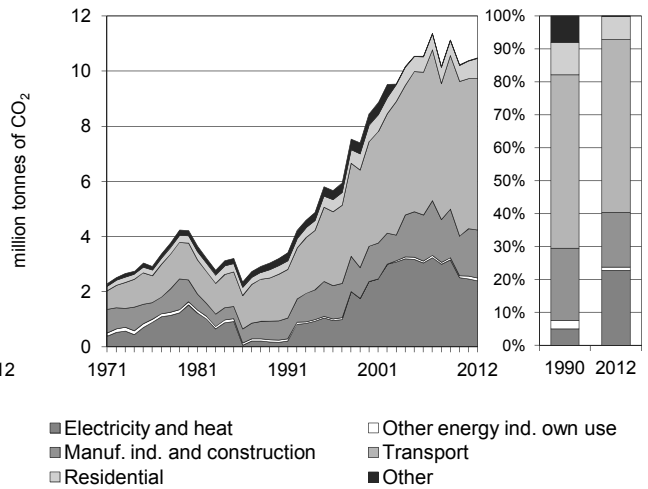
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Guatemala

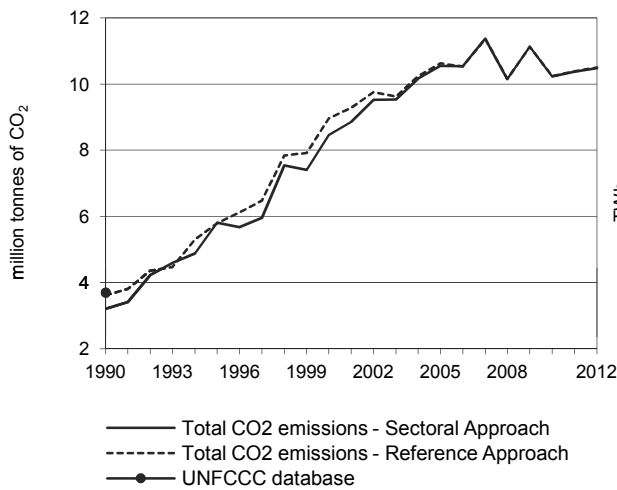
**Figure 1. CO<sub>2</sub> emissions by fuel**



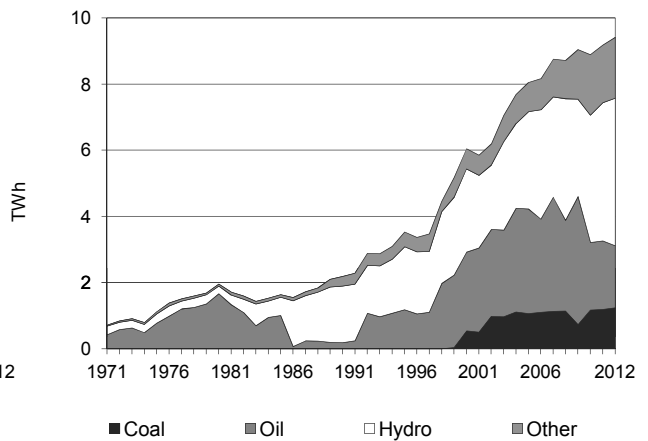
**Figure 2. CO<sub>2</sub> emissions by sector**



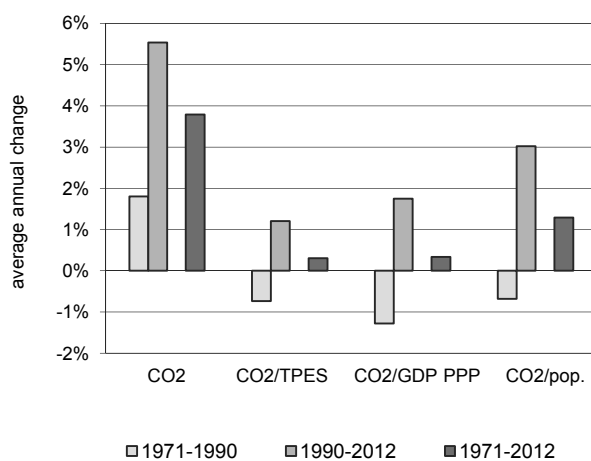
**Figure 3. Reference vs Sectoral Approach**



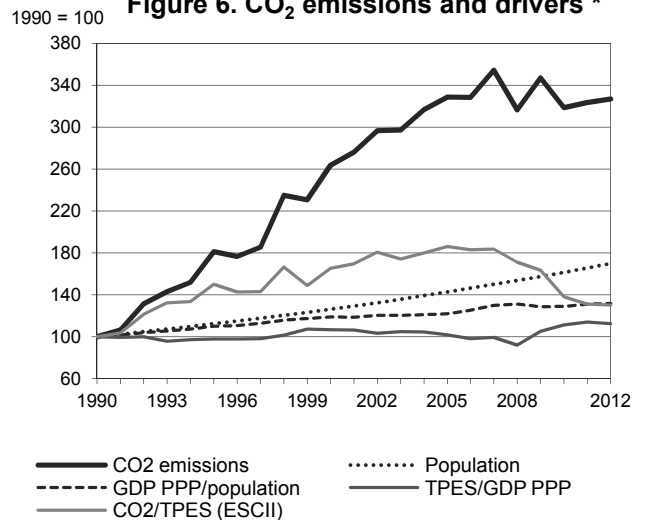
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Guatemala

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	3.21	5.81	8.46	10.55	10.23	10.38	10.49	226.7%
TPES (PJ)	185	223	295	327	427	456	464	151.0%
GDP (billion 2005 USD)	15.66	19.31	23.44	27.21	32.56	33.94	34.94	123.1%
GDP PPP (billion 2005 USD)	42.12	51.94	63.05	73.18	87.56	91.27	93.97	123.1%
Population (millions)	8.89	9.98	11.20	12.68	14.34	14.71	15.08	69.7%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	17.4	26.1	28.7	32.3	24.0	22.7	22.6	30.2%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.20	0.30	0.36	0.39	0.31	0.31	0.30	46.5%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.08	0.11	0.13	0.14	0.12	0.11	0.11	46.5%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.36	0.58	0.76	0.83	0.71	0.71	0.70	92.6%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	181	264	329	319	323	327	226.7%
Population index	100	112	126	143	161	165	170	69.7%
GDP PPP per population index	100	110	119	122	129	131	132	31.5%
Energy intensity index - TPES / GDP PPP	100	98	107	102	111	114	113	12.5%
Carbon intensity index - CO <sub>2</sub> / TPES	100	150	165	186	138	131	130	30.2%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>1.19</b>	<b>9.30</b>	-	-	<b>10.49</b>	<b>226.7%</b>
Main activity producer elec. and heat	1.19	1.14	-	-	2.33	+
Unallocated autoproducers	-	0.06	-	-	0.06	x
Other energy industry own use	-	0.10	-	-	0.10	25.9%
Manufacturing industries and construction	-	1.74	-	-	1.74	147.9%
Transport	-	5.49	-	-	5.49	225.1%
<i>of which: road</i>	-	5.48	-	-	5.48	224.6%
Other	-	0.76	-	-	0.76	31.7%
<i>of which: residential</i>	-	0.73	-	-	0.73	131.9%
<b>Reference Approach</b>	<b>1.19</b>	<b>9.31</b>	-	-	<b>10.50</b>	<b>191.0%</b>
Diff. due to losses and/or transformation	-	-0.00	-	-	-0.00	
Statistical differences	0.00	0.01	-	-	0.02	
<i>Memo: international marine bunkers</i>	-	0.96	-	-	0.96	124.6%
<i>Memo: international aviation bunkers</i>	-	0.13	-	-	0.13	0.1%

\*\* Other includes industrial waste and non-renewable municipal waste.

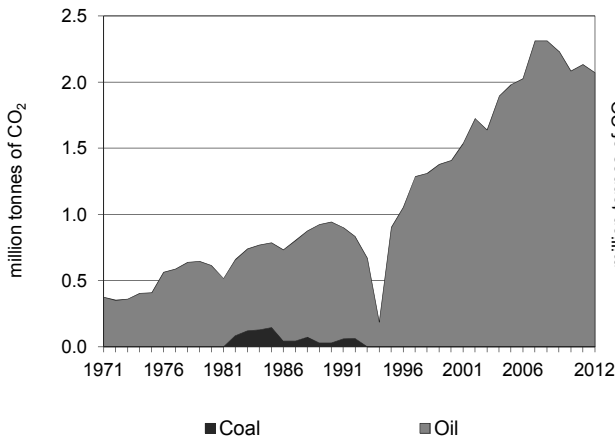
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	5.48	224.6%	21.9	21.9
Manufacturing industries - oil	1.74	147.9%	7.0	28.9
Main activity prod. elec. and heat - coal	1.19	x	4.8	33.7
Main activity prod. elec. and heat - oil	1.14	603.3%	4.6	38.2
Residential - oil	0.73	131.9%	2.9	41.2
Other energy industry own use - oil	0.10	25.9%	0.4	41.6
Unallocated autoproducers - oil	0.06	x	0.2	41.8
Non-specified other - oil	0.02	-90.7%	0.1	41.9
Other transport - oil	0.01	x	0.0	42.0
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>10.49</i>	<i>226.7%</i>	<i>42.0</i>	<i>42.0</i>

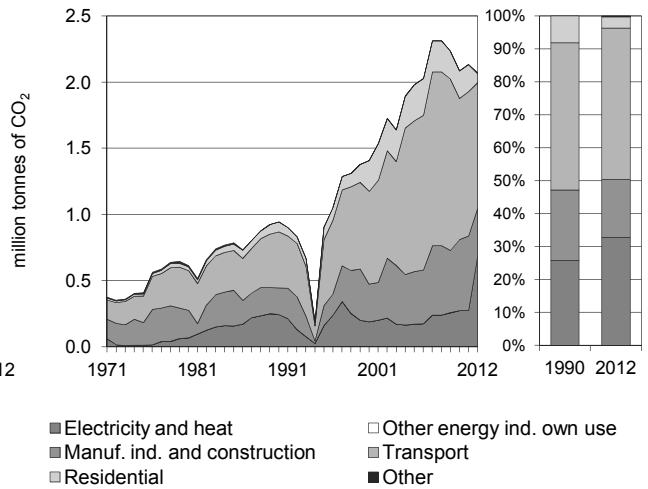
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Haiti

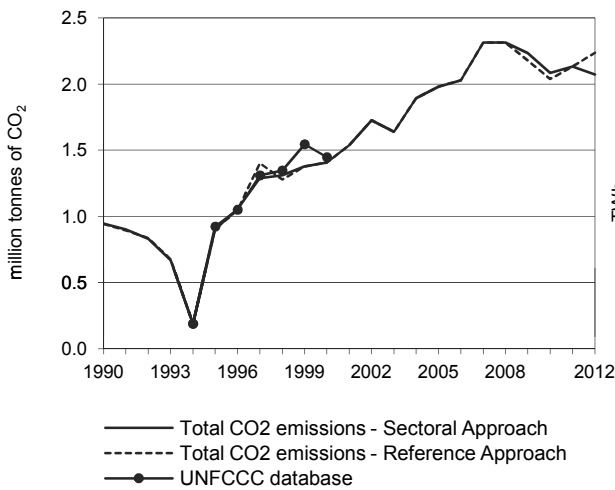
**Figure 1. CO<sub>2</sub> emissions by fuel**



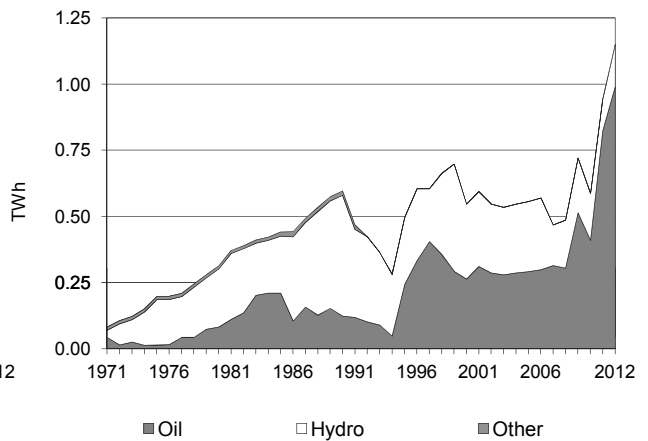
**Figure 2. CO<sub>2</sub> emissions by sector**



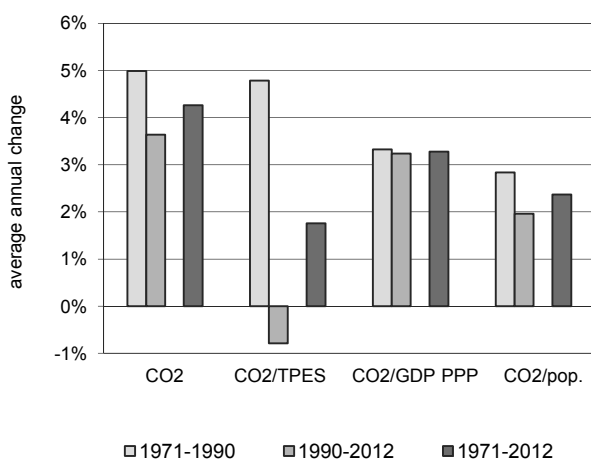
**Figure 3. Reference vs Sectoral Approach**



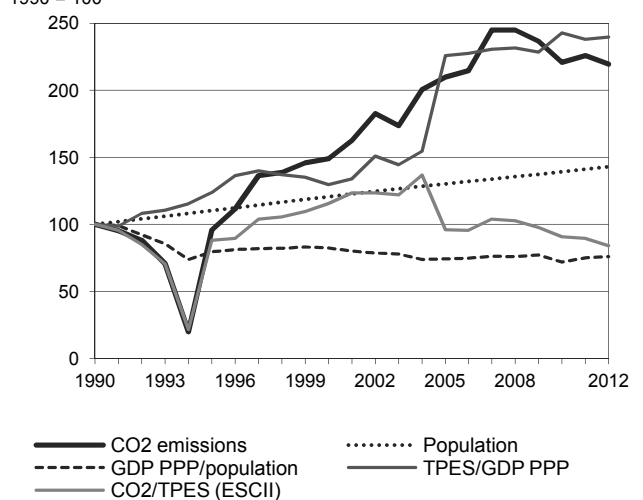
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Haiti

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	0.94	0.90	1.41	1.98	2.09	2.13	2.07	119.4%
TPES (PJ)	65	71	84	143	159	165	170	160.9%
GDP (billion 2005 USD)	4.30	3.77	4.27	4.15	4.31	4.55	4.68	8.8%
GDP PPP (billion 2005 USD)	13.12	11.52	13.04	12.68	13.15	13.89	14.28	8.8%
Population (millions)	7.11	7.84	8.58	9.26	9.90	10.03	10.17	43.1%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	14.5	12.8	16.7	13.9	13.1	13.0	12.2	-15.9%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.22	0.24	0.33	0.48	0.48	0.47	0.44	101.5%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.07	0.08	0.11	0.16	0.16	0.15	0.15	101.5%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.13	0.12	0.16	0.21	0.21	0.21	0.20	53.4%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	96	149	210	221	226	219	119.4%
Population index	100	110	121	130	139	141	143	43.1%
GDP PPP per population index	100	80	82	74	72	75	76	-24.0%
Energy intensity index - TPES / GDP PPP	100	124	130	226	243	238	240	139.8%
Carbon intensity index - CO <sub>2</sub> / TPES	100	88	116	96	91	90	84	-15.9%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>2.07</b>	-	-	<b>2.07</b>	<b>119.4%</b>
Main activity producer elec. and heat	-	0.53	-	-	0.53	141.3%
Unallocated autoproducers	-	0.15	-	-	0.15	562.9%
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.36	-	-	0.36	79.8%
Transport	-	0.95	-	-	0.95	125.5%
<i>of which: road</i>	-	0.47	-	-	0.47	156.7%
Other	-	0.08	-	-	0.08	-0.8%
<i>of which: residential</i>	-	0.07	-	-	0.07	-8.8%
<b>Reference Approach</b>	-	<b>2.24</b>	-	-	<b>2.24</b>	<b>137.6%</b>
Diff. due to losses and/or transformation	-	0.15	-	-	0.15	
Statistical differences	-	0.01	-	-	0.01	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.16	-	-	0.16	126.1%

\*\* Other includes industrial waste and non-renewable municipal waste.

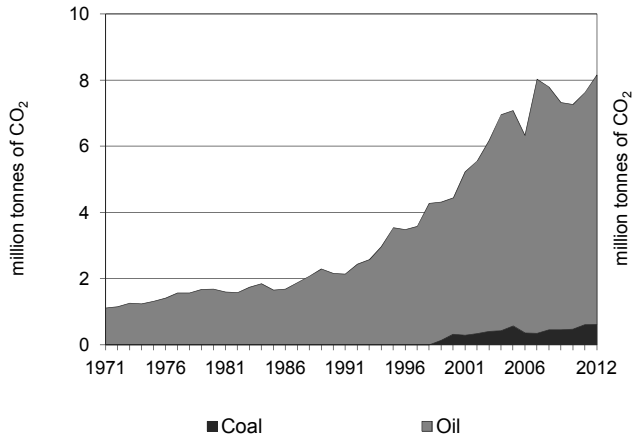
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - oil	0.53	141.3%	6.5	6.5
Other transport - oil	0.48	101.3%	5.8	12.3
Road - oil	0.47	156.7%	5.7	18.0
Manufacturing industries - oil	0.36	109.6%	4.4	22.4
Unallocated autoproducers - oil	0.15	562.9%	1.8	24.2
Residential - oil	0.07	-8.8%	0.8	25.0
Non-specified other - oil	0.01	x	0.1	25.1
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>2.07</i>	<i>119.4%</i>	<i>25.1</i>	<i>25.1</i>

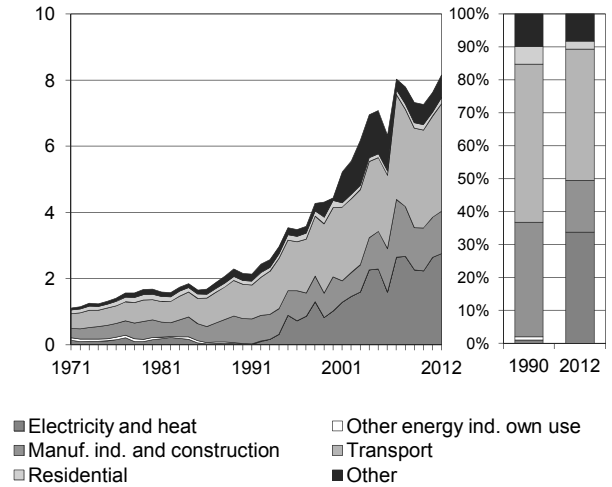
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Honduras

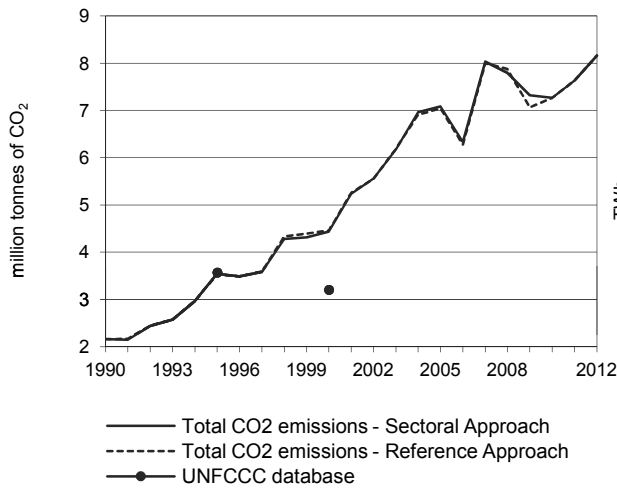
**Figure 1. CO<sub>2</sub> emissions by fuel**



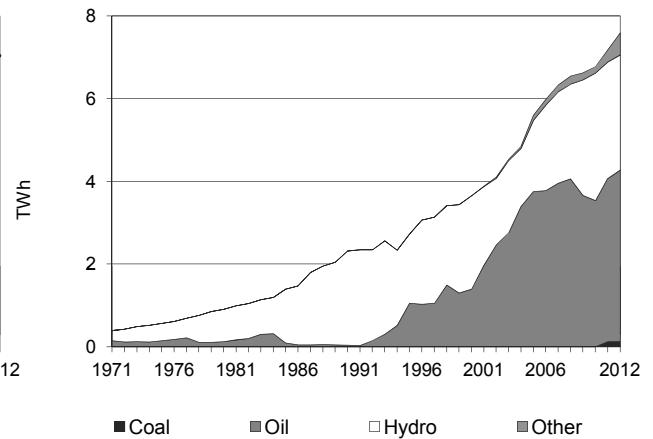
**Figure 2. CO<sub>2</sub> emissions by sector**



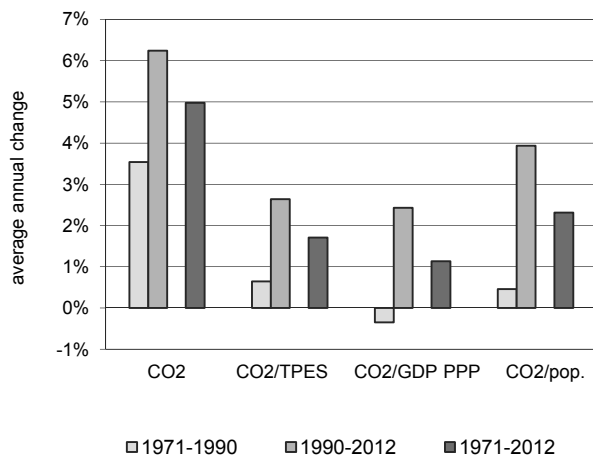
**Figure 3. Reference vs Sectoral Approach**



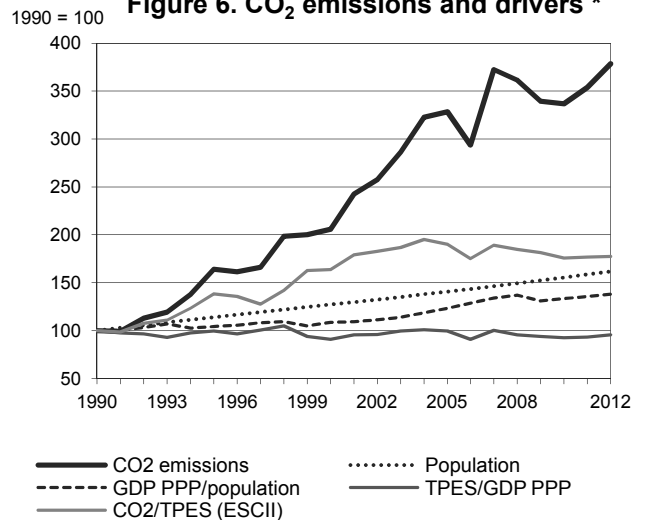
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Honduras

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	2.16	3.54	4.44	7.08	7.27	7.63	8.16	278.4%
TPES (PJ)	100	118	125	172	191	200	213	113.3%
GDP (billion 2005 USD)	5.58	6.64	7.71	9.67	11.55	11.99	12.45	123.3%
GDP PPP (billion 2005 USD)	14.01	16.67	19.36	24.30	29.01	30.12	31.29	123.3%
Population (millions)	4.90	5.59	6.24	6.90	7.62	7.78	7.94	61.8%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	21.7	29.9	35.4	41.1	38.0	38.2	38.4	77.4%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.39	0.53	0.58	0.73	0.63	0.64	0.66	69.4%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.15	0.21	0.23	0.29	0.25	0.25	0.26	69.5%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.44	0.63	0.71	1.03	0.95	0.98	1.03	133.8%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	164	206	328	337	354	378	278.4%
Population index	100	114	127	141	155	159	162	61.8%
GDP PPP per population index	100	104	109	123	133	136	138	38.0%
Energy intensity index - TPES / GDP PPP	100	100	91	100	93	93	96	-4.5%
Carbon intensity index - CO <sub>2</sub> / TPES	100	138	164	190	176	177	177	77.4%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.62</b>	<b>7.54</b>	-	-	<b>8.16</b>	<b>278.4%</b>
Main activity producer elec. and heat	0.12	2.64	-	-	2.76	+
Unallocated autoproducers	..	..	..	..	..	..
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.50	0.78	-	-	1.28	71.1%
Transport	-	3.25	-	-	3.25	214.2%
<i>of which: road</i>	-	3.25	-	-	3.25	214.2%
Other	-	0.87	-	-	0.87	164.0%
<i>of which: residential</i>	-	0.19	-	-	0.19	66.3%
<b>Reference Approach</b>	<b>0.62</b>	<b>7.54</b>	-	-	<b>8.16</b>	<b>277.5%</b>
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	0.00	-	-	0.00	-
<i>Memo: international marine bunkers</i>	-	0.00	-	-	0.00	..
<i>Memo: international aviation bunkers</i>	-	0.15	-	-	0.15	58.6%

\*\* Other includes industrial waste and non-renewable municipal waste.

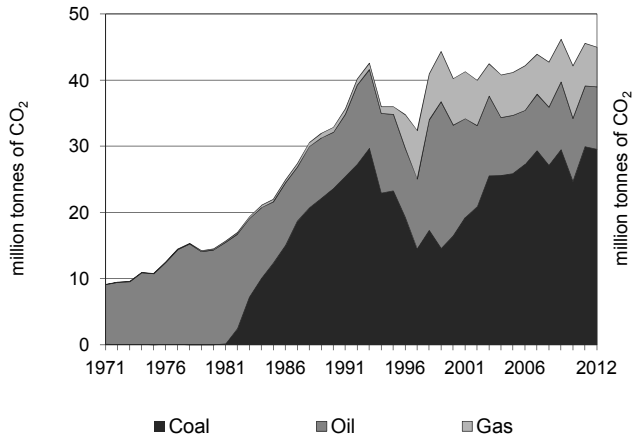
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	3.25	214.2%	17.9	17.9
Main activity prod. elec. and heat - oil	2.64	+	14.5	32.4
Manufacturing industries - oil	0.78	5.0%	4.3	36.7
Non-specified other - oil	0.68	217.6%	3.7	40.4
Manufacturing industries - coal	0.50	+	2.7	43.2
Residential - oil	0.19	66.3%	1.1	44.2
Main activity prod. elec. and heat - coal	0.12	x	0.7	44.9
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>8.16</i>	<i>278.4%</i>	<i>44.9</i>	<i>44.9</i>

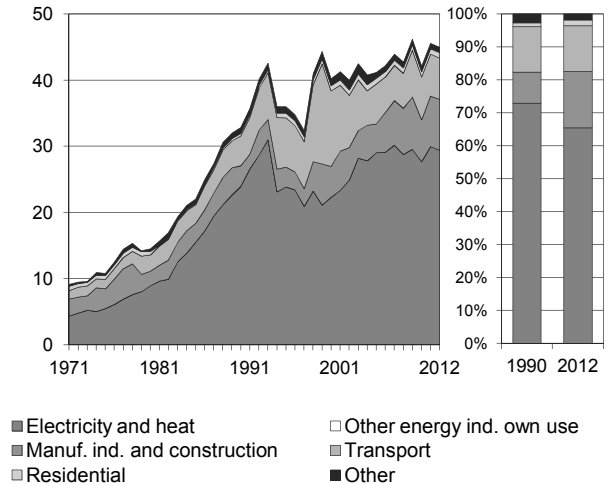
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Hong Kong, China

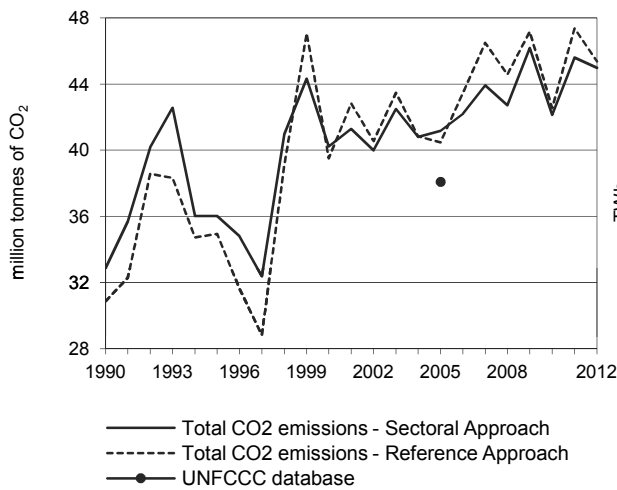
**Figure 1. CO<sub>2</sub> emissions by fuel**



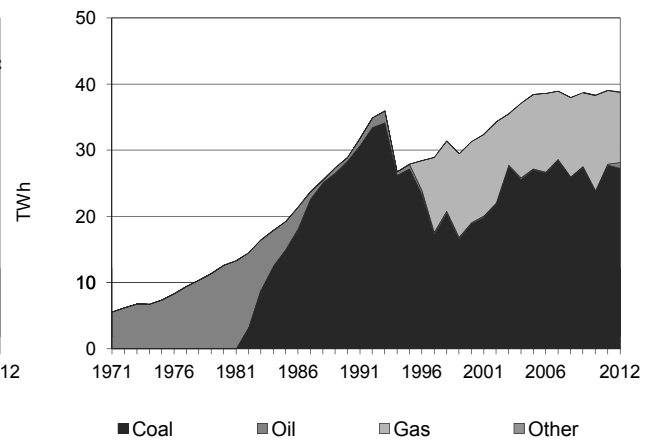
**Figure 2. CO<sub>2</sub> emissions by sector**



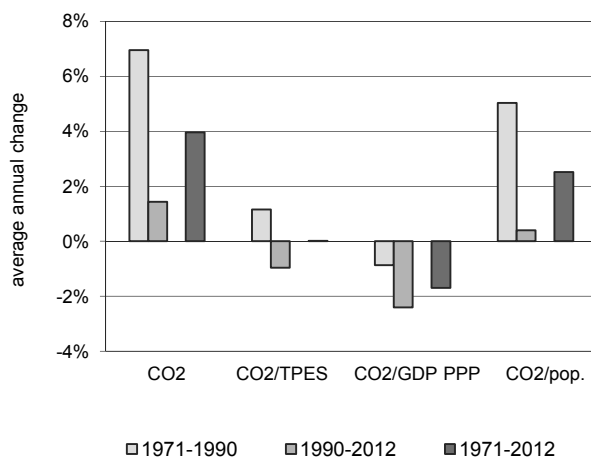
**Figure 3. Reference vs Sectoral Approach**



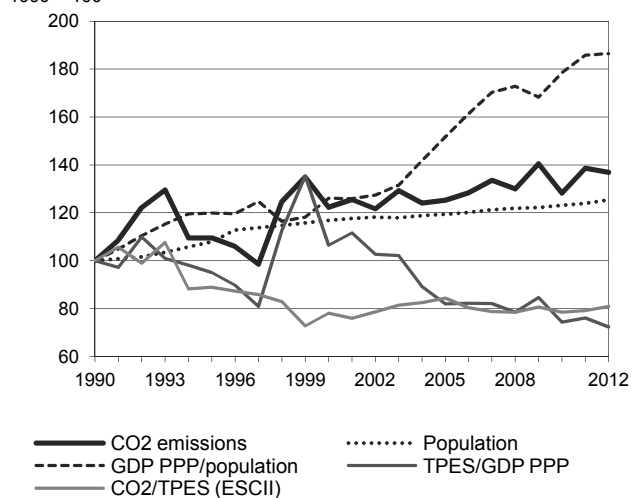
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Hong Kong, China

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	32.88	36.02	40.23	41.17	42.15	45.60	44.99	36.8%
TPES (PJ)	362	446	567	538	591	635	613	69.2%
GDP (billion 2005 USD)	100.21	129.72	147.65	181.57	220.11	230.79	234.25	133.8%
GDP PPP (billion 2005 USD)	137.20	177.61	202.15	248.60	301.37	315.99	320.74	133.8%
Population (millions)	5.71	6.16	6.67	6.81	7.02	7.07	7.16	25.4%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	90.8	80.8	70.9	76.6	71.3	71.8	73.4	-19.1%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.33	0.28	0.27	0.23	0.19	0.20	0.19	-41.5%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.24	0.20	0.20	0.17	0.14	0.14	0.14	-41.4%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	5.76	5.85	6.04	6.04	6.00	6.45	6.29	9.1%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	110	122	125	128	139	137	36.8%
Population index	100	108	117	119	123	124	125	25.4%
GDP PPP per population index	100	120	126	152	178	186	186	86.4%
Energy intensity index - TPES / GDP PPP	100	95	106	82	74	76	72	-27.6%
Carbon intensity index - CO <sub>2</sub> / TPES	100	89	78	84	79	79	81	-19.1%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>29.54</b>	<b>9.44</b>	<b>6.01</b>	-	<b>44.99</b>	<b>36.8%</b>
Main activity producer elec. and heat	24.22	0.63	4.58	-	29.43	22.8%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	5.32	2.30	0.07	-	7.68	147.0%
Transport	-	6.25	-	-	6.25	37.8%
<i>of which: road</i>	-	6.24	-	-	6.24	37.6%
Other	-	0.26	1.36	-	1.62	27.9%
<i>of which: residential</i>	-	0.02	0.78	-	0.80	109.4%
<b>Reference Approach</b>	<b>29.54</b>	<b>10.47</b>	<b>5.37</b>	-	<b>45.38</b>	<b>46.9%</b>
Diff. due to losses and/or transformation	-	0.90	-0.64	-	0.26	
Statistical differences	-	0.13	-0.00	-	0.13	
<i>Memo: international marine bunkers</i>	-	26.27	-	-	26.27	480.9%
<i>Memo: international aviation bunkers</i>	-	17.16	-	-	17.16	205.3%

\*\* Other includes industrial waste and non-renewable municipal waste.

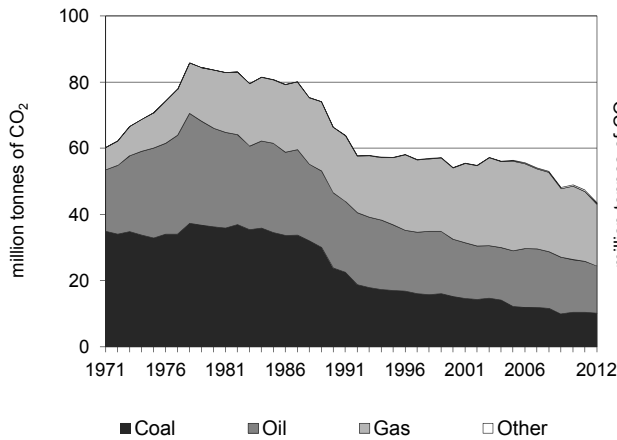
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	24.22	2.5%	47.8	47.8
Road - oil	6.24	37.6%	12.3	60.1
Manufacturing industries - coal	5.32	+	10.5	70.6
Main activity prod. elec. and heat - gas	4.58	x	9.0	79.6
Manufacturing industries - oil	2.30	-25.4%	4.5	84.1
Residential - gas	0.78	103.7%	1.5	85.7
Main activity prod. elec. and heat - oil	0.63	94.9%	1.2	86.9
Non-specified other - gas	0.58	68.0%	1.1	88.0
Non-specified other - oil	0.24	-55.2%	0.5	88.5
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>44.99</i>	<i>36.8%</i>	<i>88.7</i>	<i>88.7</i>

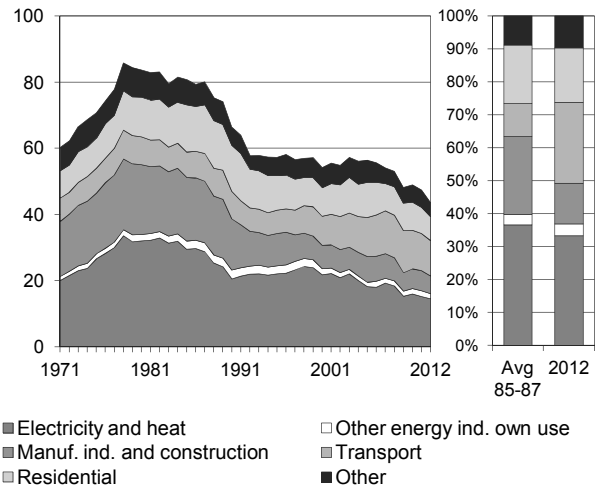
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Hungary

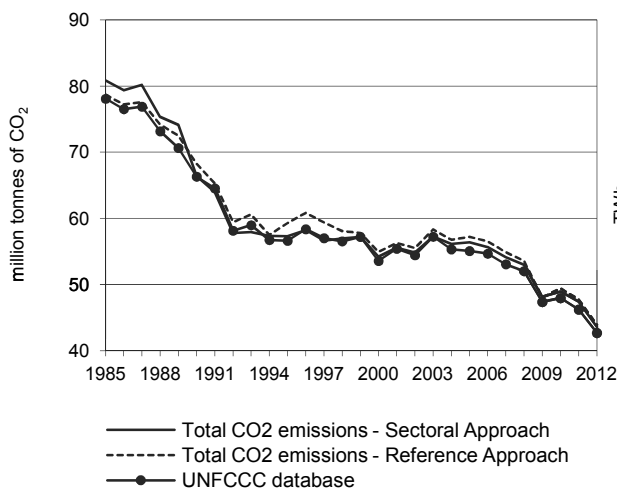
**Figure 1. CO<sub>2</sub> emissions by fuel**



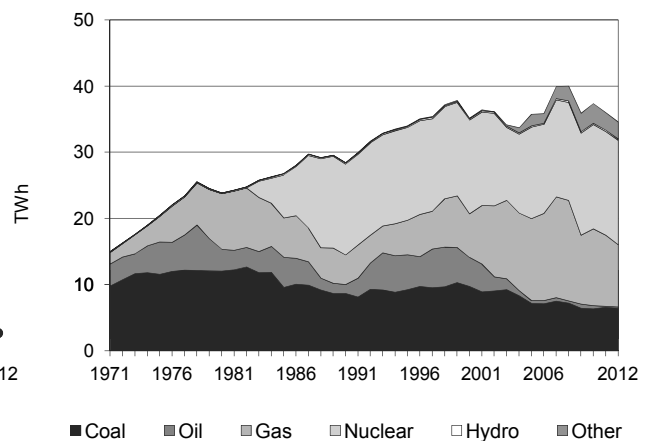
**Figure 2. CO<sub>2</sub> emissions by sector**



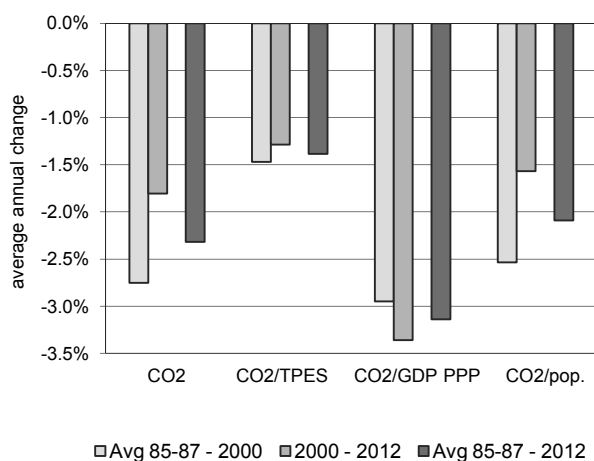
**Figure 3. Reference vs Sectoral Approach**



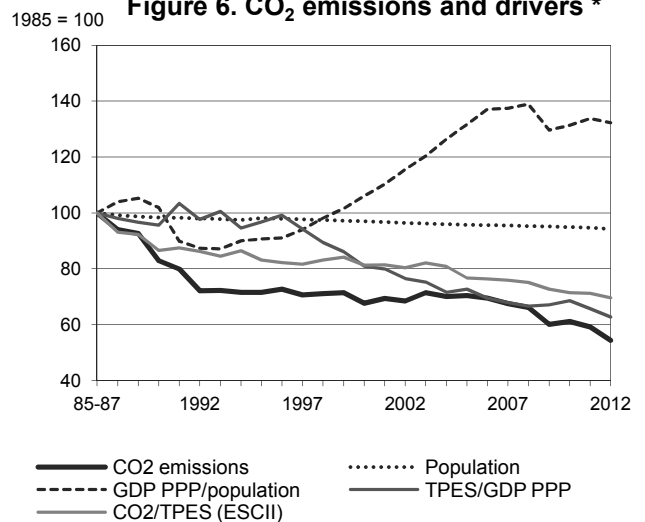
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Hungary \*

### Key indicators

	Avg 85-87	1990	1995	2005	2010	2011	2012	% change base-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	80.10	66.40	57.31	56.37	48.95	47.39	43.55	-45.6%
TPES (PJ)	1 258	1 205	1 082	1 153	1 075	1 046	983	-21.9%
GDP (billion 2005 USD)	87.49	87.69	77.80	110.32	109.07	110.79	108.94	24.5%
GDP PPP (billion 2005 USD)	135.78	136.10	120.75	171.22	169.28	171.94	169.08	24.5%
Population (millions)	10.53	10.37	10.33	10.09	10.00	9.97	9.92	-5.8%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	63.7	55.1	52.9	48.9	45.5	45.3	44.3	-30.4%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.92	0.76	0.74	0.51	0.45	0.43	0.40	-56.3%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.59	0.49	0.47	0.33	0.29	0.28	0.26	-56.3%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	7.60	6.41	5.55	5.59	4.89	4.75	4.39	-42.3%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (Avg 85-87=100) **</b>								
CO <sub>2</sub> emissions index	100	83	72	70	61	59	54	-45.6%
Population index	100	98	98	96	95	95	94	-5.8%
GDP PPP per population index	100	102	91	132	131	134	132	32.2%
Energy intensity index - TPES / GDP PPP	100	96	97	73	69	66	63	-37.3%
Carbon intensity index - CO <sub>2</sub> / TPES	100	87	83	77	71	71	70	-30.4%

\* Under the Convention Hungary is allowed the average of 85-87 as its base year. \*\* Please see Part I, Ch. 1 for methodological notes. Based on GDP PPP.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other ***	Total	% change base-12
<b>Sectoral Approach</b>	<b>10.19</b>	<b>14.25</b>	<b>18.70</b>	<b>0.40</b>	<b>43.55</b>	<b>-45.6%</b>
Main activity producer elec. and heat	8.23	0.17	5.67	0.22	14.29	-44.1%
Unallocated autoproducers	0.01	0.00	0.19	0.03	0.23	-93.8%
Other energy industry own use	0.18	0.92	0.43	-	1.53	-40.2%
Manufacturing industries and construction	1.16	1.45	2.62	0.14	5.37	-71.6%
Transport	-	10.73	0.00	-	10.73	33.6%
<i>of which: road</i>	-	10.51	0.00	-	10.51	51.3%
Other	0.62	0.99	9.78	0.02	11.40	-46.4%
<i>of which: residential</i>	0.62	0.26	6.32	-	7.19	-49.3%
<b>Reference Approach</b>	<b>10.58</b>	<b>13.88</b>	<b>19.06</b>	<b>0.40</b>	<b>43.92</b>	<b>-43.6%</b>
Diff. due to losses and/or transformation	0.48	-0.42	0.32	-	0.38	
Statistical differences	-0.09	0.05	0.03	0.00	-0.01	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.51	-	-	0.51	15.4%

\*\*\* Other includes industrial waste and non-renewable municipal waste.

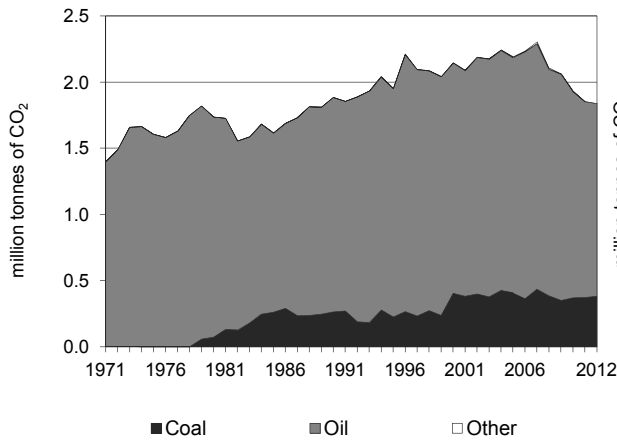
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change base-12	Level assessment (%) ****	Cumulative total (%)
Road - oil	10.51	51.3%	16.7	16.7
Main activity prod. elec. and heat - coal	8.23	-50.8%	13.1	29.8
Residential - gas	6.32	154.1%	10.1	39.9
Main activity prod. elec. and heat - gas	5.67	19.6%	9.0	48.9
Non-specified other - gas	3.46	100.4%	5.5	54.4
Manufacturing industries - gas	2.62	-70.5%	4.2	58.6
Manufacturing industries - oil	1.45	-66.2%	2.3	60.9
Manufacturing industries - coal	1.16	-79.8%	1.8	62.7
Other energy industry own use - oil	0.92	-51.1%	1.5	64.2
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>43.55</i>	<i>-45.6%</i>	<i>69.3</i>	<i>69.3</i>

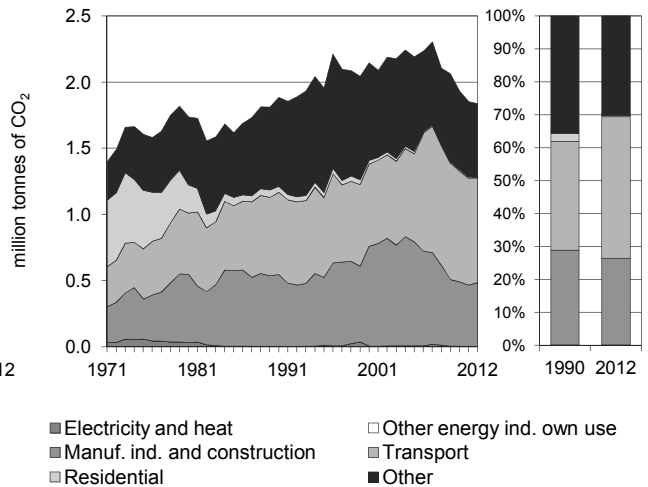
\*\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Iceland

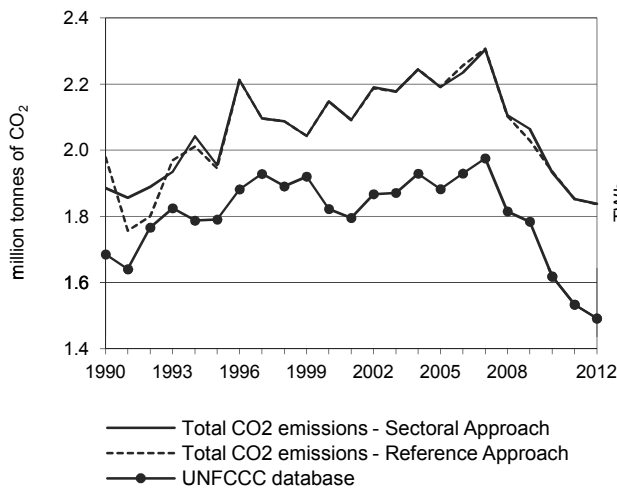
**Figure 1. CO<sub>2</sub> emissions by fuel**



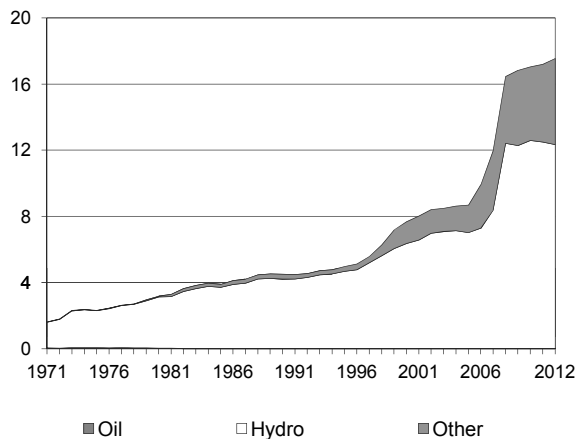
**Figure 2. CO<sub>2</sub> emissions by sector**



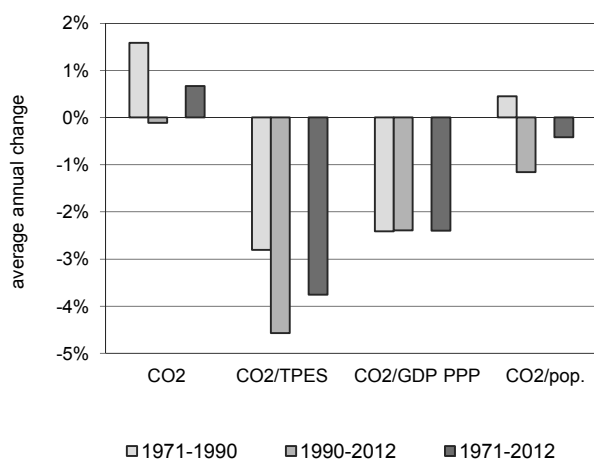
**Figure 3. Reference vs Sectoral Approach**



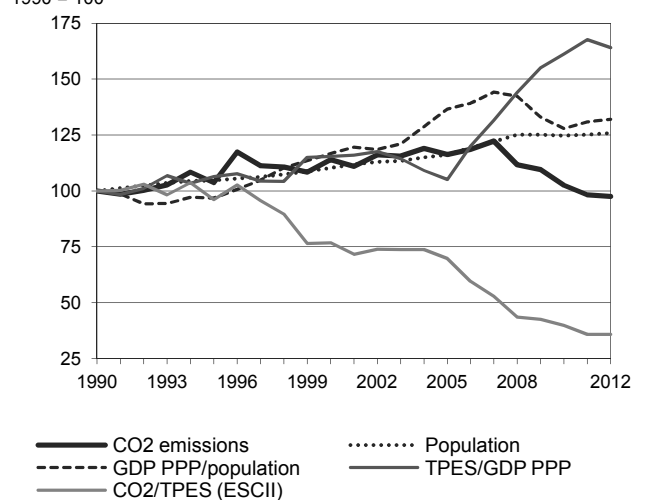
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Iceland

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	1.89	1.95	2.15	2.19	1.93	1.85	1.84	-2.5%
TPES (PJ)	87	94	130	146	225	240	238	172.7%
GDP (billion 2005 USD)	10.27	10.41	13.21	16.29	16.39	16.82	17.07	66.1%
GDP PPP (billion 2005 USD)	6.53	6.62	8.40	10.35	10.42	10.69	10.85	66.1%
Population (millions)	0.26	0.27	0.28	0.30	0.32	0.32	0.32	25.9%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	21.6	20.7	16.5	15.0	8.6	7.7	7.7	-64.2%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.18	0.19	0.16	0.13	0.12	0.11	0.11	-41.3%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.29	0.30	0.26	0.21	0.19	0.17	0.17	-41.3%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	7.39	7.32	7.64	7.40	6.08	5.81	5.73	-22.6%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	104	114	116	103	98	97	-2.5%
Population index	100	105	110	116	125	125	126	25.9%
GDP PPP per population index	100	97	117	137	128	131	132	32.0%
Energy intensity index - TPES / GDP PPP	100	106	115	105	161	168	164	64.1%
Carbon intensity index - CO <sub>2</sub> / TPES	100	96	77	70	40	36	36	-64.2%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.38</b>	<b>1.46</b>	-	-	<b>1.84</b>	<b>-2.5%</b>
Main activity producer elec. and heat	-	0.00	-	-	0.00	-
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	0.38	0.10	-	-	0.48	-11.2%
Transport	-	0.79	-	-	0.79	27.2%
<i>of which: road</i>	-	0.76	-	-	0.76	43.6%
Other	-	0.56	-	-	0.56	-21.7%
<i>of which: residential</i>	-	0.01	-	-	0.01	-87.1%
<b>Reference Approach</b>	<b>0.38</b>	<b>1.45</b>	-	-	<b>1.84</b>	<b>-7.2%</b>
Diff. due to losses and/or transformation	-	-0.00	-	-	-0.00	
Statistical differences	-	0.00	-	-	0.00	
<i>Memo: international marine bunkers</i>	-	0.18	-	-	0.18	88.6%
<i>Memo: international aviation bunkers</i>	-	0.43	-	-	0.43	97.2%

\*\* Other includes industrial waste and non-renewable municipal waste.

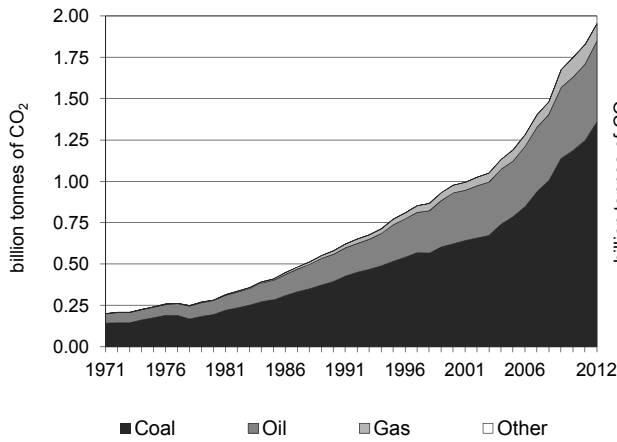
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	0.76	43.6%	15.8	15.8
Non-specified other - oil	0.56	-17.2%	11.5	27.3
Manufacturing industries - coal	0.38	44.3%	7.9	35.3
Manufacturing industries - oil	0.10	-64.1%	2.1	37.3
Other transport - oil	0.03	-66.7%	0.6	38.0
Residential - oil	0.01	-87.1%	0.1	38.1
Main activity prod. elec. and heat - oil	0.00	-	0.1	38.2
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>1.84</i>	<i>-2.5%</i>	<i>38.2</i>	<i>38.2</i>

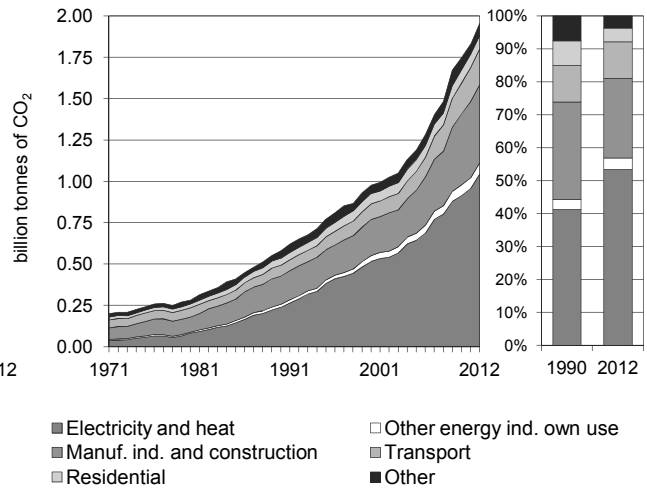
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## India

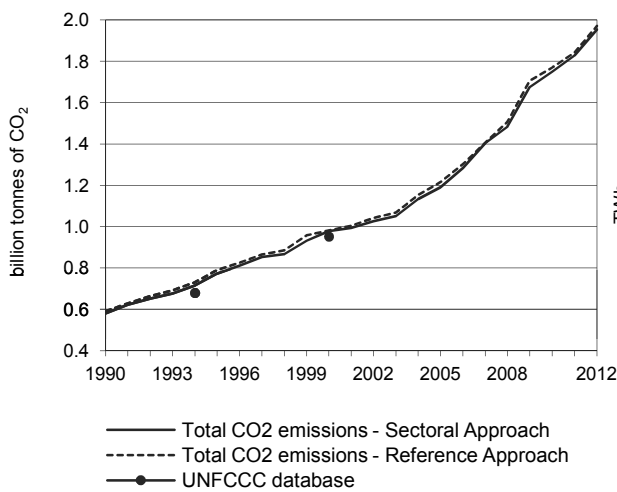
**Figure 1. CO<sub>2</sub> emissions by fuel**



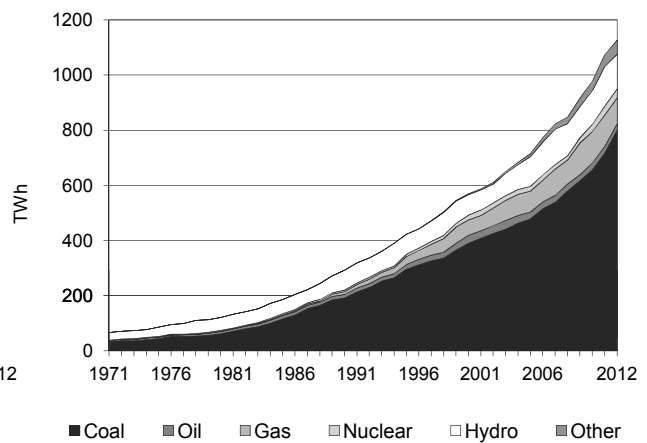
**Figure 2. CO<sub>2</sub> emissions by sector**



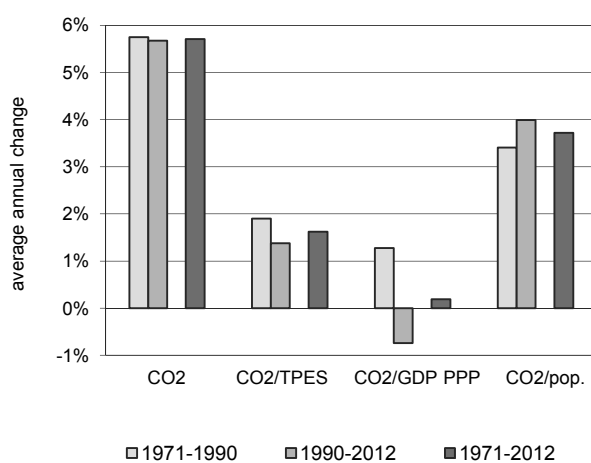
**Figure 3. Reference vs Sectoral Approach**



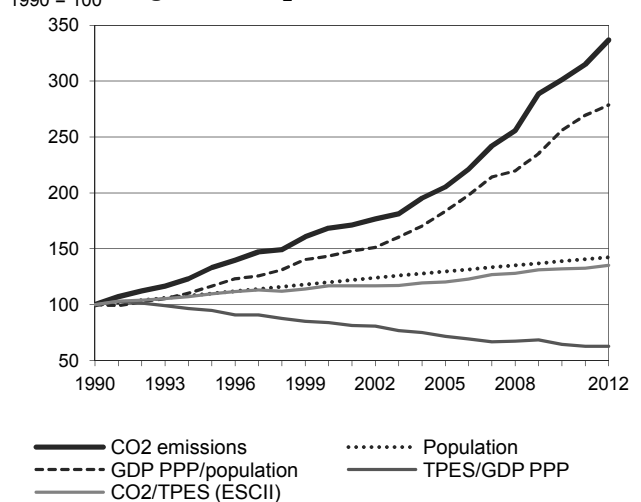
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## India

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	580.47	772.48	978.10	1 191.10	1 749.33	1 828.76	1 954.02	236.6%
TPES (PJ)	13 247	16 071	19 110	22 598	30 251	31 477	32 997	149.1%
GDP (billion 2005 USD)	350.24	448.72	602.65	834.22	1 243.68	1 326.24	1 389.05	296.6%
GDP PPP (billion 2005 USD)	1 403.72	1 798.42	2 415.36	3 343.43	4 984.49	5 315.38	5 567.13	296.6%
Population (millions)	868.89	955.80	1 042.26	1 127.14	1 205.63	1 221.16	1 236.69	42.3%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	43.8	48.1	51.2	52.7	57.8	58.1	59.2	35.1%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	1.66	1.72	1.62	1.43	1.41	1.38	1.41	-15.1%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.41	0.43	0.40	0.36	0.35	0.34	0.35	-15.1%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.67	0.81	0.94	1.06	1.45	1.50	1.58	136.5%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	133	169	205	301	315	337	236.6%
Population index	100	110	120	130	139	141	142	42.3%
GDP PPP per population index	100	116	143	184	256	269	279	178.6%
Energy intensity index - TPES / GDP PPP	100	95	84	72	64	63	63	-37.2%
Carbon intensity index - CO <sub>2</sub> / TPES	100	110	117	120	132	133	135	35.1%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>1 359.28</b>	<b>489.12</b>	<b>104.45</b>	<b>1.17</b>	<b>1 954.02</b>	<b>236.6%</b>
Main activity producer elec. and heat	861.52	5.41	30.52	-	897.44	310.1%
Unallocated autoproducers	115.29	19.54	10.80	1.17	146.80	618.7%
Other energy industry own use	2.77	52.62	11.82	-	67.21	277.6%
Manufacturing industries and construction	336.25	95.70	41.29	-	473.23	175.7%
Transport	-	212.37	3.85	-	216.23	235.0%
<i>of which: road</i>	-	197.00	3.85	-	200.86	327.7%
Other	43.45	103.48	6.17	-	153.10	75.5%
<i>of which: residential</i>	11.80	62.97	5.81	-	80.58	85.1%
<b>Reference Approach</b>	<b>1 372.11</b>	<b>493.16</b>	<b>104.45</b>	<b>1.17</b>	<b>1 970.88</b>	<b>233.7%</b>
Diff. due to losses and/or transformation	9.22	- 12.11	-	-	- 2.89	
Statistical differences	3.61	16.14	- 0.00	-	19.75	
<i>Memo: international marine bunkers</i>	-	3.92	-	-	3.92	188.1%
<i>Memo: international aviation bunkers</i>	-	11.65	-	-	11.65	214.2%

\*\* Other includes industrial waste and non-renewable municipal waste.

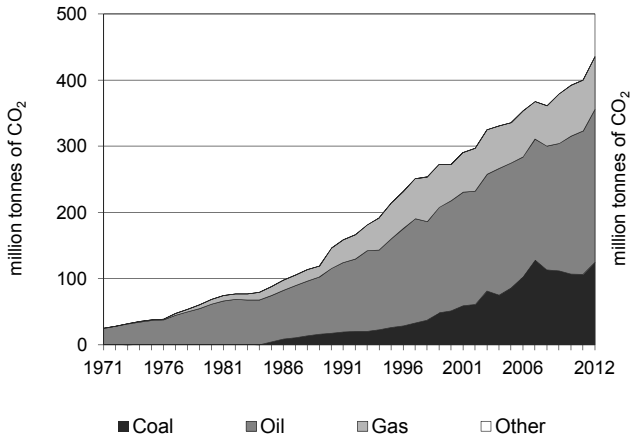
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	861.52	323.8%	28.4	28.4
Manufacturing industries - coal	336.25	171.4%	11.1	39.5
Road - oil	197.00	319.5%	6.5	46.0
Unallocated autoproducers - coal	115.29	846.1%	3.8	49.8
Manufacturing industries - oil	95.70	147.4%	3.2	53.0
Residential - oil	62.97	97.8%	2.1	55.1
Other energy industry own use - oil	52.62	511.1%	1.7	56.8
Manufacturing industries - gas	41.29	355.7%	1.4	58.2
Non-specified other - oil	40.51	194.1%	1.3	59.5
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>1954.02</i>	<i>236.6%</i>	<i>64.5</i>	<i>64.5</i>

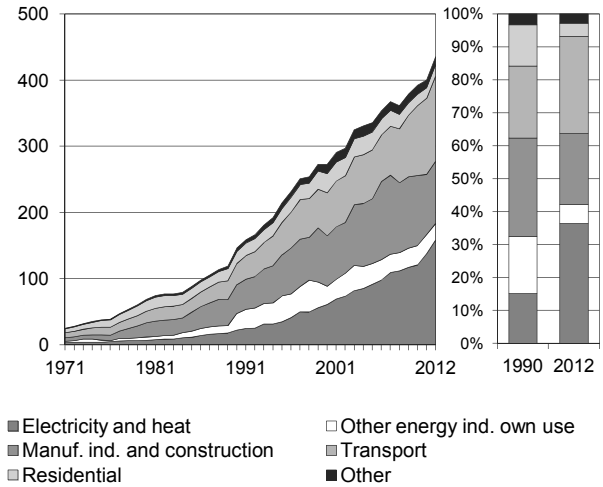
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Indonesia

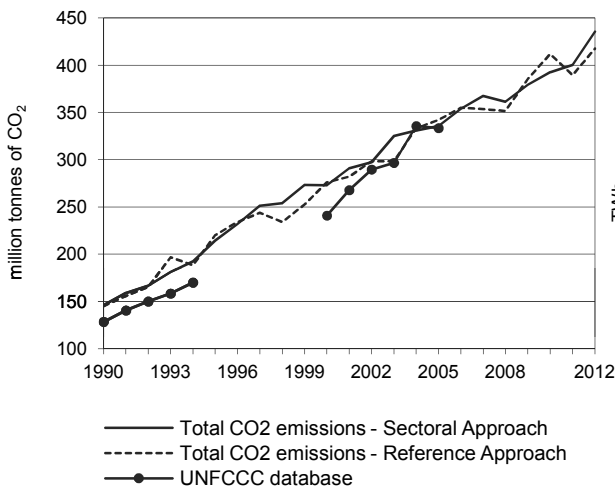
**Figure 1. CO<sub>2</sub> emissions by fuel**



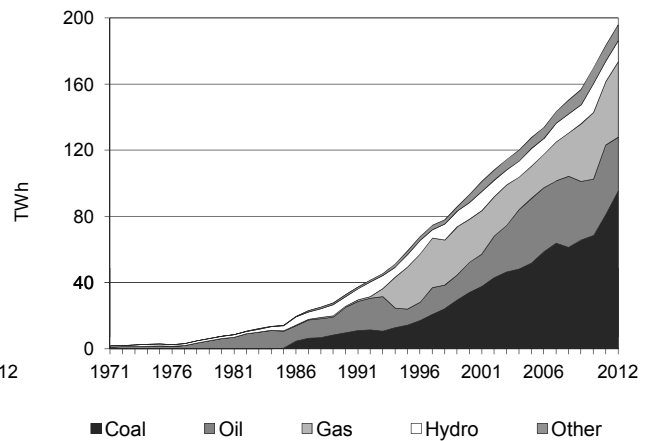
**Figure 2. CO<sub>2</sub> emissions by sector**



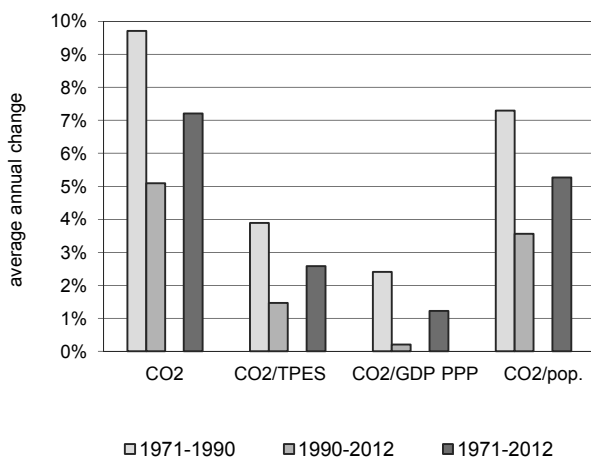
**Figure 3. Reference vs Sectoral Approach**



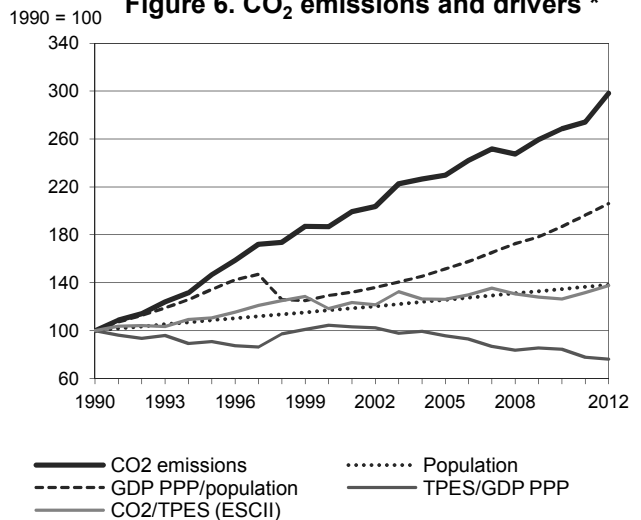
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Indonesia

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	146.05	214.38	272.84	335.71	392.44	400.30	435.48	198.2%
TPES (PJ)	4 129	5 477	6 516	7 527	8 768	8 597	8 942	116.6%
GDP (billion 2005 USD)	150.09	219.17	226.92	285.87	377.90	402.43	427.48	184.8%
GDP PPP (billion 2005 USD)	684.25	999.15	1 034.49	1 303.24	1 722.79	1 834.61	1 948.84	184.8%
Population (millions)	178.63	194.11	208.94	224.48	240.68	243.80	246.86	38.2%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	35.4	39.1	41.9	44.6	44.8	46.6	48.7	37.7%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.97	0.98	1.20	1.17	1.04	0.99	1.02	4.7%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.21	0.21	0.26	0.26	0.23	0.22	0.22	4.7%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.82	1.10	1.31	1.50	1.63	1.64	1.76	115.8%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	147	187	230	269	274	298	198.2%
Population index	100	109	117	126	135	136	138	38.2%
GDP PPP per population index	100	134	129	152	187	196	206	106.1%
Energy intensity index - TPES / GDP PPP	100	91	104	96	84	78	76	-24.0%
Carbon intensity index - CO <sub>2</sub> / TPES	100	111	118	126	127	132	138	37.7%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>124.41</b>	<b>231.38</b>	<b>79.64</b>	<b>0.05</b>	<b>435.48</b>	<b>198.2%</b>
Main activity producer elec. and heat	73.56	22.40	21.12	-	117.07	427.8%
Unallocated autoproducers	32.41	6.01	2.97	0.05	41.45	x
Other energy industry own use	-	6.78	18.14	-	24.92	-1.7%
Manufacturing industries and construction	18.43	38.89	36.73	-	94.05	116.0%
Transport	-	128.47	0.12	-	128.59	303.5%
<i>of which: road</i>	-	113.48	0.12	-	113.59	297.2%
Other	-	28.84	0.57	-	29.40	27.3%
<i>of which: residential</i>	-	17.32	0.04	-	17.37	-5.2%
<b>Reference Approach</b>	<b>117.40</b>	<b>221.30</b>	<b>78.65</b>	<b>0.05</b>	<b>417.40</b>	<b>187.1%</b>
Diff. due to losses and/or transformation	0.01	5.60	0.52	-	6.13	
Statistical differences	- 7.01	- 15.68	- 1.52	-	- 24.21	
<i>Memo: international marine bunkers</i>	-	0.63	-	-	0.63	-62.5%
<i>Memo: international aviation bunkers</i>	-	2.28	-	-	2.28	136.7%

\*\* Other includes industrial waste and non-renewable municipal waste.

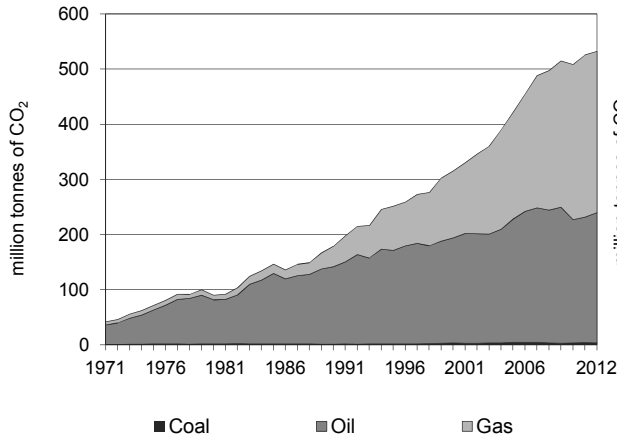
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	113.48	296.8%	14.2	14.2
Main activity prod. elec. and heat - coal	73.56	703.1%	9.2	23.4
Manufacturing industries - oil	38.89	60.4%	4.9	28.3
Manufacturing industries - gas	36.73	237.3%	4.6	32.9
Unallocated autoproducers - coal	32.41	x	4.1	37.0
Main activity prod. elec. and heat - oil	22.40	78.7%	2.8	39.8
Main activity prod. elec. and heat - gas	21.12	+	2.6	42.4
Manufacturing industries - coal	18.43	119.3%	2.3	44.7
Other energy industry own use - gas	18.14	-5.3%	2.3	47.0
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>435.48</i>	<i>198.2%</i>	<i>54.6</i>	<i>54.6</i>

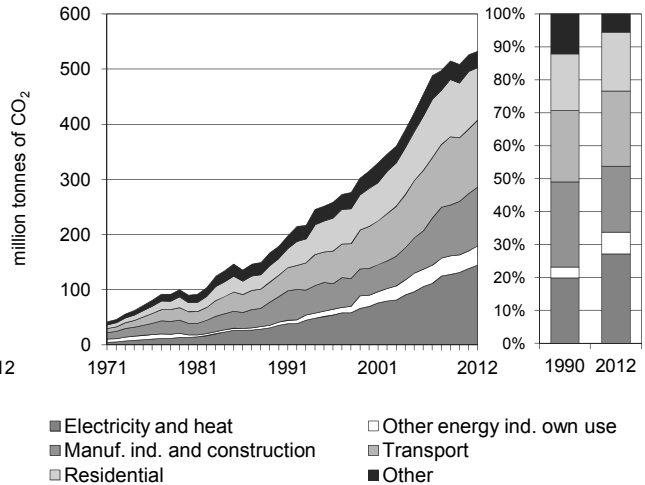
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Islamic Republic of Iran

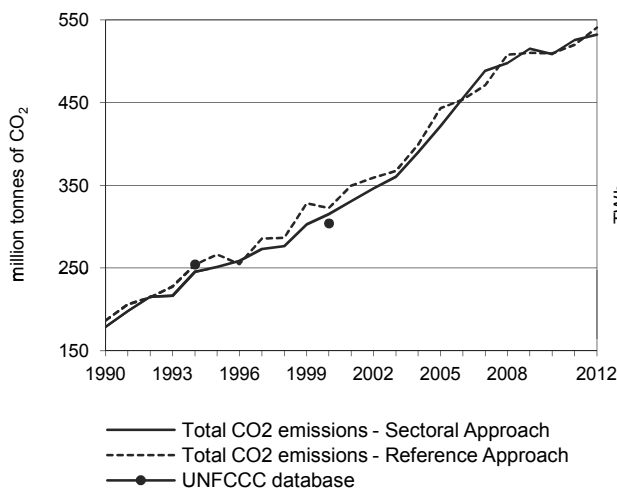
**Figure 1. CO<sub>2</sub> emissions by fuel**



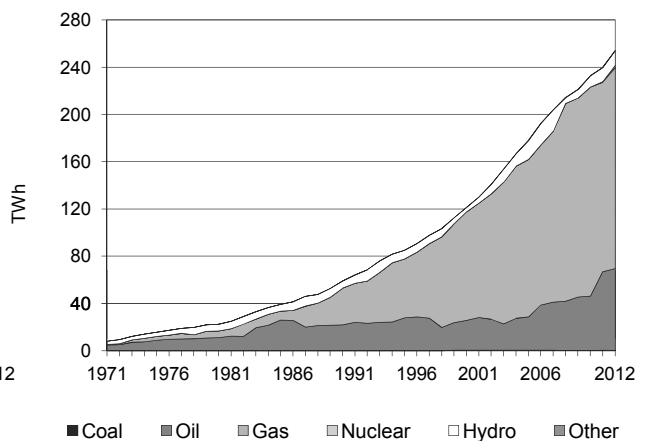
**Figure 2. CO<sub>2</sub> emissions by sector**



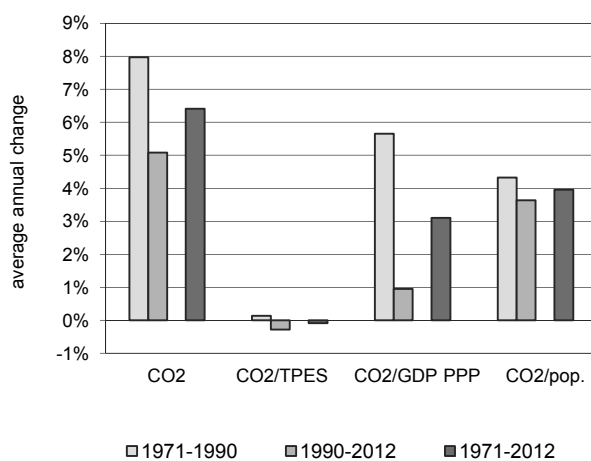
**Figure 3. Reference vs Sectoral Approach**



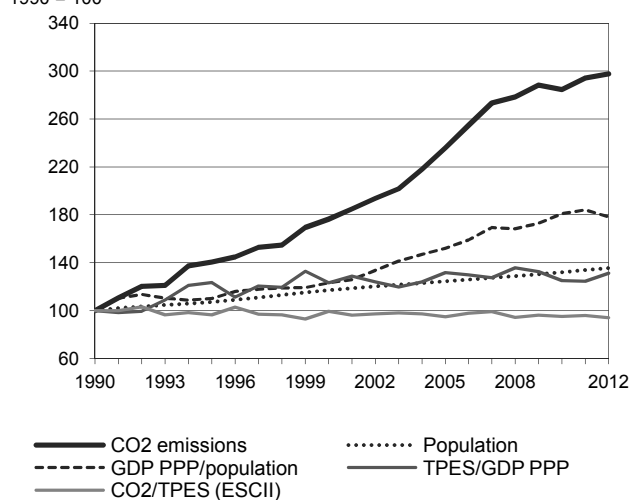
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Islamic Republic of Iran

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	178.69	251.37	315.13	421.64	508.47	525.77	532.15	197.8%
TPES (PJ)	2 903	4 238	5 151	7 229	8 688	8 893	9 194	216.7%
GDP (billion 2005 USD)	101.52	119.98	146.28	192.02	242.70	249.98	245.23	141.6%
GDP PPP (billion 2005 USD)	436.04	515.32	628.30	824.71	1 042.42	1 073.69	1 053.29	141.6%
Population (millions)	56.36	60.47	65.91	70.15	74.46	75.42	76.42	35.6%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	61.6	59.3	61.2	58.3	58.5	59.1	57.9	-6.0%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	1.76	2.10	2.15	2.20	2.10	2.10	2.17	23.3%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.41	0.49	0.50	0.51	0.49	0.49	0.51	23.3%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	3.17	4.16	4.78	6.01	6.83	6.97	6.96	119.6%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	141	176	236	285	294	298	197.8%
Population index	100	107	117	124	132	134	136	35.6%
GDP PPP per population index	100	110	123	152	181	184	178	78.1%
Energy intensity index - TPES / GDP PPP	100	124	123	132	125	124	131	31.1%
Carbon intensity index - CO <sub>2</sub> / TPES	100	96	99	95	95	96	94	-6.0%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>3.60</b>	<b>236.08</b>	<b>292.47</b>	-	<b>532.15</b>	<b>197.8%</b>
Main activity producer elec. and heat	-	62.73	74.62	-	137.35	319.8%
Unallocated autoproducers	1.37	0.07	5.81	-	7.25	149.1%
Other energy industry own use	0.93	13.82	20.43	-	35.18	499.9%
Manufacturing industries and construction	1.27	20.52	84.47	-	106.26	130.5%
Transport	-	106.86	14.56	-	121.42	213.3%
<i>of which: road</i>	-	106.65	13.67	-	120.33	210.5%
Other	0.03	32.08	92.58	-	124.70	138.1%
<i>of which: residential</i>	0.03	15.71	79.32	-	95.07	210.5%
<b>Reference Approach</b>	<b>4.68</b>	<b>243.46</b>	<b>292.47</b>	-	<b>540.61</b>	<b>189.5%</b>
Diff. due to losses and/or transformation	1.15	9.77	0.13	-	11.05	
Statistical differences	-0.07	-2.39	-0.13	-	-2.59	
<i>Memo: international marine bunkers</i>	-	5.98	-	-	5.98	387.1%
<i>Memo: international aviation bunkers</i>	-	3.52	-	-	3.52	137.4%

\*\* Other includes industrial waste and non-renewable municipal waste.

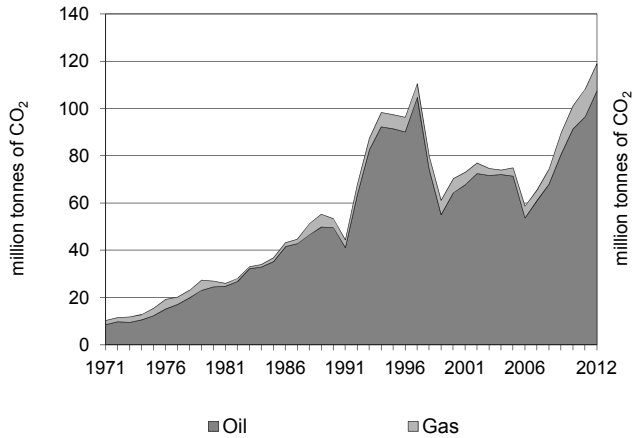
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	106.65	175.2%	14.7	14.7
Manufacturing industries - gas	84.47	499.6%	11.6	26.3
Residential - gas	79.32	+	10.9	37.2
Main activity prod. elec. and heat - gas	74.62	376.2%	10.3	47.5
Main activity prod. elec. and heat - oil	62.73	268.0%	8.6	56.1
Manufacturing industries - oil	20.52	-34.6%	2.8	59.0
Other energy industry own use - gas	20.43	+	2.8	61.8
Non-specified other - oil	16.37	-24.7%	2.3	64.0
Residential - oil	15.71	-35.9%	2.2	66.2
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>532.15</i>	<i>197.8%</i>	<i>73.2</i>	<i>73.2</i>

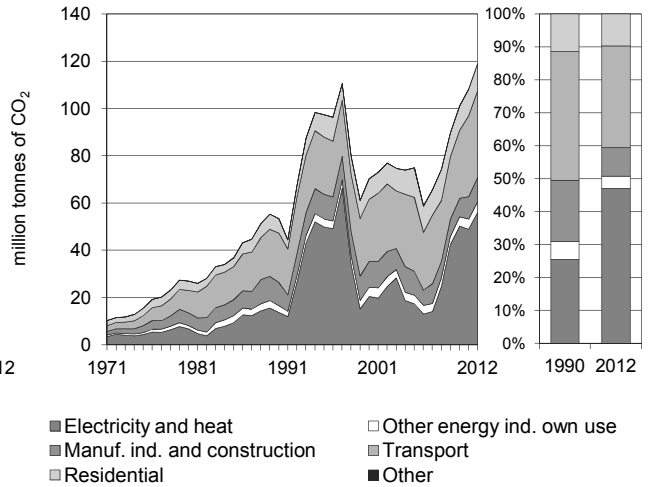
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Iraq

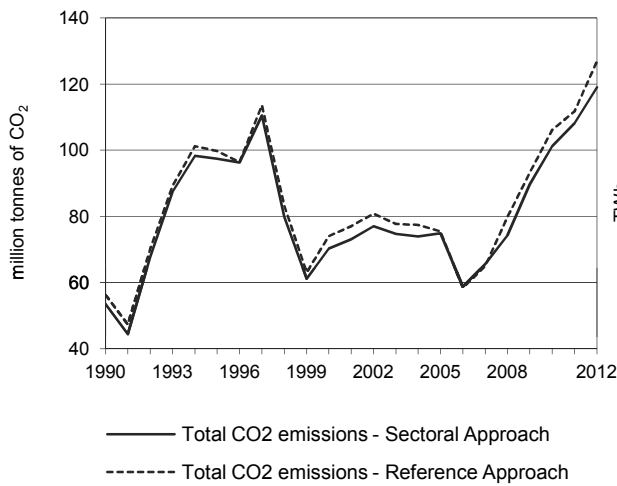
**Figure 1. CO<sub>2</sub> emissions by fuel**



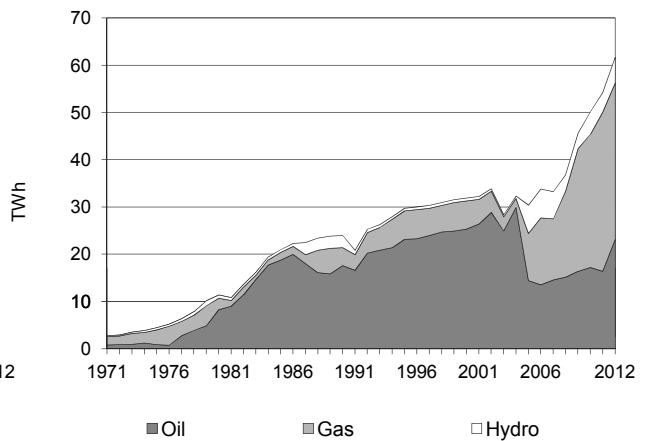
**Figure 2. CO<sub>2</sub> emissions by sector**



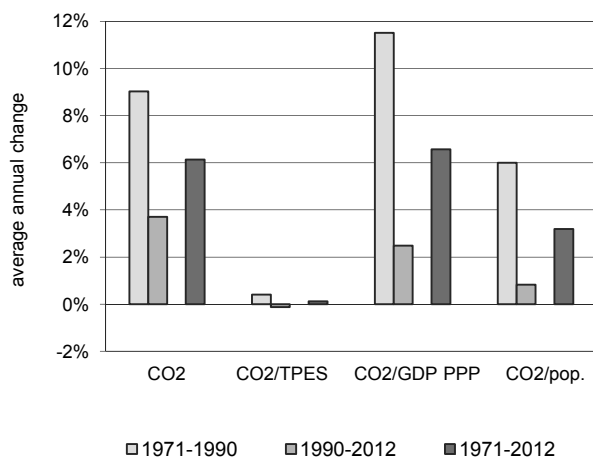
**Figure 3. Reference vs Sectoral Approach**



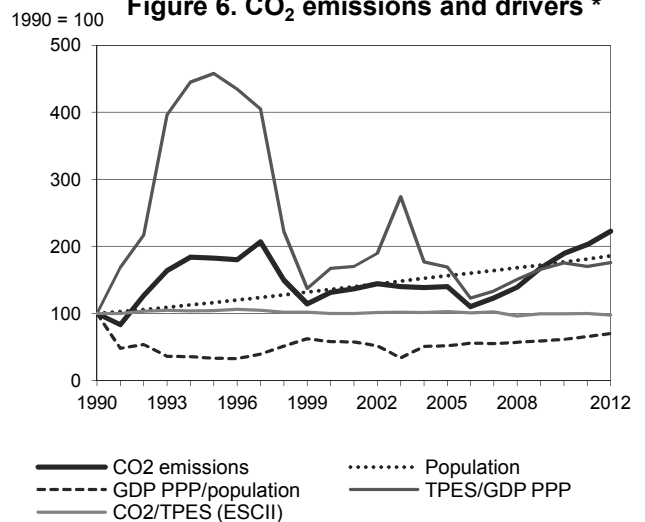
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Iraq

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	53.42	97.46	70.29	74.90	101.17	108.15	118.98	122.8%
TPES (PJ)	825	1 446	1 086	1 125	1 573	1 672	1 886	128.6%
GDP (billion 2005 USD)	61.95	23.71	48.71	49.96	67.27	73.69	80.54	30.0%
GDP PPP (billion 2005 USD)	324.49	124.20	255.16	261.67	352.37	386.02	421.88	30.0%
Population (millions)	17.52	20.36	23.80	27.38	30.96	31.76	32.58	86.0%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	64.7	67.4	64.7	66.6	64.3	64.7	63.1	-2.5%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.86	4.11	1.44	1.50	1.50	1.47	1.48	71.3%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.16	0.78	0.28	0.29	0.29	0.28	0.28	71.3%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	3.05	4.79	2.95	2.74	3.27	3.41	3.65	19.8%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	182	132	140	189	202	223	122.8%
Population index	100	116	136	156	177	181	186	86.0%
GDP PPP per population index	100	33	58	52	61	66	70	-30.1%
Energy intensity index - TPES / GDP PPP	100	458	167	169	176	170	176	75.8%
Carbon intensity index - CO <sub>2</sub> / TPES	100	104	100	103	99	100	97	-2.5%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>107.47</b>	<b>11.51</b>	-	<b>118.98</b>	<b>122.8%</b>
Main activity producer elec. and heat	-	45.02	10.96	-	55.99	310.0%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	4.47	-	-	4.47	53.5%
Manufacturing industries and construction	-	9.75	0.55	-	10.30	4.4%
Transport	-	36.71	-	-	36.71	75.9%
<i>of which: road</i>	-	36.71	-	-	36.71	75.9%
Other	-	11.52	-	-	11.52	88.3%
<i>of which: residential</i>	-	11.52	-	-	11.52	88.3%
<b>Reference Approach</b>	-	<b>115.34</b>	<b>11.51</b>	-	<b>126.85</b>	<b>125.5%</b>
Diff. due to losses and/or transformation	-	0.69	-	-	0.69	-
Statistical differences	-	7.17	-	-	7.17	-
<i>Memo: international marine bunkers</i>	-	0.56	-	-	0.56	39.2%
<i>Memo: international aviation bunkers</i>	-	1.15	-	-	1.15	16.8%

\*\* Other includes industrial waste and non-renewable municipal waste.

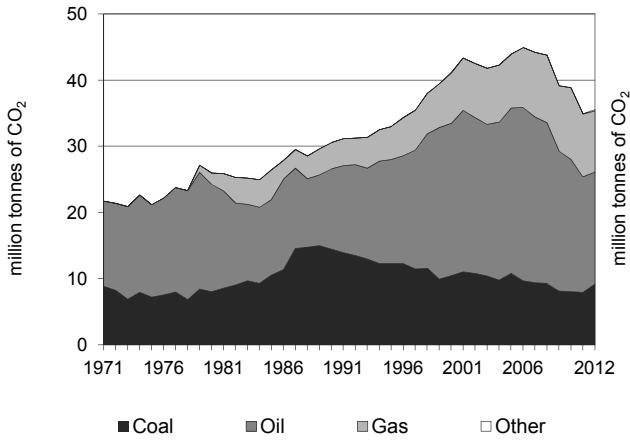
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - oil	45.02	282.7%	26.1	26.1
Road - oil	36.71	75.9%	21.3	47.4
Residential - oil	11.52	88.3%	6.7	54.0
Main activity prod. elec. and heat - gas	10.96	480.2%	6.4	60.4
Manufacturing industries - oil	9.75	22.3%	5.7	66.0
Other energy industry own use - oil	4.47	53.5%	2.6	68.6
Manufacturing industries - gas	0.55	-71.0%	0.3	68.9
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>118.98</i>	<i>122.8%</i>	<i>68.9</i>	<i>68.9</i>

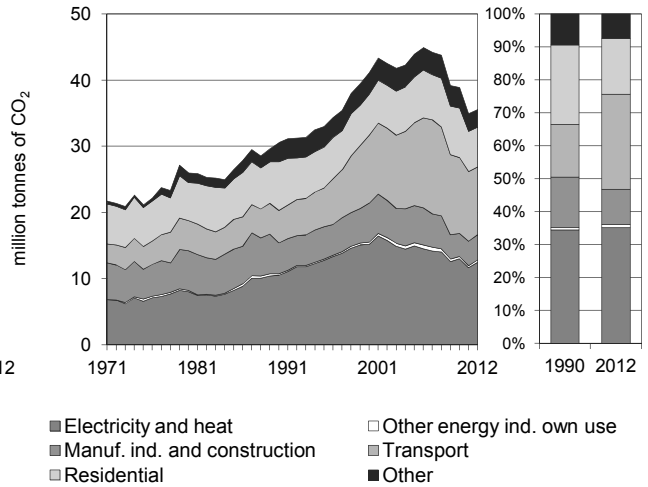
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Ireland

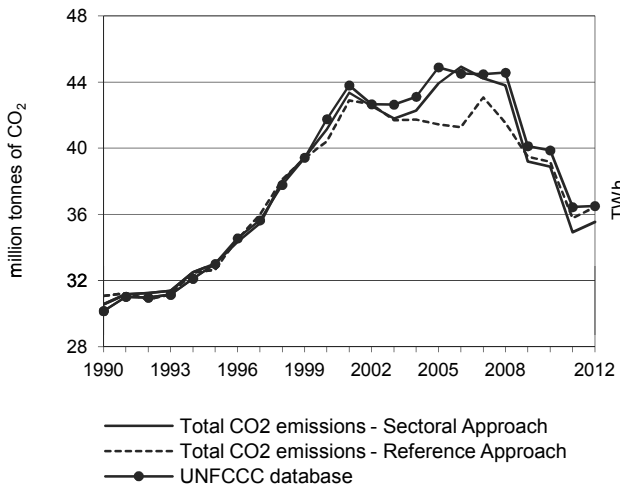
**Figure 1. CO<sub>2</sub> emissions by fuel**



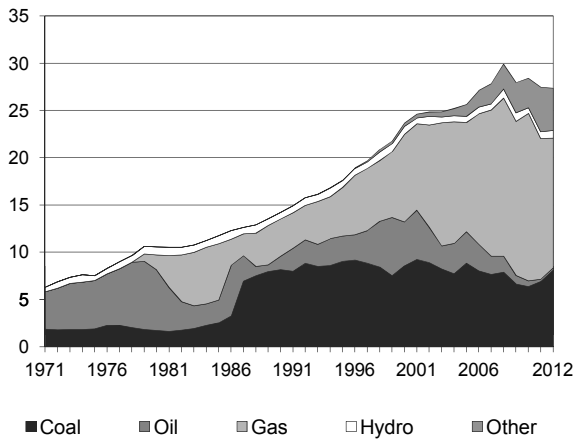
**Figure 2. CO<sub>2</sub> emissions by sector**



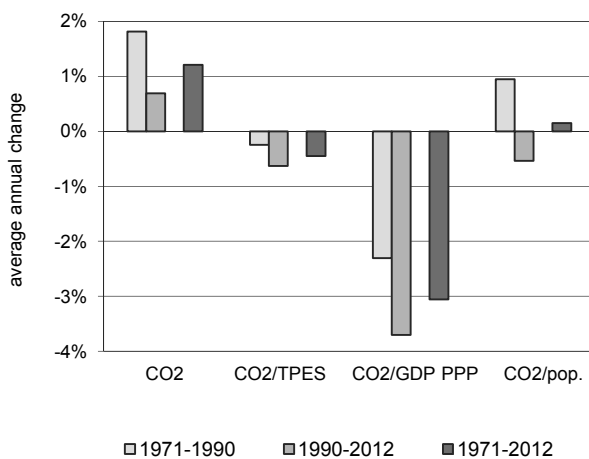
**Figure 3. Reference vs Sectoral Approach**



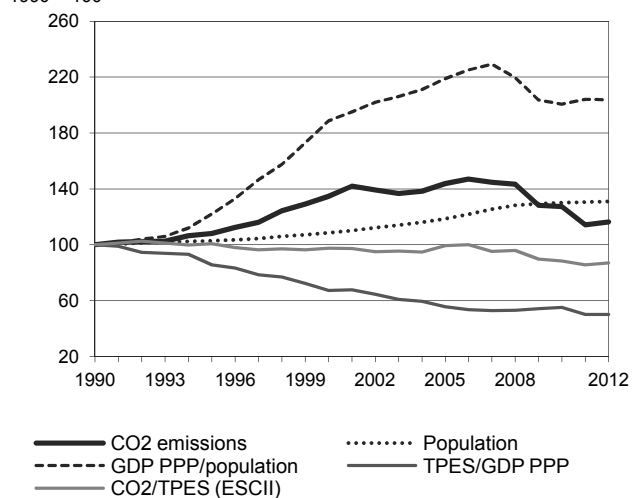
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Ireland

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	30.56	33.02	41.13	43.92	38.89	34.93	35.55	16.3%
TPES (PJ)	415	445	572	601	598	553	555	33.7%
GDP (billion 2005 USD)	77.96	97.78	159.64	202.58	203.31	207.72	208.04	166.9%
GDP PPP (billion 2005 USD)	62.05	77.83	127.07	161.25	161.83	165.34	165.60	166.9%
Population (millions)	3.51	3.60	3.80	4.16	4.56	4.58	4.59	30.9%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	73.7	74.2	71.9	73.1	65.0	63.1	64.1	-13.0%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.39	0.34	0.26	0.22	0.19	0.17	0.17	-56.4%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.49	0.42	0.32	0.27	0.24	0.21	0.21	-56.4%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	8.72	9.17	10.81	10.56	8.53	7.63	7.74	-11.1%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	108	135	144	127	114	116	16.3%
Population index	100	103	109	119	130	131	131	30.9%
GDP PPP per population index	100	122	189	219	201	204	204	103.8%
Energy intensity index - TPES / GDP PPP	100	86	67	56	55	50	50	-49.9%
Carbon intensity index - CO <sub>2</sub> / TPES	100	101	98	99	88	86	87	-13.0%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>9.16</b>	<b>16.95</b>	<b>9.23</b>	<b>0.20</b>	<b>35.55</b>	<b>16.3%</b>
Main activity producer elec. and heat	6.92	0.15	4.65	0.08	11.80	13.6%
Unallocated autoproducers	0.03	0.03	0.64	-	0.70	393.8%
Other energy industry own use	0.06	0.27	0.01	-	0.34	68.4%
Manufacturing industries and construction	0.33	1.75	1.60	0.12	3.79	-19.0%
Transport	-	10.26	-	-	10.26	109.0%
<i>of which: road</i>	-	10.01	-	-	10.01	119.0%
Other	1.82	4.49	2.33	-	8.65	-15.5%
<i>of which: residential</i>	1.82	2.79	1.40	-	6.01	-18.3%
<b>Reference Approach</b>	<b>9.64</b>	<b>17.24</b>	<b>9.38</b>	<b>0.20</b>	<b>36.45</b>	<b>17.3%</b>
Diff. due to losses and/or transformation	0.03	0.50	0.14	-	0.67	
Statistical differences	0.44	-0.21	0.00	-0.00	0.23	
<i>Memo: international marine bunkers</i>	-	0.30	-	-	0.30	435.9%
<i>Memo: international aviation bunkers</i>	-	1.68	-	-	1.68	62.5%

\*\* Other includes industrial waste and non-renewable municipal waste.

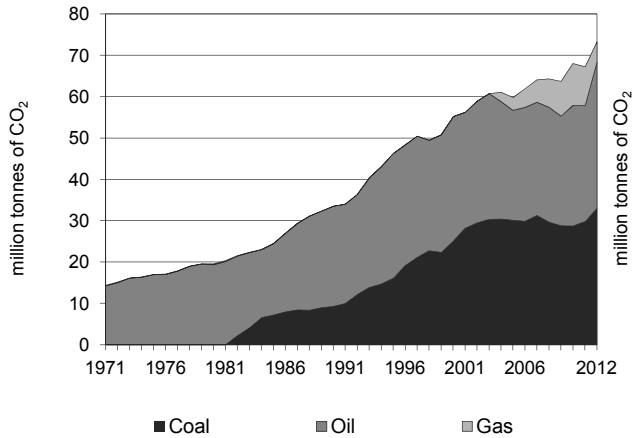
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	10.01	119.0%	17.4	17.4
Main activity prod. elec. and heat - coal	6.92	-6.7%	12.0	29.4
Main activity prod. elec. and heat - gas	4.65	143.7%	8.1	37.5
Residential - oil	2.79	141.4%	4.8	42.3
Residential - coal	1.82	-69.2%	3.2	45.5
Manufacturing industries - oil	1.75	-21.5%	3.0	48.5
Non-specified other - oil	1.71	-34.1%	3.0	51.5
Manufacturing industries - gas	1.60	5.9%	2.8	54.3
Residential - gas	1.40	412.1%	2.4	56.7
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>35.55</i>	<i>16.3%</i>	<i>61.7</i>	<i>61.7</i>

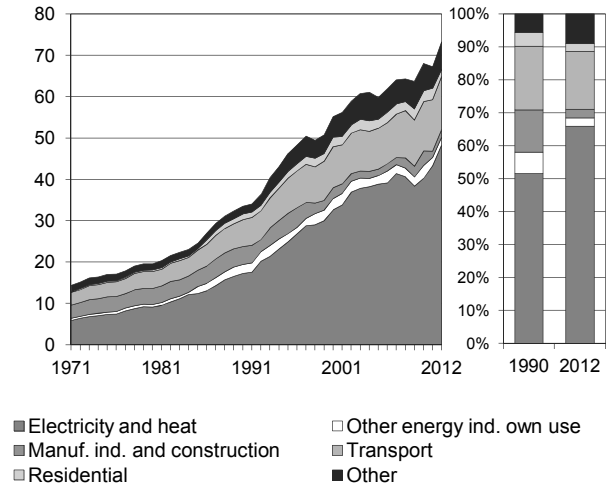
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Israel

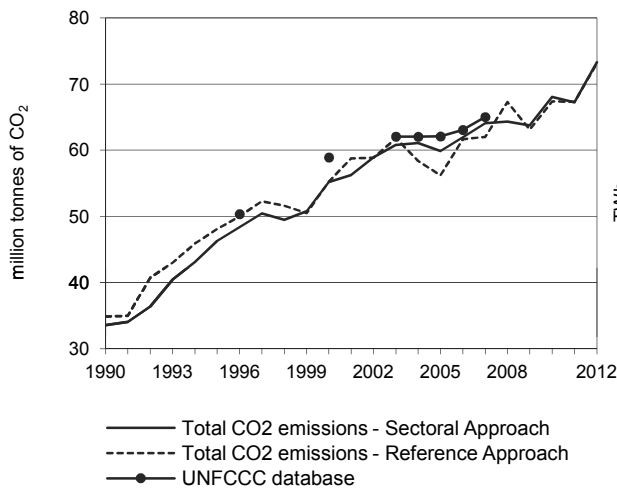
**Figure 1. CO<sub>2</sub> emissions by fuel**



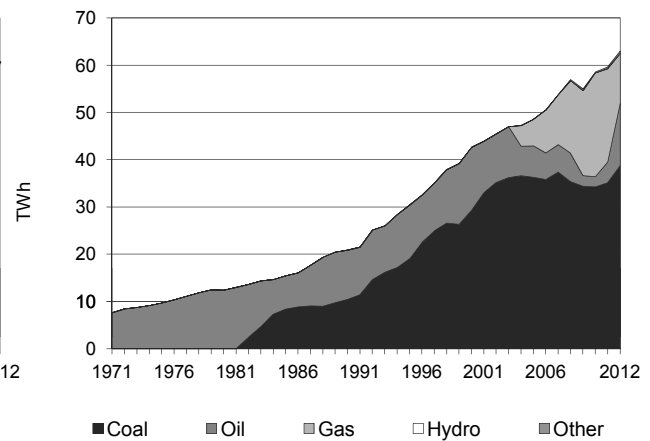
**Figure 2. CO<sub>2</sub> emissions by sector**



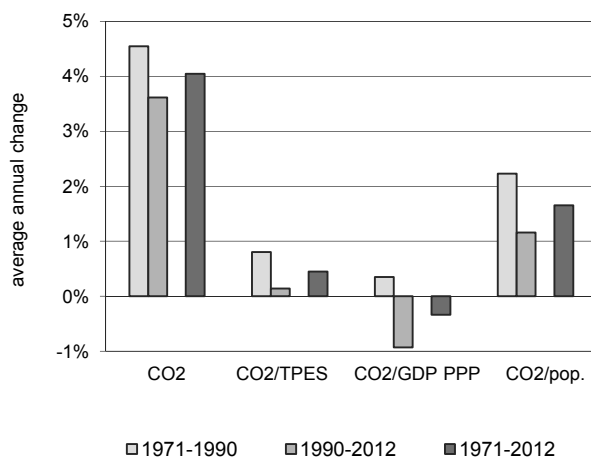
**Figure 3. Reference vs Sectoral Approach**



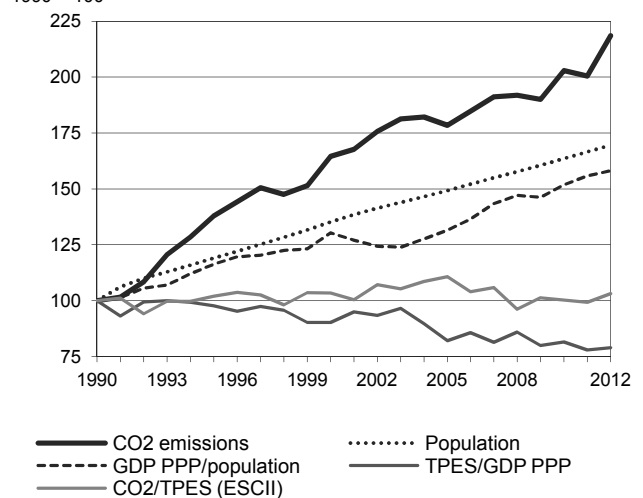
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Israel

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	33.54	46.27	55.18	59.86	68.05	67.24	73.27	118.5%
TPES (PJ)	480	649	763	774	971	970	1 016	111.7%
GDP (billion 2005 USD)	70.86	98.08	124.85	139.08	175.81	183.85	190.02	168.2%
GDP PPP (billion 2005 USD)	85.56	118.42	150.73	167.92	212.27	221.98	229.42	168.1%
Population (millions)	4.66	5.55	6.30	6.96	7.62	7.76	7.91	69.6%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	69.9	71.3	72.3	77.4	70.1	69.3	72.1	3.2%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.47	0.47	0.44	0.43	0.39	0.37	0.39	-18.5%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.39	0.39	0.37	0.36	0.32	0.30	0.32	-18.5%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	7.20	8.34	8.76	8.61	8.93	8.66	9.27	28.8%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	138	165	178	203	200	218	118.5%
Population index	100	119	135	149	164	167	170	69.6%
GDP PPP per population index	100	116	130	132	152	156	158	58.1%
Energy intensity index - TPES / GDP PPP	100	98	90	82	82	78	79	-21.0%
Carbon intensity index - CO <sub>2</sub> / TPES	100	102	103	111	100	99	103	3.2%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>33.01</b>	<b>35.35</b>	<b>4.91</b>	-	<b>73.27</b>	<b>118.5%</b>
Main activity producer elec. and heat	32.87	9.28	3.59	-	45.74	171.8%
Unallocated autoproducers	0.13	2.19	0.26	-	2.59	469.0%
Other energy industry own use	-	1.16	0.70	-	1.86	-15.3%
Manufacturing industries and construction	-	1.51	0.37	-	1.87	-56.4%
Transport	-	12.88	-	-	12.88	98.8%
<i>of which: road</i>	-	12.88	-	-	12.88	100.5%
Other	-	8.33	-	-	8.33	152.9%
<i>of which: residential</i>	-	1.70	-	-	1.70	21.5%
<b>Reference Approach</b>	<b>33.37</b>	<b>34.90</b>	<b>4.91</b>	-	<b>73.18</b>	<b>109.9%</b>
Diff. due to losses and/or transformation	-	0.37	-	-	0.37	
Statistical differences	0.36	-0.82	-	-	-0.46	
<i>Memo: international marine bunkers</i>	-	1.01	-	-	1.01	165.3%
<i>Memo: international aviation bunkers</i>	-	2.48	-	-	2.48	56.6%

\*\* Other includes industrial waste and non-renewable municipal waste.

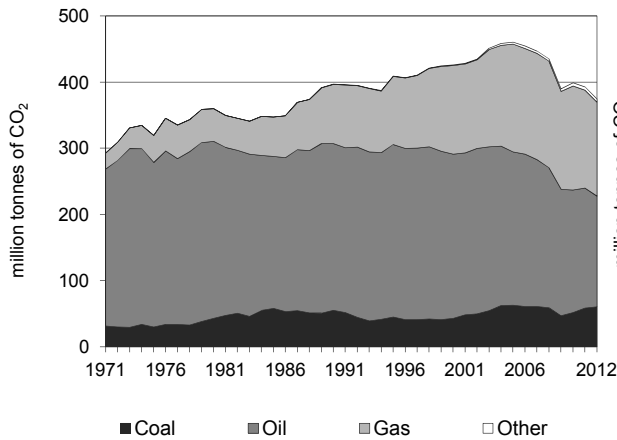
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	32.87	256.1%	39.4	39.4
Road - oil	12.88	100.5%	15.4	54.9
Main activity prod. elec. and heat - oil	9.28	22.2%	11.1	66.0
Non-specified other - oil	6.63	250.0%	8.0	74.0
Main activity prod. elec. and heat - gas	3.59	x	4.3	78.3
Unallocated autoproducers - oil	2.19	381.7%	2.6	80.9
Residential - oil	1.70	21.6%	2.0	82.9
Manufacturing industries - oil	1.51	-64.2%	1.8	84.7
Other energy industry own use - oil	1.16	-47.1%	1.4	86.1
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>73.27</i>	<i>118.5%</i>	<i>87.9</i>	<i>87.9</i>

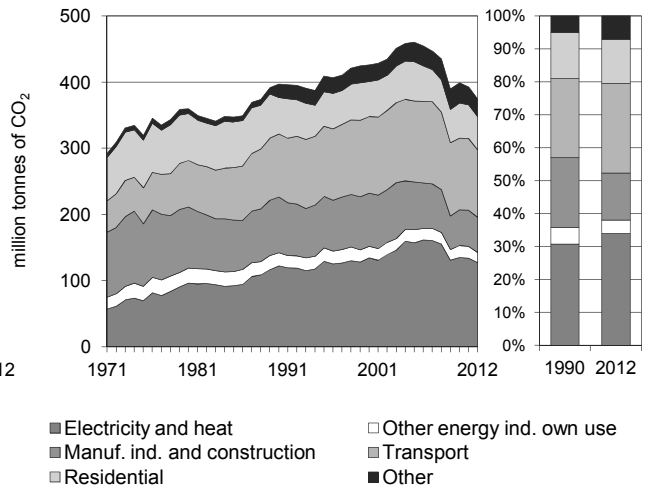
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Italy

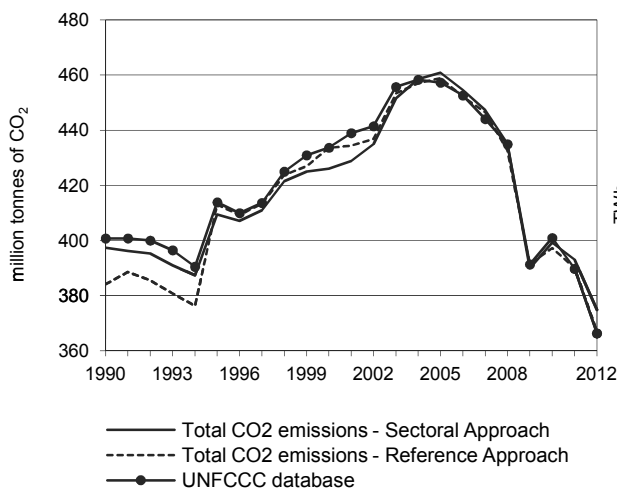
**Figure 1. CO<sub>2</sub> emissions by fuel**



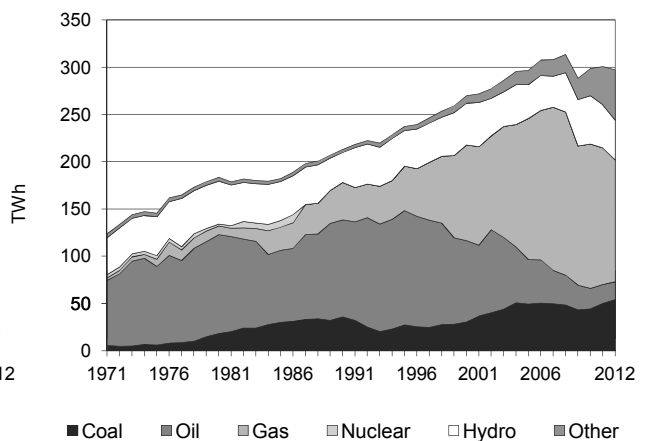
**Figure 2. CO<sub>2</sub> emissions by sector**



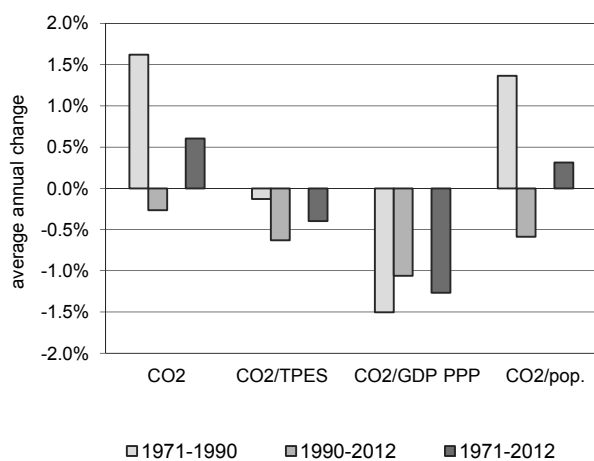
**Figure 3. Reference vs Sectoral Approach**



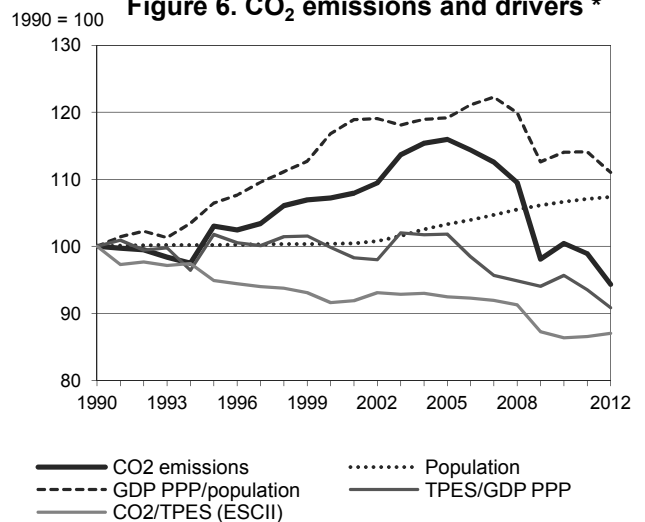
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Italy

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	397.36	409.41	426.04	460.81	399.22	393.00	374.77	-5.7%
TPES (PJ)	6 136	6 662	7 181	7 693	7 138	7 010	6 649	8.4%
GDP (billion 2005 USD)	1 450.66	1 547.70	1 700.99	1 786.28	1 763.89	1 771.82	1 729.86	19.2%
GDP PPP (billion 2005 USD)	1 346.00	1 436.04	1 578.27	1 657.40	1 636.63	1 643.98	1 605.06	19.2%
Population (millions)	56.72	56.84	56.94	58.61	60.48	60.72	60.91	7.4%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	64.8	61.5	59.3	59.9	55.9	56.1	56.4	-13.0%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.27	0.26	0.25	0.26	0.23	0.22	0.22	-20.9%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.30	0.29	0.27	0.28	0.24	0.24	0.23	-20.9%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	7.01	7.20	7.48	7.86	6.60	6.47	6.15	-12.2%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	103	107	116	100	99	94	-5.7%
Population index	100	100	100	103	107	107	107	7.4%
GDP PPP per population index	100	106	117	119	114	114	111	11.1%
Energy intensity index - TPES / GDP PPP	100	102	100	102	96	94	91	-9.1%
Carbon intensity index - CO <sub>2</sub> / TPES	100	95	92	92	86	87	87	-13.0%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>60.42</b>	<b>167.43</b>	<b>142.04</b>	<b>4.88</b>	<b>374.77</b>	<b>-5.7%</b>
Main activity producer elec. and heat	49.55	11.50	48.49	3.74	113.29	5.9%
Unallocated autoproducers	0.01	6.50	7.37	0.13	14.01	-9.5%
Other energy industry own use	0.19	12.37	2.78	-	15.34	-23.5%
Manufacturing industries and construction	10.13	20.47	21.71	1.01	53.32	-36.5%
Transport	-	99.90	2.07	-	101.97	6.8%
<i>of which: road</i>	-	94.15	1.77	-	95.92	4.9%
Other	0.53	16.69	59.63	-	76.85	1.9%
<i>of which: residential</i>	0.01	8.08	42.33	-	50.41	-8.7%
<b>Reference Approach</b>	<b>62.51</b>	<b>156.36</b>	<b>143.06</b>	<b>4.88</b>	<b>366.81</b>	<b>-4.5%</b>
Diff. due to losses and/or transformation	0.11	- 3.25	1.02	-	- 2.12	
Statistical differences	1.98	- 7.82	-	-	- 5.83	
<i>Memo: international marine bunkers</i>	-	7.83	-	-	7.83	-6.4%
<i>Memo: international aviation bunkers</i>	-	9.19	-	-	9.19	104.4%

\*\* Other includes industrial waste and non-renewable municipal waste.

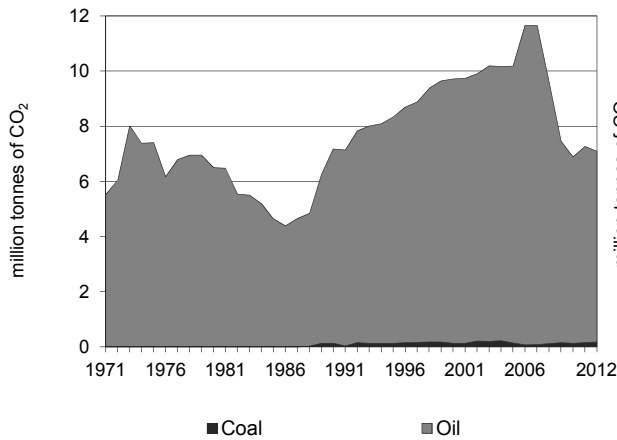
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	94.15	3.5%	20.1	20.1
Main activity prod. elec. and heat - coal	49.55	79.1%	10.6	30.7
Main activity prod. elec. and heat - gas	48.49	201.7%	10.3	41.0
Residential - gas	42.33	60.1%	9.0	50.0
Manufacturing industries - gas	21.71	-34.1%	4.6	54.7
Manufacturing industries - oil	20.47	-42.1%	4.4	59.0
Non-specified other - gas	17.30	74.9%	3.7	62.7
Other energy industry own use - oil	12.37	-15.6%	2.6	65.4
Main activity prod. elec. and heat - oil	11.50	-81.8%	2.5	67.8
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>374.77</i>	<i>-5.7%</i>	<i>80.0</i>	<i>80.0</i>

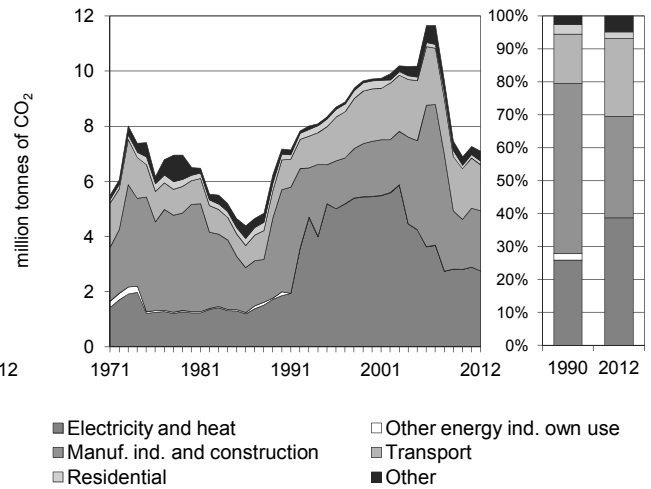
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Jamaica

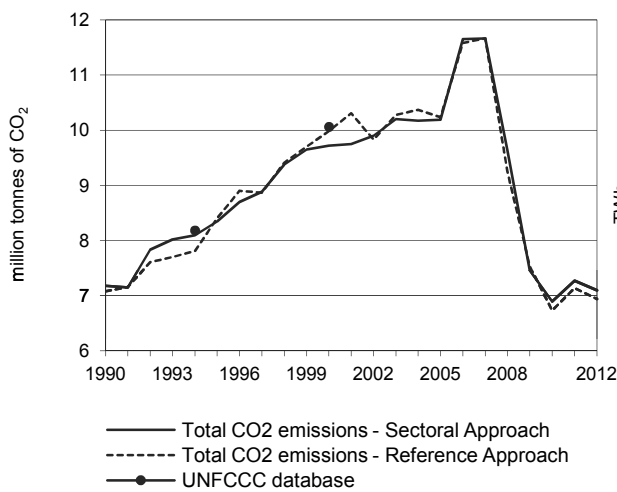
**Figure 1. CO<sub>2</sub> emissions by fuel**



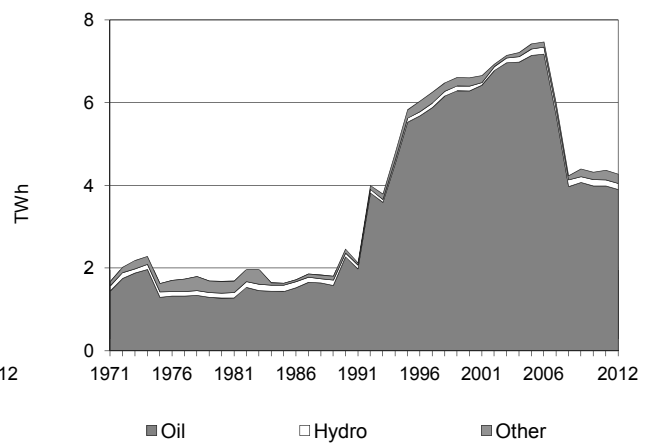
**Figure 2. CO<sub>2</sub> emissions by sector**



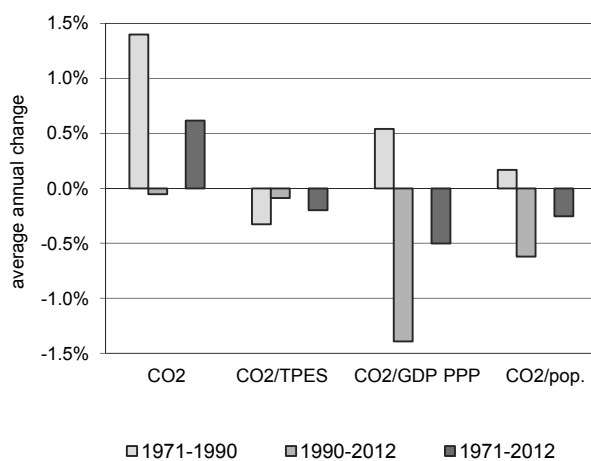
**Figure 3. Reference vs Sectoral Approach**



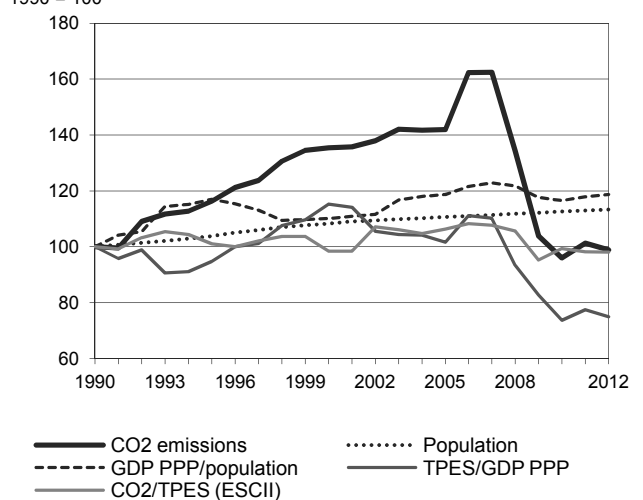
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Jamaica

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	7.18	8.34	9.72	10.19	6.89	7.27	7.09	-1.2%
TPES (PJ)	117	134	160	156	113	120	117	0.8%
GDP (billion 2005 USD)	8.43	10.23	10.06	11.08	11.06	11.23	11.34	34.5%
GDP PPP (billion 2005 USD)	14.18	17.21	16.92	18.63	18.60	18.88	19.07	34.5%
Population (millions)	2.39	2.48	2.59	2.64	2.69	2.70	2.71	13.3%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	61.6	62.2	60.6	65.5	61.1	60.5	60.4	-1.9%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.85	0.82	0.97	0.92	0.62	0.65	0.63	-26.5%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.51	0.48	0.57	0.55	0.37	0.38	0.37	-26.5%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	3.00	3.36	3.75	3.85	2.56	2.69	2.62	-12.8%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	116	135	142	96	101	99	-1.2%
Population index	100	104	108	111	113	113	113	13.3%
GDP PPP per population index	100	117	110	119	116	118	119	18.7%
Energy intensity index - TPES / GDP PPP	100	95	115	102	74	77	75	-25.1%
Carbon intensity index - CO <sub>2</sub> / TPES	100	101	98	106	99	98	98	-1.9%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.17</b>	<b>6.92</b>	-	-	<b>7.09</b>	<b>-1.2%</b>
Main activity producer elec. and heat	-	2.07	-	-	2.07	11.0%
Unallocated autoproducers	-	0.68	-	-	0.68	x
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.17	2.01	-	-	2.18	-41.1%
Transport	-	1.67	-	-	1.67	56.1%
<i>of which: road</i>	-	1.30	-	-	1.30	78.8%
Other	-	0.49	-	-	0.49	22.0%
<i>of which: residential</i>	-	0.14	-	-	0.14	-33.9%
<b>Reference Approach</b>	<b>0.17</b>	<b>6.77</b>	-	-	<b>6.94</b>	<b>-1.9%</b>
Diff. due to losses and/or transformation	-	-0.04	-	-	-0.04	
Statistical differences	-0.00	-0.11	-	-	-0.11	
<i>Memo: international marine bunkers</i>	-	0.26	-	-	0.26	157.2%
<i>Memo: international aviation bunkers</i>	-	0.56	-	-	0.56	21.1%

\*\* Other includes industrial waste and non-renewable municipal waste.

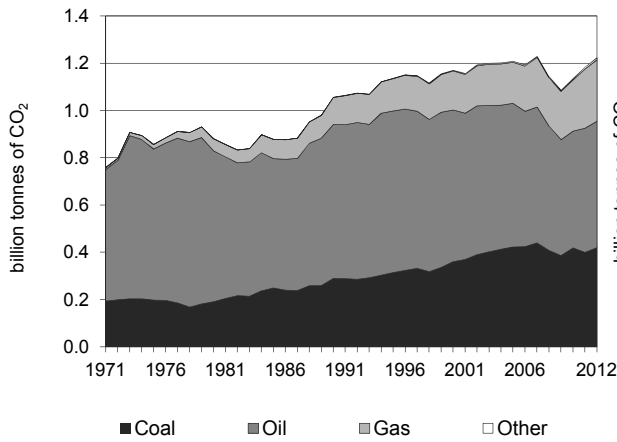
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - oil	2.07	11.0%	21.6	21.6
Manufacturing industries - oil	2.01	-44.0%	21.0	42.6
Road - oil	1.30	78.8%	13.6	56.1
Unallocated autoproducers - oil	0.68	x	7.1	63.3
Other transport - oil	0.38	8.6%	3.9	67.2
Non-specified other - oil	0.35	87.3%	3.6	70.8
Manufacturing industries - coal	0.17	40.4%	1.8	72.6
Residential - oil	0.14	-33.9%	1.5	74.1
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>7.09</i>	<i>-1.2%</i>	<i>74.1</i>	<i>74.1</i>

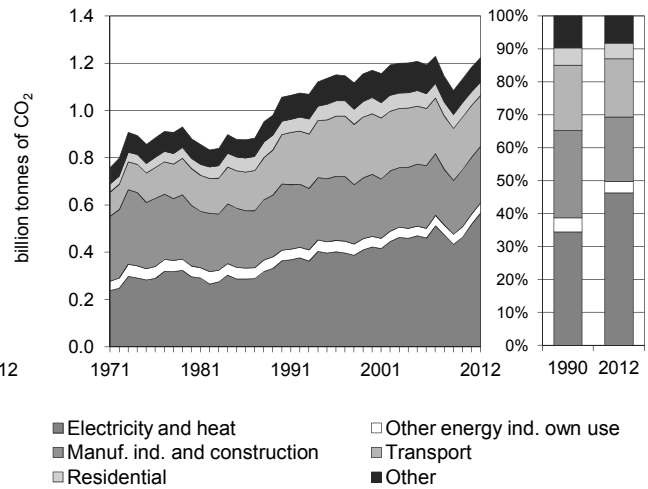
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Japan

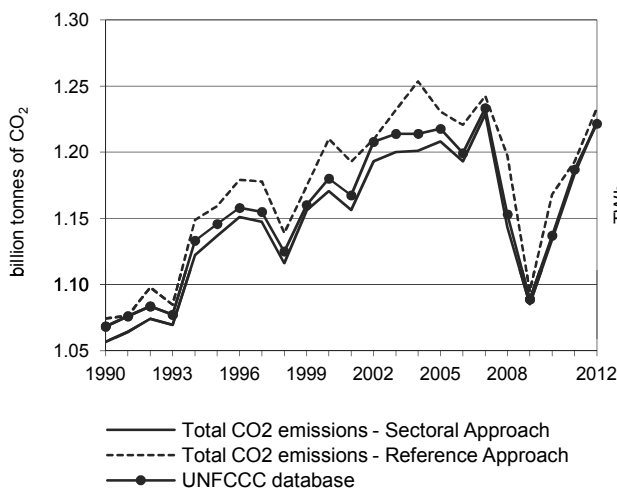
**Figure 1. CO<sub>2</sub> emissions by fuel**



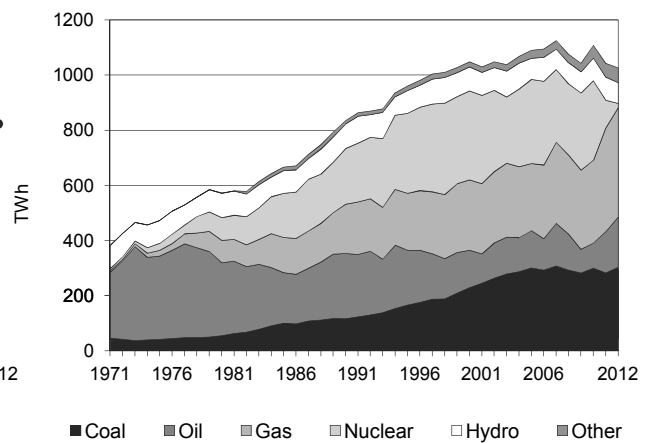
**Figure 2. CO<sub>2</sub> emissions by sector**



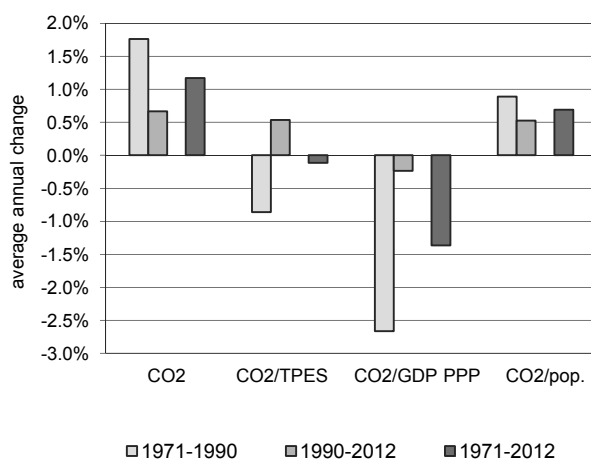
**Figure 3. Reference vs Sectoral Approach**



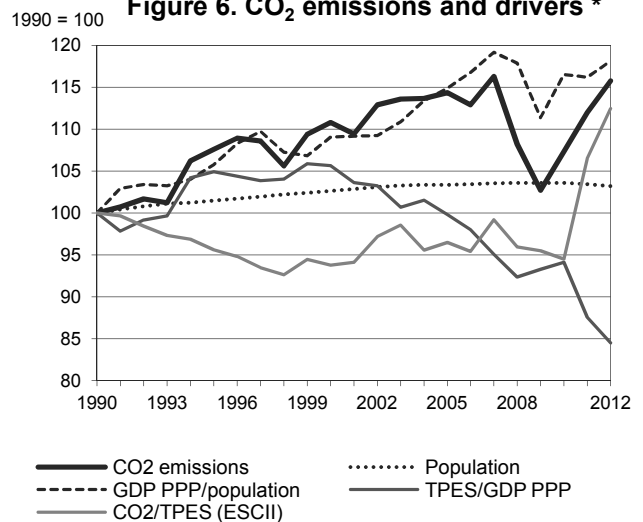
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Japan \*

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	1 056.75	1 136.67	1 170.60	1 208.09	1 134.05	1 183.39	1 223.30	15.8%
TPES (PJ)	18 390	20 696	21 730	21 789	20 884	19 341	18 936	3.0%
GDP (billion 2005 USD)	3 851.27	4 132.19	4 308.10	4 571.88	4 648.48	4 627.43	4 694.39	21.9%
GDP PPP (billion 2005 USD)	3 276.52	3 515.51	3 665.17	3 889.58	3 954.75	3 936.85	3 993.81	21.9%
Population (millions)	123.61	125.44	126.83	127.76	128.04	127.83	127.55	3.2%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	57.5	54.9	53.9	55.4	54.3	61.2	64.6	12.4%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.27	0.28	0.27	0.26	0.24	0.26	0.26	-5.0%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.32	0.32	0.32	0.31	0.29	0.30	0.31	-5.0%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	8.55	9.06	9.23	9.46	8.86	9.26	9.59	12.2%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) **</b>								
CO <sub>2</sub> emissions index	100	108	111	114	107	112	116	15.8%
Population index	100	101	103	103	104	103	103	3.2%
GDP PPP per population index	100	106	109	115	117	116	118	18.1%
Energy intensity index - TPES / GDP PPP	100	105	106	100	94	88	84	-15.5%
Carbon intensity index - CO <sub>2</sub> / TPES	100	96	94	96	94	106	112	12.4%

\* Please see Part I, Chapter 1 for revisions provided by the Japanese Administration and for methodological notes. \*\* Based on GDP PPP.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other ***	Total	% change 90-12
<b>Sectoral Approach</b>	<b>419.75</b>	<b>535.77</b>	<b>259.84</b>	<b>7.95</b>	<b>1 223.30</b>	<b>15.8%</b>
Main activity producer elec. and heat	229.22	97.99	169.62	1.99	498.81	62.0%
Unallocated autoproducers	46.30	13.29	5.12	2.66	67.37	20.2%
Other energy industry own use	17.20	21.57	3.93	-	42.69	-5.1%
Manufacturing industries and construction	125.09	91.25	20.07	3.29	239.70	-14.4%
Transport	-	215.73	-	-	215.73	2.9%
<i>of which: road</i>	-	194.04	-	-	194.04	3.8%
Other	1.94	95.94	61.10	-	158.99	0.7%
<i>of which: residential</i>	-	36.14	21.42	-	57.55	3.1%
<b>Reference Approach</b>	<b>434.75</b>	<b>544.95</b>	<b>245.80</b>	<b>8.02</b>	<b>1 233.53</b>	<b>14.8%</b>
Diff. due to losses and/or transformation	5.86	2.78	- 3.59	0.04	5.10	
Statistical differences	9.15	6.40	- 10.46	0.04	5.13	
<i>Memo: international marine bunkers</i>	-	12.93	-	-	12.93	-26.8%
<i>Memo: international aviation bunkers</i>	-	19.17	-	-	19.17	44.0%

\*\*\* Other includes industrial waste and non-renewable municipal waste.

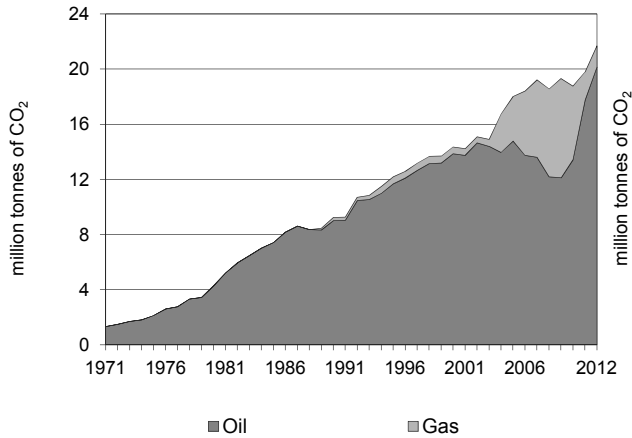
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ****	Cumulative total (%)
Main activity prod. elec. and heat - coal	229.22	133.1%	17.0	17.0
Road - oil	194.04	3.8%	14.4	31.5
Main activity prod. elec. and heat - gas	169.62	119.4%	12.6	44.1
Manufacturing industries - coal	125.09	-12.4%	9.3	53.4
Main activity prod. elec. and heat - oil	97.99	-25.8%	7.3	60.7
Manufacturing industries - oil	91.25	-28.9%	6.8	67.5
Non-specified other - oil	59.80	-33.0%	4.4	71.9
Unallocated autoproducers - coal	46.30	53.8%	3.4	75.3
Non-specified other - gas	39.69	336.7%	3.0	78.3
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>1223.30</i>	<i>15.8%</i>	<i>91.0</i>	<i>91.0</i>

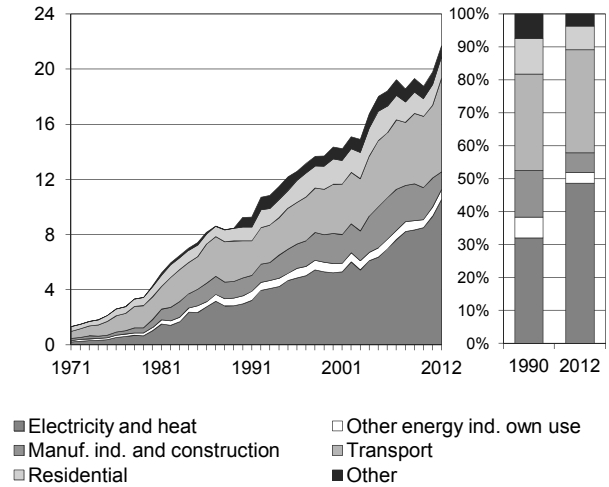
\*\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Jordan

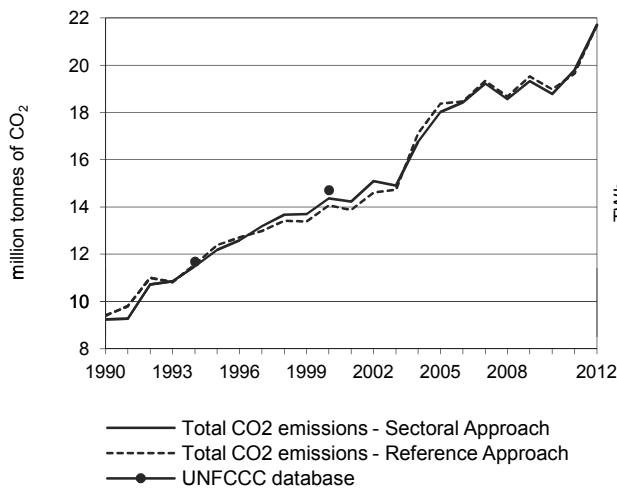
**Figure 1. CO<sub>2</sub> emissions by fuel**



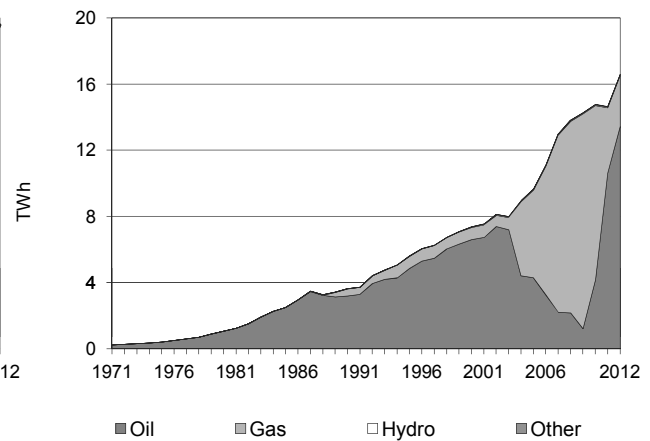
**Figure 2. CO<sub>2</sub> emissions by sector**



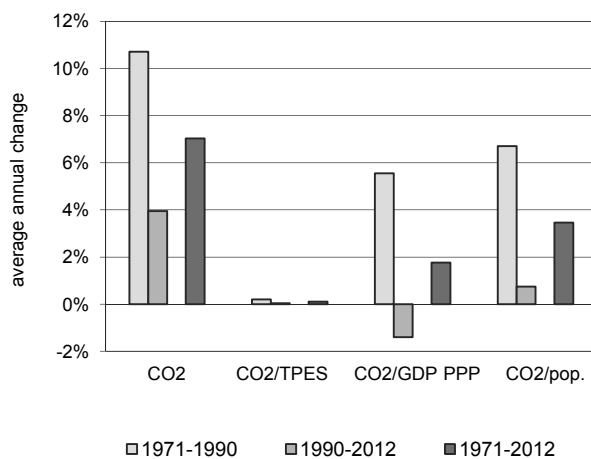
**Figure 3. Reference vs Sectoral Approach**



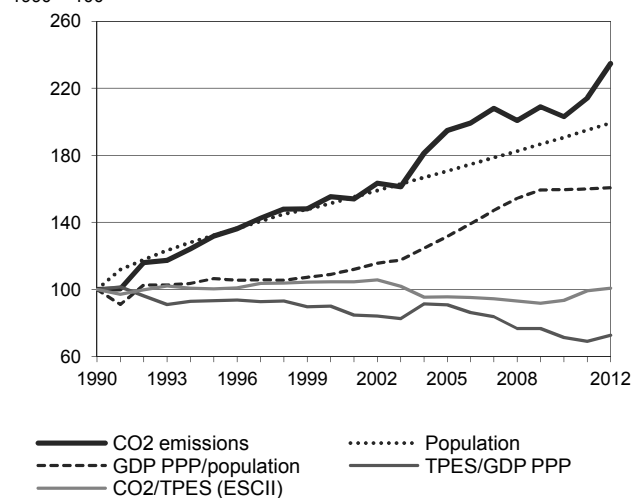
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Jordan

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	9.24	12.19	14.36	18.02	18.77	19.80	21.70	134.7%
TPES (PJ)	137	180	204	280	297	296	319	132.8%
GDP (billion 2005 USD)	5.60	7.89	9.24	12.58	17.03	17.47	17.93	220.3%
GDP PPP (billion 2005 USD)	19.94	28.11	32.90	44.81	60.65	62.22	63.87	220.3%
Population (millions)	3.17	4.20	4.80	5.41	6.05	6.18	6.32	99.3%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	67.4	67.7	70.5	64.5	63.1	66.9	68.0	0.8%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	1.65	1.54	1.55	1.43	1.10	1.13	1.21	-26.7%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.46	0.43	0.44	0.40	0.31	0.32	0.34	-26.7%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	2.92	2.91	2.99	3.33	3.10	3.20	3.43	17.8%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	132	155	195	203	214	235	134.7%
Population index	100	132	151	171	191	195	199	99.3%
GDP PPP per population index	100	107	109	132	159	160	161	60.7%
Energy intensity index - TPES / GDP PPP	100	93	90	91	71	69	73	-27.3%
Carbon intensity index - CO <sub>2</sub> / TPES	100	100	105	96	94	99	101	0.8%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>20.16</b>	<b>1.54</b>	-	<b>21.70</b>	<b>134.7%</b>
Main activity producer elec. and heat	-	8.78	1.54	-	10.32	287.7%
Unallocated autoproducers	-	0.23	-	-	0.23	-24.5%
Other energy industry own use	-	0.72	-	-	0.72	24.3%
Manufacturing industries and construction	-	1.28	-	-	1.28	-2.0%
Transport	-	6.80	-	-	6.80	151.7%
<i>of which: road</i>	-	6.76	-	-	6.76	154.6%
Other	-	2.35	-	-	2.35	39.3%
<i>of which: residential</i>	-	1.55	-	-	1.55	55.6%
<b>Reference Approach</b>	-	<b>20.16</b>	<b>1.54</b>	-	<b>21.70</b>	<b>130.9%</b>
Diff. due to losses and/or transformation	-	-0.10	-	-	-0.10	
Statistical differences	-	0.10	-	-	0.10	
<i>Memo: international marine bunkers</i>	-	0.06	-	-	0.06	..
<i>Memo: international aviation bunkers</i>	-	1.08	-	-	1.08	62.8%

\*\* Other includes industrial waste and non-renewable municipal waste.

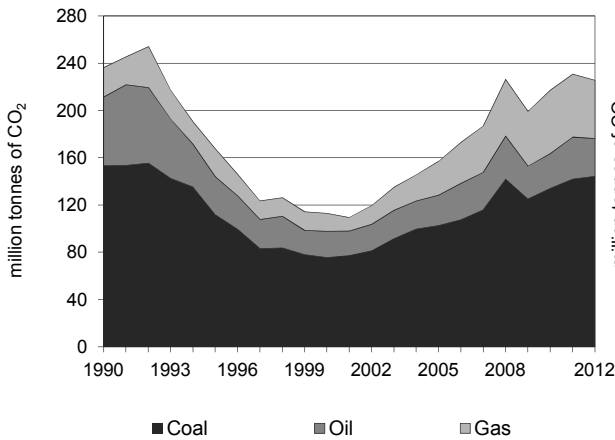
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - oil	8.78	262.1%	32.7	32.7
Road - oil	6.76	154.6%	25.2	57.9
Residential - oil	1.55	55.6%	5.8	63.6
Main activity prod. elec. and heat - gas	1.54	548.9%	5.7	69.4
Manufacturing industries - oil	1.28	-2.0%	4.8	74.1
Non-specified other - oil	0.80	15.7%	3.0	77.1
Other energy industry own use - oil	0.72	24.3%	2.7	79.8
Unallocated autoproducers - oil	0.23	-24.5%	0.9	80.7
Other transport - oil	0.03	-25.9%	0.1	80.8
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>21.70</i>	<i>134.7%</i>	<i>80.8</i>	<i>80.8</i>

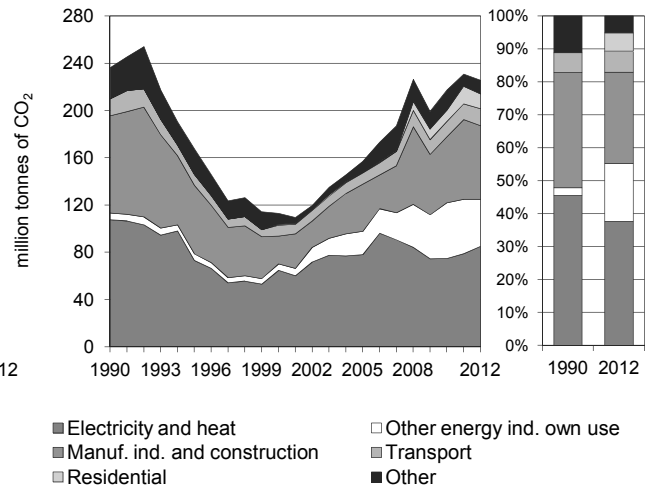
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Kazakhstan

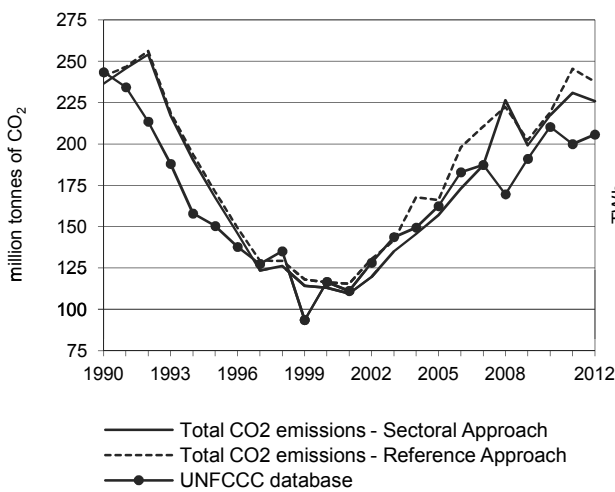
**Figure 1. CO<sub>2</sub> emissions by fuel**



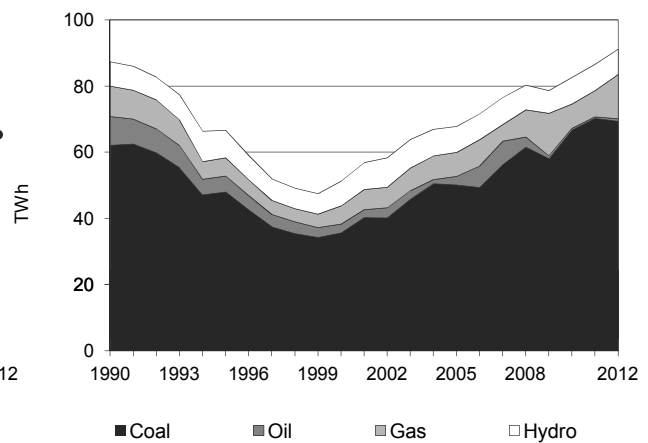
**Figure 2. CO<sub>2</sub> emissions by sector**



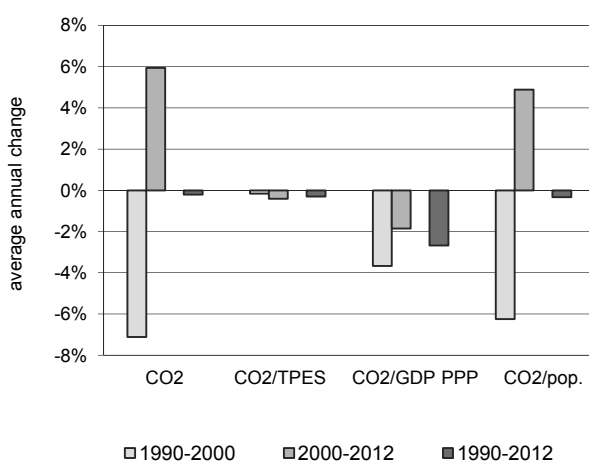
**Figure 3. Reference vs Sectoral Approach**



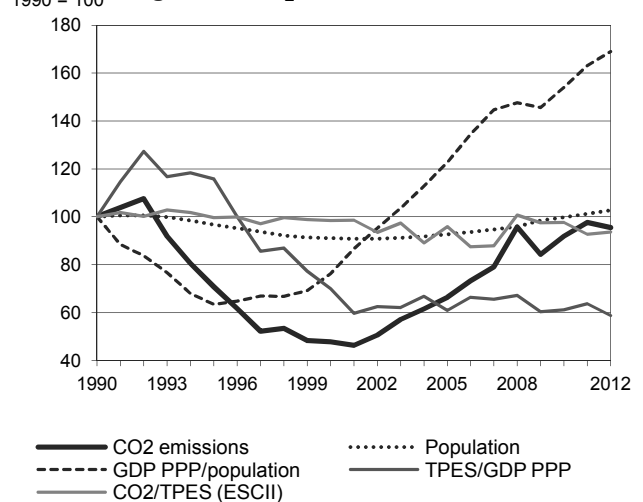
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Kazakhstan

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	236.42	167.52	113.00	157.05	217.35	230.92	225.78	-4.5%
TPES (PJ)	3 075	2 187	1 494	2 130	2 894	3 238	3 134	1.9%
GDP (billion 2005 USD)	50.24	30.85	34.88	57.12	77.25	83.04	87.19	73.5%
GDP PPP (billion 2005 USD)	185.49	113.89	128.77	210.89	285.18	306.57	321.89	73.5%
Population (millions)	16.35	15.82	14.88	15.15	16.32	16.56	16.79	2.7%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	76.9	76.6	75.6	73.7	75.1	71.3	72.0	-6.3%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	4.71	5.43	3.24	2.75	2.81	2.78	2.59	-45.0%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	1.27	1.47	0.88	0.74	0.76	0.75	0.70	-45.0%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	14.46	10.59	7.59	10.37	13.32	13.95	13.45	-7.0%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	71	48	66	92	98	96	-4.5%
Population index	100	97	91	93	100	101	103	2.7%
GDP PPP per population index	100	63	76	123	154	163	169	69.0%
Energy intensity index - TPES / GDP PPP	100	116	70	61	61	64	59	-41.3%
Carbon intensity index - CO <sub>2</sub> / TPES	100	100	98	96	98	93	94	-6.3%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>144.31</b>	<b>32.07</b>	<b>49.40</b>	-	<b>225.78</b>	<b>-4.5%</b>
Main activity producer elec. and heat	76.73	0.61	7.70	-	85.04	-21.0%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	1.07	3.91	34.80	-	39.77	608.7%
Manufacturing industries and construction	51.78	6.58	3.95	-	62.31	-24.4%
Transport	0.20	14.34	-	-	14.55	1.9%
<i>of which: road</i>	-	13.22	-	-	13.22	10.6%
Other	14.53	6.63	2.96	-	24.11	-8.8%
<i>of which: residential</i>	6.18	4.36	1.96	-	12.49	x
<b>Reference Approach</b>	<b>146.76</b>	<b>36.53</b>	<b>54.33</b>	-	<b>237.62</b>	<b>-1.3%</b>
Diff. due to losses and/or transformation	10.70	6.10	2.58	-	19.38	
Statistical differences	- 8.25	- 1.64	2.34	-	- 7.54	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.60	-	-	0.60	-77.6%

\*\* Other includes industrial waste and non-renewable municipal waste.

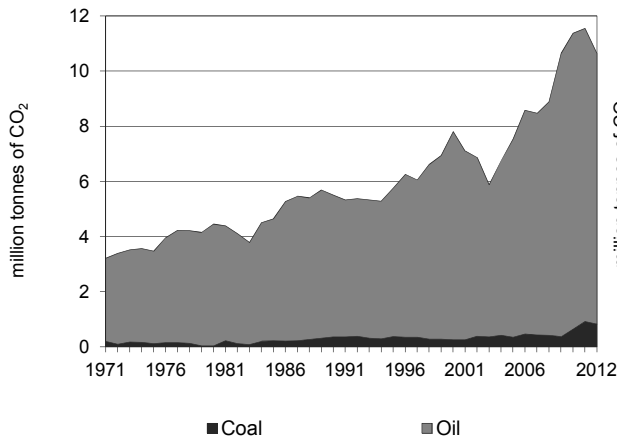
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	76.73	-18.0%	23.1	23.1
Manufacturing industries - coal	51.78	-13.4%	15.6	38.7
Other energy industry own use - gas	34.80	998.7%	10.5	49.2
Road - oil	13.22	10.6%	4.0	53.2
Non-specified other sectors - coal	8.35	x	2.5	55.7
Main activity prod. elec. and heat - gas	7.70	121.0%	2.3	58.0
Manufacturing industries - oil	6.58	-71.0%	2.0	60.0
Residential - coal	6.18	x	1.9	61.8
Residential - oil	4.36	x	1.3	63.2
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>225.78</i>	<i>-4.5%</i>	<i>68.0</i>	<i>68.0</i>

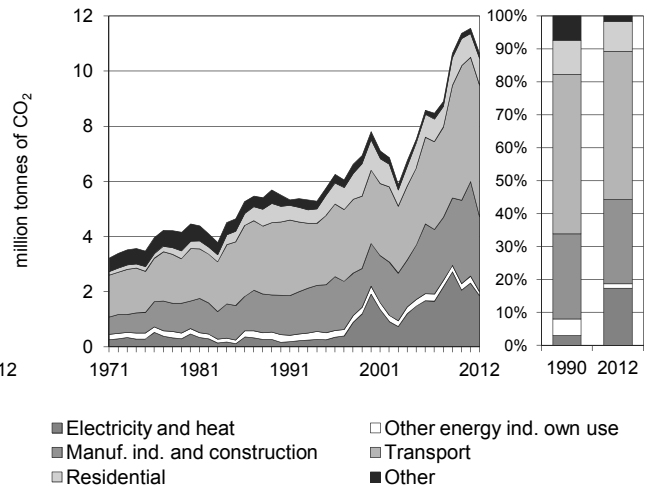
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Kenya

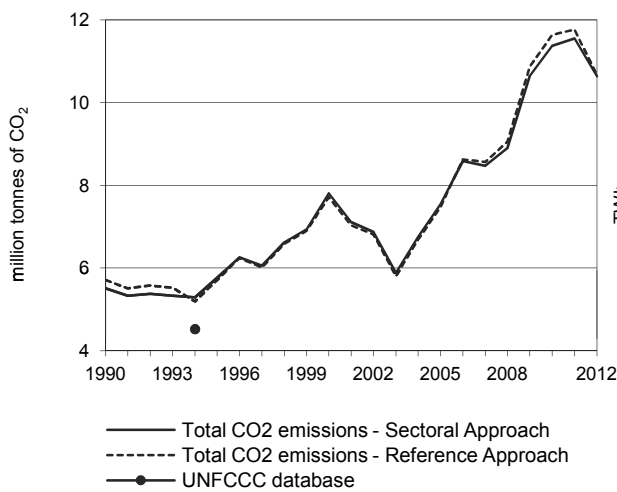
**Figure 1. CO<sub>2</sub> emissions by fuel**



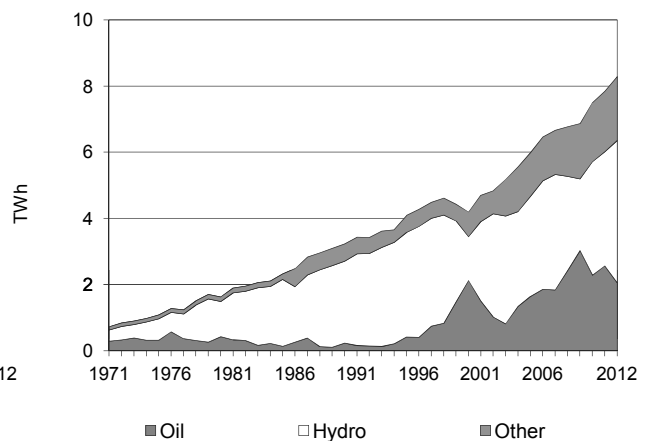
**Figure 2. CO<sub>2</sub> emissions by sector**



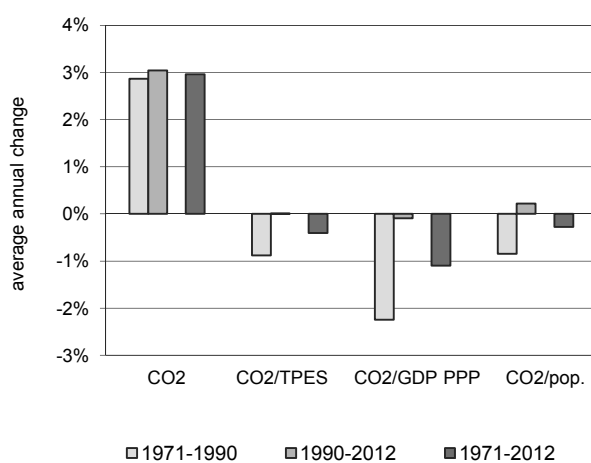
**Figure 3. Reference vs Sectoral Approach**



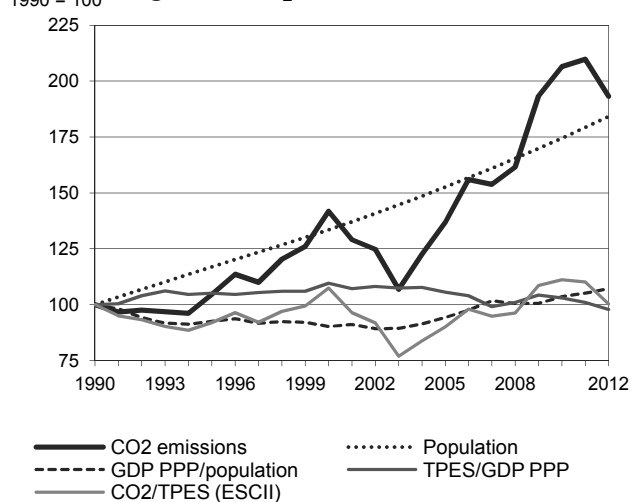
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Kenya

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	5.51	5.76	7.80	7.54	11.37	11.55	10.64	93.2%
TPES (PJ)	446	507	588	678	829	849	860	92.8%
GDP (billion 2005 USD)	13.02	14.09	15.67	18.74	23.52	24.55	25.67	97.2%
GDP PPP (billion 2005 USD)	41.16	44.54	49.55	59.24	74.35	77.60	81.17	97.2%
Population (millions)	23.45	27.42	31.29	35.79	40.91	42.03	43.18	84.2%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	12.4	11.4	13.3	11.1	13.7	13.6	12.4	0.2%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.42	0.41	0.50	0.40	0.48	0.47	0.41	-2.0%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.13	0.13	0.16	0.13	0.15	0.15	0.13	-2.0%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.23	0.21	0.25	0.21	0.28	0.27	0.25	4.9%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	105	142	137	207	210	193	93.2%
Population index	100	117	133	153	174	179	184	84.2%
GDP PPP per population index	100	93	90	94	104	105	107	7.1%
Energy intensity index - TPES / GDP PPP	100	105	110	106	103	101	98	-2.2%
Carbon intensity index - CO <sub>2</sub> / TPES	100	92	107	90	111	110	100	0.2%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.82</b>	<b>9.82</b>	-	-	<b>10.64</b>	<b>93.2%</b>
Main activity producer elec. and heat ***	-	1.85	-	-	1.85	+
Unallocated autoproducers ***	..	..	..	..	..	..
Other energy industry own use	-	0.14	-	-	0.14	-49.1%
Manufacturing industries and construction	0.82	1.90	-	-	2.72	91.5%
Transport	-	4.78	-	-	4.78	79.3%
<i>of which: road</i>	-	4.73	-	-	4.73	86.9%
Other	-	1.15	-	-	1.15	17.7%
<i>of which: residential</i>	-	0.97	-	-	0.97	71.2%
<b>Reference Approach</b>	<b>0.82</b>	<b>9.84</b>	-	-	<b>10.66</b>	<b>86.9%</b>
Diff. due to losses and/or transformation	-	0.02	-	-	0.02	
Statistical differences	-	-0.00	-	-	-0.00	
<i>Memo: international marine bunkers</i>	-	0.04	-	-	0.04	-92.7%
<i>Memo: international aviation bunkers</i>	-	2.12	-	-	2.12	155.1%

\*\* Other includes industrial waste and non-renewable municipal waste.

\*\*\* Emissions from autoproducers in 2012 have been included with main activity producer electricity and heat.

### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ****	Cumulative total (%)
Road - oil	4.73	86.9%	9.2	9.2
Manufacturing industries - oil	1.90	79.4%	3.7	12.9
Main activity prod. elec. and heat - oil	1.85	+	3.6	16.5
Residential - oil	0.97	71.2%	1.9	18.4
Manufacturing industries - coal	0.82	127.2%	1.6	20.0
Non-specified other - oil	0.18	-56.7%	0.3	20.4
Other energy industry own use - oil	0.14	-49.1%	0.3	20.6
Other transport - oil	0.05	-62.8%	0.1	20.7
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>10.64</i>	<i>93.2%</i>	<i>20.7</i>	<i>20.7</i>

\*\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Democratic People's Republic of Korea

Figure 1. CO<sub>2</sub> emissions by fuel

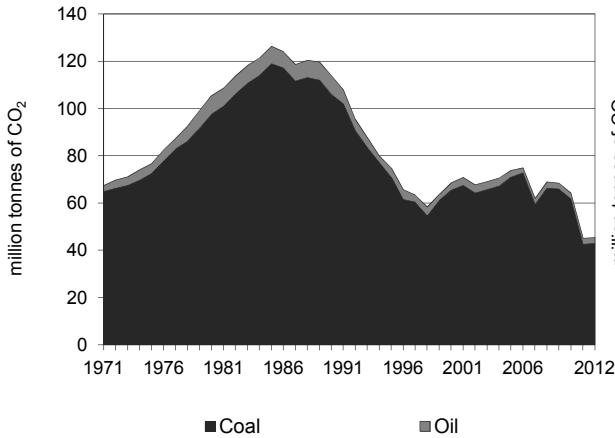


Figure 2. CO<sub>2</sub> emissions by sector

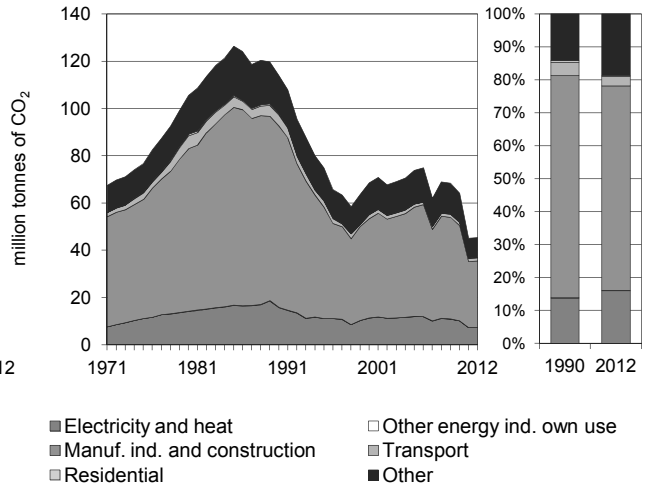


Figure 3. Reference vs Sectoral Approach

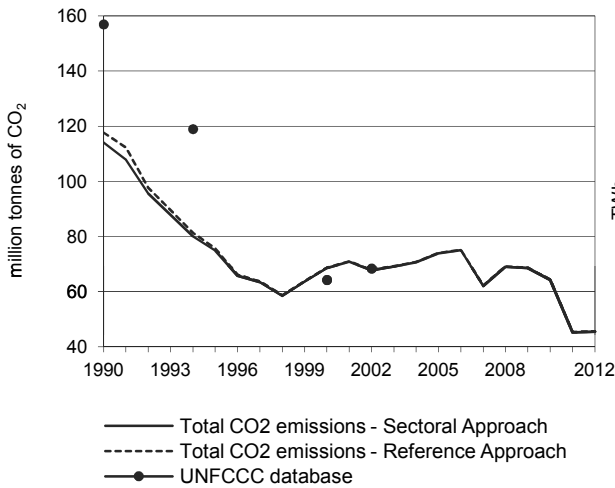


Figure 4. Electricity generation by fuel

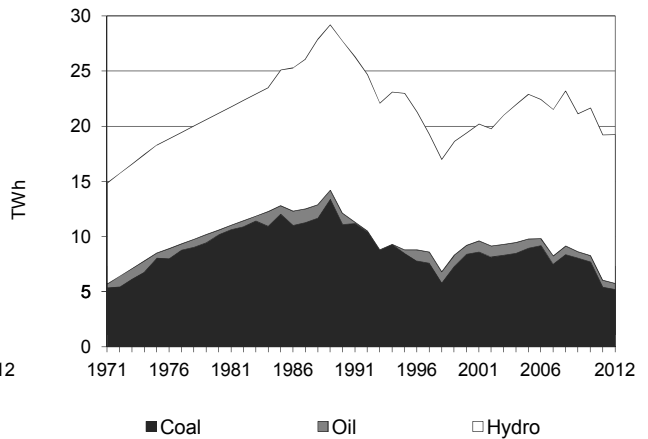


Figure 5. Changes in selected indicators \*

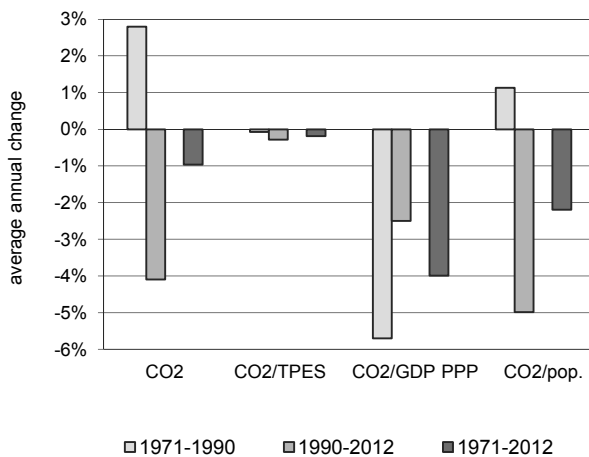
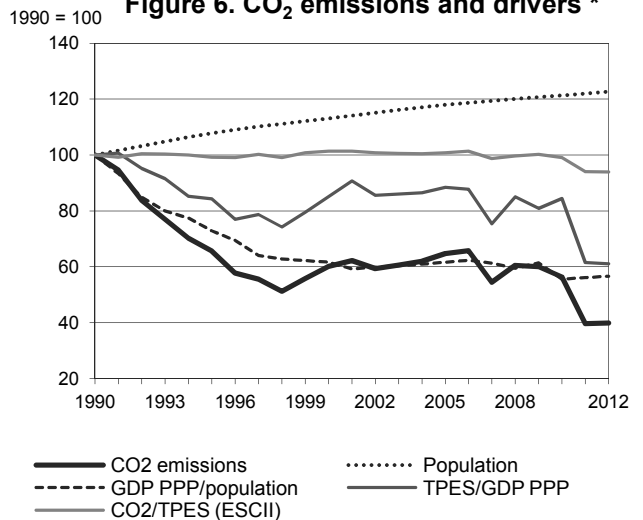


Figure 6. CO<sub>2</sub> emissions and drivers \*



\* Based on GDP in 2005 USD, using purchasing power parities.

## Democratic People's Republic of Korea

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	114.01	74.86	68.57	73.82	64.23	45.16	45.42	-60.2%
TPES (PJ)	1 391	920	826	893	791	586	590	-57.6%
GDP (billion 2005 USD)	39.43	30.97	27.49	28.63	26.58	26.98	27.38	-30.6%
GDP PPP (billion 2005 USD)	147.99	116.23	103.17	107.48	99.76	101.26	102.78	-30.6%
Population (millions)	20.19	21.76	22.84	23.81	24.50	24.63	24.76	22.6%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	82.0	81.3	83.1	82.7	81.2	77.1	77.0	-6.0%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	2.89	2.42	2.49	2.58	2.42	1.67	1.66	-42.6%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.77	0.64	0.66	0.69	0.64	0.45	0.44	-42.6%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	5.65	3.44	3.00	3.10	2.62	1.83	1.83	-67.5%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	66	60	65	56	40	40	-60.2%
Population index	100	108	113	118	121	122	123	22.6%
GDP PPP per population index	100	73	62	62	56	56	57	-43.4%
Energy intensity index - TPES / GDP PPP	100	84	85	88	84	62	61	-39.0%
Carbon intensity index - CO <sub>2</sub> / TPES	100	99	101	101	99	94	94	-6.0%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>42.91</b>	<b>2.51</b>	-	-	<b>45.42</b>	<b>-60.2%</b>
Main activity producer elec. and heat	6.51	0.76	-	-	7.27	-53.6%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.05	-	-	0.05	-76.9%
Manufacturing industries and construction	27.91	0.29	-	-	28.20	-63.3%
Transport	-	1.30	-	-	1.30	-71.9%
<i>of which: road</i>	-	1.30	-	-	1.30	-71.9%
Other	8.48	0.12	-	-	8.60	-48.5%
<i>of which: residential</i>	-	0.12	-	-	0.12	-78.2%
<b>Reference Approach</b>	<b>42.97</b>	<b>2.54</b>	-	-	<b>45.51</b>	<b>-61.3%</b>
Diff. due to losses and/or transformation	0.07	0.03	-	-	0.10	
Statistical differences	-0.00	-0.00	-	-	-0.00	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	-	-	-	-	-

\*\* Other includes industrial waste and non-renewable municipal waste.

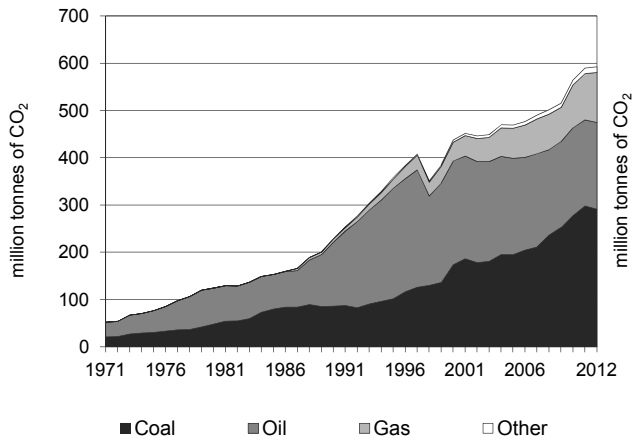
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Manufacturing industries - coal	27.91	-63.1%	37.3	37.3
Non-specified other sectors - coal	8.48	-47.5%	11.3	48.6
Main activity prod. elec. and heat - coal	6.51	-54.6%	8.7	57.3
Road - oil	1.30	-71.9%	1.7	59.1
Main activity prod. elec. and heat - oil	0.76	-42.2%	1.0	60.1
Manufacturing industries - oil	0.29	-76.0%	0.4	60.5
Residential - oil	0.12	-78.2%	0.2	60.6
Other energy industry own use - oil	0.05	-76.9%	0.1	60.7
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>45.42</i>	<i>-60.2%</i>	<i>60.7</i>	<i>60.7</i>

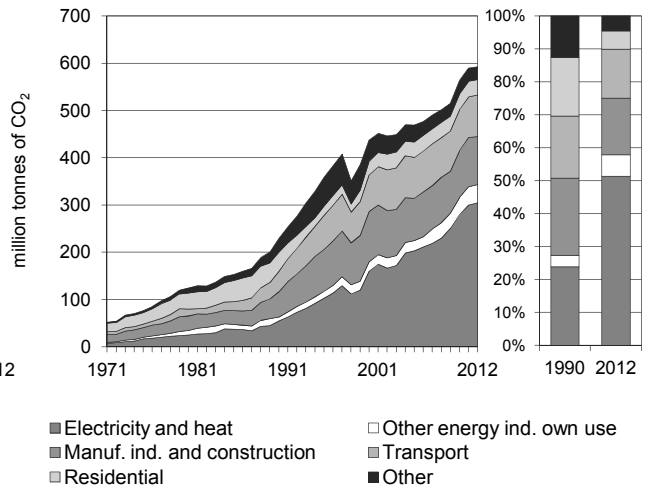
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Korea

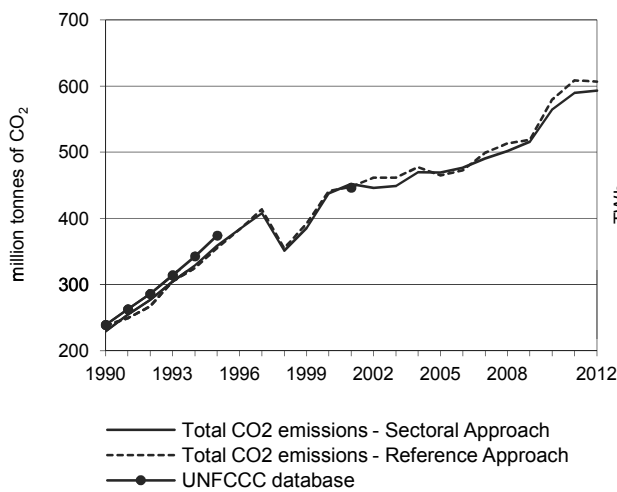
**Figure 1. CO<sub>2</sub> emissions by fuel**



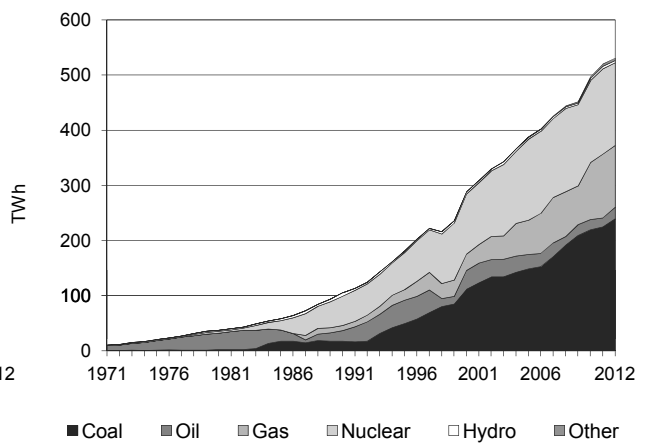
**Figure 2. CO<sub>2</sub> emissions by sector**



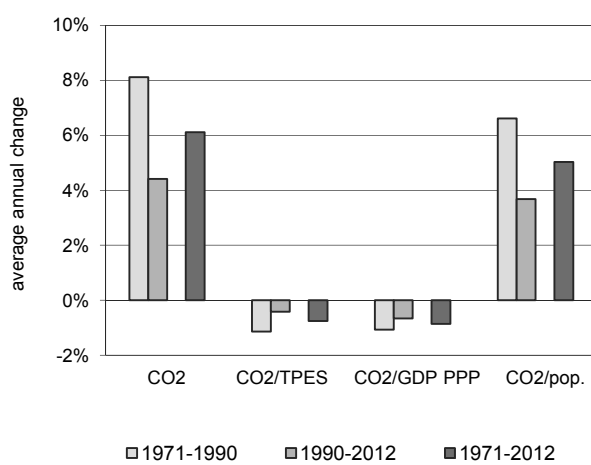
**Figure 3. Reference vs Sectoral Approach**



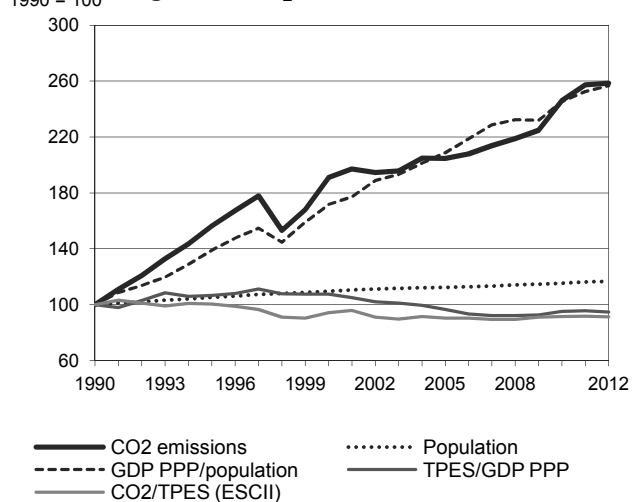
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Korea

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	229.30	358.65	437.72	469.12	564.47	589.93	592.92	158.6%
TPES (PJ)	3 890	6 061	7 878	8 804	10 467	10 905	11 030	183.5%
GDP (billion 2005 USD)	360.30	526.72	678.27	844.86	1 019.09	1 056.61	1 078.21	199.3%
GDP PPP (billion 2005 USD)	467.71	683.75	880.48	1 096.74	1 322.91	1 371.62	1 399.65	199.3%
Population (millions)	42.87	45.09	47.01	48.14	49.41	49.78	50.00	16.6%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	58.9	59.2	55.6	53.3	53.9	54.1	53.8	-8.8%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.64	0.68	0.65	0.56	0.55	0.56	0.55	-13.6%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.49	0.52	0.50	0.43	0.43	0.43	0.42	-13.6%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	5.35	7.95	9.31	9.75	11.42	11.85	11.86	121.7%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	156	191	205	246	257	259	158.6%
Population index	100	105	110	112	115	116	117	16.6%
GDP PPP per population index	100	139	172	209	245	253	257	156.6%
Energy intensity index - TPES / GDP PPP	100	107	108	97	95	96	95	-5.3%
Carbon intensity index - CO <sub>2</sub> / TPES	100	100	94	90	91	92	91	-8.8%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>291.23</b>	<b>183.60</b>	<b>105.98</b>	<b>12.13</b>	<b>592.92</b>	<b>158.6%</b>
Main activity producer elec. and heat	192.45	12.02	50.33	-	254.80	639.6%
Unallocated autoproducers	38.32	6.38	1.58	3.51	49.79	144.5%
Other energy industry own use	23.62	14.39	0.55	-	38.56	382.3%
Manufacturing industries and construction	33.68	39.71	21.71	6.50	101.59	89.5%
Transport	-	85.38	2.68	-	88.06	103.6%
<i>of which: road</i>	-	80.36	2.68	-	83.04	163.3%
Other	3.17	25.72	29.12	2.12	60.12	-13.6%
<i>of which: residential</i>	3.17	8.51	21.27	-	32.95	-19.1%
<b>Reference Approach</b>	<b>298.76</b>	<b>190.72</b>	<b>105.09</b>	<b>12.00</b>	<b>606.57</b>	<b>155.0%</b>
Diff. due to losses and/or transformation	11.35	6.83	-1.31	-	16.87	
Statistical differences	-3.82	0.30	0.42	-0.13	-3.23	
<i>Memo: international marine bunkers</i>	-	27.22	-	-	27.22	416.6%
<i>Memo: international aviation bunkers</i>	-	12.00	-	-	12.00	+

\*\* Other includes industrial waste and non-renewable municipal waste.

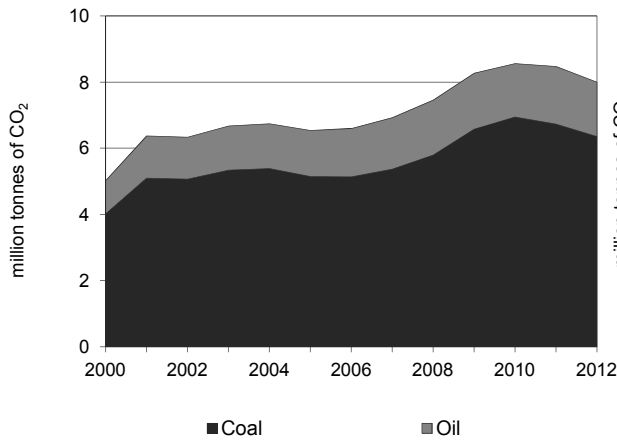
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	192.45	+	28.3	28.3
Road - oil	80.36	154.7%	11.8	40.1
Main activity prod. elec. and heat - gas	50.33	957.4%	7.4	47.5
Manufacturing industries - oil	39.71	4.5%	5.8	53.3
Unallocated autoproducers - coal	38.32	88.2%	5.6	59.0
Manufacturing industries - coal	33.68	137.0%	4.9	63.9
Other energy industry - coal	23.62	725.5%	3.5	67.4
Manufacturing industries - gas	21.71	+	3.2	70.6
Residential - gas	21.27	+	3.1	73.7
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>592.92</i>	<i>158.6%</i>	<i>87.1</i>	<i>87.1</i>

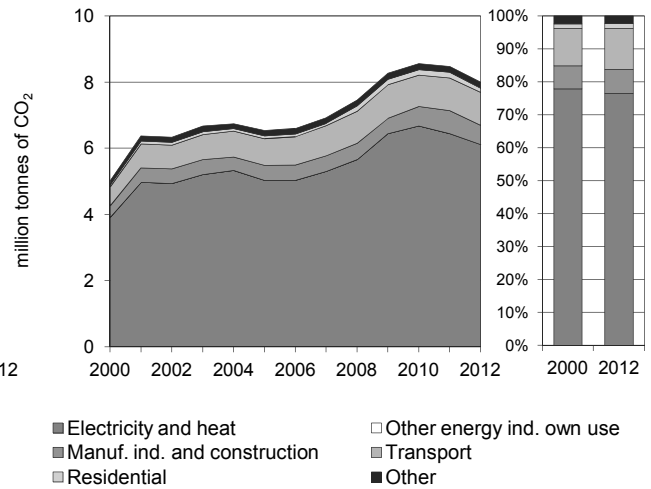
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Kosovo

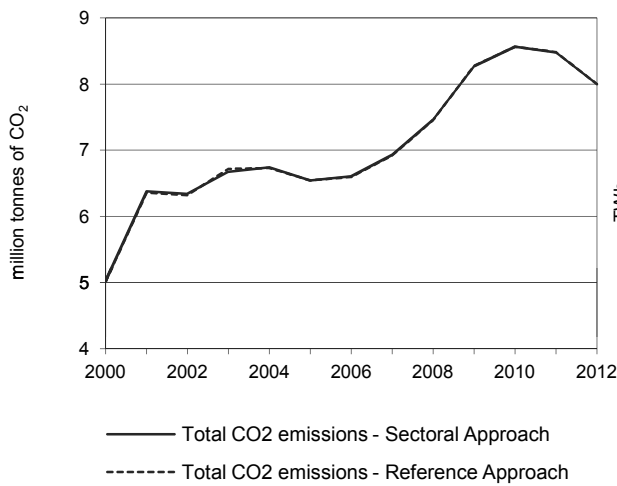
**Figure 1. CO<sub>2</sub> emissions by fuel**



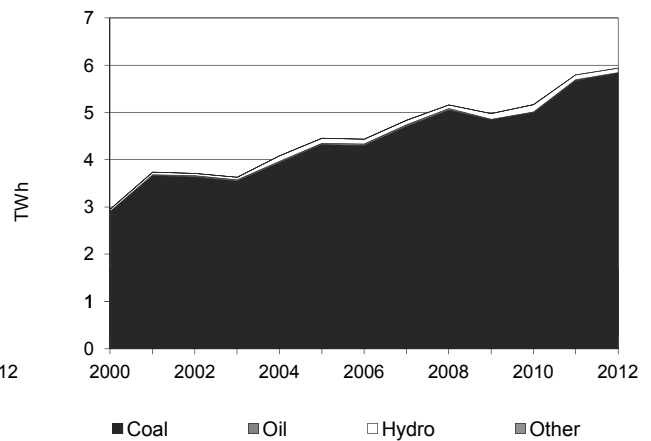
**Figure 2. CO<sub>2</sub> emissions by sector**



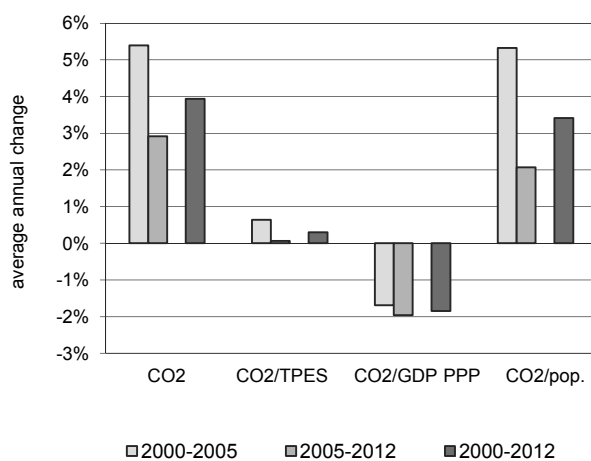
**Figure 3. Reference vs Sectoral Approach**



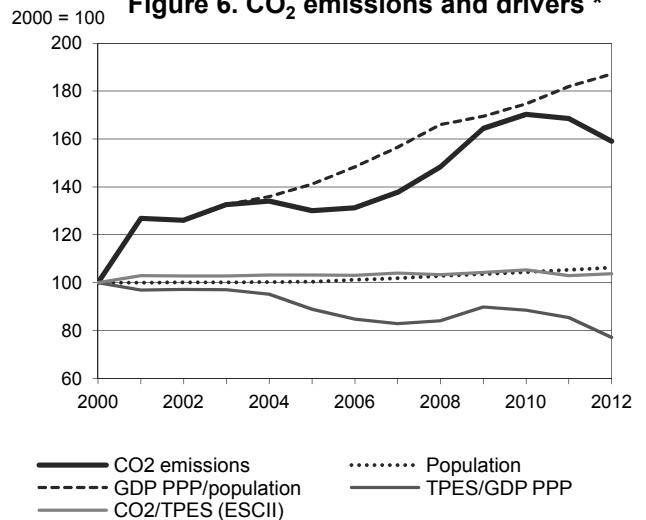
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Kosovo \*

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 00-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	..	..	5.03	6.54	8.57	8.48	8.00	59.0%
TPES (PJ)	..	..	65	81	104	106	99	53.4%
GDP (billion 2005 USD)	..	..	2.64	3.74	4.83	5.06	5.26	98.8%
GDP PPP (billion 2005 USD)	..	..	6.64	9.40	12.12	12.72	13.20	98.8%
Population (millions)	..	..	1.70	1.71	1.78	1.79	1.81	6.3%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	..	..	77.8	80.3	82.0	80.1	80.7	3.7%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	..	..	1.90	1.75	1.78	1.67	1.52	-20.0%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	..	..	0.76	0.70	0.71	0.67	0.61	-20.0%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	..	..	2.96	3.83	4.82	4.73	4.43	49.6%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (2000=100) **</b>								
CO <sub>2</sub> emissions index	..	..	100	130	170	169	159	59.0%
Population index	..	..	100	100	104	105	106	6.3%
GDP PPP per population index	..	..	100	141	175	182	187	87.1%
Energy intensity index - TPES / GDP PPP	..	..	100	89	89	85	77	-22.9%
Carbon intensity index - CO <sub>2</sub> / TPES	..	..	100	103	105	103	104	3.7%

\* Prior to 2000, data for Kosovo were included in Serbia. \*\* Please see Part I, Chapter 1 for methodological notes. Based on GDP PPP.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other ***	Total	% change 00-12
<b>Sectoral Approach</b>	<b>6.36</b>	<b>1.64</b>	-	-	<b>8.00</b>	<b>59.0%</b>
Main activity producer elec. and heat	6.07	0.05	-	-	6.12	56.3%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	0.21	0.38	-	-	0.58	65.5%
Transport	-	1.00	-	-	1.00	74.4%
<i>of which: road</i>	-	0.99	-	-	0.99	74.8%
Other	0.08	0.22	-	-	0.30	57.6%
<i>of which: residential</i>	0.07	0.05	-	-	0.12	72.9%
<b>Reference Approach</b>	<b>6.36</b>	<b>1.64</b>	-	-	<b>8.00</b>	<b>59.5%</b>
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	0.00	0.00	-	-	0.00	-
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.04	-	-	0.04	x

\*\*\* Other includes industrial waste and non-renewable municipal waste.

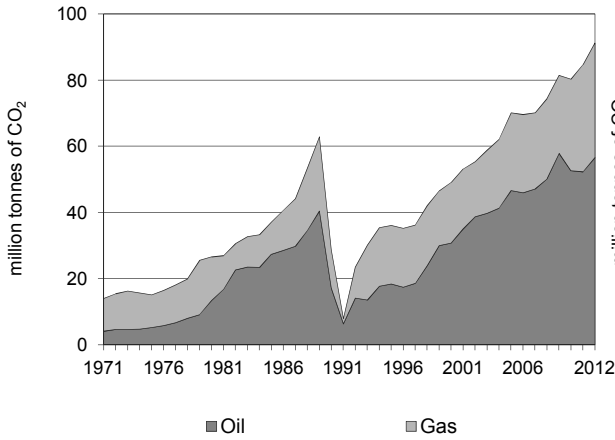
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 00-12	Level assessment (%) ****	Cumulative total (%)
Main activity prod. elec. and heat - coal	6.07	56.9%	..	..
Road - oil	0.99	74.8%	..	..
Manufacturing industries - oil	0.38	53.4%	..	..
Manufacturing industries - coal	0.21	93.4%	..	..
Non-specified other - oil	0.17	90.3%	..	..
Residential - coal	0.07	383.4%	..	..
Residential - oil	0.05	-7.1%	..	..
Main activity prod. elec. and heat - oil	0.05	0.1%	..	..
Non-specified other sectors - coal	0.01	-66.7%	..	..
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>8.00</i>	<i>59.0%</i>	-	-

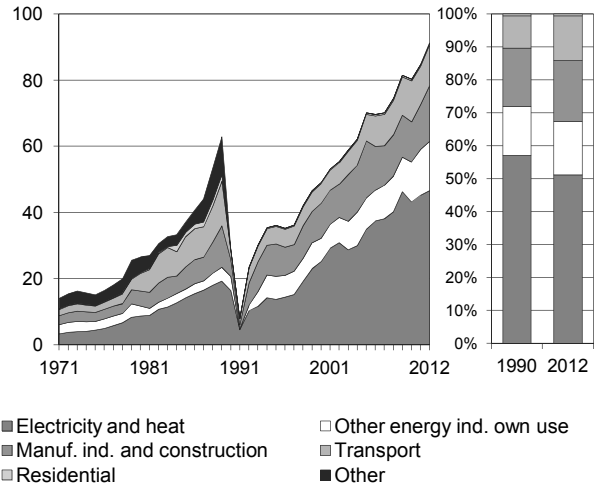
\*\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Kuwait

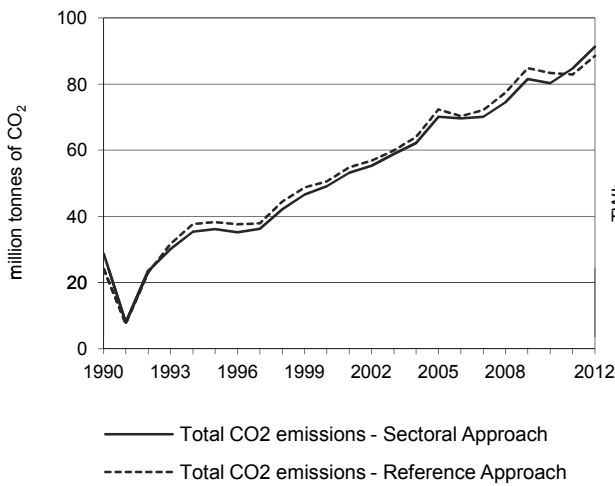
**Figure 1. CO<sub>2</sub> emissions by fuel**



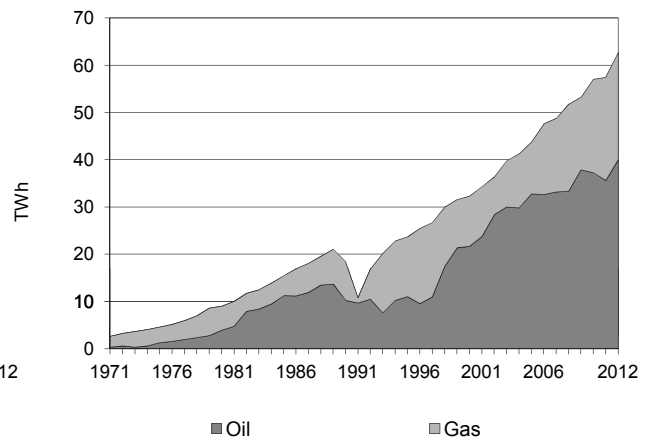
**Figure 2. CO<sub>2</sub> emissions by sector**



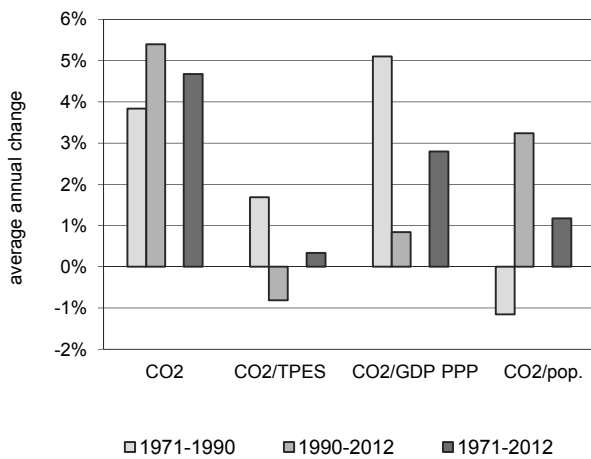
**Figure 3. Reference vs Sectoral Approach**



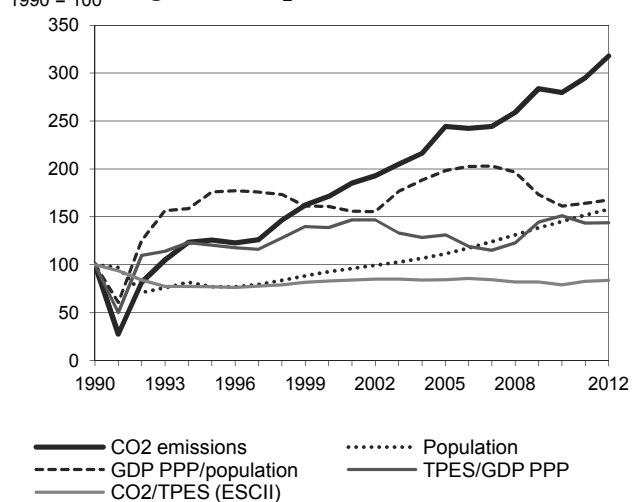
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Kuwait

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	28.72	36.11	49.12	70.13	80.31	84.74	91.26	217.8%
TPES (PJ)	381	623	787	1 105	1 348	1 362	1 449	279.9%
GDP (billion 2005 USD)	36.57	49.55	54.44	80.80	85.61	91.00	96.63	164.2%
GDP PPP (billion 2005 USD)	92.31	125.07	137.44	203.96	216.10	229.72	243.93	164.2%
Population (millions)	2.06	1.59	1.91	2.30	2.99	3.13	3.25	57.8%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	75.3	58.0	62.4	63.4	59.6	62.2	63.0	-16.4%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.79	0.73	0.90	0.87	0.94	0.93	0.94	20.3%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.31	0.29	0.36	0.34	0.37	0.37	0.37	20.3%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	13.94	22.77	25.77	30.54	26.84	27.12	28.08	101.4%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	126	171	244	280	295	318	217.8%
Population index	100	77	93	111	145	152	158	57.8%
GDP PPP per population index	100	176	161	198	161	164	167	67.5%
Energy intensity index - TPES / GDP PPP	100	120	139	131	151	143	144	43.8%
Carbon intensity index - CO <sub>2</sub> / TPES	100	77	83	84	79	83	84	-16.4%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>56.60</b>	<b>34.67</b>	-	<b>91.26</b>	<b>217.8%</b>
Main activity producer elec. and heat	-	33.65	13.02	-	46.68	184.7%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	1.34	13.48	-	14.82	247.8%
Manufacturing industries and construction	-	8.64	8.17	-	16.81	230.5%
Transport	-	12.40	-	-	12.40	340.7%
<i>of which: road</i>	-	12.40	-	-	12.40	340.7%
Other	-	0.56	-	-	0.56	245.9%
<i>of which: residential</i>	-	0.56	-	-	0.56	245.9%
<b>Reference Approach</b>	-	<b>53.86</b>	<b>34.67</b>	-	<b>88.53</b>	<b>268.0%</b>
Diff. due to losses and/or transformation	-	- 3.52	-	-	- 3.52	
Statistical differences	-	0.79	- 0.00	-	0.79	
<i>Memo: international marine bunkers</i>	-	3.41	-	-	3.41	515.5%
<i>Memo: international aviation bunkers</i>	-	2.53	-	-	2.53	394.5%

\*\* Other includes industrial waste and non-renewable municipal waste.

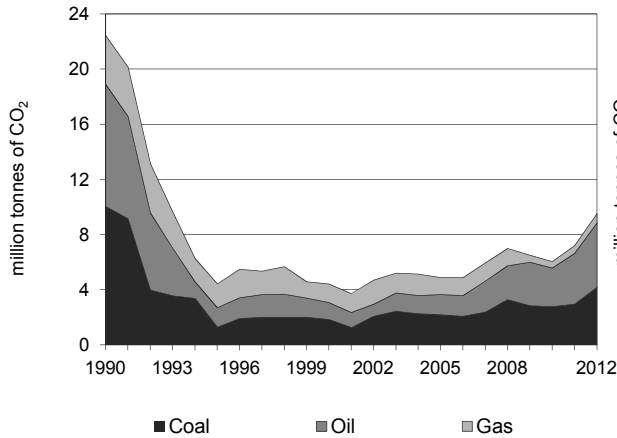
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - oil	33.65	174.5%	30.7	30.7
Other energy industry own use - gas	13.48	274.9%	12.3	43.0
Main activity prod. elec. and heat - gas	13.02	215.1%	11.9	54.8
Road - oil	12.40	340.7%	11.3	66.1
Manufacturing industries - oil	8.64	560.2%	7.9	74.0
Manufacturing industries - gas	8.17	116.2%	7.4	81.4
Other energy industry own use - oil	1.34	101.4%	1.2	82.7
Residential - oil	0.56	245.9%	0.5	83.2
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>91.26</i>	<i>217.8%</i>	<i>83.2</i>	<i>83.2</i>

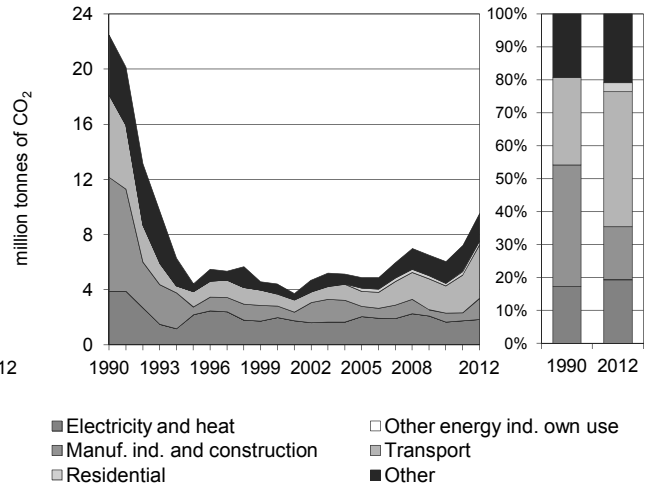
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Kyrgyzstan

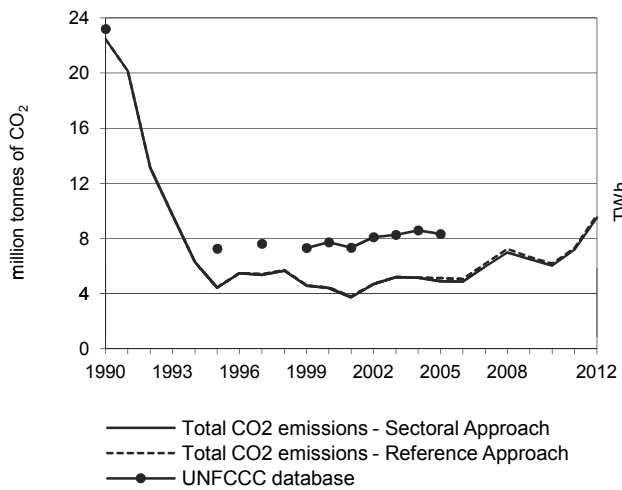
**Figure 1. CO<sub>2</sub> emissions by fuel**



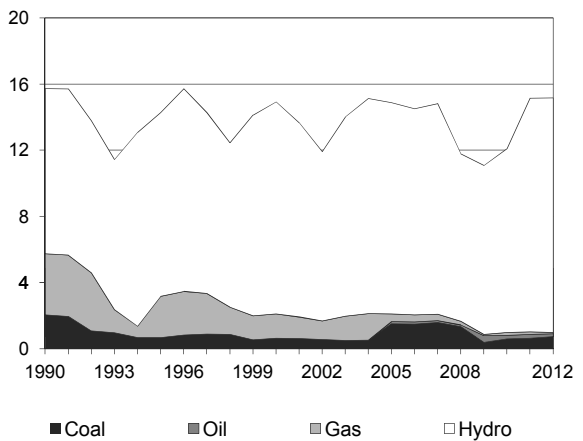
**Figure 2. CO<sub>2</sub> emissions by sector**



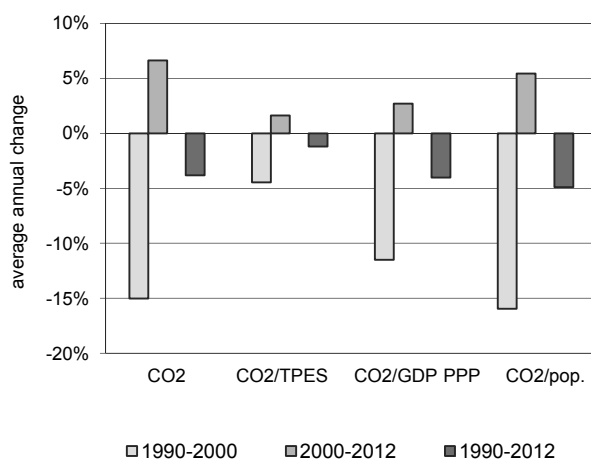
**Figure 3. Reference vs Sectoral Approach**



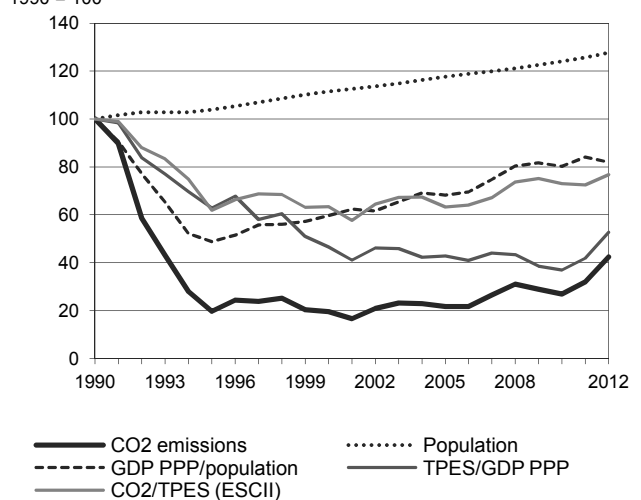
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Kyrgyzstan

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	22.45	4.43	4.40	4.88	6.03	7.20	9.51	-57.6%
TPES (PJ)	313	100	97	108	115	139	173	-44.8%
GDP (billion 2005 USD)	3.07	1.56	2.04	2.46	3.06	3.24	3.21	4.6%
GDP PPP (billion 2005 USD)	13.60	6.90	9.06	10.91	13.55	14.36	14.23	4.6%
Population (millions)	4.39	4.56	4.90	5.16	5.45	5.52	5.61	27.7%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	71.6	44.3	45.4	45.3	52.3	51.9	55.0	-23.2%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	7.32	2.85	2.16	1.98	1.97	2.22	2.96	-59.5%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	1.65	0.64	0.49	0.45	0.45	0.50	0.67	-59.5%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	5.11	0.97	0.90	0.95	1.11	1.31	1.70	-66.8%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	20	20	22	27	32	42	-57.6%
Population index	100	104	112	118	124	126	128	27.7%
GDP PPP per population index	100	49	60	68	80	84	82	-18.1%
Energy intensity index - TPES / GDP PPP	100	63	47	43	37	42	53	-47.2%
Carbon intensity index - CO <sub>2</sub> / TPES	100	62	63	63	73	73	77	-23.2%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>4.15</b>	<b>4.69</b>	<b>0.67</b>	-	<b>9.51</b>	<b>-57.6%</b>
Main activity producer elec. and heat	1.51	0.17	0.16	-	1.84	-52.6%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.00	0.01	-	0.01	x
Manufacturing industries and construction	1.15	0.13	0.25	-	1.53	-81.6%
Transport	-	3.90	-	-	3.90	-34.6%
<i>of which: road</i>	-	3.90	-	-	3.90	-34.6%
Other	1.50	0.50	0.25	-	2.24	-48.2%
<i>of which: residential</i>	-	0.06	0.21	-	0.26	x
<b>Reference Approach</b>	<b>4.15</b>	<b>4.72</b>	<b>0.83</b>	-	<b>9.71</b>	<b>-56.8%</b>
Diff. due to losses and/or transformation	-	0.05	0.16	-	0.22	
Statistical differences	-0.00	-0.02	0.00	-	-0.02	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.16	-	-	0.16	-40.7%

\*\* Other includes industrial waste and non-renewable municipal waste.

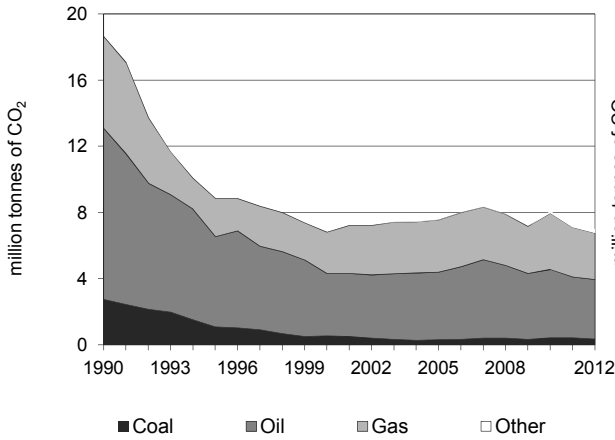
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	3.90	-34.6%	24.2	24.2
Main activity prod. elec. and heat - coal	1.51	-13.6%	9.4	33.6
Non-specified other sectors - coal	1.50	x	9.3	42.9
Manufacturing industries - coal	1.15	-86.1%	7.1	50.1
Non-specified other - oil	0.44	-85.0%	2.7	52.8
Manufacturing industries - gas	0.25	x	1.5	54.3
Residential - gas	0.21	x	1.3	55.6
Main activity prod. elec. and heat - oil	0.17	x	1.0	56.6
Main activity prod. elec. and heat - gas	0.16	-92.3%	1.0	57.7
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>9.51</i>	<i>-57.6%</i>	<i>59.2</i>	<i>59.2</i>

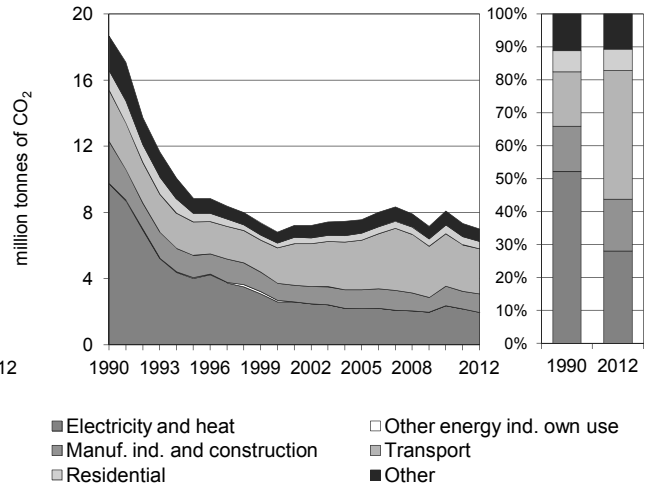
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Latvia

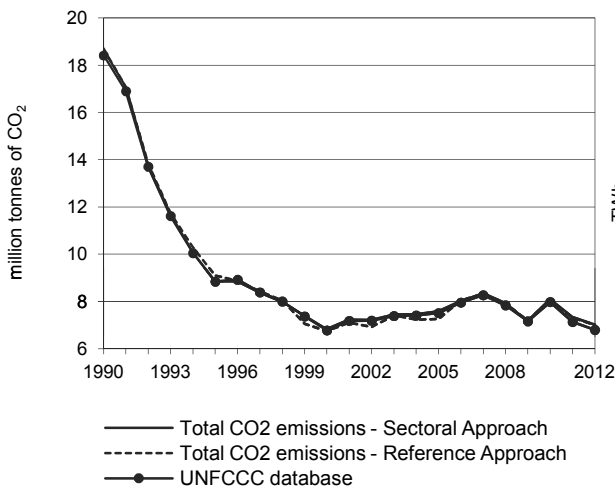
**Figure 1. CO<sub>2</sub> emissions by fuel**



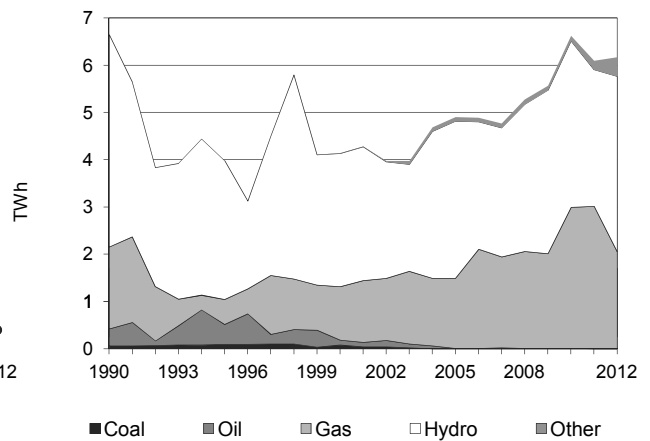
**Figure 2. CO<sub>2</sub> emissions by sector**



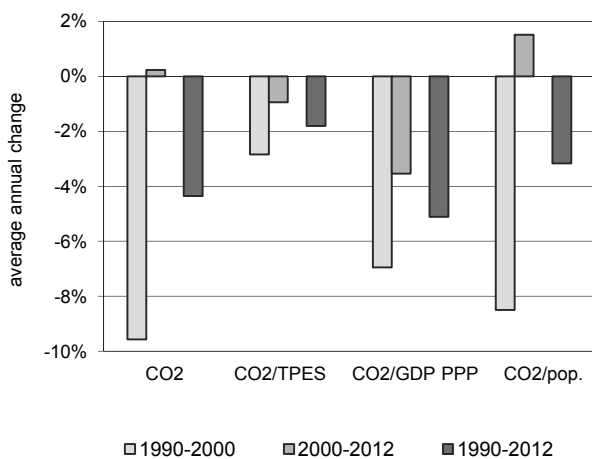
**Figure 3. Reference vs Sectoral Approach**



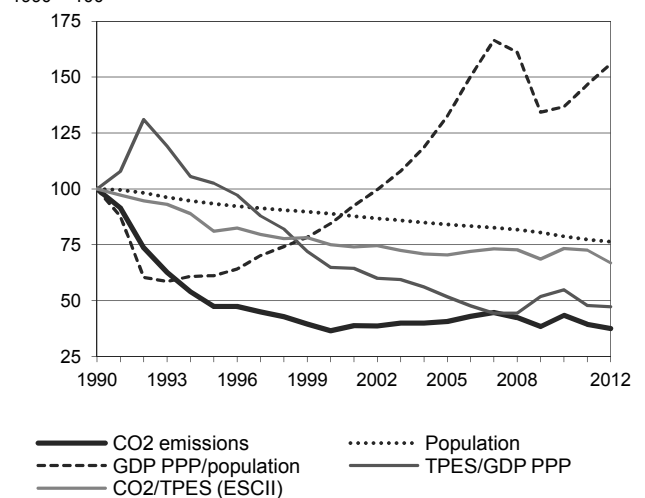
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Latvia

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	18.65	8.85	6.82	7.57	8.09	7.34	7.01	-62.4%
TPES (PJ)	329	192	160	190	194	178	185	-43.8%
GDP (billion 2005 USD)	14.40	8.22	10.82	16.04	15.50	16.32	17.14	19.1%
GDP PPP (billion 2005 USD)	26.92	15.36	20.24	30.00	28.99	30.53	32.05	19.1%
Population (millions)	2.66	2.49	2.37	2.24	2.10	2.06	2.03	-23.6%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	56.7	46.0	42.5	40.0	41.6	41.2	37.9	-33.1%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	1.30	1.08	0.63	0.47	0.52	0.45	0.41	-68.4%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.69	0.58	0.34	0.25	0.28	0.24	0.22	-68.4%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	7.00	3.56	2.88	3.38	3.86	3.56	3.45	-50.8%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	47	37	41	43	39	38	-62.4%
Population index	100	93	89	84	79	77	76	-23.6%
GDP PPP per population index	100	61	85	133	137	147	156	55.9%
Energy intensity index - TPES / GDP PPP	100	103	65	52	55	48	47	-52.8%
Carbon intensity index - CO <sub>2</sub> / TPES	100	81	75	70	73	73	67	-33.1%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.36</b>	<b>3.60</b>	<b>2.80</b>	<b>0.25</b>	<b>7.01</b>	<b>-62.4%</b>
Main activity producer elec. and heat	0.05	0.05	1.78	-	1.87	-69.3%
Unallocated autoproducers	0.00	-	0.09	-	0.09	-97.5%
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.22	0.21	0.42	0.25	1.11	-56.4%
Transport	-	2.73	-	-	2.73	-11.6%
<i>of which: road</i>	-	2.44	-	-	2.44	4.7%
Other	0.09	0.60	0.52	-	1.21	-63.1%
<i>of which: residential</i>	0.05	0.15	0.25	-	0.46	-61.7%
<b>Reference Approach</b>	<b>0.36</b>	<b>3.56</b>	<b>2.83</b>	<b>0.25</b>	<b>7.00</b>	<b>-62.6%</b>
Diff. due to losses and/or transformation	-	-0.00	0.03	-	0.03	
Statistical differences	-0.00	-0.04	-	-0.00	-0.04	
<i>Memo: international marine bunkers</i>	-	0.75	-	-	0.75	-49.2%
<i>Memo: international aviation bunkers</i>	-	0.35	-	-	0.35	62.0%

\*\* Other includes industrial waste and non-renewable municipal waste.

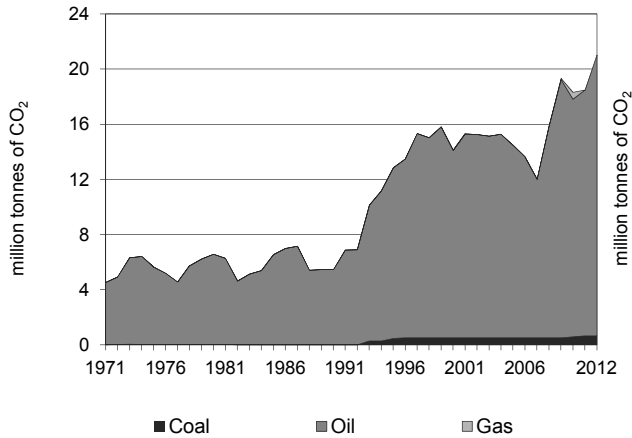
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	2.44	5.5%	21.8	21.8
Main activity prod. elec. and heat - gas	1.78	-35.1%	15.9	37.6
Non-specified other - oil	0.45	-66.0%	4.0	41.6
Manufacturing industries - gas	0.42	-58.7%	3.8	45.4
Other transport - oil	0.29	-58.0%	2.6	48.0
Non-specified other - gas	0.27	-12.1%	2.4	50.4
Manufacturing industries -other	0.25	x	2.3	52.7
Residential - gas	0.25	11.7%	2.2	54.9
Manufacturing industries - coal	0.22	66.8%	1.9	56.9
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>7.01</i>	<i>-62.4%</i>	<i>62.6</i>	<i>62.6</i>

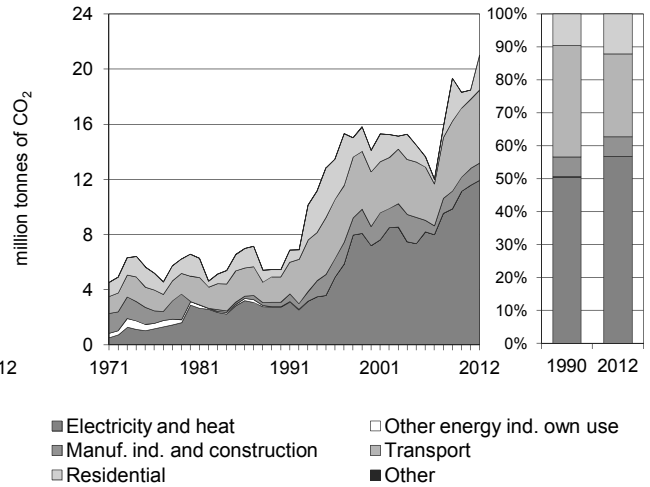
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Lebanon

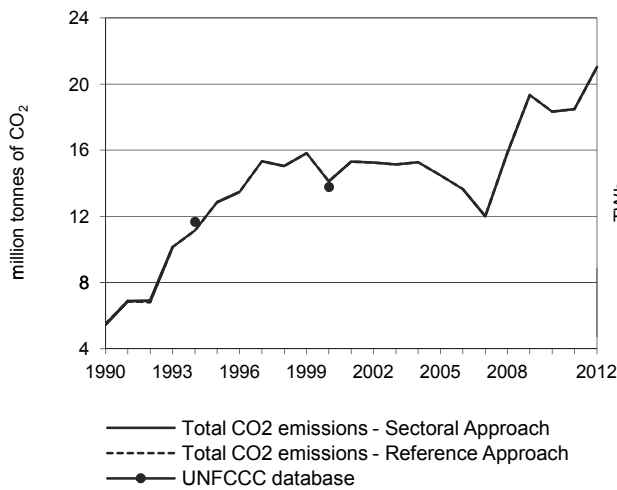
**Figure 1. CO<sub>2</sub> emissions by fuel**



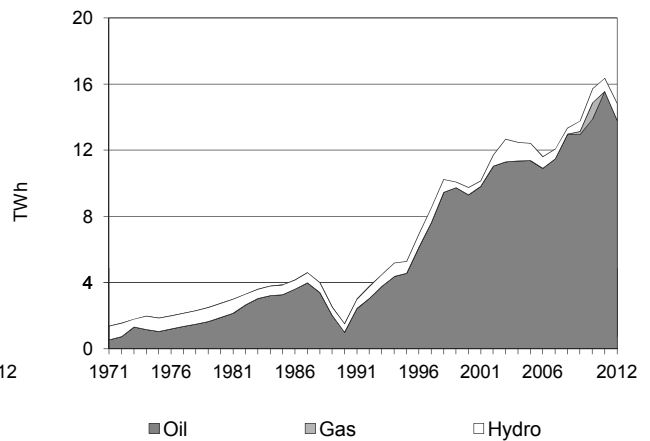
**Figure 2. CO<sub>2</sub> emissions by sector**



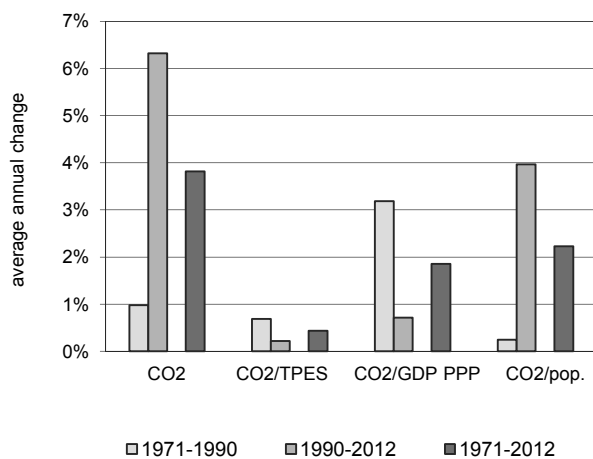
**Figure 3. Reference vs Sectoral Approach**



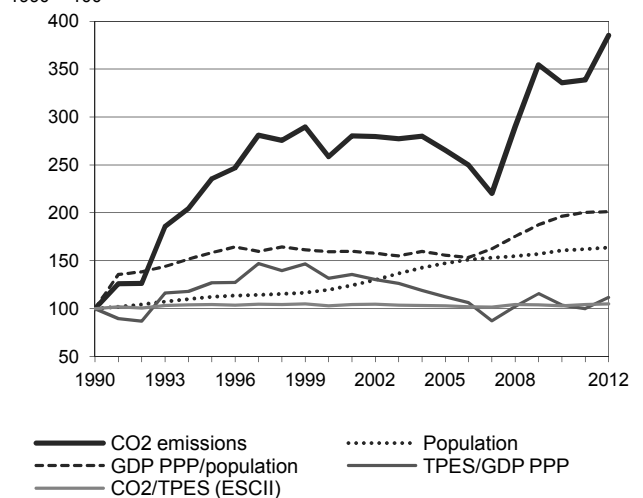
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Lebanon

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	5.46	12.85	14.12	14.48	18.32	18.49	21.03	285.3%
TPES (PJ)	82	185	206	211	267	266	300	267.2%
GDP (billion 2005 USD)	9.51	16.91	18.15	21.86	29.99	30.89	31.32	229.4%
GDP PPP (billion 2005 USD)	19.77	35.15	37.74	45.44	62.35	64.22	65.12	229.4%
Population (millions)	2.70	3.03	3.24	3.99	4.34	4.38	4.43	63.7%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	66.7	69.6	68.7	68.6	68.6	69.5	70.0	4.9%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.57	0.76	0.78	0.66	0.61	0.60	0.67	17.0%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.28	0.37	0.37	0.32	0.29	0.29	0.32	17.0%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	2.02	4.24	4.36	3.63	4.22	4.22	4.75	135.3%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	235	259	265	336	339	385	285.3%
Population index	100	112	120	148	161	162	164	63.7%
GDP PPP per population index	100	158	159	156	196	200	201	101.2%
Energy intensity index - TPES / GDP PPP	100	127	132	112	104	100	111	11.5%
Carbon intensity index - CO <sub>2</sub> / TPES	100	104	103	103	103	104	105	4.9%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.64</b>	<b>20.38</b>	-	-	<b>21.03</b>	<b>285.3%</b>
Main activity producer elec. and heat	-	7.42	-	-	7.42	169.5%
Unallocated autoproducers	-	4.53	-	-	4.53	x
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.64	0.61	-	-	1.25	286.1%
Transport	-	5.29	-	-	5.29	186.8%
<i>of which: road</i>	-	5.29	-	-	5.29	186.8%
Other	-	2.54	-	-	2.54	387.4%
<i>of which: residential</i>	-	2.54	-	-	2.54	387.4%
<b>Reference Approach</b>	<b>0.64</b>	<b>20.38</b>	-	-	<b>21.03</b>	<b>281.7%</b>
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	0.08	-	-	0.08	..
<i>Memo: international aviation bunkers</i>	-	0.65	-	-	0.65	314.0%

\*\* Other includes industrial waste and non-renewable municipal waste.

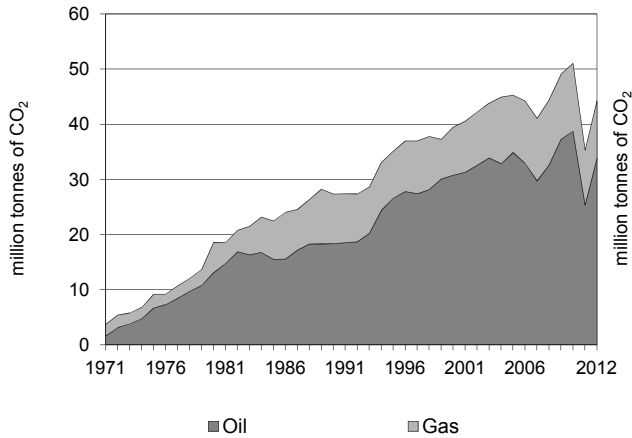
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - oil	7.42	169.5%	29.7	29.7
Road - oil	5.29	186.8%	21.1	50.8
Unallocated autoproducers - oil	4.53	x	18.1	68.9
Residential - oil	2.54	387.4%	10.2	79.1
Manufacturing industries - coal	0.64	x	2.6	81.7
Manufacturing industries - oil	0.61	87.7%	2.4	84.1
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>21.03</i>	<i>285.3%</i>	<i>84.1</i>	<i>84.1</i>

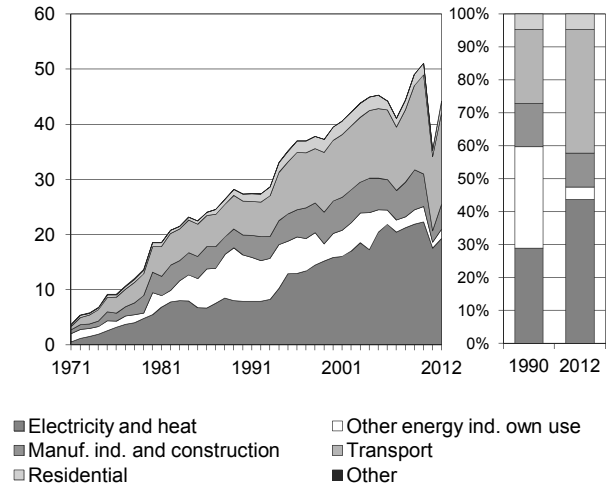
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Libya

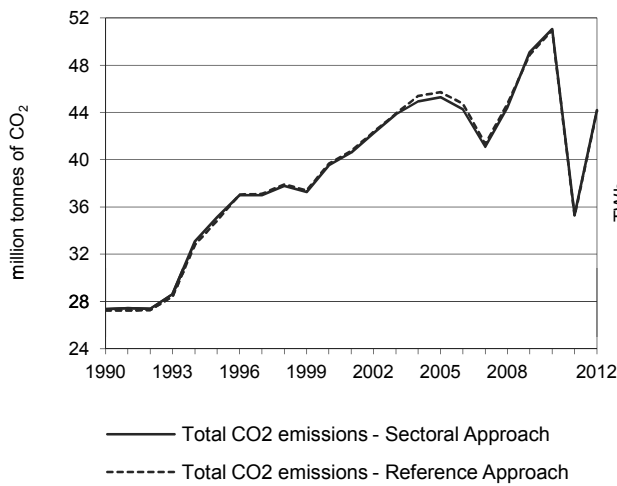
**Figure 1. CO<sub>2</sub> emissions by fuel**



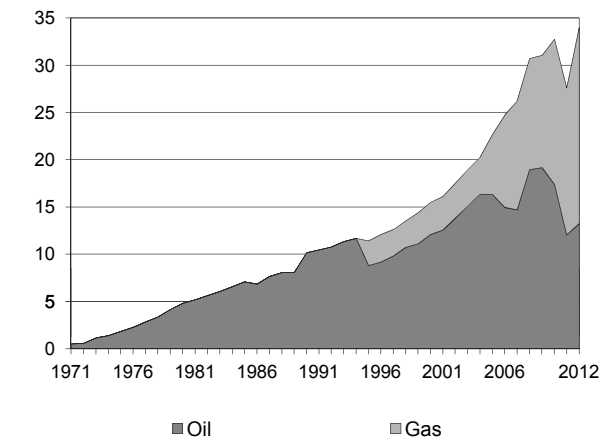
**Figure 2. CO<sub>2</sub> emissions by sector**



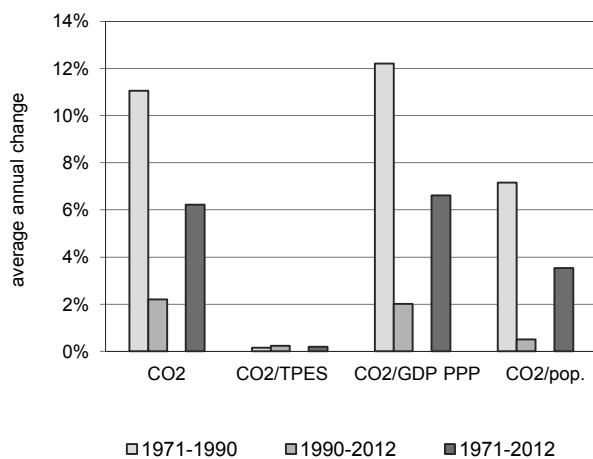
**Figure 3. Reference vs Sectoral Approach**



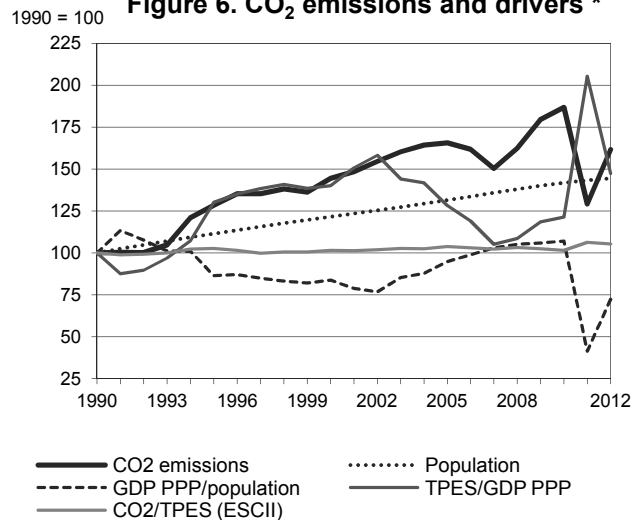
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Libya

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	27.35	35.12	39.50	45.27	51.06	35.30	44.20	61.6%
TPES (PJ)	468	586	666	746	861	568	718	53.5%
GDP (billion 2005 USD)	35.35	34.04	35.93	44.00	53.67	20.92	36.87	4.3%
GDP PPP (billion 2005 USD)	64.96	62.55	66.03	80.87	98.64	38.44	67.77	4.3%
Population (millions)	4.26	4.75	5.18	5.59	6.04	6.10	6.16	44.5%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	58.5	60.0	59.3	60.7	59.3	62.2	61.6	5.3%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.77	1.03	1.10	1.03	0.95	1.69	1.20	54.9%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.42	0.56	0.60	0.56	0.52	0.92	0.65	54.9%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	6.42	7.40	7.63	8.09	8.45	5.78	7.18	11.9%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	128	144	166	187	129	162	61.6%
Population index	100	111	122	131	142	143	144	44.5%
GDP PPP per population index	100	86	84	95	107	41	72	-27.8%
Energy intensity index - TPES / GDP PPP	100	130	140	128	121	205	147	47.2%
Carbon intensity index - CO <sub>2</sub> / TPES	100	103	101	104	101	106	105	5.3%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>33.83</b>	<b>10.38</b>	-	<b>44.20</b>	<b>61.6%</b>
Main activity producer elec. and heat	-	11.37	7.95	-	19.32	144.0%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.84	0.83	-	1.68	-80.0%
Manufacturing industries and construction	-	2.93	1.60	-	4.53	25.7%
Transport	-	16.59	-	-	16.59	171.0%
<i>of which: road</i>	-	16.58	-	-	16.58	171.0%
Other	-	2.08	-	-	2.08	60.4%
<i>of which: residential</i>	-	2.08	-	-	2.08	60.4%
<b>Reference Approach</b>	-	<b>33.74</b>	<b>10.38</b>	-	<b>44.11</b>	<b>61.9%</b>
Diff. due to losses and/or transformation	-	-0.09	-	-	-0.09	
Statistical differences	-	-0.00	0.00	-	-0.00	
<i>Memo: international marine bunkers</i>	-	1.10	-	-	1.10	347.5%
<i>Memo: international aviation bunkers</i>	-	0.66	-	-	0.66	4.0%

\*\* Other includes industrial waste and non-renewable municipal waste.

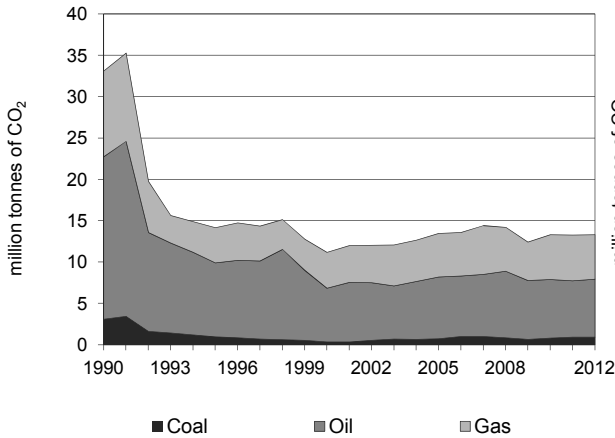
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	16.58	171.0%	24.2	24.2
Main activity prod. elec. and heat - oil	11.37	43.6%	16.6	40.8
Main activity prod. elec. and heat - gas	7.95	x	11.6	52.4
Manufacturing industries - oil	2.93	178.4%	4.3	56.7
Residential - oil	2.08	60.4%	3.0	59.7
Manufacturing industries - gas	1.60	-37.4%	2.3	62.1
Other energy industry own use - oil	0.84	-56.8%	1.2	63.3
Other energy industry own use - gas	0.83	-87.1%	1.2	64.5
Other transport - oil	0.01	100.0%	0.0	64.5
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>44.20</i>	<i>61.6%</i>	<i>64.5</i>	<i>64.5</i>

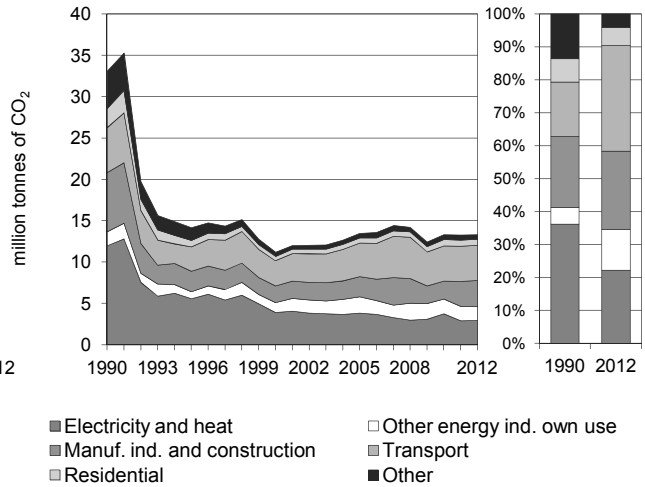
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Lithuania

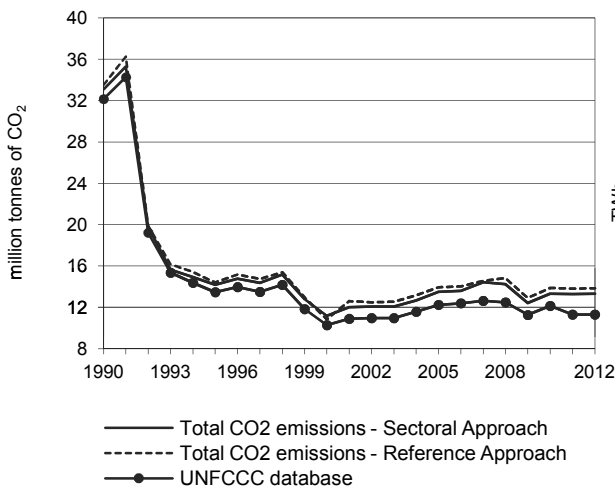
**Figure 1. CO<sub>2</sub> emissions by fuel**



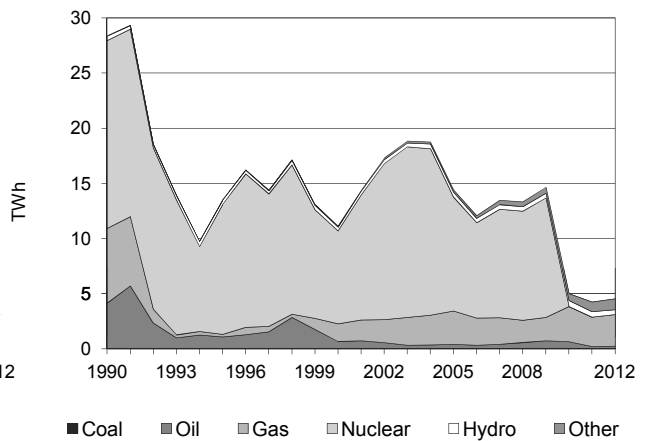
**Figure 2. CO<sub>2</sub> emissions by sector**



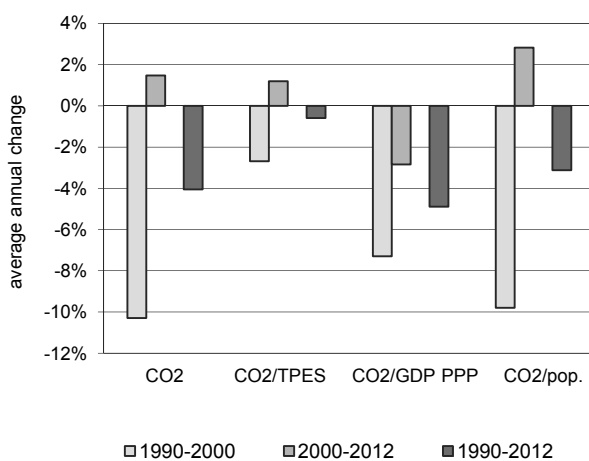
**Figure 3. Reference vs Sectoral Approach**



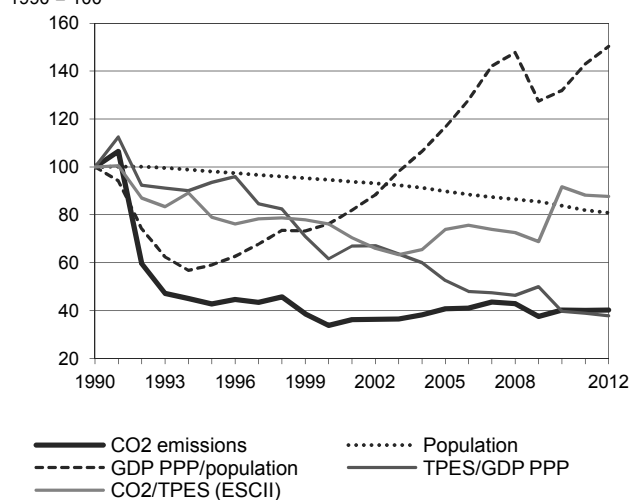
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Lithuania

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	33.11	14.17	11.19	13.48	13.32	13.28	13.33	-59.8%
TPES (PJ)	673	365	299	370	295	306	309	-54.1%
GDP (billion 2005 USD)	24.76	14.36	17.84	25.96	27.35	28.99	30.06	21.4%
GDP PPP (billion 2005 USD)	46.22	26.80	33.31	48.47	51.06	54.12	56.13	21.4%
Population (millions)	3.70	3.63	3.50	3.32	3.10	3.03	2.99	-19.2%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	49.2	38.9	37.5	36.4	45.1	43.4	43.2	-12.3%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	1.34	0.99	0.63	0.52	0.49	0.46	0.44	-66.9%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.72	0.53	0.34	0.28	0.26	0.25	0.24	-66.9%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	8.95	3.91	3.20	4.06	4.30	4.39	4.46	-50.2%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	43	34	41	40	40	40	-59.8%
Population index	100	98	95	90	84	82	81	-19.2%
GDP PPP per population index	100	59	76	117	132	143	150	50.3%
Energy intensity index - TPES / GDP PPP	100	94	62	53	40	39	38	-62.2%
Carbon intensity index - CO <sub>2</sub> / TPES	100	79	76	74	92	88	88	-12.3%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.93</b>	<b>7.02</b>	<b>5.38</b>	-	<b>13.33</b>	<b>-59.8%</b>
Main activity producer elec. and heat	0.02	0.47	2.28	-	2.78	-74.7%
Unallocated autoproducers	-	0.05	0.13	-	0.18	-81.8%
Other energy industry own use	0.00	1.63	0.01	-	1.64	-2.5%
Manufacturing industries and construction	0.47	0.35	2.35	-	3.17	-55.6%
Transport	-	4.19	0.07	-	4.27	-21.9%
<i>of which: road</i>	-	3.96	0.01	-	3.97	-22.0%
Other	0.43	0.33	0.53	-	1.29	-81.2%
<i>of which: residential</i>	0.26	0.16	0.32	-	0.74	-68.2%
<b>Reference Approach</b>	<b>0.93</b>	<b>7.54</b>	<b>5.38</b>	-	<b>13.85</b>	<b>-58.7%</b>
Diff. due to losses and/or transformation	0.00	0.52	0.00	-	0.52	
Statistical differences	-0.00	0.00	0.00	-	-0.00	
<i>Memo: international marine bunkers</i>	-	0.38	-	-	0.38	29.3%
<i>Memo: international aviation bunkers</i>	-	0.19	-	-	0.19	-53.4%

\*\* Other includes industrial waste and non-renewable municipal waste.

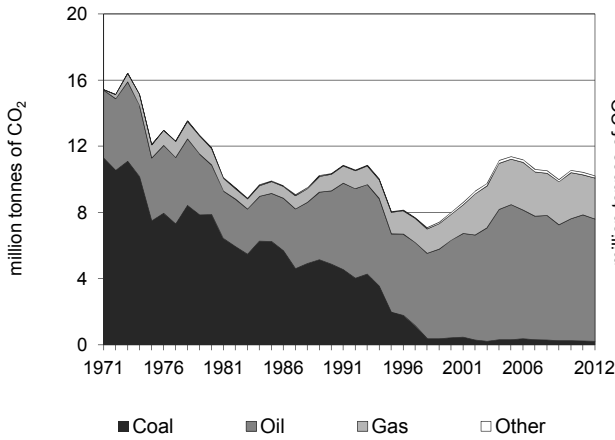
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	3.96	-22.1%	16.7	16.7
Manufacturing industries - gas	2.35	-23.6%	9.9	26.7
Main activity prod. elec. and heat - gas	2.28	-57.8%	9.7	36.4
Other energy industry own use - oil	1.63	-3.1%	6.9	43.2
Main activity prod. elec. and heat - oil	0.47	-91.3%	2.0	45.2
Manufacturing industries - coal	0.47	156.0%	2.0	47.2
Manufacturing industries - oil	0.35	-91.1%	1.5	48.7
Residential - gas	0.32	-38.6%	1.3	50.1
Residential - coal	0.26	-81.5%	1.1	51.2
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>13.33</i>	<i>-59.8%</i>	<i>56.4</i>	<i>56.4</i>

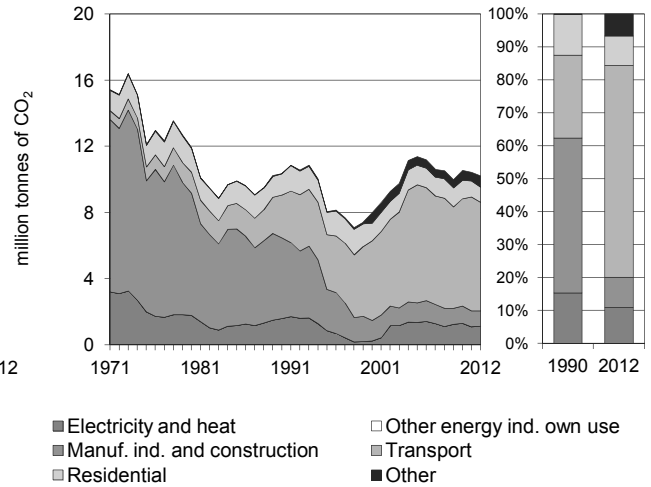
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Luxembourg

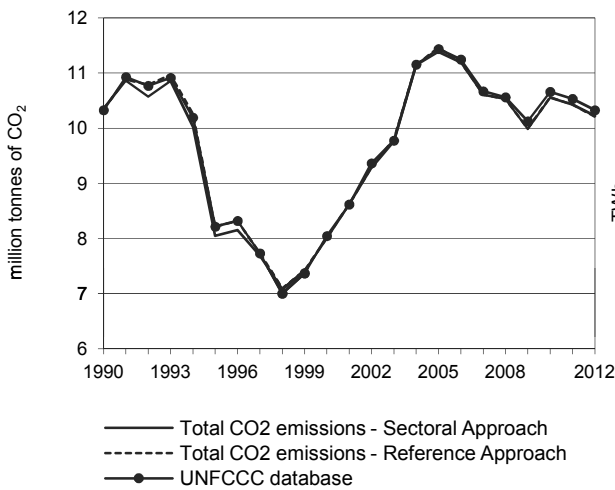
**Figure 1. CO<sub>2</sub> emissions by fuel**



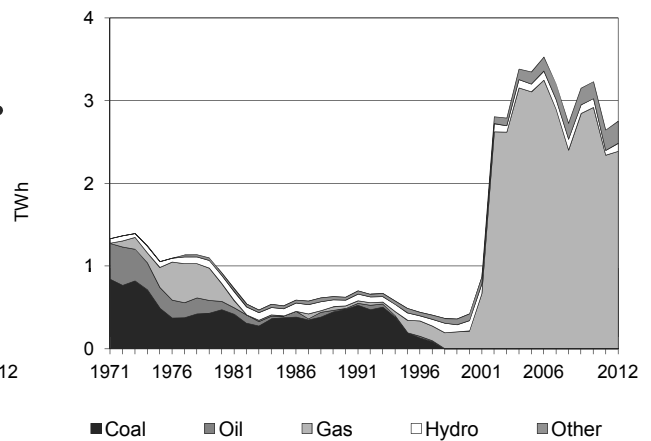
**Figure 2. CO<sub>2</sub> emissions by sector**



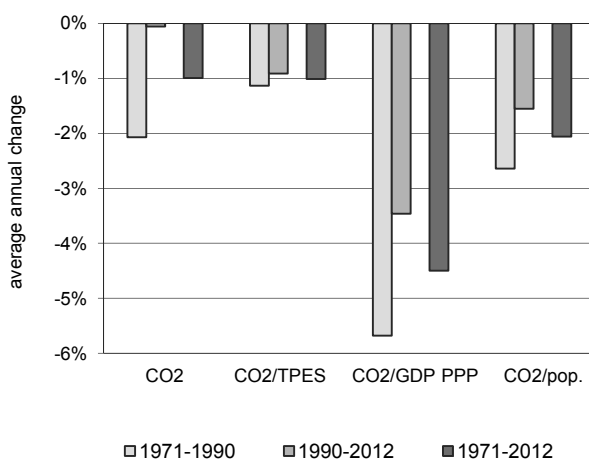
**Figure 3. Reference vs Sectoral Approach**



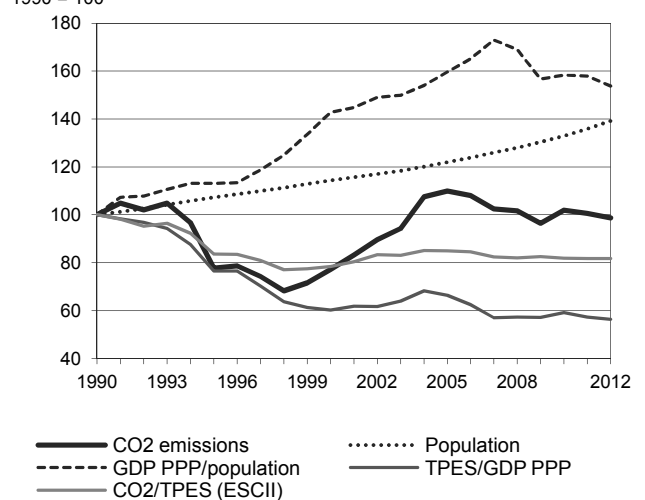
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Luxembourg

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	10.36	8.05	8.00	11.38	10.56	10.43	10.22	-1.3%
TPES (PJ)	142	132	140	183	177	175	171	20.8%
GDP (billion 2005 USD)	19.33	23.46	31.59	37.64	40.70	41.47	41.40	114.2%
GDP PPP (billion 2005 USD)	16.31	19.80	26.65	31.77	34.34	35.00	34.94	114.2%
Population (millions)	0.38	0.41	0.44	0.47	0.51	0.52	0.53	39.3%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	73.0	61.1	57.3	62.1	59.8	59.7	59.7	-18.3%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.54	0.34	0.25	0.30	0.26	0.25	0.25	-53.9%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.64	0.41	0.30	0.36	0.31	0.30	0.29	-53.9%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	27.12	19.63	18.31	24.43	20.78	20.09	19.21	-29.1%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	78	77	110	102	101	99	-1.3%
Population index	100	107	114	122	133	136	139	39.3%
GDP PPP per population index	100	113	143	160	158	158	154	53.8%
Energy intensity index - TPES / GDP PPP	100	77	60	66	59	57	56	-43.6%
Carbon intensity index - CO <sub>2</sub> / TPES	100	84	78	85	82	82	82	-18.3%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.21</b>	<b>7.40</b>	<b>2.46</b>	<b>0.15</b>	<b>10.22</b>	<b>-1.3%</b>
Main activity producer elec. and heat	-	0.00	0.98	0.08	1.06	+
Unallocated autoproducers	-	-	0.06	-	0.06	-96.1%
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	0.21	0.04	0.62	0.07	0.93	-80.8%
Transport	-	6.57	-	-	6.57	152.3%
<i>of which: road</i>	-	6.54	-	-	6.54	152.2%
Other	0.00	0.79	0.81	-	1.60	23.8%
<i>of which: residential</i>	0.00	0.52	0.39	-	0.92	-28.1%
<b>Reference Approach</b>	<b>0.21</b>	<b>7.40</b>	<b>2.46</b>	<b>0.15</b>	<b>10.21</b>	<b>-1.3%</b>
Diff. due to losses and/or transformation	-	-	-0.01	-	-0.01	
Statistical differences	-	-0.00	0.00	-	-0.00	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	1.10	-	-	1.10	182.0%

\*\* Other includes industrial waste and non-renewable municipal waste.

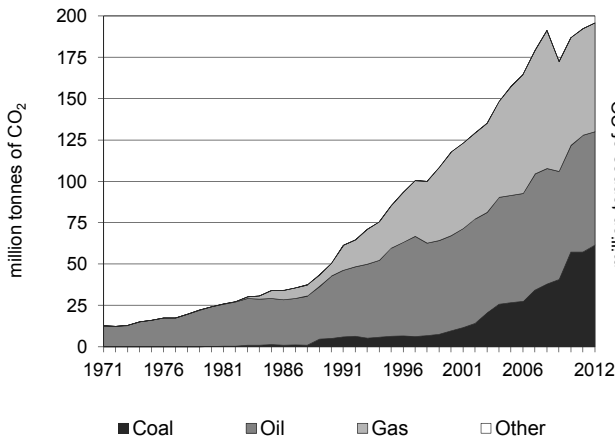
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	6.54	152.2%	55.8	55.8
Main activity prod. elec. and heat - gas	0.98	x	8.3	64.1
Manufacturing industries - gas	0.62	-4.7%	5.3	69.4
Residential - oil	0.52	-43.3%	4.5	73.9
Non-specified other - gas	0.41	x	3.5	77.4
Residential - gas	0.39	19.3%	3.3	80.7
Non-specified other - oil	0.27	+	2.3	83.0
Manufacturing industries - coal	0.21	-93.8%	1.8	84.8
Main activity prod. elec. and heat - other	0.08	66.2%	0.7	85.5
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>10.22</i>	<i>-1.3%</i>	<i>87.1</i>	<i>87.1</i>

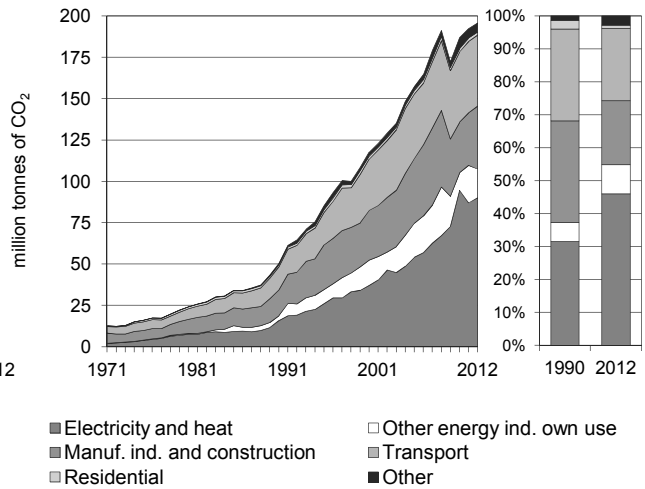
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Malaysia

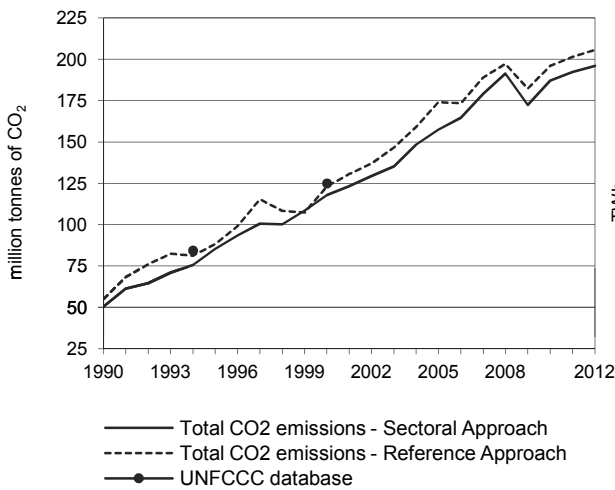
**Figure 1. CO<sub>2</sub> emissions by fuel**



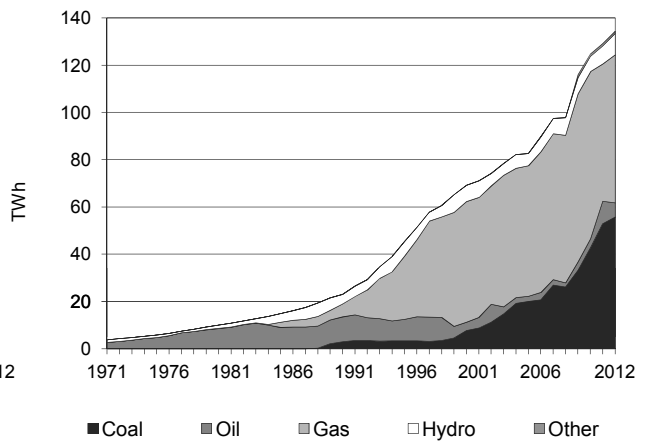
**Figure 2. CO<sub>2</sub> emissions by sector**



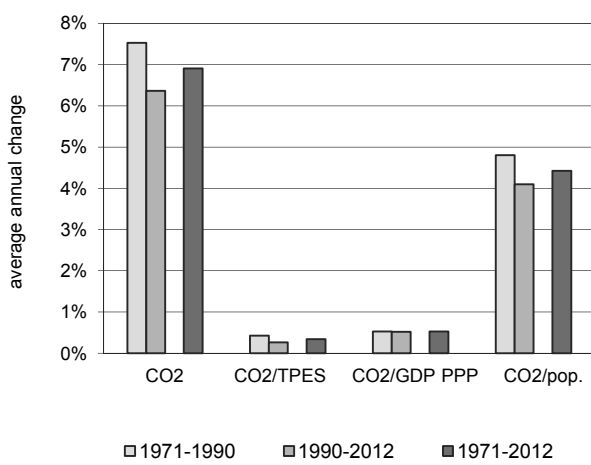
**Figure 3. Reference vs Sectoral Approach**



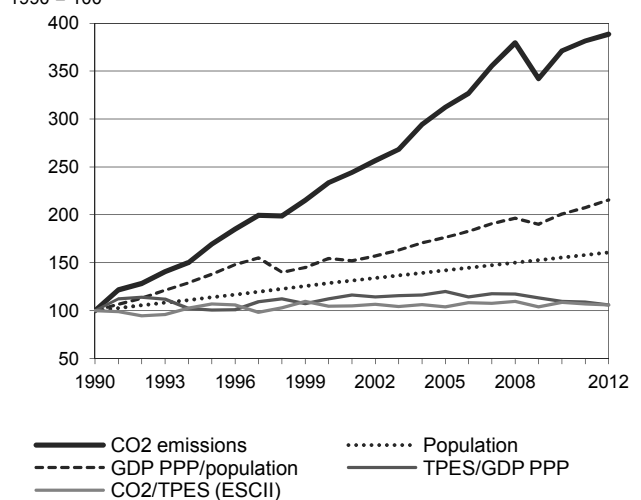
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Malaysia

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	50.41	85.34	117.75	157.49	187.05	192.36	195.89	288.6%
TPES (PJ)	928	1 467	2 072	2 787	3 168	3 312	3 401	266.5%
GDP (billion 2005 USD)	57.31	90.11	113.87	143.53	178.67	187.83	198.43	246.2%
GDP PPP (billion 2005 USD)	164.85	259.19	327.52	412.85	513.92	540.27	570.74	246.2%
Population (millions)	18.21	20.73	23.42	25.84	28.28	28.76	29.24	60.6%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	54.3	58.2	56.8	56.5	59.1	58.1	57.6	6.0%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.88	0.95	1.03	1.10	1.05	1.02	0.99	12.2%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.31	0.33	0.36	0.38	0.36	0.36	0.34	12.2%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	2.77	4.12	5.03	6.09	6.62	6.69	6.70	142.0%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	169	234	312	371	382	389	288.6%
Population index	100	114	129	142	155	158	161	60.6%
GDP PPP per population index	100	138	154	176	201	208	216	115.6%
Energy intensity index - TPES / GDP PPP	100	101	112	120	109	109	106	5.9%
Carbon intensity index - CO <sub>2</sub> / TPES	100	107	105	104	109	107	106	6.0%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>61.65</b>	<b>68.35</b>	<b>65.89</b>	<b>0.01</b>	<b>195.89</b>	<b>288.6%</b>
Main activity producer elec. and heat	54.88	4.25	26.95	-	86.08	441.2%
Unallocated autoproducers	-	0.08	4.05	0.01	4.14	x
Other energy industry own use	-	2.14	15.16	-	17.29	489.1%
Manufacturing industries and construction	6.77	12.22	19.00	-	37.98	144.9%
Transport	-	42.26	0.68	-	42.94	205.9%
<i>of which: road</i>	-	41.98	0.68	-	42.66	206.8%
Other	-	7.41	0.05	-	7.46	268.0%
<i>of which: residential</i>	-	1.87	0.00	-	1.88	40.9%
<b>Reference Approach</b>	<b>61.31</b>	<b>72.79</b>	<b>71.61</b>	<b>0.01</b>	<b>205.72</b>	<b>273.3%</b>
Diff. due to losses and/or transformation	-	3.94	5.73	-	9.67	
Statistical differences	-0.34	0.50	-0.00	-	0.16	
<i>Memo: international marine bunkers</i>	-	0.18	-	-	0.18	-39.1%
<i>Memo: international aviation bunkers</i>	-	7.49	-	-	7.49	299.2%

\*\* Other includes industrial waste and non-renewable municipal waste.

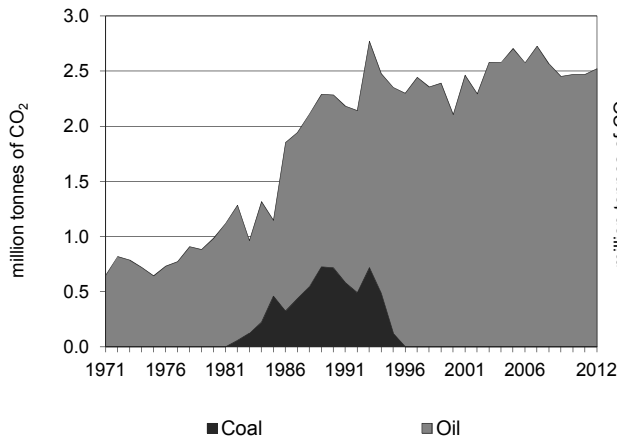
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	54.88	+	21.3	21.3
Road - oil	41.98	201.9%	16.3	37.6
Main activity prod. elec. and heat - gas	26.95	747.4%	10.5	48.0
Manufacturing industries - gas	19.00	819.8%	7.4	55.4
Other energy industry own use - gas	15.16	526.2%	5.9	61.3
Manufacturing industries - oil	12.22	6.7%	4.7	66.0
Manufacturing industries - coal	6.77	239.8%	2.6	68.6
Non-specified other - oil	5.53	708.8%	2.1	70.8
Main activity prod. elec. and heat - oil	4.25	-55.5%	1.7	72.4
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>195.89</i>	<i>288.6%</i>	<i>76.0</i>	<i>76.0</i>

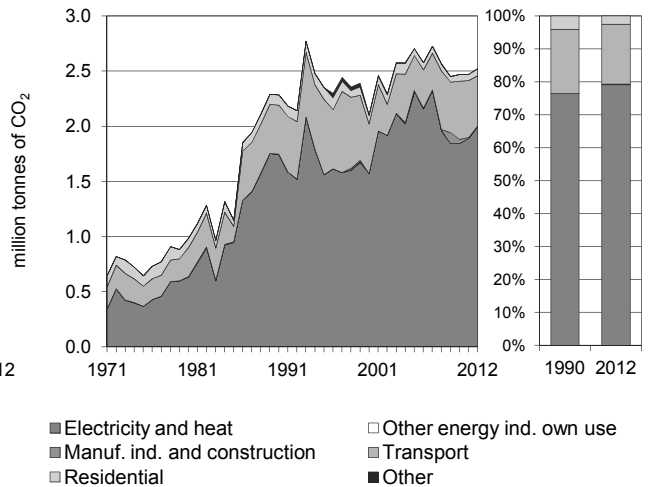
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Malta

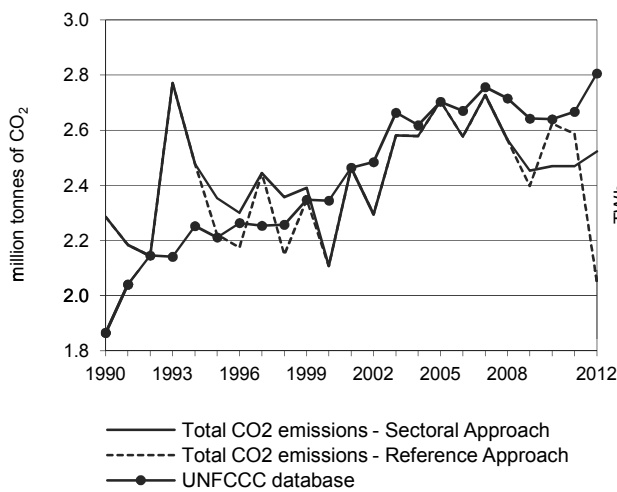
**Figure 1. CO<sub>2</sub> emissions by fuel**



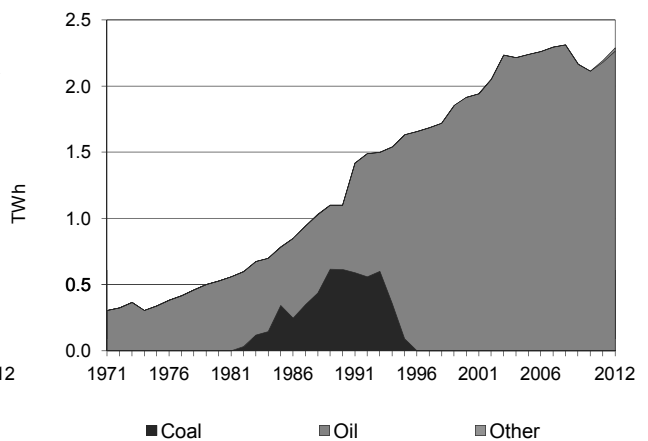
**Figure 2. CO<sub>2</sub> emissions by sector**



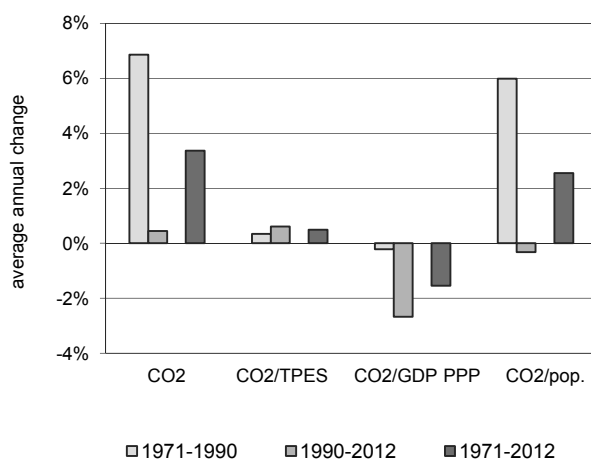
**Figure 3. Reference vs Sectoral Approach**



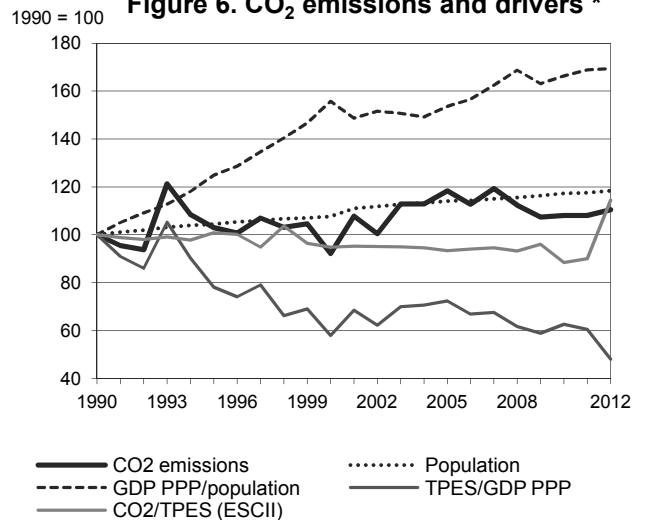
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Malta

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	2.29	2.35	2.11	2.71	2.47	2.47	2.52	10.4%
TPES (PJ)	29	30	28	37	36	35	28	-3.5%
GDP (billion 2005 USD)	3.41	4.46	5.72	5.98	6.65	6.77	6.84	100.5%
GDP PPP (billion 2005 USD)	4.84	6.32	8.12	8.49	9.44	9.61	9.71	100.5%
Population (millions)	0.35	0.37	0.38	0.40	0.42	0.42	0.42	18.4%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	78.5	79.2	74.4	73.3	69.5	70.7	89.8	14.4%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.67	0.53	0.37	0.45	0.37	0.36	0.37	-44.9%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.47	0.37	0.26	0.32	0.26	0.26	0.26	-44.9%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	6.46	6.36	5.53	6.70	5.95	5.94	6.02	-6.7%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	103	92	118	108	108	110	10.4%
Population index	100	105	108	114	117	118	118	18.4%
GDP PPP per population index	100	125	156	154	166	169	169	69.4%
Energy intensity index - TPES / GDP PPP	100	78	58	72	63	60	48	-51.9%
Carbon intensity index - CO <sub>2</sub> / TPES	100	101	95	93	88	90	114	14.4%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>2.52</b>	-	-	<b>2.52</b>	<b>10.4%</b>
Main activity producer elec. and heat	-	2.00	-	-	2.00	14.3%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.01	-	-	0.01	300.1%
Transport	-	0.46	-	-	0.46	2.6%
<i>of which: road</i>	-	0.46	-	-	0.46	2.6%
Other	-	0.06	-	-	0.06	-31.3%
<i>of which: residential</i>	-	0.06	-	-	0.06	-31.3%
<b>Reference Approach</b>	-	<b>2.05</b>	-	-	<b>2.05</b>	<b>-10.4%</b>
Diff. due to losses and/or transformation	-	-0.44	-	-	-0.44	
Statistical differences	-	-0.04	-	-	-0.04	
<i>Memo: international marine bunkers</i>	-	3.99	-	-	3.99	+
<i>Memo: international aviation bunkers</i>	-	0.30	-	-	0.30	40.0%

\*\* Other includes industrial waste and non-renewable municipal waste.

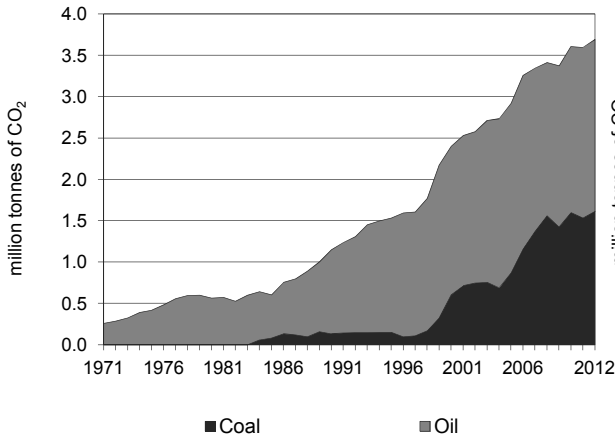
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - oil	2.00	94.2%	69.8	69.8
Road - oil	0.46	2.6%	16.0	85.9
Residential - oil	0.06	-31.3%	2.2	88.1
Manufacturing industries - oil	0.01	300.1%	0.2	88.3
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>2.52</i>	<i>10.4%</i>	<i>88.3</i>	<i>88.3</i>

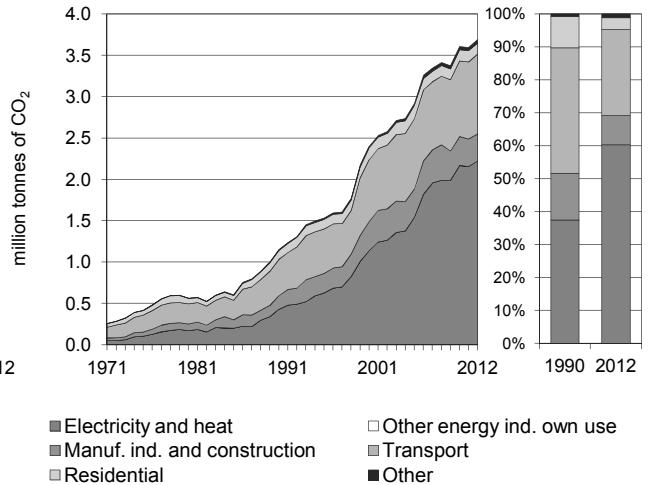
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Mauritius

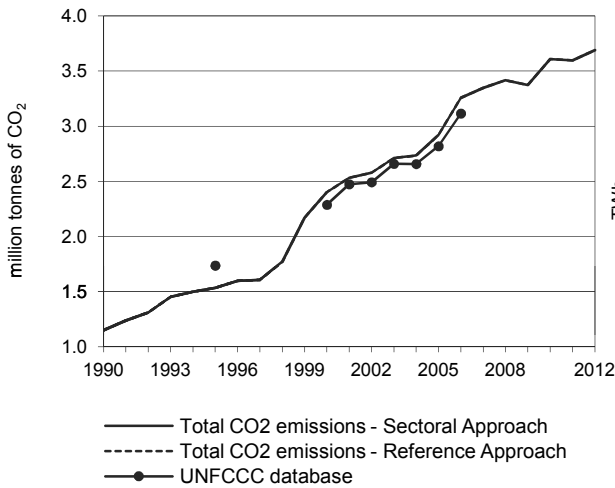
**Figure 1. CO<sub>2</sub> emissions by fuel**



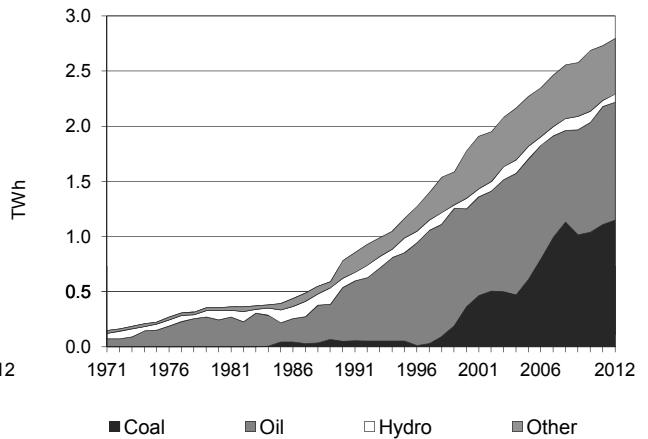
**Figure 2. CO<sub>2</sub> emissions by sector**



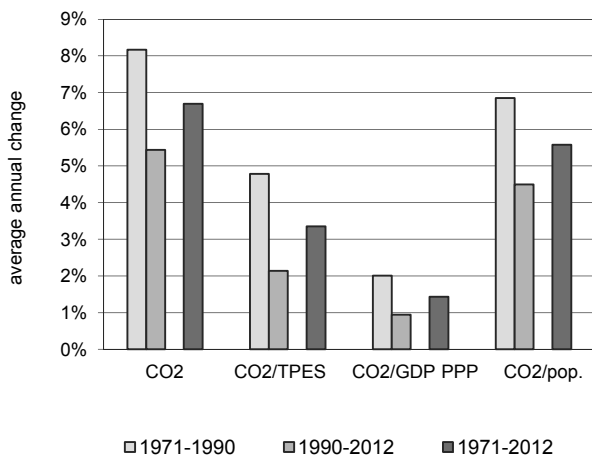
**Figure 3. Reference vs Sectoral Approach**



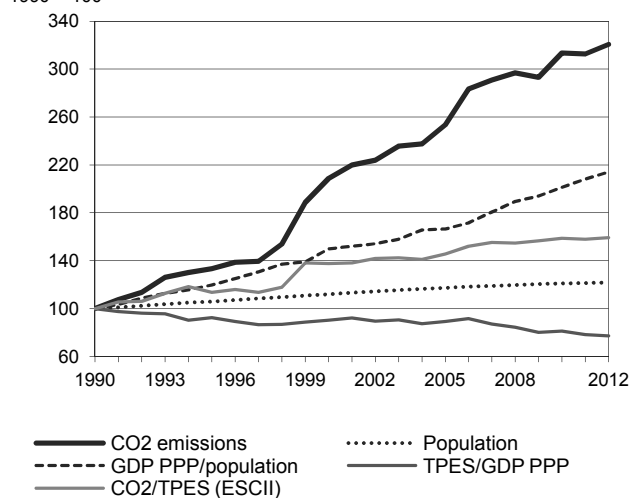
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Mauritius

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	1.15	1.53	2.40	2.92	3.61	3.60	3.69	220.8%
TPES (PJ)	28	33	42	49	55	55	56	101.2%
GDP (billion 2005 USD)	3.22	4.08	5.41	6.28	7.83	8.13	8.39	160.9%
GDP PPP (billion 2005 USD)	7.15	9.07	12.01	13.96	17.39	18.06	18.64	160.9%
Population (millions)	1.06	1.12	1.19	1.24	1.28	1.29	1.29	21.9%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	41.2	46.8	56.8	60.1	65.4	65.1	65.7	59.4%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.36	0.38	0.44	0.46	0.46	0.44	0.44	22.9%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.16	0.17	0.20	0.21	0.21	0.20	0.20	23.0%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	1.09	1.37	2.02	2.35	2.82	2.80	2.86	163.1%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	133	209	254	314	313	321	220.8%
Population index	100	106	112	117	121	121	122	21.9%
GDP PPP per population index	100	120	150	166	201	208	214	114.0%
Energy intensity index - TPES / GDP PPP	100	92	90	89	81	78	77	-22.9%
Carbon intensity index - CO <sub>2</sub> / TPES	100	114	138	146	159	158	159	59.4%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>1.61</b>	<b>2.08</b>	-	-	<b>3.69</b>	<b>220.8%</b>
Main activity producer elec. and heat	-	0.67	-	-	0.67	94.3%
Unallocated autoproducers	1.55	-	-	-	1.55	+
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	0.06	0.27	-	-	0.33	101.0%
Transport	-	0.97	-	-	0.97	120.2%
<i>of which: road</i>	-	0.90	-	-	0.90	878.1%
Other	-	0.17	-	-	0.17	48.2%
<i>of which: residential</i>	-	0.13	-	-	0.13	22.2%
<b>Reference Approach</b>	<b>1.61</b>	<b>2.08</b>	-	-	<b>3.69</b>	<b>220.8%</b>
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	0.00	-	-	0.00	-
<i>Memo: international marine bunkers</i>	-	0.83	-	-	0.83	340.0%
<i>Memo: international aviation bunkers</i>	-	0.78	-	-	0.78	267.2%

\*\* Other includes industrial waste and non-renewable municipal waste.

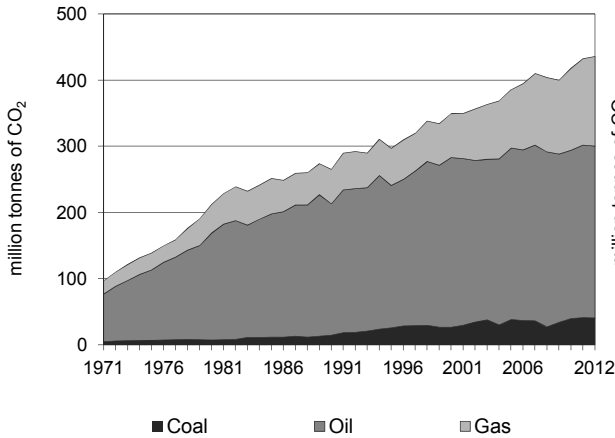
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Unallocated autoproducers - coal	1.55	+	37.0	37.0
Road - oil	0.90	878.1%	21.5	58.5
Main activity prod. elec. and heat - oil	0.67	94.3%	16.0	74.5
Manufacturing industries - oil	0.27	130.6%	6.3	80.8
Residential - oil	0.13	22.2%	3.2	83.9
Other transport - oil	0.06	-81.7%	1.5	85.5
Manufacturing industries - coal	0.06	30.0%	1.5	86.9
Non-specified other - oil	0.04	360.3%	1.0	87.9
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<b>3.69</b>	<b>220.8%</b>	<b>87.9</b>	<b>87.9</b>

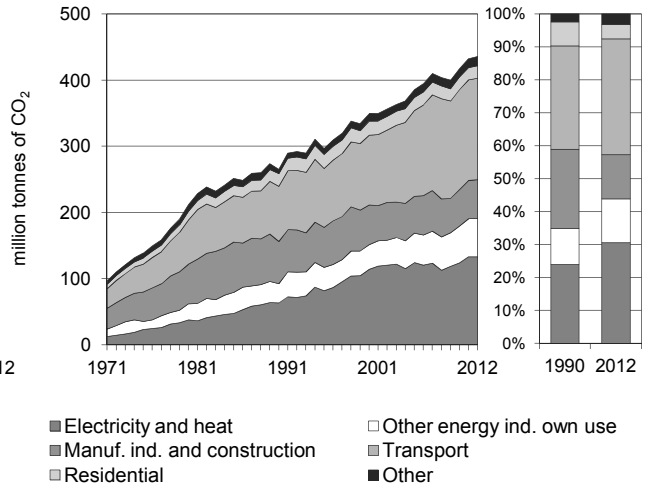
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Mexico

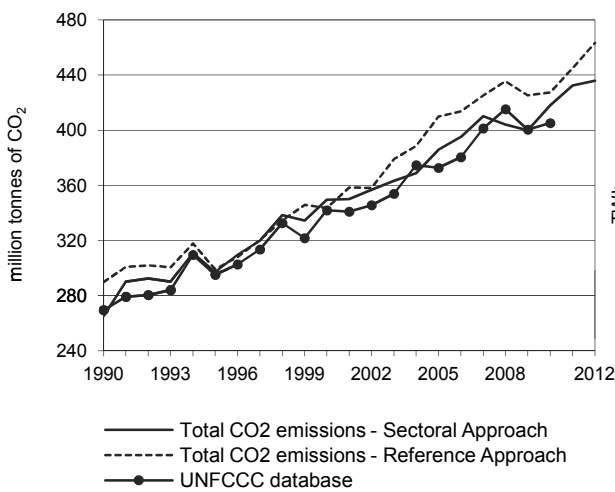
**Figure 1. CO<sub>2</sub> emissions by fuel**



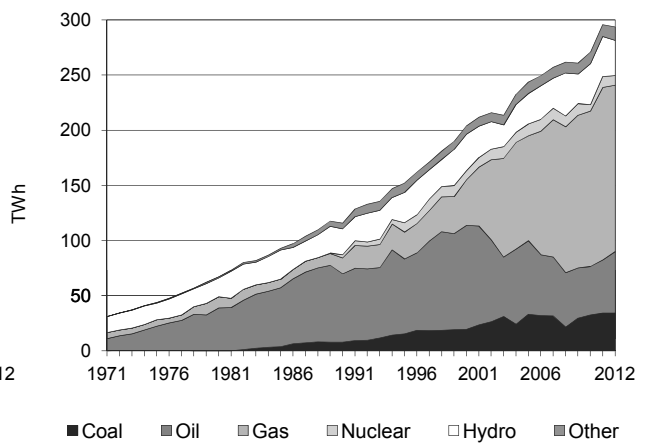
**Figure 2. CO<sub>2</sub> emissions by sector**



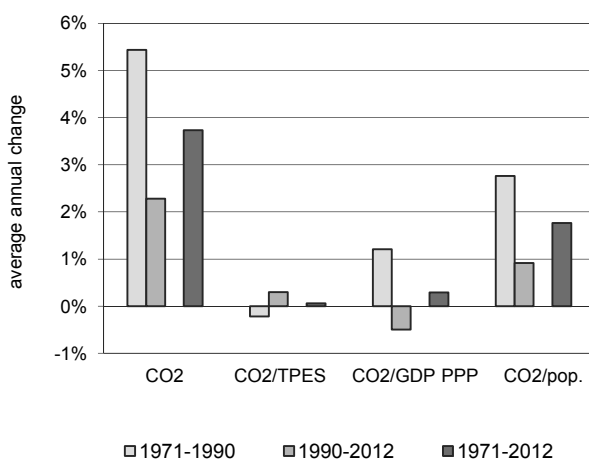
**Figure 3. Reference vs Sectoral Approach**



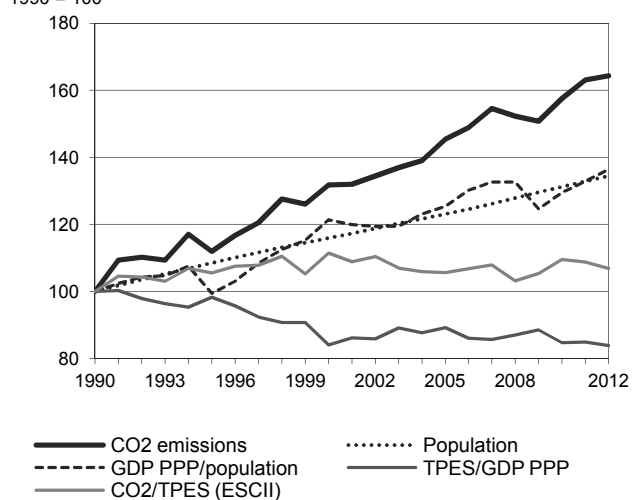
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Mexico

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	265.26	296.95	349.55	385.77	417.94	432.50	435.79	64.3%
TPES (PJ)	5 129	5 440	6 063	7 063	7 380	7 687	7 888	53.8%
GDP (billion 2005 USD)	560.25	604.41	788.25	864.81	952.04	988.59	1 027.51	83.4%
GDP PPP (billion 2005 USD)	856.69	924.22	1 205.33	1 322.41	1 455.79	1 511.69	1 571.20	83.4%
Population (millions)	87.07	94.49	100.90	107.15	114.26	115.68	117.05	34.4%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	51.7	54.6	57.7	54.6	56.6	56.3	55.3	6.8%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.47	0.49	0.44	0.45	0.44	0.44	0.42	-10.4%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.31	0.32	0.29	0.29	0.29	0.29	0.28	-10.4%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	3.05	3.14	3.46	3.60	3.66	3.74	3.72	22.2%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	112	132	145	158	163	164	64.3%
Population index	100	109	116	123	131	133	134	34.4%
GDP PPP per population index	100	99	121	125	129	133	136	36.4%
Energy intensity index - TPES / GDP PPP	100	98	84	89	85	85	84	-16.1%
Carbon intensity index - CO <sub>2</sub> / TPES	100	106	111	106	109	109	107	6.8%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>40.71</b>	<b>259.84</b>	<b>135.25</b>	-	<b>435.79</b>	<b>64.3%</b>
Main activity producer elec. and heat	32.16	33.52	53.42	-	119.09	87.2%
Unallocated autoproducers	0.90	5.28	7.98	-	14.16	x
Other energy industry own use	0.26	15.25	42.49	-	58.00	100.9%
Manufacturing industries and construction	7.38	22.22	28.97	-	58.58	-8.1%
Transport	-	153.11	0.04	-	153.15	83.8%
<i>of which: road</i>	-	148.86	0.04	-	148.90	86.2%
Other	-	30.47	2.35	-	32.82	27.9%
<i>of which: residential</i>	-	17.15	1.78	-	18.93	-1.2%
<b>Reference Approach</b>	<b>36.72</b>	<b>292.36</b>	<b>134.25</b>	-	<b>463.33</b>	<b>59.9%</b>
Diff. due to losses and/or transformation	1.19	8.52	-1.34	-	8.38	
Statistical differences	-5.18	24.00	0.34	-	19.16	
<i>Memo: international marine bunkers</i>	-	2.87	-	-	2.87	..
<i>Memo: international aviation bunkers</i>	-	8.60	-	-	8.60	64.3%

\*\* Other includes industrial waste and non-renewable municipal waste.

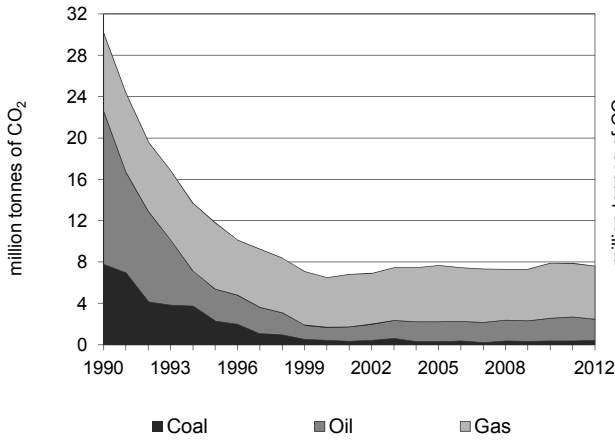
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	148.86	86.1%	23.8	23.8
Main activity prod. elec. and heat - gas	53.42	566.1%	8.5	32.4
Other energy industry own use - gas	42.49	228.8%	6.8	39.2
Main activity prod. elec. and heat - oil	33.52	-30.8%	5.4	44.5
Main activity prod. elec. and heat - coal	32.16	349.2%	5.1	49.7
Manufacturing industries - gas	28.97	-1.0%	4.6	54.3
Manufacturing industries - oil	22.22	-18.4%	3.6	57.9
Residential - oil	17.15	-0.7%	2.7	60.6
Other energy industry own use - oil	15.25	-3.4%	2.4	63.1
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>435.79</i>	<i>64.3%</i>	<i>69.7</i>	<i>69.7</i>

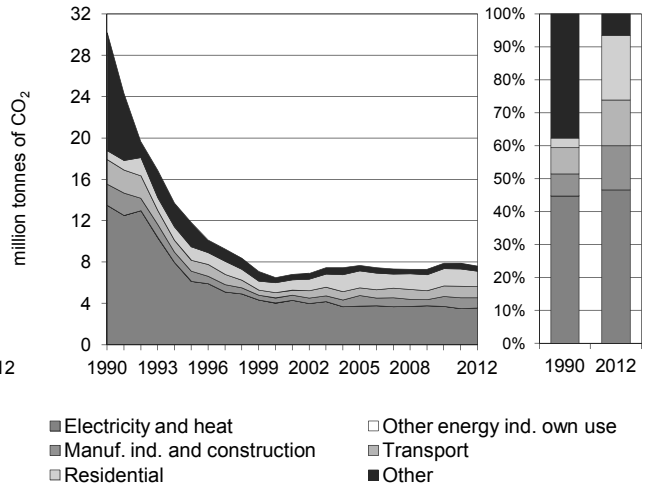
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Republic of Moldova

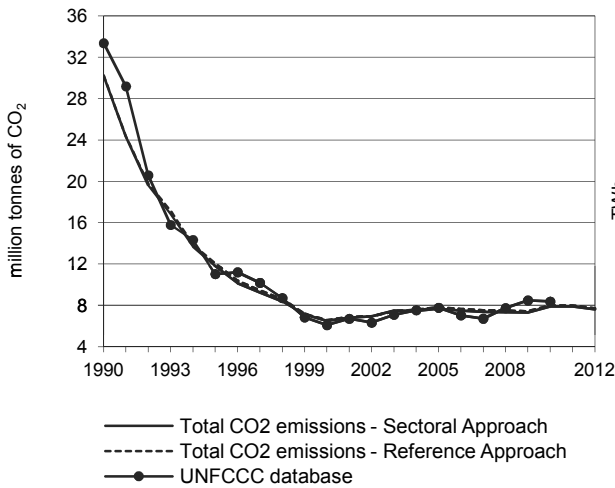
**Figure 1. CO<sub>2</sub> emissions by fuel**



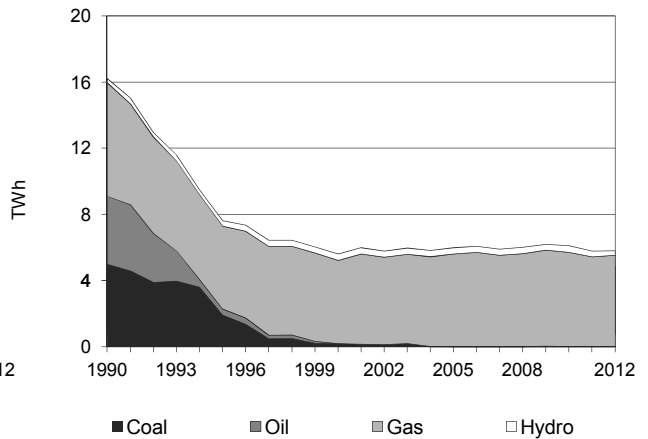
**Figure 2. CO<sub>2</sub> emissions by sector**



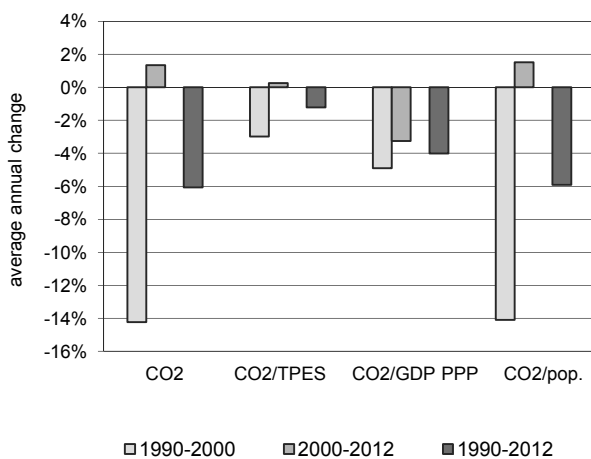
**Figure 3. Reference vs Sectoral Approach**



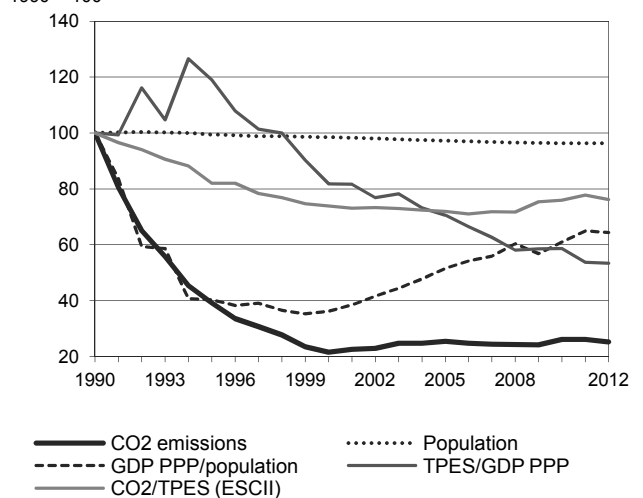
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Republic of Moldova

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	30.18	11.81	6.50	7.68	7.89	7.88	7.62	-74.8%
TPES (PJ)	414	198	121	146	143	139	137	-66.9%
GDP (billion 2005 USD)	5.96	2.39	2.12	2.99	3.50	3.73	3.70	-38.0%
GDP PPP (billion 2005 USD)	21.22	8.51	7.56	10.64	12.46	13.26	13.16	-38.0%
Population (millions)	3.70	3.68	3.64	3.60	3.56	3.56	3.56	-3.7%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	72.9	59.8	53.9	52.4	55.3	56.7	55.5	-23.8%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	5.06	4.94	3.06	2.57	2.25	2.12	2.06	-59.3%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	1.42	1.39	0.86	0.72	0.63	0.59	0.58	-59.3%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	8.17	3.21	1.79	2.14	2.21	2.21	2.14	-73.8%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	39	22	25	26	26	25	-74.8%
Population index	100	99	98	97	96	96	96	-3.7%
GDP PPP per population index	100	40	36	52	61	65	64	-35.6%
Energy intensity index - TPES / GDP PPP	100	119	82	71	59	54	53	-46.6%
Carbon intensity index - CO <sub>2</sub> / TPES	100	82	74	72	76	78	76	-23.8%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.43</b>	<b>2.04</b>	<b>5.15</b>	-	<b>7.62</b>	<b>-74.8%</b>
Main activity producer elec. and heat	-	-	3.39	-	3.39	-74.9%
Unallocated autoproducers	0.01	0.04	0.12	-	0.16	x
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.11	0.06	0.85	-	1.02	-49.8%
Transport	-	1.06	0.00	-	1.06	-55.6%
<i>of which: road</i>	-	1.00	0.00	-	1.00	-57.4%
Other	0.31	0.89	0.79	-	1.99	-83.8%
<i>of which: residential</i>	0.22	0.75	0.53	-	1.49	70.4%
<b>Reference Approach</b>	<b>0.43</b>	<b>2.03</b>	<b>5.24</b>	-	<b>7.70</b>	<b>-74.5%</b>
Diff. due to losses and/or transformation	-	0.01	0.09	-	0.10	
Statistical differences	0.00	-0.02	0.00	-	-0.02	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.04	-	-	0.04	-79.8%

\*\* Other includes industrial waste and non-renewable municipal waste.

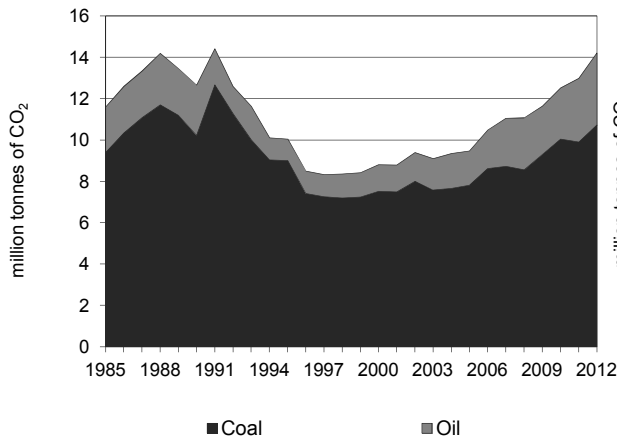
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - gas	3.39	-36.2%	27.9	27.9
Road - oil	1.00	-57.2%	8.2	36.1
Manufacturing industries - gas	0.85	-30.9%	7.0	43.1
Residential - oil	0.75	104.6%	6.1	49.2
Residential - gas	0.53	3.2%	4.3	53.6
Non-specified other - gas	0.26	-49.6%	2.2	55.7
Residential - coal	0.22	x	1.8	57.5
Non-specified other - oil	0.14	-98.3%	1.1	58.7
Unallocated autoproducers - gas	0.12	x	1.0	59.6
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>7.62</i>	<i>-74.8%</i>	<i>62.7</i>	<i>62.7</i>

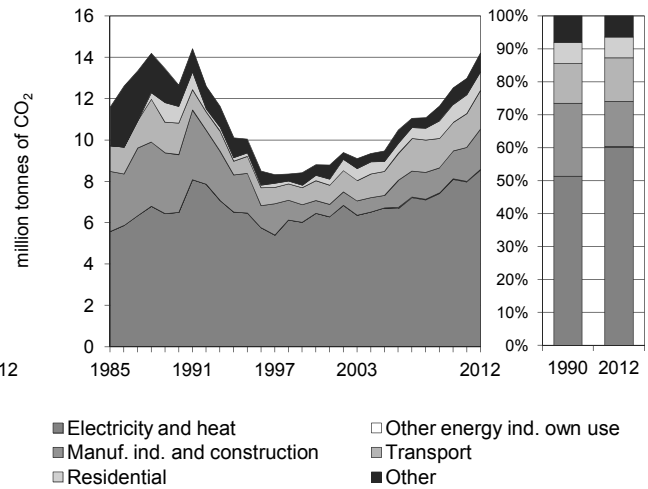
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Mongolia

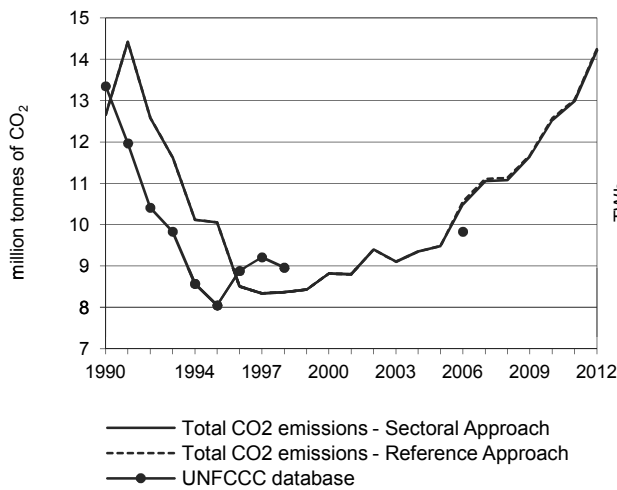
**Figure 1. CO<sub>2</sub> emissions by fuel**



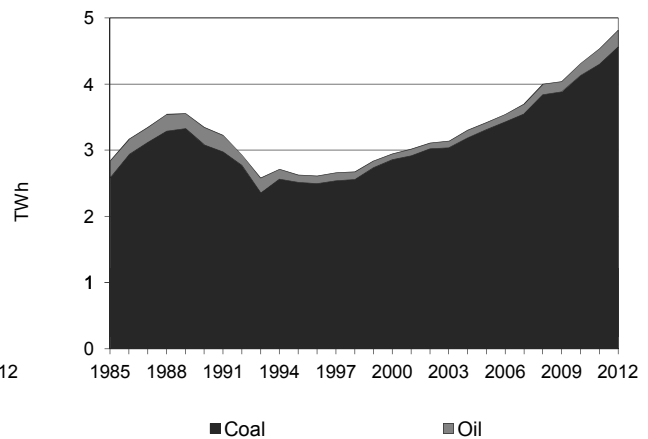
**Figure 2. CO<sub>2</sub> emissions by sector**



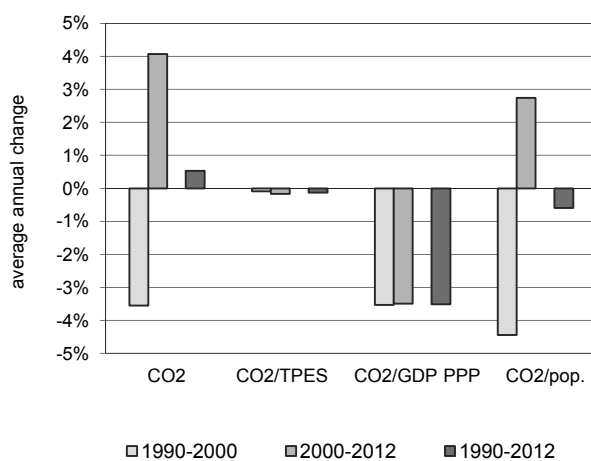
**Figure 3. Reference vs Sectoral Approach**



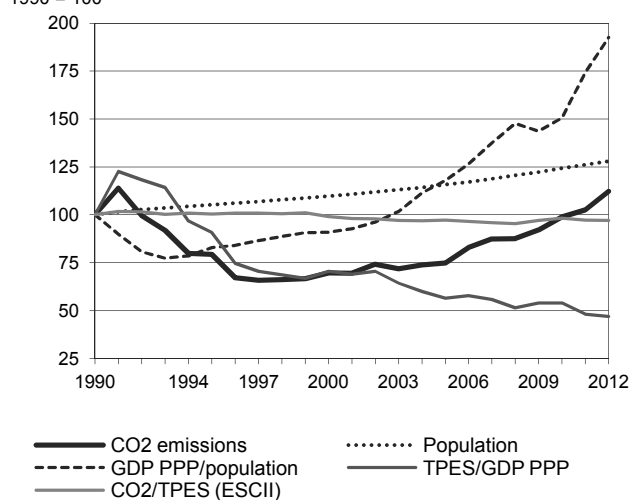
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Mongolia

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	12.66	10.05	8.81	9.48	12.53	12.98	14.22	12.3%
TPES (PJ)	143	113	100	110	144	151	165	15.7%
GDP (billion 2005 USD)	1.85	1.61	1.84	2.52	3.45	4.06	4.56	146.6%
GDP PPP (billion 2005 USD)	8.38	7.30	8.36	11.44	15.66	18.40	20.66	146.6%
Population (millions)	2.18	2.30	2.40	2.53	2.71	2.75	2.80	28.0%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	88.7	89.1	87.8	86.3	87.1	86.2	86.1	-2.9%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	6.85	6.24	4.78	3.76	3.63	3.20	3.12	-54.4%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	1.51	1.38	1.05	0.83	0.80	0.71	0.69	-54.4%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	5.79	4.37	3.68	3.75	4.62	4.71	5.08	-12.3%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	79	70	75	99	103	112	12.3%
Population index	100	105	110	116	124	126	128	28.0%
GDP PPP per population index	100	83	91	118	150	174	193	92.6%
Energy intensity index - TPES / GDP PPP	100	91	70	56	54	48	47	-53.1%
Carbon intensity index - CO <sub>2</sub> / TPES	100	100	99	97	98	97	97	-2.9%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>10.73</b>	<b>3.48</b>	-	-	<b>14.22</b>	<b>12.3%</b>
Main activity producer elec. and heat	8.29	0.27	-	-	8.56	31.6%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	0.03	-	-	-	0.03	x
Manufacturing industries and construction	0.73	1.21	-	-	1.94	-30.5%
Transport	0.06	1.82	-	-	1.88	23.1%
<i>of which: road</i>	-	1.31	-	-	1.31	18.5%
Other	1.62	0.18	-	-	1.81	-1.5%
<i>of which: residential</i>	0.89	-	-	-	0.89	10.8%
<b>Reference Approach</b>	<b>10.78</b>	<b>3.48</b>	-	-	<b>14.26</b>	<b>12.7%</b>
Diff. due to losses and/or transformation	0.04	-	-	-	0.04	
Statistical differences	0.00	0.00	-	-	0.00	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.11	-	-	0.11	800.0%

\*\* Other includes industrial waste and non-renewable municipal waste.

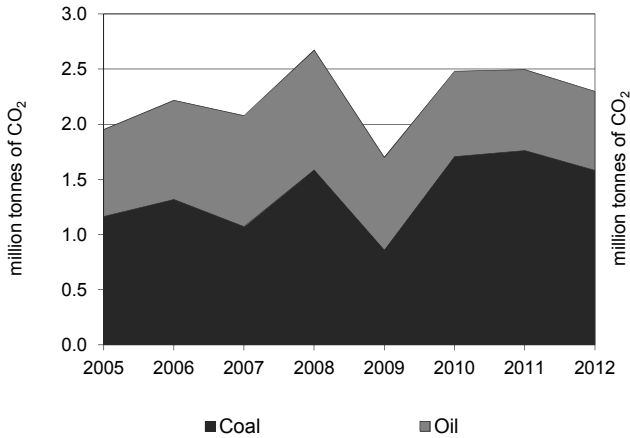
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	8.29	34.2%	35.9	35.9
Road - oil	1.31	18.5%	5.7	41.6
Manufacturing industries - oil	1.21	86.8%	5.3	46.9
Residential - coal	0.89	10.8%	3.9	50.7
Manufacturing industries - coal	0.73	-65.9%	3.2	53.9
Non-specified other sectors - coal	0.73	-21.8%	3.2	57.1
Other transport - oil	0.51	97.5%	2.2	59.3
Main activity prod. elec. and heat - oil	0.27	-16.9%	1.2	60.4
Non-specified other - oil	0.18	93.3%	0.8	61.2
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>14.22</i>	<i>12.3%</i>	<i>61.6</i>	<i>61.6</i>

\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Montenegro

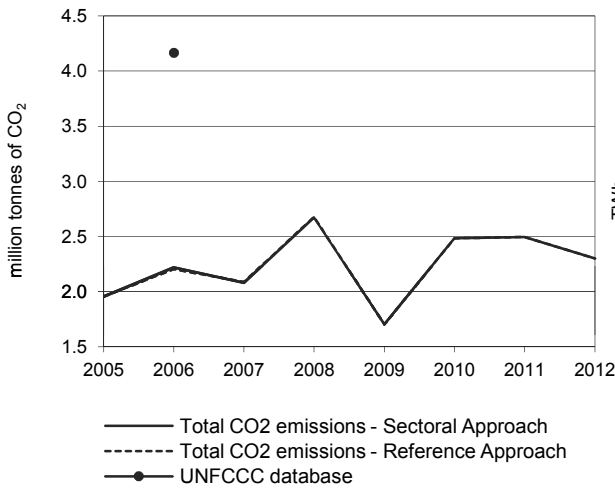
**Figure 1. CO<sub>2</sub> emissions by fuel**



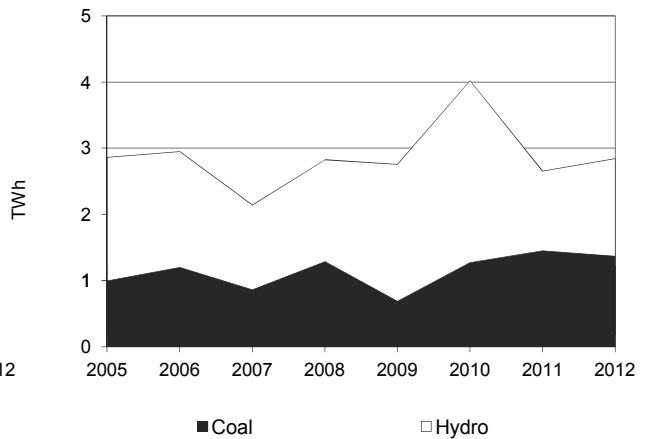
**Figure 2. CO<sub>2</sub> emissions by sector**



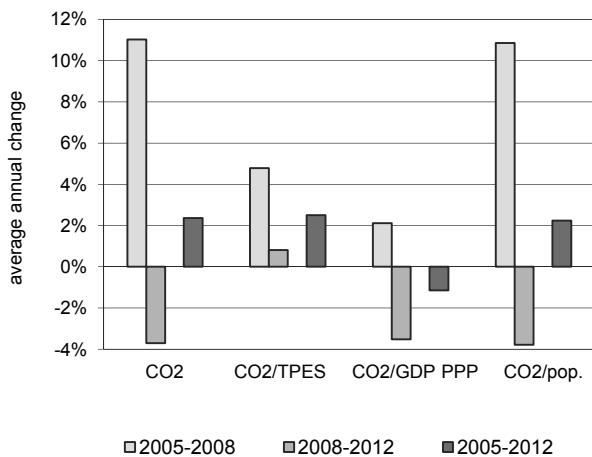
**Figure 3. Reference vs Sectoral Approach**



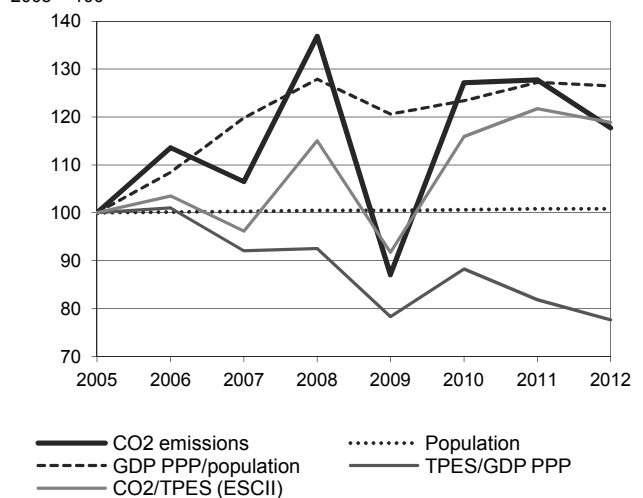
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Montenegro \*

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 05-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	..	..	..	1.95	2.48	2.50	2.30	17.7%
TPES (PJ)	..	..	..	45	49	47	44	-0.9%
GDP (billion 2005 USD)	..	..	..	2.26	2.80	2.89	2.88	27.6%
GDP PPP (billion 2005 USD)	..	..	..	5.16	6.41	6.62	6.59	27.5%
Population (millions)	..	..	..	0.62	0.62	0.62	0.62	0.8%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	..	..	..	43.5	50.4	52.9	51.7	18.9%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	..	..	..	0.87	0.89	0.86	0.80	-7.7%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	..	..	..	0.38	0.39	0.38	0.35	-7.7%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	..	..	..	3.17	4.01	4.02	3.70	16.8%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (2005=100) **</b>								
CO <sub>2</sub> emissions index	..	..	..	100	127	128	118	17.7%
Population index	..	..	..	100	101	101	101	0.8%
GDP PPP per population index	..	..	..	100	123	127	127	26.5%
Energy intensity index - TPES / GDP PPP	..	..	..	100	88	82	78	-22.3%
Carbon intensity index - CO <sub>2</sub> / TPES	..	..	..	100	116	122	119	18.9%

\* Prior to 2005, data for Montenegro were included in Serbia. \*\* Please see Part I, Chapter 1 for methodological notes. Based on GDP PPP.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other ***	Total	% change 05-12
<b>Sectoral Approach</b>	<b>1.58</b>	<b>0.72</b>	-	-	<b>2.30</b>	<b>17.7%</b>
Main activity producer elec. and heat	1.55	0.00	-	-	1.55	40.3%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.02	0.07	-	-	0.09	-73.4%
Transport	-	0.63	-	-	0.63	33.2%
<i>of which: road</i>	-	0.61	-	-	0.61	32.3%
Other	0.01	0.01	-	-	0.02	35.5%
<i>of which: residential</i>	0.01	0.00	-	-	0.02	62.7%
<b>Reference Approach</b>	<b>1.58</b>	<b>0.72</b>	-	-	<b>2.30</b>	<b>17.6%</b>
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-0.00	0.00	-	-	0.00	-
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.04	-	-	0.04	-7.7%

\*\*\* Other includes industrial waste and non-renewable municipal waste.

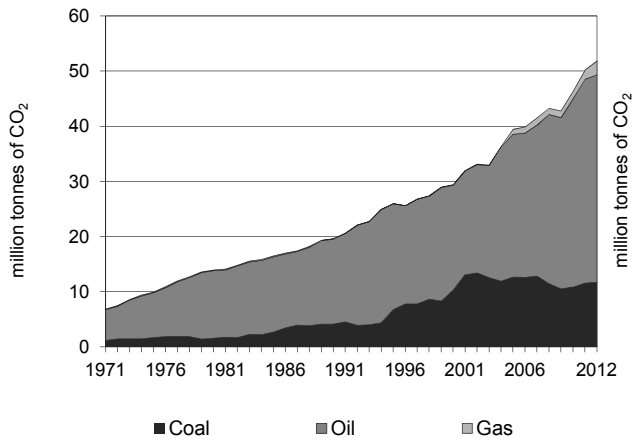
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 05-12	Level assessment (%) ****	Cumulative total (%)
Main activity prod. elec. and heat - coal	1.55	40.8%	..	..
Road - oil	0.61	32.3%	..	..
Manufacturing industries - oil	0.07	-75.2%	..	..
Manufacturing industries - coal	0.02	-64.4%	..	..
Other transport - oil	0.02	65.0%	..	..
Residential - coal	0.01	250.0%	..	..
Non-specified other - oil	0.01	17.1%	..	..
Residential - oil	0.00	-49.1%	..	..
Main activity prod. elec. and heat - oil	0.00	-50.0%	..	..
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>2.30</i>	<i>17.7%</i>	-	-

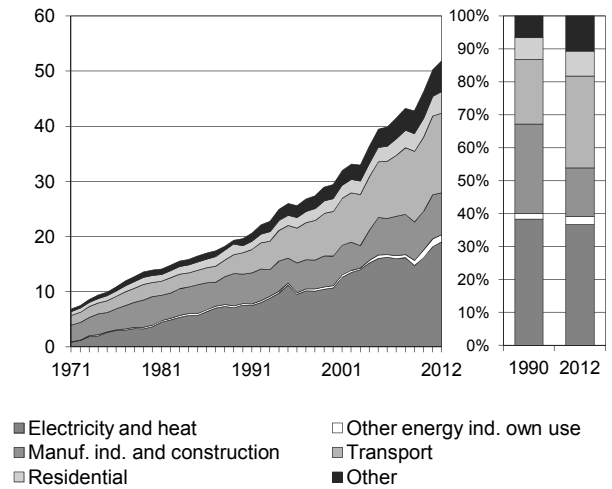
\*\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Morocco

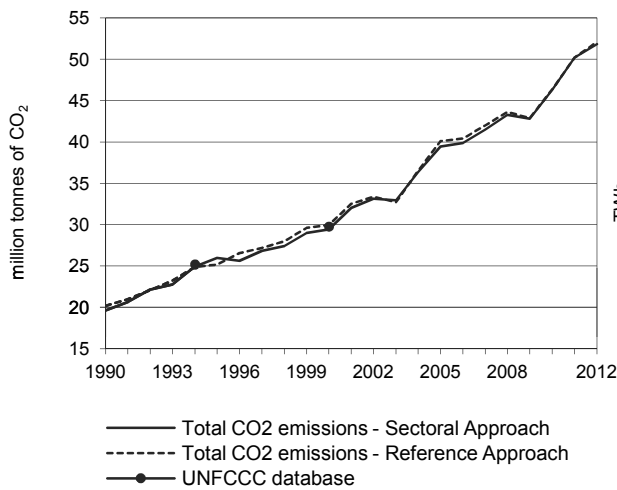
**Figure 1. CO<sub>2</sub> emissions by fuel**



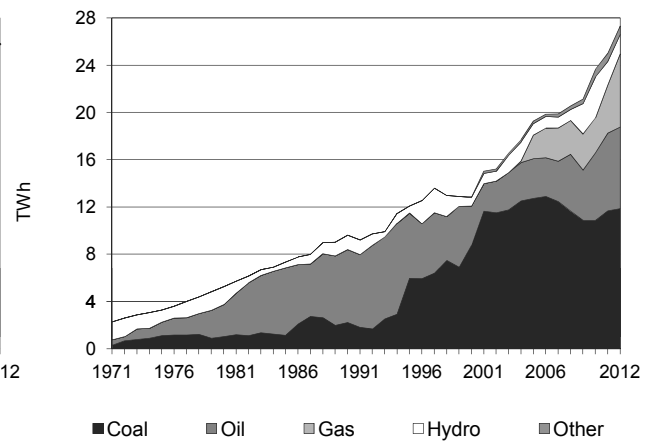
**Figure 2. CO<sub>2</sub> emissions by sector**



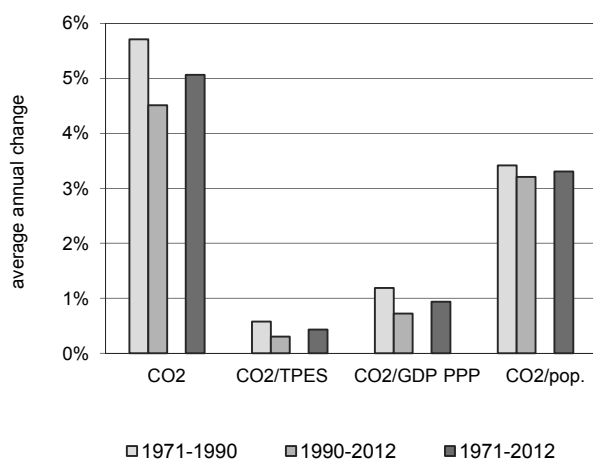
**Figure 3. Reference vs Sectoral Approach**



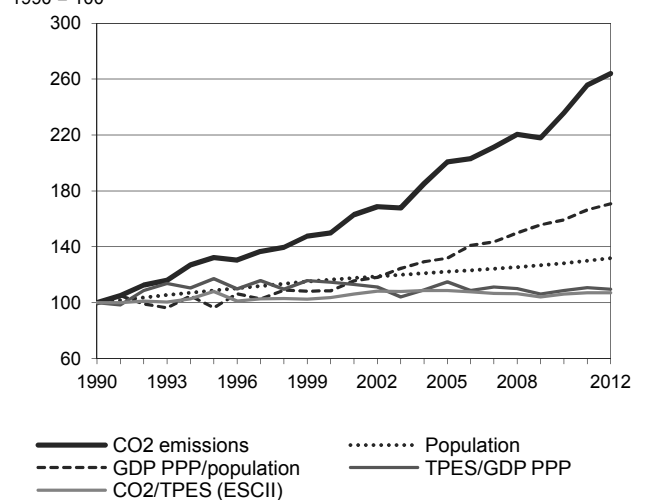
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Morocco

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	19.64	25.99	29.42	39.45	46.30	50.22	51.84	163.9%
TPES (PJ)	319	391	462	590	709	762	787	146.7%
GDP (billion 2005 USD)	36.97	38.70	46.69	59.52	75.52	79.86	83.22	125.1%
GDP PPP (billion 2005 USD)	90.06	94.29	113.75	145.02	184.01	194.58	202.76	125.1%
Population (millions)	24.68	26.83	28.71	30.13	31.64	32.06	32.52	31.8%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	61.6	66.5	63.7	66.9	65.3	65.9	65.9	7.0%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.53	0.67	0.63	0.66	0.61	0.63	0.62	17.2%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.22	0.28	0.26	0.27	0.25	0.26	0.26	17.2%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.80	0.97	1.02	1.31	1.46	1.57	1.59	100.3%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	132	150	201	236	256	264	163.9%
Population index	100	109	116	122	128	130	132	31.8%
GDP PPP per population index	100	96	109	132	159	166	171	70.8%
Energy intensity index - TPES / GDP PPP	100	117	115	115	109	111	110	9.6%
Carbon intensity index - CO <sub>2</sub> / TPES	100	108	104	109	106	107	107	7.0%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>11.74</b>	<b>37.61</b>	<b>2.49</b>	-	<b>51.84</b>	<b>163.9%</b>
Main activity producer elec. and heat	11.70	3.89	2.34	-	17.93	176.4%
Unallocated autoproducers	-	1.11	-	-	1.11	5.6%
Other energy industry own use	0.01	1.26	-	-	1.26	297.9%
Manufacturing industries and construction	0.03	7.42	0.16	-	7.61	42.5%
Transport	-	14.47	-	-	14.47	275.5%
<i>of which: road</i>	-	14.47	-	-	14.47	275.5%
Other	-	9.45	-	-	9.45	264.9%
<i>of which: residential</i>	-	3.94	-	-	3.94	206.4%
<b>Reference Approach</b>	<b>11.74</b>	<b>37.87</b>	<b>2.49</b>	-	<b>52.10</b>	<b>158.5%</b>
Diff. due to losses and/or transformation	-	0.92	-	-	0.92	
Statistical differences	-	-0.66	0.00	-	-0.66	
<i>Memo: international marine bunkers</i>	-	0.42	-	-	0.42	568.8%
<i>Memo: international aviation bunkers</i>	-	1.60	-	-	1.60	103.2%

\*\* Other includes industrial waste and non-renewable municipal waste.

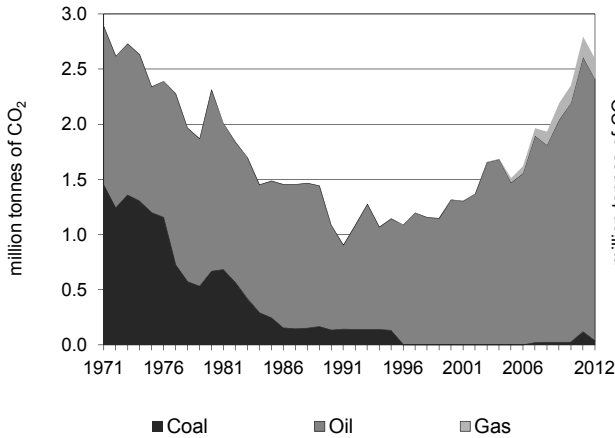
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	14.47	275.5%	19.4	19.4
Main activity prod. elec. and heat - coal	11.70	325.7%	15.6	35.0
Manufacturing industries - oil	7.42	92.3%	9.9	44.9
Non-specified other - oil	5.51	322.6%	7.4	52.3
Residential - oil	3.94	206.4%	5.3	57.6
Main activity prod. elec. and heat - oil	3.89	4.2%	5.2	62.8
Main activity prod. elec. and heat - gas	2.34	x	3.1	65.9
Other energy industry own use - oil	1.26	295.5%	1.7	67.6
Unallocated autoproducers - oil	1.11	5.6%	1.5	69.1
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>51.84</i>	<i>163.9%</i>	<i>69.3</i>	<i>69.3</i>

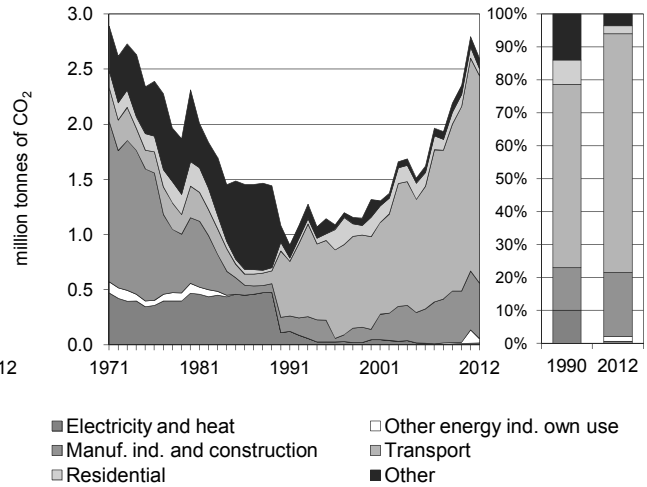
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Mozambique

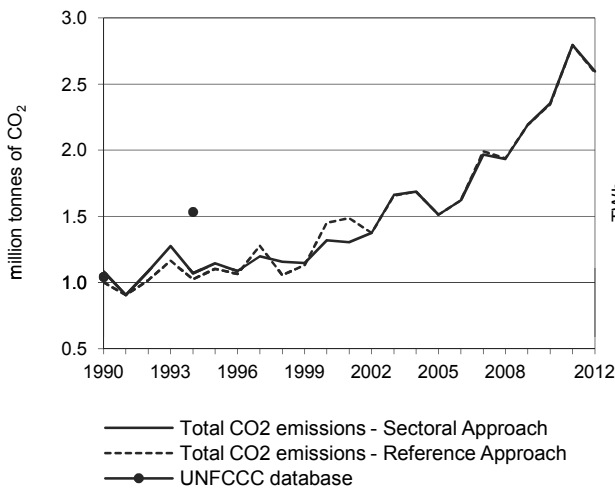
**Figure 1. CO<sub>2</sub> emissions by fuel**



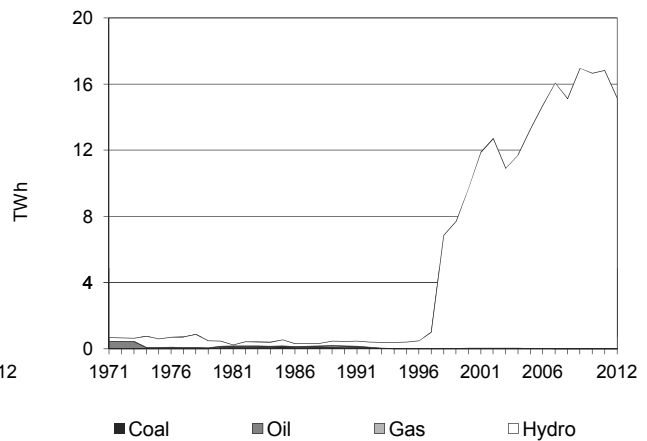
**Figure 2. CO<sub>2</sub> emissions by sector**



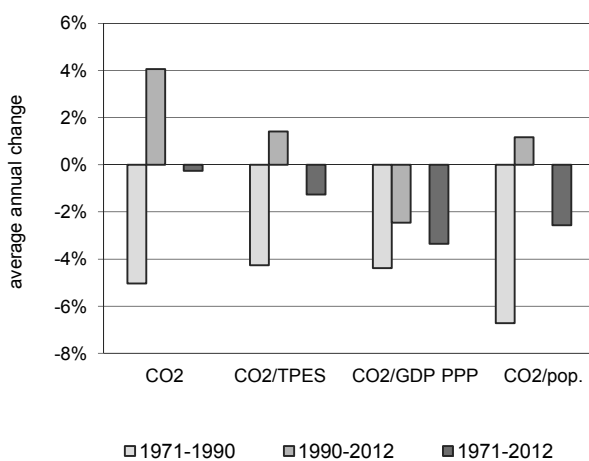
**Figure 3. Reference vs Sectoral Approach**



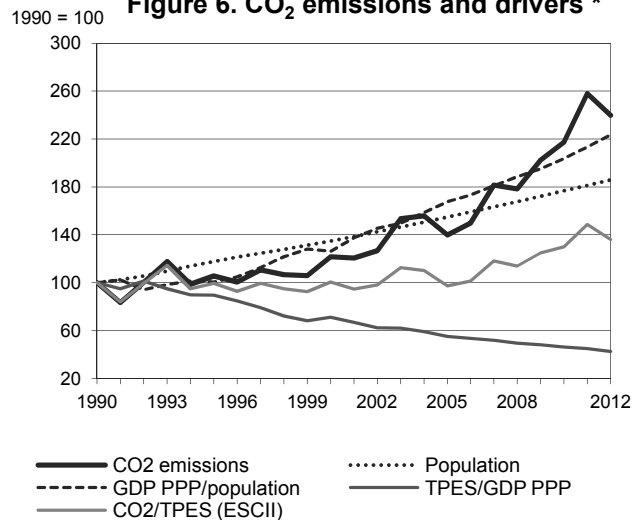
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Mozambique

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	1.08	1.14	1.32	1.51	2.35	2.79	2.60	139.7%
TPES (PJ)	248	263	300	355	414	430	437	76.2%
GDP (billion 2005 USD)	2.54	3.01	4.31	6.58	9.13	9.80	10.52	314.9%
GDP PPP (billion 2005 USD)	5.26	6.24	8.94	13.64	18.93	20.32	21.82	314.9%
Population (millions)	13.57	15.98	18.28	21.01	23.97	24.58	25.20	85.8%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	4.4	4.3	4.4	4.3	5.7	6.5	5.9	36.0%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.43	0.38	0.31	0.23	0.26	0.29	0.25	-42.2%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.21	0.18	0.15	0.11	0.12	0.14	0.12	-42.2%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.08	0.07	0.07	0.07	0.10	0.11	0.10	29.1%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	106	122	140	217	258	240	139.7%
Population index	100	118	135	155	177	181	186	85.8%
GDP PPP per population index	100	101	126	168	204	213	223	123.4%
Energy intensity index - TPES / GDP PPP	100	89	71	55	46	45	42	-57.5%
Carbon intensity index - CO <sub>2</sub> / TPES	100	100	100	97	130	149	136	36.0%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.04</b>	<b>2.37</b>	<b>0.19</b>	-	<b>2.60</b>	<b>139.7%</b>
Main activity producer elec. and heat	-	-	0.02	-	0.02	-83.6%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	0.04	-	-	-	0.04	x
Manufacturing industries and construction	-	0.34	0.16	-	0.50	261.6%
Transport	-	1.87	0.01	-	1.88	212.2%
<i>of which: road</i>	-	1.72	0.01	-	1.73	228.4%
Other	-	0.16	0.00	-	0.16	-32.5%
<i>of which: residential</i>	-	0.06	0.00	-	0.06	-20.2%
<b>Reference Approach</b>	<b>0.04</b>	<b>2.37</b>	<b>0.18</b>	-	<b>2.59</b>	<b>158.5%</b>
Diff. due to losses and/or transformation	-	0.00	-	-	0.00	
Statistical differences	-	0.00	-0.01	-	-0.01	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.21	-	-	0.21	58.5%

\*\* Other includes industrial waste and non-renewable municipal waste.

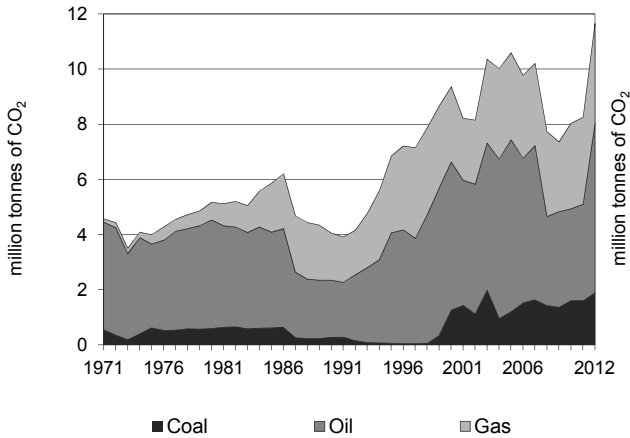
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	1.72	227.3%	10.2	10.2
Manufacturing industries - oil	0.34	465.9%	2.0	12.3
Manufacturing industries - gas	0.16	x	1.0	13.2
Other transport - oil	0.15	100.0%	0.9	14.1
Non-specified other - oil	0.09	-39.1%	0.5	14.7
Residential - oil	0.06	-20.6%	0.4	15.1
Other energy industry - coal	0.04	x	0.2	15.3
Main activity prod. elec. and heat - gas	0.02	x	0.1	15.4
Road - gas	0.01	x	0.0	15.4
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>2.60</i>	<i>139.7%</i>	<i>15.4</i>	<i>15.4</i>

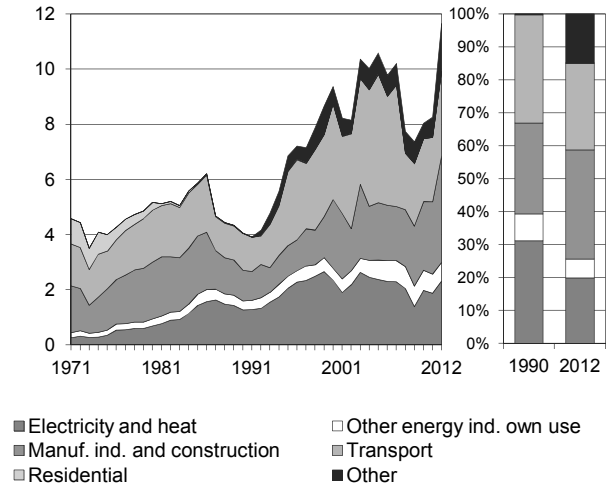
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Myanmar

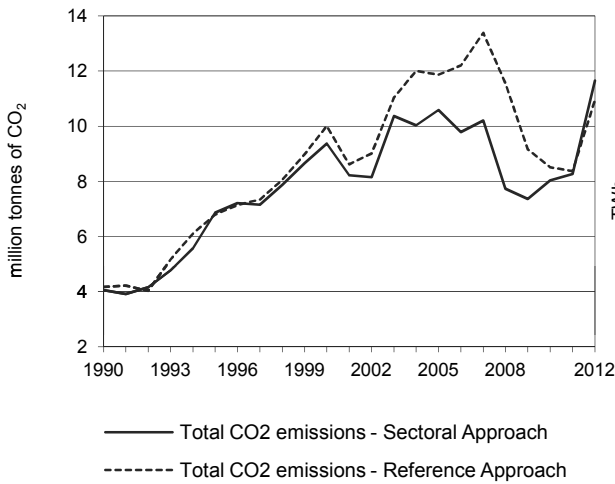
**Figure 1. CO<sub>2</sub> emissions by fuel**



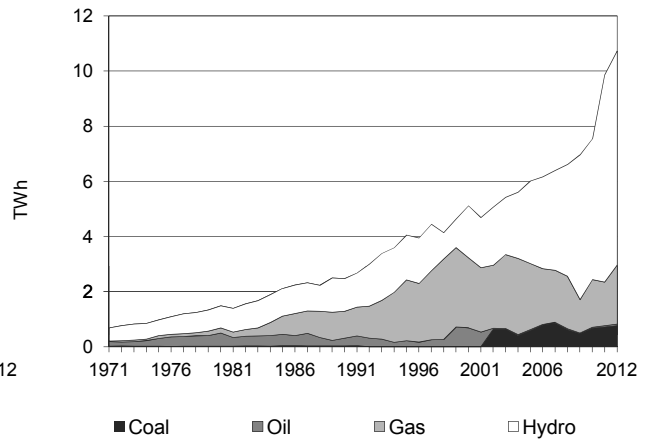
**Figure 2. CO<sub>2</sub> emissions by sector**



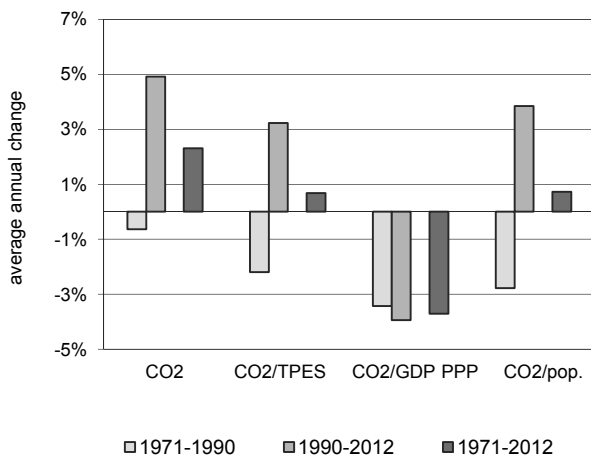
**Figure 3. Reference vs Sectoral Approach**



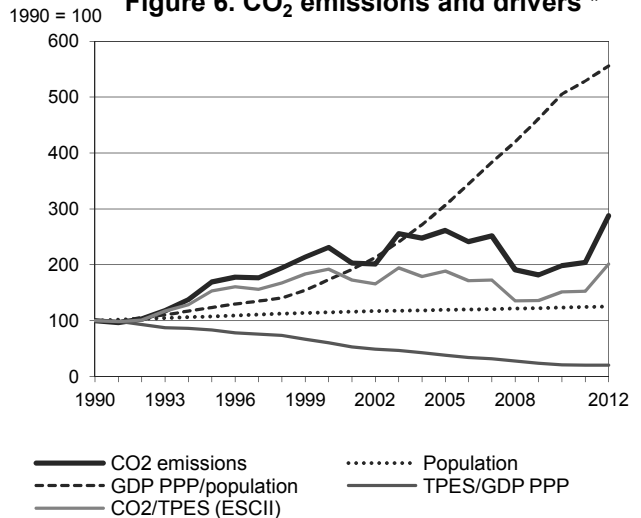
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Myanmar

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	4.05	6.85	9.37	10.59	8.04	8.26	11.65	187.6%
TPES (PJ)	447	494	538	620	587	598	639	43.0%
GDP (billion 2005 USD)	3.28	4.36	6.55	11.99	20.44	21.56	22.85	596.3%
GDP PPP (billion 2005 USD)	13.47	17.88	26.87	49.21	83.91	88.49	93.78	596.4%
Population (millions)	42.12	45.33	48.45	50.18	51.93	52.35	52.80	25.3%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	9.1	13.9	17.4	17.1	13.7	13.8	18.2	101.2%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	1.23	1.57	1.43	0.88	0.39	0.38	0.51	-58.7%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.30	0.38	0.35	0.22	0.10	0.09	0.12	-58.7%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.10	0.15	0.19	0.21	0.15	0.16	0.22	129.4%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	169	231	261	198	204	288	187.6%
Population index	100	108	115	119	123	124	125	25.3%
GDP PPP per population index	100	123	173	307	505	529	556	455.6%
Energy intensity index - TPES / GDP PPP	100	83	60	38	21	20	21	-79.5%
Carbon intensity index - CO <sub>2</sub> / TPES	100	153	192	188	151	152	201	101.2%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>1.88</b>	<b>6.13</b>	<b>3.63</b>	-	<b>11.65</b>	<b>187.6%</b>
Main activity producer elec. and heat	0.72	0.04	1.55	-	2.32	83.8%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.17	0.50	-	0.67	103.4%
Manufacturing industries and construction	1.09	1.65	1.12	-	3.86	245.4%
Transport	-	2.65	0.42	-	3.06	130.3%
<i>of which: road</i>	-	1.78	0.42	-	2.20	74.2%
Other	0.07	1.62	0.05	-	1.74	+
<i>of which: residential</i>	-	0.00	-	-	0.00	-67.3%
<b>Reference Approach</b>	<b>1.88</b>	<b>6.32</b>	<b>2.75</b>	-	<b>10.95</b>	<b>162.8%</b>
Diff. due to losses and/or transformation	-	-0.01	-	-	-0.01	
Statistical differences	-0.00	0.19	-0.88	-	-0.70	
<i>Memo: international marine bunkers</i>	-	0.01	-	-	0.01	x
<i>Memo: international aviation bunkers</i>	-	0.11	-	-	0.11	466.6%

\*\* Other includes industrial waste and non-renewable municipal waste.

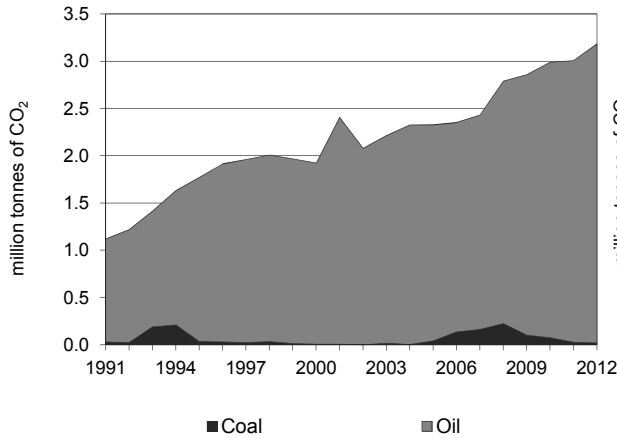
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	1.78	41.3%	1.5	1.5
Manufacturing industries - oil	1.65	268.9%	1.4	2.9
Non-specified other - oil	1.62	+	1.4	4.2
Main activity prod. elec. and heat - gas	1.55	53.3%	1.3	5.5
Manufacturing industries - gas	1.12	146.5%	0.9	6.5
Manufacturing industries - coal	1.09	405.1%	0.9	7.4
Other transport - oil	0.87	+	0.7	8.1
Main activity prod. elec. and heat - coal	0.72	+	0.6	8.7
Other energy industry own use - gas	0.50	109.4%	0.4	9.1
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>11.65</i>	<i>187.6%</i>	<i>9.7</i>	<i>9.7</i>

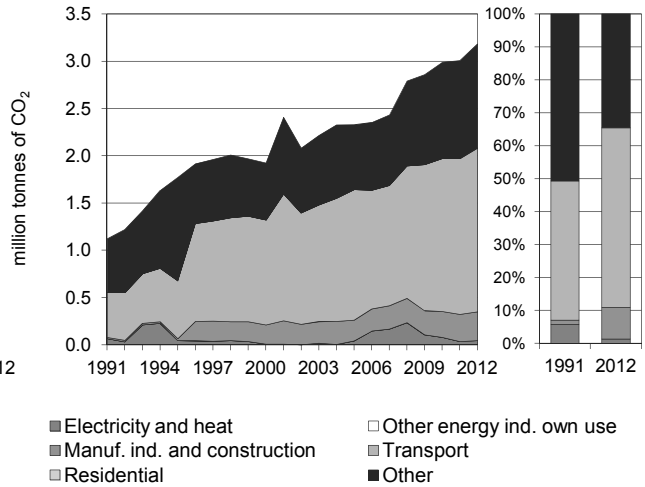
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Namibia

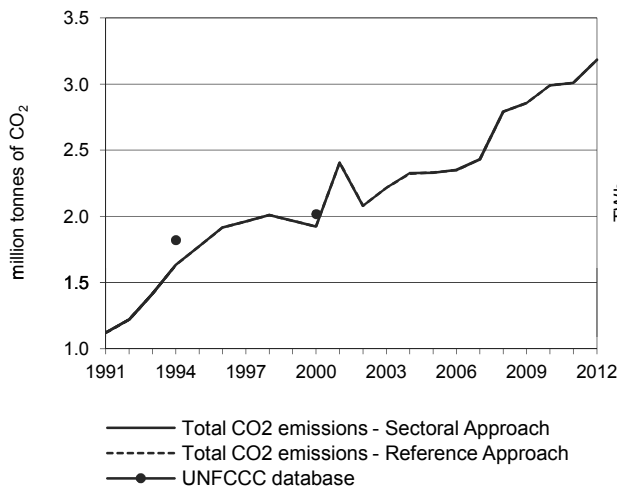
**Figure 1. CO<sub>2</sub> emissions by fuel**



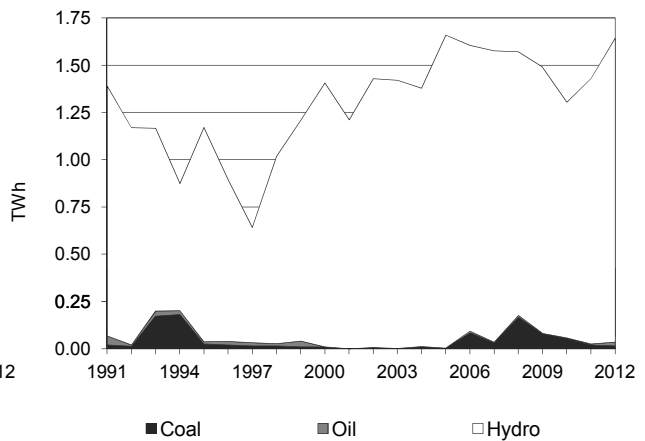
**Figure 2. CO<sub>2</sub> emissions by sector**



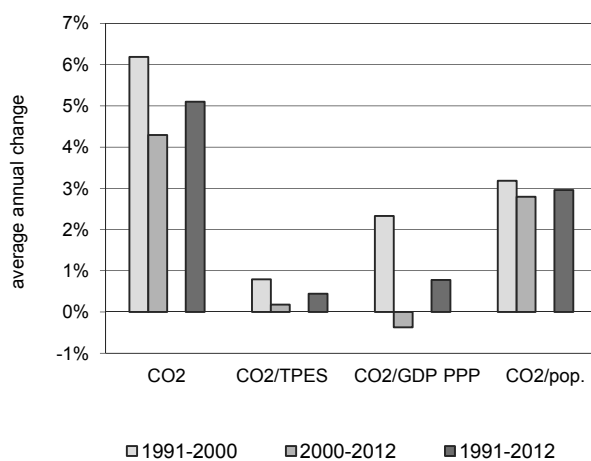
**Figure 3. Reference vs Sectoral Approach**



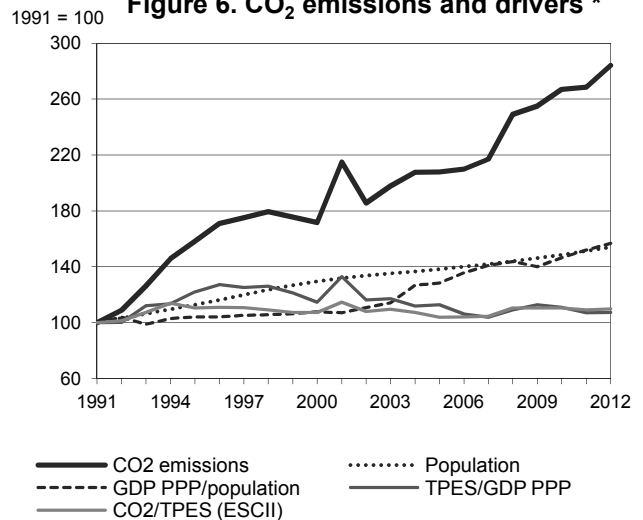
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Namibia \*

### Key indicators

	1990	1991	2000	2005	2010	2011	2012	% change 91-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	..	1.12	1.92	2.33	2.99	3.01	3.18	184.2%
TPES (PJ)	..	26	42	52	63	64	68	159.0%
GDP (billion 2005 USD)	..	4.09	5.71	7.26	8.90	9.41	9.88	141.4%
GDP PPP (billion 2005 USD)	..	7.62	10.63	13.52	16.58	17.52	18.40	141.4%
Population (millions)	..	1.47	1.90	2.03	2.18	2.22	2.26	54.1%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	..	42.8	46.0	44.5	47.4	46.8	47.0	9.7%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	..	0.27	0.34	0.32	0.34	0.32	0.32	17.7%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	..	0.15	0.18	0.17	0.18	0.17	0.17	17.7%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	..	0.76	1.01	1.15	1.37	1.36	1.41	84.4%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1991=100) **</b>								
CO <sub>2</sub> emissions index	..	100	172	208	267	269	284	184.2%
Population index	..	100	129	138	149	151	154	54.1%
GDP PPP per population index	..	100	108	128	146	152	157	56.7%
Energy intensity index - TPES / GDP PPP	..	100	115	113	111	107	107	7.3%
Carbon intensity index - CO <sub>2</sub> / TPES	..	100	107	104	111	109	110	9.7%

\* Prior to 1991, data for Namibia were included in Other Africa. \*\* Please see Part I, Chapter 1 for methodological notes. Based on GDP PPP.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other ***	Total	% change 91-12
<b>Sectoral Approach</b>	<b>0.02</b>	<b>3.16</b>	-	-	<b>3.18</b>	<b>184.2%</b>
Main activity producer elec. and heat	0.02	0.02	-	-	0.04	-31.6%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.30	-	-	0.30	+
Transport	-	1.74	-	-	1.74	267.5%
<i>of which: road</i>	-	1.63	-	-	1.63	259.6%
Other	-	1.10	-	-	1.10	93.6%
<i>of which: residential</i>	-	-	-	-	-	-
<b>Reference Approach</b>	<b>0.02</b>	<b>3.16</b>	-	-	<b>3.18</b>	<b>184.2%</b>
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.13	-	-	0.13	61.9%

\*\*\* Other includes industrial waste and non-renewable municipal waste.

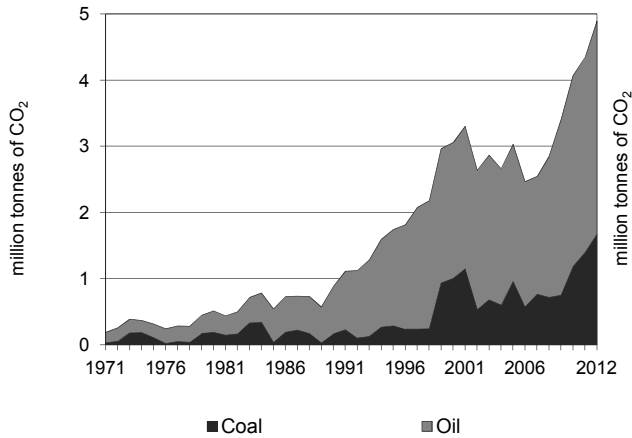
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 91-12	Level assessment (%) ****	Cumulative total (%)
Road - oil	1.63	259.6%	14.4	14.4
Non-specified other - oil	1.10	93.6%	9.7	24.1
Manufacturing industries - oil	0.30	+	2.7	26.7
Other transport - oil	0.10	456.0%	0.9	27.7
Main activity prod. elec. and heat - oil	0.02	-30.0%	0.2	27.9
Main activity prod. elec. and heat - coal	0.02	-33.3%	0.2	28.1
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>3.18</i>	<i>184.2%</i>	<i>28.1</i>	<i>28.1</i>

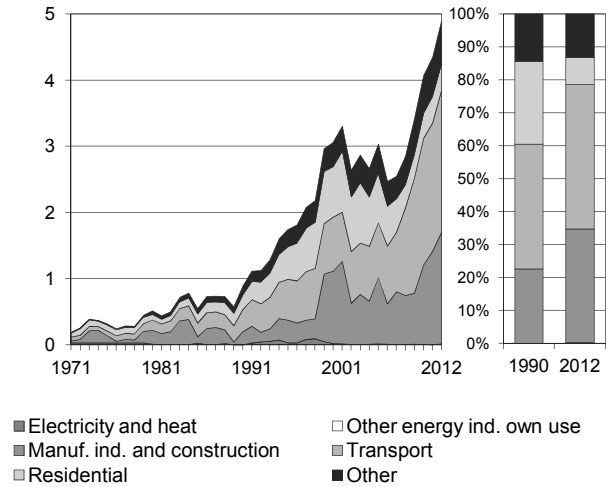
\*\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Nepal

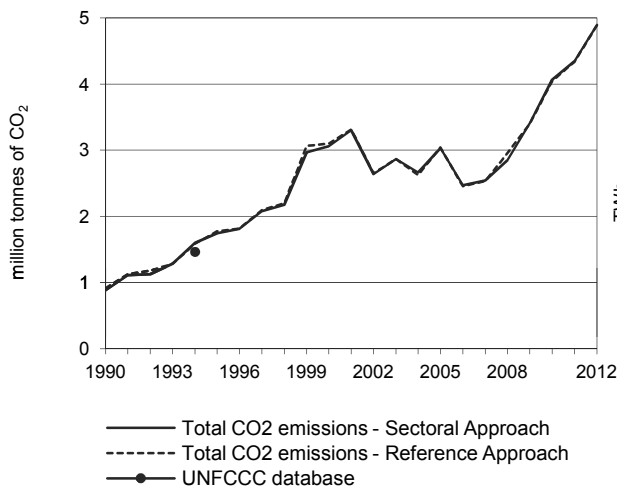
**Figure 1. CO<sub>2</sub> emissions by fuel**



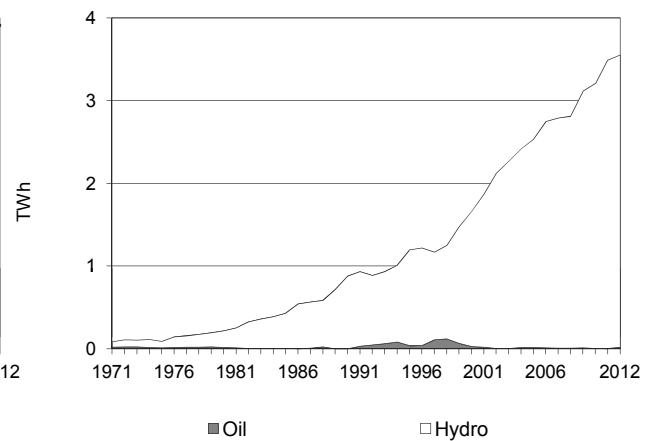
**Figure 2. CO<sub>2</sub> emissions by sector**



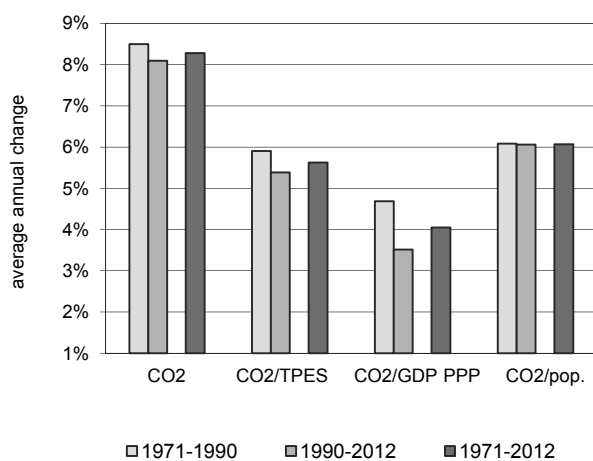
**Figure 3. Reference vs Sectoral Approach**



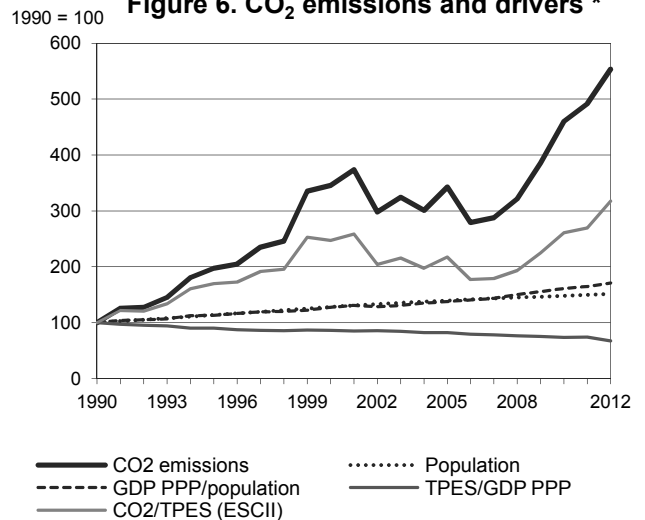
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Nepal

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	0.88	1.74	3.06	3.03	4.07	4.35	4.89	453.5%
TPES (PJ)	242	281	339	382	428	442	423	74.5%
GDP (billion 2005 USD)	4.23	5.45	6.88	8.13	10.10	10.45	10.96	159.1%
GDP PPP (billion 2005 USD)	20.14	25.93	32.78	38.72	48.12	49.77	52.18	159.1%
Population (millions)	18.11	20.59	23.18	25.29	26.85	27.16	27.47	51.7%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	3.7	6.2	9.0	7.9	9.5	9.8	11.6	217.2%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.21	0.32	0.44	0.37	0.40	0.42	0.45	113.6%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.04	0.07	0.09	0.08	0.08	0.09	0.09	113.7%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.05	0.08	0.13	0.12	0.15	0.16	0.18	265.0%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	197	346	343	460	491	553	453.5%
Population index	100	114	128	140	148	150	152	51.7%
GDP PPP per population index	100	113	127	138	161	165	171	70.8%
Energy intensity index - TPES / GDP PPP	100	90	86	82	74	74	67	-32.7%
Carbon intensity index - CO <sub>2</sub> / TPES	100	170	247	217	261	269	317	217.2%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>1.67</b>	<b>3.23</b>	-	-	<b>4.89</b>	<b>453.5%</b>
Main activity producer elec. and heat	-	0.01	-	-	0.01	x
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	1.66	0.03	-	-	1.69	743.7%
Transport	-	2.14	-	-	2.14	539.3%
<i>of which: road</i>	-	2.14	-	-	2.14	539.3%
Other	0.01	1.04	-	-	1.05	200.9%
<i>of which: residential</i>	0.01	0.39	-	-	0.40	81.8%
<b>Reference Approach</b>	<b>1.67</b>	<b>3.22</b>	-	-	<b>4.89</b>	<b>435.7%</b>
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-0.00	-	-	-0.00	-
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.30	-	-	0.30	500.0%

\*\* Other includes industrial waste and non-renewable municipal waste.

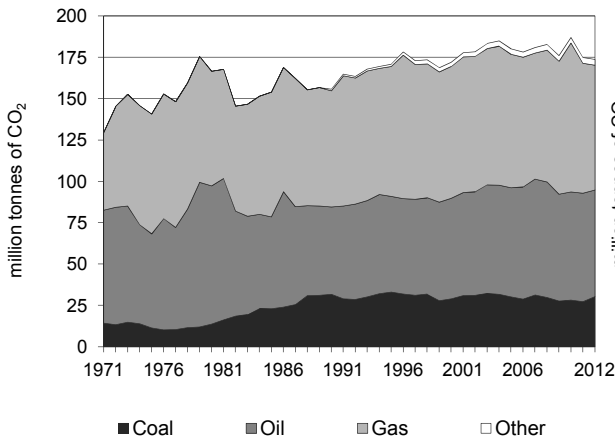
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	2.14	539.3%	6.4	6.4
Manufacturing industries - coal	1.66	917.1%	5.0	11.4
Non-specified other - oil	0.65	407.9%	1.9	13.3
Residential - oil	0.39	77.6%	1.2	14.5
Manufacturing industries - oil	0.03	-18.6%	0.1	14.6
Main activity prod. elec. and heat - oil	0.01	x	0.0	14.6
Residential - coal	0.01	x	0.0	14.7
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>4.89</i>	<i>453.5%</i>	<i>14.7</i>	<i>14.7</i>

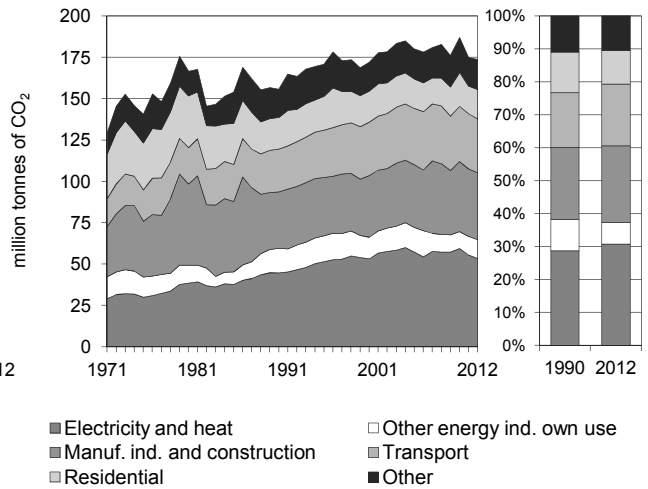
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Netherlands

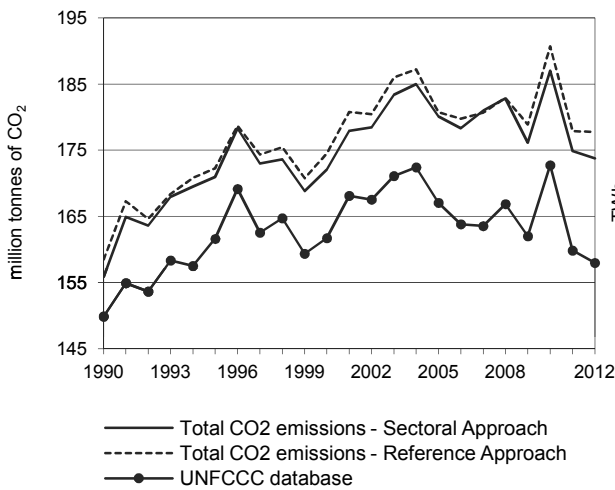
**Figure 1. CO<sub>2</sub> emissions by fuel**



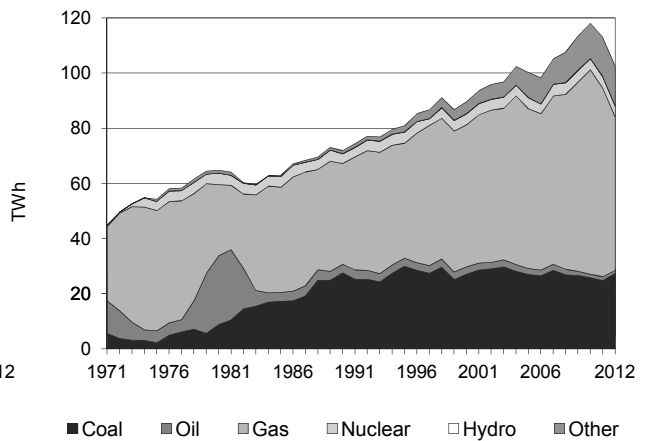
**Figure 2. CO<sub>2</sub> emissions by sector**



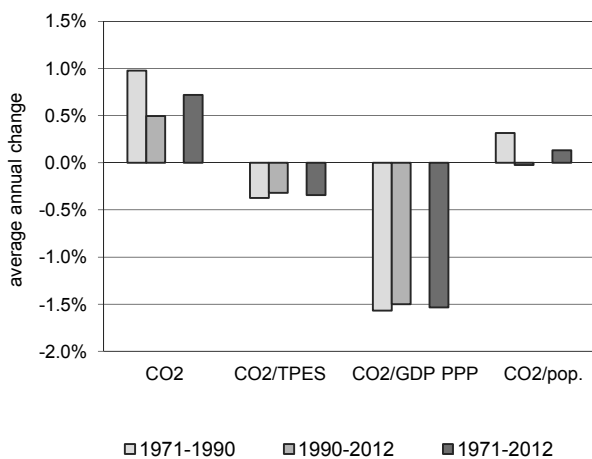
**Figure 3. Reference vs Sectoral Approach**



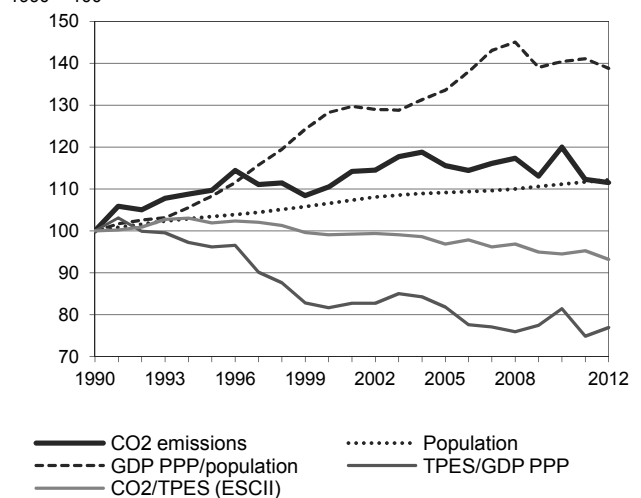
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Netherlands

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	155.85	170.94	172.09	180.11	187.00	174.89	173.77	11.5%
TPES (PJ)	2 750	2 962	3 066	3 282	3 493	3 241	3 290	19.6%
GDP (billion 2005 USD)	437.83	490.39	597.95	638.47	683.06	689.52	680.92	55.5%
GDP PPP (billion 2005 USD)	392.86	440.03	536.54	572.90	612.91	618.70	610.99	55.5%
Population (millions)	14.95	15.46	15.92	16.32	16.61	16.69	16.75	12.1%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	56.7	57.7	56.1	54.9	53.5	54.0	52.8	-6.8%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.36	0.35	0.29	0.28	0.27	0.25	0.26	-28.3%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.40	0.39	0.32	0.31	0.31	0.28	0.28	-28.3%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	10.43	11.06	10.81	11.04	11.26	10.48	10.37	-0.5%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	110	110	116	120	112	111	11.5%
Population index	100	103	107	109	111	112	112	12.1%
GDP PPP per population index	100	108	128	134	140	141	139	38.8%
Energy intensity index - TPES / GDP PPP	100	96	82	82	81	75	77	-23.1%
Carbon intensity index - CO <sub>2</sub> / TPES	100	102	99	97	94	95	93	-6.8%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>30.38</b>	<b>64.44</b>	<b>75.56</b>	<b>3.39</b>	<b>173.77</b>	<b>11.5%</b>
Main activity producer elec. and heat	25.50	0.35	18.24	-	44.10	16.9%
Unallocated autoproducers	0.13	0.84	5.01	3.39	9.38	32.5%
Other energy industry own use	0.51	6.85	4.06	-	11.43	-22.7%
Manufacturing industries and construction	4.18	21.49	14.76	-	40.44	18.6%
Transport	-	32.46	0.04	-	32.50	25.7%
<i>of which: road</i>	-	31.65	0.04	-	31.69	28.6%
Other	0.04	2.43	33.44	-	35.92	-1.1%
<i>of which: residential</i>	0.02	0.26	17.44	-	17.72	-7.6%
<b>Reference Approach</b>	<b>31.46</b>	<b>67.84</b>	<b>75.06</b>	<b>3.39</b>	<b>177.76</b>	<b>12.2%</b>
Diff. due to losses and/or transformation	1.08	1.84	-0.50	-	2.43	
Statistical differences	-0.00	1.57	0.00	-	1.57	
<i>Memo: international marine bunkers</i>	-	42.75	-	-	42.75	24.7%
<i>Memo: international aviation bunkers</i>	-	10.01	-	-	10.01	133.1%

\*\* Other includes industrial waste and non-renewable municipal waste.

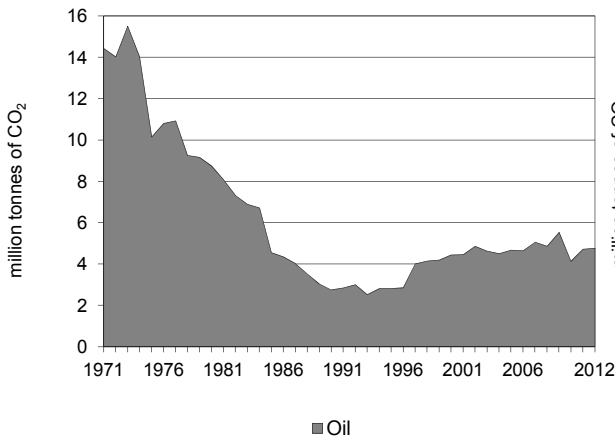
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	31.65	28.4%	15.3	15.3
Main activity prod. elec. and heat - coal	25.50	3.7%	12.3	27.5
Manufacturing industries - oil	21.49	129.8%	10.4	37.9
Main activity prod. elec. and heat - gas	18.24	40.8%	8.8	46.7
Residential - gas	17.44	-5.0%	8.4	55.1
Non-specified other - gas	16.00	13.5%	7.7	62.8
Manufacturing industries - gas	14.76	-21.4%	7.1	69.9
Other energy industry own use - oil	6.85	-41.5%	3.3	73.2
Unallocated autoproducers - gas	5.01	37.3%	2.4	75.7
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>173.77</i>	<i>11.5%</i>	<i>83.8</i>	<i>83.8</i>

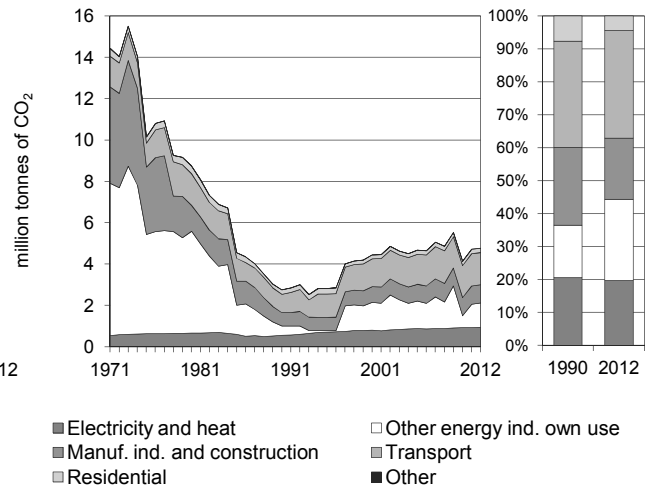
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Netherlands Antilles

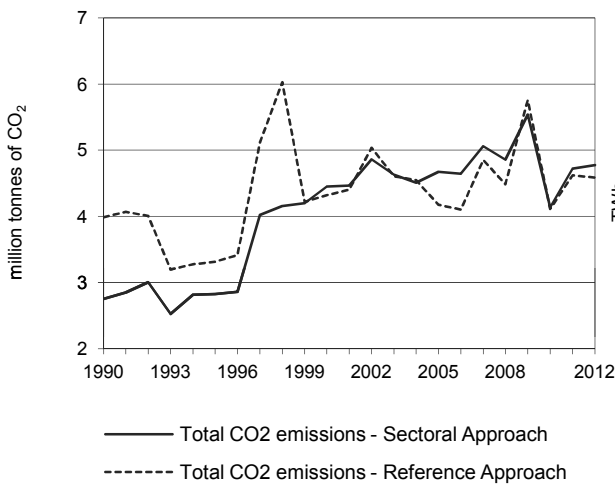
**Figure 1. CO<sub>2</sub> emissions by fuel**



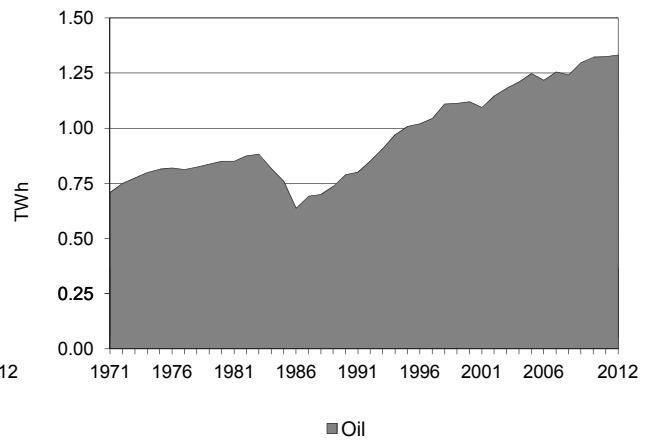
**Figure 2. CO<sub>2</sub> emissions by sector**



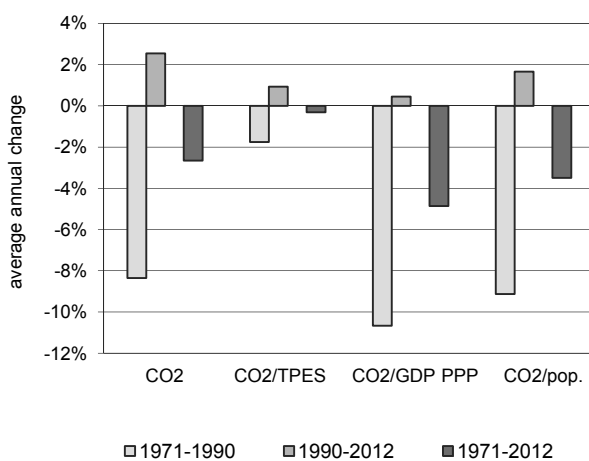
**Figure 3. Reference vs Sectoral Approach**



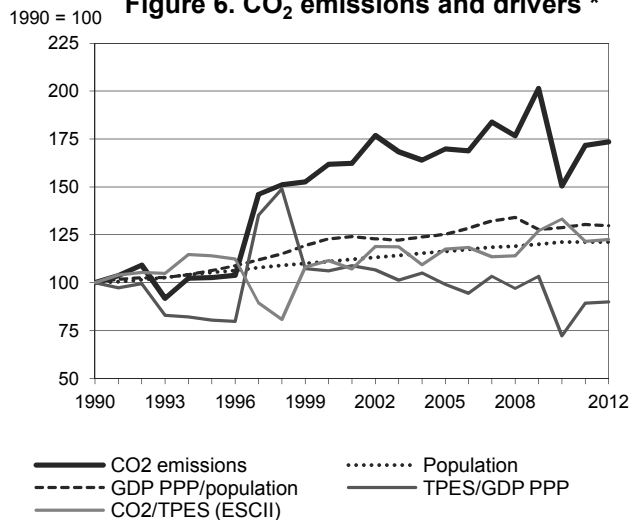
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Netherlands Antilles

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	2.75	2.82	4.45	4.67	4.14	4.72	4.77	73.6%
TPES (PJ)	61	55	89	88	69	86	86	41.5%
GDP (billion 2005 USD)	1.72	1.92	2.34	2.50	2.68	2.71	2.70	57.3%
GDP PPP (billion 2005 USD)	1.54	1.72	2.10	2.24	2.40	2.43	2.42	57.2%
Population (millions)	0.19	0.20	0.21	0.22	0.23	0.23	0.23	21.2%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	45.0	51.4	50.3	53.0	60.1	54.7	55.2	22.6%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	1.60	1.47	1.90	1.87	1.55	1.74	1.77	10.4%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	1.79	1.64	2.12	2.08	1.72	1.94	1.97	10.4%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	14.55	14.19	21.20	21.23	18.06	20.62	20.85	43.3%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	103	162	170	150	172	174	73.6%
Population index	100	105	111	116	121	121	121	21.2%
GDP PPP per population index	100	106	123	125	129	130	130	29.8%
Energy intensity index - TPES / GDP PPP	100	80	106	99	72	89	90	-10.0%
Carbon intensity index - CO <sub>2</sub> / TPES	100	114	112	118	133	122	123	22.6%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>4.77</b>	-	-	<b>4.77</b>	<b>73.6%</b>
Main activity producer elec. and heat	-	0.46	-	-	0.46	67.8%
Unallocated autoproducers	-	0.48	-	-	0.48	64.9%
Other energy industry own use	-	1.18	-	-	1.18	169.1%
Manufacturing industries and construction	-	0.88	-	-	0.88	36.2%
Transport	-	1.56	-	-	1.56	75.8%
<i>of which: road</i>	-	1.56	-	-	1.56	75.8%
Other	-	0.21	-	-	0.21	0.9%
<i>of which: residential</i>	-	0.21	-	-	0.21	0.9%
<b>Reference Approach</b>	-	<b>4.58</b>	-	-	<b>4.58</b>	<b>15.0%</b>
Diff. due to losses and/or transformation	-	-0.19	-	-	-0.19	
Statistical differences	-	-0.00	-	-	-0.00	
<i>Memo: international marine bunkers</i>	-	7.24	-	-	7.24	39.8%
<i>Memo: international aviation bunkers</i>	-	0.27	-	-	0.27	135.1%

\*\* Other includes industrial waste and non-renewable municipal waste.

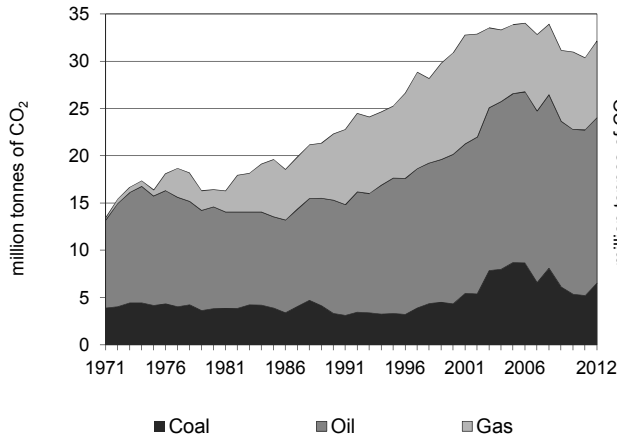
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	1.56	75.8%	31.4	31.4
Other energy industry own use - oil	1.18	169.1%	23.7	55.1
Manufacturing industries - oil	0.88	36.2%	17.8	72.9
Unallocated autoproducers - oil	0.48	64.9%	9.6	82.5
Main activity prod. elec. and heat - oil	0.46	67.8%	9.4	91.9
Residential - oil	0.21	0.9%	4.3	96.2
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>4.77</i>	<i>73.6%</i>	<i>96.2</i>	<i>96.2</i>

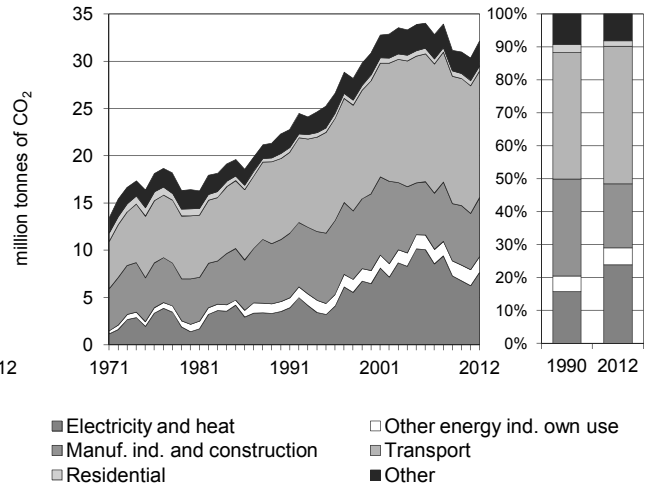
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## New Zealand

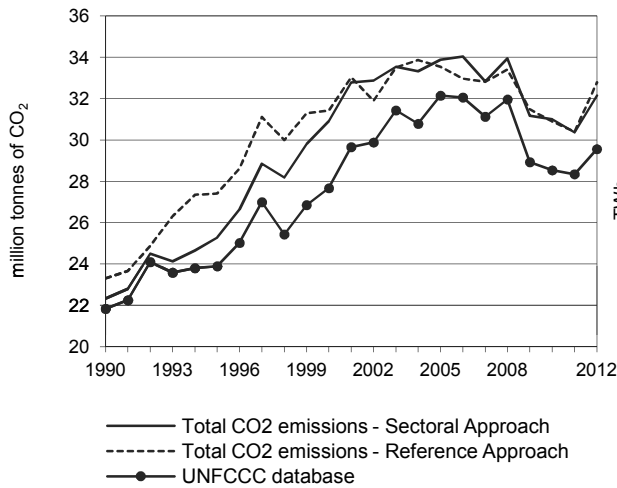
**Figure 1. CO<sub>2</sub> emissions by fuel**



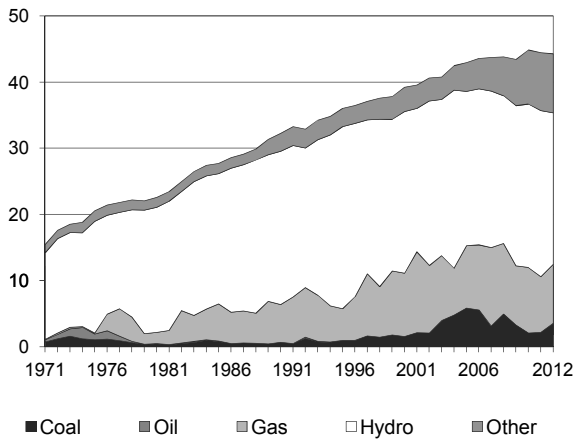
**Figure 2. CO<sub>2</sub> emissions by sector**



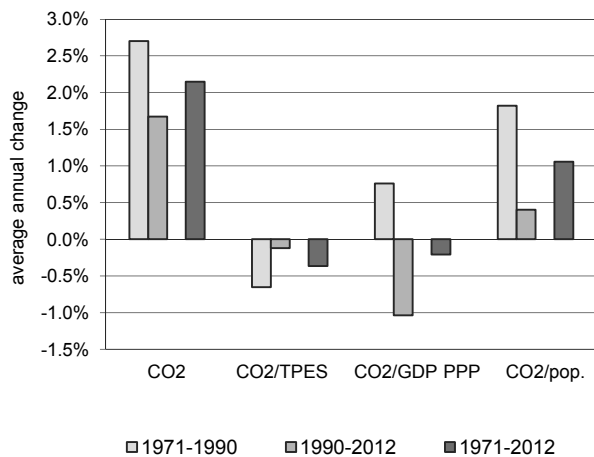
**Figure 3. Reference vs Sectoral Approach**



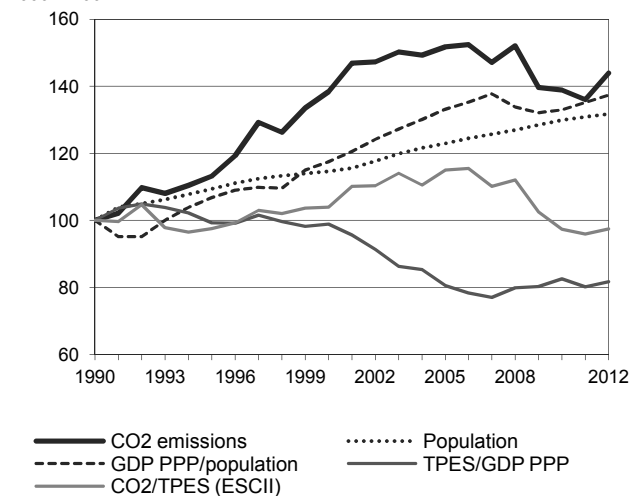
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## New Zealand

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	22.32	25.27	30.90	33.88	31.00	30.36	32.14	44.0%
TPES (PJ)	537	623	715	708	766	761	794	47.8%
GDP (billion 2005 USD)	69.49	81.20	93.57	113.79	120.04	122.93	125.76	81.0%
GDP PPP (billion 2005 USD)	64.30	75.13	86.58	105.29	111.07	113.74	116.36	81.0%
Population (millions)	3.37	3.69	3.87	4.15	4.38	4.42	4.44	31.8%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	41.6	40.6	43.2	47.8	40.5	39.9	40.5	-2.6%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.32	0.31	0.33	0.30	0.26	0.25	0.26	-20.4%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.35	0.34	0.36	0.32	0.28	0.27	0.28	-20.4%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	6.62	6.85	7.99	8.17	7.08	6.88	7.23	9.3%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	113	138	152	139	136	144	44.0%
Population index	100	109	115	123	130	131	132	31.8%
GDP PPP per population index	100	107	117	133	133	135	137	37.4%
Energy intensity index - TPES / GDP PPP	100	99	99	81	83	80	82	-18.3%
Carbon intensity index - CO <sub>2</sub> / TPES	100	98	104	115	97	96	97	-2.6%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>6.53</b>	<b>17.49</b>	<b>8.12</b>	-	<b>32.14</b>	<b>44.0%</b>
Main activity producer elec. and heat	2.59	0.00	3.58	-	6.17	84.8%
Unallocated autoproducers	1.42	-	0.09	-	1.50	763.4%
Other energy industry own use	0.15	1.02	0.47	-	1.65	54.2%
Manufacturing industries and construction	1.88	1.20	3.19	-	6.26	-4.5%
Transport	-	13.40	0.00	-	13.40	56.3%
<i>of which: road</i>	-	12.10	0.00	-	12.11	64.9%
Other	0.50	1.88	0.79	-	3.16	21.0%
<i>of which: residential</i>	0.04	0.19	0.32	-	0.55	-0.2%
<b>Reference Approach</b>	<b>5.99</b>	<b>18.33</b>	<b>8.45</b>	-	<b>32.78</b>	<b>40.7%</b>
Diff. due to losses and/or transformation	-0.16	0.15	0.05	-	0.03	
Statistical differences	-0.38	0.69	0.28	-	0.60	
<i>Memo: international marine bunkers</i>	-	1.19	-	-	1.19	14.6%
<i>Memo: international aviation bunkers</i>	-	2.44	-	-	2.44	85.0%

\*\* Other includes industrial waste and non-renewable municipal waste.

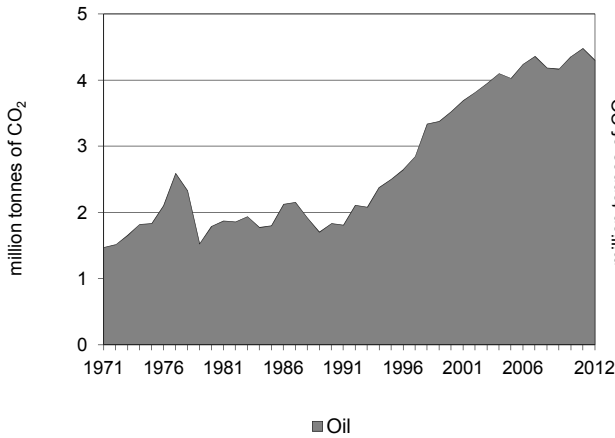
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	12.10	67.9%	15.4	15.4
Main activity prod. elec. and heat - gas	3.58	25.0%	4.6	19.9
Manufacturing industries - gas	3.19	-4.6%	4.1	24.0
Main activity prod. elec. and heat - coal	2.59	463.2%	3.3	27.3
Manufacturing industries - coal	1.88	-11.4%	2.4	29.7
Non-specified other - oil	1.68	7.1%	2.1	31.8
Unallocated autoproducers - coal	1.42	924.8%	1.8	33.6
Other transport - oil	1.29	5.5%	1.6	35.3
Manufacturing industries - oil	1.20	9.2%	1.5	36.8
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>32.14</i>	<i>44.0%</i>	<i>40.9</i>	<i>40.9</i>

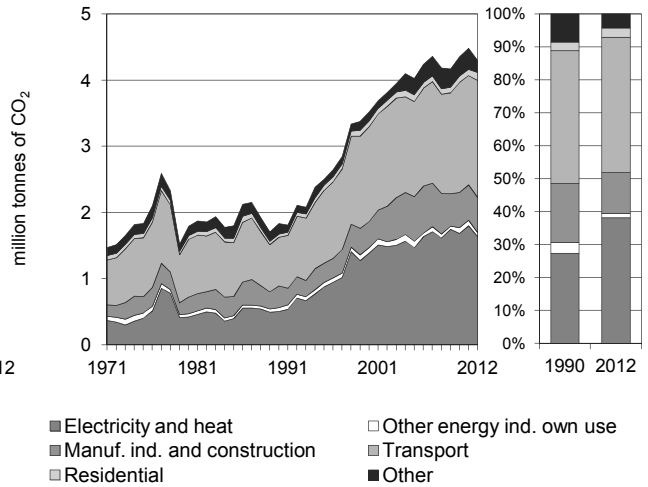
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Nicaragua

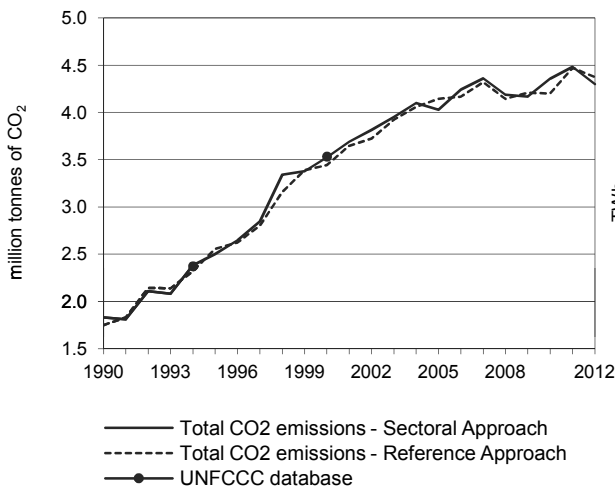
**Figure 1. CO<sub>2</sub> emissions by fuel**



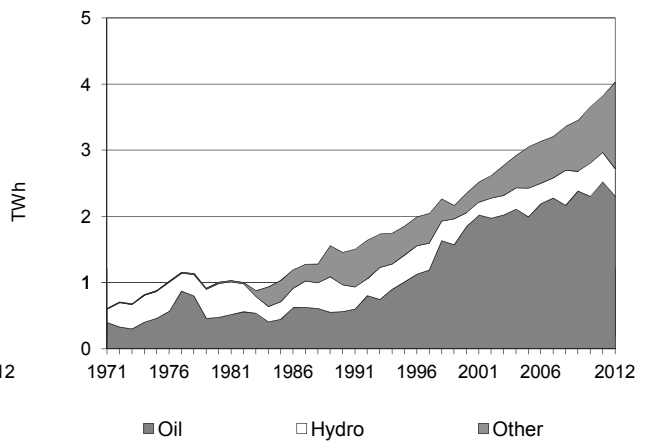
**Figure 2. CO<sub>2</sub> emissions by sector**



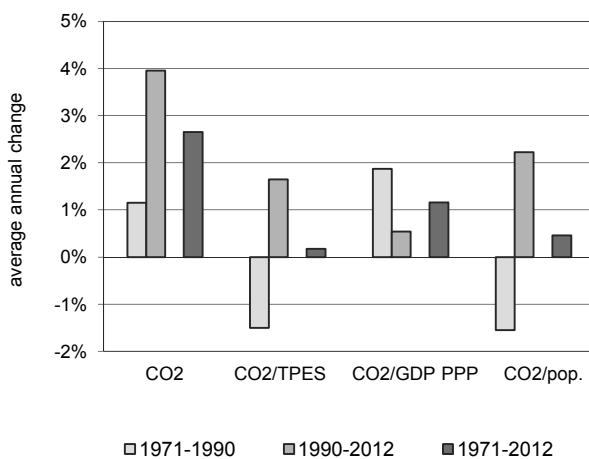
**Figure 3. Reference vs Sectoral Approach**



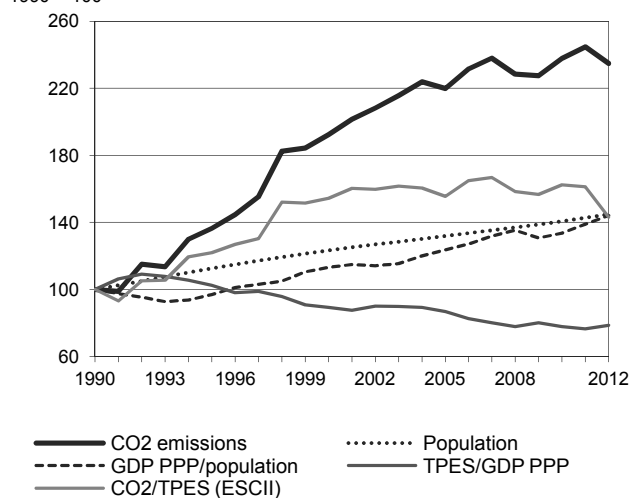
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Nicaragua

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	1.83	2.50	3.52	4.03	4.36	4.48	4.30	134.7%
TPES (PJ)	85	95	105	120	124	128	139	64.0%
GDP (billion 2005 USD)	3.88	4.24	5.41	6.32	7.29	7.69	8.09	108.5%
GDP PPP (billion 2005 USD)	10.90	11.90	15.21	17.76	20.48	21.60	22.72	108.5%
Population (millions)	4.14	4.66	5.10	5.46	5.82	5.91	5.99	44.8%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	21.7	26.4	33.4	33.7	35.2	35.0	31.0	43.1%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.47	0.59	0.65	0.64	0.60	0.58	0.53	12.6%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.17	0.21	0.23	0.23	0.21	0.21	0.19	12.6%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.44	0.54	0.69	0.74	0.75	0.76	0.72	62.1%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	137	192	220	238	245	235	134.7%
Population index	100	113	123	132	141	143	145	44.8%
GDP PPP per population index	100	97	113	124	134	139	144	44.0%
Energy intensity index - TPES / GDP PPP	100	102	89	87	78	77	79	-21.4%
Carbon intensity index - CO <sub>2</sub> / TPES	100	122	154	155	162	161	143	43.1%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>4.30</b>	-	-	<b>4.30</b>	<b>134.7%</b>
Main activity producer elec. and heat	-	1.60	-	-	1.60	230.4%
Unallocated autoproducers	-	0.04	-	-	0.04	118.3%
Other energy industry own use	-	0.06	-	-	0.06	1.1%
Manufacturing industries and construction	-	0.53	-	-	0.53	62.0%
Transport	-	1.76	-	-	1.76	139.3%
<i>of which: road</i>	-	1.75	-	-	1.75	150.9%
Other	-	0.31	-	-	0.31	49.1%
<i>of which: residential</i>	-	0.12	-	-	0.12	148.0%
<b>Reference Approach</b>	-	<b>4.38</b>	-	-	<b>4.38</b>	<b>150.2%</b>
Diff. due to losses and/or transformation	-	-0.02	-	-	-0.02	
Statistical differences	-	0.10	-	-	0.10	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.06	-	-	0.06	-19.1%

\*\* Other includes industrial waste and non-renewable municipal waste.

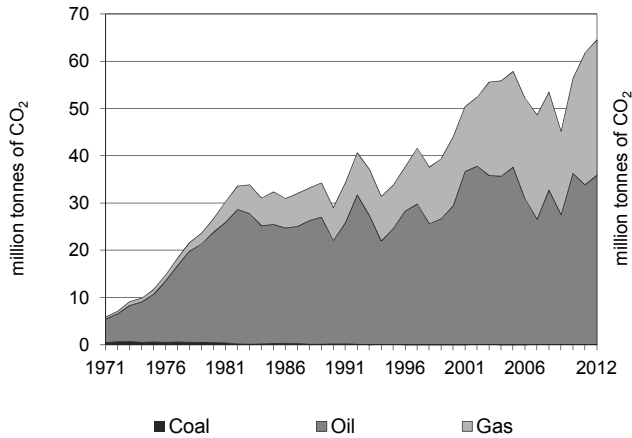
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	1.75	150.9%	12.1	12.1
Main activity prod. elec. and heat - oil	1.60	230.4%	11.0	23.1
Manufacturing industries - oil	0.53	62.0%	3.7	26.7
Non-specified other - oil	0.18	18.3%	1.3	28.0
Residential - oil	0.12	148.0%	0.8	28.8
Other energy industry own use - oil	0.06	1.1%	0.4	29.2
Unallocated autoproducers - oil	0.04	118.3%	0.3	29.5
Other transport - oil	0.01	-75.9%	0.1	29.6
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>4.30</i>	<i>134.7%</i>	<i>29.6</i>	<i>29.6</i>

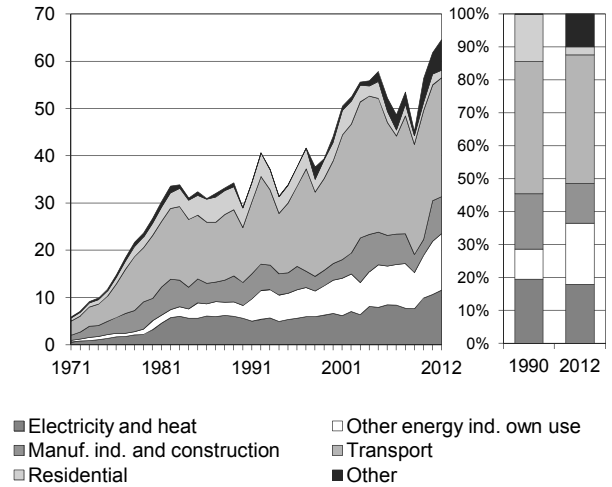
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Nigeria

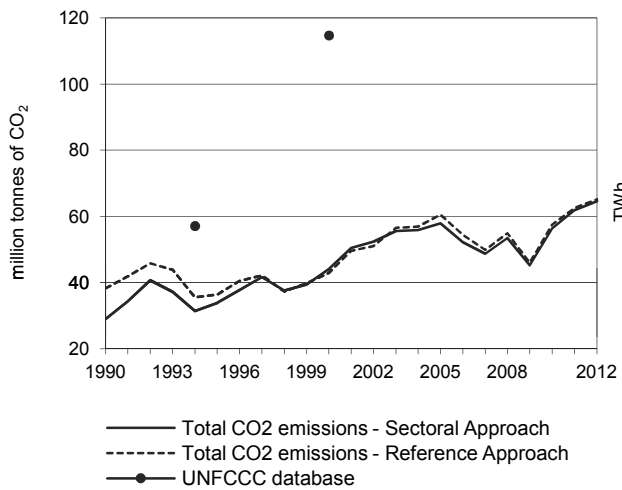
**Figure 1. CO<sub>2</sub> emissions by fuel**



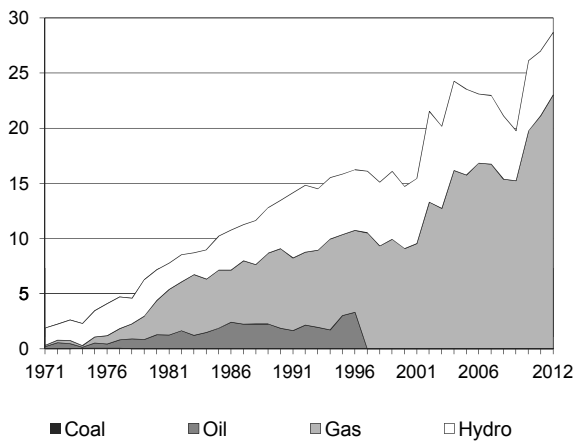
**Figure 2. CO<sub>2</sub> emissions by sector**



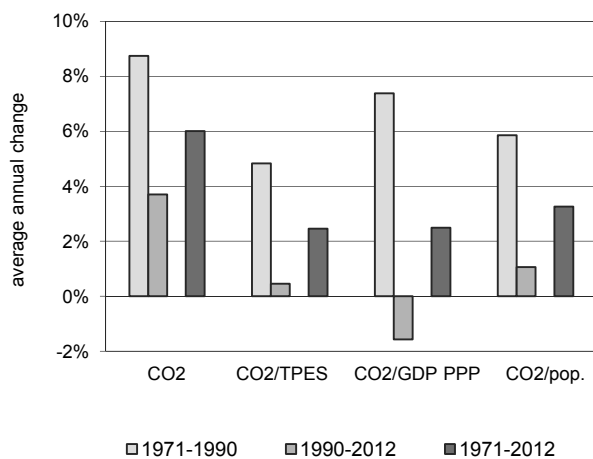
**Figure 3. Reference vs Sectoral Approach**



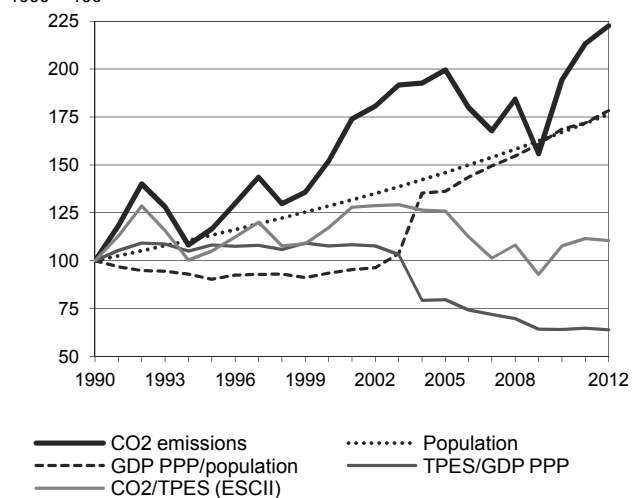
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Nigeria

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	29.00	33.80	44.05	57.86	56.38	61.82	64.56	122.6%
TPES (PJ)	2 781	3 085	3 602	4 409	5 023	5 314	5 599	101.3%
GDP (billion 2005 USD)	56.42	57.84	67.85	112.25	159.02	166.42	177.64	214.9%
GDP PPP (billion 2005 USD)	260.00	266.53	312.69	517.29	732.82	766.92	818.65	214.9%
Population (millions)	95.62	108.43	122.88	139.59	159.71	164.19	168.83	76.6%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	10.4	11.0	12.2	13.1	11.2	11.6	11.5	10.6%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.51	0.58	0.65	0.52	0.35	0.37	0.36	-29.3%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.11	0.13	0.14	0.11	0.08	0.08	0.08	-29.2%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.30	0.31	0.36	0.41	0.35	0.38	0.38	26.1%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	117	152	200	194	213	223	122.6%
Population index	100	113	129	146	167	172	177	76.6%
GDP PPP per population index	100	90	94	136	169	172	178	78.3%
Energy intensity index - TPES / GDP PPP	100	108	108	80	64	65	64	-36.1%
Carbon intensity index - CO <sub>2</sub> / TPES	100	105	117	126	108	112	111	10.6%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach ***</b>	<b>0.11</b>	<b>35.80</b>	<b>28.64</b>	-	<b>64.56</b>	<b>122.6%</b>
Main activity producer elec. and heat	-	-	7.90	-	7.90	39.5%
Unallocated autoproducers	-	-	3.68	-	3.68	x
Other energy industry own use	-	1.31	10.66	-	11.97	352.0%
Manufacturing industries and construction	0.11	1.28	6.40	-	7.80	60.3%
Transport	-	25.20	-	-	25.20	116.4%
<i>of which: road</i>	-	25.13	-	-	25.13	120.1%
Other	-	8.02	-	-	8.02	91.7%
<i>of which: residential</i>	-	1.55	-	-	1.55	-62.8%
<b>Reference Approach ***</b>	<b>0.11</b>	<b>36.43</b>	<b>28.64</b>	-	<b>65.19</b>	<b>70.5%</b>
Diff. due to losses and/or transformation	-	0.63	-	-	0.63	
Statistical differences	-	-0.00	-	-	-0.00	
<i>Memo: international marine bunkers</i>	-	1.26	-	-	1.26	116.3%
<i>Memo: international aviation bunkers</i>	-	0.55	-	-	0.55	-42.1%

\*\* Other includes industrial waste and non-renewable municipal waste.

\*\*\* The difference in the growth rate between the Sectoral and Reference Approaches is mainly due to statistical differences for some oil products in 1990.

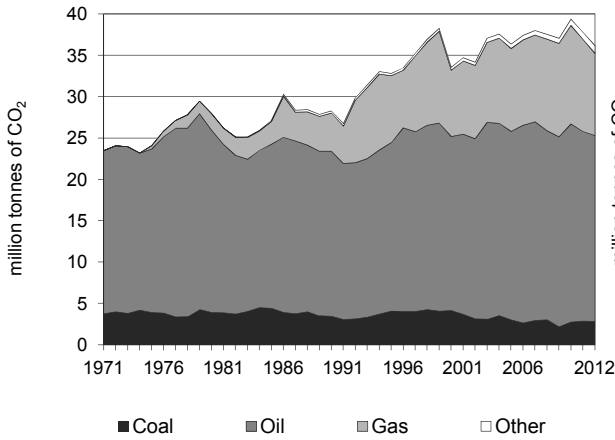
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ****	Cumulative total (%)
Road - oil	25.13	120.1%	11.4	11.4
Other energy industry own use - gas	10.66	979.0%	4.9	16.3
Main activity prod. elec. and heat - gas	7.90	87.2%	3.6	19.9
Non-specified other - oil	6.47	+	2.9	22.8
Manufacturing industries - gas	6.40	282.6%	2.9	25.8
Unallocated autoproducers - gas	3.68	x	1.7	27.4
Residential - oil	1.55	-62.8%	0.7	28.1
Other energy industry own use - oil	1.31	-21.3%	0.6	28.7
Manufacturing industries - oil	1.28	-57.9%	0.6	29.3
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<b>64.56</b>	<b>122.6%</b>	<b>29.4</b>	<b>29.4</b>

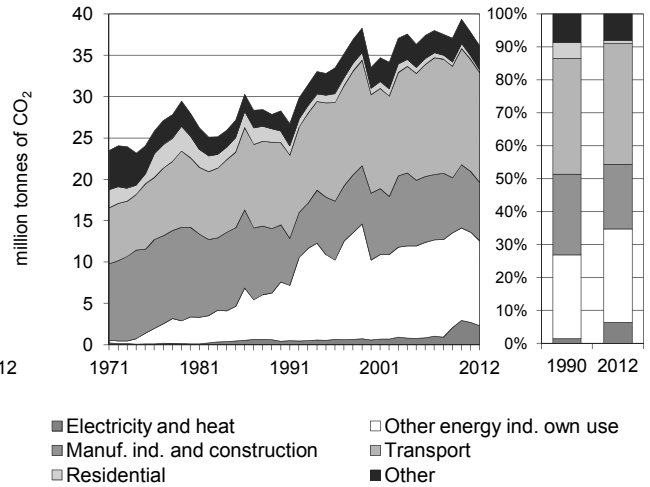
\*\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Norway \*

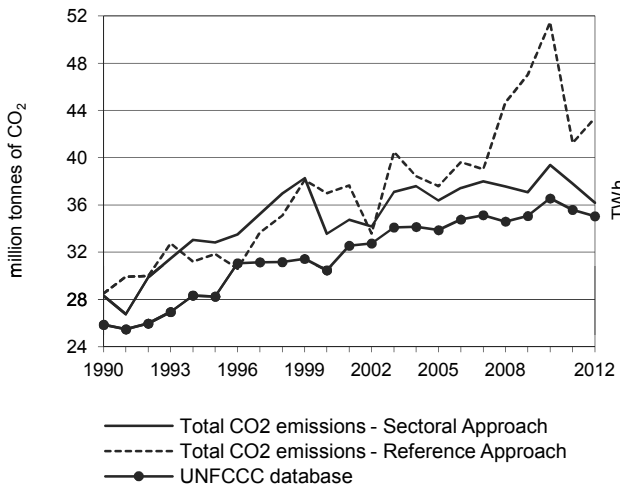
**Figure 1. CO<sub>2</sub> emissions by fuel**



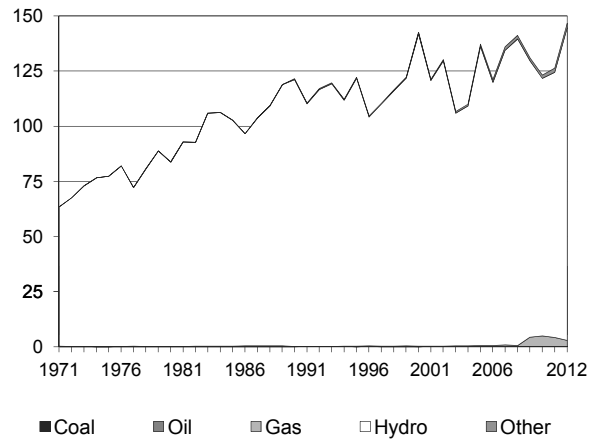
**Figure 2. CO<sub>2</sub> emissions by sector**



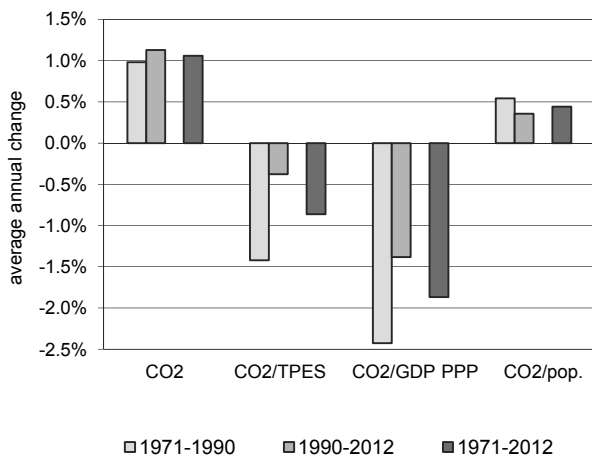
**Figure 3. Reference vs Sectoral Approach**



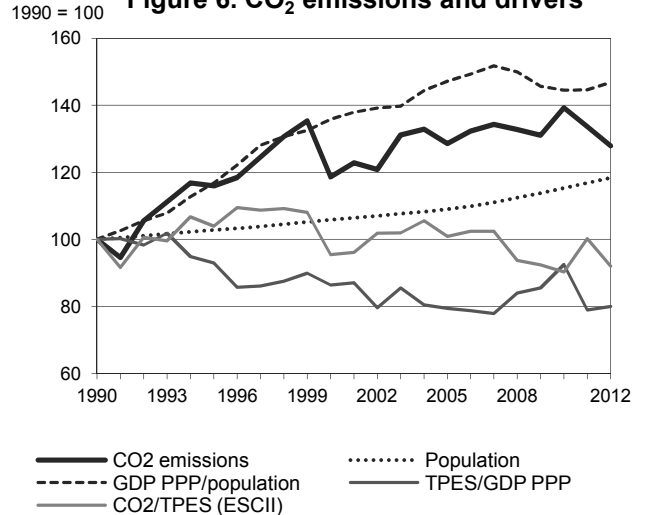
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \*\***



**Figure 6. CO<sub>2</sub> emissions and drivers \*\***



\* Large statistical differences for oil and gas cause discrepancies between the Sectoral and Reference Approaches; please see the note in Chapter 1.

\*\* Based on GDP in 2005 USD, using purchasing power parities.



## Norway

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	28.29	32.81	33.56	36.36	39.39	37.80	36.19	27.9%
TPES (PJ)	879	981	1 092	1 121	1 355	1 172	1 222	39.0%
GDP (billion 2005 USD)	189.55	227.61	272.72	304.06	315.80	320.03	329.30	73.7%
GDP PPP (billion 2005 USD)	137.27	164.83	197.49	220.19	228.69	231.76	238.47	73.7%
Population (millions)	4.24	4.36	4.49	4.62	4.89	4.95	5.02	18.3%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	32.2	33.4	30.7	32.4	29.1	32.3	29.6	-8.0%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.15	0.14	0.12	0.12	0.12	0.12	0.11	-26.3%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.21	0.20	0.17	0.17	0.17	0.16	0.15	-26.4%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	6.67	7.53	7.47	7.87	8.06	7.63	7.21	8.1%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	116	119	129	139	134	128	27.9%
Population index	100	103	106	109	115	117	118	18.3%
GDP PPP per population index	100	117	136	147	145	145	147	46.8%
Energy intensity index - TPES / GDP PPP	100	93	86	79	93	79	80	-20.0%
Carbon intensity index - CO <sub>2</sub> / TPES	100	104	95	101	90	100	92	-8.0%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach ***</b>	<b>2.84</b>	<b>22.48</b>	<b>9.94</b>	<b>0.93</b>	<b>36.19</b>	<b>27.9%</b>
Main activity producer elec. and heat	0.23	0.32	0.04	0.81	1.39	228.4%
Unallocated autoproducers	-	0.01	0.89	0.03	0.94	x
Other energy industry own use	-	2.67	7.59	-	10.26	42.9%
Manufacturing industries and construction	2.61	3.24	1.14	0.09	7.07	2.2%
Transport	-	13.06	0.18	-	13.25	33.4%
<i>of which: road</i>	-	9.40	0.02	-	9.42	23.9%
Other	-	3.19	0.10	-	3.28	-14.3%
<i>of which: residential</i>	-	0.35	0.01	-	0.35	-74.5%
<b>Reference Approach ***</b>	<b>3.46</b>	<b>29.54</b>	<b>9.42</b>	<b>0.93</b>	<b>43.35</b>	<b>52.0%</b>
Diff. due to losses and/or transformation	0.23	- 1.80	-	-	- 1.57	
Statistical differences	0.39	8.86	- 0.52	- 0.00	8.74	
<i>Memo: international marine bunkers</i>	-	1.02	-	-	1.02	-26.7%
<i>Memo: international aviation bunkers</i>	-	1.19	-	-	1.19	-4.2%

\*\* Other includes industrial waste and non-renewable municipal waste.

\*\*\* Large statistical differences for oil and gas cause discrepancies between the Sectoral and Reference Approaches; please see the note in Chapter 1.

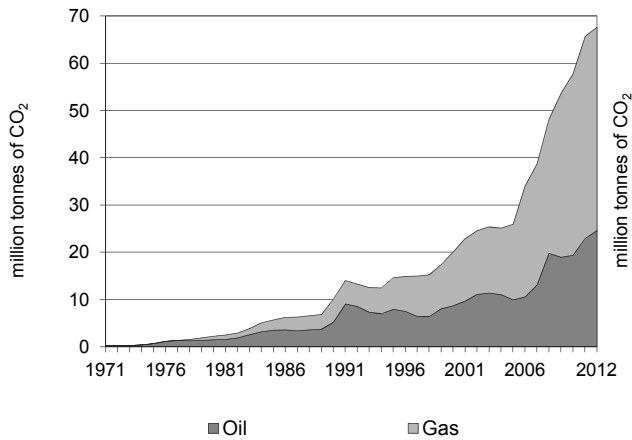
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ****	Cumulative total (%)
Road - oil	9.40	23.6%	17.4	17.4
Other energy industry own use - gas	7.59	64.5%	14.1	31.5
Other transport - oil	3.67	57.5%	6.8	38.3
Manufacturing industries - oil	3.24	-11.7%	6.0	44.3
Non-specified other - oil	2.84	17.1%	5.3	49.6
Other energy industry own use - oil	2.67	4.1%	5.0	54.6
Manufacturing industries - coal	2.61	-19.9%	4.8	59.4
Manufacturing industries - gas	1.14	x	2.1	61.5
Unallocated autoproducers - gas	0.89	x	1.7	63.2
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>36.19</i>	<i>27.9%</i>	<i>67.2</i>	<i>67.2</i>

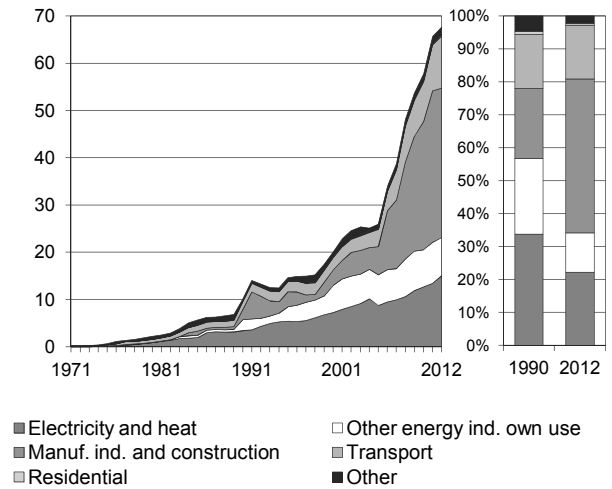
\*\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Oman

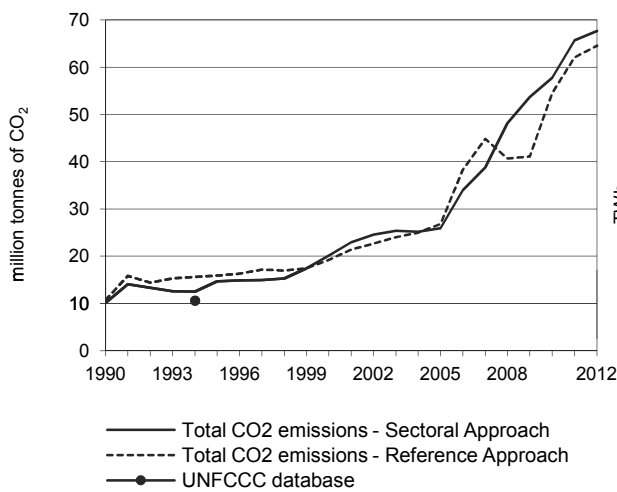
**Figure 1. CO<sub>2</sub> emissions by fuel**



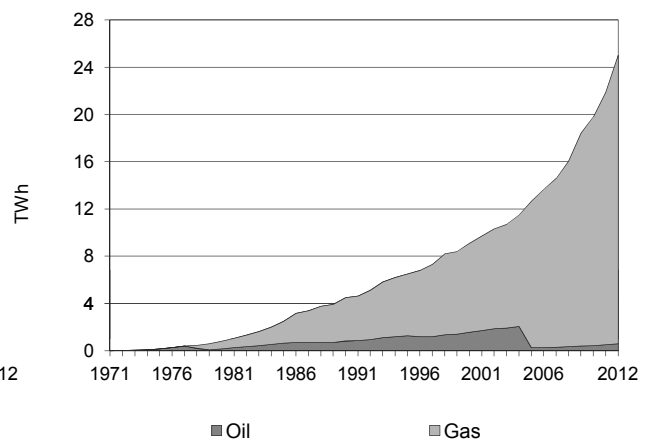
**Figure 2. CO<sub>2</sub> emissions by sector**



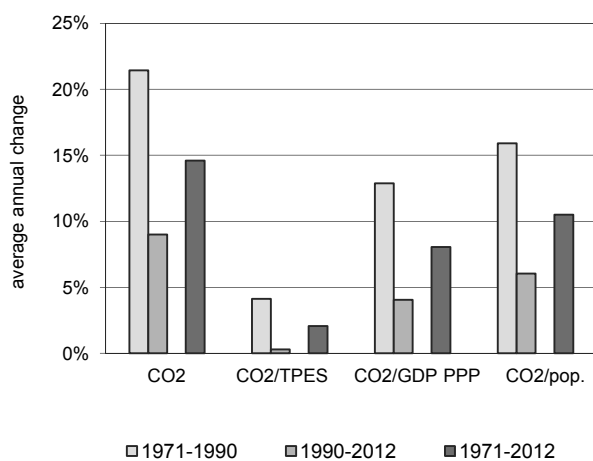
**Figure 3. Reference vs Sectoral Approach**



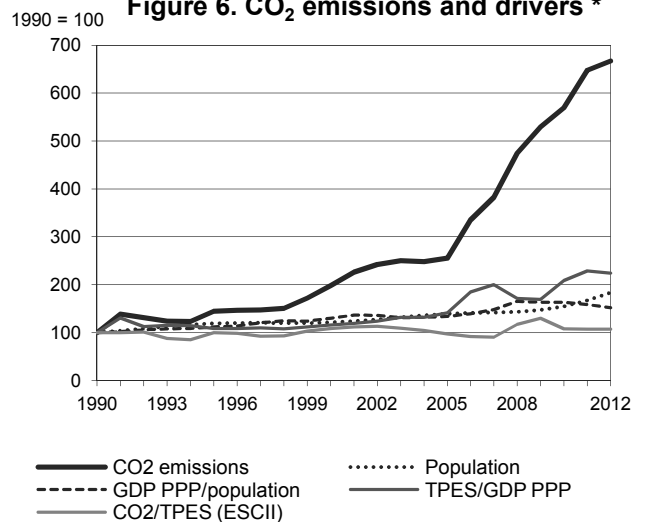
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Oman

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	10.14	14.66	20.10	25.92	57.75	65.68	67.63	566.8%
TPES (PJ)	177	255	322	465	934	1 069	1 102	523.8%
GDP (billion 2005 USD)	16.55	22.02	25.99	30.91	41.94	43.82	46.01	178.0%
GDP PPP (billion 2005 USD)	47.29	62.90	74.26	88.29	119.80	125.19	131.45	178.0%
Population (millions)	1.81	2.16	2.19	2.52	2.80	3.03	3.31	83.1%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	57.4	57.4	62.3	55.7	61.8	61.4	61.4	6.9%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.61	0.67	0.77	0.84	1.38	1.50	1.47	139.9%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.21	0.23	0.27	0.29	0.48	0.52	0.51	139.9%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	5.60	6.80	9.17	10.28	20.60	21.71	20.41	264.2%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	145	198	256	569	648	667	566.8%
Population index	100	119	121	139	155	167	183	83.1%
GDP PPP per population index	100	112	130	134	164	158	152	51.8%
Energy intensity index - TPES / GDP PPP	100	109	116	141	209	229	224	124.4%
Carbon intensity index - CO <sub>2</sub> / TPES	100	100	109	97	108	107	107	6.9%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>24.62</b>	<b>43.02</b>	-	<b>67.63</b>	<b>566.8%</b>
Main activity producer elec. and heat	-	0.46	14.60	-	15.06	339.0%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	2.31	5.76	-	8.07	248.6%
Manufacturing industries and construction	-	9.35	22.24	-	31.59	+
Transport	-	11.04	-	-	11.04	562.8%
<i>of which: road</i>	-	11.04	-	-	11.04	562.8%
Other	-	1.45	0.42	-	1.87	227.4%
<i>of which: residential</i>	-	0.34	-	-	0.34	228.6%
<b>Reference Approach</b>	-	<b>22.93</b>	<b>41.60</b>	-	<b>64.53</b>	<b>499.6%</b>
Diff. due to losses and/or transformation	-	-0.48	-	-	-0.48	
Statistical differences	-	-1.21	-1.42	-	-2.62	
<i>Memo: international marine bunkers</i>	-	0.07	-	-	0.07	15.0%
<i>Memo: international aviation bunkers</i>	-	1.27	-	-	1.27	36.1%

\*\* Other includes industrial waste and non-renewable municipal waste.

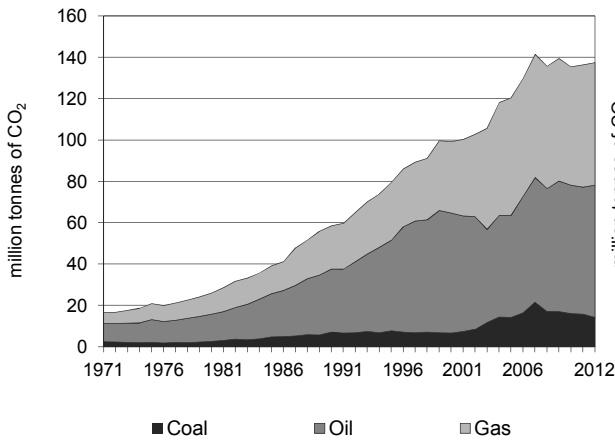
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Manufacturing industries - gas	22.24	+	24.0	24.0
Main activity prod. elec. and heat - gas	14.60	470.7%	15.8	39.7
Road - oil	11.04	562.8%	11.9	51.7
Manufacturing industries - oil	9.35	496.4%	10.1	61.7
Other energy industry own use - gas	5.76	258.9%	6.2	68.0
Other energy industry own use - oil	2.31	225.3%	2.5	70.5
Non-specified other - oil	1.11	263.5%	1.2	71.7
Main activity prod. elec. and heat - oil	0.46	-46.9%	0.5	72.2
Non-specified other - gas	0.42	158.9%	0.5	72.6
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<b>67.63</b>	<b>566.8%</b>	<b>73.0</b>	<b>73.0</b>

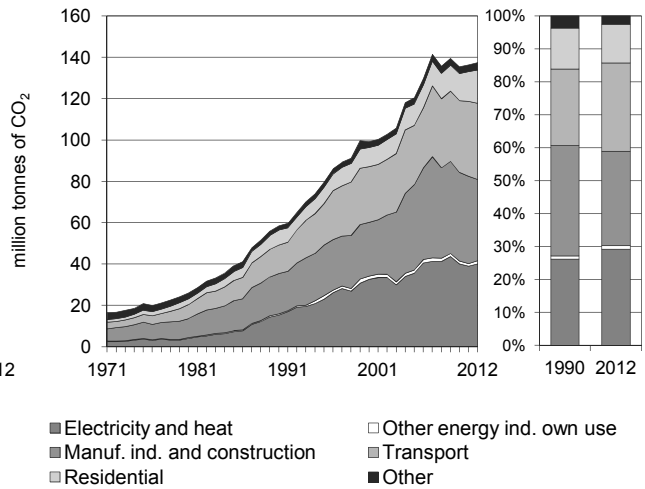
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Pakistan

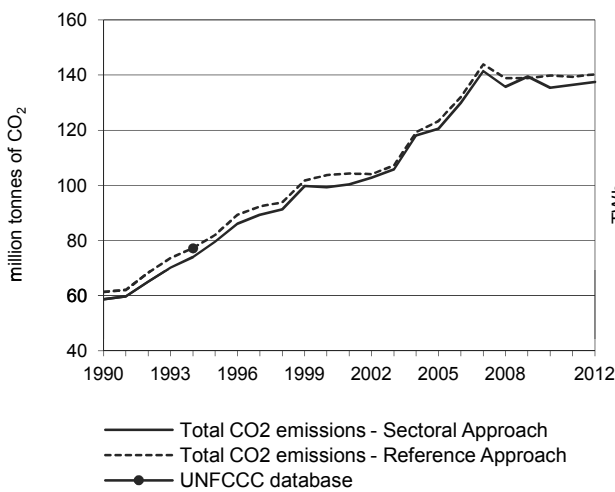
**Figure 1. CO<sub>2</sub> emissions by fuel**



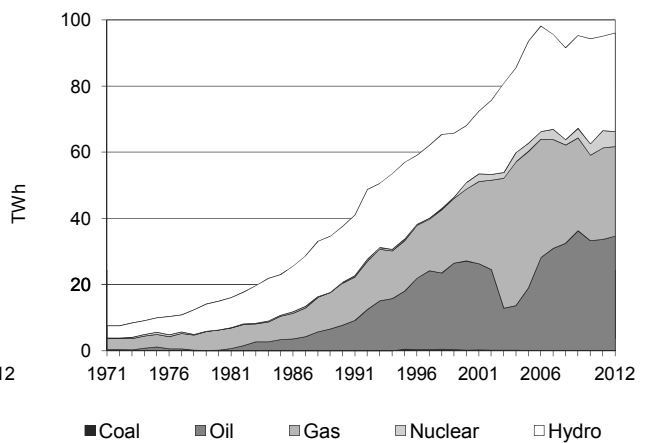
**Figure 2. CO<sub>2</sub> emissions by sector**



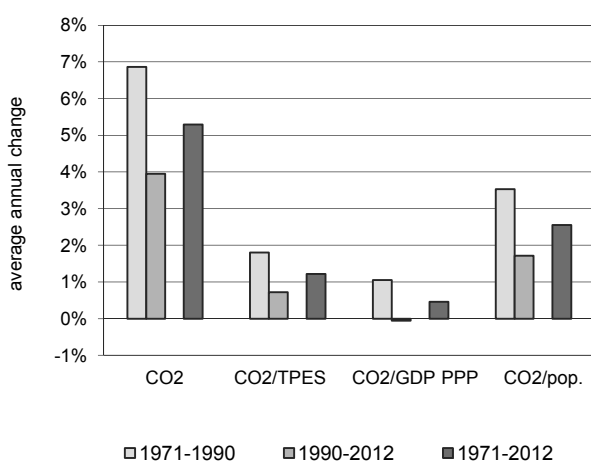
**Figure 3. Reference vs Sectoral Approach**



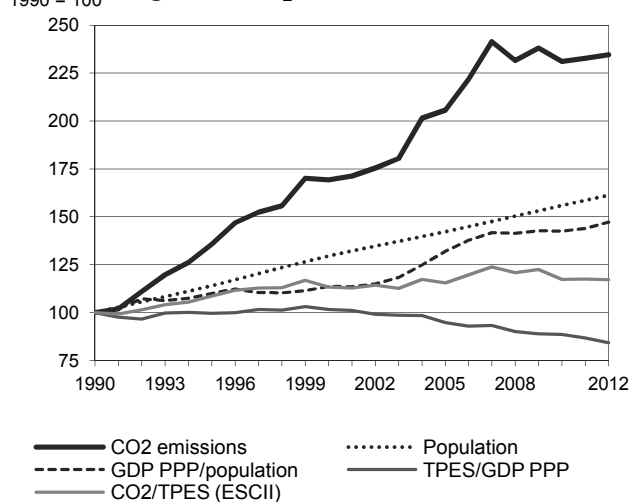
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Pakistan

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	58.60	79.52	99.23	120.50	135.41	136.39	137.44	134.5%
TPES (PJ)	1 794	2 242	2 682	3 193	3 534	3 555	3 591	100.1%
GDP (billion 2005 USD)	58.31	73.11	85.82	109.50	129.52	133.13	138.47	137.5%
GDP PPP (billion 2005 USD)	293.26	367.68	431.59	550.67	651.33	669.47	696.36	137.5%
Population (millions)	111.09	126.69	143.83	157.97	173.15	176.17	179.16	61.3%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	32.7	35.5	37.0	37.7	38.3	38.4	38.3	17.2%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	1.00	1.09	1.16	1.10	1.05	1.02	0.99	-1.2%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.20	0.22	0.23	0.22	0.21	0.20	0.20	-1.2%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.53	0.63	0.69	0.76	0.78	0.77	0.77	45.4%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	136	169	206	231	233	235	134.5%
Population index	100	114	129	142	156	159	161	61.3%
GDP PPP per population index	100	110	114	132	142	144	147	47.2%
Energy intensity index - TPES / GDP PPP	100	100	102	95	89	87	84	-15.7%
Carbon intensity index - CO <sub>2</sub> / TPES	100	109	113	116	117	117	117	17.2%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>14.22</b>	<b>64.01</b>	<b>59.20</b>	-	<b>137.44</b>	<b>134.5%</b>
Main activity producer elec. and heat	0.14	24.27	15.73	-	40.14	161.4%
Unallocated autoproducers	-	0.00	-	-	0.00	x
Other energy industry own use	-	1.05	0.48	-	1.53	169.9%
Manufacturing industries and construction	14.08	4.69	20.51	-	39.27	100.3%
Transport	-	31.72	5.21	-	36.93	170.7%
<i>of which: road</i>	-	29.11	5.21	-	34.32	169.0%
Other	-	2.28	17.28	-	19.56	107.6%
<i>of which: residential</i>	-	0.94	15.16	-	16.11	121.1%
<b>Reference Approach</b>	<b>14.37</b>	<b>64.45</b>	<b>61.40</b>	-	<b>140.22</b>	<b>128.6%</b>
Diff. due to losses and/or transformation	0.15	0.32	2.14	-	2.60	
Statistical differences	-0.00	0.12	0.06	-	0.18	
<i>Memo: international marine bunkers</i>	-	0.29	-	-	0.29	173.6%
<i>Memo: international aviation bunkers</i>	-	0.56	-	-	0.56	-59.6%

\*\* Other includes industrial waste and non-renewable municipal waste.

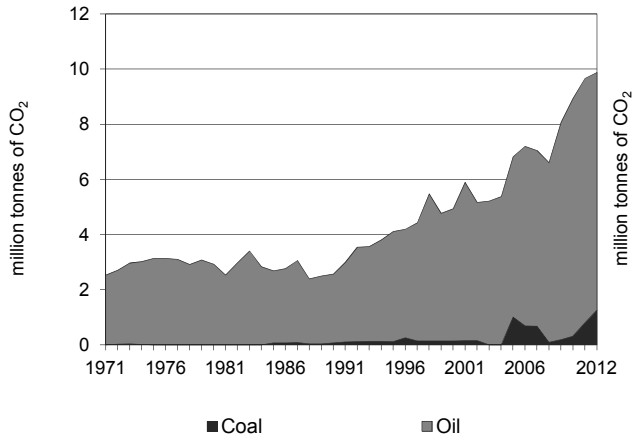
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	29.11	128.2%	8.4	8.4
Main activity prod. elec. and heat - oil	24.27	251.9%	7.0	15.4
Manufacturing industries - gas	20.51	144.1%	5.9	21.3
Main activity prod. elec. and heat - gas	15.73	87.4%	4.5	25.9
Residential - gas	15.16	337.0%	4.4	30.2
Manufacturing industries - coal	14.08	101.5%	4.1	34.3
Road - gas	5.21	+	1.5	35.8
Manufacturing industries - oil	4.69	11.1%	1.4	37.2
Other transport - oil	2.61	195.7%	0.8	37.9
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>137.44</i>	<i>134.5%</i>	<i>39.7</i>	<i>39.7</i>

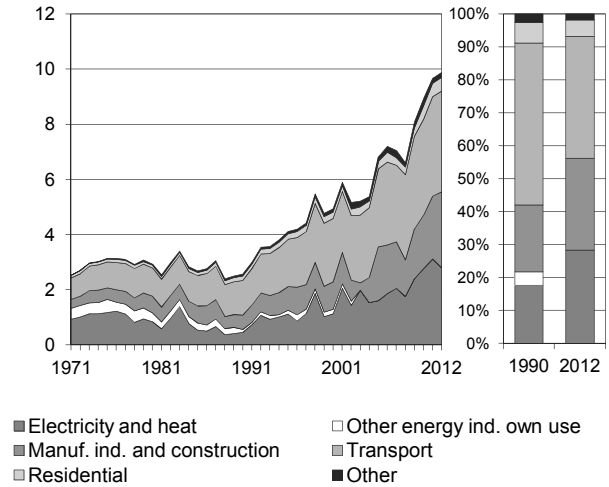
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Panama

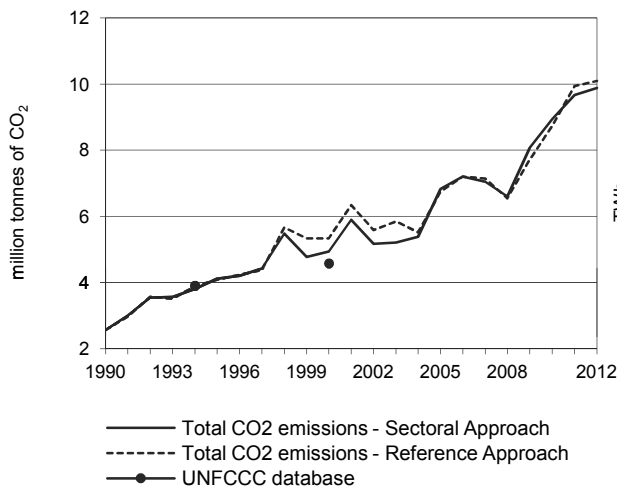
**Figure 1. CO<sub>2</sub> emissions by fuel**



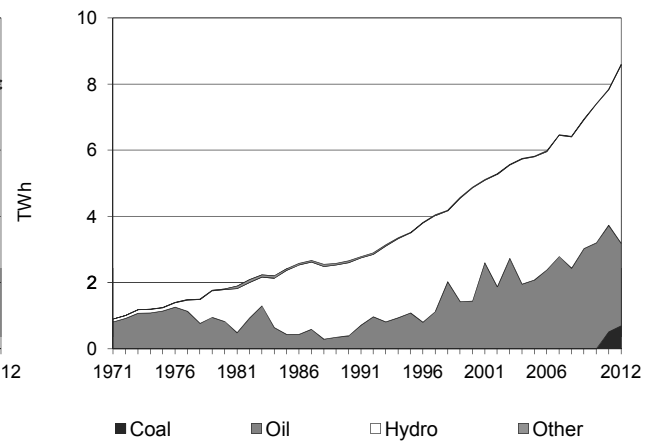
**Figure 2. CO<sub>2</sub> emissions by sector**



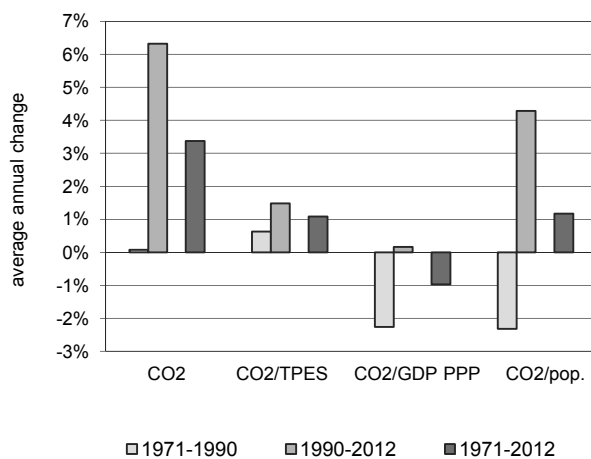
**Figure 3. Reference vs Sectoral Approach**



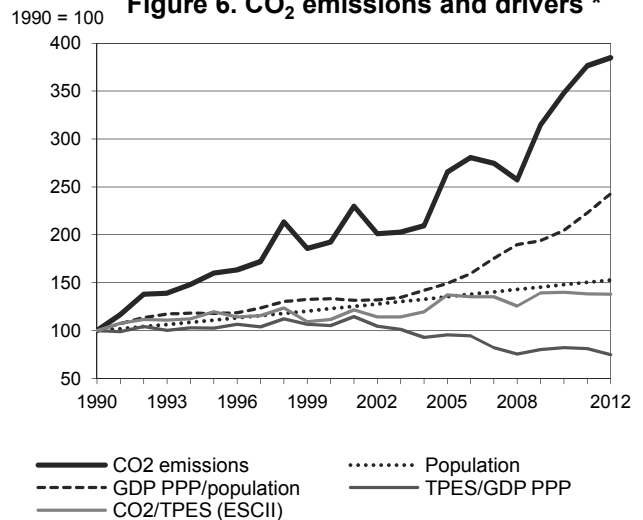
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Panama

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	2.57	4.11	4.94	6.82	8.94	9.67	9.88	284.8%
TPES (PJ)	62	84	108	121	155	170	174	178.5%
GDP (billion 2005 USD)	7.64	9.99	12.52	15.47	23.12	25.63	28.37	271.2%
GDP PPP (billion 2005 USD)	15.21	19.87	24.92	30.78	46.02	51.01	56.45	271.1%
Population (millions)	2.49	2.76	3.06	3.37	3.68	3.74	3.80	52.9%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	41.1	49.2	45.9	56.5	57.5	56.9	56.8	38.2%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.34	0.41	0.39	0.44	0.39	0.38	0.35	3.7%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.17	0.21	0.20	0.22	0.19	0.19	0.18	3.7%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	1.03	1.49	1.62	2.03	2.43	2.58	2.60	151.7%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	160	192	266	348	376	385	284.8%
Population index	100	111	123	135	148	150	153	52.9%
GDP PPP per population index	100	118	133	149	205	223	243	142.8%
Energy intensity index - TPES / GDP PPP	100	103	105	96	82	81	75	-25.0%
Carbon intensity index - CO <sub>2</sub> / TPES	100	120	112	137	140	138	138	38.2%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>1.26</b>	<b>8.62</b>	-	-	<b>9.88</b>	<b>284.8%</b>
Main activity producer elec. and heat	0.77	2.03	-	-	2.80	589.8%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.49	2.27	-	-	2.75	428.3%
Transport	-	3.65	-	-	3.65	189.6%
<i>of which: road</i>	-	3.65	-	-	3.65	189.2%
Other	-	0.67	-	-	0.67	196.3%
<i>of which: residential</i>	-	0.49	-	-	0.49	207.4%
<b>Reference Approach</b>	<b>1.26</b>	<b>8.83</b>	-	-	<b>10.09</b>	<b>292.9%</b>
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	0.21	-	-	0.21	-
<i>Memo: international marine bunkers</i>	-	10.52	-	-	10.52	112.5%
<i>Memo: international aviation bunkers</i>	-	1.34	-	-	1.34	564.1%

\*\* Other includes industrial waste and non-renewable municipal waste.

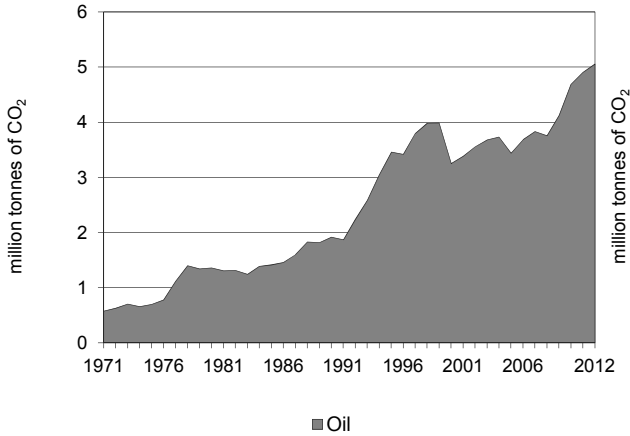
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	3.65	189.2%	24.3	24.3
Manufacturing industries - oil	2.27	409.6%	15.1	39.4
Main activity prod. elec. and heat - oil	2.03	399.6%	13.5	53.0
Main activity prod. elec. and heat - coal	0.77	x	5.2	58.1
Residential - oil	0.49	207.4%	3.3	61.4
Manufacturing industries - coal	0.49	536.6%	3.3	64.7
Non-specified other - oil	0.18	169.5%	1.2	65.9
Other transport - oil	0.01	x	0.0	65.9
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<b>9.88</b>	<b>284.8%</b>	<b>65.9</b>	<b>65.9</b>

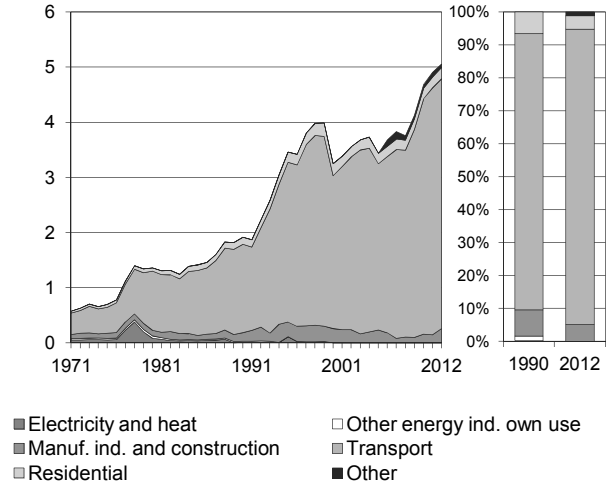
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Paraguay

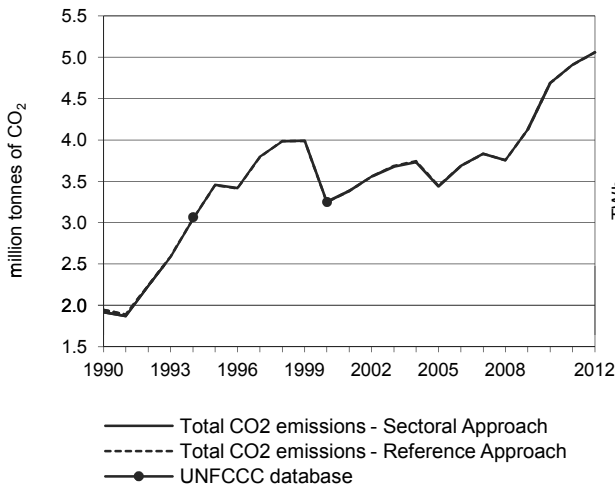
**Figure 1. CO<sub>2</sub> emissions by fuel**



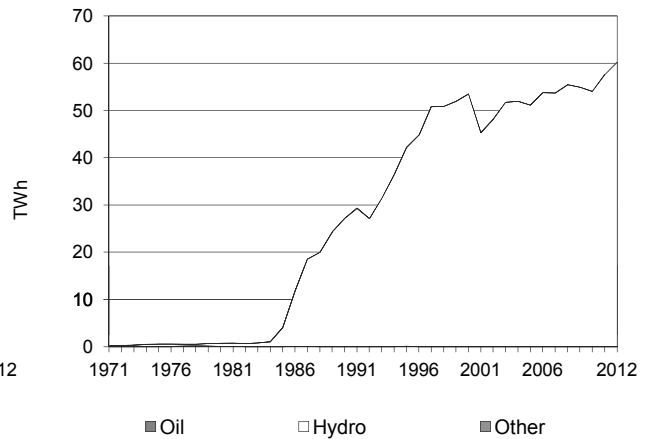
**Figure 2. CO<sub>2</sub> emissions by sector**



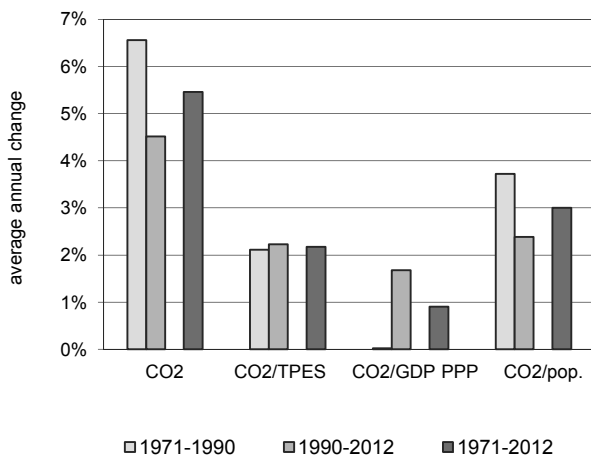
**Figure 3. Reference vs Sectoral Approach**



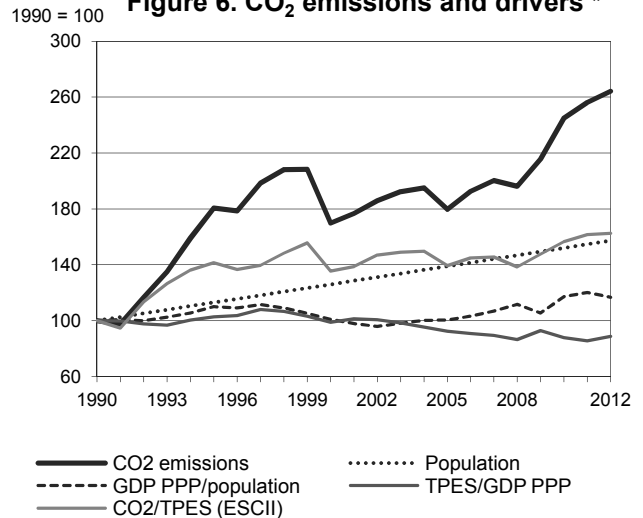
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Paraguay

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	1.91	3.46	3.25	3.44	4.69	4.91	5.06	164.2%
TPES (PJ)	129	164	161	166	201	204	209	62.6%
GDP (billion 2005 USD)	6.26	7.78	7.95	8.74	11.15	11.63	11.49	83.4%
GDP PPP (billion 2005 USD)	23.45	29.14	29.74	32.70	41.73	43.54	43.01	83.4%
Population (millions)	4.25	4.80	5.35	5.90	6.46	6.57	6.69	57.3%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	14.9	21.0	20.2	20.7	23.3	24.0	24.2	62.4%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.31	0.44	0.41	0.39	0.42	0.42	0.44	44.0%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.08	0.12	0.11	0.11	0.11	0.11	0.12	44.1%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.45	0.72	0.61	0.58	0.73	0.75	0.76	67.9%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	181	170	180	245	256	264	164.2%
Population index	100	113	126	139	152	155	157	57.3%
GDP PPP per population index	100	110	101	100	117	120	117	16.6%
Energy intensity index - TPES / GDP PPP	100	103	99	92	88	85	89	-11.3%
Carbon intensity index - CO <sub>2</sub> / TPES	100	141	136	139	157	162	162	62.4%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>5.06</b>	-	-	<b>5.06</b>	<b>164.2%</b>
Main activity producer elec. and heat	-	-	-	-	-	-100.0%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	-	0.26	-	-	0.26	69.9%
Transport	-	4.53	-	-	4.53	182.4%
<i>of which: road</i>	-	4.49	-	-	4.49	186.9%
Other	-	0.27	-	-	0.27	111.6%
<i>of which: residential</i>	-	0.21	-	-	0.21	63.3%
<b>Reference Approach</b>	-	<b>5.06</b>	-	-	<b>5.06</b>	<b>160.4%</b>
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	0.00	-	-	0.00	-
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.08	-	-	0.08	164.3%

\*\* Other includes industrial waste and non-renewable municipal waste.

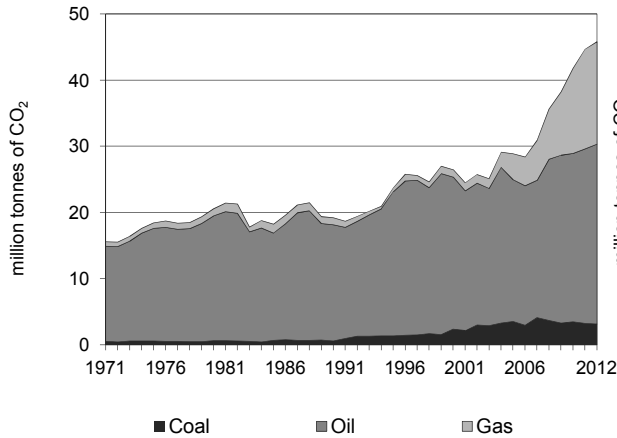
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	4.49	186.9%	12.9	12.9
Manufacturing industries - oil	0.26	69.9%	0.7	13.6
Residential - oil	0.21	63.3%	0.6	14.2
Non-specified other - oil	0.06	x	0.2	14.4
Other transport - oil	0.05	11.2%	0.1	14.5
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>5.06</i>	<i>164.2%</i>	<i>14.5</i>	<i>14.5</i>

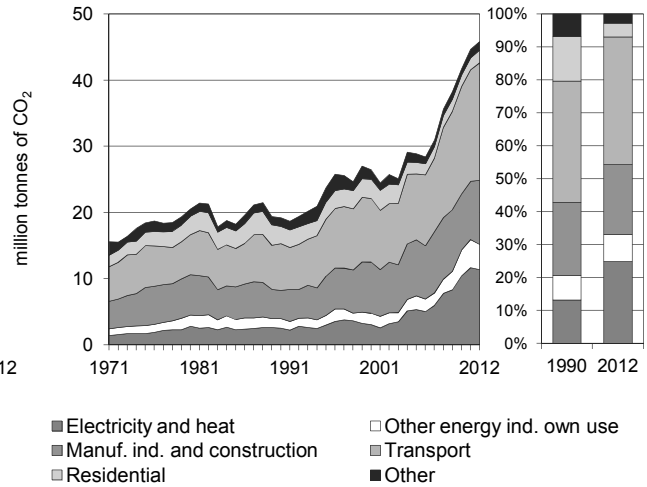
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Peru

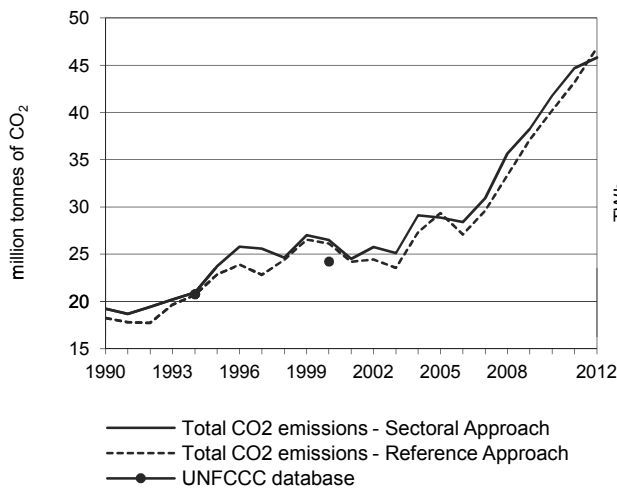
**Figure 1. CO<sub>2</sub> emissions by fuel**



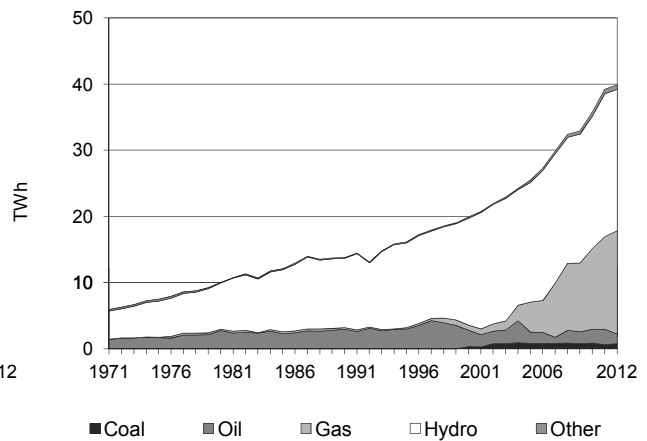
**Figure 2. CO<sub>2</sub> emissions by sector**



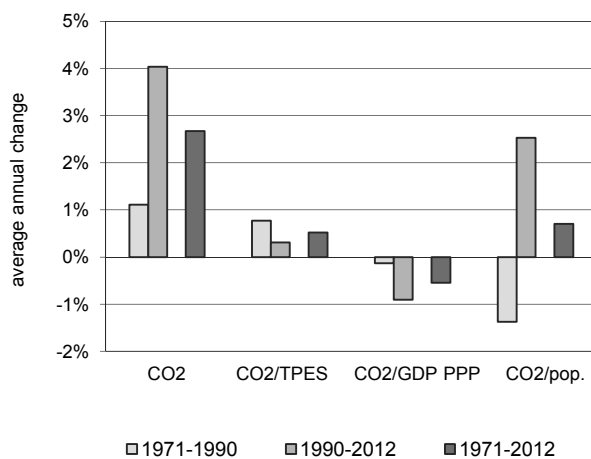
**Figure 3. Reference vs Sectoral Approach**



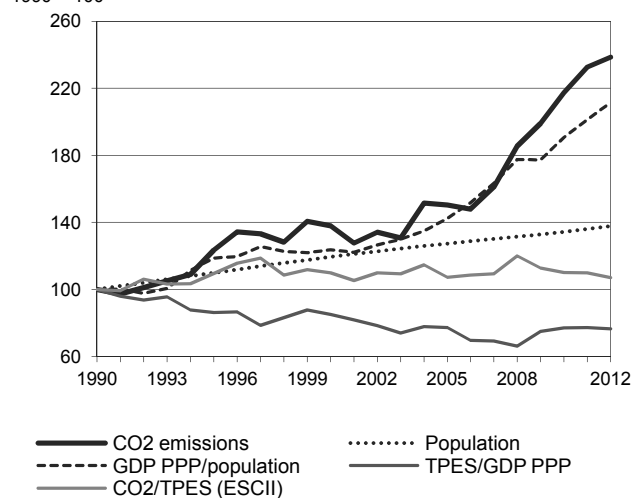
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Peru

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	19.21	23.72	26.49	28.87	41.76	44.68	45.82	138.6%
TPES (PJ)	408	459	512	571	804	863	909	123.0%
GDP (billion 2005 USD)	43.79	57.18	64.65	79.39	112.22	119.96	127.56	191.3%
GDP PPP (billion 2005 USD)	106.46	139.03	157.20	193.02	272.85	291.69	310.15	191.3%
Population (millions)	21.77	23.94	26.00	27.72	29.26	29.62	29.99	37.7%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	47.1	51.6	51.8	50.5	51.9	51.8	50.4	7.0%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.44	0.41	0.41	0.36	0.37	0.37	0.36	-18.1%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.18	0.17	0.17	0.15	0.15	0.15	0.15	-18.1%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.88	0.99	1.02	1.04	1.43	1.51	1.53	73.2%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	124	138	150	217	233	239	138.6%
Population index	100	110	119	127	134	136	138	37.7%
GDP PPP per population index	100	119	124	142	191	201	212	111.5%
Energy intensity index - TPES / GDP PPP	100	86	85	77	77	77	77	-23.5%
Carbon intensity index - CO <sub>2</sub> / TPES	100	110	110	107	110	110	107	7.0%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>3.16</b>	<b>27.18</b>	<b>15.48</b>	-	<b>45.82</b>	<b>138.6%</b>
Main activity producer elec. and heat	0.63	0.65	8.71	-	9.98	+
Unallocated autoproducers	0.30	0.64	0.47	-	1.41	-18.4%
Other energy industry own use	-	0.81	2.97	-	3.78	163.7%
Manufacturing industries and construction	2.22	5.73	1.76	-	9.71	128.1%
Transport	-	16.44	1.30	-	17.75	151.3%
<i>of which: road</i>	-	15.78	-	-	15.78	131.8%
Other	0.01	2.91	0.27	-	3.19	-18.6%
<i>of which: residential</i>	-	1.86	0.04	-	1.90	-26.7%
<b>Reference Approach</b>	<b>3.04</b>	<b>27.86</b>	<b>15.95</b>	-	<b>46.85</b>	<b>157.0%</b>
Diff. due to losses and/or transformation	-	0.65	-	-	0.65	
Statistical differences	-0.12	0.04	0.47	-	0.39	
<i>Memo: international marine bunkers</i>	-	0.73	-	-	0.73	519.8%
<i>Memo: international aviation bunkers</i>	-	2.04	-	-	2.04	216.2%

\*\* Other includes industrial waste and non-renewable municipal waste.

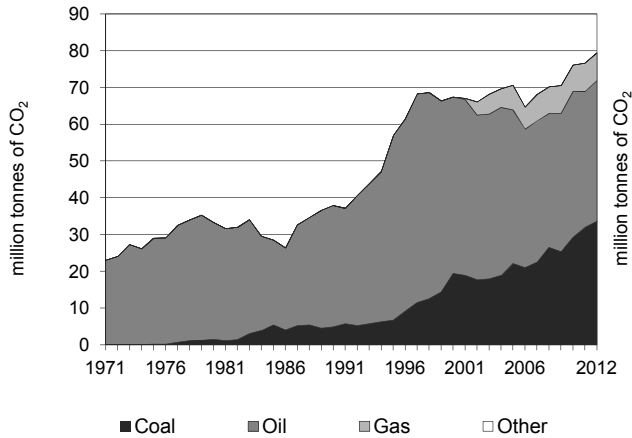
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	15.78	131.8%	19.8	19.8
Main activity prod. elec. and heat - gas	8.71	x	10.9	30.7
Manufacturing industries - oil	5.73	56.9%	7.2	37.9
Other energy industry own use - gas	2.97	306.7%	3.7	41.6
Manufacturing industries - coal	2.22	305.6%	2.8	44.4
Residential - oil	1.86	-24.7%	2.3	46.8
Manufacturing industries - gas	1.76	+	2.2	49.0
Other transport - gas	1.30	x	1.6	50.6
Non-specified other - oil	1.05	-20.5%	1.3	51.9
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>45.82</i>	<i>138.6%</i>	<i>57.5</i>	<i>57.5</i>

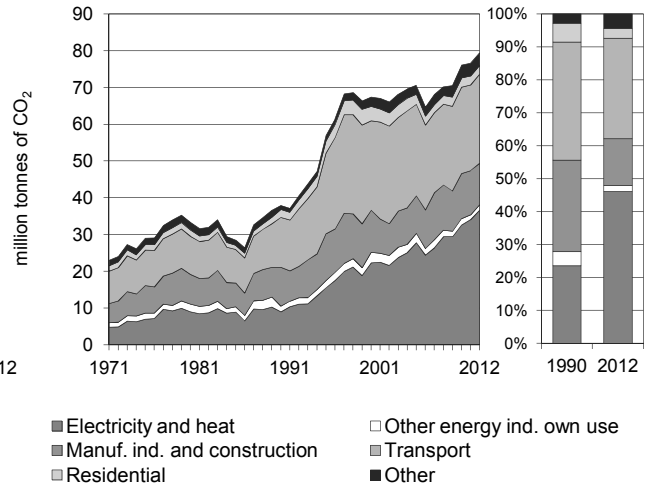
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Philippines

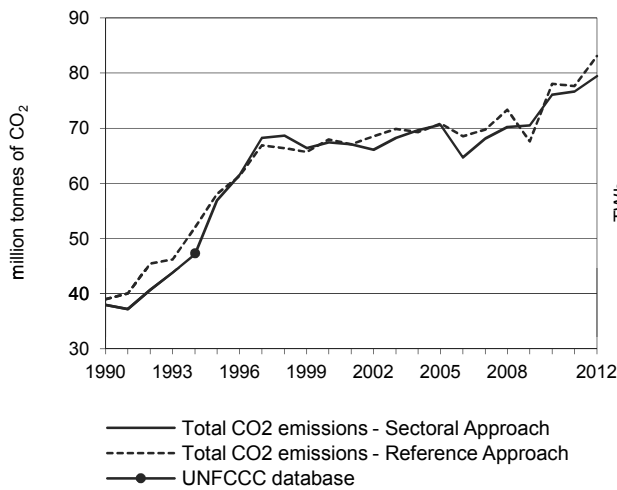
**Figure 1. CO<sub>2</sub> emissions by fuel**



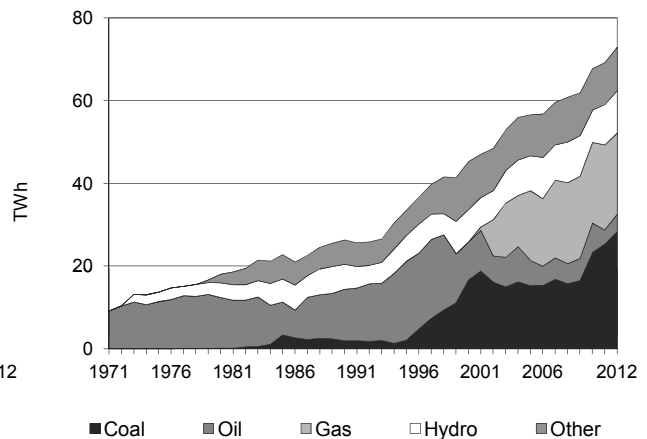
**Figure 2. CO<sub>2</sub> emissions by sector**



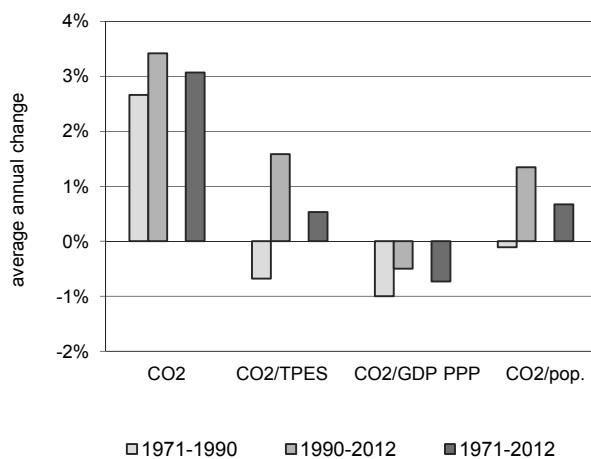
**Figure 3. Reference vs Sectoral Approach**



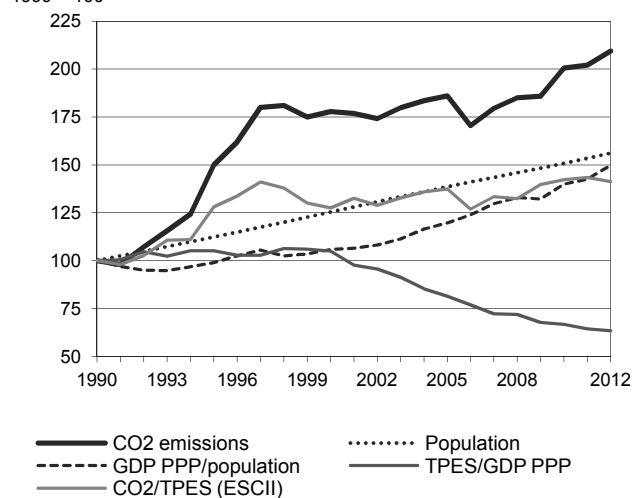
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Philippines

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	37.93	56.89	67.44	70.59	76.10	76.65	79.46	109.5%
TPES (PJ)	1 202	1 408	1 674	1 627	1 696	1 693	1 782	48.2%
GDP (billion 2005 USD)	62.10	69.13	82.35	103.07	131.13	135.90	145.16	133.8%
GDP PPP (billion 2005 USD)	221.44	246.49	293.66	367.52	467.60	484.61	517.64	133.8%
Population (millions)	61.95	69.61	77.65	85.82	93.44	95.05	96.71	56.1%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	31.6	40.4	40.3	43.4	44.9	45.3	44.6	41.3%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.61	0.82	0.82	0.68	0.58	0.56	0.55	-10.4%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.17	0.23	0.23	0.19	0.16	0.16	0.15	-10.4%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.61	0.82	0.87	0.82	0.81	0.81	0.82	34.2%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	150	178	186	201	202	209	109.5%
Population index	100	112	125	139	151	153	156	56.1%
GDP PPP per population index	100	99	106	120	140	143	150	49.7%
Energy intensity index - TPES / GDP PPP	100	105	105	82	67	64	63	-36.6%
Carbon intensity index - CO <sub>2</sub> / TPES	100	128	128	138	142	143	141	41.3%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>33.63</b>	<b>38.25</b>	<b>7.55</b>	<b>0.02</b>	<b>79.46</b>	<b>109.5%</b>
Main activity producer elec. and heat	26.48	3.09	7.04	0.02	36.63	308.5%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	1.12	0.37	-	1.49	-6.9%
Manufacturing industries and construction	7.16	3.96	0.14	-	11.26	6.8%
Transport	-	24.24	0.00	-	24.24	78.3%
<i>of which: road</i>	-	21.19	0.00	-	21.19	85.8%
Other	-	5.84	-	-	5.84	80.9%
<i>of which: residential</i>	-	2.39	-	-	2.39	10.8%
<b>Reference Approach</b>	<b>34.84</b>	<b>40.69</b>	<b>7.55</b>	<b>0.02</b>	<b>83.11</b>	<b>113.3%</b>
Diff. due to losses and/or transformation	0.07	0.62	-	-	0.69	
Statistical differences	1.14	1.83	-	-	2.97	
<i>Memo: international marine bunkers</i>	-	0.58	-	-	0.58	180.1%
<i>Memo: international aviation bunkers</i>	-	3.21	-	-	3.21	218.8%

\*\* Other includes industrial waste and non-renewable municipal waste.

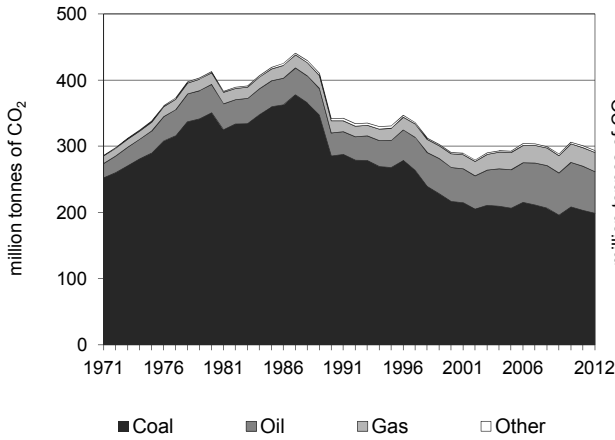
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	26.48	+	17.0	17.0
Road - oil	21.19	85.8%	13.6	30.7
Manufacturing industries - coal	7.16	143.5%	4.6	35.3
Main activity prod. elec. and heat - gas	7.04	x	4.5	39.8
Manufacturing industries - oil	3.96	-47.8%	2.6	42.4
Non-specified other - oil	3.45	222.8%	2.2	44.6
Main activity prod. elec. and heat - oil	3.09	-55.8%	2.0	46.6
Other transport - oil	3.05	39.0%	2.0	48.5
Residential - oil	2.39	10.8%	1.5	50.1
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>79.46</i>	<i>109.5%</i>	<i>51.1</i>	<i>51.1</i>

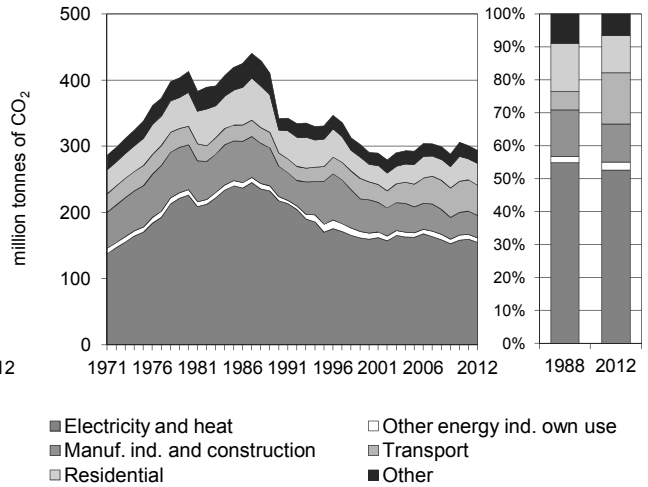
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Poland

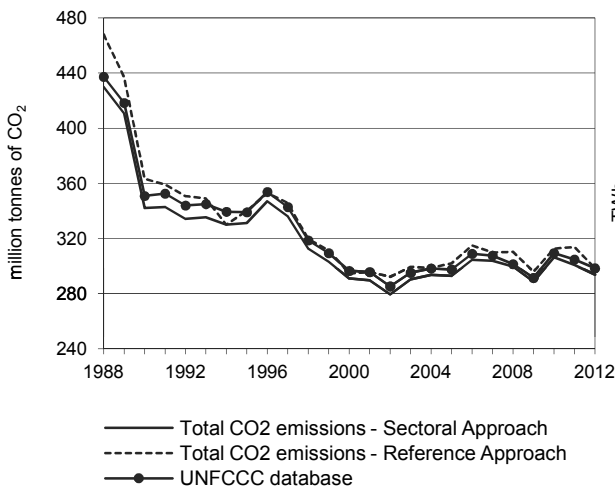
**Figure 1. CO<sub>2</sub> emissions by fuel**



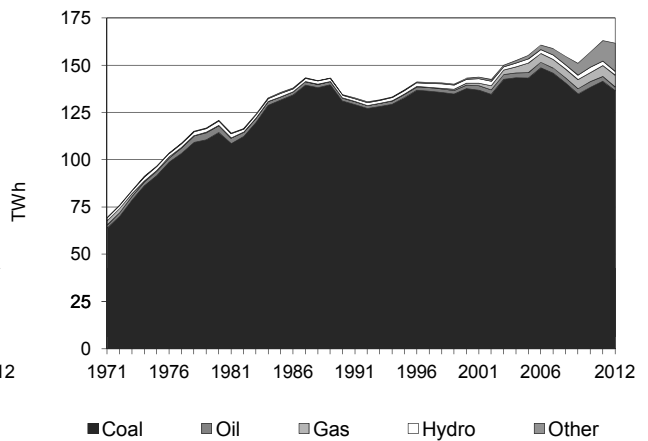
**Figure 2. CO<sub>2</sub> emissions by sector**



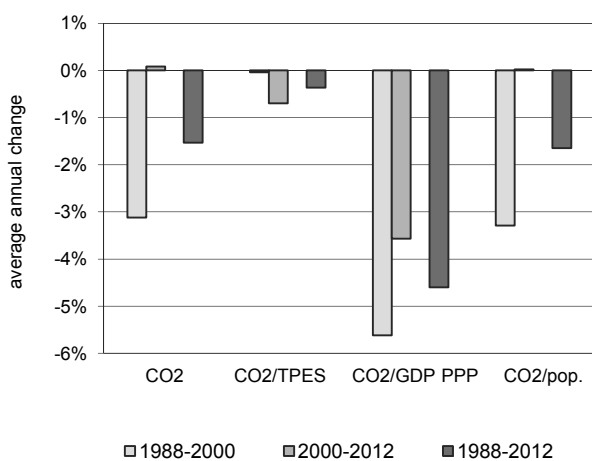
**Figure 3. Reference vs Sectoral Approach**



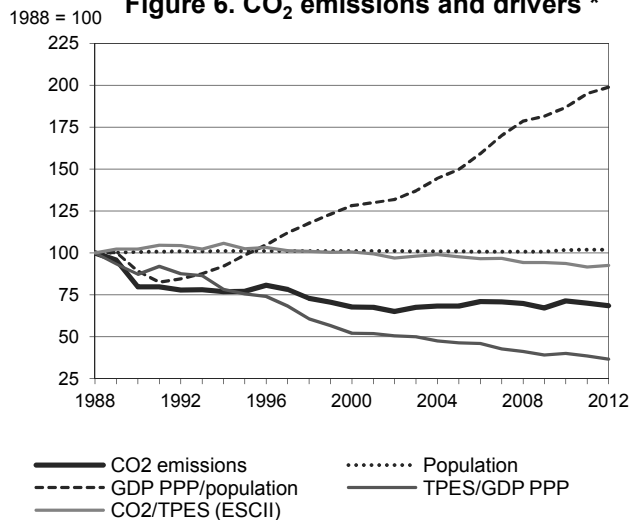
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Poland \*

### Key indicators

	1988	1990	1995	2005	2010	2011	2012	% change 88-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	429.78	342.14	331.13	292.94	306.36	300.82	293.77	-31.6%
TPES (PJ)	5 538	4 317	4 165	3 870	4 213	4 236	4 097	-26.0%
GDP (billion 2005 USD)	201.46	180.14	200.60	303.91	382.59	399.89	407.64	102.3%
GDP PPP (billion 2005 USD)	348.73	311.83	347.25	526.08	662.27	692.21	705.63	102.3%
Population (millions)	37.86	38.03	38.28	38.17	38.51	38.53	38.54	1.8%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	77.6	79.3	79.5	75.7	72.7	71.0	71.7	-7.6%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	2.13	1.90	1.65	0.96	0.80	0.75	0.72	-66.2%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	1.23	1.10	0.95	0.56	0.46	0.43	0.42	-66.2%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	11.35	9.00	8.65	7.68	7.95	7.81	7.62	-32.8%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1988=100) **</b>								
CO <sub>2</sub> emissions index	100	80	77	68	71	70	68	-31.6%
Population index	100	100	101	101	102	102	102	1.8%
GDP PPP per population index	100	89	98	150	187	195	199	98.8%
Energy intensity index - TPES / GDP PPP	100	87	76	46	40	39	37	-63.4%
Carbon intensity index - CO <sub>2</sub> / TPES	100	102	102	98	94	91	92	-7.6%

\* Under the Convention Poland is allowed to use 1988 as the base year. \*\* Please see Part I, Chapter 1 for methodological notes. Based on GDP PPP.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other ***	Total	% change 88-12
<b>Sectoral Approach</b>	<b>198.74</b>	<b>63.05</b>	<b>29.22</b>	<b>2.75</b>	<b>293.77</b>	<b>-31.6%</b>
Main activity producer elec. and heat	144.24	0.55	2.86	0.00	147.66	-11.3%
Unallocated autoproducers	4.91	1.23	0.70	0.14	6.98	-89.9%
Other energy industry own use	1.65	3.28	2.24	0.00	7.17	-11.5%
Manufacturing industries and construction	17.03	3.70	10.51	2.61	33.85	-44.4%
Transport	-	44.98	0.60	-	45.59	90.6%
<i>of which: road</i>	-	44.40	-	-	44.40	118.3%
Other	30.91	9.30	12.31	0.00	52.52	-48.1%
<i>of which: residential</i>	23.52	1.71	7.89	-	33.12	-47.4%
<b>Reference Approach</b>	<b>198.72</b>	<b>66.66</b>	<b>30.23</b>	<b>2.75</b>	<b>298.36</b>	<b>-36.2%</b>
Diff. due to losses and/or transformation	1.61	2.61	1.22	-	5.43	
Statistical differences	-1.63	1.01	-0.21	0.00	-0.83	
<i>Memo: international marine bunkers</i>	-	0.45	-	-	0.45	-74.0%
<i>Memo: international aviation bunkers</i>	-	1.59	-	-	1.59	42.1%

\*\*\* Other includes industrial waste and non-renewable municipal waste.

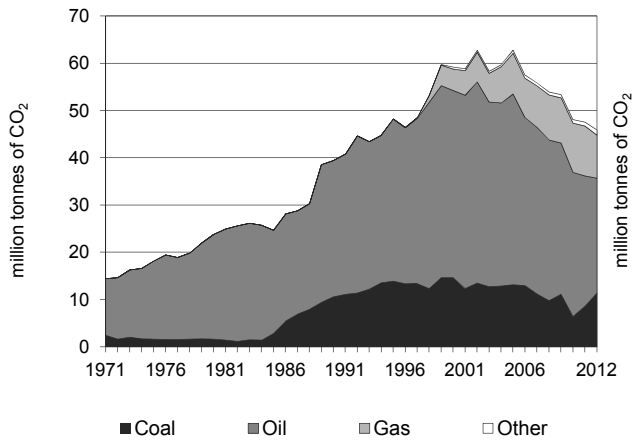
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 88-12	Level assessment (%) ****	Cumulative total (%)
Main activity prod. elec. and heat - coal	144.24	-12.5%	36.6	36.6
Road - oil	44.40	118.3%	11.3	47.8
Residential - coal	23.52	-58.6%	6.0	53.8
Manufacturing industries - coal	17.03	-58.6%	4.3	58.1
Manufacturing industries - gas	10.51	-7.5%	2.7	60.7
Residential - gas	7.89	37.8%	2.0	62.7
Non-specified other - oil	7.59	95.6%	1.9	64.7
Non-specified other sectors - coal	7.39	-77.9%	1.9	66.5
Unallocated autoproducers - coal	4.91	-92.3%	1.2	67.8
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>293.77</i>	<i>-31.6%</i>	<i>74.4</i>	<i>74.4</i>

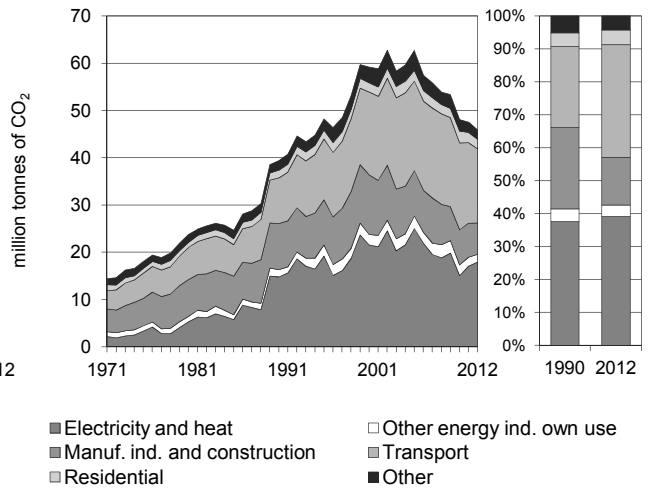
\*\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Portugal

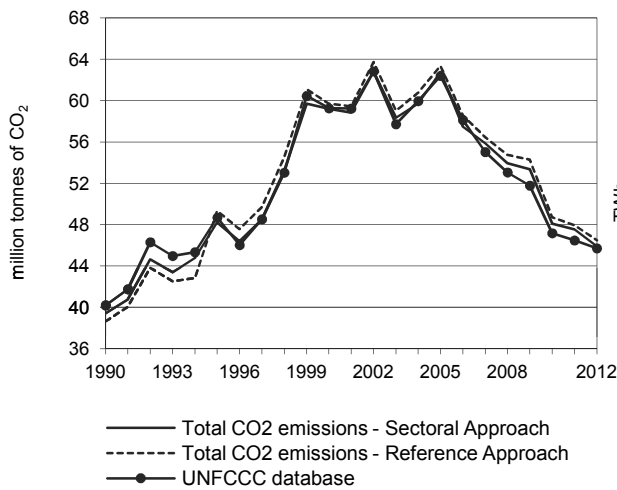
**Figure 1. CO<sub>2</sub> emissions by fuel**



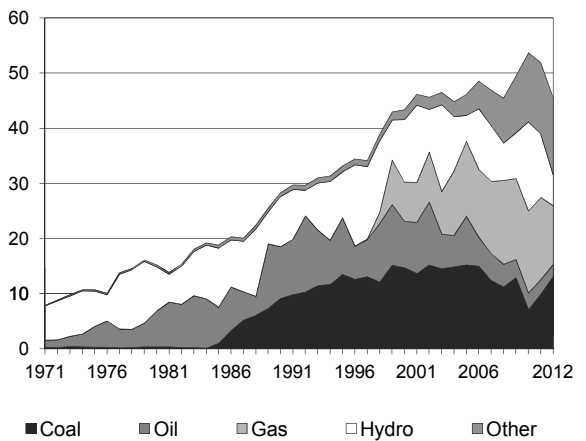
**Figure 2. CO<sub>2</sub> emissions by sector**



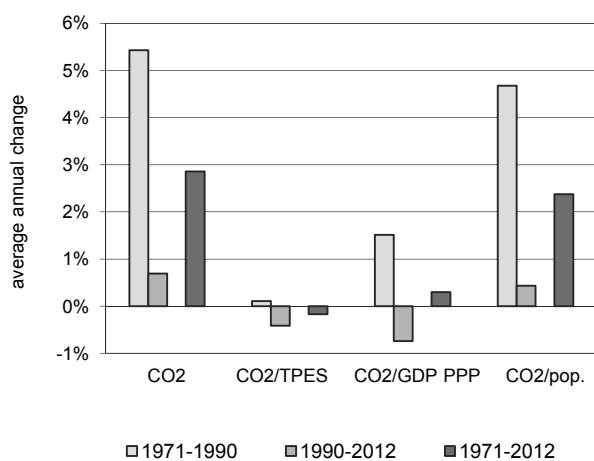
**Figure 3. Reference vs Sectoral Approach**



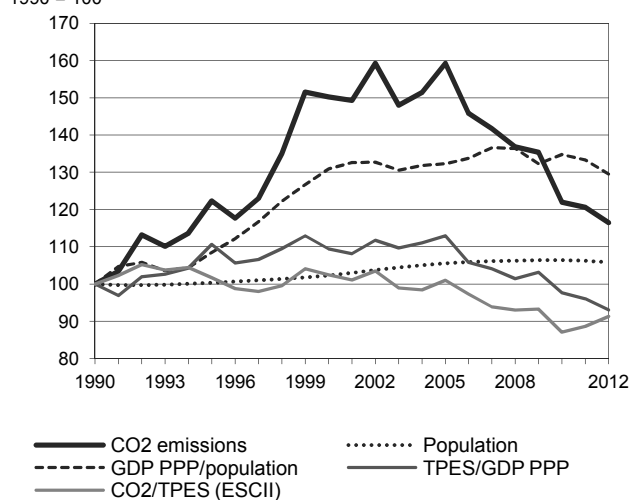
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Portugal

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	39.42	48.22	59.20	62.78	48.09	47.55	45.89	16.4%
TPES (PJ)	703	845	1 030	1 108	984	956	896	27.5%
GDP (billion 2005 USD)	137.44	149.56	184.10	191.85	197.17	194.70	188.41	37.1%
GDP PPP (billion 2005 USD)	161.50	175.74	216.33	225.43	231.68	228.78	221.39	37.1%
Population (millions)	10.00	10.03	10.23	10.55	10.64	10.62	10.58	5.8%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	56.1	57.0	57.5	56.7	48.9	49.7	51.2	-8.7%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.29	0.32	0.32	0.33	0.24	0.24	0.24	-15.1%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.24	0.27	0.27	0.28	0.21	0.21	0.21	-15.1%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	3.94	4.81	5.79	5.95	4.52	4.48	4.34	10.0%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	122	150	159	122	121	116	16.4%
Population index	100	100	102	106	106	106	106	5.8%
GDP PPP per population index	100	108	131	132	135	133	130	29.5%
Energy intensity index - TPES / GDP PPP	100	111	109	113	98	96	93	-7.0%
Carbon intensity index - CO <sub>2</sub> / TPES	100	102	102	101	87	89	91	-8.7%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>11.36</b>	<b>24.37</b>	<b>9.09</b>	<b>1.08</b>	<b>45.89</b>	<b>16.4%</b>
Main activity producer elec. and heat	11.28	0.89	2.16	-	14.33	0.8%
Unallocated autoproducers	-	0.45	2.79	0.40	3.63	519.3%
Other energy industry own use	-	1.25	0.37	-	1.62	5.8%
Manufacturing industries and construction	0.08	3.24	2.62	0.67	6.61	-32.0%
Transport	-	15.68	0.03	-	15.71	62.2%
<i>of which: road</i>	-	14.87	0.03	-	14.90	64.8%
Other	-	2.87	1.12	-	3.99	8.9%
<i>of which: residential</i>	-	1.42	0.60	-	2.02	24.1%
<b>Reference Approach</b>	<b>11.39</b>	<b>24.82</b>	<b>9.19</b>	<b>1.08</b>	<b>46.48</b>	<b>20.2%</b>
Diff. due to losses and/or transformation	-	0.45	0.04	-	0.50	
Statistical differences	0.04	-0.01	0.06	-	0.09	
<i>Memo: international marine bunkers</i>	-	1.93	-	-	1.93	0.9%
<i>Memo: international aviation bunkers</i>	-	2.74	-	-	2.74	100.7%

\*\* Other includes industrial waste and non-renewable municipal waste.

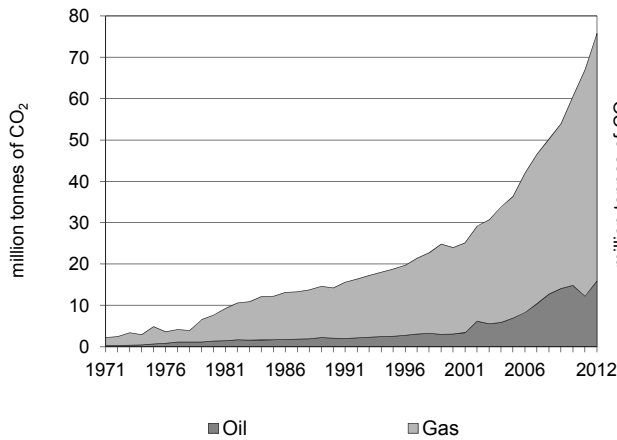
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	14.87	64.5%	21.6	21.6
Main activity prod. elec. and heat - coal	11.28	43.2%	16.4	37.9
Manufacturing industries - oil	3.24	-56.0%	4.7	42.6
Unallocated autoproducers - gas	2.79	x	4.0	46.7
Manufacturing industries - gas	2.62	x	3.8	50.5
Main activity prod. elec. and heat - gas	2.16	x	3.1	53.6
Non-specified other - oil	1.45	-28.0%	2.1	55.7
Residential - oil	1.42	-7.3%	2.1	57.8
Other energy industry own use - oil	1.25	-16.2%	1.8	59.6
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>45.89</i>	<i>16.4%</i>	<i>66.6</i>	<i>66.6</i>

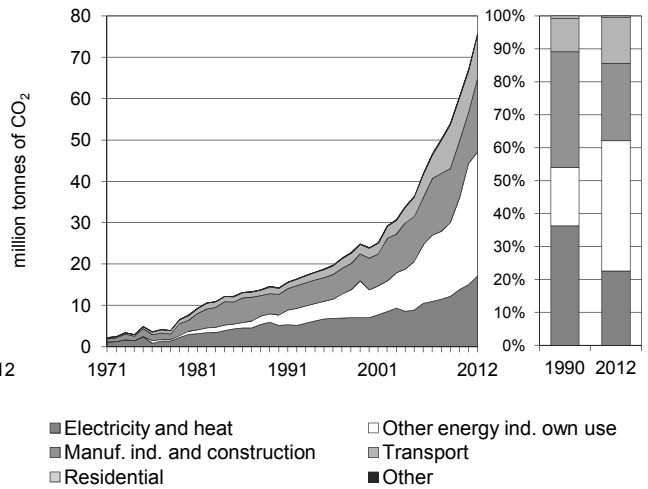
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Qatar

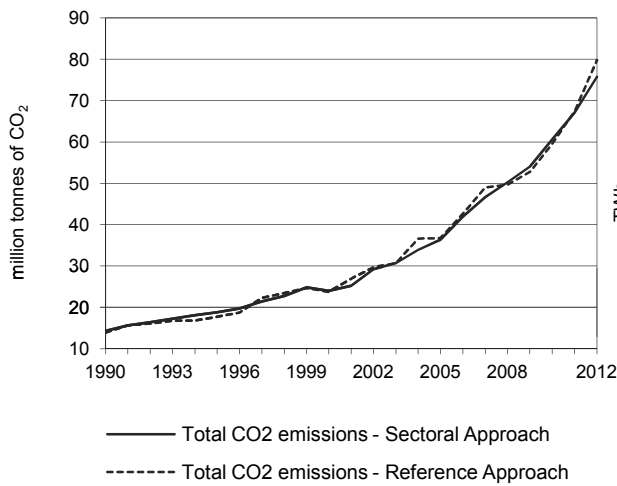
**Figure 1. CO<sub>2</sub> emissions by fuel**



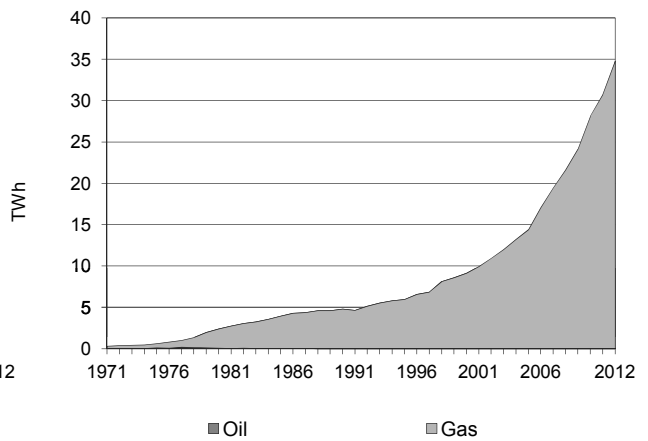
**Figure 2. CO<sub>2</sub> emissions by sector**



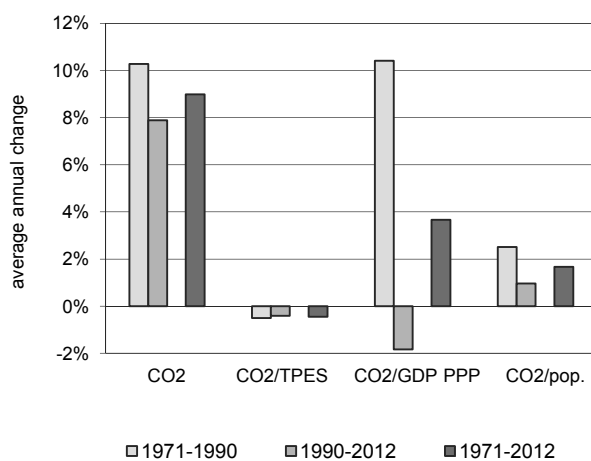
**Figure 3. Reference vs Sectoral Approach**



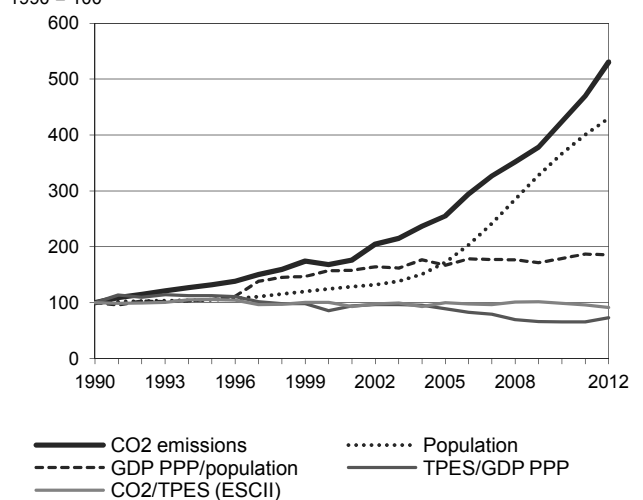
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Qatar

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	14.28	18.82	23.97	36.40	60.57	67.06	75.78	430.6%
TPES (PJ)	273	341	457	698	1 174	1 340	1 588	481.0%
GDP (billion 2005 USD)	15.51	17.20	30.33	44.53	101.93	116.33	123.54	696.3%
GDP PPP (billion 2005 USD)	31.04	34.41	60.70	89.11	203.98	232.78	247.21	696.4%
Population (millions)	0.48	0.50	0.59	0.82	1.75	1.91	2.05	330.0%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	52.3	55.2	52.4	52.2	51.6	50.1	47.7	-8.7%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.92	1.09	0.79	0.82	0.59	0.58	0.61	-33.4%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.46	0.55	0.39	0.41	0.30	0.29	0.31	-33.4%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	29.94	37.57	40.35	44.33	34.61	35.09	36.95	23.4%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	132	168	255	424	470	531	430.6%
Population index	100	105	125	172	367	401	430	330.0%
GDP PPP per population index	100	106	157	167	179	187	185	85.2%
Energy intensity index - TPES / GDP PPP	100	113	86	89	65	65	73	-27.0%
Carbon intensity index - CO <sub>2</sub> / TPES	100	106	100	100	99	96	91	-8.7%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>15.94</b>	<b>59.85</b>	-	<b>75.78</b>	<b>430.6%</b>
Main activity producer elec. and heat	-	-	2.44	-	2.44	102.8%
Unallocated autoproducers	-	-	14.71	-	14.71	269.2%
Other energy industry own use	-	0.42	29.54	-	29.96	+
Manufacturing industries and construction	-	4.67	13.16	-	17.83	255.4%
Transport	-	10.53	-	-	10.53	621.9%
<i>of which: road</i>	-	10.53	-	-	10.53	621.9%
Other	-	0.32	-	-	0.32	245.5%
<i>of which: residential</i>	-	0.32	-	-	0.32	245.5%
<b>Reference Approach</b>	-	<b>- 1.71</b>	<b>81.49</b>	-	<b>79.77</b>	<b>472.5%</b>
Diff. due to losses and/or transformation	-	- 17.65	22.51	-	4.85	
Statistical differences	-	0.00	- 0.86	-	- 0.86	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	5.67	-	-	5.67	+

\*\* Other includes industrial waste and non-renewable municipal waste.

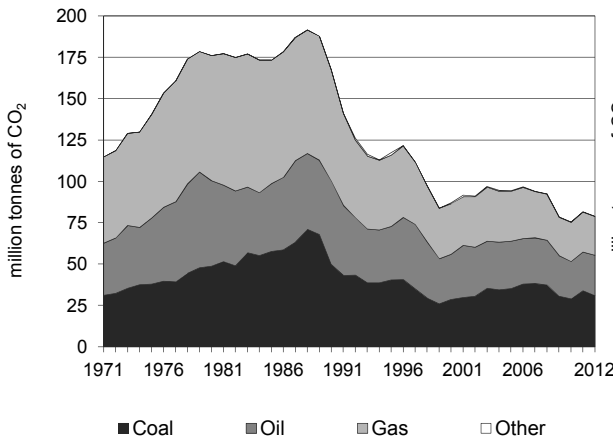
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Other energy industry own use - gas	29.54	+	21.6	21.6
Unallocated autoproducers - gas	14.71	269.2%	10.7	32.3
Manufacturing industries - gas	13.16	174.9%	9.6	41.9
Road - oil	10.53	621.9%	7.7	49.6
Manufacturing industries - oil	4.67	+	3.4	53.0
Main activity prod. elec. and heat - gas	2.44	102.8%	1.8	54.8
Other energy industry own use - oil	0.42	22.3%	0.3	55.1
Residential - oil	0.32	245.5%	0.2	55.3
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>75.78</i>	<i>430.6%</i>	<i>55.3</i>	<i>55.3</i>

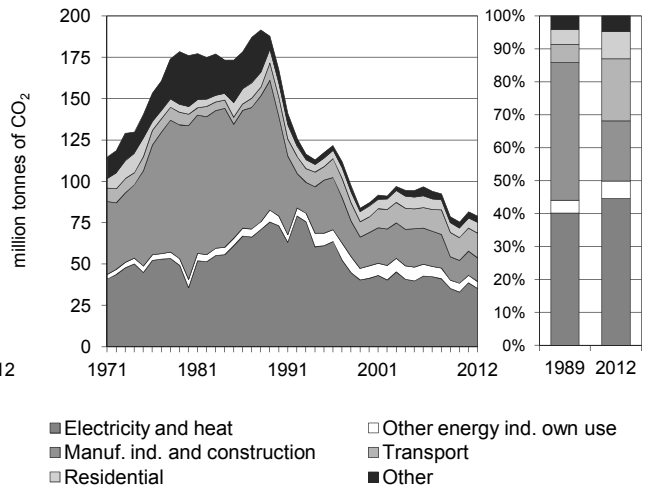
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Romania

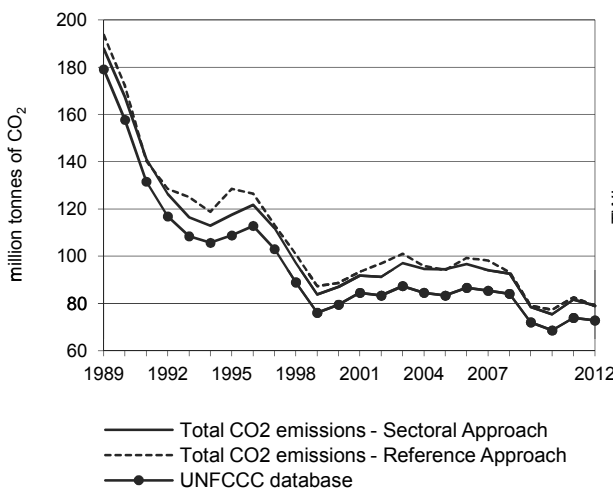
**Figure 1. CO<sub>2</sub> emissions by fuel**



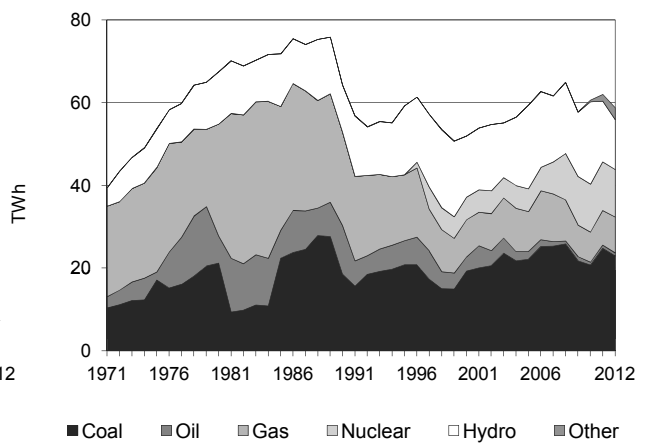
**Figure 2. CO<sub>2</sub> emissions by sector**



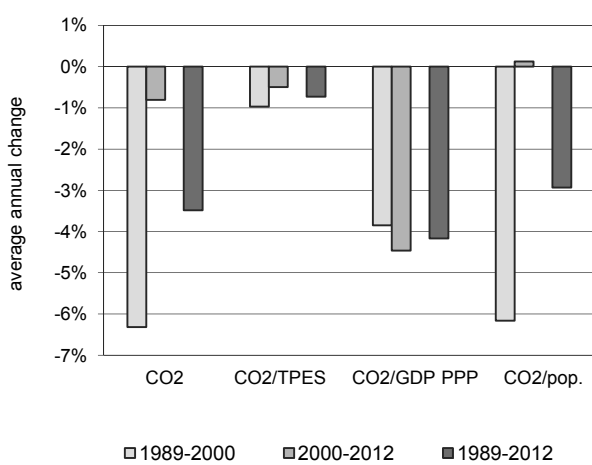
**Figure 3. Reference vs Sectoral Approach**



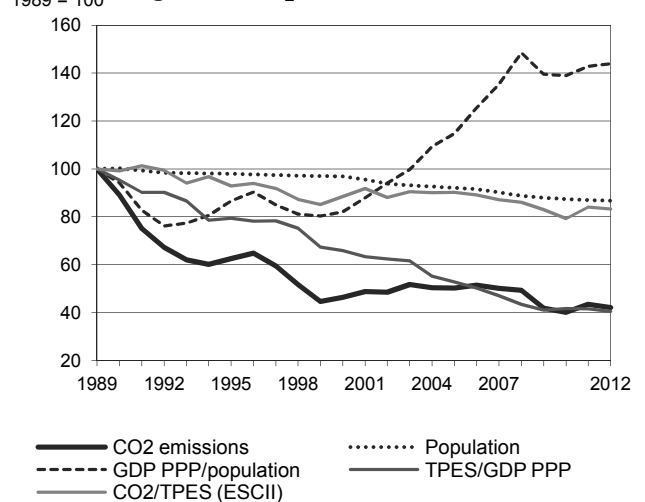
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Romania \*

### Key indicators

	1989	1990	1995	2005	2010	2011	2012	% change 89-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	187.82	167.50	117.49	94.47	75.42	81.64	78.97	-58.0%
TPES (PJ)	2 897	2 606	1 951	1 616	1 467	1 498	1 462	-49.5%
GDP (billion 2005 USD)	93.90	88.64	79.60	99.17	114.09	116.72	117.14	24.8%
GDP PPP (billion 2005 USD)	192.25	181.49	162.98	203.06	233.60	238.99	239.84	24.8%
Population (millions)	23.16	23.20	22.68	21.32	20.25	20.15	20.08	-13.3%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	64.8	64.3	60.2	58.5	51.4	54.5	54.0	-16.7%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	2.00	1.89	1.48	0.95	0.66	0.70	0.67	-66.3%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.98	0.92	0.72	0.47	0.32	0.34	0.33	-66.3%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	8.11	7.22	5.18	4.43	3.73	4.05	3.93	-51.5%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1989=100) **</b>								
CO <sub>2</sub> emissions index	100	89	63	50	40	43	42	-58.0%
Population index	100	100	98	92	87	87	87	-13.3%
GDP PPP per population index	100	94	87	115	139	143	144	43.9%
Energy intensity index - TPES / GDP PPP	100	95	79	53	42	42	40	-59.5%
Carbon intensity index - CO <sub>2</sub> / TPES	100	99	93	90	79	84	83	-16.7%

\* Under the Convention Romania is allowed to use 1989 as the base year. \*\* Please see Part I, Chapter 1 for methodological notes. Based on GDP PPP.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other ***	Total	% change 89-12
<b>Sectoral Approach</b>	<b>31.09</b>	<b>24.27</b>	<b>23.49</b>	<b>0.12</b>	<b>78.97</b>	<b>-58.0%</b>
Main activity producer elec. and heat	25.04	1.06	5.64	-	31.74	-54.0%
Unallocated autoproducers	2.09	0.21	1.20	0.00	3.50	-45.9%
Other energy industry own use	0.01	2.96	1.25	-	4.21	-42.4%
Manufacturing industries and construction	3.84	2.95	7.48	0.12	14.39	-81.6%
Transport	-	14.83	0.02	-	14.86	41.6%
<i>of which: road</i>	-	13.95	-	-	13.95	55.4%
Other	0.12	2.26	7.90	-	10.28	-36.4%
<i>of which: residential</i>	0.12	0.50	5.94	-	6.56	-21.2%
<b>Reference Approach</b>	<b>31.36</b>	<b>22.82</b>	<b>24.55</b>	<b>0.12</b>	<b>78.86</b>	<b>-59.3%</b>
Diff. due to losses and/or transformation	0.04	-0.91	0.92	-	0.04	
Statistical differences	0.24	-0.54	0.14	-0.00	-0.16	
<i>Memo: international marine bunkers</i>	-	0.04	-	-	0.04	..
<i>Memo: international aviation bunkers</i>	-	0.35	-	-	0.35	-53.1%

\*\*\* Other includes industrial waste and non-renewable municipal waste.

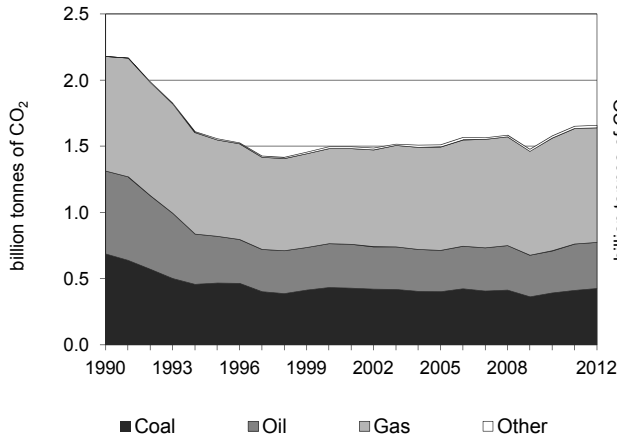
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 89-12	Level assessment (%) ****	Cumulative total (%)
Main activity prod. elec. and heat - coal	25.04	-28.0%	20.0	20.0
Road - oil	13.95	55.4%	11.2	31.2
Manufacturing industries - gas	7.48	-83.6%	6.0	37.2
Residential - gas	5.94	17.1%	4.8	41.9
Main activity prod. elec. and heat - gas	5.64	-74.7%	4.5	46.5
Manufacturing industries - coal	3.84	-82.8%	3.1	49.5
Other energy industry own use - oil	2.96	-53.5%	2.4	51.9
Manufacturing industries - oil	2.95	-71.6%	2.4	54.3
Unallocated autoproducers - coal	2.09	-67.7%	1.7	55.9
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>78.97</i>	<i>-58.0%</i>	<i>63.2</i>	<i>63.2</i>

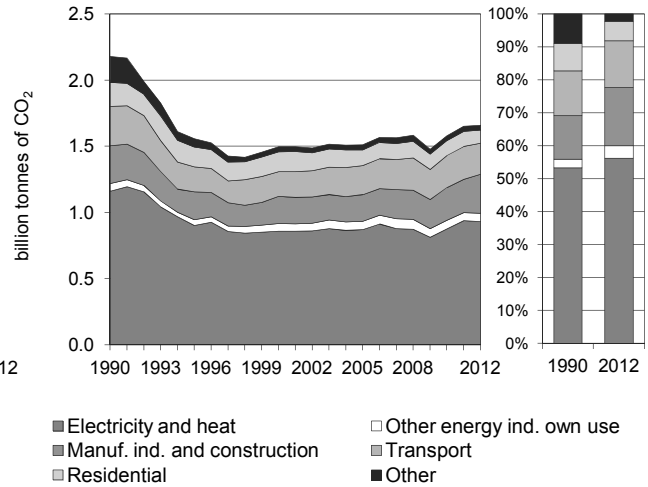
\*\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Russian Federation

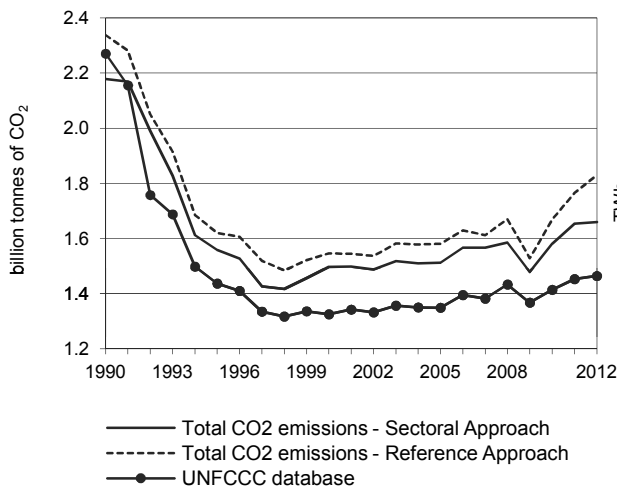
**Figure 1. CO<sub>2</sub> emissions by fuel**



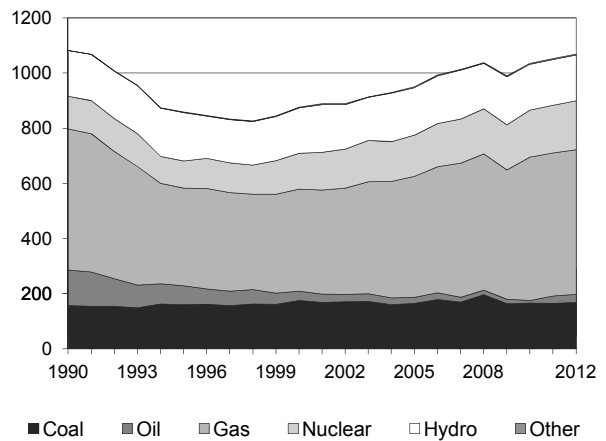
**Figure 2. CO<sub>2</sub> emissions by sector**



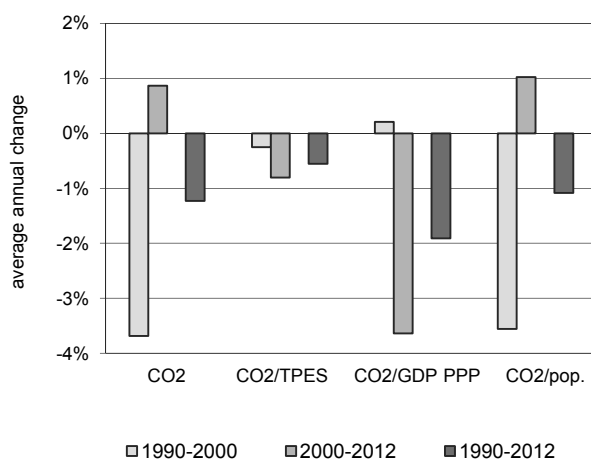
**Figure 3. Reference vs Sectoral Approach**



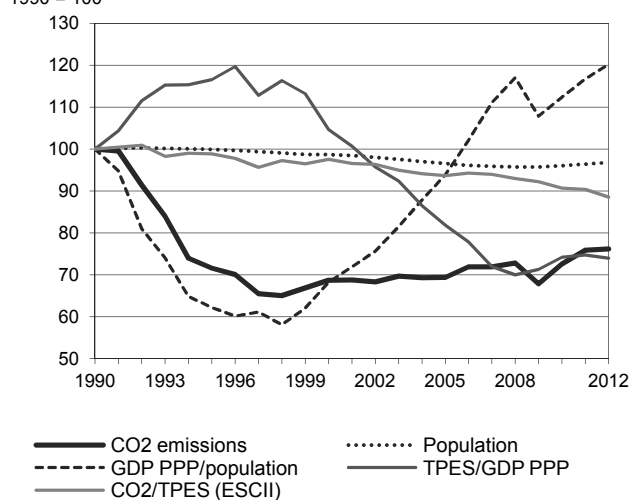
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Russian Federation

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	2 178.8	1 558.7	1 496.7	1 511.8	1 580.2	1 653.2	1 659.0	-23.9%
TPES (PJ)	36 810	26 655	25 927	27 286	29 456	30 920	31 677	-13.9%
GDP (billion 2005 USD)	843.1	523.7	567.4	764.0	909.2	948.3	980.9	16.4%
GDP PPP (billion 2005 USD)	1 872.3	1 163.0	1 260.1	1 696.7	2 019.3	2 105.9	2 178.4	16.4%
Population (millions)	148.3	148.1	146.3	143.2	142.4	143.0	143.5	-3.2%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	59.2	58.5	57.7	55.4	53.6	53.5	52.4	-11.5%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	2.58	2.98	2.64	1.98	1.74	1.74	1.69	-34.6%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	1.16	1.34	1.19	0.89	0.78	0.79	0.76	-34.6%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	14.69	10.52	10.23	10.56	11.10	11.56	11.56	-21.3%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	72	69	69	73	76	76	-23.9%
Population index	100	100	99	97	96	96	97	-3.2%
GDP PPP per population index	100	62	68	94	112	117	120	20.2%
Energy intensity index - TPES / GDP PPP	100	117	105	82	74	75	74	-26.0%
Carbon intensity index - CO <sub>2</sub> / TPES	100	99	98	94	91	90	88	-11.5%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>425.2</b>	<b>350.0</b>	<b>864.9</b>	<b>18.9</b>	<b>1 659.0</b>	<b>-23.9%</b>
Main activity producer elec. and heat	210.6	24.3	360.2	-	595.1	-28.7%
Unallocated autoproducers	85.1	29.6	206.3	15.9	337.0	3.2%
Other energy industry own use	4.3	34.2	23.5	0.9	62.9	11.0%
Manufacturing industries and construction	108.8	54.0	129.2	1.4	293.5	2.2%
Transport	-	172.1	63.1	-	235.2	-20.6%
<i>of which: road</i>	-	138.9	0.1	-	139.0	-8.8%
Other	16.4	35.8	82.4	0.6	135.2	-64.1%
<i>of which: residential</i>	6.1	17.2	75.4	-	98.6	-46.1%
<b>Reference Approach</b>	<b>518.0</b>	<b>412.8</b>	<b>880.0</b>	<b>19.3</b>	<b>1 830.2</b>	<b>-21.7%</b>
Diff. due to losses and/or transformation	25.9	61.9	15.1	-	102.9	
Statistical differences	66.9	0.9	-0.0	0.4	68.3	
<i>Memo: international marine bunkers</i>	-	5.6	-	-	5.6	-4.9%
<i>Memo: international aviation bunkers</i>	-	19.6	-	-	19.6	-25.8%

\*\* Other includes industrial waste and non-renewable municipal waste.

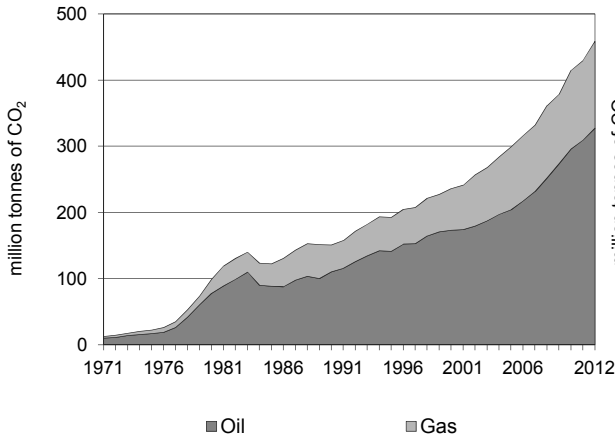
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - gas	360.2	3.8%	14.5	14.5
Main activity prod. elec. and heat - coal	210.6	-39.4%	8.5	22.9
Unallocated autoproducers - gas	206.3	11.5%	8.3	31.2
Road - oil	138.9	-7.2%	5.6	36.8
Manufacturing industries - gas	129.2	23.9%	5.2	42.0
Manufacturing industries - coal	108.8	12.3%	4.4	46.3
Unallocated autoproducers - coal	85.1	1.1%	3.4	49.8
Residential - gas	75.4	-31.6%	3.0	52.8
Other transport - gas	63.0	-18.1%	2.5	55.3
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>1 659.0</i>	<i>-23.9%</i>	<i>66.6</i>	<i>66.6</i>

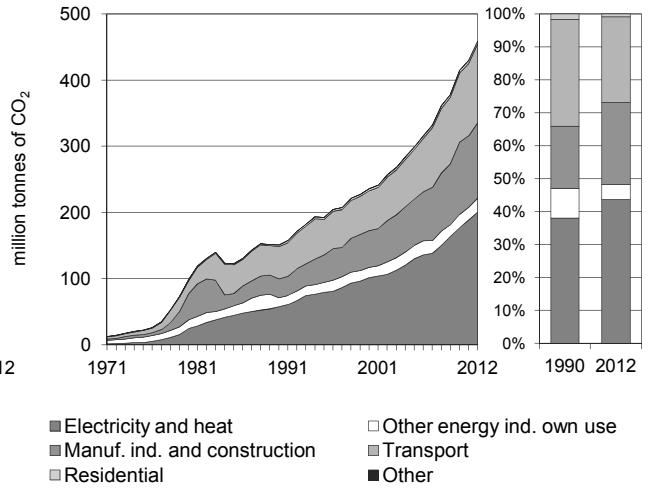
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Saudi Arabia

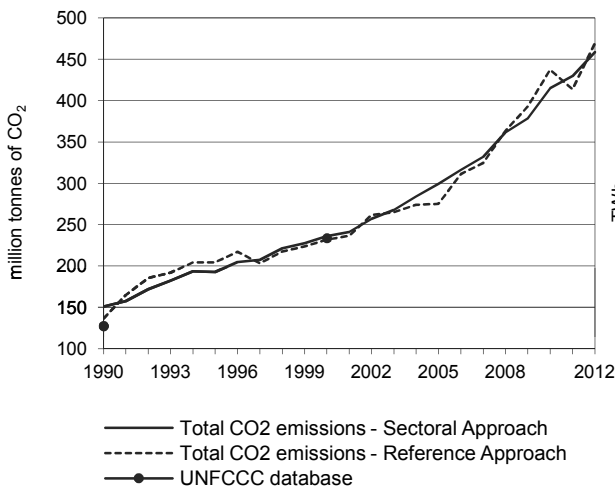
**Figure 1. CO<sub>2</sub> emissions by fuel**



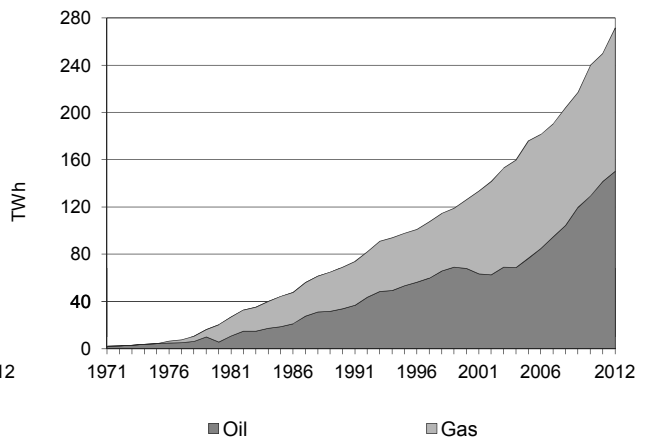
**Figure 2. CO<sub>2</sub> emissions by sector**



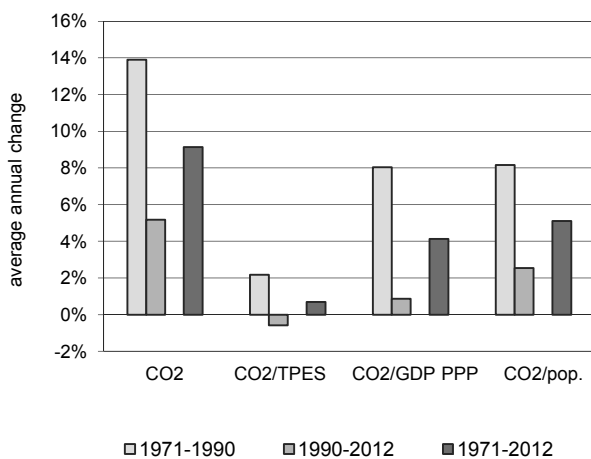
**Figure 3. Reference vs Sectoral Approach**



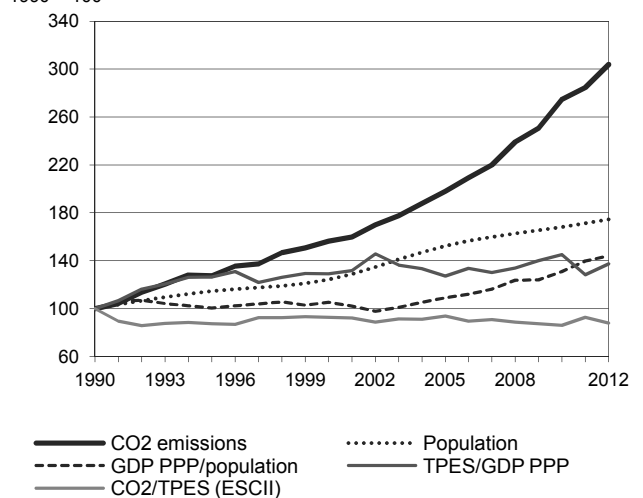
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Saudi Arabia

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	151.06	192.56	236.26	299.31	414.85	429.76	458.80	203.7%
TPES (PJ)	2 429	3 538	4 097	5 131	7 762	7 454	8 384	245.2%
GDP (billion 2005 USD)	197.80	227.81	258.61	328.46	435.99	473.36	497.62	151.6%
GDP PPP (billion 2005 USD)	509.06	586.31	665.58	845.36	1 122.11	1 218.28	1 280.72	151.6%
Population (millions)	16.21	18.57	20.15	24.69	27.26	27.76	28.29	74.6%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	62.2	54.4	57.7	58.3	53.4	57.7	54.7	-12.0%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.76	0.85	0.91	0.91	0.95	0.91	0.92	20.7%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.30	0.33	0.36	0.35	0.37	0.35	0.36	20.7%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	9.32	10.37	11.73	12.12	15.22	15.48	16.22	74.0%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	127	156	198	275	284	304	203.7%
Population index	100	115	124	152	168	171	175	74.6%
GDP PPP per population index	100	101	105	109	131	140	144	44.1%
Energy intensity index - TPES / GDP PPP	100	126	129	127	145	128	137	37.2%
Carbon intensity index - CO <sub>2</sub> / TPES	100	87	93	94	86	93	88	-12.0%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>327.56</b>	<b>131.24</b>	-	<b>458.80</b>	<b>203.7%</b>
Main activity producer elec. and heat	-	103.22	48.21	-	151.43	280.2%
Unallocated autoproducers	-	20.06	29.07	-	49.13	178.1%
Other energy industry own use	-	14.81	6.19	-	21.00	54.0%
Manufacturing industries and construction	-	65.99	47.77	-	113.75	298.9%
Transport	-	119.29	-	-	119.29	144.0%
<i>of which: road</i>	-	117.00	-	-	117.00	147.4%
Other	-	4.20	-	-	4.20	67.0%
<i>of which: residential</i>	-	4.20	-	-	4.20	67.0%
<b>Reference Approach</b>	-	<b>338.03</b>	<b>131.24</b>	-	<b>469.27</b>	<b>243.1%</b>
Diff. due to losses and/or transformation	-	- 11.82	-	-	- 11.82	
Statistical differences	-	22.29	- 0.00	-	22.29	
<i>Memo: international marine bunkers</i>	-	8.80	-	-	8.80	53.4%
<i>Memo: international aviation bunkers</i>	-	6.86	-	-	6.86	43.1%

\*\* Other includes industrial waste and non-renewable municipal waste.

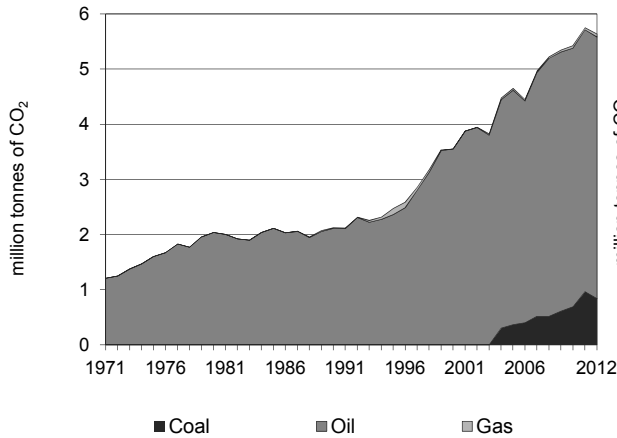
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	117.00	147.4%	20.9	20.9
Main activity prod. elec. and heat - oil	103.22	264.7%	18.4	39.3
Manufacturing industries - oil	65.99	251.1%	11.8	51.1
Main activity prod. elec. and heat - gas	48.21	318.2%	8.6	59.7
Manufacturing industries - gas	47.77	391.2%	8.5	68.2
Unallocated autoproducers - gas	29.07	64.6%	5.2	73.4
Unallocated autoproducers - oil	20.06	x	3.6	77.0
Other energy industry own use - oil	14.81	25.4%	2.6	79.6
Other energy industry own use - gas	6.19	239.9%	1.1	80.7
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>458.80</i>	<i>203.7%</i>	<i>81.9</i>	<i>81.9</i>

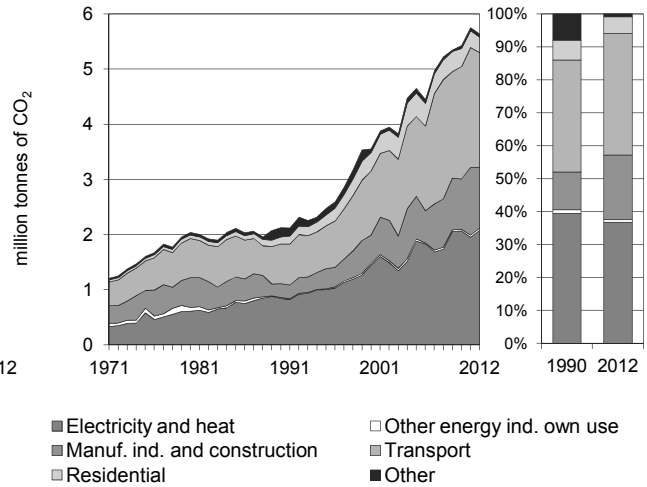
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Senegal

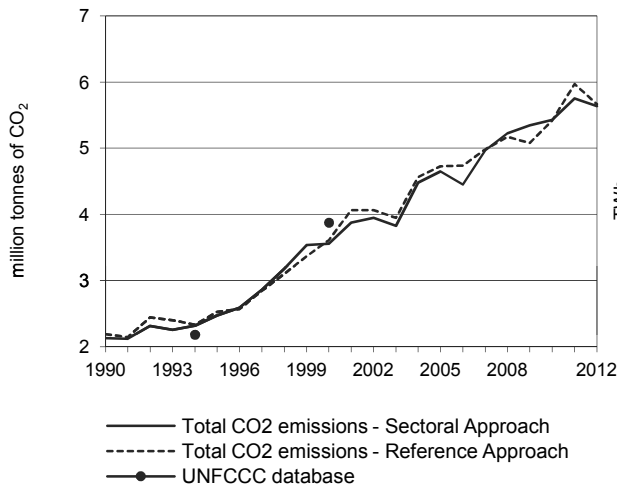
**Figure 1. CO<sub>2</sub> emissions by fuel**



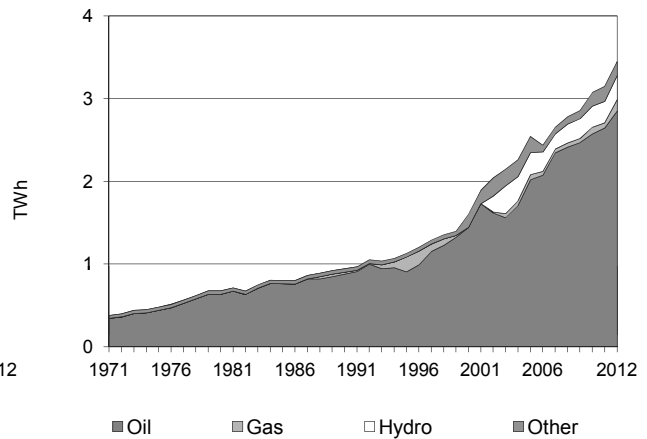
**Figure 2. CO<sub>2</sub> emissions by sector**



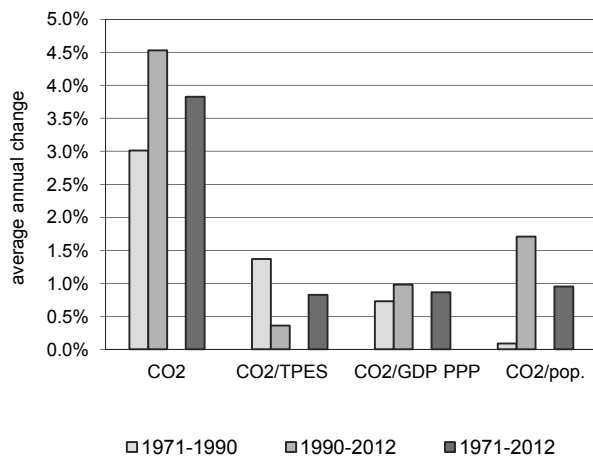
**Figure 3. Reference vs Sectoral Approach**



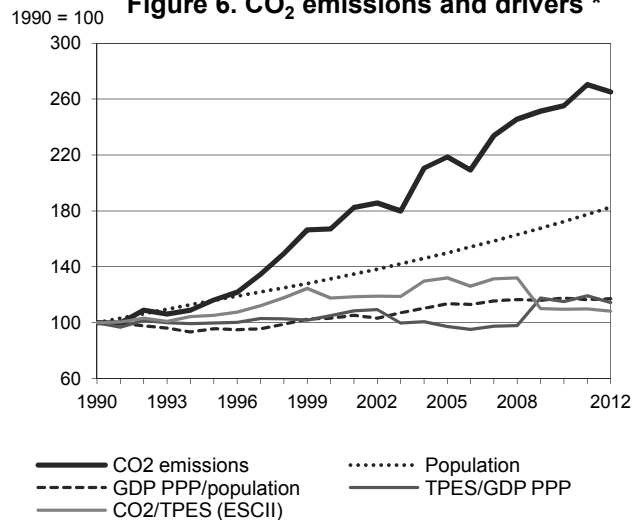
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Senegal

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	2.13	2.47	3.56	4.65	5.43	5.75	5.64	165.0%
TPES (PJ)	71	78	100	117	164	174	173	144.8%
GDP (billion 2005 USD)	5.12	5.67	6.93	8.71	10.37	10.58	10.95	113.9%
GDP PPP (billion 2005 USD)	12.44	13.78	16.85	21.16	25.19	25.71	26.59	113.9%
Population (millions)	7.51	8.71	9.86	11.27	12.95	13.33	13.73	82.7%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	30.1	31.7	35.4	39.8	33.0	33.0	32.6	8.3%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.42	0.44	0.51	0.53	0.52	0.54	0.51	23.9%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.17	0.18	0.21	0.22	0.22	0.22	0.21	23.9%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.28	0.28	0.36	0.41	0.42	0.43	0.41	45.1%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	116	167	219	255	270	265	165.0%
Population index	100	116	131	150	172	177	183	82.7%
GDP PPP per population index	100	96	103	113	118	117	117	17.1%
Energy intensity index - TPES / GDP PPP	100	100	105	97	115	119	114	14.4%
Carbon intensity index - CO <sub>2</sub> / TPES	100	105	118	132	110	110	108	8.3%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.84</b>	<b>4.75</b>	<b>0.05</b>	-	<b>5.64</b>	<b>165.0%</b>
Main activity producer elec. and heat	-	1.76	0.05	-	1.81	119.1%
Unallocated autoproducers	-	0.26	-	-	0.26	+
Other energy industry own use	-	0.04	-	-	0.04	85.7%
Manufacturing industries and construction	0.84	0.27	-	-	1.11	351.0%
Transport	-	2.08	-	-	2.08	188.0%
<i>of which: road</i>	-	1.99	-	-	1.99	200.9%
Other	-	0.33	-	-	0.33	12.3%
<i>of which: residential</i>	-	0.28	-	-	0.28	120.8%
<b>Reference Approach</b>	<b>0.84</b>	<b>4.77</b>	<b>0.05</b>	-	<b>5.66</b>	<b>158.8%</b>
Diff. due to losses and/or transformation	-	-0.01	-	-	-0.01	
Statistical differences	-	0.04	0.00	-	0.04	
<i>Memo: international marine bunkers</i>	-	0.22	-	-	0.22	95.2%
<i>Memo: international aviation bunkers</i>	-	0.62	-	-	0.62	36.2%

\*\* Other includes industrial waste and non-renewable municipal waste.

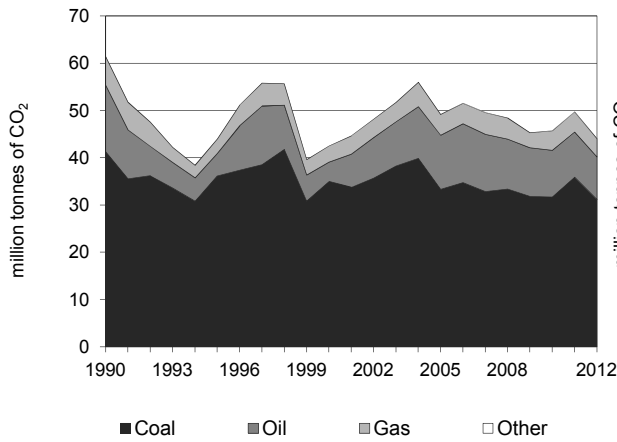
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	1.99	200.9%	7.5	7.5
Main activity prod. elec. and heat - oil	1.76	116.3%	6.6	14.1
Manufacturing industries - coal	0.84	x	3.1	17.2
Residential - oil	0.28	120.8%	1.1	18.3
Manufacturing industries - oil	0.27	8.8%	1.0	19.3
Unallocated autoproducers - oil	0.26	+	1.0	20.3
Other transport - oil	0.09	49.8%	0.3	20.6
Main activity prod. elec. and heat - gas	0.05	296.5%	0.2	20.8
Non-specified other - oil	0.05	-70.7%	0.2	21.0
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>5.64</i>	<i>165.0%</i>	<i>21.2</i>	<i>21.2</i>

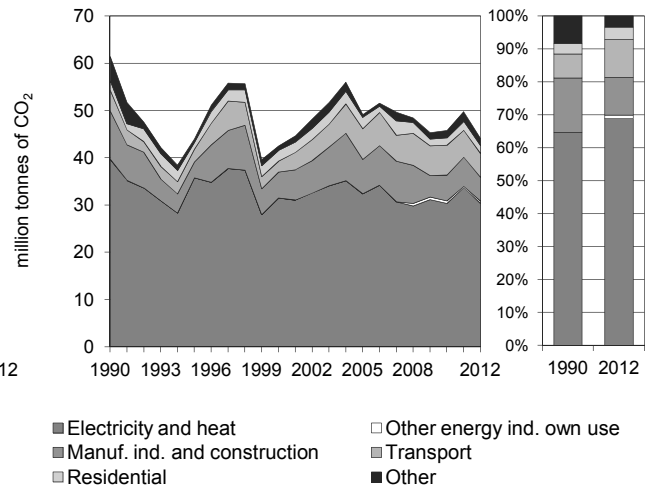
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Serbia

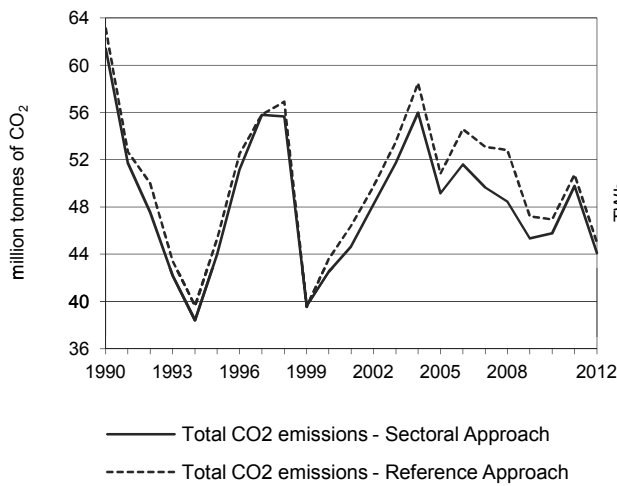
**Figure 1. CO<sub>2</sub> emissions by fuel**



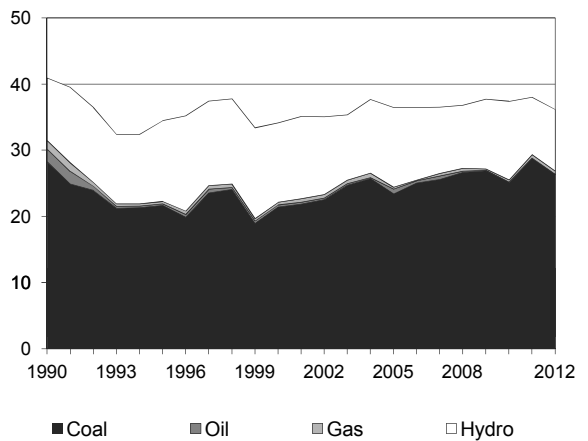
**Figure 2. CO<sub>2</sub> emissions by sector**



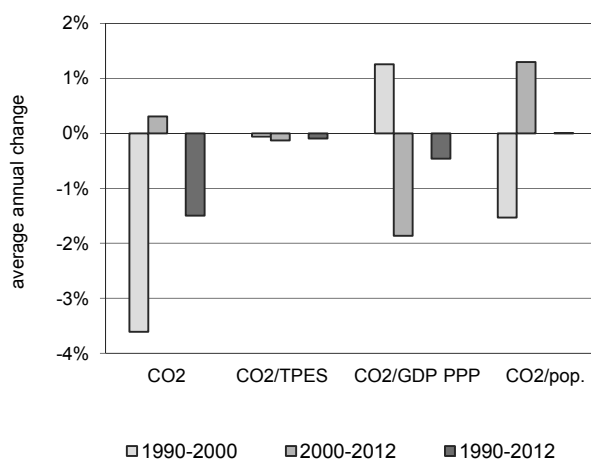
**Figure 3. Reference vs Sectoral Approach**



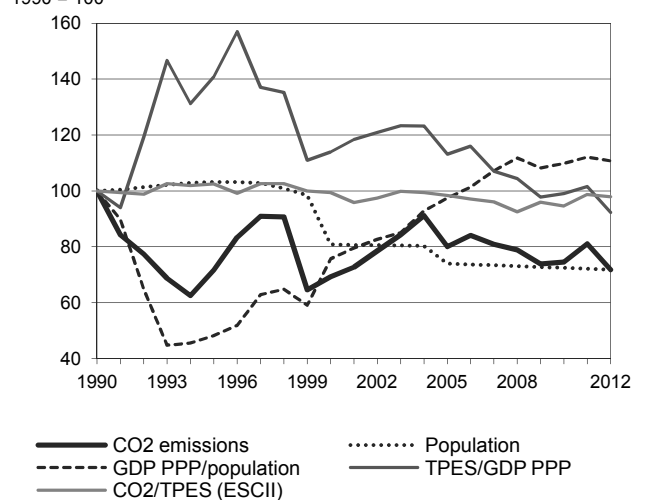
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Serbia \*

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	61.40	43.99	42.51	49.15	45.78	49.78	44.09	-28.2%
TPES (PJ)	825	577	575	672	650	678	605	-26.6%
GDP (billion 2005 USD)	35.05	17.40	21.42	25.23	27.88	28.34	27.85	-20.5%
GDP PPP (billion 2005 USD)	88.01	43.71	53.80	63.37	70.02	71.16	69.95	-20.5%
Population (millions)	10.06	10.38	8.13	7.44	7.29	7.26	7.22	-28.2%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	74.4	76.2	74.0	73.1	70.4	73.5	72.8	-2.1%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	1.75	2.53	1.98	1.95	1.64	1.76	1.58	-9.7%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.70	1.01	0.79	0.78	0.65	0.70	0.63	-9.6%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	6.10	4.24	5.23	6.61	6.28	6.86	6.10	0.0%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) **</b>								
CO <sub>2</sub> emissions index	100	72	69	80	75	81	72	-28.2%
Population index	100	103	81	74	72	72	72	-28.2%
GDP PPP per population index	100	48	76	97	110	112	111	10.7%
Energy intensity index - TPES / GDP PPP	100	141	114	113	99	102	92	-7.7%
Carbon intensity index - CO <sub>2</sub> / TPES	100	102	99	98	95	99	98	-2.1%

\* Data for Serbia include Montenegro until 2004 and Kosovo until 1999. \*\* Please see Part I, Chapter 1 for methodological notes. Based on GDP PPP.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other ***	Total	% change 90-12
<b>Sectoral Approach</b>	<b>31.19</b>	<b>9.01</b>	<b>3.88</b>	<b>0.01</b>	<b>44.09</b>	<b>-28.2%</b>
Main activity producer elec. and heat	27.49	0.53	1.29	-	29.31	-26.2%
Unallocated autoproducers	0.53	0.27	0.25	0.01	1.05	x
Other energy industry own use	-	0.29	0.17	-	0.47	x
Manufacturing industries and construction	1.68	1.90	1.44	-	5.02	-50.6%
Transport	-	5.04	0.01	-	5.05	14.2%
<i>of which: road</i>	-	4.60	0.01	-	4.61	4.1%
Other	1.48	0.97	0.72	-	3.18	-55.3%
<i>of which: residential</i>	0.97	0.25	0.45	-	1.68	-16.4%
<b>Reference Approach</b>	<b>31.66</b>	<b>9.38</b>	<b>3.91</b>	<b>0.01</b>	<b>44.95</b>	<b>-28.8%</b>
Diff. due to losses and/or transformation	0.36	0.34	0.02	-	0.72	
Statistical differences	0.11	0.03	-	-	0.14	
<i>Memo: international marine bunkers</i>	-	0.01	-	-	0.01	..
<i>Memo: international aviation bunkers</i>	-	0.12	-	-	0.12	-72.9%

\*\*\* Other includes industrial waste and non-renewable municipal waste.

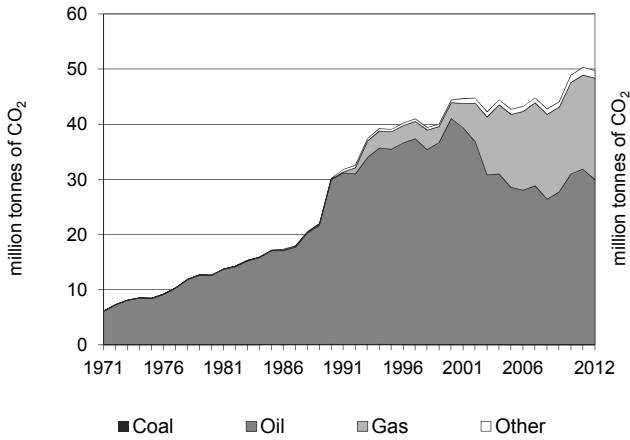
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ****	Cumulative total (%)
Main activity prod. elec. and heat - coal	27.49	-26.6%	..	..
Road - oil	4.60	4.0%	..	..
Manufacturing industries - oil	1.90	-72.2%	..	..
Manufacturing industries - coal	1.68	11.5%	..	..
Manufacturing industries - gas	1.44	-20.8%	..	..
Main activity prod. elec. and heat - gas	1.29	144.4%	..	..
Residential - coal	0.97	-47.7%	..	..
Non-specified other - oil	0.72	-27.0%	..	..
Unallocated autoproducers - coal	0.53	x	..	..
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>44.09</i>	<i>-28.2%</i>	<i>-</i>	<i>-</i>

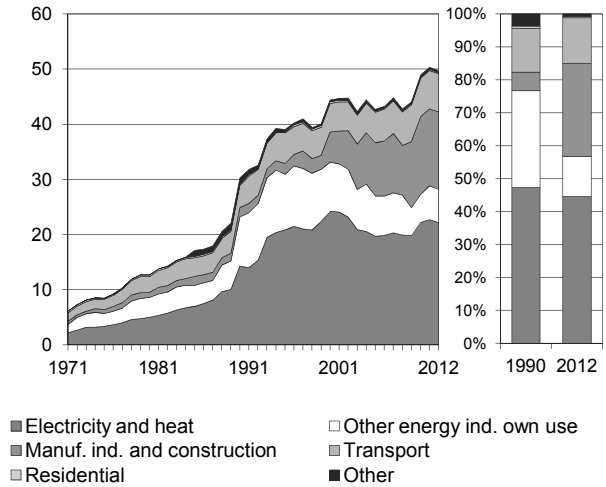
\*\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Singapore \*

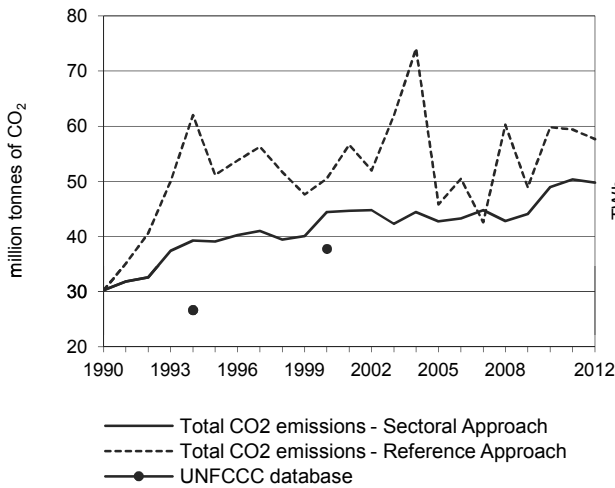
**Figure 1. CO<sub>2</sub> emissions by fuel**



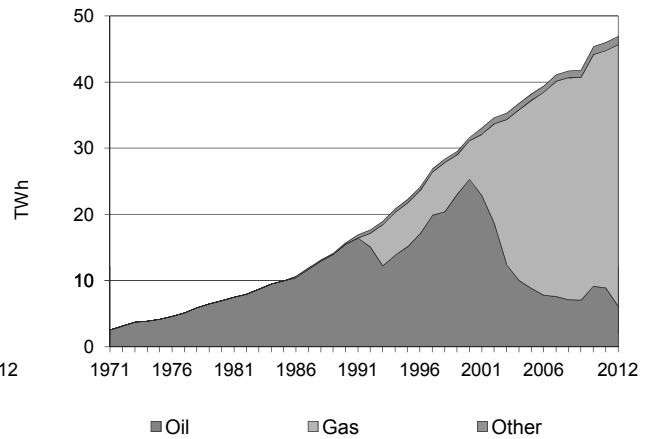
**Figure 2. CO<sub>2</sub> emissions by sector**



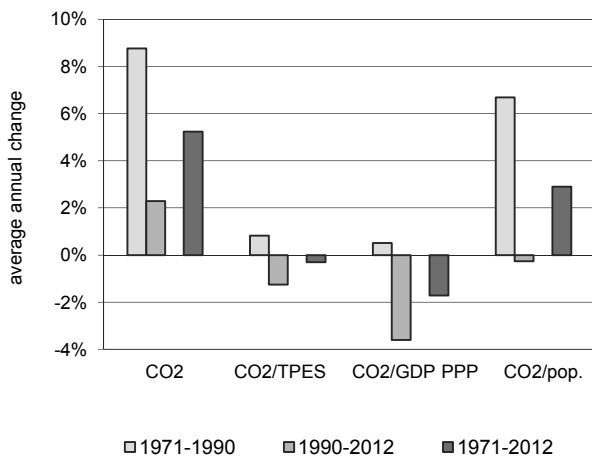
**Figure 3. Reference vs Sectoral Approach**



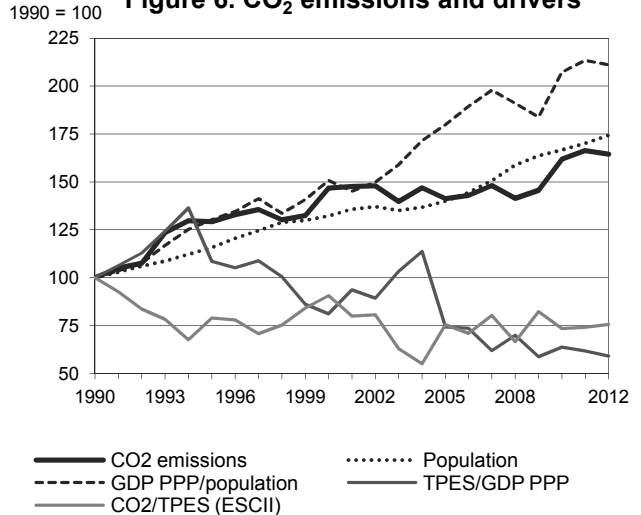
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \*\***



**Figure 6. CO<sub>2</sub> emissions and drivers \*\***



\* Large statistical differences for oil and oil products cause discrepancies between the Sectoral and Reference Approaches; please see note in Chapter 1.

\*\* Based on GDP in 2005 USD, using purchasing power parities.

## Singapore

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	30.25	39.10	44.40	42.72	48.94	50.33	49.75	64.4%
TPES (PJ)	483	789	782	903	1 064	1 084	1 049	117.4%
GDP (billion 2005 USD)	49.83	75.10	99.35	125.43	172.10	180.98	183.37	268.0%
GDP PPP (billion 2005 USD)	91.97	138.61	183.38	231.52	317.67	334.06	338.47	268.0%
Population (millions)	3.05	3.53	4.03	4.27	5.08	5.18	5.31	74.3%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	62.7	49.6	56.8	47.3	46.0	46.4	47.4	-24.4%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.61	0.52	0.45	0.34	0.28	0.28	0.27	-55.3%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.33	0.28	0.24	0.18	0.15	0.15	0.15	-55.3%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	9.93	11.09	11.02	10.01	9.64	9.71	9.36	-5.7%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	129	147	141	162	166	164	64.4%
Population index	100	116	132	140	167	170	174	74.3%
GDP PPP per population index	100	130	151	180	207	214	211	111.1%
Energy intensity index - TPES / GDP PPP	100	108	81	74	64	62	59	-40.9%
Carbon intensity index - CO <sub>2</sub> / TPES	100	79	91	75	73	74	76	-24.4%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach ***</b>	<b>0.03</b>	<b>29.94</b>	<b>18.40</b>	<b>1.37</b>	<b>49.75</b>	<b>64.4%</b>
Main activity producer elec. and heat	-	4.09	14.95	1.37	20.41	44.3%
Unallocated autoproducers	-	0.97	0.79	-	1.76	+
Other energy industry own use	-	6.00	0.02	-	6.02	-32.3%
Manufacturing industries and construction	0.03	11.77	2.29	-	14.09	716.8%
Transport	-	6.87	0.05	-	6.91	71.7%
<i>of which: road</i>	-	6.25	0.05	-	6.30	56.5%
Other	-	0.25	0.31	-	0.56	-57.5%
<i>of which: residential</i>	-	0.06	0.12	-	0.18	1.0%
<b>Reference Approach ***</b>	<b>0.03</b>	<b>39.15</b>	<b>17.12</b>	<b>1.37</b>	<b>57.67</b>	<b>90.5%</b>
Diff. due to losses and/or transformation	-	6.83	-	-	6.83	
Statistical differences	-	2.38	- 1.28	-	1.10	
<i>Memo: international marine bunkers</i>	-	131.57	-	-	131.57	288.5%
<i>Memo: international aviation bunkers</i>	-	20.30	-	-	20.30	260.4%

\*\* Other includes industrial waste and non-renewable municipal waste.

\*\*\* Large statistical differences for oil and oil products cause discrepancies between the Sectoral and Reference Approaches; please see note in Chapter 1.

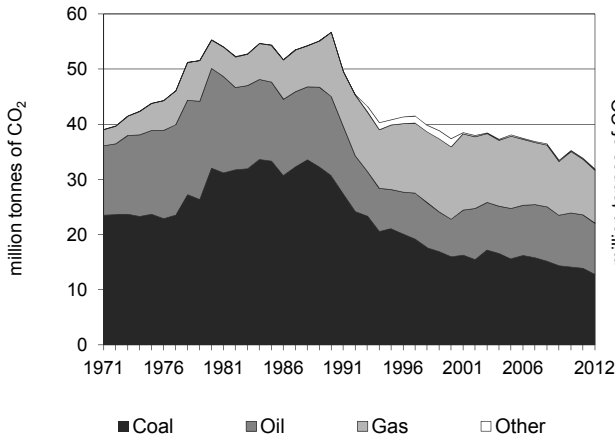
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ****	Cumulative total (%)
Main activity prod. elec. and heat - gas	14.95	x	25.9	25.9
Manufacturing industries - oil	11.77	621.0%	20.4	46.2
Road - oil	6.25	55.4%	10.8	57.1
Other energy industry own use - oil	6.00	-32.6%	10.4	67.4
Main activity prod. elec. and heat - oil	4.09	-70.8%	7.1	74.5
Manufacturing industries - gas	2.29	x	4.0	78.5
Main activity prod. elec. and heat - other	1.37	758.9%	2.4	80.8
Unallocated autoproducers - oil	0.97	529.8%	1.7	82.5
Unallocated autoproducers - gas	0.79	x	1.4	83.9
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>49.75</i>	<i>64.4%</i>	<i>86.1</i>	<i>86.1</i>

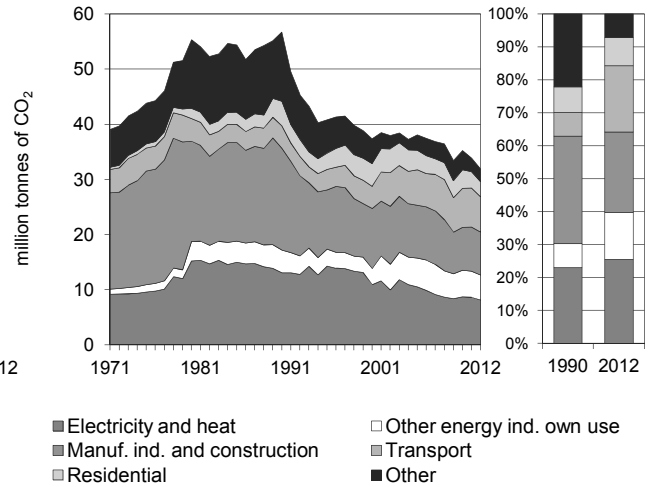
\*\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Slovak Republic

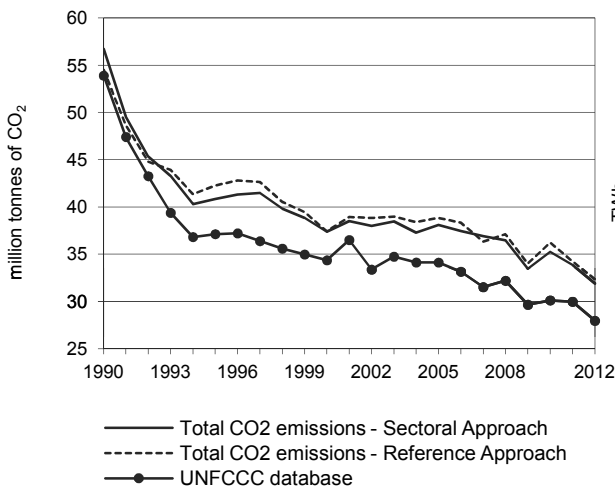
**Figure 1. CO<sub>2</sub> emissions by fuel**



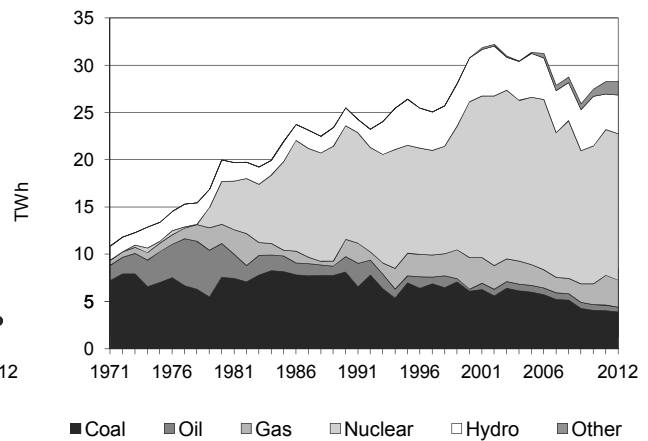
**Figure 2. CO<sub>2</sub> emissions by sector**



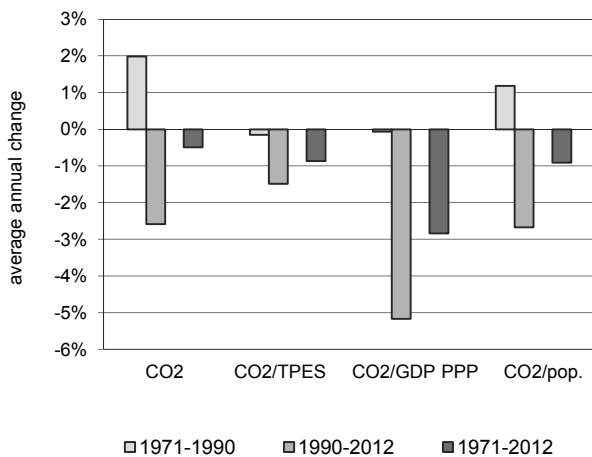
**Figure 3. Reference vs Sectoral Approach**



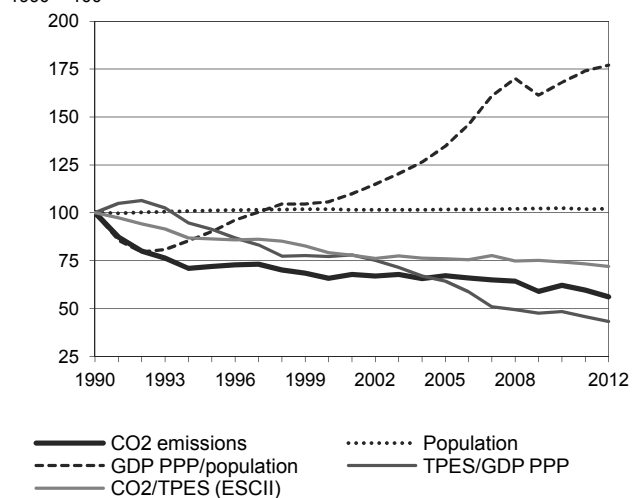
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Slovak Republic

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	56.73	40.83	37.37	38.10	35.24	33.86	31.88	-43.8%
TPES (PJ)	893	744	743	788	746	726	697	-21.9%
GDP (billion 2005 USD)	34.94	31.89	37.70	47.90	60.19	61.99	63.11	80.6%
GDP PPP (billion 2005 USD)	63.56	58.02	68.58	87.13	109.51	112.77	114.81	80.6%
Population (millions)	5.30	5.36	5.40	5.39	5.43	5.40	5.41	2.0%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	63.5	54.9	50.3	48.3	47.2	46.6	45.7	-28.0%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	1.62	1.28	0.99	0.80	0.59	0.55	0.51	-68.9%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.89	0.70	0.55	0.44	0.32	0.30	0.28	-68.9%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	10.71	7.61	6.92	7.07	6.49	6.27	5.90	-44.9%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	72	66	67	62	60	56	-43.8%
Population index	100	101	102	102	102	102	102	2.0%
GDP PPP per population index	100	90	106	135	168	174	177	77.0%
Energy intensity index - TPES / GDP PPP	100	91	77	64	49	46	43	-56.8%
Carbon intensity index - CO <sub>2</sub> / TPES	100	86	79	76	74	73	72	-28.0%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>12.80</b>	<b>9.28</b>	<b>9.60</b>	<b>0.20</b>	<b>31.88</b>	<b>-43.8%</b>
Main activity producer elec. and heat	4.31	0.79	1.97	-	7.08	-34.9%
Unallocated autoproducers	0.78	0.00	0.21	0.07	1.07	-51.7%
Other energy industry own use	2.92	1.26	0.33	-	4.51	9.2%
Manufacturing industries and construction	4.25	0.95	2.51	0.09	7.81	-57.8%
Transport	-	5.93	0.47	-	6.40	58.3%
<i>of which: road</i>	-	5.84	-	-	5.84	44.5%
Other	0.54	0.33	4.11	0.03	5.02	-70.5%
<i>of which: residential</i>	0.18	0.03	2.53	-	2.74	-38.2%
<b>Reference Approach</b>	<b>13.44</b>	<b>8.74</b>	<b>9.95</b>	<b>0.20</b>	<b>32.34</b>	<b>-40.7%</b>
Diff. due to losses and/or transformation	0.51	-0.51	0.35	-	0.35	
Statistical differences	0.13	-0.03	0.00	-0.00	0.10	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.11	-	-	0.11	x

\*\* Other includes industrial waste and non-renewable municipal waste.

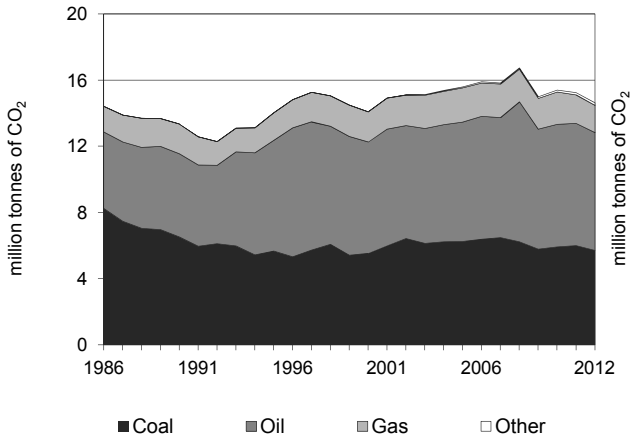
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	5.84	44.5%	12.5	12.5
Main activity prod. elec. and heat - coal	4.31	-47.1%	9.3	21.8
Manufacturing industries - coal	4.25	-49.1%	9.1	30.9
Other energy industry - coal	2.92	-14.4%	6.3	37.2
Residential - gas	2.53	-0.7%	5.4	42.6
Manufacturing industries - gas	2.51	-19.4%	5.4	48.0
Main activity prod. elec. and heat - gas	1.97	-4.1%	4.2	52.2
Non-specified other - gas	1.58	-54.6%	3.4	55.6
Other energy industry own use - oil	1.26	180.1%	2.7	58.3
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<b>31.88</b>	<b>-43.8%</b>	<b>68.4</b>	<b>68.4</b>

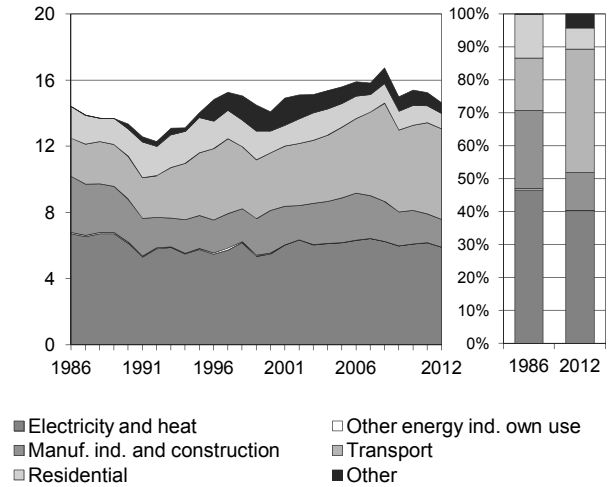
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Slovenia

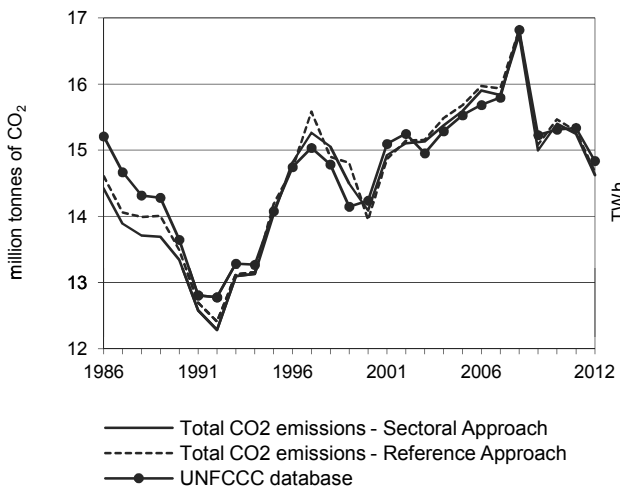
**Figure 1. CO<sub>2</sub> emissions by fuel**



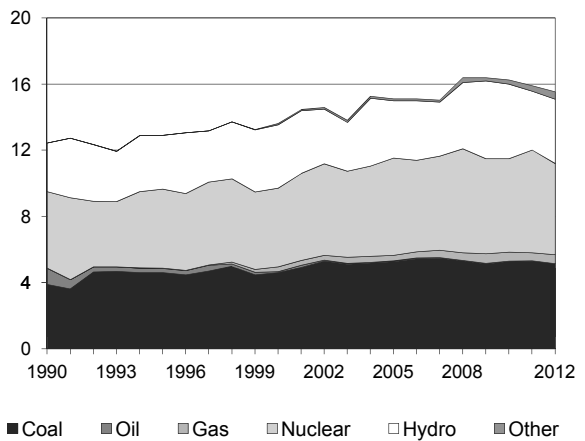
**Figure 2. CO<sub>2</sub> emissions by sector**



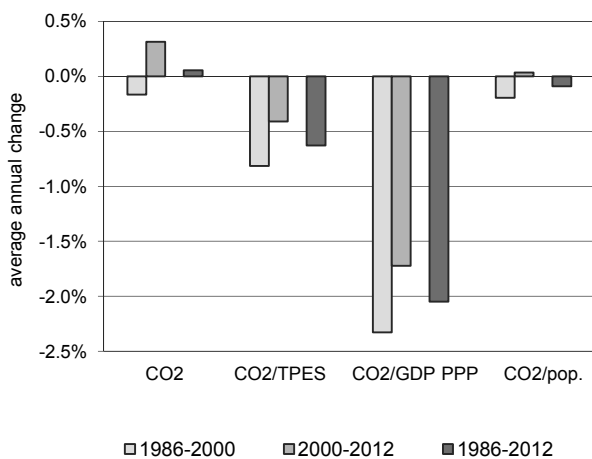
**Figure 3. Reference vs Sectoral Approach**



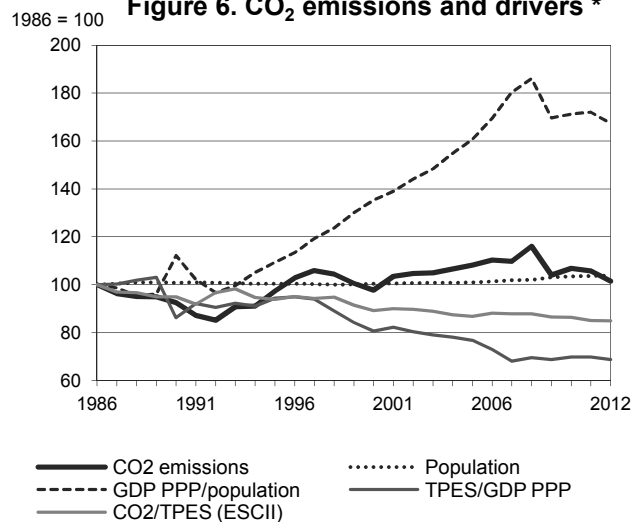
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Slovenia \*

### Key indicators

	1986	1990	1995	2005	2010	2011	2012	% change 86-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	14.42e	13.35	14.03	15.59	15.40	15.25	14.63	1.4%
TPES (PJ)	245e	239	254	305	303	305	293	19.5%
GDP (billion 2005 USD)	23.87e	24.90	24.18	35.72	38.97	39.25	38.25	60.3%
GDP PPP (billion 2005 USD)	28.94e	32.73	31.79	46.96	51.24	51.60	50.29	73.8%
Population (millions)	1.98e	2.00	1.99	2.00	2.05	2.05	2.06	3.8%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	58.8e	55.8	55.2	51.1	50.8	50.0	49.9	-15.1%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.6e	0.54	0.58	0.44	0.40	0.39	0.38	-36.7%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.5e	0.41	0.44	0.33	0.30	0.30	0.29	-41.6%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	7.28e	6.68	7.06	7.79	7.51	7.43	7.11	-2.3%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1986=100) **</b>								
CO <sub>2</sub> emissions index	100	93	97	108	107	106	101	1.4%
Population index	100	101	100	101	103	104	104	3.8%
GDP PPP per population index	100	112	109	161	171	172	167	67.4%
Energy intensity index - TPES / GDP PPP	100	86	94	77	70	70	69	-31.2%
Carbon intensity index - CO <sub>2</sub> / TPES	100	95	94	87	86	85	85	-15.1%

\* Under the Convention Slovenia is allowed to use 1986 as the base year. \*\* Please see Part I, Chapter 1 for methodological notes. Based on GDP PPP.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other ***	Total	% change 86-12
<b>Sectoral Approach</b>	<b>5.70</b>	<b>7.12</b>	<b>1.66</b>	<b>0.14</b>	<b>14.63</b>	<b>1.4%</b>
Main activity producer elec. and heat	5.44	0.02	0.34	0.03	5.84	0.1%
Unallocated autoproducers	0.03	-	0.03	-	0.06	-93.2%
Other energy industry own use	-	-	0.00	-	0.00	-93.4%
Manufacturing industries and construction	0.23	0.36	0.98	0.11	1.68	-50.5%
Transport	-	5.48	0.00	-	5.48	138.2%
<i>of which: road</i>	-	5.44	0.00	-	5.44	140.0%
Other	-	1.26	0.30	-	1.56	-19.0%
<i>of which: residential</i>	-	0.66	0.27	-	0.93	-51.3%
<b>Reference Approach</b>	<b>5.74</b>	<b>7.12</b>	<b>1.66</b>	<b>0.14</b>	<b>14.67</b>	<b>0.4%</b>
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	0.04	-	-0.00	-	0.04	-
<i>Memo: international marine bunkers</i>	-	0.16	-	-	0.16	..
<i>Memo: international aviation bunkers</i>	-	0.07	-	-	0.07	-28.1%

\*\*\* Other includes industrial waste and non-renewable municipal waste.

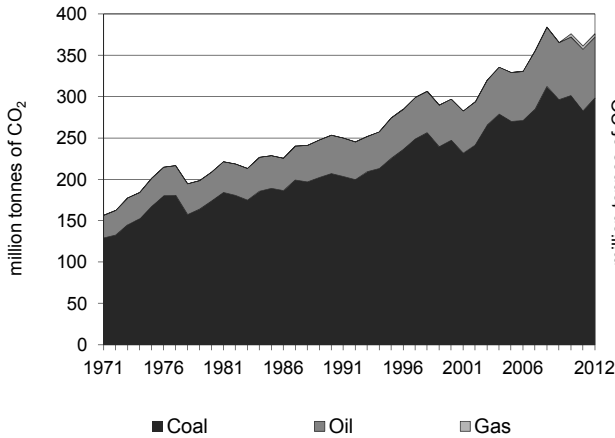
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 86-12	Level assessment (%) ****	Cumulative total (%)
Main activity prod. elec. and heat - coal	5.44	-4.5%	29.1	29.1
Road - oil	5.44	139.9%	29.1	58.2
Manufacturing industries - gas	0.98	-13.6%	5.2	63.4
Residential - oil	0.66	-2.5%	3.5	66.9
Non-specified other - oil	0.60	x	3.2	70.1
Manufacturing industries - oil	0.36	-65.9%	2.0	72.1
Main activity prod. elec. and heat - gas	0.34	626.7%	1.8	73.9
Residential - gas	0.27	682.2%	1.5	75.3
Manufacturing industries - coal	0.23	-80.8%	1.2	76.6
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>14.63</i>	<i>1.4%</i>	<i>78.2</i>	<i>78.2</i>

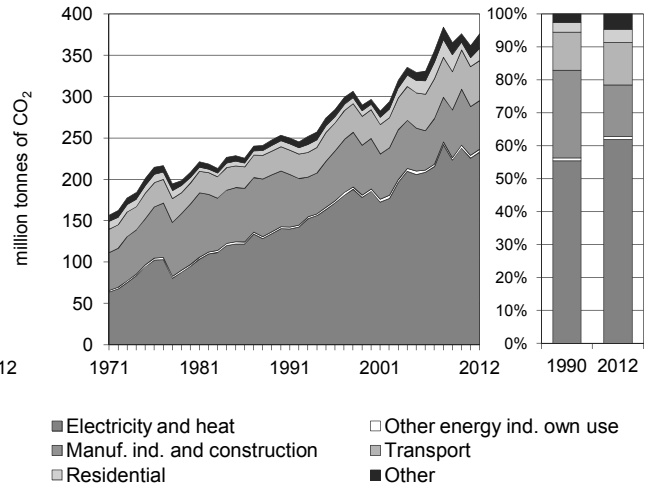
\*\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## South Africa

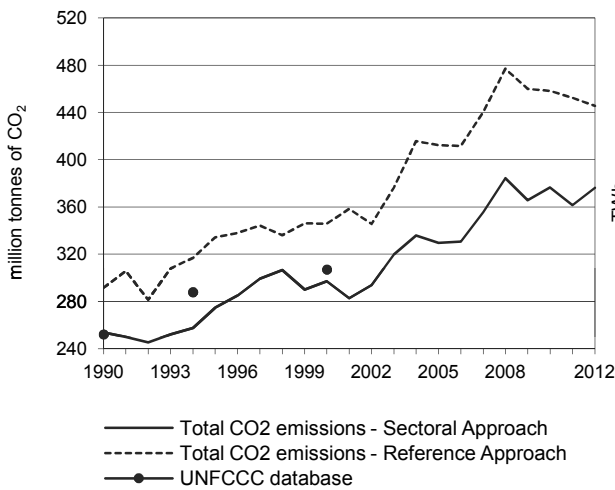
**Figure 1. CO<sub>2</sub> emissions by fuel**



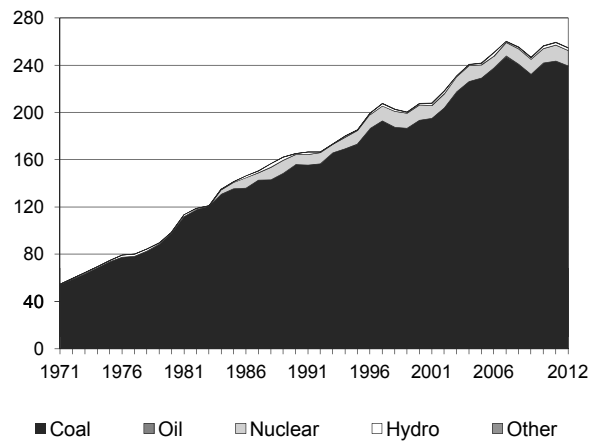
**Figure 2. CO<sub>2</sub> emissions by sector**



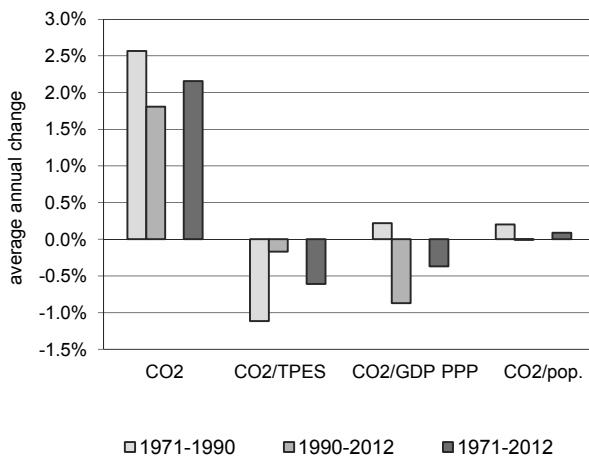
**Figure 3. Reference vs Sectoral Approach**



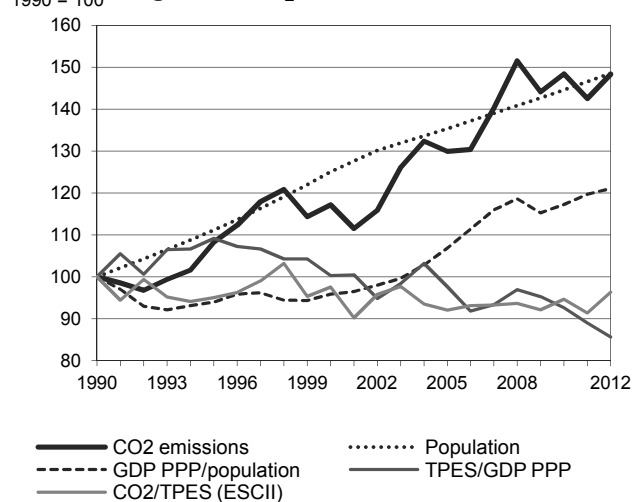
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## South Africa

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	253.65	274.49	297.06	329.45	376.31	361.51	376.12	48.3%
TPES (PJ)	3 808	4 337	4 575	5 373	5 973	5 941	5 862	53.9%
GDP (billion 2005 USD)	170.91	178.41	204.70	247.05	289.66	299.68	307.31	79.8%
GDP PPP (billion 2005 USD)	310.70	324.33	372.12	449.10	526.56	544.77	558.65	79.8%
Population (millions)	35.20	39.12	44.00	47.64	50.90	51.58	52.28	48.5%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	66.6	63.3	64.9	61.3	63.0	60.9	64.2	-3.7%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	1.48	1.54	1.45	1.33	1.30	1.21	1.22	-17.5%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.82	0.85	0.80	0.73	0.71	0.66	0.67	-17.5%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	7.21	7.02	6.75	6.92	7.39	7.01	7.20	-0.2%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	108	117	130	148	143	148	48.3%
Population index	100	111	125	135	145	147	149	48.5%
GDP PPP per population index	100	94	96	107	117	120	121	21.1%
Energy intensity index - TPES / GDP PPP	100	109	100	98	93	89	86	-14.4%
Carbon intensity index - CO <sub>2</sub> / TPES	100	95	97	92	95	91	96	-3.7%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>298.39</b>	<b>73.75</b>	<b>3.98</b>	-	<b>376.12</b>	<b>48.3%</b>
Main activity producer elec. and heat	223.39	0.15	-	-	223.54	69.3%
Unallocated autoproducers	9.46	-	-	-	9.46	10.4%
Other energy industry own use	-	3.41	-	-	3.41	45.4%
Manufacturing industries and construction	41.48	13.37	3.98	-	58.83	-12.7%
Transport	-	48.44	0.00	-	48.44	65.6%
<i>of which: road</i>	-	45.09	0.00	-	45.09	61.5%
Other	24.06	8.39	0.00	-	32.45	130.0%
<i>of which: residential</i>	13.30	1.82	-	-	15.12	99.7%
<b>Reference Approach</b>	<b>376.42</b>	<b>59.74</b>	<b>9.43</b>	-	<b>445.59</b>	<b>52.8%</b>
Diff. due to losses and/or transformation	84.79	- 14.41	5.44	-	75.82	
Statistical differences	- 6.77	0.41	-	-	- 6.36	
<i>Memo: international marine bunkers</i>	-	11.15	-	-	11.15	87.4%
<i>Memo: international aviation bunkers</i>	-	2.48	-	-	2.48	126.5%

\*\* Other includes industrial waste and non-renewable municipal waste.

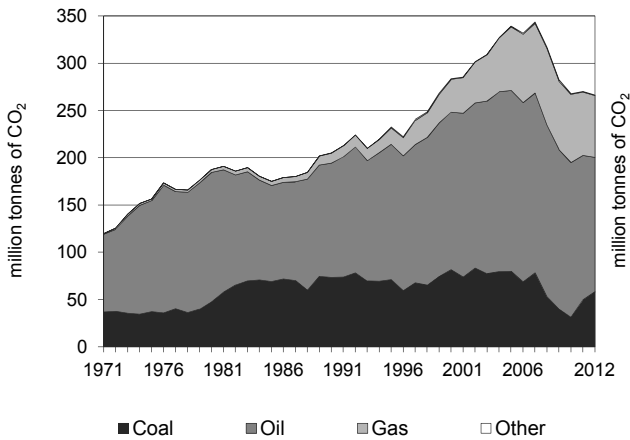
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	223.39	69.2%	46.2	46.2
Road - oil	45.09	61.5%	9.3	55.5
Manufacturing industries - coal	41.48	-27.2%	8.6	64.1
Manufacturing industries - oil	13.37	29.2%	2.8	66.8
Residential - coal	13.30	131.0%	2.7	69.6
Non-specified other sectors - coal	10.76	193.1%	2.2	71.8
Unallocated autoproducers - coal	9.46	10.4%	2.0	73.7
Non-specified other - oil	6.57	129.0%	1.4	75.1
Manufacturing industries - gas	3.98	x	0.8	75.9
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>376.12</i>	<i>48.3%</i>	<i>77.7</i>	<i>77.7</i>

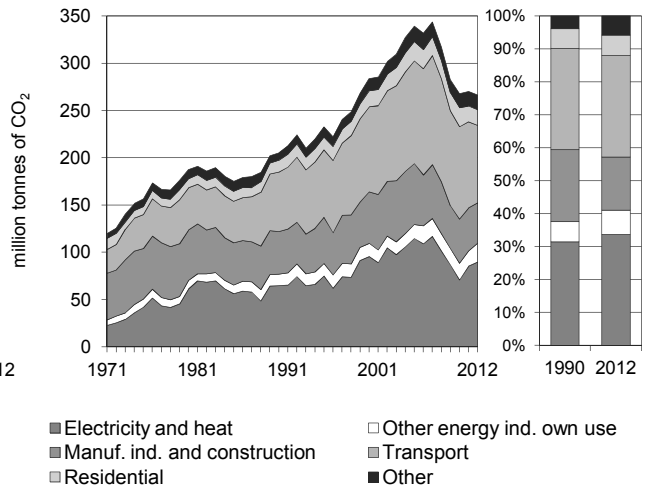
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Spain

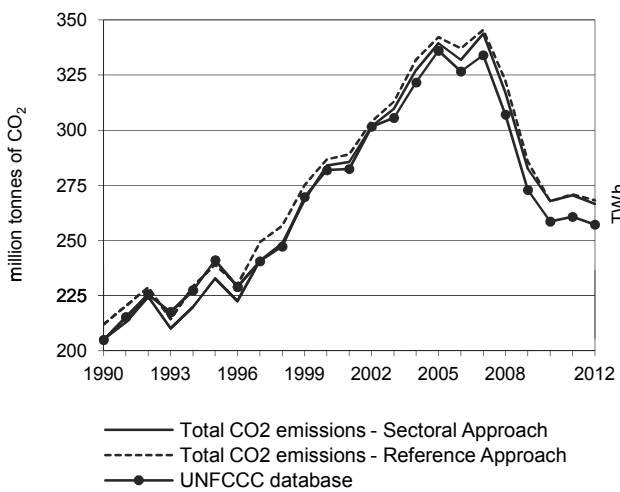
**Figure 1. CO<sub>2</sub> emissions by fuel**



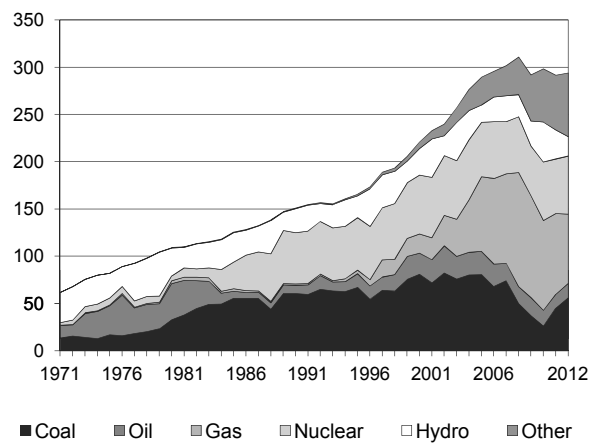
**Figure 2. CO<sub>2</sub> emissions by sector**



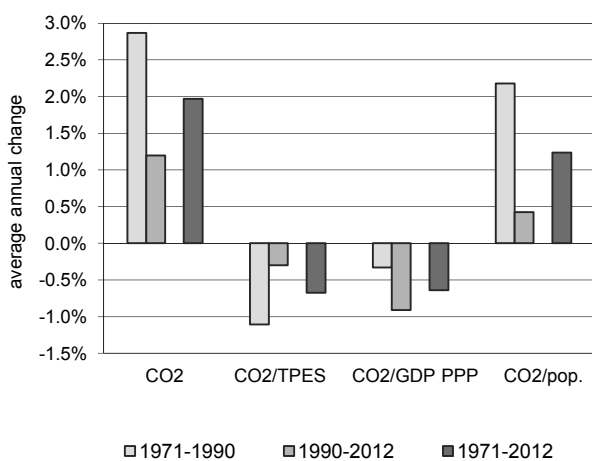
**Figure 3. Reference vs Sectoral Approach**



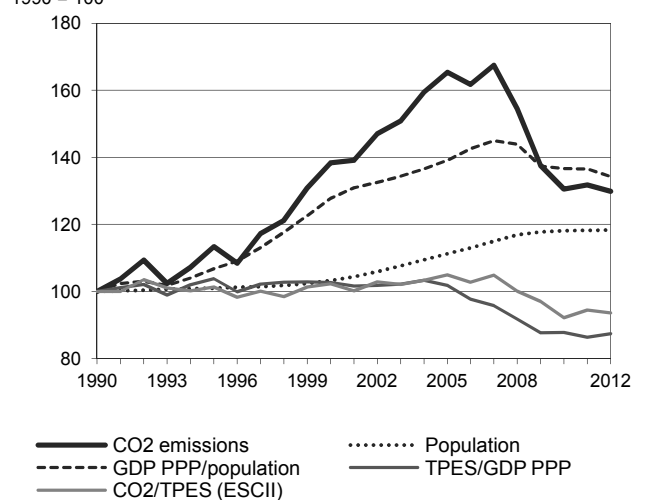
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Spain

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	205.22	232.69	283.92	339.45	267.89	270.41	266.58	29.9%
TPES (PJ)	3 771	4 220	5 102	5 942	5 343	5 258	5 232	38.7%
GDP (billion 2005 USD)	730.66	787.39	963.13	1 130.80	1 179.23	1 179.83	1 160.46	58.8%
GDP PPP (billion 2005 USD)	768.11	827.75	1 012.50	1 188.76	1 239.68	1 240.30	1 219.94	58.8%
Population (millions)	39.01	39.39	40.26	43.40	46.07	46.13	46.16	18.3%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	54.4	55.1	55.6	57.1	50.1	51.4	50.9	-6.4%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.28	0.30	0.29	0.30	0.23	0.23	0.23	-18.2%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.27	0.28	0.28	0.29	0.22	0.22	0.22	-18.2%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	5.26	5.91	7.05	7.82	5.81	5.86	5.77	9.8%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	113	138	165	131	132	130	29.9%
Population index	100	101	103	111	118	118	118	18.3%
GDP PPP per population index	100	107	128	139	137	137	134	34.2%
Energy intensity index - TPES / GDP PPP	100	104	103	102	88	86	87	-12.6%
Carbon intensity index - CO <sub>2</sub> / TPES	100	101	102	105	92	95	94	-6.4%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>58.41</b>	<b>142.16</b>	<b>65.21</b>	<b>0.80</b>	<b>266.58</b>	<b>29.9%</b>
Main activity producer elec. and heat	51.44	9.55	15.12	0.19	76.30	22.0%
Unallocated autoproducers	0.51	1.30	11.03	0.61	13.45	567.4%
Other energy industry own use	2.08	13.42	4.31	-	19.81	59.3%
Manufacturing industries and construction	3.65	18.95	20.28	-	42.89	-4.4%
Transport	-	81.72	0.29	-	82.01	30.3%
<i>of which: road</i>	-	69.65	0.19	-	69.84	32.4%
Other	0.74	17.20	14.17	-	32.11	57.6%
<i>of which: residential</i>	0.44	7.88	8.20	-	16.52	32.3%
<b>Reference Approach</b>	<b>58.95</b>	<b>142.86</b>	<b>65.59</b>	<b>0.80</b>	<b>268.19</b>	<b>26.5%</b>
Diff. due to losses and/or transformation	1.05	1.93	0.37	-	3.35	
Statistical differences	-0.50	-1.24	0.01	-	-1.73	
<i>Memo: international marine bunkers</i>	-	26.50	-	-	26.50	131.3%
<i>Memo: international aviation bunkers</i>	-	10.67	-	-	10.67	221.3%

\*\* Other includes industrial waste and non-renewable municipal waste.

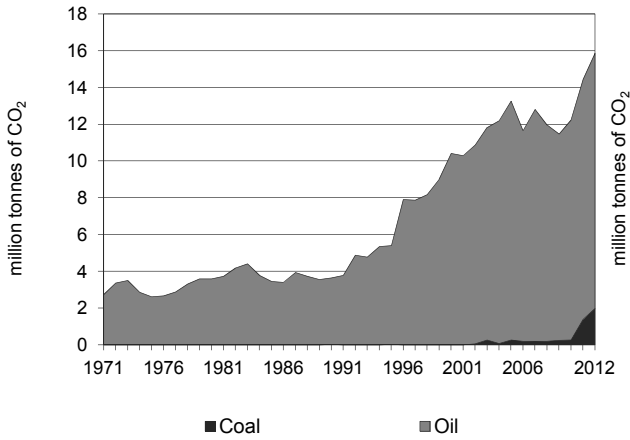
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	69.65	32.0%	19.9	19.9
Main activity prod. elec. and heat - coal	51.44	-8.4%	14.7	34.6
Manufacturing industries - gas	20.28	137.9%	5.8	40.4
Manufacturing industries - oil	18.95	-18.5%	5.4	45.8
Main activity prod. elec. and heat - gas	15.12	+	4.3	50.1
Other energy industry own use - oil	13.42	27.3%	3.8	53.9
Other transport - oil	12.07	18.6%	3.4	57.4
Unallocated autoproducers - gas	11.03	+	3.2	60.5
Main activity prod. elec. and heat - oil	9.55	59.9%	2.7	63.3
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>266.58</i>	<i>29.9%</i>	<i>76.1</i>	<i>76.1</i>

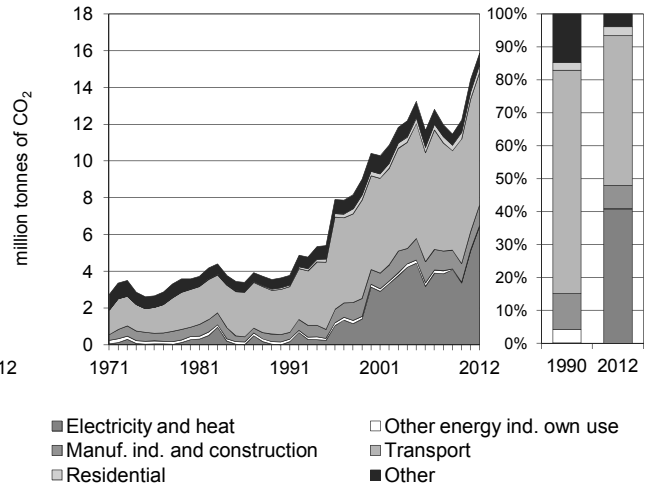
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Sri Lanka

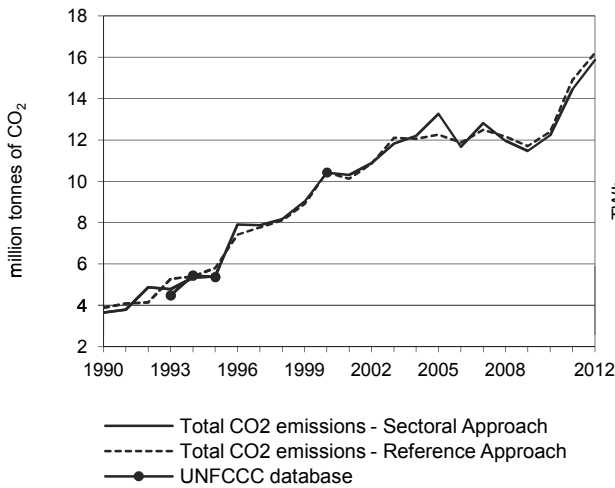
**Figure 1. CO<sub>2</sub> emissions by fuel**



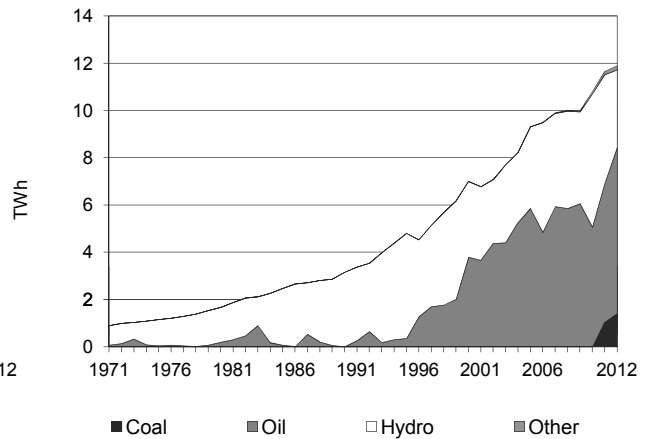
**Figure 2. CO<sub>2</sub> emissions by sector**



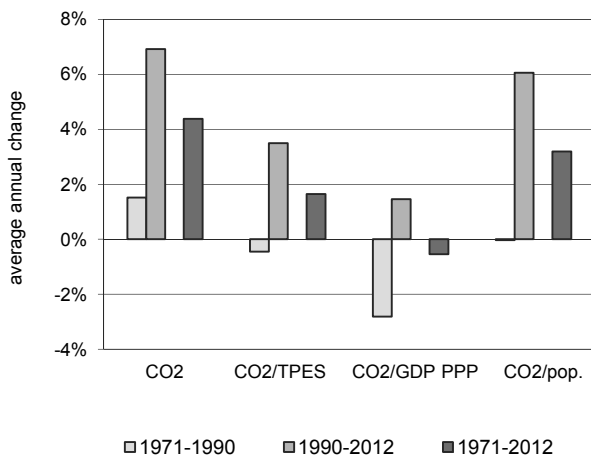
**Figure 3. Reference vs Sectoral Approach**



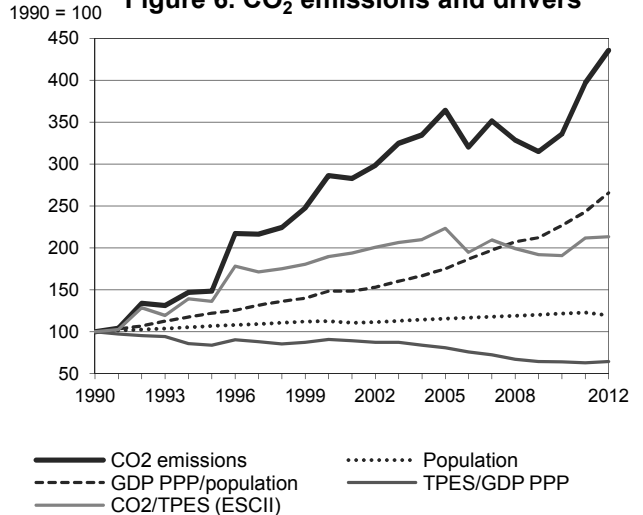
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Sri Lanka

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	3.64	5.40	10.42	13.26	12.23	14.45	15.86	335.3%
TPES (PJ)	231	251	349	377	406	432	472	104.3%
GDP (billion 2005 USD)	12.08	15.71	20.09	24.41	33.25	36.00	38.30	217.0%
GDP PPP (billion 2005 USD)	50.66	65.88	84.23	102.32	139.41	150.91	160.59	217.0%
Population (millions)	17.02	18.14	19.10	19.64	20.65	20.87	20.33	19.5%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	15.8	21.5	29.9	35.2	30.1	33.4	33.6	113.1%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.30	0.34	0.52	0.54	0.37	0.40	0.41	37.3%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.07	0.08	0.12	0.13	0.09	0.10	0.10	37.4%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.21	0.30	0.55	0.68	0.59	0.69	0.78	264.3%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	148	286	364	336	397	435	335.3%
Population index	100	107	112	115	121	123	119	19.5%
GDP PPP per population index	100	122	148	175	227	243	265	165.3%
Energy intensity index - TPES / GDP PPP	100	84	91	81	64	63	64	-35.6%
Carbon intensity index - CO <sub>2</sub> / TPES	100	136	189	223	191	212	213	113.1%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>1.97</b>	<b>13.90</b>	-	-	<b>15.86</b>	<b>335.3%</b>
Main activity producer elec. and heat	1.70	4.75	-	-	6.45	+
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.04	-	-	0.04	-72.3%
Manufacturing industries and construction	0.27	0.85	-	-	1.12	181.1%
Transport	-	7.21	-	-	7.21	191.8%
<i>of which: road</i>	-	7.01	-	-	7.01	218.3%
Other	-	1.04	-	-	1.04	68.3%
<i>of which: residential</i>	-	0.43	-	-	0.43	419.4%
<b>Reference Approach</b>	<b>2.04</b>	<b>14.17</b>	-	-	<b>16.21</b>	<b>317.8%</b>
Diff. due to losses and/or transformation	-	0.27	-	-	0.27	
Statistical differences	0.08	-0.00	-	-	0.07	
<i>Memo: international marine bunkers</i>	-	0.86	-	-	0.86	-29.2%
<i>Memo: international aviation bunkers</i>	-	1.21	-	-	1.21	x

\*\* Other includes industrial waste and non-renewable municipal waste.

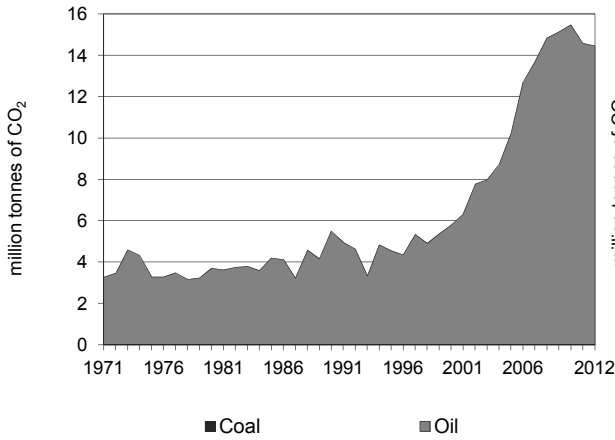
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	7.01	218.3%	22.8	22.8
Main activity prod. elec. and heat - oil	4.75	+	15.4	38.2
Main activity prod. elec. and heat - coal	1.70	x	5.5	43.7
Manufacturing industries - oil	0.85	124.3%	2.8	46.5
Non-specified other - oil	0.62	14.3%	2.0	48.5
Residential - oil	0.43	419.4%	1.4	49.9
Manufacturing industries - coal	0.27	+	0.9	50.7
Other transport - oil	0.20	-24.6%	0.7	51.4
Other energy industry own use - oil	0.04	-72.3%	0.1	51.5
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>15.86</i>	<i>335.3%</i>	<i>51.5</i>	<i>51.5</i>

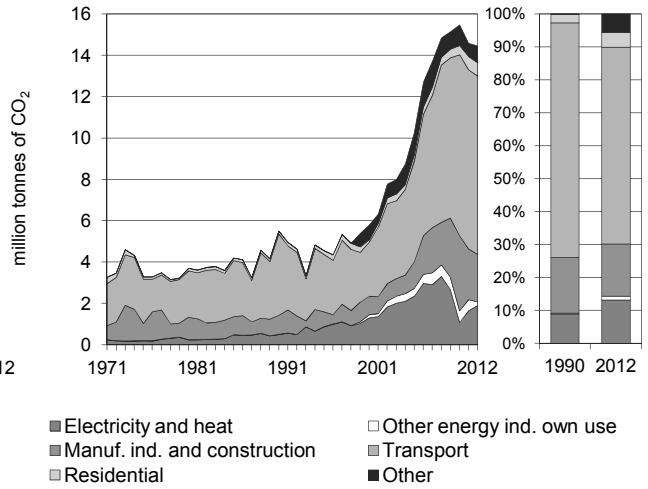
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Sudan

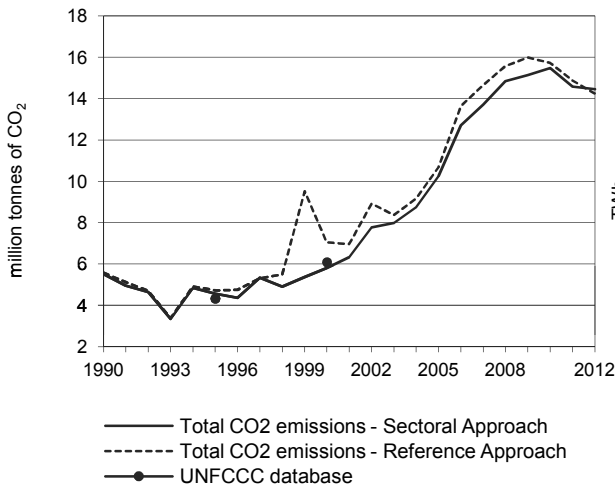
**Figure 1. CO<sub>2</sub> emissions by fuel**



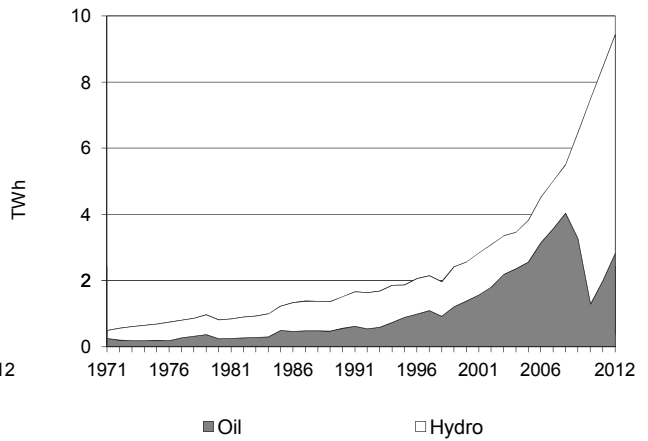
**Figure 2. CO<sub>2</sub> emissions by sector**



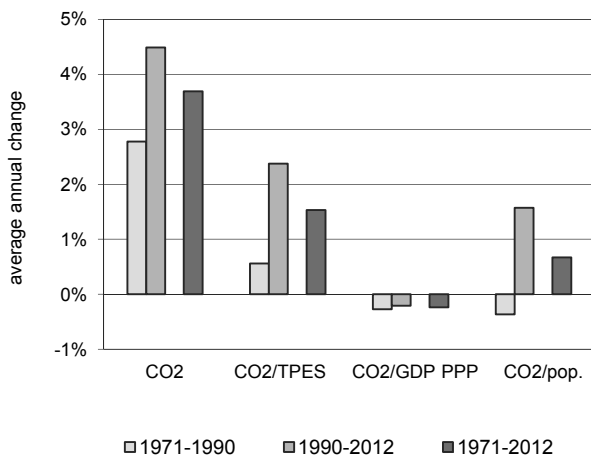
**Figure 3. Reference vs Sectoral Approach**



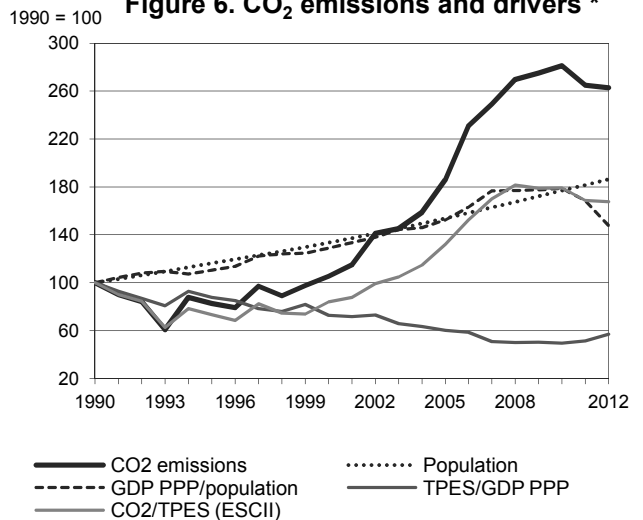
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Sudan \*

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	5.50	4.56	5.80	10.24	15.48	14.58	14.46	162.8%
TPES (PJ)	445	502	557	627	699	699	697	56.7%
GDP (billion 2005 USD)	11.32	14.52	19.45	26.53	35.82	34.64	31.14	175.1%
GDP PPP (billion 2005 USD)	40.62	52.11	69.79	95.17	128.53	124.29	111.74	175.1%
Population (millions)	25.77	29.96	34.38	39.63	45.59	46.81	48.03	86.4%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	12.4	9.1	10.4	16.3	22.1	20.9	20.7	67.7%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.49	0.31	0.30	0.39	0.43	0.42	0.46	-4.5%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.14	0.09	0.08	0.11	0.12	0.12	0.13	-4.5%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.21	0.15	0.17	0.26	0.34	0.31	0.30	41.0%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) **</b>								
CO <sub>2</sub> emissions index	100	83	105	186	281	265	263	162.8%
Population index	100	116	133	154	177	182	186	86.4%
GDP PPP per population index	100	110	129	152	179	168	148	47.6%
Energy intensity index - TPES / GDP PPP	100	88	73	60	50	51	57	-43.0%
Carbon intensity index - CO <sub>2</sub> / TPES	100	73	84	132	179	169	168	67.7%

\* Data for Sudan include South Sudan. \*\* Please see Part I, Chapter 1 for methodological notes. Based on GDP PPP.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other ***	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>14.46</b>	-	-	<b>14.46</b>	<b>162.8%</b>
Main activity producer elec. and heat	-	1.91	-	-	1.91	286.9%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.17	-	-	0.17	+
Manufacturing industries and construction	-	2.29	-	-	2.29	146.3%
Transport	-	8.64	-	-	8.64	120.4%
<i>of which: road</i>	-	8.58	-	-	8.58	118.7%
Other	-	1.46	-	-	1.46	889.4%
<i>of which: residential</i>	-	0.64	-	-	0.64	356.8%
<b>Reference Approach</b>	-	<b>14.24</b>	-	-	<b>14.24</b>	<b>155.4%</b>
Diff. due to losses and/or transformation	-	0.06	-	-	0.06	
Statistical differences	-	-0.28	-	-	-0.28	
<i>Memo: international marine bunkers</i>	-	0.06	-	-	0.06	171.4%
<i>Memo: international aviation bunkers</i>	-	0.69	-	-	0.69	631.3%

\*\*\* Other includes industrial waste and non-renewable municipal waste.

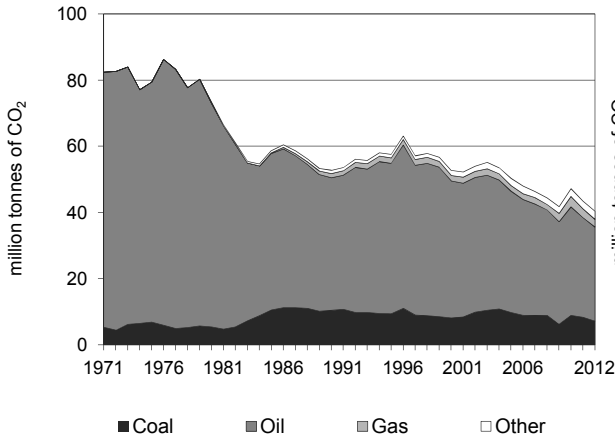
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ****	Cumulative total (%)
Road - oil	8.58	118.7%	4.2	4.2
Manufacturing industries - oil	2.29	146.3%	1.1	5.4
Main activity prod. elec. and heat - oil	1.91	286.9%	0.9	6.3
Non-specified other - oil	0.81	+	0.4	6.7
Residential - oil	0.64	356.8%	0.3	7.0
Other energy industry own use - oil	0.17	+	0.1	7.1
Other transport - oil	0.07	x	0.0	7.1
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>14.46</i>	<i>162.8%</i>	<i>7.1</i>	<i>7.1</i>

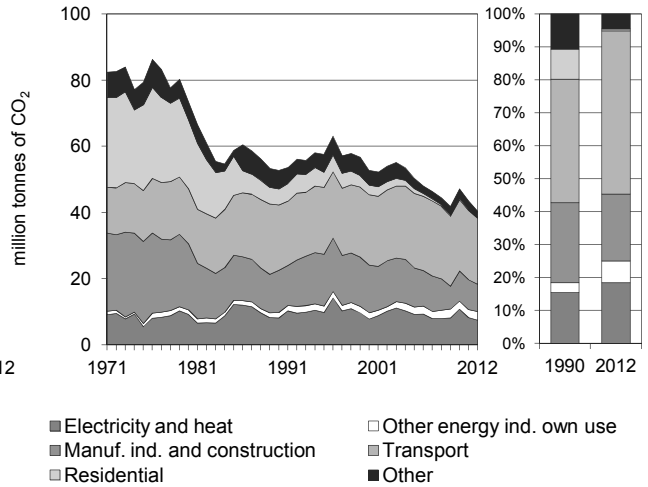
\*\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Sweden

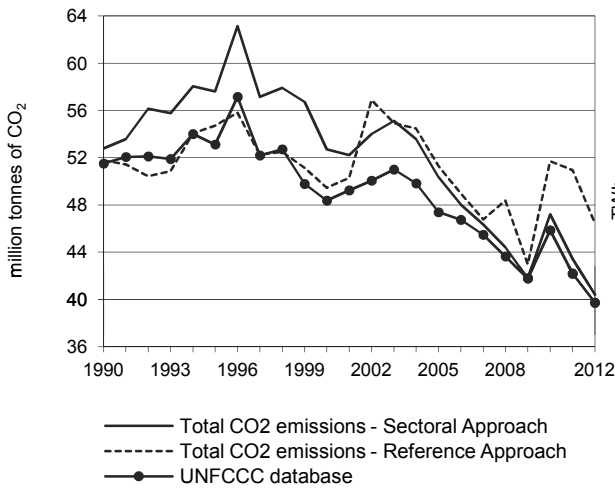
**Figure 1. CO<sub>2</sub> emissions by fuel**



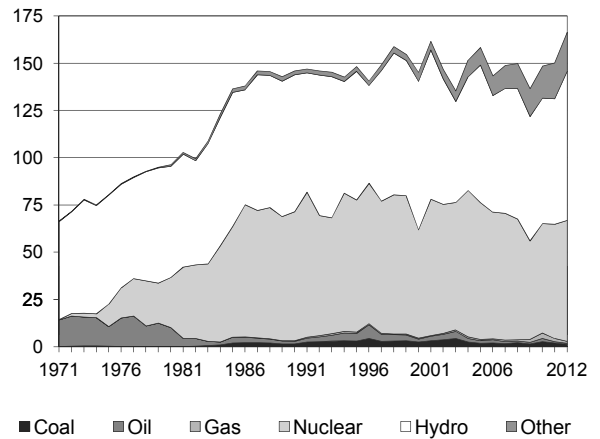
**Figure 2. CO<sub>2</sub> emissions by sector**



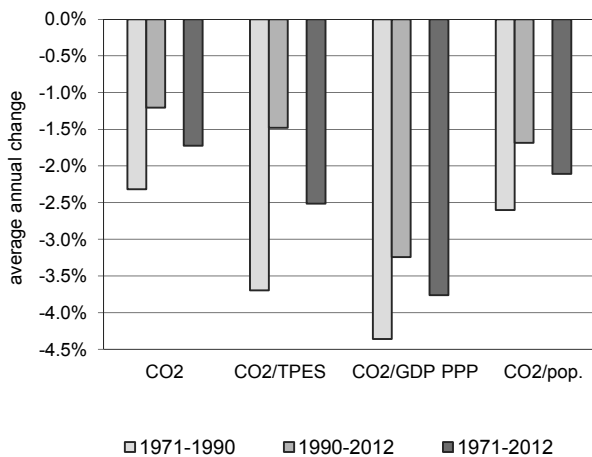
**Figure 3. Reference vs Sectoral Approach**



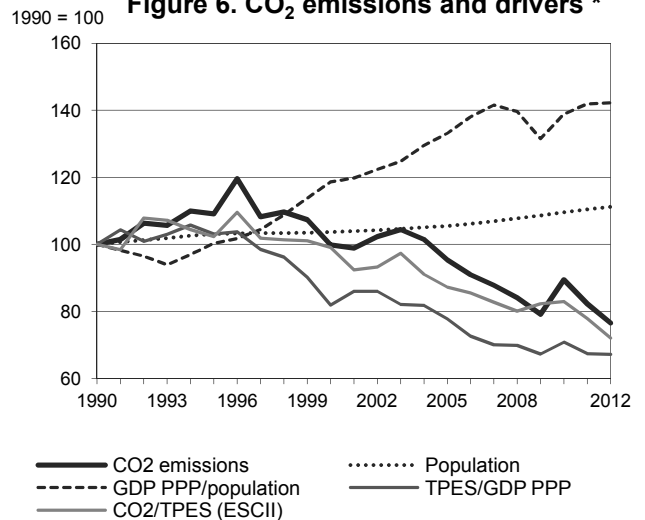
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Sweden

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	52.79	57.61	52.71	50.34	47.21	43.44	40.42	-23.4%
TPES (PJ)	1 976	2 107	1 991	2 159	2 131	2 087	2 100	6.3%
GDP (billion 2005 USD)	263.85	272.95	324.51	370.58	401.62	413.40	417.24	58.1%
GDP PPP (billion 2005 USD)	210.25	217.50	258.58	295.29	320.03	329.42	332.48	58.1%
Population (millions)	8.56	8.83	8.87	9.03	9.38	9.45	9.52	11.2%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	26.7	27.3	26.5	23.3	22.2	20.8	19.2	-28.0%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.20	0.21	0.16	0.14	0.12	0.11	0.10	-51.6%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.25	0.26	0.20	0.17	0.15	0.13	0.12	-51.6%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	6.17	6.53	5.94	5.58	5.03	4.60	4.25	-31.2%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	109	100	95	89	82	77	-23.4%
Population index	100	103	104	106	110	110	111	11.2%
GDP PPP per population index	100	100	119	133	139	142	142	42.2%
Energy intensity index - TPES / GDP PPP	100	103	82	78	71	67	67	-32.8%
Carbon intensity index - CO <sub>2</sub> / TPES	100	102	99	87	83	78	72	-28.0%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>7.21</b>	<b>28.38</b>	<b>2.35</b>	<b>2.47</b>	<b>40.42</b>	<b>-23.4%</b>
Main activity producer elec. and heat	3.34	0.71	0.77	2.41	7.23	-7.5%
Unallocated autoproducers	0.03	0.10	0.02	0.06	0.21	-32.6%
Other energy industry own use	0.32	2.33	0.03	-	2.68	64.6%
Manufacturing industries and construction	3.51	3.73	0.97	-	8.21	-35.8%
Transport	-	19.90	0.12	-	20.03	1.3%
<i>of which: road</i>	-	19.15	0.12	-	19.28	8.2%
Other	0.01	1.61	0.45	-	2.07	-80.3%
<i>of which: residential</i>	0.01	0.12	0.11	-	0.24	-95.1%
<b>Reference Approach</b>	<b>8.48</b>	<b>33.22</b>	<b>2.28</b>	<b>2.47</b>	<b>46.45</b>	<b>-10.3%</b>
Diff. due to losses and/or transformation	0.63	1.71	0.02	-	2.36	
Statistical differences	0.64	3.13	-0.10	-	3.67	
<i>Memo: international marine bunkers</i>	-	5.33	-	-	5.33	154.8%
<i>Memo: international aviation bunkers</i>	-	2.09	-	-	2.09	94.3%

\*\* Other includes industrial waste and non-renewable municipal waste.

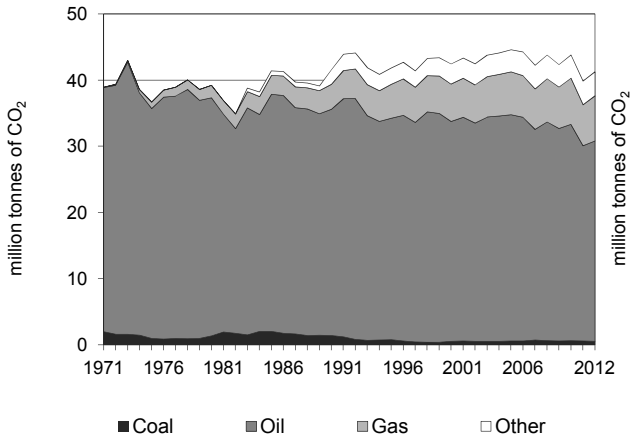
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	19.15	7.5%	32.9	32.9
Manufacturing industries - oil	3.73	-50.7%	6.4	39.3
Manufacturing industries - coal	3.51	-23.9%	6.0	45.3
Main activity prod. elec. and heat - coal	3.34	-36.2%	5.7	51.0
Main activity prod. elec. and heat - other	2.41	152.9%	4.1	55.1
Other energy industry own use - oil	2.33	75.9%	4.0	59.1
Non-specified other - oil	1.49	-72.1%	2.6	61.7
Manufacturing industries - gas	0.97	64.1%	1.7	63.4
Main activity prod. elec. and heat - gas	0.77	73.7%	1.3	64.7
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>40.42</i>	<i>-23.4%</i>	<i>69.3</i>	<i>69.3</i>

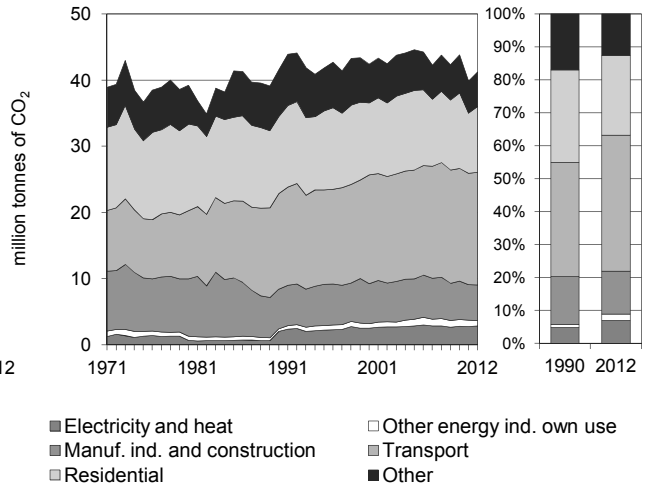
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Switzerland

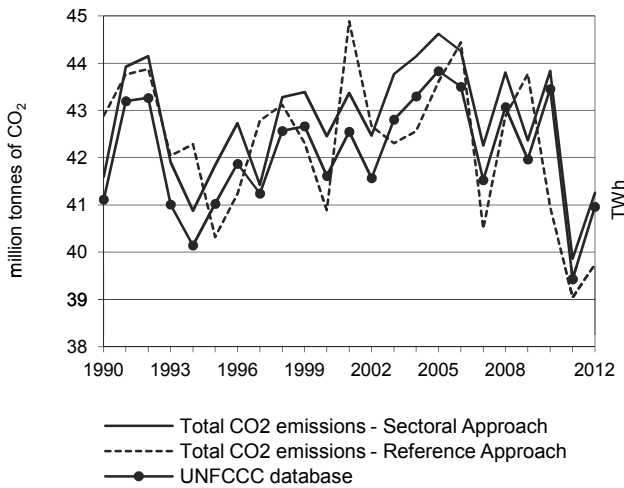
**Figure 1. CO<sub>2</sub> emissions by fuel**



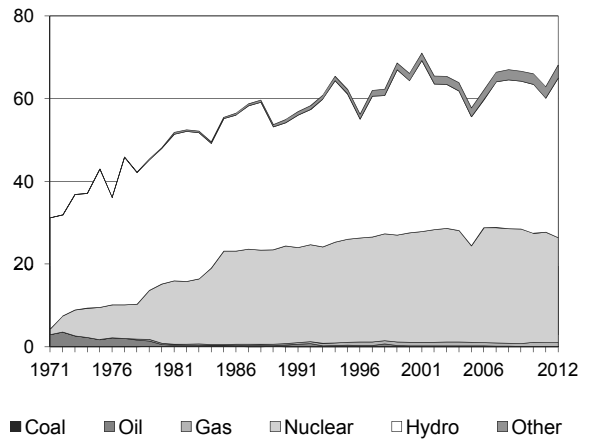
**Figure 2. CO<sub>2</sub> emissions by sector**



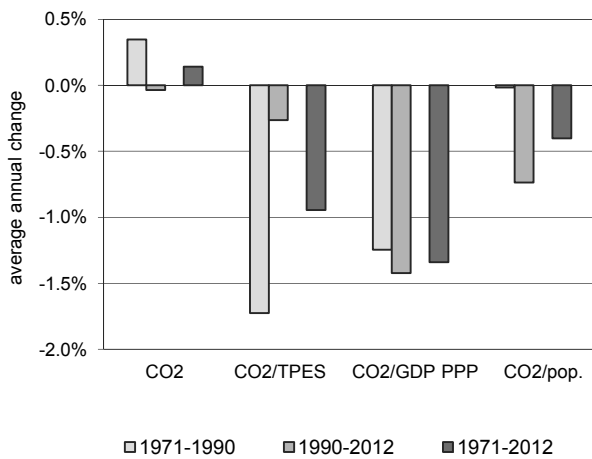
**Figure 3. Reference vs Sectoral Approach**



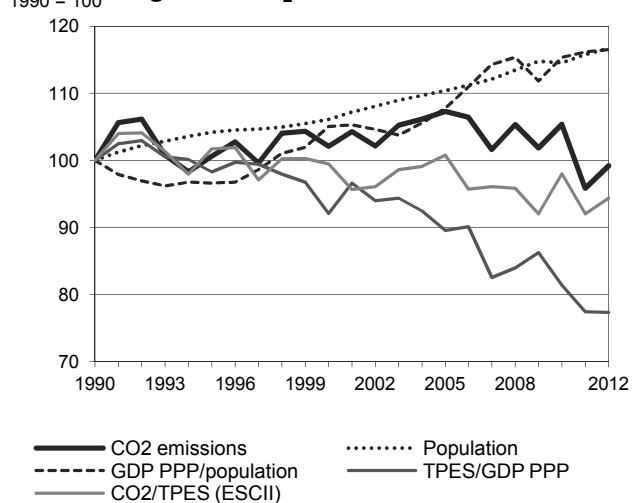
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Switzerland

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	41.59	41.84	42.45	44.62	43.83	39.86	41.26	-0.8%
TPES (PJ)	1 020	1 009	1 047	1 086	1 097	1 062	1 072	5.1%
GDP (billion 2005 USD)	323.50	325.62	360.56	384.75	427.57	435.23	439.80	35.9%
GDP PPP (billion 2005 USD)	231.14	232.65	257.62	274.90	305.50	310.97	314.23	35.9%
Population (millions)	6.80	7.08	7.21	7.50	7.79	7.87	7.93	16.7%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	40.8	41.5	40.6	41.1	40.0	37.5	38.5	-5.7%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.13	0.13	0.12	0.12	0.10	0.09	0.09	-27.1%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.18	0.18	0.16	0.16	0.14	0.13	0.13	-27.0%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	6.12	5.91	5.89	5.95	5.63	5.07	5.20	-15.0%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	101	102	107	105	96	99	-0.8%
Population index	100	104	106	110	115	116	117	16.7%
GDP PPP per population index	100	97	105	108	115	116	117	16.5%
Energy intensity index - TPES / GDP PPP	100	98	92	90	81	77	77	-22.7%
Carbon intensity index - CO <sub>2</sub> / TPES	100	102	99	101	98	92	94	-5.7%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.52</b>	<b>30.31</b>	<b>6.81</b>	<b>3.61</b>	<b>41.26</b>	<b>-0.8%</b>
Main activity producer elec. and heat	-	0.03	0.24	-	0.27	-54.0%
Unallocated autoproducers	-	0.03	0.24	2.34	2.61	80.4%
Other energy industry own use	-	0.82	0.01	-	0.83	100.4%
Manufacturing industries and construction	0.49	1.90	1.98	0.98	5.35	-10.8%
Transport	-	16.93	0.08	-	17.01	17.9%
<i>of which: road</i>	-	16.62	0.04	-	16.66	20.1%
Other	0.04	10.60	4.27	0.29	15.19	-18.9%
<i>of which: residential</i>	0.04	7.33	2.62	-	9.99	-14.2%
<b>Reference Approach</b>	<b>0.52</b>	<b>28.77</b>	<b>6.84</b>	<b>3.61</b>	<b>39.75</b>	<b>-7.3%</b>
Diff. due to losses and/or transformation	-	0.27	0.02	-	0.29	
Statistical differences	-	- 1.80	-	- 0.00	- 1.80	
<i>Memo: international marine bunkers</i>	-	0.02	-	-	0.02	-55.6%
<i>Memo: international aviation bunkers</i>	-	4.54	-	-	4.54	51.4%

\*\* Other includes industrial waste and non-renewable municipal waste.

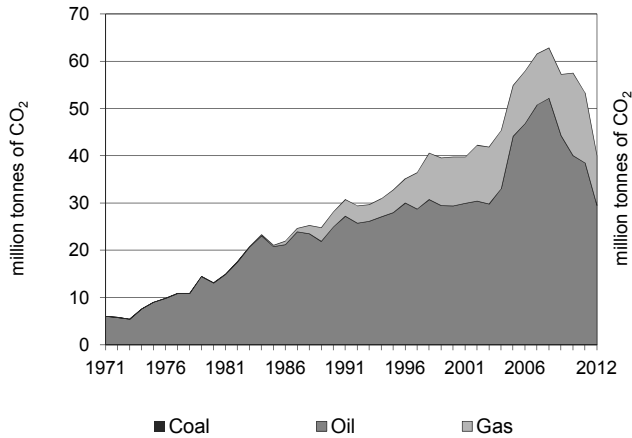
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	16.62	19.9%	32.1	32.1
Residential - oil	7.33	-28.2%	14.2	46.3
Non-specified other - oil	3.26	-47.6%	6.3	52.6
Residential - gas	2.62	88.6%	5.1	57.7
Unallocated autoproducers - other	2.34	82.1%	4.5	62.2
Manufacturing industries - gas	1.98	47.0%	3.8	66.0
Manufacturing industries - oil	1.90	-25.2%	3.7	69.7
Non-specified other - gas	1.64	132.6%	3.2	72.9
Manufacturing industries -other	0.98	7.7%	1.9	74.8
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>41.26</i>	<i>-0.8%</i>	<i>79.7</i>	<i>79.7</i>

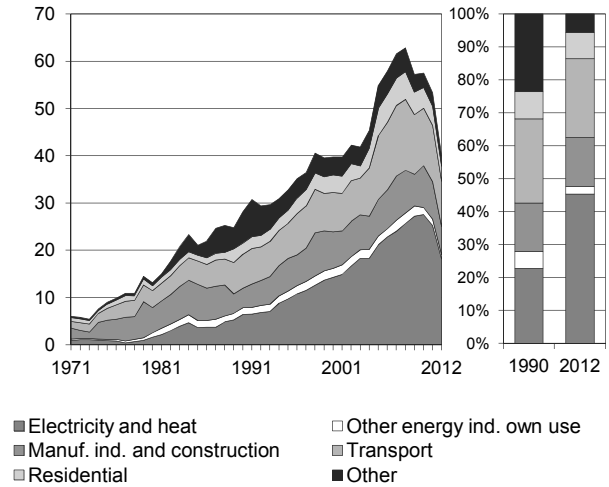
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Syrian Arab Republic

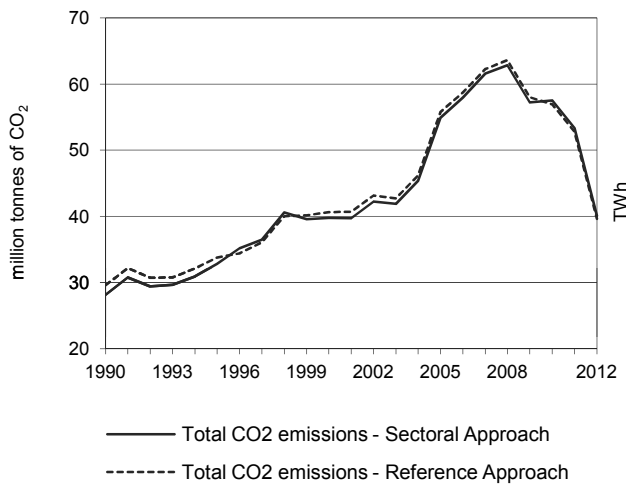
**Figure 1. CO<sub>2</sub> emissions by fuel**



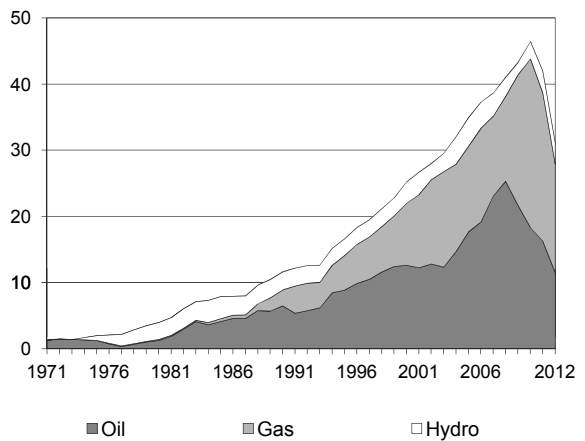
**Figure 2. CO<sub>2</sub> emissions by sector**



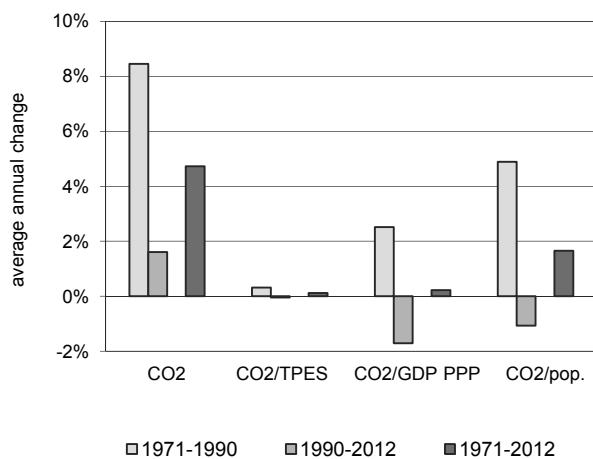
**Figure 3. Reference vs Sectoral Approach**



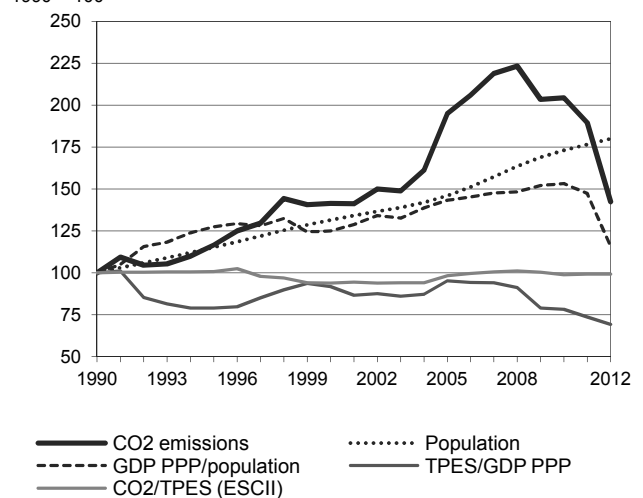
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Syrian Arab Republic

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	28.16	32.79	39.78	54.90	57.51	53.33	40.05	42.2%
TPES (PJ)	438	507	660	871	907	837	629	43.6%
GDP (billion 2005 USD)	13.82	20.25	22.68	28.86	36.61	35.88	28.71	107.8%
GDP PPP (billion 2005 USD)	36.58	53.62	60.05	76.40	96.93	95.00	76.00	107.8%
Population (millions)	12.45	14.34	16.37	18.17	21.53	21.96	22.40	79.9%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	64.3	64.7	60.3	63.1	63.4	63.7	63.7	-0.9%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	2.04	1.62	1.75	1.90	1.57	1.49	1.40	-31.6%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.77	0.61	0.66	0.72	0.59	0.56	0.53	-31.6%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	2.26	2.29	2.43	3.02	2.67	2.43	1.79	-20.9%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	116	141	195	204	189	142	42.2%
Population index	100	115	131	146	173	176	180	79.9%
GDP PPP per population index	100	127	125	143	153	147	116	15.5%
Energy intensity index - TPES / GDP PPP	100	79	92	95	78	74	69	-30.9%
Carbon intensity index - CO <sub>2</sub> / TPES	100	101	94	98	99	99	99	-0.9%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.00</b>	<b>29.50</b>	<b>10.54</b>	-	<b>40.05</b>	<b>42.2%</b>
Main activity producer elec. and heat	-	8.26	8.91	-	17.17	213.9%
Unallocated autoproducers	-	0.99	-	-	0.99	4.3%
Other energy industry own use	-	0.77	0.15	-	0.92	-36.7%
Manufacturing industries and construction	0.00	4.68	1.28	-	5.96	44.1%
Transport	-	9.56	-	-	9.56	33.3%
<i>of which: road</i>	-	9.39	-	-	9.39	30.9%
Other	-	5.24	0.20	-	5.44	-39.3%
<i>of which: residential</i>	-	3.21	-	-	3.21	37.4%
<b>Reference Approach</b>	<b>0.00</b>	<b>29.10</b>	<b>10.54</b>	-	<b>39.64</b>	<b>33.8%</b>
Diff. due to losses and/or transformation	0.00	-0.41	-	-	-0.40	
Statistical differences	-	-0.00	-0.00	-	-0.00	
<i>Memo: international marine bunkers</i>	-	1.55	-	-	1.55	-45.2%
<i>Memo: international aviation bunkers</i>	-	0.07	-	-	0.07	-91.6%

\*\* Other includes industrial waste and non-renewable municipal waste.

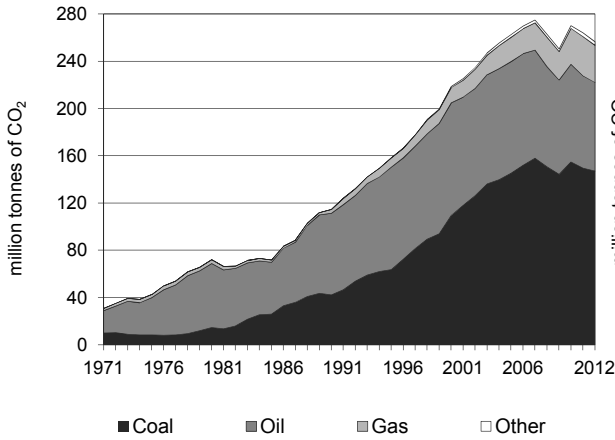
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	9.39	30.9%	15.4	15.4
Main activity prod. elec. and heat - gas	8.91	588.2%	14.6	29.9
Main activity prod. elec. and heat - oil	8.26	97.9%	13.5	43.5
Manufacturing industries - oil	4.68	13.2%	7.7	51.1
Residential - oil	3.21	37.4%	5.2	56.4
Non-specified other - oil	2.03	-58.4%	3.3	59.7
Manufacturing industries - gas	1.28	x	2.1	61.8
Unallocated autoproducers - oil	0.99	4.3%	1.6	63.4
Other energy industry own use - oil	0.77	-41.1%	1.3	64.7
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>40.05</i>	<i>42.2%</i>	<i>65.5</i>	<i>65.5</i>

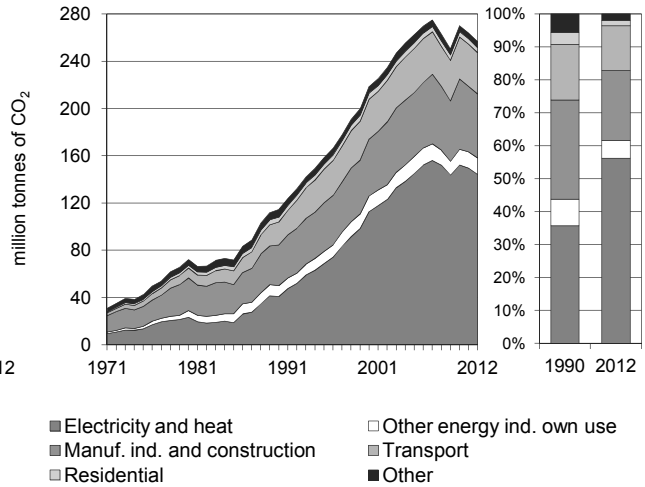
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Chinese Taipei

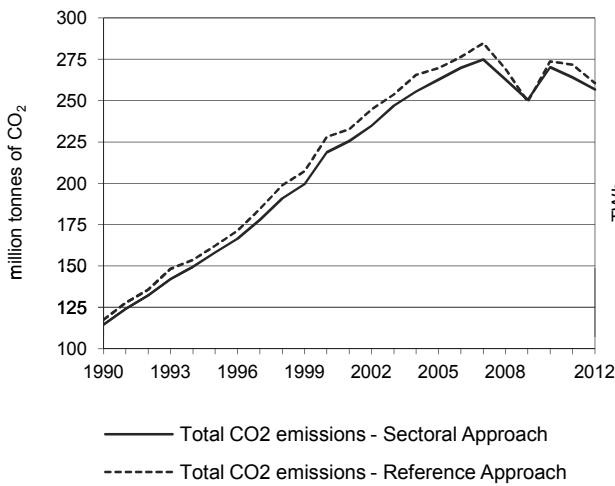
**Figure 1. CO<sub>2</sub> emissions by fuel**



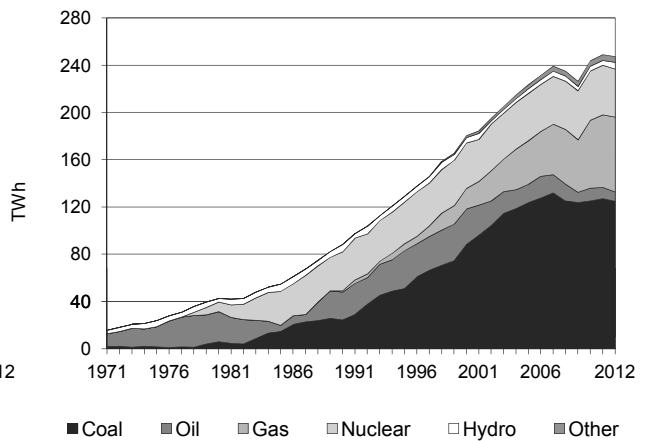
**Figure 2. CO<sub>2</sub> emissions by sector**



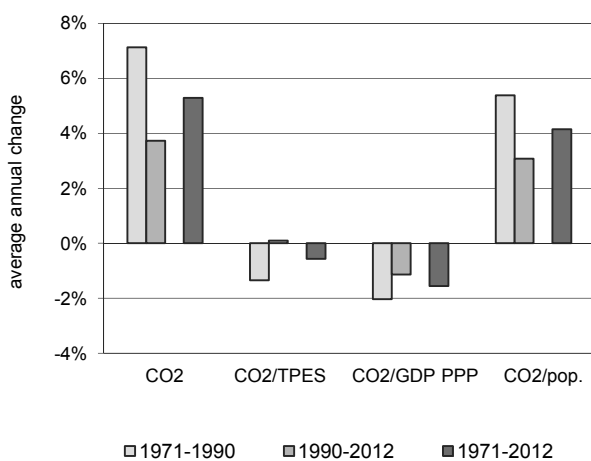
**Figure 3. Reference vs Sectoral Approach**



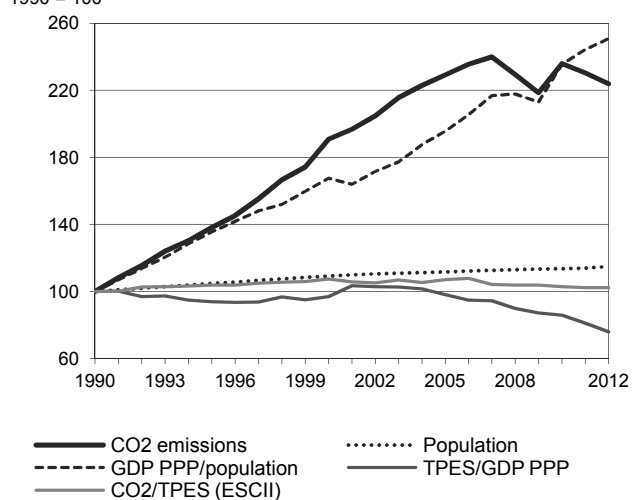
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Chinese Taipei

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	114.59	158.25	218.70	262.69	270.22	264.06	256.61	123.9%
TPES (PJ)	2 002	2 663	3 554	4 289	4 589	4 510	4 383	118.9%
GDP (billion 2005 USD)	167.05	236.79	305.75	364.85	446.48	464.50	481.13	188.0%
GDP PPP (billion 2005 USD)	277.81	393.80	508.50	606.78	742.55	772.51	800.17	188.0%
Population (millions)	20.40	21.36	22.28	22.77	23.16	23.23	23.43	14.9%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	57.2	59.4	61.5	61.2	58.9	58.5	58.6	2.3%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.69	0.67	0.72	0.72	0.61	0.57	0.53	-22.2%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.41	0.40	0.43	0.43	0.36	0.34	0.32	-22.3%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	5.62	7.41	9.82	11.54	11.67	11.37	10.95	95.0%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	138	191	229	236	230	224	123.9%
Population index	100	105	109	112	114	114	115	14.9%
GDP PPP per population index	100	135	168	196	235	244	251	150.7%
Energy intensity index - TPES / GDP PPP	100	94	97	98	86	81	76	-24.0%
Carbon intensity index - CO <sub>2</sub> / TPES	100	104	108	107	103	102	102	2.3%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>147.09</b>	<b>74.93</b>	<b>31.53</b>	<b>3.06</b>	<b>256.61</b>	<b>123.9%</b>
Main activity producer elec. and heat	82.54	4.23	24.29	0.03	111.08	210.2%
Unallocated autoproducers	27.14	2.90	0.17	2.98	33.19	552.8%
Other energy industry own use	7.83	4.62	1.48	-	13.92	49.4%
Manufacturing industries and construction	29.59	21.58	3.03	0.04	54.25	57.6%
Transport	-	34.90	-	-	34.90	79.7%
<i>of which: road</i>	-	34.06	-	-	34.06	85.8%
Other	-	6.70	2.56	-	9.26	-12.0%
<i>of which: residential</i>	-	2.79	1.58	-	4.37	7.5%
<b>Reference Approach</b>	<b>153.49</b>	<b>73.12</b>	<b>30.95</b>	<b>3.06</b>	<b>260.62</b>	<b>121.8%</b>
Diff. due to losses and/or transformation	1.33	-0.16	-	-	1.16	
Statistical differences	5.07	-1.65	-0.58	0.00	2.84	
<i>Memo: international marine bunkers</i>	-	3.63	-	-	3.63	-25.4%
<i>Memo: international aviation bunkers</i>	-	6.55	-	-	6.55	265.5%

\*\* Other includes industrial waste and non-renewable municipal waste.

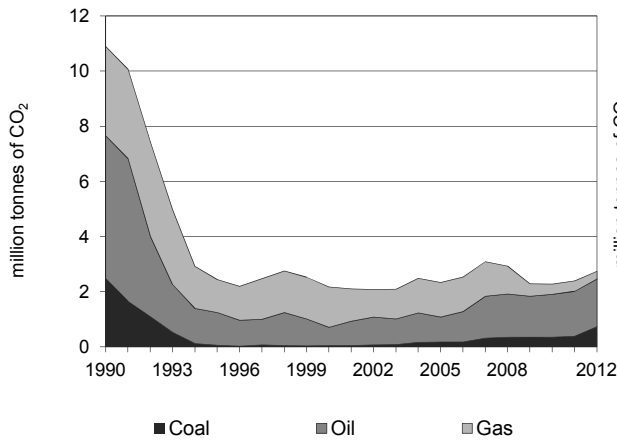
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	82.54	317.2%	28.8	28.8
Road - oil	34.06	85.8%	11.9	40.7
Manufacturing industries - coal	29.59	105.7%	10.3	51.0
Unallocated autoproducers - coal	27.14	532.8%	9.5	60.4
Main activity prod. elec. and heat - gas	24.29	+	8.5	68.9
Manufacturing industries - oil	21.58	11.5%	7.5	76.4
Other energy industry - coal	7.83	105.1%	2.7	79.2
Other energy industry own use - oil	4.62	-3.4%	1.6	80.8
Main activity prod. elec. and heat - oil	4.23	-72.7%	1.5	82.2
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>256.61</i>	<i>123.9%</i>	<i>89.5</i>	<i>89.5</i>

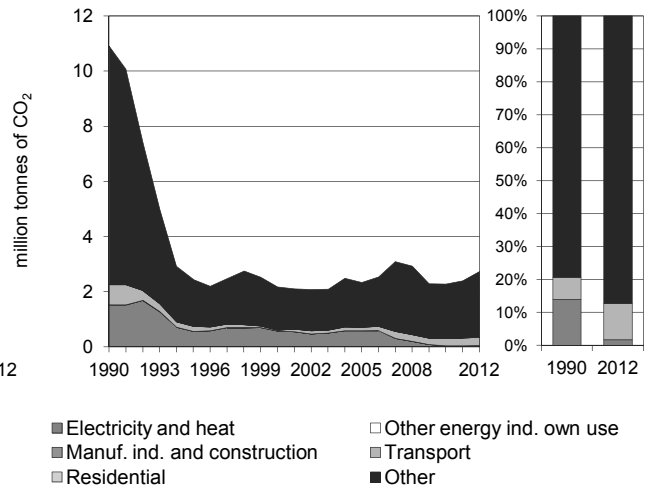
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Tajikistan

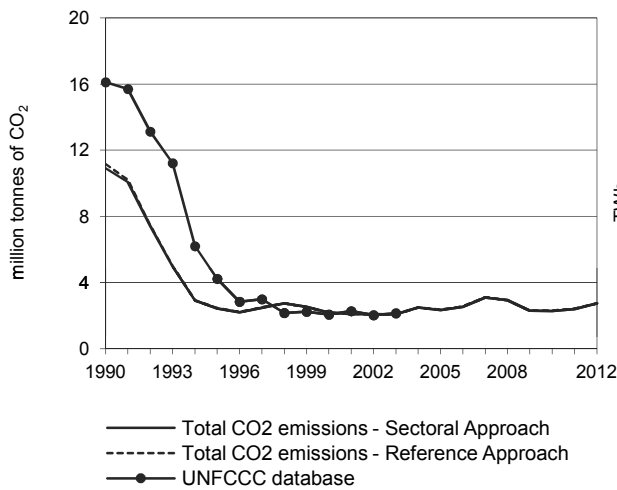
**Figure 1. CO<sub>2</sub> emissions by fuel**



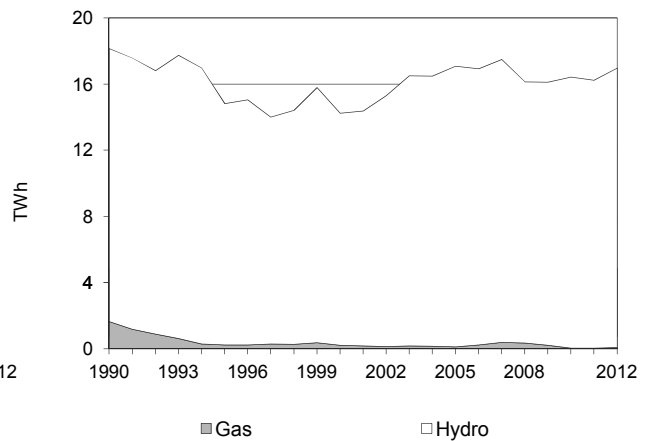
**Figure 2. CO<sub>2</sub> emissions by sector**



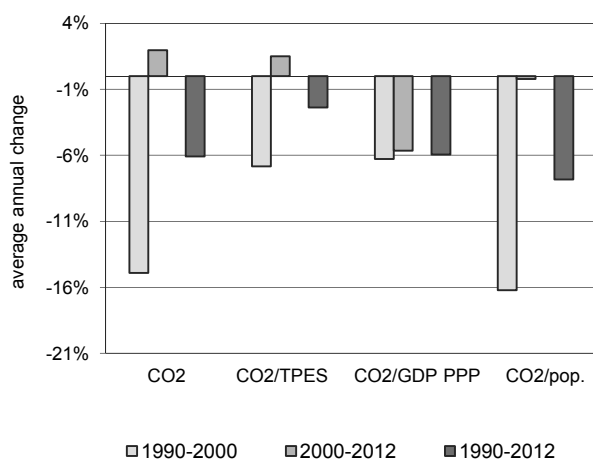
**Figure 3. Reference vs Sectoral Approach**



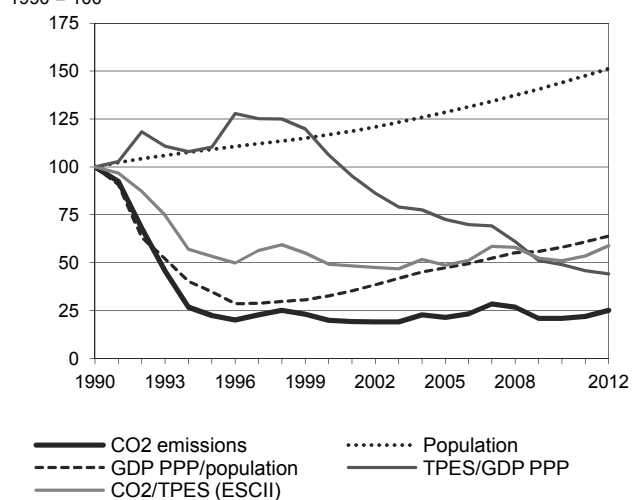
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Tajikistan

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	10.90	2.44	2.17	2.34	2.28	2.39	2.74	-74.9%
TPES (PJ)	222	93	90	98	91	91	95	-57.3%
GDP (billion 2005 USD)	3.81	1.45	1.45	2.31	3.18	3.42	3.67	-3.5%
GDP PPP (billion 2005 USD)	17.17	6.53	6.54	10.43	14.35	15.41	16.57	-3.5%
Population (millions)	5.30	5.78	6.19	6.81	7.63	7.82	8.01	51.2%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	49.0	26.2	24.1	23.9	25.0	26.2	28.8	-41.2%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	2.86	1.69	1.50	1.01	0.72	0.70	0.75	-74.0%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.63	0.37	0.33	0.22	0.16	0.16	0.17	-74.0%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	2.06	0.42	0.35	0.34	0.30	0.31	0.34	-83.4%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	22	20	21	21	22	25	-74.9%
Population index	100	109	117	128	144	148	151	51.2%
GDP PPP per population index	100	35	33	47	58	61	64	-36.2%
Energy intensity index - TPES / GDP PPP	100	110	106	73	49	46	44	-55.7%
Carbon intensity index - CO <sub>2</sub> / TPES	100	53	49	49	51	53	59	-41.2%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.74</b>	<b>1.73</b>	<b>0.28</b>	-	<b>2.74</b>	<b>-74.9%</b>
Main activity producer elec. and heat	-	-	0.05	-	0.05	-96.9%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	-	-	-	-	-
Transport	-	0.27	0.03	-	0.30	-58.4%
<i>of which: road</i>	-	0.27	0.03	-	0.30	-58.4%
Other	0.74	1.45	0.20	-	2.39	-72.4%
<i>of which: residential</i>	-	-	-	-	-	-
<b>Reference Approach</b>	<b>0.74</b>	<b>1.73</b>	<b>0.28</b>	-	<b>2.75</b>	<b>-75.4%</b>
Diff. due to losses and/or transformation	-	0.01	-	-	0.01	-
Statistical differences	-0.00	-	-	-	-0.00	-
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.10	-	-	0.10	120.0%

\*\* Other includes industrial waste and non-renewable municipal waste.

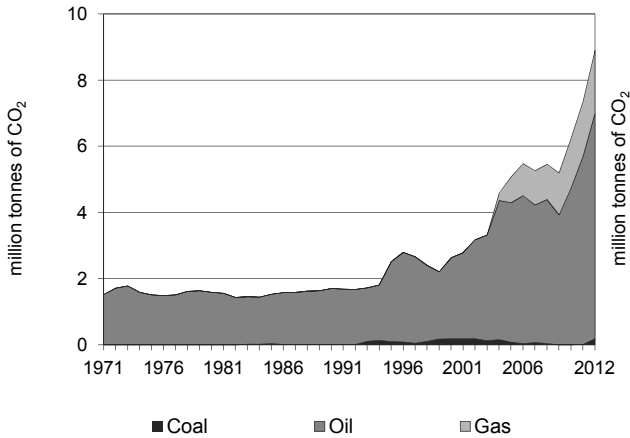
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Non-specified other - oil	1.45	-67.4%	13.8	13.8
Non-specified other sectors - coal	0.74	-70.3%	7.0	20.8
Road - oil	0.27	-62.1%	2.6	23.4
Non-specified other - gas	0.20	-88.2%	1.9	25.3
Main activity prod. elec. and heat - gas	0.05	-96.9%	0.4	25.7
Road - gas	0.03	x	0.3	26.0
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>2.74</i>	<i>-74.9%</i>	<i>26.0</i>	<i>26.0</i>

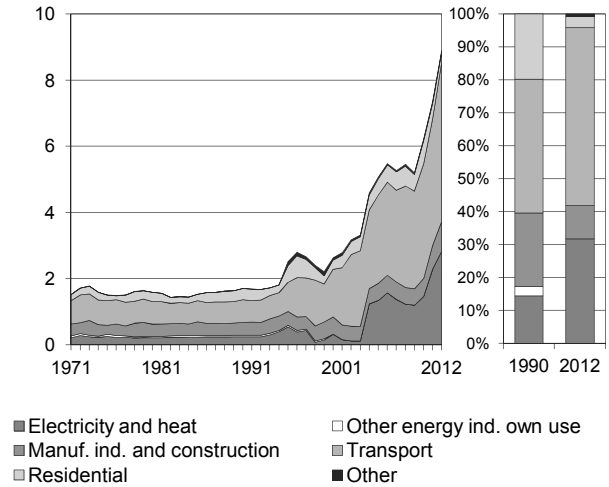
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## United Republic of Tanzania

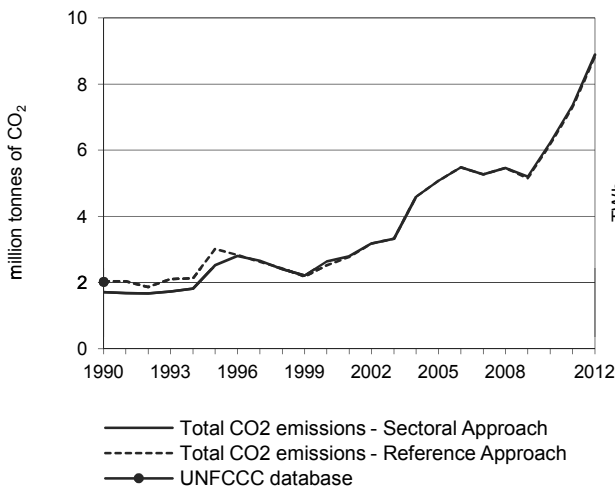
**Figure 1. CO<sub>2</sub> emissions by fuel**



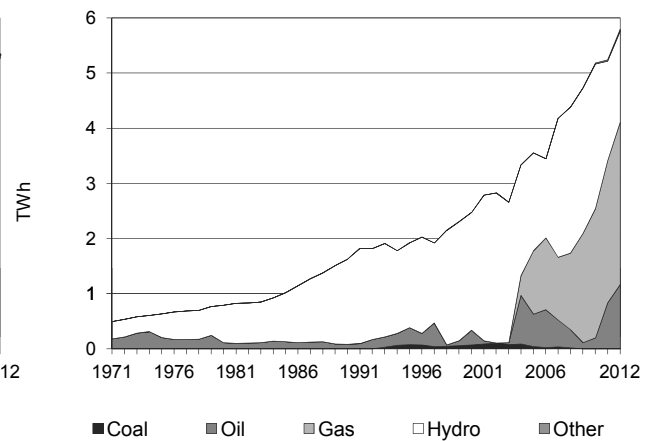
**Figure 2. CO<sub>2</sub> emissions by sector**



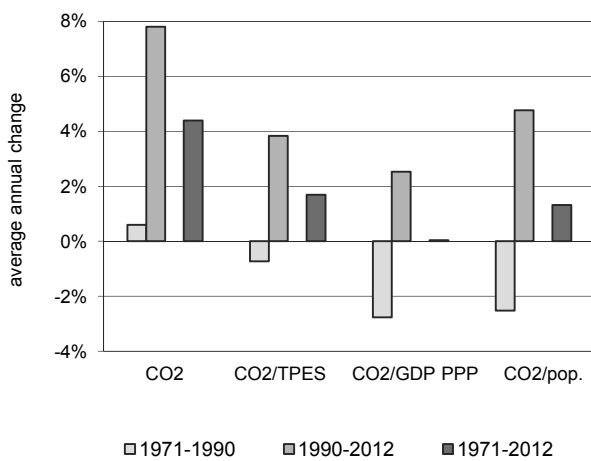
**Figure 3. Reference vs Sectoral Approach**



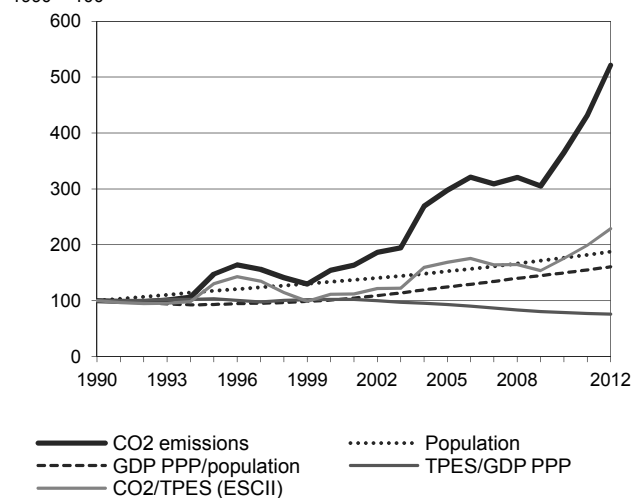
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## United Republic of Tanzania

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	1.71	2.52	2.63	5.08	6.23	7.36	8.89	421.2%
TPES (PJ)	408	461	564	718	847	883	928	127.7%
GDP (billion 2005 USD)	7.45	8.15	10.06	14.14	19.72	20.99	22.43	200.9%
GDP PPP (billion 2005 USD)	22.74	24.85	30.69	43.14	60.16	64.03	68.43	200.9%
Population (millions)	25.49	29.94	34.02	38.82	44.97	46.36	47.78	87.5%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	4.2	5.5	4.7	7.1	7.4	8.3	9.6	128.9%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.23	0.31	0.26	0.36	0.32	0.35	0.40	73.2%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.08	0.10	0.09	0.12	0.10	0.12	0.13	73.3%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.07	0.08	0.08	0.13	0.14	0.16	0.19	178.2%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	148	154	298	365	432	521	421.2%
Population index	100	117	133	152	176	182	187	87.5%
GDP PPP per population index	100	93	101	125	150	155	161	60.5%
Energy intensity index - TPES / GDP PPP	100	104	102	93	79	77	76	-24.3%
Carbon intensity index - CO <sub>2</sub> / TPES	100	130	112	169	176	199	229	128.9%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.19</b>	<b>6.80</b>	<b>1.90</b>	-	<b>8.89</b>	<b>421.2%</b>
Main activity producer elec. and heat	-	1.23	1.59	-	2.82	+
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.19	0.41	0.30	-	0.90	137.3%
Transport	-	4.80	-	-	4.80	593.7%
<i>of which: road</i>	-	4.80	-	-	4.80	593.7%
Other	-	0.37	-	-	0.37	8.3%
<i>of which: residential</i>	-	0.30	-	-	0.30	-10.5%
<b>Reference Approach</b>	<b>0.19</b>	<b>6.74</b>	<b>1.90</b>	-	<b>8.83</b>	<b>332.5%</b>
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-0.06	-	-	-0.06	-
<i>Memo: international marine bunkers</i>	-	0.16	-	-	0.16	99.8%
<i>Memo: international aviation bunkers</i>	-	0.38	-	-	0.38	73.2%

\*\* Other includes industrial waste and non-renewable municipal waste.

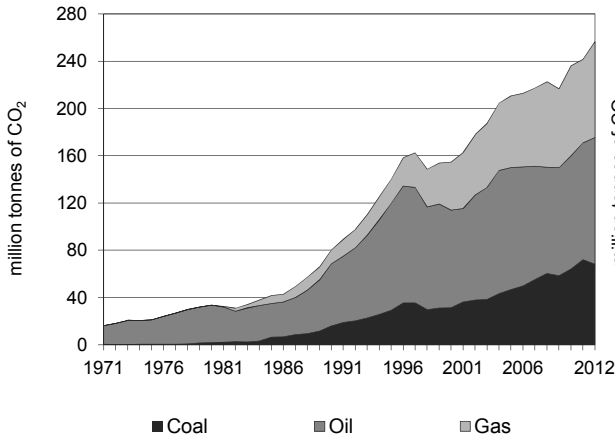
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	4.80	593.7%	9.3	9.3
Main activity prod. elec. and heat - gas	1.59	x	3.1	12.4
Main activity prod. elec. and heat - oil	1.23	395.2%	2.4	14.8
Manufacturing industries - oil	0.41	10.5%	0.8	15.6
Manufacturing industries - gas	0.30	x	0.6	16.2
Residential - oil	0.30	-10.5%	0.6	16.8
Manufacturing industries - coal	0.19	+	0.4	17.1
Non-specified other - oil	0.06	x	0.1	17.3
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<b>8.89</b>	<b>421.2%</b>	<b>17.3</b>	<b>17.3</b>

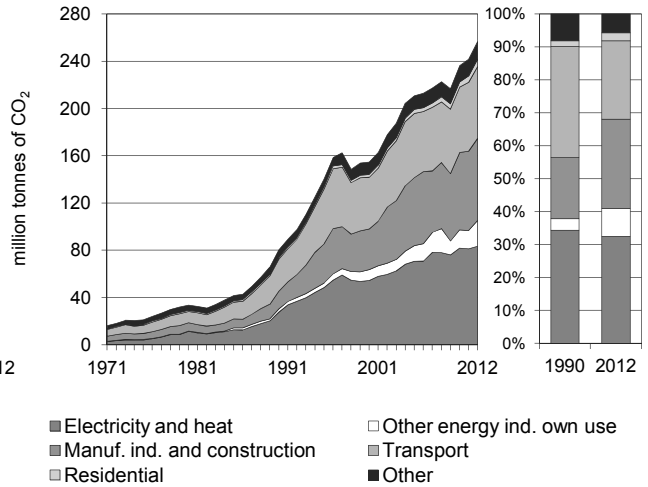
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Thailand

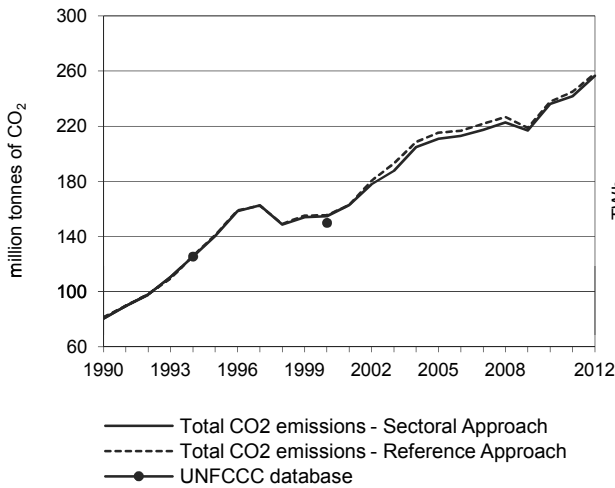
**Figure 1. CO<sub>2</sub> emissions by fuel**



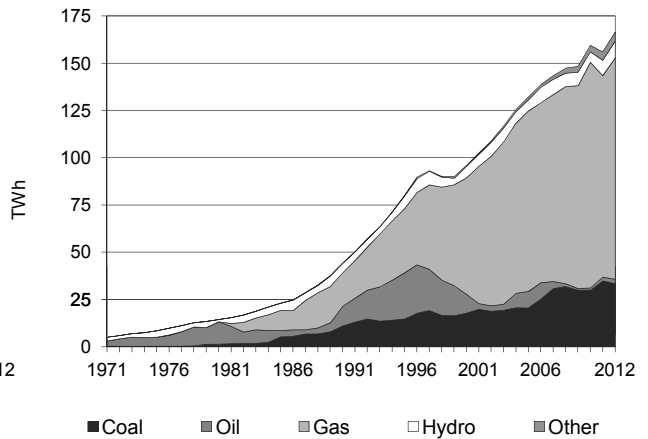
**Figure 2. CO<sub>2</sub> emissions by sector**



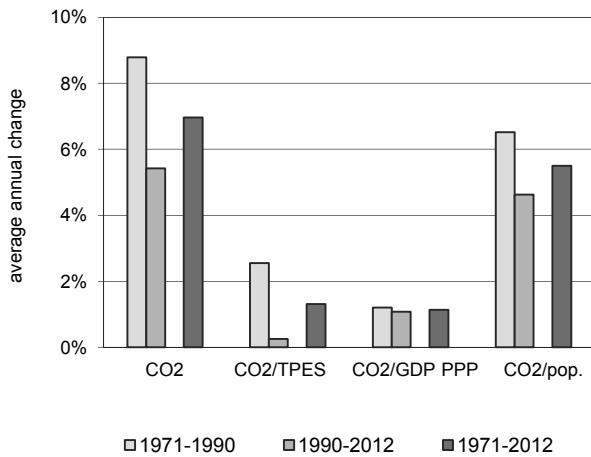
**Figure 3. Reference vs Sectoral Approach**



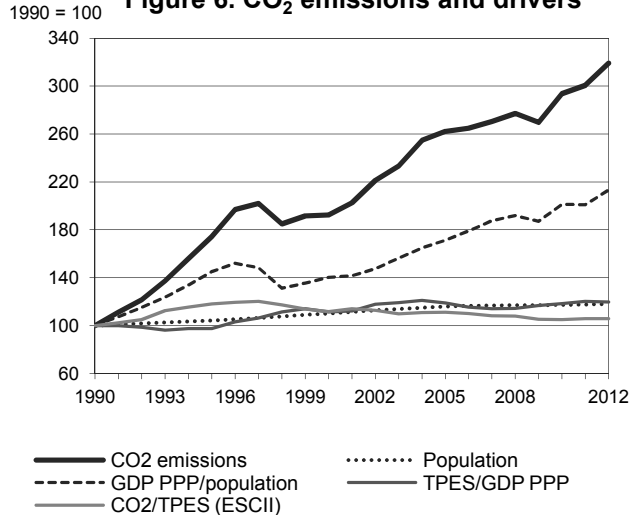
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Thailand

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	80.41	140.20	154.74	210.78	236.17	241.69	256.65	219.2%
TPES (PJ)	1 756	2 593	3 026	4 145	4 916	4 988	5 299	201.7%
GDP (billion 2005 USD)	88.92	134.47	137.52	176.35	210.09	210.25	223.90	151.8%
GDP PPP (billion 2005 USD)	321.23	485.75	496.76	637.05	758.93	759.51	808.81	151.8%
Population (millions)	56.58	58.98	62.34	65.56	66.40	66.58	66.79	18.0%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	45.8	54.1	51.1	50.9	48.0	48.5	48.4	5.8%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.90	1.04	1.13	1.20	1.12	1.15	1.15	26.8%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.25	0.29	0.31	0.33	0.31	0.32	0.32	26.8%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	1.42	2.38	2.48	3.22	3.56	3.63	3.84	170.4%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	174	192	262	294	301	319	219.2%
Population index	100	104	110	116	117	118	118	18.0%
GDP PPP per population index	100	145	140	171	201	201	213	113.3%
Energy intensity index - TPES / GDP PPP	100	98	111	119	118	120	120	19.8%
Carbon intensity index - CO <sub>2</sub> / TPES	100	118	112	111	105	106	106	5.8%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>68.18</b>	<b>107.38</b>	<b>81.09</b>	-	<b>256.65</b>	<b>219.2%</b>
Main activity producer elec. and heat	30.71	1.66	43.91	-	76.27	175.7%
Unallocated autoproducers	3.03	0.01	4.07	-	7.11	x
Other energy industry own use	-	1.90	20.00	-	21.90	689.9%
Manufacturing industries and construction	34.44	27.16	7.86	-	69.46	365.2%
Transport	-	55.61	5.26	-	60.87	124.9%
<i>of which: road</i>	-	54.91	5.26	-	60.17	134.4%
Other	-	21.04	0.00	-	21.04	164.0%
<i>of which: residential</i>	-	6.29	-	-	6.29	334.1%
<b>Reference Approach</b>	<b>69.26</b>	<b>107.96</b>	<b>81.09</b>	-	<b>258.31</b>	<b>218.1%</b>
Diff. due to losses and/or transformation	0.01	0.69	-	-	0.70	
Statistical differences	1.07	- 0.12	-	-	0.95	
<i>Memo: international marine bunkers</i>	-	2.46	-	-	2.46	44.4%
<i>Memo: international aviation bunkers</i>	-	12.05	-	-	12.05	115.7%

\*\* Other includes industrial waste and non-renewable municipal waste.

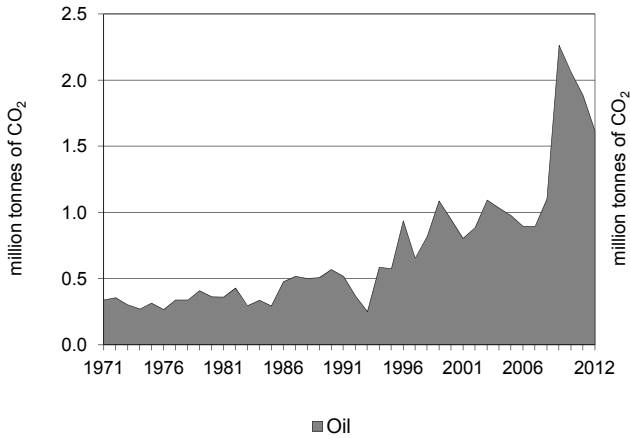
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	54.91	113.9%	13.2	13.2
Main activity prod. elec. and heat - gas	43.91	391.4%	10.5	23.7
Manufacturing industries - coal	34.44	527.9%	8.3	32.0
Main activity prod. elec. and heat - coal	30.71	190.3%	7.4	39.4
Manufacturing industries - oil	27.16	197.7%	6.5	45.9
Other energy industry own use - gas	20.00	729.7%	4.8	50.7
Non-specified other - oil	14.75	126.2%	3.5	54.3
Manufacturing industries - gas	7.86	+	1.9	56.1
Residential - oil	6.29	334.1%	1.5	57.6
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>256.65</i>	<i>219.2%</i>	<i>61.6</i>	<i>61.6</i>

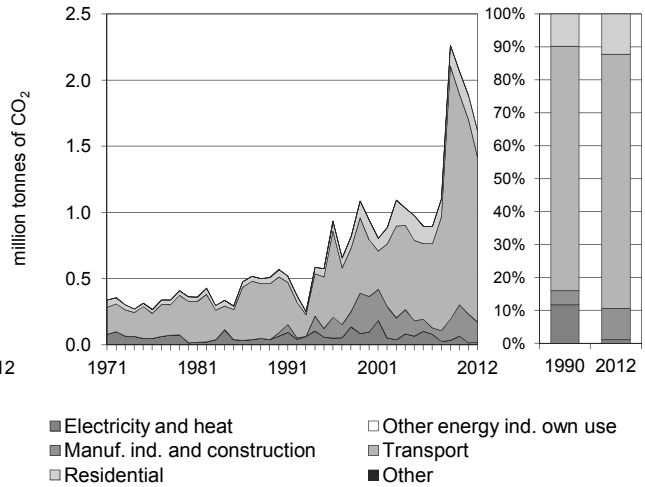
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Togo

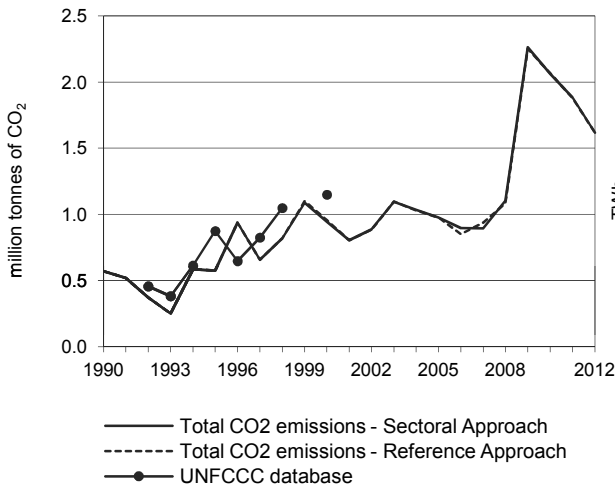
**Figure 1. CO<sub>2</sub> emissions by fuel**



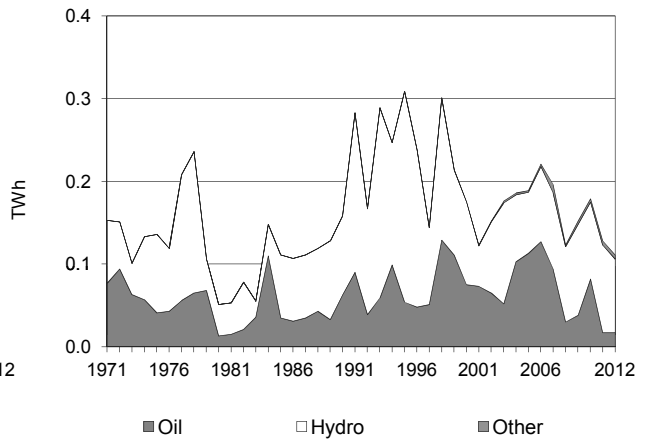
**Figure 2. CO<sub>2</sub> emissions by sector**



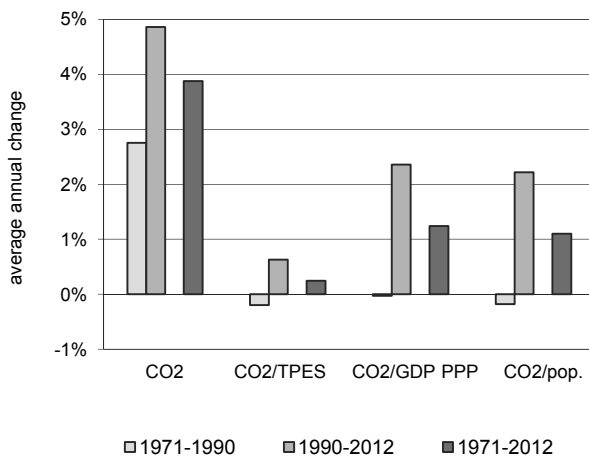
**Figure 3. Reference vs Sectoral Approach**



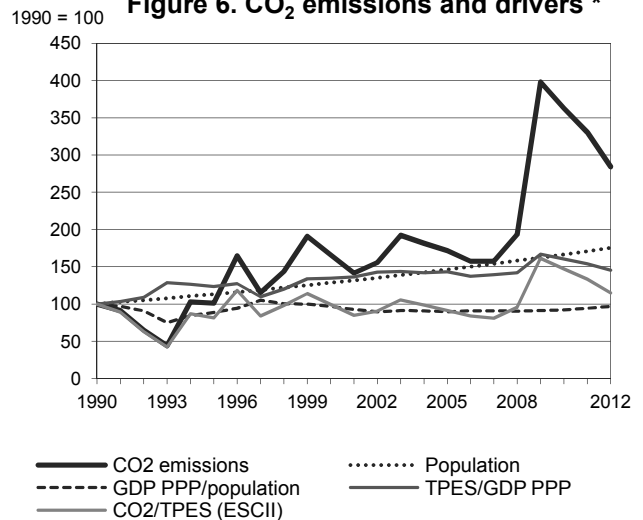
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Togo

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	0.57	0.57	0.94	0.98	2.06	1.88	1.62	184.0%
TPES (PJ)	53	66	88	99	130	131	131	147.2%
GDP (billion 2005 USD)	1.61	1.62	2.00	2.12	2.48	2.60	2.74	70.1%
GDP PPP (billion 2005 USD)	4.48	4.49	5.56	5.87	6.88	7.21	7.61	70.1%
Population (millions)	3.79	4.28	4.87	5.54	6.31	6.47	6.64	75.4%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	10.8	8.8	10.7	9.8	15.8	14.3	12.4	14.9%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.35	0.36	0.47	0.46	0.83	0.73	0.59	67.0%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.13	0.13	0.17	0.17	0.30	0.26	0.21	66.9%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.15	0.13	0.19	0.18	0.33	0.29	0.24	61.9%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	101	166	172	362	331	284	184.0%
Population index	100	113	128	146	166	171	175	75.4%
GDP PPP per population index	100	89	97	90	92	94	97	-3.0%
Energy intensity index - TPES / GDP PPP	100	124	135	143	160	154	145	45.3%
Carbon intensity index - CO <sub>2</sub> / TPES	100	81	99	91	147	133	115	14.9%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>1.62</b>	-	-	<b>1.62</b>	<b>184.0%</b>
Main activity producer elec. and heat	-	0.01	-	-	0.01	-79.0%
Unallocated autoproducers	-	0.01	-	-	0.01	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.15	-	-	0.15	523.7%
Transport	-	1.25	-	-	1.25	195.2%
<i>of which: road</i>	-	1.25	-	-	1.25	195.2%
Other	-	0.20	-	-	0.20	254.6%
<i>of which: residential</i>	-	0.20	-	-	0.20	254.6%
<b>Reference Approach</b>	-	<b>1.62</b>	-	-	<b>1.62</b>	<b>184.0%</b>
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	0.00	-	-	0.00	-
<i>Memo: international marine bunkers</i>	-	0.05	-	-	0.05	..
<i>Memo: international aviation bunkers</i>	-	0.22	-	-	0.22	112.1%

\*\* Other includes industrial waste and non-renewable municipal waste.

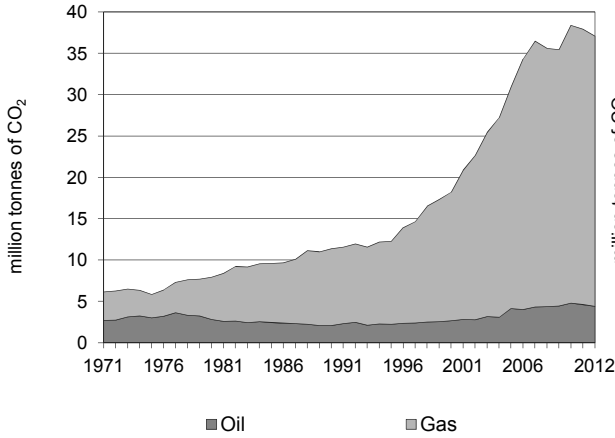
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	1.25	195.2%	11.7	11.7
Residential - oil	0.20	254.6%	1.9	13.5
Manufacturing industries - oil	0.15	523.7%	1.4	14.9
Main activity prod. elec. and heat - oil	0.01	-79.0%	0.1	15.1
Unallocated autoproducers - oil	0.01	-	0.1	15.1
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>1.62</i>	<i>184.0%</i>	<i>15.1</i>	<i>15.1</i>

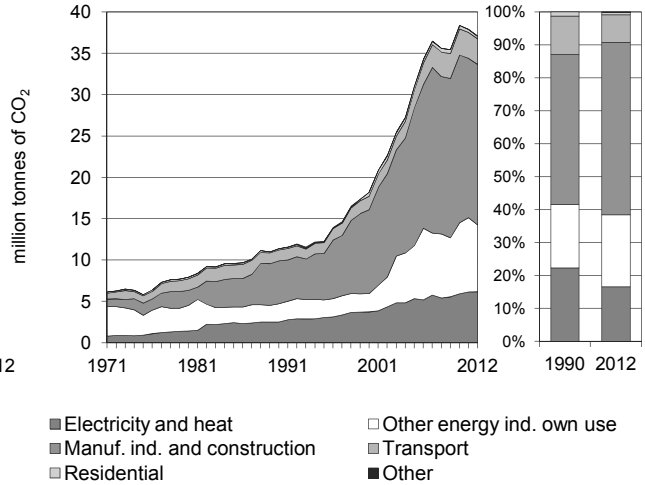
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Trinidad and Tobago

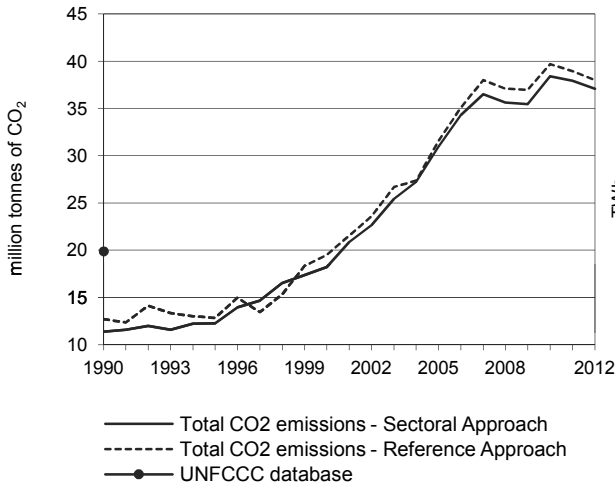
**Figure 1. CO<sub>2</sub> emissions by fuel**



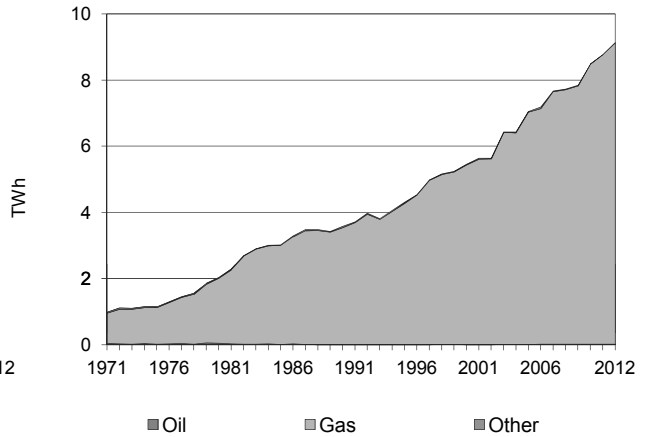
**Figure 2. CO<sub>2</sub> emissions by sector**



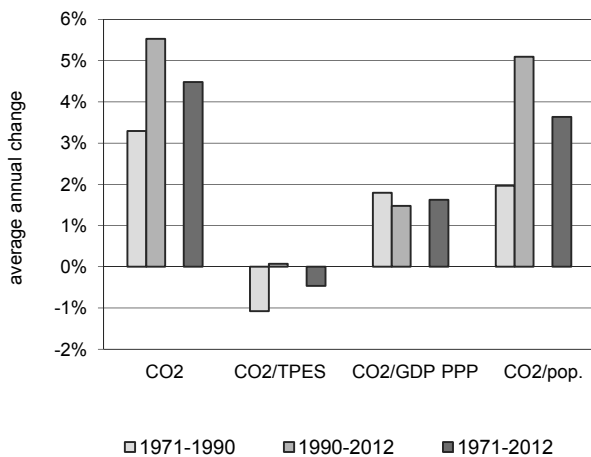
**Figure 3. Reference vs Sectoral Approach**



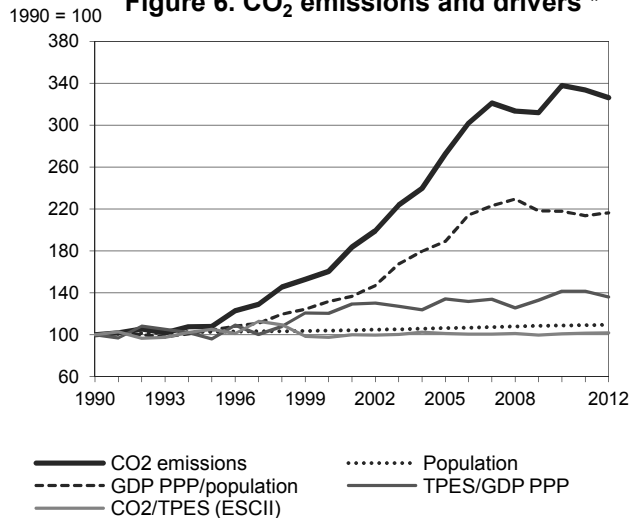
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Trinidad and Tobago

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	11.37	12.27	18.21	30.96	38.40	37.92	37.09	226.2%
TPES (PJ)	251	257	412	675	840	826	805	221.1%
GDP (billion 2005 USD)	8.02	8.60	10.96	16.09	18.99	18.69	18.97	136.5%
GDP PPP (billion 2005 USD)	14.67	15.71	20.03	29.41	34.71	34.16	34.68	136.5%
Population (millions)	1.22	1.26	1.27	1.30	1.33	1.33	1.34	9.4%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	45.4	47.7	44.2	45.9	45.7	45.9	46.1	1.6%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	1.42	1.43	1.66	1.92	2.02	2.03	1.96	38.0%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.78	0.78	0.91	1.05	1.11	1.11	1.07	38.0%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	9.30	9.78	14.36	23.87	28.92	28.45	27.74	198.2%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	108	160	272	338	334	326	226.2%
Population index	100	103	104	106	109	109	109	9.4%
GDP PPP per population index	100	104	132	189	218	214	216	116.1%
Energy intensity index - TPES / GDP PPP	100	96	120	134	142	141	136	35.8%
Carbon intensity index - CO <sub>2</sub> / TPES	100	105	97	101	101	101	102	1.6%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>4.41</b>	<b>32.68</b>	-	<b>37.09</b>	<b>226.2%</b>
Main activity producer elec. and heat	-	0.02	6.12	-	6.14	155.0%
Unallocated autoproducers	-	-	0.04	-	0.04	-69.8%
Other energy industry own use	-	0.75	7.34	-	8.09	269.3%
Manufacturing industries and construction	-	0.46	18.96	-	19.42	275.2%
Transport	-	3.08	-	-	3.08	131.3%
<i>of which: road</i>	-	2.77	-	-	2.77	115.3%
Other	-	0.10	0.22	-	0.33	135.4%
<i>of which: residential</i>	-	0.08	0.22	-	0.30	119.4%
<b>Reference Approach</b>	-	<b>4.06</b>	<b>33.93</b>	-	<b>37.99</b>	<b>198.9%</b>
Diff. due to losses and/or transformation	-	-0.22	1.25	-	1.03	
Statistical differences	-	-0.13	-0.00	-	-0.13	
<i>Memo: international marine bunkers</i>	-	1.42	-	-	1.42	+
<i>Memo: international aviation bunkers</i>	-	0.53	-	-	0.53	172.6%

\*\* Other includes industrial waste and non-renewable municipal waste.

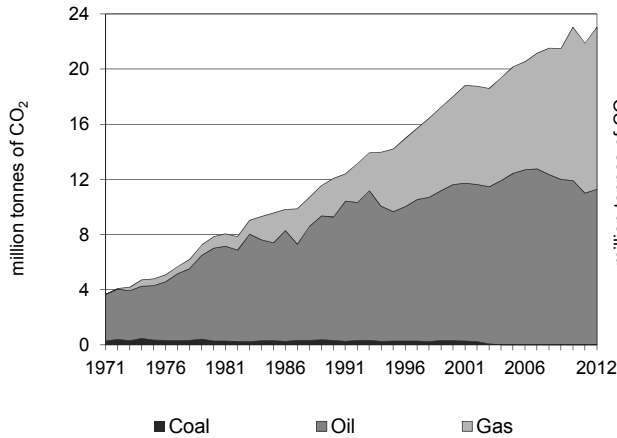
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Manufacturing industries - gas	18.96	288.6%	35.6	35.6
Other energy industry own use - gas	7.34	294.0%	13.8	49.4
Main activity prod. elec. and heat - gas	6.12	154.5%	11.5	60.8
Road - oil	2.77	115.3%	5.2	66.0
Other energy industry own use - oil	0.75	128.2%	1.4	67.4
Manufacturing industries - oil	0.46	55.2%	0.9	68.3
Other transport - oil	0.31	576.7%	0.6	68.9
Residential - gas	0.22	x	0.4	69.3
Residential - oil	0.08	-41.2%	0.2	69.5
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>37.09</i>	<i>226.2%</i>	<i>69.6</i>	<i>69.6</i>

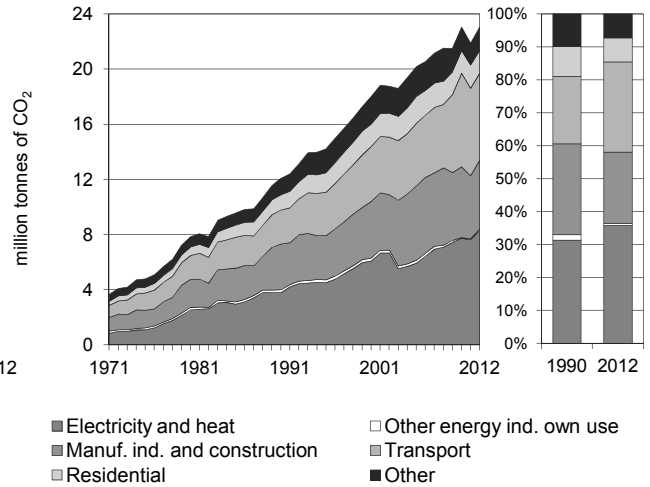
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Tunisia

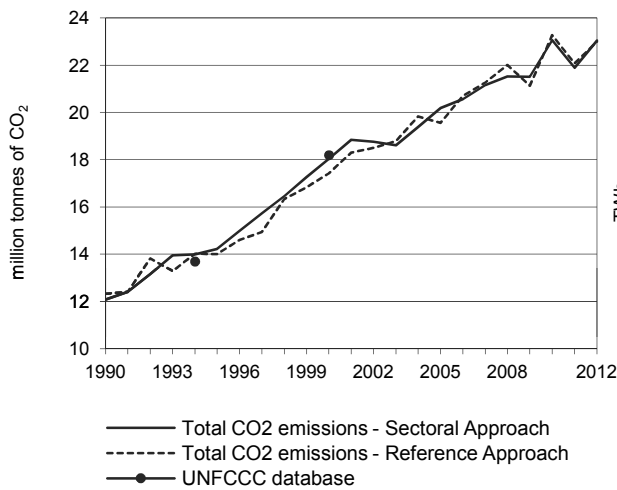
**Figure 1. CO<sub>2</sub> emissions by fuel**



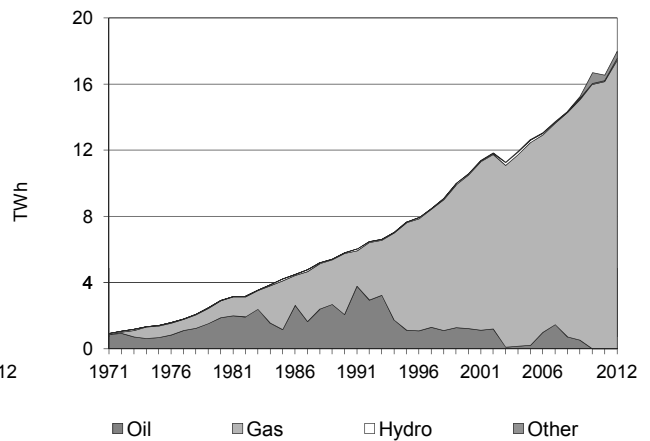
**Figure 2. CO<sub>2</sub> emissions by sector**



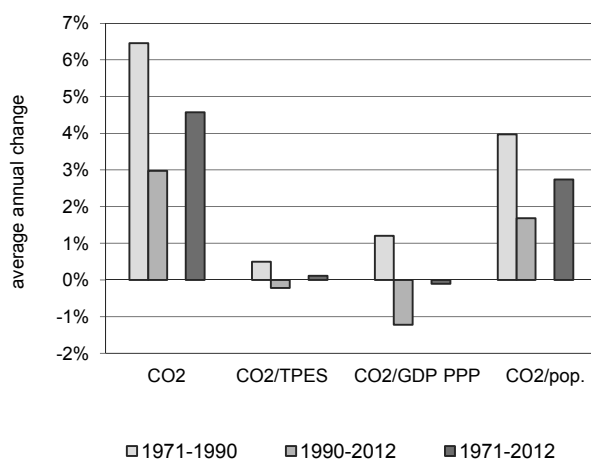
**Figure 3. Reference vs Sectoral Approach**



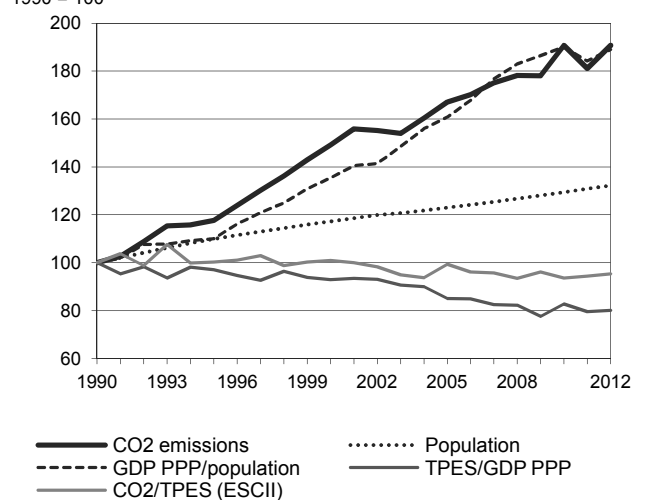
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Tunisia

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	12.08	14.22	18.02	20.19	23.05	21.88	23.04	90.7%
TPES (PJ)	207	243	306	348	422	397	414	100.0%
GDP (billion 2005 USD)	16.33	19.74	25.95	32.28	40.16	39.36	40.78	149.7%
GDP PPP (billion 2005 USD)	40.82	49.35	64.87	80.72	100.42	98.41	101.95	149.7%
Population (millions)	8.15	8.96	9.56	10.03	10.55	10.67	10.78	32.2%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	58.3	58.5	58.9	58.0	54.6	55.1	55.6	-4.6%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.74	0.72	0.69	0.63	0.57	0.56	0.57	-23.6%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.30	0.29	0.28	0.25	0.23	0.22	0.23	-23.6%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	1.48	1.59	1.88	2.01	2.19	2.05	2.14	44.3%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	118	149	167	191	181	191	90.7%
Population index	100	110	117	123	129	131	132	32.2%
GDP PPP per population index	100	110	135	161	190	184	189	88.9%
Energy intensity index - TPES / GDP PPP	100	97	93	85	83	80	80	-19.9%
Carbon intensity index - CO <sub>2</sub> / TPES	100	100	101	99	94	94	95	-4.6%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>11.29</b>	<b>11.75</b>	-	<b>23.04</b>	<b>90.7%</b>
Main activity producer elec. and heat	-	0.00	8.05	-	8.06	151.9%
Unallocated autoproducers	-	-	0.20	-	0.20	-65.9%
Other energy industry own use	-	0.13	-	-	0.13	-36.0%
Manufacturing industries and construction	-	2.95	2.05	-	4.99	49.6%
Transport	-	5.69	0.62	-	6.31	156.1%
<i>of which: road</i>	-	<i>5.61</i>	-	-	<i>5.61</i>	<i>130.7%</i>
Other	-	2.52	0.83	-	3.35	46.2%
<i>of which: residential</i>	-	<i>1.24</i>	<i>0.43</i>	-	<i>1.67</i>	<i>51.7%</i>
<b>Reference Approach</b>	-	<b>11.21</b>	<b>11.79</b>	-	<b>23.00</b>	<b>86.5%</b>
Diff. due to losses and/or transformation	-	0.13	-	-	0.13	
Statistical differences	-	-0.21	0.03	-	-0.18	
<i>Memo: international marine bunkers</i>	-	<i>0.04</i>	-	-	<i>0.04</i>	<i>-44.2%</i>
<i>Memo: international aviation bunkers</i>	-	<i>0.86</i>	-	-	<i>0.86</i>	<i>52.2%</i>

\*\* Other includes industrial waste and non-renewable municipal waste.

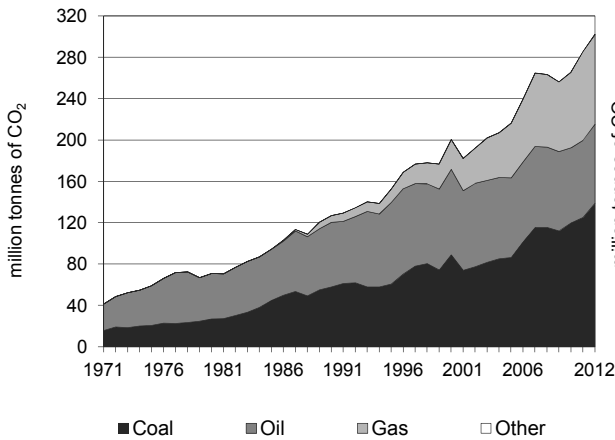
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - gas	8.05	289.4%	21.1	21.1
Road - oil	5.61	130.7%	14.7	35.9
Manufacturing industries - oil	2.95	21.9%	7.7	43.6
Manufacturing industries - gas	2.05	243.3%	5.4	49.0
Non-specified other - oil	1.28	12.4%	3.4	52.4
Residential - oil	1.24	22.4%	3.2	55.6
Other transport - gas	0.62	x	1.6	57.3
Residential - gas	0.43	398.4%	1.1	58.4
Non-specified other - gas	0.40	678.7%	1.1	59.4
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>23.04</i>	<i>90.7%</i>	<i>60.5</i>	<i>60.5</i>

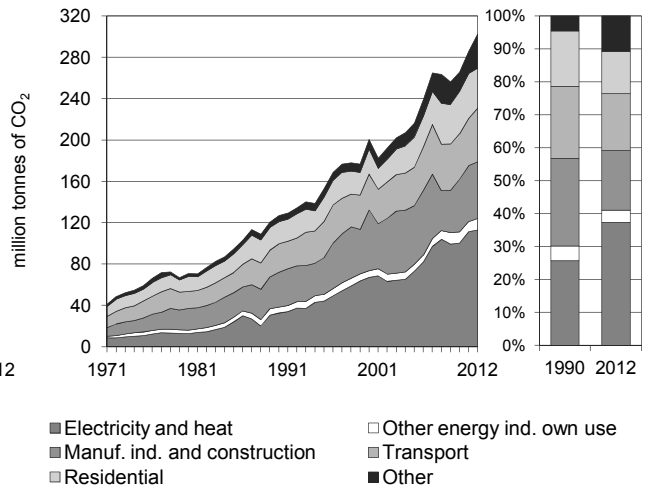
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Turkey

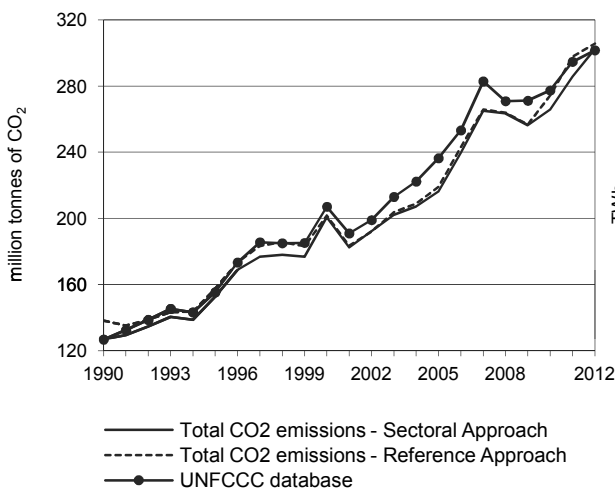
**Figure 1. CO<sub>2</sub> emissions by fuel**



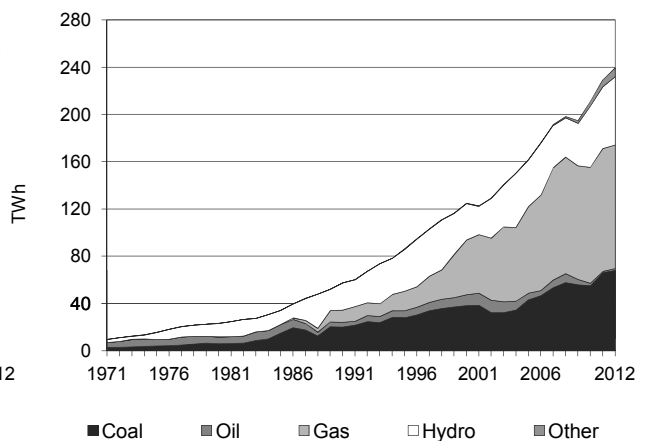
**Figure 2. CO<sub>2</sub> emissions by sector**



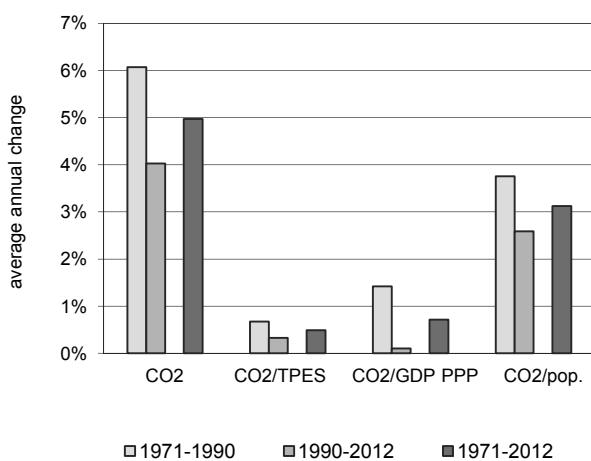
**Figure 3. Reference vs Sectoral Approach**



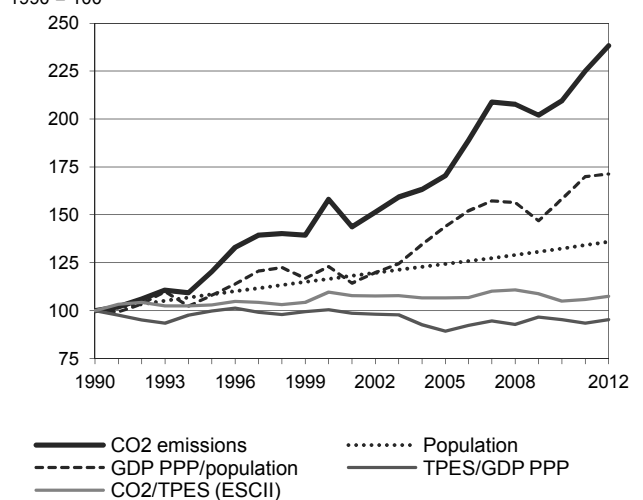
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Turkey

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	126.91	152.66	200.56	216.36	265.88	285.73	302.38	138.3%
TPES (PJ)	2 207	2 578	3 180	3 526	4 408	4 698	4 894	121.7%
GDP (billion 2005 USD)	269.69	315.86	386.59	482.99	565.10	614.68	627.75	132.8%
GDP PPP (billion 2005 USD)	436.22	510.91	625.31	781.24	914.06	994.25	1 015.40	132.8%
Population (millions)	55.12	59.76	64.25	68.57	73.00	73.95	74.90	35.9%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	57.5	59.2	63.1	61.4	60.3	60.8	61.8	7.5%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.47	0.48	0.52	0.45	0.47	0.46	0.48	2.4%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.29	0.30	0.32	0.28	0.29	0.29	0.30	2.4%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	2.30	2.55	3.12	3.16	3.64	3.86	4.04	75.3%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	120	158	170	209	225	238	138.3%
Population index	100	108	117	124	132	134	136	35.9%
GDP PPP per population index	100	108	123	144	158	170	171	71.3%
Energy intensity index - TPES / GDP PPP	100	100	101	89	95	93	95	-4.7%
Carbon intensity index - CO <sub>2</sub> / TPES	100	103	110	107	105	106	107	7.5%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>138.86</b>	<b>76.51</b>	<b>86.85</b>	<b>0.17</b>	<b>302.38</b>	<b>138.3%</b>
Main activity producer elec. and heat	63.17	0.66	37.68	0.02	101.54	277.8%
Unallocated autoproducers	6.65	0.50	4.34	0.15	11.63	99.4%
Other energy industry own use	5.22	3.10	2.69	-	11.01	95.8%
Manufacturing industries and construction	28.20	7.45	19.10	-	54.75	62.4%
Transport	-	51.53	0.47	-	52.00	87.3%
<i>of which: road</i>	-	47.01	0.10	-	47.10	87.1%
Other	35.61	13.27	22.57	-	71.46	163.6%
<i>of which: residential</i>	19.34	2.40	17.02	-	38.76	82.3%
<b>Reference Approach</b>	<b>139.08</b>	<b>79.58</b>	<b>86.85</b>	<b>0.17</b>	<b>305.69</b>	<b>121.4%</b>
Diff. due to losses and/or transformation	1.49	- 0.84	0.01	-	0.66	
Statistical differences	- 1.27	3.91	-	-	2.64	
<i>Memo: international marine bunkers</i>	-	0.58	-	-	0.58	56.5%
<i>Memo: international aviation bunkers</i>	-	3.05	-	-	3.05	473.1%

\*\* Other includes industrial waste and non-renewable municipal waste.

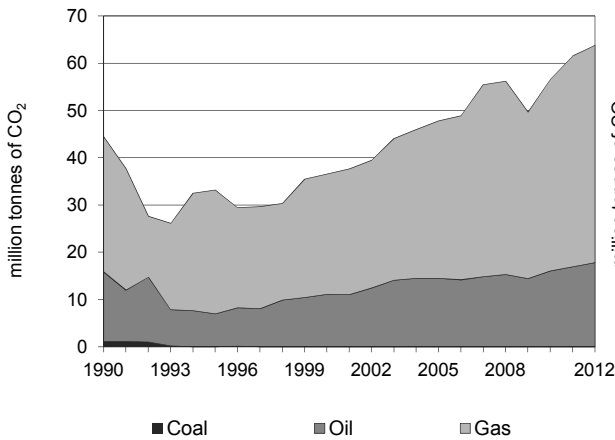
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	63.17	204.0%	14.3	14.3
Road - oil	47.01	86.7%	10.7	25.0
Main activity prod. elec. and heat - gas	37.68	657.9%	8.6	33.6
Manufacturing industries - coal	28.20	44.7%	6.4	40.0
Residential - coal	19.34	58.0%	4.4	44.4
Manufacturing industries - gas	19.10	+	4.3	48.7
Residential - gas	17.02	+	3.9	52.5
Non-specified other sectors - coal	16.27	+	3.7	56.2
Non-specified other - oil	10.87	86.1%	2.5	58.7
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>302.38</i>	<i>138.3%</i>	<i>68.6</i>	<i>68.6</i>

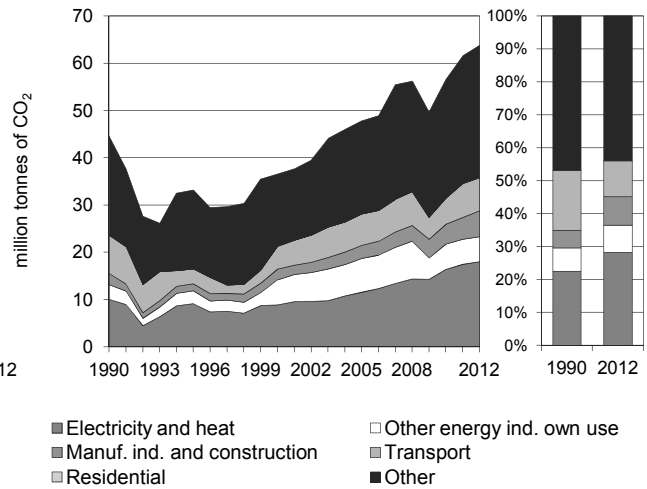
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Turkmenistan

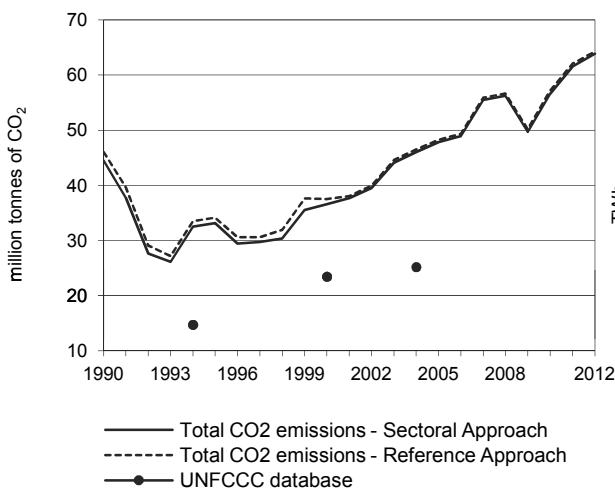
**Figure 1. CO<sub>2</sub> emissions by fuel**



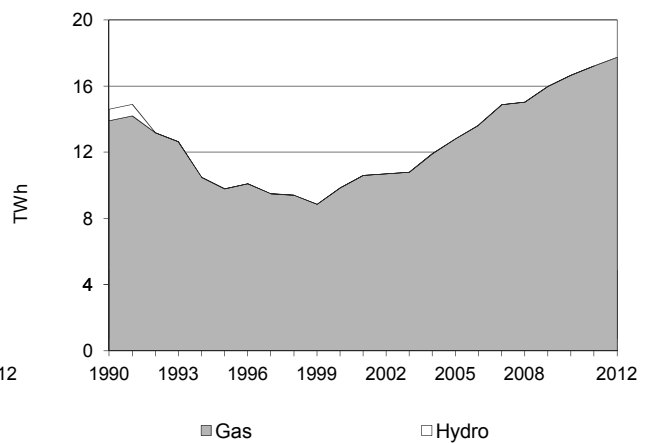
**Figure 2. CO<sub>2</sub> emissions by sector**



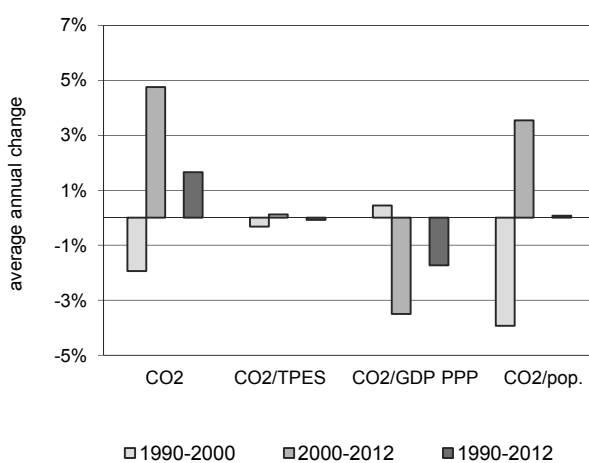
**Figure 3. Reference vs Sectoral Approach**



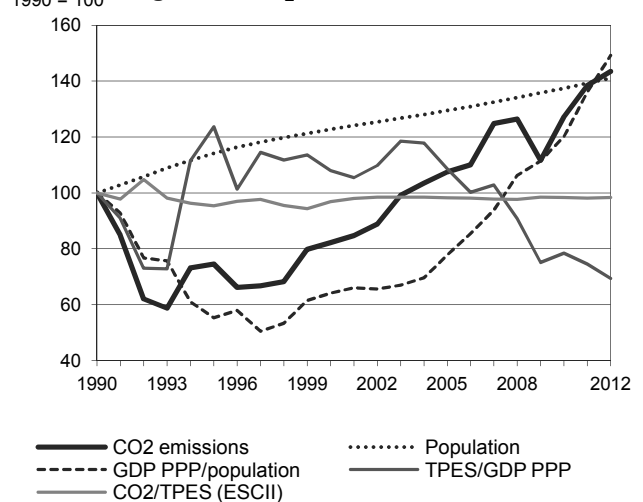
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Turkmenistan

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	44.47	33.17	36.56	47.82	56.59	61.55	63.82	43.5%
TPES (PJ)	733	573	623	802	949	1 035	1 071	46.0%
GDP (billion 2005 USD)	8.04	5.08	6.32	8.10	13.27	15.22	16.91	110.4%
GDP PPP (billion 2005 USD)	27.31	17.26	21.47	27.53	45.09	51.71	57.45	110.4%
Population (millions)	3.67	4.19	4.50	4.75	5.04	5.11	5.17	41.0%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	60.6	57.9	58.7	59.6	59.6	59.5	59.6	-1.7%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	5.53	6.53	5.78	5.90	4.26	4.04	3.77	-31.8%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	1.63	1.92	1.70	1.74	1.26	1.19	1.11	-31.8%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	12.12	7.92	8.12	10.07	11.22	12.05	12.34	1.8%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	75	82	108	127	138	144	43.5%
Population index	100	114	123	129	137	139	141	41.0%
GDP PPP per population index	100	55	64	78	120	136	149	49.2%
Energy intensity index - TPES / GDP PPP	100	124	108	109	78	74	69	-30.6%
Carbon intensity index - CO <sub>2</sub> / TPES	100	95	97	98	98	98	98	-1.7%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>17.82</b>	<b>46.01</b>	-	<b>63.82</b>	<b>43.5%</b>
Main activity producer elec. and heat	-	-	18.05	-	18.05	80.1%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.46	4.82	-	5.27	68.2%
Manufacturing industries and construction	-	3.36	2.13	-	5.48	128.2%
Transport	-	3.50	3.44	-	6.94	-14.1%
<i>of which: road</i>	-	3.50	-	-	3.50	44.9%
Other	-	10.50	17.58	-	28.08	34.8%
<i>of which: residential</i>	-	-	-	-	-	-
<b>Reference Approach</b>	-	<b>18.27</b>	<b>46.01</b>	-	<b>64.28</b>	<b>39.7%</b>
Diff. due to losses and/or transformation	-	0.45	-	-	0.45	-
Statistical differences	-	-0.00	-	-	-0.00	-
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	1.26	-	-	1.26	68.0%

\*\* Other includes industrial waste and non-renewable municipal waste.

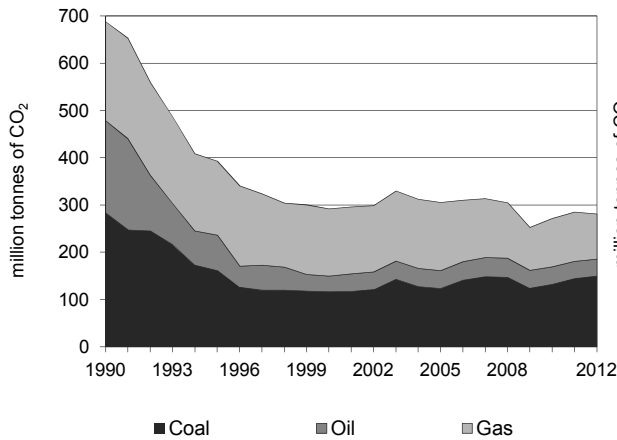
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - gas	18.05	80.1%	19.4	19.4
Non-specified other - gas	17.58	87.9%	18.9	38.3
Non-specified other - oil	10.50	1.7%	11.3	49.5
Other energy industry own use - gas	4.82	68.2%	5.2	54.7
Road - oil	3.50	44.9%	3.8	58.5
Other transport - gas	3.44	-39.2%	3.7	62.2
Manufacturing industries - oil	3.36	100.6%	3.6	65.8
Manufacturing industries - gas	2.13	191.6%	2.3	68.0
Other energy industry own use - oil	0.46	68.7%	0.5	68.5
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<b>63.82</b>	<b>43.5%</b>	<b>68.5</b>	<b>68.5</b>

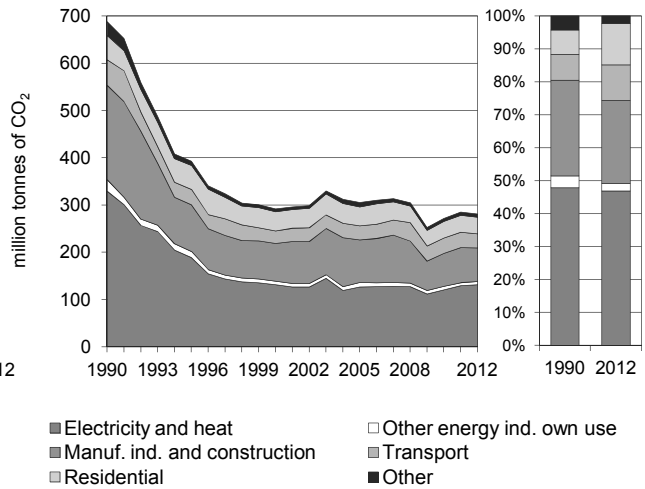
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Ukraine

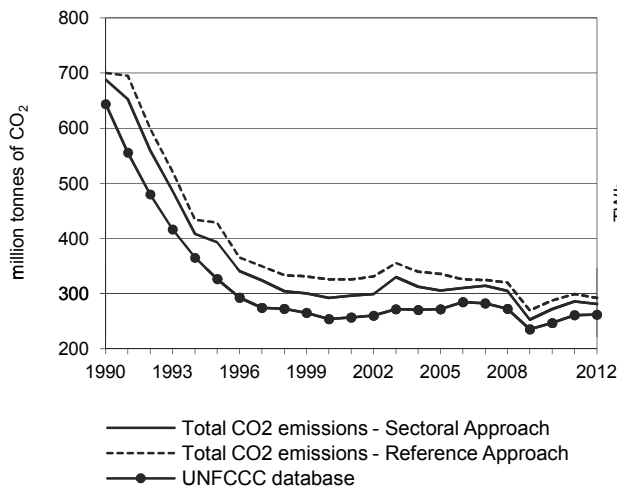
**Figure 1. CO<sub>2</sub> emissions by fuel**



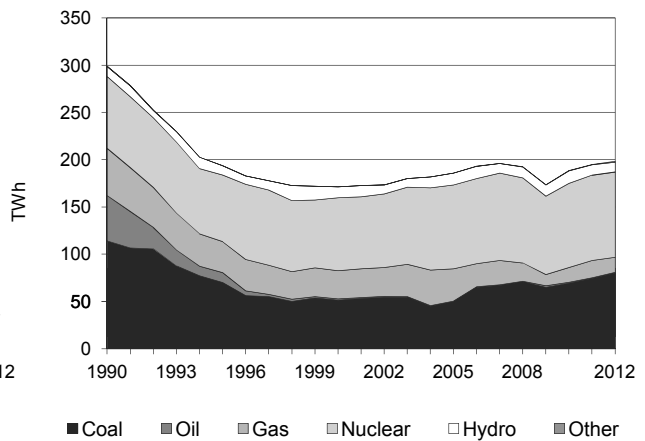
**Figure 2. CO<sub>2</sub> emissions by sector**



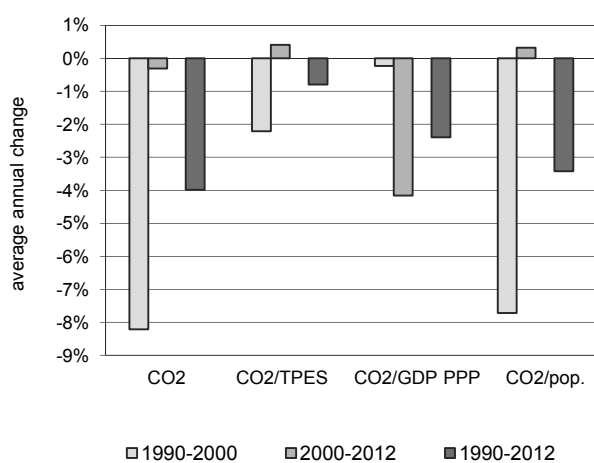
**Figure 3. Reference vs Sectoral Approach**



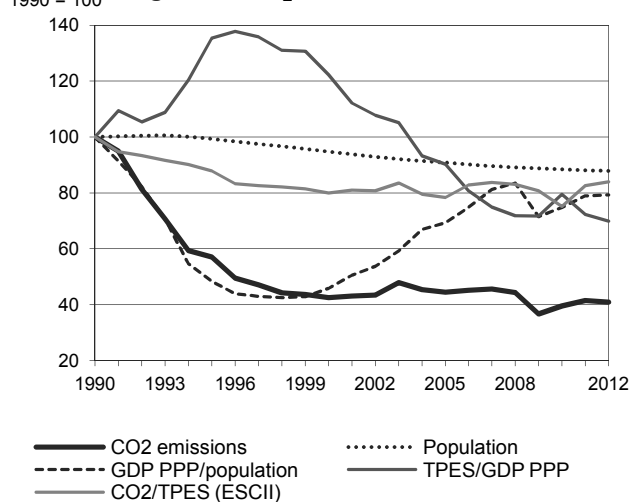
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Ukraine

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	687.86	392.78	291.96	305.59	271.66	285.39	281.07	-59.1%
TPES (PJ)	10 550	6 854	5 602	5 982	5 545	5 299	5 136	-51.3%
GDP (billion 2005 USD)	137.03	65.78	59.54	86.14	90.58	95.29	95.48	-30.3%
GDP PPP (billion 2005 USD)	486.03	233.30	211.16	305.53	321.26	337.96	338.64	-30.3%
Population (millions)	51.89	51.51	49.18	47.11	45.87	45.71	45.59	-12.1%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	65.2	57.3	52.1	51.1	49.0	53.9	54.7	-16.1%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	5.02	5.97	4.90	3.55	3.00	3.00	2.94	-41.4%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	1.42	1.68	1.38	1.00	0.85	0.84	0.83	-41.4%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	13.26	7.63	5.94	6.49	5.92	6.24	6.16	-53.5%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	57	42	44	39	41	41	-59.1%
Population index	100	99	95	91	88	88	88	-12.1%
GDP PPP per population index	100	48	46	69	75	79	79	-20.7%
Energy intensity index - TPES / GDP PPP	100	135	122	90	80	72	70	-30.1%
Carbon intensity index - CO <sub>2</sub> / TPES	100	88	80	78	75	83	84	-16.1%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>149.58</b>	<b>36.38</b>	<b>95.11</b>	-	<b>281.07</b>	<b>-59.1%</b>
Main activity producer elec. and heat	88.89	0.64	29.98	-	119.52	-59.9%
Unallocated autoproducers	7.43	0.23	4.60	-	12.27	-60.8%
Other energy industry own use	3.15	1.11	2.08	-	6.34	-74.1%
Manufacturing industries and construction	46.54	4.43	20.06	-	71.04	-64.4%
Transport	0.05	25.30	4.79	-	30.14	-44.5%
<i>of which: road</i>	-	24.67	0.10	-	24.77	-47.2%
Other	3.51	4.66	33.60	-	41.77	-47.9%
<i>of which: residential</i>	2.83	0.20	32.16	-	35.18	-31.2%
<b>Reference Approach</b>	<b>162.84</b>	<b>32.38</b>	<b>96.81</b>	-	<b>292.04</b>	<b>-58.3%</b>
Diff. due to losses and/or transformation	13.30	-0.59	1.13	-	13.83	
Statistical differences	-0.03	-3.40	0.57	-	-2.87	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.91	-	-	0.91	-85.1%

\*\* Other includes industrial waste and non-renewable municipal waste.

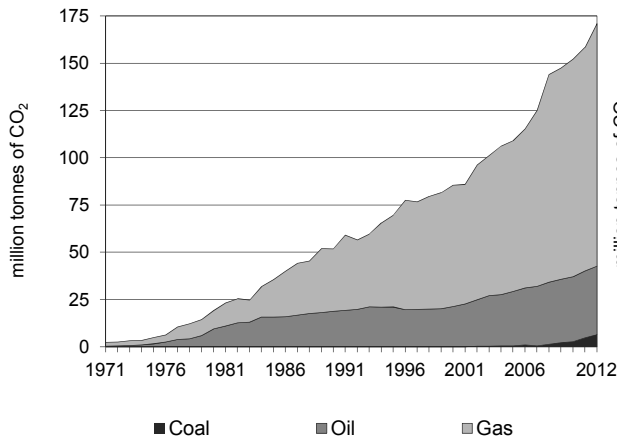
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	88.89	-34.6%	21.1	21.1
Manufacturing industries - coal	46.54	-55.9%	11.1	32.2
Residential - gas	32.16	57.6%	7.6	39.9
Main activity prod. elec. and heat - gas	29.98	-67.7%	7.1	47.0
Road - oil	24.67	-47.5%	5.9	52.9
Manufacturing industries - gas	20.06	-63.1%	4.8	57.6
Unallocated autoproducers - coal	7.43	206.5%	1.8	59.4
Other transport - gas	4.69	x	1.1	60.5
Unallocated autoproducers - gas	4.60	-84.1%	1.1	61.6
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>281.07</i>	<i>-59.1%</i>	<i>66.9</i>	<i>66.9</i>

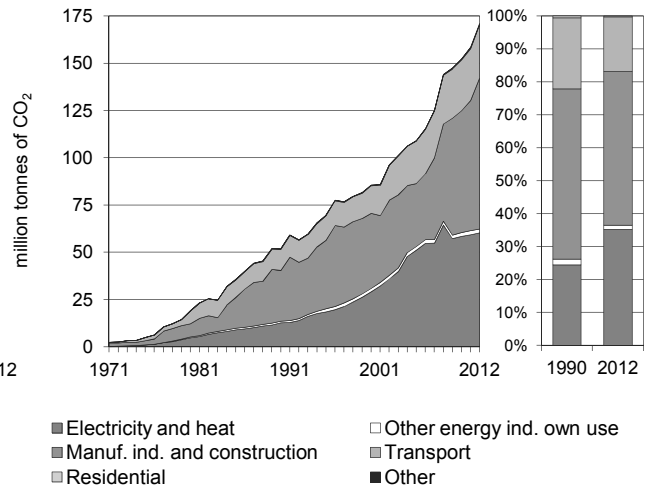
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## United Arab Emirates

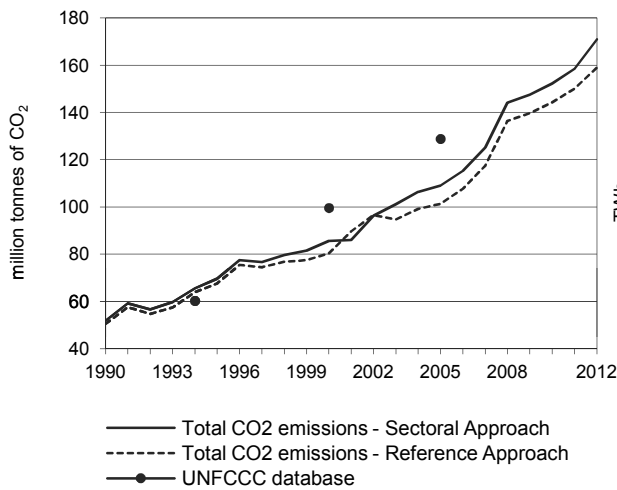
**Figure 1. CO<sub>2</sub> emissions by fuel**



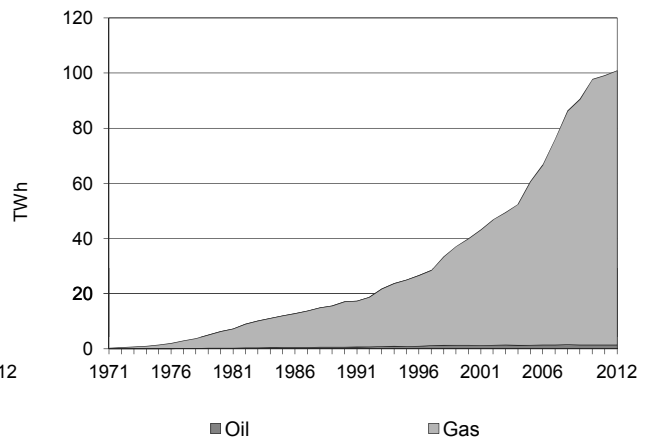
**Figure 2. CO<sub>2</sub> emissions by sector**



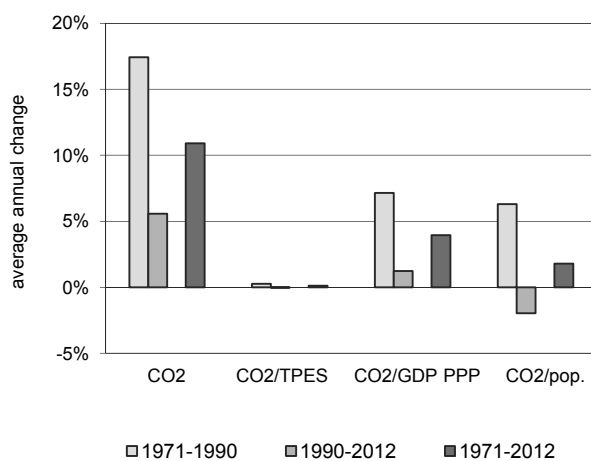
**Figure 3. Reference vs Sectoral Approach**



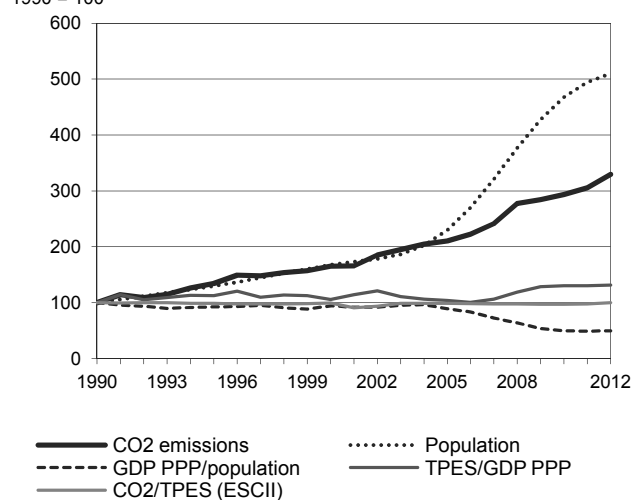
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## United Arab Emirates

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	51.88	69.64	85.59	109.08	152.27	158.46	170.97	229.5%
TPES (PJ)	855	1 159	1 421	1 820	2 586	2 679	2 825	230.3%
GDP (billion 2005 USD)	88.26	106.24	139.12	180.62	204.45	212.38	221.65	151.1%
GDP PPP (billion 2005 USD)	186.39	224.36	293.80	381.44	431.77	448.52	468.10	151.1%
Population (millions)	1.81	2.35	3.03	4.15	8.44	8.93	9.21	409.7%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	60.7	60.1	60.2	59.9	58.9	59.2	60.5	-0.2%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.59	0.66	0.62	0.60	0.74	0.75	0.77	31.2%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.28	0.31	0.29	0.29	0.35	0.35	0.37	31.2%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	28.73	29.68	28.28	26.29	18.04	17.76	18.57	-35.4%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	134	165	210	293	305	330	229.5%
Population index	100	130	168	230	467	494	510	409.7%
GDP PPP per population index	100	93	94	89	50	49	49	-50.7%
Energy intensity index - TPES / GDP PPP	100	113	105	104	131	130	132	31.5%
Carbon intensity index - CO <sub>2</sub> / TPES	100	99	99	99	97	97	100	-0.2%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>6.54</b>	<b>36.18</b>	<b>128.24</b>	-	<b>170.97</b>	<b>229.5%</b>
Main activity producer elec. and heat	-	1.67	58.62	-	60.28	374.7%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.67	1.44	-	2.11	129.4%
Manufacturing industries and construction	6.54	5.00	68.19	-	79.73	197.6%
Transport	-	28.30	-	-	28.30	153.3%
<i>of which: road</i>	-	27.56	-	-	27.56	146.7%
Other	-	0.54	-	-	0.54	80.4%
<i>of which: residential</i>	-	0.54	-	-	0.54	80.4%
<b>Reference Approach</b>	<b>6.54</b>	<b>27.68</b>	<b>124.77</b>	-	<b>159.00</b>	<b>214.9%</b>
Diff. due to losses and/or transformation	-	- 8.50	-	-	- 8.50	
Statistical differences	-	-	- 3.47	-	- 3.47	
<i>Memo: international marine bunkers</i>	-	45.64	-	-	45.64	140.3%
<i>Memo: international aviation bunkers</i>	-	14.91	-	-	14.91	52.3%

\*\* Other includes industrial waste and non-renewable municipal waste.

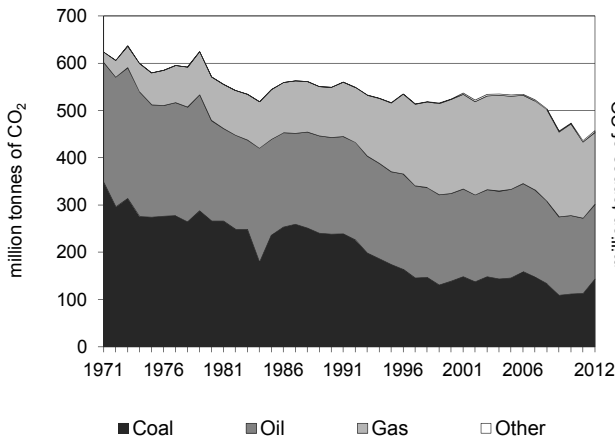
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Manufacturing industries - gas	68.19	234.1%	32.3	32.3
Main activity prod. elec. and heat - gas	58.62	385.1%	27.7	60.0
Road - oil	27.56	146.7%	13.0	73.1
Manufacturing industries - coal	6.54	x	3.1	76.2
Manufacturing industries - oil	5.00	-21.6%	2.4	78.5
Main activity prod. elec. and heat - oil	1.67	170.5%	0.8	79.3
Other energy industry own use - gas	1.44	129.5%	0.7	80.0
Other transport - oil	0.74	x	0.3	80.4
Other energy industry own use - oil	0.67	129.3%	0.3	80.7
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>170.97</i>	<i>229.5%</i>	<i>80.9</i>	<i>80.9</i>

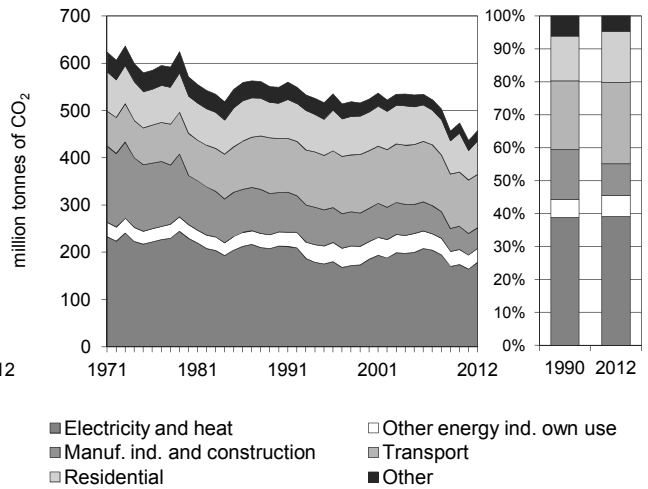
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## United Kingdom

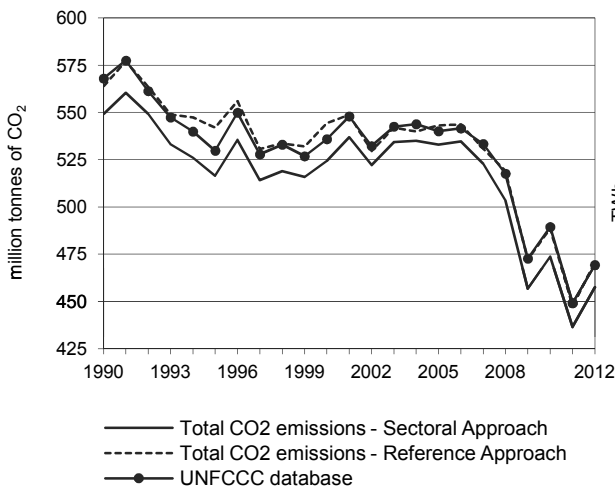
**Figure 1. CO<sub>2</sub> emissions by fuel**



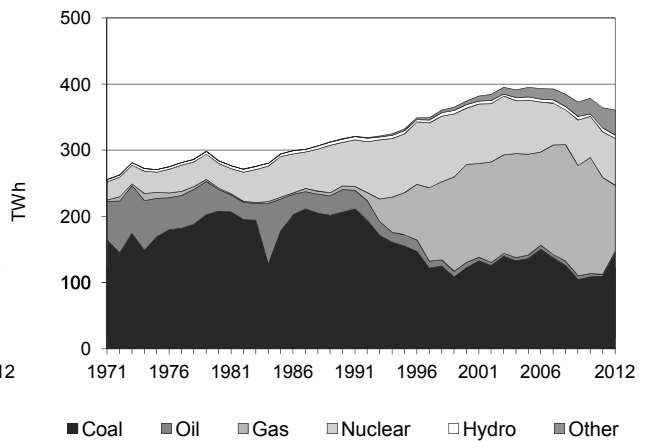
**Figure 2. CO<sub>2</sub> emissions by sector**



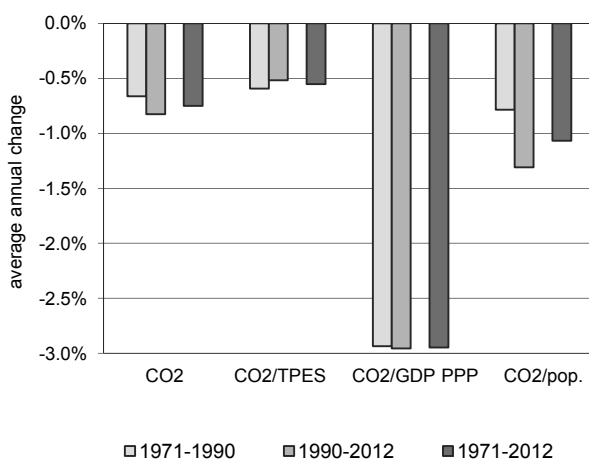
**Figure 3. Reference vs Sectoral Approach**



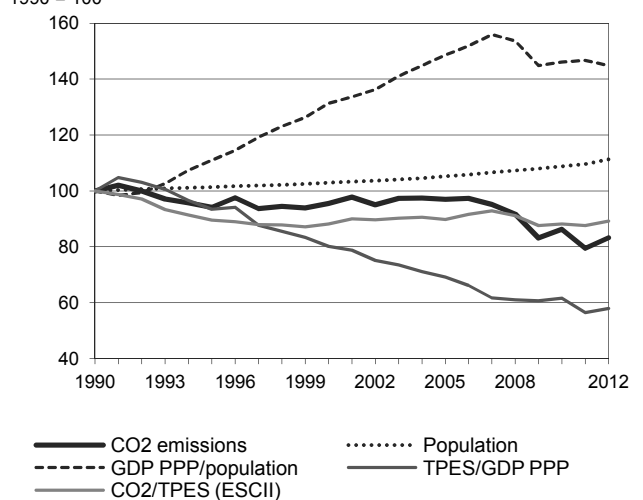
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## United Kingdom

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	549.25	516.60	524.29	532.94	473.61	436.51	457.45	-16.7%
TPES (PJ)	8 621	9 057	9 335	9 321	8 433	7 826	8 048	-6.6%
GDP (billion 2005 USD)	1 484.68	1 669.35	2 005.80	2 321.36	2 360.04	2 386.41	2 393.03	61.2%
GDP PPP (billion 2005 USD)	1 283.57	1 443.22	1 734.10	2 006.91	2 040.35	2 063.15	2 068.88	61.2%
Population (millions)	57.24	58.03	58.89	60.24	62.26	62.74	63.71	11.3%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	63.7	57.0	56.2	57.2	56.2	55.8	56.8	-10.8%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.37	0.31	0.26	0.23	0.20	0.18	0.19	-48.3%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.43	0.36	0.30	0.27	0.23	0.21	0.22	-48.3%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	9.60	8.90	8.90	8.85	7.61	6.96	7.18	-25.2%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	94	95	97	86	79	83	-16.7%
Population index	100	101	103	105	109	110	111	11.3%
GDP PPP per population index	100	111	131	149	146	147	145	44.8%
Energy intensity index - TPES / GDP PPP	100	93	80	69	62	56	58	-42.1%
Carbon intensity index - CO <sub>2</sub> / TPES	100	90	88	90	88	88	89	-10.8%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>143.53</b>	<b>157.92</b>	<b>152.54</b>	<b>3.47</b>	<b>457.45</b>	<b>-16.7%</b>
Main activity producer elec. and heat	120.12	1.28	31.16	-	152.56	-23.8%
Unallocated autoproducers	10.21	1.26	11.61	3.30	26.38	97.2%
Other energy industry own use	3.75	15.62	10.07	-	29.44	-0.0%
Manufacturing industries and construction	7.07	15.92	20.74	0.08	43.81	-47.6%
Transport	0.04	112.83	-	-	112.87	-1.3%
<i>of which: road</i>	-	107.49	-	-	107.49	0.8%
Other	2.35	11.01	78.96	0.09	92.40	-14.7%
<i>of which: residential</i>	2.29	7.40	61.31	0.02	71.01	-5.2%
<b>Reference Approach</b>	<b>150.04</b>	<b>162.36</b>	<b>154.67</b>	<b>3.47</b>	<b>470.54</b>	<b>-16.6%</b>
Diff. due to losses and/or transformation	2.08	4.77	2.23	-	9.08	
Statistical differences	4.44	-0.33	-0.10	0.00	4.01	
<i>Memo: international marine bunkers</i>	-	9.68	-	-	9.68	23.4%
<i>Memo: international aviation bunkers</i>	-	32.10	-	-	32.10	70.3%

\*\* Other includes industrial waste and non-renewable municipal waste.

### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

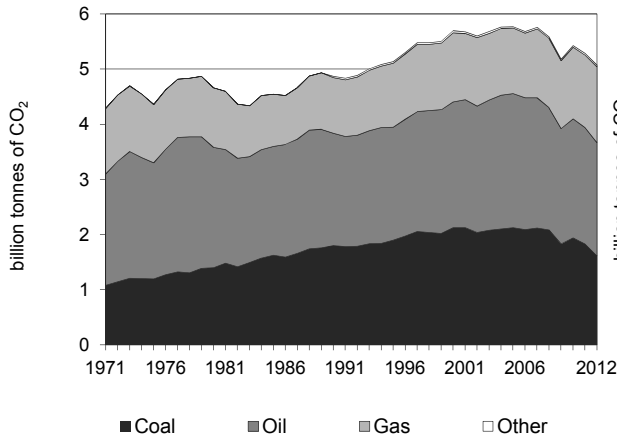
IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	120.12	-33.4%	21.0	21.0
Road - oil	107.49	0.8%	18.8	39.8
Residential - gas	61.31	12.9%	10.7	50.5
Main activity prod. elec. and heat - gas ****	31.16	x	5.4	55.9
Manufacturing industries - gas	20.74	-22.4%	3.6	59.5
Non-specified other - gas	17.65	14.8%	3.1	62.6
Manufacturing industries - oil	15.92	-39.8%	2.8	65.4
Other energy industry own use - oil	15.62	-21.8%	2.7	68.1
Unallocated autoproducers - gas ****	11.61	346.1%	2.0	70.2
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>457.45</i>	<i>-16.7%</i>	<i>79.9</i>	<i>79.9</i>

\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

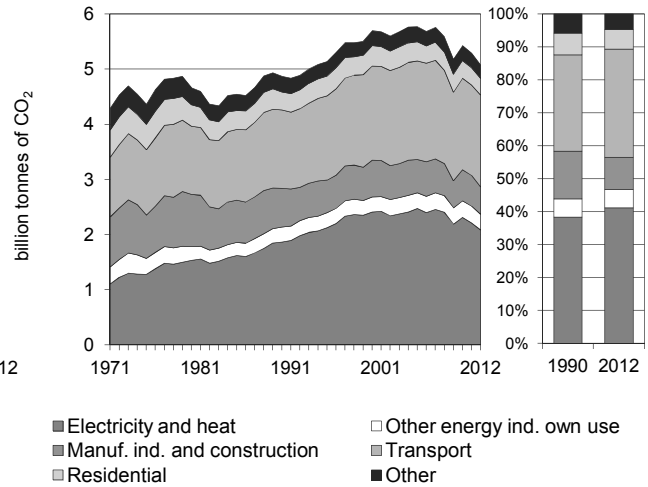
\*\*\*\* For reasons of confidentiality, gas for main activity producer electricity is included in autoproducers for 1990.

## United States

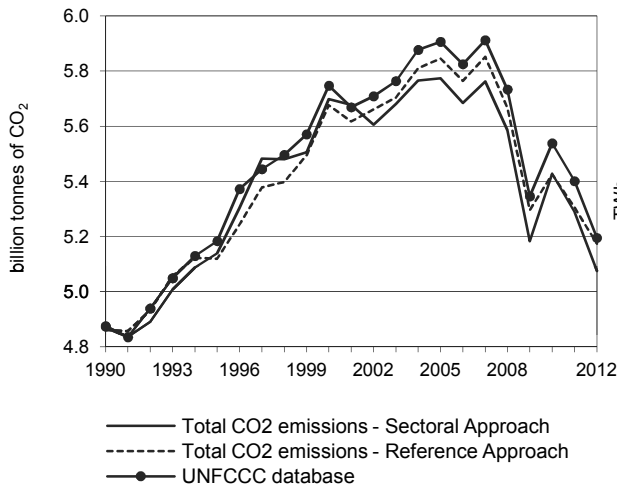
**Figure 1. CO<sub>2</sub> emissions by fuel**



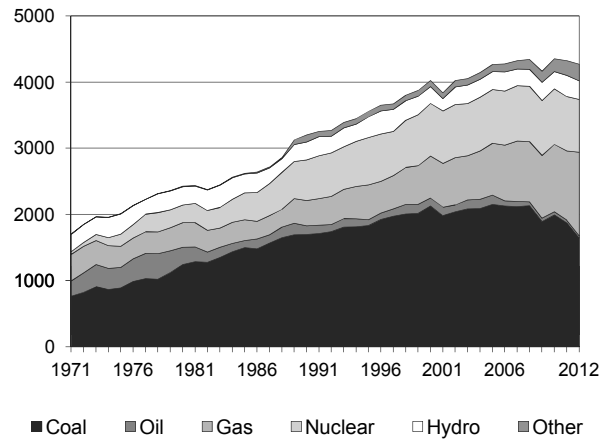
**Figure 2. CO<sub>2</sub> emissions by sector**



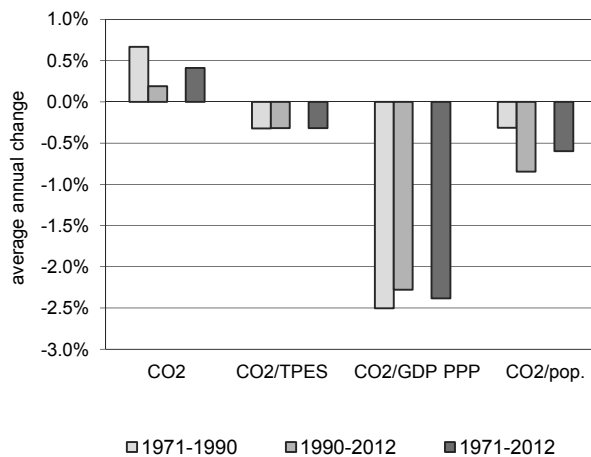
**Figure 3. Reference vs Sectoral Approach**



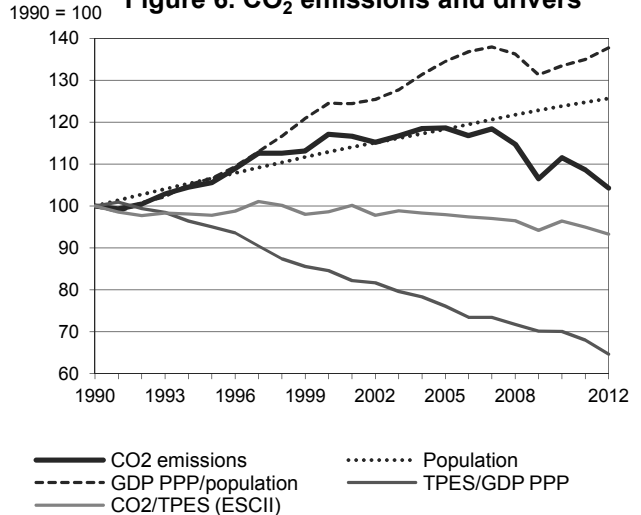
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## United States

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	4 868.7	5 138.7	5 698.1	5 773.5	5 427.1	5 288.4	5 074.1	4.2%
TPES (PJ)	80 179	86 554	95 180	97 082	92 754	91 739	89 623	11.8%
GDP (billion 2005 USD)	8 228.9	9 349.6	11 558.8	13 095.4	13 595.6	13 846.8	14 231.6	72.9%
GDP PPP (billion 2005 USD)	8 228.9	9 349.6	11 558.8	13 095.4	13 595.6	13 846.8	14 231.6	72.9%
Population (millions)	250.2	266.6	282.4	296.0	309.8	312.0	314.3	25.6%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	60.7	59.4	59.9	59.5	58.5	57.6	56.6	-6.8%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.59	0.55	0.49	0.44	0.40	0.38	0.36	-39.7%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.59	0.55	0.49	0.44	0.40	0.38	0.36	-39.7%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	19.46	19.28	20.18	19.51	17.52	16.95	16.15	-17.0%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	106	117	119	111	109	104	4.2%
Population index	100	107	113	118	124	125	126	25.6%
GDP PPP per population index	100	107	124	135	133	135	138	37.7%
Energy intensity index - TPES / GDP PPP	100	95	85	76	70	68	65	-35.4%
Carbon intensity index - CO <sub>2</sub> / TPES	100	98	99	98	96	95	93	-6.8%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>1 612.8</b>	<b>2 055.5</b>	<b>1 375.0</b>	<b>30.8</b>	<b>5 074.1</b>	<b>4.2%</b>
Main activity producer elec. and heat	1 489.0	17.9	493.5	15.6	2 015.9	13.7%
Unallocated autoproducers	18.4	7.5	37.8	6.9	70.7	-23.2%
Other energy industry own use	10.6	111.2	161.2	-	283.0	3.6%
Manufacturing industries and construction	91.3	137.5	259.4	7.2	495.4	-29.5%
Transport	-	1 626.1	41.1	-	1 667.3	17.4%
<i>of which: road</i>	-	1 411.3	1.6	-	1 413.0	24.2%
Other	3.5	155.3	382.0	1.1	541.9	-10.7%
<i>of which: residential</i>	-	76.2	225.4	-	301.6	-6.9%
<b>Reference Approach</b>	<b>1 665.2</b>	<b>2 096.1</b>	<b>1 381.3</b>	<b>30.8</b>	<b>5 173.5</b>	<b>6.4%</b>
Diff. due to losses and/or transformation	15.4	37.3	-2.7	-	50.0	
Statistical differences	37.0	3.3	9.0	0.0	49.4	
<i>Memo: international marine bunkers</i>	-	48.8	-	-	48.8	-46.1%
<i>Memo: international aviation bunkers</i>	-	63.2	-	-	63.2	63.0%

\*\* Other includes industrial waste and non-renewable municipal waste.

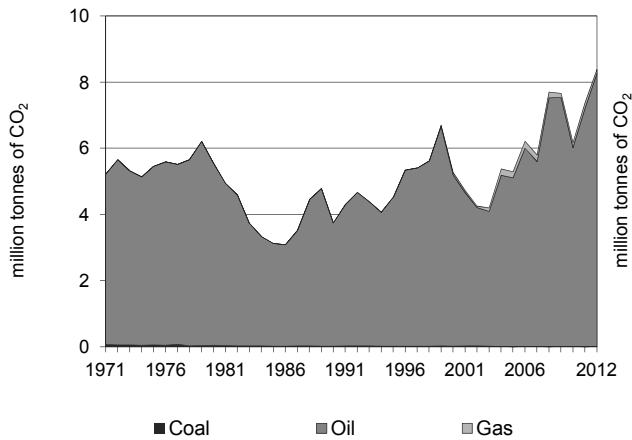
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	1 489.0	-2.9%	23.4	23.4
Road - oil	1 411.3	24.0%	22.2	45.6
Main activity prod. elec. and heat - gas	493.5	223.2%	7.8	53.3
Manufacturing industries - gas	259.4	-6.9%	4.1	57.4
Residential - gas	225.4	-6.0%	3.5	60.9
Other transport - oil	214.8	-12.8%	3.4	64.3
Other energy industry own use - gas	161.2	54.7%	2.5	66.8
Non-specified other - gas	156.6	9.4%	2.5	69.3
Manufacturing industries - oil	137.5	-36.7%	2.2	71.4
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>5 074.1</i>	<i>4.2%</i>	<i>79.7</i>	<i>79.7</i>

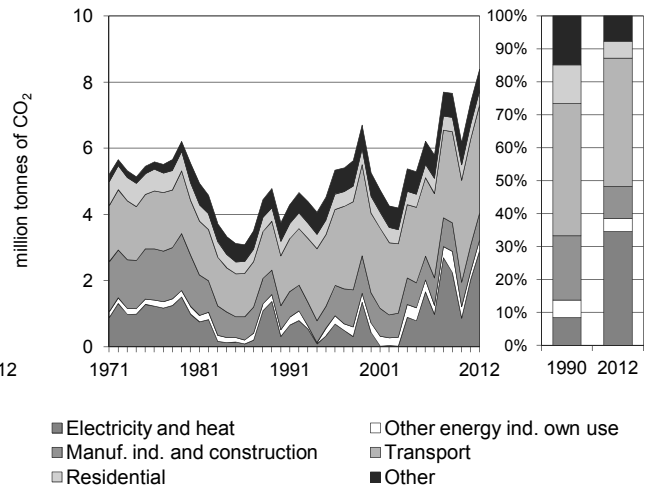
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Uruguay

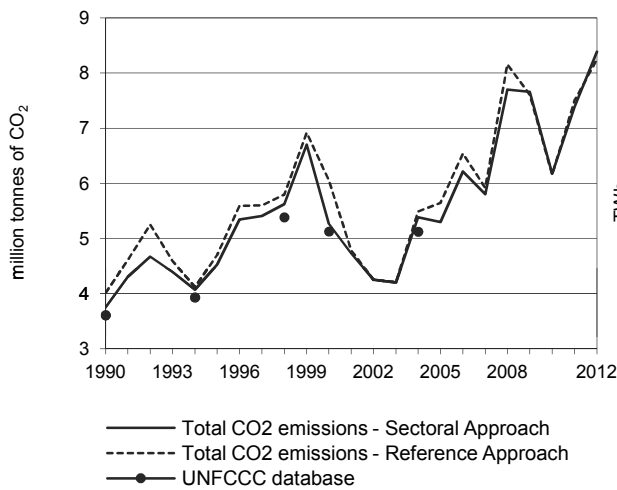
**Figure 1. CO<sub>2</sub> emissions by fuel**



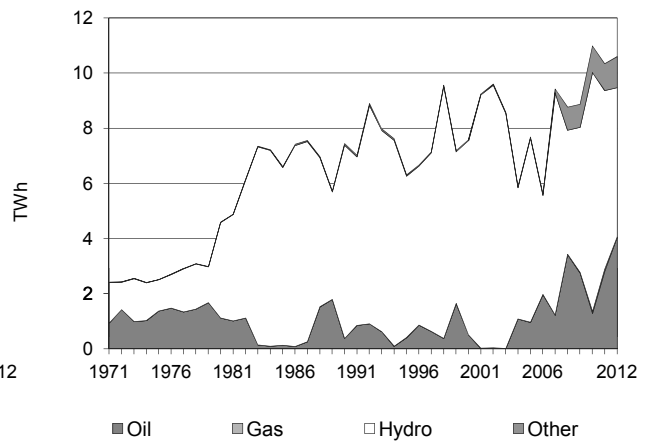
**Figure 2. CO<sub>2</sub> emissions by sector**



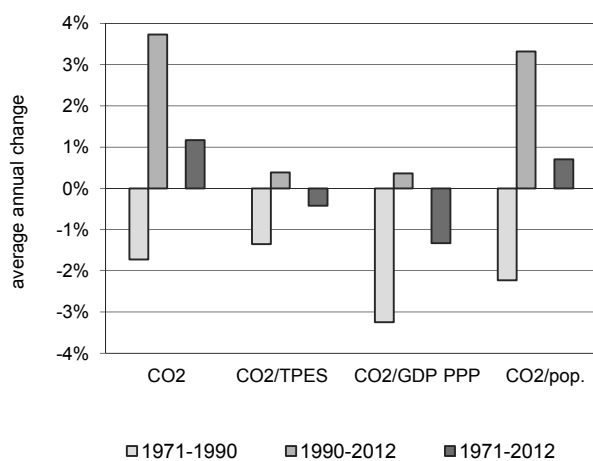
**Figure 3. Reference vs Sectoral Approach**



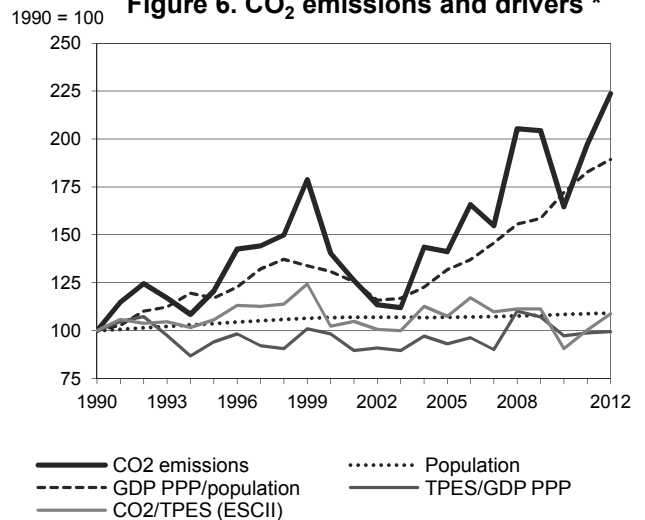
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Uruguay

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	3.75	4.52	5.26	5.29	6.17	7.39	8.39	123.7%
TPES (PJ)	94	108	129	124	171	185	194	105.5%
GDP (billion 2005 USD)	12.31	14.94	17.21	17.36	22.99	24.49	25.46	106.7%
GDP PPP (billion 2005 USD)	26.30	31.90	36.75	37.09	49.11	52.31	54.37	106.7%
Population (millions)	3.11	3.22	3.32	3.33	3.37	3.38	3.40	9.2%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	39.8	42.0	40.7	42.8	36.0	39.9	43.3	8.8%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.30	0.30	0.31	0.31	0.27	0.30	0.33	8.2%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.14	0.14	0.14	0.14	0.13	0.14	0.15	8.2%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	1.21	1.40	1.59	1.59	1.83	2.18	2.47	104.9%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	121	140	141	165	197	224	123.7%
Population index	100	104	107	107	108	109	109	9.2%
GDP PPP per population index	100	117	131	132	172	183	189	89.4%
Energy intensity index - TPES / GDP PPP	100	94	98	93	97	99	99	-0.6%
Carbon intensity index - CO <sub>2</sub> / TPES	100	106	102	107	91	100	109	8.8%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.01</b>	<b>8.26</b>	<b>0.12</b>	-	<b>8.39</b>	<b>123.7%</b>
Main activity producer elec. and heat	-	2.89	0.00	-	2.90	878.4%
Unallocated autoproducers	-	0.00	-	-	0.00	-85.8%
Other energy industry own use	-	0.33	0.00	-	0.34	68.1%
Manufacturing industries and construction	0.01	0.78	0.02	-	0.81	11.1%
Transport	-	3.27	-	-	3.27	117.4%
<i>of which: road</i>	-	3.25	-	-	3.25	127.6%
Other	-	0.99	0.09	-	1.07	7.5%
<i>of which: residential</i>	-	0.38	0.05	-	0.43	-2.7%
<b>Reference Approach</b>	<b>0.01</b>	<b>8.12</b>	<b>0.12</b>	-	<b>8.25</b>	<b>105.3%</b>
Diff. due to losses and/or transformation	-	0.07	0.00	-	0.07	
Statistical differences	-	-0.21	-0.00	-	-0.21	
<i>Memo: international marine bunkers</i>	-	0.97	-	-	0.97	162.8%
<i>Memo: international aviation bunkers</i>	-	0.28	-	-	0.28	x

\*\* Other includes industrial waste and non-renewable municipal waste.

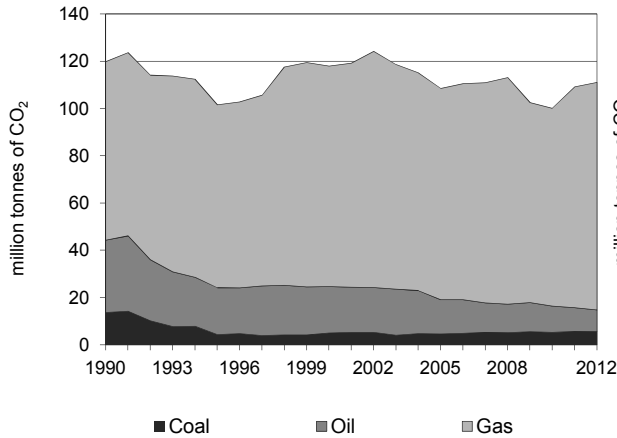
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	3.25	127.6%	9.3	9.3
Main activity prod. elec. and heat - oil	2.89	877.1%	8.2	17.5
Manufacturing industries - oil	0.78	7.8%	2.2	19.7
Non-specified other - oil	0.61	10.2%	1.7	21.4
Residential - oil	0.38	-11.4%	1.1	22.5
Other energy industry own use - oil	0.33	66.0%	0.9	23.5
Residential - gas	0.05	x	0.1	23.6
Non-specified other - gas	0.04	x	0.1	23.7
Manufacturing industries - gas	0.02	x	0.1	23.8
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<b>8.39</b>	<b>123.7%</b>	<b>23.9</b>	<b>23.9</b>

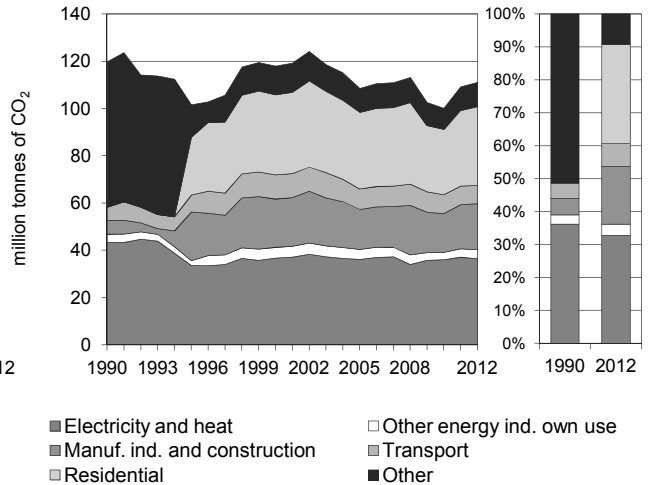
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Uzbekistan

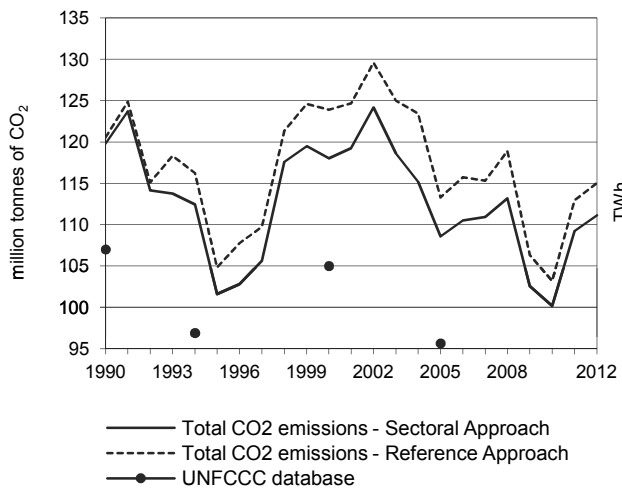
**Figure 1. CO<sub>2</sub> emissions by fuel**



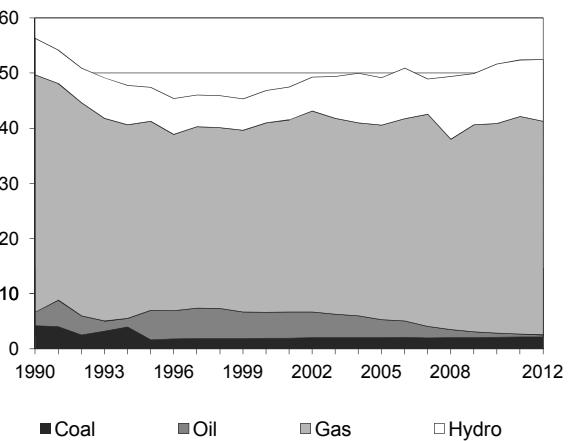
**Figure 2. CO<sub>2</sub> emissions by sector**



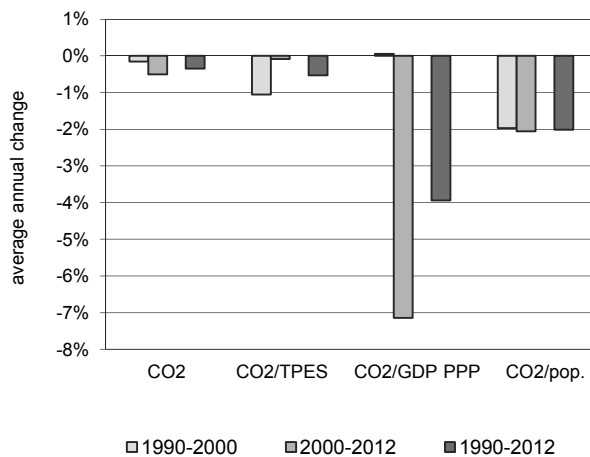
**Figure 3. Reference vs Sectoral Approach**



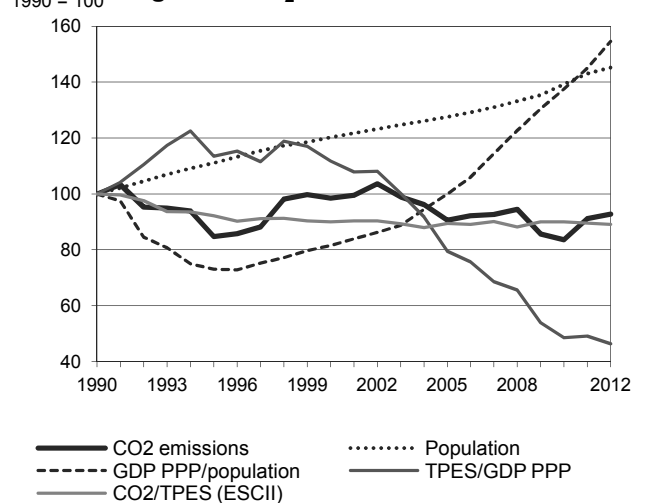
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Uzbekistan

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	119.83	101.58	118.03	108.57	100.16	109.21	111.14	-7.3%
TPES (PJ)	1 941	1 786	2 125	1 966	1 804	1 977	2 022	4.1%
GDP (billion 2005 USD)	11.22	9.10	11.00	14.31	21.49	23.28	25.18	124.4%
GDP PPP (billion 2005 USD)	55.64	45.12	54.51	70.94	106.56	115.40	124.86	124.4%
Population (millions)	20.51	22.79	24.65	26.17	28.56	29.34	29.78	45.2%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	61.7	56.9	55.5	55.2	55.5	55.2	55.0	-10.9%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	10.68	11.16	10.73	7.59	4.66	4.69	4.41	-58.7%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	2.15	2.25	2.17	1.53	0.94	0.95	0.89	-58.7%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	5.84	4.46	4.79	4.15	3.51	3.72	3.73	-36.1%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	85	98	91	84	91	93	-7.3%
Population index	100	111	120	128	139	143	145	45.2%
GDP PPP per population index	100	73	82	100	138	145	155	54.6%
Energy intensity index - TPES / GDP PPP	100	113	112	79	49	49	46	-53.6%
Carbon intensity index - CO <sub>2</sub> / TPES	100	92	90	89	90	89	89	-10.9%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>5.69</b>	<b>9.05</b>	<b>96.39</b>	-	<b>111.14</b>	<b>-7.3%</b>
Main activity producer elec. and heat	3.89	0.39	32.13	-	36.41	-16.2%
Unallocated autoproducers	-	-	0.07	-	0.07	x
Other energy industry own use	-	0.35	3.41	-	3.76	10.8%
Manufacturing industries and construction	0.38	1.21	17.88	-	19.48	233.4%
Transport	-	4.58	3.18	-	7.77	37.1%
<i>of which: road</i>	-	4.01	0.14	-	4.15	-23.5%
Other	1.43	2.51	39.71	-	43.65	-29.0%
<i>of which: residential</i>	0.07	0.49	32.80	-	33.36	x
<b>Reference Approach</b>	<b>5.75</b>	<b>9.23</b>	<b>100.04</b>	-	<b>115.02</b>	<b>-4.6%</b>
Diff. due to losses and/or transformation	0.06	0.18	3.65	-	3.88	
Statistical differences	0.00	-0.00	-0.00	-	-0.00	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	-	-	-	-	-

\*\* Other includes industrial waste and non-renewable municipal waste.

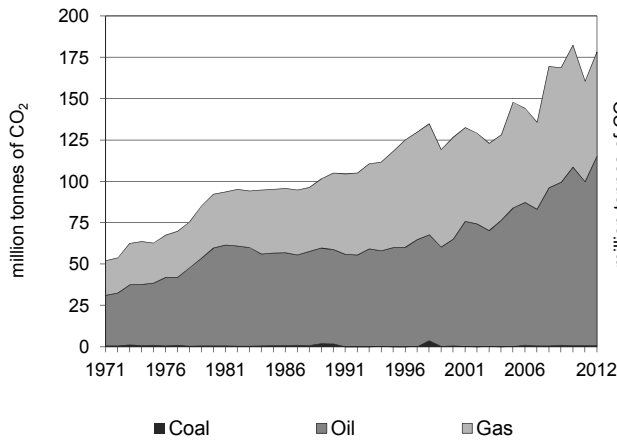
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Residential - gas	32.80	x	18.4	18.4
Main activity prod. elec. and heat - gas	32.13	18.4%	18.0	36.4
Manufacturing industries - gas	17.88	x	10.0	46.5
Non-specified other - gas	6.91	-85.0%	3.9	50.4
Road - oil	4.01	-26.1%	2.3	52.6
Main activity prod. elec. and heat - coal	3.89	-55.8%	2.2	54.8
Other energy industry own use - gas	3.41	41.1%	1.9	56.7
Other transport - gas	3.04	x	1.7	58.4
Non-specified other - oil	2.03	-80.8%	1.1	59.6
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>111.14</i>	<i>-7.3%</i>	<i>62.4</i>	<i>62.4</i>

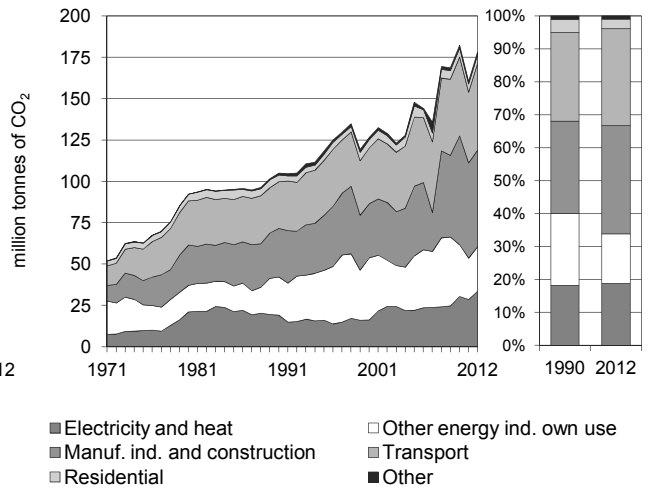
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Venezuela

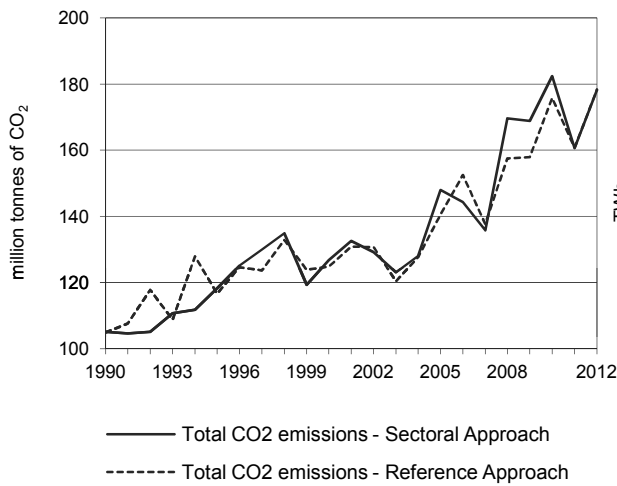
**Figure 1. CO<sub>2</sub> emissions by fuel**



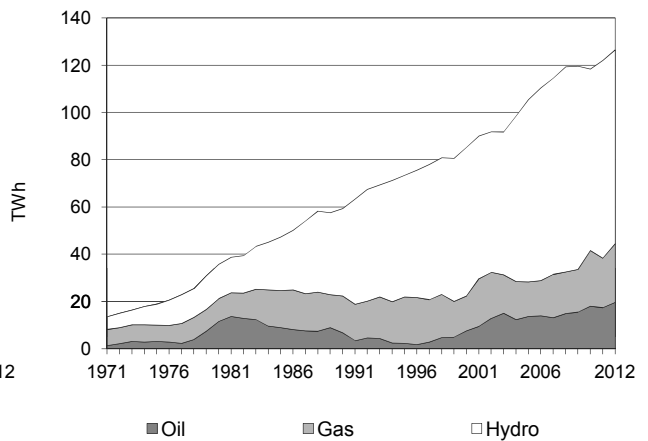
**Figure 2. CO<sub>2</sub> emissions by sector**



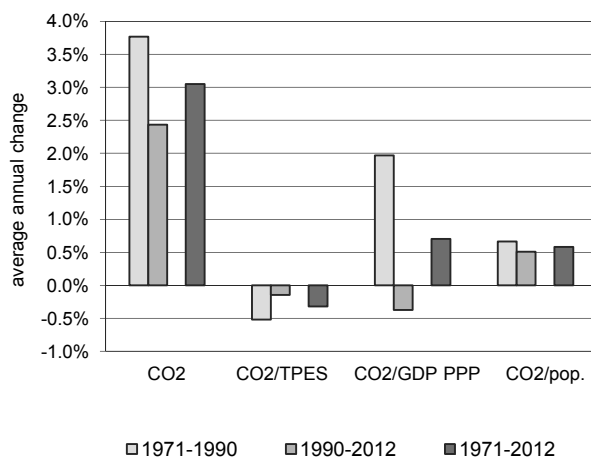
**Figure 3. Reference vs Sectoral Approach**



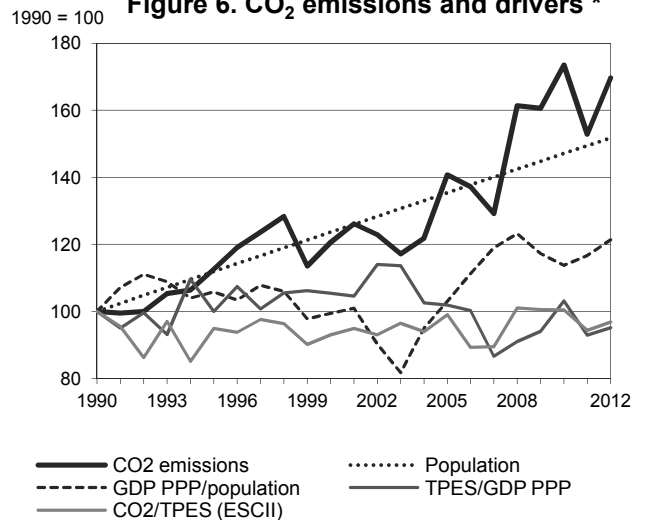
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Venezuela

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	105.09	118.29	126.74	147.94	182.35	160.64	178.28	69.6%
TPES (PJ)	1 825	2 163	2 365	2 595	3 151	2 955	3 198	75.2%
GDP (billion 2005 USD)	104.32	123.57	128.28	145.51	174.55	181.84	192.07	84.1%
GDP PPP (billion 2005 USD)	255.85	303.08	314.62	356.89	428.11	445.99	471.08	84.1%
Population (millions)	19.74	22.09	24.41	26.73	29.04	29.50	29.96	51.7%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	57.6	54.7	53.6	57.0	57.9	54.4	55.8	-3.2%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	1.01	0.96	0.99	1.02	1.04	0.88	0.93	-7.9%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.41	0.39	0.40	0.41	0.43	0.36	0.38	-7.9%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	5.32	5.35	5.19	5.54	6.28	5.45	5.95	11.8%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	113	121	141	174	153	170	69.6%
Population index	100	112	124	135	147	149	152	51.7%
GDP PPP per population index	100	106	99	103	114	117	121	21.3%
Energy intensity index - TPES / GDP PPP	100	100	105	102	103	93	95	-4.8%
Carbon intensity index - CO <sub>2</sub> / TPES	100	95	93	99	101	94	97	-3.2%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.82</b>	<b>114.43</b>	<b>63.03</b>	-	<b>178.28</b>	<b>69.6%</b>
Main activity producer elec. and heat	-	18.49	13.92	-	32.40	112.7%
Unallocated autoproducers	-	-	1.17	-	1.17	-70.0%
Other energy industry own use	-	10.80	16.11	-	26.91	16.9%
Manufacturing industries and construction	0.82	28.73	28.95	-	58.50	99.1%
Transport	-	52.33	0.02	-	52.34	85.2%
<i>of which: road</i>	-	52.33	-	-	52.33	85.3%
Other	-	4.08	2.86	-	6.95	31.6%
<i>of which: residential</i>	-	2.98	2.20	-	5.19	25.2%
<b>Reference Approach</b>	<b>0.82</b>	<b>114.47</b>	<b>63.03</b>	-	<b>178.32</b>	<b>69.9%</b>
Diff. due to losses and/or transformation	-	1.82	-	-	1.82	
Statistical differences	-	-1.78	-0.00	-	-1.78	
<i>Memo: international marine bunkers</i>	-	3.00	-	-	3.00	19.9%
<i>Memo: international aviation bunkers</i>	-	1.93	-	-	1.93	89.0%

\*\* Other includes industrial waste and non-renewable municipal waste.

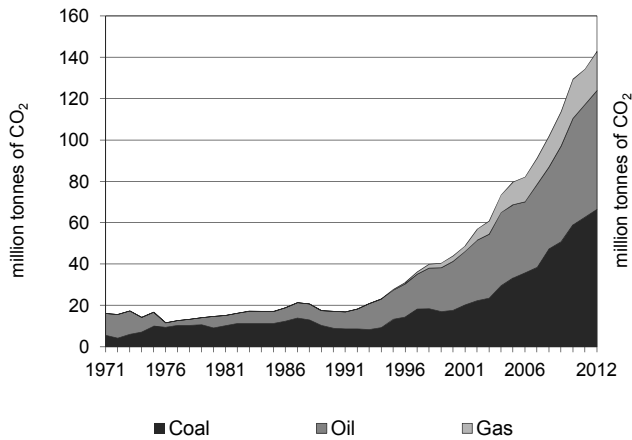
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	52.33	85.3%	19.9	19.9
Manufacturing industries - gas	28.95	60.2%	11.0	30.9
Manufacturing industries - oil	28.73	202.2%	10.9	41.8
Main activity prod. elec. and heat - oil	18.49	226.8%	7.0	48.9
Other energy industry own use - gas	16.11	16.8%	6.1	55.0
Main activity prod. elec. and heat - gas	13.92	45.3%	5.3	60.3
Other energy industry own use - oil	10.80	17.1%	4.1	64.4
Residential - oil	2.98	-19.4%	1.1	65.5
Residential - gas	2.20	402.0%	0.8	66.4
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>178.28</i>	<i>69.6%</i>	<i>67.8</i>	<i>67.8</i>

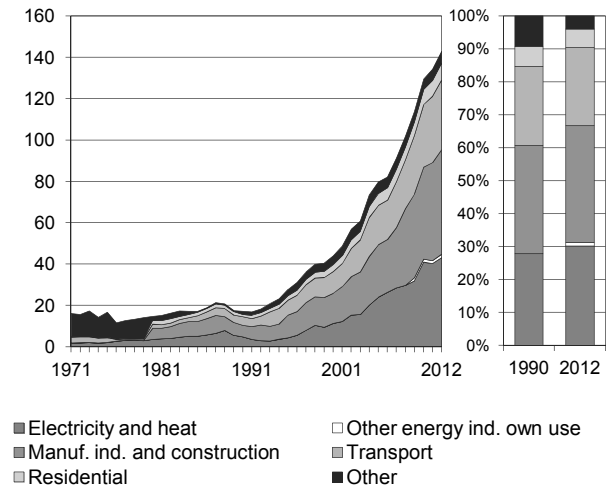
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

### Viet Nam \*

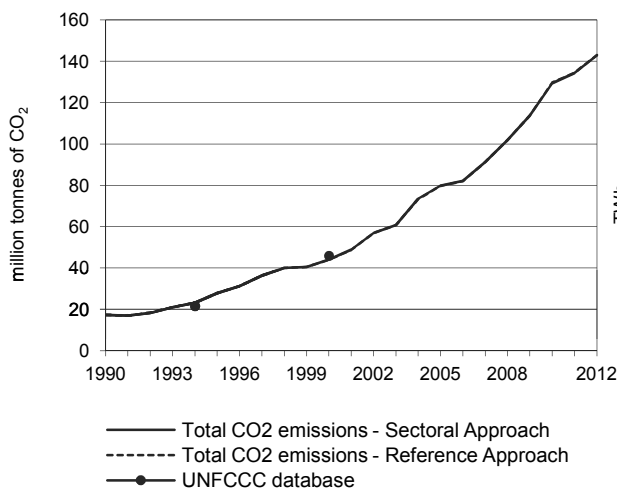
**Figure 1. CO<sub>2</sub> emissions by fuel**



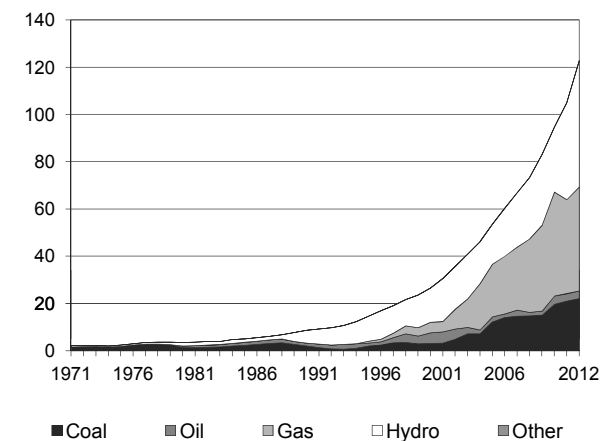
**Figure 2. CO<sub>2</sub> emissions by sector**



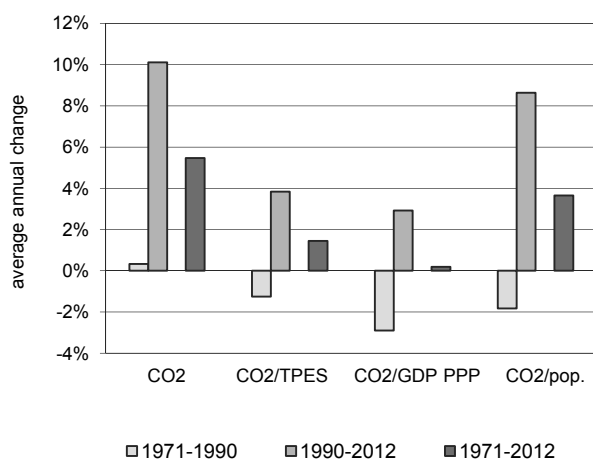
**Figure 3. Reference vs Sectoral Approach**



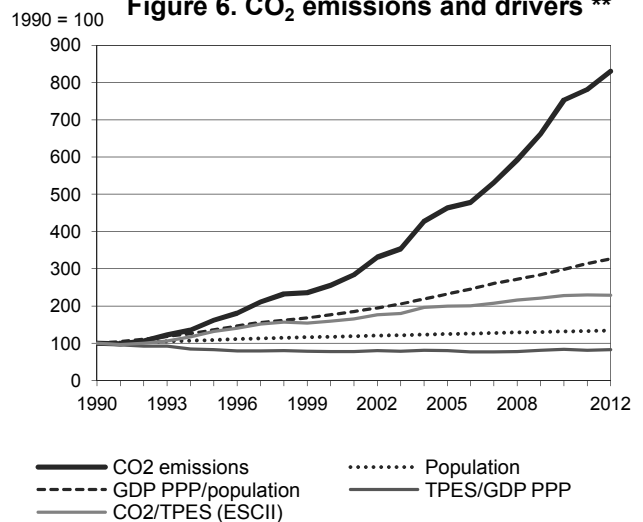
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \*\***



**Figure 6. CO<sub>2</sub> emissions and drivers \*\***



\* A detailed sectoral breakdown is available starting in 1980.

\*\* Based on GDP in 2005 USD, using purchasing power parities.

## Viet Nam

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	17.20	27.79	44.01	79.75	129.43	134.32	142.85	730.6%
TPES (PJ)	748	916	1 203	1 736	2 467	2 547	2 715	263.0%
GDP (billion 2005 USD)	19.89	29.51	41.29	57.63	78.28	83.17	87.53	340.0%
GDP PPP (billion 2005 USD)	88.34	131.03	183.36	255.95	347.65	369.34	388.72	340.0%
Population (millions)	66.02	72.00	77.63	82.39	86.93	87.84	88.77	34.5%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	23.0	30.3	36.6	46.0	52.5	52.7	52.6	128.8%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.86	0.94	1.07	1.38	1.65	1.62	1.63	88.8%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.19	0.21	0.24	0.31	0.37	0.36	0.37	88.8%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.26	0.39	0.57	0.97	1.49	1.53	1.61	517.7%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	162	256	464	753	781	831	730.6%
Population index	100	109	118	125	132	133	134	34.5%
GDP PPP per population index	100	136	177	232	299	314	327	227.2%
Energy intensity index - TPES / GDP PPP	100	83	77	80	84	81	82	-17.5%
Carbon intensity index - CO <sub>2</sub> / TPES	100	132	159	200	228	229	229	128.8%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>66.52</b>	<b>57.45</b>	<b>18.89</b>	-	<b>142.85</b>	<b>730.6%</b>
Main activity producer elec. and heat	21.23	1.75	17.15	-	40.13	737.3%
Unallocated autoproducers	0.53	1.90	0.59	-	3.01	x
Other energy industry own use	-	1.57	-	-	1.57	x
Manufacturing industries and construction	37.61	11.81	1.15	-	50.57	796.3%
Transport	-	33.80	-	-	33.80	719.8%
<i>of which: road</i>	-	32.95	-	-	32.95	779.4%
Other	7.16	6.62	-	-	13.77	421.5%
<i>of which: residential</i>	5.43	2.69	-	-	8.11	662.7%
<b>Reference Approach</b>	<b>66.52</b>	<b>57.65</b>	<b>18.89</b>	-	<b>143.06</b>	<b>731.5%</b>
Diff. due to losses and/or transformation	-	0.21	-	-	0.21	
Statistical differences	0.00	-0.01	-0.00	-	-0.00	
<i>Memo: international marine bunkers</i>	-	1.14	-	-	1.14	+
<i>Memo: international aviation bunkers</i>	-	2.25	-	-	2.25	x

\*\* Other includes industrial waste and non-renewable municipal waste.

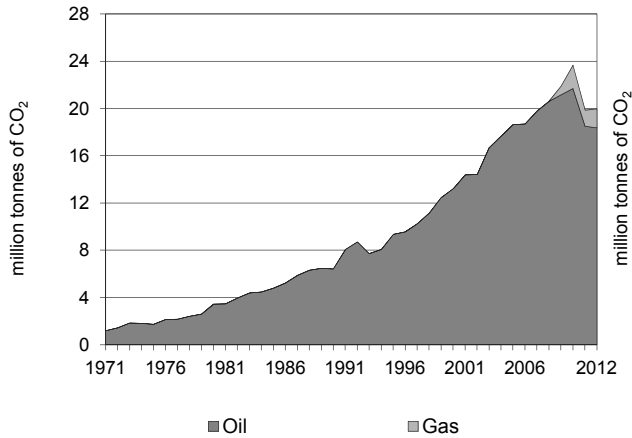
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Manufacturing industries - coal	37.61	805.8%	11.5	11.5
Road - oil	32.95	779.4%	10.0	21.5
Main activity prod. elec. and heat - coal	21.23	492.8%	6.5	28.0
Main activity prod. elec. and heat - gas	17.15	+	5.2	33.2
Manufacturing industries - oil	11.81	692.9%	3.6	36.8
Residential - coal	5.43	549.7%	1.7	38.5
Non-specified other - oil	3.93	216.7%	1.2	39.7
Residential - oil	2.69	+	0.8	40.5
Unallocated autoproducers - oil	1.90	x	0.6	41.1
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>142.85</i>	<i>730.6%</i>	<i>43.5</i>	<i>43.5</i>

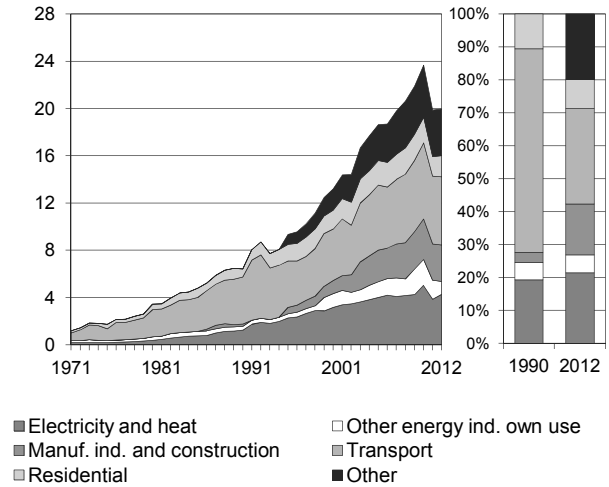
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Yemen

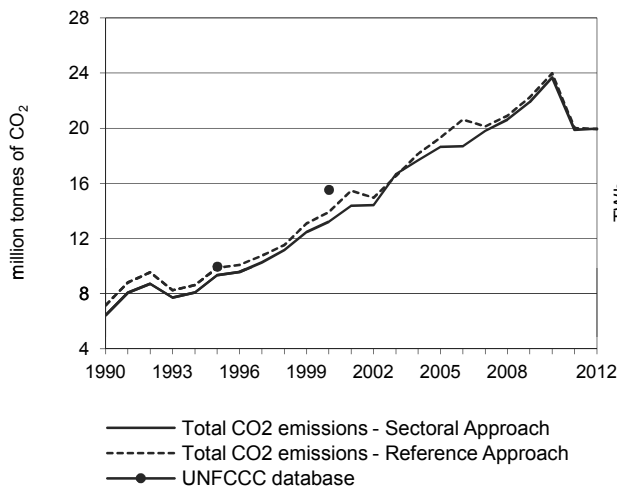
**Figure 1. CO<sub>2</sub> emissions by fuel**



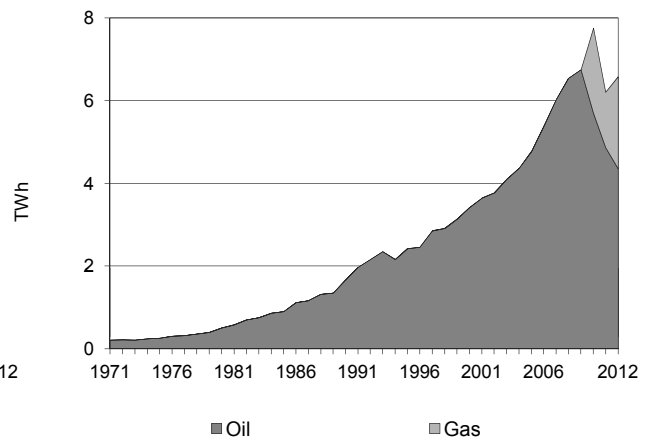
**Figure 2. CO<sub>2</sub> emissions by sector**



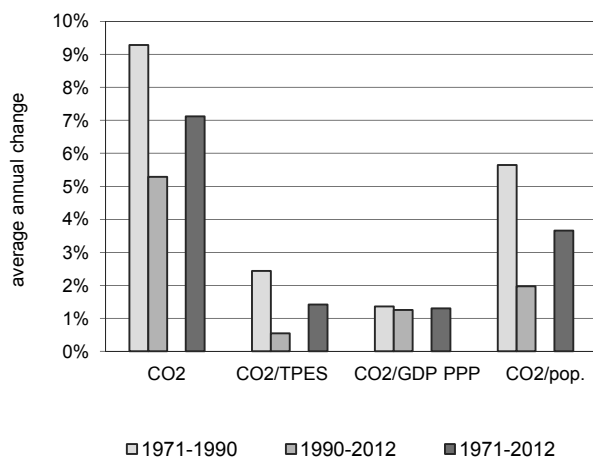
**Figure 3. Reference vs Sectoral Approach**



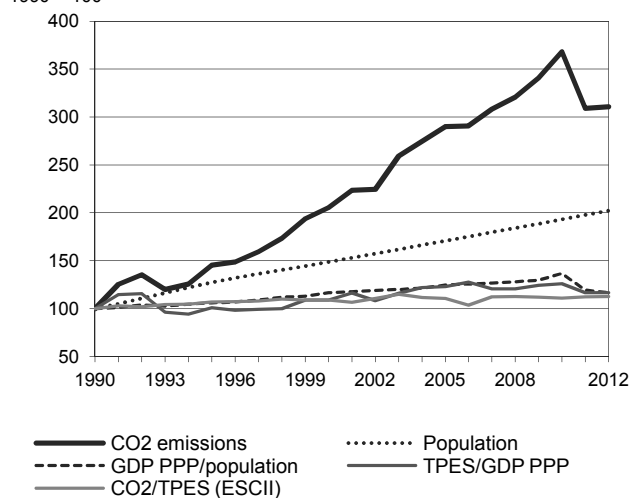
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Yemen

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	6.43	9.34	13.21	18.65	23.68	19.87	19.97	210.6%
TPES (PJ)	105	143	199	276	350	290	290	175.5%
GDP (billion 2005 USD)	7.86	10.60	13.63	16.75	20.71	18.54	18.57	136.3%
GDP PPP (billion 2005 USD)	35.96	48.52	62.40	76.68	94.79	84.86	84.97	136.3%
Population (millions)	11.79	15.02	17.52	20.14	22.76	23.30	23.85	102.3%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	61.1	65.3	66.5	67.6	67.7	68.5	68.9	12.8%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.82	0.88	0.97	1.11	1.14	1.07	1.08	31.5%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.18	0.19	0.21	0.24	0.25	0.23	0.24	31.4%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.55	0.62	0.75	0.93	1.04	0.85	0.84	53.5%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	145	205	290	368	309	311	210.6%
Population index	100	127	149	171	193	198	202	102.3%
GDP PPP per population index	100	106	117	125	137	119	117	16.8%
Energy intensity index - TPES / GDP PPP	100	101	109	123	126	117	117	16.6%
Carbon intensity index - CO <sub>2</sub> / TPES	100	107	109	111	111	112	113	12.8%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	-	<b>18.38</b>	<b>1.59</b>	-	<b>19.97</b>	<b>210.6%</b>
Main activity producer elec. and heat	-	2.61	1.22	-	3.83	317.1%
Unallocated autoproducers	-	0.45	-	-	0.45	38.6%
Other energy industry own use	-	0.74	0.36	-	1.10	224.6%
Manufacturing industries and construction	-	3.07	-	-	3.07	+
Transport	-	5.78	-	-	5.78	45.5%
<i>of which: road</i>	-	5.78	-	-	5.78	45.5%
Other	-	5.74	-	-	5.74	744.6%
<i>of which: residential</i>	-	1.79	-	-	1.79	163.8%
<b>Reference Approach</b>	-	<b>18.33</b>	<b>1.59</b>	-	<b>19.92</b>	<b>178.8%</b>
Diff. due to losses and/or transformation	-	-0.03	-	-	-0.03	
Statistical differences	-	-0.02	-0.00	-	-0.02	
<i>Memo: international marine bunkers</i>	-	0.30	-	-	0.30	-76.1%
<i>Memo: international aviation bunkers</i>	-	0.13	-	-	0.13	-27.2%

\*\* Other includes industrial waste and non-renewable municipal waste.

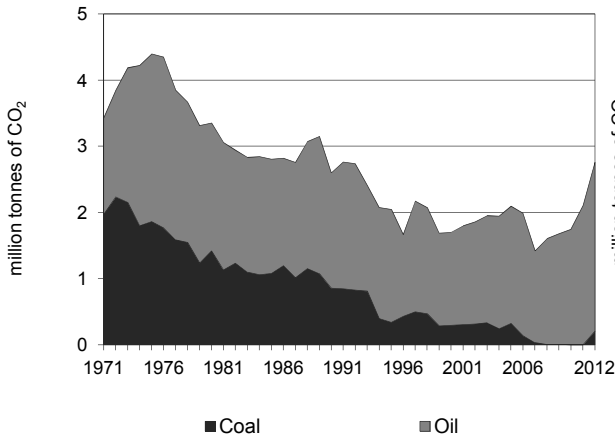
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Road - oil	5.78	45.5%	16.0	16.0
Non-specified other - oil	3.95	x	10.9	26.9
Manufacturing industries - oil	3.07	+	8.5	35.4
Main activity prod. elec. and heat - oil	2.61	183.8%	7.2	42.6
Residential - oil	1.79	163.8%	5.0	47.6
Main activity prod. elec. and heat - gas	1.22	x	3.4	51.0
Other energy industry own use - oil	0.74	117.2%	2.0	53.0
Unallocated autoproducers - oil	0.45	38.6%	1.2	54.2
Other energy industry own use - gas	0.36	x	1.0	55.2
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>19.97</i>	<i>210.6%</i>	<i>55.2</i>	<i>55.2</i>

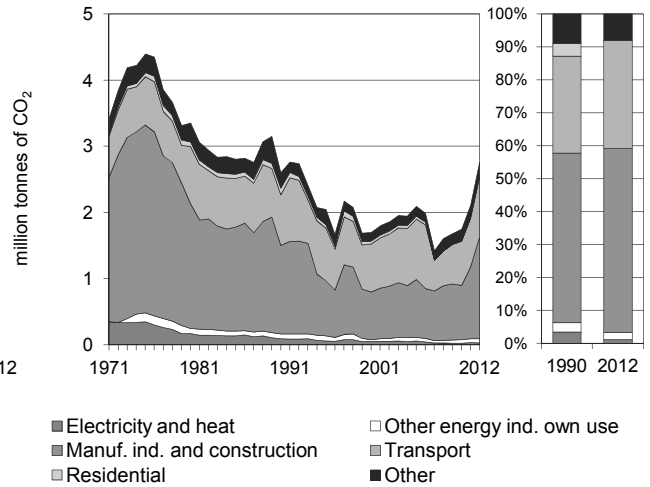
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Zambia

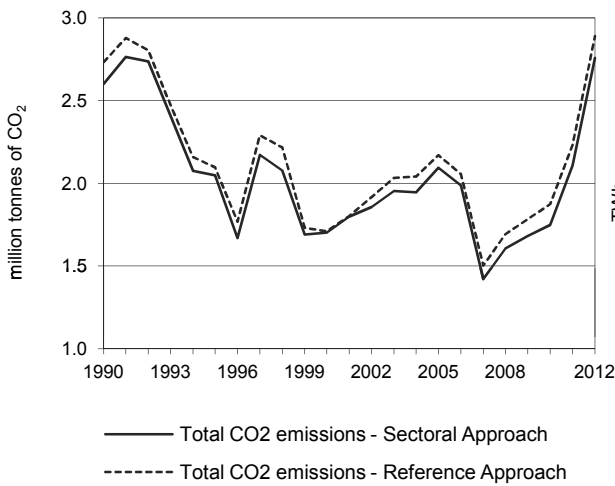
**Figure 1. CO<sub>2</sub> emissions by fuel**



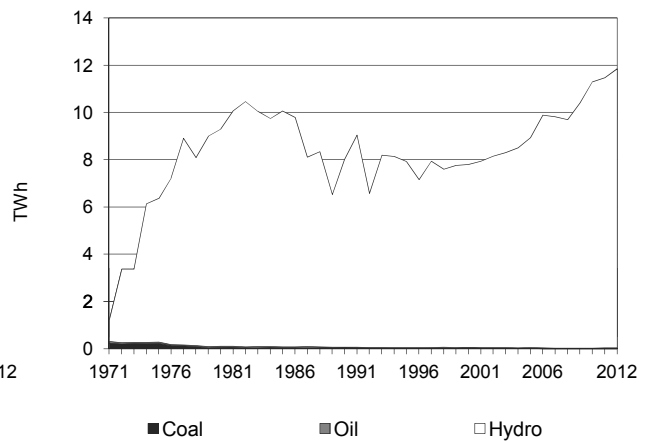
**Figure 2. CO<sub>2</sub> emissions by sector**



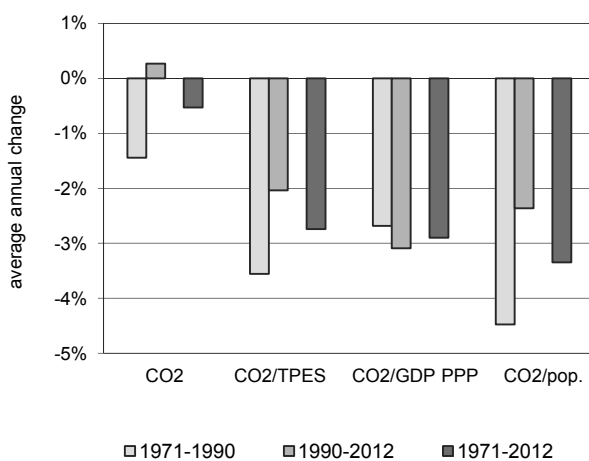
**Figure 3. Reference vs Sectoral Approach**



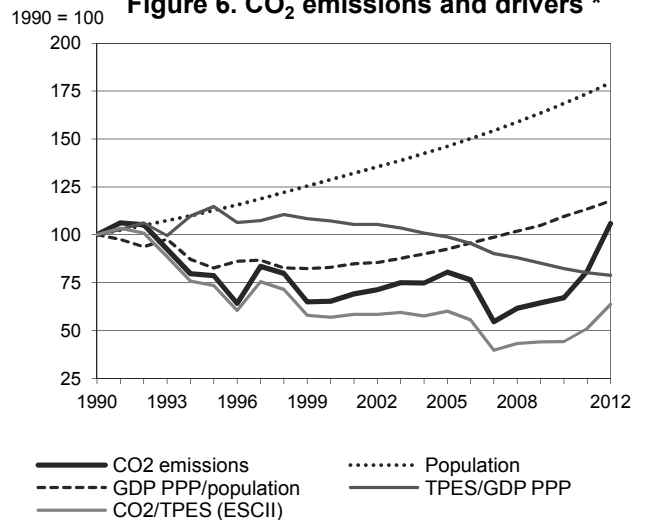
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.

## Zambia

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	2.60	2.05	1.70	2.09	1.75	2.11	2.76	6.0%
TPES (PJ)	228	244	262	305	347	361	380	66.6%
GDP (billion 2005 USD)	5.31	4.95	5.68	7.18	9.80	10.47	11.23	111.5%
GDP PPP (billion 2005 USD)	17.74	16.53	18.96	23.99	32.75	34.99	37.52	111.4%
Population (millions)	7.85	8.84	10.10	11.47	13.22	13.63	14.08	79.4%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	11.4	8.4	6.5	6.9	5.0	5.8	7.3	-36.4%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.49	0.41	0.30	0.29	0.18	0.20	0.25	-49.9%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.15	0.12	0.09	0.09	0.05	0.06	0.07	-49.9%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	0.33	0.23	0.17	0.18	0.13	0.15	0.20	-40.9%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	79	65	80	67	81	106	6.0%
Population index	100	113	129	146	168	174	179	79.4%
GDP PPP per population index	100	83	83	92	110	113	118	17.9%
Energy intensity index - TPES / GDP PPP	100	115	107	99	82	80	79	-21.2%
Carbon intensity index - CO <sub>2</sub> / TPES	100	74	57	60	44	51	64	-36.4%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>0.21</b>	<b>2.55</b>	-	-	<b>2.76</b>	<b>6.0%</b>
Main activity producer elec. and heat	-	0.03	-	-	0.03	42.9%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industry own use	-	0.06	-	-	0.06	-16.9%
Manufacturing industries and construction	0.21	1.33	-	-	1.54	15.0%
Transport	-	0.90	-	-	0.90	18.0%
<i>of which: road</i>	-	0.86	-	-	0.86	25.2%
Other	-	0.22	-	-	0.22	-33.2%
<i>of which: residential</i>	-	-	-	-	-	-100.0%
<b>Reference Approach</b>	<b>0.21</b>	<b>2.68</b>	-	-	<b>2.89</b>	<b>5.7%</b>
Diff. due to losses and/or transformation	-	0.14	-	-	0.14	
Statistical differences	-	-0.00	-	-	-0.00	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.15	-	-	0.15	-22.2%

\*\* Other includes industrial waste and non-renewable municipal waste.

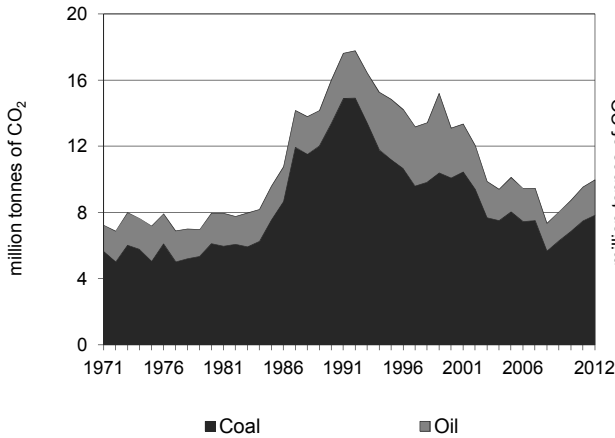
### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Manufacturing industries - oil	1.33	112.9%	7.1	7.1
Road - oil	0.86	25.2%	4.6	11.7
Non-specified other - oil	0.22	47.0%	1.2	12.9
Manufacturing industries - coal	0.21	-71.1%	1.1	14.0
Other energy industry own use - oil	0.06	-16.9%	0.3	14.4
Other transport - oil	0.05	-42.4%	0.3	14.6
Main activity prod. elec. and heat - oil	0.03	42.9%	0.2	14.8
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>2.76</i>	<i>6.0%</i>	<i>14.8</i>	<i>14.8</i>

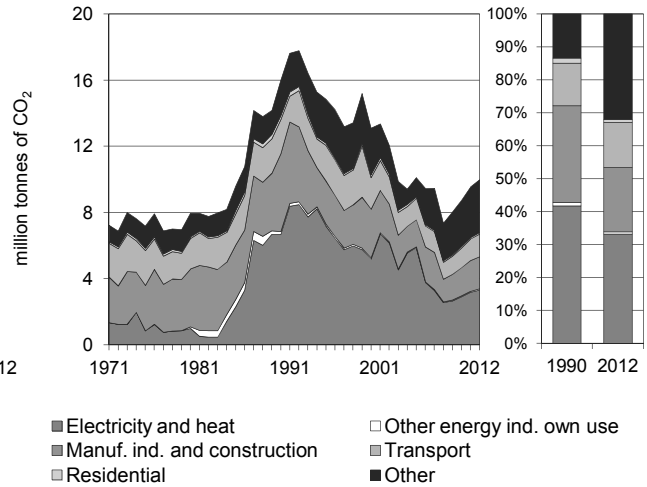
\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.

## Zimbabwe

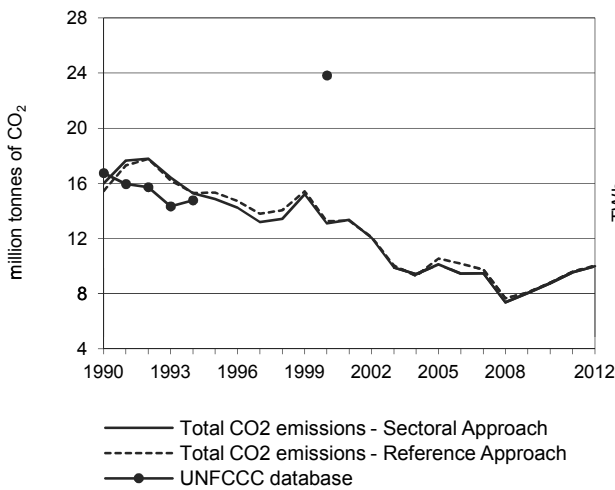
**Figure 1. CO<sub>2</sub> emissions by fuel**



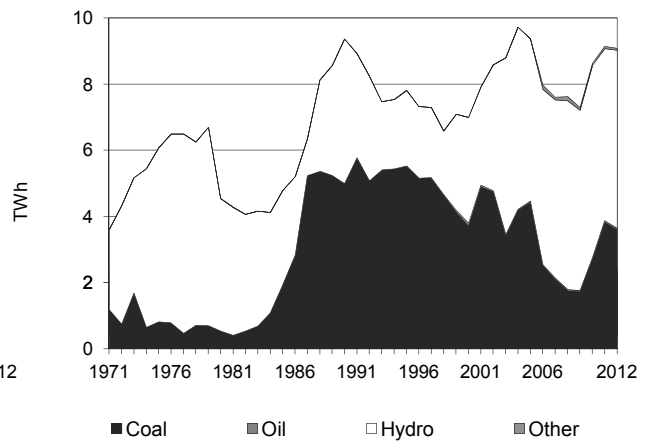
**Figure 2. CO<sub>2</sub> emissions by sector**



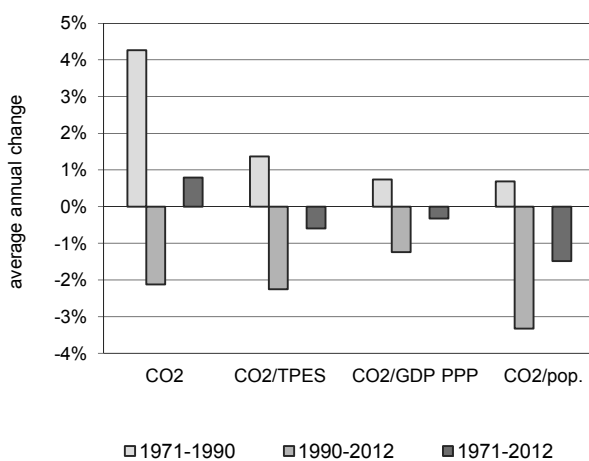
**Figure 3. Reference vs Sectoral Approach**



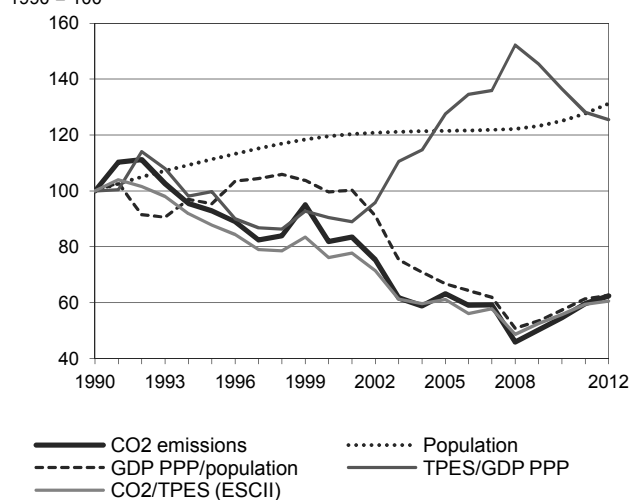
**Figure 4. Electricity generation by fuel**



**Figure 5. Changes in selected indicators \***



**Figure 6. CO<sub>2</sub> emissions and drivers \***



\* Based on GDP in 2005 USD, using purchasing power parities.



## Zimbabwe

### Key indicators

	1990	1995	2000	2005	2010	2011	2012	% change 90-12
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	16.00	14.85	13.10	10.12	8.74	9.54	9.98	-37.6%
TPES (PJ)	389	412	419	403	381	391	401	3.0%
GDP (billion 2005 USD)	7.10	7.54	8.45	5.76	5.09	5.57	5.83	-17.9%
GDP PPP (billion 2005 USD)	4.80	5.10	5.71	3.89	3.44	3.76	3.94	-17.9%
Population (millions)	10.46	11.64	12.50	12.71	13.08	13.36	13.72	31.2%
CO <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	41.1	36.0	31.3	25.1	22.9	24.4	24.9	-39.5%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	2.25	1.97	1.55	1.76	1.72	1.71	1.71	-24.0%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	3.33	2.91	2.29	2.60	2.54	2.53	2.53	-24.0%
CO <sub>2</sub> / population (tCO <sub>2</sub> per capita)	1.53	1.28	1.05	0.80	0.67	0.71	0.73	-52.5%
<b>CO<sub>2</sub> emissions and drivers - Kaya decomposition (1990=100) *</b>								
CO <sub>2</sub> emissions index	100	93	82	63	55	60	62	-37.6%
Population index	100	111	120	121	125	128	131	31.2%
GDP PPP per population index	100	95	100	67	57	61	63	-37.4%
Energy intensity index - TPES / GDP PPP	100	100	90	128	137	128	126	25.5%
Carbon intensity index - CO <sub>2</sub> / TPES	100	88	76	61	56	59	61	-39.5%

\* Please see Part I, Chapter 1 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

### 2012 CO<sub>2</sub> emissions by sector

<i>million tonnes of CO<sub>2</sub></i>	Coal	Oil	Natural gas	Other **	Total	% change 90-12
<b>Sectoral Approach</b>	<b>7.84</b>	<b>2.14</b>	-	-	<b>9.98</b>	<b>-37.6%</b>
Main activity producer elec. and heat	3.20	0.06	-	-	3.25	-51.3%
Unallocated autoproducers	0.07	-	-	-	0.07	x
Other energy industry own use	0.06	-	-	-	0.06	-61.9%
Manufacturing industries and construction	1.68	0.27	-	-	1.95	-58.6%
Transport	0.06	1.30	-	-	1.36	-34.1%
<i>of which: road</i>	-	1.23	-	-	1.23	-7.0%
Other	2.78	0.51	-	-	3.29	37.8%
<i>of which: residential</i>	-	0.09	-	-	0.09	-61.7%
<b>Reference Approach</b>	<b>7.89</b>	<b>2.14</b>	-	-	<b>10.02</b>	<b>-35.1%</b>
Diff. due to losses and/or transformation	0.12	-	-	-	0.12	
Statistical differences	-0.07	-	-	-	-0.07	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.03	-	-	0.03	-88.6%

\*\* Other includes industrial waste and non-renewable municipal waste.

### Key sources for CO<sub>2</sub> emissions from fuel combustion in 2012

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% change 90-12	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal	3.20	-52.2%	13.8	13.8
Non-specified other sectors - coal	2.78	77.5%	12.0	25.8
Manufacturing industries - coal	1.68	-61.3%	7.2	33.1
Road - oil	1.23	-7.0%	5.3	38.4
Non-specified other - oil	0.41	-28.1%	1.8	40.2
Manufacturing industries - oil	0.27	-27.2%	1.2	41.3
Residential - oil	0.09	-21.1%	0.4	41.7
Other transport - oil	0.07	-69.3%	0.3	42.0
Unallocated autoproducers - coal	0.07	x	0.3	42.3
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<b>9.98</b>	<b>-37.6%</b>	<b>43.1</b>	<b>43.1</b>

\*\*\* Percent calculated using the total GHG estimate excluding CO<sub>2</sub> emissions/removals from land use change and forestry.



# **PART III:**

# **TOTAL GREENHOUSE GAS EMISSIONS**



# 1. TRENDS IN GHG EMISSIONS

CO<sub>2</sub> emissions from fuel combustion represent the majority of anthropogenic GHG emissions. However, comprehensive analysis of emission trends considers other sources of CO<sub>2</sub> as well as other gases, knowing that data on gases and sources other than CO<sub>2</sub> from fuel combustion are much more uncertain. Country-specific estimates of CO<sub>2</sub> from biomass burning and F-gas emissions are particularly difficult to ascertain.

To complement work regarding the emissions of CO<sub>2</sub> from fuel combustion, the IEA choose to include the EDGAR data on other CO<sub>2</sub> sources and on five other greenhouse gases: CH<sub>4</sub>, N<sub>2</sub>O and the fluorinated gases (or “F-gases”) HFCs, PFCs and SF<sub>6</sub>. These gases are addressed by the Kyoto Protocol.

The information in Part III (with the exception of CO<sub>2</sub> emissions from fuel combustion) has been provided by Jos G.J. Olivier from the PBL Netherlands Environmental Assessment Agency and Greet Janssens-Maenhout leading the EDGAR team of the Joint Research Centre (JRC) of the European Commission, using the EDGAR 4.2 FT2010 database developed jointly by JRC and PBL. Please see Chapter 2 for further details on data sources and methodology.

Please note that the greenhouse gas emissions totals presented here will differ with those shown in countries’ official national greenhouse gas inventory submissions to the UNFCCC Secretariat. This is primarily due to differences in coverage for the category *Other*. However, differences also occur due to differences in allocation, methodologies and underlying data sources for activities and emission factors, as specified in Part 3, Chapter 2: *Sources and methods*. Details on possible differences between IEA and UNFCCC CO<sub>2</sub> emissions from fuel combustion estimates can be found in Part I, Chapter 1: *IEA Emissions Estimates*. Details on causes of differences in other GHG emission sources can be found in Part III, Chapter 2: *Sources and methods*.

## Global and regional trends

Dominated by emissions related to fossil fuels, total emissions of all greenhouse gases - weighted by their GWP<sup>1</sup> - increased by about 80% since 1970 (Figure 1). Significant increases were observed for all gases: CO<sub>2</sub>, including large-scale biomass burning of forests and biomass decay (107%); CH<sub>4</sub> (47%), N<sub>2</sub>O (43%), and the F-gases (about 700%).

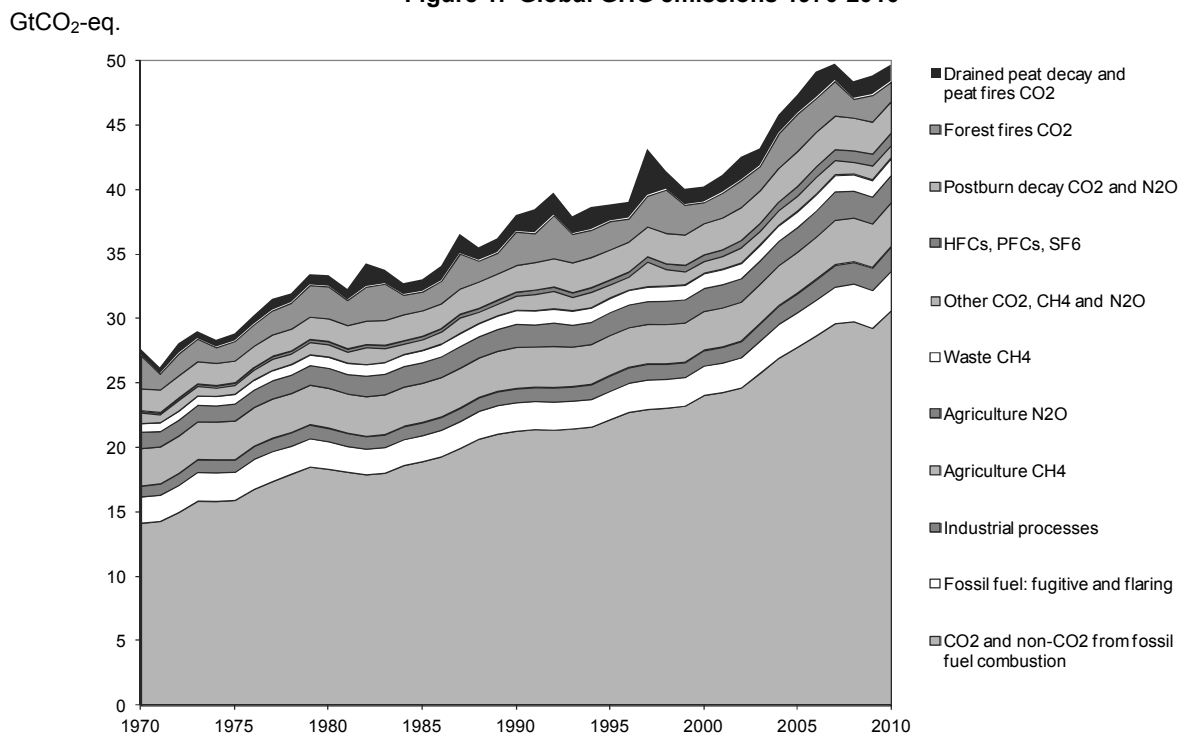
Global total GHG emissions increased by 31% during the period 1990-2010, driven again by a 44% growth in CO<sub>2</sub> emissions from fuel combustion. Over the

same period, although highly variable over time, CO<sub>2</sub> emissions from biomass burning and post-burn decay – based on satellite observations – are assumed to have decreased by about 10% with CO<sub>2</sub> from decay of drained peatland increasing by 18%. Increases in CO<sub>2</sub> emissions from cement production (120%), CH<sub>4</sub> emissions from fossil fuel production (44%) and from waste (21%), N<sub>2</sub>O emissions from agriculture (20%), and the F-gases (about 225%, mainly from HFC use) also contributed to the total increase. The F-gases doubled their share of global emissions from 1% in 1990 to 2% in 2010.

The picture varies significantly across regions and gases. In 2010, most **methane** emissions originated in non-Annex I regions such as Asia (42%), including China (21%), and Latin America (12%). Emissions from Annex I countries contributed 26% of total

1. Global Warming Potential: see Box 1.

Figure 1. Global GHG emissions 1970-2010



Sources: IEA for CO<sub>2</sub> from fuel combustion and JRC/PBL (2012) [EDGAR 4.2 FT2010] for all other sources.

emissions, with the largest contribution coming from the Annex I members of the Former Soviet Union (8%) and North America (8%).

For methane, emissions from animals and their waste dominate sources in Latin America and South Asia, while emissions from rice cultivation are common in South, East and Southeast Asia. Coal production emissions are concentrated in East Asia (mainly China), North America, and Other Europe and Eurasia, while emissions from gas systems are concentrated in the Former Soviet Union countries and North America. Methane from landfills stems mainly from Annex I countries, whereas methane emissions from wastewater disposal originate predominantly in non-Annex I countries.

Non-Annex I regions produced three-quarters of global **nitrous oxide** emissions in 2010: Asia (36%) including China (18%), Africa (19%) and Latin America (14%). N<sub>2</sub>O emissions from Annex I countries contributed 27% to the global total, with most emissions originating in North America (11%) and OECD Europe (9%).

Of all N<sub>2</sub>O sources, animal waste emissions occur predominantly in the non-Annex I regions of Latin America, Africa and South Asia; from fertiliser use is largest in East Asia (mainly China) and Latin America followed by North America, Annex II Europe and

South Asia (mainly India). N<sub>2</sub>O emissions from crop production are largest in North America, Latin America, South Asia and East Asia. Industrial processes also emit significant volumes of N<sub>2</sub>O.

The shares of Annex I countries in total CH<sub>4</sub> and total N<sub>2</sub>O emissions (26% and 27% respectively) were relatively low compared to their share in global CO<sub>2</sub> emissions (38%).

In 2010, most **fluorinated gas** emissions originated in Annex I countries (66%), with North America contributing 38%, OECD Europe 13%, OECD Asia Oceania 9% and Other Europe and Eurasia 7%. Non Annex I countries contributed about 34% to global F-gas emissions.

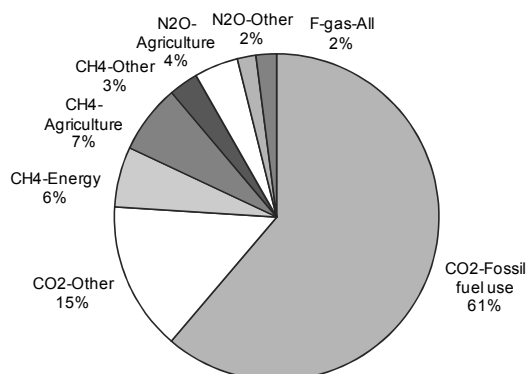
## Trends by gas

In 2010, CO<sub>2</sub> contributed 76% of global GHG emissions, CH<sub>4</sub> about 16%, N<sub>2</sub>O about 6% and the combined F-gases about 2% (Figure 2). The largest sources of GHG emissions were the energy sector (69%, mainly CO<sub>2</sub> fossil fuel use), and agriculture (11%, mainly CH<sub>4</sub> and N<sub>2</sub>O). Other sources of greenhouse gases were CO<sub>2</sub> from biomass burning (10%, mostly forest and peat fires and post-burn decay in

non-Annex I countries), and CO<sub>2</sub> from cement production (3%, of which 54% originated in China).

Please note that emissions from forest and peat fires are highly variable over the years.

**Figure 2. Global GHG emissions by gas/source in 2010**



## CO<sub>2</sub> emission trends

Energy dominates the trend in CO<sub>2</sub> emissions, accounting for 82% of the global total CO<sub>2</sub> emissions in 2010 including non-energy uses. About 10 percentage points higher than in 1970, this share now varies between 90-99% in most Annex I countries. Within non-Annex I countries, the energy share in CO<sub>2</sub> emissions varies more widely. Indeed, in some African, Latin American and Asian countries, it can be lower than 10%.

Over the 1990-2010 period, total fossil fuel combustion emissions of CO<sub>2</sub> increased about 45% worldwide (by about 146% in non-Annex I countries while decreasing 3% in Annex I countries). Emissions from electricity and heat production and from road transport dominated global trends. Between 1990 and 2010, CO<sub>2</sub> emissions from electricity and heat production increased by 18% for Annex II countries and by 109% in the rest of the world. Over the same period, road transport emissions rose 23% in Annex II countries and 124% in the other countries. By 2010, these two sectors together accounted for 58% of global total CO<sub>2</sub> emissions from fuel combustion. The introduction at the beginning of this publication provides a more complete discussion of CO<sub>2</sub> emissions in 2012 and the trends in energy-related CO<sub>2</sub> emissions.

In 2010, the highly variable emissions from deforestation (i.e. forest fires) plus from decay of drained peatland accounted for about 7% of global CO<sub>2</sub> emissions (or about 13% including indirect CO<sub>2</sub> emissions from post-burn decay of remaining aboveground biomass). According to satellite observations the share of deforestation in global emissions was about 18% in the

## Box 1: Global Warming Potential

The contribution of non-CO<sub>2</sub> gases to total emissions can be estimated by expressing the emissions of all the gases in CO<sub>2</sub>-equivalent units. For a given gas, emissions expressed in mass are multiplied by its specific weighting factor, the Global Warming Potential (GWP). The GWP is an estimate of the relative contribution of a kilogramme of that gas to global radiative forcing, as compared to the same amount of CO<sub>2</sub>, integrated over a fixed period of time (e.g. 100 years).

In this chapter we follow the UN Framework Convention on Climate Change (UNFCCC), that presently uses GWP values from the *Second Assessment Report (SAR)* of the Intergovernmental Panel on Climate Change (IPCC), for reporting total greenhouse gas emissions: 100-year GWPs of 21 for CH<sub>4</sub>, 310 for N<sub>2</sub>O and 23 900 for SF<sub>6</sub>. For the most common HFCs, GWPs vary between 140 and 3 000 (1 300 for HFC-134a). For the by-product HFC-23, the GWP is 11 700. The GWPs for PFCs vary between 6 500 (CF<sub>4</sub>) to 9 200 (C<sub>2</sub>F<sub>6</sub>). These two PFCs, the ones most commonly used, are also significant sources of by-product emissions. The GHG data in this chapter are all expressed in CO<sub>2</sub>-equivalents using these GWP values.

However, the Parties to the Climate Convention have decided to use for their emissions inventory reporting from 2015 onwards the updated GWP values from IPCC's *Fourth Assessment Report*. These values give 19% more weight to CH<sub>4</sub> with a new GWP value of 25, whereas for N<sub>2</sub>O a 4% lower value of 298 is used. For F-gases most GWP values have increased, e.g. by 10% for HFC-134a and by 26% for HFC-23.

In particular the new GWP value for CH<sub>4</sub> impacts the total GHG emissions trend and the share of the sources. Using the new GWP values increases the share of total CH<sub>4</sub> emissions in 2010 by 2.5% points (from 15.8% to 18.3%) while the share of CO<sub>2</sub> from fossil fuels decreases by 1.6% points (from 61.2% to 59.6%).

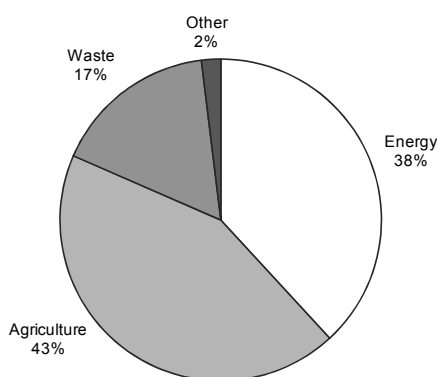
1970s, 1980s and 1990s. Since 2000, however, this share has decreased due to rapidly increasing emissions from fossil fuel combustion. In 2010, CO<sub>2</sub> emissions from cement clinker production – excluding fossil fuel use – represented almost 4% of total emissions worldwide. Between 1990 and 2010, CO<sub>2</sub> from cement production increased by more than 150%.

### CH<sub>4</sub> emission trends

As seen in Figure 3, on an individual gas basis, the major global sources for **methane** (CH<sub>4</sub>) in 2010 were:

- agriculture (43%), mainly from enteric fermentation by animals and animal waste, from rice cultivation and from savannah burning;
- energy production and transmission (38%), mainly from coal production, and gas production and transmission;
- waste (17%), from landfills and wastewater.

**Figure 3. Global CH<sub>4</sub> emissions in 2010**



Between 1970 and 2010, global methane emissions increased by almost half. In the 1970s emissions increased with an average growth rate of 1.3% per year. In the 1980s, this growth rate slowed down to an average 1.1% per year, determined mainly by growth of emissions in Other Europe and Eurasia from gas production and transmission and in East Asia from coal production (Figure 6). In addition, enteric fermentation by ruminants and waste and wastewater disposal contributed to the increased emissions, particularly in non-Annex I regions. Emissions from rice cultivation are estimated to have decreased due to changes in types of rice grown and to other organic amendment practices. Furthermore, coal production shifted to incorporate more surface mining, which releases much less methane than underground mines.

In the 1990s, an average decrease of 0.2% per year was observed. The economic decline of FSU countries in the early 1990s strongly influenced this global methane trend. Their emissions from coal production, from gas transmission and from animals (enteric fermentation) decreased substantially between 1990 and 1995. It should be stressed, however, that detailed statistics for this region are uncertain over this period. Despite the overall decline in the 1990s, increases were observed regionally: from gas production (particularly in the Middle East and North America), from waste handling (landfills in Latin America and wastewater in South Asia), from large-scale biomass burning in developing countries and from coal production in China. These increases were partially offset by decreases in fugitive emissions from coal production and CH<sub>4</sub> emissions from animals in EIT countries.

Since 2000, emissions started increasing again, with an average growth rate of 1.9% per year, which has meant that since 2002, the emissions increased faster than in the last four decades. This led to a global increase of about 20% over the period 2000-2010, driven by increased coal mining by the top methane-emitting country China (+50%) and increased cattle numbers in Brazil (+23%).

Between 1990 and 2010, country-specific trends of activity data and emission factors lead to an increase of global total methane emissions of about 17%. During this period, emissions in non-Annex I countries increased about 38%, with the largest absolute growth occurring in Asia and Africa. Emissions in Annex I countries decreased by 18%, mainly driven by the countries of the Former Soviet Union. Annex II emissions as a whole decreased over the same period by 16% and OECD Europe decreased by about 21%, mainly as a result of the policies of the United Kingdom and Germany, which reduced coal production and increased methane recovery from coal mines, entailing emission reductions of about 50%. In North America and OECD Europe, methane emissions from landfills also decreased by about 50% due to enhanced waste separation and methane recovery.

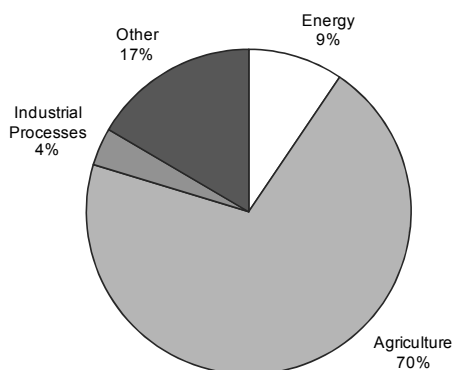
### N<sub>2</sub>O emission trends

For **nitrous oxide** (N<sub>2</sub>O), agriculture contributed 70% of emissions in 2010, mainly from synthetic fertilisers and animal waste dropped on soils (either as animal manure or by animals during grazing) and agricultural waste burning (Figure 4). A much smaller



source is fuel combustion (9%, mainly from coal, fuelwood and road transport). Another small source is N<sub>2</sub>O from industrial processes (4%), mostly in Annex I countries.

**Figure 4. Global N<sub>2</sub>O emissions in 2010**



Between 1970 and 2010, global emissions of N<sub>2</sub>O increased by about 43%. Increased use since the 1970s of synthetic fertilisers and manure from livestock caused agricultural emissions in South Asia and East Asia to increase on average by 3-4% annually. These regional emission trends continued into the 2000s (Figure 7). Emissions from Latin America and Africa also increased in the 1990s, predominantly from the same sources and from forest fires.

In contrast, N<sub>2</sub>O emissions from industrial processes decreased by 40% during the 1980s. This decrease resulted from the gradual upgrade of global production facilities for nitric acid. By 1990 about 20% of the facilities were equipped for non-selective catalytic reduction limiting NO<sub>x</sub> emissions while simultaneously reducing N<sub>2</sub>O emissions.

During the 1970s, North America and Japan introduced catalytic converters in gasoline-fired cars to reduce emissions of precursors of tropospheric ozone, but with higher N<sub>2</sub>O emissions as a side effect. Since the 1990s this technology was also introduced in Europe and Australia. Until about 2000 the catalytic converters contributed to the increase in N<sub>2</sub>O emissions in these countries, though in the late 1990s newer types were introduced with lower specific N<sub>2</sub>O emissions.

In the period 1990-2010, global N<sub>2</sub>O emissions are estimated to have increased by about 10%. The three-quarter reduction in industrial emissions from adipic

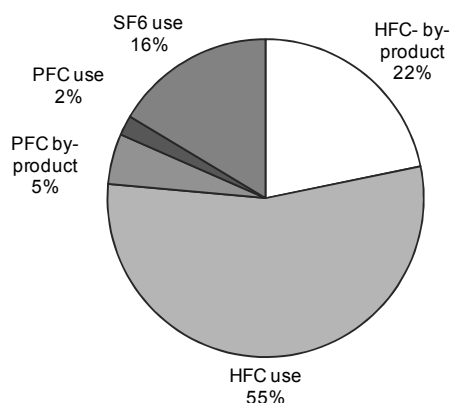
acid manufacturing particularly limited this increase. Over this period, emissions in non-Annex I countries increased by over 35%, mainly in the agricultural sector in South Asia, East Asia and Latin America. The increase was partially offset by decreasing emissions in the non-Annex I members of the Former Soviet Union countries (-24%) and, to a lesser extent, in other EIT countries. In OECD Europe, N<sub>2</sub>O decreased by almost 29% since 1990, mainly due to emission abatement in the chemical industry and to a decrease in the use of nitrogen fertilisers.

When considering these trends, the reader should bear in mind that the uncertainties in annual emissions of most sources of N<sub>2</sub>O are very large, e.g. the uncertainty for agricultural sources may sometimes exceed 100%.

### HFC, PFC and SF<sub>6</sub> emission trends

For the **fluorinated gases** (Figure 5), emissions are split between “use” and “by-products” because of the different ways they are produced. HFC use represented 55% of the total in 2010, of which HFC 134a alone represented 42%. Total by-product emissions of HFC contributed 22% and by-product emissions of PFCs another 5%. SF<sub>6</sub> use represented 16%, while PFC use represented the remaining 2%. Most F-gas emissions are emitted by Annex I countries.

**Figure 5. Global F-gas emissions in 2010**



Between 1990 and 2010, the estimated emissions of F-gases increased by about 225%, mainly due to an increase in HFC emissions: emissions of HFC in 2010 were about 9 times higher than in 1990. During the same period, PFCs emissions decreased by about 35% while SF<sub>6</sub> emissions increased by about 45%. Annex I regions experienced large growth in F-gas emissions, with regional increases on the order of 125% except for North America which showed an increase of over

250%. On a regional basis, total F-gas emission trends varied between 10% and 1500% for the non-Annex I regions, with the largest absolute increases coming from East Asia, driven by a fifteen-fold increase in China, which is here included in East Asia.

Since 1995, global F-gas emissions have increased more rapidly. The increase in HFC emissions (4.5 times higher) more than offset a 30% reduction in PFCs emissions. The small reductions in global SF<sub>6</sub> emissions observed in the period 1996-2004 were mainly due to reductions in emissions from manufacture and use of switchgear for the electricity

sector. The large reduction in PFC emissions in the last years is due to the phasing-out of old Söderberg technology for aluminium production in China. Global emissions of HFCs other than HFC-134a now exceed emissions of HFC-134a, widely used for refrigeration and air-conditioning.

When considering these trends, one should note that the uncertainties in annual emissions of most sources of F-gases are very large, *e.g.* at a country level they may well exceed 100%. Therefore, the figures provided for individual countries should be considered solely as order-of-magnitude estimates.

## 2. SOURCES AND METHODS

The information in Part III (with the exception of CO<sub>2</sub> emissions from fossil fuel combustion) has been provided by Jos G.J. Olivier from PBL and Greet Janssens-Maenhout based on the EDGAR 4.2 FT2010 dataset. PBL and JRC are responsible for the calculation of the EDGAR 4.2 FT2010 data.

### General note on EDGAR

Version 4 of the *Emission Database for Global Atmospheric Research*, in short the *EDGAR 4 system*, has been developed jointly by the European Commission's Joint Research Centre (JRC) and the PBL Netherlands Environmental Assessment Agency. EDGAR is providing global anthropogenic emissions of greenhouse gases CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs and SF<sub>6</sub> and of precursor gases and air pollutants CO, NO<sub>x</sub>, NMVOC, SO<sub>2</sub> and the aerosols BC/OC, per source category, both at country/region levels as well as on a 0.1x0.1 degree grid online to its large community of users and even for the IPCC Fifth Assessment Report (Working Group III).

Activity data were mostly taken from international statistical sources and emission factors for greenhouse gases were selected mostly from the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* (IPCC, 2006) to ensure a consistent approach across countries. JRC and PBL have made all reasonable efforts to ensure that the information was generated correctly, but it is the responsibility of the EDGAR consortium to modify activity data when required to arrive at complete time series and for selecting the emission factors. It is stressed that the uncertainty in the resulting dataset at national level may be substantial, especially for methane and nitrous oxide, and even more so for the F-gases. The uncertainty is caused by the limited accuracy of international activity data used and in particular of emission factors selected for calculating emissions on a country level (Olivier,

2002; Olivier *et al.*, 2005). However, since the methods used are either IPCC methodologies or comparable to them (see below), global totals comply with budgets used in atmospheric studies, plus the data were based on international information sources, this dataset provides a sound basis for comparability.

The EDGAR 4.2 Fast Track 2010 (FT 2010) dataset was further extended in time by adding emissions for 2011 and 2012. For the GHG update, the impact of clean development mechanism projects in developing countries to reduce CH<sub>4</sub>, N<sub>2</sub>O and HFC-23 emissions was taken into account. This applies to sources such as coal mines and landfills (CH<sub>4</sub> recovery), nitric acid and adipic acid production (N<sub>2</sub>O) and the production of HCFC-22 (HFC-23), which now start to influence significantly global emission trends. In addition, a few errors found in the dataset have been corrected.

Although this dataset has been constructed with great care, JRC and PBL do not accept any liability from use of the data provided in this report including any inaccuracies or omissions in the data provided. For details on uncertainty and caveats identified in the dataset, as well as more detailed source category estimates, we refer users to the EDGAR 4 website at [edgar.jrc.ec.europa.eu](http://edgar.jrc.ec.europa.eu). Note that preliminary estimates for other more recent years than 2010 will be made publicly available through this website. Preliminary global trends of GHG emissions will also be made available at PBL (2014). For CO<sub>2</sub> emissions through to 2013 please refer to Olivier *et al.* (2014).

### Source definitions

#### For carbon dioxide:

*Fuel combustion* refers to fossil fuel combustion and the unstored fraction of non-energy/feedstock use (IPCC Source/Sink Category 1A) estimated using the

IPCC Sectoral Approach from the *Revised 1996 IPCC Guidelines* (see Part I).

*Fugitive* refers to flaring of associated gas in oil and gas production (in some cases including indirect CO<sub>2</sub> from methane venting) (IPCC Source/Sink Category 1B).

*Industrial Processes* refers to production of cement, lime, soda ash, carbides, ammonia, methanol, ethylene and other chemicals, metals and to the use of soda ash, limestone and dolomite, and non-energy use of lubricants and waxes (IPCC Source/Sink Category 2). However, from EDGAR 4.1, only emissions from production of cement, lime and soda ash and from the use of soda ash, limestone and dolomite are included here, since all others were estimated by the IEA and reported under 'Fuel combustion'.

*Other* refers to direct emissions from forest fires and peat fires plus emissions from decay (decomposition) of aboveground biomass that remains after logging and deforestation and emissions from peat fires and decay of drained peat soils (IPCC Source/Sink Category 5). CO<sub>2</sub> from solvent use (IPCC Source/Sink Category 3), application of agricultural lime (IPCC Source/Sink Category 4) and from fossil fuel fires, notably coal fires and the Kuwait oil fires (IPCC Source/Sink Category 7), is also included here.

### For methane:

*Energy* comprises production, handling, transmission and combustion of fossil fuels and biofuels (IPCC Source/Sink Categories 1A and 1B).

*Agriculture* comprises animals, animal waste, rice production, agricultural waste burning (non-energy, on-site) and savannah burning (IPCC Source/Sink Category 4).

*Waste* comprises landfills, wastewater treatment, human wastewater disposal and waste incineration (non-energy) (IPCC Source/Sink Category 6).

*Others* includes industrial process emissions such as methanol production, forest and peat fires and other vegetation fires (IPCC Source/Sink Categories 2 and 5).

### For nitrous oxide:

*Energy* comprises combustion of fossil fuels and biofuels (IPCC Source/Sink Categories 1A and 1B).

*Agriculture* comprises fertiliser use (synthetic and animal manure), animal waste management, agricultural waste burning (non-energy, on-site) and savannah burning (IPCC Source/Sink Category 4).

*Industrial Processes* comprises non-combustion emissions from manufacturing of adipic acid, nitric

acid, caprolactam and glyoxal (IPCC Source/Sink Category 2).

*Others* includes N<sub>2</sub>O usage, forest and peat fires (including post-burn emissions from remaining biomass) and other vegetation fires, human sewage discharge and waste incineration (non-energy) and indirect N<sub>2</sub>O from atmospheric deposition of NO<sub>x</sub> and NH<sub>3</sub> from non-agricultural sources (IPCC Source/Sink Categories 3, 5, 6 and 7).

### For fluorinated gases:

*HFC emissions* comprise by-product emissions of HFC-23 from HCFC-22 manufacture and the use of HFCs (IPCC Source/Sink Categories 2E and 2F).

*PFC emissions* comprise by-product emissions of CF<sub>4</sub> and C<sub>2</sub>F<sub>6</sub> from primary aluminium production and the use of PFCs, in particular for the manufacture of semiconductors, flat panel displays and photovoltaic cells (IPCC Source/Sink Categories 2C, 2E and 2F). *SF<sub>6</sub> emissions* stem from various sources of SF<sub>6</sub> use, of which the largest is the use and manufacture of Gas Insulated Switchgear (GIS) used in the electricity distribution networks (IPCC Source/Sink Categories 2C and 2F) and from SF<sub>6</sub> production (Category 2E).

## Data sources and methodology for EDGAR 4.2 FT2010

The EDGAR 4.2 Fast Track 2010 (EDGAR 4.2 FT2010) has been available online since October 2013<sup>2</sup>. For greenhouse gases the default emission factors from the *2006 IPCC Guidelines* (IPCC, 2006) were used instead of those of the *Revised 1996 IPCC Guidelines* (IPCC, 1997), except for CH<sub>4</sub> and N<sub>2</sub>O from road transport where technology-specific factors were used from the EMEP-EEA emission inventory guidebook (EEA, 2009).

EDGAR 4.2 FT2010 provides an extended time series for all sources by adding emissions for 2009 and 2010 to the EDGAR4.2 dataset (1970-2008). For the Fast Track estimates for 2009 and 2010, for the main sources of each greenhouse gas as proxy of the emissions trend in these years, either the official national reported emissions trend from UNFCCC (2012) was used, or the trend in the latest activity

2. See <http://edgar.jrc.ec.europa.eu/overview.php?v=42FT2010>

data for 2008 to 2010, or statistics for an activity that was assumed to be a good proxy for that source. These statistics were sectoral CO<sub>2</sub> emissions (IEA, this publication), fossil-fuel production (IEA, 2012), gas flaring (NOAA/NCDC, 2012), production of steel, aluminium, cement, lime and ammonia (USGS, 2012; WSA, 2012), animal numbers, crop production and nitrogen fertiliser consumption (FAO, 2012), large-scale biomass burning (GFED 3; Van der Werf et al., 2010), photovoltaic solar cell production and flat panel display sales (IEA, 2011; and others).

For small-scale sources, such as industrial process sources of methane and nitrous oxide from caprolactam production, linear extrapolation of the past trend from 2005 to 2008 was assumed. These proxies – sometimes adjusted to incorporate significant trends in the emission factors – were applied to most sources, comprising more than 95% of the global total for gas. For important sources, where significant trends in the technology mix or in the application rate of emission control technology had occurred, trend estimates were included. In all other cases the mix and fraction of end-of-pipe abatement technology has been left unchanged after 2008.

To take into account non-CO<sub>2</sub> emission reductions that have occurred due to control measures implemented since 1990, officially reported emissions were used for Annex I countries (mainly countries that were already members of the OECD in 1990). These emission trends have been taken from the CRF emission data files which make up part of the National Inventory Reports (NIR) to the UNFCCC (UNFCCC, 2008, 2010, 2012). In addition, for non-CO<sub>2</sub> emission reductions in developing countries up to 2010, we used information on so-called clean development mechanism (CDM) projects that have been implemented according to the “CDM pipeline” database maintained by the UNEP-Risø Centre (2011). This was done for methane recovery from coal mining and landfills, N<sub>2</sub>O abatement in industrial processes and HFC-23 emission reductions from HCFC-22 manufacture.

Methods and data applied for all years except 2009 and 2010 are described below.

### Energy / Fugitive / Biofuel

The data sources for **fugitive CO<sub>2</sub> emissions** and **CH<sub>4</sub> and N<sub>2</sub>O from energy** are listed below. Data for fossil fuel production and use for 138 countries were taken from the IEA energy statistics for OECD and Non-OECD countries 1970-2008 (extended energy balances, in energy units) (IEA, 2007, 2010). This dataset comprises 94 sectors and 64 fuel types. For the

countries of the Former Soviet Union and Former Yugoslavia a modified dataset was used to achieve a complete time series for the new countries from 1970 to 2008, the sum of which converges to the older dataset for the total Former Soviet Union and Yugoslavia. For another 62 countries, the aggregated IEA data for the regions ‘Other America’, ‘Other Africa’ and ‘Other Asia’ have been split using the sectoral IEA data per region together with total production and consumption figures per country of coal, gas and oil from energy statistics reported by the US Energy Information Administration (EIA, 2007, 2010).

Please note that the figures of CO<sub>2</sub> from fuel combustion and non-energy use of fuels in this report differ somewhat from the EDGAR 4.2 FT2010 dataset, for the following reasons:

- IEA energy statistics used for 1970-2008 may differ slightly due to revisions included in subsequent IEA releases. For EDGAR 4.2 FT2010 the releases of 2007 and 2010 were used for 1970-1999 and 2000-2008, respectively (IEA, 2007, 2010);
- the IEA uses the default CO<sub>2</sub> emission factors from the *Revised 1996 IPCC Guidelines*, which differ slightly due to different default oxidation factors (coal updated value +2%, oil products +1%, natural gas +0.5%) and updated defaults for carbon content for some fuels, the quality of which may vary considerably (mainly refinery gas, updated value -7%, coke oven gas -7%, blast furnace gas +7%, coke -1%);
- the IEA estimates CO<sub>2</sub> emissions from carbon released in fossil fuel use labelled in the sectoral energy balance as ‘non-energy use’ or ‘chemical feedstock’ using default fractions stored. For EDGAR 4.2 FT2010, for 1970-2008 default emission factors and methods from the *2006 IPCC Guidelines* were applied, which may give rise to considerable differences compared to the 1996 guidelines.

In addition, subtraction of the non-energy/feedstock fuel use part of the EDGAR 4.2 FT2010 dataset in order to combine it with the IEA CO<sub>2</sub> dataset also introduces some uncertainty.

To estimate CH<sub>4</sub> emissions from fossil fuel production and transmission, hard coal and brown coal production data have been separated into surface and underground mining based on various national reports. For gas transport and distribution, pipeline length was used as activity data. Pipeline length and material statistics are taken from reports on Europe by Eurogas and Marcogaz, national reports (e.g. the United States

and Canada), UNFCCC (2008) and supplemental data from CIA (2008). Total amounts of natural gas flared (sometimes including gas vented) for most countries for 1994 onwards are primarily based on amounts of gas flared determined from the satellite observations of the intensity of flaring lights (Elvidge et al., 2009), reported by NOAA (2011). For other years before 1994 and for other countries emissions or emissions trends were supplemented by CO<sub>2</sub> trends from CDIAC (Marland *et al.*, 2006), EIA (2011) and UNFCCC (2010).

**Biofuel data** were also taken from IEA (2007). However, to avoid incomplete time series for large sectors, solid biomass consumption in the residential and commercial sectors in non-OECD countries were replaced by fuelwood and charcoal consumption from FAO (2007). Vegetal waste used as fuel is based on the amounts of crop residues per country and fractions used as fuel based on Yevich and Logan (2003) and IPCC (2006). The amount of dung used as fuel is based on the total amount of manure produced per country and the fraction of total manure burned as fuel with fractions from IPCC (2006) and UNFCCC (2008). The results are rather close to the work of Fernandes *et al.* (2007) who made an extensive analysis of global and regional biofuel use in 2000. Charcoal production data were taken from IEA (2010) and supplemented or extrapolated using data from UN (2010) for 1990-2005 and FAO (2010) for pre-1990 data and 49 more countries not included in the IEA dataset.

Emission factors for fossil fuel production and use are based on the default values in the *2006 IPCC Guidelines* (IPCC, 2006). Methane emission factors for coal mining are based on average depths of coal production based on CIAB (1994), EURACOAL (2008), Kirchgessner *et al.* (1993) and include post mining emissions. Methane recovery from coal mining was included for twelve countries amounting to about 1.3 Tg in 1990 (of which about one-third was allocated to the United States and Germany). Recovery in 2005 was estimated at 2.8 Tg (of which 50% in China and 25% in the United States (UNFCCC, 2010; Thakur *et al.*, 1994, 1996; EPA, 2008; Cheng et al., 2011).

Emission factors for oil and gas production, transport and distribution were taken from IPCC (2006), supplemented with data from UNFCCC (2008), except for the emission factor for CH<sub>4</sub> from oil tanker transport which is from Rudd and Hill (2001). The CH<sub>4</sub> emission factor for venting and flaring has been derived from country-specific data reported to UNFCCC (2010), with the average value used as

global default, applied to all other countries. The CO<sub>2</sub> emission factor excludes the indirect emissions through gas venting.

For N<sub>2</sub>O from gasoline cars in road transport, the fraction of cars equipped with different types of catalytic converters was taken into account (based on various references). The factors for biofuel combustion were taken from the *2006 IPCC Guidelines*. For charcoal production the emissions factors are from Andreae (2011).

### Industrial processes

Production data for the CO<sub>2</sub> sources cement, iron and steel, non-ferrous metals and various chemicals were based on UN Industrial Commodity Statistics (UN, 2006a), often supplemented for recent years by data from the US Geological Survey (USGS, 2007). The same method applied to paper, wine, beer and bread production. Data for other CO<sub>2</sub> sources such as production of lime, soda ash, ammonia, ferroalloys and non-ferrous metals were from USGS (2007, 2010), supplemented by data reported to the UNFCCC (2010). IFA (2007) was used for urea production (where it is assumed that the fossil carbon in CO<sub>2</sub> from ammonia production is stored) and FAO (2007) for production of pulp, meat and poultry. Iron and steel production was further split into technologies (basic oxygen furnace, open hearth, electric arc furnace) using data from WSA (2010).

For the N<sub>2</sub>O sources nitric acid, adipic acid and caprolactam, production data are based on UNFCCC (2010) and on smoothed and averaged SRIC (2005) data. For other industrial production for which no international statistics were available, such as silicon carbide and glyoxal, UNFCCC (2010) was used, though limited to Annex I countries.

However, for many countries interpolations and extrapolations were necessary to arrive at complete time series per country for 1970-2005/2008. Special attention had to be given to new EIT countries, in particular to Former Soviet Union and Former Yugoslavia countries, to maintain consistency with the older totals for the former countries.

Emission factors for CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O are described in IPCC (2006). Note that emissions of CO<sub>2</sub> from cement production are only a proxy for cement clinker production. The N<sub>2</sub>O emission factors for the production of adipic acid, nitric acid, caprolactam and glyoxal are based on IPCC (2006). For adipic acid, abatement is only assumed from 1990 onwards if indicated in UNFCCC (2010) combined with

activity data from SRIC (2005). For nitric acid in 1970, all old technology is assumed, changing their technology towards 1990 into high pressure plants in non-Annex I countries and a mix of low and medium pressure plants in Annex I countries that matches reported emissions in UNFCCC (2010). In addition, about 20% of global total production, all in Annex II countries, is equipped with Non-Selective Catalytic Reduction (NSCR) technology (Choe *et al.*, 1993). The emission factors for the F-gases as by-product emissions were based on IPCC (2006), but modified to match global emissions to observations of atmospheric concentrations.

Global annual total production of HCFC-22 was taken from AFEAS (2008) and McCulloch and Lindley (2007) and included captive production, but was modified using UNFCCC (2010) and other data sources. Primary aluminium production statistics per country from UN (2006a) were combined with smelter types characterised by one of five technologies according to Aluminium Verlag (2007) and Hunt (2004) for China. The default emission factor for HFC-23 from HCFC-22 manufacture was set for non-OECD countries at the IPCC default for old, un-optimised plants and for OECD countries at a somewhat lower and which decreased over time to reflect atmospheric concentrations. Country-specific fractions of emission abatement were estimated for six Annex II countries based on reported emissions in UNFCCC (2010) and UNEP Risø Centre (2011) for other countries. For aluminium production the CF<sub>4</sub> emission factors per technology were based on large-survey factors for 1990 to 2002 reported by IAI (2006, 2008), but with modifications for Söderberg technologies to comply with atmospheric concentration trends, and for C<sub>2</sub>F<sub>6</sub> based on the ratio to CF<sub>4</sub> reported in IPCC (2006) for default Tier 2 emission factors.

Global consumption of HFC-125, 134a (in three applications) and 143a was taken from AFEAS (2008), for HFC-152a, 227ea, 245fa, 32 and 365mfc from Ashford *et al.* (2004) and for HFC-23, 236fa and 43-10-mee from UNFCCC (2008). Global HFC consumption was distributed to countries according to their share in global CFC-12 or CFC-11 consumption (ODP consumption statistics from the UN Ozone Secretariat) depending on their characteristics (either mostly for refrigeration/air-conditioning or mostly for other applications, largely foams/aerosols) and calibrated to regional totals calculated by Ashford *et al.* (2004)). Global emission factors for HFC use were derived from the emissions also reported by these data sources, except for HFC-125 and 143a which were from Ashford *et al.* (2004).

Global consumption data of PFCs (and SF<sub>6</sub>) for semiconductor manufacture for Annex I countries in 1990 to 2005 were based on UNFCCC (2008) and the *National Inventory Report 2008* of Japan, for Taiwan on Lu (2006) and for other non-Annex I countries for 1995 and 2005 based on their global share in semiconductor manufacture (SEMI, 1998; SEMI, 2009). The trend from 1982 to 2005 of PFC use within four regions/countries (the United States, Japan, Europe and Rest of the World) was estimated from world market sales (SIA, 2006). Global CF<sub>4</sub> and SF<sub>6</sub> consumption and consumption in Taiwan for the production of flat panel displays for 2003 is from Lu (2006); trends and market shares per country from SEMI (2007). National consumption of PFCs for PV cells is based on the production per country of PV systems in m<sup>2</sup> (estimated from production statistics in MW for 1985-2003: Kammen, 2005; and for 1990, 1995, 2000-2007: Jäger-Waldau, 2008). The emission factors are from IPCC (2006), for semiconductors and FPD using the Tier 2a factors and for PV production taking into account the fraction of thin film production per country and assuming that 50% of the manufacturers uses PFCs. PFC consumption for other PFC uses was based on data for PFC use in fire extinguishing and air-conditioning, together with use as solvent reported by a few Annex I countries (UNFCCC, 2008), extrapolated to all Annex I countries and assuming an emission factor of 1.

Global consumption of SF<sub>6</sub> per application was taken from Knopman and Smythe (2007). For SF<sub>6</sub> containing switchgear, equipment manufacture and utility stock estimates were adjusted using the method in Mais and Brenninkmeijer (1998) with the regional and per country distribution based on various references (*e.g.* Mais and Brenninkmeijer, 1998; Bitsch, 1998, personal communication) and for missing countries and years based on the trend in the increase of electricity consumption as a proxy for GIS stock additions. For primary magnesium production and diecasting global consumption was distributed using production statistics from USGS (2007) and IMA (1999a,b) and others for the number of diecasting companies per country. Other sources were distributed as follows: sport shoes among Annex I countries based on GDP, tyres according to reported consumption in Germany (UNFCCC, 2008), sound insulating windows mainly in Germany with 10% used in neighbouring countries, aluminium production as reported in UNFCCC (2010), accelerators were distributed according to the number of high-energy physics laboratories and miscellaneous sources according to the number of airborne early warning systems such as AWACs. A major revision was made to

soundproof window production and small revisions to other sources, partly based on UNFCCC (2010).

Note that both the variables for distributing global total consumption per source category and the emission factors vary widely between different plants and countries. This implies that the estimated emissions of F-gases at country level should be considered as very uncertain (an order of magnitude).

Please note that CO<sub>2</sub> from fossil carbon accounted for in this sector (such as from ammonia and carbide production, iron and steel production using a blast furnace and metal production through smelting processes with carbon anode consumption) and CO<sub>2</sub> from urea application in agriculture have been subtracted from the EDGAR 4.2 FT2010 data. This avoids double counting compared with the IEA CO<sub>2</sub> dataset for fuel combustion that includes these emissions (see section on Energy).

### Solvent and other product use

For N<sub>2</sub>O from the use of anaesthesia, an amount of 24 gN<sub>2</sub>O and 34 gN<sub>2</sub>O per capita in 2000 was used for EIT and Annex II countries, respectively, based on the average values in UNFCCC (2010) and tentatively set at 5 g/cap/year for non-Annex I countries, based on Kroeze (1994). A global declining rate of 20% between 1990 and 2005 was assumed as observed for total Annex I countries.

For N<sub>2</sub>O from aerosol spray cans, an amount of 10 gN<sub>2</sub>O per capita in 2000 was used for Annex I countries based on the average values in UNFCCC (2010), and none for non-Annex I countries. A uniform inclining rate from 1990 to 2005 of 50% was assumed as observed for total Annex I countries.

### Agriculture

In general, the IPCC (2006) methodology and new default emission factors for CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O were used to estimate agricultural emissions, except for the instances specified below. Please note that N<sub>2</sub>O emissions from agriculture as reported in EDGAR 4.2 FT2010 are substantially lower than those presently reported by most Annex I countries due to two markedly lower emission factors: 1) the default IPCC emission factor (“EF1”) for direct soil emissions of N<sub>2</sub>O from the use of synthetic fertilisers, manure used as fertiliser and from crop residues left in the field has been reduced by 20%; and 2) the default emission factor (“EF5”) for indirect N<sub>2</sub>O emissions from nitrogen leaching and run-off been reduced by 70% compared to the values recommended in the 1996 IPCC

*Guidelines* and the *IPCC Good Practice Guidance* (IPCC, 1997, 2000).

Livestock numbers were taken from FAO (2007, 2010). For enteric fermentation by cattle, country-specific methane emission factors were calculated following the IPCC methodology (IPCC, 2006) using country-specific milk yield (dairy cattle) and carcass weight (other cattle) trends from FAO (2007) to estimate the trends in the emission factors. For other animal types, regional emission factors from IPCC (2006) were used.

Livestock numbers were combined with estimates for animal waste generated per head to estimate the total amount of animal waste generated. Nitrogen excretion rates for cattle, pigs and chicken in Europe were based on the CAPRI model (Pérez, 2005; Britz, 2005; Leip *et al.*, 2007) and for all other countries and animal types in IPCC (2006). The trend in carcass weight was used to determine the development in nitrogen excretion over time. The shares of different animal waste management systems were based on regional defaults provided in IPCC (2006) and regional trend estimates for dairy and non-dairy cattle for the fractions stall-fed, extensive grazing and mixed systems from Bouwman *et al.* (2005). Methane emissions from manure management were estimated by applying default IPCC emission factors for each country and temperature zone. For the latter, the 1x1 degree grid map for non-dairy cattle from Lerner *et al.* (1988) was used and the annual average temperature per grid cell from New *et al.* (1999) to calculate the livestock fractions of the countries in 19 annual mean temperature zones for cattle, swine and buffalo and three climates zones for other animals (cold, temperate, warm). N<sub>2</sub>O emissions from manure management were based on distribution of manure management systems from Annex I countries reporting to the UNFCCC (2008), Zhou *et al.* (2007) for China and IPCC (2006) for the rest of the countries.

The total area for rice cultivation was obtained from FAO (2007, 2010), which was split over different ecology types (rainfed, irrigated, deep water and upland) using IIRI (2007). The total harvested area of rice production in China was increased by 40%, due to recognition that official harvested rice area statistics for China largely underestimate the actual area (Denier van der Gon, 1999; 2000; personal communication, 2000). However, methane emission factors were not taken from IPCC (2006) but from a review of Neue (1997), and country-specific studies by Mitra *et al.* (2004), Gupta *et al.* (2002) and IIASA (2007). For the period 1970-2000 a trend in the emission



factors was assumed based on data from Denier van der Gon (1999, 2000).

The same data as described above for manure management were used to estimate N<sub>2</sub>O emissions from the use of animal waste as fertilizer by taking into account the loss of nitrogen that occurs from manure management systems before manure is applied to soils and additional nitrogen introduced by bedding material. N<sub>2</sub>O emissions from fertilizer use and CO<sub>2</sub> from urea fertilization were estimated based on IFA (2007) and FAO (2007) statistics and emission factors from IPCC (2006).

CO<sub>2</sub> emissions from liming of soils were estimated from Annex I country reports to the UNFCCC (2010), and on the use of ammonium fertilizers for other countries (FAO, 2007e) as liming is needed to balance the acidity caused by ammonium fertilizers.

Areas of cultivated histosols were estimated by combining three different maps: the FAO climate map and soil map (FAO Geonetwork, 2007) and the land use map of Goldewijk *et al.* (2007). However, where available areas reported by Annex I countries to the UNFCCC (2008) were used. Separate N<sub>2</sub>O emission factors were applied for tropical and non-tropical regions (IPCC, 2006).

Nitrogen and dry-matter content of agricultural residues were estimated based on cultivation area and yield for 24 crop types from FAO (2007) and IPCC (2006) factors. The fractions of crop residues removed from and burned in the field were estimated using data of Yevich and Logan (2003) and UNFCCC (2008) for fractions burned in the field by Annex I countries. Subsequently, N<sub>2</sub>O emissions from crop residues left in the field and non-CO<sub>2</sub> emissions from field burning of the residues were calculated using IPCC (2006) emission factors.

Indirect N<sub>2</sub>O emissions from leaching and runoff were estimated based on nitrogen input to agricultural soils as described above. Leaching and run-off was assumed to occur in other areas than non-irrigated dry-land regions, which were identified based on FAO (1999; 2000; 2005) and Murray *et al.* (1999). The fraction of nitrogen lost through leaching and runoff was based on a study of Van Drecht *et al.* (2003). IPCC (2006) emission factors were used for indirect N<sub>2</sub>O from leaching and runoff, as well as from deposition of agricultural NH<sub>3</sub> and NO<sub>x</sub> emissions.

For savannah burning, estimates for areas burned are based on satellite measurements (see next section) and emission factors from IPCC (2006).

## Large-scale biomass burning

For estimating the amounts of biomass burned in large-scale fires the three key parameters have to be multiplied: (a) area burned, (b) aboveground biomass density (fuel load) (kg/ha), and (c) fraction of aboveground biomass burned (combustion completeness). Country-specific data for large-scale biomass burning (total amount of dry matter burned, which were subdivided into tropical and non-tropical forest fires, savannah fires and grassland fires), have been taken from the gridded data at 1x1 degree grid of the *Global Fire Emissions Database* (GFED version 2; Van der Werf *et al.*, 2006) for the years 1997-2005. For years prior to 1997, the GFED v2.0 data were scaled back to 1970 using regional biomass burning trends from the RETRO dataset, covering the period 1960-2000 (Schultz *et al.*, 2008). GFED data for agricultural areas were attributed to savannah and grassland fires. There is an insignificant overlap with the EDGAR category for agricultural waste burning. The GFED data on biomass burning were estimated using burned area time series for 2001-2005 derived from the MODIS satellite sensors in combination with the fuel load estimated by the satellite-driven Carnegie-Ames-Stanford-Approach (CASA) biogeochemical model that was adjusted to account for fires. The 1997–2000 period was included using fire counts from the VIRS/ATSR sensors. The burning areas were mapped at 0.5x0.5 km spatial resolution. For some countries a correction was made to the time series for the allocation of biomass burned in savannahs and tropical forests. Since these sources have different emission factors, total emissions have changed for these countries. For 2006-2008 the trend in the activity data from the GFED v3 model (Van der Werf *et al.*, 2010) was used, since the new dataset is not consistent with the previous version. The non-CO<sub>2</sub> emission factors for large scale biomass burning have been updated using data from Andreae (2011). The GHG emission factors were not taken from IPCC (2006), (which were from Andreae and Merlet (2001)), but updated values from Andreae (2011), including the carbon content of 0.47 kg C/kg dry matter, which is the default value for tropical forest. For greenhouse gas accounting purposes, net CO<sub>2</sub> emissions from savannah and grassland fires have been assumed to be zero (organic carbon in a short cycle). There is a large uncertainty in the assumptions for the carbon contents and the fraction of carbon that is actually being burned and thus in the amount of burned carbon.

CO<sub>2</sub> emissions from large-scale biomass burning are only one component of emissions from forest fires.

Roughly half of the aboveground biomass is not burned, but rather decomposes over time. This results in delayed decay emissions of approximately the same level of magnitude as the direct emissions from the fires but distributed over a period of 10 to 20 years (IPCC, 2006). Post-burn CO<sub>2</sub> emissions have been estimated from the same activity data as direct burning emissions by assuming that remaining aboveground biomass decays in the 15 year<sup>2</sup> after the year the fire or deforestation occurred, *i.e.* 1/15 per year and a carbon content of 0.47 kg C/kg dry matter tropical forest from IPCC (2006).

For CO<sub>2</sub> emissions from drained peatlands the comprehensive dataset of Joosten (2009) was used, comprising of activity data for 1990 and 2008 and CO<sub>2</sub> emission factors per hectare of drained peatland. For intervening years, the activity data were linearly interpolated, except for Indonesia, for which the trend in the area of palm oil plantations was used as proxy for the interpolation. For years before 1990 a linear increase from 0 in 1970 was assumed, with a few exceptions, where the area was assumed to remain constant prior to 1990. In EDGAR 4.2 FT2010 the amount of peat burned (in Indonesia only) has been separated from the amount of tropical forest burned in the GFED v2.0 dataset and different emission factors have been applied for most substances (Christian *et al.*, 2003; Weiss (2002), resulting in different emissions.

In addition, enhanced N<sub>2</sub>O emissions that occur after large-scale tropical biomass burning (Bouwman *et al.*, 1997) were calculated from the post-burn biomass dataset.

## Waste handling

To estimate the amount of organic solid waste in landfills three key parameters have to be determined: (a) Municipal Solid Waste (MSW) generated per year (kg/cap), (b) fraction of total solid waste that is landfilled, and (c) fraction of Degradable Organic Carbon (DOC) in the MSW (%). Total and urban population figures were taken from UN (2006b). The amounts of Municipal Solid Waste (MSW) generated are the primary statistics for emissions from landfills. For 70 countries, the 2006 IPCC Guidelines provide country-specific data for 2000 of the amount of MSW generated per year per capita (urban capita in case of non-Annex I countries) and the fraction landfilled and incinerated. For 58 more countries, country-specific values for the MSW generation per capita were found in the literature. For the remaining 91 countries, the waste generation per capita in 2000 was estimated

using an exponential fit of the IPCC (2006) country-specific data for 70 countries of MSW/cap for 2000 to GDP/cap. For Annex I countries trend data for MSW generation/cap are available for the period 1990-2005 (UNFCCC, 2008). For other years and for other countries for which these data are not available, extrapolation from 2000 back and forward was done using the exponential fit mentioned above. When the country-specific fraction of MSW landfilled was missing, regional defaults provided in IPCC (2006) were used. In addition, UN statistics on MSW treatment may provide country-specific data for years other than 2000. Based on regional defaults for the composition of MSW, IPCC (2006) provides regional defaults for the fraction of Degradable Organic Carbon (DOC). For Annex I countries, country-specific data from UNFCCC (2008) were used (sometimes including a change over time) and for 94 Non-Annex I countries, country-specific MSW composition data were found, from which the average DOC value was calculated. However, in version 4.2, for a number of Annex I countries, the DOC fraction was adjusted to better reflect the overall emission trends for landfills as reported to UNFCCC (2008).

Calculation of methane emissions from landfills using the First Order Decay (FOD) model of IPCC (2006), the Methane Conversion Factor (MCF), requires the k-value and the Oxidation Factor (OX). The MCF is characterised by the type of landfill: managed aerobic or anaerobic, unmanaged deep or shallow. Apart from country-specific time series which are available for 11 Annex I countries, two sets of MCF time series for Annex I and non-Annex I countries were determined based on assumptions about the fractions of the four landfill types over time. For the k-value, which is the methane generation rate (inversely proportional to the half life value of the DOC), default regional MSW composition weighted k-values for four climate zones (tropical dry/wet and non-tropical dry/wet) were provided by IPCC (2006). For EDGAR 4.2 FT2010, country-specific values were calculated using the country-specific fractions of the population (urban population for non-Annex I countries) in each climate zone. The IPCC default values were used to estimate the Oxidation Factor (0.1 for Annex I and 0 for non-Annex I). Finally, the amounts of methane recovered (and used or flared) to be subtracted from the gross methane emissions, were taken as reported by Annex I countries in UNFCCC (2010) and for 23 non-Annex I countries from CDM projects reported by the UNEP Risø Centre (2011). Total recovery in 2010 is estimated at 12.9 Tg CH<sub>4</sub>, half of which was by the United States

and almost one fifth by the United Kingdom; about 13% is recovered by non-Annex I countries.

For domestic wastewater, total organics in wastewater (BOD<sub>5</sub>) was estimated using regional default or country-specific default values for BOD<sub>5</sub> generation per capita per day provided by IPCC (2006). For industrial wastewater, total organically degradable material in wastewater from industry was calculated per type of industry from WW generation per ton of product and COD values (chemical oxygen demand (industrial degradable organic component in wastewater) in kg/m<sup>3</sup> WW, using defaults from IPCC (2006). Production statistics for industry types that produce most organics in wastewater are available from UN (2006a). Examples are meat and poultry, raw sugar, alcohol, pulp and organic chemicals. To estimate methane emissions from domestic wastewater, additional information is required on the WW treatment systems, such as sewer systems (to wastewater treatment plants (WWTP) or to raw discharge), latrines by type, open pits and septic tanks. Regional or country-specific default fractions for 2000 were from IPCC (2006). In addition, country-specific fractions of improved sanitation over time from Van Drecht *et al.* (2009) were used, based on the UN Water Supply and Sanitation (WSS) dataset and other national reports, and fractions reported by Doorn and Liles (1999). For industrial methane emissions, fractions of on-site treatment in WWTP, sewer with and without city-WWTP, and raw discharge were based on regional values reported by Doorn *et al.* (1997). To calculate methane emissions from wastewater, default factors provided by IPCC (2006) per type of WW treatment were used, with default methane correction factors (MCF) per type of treatment. For Annex I countries, OECD or EIT average fractions of methane recovered in WWTPs (and either used as biogas or flared) were used, except for five countries for which country-specific values reported in UNFCCC (2008) were used.

To estimate N<sub>2</sub>O emissions from wastewater, the activity data used is the total annual amount of nitrogen in the wastewater, which was calculated from annual protein consumption per capita reported by FAO (2007), using correction factors for non-consumed protein and for the fraction of industrial and commercial protein that is co-discharged. For the correction factors and the N<sub>2</sub>O emission factor, defaults provided in IPCC (2006) were used.

Other waste sources are incineration, with activity data from UNFCCC (2008) and IPCC (2006) and extrapolations assuming a fixed ratio to landfilling, and composting (UNFCCC, 2008; ECN, 2008; CCC, 2008).

## Other sources

Indirect N<sub>2</sub>O emissions from atmospheric deposition of nitrogen of NO<sub>x</sub> and NH<sub>3</sub> emissions from non-agricultural sources, mainly fossil fuel combustion and large scale biomass burning, were estimated using nitrogen in NO<sub>x</sub> and NH<sub>3</sub> emissions from these sources as activity data, based on preliminary EDGAR 4.2 FT2010 data for these gases. The same IPCC (2006) emission factor was used for indirect N<sub>2</sub>O from atmospheric deposition of nitrogen from NH<sub>3</sub> and NO<sub>x</sub> emissions as was used for agricultural emissions.

## General Note

We note that EDGAR 4.2 FT2010 estimates for all sources have been made for all years. For more detailed data of the EDGAR 4.2 FT2010 dataset, including the complete period 1970-2010 and a few small corrections after the release of the dataset for some sources of F-gas emissions in 2010 (HFC-23 from HCFC manufacture and PFCs from solvent use and from PV cell manufacture) and preliminary estimates for more recent years we refer to the EDGAR version 4 website at [edgar.jrc.ec.europa.eu](http://edgar.jrc.ec.europa.eu). Aggregated preliminary estimates can also be found at PBL (2014) and for CO<sub>2</sub> in Olivier *et al.* (2014).

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# TOTAL GHG EMISSIONS

Please note that the greenhouse gas emissions totals presented here will differ with those shown in countries' official national greenhouse gas inventory submissions to the UNFCCC Secretariat. This is primarily due to differences in coverage for the category *Other*. However, differences also occur due to differences in allocation, methodologies and underlying data sources for activities and emission factors, as specified in Part 3, Chapter 2: *Sources and methods*. Details on possible differences between IEA and UNFCCC CO<sub>2</sub> emissions from fuel combustion estimates can be found in Part I, Chapter 1: *IEA Emissions Estimates*. Details on causes of differences in other GHG emission sources can be found in Part III, Chapter 2: *Sources and methods*.

## 1990 Greenhouse-gas emissions

 million tonnes of CO<sub>2</sub> equivalent using GWP-100

	CO <sub>2</sub>						CH <sub>4</sub>					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
<b>World *</b>	<b>20 973.9</b>	<b>451.2</b>	<b>839.2</b>	<b>5 987.4</b>	<b>28 251.6</b>	<b>75.8%</b>	<b>2 075.4</b>	<b>3 185.8</b>	<b>1 068.8</b>	<b>270.2</b>	<b>6 600.2</b>	<b>31.4%</b>
<i>Annex I Parties</i>	13 890.5	206.4	456.6	850.5	15 404.0	91.5%	1 043.2	842.7	555.4	30.5	2 471.8	42.2%
<i>Annex II Parties</i>	9 790.9	78.9	271.8	379.1	10 520.6	93.8%	442.3	542.1	444.2	14.6	1 443.3	30.6%
<i>North America</i>	5 296.9	24.3	70.2	136.0	5 527.4	96.3%	282.0	191.6	229.3	8.2	711.2	39.7%
<i>Europe</i>	3 154.5	39.2	129.8	183.3	3 506.8	91.1%	127.9	210.8	182.5	2.2	523.4	24.4%
<i>Asia Oceania</i>	1 339.5	15.4	71.8	59.7	1 486.4	91.2%	32.4	139.7	32.4	4.2	208.7	15.5%
<i>Annex I EIT</i>	3 970.4	123.4	172.4	470.1	4 736.2	86.4%	593.0	276.0	99.7	15.9	984.5	60.2%
<i>Non-Annex I Parties</i>	6 463.9	244.7	382.6	5 136.9	12 228.1	54.9%	1 031.4	2 343.1	513.4	239.7	4 127.6	25.0%
<i>Annex I Kyoto Parties</i>	8 339.6	177.9	372.1	669.1	9 558.7	89.1%	752.1	612.3	311.3	22.2	1 697.9	44.3%
<b>Int. marine bunkers</b>	<b>363.2</b>	-	-	-	<b>363.2</b>	<b>100.0%</b>	<b>0.7</b>	-	-	-	<b>0.7</b>	<b>100.0%</b>
<b>Int. aviation bunkers</b>	<b>256.3</b>	-	-	-	<b>256.3</b>	<b>100.0%</b>	<b>0.0</b>	-	-	-	<b>0.0</b>	<b>100.0%</b>
<b>Non-OECD Total</b>	<b>9 214.4</b>	<b>359.1</b>	<b>495.3</b>	<b>5 520.6</b>	<b>15 589.5</b>	<b>61.4%</b>	<b>1 496.8</b>	<b>2 501.1</b>	<b>568.7</b>	<b>253.4</b>	<b>4 820.0</b>	<b>31.1%</b>
<b>OECD Total</b>	<b>11 139.9</b>	<b>92.1</b>	<b>343.9</b>	<b>466.7</b>	<b>12 042.6</b>	<b>93.3%</b>	<b>577.8</b>	<b>684.7</b>	<b>500.1</b>	<b>16.8</b>	<b>1 779.4</b>	<b>32.5%</b>
Canada	428.2	2.9	9.1	25.7	465.8	92.5%	32.2	18.9	22.1	2.9	76.1	42.4%
Chile	30.8	0.7	2.0	1.0	34.5	91.5%	3.0	5.8	3.0	0.2	12.0	25.1%
Mexico	265.3	2.9	16.3	39.1	323.5	82.9%	29.0	52.5	15.3	1.5	98.3	29.5%
United States	4 868.7	21.4	61.1	110.3	5 061.6	96.6%	249.8	172.7	207.2	5.4	635.1	39.3%
<b>OECD Americas</b>	<b>5 592.9</b>	<b>27.9</b>	<b>88.4</b>	<b>176.1</b>	<b>5 885.4</b>	<b>95.5%</b>	<b>314.1</b>	<b>249.9</b>	<b>247.5</b>	<b>10.0</b>	<b>821.5</b>	<b>38.2%</b>
Australia	260.5	4.2	6.0	25.9	296.5	89.2%	24.6	75.6	11.3	3.6	115.0	21.4%
Israel	33.5	-	1.5	0.3	35.3	94.9%	0.1	0.7	1.1	0.0	1.9	6.3%
Japan	1 056.7	11.1	65.4	28.7	1 161.9	91.9%	6.9	40.5	19.0	0.5	66.9	10.3%
Korea	229.3	1.5	17.6	0.4	248.9	92.8%	8.8	15.0	7.5	0.1	31.3	28.0%
New Zealand	22.3	0.1	0.4	5.1	28.0	80.2%	0.9	23.6	2.1	0.0	26.7	3.4%
<b>OECD Asia Oceania</b>	<b>1 602.4</b>	<b>16.9</b>	<b>90.9</b>	<b>60.4</b>	<b>1 770.6</b>	<b>91.5%</b>	<b>41.2</b>	<b>155.4</b>	<b>41.0</b>	<b>4.3</b>	<b>241.9</b>	<b>17.0%</b>
Austria	56.4	0.5	3.7	0.6	61.2	93.0%	2.0	5.0	3.0	0.1	10.0	20.3%
Belgium	107.9	1.3	5.3	0.8	115.4	94.7%	2.7	6.6	3.1	0.0	12.4	21.6%
Czech Republic	148.8	3.0	5.3	2.0	159.2	95.4%	6.4	8.9	2.7	0.2	18.2	35.3%
Denmark	50.6	0.3	1.0	3.7	55.6	91.5%	0.6	5.5	1.9	-	8.0	7.6%
Estonia	35.8	-	0.6	14.1	50.4	70.9%	1.2	1.7	0.5	-	3.4	35.0%
Finland	54.4	0.2	1.2	53.7	109.5	49.9%	0.8	2.6	6.7	0.0	10.1	7.6%
France	352.8	4.1	24.6	8.0	389.6	91.6%	20.3	40.7	14.6	0.1	75.7	26.8%
Germany	949.7	13.1	26.6	40.6	1 029.9	93.5%	36.8	41.8	36.6	0.2	115.4	31.8%
Greece	70.1	0.1	6.2	0.8	77.3	90.9%	1.6	3.7	2.3	0.1	7.7	20.6%
Hungary	66.4	0.5	2.8	1.1	70.8	94.5%	2.1	5.3	2.5	0.0	10.1	21.1%
Iceland	1.9	-	0.1	17.6	19.6	9.6%	0.0	0.2	0.1	0.0	0.3	2.0%
Ireland	30.6	-	0.9	10.9	42.4	72.1%	1.2	10.8	1.9	0.0	13.9	8.7%
Italy	397.4	4.5	22.5	3.1	427.5	94.0%	8.6	21.0	17.3	0.3	47.1	18.2%
Luxembourg	10.4	-	0.8	0.0	11.2	92.8%	0.1	0.8	0.1	0.0	1.0	10.1%
Netherlands	155.8	0.7	1.3	9.5	167.3	93.6%	6.3	11.6	12.2	0.1	30.1	20.8%
Norway	28.3	2.1	0.8	1.2	32.4	94.0%	6.1	2.2	5.8	0.1	14.1	43.0%
Poland	342.1	0.0	9.9	27.5	379.6	90.1%	74.8	22.8	9.9	0.1	107.6	69.5%
Portugal	39.4	0.2	3.5	0.3	43.5	91.3%	0.7	4.3	4.7	0.1	9.9	7.2%
Slovak Republic	56.7	0.2	3.0	0.4	60.3	94.4%	1.1	4.0	1.3	0.0	6.5	17.4%
Slovenia	13.3	0.0	0.7	0.4	14.5	92.1%	1.0	1.4	0.6	0.0	3.0	32.8%
Spain	205.2	1.8	15.0	2.0	224.0	92.4%	5.4	17.7	8.9	0.8	32.8	16.4%
Sweden	52.8	0.9	2.0	15.1	70.8	75.9%	1.1	3.4	7.0	0.0	11.5	9.6%
Switzerland	41.6	0.0	2.6	2.3	46.4	89.6%	1.1	3.7	1.0	0.1	5.9	18.8%
Turkey	126.9	4.2	12.5	1.4	145.0	90.4%	7.9	24.5	11.4	0.1	43.9	18.0%
United Kingdom	549.3	9.2	11.8	13.2	583.5	95.7%	32.7	29.1	55.4	0.1	117.3	27.8%
<b>OECD Europe</b>	<b>3 944.6</b>	<b>47.2</b>	<b>164.6</b>	<b>230.2</b>	<b>4 386.6</b>	<b>91.0%</b>	<b>222.5</b>	<b>279.3</b>	<b>211.6</b>	<b>2.6</b>	<b>716.0</b>	<b>31.1%</b>
<i>European Union - 28</i>	4 067.8	42.6	166.4	221.3	4 498.1	91.4%	231.6	280.0	208.5	2.6	722.8	32.0%

\* Total World includes Non-OECD total, OECD total as well as international bunkers.

 Sources: IEA, Sectoral Approach for CO<sub>2</sub> emissions from fuel combustion. EDGAR 4.2 FT2010 database for other emissions. In general, estimates for emissions other than CO<sub>2</sub> from fuel combustion are subject to significantly larger uncertainties.

## 1990 Greenhouse-gas emissions

million tonnes of CO<sub>2</sub> equivalent using GWP-100

Energy	N <sub>2</sub> O					Share of energy	HFCs	PFCs	SF <sub>6</sub>	Total			
	Industrial processes	Agriculture	Other	Total			Industrial processes			Total	Share of energy	GHG / GDP PPP *	
<b>255.6</b>	<b>239.9</b>	<b>1 805.6</b>	<b>526.9</b>	<b>2 827.9</b>	<b>9.0%</b>	<b>75.8</b>	<b>115.6</b>	<b>114.1</b>	<b>37 985.4</b>	<b>62.5%</b>	<b>0.96</b>	<b>World</b>	
147.4	213.7	623.0	162.1	1 146.2	12.9%	61.5	86.7	83.9	19 254.2	79.4%	0.75	Annex I Parties	
115.3	166.3	408.3	108.9	798.8	14.4%	56.5	65.3	76.9	12 961.2	80.5%	0.60	Annex II Parties	
76.0	56.4	170.1	52.0	354.5	21.4%	29.6	29.4	46.2	6 698.2	84.8%	0.74	North America	
30.0	98.7	168.2	37.7	334.6	9.0%	17.1	26.4	15.8	4 424.0	75.8%	0.49	Europe	
9.3	11.2	70.0	19.3	109.7	8.4%	9.8	9.5	14.9	1 838.9	75.9%	0.49	Asia Oceania	
28.2	47.2	192.4	50.5	318.3	8.8%	5.0	20.9	5.0	6 070.0	77.7%	1.71	Annex I EIT	
88.0	26.2	1 182.5	364.8	1 661.6	5.3%	14.3	28.9	30.2	18 090.7	43.3%	1.31	Non-Annex I Parties	
66.5	155.0	418.1	106.6	746.3	8.9%	31.9	56.8	35.7	12 127.3	77.0%	0.75	Annex I Kyoto Parties	
15.6	-	-	-	15.6	100.0%	-	-	-	379.5	100.0%	..	Int. marine bunkers	
4.6	-	-	-	4.6	100.0%	-	-	-	261.0	100.0%	..	Int. aviation bunkers	
<b>105.6</b>	<b>62.2</b>	<b>1 299.4</b>	<b>400.4</b>	<b>1 867.6</b>	<b>5.7%</b>	<b>15.9</b>	<b>46.5</b>	<b>29.8</b>	<b>22 369.2</b>	<b>50.0%</b>	<b>1.48</b>	<b>Non-OECD Total</b>	
<b>129.8</b>	<b>177.8</b>	<b>506.1</b>	<b>126.5</b>	<b>940.1</b>	<b>13.8%</b>	<b>60.0</b>	<b>69.1</b>	<b>84.4</b>	<b>14 975.6</b>	<b>79.7%</b>	<b>0.61</b>	<b>OECD Total</b>	
7.0	11.8	17.0	6.8	42.6	16.4%	0.4	8.6	4.0	597.5	78.7%	0.77	Canada	
0.3	0.0	4.1	0.7	5.1	5.7%	-	0.0	0.0	51.6	67.5%	0.59	Chile	
2.2	1.0	31.0	5.8	40.1	5.6%	1.6	0.5	0.9	465.0	64.4%	0.54	Mexico	
69.0	44.6	153.1	45.1	311.9	22.1%	29.2	20.8	42.2	6 100.8	85.4%	0.74	United States	
<b>78.5</b>	<b>57.5</b>	<b>205.2</b>	<b>58.5</b>	<b>399.7</b>	<b>19.7%</b>	<b>31.2</b>	<b>30.0</b>	<b>47.0</b>	<b>7 214.8</b>	<b>83.3%</b>	<b>0.73</b>	<b>OECD Americas</b>	
2.7	0.8	50.4	9.2	63.1	4.2%	0.6	3.9	0.4	479.5	60.9%	1.12	Australia	
0.1	0.3	0.7	0.4	1.5	9.1%	0.0	0.0	1.0	39.8	84.9%	0.47	Israel	
6.3	10.3	9.7	9.8	36.2	17.5%	9.2	4.7	14.4	1 293.3	83.6%	0.39	Japan	
1.6	1.1	4.9	2.2	9.8	16.1%	1.9	0.8	3.5	296.1	81.4%	0.63	Korea	
0.3	-	9.9	0.3	10.5	2.4%	0.0	0.9	0.0	66.1	35.7%	1.03	New Zealand	
<b>11.0</b>	<b>12.5</b>	<b>75.7</b>	<b>21.9</b>	<b>121.1</b>	<b>9.1%</b>	<b>11.7</b>	<b>10.3</b>	<b>19.3</b>	<b>2 174.9</b>	<b>76.9%</b>	<b>0.50</b>	<b>OECD Asia Oceania</b>	
0.6	0.8	2.9	0.7	5.1	12.6%	0.0	1.0	0.4	77.7	76.6%	0.40	Austria	
0.7	3.9	3.3	1.1	9.0	8.1%	0.0	0.0	0.1	137.0	82.3%	0.55	Belgium	
1.9	1.3	5.2	1.3	9.7	19.8%	0.0	0.0	0.0	187.1	85.6%	1.11	Czech Republic	
0.5	1.1	5.8	0.6	8.0	6.0%	0.0	0.0	0.1	71.7	72.5%	0.55	Denmark	
0.5	-	1.2	0.2	1.9	24.9%	-	0.0	0.0	55.7	67.2%	3.43	Estonia	
1.4	1.5	3.8	0.7	7.4	19.0%	0.0	0.0	0.1	127.0	44.7%	1.10	Finland	
3.6	26.7	35.5	4.8	70.7	5.1%	4.7	1.6	3.2	545.4	69.8%	0.39	France	
11.1	20.5	33.6	8.0	73.2	15.2%	2.6	4.4	5.6	1 231.0	82.1%	0.60	Germany	
0.8	1.1	4.5	1.1	7.5	11.1%	0.5	1.7	0.1	94.8	76.6%	0.54	Greece	
0.7	3.2	5.4	0.8	10.1	6.7%	0.0	0.7	0.0	91.7	76.1%	0.67	Hungary	
0.0	0.0	0.3	0.0	0.4	6.1%	-	1.0	0.0	21.4	9.0%	3.27	Iceland	
0.2	0.9	6.6	0.3	8.2	3.0%	0.0	0.0	0.0	64.5	49.7%	1.04	Ireland	
2.4	7.2	15.6	5.2	30.3	7.8%	2.0	0.9	1.2	509.0	81.1%	0.38	Italy	
0.0	-	0.3	0.1	0.4	12.4%	0.0	0.0	-	12.5	83.8%	0.77	Luxembourg	
0.7	5.8	7.2	1.3	15.0	4.7%	2.8	3.1	0.3	218.6	74.8%	0.56	Netherlands	
0.4	2.1	1.9	0.5	4.9	8.1%	-	6.3	2.3	60.0	61.5%	0.44	Norway	
2.1	3.4	19.0	2.9	27.3	7.5%	0.0	0.4	0.1	515.1	81.3%	1.65	Poland	
0.5	0.5	2.9	0.9	4.8	11.2%	0.0	0.0	0.1	58.2	70.3%	0.36	Portugal	
1.1	1.0	2.9	0.4	5.5	20.2%	-	0.1	-	72.4	81.8%	1.14	Slovak Republic	
0.1	-	1.0	0.2	1.3	9.5%	-	0.8	0.0	19.6	73.8%	0.60	Slovenia	
1.9	3.0	15.5	4.5	24.9	7.6%	2.0	3.8	0.4	287.8	74.5%	0.37	Spain	
1.0	0.8	4.0	0.9	6.7	15.1%	0.0	0.7	0.2	90.0	62.1%	0.43	Sweden	
0.4	0.2	1.6	0.6	2.8	15.1%	0.0	0.3	0.6	56.1	76.9%	0.24	Switzerland	
3.9	0.2	22.3	2.6	29.0	13.6%	-	0.5	2.0	220.4	64.9%	0.51	Turkey	
3.5	22.6	22.8	6.4	55.3	6.3%	2.6	1.6	1.1	761.3	78.1%	0.59	United Kingdom	
<b>40.3</b>	<b>107.8</b>	<b>225.2</b>	<b>46.1</b>	<b>419.4</b>	<b>9.6%</b>	<b>17.1</b>	<b>28.8</b>	<b>18.0</b>	<b>5 586.0</b>	<b>76.2%</b>	<b>0.55</b>	<b>OECD Europe</b>	
37.9	113.3	227.0	45.6	423.8	8.9%	17.1	23.5	13.1	5 698.4	76.9%	0.59	European Union - 28	

\* GHG / GDP PPP ratio is expressed in kg of CO<sub>2</sub>-equivalent per 2005 USD.

## 1990 Greenhouse-gas emissions

 million tonnes of CO<sub>2</sub> equivalent using GWP-100

	CO <sub>2</sub>						CH <sub>4</sub>					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
<b>Non-OECD Total</b>	<b>9 214.4</b>	<b>359.1</b>	<b>495.3</b>	<b>5 520.6</b>	<b>15 589.5</b>	<b>61.4%</b>	<b>1 496.8</b>	<b>2 501.1</b>	<b>568.7</b>	<b>253.4</b>	<b>4 820.0</b>	<b>31.1%</b>
Albania	6.2	0.1	0.3	0.7	7.3	86.6%	0.8	1.6	0.2	0.0	2.5	31.0%
Armenia	20.5	-	0.7	0.4	21.5	95.1%	1.3	1.3	0.3	0.0	2.9	45.4%
Azerbaijan	55.0	0.0	0.6	0.3	55.9	98.5%	5.8	4.3	1.4	0.0	11.4	50.6%
Belarus	124.8	0.0	1.9	44.0	170.6	73.1%	1.1	14.3	3.3	0.0	18.7	6.1%
Bosnia-Herzegovina	23.7	-	0.2	0.4	24.3	97.5%	2.8	1.6	0.2	0.0	4.6	60.1%
Bulgaria	74.9	1.1	4.1	0.3	80.4	94.5%	1.3	5.5	8.8	0.1	15.7	8.4%
Croatia	21.5	0.2	1.4	0.1	23.1	93.8%	1.6	1.8	0.8	0.0	4.2	37.8%
Cyprus *	3.9	-	0.5	0.0	4.4	88.6%	0.0	0.2	0.2	-	0.4	3.3%
FYR of Macedonia	8.5	-	0.3	0.1	8.9	95.7%	0.3	1.1	0.2	0.1	1.7	18.7%
Georgia	33.3	0.0	0.3	0.4	34.0	97.9%	1.7	2.6	0.7	0.0	5.0	34.5%
Gibraltar	0.2	-	-	0.0	0.2	99.8%	0.0	-	0.0	-	0.0	12.0%
Kazakhstan	236.4	6.1	6.7	16.2	265.5	91.4%	33.7	25.6	3.2	6.8	69.2	48.6%
Kosovo **	..	..	..	..	..	..	..	..	..	..	..	..
Kyrgyzstan	22.5	0.0	0.7	0.7	23.8	94.2%	0.7	4.3	0.6	0.2	5.8	12.2%
Latvia	18.6	-	0.9	5.2	24.8	75.3%	1.6	3.2	0.6	0.0	5.5	30.0%
Lithuania	33.1	0.0	1.8	6.1	41.0	80.8%	1.6	4.9	1.1	0.0	7.6	21.3%
Malta	2.3	-	0.0	0.0	2.3	99.6%	0.0	0.1	0.1	-	0.2	1.6%
Republic of Moldova	30.2	-	1.3	0.2	31.6	95.4%	1.4	2.2	0.5	0.0	4.1	34.8%
Montenegro **	..	..	..	..	..	..	..	..	..	..	..	..
Romania	167.5	0.5	9.0	2.0	178.9	93.9%	18.1	15.7	3.6	0.0	37.4	48.3%
Russian Federation	2 178.8	83.2	98.4	355.0	2 715.4	83.3%	422.5	132.5	54.3	15.1	624.5	67.7%
Serbia **	61.4	0.2	2.2	0.6	64.4	95.6%	4.5	6.2	1.2	0.0	11.9	37.9%
Tajikistan	10.9	0.0	0.6	0.1	11.5	94.5%	0.8	2.9	0.6	0.0	4.3	18.4%
Turkmenistan	44.5	0.9	0.6	0.6	46.5	97.5%	26.4	2.8	0.6	0.0	29.8	88.5%
Ukraine	687.9	34.5	32.6	12.0	767.0	94.2%	58.4	54.1	9.5	0.2	122.3	47.8%
Uzbekistan	119.8	1.8	3.6	1.7	126.8	95.9%	17.1	13.2	2.6	0.0	32.9	52.0%
<b>Non-OECD Europe and Eurasia</b>	<b>3 986.3</b>	<b>128.6</b>	<b>168.6</b>	<b>446.7</b>	<b>4 730.2</b>	<b>87.0%</b>	<b>603.7</b>	<b>301.6</b>	<b>94.7</b>	<b>22.6</b>	<b>1 022.7</b>	<b>59.0%</b>
Algeria	52.7	12.1	3.0	0.2	68.1	95.2%	24.4	3.7	3.1	0.0	31.2	78.2%
Angola	4.0	6.9	0.1	7.4	18.4	59.0%	6.8	14.0	1.1	0.1	22.1	31.0%
Benin	0.3	0.0	0.1	37.9	38.3	0.7%	0.7	1.9	0.5	2.0	5.1	13.9%
Botswana	2.8	-	-	0.4	3.2	87.0%	0.4	5.5	0.2	0.1	6.1	6.1%
Cameroon	2.7	3.7	0.3	63.4	70.1	9.1%	3.3	7.7	1.6	3.4	16.0	20.7%
Congo	0.6	1.5	0.0	49.8	51.9	4.1%	1.8	2.4	0.3	2.7	7.2	25.3%
Dem. Rep. of Congo	3.0	0.0	0.3	1 188.1	1 191.4	0.2%	3.6	26.8	4.0	63.9	98.3	3.7%
Côte d'Ivoire	2.7	0.0	0.2	129.5	132.5	2.1%	1.6	2.1	1.5	6.9	12.1	13.5%
Egypt	79.5	3.7	6.8	1.1	91.1	91.3%	10.4	10.5	6.0	0.0	26.9	38.7%
Eritrea	-	-	0.0	0.0	0.0	0.0%	0.3	1.5	0.3	-	2.1	15.0%
Ethiopia	2.2	-	0.2	0.4	2.8	79.5%	3.2	32.6	4.2	-	40.0	8.1%
Gabon	0.9	3.4	0.1	4.1	8.5	51.0%	3.0	0.1	0.2	0.2	3.5	86.2%
Ghana	2.7	-	0.3	12.7	15.7	17.2%	1.8	3.7	1.7	0.7	7.9	22.5%
Kenya	5.5	-	0.9	2.1	8.5	65.0%	4.9	13.4	2.1	-	20.3	23.9%
Libya	27.4	14.1	1.5	0.1	43.1	96.2%	14.8	1.1	0.8	0.0	16.7	88.7%
Mauritius	1.2	-	0.0	0.0	1.2	99.3%	0.0	0.0	0.2	-	0.2	5.6%
Morocco	19.6	-	2.5	0.3	22.4	87.6%	1.0	5.4	2.9	-	9.2	10.4%
Mozambique	1.1	-	0.0	17.4	18.5	5.8%	1.7	7.7	1.5	0.9	11.8	14.6%
Namibia	-	-	0.0	0.0	0.0	0.0%	0.1	3.3	0.1	-	3.6	2.2%
Nigeria	29.0	38.6	1.4	9.4	78.4	86.2%	33.8	22.0	8.8	0.4	65.1	51.9%
Senegal	2.1	-	0.2	0.1	2.4	88.6%	1.0	3.7	1.0	-	5.6	17.4%
South Africa	253.7	14.4	4.9	2.6	275.6	97.2%	23.6	19.1	8.4	2.2	53.4	44.3%
Sudan	5.5	-	0.1	4.0	9.6	57.2%	5.1	39.1	2.9	-	47.1	10.9%
United Rep. of Tanzania	1.7	-	0.3	44.9	46.9	3.6%	2.4	19.8	2.3	2.4	26.9	8.9%
Togo	0.6	-	0.2	7.4	8.1	7.0%	0.8	1.5	0.4	0.4	3.1	24.9%
Tunisia	12.1	0.0	2.5	0.1	14.7	82.2%	1.2	1.8	1.0	0.0	4.1	30.5%
Zambia	2.6	-	0.4	142.6	145.5	1.8%	1.7	19.2	0.8	7.5	29.1	5.7%
Zimbabwe	16.0	-	0.5	0.8	17.3	92.5%	1.2	8.1	0.9	0.0	10.3	11.4%
Other Africa	12.9	-	0.4	268.1	281.5	4.6%	14.9	104.9	11.0	13.2	144.1	10.4%
<b>Africa</b>	<b>545.0</b>	<b>98.4</b>	<b>27.4</b>	<b>1 995.1</b>	<b>2 665.9</b>	<b>24.1%</b>	<b>169.7</b>	<b>382.6</b>	<b>69.8</b>	<b>107.0</b>	<b>729.1</b>	<b>23.3%</b>

 \* Please refer to Part I, Chapter 4, *Geographical Coverage*.

\*\* For 1990, Serbia includes Kosovo and Montenegro.

## 1990 Greenhouse-gas emissions

million tonnes of CO<sub>2</sub> equivalent using GWP-100

Energy	N <sub>2</sub> O					Share of energy	HFCs	PFCs	SF <sub>6</sub>	Total			
	Industrial processes	Agriculture	Other	Total	Industrial processes		Total	Share of energy	GHG / GDP PPP *				
<b>105.6</b>	<b>62.2</b>	<b>1 299.4</b>	<b>400.4</b>	<b>1 867.6</b>	<b>5.7%</b>	<b>15.9</b>	<b>46.5</b>	<b>29.8</b>	<b>22 369.2</b>	<b>50.0%</b>	<b>1.48</b>	<b>Non-OECD Total</b>	
0.0	-	1.1	0.2	1.3	3.0%	-	-	-	11.1	64.2%	0.86	Albania	
0.0	-	0.6	0.2	0.8	4.6%	-	-	-	25.2	86.5%	2.14	Armenia	
0.1	-	2.1	0.4	2.7	3.3%	-	0.2	-	70.2	86.8%	1.29	Azerbaijan	
0.9	2.1	12.5	0.9	16.4	5.2%	-	0.0	-	205.7	61.7%	2.80	Belarus	
0.9	-	0.9	0.2	2.0	43.8%	-	0.6	-	31.5	86.7%	6.13	Bosnia-Herzegovina	
0.6	2.3	5.7	0.8	9.4	6.6%	-	0.0	-	105.5	73.9%	1.61	Bulgaria	
0.4	0.9	2.2	0.3	3.8	9.7%	-	0.9	-	32.0	74.0%	0.50	Croatia	
0.0	-	0.2	0.0	0.2	6.6%	-	-	-	5.0	77.2%	0.48	Cyprus	
0.1	-	0.6	0.1	0.9	14.6%	-	-	-	11.4	78.3%	0.70	FYR of Macedonia	
0.1	0.8	1.6	0.3	2.8	3.4%	-	-	-	41.8	84.0%	1.22	Georgia	
0.0	-	-	0.0	0.0	21.3%	-	-	-	0.2	95.4%	0.32	Gibraltar	
3.6	-	18.3	11.6	33.5	10.7%	-	-	-	368.2	76.0%	1.99	Kazakhstan	
..	..	..	..	..	..	..	..	..	..	..	..	Kosovo	
0.8	-	2.2	0.6	3.6	21.4%	-	-	-	33.2	72.0%	2.44	Kyrgyzstan	
0.2	-	2.5	0.3	3.0	7.3%	0.0	0.0	-	33.3	61.6%	1.24	Latvia	
0.3	0.8	3.9	0.4	5.3	5.6%	0.0	0.0	-	53.9	65.0%	1.17	Lithuania	
0.0	-	0.0	0.0	0.1	12.0%	-	-	-	2.6	90.0%	0.53	Malta	
0.1	-	1.4	0.3	1.7	4.9%	-	-	-	37.5	84.6%	1.77	Republic of Moldova	
..	..	..	..	..	..	..	..	..	..	..	..	Montenegro	
0.9	4.1	13.4	1.5	19.8	4.3%	-	2.0	0.0	238.1	78.5%	1.31	Romania	
15.0	15.2	84.9	35.9	150.9	9.9%	5.0	15.9	4.9	3 516.7	76.8%	1.88	Russian Federation	
0.4	0.7	3.3	0.6	4.9	8.8%	0.0	0.8	-	82.1	81.1%	0.93	Serbia	
0.0	-	1.2	0.2	1.4	2.3%	-	2.8	-	20.0	58.6%	1.17	Tajikistan	
0.1	0.1	1.8	0.2	2.2	3.5%	-	-	-	78.6	91.5%	2.88	Turkmenistan	
3.6	13.0	32.6	4.7	53.9	6.7%	0.0	0.2	-	943.4	83.1%	1.94	Ukraine	
0.2	0.2	7.8	1.0	9.2	2.0%	-	-	-	169.0	82.2%	3.04	Uzbekistan	
<b>28.3</b>	<b>40.1</b>	<b>200.7</b>	<b>60.7</b>	<b>329.8</b>	<b>8.6%</b>	<b>5.0</b>	<b>23.4</b>	<b>4.9</b>	<b>6 116.0</b>	<b>77.6%</b>	<b>1.81</b>	<b>Non-OECD Europe and Eurasia</b>	
0.3	0.4	2.5	0.7	3.9	7.9%	-	-	0.3	103.5	86.5%	0.44	Algeria	
0.1	-	15.7	2.0	17.7	0.7%	-	-	-	58.2	30.6%	1.49	Angola	
0.1	-	1.8	1.8	3.7	2.5%	-	-	-	47.2	2.2%	7.78	Benin	
0.0	-	4.9	0.5	5.4	0.6%	-	-	-	14.7	21.6%	1.47	Botswana	
0.2	-	7.0	3.3	10.5	1.5%	-	0.9	-	97.4	10.1%	3.42	Cameroon	
0.0	-	2.1	2.3	4.4	0.9%	-	-	-	63.5	6.3%	5.68	Congo	
0.7	-	31.4	55.1	87.2	0.8%	-	-	-	1 376.9	0.5%	54.24	Dem. Rep. of Congo	
0.2	-	1.7	5.8	7.6	2.3%	-	-	-	152.3	3.0%	4.57	Côte d'Ivoire	
0.5	1.4	8.4	1.6	11.9	4.2%	-	1.3	0.8	132.0	71.3%	0.44	Egypt	
0.0	-	1.0	0.0	1.0	3.0%	-	-	-	3.1	10.9%	..	Eritrea	
0.7	-	23.1	1.5	25.3	2.6%	-	-	-	68.0	9.0%	2.48	Ethiopia	
0.0	-	0.1	0.2	0.3	8.7%	-	-	-	12.3	59.9%	0.76	Gabon	
0.3	-	3.8	1.1	5.1	5.0%	-	0.6	-	29.4	16.2%	1.19	Ghana	
0.4	-	8.5	0.4	9.3	4.5%	-	-	-	38.1	28.3%	0.93	Kenya	
0.1	-	0.8	0.3	1.2	11.6%	-	-	0.3	61.3	92.1%	0.94	Libya	
0.0	-	0.1	0.0	0.1	4.4%	-	-	-	1.5	77.3%	0.21	Mauritius	
0.2	-	4.4	0.6	5.2	3.5%	-	-	-	36.8	56.5%	0.41	Morocco	
0.3	-	8.5	1.8	10.6	2.4%	-	-	-	40.9	7.5%	7.78	Mozambique	
0.1	-	2.4	0.1	2.5	2.1%	-	-	-	6.1	2.2%	..	Namibia	
1.2	-	15.5	2.3	19.0	6.1%	-	-	0.2	162.8	63.0%	0.63	Nigeria	
0.1	-	2.6	0.3	2.9	3.5%	-	-	-	11.0	29.2%	0.88	Senegal	
2.0	1.0	13.5	5.1	21.5	9.2%	0.0	0.4	1.1	352.0	83.4%	1.13	South Africa	
0.4	-	32.7	2.9	36.0	1.1%	-	-	-	92.8	11.9%	2.28	Sudan	
0.4	-	17.3	3.5	21.1	1.7%	-	-	-	95.0	4.7%	4.18	United Rep. of Tanzania	
0.1	-	1.6	0.5	2.2	3.8%	-	-	-	13.4	10.6%	2.99	Togo	
0.1	0.4	1.2	0.2	2.0	7.0%	-	-	-	20.8	64.9%	0.51	Tunisia	
0.2	0.5	25.8	8.6	35.0	0.5%	-	-	-	209.7	2.1%	11.82	Zambia	
0.2	-	6.0	0.5	6.8	3.6%	-	-	-	34.3	50.7%	7.15	Zimbabwe	
1.9	-	86.2	19.0	107.1	1.8%	-	-	-	532.7	5.6%	4.41	Other Africa	
<b>10.7</b>	<b>3.7</b>	<b>330.3</b>	<b>122.0</b>	<b>466.7</b>	<b>2.3%</b>	<b>0.0</b>	<b>3.2</b>	<b>2.7</b>	<b>3 867.5</b>	<b>21.3%</b>	<b>2.14</b>	<b>Africa</b>	

\* GHG / GDP PPP ratio is expressed in kg of CO<sub>2</sub>-equivalent per 2005 USD. The high GHG / GDP PPP ratio for DR of Congo and Zambia is due to high levels of forest fires and subsequent post-burn decay.

## 1990 Greenhouse-gas emissions

 million tonnes of CO<sub>2</sub> equivalent using GWP-100

	CO <sub>2</sub>						CH <sub>4</sub>					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Bangladesh	13.6	-	0.2	10.4	24.1	56.2%	5.8	69.4	11.6	0.4	87.1	6.6%
Brunei Darussalam	3.2	0.0	0.0	10.7	14.1	23.3%	3.0	0.0	0.1	0.5	3.6	83.5%
Cambodia	-	-	-	0.0	0.0	0.0%	1.0	13.2	0.8	-	15.1	6.9%
India	580.5	14.0	23.5	52.0	669.9	88.7%	67.2	366.9	77.0	2.5	513.6	13.1%
Indonesia	146.1	10.2	7.8	694.2	858.3	18.2%	37.4	82.0	26.2	6.6	152.2	24.6%
DPR of Korea	114.0	2.0	8.1	3.1	127.2	91.2%	12.4	5.6	2.7	1.0	21.6	57.1%
Malaysia	50.4	1.5	2.8	106.7	161.4	32.2%	9.1	6.9	3.0	4.6	23.6	38.4%
Mongolia	12.7	-	0.3	30.5	43.5	29.1%	0.6	6.4	0.2	1.1	8.3	7.7%
Myanmar	4.1	0.0	0.2	742.9	747.1	0.5%	3.1	39.0	4.5	37.4	84.0	3.7%
Nepal	0.9	-	0.1	0.2	1.2	75.1%	1.3	17.3	1.7	0.0	20.3	6.4%
Pakistan	58.6	0.6	3.6	0.4	63.2	93.7%	15.4	64.6	10.8	0.0	90.8	16.9%
Philippines	37.9	0.0	3.0	5.1	46.0	82.4%	3.7	28.6	9.0	0.2	41.6	8.9%
Singapore	30.3	0.2	0.9	0.3	31.6	96.2%	0.4	0.1	0.5	0.0	1.0	41.2%
Sri Lanka	3.6	-	0.3	1.0	4.9	73.7%	0.6	8.6	2.3	0.0	11.5	5.1%
Chinese Taipei	114.6	1.2	8.8	0.8	125.5	92.3%	1.0	1.4	3.9	0.0	6.3	16.2%
Thailand	80.4	0.0	8.7	13.2	102.3	78.6%	14.5	61.3	8.6	0.5	85.0	17.1%
Viet Nam	17.2	1.1	1.7	6.1	26.1	70.1%	6.6	46.8	7.0	0.0	60.5	10.9%
Other Asia	10.2	0.0	0.2	40.3	50.8	20.2%	2.3	15.9	3.3	1.6	23.1	9.9%
<b>Asia (excl. China)</b>	<b>1 278.2</b>	<b>30.9</b>	<b>70.3</b>	<b>1 718.0</b>	<b>3 097.4</b>	<b>42.3%</b>	<b>185.4</b>	<b>833.9</b>	<b>173.3</b>	<b>56.6</b>	<b>1 249.1</b>	<b>14.8%</b>
People's Rep. of China	2 244.9	26.4	170.2	83.4	2 524.9	90.0%	353.5	523.3	135.7	4.4	1 016.9	34.8%
Hong Kong, China	32.9	0.7	0.9	0.1	34.5	97.4%	0.1	-	1.4	-	1.5	6.0%
<b>China</b>	<b>2 277.7</b>	<b>27.1</b>	<b>171.1</b>	<b>83.5</b>	<b>2 559.4</b>	<b>90.1%</b>	<b>353.6</b>	<b>523.3</b>	<b>137.2</b>	<b>4.4</b>	<b>1 018.5</b>	<b>34.7%</b>
Argentina	99.9	3.2	1.8	17.3	122.2	84.3%	13.6	78.2	7.1	3.0	102.0	13.4%
Bolivia	5.2	0.8	0.2	149.1	155.3	3.8%	2.8	11.4	0.9	7.3	22.4	12.4%
Brazil	192.4	5.8	17.1	905.2	1 120.4	17.7%	25.0	209.5	41.4	43.7	319.6	7.8%
Colombia	46.2	1.4	3.9	52.0	103.6	46.0%	6.9	36.1	4.7	2.5	50.2	13.7%
Costa Rica	2.6	-	0.2	0.1	2.9	88.8%	0.2	3.2	0.4	-	3.8	4.5%
Cuba	33.8	0.9	1.8	4.5	41.0	84.7%	1.3	8.2	2.6	0.1	12.1	10.4%
Dominican Republic	7.4	-	0.5	0.6	8.5	87.0%	0.5	4.2	1.2	0.0	6.0	8.2%
Ecuador	13.4	1.7	0.8	1.0	16.9	89.4%	2.4	7.3	1.3	0.0	11.0	22.0%
El Salvador	2.2	-	0.3	0.3	2.8	80.2%	0.3	1.6	0.7	-	2.7	12.2%
Guatemala	3.2	0.0	0.5	3.8	7.5	42.8%	0.8	2.9	1.0	0.2	4.8	16.1%
Haiti	0.9	-	0.2	0.0	1.1	82.1%	0.7	1.7	0.9	-	3.3	22.2%
Honduras	2.2	-	0.1	5.0	7.3	29.5%	0.3	2.9	0.5	0.2	4.0	8.8%
Jamaica	7.2	-	0.3	0.1	7.5	95.4%	0.2	0.6	0.4	-	1.2	18.8%
Netherlands Antilles	2.8	-	-	0.0	2.8	98.3%	0.1	0.0	0.0	-	0.1	56.6%
Nicaragua	1.8	-	0.1	0.4	2.3	79.5%	0.3	3.8	0.7	-	4.8	5.9%
Panama	2.6	-	0.1	0.4	3.1	82.2%	0.1	2.3	0.4	-	2.8	4.7%
Paraguay	1.9	-	0.2	37.2	39.3	4.9%	0.8	12.0	0.7	2.0	15.5	5.3%
Peru	19.2	0.4	1.0	19.4	40.1	49.0%	1.7	7.9	3.0	0.9	13.6	12.4%
Trinidad and Tobago	11.4	0.5	0.2	0.0	12.2	97.8%	2.4	0.1	0.6	0.0	3.0	77.9%
Uruguay	3.7	0.0	0.2	0.4	4.4	85.2%	0.1	15.0	0.7	-	15.8	0.7%
Venezuela	105.1	1.9	2.8	39.8	149.6	71.5%	18.8	19.4	4.0	1.8	43.9	42.7%
Other Non-OECD Americas	12.3	0.0	1.0	22.1	35.4	34.7%	0.2	2.6	1.8	0.8	5.4	4.0%
<b>Non-OECD Americas</b>	<b>577.3</b>	<b>16.7</b>	<b>33.4</b>	<b>1 259.0</b>	<b>1 886.3</b>	<b>31.5%</b>	<b>79.5</b>	<b>430.9</b>	<b>75.0</b>	<b>62.6</b>	<b>648.0</b>	<b>12.3%</b>
Bahrain	12.4	0.0	0.1	0.1	12.6	98.6%	1.6	0.0	0.1	0.0	1.8	90.0%
Islamic Rep. of Iran	178.7	22.3	7.4	0.7	209.1	96.1%	31.1	17.7	7.9	0.0	56.7	54.8%
Iraq	53.4	13.1	6.1	3.1	75.7	87.8%	15.2	3.3	2.9	0.0	21.4	71.0%
Jordan	9.2	-	0.8	0.0	10.1	91.7%	0.1	0.3	0.4	-	0.9	13.7%
Kuwait	28.7	2.5	0.4	0.0	31.7	98.6%	4.7	0.1	0.6	0.0	5.3	88.4%
Lebanon	5.5	-	0.4	0.0	5.9	92.5%	0.1	0.2	0.4	-	0.7	11.7%
Oman	10.1	4.8	0.0	14.0	28.9	51.5%	5.6	0.3	0.2	-	6.2	91.0%
Qatar	14.3	2.0	0.1	0.0	16.4	98.9%	4.1	0.1	0.2	0.0	4.4	93.0%
Saudi Arabia	151.1	3.9	5.7	0.2	160.9	96.3%	24.7	1.8	3.0	0.1	29.7	83.3%
Syrian Arab Republic	28.2	4.1	1.4	0.1	33.8	95.5%	4.5	2.6	1.3	0.0	8.4	53.4%
United Arab Emirates	51.9	4.7	1.5	0.1	58.1	97.3%	12.7	0.3	0.4	-	13.4	95.0%
Yemen	6.4	0.0	0.5	0.0	7.0	92.4%	0.7	2.2	1.0	-	3.9	17.0%
<b>Middle East</b>	<b>549.9</b>	<b>57.4</b>	<b>24.5</b>	<b>18.4</b>	<b>650.3</b>	<b>93.4%</b>	<b>105.0</b>	<b>28.8</b>	<b>18.7</b>	<b>0.1</b>	<b>152.6</b>	<b>68.8%</b>

## 1990 Greenhouse-gas emissions

million tonnes of CO<sub>2</sub> equivalent using GWP-100

Energy	N <sub>2</sub> O					Share of energy	HFCs	PFCs	SF <sub>6</sub>	Total			
	Industrial processes	Agriculture	Other	Total	Industrial processes		Total	Share of energy	GHG / GDP PPP *				
1.3	-	12.2	1.7	15.2	8.4%	-	-	-	126.4	16.3%	1.24	Bangladesh	
0.0	-	0.1	0.5	0.6	1.0%	-	-	-	18.2	34.5%	1.04	Brunei Darussalam	
0.2	-	3.3	0.4	3.9	5.4%	-	-	-	19.0	6.6%	..	Cambodia	
18.4	1.1	121.1	18.7	159.5	11.6%	1.7	2.1	5.8	1 352.6	50.3%	0.96	India	
3.7	0.1	54.9	30.2	88.9	4.2%	-	0.7	1.1	1 101.2	17.9%	1.61	Indonesia	
0.6	-	5.6	2.6	8.7	6.9%	0.0	-	-	157.6	81.9%	1.06	DPR of Korea	
0.3	-	8.2	5.1	13.6	1.9%	0.0	0.0	0.6	199.2	30.8%	1.21	Malaysia	
0.1	-	3.3	1.8	5.2	1.8%	-	-	-	56.9	23.5%	6.79	Mongolia	
0.4	-	8.4	35.4	44.2	0.9%	-	-	-	875.3	0.9%	65.00	Myanmar	
0.5	-	2.8	0.3	3.6	13.7%	-	-	-	25.1	10.7%	1.24	Nepal	
2.1	0.6	13.7	2.0	18.4	11.6%	-	-	1.0	173.5	44.2%	0.59	Pakistan	
1.0	-	7.1	1.6	9.7	9.9%	-	-	0.2	97.4	43.7%	0.44	Philippines	
0.1	-	0.1	0.3	0.4	16.8%	0.0	0.1	0.4	33.5	92.2%	0.36	Singapore	
0.2	-	1.2	0.3	1.8	14.0%	-	-	-	18.2	24.6%	0.36	Sri Lanka	
0.4	0.5	2.4	0.7	4.0	10.3%	0.0	0.1	1.9	137.8	85.1%	0.50	Chinese Taipei	
2.8	-	14.4	2.3	19.5	14.6%	-	-	1.4	208.2	47.0%	0.65	Thailand	
0.9	-	9.5	1.2	11.6	7.4%	-	-	-	98.2	26.2%	1.11	Viet Nam	
0.4	-	10.3	2.3	13.0	3.2%	-	-	-	86.9	14.9%	1.49	Other Asia	
<b>33.4</b>	<b>2.4</b>	<b>278.5</b>	<b>107.3</b>	<b>421.6</b>	<b>7.9%</b>	<b>1.7</b>	<b>3.0</b>	<b>12.3</b>	<b>4 785.2</b>	<b>31.9%</b>	<b>1.21</b>	<b>Asia (excl. China)</b>	
21.3	10.1	253.4	33.6	318.4	6.7%	6.0	4.7	1.7	3 872.6	68.3%	2.57	People's Rep. of China	
0.1	-	-	0.2	0.4	37.2%	-	-	0.4	36.8	91.9%	0.27	Hong Kong, China	
<b>21.4</b>	<b>10.1</b>	<b>253.4</b>	<b>33.9</b>	<b>318.8</b>	<b>6.7%</b>	<b>6.0</b>	<b>4.7</b>	<b>2.1</b>	<b>3 909.4</b>	<b>68.5%</b>	<b>2.38</b>	<b>China</b>	
0.9	0.1	32.4	5.1	38.5	2.4%	0.2	1.9	0.1	265.0	44.4%	1.09	Argentina	
0.1	-	7.5	7.0	14.6	0.6%	-	-	-	192.3	4.6%	8.49	Bolivia	
4.1	4.1	102.5	45.0	155.8	2.7%	1.9	5.0	1.5	1 604.2	14.2%	1.20	Brazil	
0.6	0.2	16.3	3.1	20.2	3.1%	-	0.0	0.0	174.1	31.7%	0.75	Colombia	
0.1	0.1	1.5	0.1	1.8	2.8%	-	-	-	8.5	33.1%	0.42	Costa Rica	
0.8	0.7	7.3	0.9	9.6	8.1%	-	-	-	62.7	58.7%	1.43	Cuba	
0.1	-	1.7	0.3	2.1	4.8%	-	-	-	16.6	48.0%	0.54	Dominican Republic	
0.2	-	2.7	0.3	3.2	4.9%	-	-	-	31.0	56.9%	0.47	Ecuador	
0.1	-	1.1	0.2	1.3	6.1%	-	-	-	6.8	39.0%	0.32	El Salvador	
0.2	-	1.9	0.4	2.5	7.2%	0.0	-	-	14.8	28.1%	0.35	Guatemala	
0.1	-	0.8	0.1	0.9	6.2%	-	-	-	5.4	32.3%	0.41	Haiti	
0.1	-	2.0	0.4	2.4	3.6%	-	-	-	13.7	18.9%	0.98	Honduras	
0.1	-	0.3	0.1	0.5	12.8%	-	-	-	9.2	80.9%	0.65	Jamaica	
0.0	-	0.0	0.1	0.1	9.9%	-	-	-	3.0	94.0%	1.95	Netherlands Antilles	
0.1	-	2.8	0.2	3.1	2.4%	-	-	-	10.2	21.5%	0.94	Nicaragua	
0.0	-	0.9	0.1	1.0	3.5%	-	-	-	6.9	39.5%	0.45	Panama	
0.1	-	6.6	2.3	9.0	1.6%	-	-	-	63.8	4.5%	2.72	Paraguay	
0.2	0.2	3.9	1.2	5.6	4.1%	-	-	-	59.2	36.4%	0.56	Peru	
0.0	-	0.1	0.1	0.2	10.9%	-	-	-	15.4	92.6%	1.05	Trinidad and Tobago	
0.1	-	5.9	0.1	6.1	1.5%	-	-	-	26.2	15.2%	1.00	Uruguay	
0.4	0.0	9.2	2.5	12.0	3.0%	1.0	1.9	0.3	208.8	60.4%	0.82	Venezuela	
0.1	-	2.5	1.0	3.6	2.6%	-	0.3	0.0	44.6	28.2%	1.60	Other Non-OECD Americas	
<b>8.4</b>	<b>5.4</b>	<b>209.9</b>	<b>70.4</b>	<b>294.0</b>	<b>2.8%</b>	<b>3.1</b>	<b>9.1</b>	<b>2.0</b>	<b>2 842.6</b>	<b>24.0%</b>	<b>1.10</b>	<b>Non-OECD Americas</b>	
0.0	-	0.0	0.0	0.1	19.5%	-	2.5	-	17.0	82.7%	1.09	Bahrain	
2.0	0.3	14.5	2.1	18.8	10.5%	-	0.2	2.4	287.2	81.5%	0.66	Islamic Rep. of Iran	
0.2	-	3.0	0.5	3.8	6.4%	-	-	0.3	101.2	81.0%	0.31	Iraq	
0.0	-	0.3	0.1	0.5	6.7%	-	-	-	11.4	82.3%	0.57	Jordan	
0.1	-	0.0	0.2	0.3	25.3%	0.0	-	0.3	37.5	95.9%	0.41	Kuwait	
0.0	-	0.2	0.1	0.4	8.8%	-	-	-	7.0	80.0%	0.35	Lebanon	
0.0	-	0.2	0.1	0.3	14.6%	-	-	-	35.4	58.0%	0.75	Oman	
0.0	-	0.0	0.1	0.1	20.9%	-	-	-	20.9	97.2%	0.67	Qatar	
0.6	-	3.1	1.8	5.5	10.0%	0.0	-	2.4	198.5	90.8%	0.39	Saudi Arabia	
0.2	0.2	3.2	0.5	4.1	5.1%	-	-	-	46.3	79.9%	1.26	Syrian Arab Republic	
0.1	-	0.2	0.4	0.7	18.5%	-	0.4	0.5	73.1	95.0%	0.39	United Arab Emirates	
0.1	-	1.8	0.2	2.1	2.8%	-	-	-	13.0	55.3%	0.36	Yemen	
<b>3.4</b>	<b>0.5</b>	<b>26.6</b>	<b>6.1</b>	<b>36.7</b>	<b>9.2%</b>	<b>0.0</b>	<b>3.1</b>	<b>5.8</b>	<b>848.5</b>	<b>84.4%</b>	<b>0.48</b>	<b>Middle East</b>	

\* GHG / GDP PPP ratio is expressed in kg of CO<sub>2</sub>-equivalent per 2005 USD. The high GHG / GDP PPP ratio for Mongolia is due to high levels of peat decay

## 2000 Greenhouse-gas emissions

 million tonnes of CO<sub>2</sub> equivalent using GWP-100

	CO <sub>2</sub>						CH <sub>4</sub>					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
<b>World *</b>	<b>23 755.6</b>	<b>427.2</b>	<b>1 003.2</b>	<b>5 300.8</b>	<b>30 486.9</b>	<b>79.3%</b>	<b>2 137.7</b>	<b>3 007.8</b>	<b>1 144.1</b>	<b>176.0</b>	<b>6 465.6</b>	<b>33.1%</b>
<i>Annex I Parties</i>	13 735.2	169.0	379.2	836.5	15 120.0	92.0%	913.4	685.9	456.9	37.0	2 093.2	43.6%
<i>Annex II Parties</i>	10 986.7	59.7	273.0	351.5	11 670.8	94.6%	432.8	536.1	334.4	15.1	1 318.5	32.8%
<i>North America</i>	6 226.7	26.6	81.6	106.4	6 441.4	97.1%	279.1	208.5	160.0	6.5	654.1	42.7%
<i>Europe</i>	3 223.1	25.4	125.6	168.0	3 542.1	91.7%	116.8	193.7	150.3	1.8	462.6	25.2%
<i>Asia Oceania</i>	1 536.9	7.6	65.8	77.1	1 687.4	91.5%	36.9	133.9	24.1	6.8	201.8	18.3%
<i>Annex I EIT</i>	2 545.8	106.8	89.1	483.9	3 225.7	82.2%	471.2	127.3	97.8	21.9	718.2	65.6%
<i>Non-Annex I Parties</i>	9 180.5	258.2	624.0	4 464.3	14 527.0	65.0%	1 223.3	2 321.9	687.2	139.0	4 371.4	28.0%
<i>Annex I Kyoto Parties</i>	7 247.4	139.9	279.1	685.9	8 352.2	88.4%	624.0	446.6	268.2	30.5	1 369.2	45.6%
<b>Int. marine bunkers</b>	<b>488.1</b>	-	-	-	<b>488.1</b>	<b>100.0%</b>	<b>0.9</b>	-	-	-	<b>0.9</b>	<b>100.0%</b>
<b>Int. aviation bunkers</b>	<b>351.8</b>	-	-	-	<b>351.8</b>	<b>100.0%</b>	<b>0.1</b>	-	-	-	<b>0.1</b>	<b>100.0%</b>
<b>Non-OECD Total</b>	<b>10 300.3</b>	<b>351.5</b>	<b>644.5</b>	<b>4 863.9</b>	<b>16 160.2</b>	<b>65.9%</b>	<b>1 595.4</b>	<b>2 349.8</b>	<b>728.8</b>	<b>159.3</b>	<b>4 833.2</b>	<b>33.0%</b>
<b>OECD Total</b>	<b>12 615.4</b>	<b>75.7</b>	<b>358.7</b>	<b>436.9</b>	<b>13 486.8</b>	<b>94.1%</b>	<b>541.3</b>	<b>658.0</b>	<b>415.3</b>	<b>16.7</b>	<b>1 631.4</b>	<b>33.2%</b>
Canada	528.6	4.0	10.4	26.3	569.3	93.5%	46.8	23.3	28.3	2.0	100.4	46.6%
Chile	52.1	1.0	2.2	0.3	55.6	95.5%	4.3	6.9	5.6	0.1	16.9	25.1%
Mexico	349.6	5.4	18.6	42.7	416.4	85.3%	29.3	53.5	18.7	1.2	102.7	28.5%
United States	5 698.1	22.6	71.2	80.1	5 872.0	97.4%	232.4	185.2	131.7	4.4	553.7	42.0%
<b>OECD Americas</b>	<b>6 628.3</b>	<b>33.1</b>	<b>102.5</b>	<b>149.5</b>	<b>6 913.4</b>	<b>96.4%</b>	<b>312.7</b>	<b>268.9</b>	<b>184.4</b>	<b>7.8</b>	<b>773.8</b>	<b>40.4%</b>
Australia	335.4	3.2	6.2	42.5	387.2	87.4%	31.4	78.5	11.5	6.4	127.7	24.6%
Israel	55.2	-	3.2	0.2	58.7	94.1%	0.1	1.0	1.5	0.0	2.7	5.0%
Japan	1 170.6	4.4	59.1	29.7	1 263.8	93.0%	4.5	31.8	10.8	0.4	47.5	9.4%
Korea	437.7	1.9	25.5	0.5	465.6	94.4%	5.9	12.5	12.4	0.1	30.9	19.1%
New Zealand	30.9	0.0	0.5	4.9	36.3	85.1%	1.1	23.5	1.9	0.1	26.6	4.0%
<b>OECD Asia Oceania</b>	<b>2 029.8</b>	<b>9.6</b>	<b>94.6</b>	<b>77.8</b>	<b>2 211.7</b>	<b>92.2%</b>	<b>43.0</b>	<b>147.5</b>	<b>38.0</b>	<b>6.9</b>	<b>235.4</b>	<b>18.3%</b>
Austria	61.7	0.4	3.7	0.5	66.2	93.7%	1.9	4.4	2.6	0.0	9.0	21.7%
Belgium	118.8	0.2	5.2	0.6	124.9	95.3%	1.6	6.5	2.9	0.0	11.0	14.7%
Czech Republic	122.4	4.0	4.1	1.2	131.7	96.0%	5.7	4.3	2.9	0.1	12.9	43.8%
Denmark	50.8	0.4	1.6	3.3	56.1	91.3%	1.1	5.4	1.7	-	8.1	13.0%
Estonia	14.6	-	0.4	11.4	26.5	55.3%	0.8	0.6	0.7	-	2.1	38.3%
Finland	55.2	0.5	1.1	52.2	109.0	51.1%	0.8	2.1	7.4	0.0	10.3	7.4%
France	378.7	1.7	20.6	7.6	408.5	93.1%	34.2	38.3	13.0	0.1	85.6	39.9%
Germany	825.0	5.1	23.1	36.6	889.9	93.3%	21.2	31.8	23.0	0.2	76.1	27.8%
Greece	87.4	0.0	7.1	0.5	95.0	92.0%	1.9	3.7	2.5	0.1	8.1	23.3%
Hungary	54.2	0.5	1.9	1.0	57.6	94.9%	2.4	3.0	2.8	0.0	8.2	28.9%
Iceland	2.1	-	0.1	17.6	19.8	10.8%	0.0	0.2	0.1	0.0	0.3	1.7%
Ireland	41.1	-	1.7	9.5	52.4	78.5%	1.3	11.8	1.8	0.0	14.9	8.6%
Italy	426.0	4.2	22.1	2.4	454.7	94.6%	7.5	18.3	20.7	0.2	46.7	16.1%
Luxembourg	8.0	-	0.6	0.0	8.6	92.6%	0.1	0.8	0.1	0.0	1.0	10.2%
Netherlands	172.1	0.6	1.3	7.4	181.4	95.2%	4.9	10.1	9.1	0.1	24.3	20.2%
Norway	33.6	1.7	1.0	0.9	37.1	95.0%	11.6	2.2	3.3	0.1	17.2	67.4%
Poland	290.9	0.2	9.0	26.3	326.4	89.2%	48.7	14.7	9.3	0.1	72.8	66.9%
Portugal	59.2	0.2	4.2	0.3	63.9	93.0%	0.9	4.4	6.6	0.5	12.3	7.4%
Slovak Republic	37.4	0.4	2.1	0.4	40.3	93.8%	0.9	1.8	1.7	0.0	4.4	21.1%
Slovenia	14.1	-	1.5	0.3	15.8	89.1%	1.1	1.1	0.7	0.0	2.9	37.3%
Spain	283.9	2.1	18.2	1.6	305.8	93.5%	4.3	20.0	10.4	0.5	35.1	12.2%
Sweden	52.7	1.5	2.0	14.7	70.9	76.5%	1.2	3.3	6.9	0.0	11.5	10.6%
Switzerland	42.5	0.0	1.7	0.5	44.8	94.9%	0.9	3.2	1.0	0.0	5.1	17.8%
Turkey	200.6	2.5	17.1	1.2	221.4	91.7%	9.3	22.4	24.5	0.0	56.3	16.6%
United Kingdom	524.3	6.8	10.3	11.8	553.2	96.0%	21.5	27.2	37.2	0.1	85.9	25.0%
<b>OECD Europe</b>	<b>3 957.3</b>	<b>33.1</b>	<b>161.7</b>	<b>209.7</b>	<b>4 361.8</b>	<b>91.5%</b>	<b>185.7</b>	<b>241.7</b>	<b>192.9</b>	<b>2.0</b>	<b>622.2</b>	<b>29.8%</b>
<i>European Union - 28</i>	3 852.1	30.8	151.9	202.0	4 236.8	91.6%	182.5	228.6	181.4	2.4	594.9	30.7%

\* Total World includes Non-OECD total, OECD total as well as international bunkers.

 Sources: IEA, Sectoral Approach for CO<sub>2</sub> emissions from fuel combustion. EDGAR 4.2 FT2010 database for other emissions. In general, estimates for emissions other than CO<sub>2</sub> from fuel combustion are subject to significantly larger uncertainties.



## 2000 Greenhouse-gas emissions

million tonnes of CO<sub>2</sub> equivalent using GWP-100

Energy	N <sub>2</sub> O					Share of energy	HFCs	PFCs	SF <sub>6</sub>	Total			
	Industrial processes	Agriculture	Other	Total			Industrial processes			Total	Share of energy	GHG / GDP PPP *	
<b>295.1</b>	<b>183.1</b>	<b>1 802.2</b>	<b>495.3</b>	<b>2 775.8</b>	<b>10.6%</b>	<b>293.1</b>	<b>100.7</b>	<b>117.1</b>	<b>40 239.1</b>	<b>66.1%</b>	<b>0.76</b>	<b>World</b>	
156.8	131.5	541.5	166.6	996.4	15.7%	227.7	73.8	84.6	18 595.6	80.5%	0.59	Annex I Parties	
132.8	91.6	424.4	112.4	761.3	17.4%	207.4	46.2	74.2	14 078.4	82.5%	0.50	Annex II Parties	
91.4	31.3	191.5	53.4	367.6	24.9%	118.9	21.8	50.9	7 654.7	86.5%	0.61	North America	
27.9	54.2	156.8	35.7	274.7	10.2%	51.5	13.8	15.6	4 360.2	77.8%	0.39	Europe	
13.6	6.2	76.0	23.3	119.1	11.4%	37.0	10.6	7.7	2 063.5	77.3%	0.47	Asia Oceania	
20.0	35.6	95.5	50.9	201.9	9.9%	19.3	27.0	9.4	4 201.5	74.8%	1.53	Annex I EIT	
112.6	51.7	1 260.8	328.7	1 753.7	6.4%	65.4	26.9	32.5	20 777.0	51.9%	0.96	Non-Annex I Parties	
61.0	94.2	320.3	109.4	584.9	10.4%	107.7	51.3	32.7	10 498.1	76.9%	0.57	Annex I Kyoto Parties	
<b>20.3</b>	-	-	-	<b>20.3</b>	<b>100.0%</b>	-	-	-	<b>509.3</b>	<b>100.0%</b>	..	Int. marine bunkers	
<b>5.4</b>	-	-	-	<b>5.4</b>	<b>100.0%</b>	-	-	-	<b>357.2</b>	<b>100.0%</b>	..	Int. aviation bunkers	
<b>116.0</b>	<b>69.7</b>	<b>1 286.1</b>	<b>363.4</b>	<b>1 835.2</b>	<b>6.3%</b>	<b>70.6</b>	<b>50.0</b>	<b>35.8</b>	<b>22 985.0</b>	<b>53.8%</b>	<b>1.09</b>	<b>Non-OECD Total</b>	
<b>153.3</b>	<b>113.4</b>	<b>516.2</b>	<b>132.0</b>	<b>914.9</b>	<b>16.8%</b>	<b>222.5</b>	<b>50.7</b>	<b>81.3</b>	<b>16 387.6</b>	<b>81.7%</b>	<b>0.51</b>	<b>OECD Total</b>	
8.3	3.8	22.5	6.3	40.9	20.3%	6.2	7.1	4.9	728.9	80.6%	0.71	Canada	
0.8	0.7	5.3	0.8	7.6	10.1%	-	0.0	0.0	80.2	72.5%	0.49	Chile	
2.8	1.2	32.5	6.7	43.2	6.5%	3.3	0.6	0.8	567.0	68.3%	0.47	Mexico	
83.1	27.5	169.0	47.1	326.7	25.4%	112.7	14.7	45.9	6 925.8	87.2%	0.60	United States	
<b>94.9</b>	<b>33.3</b>	<b>229.3</b>	<b>60.9</b>	<b>418.4</b>	<b>22.7%</b>	<b>122.2</b>	<b>22.4</b>	<b>51.7</b>	<b>8 301.9</b>	<b>85.1%</b>	<b>0.59</b>	<b>OECD Americas</b>	
4.0	1.7	56.6	13.3	75.6	5.3%	2.5	1.2	0.5	594.8	62.9%	0.98	Australia	
0.3	0.2	0.9	0.6	1.9	13.6%	0.7	0.1	1.0	65.1	85.4%	0.43	Israel	
9.2	4.4	8.7	9.7	32.0	28.7%	34.1	9.0	7.2	1 393.6	85.3%	0.38	Japan	
3.1	6.8	4.7	3.3	18.0	17.2%	8.4	2.2	4.1	529.1	84.8%	0.60	Korea	
0.4	-	10.8	0.3	11.5	3.4%	0.3	0.4	0.1	75.2	43.1%	0.87	New Zealand	
<b>16.9</b>	<b>13.2</b>	<b>81.7</b>	<b>27.2</b>	<b>138.9</b>	<b>12.2%</b>	<b>46.1</b>	<b>12.8</b>	<b>12.7</b>	<b>2 657.7</b>	<b>79.0%</b>	<b>0.49</b>	<b>OECD Asia Oceania</b>	
0.6	0.8	2.5	0.8	4.8	13.3%	1.0	0.1	0.3	81.4	79.4%	0.32	Austria	
0.8	4.8	3.1	1.1	9.8	8.0%	1.0	0.0	0.1	146.9	82.7%	0.47	Belgium	
5.0	1.2	3.2	1.0	10.5	47.7%	0.4	0.0	0.0	155.6	88.1%	0.87	Czech Republic	
0.6	1.0	4.9	0.6	7.1	8.1%	0.7	0.0	0.1	72.0	73.3%	0.43	Denmark	
0.2	-	0.6	0.1	0.8	20.0%	0.0	0.0	0.0	29.4	53.0%	1.87	Estonia	
1.6	1.3	3.2	0.6	6.7	24.6%	0.4	0.0	0.1	126.5	45.9%	0.89	Finland	
4.0	10.0	33.6	4.6	52.1	7.6%	9.4	1.1	2.4	559.2	74.8%	0.33	France	
6.5	9.6	30.5	5.8	52.5	12.4%	11.3	1.7	5.6	1 037.0	82.7%	0.42	Germany	
1.0	0.8	3.7	1.1	6.6	14.6%	2.4	0.3	0.1	112.5	80.2%	0.51	Greece	
0.3	1.8	4.0	0.7	6.9	5.0%	0.4	0.3	0.0	73.5	78.1%	0.53	Hungary	
0.0	-	0.3	0.0	0.4	9.8%	0.0	0.1	0.0	20.7	10.6%	2.47	Iceland	
0.3	0.7	7.0	0.4	8.4	3.9%	0.4	0.4	0.1	76.6	55.8%	0.60	Ireland	
2.8	8.1	14.1	5.6	30.6	9.2%	7.1	0.4	1.3	540.8	81.5%	0.34	Italy	
0.1	-	0.3	0.1	0.4	19.1%	0.1	0.0	-	10.1	80.8%	0.38	Luxembourg	
0.9	5.7	6.2	1.3	14.2	6.2%	6.2	1.0	0.3	227.3	78.5%	0.42	Netherlands	
0.4	1.8	1.8	0.7	4.8	7.7%	0.2	4.6	1.0	64.8	72.9%	0.33	Norway	
3.5	4.4	17.0	2.5	27.4	12.8%	0.7	0.5	0.2	427.9	80.2%	0.95	Poland	
0.8	0.5	2.8	1.7	5.8	14.0%	0.4	0.0	0.1	82.5	74.1%	0.38	Portugal	
0.5	1.1	1.2	0.3	3.1	15.8%	0.1	0.1	-	48.1	81.6%	0.70	Slovak Republic	
0.2	-	0.8	0.2	1.2	14.3%	0.1	0.2	0.0	20.2	76.0%	0.51	Slovenia	
2.6	2.5	17.4	4.9	27.4	9.4%	3.3	2.3	2.5	376.3	77.8%	0.37	Spain	
1.1	0.7	3.8	0.8	6.5	17.7%	0.6	0.7	0.2	90.3	62.7%	0.35	Sweden	
0.5	0.2	1.4	0.5	2.6	18.9%	0.8	0.1	0.3	53.7	81.8%	0.21	Switzerland	
3.9	4.3	21.6	3.3	33.0	11.9%	1.0	0.6	1.0	313.2	69.1%	0.50	Turkey	
3.3	5.6	20.2	5.0	34.1	9.6%	6.3	0.9	1.2	681.6	81.6%	0.39	United Kingdom	
<b>41.5</b>	<b>67.0</b>	<b>205.2</b>	<b>43.9</b>	<b>357.5</b>	<b>11.6%</b>	<b>54.2</b>	<b>15.5</b>	<b>16.8</b>	<b>5 428.0</b>	<b>77.7%</b>	<b>0.42</b>	<b>OECD Europe</b>	
38.2	67.1	192.8	42.5	340.6	11.2%	52.9	10.9	14.6	5 250.6	78.2%	0.44	European Union - 28	

\* GHG / GDP PPP ratio is expressed in kg of CO<sub>2</sub>-equivalent per 2005 USD.

## 2000 Greenhouse-gas emissions

 million tonnes of CO<sub>2</sub> equivalent using GWP-100

	CO <sub>2</sub>						CH <sub>4</sub>					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
<b>Non-OECD Total</b>	<b>10 300.3</b>	<b>351.5</b>	<b>644.5</b>	<b>4 863.9</b>	<b>16 160.2</b>	<b>65.9%</b>	<b>1 595.4</b>	<b>2 349.8</b>	<b>728.8</b>	<b>159.3</b>	<b>4 833.2</b>	<b>33.0%</b>
Albania	3.1	0.0	0.0	0.6	3.7	82.2%	0.4	1.8	0.2	0.2	2.6	14.7%
Armenia	3.4	-	0.1	0.3	3.8	88.8%	1.3	0.9	0.4	0.0	2.6	50.9%
Azerbaijan	27.9	0.3	0.1	0.2	28.5	98.8%	4.3	4.1	1.5	0.0	10.0	43.5%
Belarus	58.5	0.0	1.4	43.0	102.9	56.8%	0.9	8.4	4.0	0.0	13.3	7.0%
Bosnia-Herzegovina	13.5	-	0.2	0.4	14.1	96.1%	0.9	1.0	0.3	0.5	2.7	35.3%
Bulgaria	42.4	0.9	2.7	0.3	46.3	93.4%	1.3	2.4	9.8	0.3	13.8	9.3%
Croatia	17.7	0.0	1.5	0.0	19.2	92.1%	1.9	1.1	0.9	0.0	3.9	47.2%
Cyprus *	6.3	-	0.6	0.0	6.9	91.5%	0.0	0.3	0.3	-	0.6	3.8%
FYR of Macedonia	8.4	-	0.2	0.1	8.7	96.3%	0.5	0.7	0.3	0.0	1.5	30.5%
Georgia	4.6	0.0	0.2	0.3	5.1	90.9%	1.4	2.1	0.6	0.0	4.1	33.3%
Gibraltar	0.4	-	-	0.0	0.4	99.9%	0.0	-	0.0	-	0.0	11.9%
Kazakhstan	113.0	13.5	2.1	0.6	129.2	97.9%	23.3	9.4	3.8	2.1	38.6	60.3%
Kosovo **	5.0	..	..	..	..	..	..	..	..	..	..	..
Kyrgyzstan	4.4	0.0	0.2	0.5	5.1	85.7%	0.3	2.5	0.7	0.0	3.5	7.3%
Latvia	6.8	-	0.2	4.6	11.7	58.5%	1.4	0.8	0.6	0.0	2.8	49.1%
Lithuania	11.2	0.0	0.3	6.0	17.6	63.9%	1.8	1.9	1.3	0.0	5.0	36.3%
Malta	2.1	-	0.0	0.0	2.1	99.5%	0.0	0.1	0.2	-	0.2	1.0%
Republic of Moldova	6.5	-	0.1	0.1	6.8	96.2%	1.7	1.1	0.4	0.0	3.3	51.3%
Montenegro **	..	..	..	..	..	..	..	..	..	..	..	..
Romania	87.0	1.1	4.9	1.5	94.4	93.3%	12.2	8.4	4.4	0.1	25.1	48.6%
Russian Federation	1 496.7	68.0	43.6	380.0	1 988.3	78.7%	337.3	58.1	49.2	21.0	465.5	72.5%
Serbia **	42.5	0.0	1.2	0.7	44.4	95.8%	3.3	4.0	1.2	0.2	8.7	37.8%
Tajikistan	2.2	-	0.0	0.1	2.3	96.4%	0.5	2.1	0.7	0.0	3.3	13.7%
Turkmenistan	36.6	2.0	0.2	0.4	39.2	98.3%	16.3	4.2	0.8	0.0	21.2	76.6%
Ukraine	292.0	31.6	15.6	7.8	347.0	93.3%	54.8	20.8	9.5	0.2	85.2	64.3%
Uzbekistan	118.0	2.3	1.8	1.6	123.6	97.3%	22.8	11.0	3.2	0.0	37.1	61.6%
<b>Non-OECD Europe and Eurasia</b>	<b>2 410.0</b>	<b>119.7</b>	<b>77.3</b>	<b>449.2</b>	<b>3 056.2</b>	<b>82.8%</b>	<b>488.4</b>	<b>147.1</b>	<b>94.2</b>	<b>24.8</b>	<b>754.6</b>	<b>64.7%</b>
Algeria	63.5	14.9	3.7	0.2	82.3	95.3%	35.4	4.2	4.1	0.0	43.8	80.9%
Angola	5.1	10.5	0.2	6.2	22.0	70.9%	10.2	3.9	1.5	0.1	15.8	65.0%
Benin	1.4	-	0.1	25.2	26.7	5.3%	0.8	2.1	0.8	0.8	4.5	18.1%
Botswana	4.0	-	0.1	0.4	4.5	88.0%	0.5	3.2	0.2	0.0	3.9	11.5%
Cameroon	2.8	2.1	0.4	56.2	61.4	8.0%	2.5	8.6	2.2	2.6	15.8	15.6%
Congo	0.5	3.6	0.0	43.1	47.2	8.6%	3.9	1.6	0.5	2.1	8.0	48.7%
Dem. Rep. of Congo	0.8	0.0	0.1	912.7	913.6	0.1%	5.4	14.5	5.3	38.5	63.7	8.5%
Côte d'Ivoire	6.3	0.2	0.3	138.2	145.0	4.5%	2.6	2.2	2.1	7.3	14.2	18.6%
Egypt	102.5	3.4	11.2	1.1	118.2	89.6%	15.1	13.3	7.5	0.0	35.8	42.0%
Eritrea	0.6	-	0.0	0.0	0.7	91.4%	0.3	2.0	0.4	-	2.7	12.3%
Ethiopia	3.3	-	0.4	0.5	4.2	77.8%	7.1	33.3	5.8	-	46.2	15.4%
Gabon	1.5	4.5	0.1	2.2	8.3	71.8%	3.7	0.1	0.3	0.0	4.1	89.9%
Ghana	5.1	-	0.8	8.6	14.5	34.9%	2.8	4.0	2.5	0.3	9.6	28.9%
Kenya	7.8	-	0.7	3.2	11.7	66.9%	6.5	12.5	3.3	-	22.3	29.0%
Libya	39.5	8.0	1.5	0.1	49.1	96.7%	11.1	0.8	1.0	0.0	13.0	85.6%
Mauritius	2.4	-	0.0	0.0	2.4	99.6%	0.0	0.0	0.2	-	0.2	8.8%
Morocco	29.4	-	3.5	0.3	33.3	88.5%	0.4	5.4	3.8	-	9.6	4.2%
Mozambique	1.3	-	0.1	41.5	43.0	3.1%	2.1	6.1	1.9	2.9	13.0	15.9%
Namibia	1.9	-	0.0	0.0	2.0	97.8%	0.1	4.3	0.2	-	4.6	2.3%
Nigeria	44.0	48.0	1.1	9.0	102.2	90.1%	44.8	24.9	12.5	0.4	82.6	54.3%
Senegal	3.6	-	0.4	0.1	4.1	87.2%	1.1	4.7	1.3	-	7.1	15.4%
South Africa	297.1	12.8	4.9	2.6	317.4	97.6%	27.2	18.9	11.1	2.2	59.4	45.8%
Sudan	5.8	0.0	0.1	4.1	10.0	58.2%	6.7	53.4	4.3	-	64.4	10.3%
United Rep. of Tanzania	2.6	-	0.4	47.6	50.6	5.2%	3.7	19.4	3.5	2.5	29.1	12.8%
Togo	0.9	-	0.3	6.1	7.3	12.9%	1.3	1.3	0.6	0.3	3.4	38.8%
Tunisia	18.0	0.4	2.8	0.1	21.4	86.1%	3.4	2.1	1.4	0.0	6.9	49.0%
Zambia	1.7	-	0.3	110.8	112.8	1.5%	2.2	10.5	1.0	4.4	18.1	12.1%
Zimbabwe	13.1	0.3	0.4	0.9	14.8	90.6%	1.2	7.1	1.3	0.0	9.7	12.8%
Other Africa	17.5	2.1	0.7	235.2	255.6	7.7%	20.2	99.1	14.9	9.3	143.5	14.1%
<b>Africa</b>	<b>684.0</b>	<b>110.8</b>	<b>34.6</b>	<b>1 656.5</b>	<b>2 486.0</b>	<b>32.0%</b>	<b>222.3</b>	<b>363.4</b>	<b>95.7</b>	<b>73.6</b>	<b>755.1</b>	<b>29.4%</b>

 \* Please refer to Part I, Chapter 4, *Geographical Coverage*.

 \*\* For 2000, Serbia includes Montenegro for all greenhouse gases and Kosovo for all emissions other than CO<sub>2</sub> from fuel combustion.

## 2000 Greenhouse-gas emissions

million tonnes of CO<sub>2</sub> equivalent using GWP-100

Energy	N <sub>2</sub> O					Share of energy	HFCs	PFCs	SF <sub>6</sub>	Total			GHG / GDP PPP *
	Industrial processes	Agriculture	Other	Total	Industrial processes		Total	Share of energy					
<b>116.0</b>	<b>69.7</b>	<b>1 286.1</b>	<b>363.4</b>	<b>1 835.2</b>	<b>6.3%</b>	<b>70.6</b>	<b>50.0</b>	<b>35.8</b>	<b>22 985.0</b>	<b>53.8%</b>	<b>1.09</b>	<b>Non-OECD Total</b>	
0.1	-	0.7	0.5	1.3	5.6%	0.0	-	-	7.6	46.1%	0.52	Albania	
0.0	-	0.4	0.1	0.5	1.1%	0.0	-	-	6.9	68.3%	0.86	Armenia	
0.1	-	1.6	0.4	2.0	3.9%	0.0	0.0	-	40.5	80.4%	1.27	Azerbaijan	
0.5	1.7	8.1	0.6	10.8	4.2%	0.1	0.0	-	127.2	47.1%	1.95	Belarus	
0.2	-	0.7	0.9	1.7	9.7%	0.1	0.3	-	18.9	77.4%	1.00	Bosnia-Herzegovina	
0.3	1.0	2.2	0.9	4.4	6.8%	0.1	0.0	-	64.6	69.3%	1.11	Bulgaria	
0.2	0.9	1.5	0.3	2.9	7.6%	0.0	0.1	-	26.1	75.7%	0.48	Croatia	
0.0	-	0.2	0.1	0.3	9.7%	0.1	-	-	7.8	81.4%	0.49	Cyprus	
0.1	-	0.4	0.2	0.7	8.5%	0.1	-	-	10.9	81.7%	0.74	FYR of Macedonia	
0.1	0.6	1.1	0.2	2.0	3.4%	0.0	-	-	11.2	54.0%	0.87	Georgia	
0.0	-	-	0.0	0.0	28.9%	-	-	-	0.4	97.1%	0.52	Gibraltar	
1.9	-	9.8	4.2	16.0	12.0%	0.1	-	-	183.8	82.5%	1.43	Kazakhstan	
..	..	..	..	..	..	..	..	..	..	..	..	Kosovo	
0.1	-	1.2	0.3	1.6	8.0%	0.0	-	-	10.2	47.0%	1.13	Kyrgyzstan	
0.1	-	0.9	0.2	1.2	11.5%	0.2	0.0	-	15.9	52.7%	0.78	Latvia	
0.1	1.3	2.0	0.2	3.7	3.0%	0.2	0.0	-	26.4	49.8%	0.79	Lithuania	
0.0	-	0.0	0.0	0.1	10.3%	0.1	-	-	2.5	85.8%	0.30	Malta	
0.0	-	0.6	0.2	0.8	5.2%	0.0	-	-	10.8	76.0%	1.43	Republic of Moldova	
..	..	..	..	..	..	..	..	..	..	..	..	Montenegro	
0.7	3.2	6.0	1.5	11.3	6.5%	0.1	0.7	0.0	131.7	76.7%	0.86	Romania	
7.3	10.2	36.1	39.6	93.2	7.8%	16.8	24.9	9.0	2 597.8	73.5%	2.06	Russian Federation	
0.4	0.5	2.5	0.7	4.2	10.7%	1.7	0.3	-	59.2	78.1%	1.10	Serbia	
0.0	-	0.9	0.2	1.1	1.0%	0.0	0.8	-	7.4	35.4%	1.14	Tajikistan	
0.1	0.5	2.1	0.2	2.9	2.1%	0.0	-	-	63.4	86.6%	2.95	Turkmenistan	
1.1	8.8	12.0	2.7	24.6	4.5%	0.1	0.2	0.2	457.3	83.0%	2.17	Ukraine	
0.6	0.1	7.5	1.0	9.2	6.7%	0.2	-	-	170.1	84.5%	3.12	Uzbekistan	
<b>14.1</b>	<b>28.8</b>	<b>98.3</b>	<b>55.1</b>	<b>196.4</b>	<b>7.2%</b>	<b>19.8</b>	<b>27.4</b>	<b>9.2</b>	<b>4 063.6</b>	<b>74.6%</b>	<b>1.79</b>	<b>Non-OECD Europe and Eurasia</b>	
0.4	0.6	2.7	0.8	4.5	8.3%	0.1	-	0.3	131.0	87.2%	0.47	Algeria	
0.2	-	2.5	0.3	3.0	6.1%	0.0	-	-	40.7	63.9%	0.97	Angola	
0.1	-	2.0	1.3	3.3	3.5%	-	-	-	34.6	6.8%	3.67	Benin	
0.1	-	2.3	0.2	2.5	2.9%	-	-	-	11.0	41.0%	0.69	Botswana	
0.2	-	7.5	3.0	10.7	2.1%	-	0.5	-	88.5	8.6%	2.71	Cameroon	
0.1	-	1.4	1.9	3.4	1.8%	0.0	-	-	58.7	13.7%	4.55	Congo	
1.1	-	16.6	40.7	58.5	2.0%	-	-	-	1 035.8	0.7%	72.60	Dem. Rep. of Congo	
0.2	-	2.0	6.2	8.5	2.5%	-	-	-	167.7	5.6%	4.01	Côte d'Ivoire	
0.6	3.3	12.2	2.1	18.2	3.4%	0.1	1.4	1.1	174.7	69.5%	0.38	Egypt	
0.0	-	1.3	0.1	1.4	3.3%	-	-	-	4.7	20.9%	0.93	Eritrea	
1.5	-	23.5	1.8	26.7	5.4%	0.0	-	-	77.0	15.3%	2.14	Ethiopia	
0.0	-	0.1	0.1	0.3	18.0%	0.0	-	-	12.6	76.6%	0.66	Gabon	
0.4	-	3.8	1.0	5.3	8.4%	0.0	0.1	-	29.6	28.1%	0.79	Ghana	
0.6	-	8.1	0.6	9.2	6.0%	-	-	-	43.2	34.3%	0.87	Kenya	
0.2	-	0.7	0.4	1.3	13.3%	-	-	0.2	63.6	92.5%	0.96	Libya	
0.0	-	0.1	0.0	0.2	5.8%	-	-	-	2.9	85.2%	0.24	Mauritius	
0.4	-	4.5	0.7	5.6	7.2%	-	-	-	48.5	62.4%	0.43	Morocco	
0.3	-	6.6	2.7	9.6	3.2%	0.0	0.0	-	65.6	5.6%	7.34	Mozambique	
0.1	-	3.2	0.2	3.5	2.4%	-	-	-	10.1	21.0%	0.95	Namibia	
1.9	-	16.2	2.9	21.0	8.9%	0.1	-	0.2	206.0	67.3%	0.66	Nigeria	
0.1	-	3.3	0.3	3.8	3.0%	-	-	-	14.9	31.8%	0.89	Senegal	
2.6	1.5	13.7	5.4	23.2	11.1%	0.3	0.5	1.0	401.7	84.6%	1.08	South Africa	
0.6	-	40.3	2.8	43.8	1.4%	-	-	-	118.2	11.1%	1.69	Sudan	
0.5	-	14.9	3.2	18.6	2.7%	-	-	-	98.3	7.0%	3.20	United Rep. of Tanzania	
0.1	-	1.3	0.4	1.8	5.9%	-	-	-	12.6	19.0%	2.26	Togo	
0.2	0.4	1.5	0.3	2.4	8.4%	-	-	-	30.7	71.6%	0.47	Tunisia	
0.2	0.5	15.2	5.8	21.7	1.0%	0.0	-	-	152.6	2.7%	8.05	Zambia	
0.2	-	5.0	0.4	5.6	4.4%	-	-	-	30.0	49.5%	5.26	Zimbabwe	
2.6	-	73.0	15.5	91.1	2.8%	0.0	-	-	490.2	8.6%	3.27	Other Africa	
<b>15.6</b>	<b>6.2</b>	<b>285.6</b>	<b>101.3</b>	<b>408.8</b>	<b>3.8%</b>	<b>0.5</b>	<b>2.5</b>	<b>2.8</b>	<b>3 655.7</b>	<b>28.3%</b>	<b>1.58</b>	<b>Africa</b>	

\* GHG / GDP PPP ratio is expressed in kg of CO<sub>2</sub>-equivalent per 2005 USD. The high GHG / GDP PPP ratio for DR of Congo and Zambia is due to high levels of forest fires and subsequent post-burn decay.

## 2000 Greenhouse-gas emissions

 million tonnes of CO<sub>2</sub> equivalent using GWP-100

	CO <sub>2</sub>						CH <sub>4</sub>					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Bangladesh	25.1	-	1.6	7.5	34.2	73.3%	7.9	65.7	15.5	0.1	89.2	8.9%
Brunei Darussalam	4.4	0.3	0.1	7.5	12.3	38.3%	3.8	0.0	0.1	-	3.9	97.6%
Cambodia	2.0	-	-	3.2	5.2	38.0%	1.1	12.5	1.3	0.1	15.0	7.5%
India	978.1	7.7	42.0	57.3	1 085.1	90.8%	82.1	376.0	101.1	2.4	561.6	14.6%
Indonesia	272.8	8.5	12.9	890.7	1 184.9	23.7%	45.6	78.9	39.9	3.4	167.8	27.2%
DPR of Korea	68.6	-	2.3	2.7	73.6	93.2%	10.2	3.9	3.1	0.1	17.3	58.7%
Malaysia	117.7	2.5	5.3	90.0	215.6	55.8%	17.8	5.6	4.8	1.0	29.2	60.8%
Mongolia	8.8	-	0.1	38.6	47.5	18.5%	0.3	8.5	0.3	0.2	9.2	2.9%
Myanmar	9.4	0.0	0.2	455.3	464.9	2.0%	6.2	44.3	5.7	10.9	66.9	9.2%
Nepal	3.1	-	0.1	0.1	3.4	91.2%	1.4	17.6	2.2	-	21.2	6.6%
Pakistan	99.2	2.0	4.7	0.4	106.2	95.2%	24.6	76.9	15.4	0.1	117.1	21.0%
Philippines	67.4	0.0	5.4	2.9	75.8	89.0%	6.1	31.5	12.2	0.0	49.9	12.3%
Singapore	44.4	0.2	0.6	0.4	45.5	98.0%	0.9	0.0	0.8	0.0	1.7	52.9%
Sri Lanka	10.4	-	0.5	0.6	11.5	91.0%	0.6	6.2	2.8	-	9.6	6.7%
Chinese Taipei	218.7	1.0	9.4	0.8	230.0	95.6%	1.3	1.1	5.3	0.0	7.7	16.6%
Thailand	154.7	0.0	11.9	8.7	175.3	88.3%	16.4	54.5	12.5	0.1	83.4	19.6%
Viet Nam	44.0	1.3	6.8	6.8	58.8	77.0%	14.4	51.4	9.6	0.0	75.4	19.1%
Other Asia	11.3	0.3	0.3	51.8	63.6	18.2%	2.4	16.0	4.0	0.9	23.3	10.3%
<b>Asia (excl. China)</b>	<b>2 140.2</b>	<b>23.8</b>	<b>104.0</b>	<b>1 625.3</b>	<b>3 893.3</b>	<b>55.6%</b>	<b>243.1</b>	<b>850.5</b>	<b>236.5</b>	<b>19.4</b>	<b>1 349.6</b>	<b>18.0%</b>
People's Rep. of China	3 310.1	14.9	352.4	100.5	3 777.9	88.0%	377.3	485.7	176.8	3.5	1 043.4	36.2%
Hong Kong, China	40.2	1.3	0.6	0.1	42.2	98.5%	0.8	-	1.9	-	2.7	28.9%
<b>China</b>	<b>3 350.3</b>	<b>16.2</b>	<b>353.0</b>	<b>100.5</b>	<b>3 820.0</b>	<b>88.1%</b>	<b>378.1</b>	<b>485.7</b>	<b>178.8</b>	<b>3.5</b>	<b>1 046.1</b>	<b>36.1%</b>
Argentina	141.8	1.9	4.2	9.2	157.1	91.5%	16.3	71.6	9.2	2.0	99.1	16.4%
Bolivia	7.1	0.7	0.4	131.2	139.4	5.6%	3.2	10.6	1.2	4.8	19.8	16.0%
Brazil	303.6	4.6	20.8	606.8	935.8	32.9%	27.7	245.5	53.8	16.0	343.0	8.1%
Colombia	59.2	1.4	5.1	41.4	107.1	56.6%	10.7	36.7	5.9	1.8	55.1	19.5%
Costa Rica	4.5	-	0.5	0.1	5.1	88.1%	0.2	2.2	0.5	-	2.9	6.9%
Cuba	27.3	1.3	0.7	3.5	32.8	87.0%	1.1	7.0	2.5	-	10.6	10.3%
Dominican Republic	16.1	-	1.3	0.4	17.8	90.8%	1.0	3.7	1.5	-	6.2	16.5%
Ecuador	19.3	2.2	1.1	0.9	23.5	91.4%	2.9	8.4	1.6	0.0	12.8	22.3%
El Salvador	5.2	-	0.4	0.2	5.9	88.7%	0.4	1.4	1.0	-	2.8	14.1%
Guatemala	8.5	0.0	0.8	108.5	117.7	7.2%	1.0	8.1	1.3	9.0	19.4	5.1%
Haiti	1.4	-	0.2	0.0	1.6	86.6%	0.7	2.3	1.2	-	4.1	17.5%
Honduras	4.4	-	0.4	3.3	8.2	54.0%	0.3	2.5	0.7	-	3.4	9.2%
Jamaica	9.7	-	0.4	0.1	10.2	95.0%	0.3	0.6	0.5	-	1.4	19.6%
Netherlands Antilles	4.5	-	-	0.0	4.5	99.0%	0.1	0.0	0.0	-	0.1	55.6%
Nicaragua	3.5	-	0.2	0.4	4.1	85.4%	0.4	4.2	1.0	-	5.6	6.5%
Panama	4.9	-	0.3	0.4	5.7	87.2%	0.2	2.1	0.5	-	2.8	5.8%
Paraguay	3.3	-	0.3	26.3	29.9	10.9%	0.7	12.4	1.0	1.1	15.2	4.8%
Peru	26.5	0.3	1.6	20.7	49.2	54.6%	1.5	10.1	3.7	1.0	16.3	9.3%
Trinidad and Tobago	18.2	0.2	0.4	0.0	18.8	97.9%	4.3	0.1	1.0	0.1	5.5	77.6%
Uruguay	5.3	0.0	0.3	0.4	6.0	87.8%	0.2	17.2	0.8	-	18.2	0.8%
Venezuela	126.7	6.7	3.9	38.6	175.9	75.9%	28.4	22.2	5.3	1.6	57.5	49.4%
Other Non-OECD Americas	15.0	-	0.9	16.8	32.7	45.9%	0.2	2.4	2.5	0.2	5.2	3.8%
<b>Non-OECD Americas</b>	<b>816.0</b>	<b>19.3</b>	<b>44.4</b>	<b>1 009.3</b>	<b>1 889.0</b>	<b>44.2%</b>	<b>101.6</b>	<b>471.3</b>	<b>96.6</b>	<b>37.5</b>	<b>707.1</b>	<b>14.4%</b>
Bahrain	17.8	0.0	0.0	0.1	18.0	99.0%	2.1	0.0	0.3	0.0	2.4	86.6%
Islamic Rep. of Iran	315.1	19.4	12.4	0.8	347.6	96.2%	48.6	19.8	11.3	0.0	79.7	61.0%
Iraq	70.3	12.6	0.9	3.3	87.1	95.2%	16.1	2.8	3.4	0.0	22.3	72.3%
Jordan	14.4	-	1.1	0.0	15.5	92.4%	0.2	0.4	0.8	-	1.4	16.5%
Kuwait	49.1	3.5	0.7	0.0	53.4	98.6%	9.4	0.1	0.7	0.0	10.2	91.9%
Lebanon	14.1	-	1.2	0.1	15.4	91.7%	0.1	0.2	0.6	-	0.9	12.1%
Oman	20.1	4.1	0.6	18.0	42.7	56.5%	9.4	0.5	0.4	-	10.3	90.9%
Qatar	24.0	6.0	0.5	0.0	30.4	98.3%	12.6	0.1	0.4	0.0	13.1	96.0%
Saudi Arabia	236.3	6.8	8.2	0.3	251.6	96.6%	34.8	1.9	4.9	0.2	41.8	83.2%
Syrian Arab Republic	39.8	5.4	2.1	0.2	47.5	95.2%	8.0	2.7	1.9	-	12.6	63.1%
United Arab Emirates	85.6	2.6	2.7	0.1	91.0	96.9%	18.6	0.5	0.8	-	19.9	93.5%
Yemen	13.2	1.2	0.7	0.0	15.2	95.0%	1.9	2.7	1.5	-	6.1	31.5%
<b>Middle East</b>	<b>899.7</b>	<b>61.6</b>	<b>31.1</b>	<b>23.0</b>	<b>1 015.5</b>	<b>94.7%</b>	<b>161.7</b>	<b>31.7</b>	<b>27.0</b>	<b>0.3</b>	<b>220.7</b>	<b>73.3%</b>

## 2000 Greenhouse-gas emissions

million tonnes of CO<sub>2</sub> equivalent using GWP-100

Energy	N <sub>2</sub> O					Share of energy	HFCs	PFCs	SF <sub>6</sub>	Total			
	Industrial processes	Agriculture	Other	Total	Industrial processes		Total	Share of energy	GHG / GDP PPP *				
1.5	-	16.2	1.9	19.6	7.4%	-	-	-	143.1	24.1%	0.88	Bangladesh	
0.0	-	0.1	0.3	0.4	2.6%	0.1	-	-	16.7	51.0%	0.76	Brunei Darussalam	
0.2	-	2.6	0.4	3.3	6.2%	-	-	-	23.4	14.0%	1.57	Cambodia	
23.4	1.6	149.9	24.6	199.5	11.7%	8.1	2.0	3.4	1 859.7	58.7%	0.77	India	
4.2	0.2	59.9	26.3	90.7	4.7%	-	0.2	0.8	1 444.4	22.9%	1.40	Indonesia	
0.4	-	2.0	0.8	3.3	12.9%	1.8	-	-	96.0	82.5%	0.93	DPR of Korea	
0.5	0.5	8.4	3.6	12.9	3.7%	0.0	0.1	0.4	258.3	53.6%	0.79	Malaysia	
0.1	-	4.6	0.4	5.1	2.7%	-	-	-	61.8	14.9%	7.40	Mongolia	
0.7	-	10.0	20.5	31.2	2.3%	-	-	-	563.1	2.9%	20.96	Myanmar	
0.6	-	3.2	0.4	4.2	13.4%	-	-	-	28.8	17.5%	0.88	Nepal	
3.1	0.7	17.8	3.2	24.8	12.4%	-	-	0.3	248.5	51.9%	0.58	Pakistan	
1.2	0.0	8.9	2.2	12.2	9.6%	-	-	0.2	138.1	54.1%	0.47	Philippines	
0.1	5.6	0.0	0.3	6.0	1.5%	0.7	0.4	0.3	54.6	83.4%	0.30	Singapore	
0.3	-	1.4	0.4	2.0	12.4%	-	-	-	23.1	49.0%	0.27	Sri Lanka	
0.9	0.5	2.1	1.2	4.7	19.9%	0.1	4.1	1.6	248.2	89.4%	0.49	Chinese Taipei	
3.7	0.4	13.5	2.5	20.1	18.7%	-	-	0.5	279.3	62.6%	0.56	Thailand	
1.2	-	16.6	1.8	19.6	6.1%	-	-	-	153.9	39.6%	0.84	Viet Nam	
0.5	-	8.3	2.1	10.8	4.5%	0.0	-	-	97.7	14.8%	1.39	Other Asia	
<b>42.6</b>	<b>9.5</b>	<b>325.5</b>	<b>93.0</b>	<b>470.6</b>	<b>9.0%</b>	<b>10.8</b>	<b>6.8</b>	<b>7.6</b>	<b>5 738.6</b>	<b>42.7%</b>	<b>0.90</b>	<b>Asia (excl. China)</b>	
29.3	15.6	303.6	44.0	392.4	7.5%	38.1	8.0	10.8	5 270.5	70.8%	1.30	People's Rep. of China	
0.2	-	-	0.3	0.5	32.9%	-	-	0.2	45.5	93.3%	0.23	Hong Kong, China	
<b>29.5</b>	<b>15.6</b>	<b>303.6</b>	<b>44.3</b>	<b>392.9</b>	<b>7.5%</b>	<b>38.1</b>	<b>8.0</b>	<b>10.9</b>	<b>5 316.1</b>	<b>71.0%</b>	<b>1.25</b>	<b>China</b>	
1.4	0.1	36.0	4.4	42.0	3.4%	0.1	0.1	0.2	298.6	54.1%	0.79	Argentina	
0.1	-	5.5	5.8	11.3	0.8%	-	-	-	170.5	6.5%	5.20	Bolivia	
5.1	7.7	122.7	32.1	167.6	3.0%	0.1	4.1	0.8	1 451.4	23.5%	0.85	Brazil	
0.6	0.3	17.1	2.9	20.9	3.1%	-	0.0	0.0	183.1	39.3%	0.61	Colombia	
0.1	0.1	1.3	0.2	1.7	5.0%	0.0	-	-	9.6	49.1%	0.29	Costa Rica	
0.4	0.6	5.7	0.6	7.3	5.5%	0.0	-	-	50.8	59.2%	1.34	Cuba	
0.2	-	1.6	0.4	2.2	8.4%	-	-	-	26.2	66.1%	0.47	Dominican Republic	
0.2	-	3.5	0.4	4.1	3.8%	0.0	-	-	40.4	60.6%	0.50	Ecuador	
0.1	-	1.0	0.2	1.4	7.8%	0.0	-	-	10.1	56.7%	0.30	El Salvador	
0.3	-	8.2	6.0	14.4	1.8%	0.2	-	-	151.6	6.4%	2.41	Guatemala	
0.1	-	1.2	0.1	1.4	5.3%	-	-	-	7.2	30.8%	0.55	Haiti	
0.1	-	2.6	0.4	3.1	2.8%	-	-	-	14.8	32.7%	0.77	Honduras	
0.1	-	0.4	0.2	0.6	8.9%	0.0	-	-	12.3	82.0%	0.72	Jamaica	
0.0	-	0.0	0.1	0.1	15.5%	-	-	-	4.7	96.6%	2.23	Netherlands Antilles	
0.1	-	2.9	0.3	3.3	2.7%	-	-	-	13.0	30.6%	0.85	Nicaragua	
0.0	-	0.9	0.1	1.0	4.7%	-	-	-	9.5	54.2%	0.38	Panama	
0.2	-	6.1	1.5	7.8	1.9%	-	-	-	52.9	7.8%	1.78	Paraguay	
0.2	0.0	5.9	1.6	7.7	3.1%	0.1	-	-	73.3	39.0%	0.47	Peru	
0.0	-	0.1	0.1	0.2	10.5%	-	-	-	24.5	92.5%	1.23	Trinidad and Tobago	
0.1	-	6.1	0.1	6.3	1.6%	0.0	-	-	30.6	18.2%	0.83	Uruguay	
0.5	0.0	10.1	2.6	13.2	3.7%	0.5	0.5	0.2	247.8	65.5%	0.79	Venezuela	
0.1	-	2.4	0.8	3.2	3.2%	0.0	0.0	0.0	41.2	37.2%	1.14	Other Non-OECD Americas	
<b>9.9</b>	<b>8.9</b>	<b>241.2</b>	<b>61.0</b>	<b>320.9</b>	<b>3.1%</b>	<b>1.1</b>	<b>4.7</b>	<b>1.2</b>	<b>2 924.1</b>	<b>32.4%</b>	<b>0.86</b>	<b>Non-OECD Americas</b>	
0.0	-	0.0	0.1	0.1	26.8%	-	0.2	-	20.7	96.2%	0.77	Bahrain	
2.1	0.5	18.4	3.1	24.1	8.8%	-	0.1	1.7	453.2	85.0%	0.72	Islamic Rep. of Iran	
0.3	-	3.3	0.8	4.5	7.4%	-	-	0.2	114.0	87.1%	0.45	Iraq	
0.1	-	0.3	0.2	0.6	8.5%	0.0	-	-	17.6	83.4%	0.53	Jordan	
0.1	-	0.1	0.3	0.5	27.9%	0.1	-	0.4	64.6	96.2%	0.47	Kuwait	
0.1	-	0.3	0.2	0.6	14.0%	-	-	-	16.9	84.6%	0.45	Lebanon	
0.1	-	0.3	0.1	0.5	14.8%	0.0	-	-	53.6	62.8%	0.72	Oman	
0.1	-	0.1	0.1	0.3	26.9%	-	-	-	43.8	97.2%	0.72	Qatar	
0.9	-	2.8	2.4	6.0	14.4%	0.1	-	1.3	300.7	92.7%	0.45	Saudi Arabia	
0.3	0.2	3.6	0.6	4.7	6.1%	-	-	-	64.8	82.5%	1.08	Syrian Arab Republic	
0.2	-	0.5	0.5	1.1	15.5%	-	0.2	0.7	112.9	94.8%	0.38	United Arab Emirates	
0.2	-	2.1	0.4	2.7	9.2%	-	-	-	24.0	69.1%	0.38	Yemen	
<b>4.5</b>	<b>0.7</b>	<b>31.8</b>	<b>8.7</b>	<b>45.7</b>	<b>9.8%</b>	<b>0.3</b>	<b>0.6</b>	<b>4.1</b>	<b>1 286.9</b>	<b>87.6%</b>	<b>0.55</b>	<b>Middle East</b>	

\* GHG / GDP PPP ratio is expressed in kg of CO<sub>2</sub>-equivalent per 2005 USD. The high GHG / GDP PPP ratio for Mongolia is due to high levels of peat decay

## 2005 Greenhouse-gas emissions

 million tonnes of CO<sub>2</sub> equivalent using GWP-100

	CO <sub>2</sub>						CH <sub>4</sub>					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
<b>World *</b>	<b>27 494.0</b>	<b>452.9</b>	<b>1 311.6</b>	<b>7 084.9</b>	<b>36 343.4</b>	<b>76.9%</b>	<b>2 533.7</b>	<b>3 170.3</b>	<b>1 225.4</b>	<b>283.9</b>	<b>7 213.3</b>	<b>35.1%</b>
<i>Annex I Parties</i>	14 096.5	177.7	412.3	667.7	15 354.2	93.0%	912.3	663.2	446.3	20.9	2 042.7	44.7%
<i>Annex II Parties</i>	11 275.7	49.8	282.2	333.6	11 941.3	94.8%	404.7	526.0	306.1	11.4	1 248.2	32.4%
<i>North America</i>	6 322.6	22.0	87.8	111.9	6 544.4	96.9%	256.5	216.7	162.9	6.4	642.5	39.9%
<i>Europe</i>	3 339.2	18.5	131.1	163.3	3 652.0	91.9%	106.0	184.1	122.1	1.8	414.0	25.6%
<i>Asia Oceania</i>	1 613.9	9.3	63.3	58.4	1 744.8	93.0%	42.1	125.2	21.2	3.2	191.8	22.0%
<i>Annex I EIT</i>	2 601.8	125.6	106.8	332.7	3 166.8	86.1%	497.2	115.5	107.7	9.4	729.8	68.1%
<i>Non-Annex I Parties</i>	12 412.4	275.2	899.3	6 417.3	20 004.2	63.4%	1 620.3	2 507.1	779.1	263.0	5 169.5	31.3%
<i>Annex I Kyoto Parties</i>	7 493.0	153.4	298.9	511.7	8 457.1	90.4%	644.4	416.7	246.0	14.4	1 321.6	48.8%
<b>Int. marine bunkers</b>	<b>566.1</b>	-	-	-	<b>566.1</b>	<b>100.0%</b>	<b>1.0</b>	-	-	-	<b>1.0</b>	<b>100.0%</b>
<b>Int. aviation bunkers</b>	<b>419.0</b>	-	-	-	<b>419.0</b>	<b>100.0%</b>	<b>0.1</b>	-	-	-	<b>0.1</b>	<b>100.0%</b>
<b>Non-OECD Total</b>	<b>13 504.0</b>	<b>381.1</b>	<b>936.8</b>	<b>6 658.6</b>	<b>21 480.4</b>	<b>64.6%</b>	<b>2 013.1</b>	<b>2 522.7</b>	<b>827.1</b>	<b>269.9</b>	<b>5 632.9</b>	<b>35.7%</b>
<b>OECD Total</b>	<b>13 005.0</b>	<b>71.9</b>	<b>374.8</b>	<b>426.3</b>	<b>13 878.0</b>	<b>94.2%</b>	<b>519.5</b>	<b>647.6</b>	<b>398.3</b>	<b>14.0</b>	<b>1 579.3</b>	<b>32.9%</b>
Canada	549.1	3.0	10.2	42.8	605.2	91.2%	46.0	26.1	31.2	3.3	106.7	43.2%
Chile	58.2	0.4	1.9	0.3	60.8	96.3%	4.5	7.2	6.4	0.2	18.2	24.6%
Mexico	385.8	3.7	19.8	52.0	461.2	84.4%	36.5	54.3	20.4	2.1	113.3	32.2%
United States	5 773.5	19.0	77.7	69.1	5 939.2	97.5%	210.5	190.6	131.7	3.1	535.8	39.3%
<b>OECD Americas</b>	<b>6 766.6</b>	<b>26.1</b>	<b>109.5</b>	<b>164.2</b>	<b>7 066.4</b>	<b>96.1%</b>	<b>297.5</b>	<b>278.2</b>	<b>189.6</b>	<b>8.7</b>	<b>774.0</b>	<b>38.4%</b>
Australia	371.9	3.5	6.1	22.6	404.2	92.9%	37.7	70.1	11.4	2.8	122.0	30.9%
Israel	59.9	0.0	2.3	0.2	62.4	96.0%	0.7	1.1	1.7	0.0	3.5	19.6%
Japan	1 208.1	5.7	56.6	30.7	1 301.1	93.3%	3.5	30.2	8.3	0.3	42.2	8.2%
Korea	469.1	11.0	27.8	0.5	508.4	94.4%	6.4	12.3	13.2	0.1	32.0	20.0%
New Zealand	33.9	0.1	0.5	5.1	39.6	85.7%	1.0	24.9	1.6	0.0	27.5	3.6%
<b>OECD Asia Oceania</b>	<b>2 142.9</b>	<b>20.3</b>	<b>93.4</b>	<b>59.1</b>	<b>2 315.6</b>	<b>93.4%</b>	<b>49.2</b>	<b>138.6</b>	<b>36.1</b>	<b>3.3</b>	<b>227.2</b>	<b>21.7%</b>
Austria	74.6	0.5	3.8	0.5	79.5	94.5%	1.8	4.1	2.4	0.0	8.4	21.9%
Belgium	113.2	0.1	5.2	0.6	119.2	95.1%	1.2	5.7	2.7	0.0	9.6	12.7%
Czech Republic	120.1	3.7	3.9	1.0	128.7	96.2%	5.0	3.9	3.2	0.0	12.0	41.4%
Denmark	48.4	0.4	1.6	3.0	53.4	91.3%	1.3	5.2	1.5	-	8.0	16.4%
Estonia	16.9	-	0.4	10.3	27.5	61.3%	0.9	0.6	0.7	-	2.2	41.3%
Finland	55.1	0.5	1.3	51.3	108.2	51.4%	0.8	2.0	6.9	0.0	9.8	8.3%
France	388.2	2.8	21.3	7.6	420.0	93.1%	34.4	36.9	11.5	0.1	82.9	41.5%
Germany	799.6	3.7	20.9	35.4	859.7	93.4%	16.5	29.6	15.4	0.2	61.7	26.7%
Greece	95.0	0.0	7.6	0.4	103.0	92.2%	1.9	3.6	2.6	0.0	8.2	23.3%
Hungary	56.4	0.3	2.0	1.0	59.7	94.9%	2.3	2.6	2.9	0.0	7.9	29.4%
Iceland	2.2	-	0.1	17.6	19.9	11.0%	0.0	0.2	0.1	0.0	0.3	1.2%
Ireland	43.9	-	2.4	8.9	55.2	79.6%	1.8	11.8	1.4	0.0	15.0	12.1%
Italy	460.8	0.6	25.3	2.3	489.1	94.4%	6.1	16.2	17.7	0.1	40.1	15.2%
Luxembourg	11.4	-	0.5	0.0	11.9	95.3%	0.1	0.9	0.1	0.0	1.1	10.6%
Netherlands	180.1	0.7	1.5	6.5	188.8	95.8%	5.0	9.2	6.9	0.1	21.3	23.7%
Norway	36.4	1.2	0.9	0.7	39.2	95.9%	12.4	2.1	2.3	0.1	16.9	73.2%
Poland	292.9	0.5	7.3	25.4	326.2	90.0%	46.2	15.4	9.0	0.0	70.6	65.4%
Portugal	62.8	0.0	4.5	0.3	67.7	92.8%	1.6	4.3	6.9	0.8	13.6	11.8%
Slovak Republic	38.1	0.2	2.2	0.4	40.8	93.6%	0.8	1.5	1.7	0.0	4.1	20.4%
Slovenia	15.6	-	1.7	0.3	17.6	88.8%	1.1	1.1	0.7	0.0	3.0	37.4%
Spain	339.4	1.1	20.9	1.5	362.9	93.8%	4.0	20.6	11.3	0.4	36.3	11.0%
Sweden	50.3	0.9	2.1	14.6	67.9	75.4%	1.2	3.2	7.1	0.0	11.5	10.3%
Switzerland	44.6	0.0	1.9	0.4	47.0	95.1%	0.9	3.2	0.8	0.0	5.0	19.2%
Turkey	216.4	2.3	23.3	1.4	243.3	89.9%	10.4	21.6	32.3	0.1	64.4	16.2%
United Kingdom	532.9	5.9	9.4	11.4	559.6	96.3%	14.8	25.1	24.4	0.0	64.4	23.0%
<b>OECD Europe</b>	<b>4 095.5</b>	<b>25.4</b>	<b>171.9</b>	<b>203.0</b>	<b>4 495.9</b>	<b>91.7%</b>	<b>172.8</b>	<b>230.8</b>	<b>172.6</b>	<b>2.0</b>	<b>578.1</b>	<b>29.9%</b>
<i>European Union - 28</i>	3 988.3	22.9	159.3	195.3	4 365.8	91.9%	168.1	218.8	154.9	2.0	543.8	30.9%

\* Total World includes Non-OECD total, OECD total as well as international bunkers.

 Sources: IEA, Sectoral Approach for CO<sub>2</sub> emissions from fuel combustion. EDGAR 4.2 FT2010 database for other emissions. In general, estimates for emissions other than CO<sub>2</sub> from fuel combustion are subject to significantly larger uncertainties.

## 2005 Greenhouse-gas emissions

million tonnes of CO<sub>2</sub> equivalent using GWP-100

Energy	N <sub>2</sub> O					Share of energy	HFCs	PFCs	SF <sub>6</sub>	Total			GHG / GDP PPP *	
	Industrial processes	Agriculture	Other	Total	Industrial processes		Total	Share of energy	GHG / GDP PPP *					
<b>313.1</b>	<b>163.7</b>	<b>1 953.7</b>	<b>566.9</b>	<b>2 997.4</b>	<b>10.4%</b>	<b>534.8</b>	<b>93.3</b>	<b>131.2</b>	<b>47 313.4</b>	<b>65.1%</b>	<b>0.74</b>	<b>World</b>		
144.6	123.0	537.2	141.5	946.3	15.3%	347.2	64.2	73.5	18 828.0	81.4%	0.53	Annex I Parties		
122.5	78.1	420.7	103.6	724.8	16.9%	312.3	35.4	62.0	14 324.0	82.7%	0.46	Annex II Parties		
80.4	27.5	202.6	50.3	360.8	22.3%	198.2	15.2	46.1	7 807.3	85.6%	0.55	North America		
27.8	45.7	148.6	35.9	258.0	10.8%	67.4	11.5	10.9	4 413.8	79.1%	0.36	Europe		
14.3	4.9	69.4	17.4	106.0	13.5%	46.6	8.7	5.0	2 102.9	79.9%	0.45	Asia Oceania		
18.5	41.1	94.8	34.4	188.8	9.8%	32.0	28.2	9.8	4 155.5	78.0%	1.16	Annex I EIT		
139.5	40.7	1 416.5	425.4	2 022.0	6.9%	187.6	29.1	57.7	27 470.2	52.6%	0.97	Non-Annex I Parties		
60.0	89.5	304.3	87.1	540.9	11.1%	145.6	48.4	25.7	10 539.2	79.2%	0.51	Annex I Kyoto Parties		
22.7	-	-	-	22.7	100.0%	-	-	-	589.8	100.0%	..	Int. marine bunkers		
6.4	-	-	-	6.4	100.0%	-	-	-	425.4	100.0%	..	Int. aviation bunkers		
<b>142.6</b>	<b>68.2</b>	<b>1 440.1</b>	<b>442.8</b>	<b>2 093.7</b>	<b>6.8%</b>	<b>201.7</b>	<b>53.7</b>	<b>61.7</b>	<b>29 524.1</b>	<b>54.3%</b>	<b>1.05</b>	<b>Non-OECD Total</b>		
<b>141.4</b>	<b>95.5</b>	<b>513.6</b>	<b>124.1</b>	<b>874.6</b>	<b>16.2%</b>	<b>333.2</b>	<b>39.6</b>	<b>69.5</b>	<b>16 774.1</b>	<b>81.9%</b>	<b>0.47</b>	<b>OECD Total</b>		
7.2	2.1	23.6	7.2	40.2	18.0%	11.9	6.2	4.2	774.4	78.2%	0.67	Canada		
0.8	0.9	6.0	0.9	8.6	9.6%	-	0.0	0.0	87.6	72.9%	0.42	Chile		
3.4	1.2	31.9	7.1	43.6	7.8%	7.1	-	0.4	625.6	68.6%	0.47	Mexico		
73.1	25.4	179.0	43.1	320.6	22.8%	186.3	9.0	42.0	7 032.9	86.4%	0.54	United States		
<b>84.6</b>	<b>29.6</b>	<b>240.5</b>	<b>58.4</b>	<b>413.0</b>	<b>20.5%</b>	<b>205.3</b>	<b>15.2</b>	<b>46.5</b>	<b>8 520.5</b>	<b>84.2%</b>	<b>0.54</b>	<b>OECD Americas</b>		
4.7	1.8	48.9	7.7	63.0	7.4%	5.1	0.8	0.5	595.7	70.1%	0.83	Australia		
0.3	0.2	0.9	0.6	2.0	14.0%	1.3	0.1	0.6	69.8	87.1%	0.42	Israel		
9.2	3.1	8.3	9.4	30.0	30.6%	40.8	7.6	4.5	1 426.2	86.0%	0.37	Japan		
3.3	2.2	4.9	3.6	14.0	23.3%	4.9	2.5	4.6	566.4	86.5%	0.52	Korea		
0.5	-	12.2	0.3	13.0	3.5%	0.7	0.2	0.1	81.0	43.6%	0.77	New Zealand		
<b>17.9</b>	<b>7.4</b>	<b>75.2</b>	<b>21.6</b>	<b>122.0</b>	<b>14.6%</b>	<b>52.9</b>	<b>11.2</b>	<b>10.2</b>	<b>2 739.2</b>	<b>81.4%</b>	<b>0.46</b>	<b>OECD Asia Oceania</b>		
0.8	0.3	2.3	0.8	4.2	19.1%	1.9	0.2	0.2	94.3	82.4%	0.34	Austria		
0.8	3.9	2.9	1.2	8.8	8.9%	1.9	0.0	0.1	139.6	82.6%	0.41	Belgium		
2.4	1.1	3.3	0.9	7.6	31.2%	1.1	0.0	0.0	149.4	87.8%	0.69	Czech Republic		
0.6	-	4.6	0.6	5.8	10.1%	1.2	0.0	0.0	68.5	74.0%	0.38	Denmark		
0.2	-	0.6	0.2	1.0	23.3%	0.0	0.0	0.0	30.7	58.6%	1.38	Estonia		
1.9	1.6	3.0	0.6	7.1	26.5%	0.8	0.0	0.1	125.9	46.3%	0.78	Finland		
4.0	6.9	32.8	4.6	48.2	8.2%	12.7	0.7	1.6	566.1	75.9%	0.30	France		
5.9	10.4	29.5	5.7	51.5	11.4%	14.7	1.4	5.4	994.4	83.0%	0.39	Germany		
1.0	0.5	3.5	1.0	6.0	16.0%	1.9	0.1	0.1	119.4	82.0%	0.44	Greece		
0.3	1.8	4.2	0.7	7.0	4.8%	1.2	0.3	0.0	76.1	78.0%	0.44	Hungary		
0.0	0.0	0.3	0.0	0.4	10.2%	0.0	0.1	0.0	20.8	10.8%	2.00	Iceland		
0.3	-	6.8	0.4	7.5	4.4%	0.9	0.2	0.1	78.8	58.5%	0.49	Ireland		
3.3	7.5	12.5	5.3	28.7	11.6%	9.1	0.4	0.9	568.2	82.9%	0.34	Italy		
0.1	-	0.3	0.1	0.5	20.0%	0.1	0.0	-	13.6	85.5%	0.43	Luxembourg		
0.9	5.6	5.8	1.3	13.5	6.4%	3.1	0.4	0.1	227.1	82.2%	0.40	Netherlands		
0.4	1.9	1.8	0.8	5.0	7.4%	0.3	4.6	0.3	66.3	75.9%	0.30	Norway		
4.1	4.8	17.4	2.6	29.0	14.2%	1.7	0.6	0.2	428.3	80.2%	0.81	Poland		
0.7	0.5	2.6	2.1	6.0	11.8%	0.6	0.0	0.1	88.1	73.9%	0.39	Portugal		
0.4	1.2	1.3	0.3	3.3	13.4%	0.3	0.1	-	48.6	81.4%	0.56	Slovak Republic		
0.2	-	0.8	0.2	1.1	13.3%	0.4	0.1	0.0	22.1	76.1%	0.47	Slovenia		
3.0	1.7	16.6	5.0	26.3	11.4%	6.3	2.0	0.7	434.6	80.0%	0.37	Spain		
1.1	0.5	3.5	0.8	5.9	19.0%	1.1	0.7	0.2	87.4	61.3%	0.30	Sweden		
0.4	0.1	1.4	0.5	2.5	17.5%	1.6	0.1	0.3	56.4	81.7%	0.21	Switzerland		
3.6	3.9	21.8	3.4	32.6	10.9%	2.9	0.5	1.6	345.4	67.4%	0.44	Turkey		
2.7	4.1	18.4	5.0	30.2	9.0%	9.0	0.6	0.6	664.3	83.7%	0.33	United Kingdom		
<b>39.0</b>	<b>58.5</b>	<b>197.9</b>	<b>44.1</b>	<b>339.6</b>	<b>11.5%</b>	<b>75.0</b>	<b>13.1</b>	<b>12.7</b>	<b>5 514.4</b>	<b>78.6%</b>	<b>0.39</b>	<b>OECD Europe</b>		
36.2	59.2	185.9	42.1	323.3	11.2%	72.8	8.2	10.4	5 324.4	79.2%	0.40	European Union - 28		

\* GHG / GDP PPP ratio is expressed in kg of CO<sub>2</sub>-equivalent per 2005 USD.

## 2005 Greenhouse-gas emissions

 million tonnes of CO<sub>2</sub> equivalent using GWP-100

	CO <sub>2</sub>						CH <sub>4</sub>					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
<b>Non-OECD Total</b>	<b>13 504.0</b>	<b>381.1</b>	<b>936.8</b>	<b>6 658.6</b>	<b>21 480.4</b>	<b>64.6%</b>	<b>2 013.1</b>	<b>2 522.7</b>	<b>827.1</b>	<b>269.9</b>	<b>5 632.9</b>	<b>35.7%</b>
Albania	4.0	0.0	0.2	0.6	4.8	83.0%	0.6	1.7	0.2	0.0	2.5	22.2%
Armenia	4.1	-	0.3	0.3	4.7	87.0%	1.5	1.1	0.4	0.0	3.0	50.8%
Azerbaijan	30.8	0.3	0.7	0.3	32.1	96.9%	5.5	5.0	1.6	0.0	12.1	45.6%
Belarus	61.8	0.0	2.2	42.6	106.6	58.0%	1.0	8.1	4.9	0.0	14.0	6.8%
Bosnia-Herzegovina	15.6	0.2	0.5	0.4	16.7	95.1%	1.2	1.2	0.3	0.0	2.7	45.2%
Bulgaria	46.3	0.4	4.2	0.4	51.3	91.0%	1.4	2.1	9.2	0.1	12.8	11.3%
Croatia	20.7	0.0	1.8	0.0	22.6	91.9%	2.2	1.3	1.0	0.0	4.5	48.9%
Cyprus *	7.0	-	0.7	0.0	7.7	90.5%	0.0	0.3	0.3	-	0.6	2.2%
FYR of Macedonia	8.8	-	0.3	0.1	9.2	95.6%	0.5	0.7	0.3	0.0	1.4	32.7%
Georgia	4.3	0.0	0.2	0.3	4.8	89.5%	1.6	2.2	0.6	0.0	4.4	36.1%
Gibraltar	0.5	-	-	0.0	0.5	99.9%	0.0	-	0.0	-	0.0	6.7%
Kazakhstan	157.1	16.2	4.5	0.4	178.1	97.2%	35.1	11.9	4.7	2.2	53.9	65.2%
Kosovo **	6.5	..	..	..	..	..	..	..	..	..	..	..
Kyrgyzstan	4.9	0.0	0.4	0.5	5.7	85.0%	0.2	2.6	0.7	0.0	3.6	6.8%
Latvia	7.6	-	0.3	4.3	12.2	61.8%	1.7	0.9	0.6	0.0	3.1	53.7%
Lithuania	13.5	0.0	0.4	6.1	20.0	67.5%	1.8	1.9	1.4	0.0	5.0	35.1%
Malta	2.7	-	0.0	0.0	2.7	99.6%	0.0	0.0	0.2	-	0.2	0.8%
Republic of Moldova	7.7	-	0.3	0.1	8.1	94.5%	1.7	1.0	0.8	0.0	3.5	47.8%
Montenegro **	2.0	..	..	..	..	..	..	..	..	..	..	..
Romania	94.5	0.7	6.0	1.5	102.7	92.7%	11.9	8.8	5.2	0.0	26.0	46.0%
Russian Federation	1 511.8	98.7	52.5	233.1	1 896.1	84.9%	376.7	51.0	57.2	8.8	493.8	76.3%
Serbia **	49.2	0.0	1.3	0.7	51.1	96.2%	3.0	3.4	1.1	0.0	7.6	39.8%
Tajikistan	2.3	0.0	0.1	0.0	2.5	93.0%	0.5	2.7	0.7	0.0	3.9	12.5%
Turkmenistan	47.8	2.6	0.3	0.5	51.2	98.5%	22.6	6.1	0.9	0.0	29.5	76.5%
Ukraine	305.6	21.2	21.8	6.2	354.8	92.1%	44.2	16.4	10.0	0.3	70.9	62.4%
Uzbekistan	108.6	4.6	2.4	1.5	117.1	96.6%	25.4	13.4	3.5	0.0	42.4	60.0%
<b>Non-OECD Europe and Eurasia</b>	<b>2 525.5</b>	<b>144.9</b>	<b>101.5</b>	<b>300.1</b>	<b>3 072.0</b>	<b>86.9%</b>	<b>540.3</b>	<b>143.5</b>	<b>105.8</b>	<b>11.6</b>	<b>801.3</b>	<b>67.4%</b>
Algeria	79.4	11.3	5.5	0.2	96.3	94.1%	36.5	4.5	4.7	0.0	45.6	80.0%
Angola	6.5	8.5	0.5	5.6	21.1	70.8%	10.6	3.9	1.9	0.0	16.4	64.6%
Benin	2.7	-	0.1	20.2	23.0	11.5%	0.9	2.0	1.0	0.5	4.4	20.5%
Botswana	4.2	-	0.2	0.4	4.8	87.9%	0.5	3.9	0.3	0.0	4.7	10.2%
Cameroon	2.9	1.7	0.4	35.6	40.6	11.5%	2.2	8.0	2.5	0.9	13.7	16.3%
Congo	0.8	3.2	0.0	37.6	41.6	9.6%	3.8	1.8	0.5	1.5	7.7	49.9%
Dem. Rep. of Congo	1.3	0.0	0.2	833.8	835.3	0.2%	5.9	14.1	6.3	31.3	57.7	10.3%
Côte d'Ivoire	5.8	0.1	0.3	114.3	120.4	4.9%	3.3	2.0	2.4	4.8	12.5	26.4%
Egypt	150.3	3.1	14.4	1.1	168.8	90.8%	24.7	14.8	8.3	0.0	47.8	51.6%
Eritrea	0.6	-	0.0	0.0	0.6	94.4%	0.4	1.8	0.4	-	2.6	16.1%
Ethiopia	4.6	-	0.7	0.6	5.8	78.1%	7.8	38.3	6.9	-	53.0	14.7%
Gabon	1.7	4.2	0.1	6.2	12.2	48.5%	3.5	0.1	0.3	0.4	4.3	81.5%
Ghana	6.5	-	0.8	9.6	16.9	38.5%	2.9	3.7	2.9	0.4	10.0	29.6%
Kenya	7.5	-	1.1	3.8	12.4	60.7%	7.2	14.5	3.9	-	25.6	28.2%
Libya	45.3	8.3	1.7	0.1	55.4	96.6%	14.3	0.8	1.1	0.0	16.3	87.7%
Mauritius	2.9	-	0.0	0.0	2.9	99.7%	0.0	0.0	0.2	-	0.3	10.5%
Morocco	39.5	-	4.6	0.3	44.3	89.0%	0.9	5.5	4.2	0.0	10.6	8.3%
Mozambique	1.5	-	0.2	34.9	36.6	4.1%	3.4	6.0	2.3	2.0	13.7	25.0%
Namibia	2.3	-	0.0	0.0	2.4	98.1%	0.1	4.9	0.2	0.0	5.3	2.3%
Nigeria	57.9	37.6	1.1	8.1	104.7	91.2%	43.3	26.1	14.5	0.2	84.1	51.5%
Senegal	4.7	-	1.1	0.1	5.8	80.0%	1.2	5.0	1.6	-	7.7	15.0%
South Africa	329.5	15.6	6.3	4.7	356.1	96.9%	30.5	20.0	12.5	2.4	65.3	46.6%
Sudan	10.2	0.0	0.1	4.1	14.5	71.0%	6.6	58.9	5.2	-	70.7	9.3%
United Rep. of Tanzania	5.1	0.0	0.6	65.1	70.8	7.2%	5.1	20.7	4.2	3.6	33.6	15.3%
Togo	1.0	-	0.3	7.4	8.7	11.2%	1.5	1.2	0.7	0.4	3.7	39.6%
Tunisia	20.2	0.5	3.1	0.2	23.9	86.3%	3.6	2.1	1.5	0.0	7.2	50.0%
Zambia	2.1	-	0.3	124.2	126.6	1.7%	2.4	12.3	1.2	5.4	21.2	11.1%
Zimbabwe	10.1	0.4	0.3	1.0	11.8	89.4%	1.1	7.1	1.5	0.0	9.7	11.4%
Other Africa	22.1	2.5	1.1	246.7	272.3	9.0%	26.0	105.6	17.1	9.6	158.4	16.4%
<b>Africa</b>	<b>829.0</b>	<b>96.8</b>	<b>45.1</b>	<b>1 565.8</b>	<b>2 536.7</b>	<b>36.5%</b>	<b>250.3</b>	<b>389.7</b>	<b>110.2</b>	<b>63.4</b>	<b>813.6</b>	<b>30.8%</b>

 \* Please refer to Part I, Chapter 4, *Geographical Coverage*.

 \*\* For 2005, Serbia includes Kosovo and Montenegro for all emissions other than CO<sub>2</sub> from fuel combustion.



## 2005 Greenhouse-gas emissions

million tonnes of CO<sub>2</sub> equivalent using GWP-100

Energy	N <sub>2</sub> O					Share of energy	HFCs	PFCs	SF <sub>6</sub>	Total			GHG / GDP PPP *	
	Industrial processes	Agriculture	Other	Total	Industrial processes		Total	Share of energy	Total					
<b>142.6</b>	<b>68.2</b>	<b>1 440.1</b>	<b>442.8</b>	<b>2 093.7</b>	<b>6.8%</b>	<b>201.7</b>	<b>53.7</b>	<b>61.7</b>	<b>29 524.1</b>	<b>54.3%</b>	<b>1.05</b>	<b>Non-OECD Total</b>		
0.1	-	0.8	0.2	1.0	7.2%	0.1	-	-	8.4	55.0%	0.44	Albania		
0.0	-	0.5	0.1	0.6	1.0%	0.3	-	-	8.6	65.4%	0.61	Armenia		
0.2	-	2.0	0.4	2.6	6.2%	0.1	0.2	-	47.1	78.2%	0.78	Azerbaijan		
0.6	2.2	8.5	0.6	11.9	5.1%	0.4	0.0	-	133.0	47.6%	1.42	Belarus		
0.1	-	0.7	0.2	1.0	12.7%	0.4	0.1	-	21.0	82.1%	0.87	Bosnia-Herzegovina		
0.3	0.9	2.0	0.6	4.0	8.8%	0.4	0.0	-	68.4	70.9%	0.90	Bulgaria		
0.2	0.8	1.5	0.3	2.8	8.5%	0.0	0.0	-	30.0	77.4%	0.44	Croatia		
0.0	-	0.2	0.1	0.3	13.0%	0.2	-	-	8.8	79.8%	0.48	Cyprus		
0.1	-	0.4	0.1	0.6	17.6%	0.1	-	-	11.3	82.5%	0.71	FYR of Macedonia		
0.1	0.7	1.1	0.2	2.0	3.2%	0.0	-	-	11.3	53.1%	0.61	Georgia		
0.0	-	-	0.0	0.0	34.4%	-	-	-	0.5	97.4%	0.54	Gibraltar		
2.6	-	11.0	4.5	18.1	14.2%	0.3	-	-	250.4	84.2%	1.19	Kazakhstan		
..	..	..	..	..	..	..	..	..	..	..	..	Kosovo		
0.2	-	1.1	0.2	1.5	11.0%	0.0	-	-	10.9	48.7%	1.00	Kyrgyzstan		
0.2	-	1.0	0.2	1.3	12.0%	0.9	0.0	-	17.5	53.6%	0.58	Latvia		
0.1	2.0	2.1	0.2	4.5	2.7%	0.6	0.0	-	30.2	51.1%	0.62	Lithuania		
0.0	-	0.0	0.0	0.1	11.6%	0.1	-	-	3.1	86.3%	0.37	Malta		
0.1	-	0.6	0.2	0.9	6.0%	0.0	-	-	12.5	75.1%	1.18	Republic of Moldova		
..	..	..	..	..	..	..	..	..	..	..	..	Montenegro		
0.7	2.9	6.5	1.3	11.4	6.0%	0.4	0.3	0.0	140.7	76.6%	0.69	Romania		
7.3	13.5	33.7	23.5	78.1	9.4%	24.2	26.6	9.3	2 528.0	78.9%	1.49	Russian Federation		
0.2	0.5	2.9	0.4	4.1	5.0%	4.3	0.1	-	67.1	78.0%	1.06	Serbia		
0.0	-	1.2	0.2	1.4	1.1%	0.0	0.4	-	8.2	34.8%	0.78	Tajikistan		
0.1	0.6	3.3	0.3	4.3	1.8%	0.1	-	-	85.1	85.9%	3.09	Turkmenistan		
1.4	9.8	11.9	2.9	26.0	5.6%	0.2	0.2	0.3	452.4	82.3%	1.48	Ukraine		
0.5	0.1	8.4	1.1	10.1	5.0%	0.6	-	-	170.2	81.7%	2.40	Uzbekistan		
<b>15.1</b>	<b>34.0</b>	<b>101.6</b>	<b>37.8</b>	<b>188.5</b>	<b>8.0%</b>	<b>33.9</b>	<b>28.0</b>	<b>9.6</b>	<b>4 133.3</b>	<b>78.0%</b>	<b>1.32</b>	<b>Non-OECD Europe and Eurasia</b>		
0.4	0.7	2.9	0.9	4.9	8.2%	0.2	-	0.3	147.4	86.6%	0.40	Algeria		
0.2	-	2.6	0.3	3.1	6.6%	0.0	-	-	40.5	63.4%	0.59	Angola		
0.1	-	1.8	1.0	2.9	4.2%	-	-	-	30.3	12.1%	2.63	Benin		
0.1	-	2.8	0.2	3.1	2.9%	-	-	-	12.6	38.1%	0.66	Botswana		
0.2	-	6.8	2.0	9.0	2.6%	-	0.4	-	63.8	11.2%	1.63	Cameroon		
0.1	-	1.8	1.7	3.6	1.9%	0.0	-	-	52.9	14.9%	3.36	Congo		
1.3	-	16.3	37.1	54.7	2.3%	-	-	-	947.7	0.9%	53.91	Dem. Rep. of Congo		
0.2	-	2.1	5.1	7.5	3.1%	-	-	-	140.4	6.7%	3.36	Côte d'Ivoire		
1.3	3.2	15.2	2.3	22.0	6.0%	0.3	1.7	1.1	241.8	74.2%	0.44	Egypt		
0.0	-	1.1	0.1	1.2	4.1%	-	-	-	4.4	23.7%	0.77	Eritrea		
1.6	-	26.8	1.9	30.3	5.3%	0.0	-	-	89.1	15.6%	1.81	Ethiopia		
0.0	-	0.1	0.3	0.5	10.2%	0.0	-	-	17.0	55.8%	0.82	Gabon		
0.4	-	3.4	1.0	4.8	9.3%	0.0	0.0	-	31.7	31.3%	0.66	Ghana		
0.6	-	9.4	0.6	10.6	5.7%	-	-	-	48.6	31.6%	0.82	Kenya		
0.2	-	0.7	0.5	1.3	11.9%	-	-	0.3	73.3	92.8%	0.91	Libya		
0.0	-	0.1	0.4	0.5	2.6%	-	-	-	3.7	79.7%	0.27	Mauritius		
0.5	-	4.8	0.8	6.1	8.0%	-	-	-	61.1	66.8%	0.42	Morocco		
0.3	-	6.5	2.5	9.3	3.5%	0.1	0.2	-	60.0	8.8%	4.39	Mozambique		
0.1	-	3.5	0.2	3.9	3.4%	-	-	-	11.5	22.5%	0.85	Namibia		
2.0	-	16.6	3.0	21.6	9.4%	0.3	-	0.3	211.0	66.7%	0.41	Nigeria		
0.1	-	3.6	0.4	4.0	3.0%	-	-	-	17.5	33.8%	0.83	Senegal		
2.9	2.1	14.4	5.8	25.2	11.5%	0.5	0.5	1.5	449.1	84.3%	1.00	South Africa		
0.6	-	44.8	3.3	48.7	1.3%	-	-	-	133.8	13.1%	1.41	Sudan		
0.6	-	16.7	4.2	21.4	2.7%	-	-	-	125.9	8.6%	2.92	United Rep. of Tanzania		
0.1	-	1.1	0.5	1.7	6.7%	-	-	-	14.2	18.1%	2.42	Togo		
0.2	0.3	1.6	0.3	2.4	9.0%	-	-	-	33.5	73.0%	0.42	Tunisia		
0.2	0.4	17.4	6.7	24.7	1.0%	0.0	-	-	172.5	2.7%	7.19	Zambia		
0.2	-	5.1	0.4	5.7	3.9%	-	-	-	27.2	43.6%	6.98	Zimbabwe		
3.0	-	77.3	16.2	96.5	3.1%	0.1	-	-	527.3	10.2%	2.56	Other Africa		
<b>17.9</b>	<b>6.8</b>	<b>306.9</b>	<b>99.7</b>	<b>431.3</b>	<b>4.1%</b>	<b>1.6</b>	<b>2.9</b>	<b>3.6</b>	<b>3 789.6</b>	<b>31.5%</b>	<b>1.25</b>	<b>Africa</b>		

\* GHG / GDP PPP ratio is expressed in kg of CO<sub>2</sub>-equivalent per 2005 USD. The high GHG / GDP PPP ratio for DR of Congo and Zambia is due to high levels of forest fires and subsequent post-burn decay.

## 2005 Greenhouse-gas emissions

 million tonnes of CO<sub>2</sub> equivalent using GWP-100

	CO <sub>2</sub>						CH <sub>4</sub>					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Bangladesh	35.1	-	2.3	7.6	45.0	78.0%	9.7	66.5	17.9	0.1	94.2	10.3%
Brunei Darussalam	4.8	0.2	0.1	12.1	17.2	29.0%	3.9	0.0	0.1	0.5	4.5	86.2%
Cambodia	2.6	-	-	31.1	33.7	7.8%	1.2	15.5	1.6	2.3	20.5	5.6%
India	1 191.1	19.5	60.4	48.7	1 319.7	91.7%	93.5	375.9	113.3	1.8	584.5	16.0%
Indonesia	335.7	5.6	15.4	2 054.9	2 411.6	14.2%	49.0	98.3	50.8	61.6	259.7	18.9%
DPR of Korea	73.8	-	3.0	2.7	79.5	92.9%	11.8	4.3	3.2	0.1	19.3	60.9%
Malaysia	157.5	3.2	8.1	113.2	282.0	57.0%	22.1	5.8	5.7	2.8	36.5	60.7%
Mongolia	9.5	0.0	0.1	42.8	52.4	18.1%	0.4	5.6	0.3	0.0	6.3	5.9%
Myanmar	10.6	0.0	0.2	387.8	398.7	2.7%	9.7	54.3	6.4	7.8	78.2	12.4%
Nepal	3.0	-	0.1	0.2	3.4	89.4%	1.4	18.4	2.5	0.0	22.3	6.4%
Pakistan	120.5	2.0	7.7	0.4	130.7	93.8%	34.1	87.0	17.6	0.1	138.7	24.6%
Philippines	70.6	0.0	6.9	2.2	79.7	88.6%	5.6	33.6	14.0	0.0	53.2	10.5%
Singapore	42.7	0.2	0.1	0.4	43.4	98.8%	1.4	0.0	0.9	0.0	2.3	60.7%
Sri Lanka	13.3	-	0.7	0.5	14.4	92.1%	0.6	6.7	3.0	-	10.3	6.1%
Chinese Taipei	262.7	0.7	10.0	0.9	274.3	96.0%	1.4	1.1	5.8	0.0	8.3	17.0%
Thailand	210.8	0.0	17.4	13.0	241.2	87.4%	19.1	56.1	13.7	0.5	89.4	21.3%
Viet Nam	79.8	1.1	14.9	9.9	105.7	76.5%	28.1	55.1	10.9	0.3	94.3	29.8%
Other Asia	15.4	0.6	0.4	68.7	85.0	18.8%	2.9	18.6	5.1	1.9	28.4	10.1%
<b>Asia (excl. China)</b>	<b>2 639.5</b>	<b>33.2</b>	<b>147.8</b>	<b>2 797.0</b>	<b>5 617.6</b>	<b>47.6%</b>	<b>295.8</b>	<b>902.8</b>	<b>272.5</b>	<b>79.7</b>	<b>1 550.8</b>	<b>19.1%</b>
People's Rep. of China	5 403.1	28.3	556.1	109.6	6 097.0	89.1%	606.0	516.9	201.6	3.3	1 327.8	45.6%
Hong Kong, China	41.2	1.5	0.4	0.1	43.2	98.8%	0.8	-	2.1	-	2.8	26.8%
<b>China</b>	<b>5 444.3</b>	<b>29.7</b>	<b>556.5</b>	<b>109.7</b>	<b>6 140.2</b>	<b>89.2%</b>	<b>606.8</b>	<b>516.9</b>	<b>203.7</b>	<b>3.3</b>	<b>1 330.6</b>	<b>45.6%</b>
Argentina	152.6	0.9	5.1	9.7	168.4	91.2%	17.9	71.9	8.7	1.5	100.0	17.9%
Bolivia	9.4	0.3	0.6	219.3	229.6	4.2%	7.2	10.4	1.3	10.9	29.8	24.1%
Brazil	322.7	4.2	19.2	1 462.7	1 808.7	18.1%	37.9	302.6	58.8	92.9	492.2	7.7%
Colombia	58.1	1.0	4.9	24.5	88.6	66.7%	11.1	39.6	6.5	0.5	57.7	19.3%
Costa Rica	5.7	-	0.6	0.1	6.3	89.7%	0.3	1.7	0.4	-	2.4	10.5%
Cuba	25.3	1.3	0.7	3.2	30.5	87.2%	0.9	5.9	2.5	-	9.3	9.4%
Dominican Republic	17.3	-	1.1	0.3	18.7	92.5%	1.1	3.9	1.7	-	6.7	16.2%
Ecuador	24.5	2.5	1.4	2.1	30.6	88.4%	3.4	9.9	1.8	0.1	15.1	22.2%
El Salvador	6.3	-	0.4	0.2	7.0	90.1%	0.4	1.7	1.1	-	3.2	13.0%
Guatemala	10.5	0.0	1.2	37.5	49.3	21.4%	1.1	4.1	1.5	1.7	8.4	12.6%
Haiti	2.0	-	0.2	0.0	2.2	89.0%	0.7	2.3	1.3	-	4.3	17.2%
Honduras	7.1	-	0.5	2.7	10.3	68.8%	0.4	4.1	0.7	-	5.2	7.5%
Jamaica	10.2	-	0.5	0.1	10.8	94.1%	0.2	0.7	0.5	-	1.3	11.7%
Netherlands Antilles	4.7	-	-	0.0	4.7	99.0%	0.1	0.0	0.1	-	0.1	55.6%
Nicaragua	4.0	-	0.2	0.4	4.7	85.9%	0.4	4.5	1.1	-	6.0	6.8%
Panama	6.8	-	0.4	0.4	7.6	89.2%	0.1	2.5	0.5	-	3.2	4.2%
Paraguay	3.4	-	0.3	20.5	24.2	14.2%	0.9	13.0	1.1	0.8	15.8	5.6%
Peru	28.9	0.2	2.0	11.4	42.5	68.4%	1.8	10.5	4.0	0.3	16.6	10.5%
Trinidad and Tobago	31.0	0.3	0.3	0.0	31.6	98.9%	9.4	0.1	1.3	0.2	11.1	85.3%
Uruguay	5.3	-	0.3	0.4	6.0	88.3%	0.5	18.4	0.8	0.0	19.8	2.5%
Venezuela	147.9	4.8	2.8	48.5	204.0	74.9%	25.2	24.6	5.6	2.1	57.5	43.9%
Other Non-OECD Americas	16.0	-	1.0	16.7	33.7	47.6%	0.2	2.5	2.7	0.2	5.7	3.6%
<b>Non-OECD Americas</b>	<b>899.7</b>	<b>15.5</b>	<b>43.9</b>	<b>1 861.0</b>	<b>2 820.1</b>	<b>32.5%</b>	<b>121.0</b>	<b>534.9</b>	<b>104.1</b>	<b>111.4</b>	<b>871.4</b>	<b>13.9%</b>
Bahrain	22.5	0.0	0.2	0.1	22.8	98.6%	2.5	0.0	0.3	0.0	2.8	88.7%
Islamic Rep. of Iran	421.6	21.8	15.9	0.7	460.1	96.4%	66.2	20.9	12.6	0.1	99.8	66.3%
Iraq	74.9	12.6	1.3	3.4	92.2	94.9%	14.0	3.0	3.7	0.0	20.6	67.9%
Jordan	18.0	-	1.7	0.0	19.7	91.3%	0.5	0.4	1.0	-	1.8	26.5%
Kuwait	70.1	4.4	0.9	0.1	75.5	98.7%	11.8	0.2	0.8	0.0	12.8	92.6%
Lebanon	14.5	-	1.9	0.0	16.5	88.0%	0.1	0.3	0.7	-	1.0	11.6%
Oman	25.9	4.7	1.2	20.0	51.8	59.1%	13.5	0.5	0.5	-	14.5	92.7%
Qatar	36.4	4.2	0.7	0.0	41.3	98.3%	18.0	0.1	0.5	0.0	18.6	96.8%
Saudi Arabia	299.3	7.3	11.3	0.3	318.2	96.3%	43.4	1.9	5.7	0.2	51.3	84.6%
Syrian Arab Republic	54.9	2.3	2.0	0.2	59.3	96.4%	6.2	3.5	2.3	0.0	11.9	51.7%
United Arab Emirates	109.1	1.9	4.1	0.1	115.2	96.3%	20.7	0.6	1.0	-	22.3	92.8%
Yemen	18.6	1.8	0.8	0.0	21.2	96.3%	2.2	3.7	1.9	-	7.8	28.6%
<b>Middle East</b>	<b>1 165.9</b>	<b>60.9</b>	<b>41.9</b>	<b>25.1</b>	<b>1 293.8</b>	<b>94.8%</b>	<b>198.9</b>	<b>35.0</b>	<b>30.8</b>	<b>0.4</b>	<b>265.1</b>	<b>75.0%</b>

## 2005 Greenhouse-gas emissions

million tonnes of CO<sub>2</sub> equivalent using GWP-100

Energy	N <sub>2</sub> O					Share of energy	HFCs	PFCs	SF <sub>6</sub>	Total			GHG / GDP PPP *	
	Industrial processes	Agriculture	Other	Total	Industrial processes		Total	Share of energy						
1.6	-	17.8	2.1	21.5	7.4%	-	-	-	160.6	28.8%	0.76	Bangladesh		
0.0	-	0.1	0.6	0.7	1.7%	0.3	-	-	22.7	39.4%	0.94	Brunei Darussalam		
0.3	-	3.8	2.0	6.1	4.1%	-	-	-	60.2	6.7%	2.59	Cambodia		
26.0	1.8	156.3	27.2	211.2	12.3%	9.8	1.1	4.6	2 130.9	62.4%	0.64	India		
4.5	0.2	80.8	71.1	156.6	2.9%	-	0.1	0.9	2 829.0	14.0%	2.17	Indonesia		
0.5	-	2.1	0.8	3.4	13.7%	2.8	-	-	104.9	82.0%	0.98	DPR of Korea		
0.7	0.4	9.7	4.5	15.3	4.6%	0.0	0.3	0.6	334.9	54.8%	0.81	Malaysia		
0.1	-	3.3	0.2	3.5	3.4%	-	-	-	62.2	16.0%	5.44	Mongolia		
0.8	-	13.2	17.7	31.7	2.5%	-	-	-	508.6	4.2%	10.34	Myanmar		
0.6	-	3.5	0.5	4.5	13.1%	-	-	-	30.2	16.7%	0.78	Nepal		
3.3	0.7	19.9	3.2	27.1	12.2%	-	-	0.8	297.3	53.8%	0.54	Pakistan		
0.8	0.0	9.5	2.1	12.4	6.2%	-	-	0.4	145.6	52.9%	0.40	Philippines		
0.1	0.7	0.0	0.3	1.1	7.9%	1.4	0.8	0.3	49.3	90.0%	0.21	Singapore		
0.3	-	1.3	0.5	2.1	13.0%	-	-	-	26.8	52.9%	0.26	Sri Lanka		
1.3	0.7	1.7	1.4	5.1	25.9%	0.1	3.2	3.3	294.3	90.4%	0.49	Chinese Taipei		
4.5	0.5	14.6	3.0	22.6	20.1%	-	-	1.1	354.2	66.2%	0.56	Thailand		
1.4	-	19.1	2.3	22.8	6.1%	-	-	-	222.9	49.5%	0.87	Viet Nam		
0.5	-	10.5	3.0	14.0	3.9%	0.1	-	-	127.4	15.2%	1.27	Other Asia		
<b>47.2</b>	<b>5.0</b>	<b>367.1</b>	<b>142.4</b>	<b>561.7</b>	<b>8.4%</b>	<b>14.5</b>	<b>5.6</b>	<b>12.0</b>	<b>7 762.1</b>	<b>38.9%</b>	<b>0.93</b>	<b>Asia (excl. China)</b>		
45.8	17.9	347.1	52.3	463.2	9.9%	146.7	10.6	29.0	8 074.2	75.3%	1.25	People's Rep. of China		
0.2	-	-	0.3	0.4	39.7%	-	-	0.1	46.6	93.6%	0.19	Hong Kong, China		
<b>46.0</b>	<b>17.9</b>	<b>347.1</b>	<b>52.6</b>	<b>463.6</b>	<b>9.9%</b>	<b>146.7</b>	<b>10.6</b>	<b>29.1</b>	<b>8 120.8</b>	<b>75.4%</b>	<b>1.21</b>	<b>China</b>		
1.7	0.2	44.4	3.7	50.0	3.4%	0.2	0.1	0.3	319.0	54.3%	0.76	Argentina		
0.1	-	5.5	9.7	15.3	0.7%	-	-	-	274.7	6.2%	7.20	Bolivia		
5.9	2.5	157.5	72.4	238.2	2.5%	1.8	5.6	1.2	2 547.8	14.5%	1.30	Brazil		
0.6	0.3	18.3	2.1	21.3	3.0%	-	0.0	0.1	167.7	42.3%	0.47	Colombia		
0.1	0.0	1.1	0.2	1.4	5.0%	0.1	-	-	10.2	58.8%	0.25	Costa Rica		
0.3	0.7	5.0	0.5	6.4	4.2%	0.1	-	-	46.3	59.8%	0.96	Cuba		
0.2	-	1.7	0.4	2.3	8.6%	-	-	-	27.8	67.1%	0.42	Dominican Republic		
0.2	-	3.9	0.5	4.6	3.8%	0.1	-	-	50.3	60.7%	0.49	Ecuador		
0.1	-	1.0	0.2	1.4	8.3%	0.1	-	-	11.6	58.7%	0.31	El Salvador		
0.3	-	3.0	2.1	5.4	5.6%	0.5	-	-	63.6	18.7%	0.87	Guatemala		
0.1	-	1.2	0.1	1.5	6.7%	-	-	-	7.9	35.4%	0.63	Haiti		
0.1	-	2.5	0.5	3.1	3.4%	-	-	-	18.6	40.8%	0.76	Honduras		
0.1	-	0.4	0.2	0.7	11.1%	0.1	-	-	12.8	81.1%	0.69	Jamaica		
0.0	-	0.0	0.0	0.1	17.7%	-	-	-	4.9	96.9%	2.18	Netherlands Antilles		
0.1	-	3.1	0.3	3.5	3.2%	-	-	-	14.2	32.0%	0.80	Nicaragua		
0.1	-	1.0	0.1	1.2	4.9%	-	-	-	12.1	58.1%	0.39	Panama		
0.2	-	7.4	1.5	9.0	1.8%	-	-	-	49.0	9.2%	1.50	Paraguay		
0.2	-	6.2	1.3	7.7	2.8%	0.3	-	-	67.1	46.3%	0.35	Peru		
0.0	-	0.1	0.1	0.3	11.7%	-	-	-	42.9	94.8%	1.46	Trinidad and Tobago		
0.1	-	6.8	0.1	7.0	1.5%	0.1	-	-	32.8	17.9%	0.89	Uruguay		
0.6	0.0	11.2	3.1	14.9	4.3%	0.7	0.3	0.2	277.7	64.3%	0.78	Venezuela		
0.1	-	2.4	0.8	3.3	3.7%	0.0	0.0	0.0	42.7	38.3%	1.04	Other Non-OECD Americas		
<b>11.2</b>	<b>3.6</b>	<b>283.7</b>	<b>100.0</b>	<b>398.5</b>	<b>2.8%</b>	<b>4.0</b>	<b>6.0</b>	<b>1.9</b>	<b>4 101.9</b>	<b>25.5%</b>	<b>1.04</b>	<b>Non-OECD Americas</b>		
0.0	-	0.0	0.1	0.1	27.2%	-	0.3	-	26.0	96.2%	0.75	Bahrain		
2.5	0.6	20.1	4.0	27.2	9.1%	-	0.1	2.4	589.5	86.9%	0.71	Islamic Rep. of Iran		
0.4	-	2.2	0.9	3.5	10.8%	-	-	0.1	116.4	87.6%	0.44	Iraq		
0.1	-	0.4	0.2	0.7	9.4%	0.1	-	-	22.3	83.1%	0.50	Jordan		
0.2	-	0.1	0.4	0.7	27.6%	0.5	-	0.4	89.8	96.3%	0.44	Kuwait		
0.1	-	0.4	0.2	0.6	12.9%	-	-	-	18.1	81.0%	0.40	Lebanon		
0.1	-	0.4	0.1	0.6	16.5%	0.2	-	-	67.1	65.8%	0.76	Oman		
0.1	-	0.0	0.1	0.3	29.2%	-	-	-	60.1	97.5%	0.67	Qatar		
1.0	-	3.0	2.5	6.4	14.8%	0.2	-	2.0	378.1	92.8%	0.45	Saudi Arabia		
0.3	0.3	4.3	0.7	5.5	4.8%	-	-	-	76.7	82.9%	1.00	Syrian Arab Republic		
0.2	-	0.5	0.7	1.4	16.7%	-	0.3	0.8	139.9	94.2%	0.37	United Arab Emirates		
0.4	-	2.4	0.5	3.3	12.3%	-	-	-	32.3	71.5%	0.42	Yemen		
<b>5.2</b>	<b>0.9</b>	<b>33.7</b>	<b>10.4</b>	<b>50.2</b>	<b>10.4%</b>	<b>1.0</b>	<b>0.7</b>	<b>5.6</b>	<b>1 616.4</b>	<b>88.5%</b>	<b>0.54</b>	<b>Middle East</b>		

\* GHG / GDP PPP ratio is expressed in kg of CO<sub>2</sub>-equivalent per 2005 USD. The high GHG / GDP PPP ratio for Mongolia is due to high levels of peat decay

## 2010 Greenhouse-gas emissions

million tonnes of CO<sub>2</sub> equivalent using GWP-100

	CO <sub>2</sub>						CH <sub>4</sub>					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
<b>World *</b>	<b>30 482.1</b>	<b>420.0</b>	<b>1 776.0</b>	<b>5 210.8</b>	<b>37 888.9</b>	<b>81.6%</b>	<b>2 980.4</b>	<b>3 389.5</b>	<b>1 291.9</b>	<b>151.6</b>	<b>7 813.4</b>	<b>38.1%</b>
<i>Annex I Parties</i>	13 449.9	125.8	403.5	440.0	14 419.1	94.2%	972.3	639.9	446.4	3.9	2 062.5	47.1%
<i>Annex II Parties</i>	10 566.4	40.1	271.1	208.8	11 086.4	95.7%	409.9	520.2	287.8	3.2	1 221.1	33.6%
<i>North America</i>	5 958.5	19.2	67.8	43.0	6 088.5	98.2%	254.2	222.6	150.6	1.7	629.2	40.4%
<i>Europe</i>	3 055.5	17.1	125.5	145.0	3 343.2	91.9%	106.8	177.7	115.9	0.6	401.0	26.6%
<i>Asia Oceania</i>	1 552.3	3.8	77.8	20.8	1 654.8	94.0%	48.9	119.9	21.3	0.9	190.9	25.6%
<i>Annex I EIT</i>	2 615.1	82.8	102.3	230.8	3 031.1	89.0%	547.3	96.5	119.5	0.6	763.8	71.6%
<i>Non-Annex I Parties</i>	15 921.0	294.2	1 372.6	4 770.8	22 358.5	72.5%	2 006.4	2 749.6	845.6	147.7	5 749.3	34.9%
<i>Annex I Kyoto Parties</i>	7 158.5	103.7	302.6	355.2	7 920.0	91.7%	701.9	385.6	249.8	2.2	1 339.3	52.4%
<b>Int. marine bunkers</b>	<b>653.5</b>	-	-	-	<b>653.5</b>	<b>100.0%</b>	<b>1.6</b>	-	-	-	<b>1.6</b>	<b>100.0%</b>
<b>Int. aviation bunkers</b>	<b>457.8</b>	-	-	-	<b>457.8</b>	<b>100.0%</b>	<b>0.1</b>	-	-	-	<b>0.1</b>	<b>100.0%</b>
<b>Non-OECD Total</b>	<b>16 879.6</b>	<b>361.0</b>	<b>1 409.1</b>	<b>4 935.8</b>	<b>23 585.4</b>	<b>73.1%</b>	<b>2 448.3</b>	<b>2 744.7</b>	<b>910.0</b>	<b>147.2</b>	<b>6 250.2</b>	<b>39.2%</b>
<b>OECD Total</b>	<b>12 491.3</b>	<b>58.9</b>	<b>367.0</b>	<b>275.0</b>	<b>13 192.2</b>	<b>95.1%</b>	<b>530.4</b>	<b>644.8</b>	<b>382.0</b>	<b>4.4</b>	<b>1 561.6</b>	<b>34.0%</b>
Canada	531.4	4.7	9.3	7.3	552.7	97.0%	43.2	27.0	33.7	0.5	104.5	41.3%
Chile	69.8	0.4	2.4	0.2	72.8	96.4%	4.3	7.9	5.6	0.2	18.0	24.0%
Mexico	417.9	4.2	16.8	31.3	470.3	89.8%	40.3	55.4	19.4	0.8	115.9	34.8%
United States	5 427.1	14.5	58.4	35.7	5 535.7	98.3%	211.1	195.6	116.9	1.1	524.7	40.2%
<b>OECD Americas</b>	<b>6 446.2</b>	<b>23.8</b>	<b>86.9</b>	<b>74.6</b>	<b>6 631.5</b>	<b>97.6%</b>	<b>298.9</b>	<b>285.9</b>	<b>175.6</b>	<b>2.7</b>	<b>763.0</b>	<b>39.2%</b>
Australia	387.3	1.3	7.6	12.2	408.5	95.1%	44.1	65.0	12.9	0.6	122.5	36.0%
Israel	68.1	0.1	2.3	0.1	70.5	96.6%	1.1	1.1	1.1	-	3.4	32.3%
Japan	1 134.0	2.4	69.6	4.5	1 210.6	93.9%	3.3	29.5	7.2	0.3	40.3	8.1%
Korea	564.5	6.3	22.4	0.0	593.1	96.2%	7.3	13.2	11.4	0.1	32.0	22.8%
New Zealand	31.0	0.1	0.6	4.1	35.7	87.1%	1.5	25.4	1.2	0.0	28.1	5.3%
<b>OECD Asia Oceania</b>	<b>2 184.9</b>	<b>10.2</b>	<b>102.5</b>	<b>20.9</b>	<b>2 318.4</b>	<b>94.7%</b>	<b>57.2</b>	<b>134.2</b>	<b>33.8</b>	<b>1.0</b>	<b>226.3</b>	<b>25.3%</b>
Austria	69.4	0.2	4.0	0.3	73.9	94.2%	2.1	4.0	2.2	0.0	8.4	25.6%
Belgium	109.6	0.3	5.1	0.3	115.3	95.3%	1.5	5.5	2.6	0.0	9.6	15.8%
Czech Republic	114.3	3.3	4.5	0.5	122.6	95.9%	5.2	3.4	3.4	0.0	12.0	43.4%
Denmark	47.4	0.2	1.8	2.7	52.1	91.3%	1.2	5.2	1.3	-	7.8	15.5%
Estonia	18.5	0.8	0.6	9.2	29.1	66.2%	1.0	0.6	0.7	-	2.3	42.8%
Finland	62.4	0.4	1.0	50.7	114.6	54.8%	0.9	1.9	6.0	0.0	8.9	10.4%
France	355.1	2.5	22.4	2.8	382.8	93.4%	36.1	35.2	12.3	0.1	83.8	43.1%
Germany	769.9	4.3	19.1	31.4	824.6	93.9%	14.8	28.6	13.7	0.2	57.2	25.9%
Greece	84.2	0.0	7.7	0.1	92.0	91.5%	1.7	3.6	3.1	0.0	8.4	19.8%
Hungary	48.9	0.5	2.3	0.7	52.4	94.3%	2.2	2.3	2.8	0.0	7.3	30.8%
Iceland	1.9	-	0.1	17.6	19.6	9.9%	0.0	0.2	0.2	0.0	0.4	0.8%
Ireland	38.9	-	2.7	8.0	49.6	78.4%	2.1	10.9	0.9	0.0	13.9	14.9%
Italy	399.2	1.9	21.6	0.4	423.1	94.8%	7.0	15.6	15.0	0.0	37.5	18.5%
Luxembourg	10.6	-	0.5	0.0	11.0	95.6%	0.1	1.0	0.1	0.0	1.2	11.4%
Netherlands	187.0	0.7	1.1	5.4	194.2	96.7%	5.7	9.7	4.9	0.0	20.3	27.9%
Norway	39.4	0.6	1.5	1.0	42.5	94.0%	13.1	2.1	1.9	0.1	17.1	76.3%
Poland	306.4	0.0	10.2	23.3	339.9	90.1%	41.7	15.1	8.6	0.0	65.5	63.8%
Portugal	48.1	0.1	4.3	0.1	52.4	91.8%	1.5	4.1	6.9	0.0	12.6	12.0%
Slovak Republic	35.2	0.5	2.8	0.2	38.7	92.3%	0.9	1.3	1.7	0.0	4.0	23.8%
Slovenia	15.4	-	1.6	0.2	17.2	89.6%	1.2	1.0	0.6	0.0	2.9	42.2%
Spain	267.9	0.6	18.8	0.1	287.4	93.4%	3.2	20.0	13.5	0.1	36.8	8.8%
Sweden	47.2	1.2	2.0	14.4	64.8	74.7%	1.3	3.1	6.4	0.0	10.8	12.0%
Switzerland	43.8	0.0	2.1	0.3	46.3	94.8%	1.2	3.1	0.7	0.0	5.0	23.0%
Turkey	265.9	2.9	30.1	0.3	299.2	89.8%	15.2	23.2	38.9	0.0	77.3	19.6%
United Kingdom	473.6	4.1	9.8	9.5	496.9	96.1%	13.3	23.7	24.2	0.0	61.2	21.7%
<b>OECD Europe</b>	<b>3 860.2</b>	<b>25.0</b>	<b>177.6</b>	<b>179.5</b>	<b>4 242.2</b>	<b>91.6%</b>	<b>174.3</b>	<b>224.7</b>	<b>172.6</b>	<b>0.7</b>	<b>572.3</b>	<b>30.5%</b>
<i>European Union - 28</i>	3 678.9	22.2	159.7	171.6	4 032.4	91.8%	164.8	210.5	148.8	0.7	524.8	31.4%

\* Total World includes Non-OECD total, OECD total as well as international bunkers.

Sources: IEA, Sectoral Approach for CO<sub>2</sub> emissions from fuel combustion. EDGAR 4.2 FT2010 database for other emissions. In general, estimates for emissions other than CO<sub>2</sub> from fuel combustion are subject to significantly larger uncertainties.

## 2010 Greenhouse-gas emissions

million tonnes of CO<sub>2</sub> equivalent using GWP-100

Energy	N <sub>2</sub> O					Share of energy	HFCs	PFCs	SF <sub>6</sub>	Total			
	Industrial processes	Agriculture	Other	Total	Industrial processes		Total	Share of energy	GHG / GDP PPP *				
<b>291.6</b>	<b>115.1</b>	<b>2 166.5</b>	<b>510.9</b>	<b>3 084.1</b>	<b>9.5%</b>	<b>776.2</b>	<b>72.7</b>	<b>166.8</b>	<b>49 802.2</b>	<b>68.6%</b>	<b>0.65</b>	<b>World</b>	
126.4	82.8	515.3	113.3	837.9	15.1%	535.4	46.1	72.7	17 973.7	81.6%	0.48	Annex I Parties	
106.8	47.5	396.6	88.3	639.1	16.7%	489.0	24.1	60.4	13 520.2	82.3%	0.42	Annex II Parties	
69.9	25.3	199.2	42.7	337.1	20.7%	322.5	10.6	45.3	7 433.0	84.8%	0.50	North America	
25.9	17.5	137.3	32.8	213.5	12.1%	97.0	6.1	10.8	4 071.6	78.7%	0.32	Europe	
11.1	4.6	60.1	12.7	88.5	12.5%	69.5	7.5	4.3	2 015.6	80.2%	0.41	Asia Oceania	
16.5	33.2	93.0	21.1	163.8	10.1%	41.5	21.4	10.3	4 031.9	80.9%	0.96	Annex I EIT	
156.2	32.4	1 651.2	397.6	2 237.4	7.0%	240.9	26.7	94.1	30 706.7	59.8%	0.78	Non-Annex I Parties	
52.7	52.5	281.0	66.1	452.3	11.7%	207.5	34.9	25.5	9 979.6	80.3%	0.46	Annex I Kyoto Parties	
4.9	-	-	-	4.9	100.0%	-	-	-	659.9	100.0%	..	Int. marine bunkers	
4.0	-	-	-	4.0	100.0%	-	-	-	461.9	100.0%	..	Int. aviation bunkers	
<b>157.9</b>	<b>60.3</b>	<b>1 668.0</b>	<b>403.0</b>	<b>2 289.2</b>	<b>6.9%</b>	<b>259.7</b>	<b>45.6</b>	<b>96.7</b>	<b>32 526.8</b>	<b>61.0%</b>	<b>0.83</b>	<b>Non-OECD Total</b>	
<b>124.7</b>	<b>54.9</b>	<b>498.5</b>	<b>107.9</b>	<b>786.0</b>	<b>15.9%</b>	<b>516.5</b>	<b>27.1</b>	<b>70.1</b>	<b>16 153.6</b>	<b>81.7%</b>	<b>0.43</b>	<b>OECD Total</b>	
6.6	0.7	21.0	4.6	33.0	20.1%	21.6	4.2	4.1	720.1	81.4%	0.58	Canada	
0.6	0.7	6.5	1.0	8.8	6.6%	-	-	0.0	99.6	75.4%	0.40	Chile	
3.7	0.6	32.5	6.3	43.1	8.6%	8.5	0.0	0.5	638.3	73.0%	0.44	Mexico	
63.2	24.6	178.2	38.1	304.1	20.8%	300.9	6.4	41.2	6 713.0	85.1%	0.49	United States	
<b>74.1</b>	<b>26.6</b>	<b>238.2</b>	<b>50.1</b>	<b>389.0</b>	<b>19.1%</b>	<b>331.0</b>	<b>10.6</b>	<b>45.8</b>	<b>8 170.9</b>	<b>83.7%</b>	<b>0.49</b>	<b>OECD Americas</b>	
3.7	2.0	41.9	3.9	51.5	7.2%	8.0	0.6	0.5	591.6	73.8%	0.72	Australia	
0.3	0.0	0.9	0.6	1.7	16.6%	2.0	0.1	0.7	78.4	88.6%	0.37	Israel	
7.1	2.6	7.5	8.5	25.7	27.5%	60.3	6.7	3.8	1 347.4	85.1%	0.34	Japan	
3.8	1.1	6.6	3.2	14.7	25.6%	2.8	1.8	6.2	650.7	89.4%	0.49	Korea	
0.3	-	10.8	0.3	11.3	2.5%	1.2	0.2	0.1	76.6	42.9%	0.69	New Zealand	
<b>15.1</b>	<b>5.8</b>	<b>67.6</b>	<b>16.4</b>	<b>104.9</b>	<b>14.4%</b>	<b>74.3</b>	<b>9.4</b>	<b>11.2</b>	<b>2 744.6</b>	<b>82.6%</b>	<b>0.43</b>	<b>OECD Asia Oceania</b>	
0.7	0.1	2.2	0.8	3.8	19.4%	2.8	0.2	0.2	89.3	81.2%	0.30	Austria	
0.7	5.4	2.8	1.2	10.1	7.0%	2.7	0.0	0.1	137.9	81.3%	0.39	Belgium	
1.5	0.5	4.5	0.8	7.3	20.0%	3.6	0.0	0.0	145.5	85.4%	0.59	Czech Republic	
0.6	-	4.3	0.6	5.4	10.4%	1.7	0.0	0.0	67.0	73.6%	0.37	Denmark	
0.1	-	0.6	0.2	0.9	15.0%	0.1	0.0	0.0	32.4	62.9%	1.45	Estonia	
2.4	0.2	2.6	0.7	5.8	41.5%	1.2	0.0	0.1	130.6	50.7%	0.78	Finland	
3.5	1.8	29.0	4.3	38.7	9.2%	18.9	0.4	1.4	525.9	75.5%	0.27	France	
5.6	3.6	27.7	5.6	42.4	13.1%	19.8	0.9	5.3	950.3	83.6%	0.35	Germany	
0.7	0.4	3.1	0.9	5.1	13.7%	1.2	0.1	0.1	106.9	80.9%	0.39	Greece	
0.3	0.0	3.3	0.6	4.2	7.4%	1.7	0.0	0.0	65.7	79.1%	0.39	Hungary	
0.0	0.0	0.3	0.0	0.4	3.8%	0.1	0.1	0.0	20.6	9.5%	1.97	Iceland	
0.3	-	7.0	0.4	7.7	3.7%	1.2	0.0	0.1	72.5	56.9%	0.45	Ireland	
3.1	0.9	10.6	5.0	19.6	15.9%	14.1	0.5	1.0	495.9	82.9%	0.30	Italy	
0.1	-	0.3	0.1	0.5	17.1%	0.1	0.0	-	12.9	83.6%	0.38	Luxembourg	
0.8	1.6	5.6	1.2	9.2	8.8%	4.6	0.3	0.2	228.7	84.9%	0.37	Netherlands	
0.3	0.4	1.8	0.8	3.3	10.2%	0.5	1.2	0.2	64.8	82.4%	0.28	Norway	
4.0	1.5	18.7	2.6	26.8	15.0%	2.0	0.3	0.3	434.7	81.0%	0.66	Poland	
0.5	0.4	2.5	0.9	4.3	11.5%	1.1	0.0	0.2	70.6	71.0%	0.30	Portugal	
0.4	0.9	1.7	0.3	3.4	12.2%	1.5	0.1	-	47.7	77.8%	0.44	Slovak Republic	
0.1	-	0.9	0.2	1.2	11.5%	0.5	0.1	0.0	21.9	76.6%	0.43	Slovenia	
2.4	0.7	15.1	4.3	22.6	10.8%	10.0	1.2	0.9	358.9	76.4%	0.29	Spain	
1.2	0.5	3.1	0.8	5.6	22.0%	1.6	0.4	0.2	83.4	61.0%	0.26	Sweden	
0.4	0.2	1.4	0.5	2.4	16.2%	2.3	0.1	0.4	56.4	80.5%	0.18	Switzerland	
3.1	2.1	25.7	3.9	34.9	9.0%	4.7	0.5	2.0	418.6	68.6%	0.46	Turkey	
2.4	1.4	17.9	4.8	26.5	9.2%	13.3	0.5	0.6	598.9	82.4%	0.29	United Kingdom	
<b>35.5</b>	<b>22.5</b>	<b>192.7</b>	<b>41.5</b>	<b>292.1</b>	<b>12.1%</b>	<b>111.2</b>	<b>7.1</b>	<b>13.1</b>	<b>5 238.0</b>	<b>78.2%</b>	<b>0.35</b>	<b>OECD Europe</b>	
32.9	22.8	179.3	38.6	273.7	12.0%	108.3	5.4	10.6	4 955.1	78.7%	0.35	European Union - 28	

\* GHG / GDP PPP ratio is expressed in kg of CO<sub>2</sub>-equivalent per 2005 USD.

## 2010 Greenhouse-gas emissions

million tonnes of CO<sub>2</sub> equivalent using GWP-100

	CO <sub>2</sub>						CH <sub>4</sub>					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
<b>Non-OECD Total</b>	<b>16 879.6</b>	<b>361.0</b>	<b>1 409.1</b>	<b>4 935.8</b>	<b>23 585.4</b>	<b>73.1%</b>	<b>2 448.3</b>	<b>2 744.7</b>	<b>910.0</b>	<b>147.2</b>	<b>6 250.2</b>	<b>39.2%</b>
Albania	3.9	-	0.4	0.6	4.8	80.5%	0.8	1.6	0.2	0.0	2.6	30.0%
Armenia	4.0	-	0.4	0.1	4.6	88.7%	2.0	1.1	0.3	-	3.3	59.5%
Azerbaijan	23.8	0.2	0.8	0.1	25.0	96.3%	10.9	5.7	1.8	0.0	18.4	59.5%
Belarus	64.5	0.0	3.0	41.5	109.0	59.1%	1.0	8.5	6.9	0.0	16.4	6.4%
Bosnia-Herzegovina	20.0	0.3	0.7	0.3	21.3	95.4%	1.4	1.3	0.3	-	3.1	47.2%
Bulgaria	44.2	0.0	3.5	0.2	47.9	92.4%	1.6	1.8	8.7	0.0	12.0	12.9%
Croatia	19.0	0.0	3.3	0.0	22.3	85.1%	2.4	1.3	1.3	0.0	5.0	47.4%
Cyprus *	7.2	-	0.8	-	8.0	89.6%	0.0	0.2	0.4	-	0.6	2.1%
FYR of Macedonia	8.2	-	0.4	0.0	8.7	95.0%	0.5	0.6	0.3	0.0	1.4	33.6%
Georgia	4.9	0.0	0.2	0.2	5.3	92.2%	2.0	2.4	0.5	0.0	4.9	40.8%
Gibraltar	0.5	-	0.0	-	0.5	99.8%	0.0	-	0.0	-	0.0	4.7%
Kazakhstan	217.3	12.2	4.7	0.1	234.3	98.0%	45.7	14.7	5.5	1.7	67.5	67.6%
Kosovo **	8.6	..	..	..	..	..	..	..	..	..	..	..
Kyrgyzstan	6.0	-	0.6	0.4	7.1	85.5%	0.3	3.0	0.7	-	4.0	6.7%
Latvia	8.1	-	0.2	4.1	12.4	65.2%	1.8	0.8	0.6	0.0	3.2	57.2%
Lithuania	13.3	0.0	0.6	6.0	20.0	66.7%	1.8	1.8	1.4	0.0	5.1	35.0%
Malta	2.5	-	0.0	-	2.5	99.7%	0.0	0.0	0.2	-	0.2	0.3%
Republic of Moldova	7.9	-	0.4	0.0	8.3	95.4%	1.8	0.8	0.8	-	3.4	53.9%
Montenegro **	2.5	..	..	..	..	..	..	..	..	..	..	..
Romania	75.4	0.7	7.5	1.0	84.6	90.0%	12.3	8.5	5.3	0.0	26.1	47.1%
Russian Federation	1 580.2	64.7	45.8	139.3	1 830.0	89.9%	426.0	40.6	66.6	0.4	533.5	79.8%
Serbia **	45.8	-	1.5	0.6	47.9	95.6%	3.1	2.4	1.0	0.0	6.6	47.5%
Tajikistan	2.3	-	0.2	-	2.4	93.8%	0.5	3.6	0.8	-	4.9	10.9%
Turkmenistan	56.6	2.2	0.4	0.3	59.5	98.8%	19.5	6.1	1.0	-	26.5	73.4%
Ukraine	271.7	12.3	16.4	4.6	305.0	93.1%	48.0	9.5	10.8	0.1	68.4	70.2%
Uzbekistan	100.2	3.2	3.2	1.1	107.6	96.0%	25.6	17.4	3.8	-	46.9	54.6%
<b>Non-OECD Europe and Eurasia</b>	<b>2 598.6</b>	<b>95.8</b>	<b>95.0</b>	<b>200.4</b>	<b>2 989.9</b>	<b>90.1%</b>	<b>609.0</b>	<b>133.6</b>	<b>119.3</b>	<b>2.3</b>	<b>864.2</b>	<b>70.5%</b>
Algeria	97.5	10.6	7.7	0.0	115.9	93.3%	37.5	4.9	5.3	0.0	47.7	78.6%
Angola	15.7	7.2	0.6	7.4	30.9	74.1%	11.9	4.2	2.3	0.2	18.6	64.1%
Benin	4.5	-	0.7	30.8	36.0	12.5%	1.0	3.0	1.1	1.7	6.8	14.8%
Botswana	4.8	-	0.1	0.4	5.3	90.3%	0.5	3.5	0.3	0.0	4.4	11.1%
Cameroon	5.0	1.6	0.4	42.5	49.6	13.4%	2.6	11.6	2.2	1.8	18.2	14.4%
Congo	1.8	3.3	-	27.4	32.5	15.7%	3.9	1.6	0.6	0.8	7.0	55.4%
Dem. Rep. of Congo	1.8	-	0.2	969.0	971.1	0.2%	6.6	18.4	6.5	42.3	73.9	8.9%
Côte d'Ivoire	6.2	0.2	0.3	133.3	140.0	4.5%	3.5	2.4	1.9	8.2	15.9	22.2%
Egypt	184.0	2.7	19.6	0.0	206.3	90.5%	29.7	13.3	8.0	0.0	51.0	58.3%
Eritrea	0.5	-	0.0	-	0.5	95.6%	0.6	1.8	0.4	-	2.8	20.5%
Ethiopia	6.1	-	0.8	0.5	7.4	81.7%	10.7	44.6	7.9	-	63.2	16.9%
Gabon	2.4	3.0	0.1	11.3	16.7	31.9%	2.4	0.2	0.4	0.8	3.8	63.8%
Ghana	10.5	-	0.8	38.1	49.4	21.3%	3.1	11.8	2.9	2.9	20.7	15.1%
Kenya	11.4	-	1.6	4.2	17.2	66.0%	8.1	14.8	4.5	-	27.5	29.6%
Libya	51.1	6.7	2.8	0.0	60.6	95.3%	16.0	0.9	1.1	0.0	18.1	88.5%
Mauritius	3.6	-	0.0	-	3.6	99.8%	0.0	0.0	0.2	-	0.3	12.8%
Morocco	46.3	-	4.9	0.0	51.2	90.5%	1.6	5.8	4.3	0.0	11.8	13.9%
Mozambique	2.4	-	0.3	14.5	17.2	13.7%	4.9	2.1	2.8	0.0	9.8	50.5%
Namibia	3.0	-	0.0	0.0	3.0	98.6%	0.1	4.6	0.3	-	5.0	2.7%
Nigeria	56.4	26.6	2.2	23.8	109.0	76.2%	36.1	35.7	14.8	1.5	88.0	41.0%
Senegal	5.4	-	1.4	0.0	6.9	78.9%	1.8	6.2	1.7	-	9.7	19.0%
South Africa	376.3	12.8	6.9	0.6	396.6	98.1%	29.8	20.1	13.1	2.3	65.3	45.7%
Sudan	15.5	-	0.1	4.0	19.6	78.9%	7.2	81.2	6.3	-	94.6	7.6%
United Rep. of Tanzania	6.2	0.1	0.7	24.3	31.3	20.1%	7.0	15.7	4.6	0.1	27.4	25.4%
Togo	2.1	-	0.4	12.3	14.7	14.0%	1.7	2.0	0.8	0.8	5.2	32.6%
Tunisia	23.1	0.6	3.6	0.0	27.2	86.9%	4.5	2.2	0.8	0.0	7.5	60.0%
Zambia	1.7	-	0.4	59.4	61.6	2.8%	2.6	2.5	1.4	-	6.4	40.1%
Zimbabwe	8.7	0.4	0.2	1.0	10.3	88.3%	1.1	5.8	1.6	0.0	8.4	12.9%
Other Africa	28.3	2.0	1.3	570.2	601.7	5.0%	31.5	170.0	19.3	35.3	256.1	12.3%
<b>Africa</b>	<b>982.3</b>	<b>77.5</b>	<b>58.4</b>	<b>1 975.3</b>	<b>3 093.4</b>	<b>34.3%</b>	<b>268.2</b>	<b>490.7</b>	<b>117.5</b>	<b>98.9</b>	<b>975.3</b>	<b>27.5%</b>

\* Please refer to Part I, Chapter 4, *Geographical Coverage*.\*\* For 2010, Serbia includes Kosovo and Montenegro for all emissions other than CO<sub>2</sub> from fuel combustion.

## 2010 Greenhouse-gas emissions

million tonnes of CO<sub>2</sub> equivalent using GWP-100

Energy	N <sub>2</sub> O					Share of energy	HFCs	PFCs	SF <sub>6</sub>	Total			GHG / GDP PPP *	
	Industrial processes	Agriculture	Other	Total			Industrial processes			Total	Share of energy			
<b>157.9</b>	<b>60.3</b>	<b>1 668.0</b>	<b>403.0</b>	<b>2 289.2</b>	<b>6.9%</b>	<b>259.7</b>	<b>45.6</b>	<b>96.7</b>	<b>32 526.8</b>	<b>61.0%</b>	<b>0.83</b>	<b>Non-OECD Total</b>		
0.1	-	0.9	0.1	1.1	6.1%	0.1	-	-	8.7	54.8%	0.35	Albania		
0.0	-	0.9	0.1	1.0	2.3%	0.6	-	-	9.4	64.1%	0.55	Armenia		
0.1	-	2.1	0.4	2.6	5.1%	0.1	0.2	-	46.3	75.9%	0.36	Azerbaijan		
0.7	2.8	9.3	0.6	13.4	5.3%	0.5	0.0	-	139.5	47.5%	1.05	Belarus		
0.1	-	0.8	0.2	1.1	11.7%	0.8	0.1	-	26.4	83.1%	0.94	Bosnia-Herzegovina		
0.3	0.5	3.2	0.5	4.5	6.4%	0.6	0.0	-	65.1	70.8%	0.75	Bulgaria		
0.2	0.9	1.6	0.3	2.9	6.5%	0.1	0.0	-	30.4	71.0%	0.43	Croatia		
0.0	-	0.2	0.1	0.3	11.5%	0.3	-	-	9.3	78.2%	0.44	Cyprus		
0.0	-	0.4	0.1	0.5	8.7%	0.2	-	-	10.7	81.4%	0.56	FYR of Macedonia		
0.1	0.8	1.2	0.2	2.3	3.0%	0.0	-	-	12.5	55.8%	0.53	Georgia		
0.0	-	-	0.0	0.0	37.5%	-	-	-	0.5	97.5%	0.60	Gibraltar		
1.4	-	12.3	3.8	17.5	7.8%	0.6	-	-	319.8	86.5%	1.12	Kazakhstan		
..	..	..	..	..	..	..	..	..	..	..	..	Kosovo		
0.0	-	1.2	0.2	1.5	1.8%	0.0	-	-	12.5	50.5%	0.92	Kyrgyzstan		
0.2	-	1.0	0.2	1.4	12.0%	1.3	0.0	-	18.4	55.0%	0.63	Latvia		
0.1	0.5	3.8	0.2	4.6	2.5%	1.3	0.0	-	30.9	49.2%	0.61	Lithuania		
0.0	-	0.0	0.0	0.1	8.9%	0.2	-	-	2.9	84.0%	0.31	Malta		
0.1	-	0.5	0.1	0.6	8.7%	0.0	-	-	12.3	79.3%	0.99	Republic of Moldova		
..	..	..	..	..	..	..	..	..	..	..	..	Montenegro		
0.5	1.1	6.0	1.1	8.8	6.0%	0.8	0.2	0.0	120.5	73.8%	0.52	Romania		
6.8	17.0	28.8	11.1	63.7	10.7%	26.9	20.6	9.6	2 484.4	83.6%	1.23	Russian Federation		
0.3	0.2	6.5	0.5	7.4	4.0%	7.2	0.1	-	69.2	71.1%	0.99	Serbia		
0.0	-	1.5	0.2	1.7	1.2%	0.0	0.3	-	9.5	30.1%	0.66	Tajikistan		
0.1	0.9	3.7	0.3	5.0	1.8%	0.1	-	-	91.1	86.0%	2.02	Turkmenistan		
1.2	7.5	9.5	2.4	20.7	5.9%	0.4	0.1	0.4	395.0	84.4%	1.23	Ukraine		
0.3	0.1	10.5	1.1	12.0	2.8%	1.0	-	-	167.4	77.2%	1.57	Uzbekistan		
<b>12.7</b>	<b>32.3</b>	<b>105.9</b>	<b>23.8</b>	<b>174.7</b>	<b>7.3%</b>	<b>43.2</b>	<b>21.8</b>	<b>10.0</b>	<b>4 103.8</b>	<b>80.8%</b>	<b>1.08</b>	<b>Non-OECD Europe and Eurasia</b>		
0.5	1.6	3.1	1.1	6.3	8.0%	0.3	-	0.4	170.5	85.7%	0.41	Algeria		
0.2	-	2.9	0.5	3.6	6.2%	0.0	-	-	53.1	66.0%	0.43	Angola		
0.1	-	2.9	1.7	4.8	2.9%	-	-	-	47.6	11.9%	3.44	Benin		
0.1	-	2.1	0.1	2.2	2.7%	-	-	-	11.9	45.1%	0.51	Botswana		
0.3	-	10.6	2.8	13.6	1.8%	-	0.4	-	81.7	11.6%	1.80	Cameroon		
0.1	-	1.6	1.3	2.9	2.9%	0.0	-	-	42.4	21.4%	2.09	Congo		
1.4	-	21.3	43.9	66.6	2.1%	-	-	-	1 111.6	0.9%	48.18	Dem. Rep. of Congo		
0.2	-	2.7	6.9	9.8	2.4%	-	-	-	165.8	6.1%	3.56	Côte d'Ivoire		
1.7	5.7	14.9	2.4	24.6	6.8%	0.5	1.9	1.5	285.8	76.3%	0.39	Egypt		
0.1	-	1.1	0.1	1.2	6.0%	-	-	-	4.6	24.8%	0.82	Eritrea		
1.8	-	34.2	3.1	39.1	4.6%	0.0	-	-	109.7	16.9%	1.33	Ethiopia		
0.0	-	0.2	0.6	0.8	5.3%	0.0	-	-	21.4	36.5%	0.92	Gabon		
0.5	-	13.0	3.8	17.2	2.9%	0.0	-	-	87.3	16.2%	1.32	Ghana		
0.7	-	9.9	0.8	11.4	6.0%	-	-	-	56.1	36.0%	0.75	Kenya		
0.2	-	0.7	0.6	1.4	12.3%	-	-	0.4	80.5	91.9%	0.82	Libya		
0.0	-	0.1	0.1	0.2	9.3%	-	-	-	4.1	89.6%	0.24	Mauritius		
0.7	-	4.1	1.1	5.9	11.4%	-	-	-	68.8	70.6%	0.37	Morocco		
0.4	-	1.1	0.7	2.2	16.0%	0.1	0.2	-	29.6	25.9%	1.56	Mozambique		
0.1	-	2.8	0.1	3.0	4.5%	-	-	-	11.0	29.6%	0.66	Namibia		
1.9	-	28.1	5.5	35.5	5.2%	0.6	0.0	0.4	233.5	51.8%	0.32	Nigeria		
0.1	-	5.7	0.6	6.4	2.3%	-	-	-	23.0	32.2%	0.91	Senegal		
2.2	0.0	14.1	5.6	21.9	10.2%	0.8	0.5	1.9	487.0	86.5%	0.92	South Africa		
0.7	-	72.1	10.5	83.3	0.8%	-	-	-	197.6	11.8%	1.54	Sudan		
0.7	-	10.7	1.6	12.9	5.2%	-	-	-	71.7	19.5%	1.19	United Rep. of Tanzania		
0.1	-	2.0	0.8	3.0	5.0%	-	-	-	22.9	17.1%	3.33	Togo		
0.2	0.3	2.1	0.3	2.9	7.0%	-	-	-	37.6	75.4%	0.37	Tunisia		
0.2	0.3	5.4	2.3	8.2	2.8%	0.0	-	-	76.2	6.0%	2.33	Zambia		
0.2	-	3.7	0.2	4.2	5.6%	-	-	-	22.9	45.5%	6.65	Zimbabwe		
3.5	-	149.5	41.5	194.5	1.8%	0.2	-	-	1 052.5	6.2%	4.01	Other Africa		
<b>19.0</b>	<b>7.9</b>	<b>422.5</b>	<b>140.3</b>	<b>589.7</b>	<b>3.2%</b>	<b>2.6</b>	<b>3.0</b>	<b>4.6</b>	<b>4 668.5</b>	<b>28.9%</b>	<b>1.19</b>	<b>Africa</b>		

\* GHG / GDP PPP ratio is expressed in kg of CO<sub>2</sub>-equivalent per 2005 USD. The high GHG / GDP PPP ratio for DR of Congo and Zambia is due to high levels of forest fires and subsequent post-burn decay.

## 2010 Greenhouse-gas emissions

million tonnes of CO<sub>2</sub> equivalent using GWP-100

	CO <sub>2</sub>						CH <sub>4</sub>					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Bangladesh	52.5	0.2	2.4	5.4	60.5	87.2%	12.4	70.4	20.3	0.0	103.1	12.0%
Brunei Darussalam	7.6	0.3	0.1	5.5	13.5	58.2%	4.3	0.0	0.1	-	4.5	97.3%
Cambodia	3.8	-	0.0	138.6	142.3	2.6%	1.4	21.4	1.9	10.5	35.2	4.0%
India	1 749.3	32.7	120.1	36.1	1 938.3	91.9%	116.1	377.6	125.3	2.5	621.5	18.7%
Indonesia	392.4	4.2	17.8	1 182.7	1 597.0	24.8%	68.2	94.3	56.2	0.3	218.9	31.1%
DPR of Korea	64.2	-	2.9	2.5	69.6	92.2%	10.9	4.4	3.4	0.0	18.6	58.5%
Malaysia	187.1	2.6	9.2	78.2	277.0	68.5%	21.6	5.5	5.9	0.5	33.6	64.4%
Mongolia	12.5	0.1	0.1	47.0	59.7	21.1%	1.0	4.8	0.3	0.0	6.1	16.4%
Myanmar	8.0	0.1	0.3	243.2	251.6	3.2%	10.7	59.3	7.2	1.9	79.1	13.5%
Nepal	4.1	-	0.1	0.2	4.4	91.9%	1.5	19.2	2.8	0.0	23.5	6.4%
Pakistan	135.4	2.2	12.7	0.1	150.3	91.6%	40.5	95.0	19.8	0.0	155.2	26.1%
Philippines	76.1	0.1	6.1	1.0	83.3	91.5%	6.1	34.7	15.2	0.0	56.0	10.9%
Singapore	48.9	0.2	0.3	0.1	49.6	99.1%	1.3	0.0	1.0	0.0	2.3	57.5%
Sri Lanka	12.2	-	0.8	0.2	13.3	91.9%	0.6	7.8	3.3	-	11.6	5.0%
Chinese Taipei	270.2	1.3	8.6	-	280.1	96.9%	1.4	1.2	6.3	0.0	8.9	16.0%
Thailand	236.2	-	13.3	36.7	286.2	82.5%	23.2	64.2	14.2	2.7	104.4	22.3%
Viet Nam	129.4	0.9	22.2	8.9	161.4	80.8%	40.9	58.0	12.1	0.2	111.3	36.8%
Other Asia	22.1	0.1	0.5	115.9	138.5	16.0%	3.3	20.4	6.0	6.1	35.8	9.3%
<b>Asia (excl. China)</b>	<b>3 412.0</b>	<b>44.9</b>	<b>217.4</b>	<b>1 902.2</b>	<b>5 576.5</b>	<b>62.0%</b>	<b>365.5</b>	<b>938.2</b>	<b>301.3</b>	<b>24.8</b>	<b>1 629.8</b>	<b>22.4%</b>
People's Rep. of China	7 252.8	68.7	918.5	73.7	8 313.7	88.1%	819.3	589.9	229.2	3.9	1 642.3	49.9%
Hong Kong, China	42.1	1.3	0.5	-	43.9	98.9%	0.8	-	2.3	-	3.1	24.6%
<b>China</b>	<b>7 294.9</b>	<b>70.0</b>	<b>919.0</b>	<b>73.7</b>	<b>8 357.7</b>	<b>88.1%</b>	<b>820.1</b>	<b>589.9</b>	<b>231.5</b>	<b>3.9</b>	<b>1 645.3</b>	<b>49.8%</b>
Argentina	176.3	0.8	5.6	3.4	186.2	95.2%	15.8	62.6	7.9	0.4	86.7	18.3%
Bolivia	14.1	0.1	0.7	97.2	112.1	12.7%	10.3	10.6	1.4	0.5	22.8	45.1%
Brazil	388.5	3.0	27.6	523.7	942.9	41.5%	43.3	327.2	62.8	10.0	443.3	9.8%
Colombia	61.8	1.2	5.2	22.9	91.1	69.1%	13.6	43.8	6.5	2.8	66.7	20.4%
Costa Rica	6.5	-	0.6	0.0	7.2	91.3%	0.3	1.5	0.5	-	2.3	11.4%
Cuba	29.9	1.5	0.8	3.1	35.3	89.1%	0.8	5.1	2.5	-	8.4	9.9%
Dominican Republic	18.9	-	1.7	0.1	20.7	91.4%	0.8	4.0	2.0	-	6.7	11.6%
Ecuador	32.0	3.1	1.6	0.7	37.5	93.6%	3.4	10.3	1.7	0.0	15.5	22.2%
El Salvador	5.8	-	0.5	0.1	6.5	90.5%	0.4	1.6	1.0	-	3.0	12.5%
Guatemala	10.2	-	1.3	20.0	31.5	32.4%	1.7	3.5	1.5	0.1	6.7	24.7%
Haiti	2.1	-	0.2	0.0	2.3	90.7%	0.9	2.2	1.4	-	4.5	19.2%
Honduras	7.3	-	0.7	2.4	10.4	69.8%	0.5	4.4	0.9	-	5.7	8.3%
Jamaica	6.9	-	0.4	0.1	7.4	93.0%	0.1	0.6	0.5	-	1.3	9.9%
Netherlands Antilles	4.1	-	-	-	4.1	100.0%	0.1	0.0	0.1	-	0.1	51.3%
Nicaragua	4.4	-	0.2	0.4	5.0	87.1%	0.4	4.7	1.3	-	6.4	6.6%
Panama	8.9	-	0.4	0.4	9.8	91.4%	0.1	2.7	0.5	-	3.3	3.7%
Paraguay	4.7	-	0.3	11.6	16.6	28.2%	1.4	13.2	1.3	0.1	15.9	8.7%
Peru	41.8	0.1	2.9	6.6	51.3	81.5%	3.9	11.5	3.5	0.0	18.9	20.6%
Trinidad and Tobago	38.4	0.1	0.4	0.0	38.9	99.1%	12.6	0.1	1.5	0.4	14.5	86.6%
Uruguay	6.2	-	0.3	0.4	6.8	90.3%	0.7	17.8	0.7	0.0	19.2	3.6%
Venezuela	182.4	5.7	3.9	48.7	240.7	78.1%	23.9	25.8	5.5	1.9	57.1	41.8%
Other Non-OECD Americas	18.8	-	0.4	16.7	35.9	52.4%	0.2	2.6	1.1	0.4	4.3	5.1%
<b>Non-OECD Americas</b>	<b>1 070.0</b>	<b>15.7</b>	<b>55.8</b>	<b>758.7</b>	<b>1 900.1</b>	<b>57.1%</b>	<b>135.1</b>	<b>555.7</b>	<b>105.9</b>	<b>16.7</b>	<b>813.4</b>	<b>16.6%</b>
Bahrain	28.1	-	0.2	-	28.2	99.4%	3.0	0.0	0.2	0.0	3.3	91.9%
Islamic Rep. of Iran	508.5	20.5	23.6	0.2	552.8	95.7%	79.4	21.6	14.0	0.3	115.3	68.9%
Iraq	101.2	16.0	2.5	3.3	123.0	95.3%	16.6	3.2	4.1	0.0	23.9	69.4%
Jordan	18.8	-	1.9	-	20.7	90.8%	0.8	0.4	0.9	-	2.1	38.9%
Kuwait	80.3	2.6	1.0	-	83.9	98.8%	11.4	0.2	0.9	0.0	12.4	91.6%
Lebanon	18.3	-	2.2	0.0	20.5	89.2%	0.1	0.3	0.7	-	1.1	10.5%
Oman	57.7	3.1	1.8	22.0	84.7	71.9%	15.4	0.6	0.6	-	16.5	92.9%
Qatar	60.6	3.2	1.5	-	65.4	97.6%	39.6	0.1	0.6	0.0	40.3	98.2%
Saudi Arabia	414.9	5.9	17.8	-	438.5	95.9%	51.7	1.8	6.5	0.2	60.3	85.8%
Syrian Arab Republic	57.5	1.7	2.4	0.0	61.6	96.2%	6.2	3.8	2.5	0.0	12.5	49.7%
United Arab Emirates	152.3	1.5	7.1	0.0	160.9	95.6%	23.8	0.6	1.2	-	25.6	92.8%
Yemen	23.7	2.4	1.5	0.0	27.5	94.7%	2.4	4.1	2.3	-	8.8	27.2%
<b>Middle East</b>	<b>1 521.7</b>	<b>57.1</b>	<b>63.4</b>	<b>25.5</b>	<b>1 667.8</b>	<b>94.7%</b>	<b>250.4</b>	<b>36.7</b>	<b>34.5</b>	<b>0.6</b>	<b>322.2</b>	<b>77.7%</b>



## 2010 Greenhouse-gas emissions

million tonnes of CO<sub>2</sub> equivalent using GWP-100

Energy	N <sub>2</sub> O					Share of energy	HFCs	PFCs	SF <sub>6</sub>	Total			GHG / GDP PPP *	
	Industrial processes	Agriculture	Other	Total	Industrial processes		Total	Share of energy	Total					
1.8	-	22.0	2.4	26.2	6.9%	-	-	-	189.7	35.3%	0.66	Bangladesh		
0.0	-	0.1	0.2	0.3	5.0%	0.4	-	-	18.7	65.3%	0.75	Brunei Darussalam		
0.3	-	8.1	8.0	16.4	1.7%	-	-	-	193.9	2.8%	6.03	Cambodia		
28.8	0.3	170.6	34.5	234.1	12.3%	13.4	1.7	5.8	2 814.9	68.5%	0.56	India		
4.1	0.2	65.6	21.4	91.3	4.5%	-	0.1	1.1	1 908.5	24.6%	1.11	Indonesia		
0.4	-	2.2	0.6	3.2	12.6%	4.2	-	-	95.7	78.9%	0.96	DPR of Korea		
1.0	0.9	10.4	2.8	15.0	6.4%	0.0	0.4	0.8	326.8	64.9%	0.64	Malaysia		
0.1	-	3.2	0.1	3.5	3.3%	-	-	-	69.3	19.8%	4.42	Mongolia		
0.8	-	12.9	12.5	26.3	3.2%	-	-	-	357.0	5.5%	4.25	Myanmar		
0.6	-	3.4	0.5	4.5	14.3%	-	-	-	32.4	19.2%	0.67	Nepal		
3.7	0.0	23.0	3.3	30.1	12.3%	-	-	1.0	336.6	54.0%	0.52	Pakistan		
0.8	0.0	9.4	2.3	12.5	6.1%	-	-	0.5	152.3	54.5%	0.33	Philippines		
0.1	0.7	0.0	1.0	1.9	4.7%	2.2	0.7	0.4	57.1	88.6%	0.18	Singapore		
0.3	-	1.3	0.5	2.1	13.7%	-	-	-	27.1	48.4%	0.19	Sri Lanka		
1.4	0.7	1.7	1.2	5.0	27.2%	0.1	2.7	4.3	301.0	91.1%	0.41	Chinese Taipei		
3.2	0.6	20.0	6.5	30.2	10.5%	-	-	1.4	422.2	62.2%	0.56	Thailand		
1.7	-	28.6	3.5	33.8	5.2%	-	-	-	306.5	56.5%	0.88	Viet Nam		
0.6	-	9.2	7.6	17.4	3.3%	0.1	-	-	191.8	13.6%	1.25	Other Asia		
<b>49.6</b>	<b>3.4</b>	<b>391.8</b>	<b>109.0</b>	<b>553.8</b>	<b>9.0%</b>	<b>20.6</b>	<b>5.6</b>	<b>15.2</b>	<b>7 801.5</b>	<b>49.6%</b>	<b>0.68</b>	<b>Asia (excl. China)</b>		
58.1	12.9	415.1	64.2	550.3	10.6%	183.9	8.4	57.1	10 755.7	76.2%	0.98	People's Rep. of China		
0.2	-	-	0.3	0.5	41.0%	-	-	0.2	47.6	93.2%	0.16	Hong Kong, China		
<b>58.3</b>	<b>12.9</b>	<b>415.1</b>	<b>64.5</b>	<b>550.8</b>	<b>10.6%</b>	<b>183.9</b>	<b>8.4</b>	<b>57.2</b>	<b>10 803.3</b>	<b>76.3%</b>	<b>0.96</b>	<b>China</b>		
1.8	0.2	48.0	2.1	52.1	3.4%	0.5	0.1	0.4	326.0	59.7%	0.56	Argentina		
0.2	-	5.2	4.2	9.5	1.8%	-	-	-	144.5	17.1%	3.02	Bolivia		
7.4	1.9	165.0	33.2	207.6	3.6%	3.3	5.8	1.5	1 604.4	27.6%	0.66	Brazil		
0.7	0.1	20.1	4.3	25.1	2.7%	-	-	0.1	183.0	42.2%	0.41	Colombia		
0.1	0.0	1.3	0.2	1.5	5.2%	0.1	-	-	11.1	62.1%	0.22	Costa Rica		
0.2	0.5	4.5	0.6	5.8	3.3%	0.2	-	-	49.7	65.3%	0.79	Cuba		
0.2	-	1.5	0.4	2.1	10.2%	-	-	-	29.6	67.4%	0.32	Dominican Republic		
0.2	-	4.6	0.5	5.3	3.6%	0.1	-	-	58.4	66.3%	0.48	Ecuador		
0.1	-	1.0	0.2	1.4	7.2%	0.1	-	-	11.0	57.7%	0.27	El Salvador		
0.4	-	2.9	1.2	4.5	8.5%	0.8	-	-	43.6	28.2%	0.50	Guatemala		
0.1	-	1.2	0.2	1.5	7.2%	-	-	-	8.3	37.0%	0.63	Haiti		
0.1	-	2.4	0.6	3.1	3.9%	-	-	-	19.3	40.8%	0.66	Honduras		
0.1	-	0.4	0.2	0.6	10.8%	0.1	-	-	9.4	75.2%	0.51	Jamaica		
0.0	-	0.0	0.1	0.1	18.4%	-	-	-	4.3	97.4%	1.80	Netherlands Antilles		
0.1	-	3.0	0.3	3.4	3.4%	-	-	-	14.8	33.1%	0.72	Nicaragua		
0.1	-	1.0	0.3	1.4	6.2%	-	-	-	14.5	63.2%	0.31	Panama		
0.2	-	8.2	0.7	9.2	2.3%	-	-	-	41.7	15.1%	1.00	Paraguay		
0.3	-	7.1	0.9	8.3	3.7%	0.5	-	-	79.1	58.2%	0.29	Peru		
0.0	-	0.1	0.1	0.3	15.4%	-	-	-	53.7	95.3%	1.55	Trinidad and Tobago		
0.1	-	7.7	0.1	7.9	1.7%	0.1	-	-	34.0	20.5%	0.69	Uruguay		
0.8	0.0	11.7	3.3	15.8	5.1%	1.9	0.2	0.3	315.9	67.3%	0.74	Venezuela		
0.1	-	2.2	0.9	3.3	4.4%	0.0	-	0.0	43.5	44.1%	0.98	Other Non-OECD Americas		
<b>13.4</b>	<b>2.6</b>	<b>299.2</b>	<b>54.8</b>	<b>370.0</b>	<b>3.6%</b>	<b>7.8</b>	<b>6.0</b>	<b>2.4</b>	<b>3 099.6</b>	<b>39.8%</b>	<b>0.62</b>	<b>Non-OECD Americas</b>		
0.0	-	0.0	0.1	0.1	25.0%	-	0.3	-	32.0	97.3%	0.71	Bahrain		
1.9	0.9	18.6	2.5	23.9	8.0%	-	0.1	3.0	695.2	87.8%	0.67	Islamic Rep. of Iran		
0.5	-	2.5	1.9	4.9	10.3%	-	-	0.1	151.9	88.4%	0.43	Iraq		
0.1	-	0.3	0.2	0.6	10.5%	0.2	-	-	23.5	83.5%	0.39	Jordan		
0.2	-	0.1	0.4	0.7	28.8%	0.9	-	0.5	98.5	96.0%	0.46	Kuwait		
0.1	-	0.2	0.2	0.5	15.5%	-	-	-	22.1	83.7%	0.35	Lebanon		
0.1	-	0.8	0.2	1.1	9.5%	0.3	0.0	-	102.7	74.3%	0.86	Oman		
0.1	-	0.1	0.2	0.3	28.2%	-	-	-	106.0	97.6%	0.52	Qatar		
1.1	-	2.2	2.9	6.2	17.5%	0.3	-	2.6	508.0	93.2%	0.45	Saudi Arabia		
0.2	0.3	4.6	0.8	5.9	3.7%	-	-	-	80.0	82.1%	0.83	Syrian Arab Republic		
0.2	-	1.4	0.7	2.4	8.2%	-	0.4	1.0	190.3	93.4%	0.44	United Arab Emirates		
0.5	-	2.6	0.6	3.6	12.5%	-	-	-	39.9	72.5%	0.42	Yemen		
<b>4.9</b>	<b>1.2</b>	<b>33.5</b>	<b>10.7</b>	<b>50.3</b>	<b>9.8%</b>	<b>1.8</b>	<b>0.8</b>	<b>7.2</b>	<b>2 050.1</b>	<b>89.5%</b>	<b>0.53</b>	<b>Middle East</b>		

\* GHG / GDP PPP ratio is expressed in kg of CO<sub>2</sub>-equivalent per 2005 USD. The high GHG / GDP PPP ratio for Mongolia is due to high levels of peat decay



# MULTILINGUAL GLOSSARIES



**français**

French

**Deutsch**

German

**Indicateurs principaux**CO<sub>2</sub> Méthode sectorielle (Mt de CO<sub>2</sub>)

ATEP (PJ)

PIB (milliards de \$US 2005)

PIB PPA (milliards de \$US 2005)

Population (millions)

CO<sub>2</sub> / ATEP (tCO<sub>2</sub> par TJ)CO<sub>2</sub> / PIB (kgCO<sub>2</sub> par \$US 2005)CO<sub>2</sub> / PIB PPA (kgCO<sub>2</sub> par \$US 2005)CO<sub>2</sub> / Population (tCO<sub>2</sub> par habitant)**Emissions de CO<sub>2</sub> et facteurs -****Décomposition de Kaya**Emissions de CO<sub>2</sub>

Population

PIB par habitant (PIB/hab)

Intensité énergétique (ATEP/PIB)

Intensité en carbone (CO<sub>2</sub>/ATEP)

Les rapports sont fondés sur la méthode sectorielle.

**Hauptkennzahlen**Sektorspezifischer Ansatz zur Bestimmung des CO<sub>2</sub>-Ausstoßes (MtCO<sub>2</sub>)

PEV (PJ)

BIP (Mrd. 2005 US\$)

BIP kaufkraftbereinigt (Mrd. 2005 US\$)

Bevölkerung (Mio.)

CO<sub>2</sub> / PEV (tCO<sub>2</sub> pro TJ)CO<sub>2</sub> / BIP (kgCO<sub>2</sub> pro 2005 US\$)CO<sub>2</sub> / BIP kaufkraftbereinigt (kgCO<sub>2</sub> pro 2005 US\$)tCO<sub>2</sub> pro Kopf**CO<sub>2</sub>-Ausstoß und Emissionsquellen -****Kaya-Formel**CO<sub>2</sub>-Ausstoß

Bevölkerung

Pro-Kopf-Einkommen

Energieintensität (PEV/BIP)

CO<sub>2</sub>-Intensität (CO<sub>2</sub>/PEV)

Verhältniszahlen basieren auf dem Sektorspezifischen Ansatz.

**Emissions de CO<sub>2</sub> par secteur en 2012***millions de tonnes de CO<sub>2</sub>***Méthode sectorielle**

Production d'électricité et de chaleur (activité principale)

Autoproducteurs non spécifiés

Autres industries de l'énergie

Industries manufacturières et de construction

Transport

*dont: transport routier*

Autres secteurs

*dont: résidentiel***Méthode de référence**

Ecart dus aux pertes et/ou aux transformations

Ecart statistiques

*Pour mémoire : soutes maritimes internationales**Pour mémoire : soutes aériennes internationales*

La catégorie Autres inclut les déchets industriels et les déchets urbains non renouvelables.

La catégorie "Monde" inclut les soutages maritimes et aériens internationaux.

**CO<sub>2</sub>-Emissionen nach Sektoren (2012)***Mio. Tonnen CO<sub>2</sub>***Sektorspezifischer Ansatz**

Öffentliche Elektrizitäts- und Wärmeerzeugung

Nicht zugeordnete Eigenerzeuger

Andere Energieindustrien

Verarbeitende Industrie und Baugewerbe

Verkehr

*davon: Straßenverkehr*

Andere Sektoren

*davon: Haushalte***Referenzansatz**

Abweichungen infolge von Verlusten und/oder Umwandlung

Statistische Differenzen

*Anmerkung: Tanklager für die internationale Seeschifffahrt**Anmerkung: Tanklager für die internationale zivile Luftfahrt*

Die Kategorie "Andere" beinhaltet Industrieabfälle und nichterneuerbare städtische Abfälle.

Globaler CO<sub>2</sub>-Ausstoß beinhaltet Tanklager für die internationale Seeschifffahrt und die international zivile Luftfahrt



**italiano**

Italian

**日本語**

Japanese

**Principali indicatori****主要指標**CO<sub>2</sub> Metodo settoriale (Mt di CO<sub>2</sub>)CO<sub>2</sub> 排出量 セクター別 アプローチ (二酸化炭素 百万トン)

ATEP (PJ)

一次エネルギー供給 (PJ)

PIL (miliardi di US\$ 2005)

GDP (10億 米ドル、2005年 価格)

PIL PPA (miliardi di US\$ 2005)

GDP PPP (購買力平価ベースのGDP) (10億 米ドル、2005年 価格)

Popolazione (milioni)

人口 (百万)

CO<sub>2</sub> / ATEP (t di CO<sub>2</sub> per TJ)CO<sub>2</sub> 排出量 / 一次エネルギー供給 (CO<sub>2</sub> トン / PJ)CO<sub>2</sub> / PIL (kg di CO<sub>2</sub> per US\$ 2005)CO<sub>2</sub> 排出量 / GDP (CO<sub>2</sub> キログラム / 米ドル、2005年 価格)CO<sub>2</sub> / PIL PPA (kg di CO<sub>2</sub> per US\$ 2005)CO<sub>2</sub> 排出量 / GDP PPP (CO<sub>2</sub> キログラム / 米ドル、2005年 価格)CO<sub>2</sub> / Popolazione (t di CO<sub>2</sub> per abitante)一人当たり CO<sub>2</sub> 排出量 (二酸化炭素 トン / 人)**Emissioni CO<sub>2</sub> e fattori - Identità di Kaya****CO<sub>2</sub>排出量・変化要因 茅恒等式**Emissioni CO<sub>2</sub>CO<sub>2</sub>排出量

Popolazione

人口

PIL / Popolazione (PIL per capita)

一人当たり GDP (GDP/人)

Intensità energetica (ATEP / PIL)

エネルギー原単位 (TPES/GDP)

Intensità di carbonio (CO<sub>2</sub> / ATEP)炭素集約度 (CO<sub>2</sub>/TPES)

I rapporti sono basati sul metodo settoriale.

レートはセクター別アプローチを基に算出

**Emissioni di CO<sub>2</sub> per settore in 2012****2012年の部門別二酸化炭素排出量***milioni di tonnellate di CO<sub>2</sub>*CO<sub>2</sub> 百万トン**Metodo settoriale****セクター別 アプローチ**

Produzione di elettricità e di calore (attività principale)

電気・熱供給事業者

Auto-produttori non specificati

自家発電

Altri settori energetici

その他のエネルギー産業

Industrie manifatturiere e della costruzione

製造業・建設業

Settore dei trasporti

運輸用

*di cui: trasporti stradali*

道路輸送

Altri settori

その他

*di cui: settore domestico*

国内民生・家庭用

**Metodo di base****レファレンス・アプローチ**

Differenza dovuta alle perdite e/o alle trasformaz.

転換ロス等に起因する誤差

Differenza statistica

統計誤差

*Memo: bunkeraggi marittimi internazionali*

メモ：国際海運バンカー

*Memo: bunkeraggi aerei internazionali*

メモ：国際航空バンカー

La categoria Altri comprende rifiuti industriali e rifiuti urbani non rinnovabili.

「その他」は「産業廃棄物」及び「再利用不可の都市廃棄物」を含む

La categoria Mondo comprende bunkeraggi marittimi internazionali e bunkeraggi aerei internazionali.

世界（国際海運・国際航空部門を含む）





**español**  
Spanish

**русский**  
Russian

### Indicadores Básicos

CO<sub>2</sub> Metodo Sectorial (Mt de CO<sub>2</sub>)  
TPES (PJ)  
PIB (billón de 2005 USD)  
PIB PPP (billón de 2005 USD)  
Población (millones)  
  
CO<sub>2</sub> / TPES (tCO<sub>2</sub> por TJ)  
CO<sub>2</sub> / PIB (kgCO<sub>2</sub> por 2005 USD)  
CO<sub>2</sub> / PIB PPP (kgCO<sub>2</sub> por 2005 USD)  
CO<sub>2</sub> / Población (tCO<sub>2</sub> per capita)  
  
**Emisiones de CO<sub>2</sub> y factores -  
Descomposición Kaya**  
Emisiones de CO<sub>2</sub>  
Población  
PIB por población (PIB per capita)  
Intensidad energética (TPES/PIB)  
Intensidad de carbono (CO<sub>2</sub>/TPES)

### Основные показатели

CO<sub>2</sub> секторный подход (млнт CO<sub>2</sub>)  
ОППТЭ (PJ)  
ВВП (миллиардов долларов США 2005 г.)  
ВВП ППС (миллиардов долларов США 2005 г.)  
Население (миллионов человек)  
  
CO<sub>2</sub>/ОППТЭ (тCO<sub>2</sub> на тнэ)  
CO<sub>2</sub>/ВВП (кгCO<sub>2</sub> на доллар США 2005 г.)  
CO<sub>2</sub>/ВВП ППС (кгCO<sub>2</sub> на доллар США 2005 г.)  
CO<sub>2</sub>/Численность населения (тнэ на человека)  
  
**Выбросы и источники CO<sub>2</sub> - уравнение Кaya**  
Выбросы CO<sub>2</sub>  
Население  
ВВП на население (ВВП на душу населения)  
Энергоемкость (ОППТЭ/ВВП)  
Карбоноемкость (CO<sub>2</sub>/ОППТЭ)

### Emisiones de CO<sub>2</sub> por Sector en 2012

*millón de toneladas de CO<sub>2</sub>*

**Metodo Sectorial**  
Producción de electricidad y calor (actividad principal)  
Autoprodutores no especificados  
Otras Industrias de Energía  
Industrias Manufactureras y Construcción  
Transporte  
*del cual: Carretera*  
Otros sectores  
*del cual: Residencial*  
**Metodo Base**  
Diferencias por Pérdidas y/o Transformación  
*Diferencias estadísticas*  
*Memo: Bunkers de Navegación Internacional*  
*Memo: Bunkers de Aviación Internacional*

Otros incluye residuos industriales y residuos municipales no renovables.  
La categoría Mundial incluye búnkers de navegación Internacional y búnkers de Aviación Internacional

### Выбросы CO<sub>2</sub> в 2012 г. по отраслям

*миллионов тон CO<sub>2</sub>*

**секторный подход**  
Электростанции и теплоцентрали общего пользования  
Электростанции и теплоцентрали предприятий  
Прочие топливно-энергетические отрасли  
Обрабатывающие отрасли промышленности и строительство  
Транспорт (включая международную морскую бункеровку)  
*в том числе: Автомобильный*  
Прочие отрасли  
*в том числе: Жилищно-коммунальное хозяйство*  
**системный подход**  
Расхождение от потерь и/или переработки  
Статистическое расхождение  
*К сведению: Международная морская бункеровка*  
*К сведению: Международная воздушная бункеровка*

Категория Другие включает промышленные отходы и ком.-быт. твердые отходы.  
Категория Мир включает международную морскую бункеровку и международную воздушную бункеровку



## 中文

## Chinese

## 关键指标

二氧化碳排放部门算法 (MtCO<sub>2</sub>)

一次能源供应总量 - TPES ( PJ)

国内生产总值 (十亿2005年不变美元)

国内生产总值, 购买力平价 (十亿2005美元)

人口 (百万)

二氧化碳排放/一次能源供应总量 (tCO<sub>2</sub>/TJ)

二氧化碳排放/ GDP (kgCO<sub>2</sub>/ 2005年不变美元)

二氧化碳排放 /国内生产总值, 购买力平价(kgCO<sub>2</sub>/2005年不变美元)

二氧化碳排放 / 人口 (人均吨CO<sub>2</sub>排放)

## 二氧化碳排放及推动因素 - Kaya分解法

CO<sub>2</sub>排放

人口

人均国内生产总值

能源强度 (一次能源供应总量/GDP)

能源供应的碳强度 (CO<sub>2</sub>/TPES)

计算基于二氧化碳排放部门算法, GDP的单位为按购买力平价法计算的2005年不变美元。

## 2012年分行业二氧化碳排放

百万吨二氧化碳排放

## 部门算法

主要从事电力和热能生产的工厂

没有归类的自发电或自产热能的工厂

其它能源行业的自用能

制造业和建筑业

运输

其中: 公路运输

其它行业

其中: 民用

## 参考算法

由于能源损耗及/或能源转换产生的平衡差额

统计差额

备注: 国际海运燃料

备注: 国际航空燃料

其它行业包括工业废弃物及不可再生的市政垃圾消耗。

世界范围的统计包括国际海运燃料及国际航空燃料所产生的排放。



# Energy Data Manager / Statistician

Possible Staff Vacancies

International Energy Agency, Paris, France

## The IEA

The International Energy Agency, based in Paris, acts as energy policy advisor to 29 member countries in their effort to ensure reliable, affordable and clean energy for their citizens. Founded during the oil crisis of 1973-74, the IEA's initial role was to co-ordinate measures in times of oil supply emergencies. As energy markets have changed, so has the IEA. Its mandate has broadened to incorporate the "Three E's" of balanced energy policy making: energy security, economic development and environmental protection. Current work focuses on climate change policies, market reform, energy technology collaboration and outreach to the rest of the world, especially major consumers and producers of energy like China, India, Russia and the OPEC countries.

The Energy Data Centre, with a staff of around 30 people, provides a dynamic environment for young people just finishing their studies or with one to two years of work experience.

## Job description

The data managers/statisticians compile, verify and disseminate information on all aspects of energy including production, transformation and consumption of all fuels, renewables, the emergency reporting system, energy efficiency indicators, CO<sub>2</sub> emissions, and energy prices and taxes. The data managers are responsible for receiving, reviewing and inputting data submissions from member countries and other sources into large computerised databases. They check for completeness, correct calculations, internal consistency, accuracy and consistency with definitions. Often this entails proactively investigating and helping to resolve anomalies in collaboration with national administrations of member and non-member countries. The data managers/statisticians also play a key role in helping to design and implement computer macros used in the preparation of their energy statistics publication(s).

## Principal Qualifications

- University degree in a topic relevant to energy, computer programming or statistics. We currently have staff with degrees in Mathematics, Statistics, Information Technology, Economics, Engineering, Physics, Chemistry, Environmental Studies, Hydrology, Public Administration and Business.
- Experience in the basic use of databases and computer software. Good computer programming skills in Visual Basic.
- Ability to work accurately, pay attention to detail and work to deadlines. Ability to deal simultaneously with a wide variety of tasks and to organise work efficiently.
- Good communication skills; ability to work well in a team and in a multicultural environment, particularly in liaising with contacts in national administrations and industry.
- Very good knowledge of one of the two official languages of the Organisation (English or French). Knowledge of other languages would be an advantage.
- Some knowledge of energy industry operations and terminology would also be an advantage, but is not required.

Nationals of any OECD member country are eligible for appointment. Basic salaries start at 3 163 euros per month. The possibilities for advancement are good for candidates with appropriate qualifications and experience. Tentative enquiries about future vacancies are welcomed from men and women with relevant qualifications and experience. Applications in French or English, accompanied by a curriculum vitae, should be sent to:

Office of Management and Administration  
International Energy Agency  
9 rue de la Fédération  
75739 Paris Cedex 15, France



# Notes

# Notes



## On-Line Data Services

Users can instantly access not only all the data published in this book, but also all the time series used for preparing this publication and all the other statistics publications of the IEA. The data are available on-line, either through annual subscription or pay-per-view access. More information on this service can be found on our website: <http://data.iea.org>

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## Ten Annual Publications

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### ■ Energy Statistics of OECD Countries, 2014 Edition

No other publication offers such in-depth statistical coverage. It is intended for anyone involved in analytical or policy work related to energy issues. It contains data on energy supply and consumption in original units for coal, oil, natural gas, biofuels/waste and products derived from these primary fuels, as well as for electricity and heat. Complete data are available for 2011 and 2012 and supply estimates are available for the most recent year (i.e. 2013). Historical tables summarise data on production, trade and final consumption. Each issue includes definitions of products and flows and explanatory notes on the individual country data.

*Published July 2014 - Price €120*

### ■ Energy Balances of OECD Countries, 2014 Edition

A companion volume to *Energy Statistics of OECD Countries*, this publication presents standardised energy balances expressed in million tonnes of oil equivalent. Energy supply and consumption data are divided by main fuel: coal, oil, natural gas, nuclear, hydro, geothermal/solar, biofuels/waste, electricity and heat. This allows for easy comparison of the contributions each fuel makes to the economy and their interrelationships through the conversion of one fuel to another. All of this is essential for estimating total energy supply, forecasting, energy conservation, and analysing the potential for interfuel substitution. Complete data are available for 2011 and 2012 and supply estimates are available for the most recent year (i.e. 2013). Historical tables summarise key energy and economic indicators as well as data on production, trade and final consumption. Each issue includes definitions of products and flows and explanatory notes on the individual country data as well as conversion factors from original units to tonnes of oil equivalent.

*Published July 2014 - Price €120*

### ■ Energy Statistics of Non-OECD Countries, 2014 Edition

This publication offers the same in-depth statistical coverage as the homonymous publication covering OECD countries. It includes data in original units for more than 100 individual countries and nine main regions. The consistency of OECD and non-OECD countries' detailed statistics provides an accurate picture of the global energy situation for 2011 and 2012. For a description of the content, please see *Energy Statistics of OECD Countries* above.

*Published August 2014 - Price €120*

### ■ **Energy Balances of Non-OECD Countries, 2014 Edition**

A companion volume to the publication *Energy Statistics of Non-OECD Countries*, this publication presents energy balances in thousand tonnes of oil equivalent and key economic and energy indicators for more than 100 individual countries and nine main regions. It offers the same statistical coverage as the homonymous publication covering OECD countries, and thus provides an accurate picture of the global energy situation for 2011 and 2012. For a description of the content, please see *Energy Balances of OECD Countries* above.

*Published August 2014 - Price €120*

### ■ **Coal Information 2014**

This well-established publication provides detailed information on past and current evolution of the world coal market. It presents country-specific statistics for OECD member countries and selected non-OECD countries on coal production, demand, trade and prices. This publication represents a key reference tool for all those involved in the coal supply or consumption stream, as well as institutions and governments involved in market and policy analysis of the world coal market.

*Published August 2014 - Price €165*

### ■ **Electricity Information 2014**

This reference document provides essential statistics on electricity and heat for each OECD member country by bringing together information on production, installed capacity, input energy mix to electricity and heat production, input fuel prices, consumption, end-user electricity prices and electricity trades.

*Published August 2014 - Price €150*

### ■ **Natural Gas Information 2014**

A detailed reference work on gas supply and demand, covering not only OECD countries but also the rest of the world. Contains essential information on LNG and pipeline trade, gas reserves, storage capacity and prices. The main part of the book, however, concentrates on OECD countries, showing a detailed gas supply and demand balance for each individual country and for the three OECD regions, as well as a breakdown of gas consumption by end-user. Import and export data are reported by source and destination.

*Published August 2014 - Price €165*

### ■ **Oil Information 2014**

A comprehensive reference book on current developments in oil supply and demand. The first part of this publication contains key data on world production, trade, prices and consumption of major oil product groups, with time series back to the early 1970s. The second part gives a more detailed and comprehensive picture of oil supply, demand, trade, production and consumption by end-user for each OECD country individually and for OECD regions. Trade data are reported extensively by origin and destination.

*Published August 2014 - Price €165*

### ■ Renewables Information 2014

This reference document brings together in one volume essential statistics on renewables and waste energy sources. It presents a detailed and comprehensive picture of developments for renewable and waste energy sources for each of the OECD member countries, encompassing energy indicators, generating capacity, electricity and heat production from renewable and waste sources, as well as production and consumption of renewable and waste products.

*Published August 2014 - Price €110*

### ■ CO<sub>2</sub> Emissions from Fuel Combustion, 2014 Edition

In order for nations to tackle the problem of climate change, they need accurate greenhouse gas emissions data. This publication provides a basis for comparative analysis of CO<sub>2</sub> emissions from fossil fuel combustion, a major source of anthropogenic emissions. The data in this book are designed to assist in understanding the evolution of the emissions of CO<sub>2</sub> from 1971 to 2012 for more than 140 countries and regions by sector and by fuel. Emissions were calculated using IEA energy databases and the default methods and emissions factors from the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*.

*Published November 2014 - Price €165*

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## Two Quarterlies

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### ■ Oil, Gas, Coal and Electricity, Quarterly Statistics

This publication provides up-to-date, detailed quarterly statistics on oil, coal, natural gas and electricity for OECD countries. Oil statistics cover production, trade, refinery intake and output, stock changes and consumption for crude oil, NGL and nine selected oil product groups. Statistics for electricity, natural gas and coal show supply and trade. Import and export data are reported by origin and destination. The gas trade data from 1st quarter 2011 onwards corresponds to physical flows (entries/exits). Moreover, oil as well as hard coal and brown coal production are reported on a worldwide basis.

*Published Quarterly - Price €120, annual subscription €380*

### ■ Energy Prices and Taxes

This publication responds to the needs of the energy industry and OECD governments for up-to-date information on prices and taxes in national and international energy markets. It contains crude oil import prices by crude stream, industry prices and consumer prices. The end-user prices for OECD member countries cover main petroleum products, gas, coal and electricity. Every issue includes full notes on sources and methods and a description of price mechanisms in each country. Time series availability varies with each data series.

*Published Quarterly - Price €120, annual subscription €380*

## Electronic Editions

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### ■ CD-ROMs and Online Data Services

To complement its publications, the Energy Data Centre produces CD-ROMs containing the complete databases which are used for preparing the statistics publications. State-of-the-art software allows you to access and manipulate all these data in a very user-friendly manner and includes graphic facilities. These databases are also available on the internet from our online data service.

#### Annual CD-ROMS / Online Databases

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| ■ Energy Balances of OECD Countries, 1960-2013          | Price: €550 (single user)          |
| ■ Energy Statistics of Non-OECD Countries, 1971-2012    | Price: €550 (single user)          |
| ■ Energy Balances of Non-OECD Countries, 1971-2012      | Price: €550 (single user)          |
| ■ <i>Combined subscription of the above four series</i> | <i>Price: €1 400 (single user)</i> |
| ■ Coal Information 2014                                 | Price: €550 (single user)          |
| ■ Electricity Information 2014                          | Price: €550 (single user)          |
| ■ Natural Gas Information 2014                          | Price: €550 (single user)          |
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| ■ Renewables Information 2014                           | Price: €400 (single user)          |
| ■ CO <sub>2</sub> Emissions from Fuel Combustion 2014   | Price: €550 (single user)          |

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|---------------------------|---|

A description of these services is available on our website: <http://data.iea.org>

## Other Online Services

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### ■ The Monthly Oil Data Service

The IEA Monthly Oil Data Service provides the detailed databases of historical and projected information which is used in preparing the IEA's monthly *Oil Market Report* (OMR). The IEA Monthly Oil Data Service comprises three packages available separately or combined as a subscriber service on the Internet. The data are available at the same time as the official release of the Oil Market Report.

The packages include:

- |                                       |                                    |
|---------------------------------------|------------------------------------|
| ■ Supply, Demand, Balances and Stocks | Price: €6 000 (single user)        |
| ■ Trade                               | Price: €2 000 (single user)        |
| ■ Field-by-Field Supply               | Price: €3 000 (single user)        |
| ■ <i>Complete Service</i>             | <i>Price: €9 000 (single user)</i> |

A description of this service is available on our website: [www.iea.org/statistics/mods](http://www.iea.org/statistics/mods)

## ■ The Monthly Gas Data Service

The service provides monthly natural gas data for OECD countries:

- supply balances in terajoules and cubic metres;
- production, trade, stock changes and levels where available, gross inland deliveries, own use and losses;
- highly detailed trade data with about 50 import origins and export destinations;
- LNG trade detail available from January 2002,
- From 2011 onwards, transit volumes are included and trade data corresponds to entries/exits.

The databases cover the time period January 1984 to current month with a time lag of two months for the most recent data.

- Monthly Gas Data Service: Natural Gas Balances & Trade  
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For more information consult: [www.iea.org/statistics/mgds](http://www.iea.org/statistics/mgds)

**Moreover, the IEA statistics website contains a wealth of free statistics covering oil, natural gas, coal, electricity, renewables, energy-related CO<sub>2</sub> emissions and more for over 140 countries and historic data for the last 20 years. It also contains Sankey flows to enable users to explore visually how a country's energy balance shifts over up to 40 years, starting with production and continuing through transformation to see important changes in supply mix or share of consumption. The website also includes selected databases for demonstration.**

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