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2015
EDITION

CO₂ EMISSIONS FROM FUEL COMBUSTION



International
Energy Agency
Secure
Sustainable
Together

2015
EDITION

CO₂ 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 CO₂ 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, which will be meeting in Paris, France from 30 November to 11 December 2015.

The data in this book are designed to assist in understanding the evolution of the emissions of CO₂ from 1971 to 2013 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 2006 *IPCC Guidelines for National Greenhouse Gas Inventories*.

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2015
EDITION

**CO₂ 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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The European Commission also participates in the work of the IEA.

FOREWORD

In recent years, we have seen a fundamental shift in the way governments around the world approach energy-related environmental issues. Promoting sustainable development and combating climate change have become integral aspects of energy planning, analysis and policy making both within International Energy Agency (IEA) member countries, and beyond. Because energy accounts for two-thirds of total greenhouse gas emissions and 80% of CO₂, any effort to reduce emissions and mitigate climate change must include the energy sector. As a result, climate change has become a key focus of IEA work.

Any energy-related policy to address climate change needs to be based on accurate data. In the lead-up to the UN climate negotiations at COP 21 in Paris, France, the latest information on the level and growth of CO₂ emissions from fuel combustion, their source and geographic distribution will be essential in laying the foundation for a global agreement.

Therefore, the IEA Secretariat has prepared this publication to provide the most comprehensive estimates of CO₂ emissions from fuel combustion across the world and across the sectors of the global economy. The purpose of this publication is to place up-to-date and detailed information in the hands of those who need it, including in particular the participants and decision makers in the UNFCCC process.

Most of the data presented in this publication are for CO₂ emissions from fuel combustion only. Therefore, they may differ from countries' official greenhouse gas inventory submissions to the UNFCCC Secretariat, which include emissions of other greenhouse gases and from other sources.

This edition includes data from 1971 to 2013 for more than 140 countries and regions worldwide, by sector and by fuel; as well as a number of CO₂-related indicators. It is our hope that this breakdown will assist the reader in better understanding the evolution of emissions worldwide.

The IEA will continue to provide evidence-based policy recommendations on climate change and to provide accurate data to shape the debate.

Fatih Birol
Executive Director

What's New?

Updates of methodologies

In this edition, the IEA has transitioned from the *Revised 1996 IPCC Guidelines* to the *2006 IPCC Guidelines*, in line with Annex I Party reporting to the UNFCCC. The new CO₂ emissions total is now called “CO₂ emissions from fuel combustion”. For further information on the impact of this changeover, see Part I, Chapter 3: *IEA estimates: Changes under the 2006 IPCC Guidelines*.

Revisions to data: People's Republic of China

In September 2015, the National Bureau of Statistics of China published China's energy statistics for 2013, as well as revised statistics for the years 2000 to 2012. NBS supplied the IEA with detailed energy balances for 2011 to 2013. Using these, the IEA revised its 2011-2013 data based on these newly available figures, as published in this document. The revisions show significant changes both on the supply and demand side for a number of energy products, resulting in breaks in time series between 2010 and 2011. Revised data for the years 2000-2010 will be published in the next edition of this publication.

The revised energy balances released by the NBS integrate findings from a national economic census for all years since 2000. These revised data solve several detailed issues, most importantly the unallocated coal demand that appeared in the recent years of the Chinese energy balance (shown as statistical difference), has been primarily allocated to final consumption in the industrial sector.

Indicators: decomposition of emissions from electricity generation

In this edition, new graphs present a decomposition of the change in CO₂ emissions from electricity generation over time into the sum of the change in four drivers: CO₂ intensity of the fossil fuel mix, fossil fuel share of electricity generation, thermal efficiency of fossil fuel-fired electricity generation, and total electricity output. This decomposition helps to assess the relative contributions of these different factors in trends in CO₂ emissions from electricity generation.

The layout of the country graphs in Part II has been modified accordingly. For a complete description of the methodology used, please see Part I, Chapter 2: *Indicator sources and methods*.

Geographical coverage

The IEA continues to try to expand the coverage of its statistics reports and encourage more countries to collaborate on data exchange. This year data have become available for Niger from 2000 to 2013, and have been included in this edition. Therefore Niger, published separately, has been removed from the region Other Africa for those years.

Data have also become available for South Sudan for the years 2012 and 2013. Therefore data for Sudan and South Sudan are presented separately for those years. In addition, data for the former Netherlands Antilles have been separated into its constituent islands from 2012 onwards. Data for Curaçao include the former Netherlands Antilles until 2011, after which data refer to Curaçao only, with data for the remaining islands (Bonaire, Saba, Saint Eustatius and Sint Maarten) included in Other Non-OECD Americas.

In addition, in accordance with Decision 10/CP.17 of the Conference of the Parties to the UNFCCC (effective from 9 January 2013), Cyprus¹ has been included in the Annex I regional grouping in this publication.

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

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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 ₂ :	million tonnes of carbon dioxide
Mtoe:	million tonnes of oil equivalent
m ³ :	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 ⁷ 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>)
G20:	Group of Twenty (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 CO₂ emissions from fuel combustion presented in this publication are calculated using the IEA energy balances and the default methods and emission factors from the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*. There are many reasons why **the IEA Secretariat estimates of CO₂ emissions from fuel combustion 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 CO₂ emissions from fuel combustion. IEA estimates include emissions from all reported energy use of fuels, but exclude emissions from non-energy use of fuels. Such totals may differ from those calculated using the Sectoral Approach of the *2006 IPCC Guidelines*, as under these guidelines some fuel combustion emissions have been reallocated out of the Source category energy and reclassified as industrial process emissions.
- 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 countries² are collected by the Energy Data Centre (EDC) of the IEA Secretariat, headed by Mr. Duncan Millard. The IEA would like to thank and acknowledge the dedication and professionalism of the statisticians working on energy data in the respective countries.

Summary data for other greenhouse gases and sources are provided in cooperation with the PBL Netherlands Environmental Assessment Agency and the Joint Research Centre of the European Commission (JRC).

Mr. Aidan Kennedy was responsible for the CO₂ emissions from fuel combustion estimates and for the preparation of the publication. Input on international mitigation efforts was provided by Ms. Christina Hood. Desktop publishing support was provided by

Ms. Sharon Burghgraeve. Ms. Roberta Quadrelli had overall responsibility for his publication.

CO₂ emission estimates from 1960 to 2013 for the Annex II countries and from 1971 to 2013 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.

Enquiries about data or methodology should be addressed to:

Energy Data Centre – CO₂ emissions
 Telephone: (+33-1) 40-57-66-01
 E-mail: emissions@iea.org

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2013 CO₂ EMISSIONS OVERVIEW

KEY TRENDS IN CO₂ EMISSIONS FROM FUEL COMBUSTION

The growing importance of energy-related emissions

Climate scientists have observed that carbon dioxide (CO₂) concentrations in the atmosphere have been increasing significantly over the past century, compared to the pre-industrial era (about 280 parts per million, or ppm). The 2014 concentration of CO₂ (397 ppm)¹ was about 40% higher than in the mid-1800s, with an average growth of 2 ppm/year in the last ten years. Significant increases have also occurred in levels of methane (CH₄) and nitrous oxide (N₂O).

Energy use and greenhouse gases

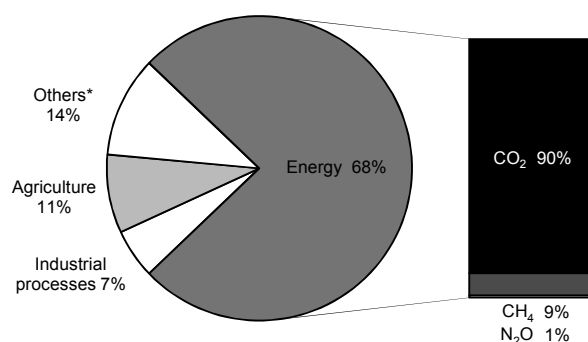
The *Fifth Assessment Report* from the Intergovernmental Panel on Climate Change (Working Group I) states that human influence on the climate system is clear (IPCC, 2013). Among the many human activities that produce greenhouse gases, the use of energy represents by far the largest source of emissions. Smaller shares correspond to agriculture, producing mainly CH₄ and N₂O from domestic livestock and rice cultivation, and to industrial processes not related to energy, producing mainly fluorinated gases and N₂O (Figure 1).

Within the energy sector², CO₂ resulting from the oxidation of carbon in fuels during combustion dominates total GHG emissions.

1. Globally averaged marine surface annual mean expressed as a mole fraction in dry air. Ed Dlugokencky and Pieter Tans, NOAA/ESRL (www.esrl.noaa.gov/gmd/ccgg/trends/).

2. The energy sector includes emissions from “fuel combustion” (the large majority) and “fugitive emissions”, which are intentional or un-

Figure 1. Shares of global anthropogenic GHG, 2010*



* Others include large-scale biomass burning, post-burn decay, peat decay, indirect N₂O emissions from non-agricultural emissions of NO_x and NH₃, Waste, and Solvent Use.

Source: IEA estimates for CO₂ from fuel combustion and EDGAR 4.3.0/4.2 FT2010 for all other sources, (see Part III).

Key point: Energy emissions, mostly CO₂, account for the largest share of global GHG emissions.

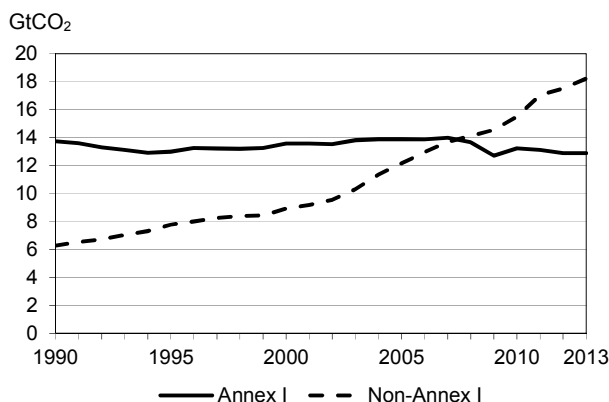
CO₂ emissions from energy represent over three quarters of the anthropogenic GHG emissions for Annex I³ countries, and about 60% of global emissions. This

intentional releases of gases resulting from production, processes, transmission, storage and use of fuels (e.g. CH₄ emissions from coal mining).

3. The Annex I Parties to the 1992 UN Framework Convention on Climate Change (UNFCCC) are: Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Croatia, Cyprus (please refer to Part I, Chapter 5: *Geographical Coverage*), 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. For country coverage of Annex I Economies in Transition (EIT) and Annex II, see *Geographical Coverage*.

percentage varies greatly by country, due to diverse national structures.

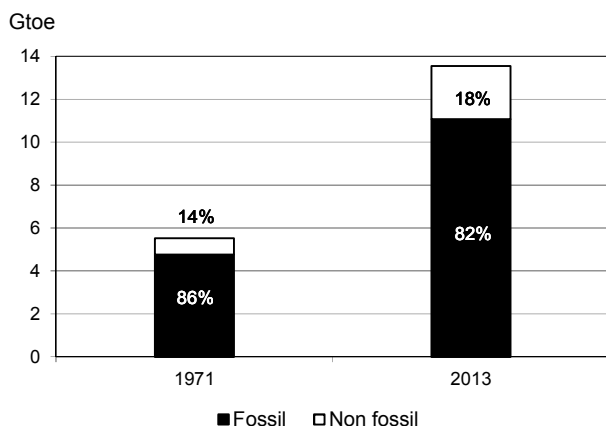
Figure 2. Regional CO₂ emissions trends (1990-2013)



Key point: Emissions in non-Annex I countries have almost tripled since 1990, while emissions in Annex I countries have declined slightly.

Increasing demand for energy comes from worldwide economic growth and development. Global total primary energy supply (TPES) increased by almost 150% between 1971 and 2013 mainly relying on fossil fuels (Figure 3).

Figure 3. World primary energy supply*



* World primary energy supply includes international bunkers.

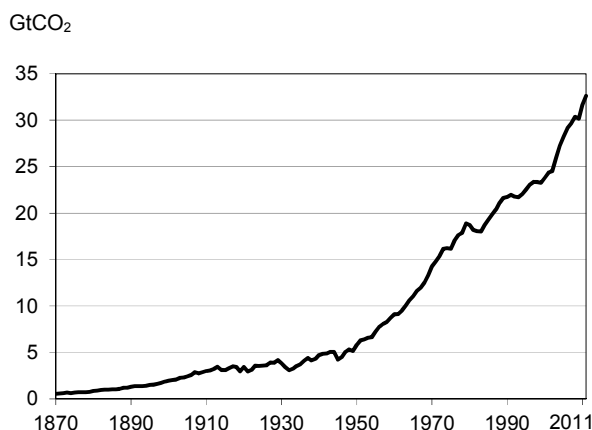
Despite the growth of non-fossil energy (such as nuclear and hydropower), considered as non-emitting,⁴ the share of fossil fuels within the world energy

4. Excluding the life cycle of all non-emitting sources and excluding combustion of biofuels (considered as non-emitting CO₂, based on the assumption that the released carbon will be reabsorbed by biomass re-growth, under balanced conditions).

supply is relatively unchanged over the past 42 years. In 2013, fossil sources accounted for 82% of the global TPES.

Growing world energy demand from fossil fuels plays a key role in the upward trend in CO₂ emissions (Figure 4). Since the Industrial Revolution, annual CO₂ emissions from fuel combustion have dramatically increased from near zero to over 32 GtCO₂ in 2013.

Figure 4. Trend in CO₂ emissions from fossil fuel combustion



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

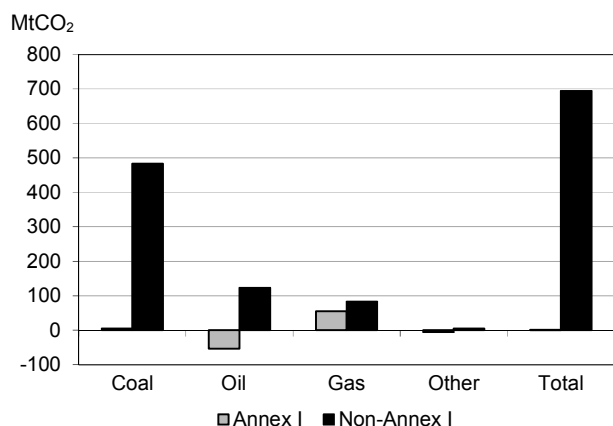
Key point: Since 1870, CO₂ emissions from fuel combustion have risen exponentially.

The next section provides a brief overview of recent trends in energy-related CO₂ emissions, as well as in some of the socio-economic drivers of emissions.

Recent emissions trends

In 2013, global CO₂ emissions reached 32.2 GtCO₂, an increase of 2.2% over 2012 levels. This was higher growth than in 2012 (0.6%), but lower than the average annual growth rate since 2000 (2.5%).

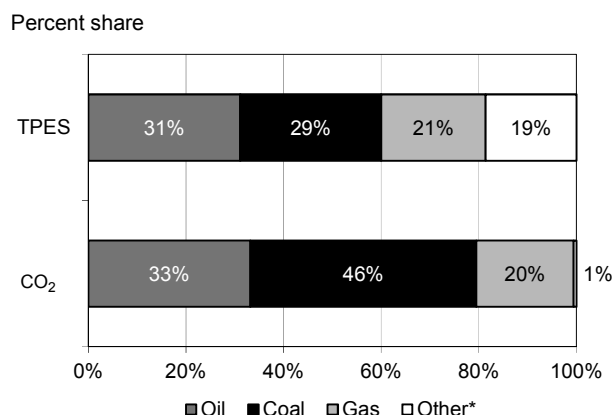
Emissions in non-Annex I countries continued to increase (4.0%), with the rate of growth higher than in 2012 (2.8%), while emissions in Annex I countries were flat (0.0%) with lower emissions from oil (-1.1%) balanced by higher emissions from natural gas (1.4%). In absolute terms, global CO₂ emissions increased by 0.7 GtCO₂ in 2013, driven primarily by increased emissions from coal and (to a lesser extent) oil in non-Annex I countries (Figure 5).

Figure 5. Change in CO₂ emissions (2012-13)

Key point: In 2013, global emissions growth was driven primarily by increased consumption of coal in non-Annex I countries.

Emissions by fuel

Although coal represented 29% of the world TPES in 2013, it accounted for 46% of the global CO₂ emissions due to its heavy carbon content per unit of energy released, and to the fact that 19% of the TPES derives from carbon-neutral fuels (Figure 6). Compared to gas, coal is nearly twice as emission intensive on average.⁵

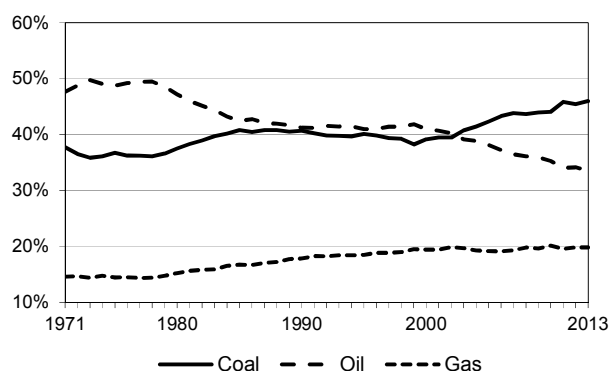
Figure 6. World primary energy supply and CO₂ emissions: shares by fuel in 2013

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

Key point: Globally, coal combustion generates the largest share of CO₂ emissions, although oil remains the largest energy source.

From the late 1980s until the early 2000s, coal and oil were each responsible for approximately 40% of global CO₂ emissions, with emissions from oil generally exceeding those from coal by a few percentage points. However, trends differed at a regional level. In Annex I countries, oil was the largest source of fuel combustion emissions, whereas, in non-Annex I countries emissions from coal ranked highest.

Since 2002, when at a global level, oil still contributed the largest share of emissions, these shares have changed significantly. Due to the increasing influence of non-Annex I countries energy consumption, coal has increased its share of CO₂ emissions from 40% in 2002 to 46% in 2013, while the share from oil has decreased from 39% to 33%, with the share of emissions from natural gas staying approximately stable at 20% (Figure 7).

Figure 7. Fuel shares in global CO₂ emissions

Key point: The global fossil fuel mix changed significantly in recent years, with coal replacing oil as the largest source of CO₂ emissions.

In 2013, CO₂ emissions from the combustion of coal increased by 3.4% to 14.8 GtCO₂. 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

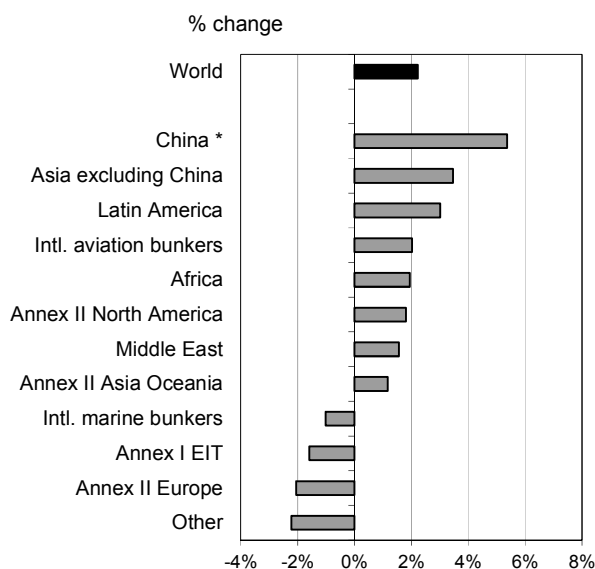
Non-Annex I countries, collectively, represented 57% of global CO₂ emissions in 2013. At the regional level, annual growth rates varied greatly: with moderate to strong increases exhibited in China (5.4%), Asia excluding China (3.5%) and Latin America⁶ (3.0%),

5. Default carbon emission factors from the 2006 IPCC Guidelines: 15.3 tC/TJ for gas, 15.7 to 26.6 tC/TJ for oil products, 25.8 to 29.1 tC/TJ for primary coals.

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

whereas, declines were observed in Annex II Europe (-2.0%), and Annex I EIT (-1.6%). Weaker emissions growth occurred in Africa (1.9%), Annex II North America (1.8%), the Middle East (1.6%) and Annex II Asia Oceania (1.2%) (Figure 8).

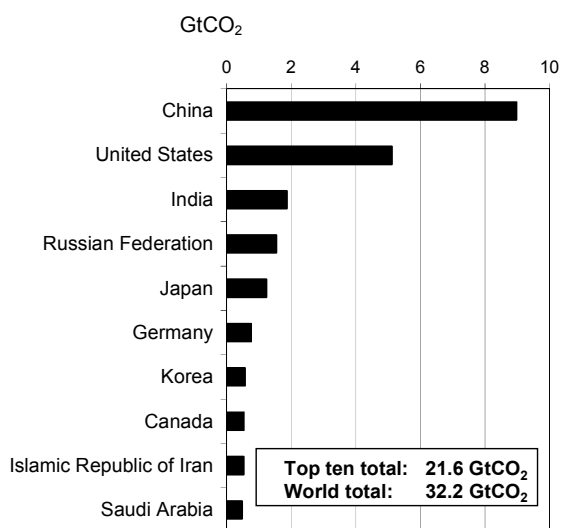
Figure 8. Change in CO₂ emissions by region (2012-13)



* China includes Hong Kong, China.

Key point: Emissions in Europe fell in 2013; emissions in all non-Annex I regions grew, with Asia showing the largest relative increase.

Figure 9. Top ten emitting countries in 2013



Key point: The top ten emitting countries account for two-thirds of global CO₂ emissions.

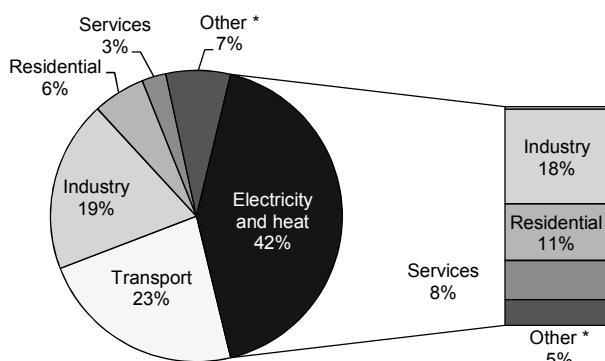
Regional differences in contributions to global emissions conceal even larger differences among individual countries. Two-thirds of global emissions for 2013 originated from just ten countries, with the shares of China (28%) and the United States (16%) far surpassing those of all others. Combined, these two countries alone produced 14.1 GtCO₂. The top-10 emitting countries include five Annex I countries and five non-Annex I countries (Figure 9).

As different regions and countries have contrasting economic and social structures, the picture changes 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 CO₂ emissions in 2013: electricity and heat generation, by far the largest, which accounted for 42%, while transport accounted for 23% (Figure 10).

Figure 10. World CO₂ emissions by sector in 2013



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

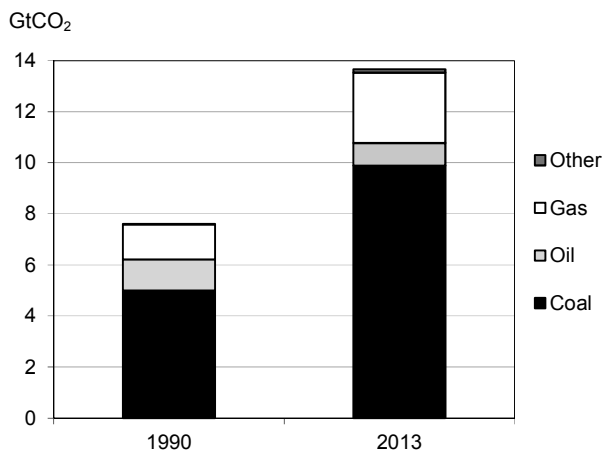
* Other includes agriculture/forestry, fishing, energy industries other than electricity and heat generation, and other emissions not specified elsewhere.

Key point: Two sectors combined, generation of electricity and heat, and transport, represented nearly two-thirds of global emissions in 2013.

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.

Between 2012 and 2013, CO₂ emissions from electricity and heat increased by 2.1%, similar to the increase in 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 66% in 1990 to 72% in 2013 (Figure 11). 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.

Figure 11. CO₂ emissions from electricity and heat generation*



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

Key point: CO₂ emissions from electricity and heat almost doubled between 1990 and 2013, driven by the large increase of generation from coal.

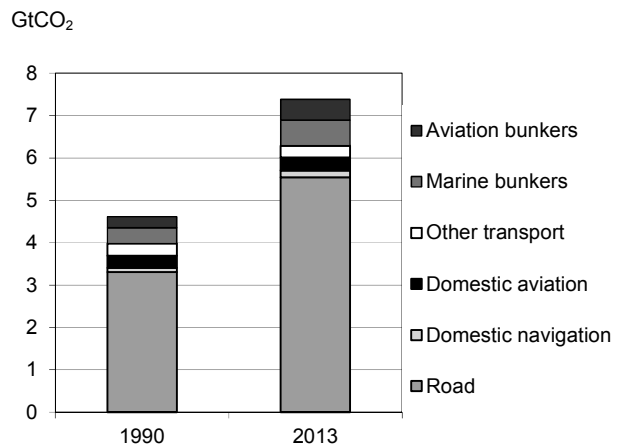
Emissions from electricity generation specifically (excluding heat generation emitting energy sector) increased by 50% between 2000 and 2013. At a regional level, trends differed (Figure 13). Both Annex II Europe and Annex II North America, showed a decrease in total emissions from electricity generation between 2000 and 2013. In Annex II North America, this was driven by improvements in the thermal efficiency of generation and the CO₂ intensity of the fossil fuel mix (both reflecting a shift from coal towards natural gas). In addition, an increase in the share of electricity output from non-emitting sources was observed. In Annex II Europe, the decrease was driven primarily by a decreased share of electricity output from fossil fuels, down almost 20% between 2000

and 2013. In addition, a slight decrease in emissions due to improved efficiency levels also occurred.

By contrast, Annex II Asia Oceania showed an increase in emissions from electricity generation, primarily due to a higher share of electricity output from fossil fuels. This predominantly reflected events in Japan, where sizeable fossil-fuel-powered generating capacity was brought online in the wake of the Great East Japan Earthquake in 2011.

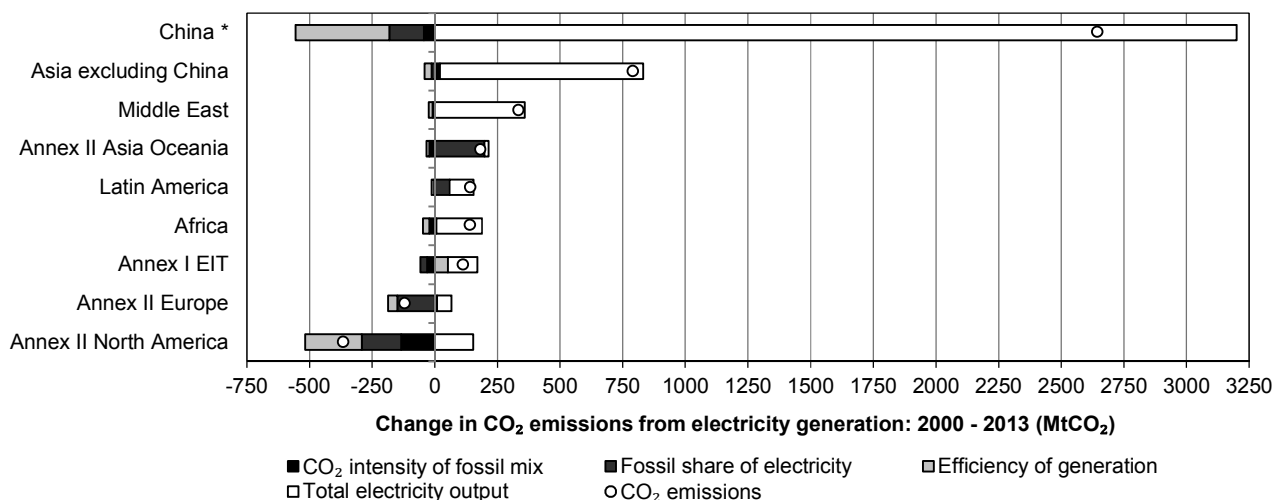
Outside Annex I, all regions exhibited an increase in emissions from electricity generation, driven primarily by increased electricity output. This was particularly notable in China, where total electricity output almost quadrupled since 2000, and to a lesser extent in Asia excluding China, where output almost doubled. In both of these regions, much of the increased output was met through carbon intensive coal-fired plants⁵. However, in China, efficiency improvements reduced emissions per unit of output, slightly tempering the increase in emissions.

Figure 12. CO₂ emissions from transport



Key point: CO₂ emissions from road are driving the growth of transport emissions.

For transport, the fast emissions growth was driven by emissions from the road sector, which increased by 68% since 1990 and accounted for three quarters of transport emissions in 2013 (Figure 12). It is interesting to note that despite efforts to limit emissions from international transport, emissions from marine and aviation bunkers, 64% and 90% higher in 2013 than in 1990 respectively, grew even faster than those from road.

Figure 13. CO₂ emissions from electricity generation: driving factors (2000-2013)¹


* China includes Hong Kong, China.

Key point: Since 2000, global emissions from electricity generation have increased in line with electricity output. Efficiency improvements have been offset by an increased share of output from fossil fuels.

Coupling emissions with socio-economic indicators⁷

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 (Figure 14). For example, among the five largest emitters, the levels of per-capita emissions were very diverse, ranging from 1.5 tCO₂ for India and 6.6 tCO₂ for China to 16.2 tCO₂ for the United States. On average, industrialised countries emit far larger amounts of CO₂ per capita than developing countries. The lowest levels worldwide are in Africa and Asia excluding China.

Emissions per unit of GDP⁸ also vary across regions (Figure 15). Although climate, economic structure and

other variables can affect energy use, relatively high values of emissions per GDP indicate a potential for decoupling CO₂ emissions from economic growth, including through 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).⁹

All the five largest emitters have shown reductions of emissions per unit of GDP between 1990 and 2013, in line with the average reduction observed globally (28%). This decreasing trend was most pronounced for China and the Russian Federation, whose 1990 levels were significantly higher than those of other countries (Figure 16), and for the United States.

Per-capita emissions, which increased by 16% globally between 1990 and 2013, showed contrasting trends among the top five emitting countries. China more than tripled its per-capita emissions, while India more than doubled theirs (as did some other rapidly expanding economies), reflecting strong per-capita GDP growth. Conversely, per-capita emissions decreased significantly in both the Russian Federation (26%) and the United States (16%), although following very different patterns. Values for Russia dramatically dropped in the

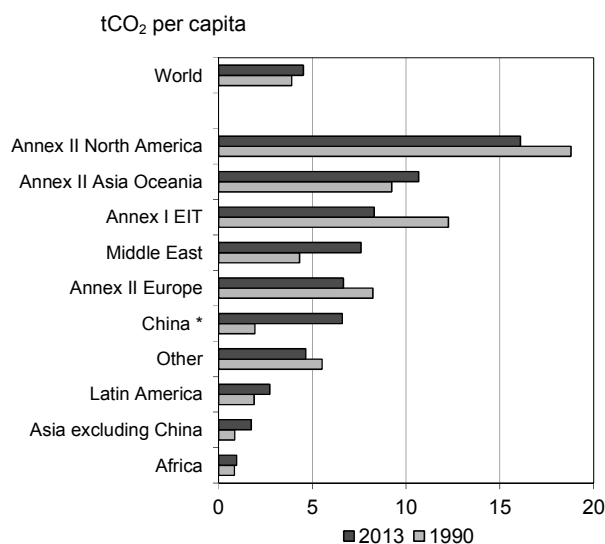
7. No single indicator can provide a complete picture of a country's CO₂ emissions performance or its relative capacity to reduce emissions. The indicators discussed here are certainly incomplete and should only be used to provide a rough description of the situation in a country.

8. Throughout this analysis, GDP refers to GDP in 2005 USD, using purchasing power parities. A note of caution is necessary concerning the indicator of CO₂ 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).

9. 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/.

early 1990s, and slowly increased since then, while values for the United States began falling in the mid-to-late 2000s, having remained stable for many years.

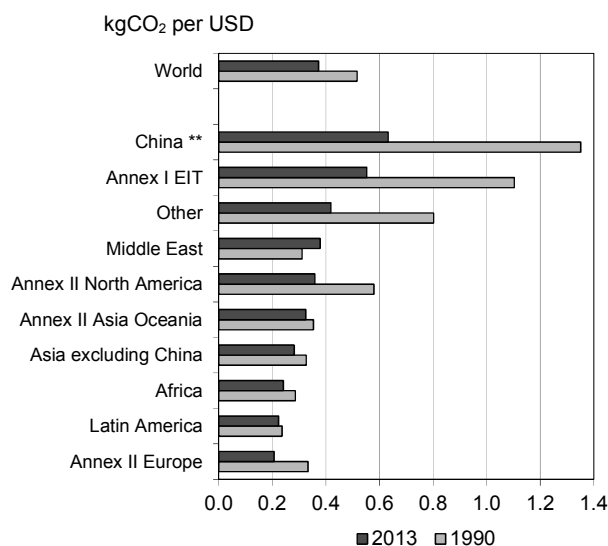
Figure 14. CO₂ emissions per capita by major world regions



* China includes Hong Kong, China.

Key point: In general, per-capita emissions have increased across non-Annex I regions over time.

Figure 15. CO₂ emissions per GDP* by major world regions

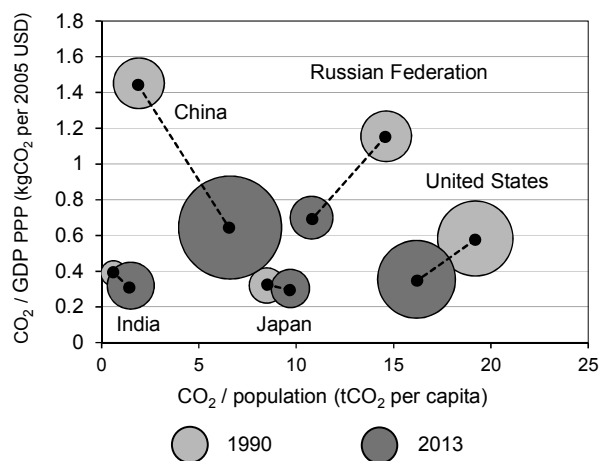


* GDP in 2005 USD, using purchasing power parities.

** China includes Hong Kong, China.

Key point: The CO₂ intensity of economic output has decreased in most regions, with the gap between the least and most CO₂ intensive regions narrowing.

Figure 16. Trends in CO₂ emission intensities for the top five emitting countries*



* The size of the circle represents the total CO₂ emissions from the country in that year.

Key point: On a per-GDP and per-capita basis, emissions in the top five emitters have converged somewhat over time.

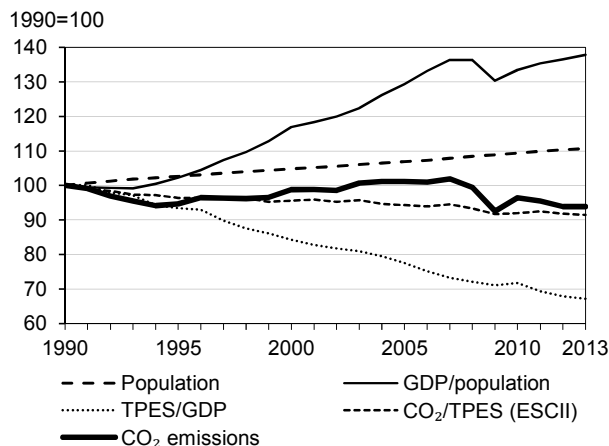
On a global level, CO₂ emissions grew by 56% between 1990 and 2013. A simple decomposition¹⁰ can be used to show the main driving factors of the world CO₂ emissions trend. Globally, economic growth partially decoupled from energy use, as energy intensity decreased by 29% over the period. However, with a practically unchanged carbon intensity of the energy mix¹¹, the combined growth in population (35%) and in per capita GDP (60%) led to a dramatic increase in global CO₂ emissions between 1990 and 2013. However, due to differences in levels of economic, demographic and technological development and growth, emissions evolved at different rates in Annex I and non-Annex I countries and regions.

In Annex I countries as a whole, CO₂ emissions in 2013 were 6% lower than in 1990 (Figure 17). Significant decoupling of energy consumption from economic activity (TPES/GDP: -33%) acted to decrease emissions but per-capita economic output grew (GDP/population: +38%), as did population (+11%), however, the energy sector's carbon intensity (CO₂/TPES) declined mildly (-8%).

10. CO₂ emissions can be decomposed into the product of four factors: population, per capita GDP, TPES/GDP, CO₂/TPES. For a more detailed description of the Kaya decomposition, see Part I, Methodology, Chapter 1: *IEA emissions estimates*.

11. Also known, in its index form, as Energy Sector Carbon Intensity Index (ESCI), as in the IEA publication *Tracking Clean Energy Progress 2015*.

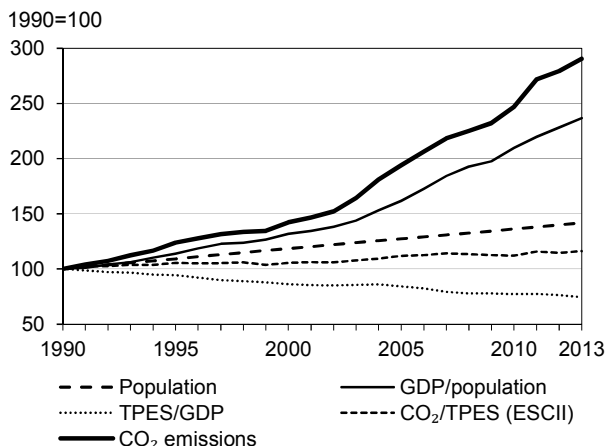
Figure 17. Annex I CO₂ emissions and drivers (Kaya decomposition)¹⁰



Key point: Emissions in Annex I countries declined in recent years. This decline was driven by a significant reduction in the energy intensity of GDP, coupled with a slight fall in the carbon intensity of the energy mix, more than offsetting GDP growth.

By contrast, emissions in non-Annex I countries almost tripled over the same period (Figure 18), as very strong growth in per-capita economic output (+137%) combined with population growth (+42%). The CO₂ intensity of the energy mix was approximately static until 2002 before increasing somewhat (CO₂/TPES: +16%), mainly due to higher coal consumption in larger countries. However, a significant decrease in the energy

Figure 18. Non-Annex I CO₂ emissions and drivers (Kaya decomposition)¹⁰

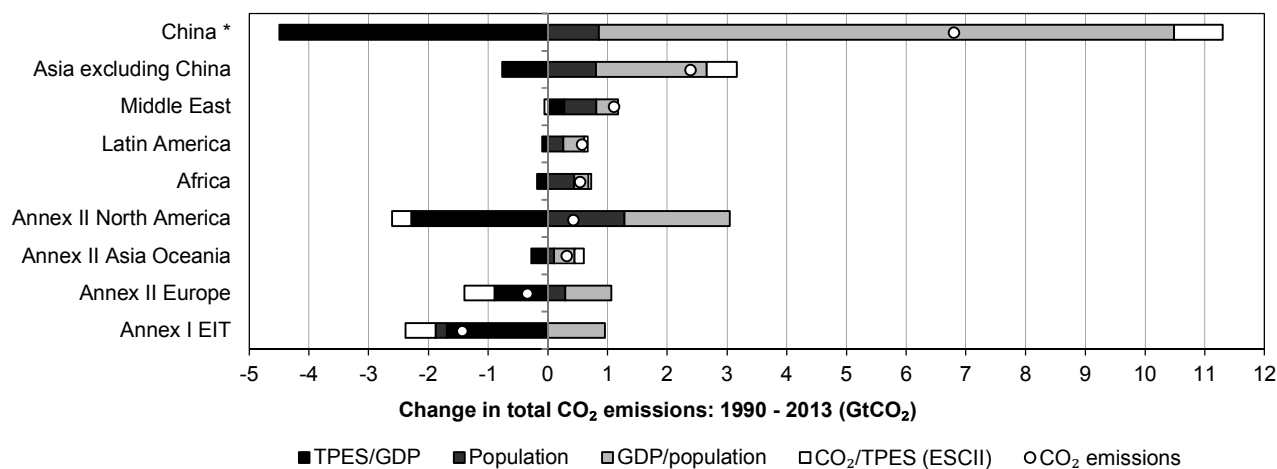


Key point: In non-Annex I countries, emissions growth was driven by strong increases in per-capita economic output and in population.

intensity of the economic output (TPES/GDP: -25%) tempered those increases to an extent.

A decomposition showing the effect of changes in the four driving factors on regional emissions over time is presented in Figure 19. As can be seen, trends vary greatly across countries and regions. Therefore, a thorough understanding of the factors driving CO₂ emissions trends is essential when designing sound and effective emissions reduction policies at a national and international level.

Figure 19. Global CO₂ emissions and drivers (Kaya decomposition): 1990-2013¹⁰



Key point: GDP growth has been a key driver of emissions across the globe, however, significant decoupling of GDP growth from energy consumption has occurred across regions.

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 1 October 2015 only 49 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).

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 14% of global CO₂ emissions in 2013, down from roughly one-quarter in 2012.

Through its flexibility mechanisms and provisions for international trading, the Kyoto Protocol has made CO₂ a tradable commodity, and has been a key driver for the development of national emissions trading schemes. However the smaller pool of countries with targets in the Kyoto Protocol's second commitment

period, coupled with a large surplus of project credits carried forward from the first period, have led to low prices and project developers exiting the market.

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. This will be the first international climate agreement to extend mitigation obligations to all countries, both developed and developing.

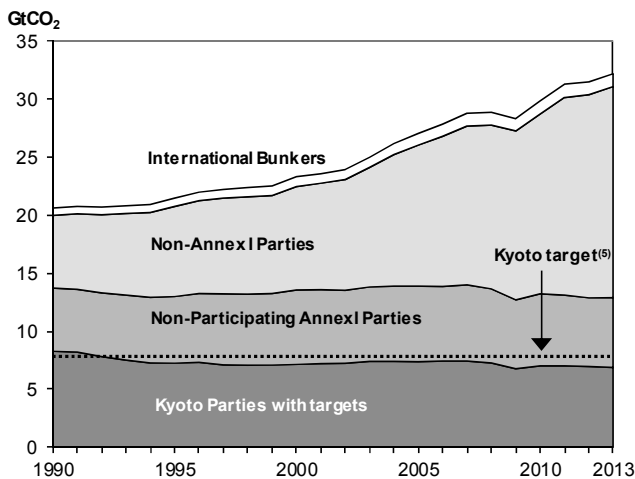
The COP21 agreement will build on the voluntary emissions reduction pledges for 2020 that were made at COP15 in Copenhagen. Developed and developing countries that submitted pledges under the Copenhagen Accord collectively account for over 80% of global emissions. Although the ambition of these pledges 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 COP21 climate agreement will be nationally determined. As of mid-October 2015, more than 150 countries have submitted their intended nationally determined contributions ("INDCs") for the COP21 agreement. These countries represent approximately 90% of energy CO₂ emissions, and over 6 billion people. A summary assessment of the energy sector impacts of the national climate pledges made in these INDCs was produced by the IEA and published in the *World Energy Outlook Special Briefing for COP21* on 21 October 2015.

As this assessment noted, action in the energy sector can make or break efforts to achieve world's agreed 2°C target. However, as in all these efforts, timely and accurate CO₂ and 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.

Table 1. World CO₂ emissions from fuel combustion and Kyoto Protocol first commitment period targets ⁽¹⁾

	1990 MtCO ₂	2013 MtCO ₂	% change 90-13	Kyoto Target		1990 MtCO ₂	2013 MtCO ₂	% change 90-13	Kyoto Target
KYOTO PARTIES WITH TARGETS ⁽¹⁾	8,269.8	6,873.6	-16.9%	-4.6% ⁽²⁾	OTHER COUNTRIES	99.8	58.2	-41.6%	
<i>Europe</i>	3,107.9	2,770.5	-10.9%		<i>Non-participating</i>				
Austria	56.2	65.1	16.0%	-13%	<i>Annex I Parties</i>	5,454.6	6,006.1	10.1%	
Belgium	106.2	89.1	-16.1%	-7.5%	Belarus	99.8	58.2	-41.6%	-8%
Denmark	51.0	38.8	-23.8%	-21%	Canada ⁽²⁾	419.0	536.3	28.0%	-6%
Finland	53.5	49.2	-8.1%	0%	Cyprus ⁽³⁾	3.9	5.6	44.6%	none
France ⁽⁴⁾	345.5	315.6	-8.7%	0%	Malta	2.3	2.3	0.6%	none
Germany	940.3	759.6	-19.2%	-21%	Turkey	127.1	283.8	123.3%	none
Greece	69.9	68.9	-1.4%	+25%	United States	4,802.5	5,119.7	6.6%	-7%
Iceland	1.9	2.0	7.0%	+10%	<i>Other Regions</i>	6,158.9	18,029.8	192.7%	none
Ireland	30.1	34.4	14.1%	+13%	Africa	529.0	1,074.7	103.2%	none
Italy	389.3	338.2	-13.1%	-6.5%	Middle East	534.9	1,647.5	208.0%	none
Luxembourg	10.7	9.8	-9.0%	-28%	N-OECD Eur. & Eurasia ⁽⁵⁾	621.0	526.3	-15.3%	none
Netherlands	144.9	156.2	7.9%	-6%	Latin America ⁽⁵⁾	812.8	1,579.3	94.3%	none
Norway	27.5	35.3	28.5%	+1%	Asia (excl. China) ⁽⁵⁾	1,444.4	4,178.9	189.3%	none
Portugal	37.9	44.9	18.6%	+27%	China (incl. Hong Kong)	2,216.9	9,023.1	307.0%	none
Spain	202.6	235.7	16.3%	+15%					
Sweden	52.1	37.5	-28.0%	+4%	INTL. MARINE BUNKERS	371.5	608.8	63.9%	
Switzerland	40.7	41.5	2.0%	-8%	INTL. AVIATION BUNKERS	258.8	490.4	89.5%	
United Kingdom	547.7	448.7	-18.1%	-12.5%	WORLD	20,623.0	32,189.7	56.1%	
European Union - 15	3,037.9	2,691.7	-11.4%	-8%					
<i>Asia Oceania</i>	1,330.6	1,654.5	24.3%						
Australia	259.6	388.7	49.7%	+8%					
Japan	1,049.3	1,235.1	17.7%	-6%					
New Zealand	21.7	30.7	41.3%	0%					
<i>Economies in Transition</i>	3,831.3	2,448.6	-36.1%						
Bulgaria	74.6	39.3	-47.3%	-8%					
Croatia	20.7	16.0	-22.5%	-5%					
Czech Republic	150.3	101.1	-32.7%	-8%					
Estonia	36.0	18.9	-47.6%	-8%					
Hungary	65.7	39.5	-39.9%	-6%					
Latvia	18.8	6.9	-63.1%	-8%					
Lithuania	32.2	10.7	-66.7%	-8%					
Poland	344.8	292.4	-15.2%	-6%					
Romania	168.3	68.8	-59.1%	-8%					
Russian Federation	2,163.2	1,543.1	-28.7%	0%					
Slovak Republic	54.8	32.4	-40.9%	-8%					
Slovenia	13.5	14.3	5.9%	-8%					
Ukraine	688.4	265.0	-61.5%	0%					



(1) 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 CO₂ 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. The country composition and specific reduction targets shown refer to those agreed to under the first commitment period of the Kyoto Protocol (2008-2012). Reduction targets and the composition of Parties that have agreed to targets differ under the second commitment period of the Kyoto Protocol (2013-2020).

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

(3) Please refer to Part I, Chapter 5: *Geographical Coverage*.

(4) Emissions from Monaco are included with France.

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

(6) The Kyoto target is calculated as percentage of the 1990 CO₂ 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 sufficient to achieve global emissions reductions.

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 around 2020 if there is to be a reasonable chance of limiting temperature rise to below 2°C (IEA, 2015). This highlights the need for ambitious commitments in the 2020-25 timeframe, but also the importance of complementary initiatives outside the UNFCCC that can constrain emissions in the period up to 2020.

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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. UNDERSTANDING THE IEA CO₂ EMISSIONS ESTIMATES

The importance of estimating emissions

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 GLs)*. In April 2006, the IPCC approved the *2006 IPCC Guidelines for National Greenhouse Gas Inventories (2006 GLs)* at the 25th session of the IPCC in Mauritius. Until 2015, most Parties, as well as the IEA, still calculated their inventories using the

1996 GLs. In December 2011, Parties adopted Decision 15/CP.17 to update their reporting tables so as to implement the *2006 GLs*. The new reporting tables have been mandatory since 15 April 2015.

The IEA estimates of CO₂ emissions from fuel combustion

Energy is at the core of the greenhouse gas estimation. It is estimated that for Annex I Parties energy accounts for 82%¹ of total GHG emissions, while for the world the share is about 60%, although shares vary greatly by country. Within energy, CO₂ from fuel combustion accounts for the largest fraction, 92% for Annex I countries, once again varying depending on the economic structure of the country.

Given its extensive work in global energy data collection and compilation, the IEA is able to produce comparable estimates of CO₂ emissions from fuel combustion across countries and regions, providing a reference database for countries with more and less advanced national systems.

The estimates of CO₂ emissions from fuel combustion presented in this publication are calculated using the IEA energy data² and the default methods and emission factors from the *2006 GLs*³.

1. Based on data reported to the UNFCCC for 2012, excluding land-use, land-use change and forestry (LULUCF).

2. 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, 2015.

3. See: <http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html>.

Previous to this edition, the IEA used methods and emission factors of the *Revised 1996 IPCC Guidelines*, in line with UNFCCC recommendations for the reporting under the Kyoto Protocol. The IEA implementation of the *2006 GLs* in this edition follows the decision of UNFCCC Parties to update their reporting tables and to implement the *2006 GLs* starting on 15 April 2015.

The implications of changes in methods and emissions factors on the IEA emissions estimates for this edition are discussed in Chapter 3: *IEA estimates: Changes under the 2006 IPCC Guidelines*.

Data in this publication and its corresponding database may have been revised with respect to previous editions also because the IEA reviews its energy databases each year. In the light of new assessments, revisions may be made to the energy data time series for any individual country.

CO₂ emissions from fuel combustion: key concepts

The IEA uses the simplest (Tier 1) methodology to estimate CO₂ emissions from fuel combustion based on the *2006 GLs*. The computation follows the concept of conservation of carbon, from the fuel combusted into CO₂. While for the complete methodology the reader should refer to the full IPCC documents, a basic description follows.

Generally, the Tier 1 estimation of CO₂ emissions from fuel combustion for a given fuel can be summarised as follows:

$$\text{CO}_2 \text{ emissions from fuel combustion} \\ \text{CO}_2 = \text{Fuel consumption} * \text{Emission factor}$$

where:

Fuel consumption = amount of fuel combusted;
Emission factor = default emission factor

Emissions are then summed across all fuels and all sectors of consumption to obtain national totals. A more detailed explanation of the step by step calculation is presented in Chapter 3: *IEA estimates: Changes under the 2006 IPCC Guidelines*.

IEA estimates vs. UNFCCC submissions

Based on the IEA globally collected energy data, the IEA estimates of CO₂ emissions from fuel combustion are a global database obtained following harmonised definitions and comparable methodologies across countries. They do not represent an official source for national submissions, as national administrations should use the best available country-specific information to complete their emissions reporting.

The IEA CO₂ estimates can be compared with those reported by countries to the UNFCCC Secretariat to highlight possible problems in methods, input data or emission factors. Still, 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.

For most Annex II countries, the two calculations are expected to be 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 may be larger. If the underlying energy data are different, more work is needed on the collecting and reporting of energy statistics.

In case of systematic biases in the energy data or emission factors, 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 methodological differences.

Some of the reasons for these differences are:

- **The IEA uses a Tier 1 method to compute emissions estimates.**

For the calculation of CO₂ emissions from fuel combustion, the IEA uses a Tier 1 method. Countries may be using a more sophisticated Tier 2 or Tier 3 method that takes into account more detailed country-specific information available (e.g. on different technologies or processes).

- **Energy activity data based on IEA energy balances 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 for oil products.**

To transform fuel consumption data from physical units to energy units, 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 more detailed data on calorific values available when calculating the energy content of the fuels. This in turn could produce different values than those of the IEA.

- **The IEA uses average carbon content values.**

The IEA uses the default carbon content values given in the *2006 GLs*. Country experts may have better information available, allowing them to use country-specific values.

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

The *2006 GLs* recommend that emissions from auto-production 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 auto-producers between industry and *other*. Therefore, this publication shows a category called “Unallocated auto-producers”. However, this should not affect the total emissions for a country.

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

According to the *2006 GLs*, military emissions should be reported in Source/Sink Category 1 A 5, *Non-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 all CO₂ emissions from fuel combustion. Countries may have included parts of these emissions in the IPCC category industrial processes and product use.**

Although emissions totals would not differ, the allocation to the various sub-totals of a national inventory could. 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 and product use. Care must be taken not to double count emissions from fuel combustion that occur within certain industrial processes (*e.g.* iron and steel). The IEA estimates in this publication include all the CO₂ emissions from fuel combustion, while countries are asked to report some of them within the industrial processes and product use category under the *2006 GLs*. See a more detailed discussion in Chapter 3: *IEA Estimates: Changes under the 2006 IPCC Guidelines*.

- **The units may be different.**

The *2006 GLs* ask that CO₂ emissions be reported in Gg of CO₂ (1 Gg = 1 kilotonne). A million tonnes of CO₂ is equal to 1 000 Gg of CO₂, so to compare the numbers in this publication with national inventories expressed in Gg, the IEA emissions must be multiplied by 1 000.

Inventory quality: identifying key categories

The *IPCC Guidelines* allow Parties to 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.

To reduce the overall inventory uncertainty in a cost-effective way, it is useful to identify those categories (key categories⁴) that have the greatest contribution to overall inventory uncertainty. By identifying key categories in the national inventory, inventory compilers can prioritise their efforts and improve their overall estimates. It is good practice for each country to identify its national key categories in a systematic and objective manner. Such a process will lead to improved inventory quality, as well as greater confidence in the estimates that are developed.

The 2006 GLs identify a key 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 greenhouse gases in terms of the absolute level, the trend, or the uncertainty in emissions and removals.

For a more complete description of the IPCC methodology for determining key categories, see Volume 1, Chapter 4 of the 2006 GLs.

The IEA has disaggregated the key category analysis to the same level of detail presented in the country tables of this publication. For each country, the nine largest categories are shown, split by the various fuel types: coal, oil, gas and other.

For the level assessment, the CO₂ emissions from fuel combustion as calculated by the IEA are supplemented, where possible, by the figures submitted by the Annex I Parties to the UNFCCC in their latest GHG inventory submissions for CO₂ (fugitive emissions), CH₄, N₂O, HFCs, PFCs and SF₆, not taking into account CO₂ emissions/removals from land use, land use change and forestry.⁵

For the non-Annex I Parties, CO₂ emissions from fuel combustion are taken from IEA estimates, and are

supplemented by data for other sources and provided by JRC and PBL (see Part III for further information).

Notes on tables and graphs

This publication presents for each country and regional aggregate a set of six graphs and three tables with key indicators (Part II, Country Tables). A selection of key indicators is also presented in summary tables for country-to-country comparison (Part II, Summary Tables). An overall description of the various

Table 1: Key indicators

Row 1: *CO₂ fuel combustion* presents total CO₂ emissions from fuel combustion as calculated using the IEA energy balances and the methodologies outlined in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. For notes on methods and sources, see Chapter 3: *IEA estimates: Changes under the 2006 IPCC Guidelines*.

Row 2: *Share of World CO₂ from fuel combustion* presents national/regional CO₂ emissions from fuel combustion divided by World CO₂ emissions from fuel combustion, expressed as a percentage.

Row 3: *TPES* presents the Total Primary Energy Supply, calculated as production + imports - exports - international marine bunkers - international aviation bunkers ± stock changes.

Row 4: *GDP* presents the Gross Domestic Product in 2005 US dollars using exchange rates. For notes on methods and sources, please see Chapter 2: *Indicator sources and methods*.

Row 5: *GDP PPP* presents the Gross Domestic Product in 2005 US dollars using purchasing power parities. For notes on methods and sources, see Chapter 2: *Indicator sources and methods*.

Row 6: *Population*. For notes on sources see Chapter 2: *Indicator sources and methods*.

Row 7: *CO₂/TPES* presents the carbon intensity of the energy mix. For notes on methods see Chapter 2: *Indicator sources and methods*.

Row 8: *CO₂/GDP* presents the carbon intensity of the economy, using exchange rates. For notes on methods and sources, see Chapter 2: *Indicator sources and methods*.

Row 9: *CO₂/GDP PPP* presents the carbon intensity of the economy, using purchasing power parities. For

4. In the 2000 IPCC Good Practice Guidance for National Greenhouse Gas Inventories, the concept was named 'key source categories'.

5. As recommended in the IPCC Good Practice Guidance.

notes on methods and sources, see Chapter 2: *Indicator sources and methods*.

Row 10: *CO₂/population* presents the per capita CO₂ emissions, based on CO₂ fuel combustion. For notes on sources, see Chapter 2: *Indicator sources and methods*.

Row 11: *Share of electricity output from fossil fuels* presents electricity output from fossil fuels divided by total electricity output, expressed as a percentage. For notes on sources, see Chapter 2: *Indicator sources and methods*.

Row 12: *CO₂/kWh of electricity* presents CO₂ emissions from total fossil fuel inputs to electricity generation divided by total electricity output.

Row 13-17: *CO₂ emissions and drivers - Kaya decomposition* present indices of CO₂ emissions (CO₂ fuel combustion), population, GDP/population, TPES/GDP and CO₂/TPES, (based on GDP PPP time series). It represents the decomposition of CO₂ emissions into drivers (Kaya identity) explained in Chapter 2: *Indicator sources and methods*.

Table 2: CO₂ emissions by sector

Row 1: *CO₂ fuel combustion*: as in Row 1 of Table 1.

Row 2: *Electricity and heat generation* contains the sum of emissions from main activity producers and autoproducers of electricity and/or heat. Emissions from own on-site use of fuel are included.

Main activity producers are defined as those undertakings whose primary activity is to supply the public. They may be publicly or privately owned. This corresponds to IPCC Source/Sink Category 1 A 1 a.

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. Under the *2006 IPCC Guidelines*, these emissions would normally be distributed between industry, transport and *other*.

Row 3: *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 *2006 IPCC Guidelines*, emissions from coke inputs to blast furnaces, may be reported

under the source/sink category industrial processes and product use rather than energy. 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 resulting from an industrial process. In the IEA estimations, emissions from energy industry own use in blast furnaces have been included in this category. Care must be taken not to double count these emissions in both energy, and industrial processes and product use.

Row 4: *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 *2006 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, in this publication autoproducers are excluded from this category. See Row 2, *Electricity and heat generation*.

According to the 2006 IPCC GLs, emissions resulting from the combustion of certain fuels in specific sectors (see below) may be reported under industrial processes and product use rather than energy. However, in IEA estimates, these emissions have been included in this category. Care must be taken not to double count these emissions in both energy, and industrial processes and product use.

- Coke oven coke deliveries to the iron and steel and non-ferrous metals sectors.
- Coke oven gas, blast furnace gas and other recovered gases deliveries to iron and steel.

Similarly, under the 2006 IPCC GLs coal tar deliveries to the chemical and petrochemical, and construction sectors may be completely excluded from energy sector emissions calculations, as they are deemed to be destined for non-energy use. However, where these fuels have been reported under energy-use they have been included in IEA estimates.

Row 5: *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, in this publication autoproducers are excluded from this category. See Row 2, *Electricity and heat generation*.

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

Row 6: *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 7: *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 *2006 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, in this publication autoproducers are excluded from this category. See Row 2, *Electricity and heat generation*.

Row 8: *Residential* contains all emissions from fuel combustion in households. This corresponds to IPCC Source/Sink Category 1 A 4 b.

Row 9: *Services* (i.e. commercial and public services) contains emissions from all activities of ISIC Rev. 4 Divisions 33, 36-39, 45-47, 52, 53, 55-56, 58-66, 68-75, 77-82, 84 (excluding Class 8422), 85-88, 90-96 and 99.

Row 10: *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 11: *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 categories for CO₂ emissions from fuel combustion in 2013

See section *Inventory quality: identifying key categories* earlier in this chapter for methodological explanations. This table only shows the nine largest key sources of CO₂ from fuel combustion. As a result, in most cases the cumulative contribution will not be 95% as recommended in the *Good Practice Guidance*. Key categories from fugitive emissions; industrial processes and product use; agriculture, forestry and other land use; and waste are not shown. The percentage of CO₂ emissions from fuel combustion in total GHG emissions is included as a memo item at the bottom of the table.

Figure 1: CO₂ emissions by fuel

Based on CO₂ fuel combustion 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: CO₂ emissions by sector

Based on CO₂ fuel combustion 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: 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 4: CO₂ from electricity generation: driving factors

Presents the change in CO₂ emissions from electricity generation over time, for four time periods, as the sum of the change in four driving factors: CO₂ intensity of the fossil fuel mix, fossil share of electricity, thermal efficiency of fossil fired generation, and total electricity output. For notes on methodologies and sources, see Chapter 2: *Indicator sources and methods*.

Figure 5: Changes in selected indicators

Presents average annual changes, computed as compounded annual growth rates, for three different periods, for the following variables: CO₂ emissions, CO₂/TPES, CO₂/GDP PPP, CO₂/population. For notes on methodologies and sources, see Chapter 2: *Indicator sources and methods*.

Figure 6: Total CO₂ emissions and drivers

Presents indices of CO₂ emissions and of four drivers of emission trends, as identified in the Kaya identity: population, GDP/population, TPES/GDP, CO₂/TPES (1990=100 unless otherwise specified), based on GDP PPP time series. The quantitative impact of each driver on total CO₂ emissions over time is also presented. This has been calculated using the logarithmic mean divisia (LMDI) method as described in the section *Drivers of electricity generation emissions trends* earlier in the chapter. For methodology and notes on sources, see Chapter 2: *Indicator sources and methods*.

Note: 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.

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*, Part II: *Country notes*.⁶

Bosnia and Herzegovina

In 2014, the Agency for Statistics of Bosnia and Herzegovina conducted their first survey on oil product consumption. As a result, new data were made available which result in some breaks in time series between 2012 and 2013.

Cambodia

The break in the CO₂/TPES and TPES/GDP time series between 2008 and 2009 is due to a break in the time series for solid biofuels which creates an artificial increase in TPES between those years.

People's Republic of China

In September 2015, the National Bureau of Statistics of China published China's energy statistics for 2013, as well as revised statistics for the years 2000 to 2012. NBS supplied the IEA with detailed energy balances for 2011 to 2013. Based on these newly available figures, the IEA revised its 2011-2013 energy data and emissions estimates, as published in this document. The revisions show significant changes in emissions, both on the supply and demand side for a number of energy products, resulting in breaks in time series between 2010 and 2011. Revised data for the years 2000-2010 will be published in the next edition of this publication.

Calorific values used for bituminous coal emissions estimates were also revised in this edition. Net calorific values (NCV) for coal inputs to power generation as well as to main activity heat plants were modified from 2011-2013 by applying assumptions used by China on the average thermal efficiency of coal-fired power stations in these years. NCVs were also modified for bituminous coal production from 2011-2013. These NCVs were calculated as the implied calorific values used by China in converting its commodity balance to energy units.

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.

Democratic People's Republic of Korea

Time series data for 2011 for primary coals were revised based on new information received in 2014.

6. Available at: www.iea.org/statistics/topics/energybalances/.

This may lead to breaks in the time series between 2010 and 2011 and differences in trends compared to previous editions for some products.

France

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

Japan

Between 2004 and 2007, the IEA received revisions from the Japanese Administration⁷. 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 CO₂ 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 CO₂ 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 CO₂ emissions increased for all the years, however at different rates. For example, the sectoral approach CO₂ 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 CO₂ 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.

7. Note: Revisions to Japanese data occurred while the IEA was following the *Revised 1996 IPCC Guidelines*. The impact of these revisions under the *2006 IPCC Guidelines* may differ from that indicated.

Malta

Revised data were submitted by Malta for 2011 and 2012. As a result, trends may differ from those in previous editions.

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.

Mexico

The Mexican administration is currently undertaking major work on revisions of the time series back to 1990. These revisions could not be implemented in the 2015 edition. As a consequence, major breaks in time series appear between 2012 and 2013. Revisions to historical data are pending.

Mongolia

New data became available in 2015 which allowed a disaggregation of coal by type. In addition time series were revised from 2005 forward. Breaks in time series between 2004 and 2005 may result as well as differences in trends from previous editions.

Norway

Discrepancies between Reference and Sectoral Approach estimates (as presented in the database) 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 (as presented in the database) 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.

In this edition, the IEA secretariat has revised oil consumption data based on official data for 2011.

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 (as presented in the database) 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 CO₂ emissions in 2010 (as presented in the database), 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 applied in line with the UK's National Atmospheric Emissions Inventory. Emissions from international marine bunkers may be underestimated for previous years.

United States

End-use energy consumption data for the United States show a break in series with historical data due to a change in methodology in 2014. 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. Due to other changes in reporting methodologies, there are numerous breaks in series for the US data, particularly in 1992, 1999, 2001, 2002 and 2013. Care should be taken when evaluating consumption by sector since inputs of fuel to autoproducers are included in final consumption for some years. No data are available for most energy products in the construction and mining and quarrying industries.

Viet Nam

A detailed sectoral breakdown is available starting in 1980.

Yemen

Breaks in time series may be observed for emissions from oil and gas between 2011 and 2012, and again between 2012 and 2013. These breaks are attributed to pipeline sabotage and unrest.

Zimbabwe

For this edition, new information on imports of road fuels were obtained. As a result, breaks in time series may occur between 2010 and 2011.

2. INDICATOR SOURCES AND METHODS

Population

The main source of the 1970 to 2013 population data for the OECD member countries is the *OECD National Accounts Statistics* database [ISSN: 2074-3974 (online)], last published in book format as *National Accounts of OECD Countries, Volume 2015, Issue 1: Main Aggregates*, OECD 2015. 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 OECD 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., 2015. Population data for **Former Soviet Union** (before 1990), **Chinese Taipei**, **Former Yugoslavia** (before 1990) and for a few countries within the regions⁸ **Other Africa**, **Other Non-OECD Americas** and **Other Asia** are based on the CHELEM-CEPII online database, Bureau van Dijk, Paris, 2015. Population data for **Cyprus**⁹ are taken from the Eurostat online database. Population data for **Gibraltar** are taken from the Ministry of Gibraltar *Key Indicators* publication available online.

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

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

GDP and GDP PPP

The main source of the 1970 to 2013 GDP series for the OECD member countries is the *OECD National Accounts Statistics* database [ISSN: 2074-3947 (online)], last published in book format as *National Accounts of OECD Countries, Volume 2015, Issue 1: Main Aggregates*, OECD 2015. GDP data for **Australia**, **France**, **Greece** and **Sweden** (1960 to 1969), **Denmark** (1966 to 1969) and the **Netherlands** (1969) were taken from the same source. GDP data for 1960 to 1969 for the other OECD 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. Growth rates from these sources were also used to estimate data for the **Czech Republic** (1970 to 1989), **Hungary** (1970 to 1990), **Poland** (1970 to 1989) and the **Slovak Republic** (1970 to 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).¹⁰

For the OECD member countries, the PPPs selected to convert the GDP from national currencies to US dollars were aggregated using the Ëltetö, 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*,

10. 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.

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*, World Bank, Washington D.C., 2015. GDP figures for **Cuba, Democratic People's Republic of Korea, Gibraltar, Kuwait, Oman, Serbia, Former Soviet Union** (before 1990), **Syrian Arab Republic** (after 2007), **Chinese Taipei, Former Yugoslavia** (before 1990) and a few countries within the regions⁸ **Other Africa, Other Non-OECD Americas** and **Other Asia** are based on the CHELEM-CEPII online database, Bureau van Dijk, Paris, 2015. For **Curaçao**, GDP figures are based on historical CHELEM-CEPII GDP data for Netherlands Antilles before the country's dissolution, and on Curaçao/Sint Maarten nominal GDP ratios calculated based on information received from Curaçao Central bank. For **South Sudan**, GDP figures are based on data from the International Monetary Fund

The main source of the GDP PPP data for the non-OECD member countries is *World Development Indicators*, The World Bank, Washington, D.C., 2015. 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, Democratic People's Republic of Korea, Gibraltar, Jamaica, Kosovo, Libya, Myanmar, Serbia, Former Soviet Union** (before 1990), **Syrian Arab Republic, Chinese Taipei, Former Yugoslavia** (before 1990), **Zimbabwe** and a few countries within the regions⁸ **Other Africa, Other Non-OECD Americas** and **Other Asia** are based on the CHELEM-CEPII online databases, Bureau van Dijk, Paris, 2015. For **Curaçao**, GDP PPP figures are based on historical CHELEM-CEPII GDP data for Netherlands Antilles before its dissolving, and for 2012 to 2013 GDP PPP is calculated based on historical GDP PPP / GDP ratio. For **South Sudan**, GDP PPP figures are based on International Monetary Fund data.

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 same approach was used for **Kuwait and United Arab Emirates** figures for 2013.

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.

Please note that the regional totals shown for OECD and other regions were calculated by summing individual countries' GDP data. This calculation yields slightly different results to the GDP totals published by OECD in its national accounts which are derived from chained-linked indices. GDP data from the World Bank have also been summed rather than using chain-linked indices.

CO₂ emissions

The estimates of CO₂ emissions in this publication are based on the *2006 IPCC Guidelines* and represent the total emissions from fuel combustion. This is in contrast to estimates presented in previous editions of this publication which were based on the *Revised 1996 IPCC Guidelines*. For details on the impact of this change in methodologies see Chapter 3: *IEA estimates: Changes under the 2006 IPCC Guidelines*.

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**¹¹ **producer** and **autoproducer**¹² **plants** have been included where available.

11. 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.

12. 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.

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.

CO₂ / TPES

This ratio is expressed in tonnes of CO₂ per terajoule. It has been calculated using the CO₂ fuel combustion emissions and total primary energy supply (including biofuels and other non-fossil forms of energy).

CO₂ / GDP

This ratio is expressed in kilogrammes of CO₂ per 2005 US dollar. It has been calculated using CO₂ fuel combustion emissions and is shown with both GDP calculated using exchange rates and GDP calculated using purchasing power parities.

CO₂ / population

This ratio is expressed in tonnes of CO₂ per capita. It has been calculated using CO₂ fuel combustion emissions.

Per capita CO₂ emissions by sector

These ratios are expressed in kilogrammes of CO₂ 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.

Key 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.

In this publication, a **Tier 1 Level Assessment** based on CO₂ emissions from fuel combustion is presented

in Table 3 for each country and region for the most recent year of data. The contribution of each category to the total national inventory level is calculated as follows:

$$\text{Category Level Assessment} = \frac{\text{Category Estimate}}{\text{Total Estimate}}$$

$$L_x = E_x / E$$

Where:

L_x is the Level Assessment for category x in the most recent year of data

E_x is the Category estimate - the CO₂ emissions estimate of category x in the most recent year of data

E is the Total estimate - the total estimated inventory GHG in the most recent year of data.

The value of the source category Level Assessment is calculated separately for each category, and the cumulative sum of all the entries is calculated.

Macroeconomic drivers of CO₂ emissions trends

Tables and graphs for drivers refer to the decomposition of CO₂ emissions into four driving factors (Kaya identity)¹³, which is generally presented in the form:

Kaya identity

$$C = P (G/P) (E/G) (C/E)$$

where:

C = CO₂ emissions;

P = population;

G = GDP;

E = primary energy consumption.

The identity expresses, for a given time, CO₂ 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,

13. Yamaji, K., Matsuhashi, R., Nagata, Y., Kaya, Y., *An integrated system for CO₂/Energy/GNP analysis: case studies on economic measures for CO₂ reduction in Japan*. Workshop on CO₂ reduction and removal: measures for the next century, March 19, 1991, International Institute for Applied Systems Analysis, Laxenburg, Austria.

e.g. $(P_y - P_x)/P_x$, will not generally add up to the percentage change of CO₂ emissions $(C_y - C_x)/C_x$. However, relative changes of CO₂ 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:

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

where:

- CO₂** = CO₂ emissions;
P = population;
GDP¹⁴/P = GDP/population;
TPES/GDP¹⁴ = Total Primary Energy Supply per GDP;
CO₂/TPES = CO₂ 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, CO₂ emissions and drivers). Note that in its index form, CO₂/TPES corresponds to the Energy Sector Carbon Intensity Index (ESCI)¹⁵.

The Kaya identity can be used to discuss the primary driving forces of CO₂ emissions. For example, it shows that, globally, increases in population and GDP per capita have been driving upwards trends in CO₂ 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.

Drivers of electricity generation emissions trends

In this edition, new graphs present the change in CO₂ emissions from electricity generation over time decomposed into the respective changes of four driving factors¹⁶:

$$\text{CO}_2 \text{ emissions from electricity generation} \\ C = (C/E) (E/ELF) (ELF/EL) (EL)$$

where:

- C** = CO₂ emissions;
E = fossil fuel inputs to thermal generation;
ELF = electricity output from fossil fuels;
EL = total electricity output;

This can be rewritten as:

$$\text{CO}_2 \text{ emissions from electricity generation} \\ C = (CF) (EI) (EFS) (EL)$$

where:

- C** = CO₂ emissions;
CF = carbon intensity of the fossil fuel mix;
EI = the reciprocal of fossil fuel based electricity generation efficiency;
EFS = share of electricity from fossil fuels;
EL = total electricity output.

This decomposition expresses, for a given time, CO₂ emissions from electricity generation as the product of the carbon intensity of the fossil fuel mix (CF), the reciprocal of fossil fuel based thermal electricity generation efficiency (1/EF), the share of electricity from fossil fuels (EFS) and total electricity output (EL).

However, due to non-linear interactions between terms, if a simple decomposition is used, the sum of the percentage changes of the four factors, e.g. $(CF_y - CF_x)/CF_x$ may not perfectly match the percentage change of total CO₂ emissions $(C_y - C_x)/C_x$. To avoid this, a more complex decomposition method is required. In this case, the logarithmic mean divisia

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

15. See the IEA publication *Tracking Clean Energy Progress 2015*.

16. M. Zhang, X. Liu, W. Wang, M. Zhou. *Decomposition analysis of CO₂ emissions from electricity generation in China*. Energy Policy, 52 (2013), pp. 159–165.

(LMDI) method proposed by Ang (2004)¹⁷ has been used.

Using this method, the change in total CO₂ emissions from electricity generation (ΔC_{TOT}) between year t and a base year 0 , can be computed as the sum of the changes in each of the individual factors as follows:

$$\Delta C_{TOT} = \Delta C_{CF} + \Delta C_{EI} + \Delta C_{EFS} + \Delta C_{EL}$$

where:

$$\Delta C_{CF} = L(C^t, C^0) \ln \left(\frac{CF^t}{CF^0} \right)$$

$$\Delta C_{EI} = L(C^t, C^0) \ln \left(\frac{EI^t}{EI^0} \right)$$

$$\Delta C_{EFS} = L(C^t, C^0) \ln \left(\frac{EFS^t}{EFS^0} \right)$$

$$\Delta C_{EL} = L(C^t, C^0) \ln \left(\frac{EL^t}{EL^0} \right)$$

and:

$$L(x, y) = (y - x) / (\ln y - \ln x)$$

This decomposition can be useful when analysing the trends in CO₂ emissions from electricity generation. For instance, it shows that globally, since 1990, the main driver of increased CO₂ emissions from electricity generation has been increased electricity output, with improvements in the overall thermal efficiency, and the CO₂ intensity of the electricity generation mix being offset by an increase in the share of electricity derived from fossil fuel sources.

However, as is the case with the Kaya decomposition, it should be noted that 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. For instance, substituting coal with gas as a source of electricity generation would likely affect both the CO₂ intensity of the electricity generation mix and the thermal efficiency of generation.

CO₂ emissions per kWh

The indicator: definition

In the total CO₂ emissions per kWh, the numerator presents the CO₂ 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 CO₂ 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 CO₂ 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 CO₂ 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 CO₂ 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 CO₂ 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

17. B. W. Ang, *Decomposition analysis for policymaking in energy: which is the preferred method?*, Energy Policy, 32 (9) (2004), pp. 1131–1139.

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%).

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

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:

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

CO_2ELE = CO₂ emissions from electricity only plants in ktCO₂

CO_2CHP = CO₂ emissions from CHP plants in ktCO₂

OWNUSE = CO₂ emissions from own use in electricity, CHP and heat plants in ktCO₂

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

ELoutput_{ELE} = electricity output from electricity only plants in GWh

ELoutput_{CHP} = electricity output from CHP plants in GWh

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

HEoutput_{CHP} = heat output from CHP plants in TJ

CHPinputs = energy inputs to CHP plants in ktoe

EFF_{HEAT} = 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_{HEAT} = EFF_{ELEC} = EFF_{CHP}).

approach, with values much closer to those of electricity-only plants. The IEA has 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 2013, the electricity-only indicator is 3% higher, while 19 of the OECD's 34 countries saw a change of 5% or less. Of the 15 countries changing more than 5%, 7 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 CO₂ 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 CO₂-light natural gas while electricity-only plants tend to be powered by CO₂-heavy coal, making the new ratio more CO₂ intensive for these countries.

Specific country examples

The country with the largest difference between the two ratios within the OECD was **Sweden**; in 2013, 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 (40%) and nuclear (43%) in Sweden's electricity generation mix.

Similarly, the electricity only indicator for **Norway** in 2013 was 41% lower than the combined indicator, as the vast majority of the electricity output (96%) is from non-emitting hydroelectric generation.

Implied carbon emission factors from electricity generation (CO₂ / 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 CO₂ emissions per kWh from electricity generation by country presented in the Summary tables of Part II. The values below represent the average amount of CO₂ per kWh of electricity produced in OECD member countries between 2009 and 2013. 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 ₂ / kWh
Anthracite*	925
Coking coal*	825
Other bituminous coal	875
Sub-bituminous coal	945
Lignite	1035
Gas works gas*	335
Coke oven gas*	390
Blast furnace gas*	2390
Other recovered gases*	1570
Oil shale*	1160
Peat*	750
Natural gas	400
Crude oil*	645
Refinery gas*	415
Liquefied petroleum gases*	535
Kerosene*	655
Gas/diesel oil*	725
Fuel oil	675
Petroleum coke*	950
Municipal waste (non-renew.)*	1220

* The electricity output from these products represents less than 1% of electricity output in the average of OECD member countries for the years 2009-2013. Values will be less reliable and should be used with caution.

Conversely, for **Estonia** in 2013 the electricity-only indicator was 36% 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 and primary solid biofuels.

Another OECD country with a high ratio increase was **Denmark** (28% higher in 2013). 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 2013. The majority of countries which do change are the European and former Soviet Union countries (where district heating is often present).

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 electricity-only ratio is 5% higher in 2013.

In the **Russian Federation**, a large amount (25-35% 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 electricity-only ratio is 20% higher in 2013.

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 electricity-only indicator using the fixed-heat-efficiency approach increased hydro's weight (therefore decreasing the carbon intensity).

3. IEA ESTIMATES: CHANGES UNDER THE 2006 IPCC GUIDELINES

The 2006 IPCC Guidelines methodology: key concepts

This section briefly presents the Tier 1 methodology to estimate CO₂ emissions from fuel combustion based on the *2006 GLs*, outlining the main differences with the *1996 GLs* - used for previous editions of this publication. The focus is on the key points relevant to the IEA estimation. For the complete methodology, the reader should refer to the full IPCC documents.¹⁸

Generally, the Tier 1 estimation of CO₂ emissions from fuel combustion for a given fuel can be summarised as follows:

$$\text{CO}_2 \text{ emissions from fuel combustion} \\ \text{CO}_2 = \text{AD} * \text{NCV} * \text{CC} * \text{COF}$$

where:

- CO₂** = CO₂ emissions from fuel combustion;
- AD** = Activity data;
- NCV** = Net calorific value;
- CC** = Carbon content;
- COF** = Carbon oxidation factor.

Emissions are then summed over all fuels.

While the basic concept of the calculation - the conservation of carbon - is unchanged, the *2006 GLs* differ from the *1996 GLs* in the:

- default **net calorific values** by product;
- default **carbon content** by product;

- default **carbon oxidation factors**;
- treatment of fuels used for **non-energy** purposes;
- **allocation** of fuel combustion emissions across the Energy and IPPU categories.

2006 Guidelines: overview of changes

This section describes the key methodological changes *2006 GLs* for a Tier 1 estimation of CO₂ emissions from fuel combustion, with a short assessment of their impact on results.

Net calorific values

Net calorific values (NCVs) are used to convert the activity data for all the different fuels from "physical" units (*e.g.* tonnes) to "energy" units (*e.g.* Joules).

In the *1996 GLs*, country-specific net calorific values were given for primary oil (crude oil and NGL), for primary coal and for a few secondary coal products. These NCVs were based on the average 1990 values of the 1993 edition of the *IEA Energy Balances*.

In the *2006 GLs*, those country-specific NCVs were removed, and one default is provided for each fuel (with upper and lower limits, as done for the carbon content). Large differences were therefore observed for products whose quality varies a lot from country to country, such as primary oil and coal products. Replacing country-specific values with one default value would significantly affect emissions calculations if the default values were used.

18. Both the *1996 GLs* and the *2006 GLs* are available from the IPCC Greenhouse Gas Inventories Programme (www.ipcc-nggip.iges.or.jp).

The IEA CO₂ emissions from fuel combustion estimates are based on the IEA energy balances, computed using time-varying country-specific NCVs. Therefore, they are not affected by changes to the default net calorific values of the 2006 GLs.

Carbon content

Carbon content is the quantity of carbon per unit of energy of a given fuel. Some of the fuel-specific default values for carbon content, called “carbon emission factors” in the 1996 GLs, were revised in the 2006 GLs. In addition, values were added for some fuels not directly mentioned in the 1996 GLs.

As the carbon content may vary considerably for some fuels, the 2006 GLs introduced ranges of values, *i.e.* providing for each fuel a default value with lower and upper limits. The IEA CO₂ emissions are calculated using the IPCC default values.

A summary of the default carbon content values in the two set of guidelines is shown in Table 1. Relative changes between the 2006 GLs and the 1996 GLs range between -13.7% (refinery gas) and + 7.3% (blast furnace gas), although for many fuels the variation is minimal, or zero. Such systematic changes are reflected in Tier 1 CO₂ emissions estimates.

Carbon oxidation factors

A small fraction of the carbon contained in fuels entering the combustion process (typically less than 1-2%) is not oxidised. Under the 1996 GLs, this amount was subtracted from emissions in the calculations by multiplying the calculated carbon content of a fuel by a “fraction of carbon oxidised”. The fraction of carbon oxidised had a value of less than 1.0, which had the effect of reducing the emissions estimate. However, in most instances, emissions inventory compilers had no “real” information as to whether this correction was actually applicable.

Therefore, in the 2006 GLs, it was decided that all carbon is assumed to be emitted by default, unless more specific information is available. Therefore, under the 2006 GLs, the default carbon oxidation factor is equal to 1 for all fuels.

A summary of the default carbon oxidation factors in the two set of guidelines is shown in Table 2. Relative changes from the 1996 GLs and the 2006 GLs are +0.5% for natural gas; +1% for oil, oil products and peat; and +2% for coal. Such changes are reflected in systematic increases in Tier 1 CO₂ emissions estimates.

Table 1. Comparison of default carbon content values*

Kilogrammes / gigajoule

Fuel Type	1996 Guidelines	2006 Guidelines**	Percent Change
Anthracite	26.8	26.8	0.0%
Coking Coal	25.8	25.8	0.0%
Other Bituminous Coal	25.8	25.8	0.0%
Sub-Bituminous Coal	26.2	26.2	0.0%
Lignite	27.6	27.6	0.0%
Patent Fuel	25.8	26.6	+3.1%
Coke oven coke	29.5	29.2	-1.0%
Gas Coke	29.5	29.2	-1.0%
Coal Tar	..	22.0	x
BKB	25.8	26.6	+3.1%
Gas Works Gas	..	12.1	x
Coke Oven Gas	13.0	12.1	-6.9%
Blast Furnace Gas	66.0	70.8	+7.3%
Other recovered gases	..	49.6	x
Peat	28.9	28.9	0.0%
Oil shale	29.1	29.1	0.0%
Natural Gas	15.3	15.3	0.0%
Crude Oil	20.0	20.0	0.0%
Natural Gas Liquids	17.2	17.5	+1.7%
Refinery Feedstocks	20.0	20.0	0.0%
Orimulsion	22.0	21.0	-4.5%
Refinery Gas	18.2	15.7	-13.7%
Ethane	16.8	16.8	0.0%
Liquefied petroleum gases (LPG)	17.2	17.2	0.0%
Motor Gasoline excl. bio		18.9	0.0%
Aviation Gasoline	18.9	19.1	+1.1%
Gasoline type jet fuel		19.1	+1.1%
Kerosene type jet fuel excl. bio	19.5	19.5	0.0%
Other Kerosene	19.6	19.6	0.0%
Gas/Diesel Oil excl. bio	20.2	20.2	0.0%
Fuel Oil	21.1	21.1	0.0%
Naphtha	20.0	20.0	0.0%
Lubricants	20.0	20.0	0.0%
Bitumen	22.0	22.0	0.0%
Petroleum Coke	27.5	26.6	-3.3%
Non-specified oil products		20.0	0.0%
Other hydrocarbons	20.0		
White Spirit & SBP		20.0	0.0%
Paraffin Waxes		20.0	0.0%
Industrial Waste	..	39.0	x
Municipal Waste (non-renewable)	..	25.0	x

* “Carbon content” was referred to as the “carbon emission factor” in the 1996 GLs.

** The 2006 GLs also give the lower and upper limits of the 95 percent confidence intervals, assuming lognormal distributions.

Table 2. Comparison of default carbon oxidation factors*

Fuel Type	1996 Guidelines	2006 Guidelines**	Percent Change
Coal	0.980	1.00	+2.0%
Oil and oil products	0.990	1.00	+1.0%
Natural gas	0.995	1.00	+0.5%
Peat **	0.990	1.00	+1.0%

* “Carbon oxidation factor” was referred to as “fraction of carbon oxidised” in the 1996 GLs.

** The 1996 GLs specified a carbon oxidation factor for peat used for electricity generation only.

Treatment of fuels used for non-energy purposes

Many hydrocarbons are used for non-energy purposes *e.g.* petrochemical feedstocks, lubricants, solvents, and bitumen. In some of these cases, the carbon in the fuel is quickly oxidised to CO₂, in other cases, it is stored (or sequestered) in the product, sometimes for as long as centuries.

In the 1996 IPCC GLs, Tier 1 Sectoral Approach emissions included emissions from fuels used for non-energy purposes. The share of carbon assumed to be stored (not emitted) was estimated based on default “fractions of carbon stored” (shown for reference in Table 3).

Table 3. Fraction of Carbon Stored in the 1996 GLs

Fuel Type	1996 Guidelines
Naphtha*	0.8
Lubricants	0.5
Bitumen	1.0
Coal Oils and Tars (from coking coal)	0.75
Natural Gas*	0.33
Gas/Diesel Oil*	0.5
LPG*	0.8
Ethane*	0.8
Other fuels for non-energy use	To be specified

* When used as feedstocks.

Note: this table is included only for reference. CO₂ emissions from fuel combustion in this publication do not include emissions from non-energy use of fuels.

In the 2006 GLs, all deliveries for non-energy purposes are excluded. Numerically, excluding all non-energy use of fuel from energy sector emissions calculations is equivalent to applying a fraction of carbon stored equal to 1 to all quantities delivered for non-energy purposes.

In the case of a complete greenhouse gas inventory covering all IPCC Source/Sink categories, any emissions associated with non-energy use of fuels would be accounted in another Source/Sink category. However, as this publication only deals with CO₂ emissions from fuel combustion, emissions associated with non-energy use of fuels are not any longer included in the IEA CO₂ emissions estimates.

Within the IEA estimates, the effect of this change is mainly noticeable for countries whose petrochemical sectors are large in comparison to the size of their economies, *e.g.* the Netherlands.

Allocation of fuel combustion emissions across the Energy and the IPPU sectors

To avoid possible double counting, the 2006 GLs state that combustion emissions from fuels obtained directly or indirectly from the feedstock for an Industrial Processes and Product Use (IPPU) process will be allocated to the source category in which the process occurs, unless the derived fuels are transferred for combustion in another source category.

In the case of a complete inventory, this reallocation would not affect total emissions. Still, the effect on individual source categories could be quite significant, especially in countries with large IPPU sectors (*e.g.* the iron and steel, and non-ferrous metals industries).

To provide continuity with previous editions of this publication and to fully account for fuel combustion emissions, the IEA CO₂ emissions from fuel combustion include all emissions from fuel combustion, irrespective of the category of reporting (Energy or IPPU) under the 2006 GLs.

To ensure comparability with submissions from Parties, an additional online database provides a summary of CO₂ emissions calculated according to the IPCC Reference and Sectoral Approaches, and a breakdown of the fuel combustion emissions which would be reallocated to IPPU under the 2006 GLs.¹⁹

Assessing the overall impact of methodological changes on IEA estimates

Table 4 shows IEA estimates of total CO₂ emissions from fuel combustion for OECD countries, for the most recent year of available data (2013). Emissions are calculated using: i) the 1996 GLs Sectoral Approach, methodology as in previous publications, and ii) the 2006 GLs²⁰ - which correspond to the data published in this edition.

19. Note that the data available to the IEA do not allow assessing whether fuels derived from IPPU processes are transferred for combustion in another source category.

20. Including the emissions which may be reallocated from Energy to IPPU under the 2006 GLs.

The overall impact of the change in methodology on the IEA estimates of CO₂ emissions from fuel combustion varies from country to country, mainly depending on the underlying fuel mix and on the relative importance of non-energy use of fuels in the total.

Most countries show a decrease in CO₂ emissions levels under the new methodology, as the reductions due to the removal of non-energy use emissions are generally larger than the systematic increase due to changes in the oxidation factor.

For the year 2013, reductions of 1% or greater are observed for about sixty countries, with twelve showing a decrease of 5% or more. The largest relative decreases are observed in countries with high non-energy use of fuels (mainly oil products and natural gas) relative to their total energy consumption: Trinidad and Tobago (-39%), Lithuania (-13%), Singapore (-13%), Gibraltar (-11%), the Netherlands (-10%), Albania (-9%) and Belgium (-8%). As emissions from non-energy use of fuels are not included in

energy sector emissions under the 2006 GLs, emissions previously attributed to non-energy use of oil products and natural gas are no longer included in IEA CO₂ emissions from fuel combustion estimates for these countries. One country, Curaçao presented a large increase (24%) in 2013. This was due to the inclusion of emissions from reported energy use of bitumen, which had been excluded (considered carbon stored / non-energy use) under the 1996 GLs.

Within the IEA databases, these changes will also be reflected in all indicators derived from CO₂ emissions totals (*e.g.* CO₂/TPES, CO₂/GDP). Impacts on trends should be visible when the relative weight of the non-energy use of fuels changes in time.

However, as mentioned, most of the methodological changes would not have significant impact in the case of a complete inventory covering all IPCC source/sink categories; in particular, the reallocation of emissions between categories would not affect total emissions estimates, nor the overall trends.

Table 4. Comparison of IEA CO₂ emissions estimates for Non-OECD Countries (2013)MtCO₂

Country	1996 GLs CO ₂ Sectoral Approach	2006 GLs CO ₂ Fuel Combustion ¹⁹	Percent Change	Country	1996 GLs CO ₂ Sectoral Approach	2006 GLs CO ₂ Fuel Combustion ¹⁹	Percent Change
World	32749.4	32189.7	-1.7%	Non-OECD Europe and Eurasia			
Annex I Parties	13102.7	12879.7	-1.7%	Albania	4.0	3.6	-8.9%
Non-annex I Parties	18558.6	18210.8	-1.9%	Armenia	5.2	5.2	0.4%
OECD				Azerbaijan	30.0	29.5	-1.7%
Australia	389.0	388.7	-0.1%	Belarus	61.8	58.2	-5.7%
Austria	65.0	65.1	0.2%	Bosnia and Herzegovina	21.1	21.5	2.0%
Belgium	97.2	89.1	-8.3%	Albania	4.0	3.6	-8.9%
Canada	557.8	536.3	-3.9%	Croatia	16.6	16.0	-3.7%
Chile	82.2	82.0	-0.2%	Cyprus ²¹	5.6	5.6	0.7%
Czech Republic	102.5	101.1	-1.4%	Georgia	6.9	6.6	-3.4%
Denmark	38.9	38.8	-0.3%	Gibraltar	0.6	0.5	-11.5%
Estonia	18.9	18.9	0.0%	Kazakhstan	241.0	244.9	1.6%
Finland	50.3	49.2	-2.2%	Kosovo	8.2	8.3	1.6%
France	325.0	315.6	-2.9%	Kyrgyzstan	8.8	8.9	0.8%
Germany	770.2	759.6	-1.4%	Latvia	7.0	6.9	-0.3%
Greece	69.3	68.9	-0.6%	Lithuania	12.4	10.7	-13.2%
Hungary	40.6	39.5	-2.7%	FYR of Macedonia	8.2	8.3	1.4%
Iceland	2.0	2.0	0.0%	Malta	2.3	2.3	0.7%
Ireland	34.2	34.4	0.6%	Republic of Moldova	6.6	6.7	1.0%
Israel	67.8	68.2	0.6%	Montenegro	2.2	2.3	1.6%
Italy	343.8	338.2	-1.6%	Romania	69.5	68.8	-1.0%
Japan	1239.7	1235.1	-0.4%	Russian Federation	1597.0	1543.1	-3.4%
Korea	590.5	572.2	-3.1%	Serbia	45.0	45.3	0.6%
Luxembourg	9.7	9.8	1.0%	Tajikistan	3.3	3.3	1.1%
Mexico	452.5	451.8	-0.2%	Turkmenistan	65.7	66.0	0.6%
Netherlands	173.5	156.2	-10.0%	Ukraine	268.6	265.0	-1.3%
New Zealand	31.9	30.7	-3.8%	Uzbekistan	99.2	96.2	-3.1%
Norway	36.7	35.3	-3.8%	Non-OECD Europe and Eurasia	2636.1	2573.3	-2.4%
Poland	294.3	292.4	-0.6%				
Portugal	45.2	44.9	-0.7%				
Slovak Republic	33.1	32.4	-2.1%				
Slovenia	14.2	14.3	0.7%				
Spain	239.7	235.7	-1.7%				
Sweden	38.7	37.5	-3.1%				
Switzerland	41.5	41.5	0.0%				
Turkey	282.7	283.8	0.4%				
United Kingdom	448.4	448.7	0.1%				
United States	5188.4	5119.7	-1.3%				
OECD Total	12215.6	12037.7	-1.5%				

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

Table 4. Comparison of IEA CO₂ emissions estimates for Non-OECD Countries (2013)MtCO₂

Country	1996 GLs CO ₂ Sectoral Approach	2006 GLs CO ₂ Fuel Combustion ¹⁹	Percent Change	Country	1996 GLs CO ₂ Sectoral Approach	2006 GLs CO ₂ Fuel Combustion ¹⁹	Percent Change
Africa				China			
Algeria	115.8	113.9	-1.7%	People's Republic of China	9127.0	8977.1	-1.6%
Angola	18.5	18.5	0.2%	Hong Kong (China)	45.4	46.0	1.4%
Benin	5.2	5.2	1.0%	China (incl. Hong Kong)	9172.4	9023.1	-1.6%
Botswana	5.4	5.5	0.9%	Non-OECD Americas			
Cameroon	5.9	5.9	0.4%	Argentina	185.4	182.3	-1.7%
Congo	2.4	2.3	-1.9%	Bolivia	17.3	17.3	0.2%
Cote d'Ivoire	8.6	8.7	0.3%	Brazil	470.3	452.4	-3.8%
Dem. Rep. of Congo	2.6	2.6	0.8%	Colombia	68.7	68.3	-0.5%
Egypt	192.1	184.3	-4.0%	Costa Rica	7.0	7.1	1.3%
Eritrea	0.5	0.6	0.7%	Cuba	29.9	29.8	-0.4%
Ethiopia	8.6	8.5	-1.3%	Curaçao	3.6	4.5	24.0%
Gabon	2.8	2.8	0.2%	Dominican Republic	19.8	19.7	-0.8%
Ghana	13.9	13.6	-1.4%	Ecuador	39.5	39.5	0.1%
Kenya	11.7	11.7	0.3%	El Salvador	5.8	5.8	-0.1%
Libya	44.5	43.2	-2.9%	Guatemala	12.1	12.2	1.0%
Mauritius	3.8	3.8	1.2%	Haiti	2.2	2.2	0.5%
Morocco	50.6	50.3	-0.4%	Honduras	8.4	8.5	1.0%
Mozambique	2.9	3.0	1.0%	Jamaica	7.4	7.5	0.6%
Namibia	3.4	3.4	-0.4%	Nicaragua	4.2	4.2	0.2%
Niger	1.9	1.9	-0.7%	Panama	9.2	9.2	-0.4%
Nigeria	62.3	61.0	-2.1%	Paraguay	5.0	4.9	-0.5%
Senegal	6.1	6.0	-1.5%	Peru	46.1	45.5	-1.2%
South Africa	425.4	420.4	-1.2%	Trinidad and Tobago	37.9	23.0	-39.5%
South Sudan	1.5	1.5	1.0%	Uruguay	7.4	7.1	-3.3%
Sudan	14.0	13.6	-2.9%	Venezuela	156.5	155.6	-0.6%
United Rep. of Tanzania	9.7	9.7	-0.4%	Other Non-OECD Americas	21.0	21.1	0.7%
Togo	1.7	1.7	0.5%	Non-OECD Americas	1164.7	1127.6	-3.2%
Tunisia	23.6	23.7	0.1%	Middle East			
Zambia	3.6	3.4	-3.9%	Bahrain	30.4	28.3	-6.9%
Zimbabwe	13.3	13.5	1.2%	Islamic Republic of Iran	541.8	525.9	-2.9%
Other Africa	31.7	30.5	-3.7%	Iraq	137.1	138.0	0.7%
Africa	1093.9	1074.7	-1.8%	Jordan	22.7	22.8	0.7%
Asia (excl. China)				Kuwait	86.5	84.1	-2.8%
Bangladesh	61.5	59.6	-3.1%	Lebanon	20.6	20.6	0.2%
Brunei Darussalam	7.1	6.9	-3.4%	Oman	60.8	57.9	-4.7%
Cambodia	5.2	5.2	0.5%	Qatar	76.8	72.4	-5.7%
DPR of Korea	46.7	47.7	2.10%	Saudi Arabia	486.3	472.4	-2.9%
India	1883.9	1868.6	-0.8%	Syrian Arab Republic	34.1	33.5	-1.8%
Indonesia	439.1	424.6	-3.3%	United Arab Emirates	168.1	167.6	-0.3%
Malaysia	219.0	207.2	-5.4%	Yemen	23.7	23.9	1.0%
Mongolia	18.3	18.7	1.8%	Middle East	1688.8	1647.5	-2.4%
Myanmar	13.5	13.3	-1.2%				
Nepal	5.1	5.1	1.4%				
Pakistan	137.8	134.8	-2.1%				
Philippines	88.5	89.6	1.3%				
Singapore	53.4	46.6	-12.8%				
Sri Lanka	13.6	13.7	1.1%				
Chinese Taipei	259.7	248.7	-4.2%				
Thailand	269.4	247.4	-8.2%				
Viet Nam	129.8	130.1	0.2%				
Other Asia	38.4	38.8	1.0%				
Asia (excl. China)	3689.9	3606.6	-2.3%				

4. UNITS AND CONVERSIONS

General conversion factors for energy

To:	TJ	Gcal	Mtoe	MBtu	GWh
From:	multiply by:				
terajoule (TJ)	1	2.388x10 ²	2.388x10 ⁻⁵	9.478x10 ²	2.778x10 ⁻¹
gigacalorie (Gcal)	4.187x10 ⁻³	1	1.000x10 ⁻⁷	3.968	1.163x10 ⁻³
million tonnes of oil equivalent (Mtoe)	4.187x10 ⁴	1.000x10 ⁷	1	3.968x10 ⁷	1.163x10 ⁴
million British thermal units (MBtu)	1.055x10 ⁻³	2.520x10 ⁻¹	2.520x10 ⁻⁸	1	2.931x10 ⁻⁴
gigawatt hour (GWh)	3.600	8.598x10 ²	8.598x10 ⁻⁵	3.412x10 ³	1

Conversion factors for mass

To:	kg	t	lt	st	lb
From:	multiply by:				
kilogramme (kg)	1	1.000x10 ⁻³	9.842x10 ⁻⁴	1.102x10 ⁻³	2.205
tonne (t)	1.000x10 ³	1	9.842x10 ⁻¹	1.102	2.205x10 ³
long ton (lt)	1.016x10 ³	1.016	1	1.120	2.240x10 ³
short ton (st)	9.072x10 ²	9.072x10 ⁻¹	8.929x10 ⁻¹	1	2.000x10 ³
pound (lb)	4.536x10 ⁻¹	4.536x10 ⁻⁴	4.464x10 ⁻⁴	5.000x10 ⁻⁴	1

Conversion factors for volume

To:	gal U.S.	gal U.K.	bbl	ft ³	l	m ³
From:	multiply by:					
U.S. gallon (gal U.S.)	1	8.327x10 ⁻¹	2.381x10 ⁻²	1.337x10 ⁻¹	3.785	3.785x10 ⁻³
U.K. gallon (gal U.K.)	1.201	1	2.859x10 ⁻²	1.605x10 ⁻¹	4.546	4.546x10 ⁻³
barrel (bbl)	4.200x10 ¹	3.497x10 ¹	1	5.615	1.590x10 ²	1.590x10 ⁻¹
cubic foot (ft ³)	7.481	6.229	1.781x10 ⁻¹	1	2.832x10 ¹	2.832x10 ⁻²
litre (l)	2.642x10 ⁻¹	2.200x10 ⁻¹	6.290x10 ⁻³	3.531x10 ⁻²	1	1.000x10 ⁻³
cubic metre (m ³)	2.642x10 ²	2.200x10 ²	6.290	3.531x10 ¹	1.000x10 ³	1

Decimal prefixes

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

Tonne of CO₂

The *2006 GLs* and the *UNFCCC Reporting Guidelines on Annual Inventories* both ask that CO₂ emissions be reported in Gg (gigagrammes) of CO₂. A million tonnes of CO₂ is equal to 1 000 Gg of CO₂, 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 CO₂ emissions in tonnes of carbon instead of tonnes of CO₂. To convert from tonnes of carbon, multiply by 44/12, which is the molecular weight ratio of CO₂ to C.

5. GEOGRAPHICAL COVERAGE

Africa includes Algeria, Angola, Benin, Botswana (from 1981), Cameroon, Republic of Congo (Congo)²², Côte d'Ivoire, Democratic Republic of the Congo, Egypt, Eritrea, Ethiopia, Gabon, Ghana, Kenya, Libya, Mauritius, Morocco, Mozambique, Namibia (from 1991), Niger (from 2000), Nigeria, Senegal, South Africa, South Sudan (from 2012), Sudan, United Republic of Tanzania (Tanzania), Togo, Tunisia, Zambia, Zimbabwe and **Other Africa**.

Other Africa includes Botswana (until 1980), Burkina Faso, Burundi, Cabo Verde, Central African Republic, Chad, Comoros, Djibouti, Equatorial Guinea, Gambia, Guinea, Guinea-Bissau, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Namibia (until 1990), Niger (until 1999), Réunion, 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, Cyprus²³, Former Yugoslav Republic of Macedonia, Georgia, Gibraltar, Kazakhstan, Kosovo, Kyrgyzstan, Latvia, Lithuania, Malta,

Republic of Moldova (Moldova), Montenegro, Romania, Russian Federation, Serbia²⁴, Tajikistan, Turkmenistan, Ukraine, Uzbekistan, Former Soviet Union²⁵ (prior to 1990) and Former Yugoslavia²⁵ (prior to 1990).

Non-OECD Americas includes Argentina, Plurinational State of Bolivia (Bolivia), Brazil, Colombia, Costa Rica, Cuba, Curaçao²⁶, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, Uruguay, Bolivarian Republic of Venezuela (Venezuela) and **Other Non-OECD Americas**.

Other Non-OECD Americas includes Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, Bonaire (from 2012), British Virgin Islands, Cayman Islands, Dominica, Falkland Islands [Malvinas], French Guiana, Grenada, Guadeloupe, Guyana, Martinique, Montserrat, Puerto Rico²⁷ (for natural gas and electricity), Saba (from 2012), Saint Eustatius (from 2012), Saint Kitts and Nevis, Saint Lucia, Saint Pierre and Miquelon, Saint Vincent and the Grenadines, Sint Maarten (from 2012), Suriname, and Turks and Caicos Islands.

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

22. Country short names are included in parentheses.

23. 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.*

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

25. Prior to 1990, Former Soviet Union includes Estonia and Former Yugoslavia includes Slovenia.

26. The Netherlands Antilles was dissolved on 10 October 2010 resulting in two new 'constituent countries' (Curaçao and Sint Maarten) with the other islands joining The Netherlands as 'special municipalities'. However, due to lack of detailed data the IEA secretariat's data and estimates under "Curaçao" still refer to the whole territory of the Netherlands Antilles as it was known prior to 10 October 2010 up to the end of 2011. Data refer only to the island of Curaçao from 2012. The other islands of the former Netherlands Antilles are added to Other Non-OECD Americas from 2012.

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

Asia includes Bangladesh, Brunei Darussalam, Cambodia (from 1995), Democratic People's Republic of Korea, India, Indonesia, Malaysia, Mongolia (from 1985), Myanmar, Nepal, 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, Estonia²⁸, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel²⁹, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia²⁸, 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: French Guiana, French Polynesia, Guadeloupe, Martinique, Mayotte, New Caledonia, Réunion and Saint 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.

28. 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.

29. 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 Holy See.
- **Japan** includes Okinawa.
- The **Netherlands** excludes Suriname, Aruba and the other former Netherlands Antilles (Bonaire, Curaçao, Saba, Saint Eustatius and Sint Maarten).
- **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 Rico³⁰, Guam, the United States 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, Israel²⁹, Japan, Korea and New Zealand.

OECD Europe includes Austria, Belgium, the Czech Republic, Denmark, Estonia²⁸, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, the Slovak Republic, Slovenia²⁸, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

The **European Union - 28 (EU-28)** includes Austria, Belgium, Bulgaria, Croatia, Cyprus²³, 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.

G7 includes Canada, France, Germany, Italy, Japan, United Kingdom, and the United States.

G8 includes Canada, France, Germany, Italy, Japan, Russian Federation, United Kingdom, United States.

G20 includes Argentina, Australia, Brazil, Canada, China (including Hong Kong, China), India,

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

Indonesia, Japan, Korea, Mexico, Russian Federation, Saudi Arabia, South Africa, Turkey, United States and the European Union – 28.

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

Annex I Parties³¹ includes Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Croatia, Cyprus, the Czech Republic³², Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Liechtenstein (not available in this publication)³³, Lithuania, Luxembourg, Malta, Monaco (included with France), the Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russian Federation, the Slovak Republic³², 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 12th 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. During subsequent sessions, the Conference of the Parties agreed to amend Annex I to the Convention to include Malta (Decision 3/CP.15, effective from 26 October 2010) and Cyprus (Decision 10/CP.17, effective from 9 January 2013).

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.

31. The European Union is also an Annex I Party in its own right. The EU was assigned an overall reduction target under the Kyoto Protocol, which by agreement, was used to determine the individual targets of the fifteen states that were EU members in 1997 when the Kyoto Protocol was adopted.

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

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 Republic³², Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russian Federation, the Slovak Republic³², Slovenia and Ukraine.

Annex I Kyoto Parties³¹ includes Australia, Austria, Belgium, Bulgaria, Croatia, the Czech Republic³², Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Liechtenstein (not available in this publication)³³, Lithuania, Luxembourg, Monaco (included with France), the Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russian Federation, the Slovak Republic³², Slovenia, Spain, Sweden, Switzerland, Ukraine and the United Kingdom.

Refers to countries with targets under first commitment period (CP) of the Kyoto Protocol (2008-2012). This differs from the list of countries with targets under the second CP (2013-2020). Membership in the first CP of the Kyoto Protocol is almost identical to that of Annex I, except for Cyprus, 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).

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 and Liechtenstein³³ (except for oil data).

33. Oil data for Liechtenstein are included under Switzerland.

PART II:

**CO₂ EMISSIONS FROM FUEL
COMBUSTION**

SUMMARY TABLES

CO₂ emissions from fuel combustion

 million tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
World ¹	13 994.7	15 543.9	17 779.6	18 319.2	20 623.0	21 478.0	23 321.6	27 047.6	29 838.2	31 490.5	32 189.7	56.1%
<i>Annex I Parties</i>	..	..	..	..	13 724.4	12 987.3	13 559.6	13 882.5	13 226.5	12 878.7	12 879.7	-6.2%
<i>Annex II Parties</i>	8 578.7	8 843.1	9 417.5	9 071.6	9 660.0	10 035.7	10 836.5	11 107.9	10 400.4	10 019.4	10 081.0	4.4%
<i>North America</i>	4 628.2	4 732.0	5 017.1	4 907.5	5 221.5	5 521.7	6 158.5	6 237.9	5 870.7	5 555.6	5 656.0	8.3%
<i>Europe</i>	3 043.0	3 065.7	3 307.0	3 059.3	3 107.9	3 082.7	3 157.7	3 268.7	2 988.4	2 828.4	2 770.5	-10.9%
<i>Asia Oceania</i>	907.5	1 045.4	1 093.4	1 104.9	1 330.6	1 431.3	1 520.3	1 601.3	1 541.4	1 635.4	1 654.5	24.3%
<i>Annex I EIT</i>	..	..	..	..	3 931.1	2 792.4	2 513.4	2 548.6	2 550.8	2 547.4	2 506.9	-36.2%
<i>Non-Annex I Parties</i>	..	..	..	..	6 268.3	7 769.9	8 908.3	12 162.0	15 484.8	17 516.0	18 210.8	190.5%
<i>Annex I Kyoto Parties</i>	..	..	..	..	8 269.8	7 249.5	7 139.3	7 363.6	7 020.7	6 953.5	6 873.6	-16.9%
Intl. marine bunkers	353.8	341.0	357.3	306.7	371.5	429.9	498.7	580.3	667.2	615.1	608.8	63.9%
Intl. aviation bunkers	169.2	173.9	202.2	224.9	258.8	290.9	355.0	422.8	459.8	480.7	490.4	89.5%
Non-OECD Total ²	4 129.7	5 273.2	6 638.1	7 447.8	8 987.0	9 260.8	10 021.3	13 228.9	16 405.6	18 404.7	19 052.9	112.0%
OECD Total ³	9 342.0	9 755.8	10 582.0	10 339.8	11 005.8	11 496.4	12 446.6	12 815.5	12 305.6	11 990.1	12 037.7	9.4%
Canada	340.1	377.0	422.2	393.8	419.0	448.5	515.9	535.6	515.2	523.9	536.3	28.0%
Chile	21.0	17.1	21.4	19.6	29.4	37.1	48.6	54.4	68.6	77.2	82.0	178.7%
Mexico	93.7	134.5	204.5	241.1	259.5	285.7	344.0	381.8	414.0	433.7	451.8	74.1%
United States	4 288.1	4 355.0	4 594.9	4 513.7	4 802.5	5 073.2	5 642.6	5 702.3	5 355.5	5 031.7	5 119.7	6.6%
OECD Americas	4 743.0	4 883.6	5 243.0	5 168.2	5 510.4	5 844.4	6 551.1	6 674.0	6 353.3	6 066.5	6 189.8	12.3%
Australia	143.4	179.5	206.7	220.2	259.6	285.3	334.7	371.4	385.1	387.0	388.7	49.7%
Israel	13.8	16.4	18.8	24.3	32.8	44.9	54.8	58.8	68.4	74.8	68.2	107.8%
Japan	750.7	849.5	870.2	865.9	1 049.3	1 122.0	1 156.6	1 196.1	1 126.1	1 217.2	1 235.1	17.7%
Korea	52.9	77.7	125.6	155.7	231.7	357.1	431.7	457.5	550.8	575.3	572.2	147.0%
New Zealand	13.5	16.4	16.5	18.9	21.7	23.9	29.0	33.7	30.2	31.2	30.7	41.3%
OECD Asia Oceania	974.2	1 139.6	1 237.9	1 284.9	1 595.1	1 833.3	2 006.8	2 117.6	2 160.6	2 285.4	2 294.9	43.9%
Austria	48.6	49.5	54.3	52.6	56.2	59.4	61.7	75.1	69.7	65.2	65.1	16.0%
Belgium	117.9	115.5	125.5	101.0	106.2	111.6	114.1	107.4	101.9	88.7	89.1	-16.1%
Czech Republic	153.6	155.1	168.1	175.4	150.3	123.3	121.3	118.5	111.4	105.6	101.1	-32.7%
Denmark	55.4	52.6	63.0	61.0	51.0	58.4	50.7	48.4	47.4	37.0	38.8	-23.8%
Estonia	..	..	..	..	36.0	16.0	14.5	16.8	18.7	16.4	18.9	-47.6%
Finland	39.8	44.2	54.8	48.3	53.5	55.4	54.4	54.6	61.6	48.7	49.2	-8.1%
France	423.2	422.9	455.1	351.7	345.5	343.7	364.5	370.2	340.1	311.7	315.6	-8.7%
Germany	978.2	973.4	1 048.4	1 004.6	940.3	856.7	812.4	786.8	759.0	744.9	759.6	-19.2%
Greece	25.1	34.1	45.2	54.5	69.9	76.5	88.0	95.2	83.4	77.1	68.9	-1.4%
Hungary	60.3	70.2	82.6	79.8	65.7	56.3	53.3	54.7	47.5	42.1	39.5	-39.9%
Iceland	1.4	1.6	1.7	1.6	1.9	2.0	2.2	2.2	1.9	1.9	2.0	7.0%
Ireland	21.6	21.1	25.9	26.4	30.1	32.6	40.8	44.2	39.3	35.7	34.4	14.1%
Italy	289.3	316.9	355.2	341.9	389.3	401.0	420.3	456.3	392.0	366.8	338.2	-13.1%
Luxembourg	16.5	12.7	12.4	10.3	10.7	8.2	8.1	11.5	10.6	10.3	9.8	-9.0%
Netherlands	127.6	131.9	145.4	138.3	144.9	158.4	157.2	163.2	168.3	156.8	156.2	7.9%
Norway	23.0	23.6	27.2	26.4	27.5	31.4	31.9	34.6	37.7	35.5	35.3	28.5%
Poland	287.4	338.9	416.0	422.4	344.8	333.4	289.7	296.3	310.4	296.8	292.4	-15.2%
Portugal	14.4	18.0	23.7	23.9	37.9	47.2	57.8	61.4	47.5	46.3	44.9	18.6%
Slovak Republic	38.9	43.2	55.8	54.4	54.8	41.2	36.9	37.3	34.6	31.2	32.4	-40.9%
Slovenia	..	..	..	..	13.5	14.1	14.1	15.4	15.4	14.9	14.3	5.9%
Spain	119.0	155.8	186.2	173.0	202.6	228.2	278.5	333.6	262.0	260.4	235.7	16.3%
Sweden	82.0	79.0	73.1	58.4	52.1	56.9	52.0	49.1	46.0	39.3	37.5	-28.0%
Switzerland	38.9	36.7	39.2	41.8	40.7	41.4	41.9	43.9	43.1	40.5	41.5	2.0%
Turkey	41.7	59.6	71.5	95.4	127.1	151.8	201.2	216.2	265.4	302.7	283.8	123.3%
United Kingdom	621.0	575.9	570.5	543.4	547.7	513.7	521.2	531.2	476.6	461.5	448.7	-18.1%
OECD Europe ³	3 624.8	3 732.6	4 101.1	3 886.7	3 900.2	3 818.8	3 888.6	4 023.9	3 791.7	3 638.2	3 553.0	-8.9%
<i>European Union - 28</i>	..	..	..	..	4 023.8	3 807.1	3 782.2	3 915.9	3 611.2	3 424.8	3 340.1	-17.0%
G7	7 690.6	7 870.8	8 316.5	8 015.0	8 493.6	8 758.7	9 433.5	9 578.4	8 964.5	8 657.7	8 753.2	3.1%
G8	..	..	..	..	10 656.8	10 306.7	10 907.7	11 060.0	10 493.5	10 208.5	10 296.3	-3.4%
G20	..	..	..	..	16 899.0	17 822.0	19 279.9	22 197.7	24 241.3	25 686.3	26 314.7	55.7%

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

2. Includes Estonia and Slovenia prior to 1990.

3. Excludes Estonia and Slovenia prior to 1990.

CO₂ emissions from fuel combustionmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Non-OECD Total ¹	4 129.7	5 273.2	6 638.1	7 447.8	8 987.0	9 260.8	10 021.3	13 228.9	16 405.6	18 404.7	19 052.9	112.0%
Albania	3.9	4.3	6.8	6.9	5.7	1.8	3.0	3.8	3.9	3.5	3.6	-35.8%
Armenia	..	..	..	..	19.8	3.4	3.4	4.1	4.0	5.4	5.2	-73.6%
Azerbaijan	..	..	..	..	53.5	32.4	27.3	29.0	23.5	28.9	29.5	-44.9%
Belarus	..	..	..	..	99.8	56.9	52.1	55.0	59.9	57.8	58.2	-41.6%
Bosnia and Herzegovina	..	..	..	..	24.0	3.3	13.7	15.9	20.5	21.6	21.5	-10.4%
Bulgaria	63.8	73.3	85.0	82.2	74.6	52.7	42.2	46.5	44.4	44.5	39.3	-47.3%
Croatia	..	..	..	..	20.7	14.8	16.9	20.0	18.4	16.5	16.0	-22.5%
Cyprus ²	1.7	1.7	2.6	2.8	3.9	5.0	6.3	7.0	7.3	6.5	5.6	44.6%
FYR of Macedonia	..	..	..	..	8.6	8.3	8.5	8.9	8.3	8.8	8.3	-3.5%
Georgia	..	..	..	..	33.5	8.1	4.6	4.1	5.0	6.6	6.6	-80.2%
Gibraltar	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.4	0.5	0.5	0.5	249.6%
Kazakhstan	..	..	..	..	237.2	170.5	112.0	156.9	221.1	233.8	244.9	3.2%
Kosovo ²	..	..	..	..	..	..	5.1	6.6	8.7	8.1	8.3	..
Kyrgyzstan	..	..	..	..	22.8	4.5	4.5	4.9	6.0	9.6	8.9	-61.0%
Latvia	..	..	..	..	18.8	8.9	6.8	7.6	8.1	7.0	6.9	-63.1%
Lithuania	..	..	..	..	32.2	13.4	10.2	12.3	12.2	11.4	10.7	-66.7%
Malta	0.7	0.7	1.0	1.2	2.3	2.4	2.1	2.7	2.5	2.7	2.3	0.6%
Republic of Moldova	..	..	..	..	30.5	11.9	6.5	7.7	7.9	7.6	6.7	-78.1%
Montenegro ²	..	..	..	..	..	..	..	2.0	2.5	2.3	2.3	..
Romania	114.6	140.6	177.3	174.9	168.3	117.6	86.2	92.7	74.8	78.6	68.8	-59.1%
Russian Federation	..	..	..	..	2 163.2	1 548.0	1 474.2	1 481.7	1 528.9	1 550.8	1 543.1	-28.7%
Serbia ²	..	..	..	..	62.0	44.6	43.0	49.6	45.9	44.6	45.3	-26.9%
Tajikistan	..	..	..	..	11.0	2.5	2.2	2.3	2.3	2.8	3.3	-69.9%
Turkmenistan	..	..	..	..	44.6	33.2	36.7	48.4	57.2	64.5	66.0	47.9%
Ukraine	..	..	..	..	688.4	395.7	295.0	293.9	266.3	273.8	265.0	-61.5%
Uzbekistan	..	..	..	..	114.9	94.5	114.0	107.1	97.1	107.6	96.2	-16.3%
Former Soviet Union ³	1 941.6	2 480.6	2 935.6	3 078.1	..	..	..	..	..	..	..	..
Former Yugoslavia ³	61.8	73.5	84.2	119.7	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia ¹	2 188.3	2 774.7	3 292.7	3 465.8	3 940.4	2 634.9	2 377.0	2 471.2	2 537.1	2 606.0	2 573.3	-34.7%
Algeria	8.6	13.5	27.7	42.1	51.2	55.3	61.5	77.4	95.8	110.7	113.9	122.6%
Angola	1.6	2.0	2.7	2.8	3.9	3.9	4.6	6.1	15.1	17.5	18.5	371.7%
Benin	0.3	0.5	0.4	0.5	0.3	0.2	1.4	2.7	4.6	4.9	5.2	+
Botswana	..	..	..	1.5	2.8	3.2	4.0	4.3	4.9	4.5	5.5	95.1%
Cameroon	0.7	1.0	1.7	2.4	2.6	2.5	2.8	2.9	5.0	5.3	5.9	123.2%
Congo	0.6	0.6	0.7	0.8	0.6	0.4	0.5	0.8	1.8	2.3	2.3	287.0%
Côte d'Ivoire	2.4	3.0	3.4	3.0	2.7	3.3	6.3	5.8	6.2	7.9	8.7	220.8%
Dem. Rep. of Congo	2.6	2.6	3.2	3.3	3.0	1.1	0.9	1.3	1.8	2.4	2.6	-11.8%
Egypt	20.0	25.6	40.7	64.4	77.8	81.6	99.7	144.6	176.4	189.3	184.3	136.8%
Eritrea	..	..	..	..	..	0.8	0.6	0.6	0.5	0.5	0.6	..
Ethiopia	1.3	1.2	1.4	1.4	2.2	2.3	3.2	4.5	6.0	7.3	8.5	291.8%
Gabon	0.5	0.8	1.3	1.7	0.9	1.3	1.5	1.7	2.4	2.6	2.8	211.1%
Ghana	1.9	2.3	2.2	2.1	2.5	3.2	5.0	6.4	10.4	12.8	13.6	437.8%
Kenya	3.2	3.5	4.4	4.6	5.5	5.7	7.8	7.5	11.2	10.4	11.7	112.1%
Libya	3.7	8.7	17.6	21.2	25.8	32.9	37.0	43.0	48.0	42.4	43.2	67.3%
Mauritius	0.3	0.4	0.6	0.6	1.2	1.6	2.4	3.0	3.7	3.7	3.8	228.8%
Morocco	6.6	9.7	13.7	16.3	19.6	26.1	29.5	39.5	46.0	51.5	50.3	156.2%
Mozambique	2.9	2.4	2.3	1.5	1.1	1.1	1.3	1.5	2.4	2.6	3.0	172.4%
Namibia	..	..	..	..	..	1.8	1.9	2.5	3.1	3.2	3.4	..
Niger	..	..	..	..	..	..	0.6	0.7	1.4	1.9	1.9	..
Nigeria	5.7	10.8	25.3	31.8	28.1	32.8	43.8	56.4	55.8	63.3	61.0	117.4%
Senegal	1.2	1.6	2.0	2.1	2.1	2.5	3.5	4.6	5.5	5.7	6.0	181.4%
South Africa	157.1	203.0	208.4	222.9	243.8	259.8	280.5	372.3	408.9	407.8	420.4	72.4%
South Sudan ²	..	..	..	..	..	..	..	..	..	1.4	1.5	..
Sudan ²	3.2	3.2	3.7	4.0	5.3	4.3	5.5	9.9	15.0	13.7	13.6	156.5%
United Rep. of Tanzania	1.4	1.4	1.5	1.5	1.7	2.5	2.6	5.1	6.1	8.5	9.7	481.0%
Togo	0.3	0.3	0.4	0.3	0.6	0.6	0.9	1.0	2.1	1.6	1.7	190.2%
Tunisia	3.7	4.8	7.9	9.7	12.2	14.0	17.6	19.5	23.3	23.5	23.7	94.0%
Zambia	3.4	4.3	3.3	2.7	2.6	2.0	1.7	2.1	1.7	2.7	3.4	34.4%
Zimbabwe	7.2	7.2	8.0	9.7	16.2	15.1	13.3	10.3	9.0	12.6	13.5	-17.1%
Other Africa	8.4	9.6	13.3	10.9	12.6	14.2	16.4	19.6	25.3	29.7	30.5	141.9%
Africa	249.0	323.9	397.6	465.6	529.0	576.1	658.3	857.6	999.0	1 054.3	1 074.7	103.2%

1. Includes Estonia and Slovenia prior to 1990.

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

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

CO₂ emissions from fuel combustionmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Bangladesh	2.9	4.4	6.6	7.7	11.4	16.5	20.9	32.0	49.9	57.3	59.6	421.6%
Brunei Darussalam	0.4	1.4	2.6	2.9	3.3	4.5	4.4	4.8	6.9	7.0	6.9	110.2%
Cambodia	..	..	..	..	..	1.5	2.0	2.6	4.6	5.1	5.2	..
DPR of Korea	69.2	78.6	108.1	129.4	116.8	76.5	70.0	75.3	65.5	47.0	47.7	-59.2%
India	182.4	218.8	263.9	378.4	534.1	708.0	892.0	1 086.5	1 596.8	1 780.1	1 868.6	249.9%
Indonesia	25.2	37.8	67.6	83.9	133.9	204.1	258.3	321.6	383.2	416.3	424.6	217.1%
Malaysia	12.8	16.2	23.7	32.9	49.2	78.9	114.1	154.6	188.4	191.4	207.2	321.1%
Mongolia	..	..	..	11.8	12.9	10.2	9.0	11.0	14.2	17.2	18.7	45.2%
Myanmar	4.5	3.9	5.1	5.7	3.9	6.7	9.3	10.6	7.9	11.5	13.3	240.9%
Nepal	0.2	0.3	0.5	0.6	0.9	1.8	3.1	3.1	4.1	5.0	5.1	474.1%
Pakistan	15.9	20.0	24.3	36.5	56.0	79.2	96.0	116.8	131.4	134.2	134.8	141.0%
Philippines	23.0	28.9	33.3	28.5	38.0	57.2	68.1	71.5	77.1	80.4	89.6	135.6%
Singapore	6.1	8.4	12.7	16.6	29.0	37.6	42.1	37.9	44.2	46.1	46.6	60.8%
Sri Lanka	2.8	2.6	3.6	3.5	3.7	5.5	10.5	13.4	12.4	16.1	13.7	273.8%
Chinese Taipei	29.8	40.7	71.4	69.1	111.1	154.0	214.3	253.6	256.2	246.6	248.7	123.9%
Thailand	16.2	21.1	33.7	42.1	80.9	139.9	152.3	200.2	223.4	239.0	247.4	205.9%
Viet Nam	16.3	17.0	14.9	17.4	17.4	27.5	44.2	79.1	126.1	127.2	130.1	648.2%
Other Asia	10.6	12.8	16.7	10.2	10.3	9.4	11.4	15.5	22.1	36.4	38.8	275.5%
Asia (excl. China)	418.2	513.1	688.7	877.2	1 212.7	1 619.0	2 021.9	2 490.0	3 214.4	3 463.7	3 606.6	197.4%
People's Rep. of China	831.3	1 087.4	1 435.5	1 698.7	2 183.6	2 998.2	3 259.3	5 359.7	7 095.3	8 519.2	8 977.1	311.1%
Hong Kong, China	9.2	10.9	14.6	22.3	33.3	36.5	40.3	41.3	42.0	45.1	46.0	38.3%
China	840.5	1 098.3	1 450.1	1 721.0	2 216.9	3 034.7	3 299.7	5 401.0	7 137.3	8 564.3	9 023.1	307.0%
Argentina	82.5	85.2	95.1	87.7	99.4	117.3	139.3	149.4	173.5	185.3	182.3	83.4%
Bolivia	2.2	3.2	4.2	4.3	5.2	6.9	7.1	9.4	14.1	17.2	17.3	235.9%
Brazil	87.5	129.6	167.7	156.2	184.3	227.7	292.3	310.5	370.5	422.2	452.4	145.5%
Colombia	26.7	28.3	34.8	39.5	45.8	54.5	54.2	53.6	60.2	65.4	68.3	49.3%
Costa Rica	1.3	1.7	2.2	1.9	2.6	4.4	4.5	5.4	6.6	6.8	7.1	174.1%
Cuba	20.8	24.2	30.5	32.2	34.1	22.4	27.3	25.1	29.8	26.9	29.8	-12.7%
Curaçao ¹	14.5	10.2	8.7	4.5	2.7	2.6	5.6	6.0	4.4	4.6	4.5	67.1%
Dominican Republic	3.5	5.2	6.3	6.2	7.4	11.2	16.2	17.4	19.1	20.0	19.7	166.2%
Ecuador	3.5	5.9	10.4	11.7	13.3	16.7	18.1	23.2	33.2	36.7	39.5	196.6%
El Salvador	1.3	1.9	1.6	1.6	2.1	4.6	5.2	6.3	5.9	6.1	5.8	174.5%
Guatemala	2.3	3.0	4.2	3.2	3.2	5.9	8.6	10.6	10.3	10.6	12.2	281.3%
Haiti	0.4	0.4	0.6	0.8	0.9	0.9	1.4	2.0	2.1	2.1	2.2	131.8%
Honduras	1.1	1.3	1.7	1.7	2.2	3.6	4.5	7.2	7.3	8.4	8.5	288.3%
Jamaica	5.5	7.4	6.5	4.7	7.2	8.4	9.8	10.3	6.9	7.0	7.5	2.9%
Nicaragua	1.5	1.8	1.8	1.8	1.8	2.5	3.5	4.0	4.4	4.4	4.2	129.1%
Panama	2.5	3.1	2.9	2.7	2.6	4.1	4.9	6.7	8.9	9.8	9.2	259.5%
Paraguay	0.6	0.7	1.3	1.4	1.9	3.5	3.3	3.5	4.7	5.0	4.9	155.8%
Peru	15.4	18.2	20.4	18.0	19.1	23.3	26.4	28.6	41.1	44.0	45.5	137.8%
Trinidad and Tobago	5.4	4.6	6.4	6.7	7.9	8.2	10.1	17.5	22.3	22.0	23.0	190.6%
Uruguay	5.1	5.3	5.3	3.0	3.6	4.4	5.1	5.2	6.0	8.2	7.1	97.6%
Venezuela	45.9	56.1	83.3	85.1	93.6	106.1	116.2	137.1	171.6	168.7	155.6	66.3%
Other Non-OECD Americas	8.2	10.9	10.3	9.2	12.4	13.3	15.1	16.1	19.0	20.5	21.1	70.8%
Non-OECD Americas	337.4	408.4	506.3	484.1	553.2	652.4	778.8	855.3	1 021.9	1 101.9	1 127.6	103.8%
Bahrain	2.9	5.2	7.2	9.1	10.7	13.5	15.8	20.6	25.8	26.0	28.3	165.0%
Islamic Republic of Iran	38.9	68.0	88.5	145.0	171.2	244.5	312.2	417.6	498.4	516.4	525.9	207.2%
Iraq	10.3	15.5	26.0	35.2	51.4	94.9	70.8	81.7	103.5	125.6	138.0	168.6%
Jordan	1.4	2.2	4.3	7.5	9.3	12.3	14.4	18.1	18.9	22.8	22.8	145.4%
Kuwait	14.0	15.1	26.4	36.7	27.8	32.3	46.3	64.7	77.0	86.0	84.1	202.5%
Lebanon	4.6	5.7	6.7	6.6	5.5	12.8	14.0	14.5	18.2	21.0	20.6	274.3%
Oman	0.3	0.7	2.2	5.6	10.2	14.7	20.4	24.7	47.9	55.9	57.9	470.1%
Qatar	2.2	4.9	7.0	10.7	12.4	16.8	21.3	33.2	57.1	70.9	72.4	482.5%
Saudi Arabia	12.7	22.5	99.4	117.8	151.1	191.6	234.6	298.0	419.1	463.3	472.4	212.7%
Syrian Arab Republic	5.4	8.3	12.3	19.5	27.2	31.1	37.0	53.4	55.9	38.7	33.5	23.0%
United Arab Emirates	2.5	4.9	19.2	35.6	51.9	69.6	85.5	108.7	151.8	170.5	167.6	223.1%
Yemen	1.2	1.8	3.5	4.9	6.3	9.4	13.3	18.8	22.4	17.4	23.9	280.0%
Middle East	96.3	154.8	302.7	434.2	534.9	743.5	885.6	1 153.9	1 496.0	1 614.5	1 647.5	208.0%

1. Prior to 2012, Curaçao includes the entire territory of the former Netherlands Antilles.

CO₂ emissions from fuel combustion - coalmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
World ¹	5 281.8	5 707.8	6 674.3	7 469.7	8 397.6	8 622.6	9 132.7	11 452.0	13 139.2	14 320.7	14 809.1	76.3%
<i>Annex I Parties</i>	..	..	..	..	5 223.5	4 685.8	4 802.7	4 841.9	4 496.8	4 200.0	4 204.8	-19.5%
<i>Annex II Parties</i>	2 704.3	2 668.0	3 033.8	3 393.1	3 560.1	3 471.7	3 729.3	3 805.4	3 435.1	3 144.2	3 207.1	-9.9%
<i>North America</i>	1 169.6	1 285.1	1 515.5	1 762.8	1 932.8	2 038.8	2 297.4	2 289.8	2 071.9	1 728.2	1 786.1	-7.6%
<i>Europe</i>	1 254.1	1 080.5	1 209.5	1 251.9	1 184.9	950.5	866.2	867.0	724.7	786.8	763.9	-35.5%
<i>Asia Oceania</i>	280.6	302.4	308.9	378.4	442.3	482.4	565.7	648.6	638.5	629.3	657.1	48.6%
<i>Annex I EIT</i>	..	..	..	..	1 602.9	1 151.5	981.7	947.6	938.7	913.2	877.9	-45.2%
<i>Non-Annex I Parties</i>	..	..	..	..	3 174.1	3 936.9	4 330.0	6 610.1	8 642.4	10 120.7	10 604.3	234.1%
<i>Annex I Kyoto Parties</i>	..	..	..	..	3 220.5	2 578.9	2 409.7	2 460.7	2 299.7	2 326.3	2 295.7	-28.7%
Intl. marine bunkers	0.1	-	-	-	-	-	-	-	-	-	0.0	x
Intl. aviation bunkers	-	-	-	-	-	-	-	-	-	-	-	-
Non-OECD Total ²	2 081.6	2 501.1	2 990.7	3 347.4	4 158.0	4 508.8	4 710.8	6 938.5	8 873.6	10 317.7	10 769.1	159.0%
OECD Total ³	3 200.1	3 206.7	3 683.6	4 122.3	4 239.6	4 113.9	4 421.9	4 513.5	4 265.6	4 003.1	4 040.0	-4.7%
Canada	63.9	59.0	82.1	100.8	95.7	100.2	125.6	110.7	89.9	80.2	81.0	-15.3%
Chile	5.1	3.6	4.8	5.0	9.8	8.9	11.7	10.3	17.5	24.7	28.2	188.0%
Mexico	5.2	6.7	7.3	11.7	14.7	26.5	27.5	38.9	40.3	41.5	53.1	260.8%
United States	1 105.7	1 226.1	1 433.4	1 662.0	1 837.2	1 938.5	2 171.8	2 179.2	1 982.0	1 648.0	1 705.0	-7.2%
OECD Americas	1 179.9	1 295.4	1 527.7	1 779.5	1 957.3	2 074.2	2 336.6	2 339.0	2 129.7	1 794.3	1 867.3	-4.6%
Australia	75.3	92.9	106.7	119.4	140.7	156.5	190.2	207.2	203.4	191.2	187.7	33.4%
Israel	0.0	0.0	0.0	7.3	9.5	16.5	25.6	29.5	29.3	33.7	27.7	193.0%
Japan	201.4	205.3	198.3	255.0	298.2	322.5	371.0	432.4	429.5	431.2	463.4	55.4%
Korea	22.2	32.1	50.5	84.0	90.7	106.5	180.4	200.0	284.2	298.6	289.8	219.3%
New Zealand	4.0	4.3	3.9	4.0	3.4	3.4	4.5	9.0	5.6	6.8	6.0	76.0%
OECD Asia Oceania	302.9	334.5	359.4	469.7	542.5	605.3	771.6	878.1	952.0	961.6	974.6	79.6%
Austria	16.3	13.9	14.2	17.4	16.6	14.3	15.0	16.6	15.2	14.7	15.5	-6.7%
Belgium	44.2	38.6	41.8	39.2	40.4	34.7	30.4	20.7	14.0	11.9	12.3	-69.6%
Czech Republic	132.2	124.3	132.3	139.1	116.7	91.5	86.4	78.1	73.2	69.9	65.8	-43.6%
Denmark	6.1	8.1	24.2	29.0	24.2	25.8	15.7	14.7	15.6	10.2	13.0	-46.3%
Estonia	..	..	..	..	24.5	11.4	10.5	12.1	14.3	12.1	14.3	-41.6%
Finland	8.7	9.6	20.1	20.3	21.7	23.8	21.6	20.6	28.6	18.8	20.7	-4.5%
France	140.1	108.2	125.5	94.4	75.9	59.4	59.6	55.9	45.8	39.9	42.4	-44.1%
Germany	558.2	499.7	561.6	592.0	516.6	380.6	346.1	334.8	314.5	325.2	329.3	-36.3%
Greece	6.7	10.9	13.2	24.9	33.6	37.2	38.4	38.6	33.6	33.6	29.3	-12.7%
Hungary	35.9	33.8	37.4	35.6	24.6	17.6	15.6	12.6	10.7	10.5	9.1	-63.0%
Iceland	0.0	-	0.1	0.3	0.3	0.2	0.4	0.4	0.4	0.4	0.4	51.3%
Ireland	8.9	7.2	8.1	10.7	14.7	12.5	10.6	11.0	8.2	9.3	8.4	-42.5%
Italy	32.6	31.3	44.4	59.8	56.5	45.4	43.9	63.8	52.5	61.3	53.9	-4.7%
Luxembourg	12.3	8.1	8.4	6.7	5.2	2.1	0.4	0.3	0.3	0.2	0.2	-96.4%
Netherlands	15.2	12.4	14.4	24.0	32.3	33.7	29.5	30.9	28.8	31.2	31.6	-2.1%
Norway	3.8	4.0	4.0	4.5	3.5	3.9	4.0	2.9	2.6	2.9	2.9	-16.4%
Poland	254.6	292.7	356.9	366.0	291.2	273.6	221.5	215.6	217.5	206.5	206.4	-29.1%
Portugal	2.5	1.7	1.7	2.9	10.8	14.2	15.0	13.4	6.5	11.6	10.5	-2.7%
Slovak Republic	24.2	24.2	32.8	34.2	31.4	21.6	16.4	16.0	14.5	13.1	13.0	-58.6%
Slovenia	..	..	..	..	6.7	5.8	5.6	6.3	6.0	5.8	5.6	-16.0%
Spain	38.2	38.8	49.0	70.7	75.2	72.9	83.4	81.9	32.4	59.8	44.9	-40.3%
Sweden	5.5	7.0	5.5	10.7	10.5	9.6	8.3	10.0	9.2	7.4	7.6	-28.1%
Switzerland	1.9	1.0	1.4	2.0	1.4	0.8	0.6	0.6	0.6	0.5	0.5	-62.1%
Turkey	16.4	21.2	27.6	46.4	59.6	62.4	91.6	88.8	123.0	142.5	119.9	101.1%
United Kingdom	352.9	280.0	271.9	242.4	245.5	179.5	143.3	149.9	115.9	147.8	140.4	-42.8%
OECD Europe ³	1 717.3	1 576.8	1 796.6	1 873.2	1 739.7	1 434.4	1 313.7	1 296.4	1 183.9	1 247.1	1 198.1	-31.1%
<i>European Union - 28</i>	..	..	..	..	1 773.8	1 441.7	1 275.6	1 272.7	1 119.7	1 165.2	1 127.9	-36.4%
G7	2 454.8	2 409.7	2 717.2	3 006.4	3 125.6	3 026.2	3 261.4	3 326.6	3 030.1	2 733.7	2 815.6	-9.9%
G8	..	..	..	..	3 832.9	3 510.0	3 704.6	3 740.3	3 435.1	3 112.5	3 175.4	-17.2%
G20	..	..	..	..	7 547.7	7 990.9	8 495.3	10 667.4	12 211.7	13 346.8	13 823.3	83.1%

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

2. Includes Estonia and Slovenia prior to 1990.

3. Excludes Estonia and Slovenia prior to 1990.

CO₂ emissions from fuel combustion - coalmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Non-OECD Total ¹	2 081.6	2 501.1	2 990.7	3 347.4	4 158.0	4 508.8	4 710.8	6 938.5	8 873.6	10 317.7	10 769.1	159.0%
Albania	1.2	1.6	2.5	3.8	2.4	0.1	0.1	0.1	0.5	0.3	0.3	-88.7%
Armenia	..	..	..	..	1.0	0.0	-	-	0.0	0.0	0.0	-99.6%
Azerbaijan	..	..	..	..	0.4	0.0	-	-	-	-	-	-100.0%
Belarus	..	..	..	..	9.6	5.5	3.8	2.4	2.2	3.0	3.2	-66.5%
Bosnia and Herzegovina	..	..	..	..	17.7	1.5	10.1	12.0	15.6	17.1	17.0	-3.9%
Bulgaria	34.1	36.0	38.8	43.4	37.7	30.3	26.1	28.7	28.7	28.7	24.7	-34.5%
Croatia	..	..	..	..	3.4	0.7	1.7	2.7	2.7	2.5	2.7	-20.7%
Cyprus ²	..	..	..	0.2	0.3	0.1	0.1	0.1	0.1	0.0	0.0	-99.8%
FYR of Macedonia	..	..	..	..	5.6	6.0	5.7	6.2	5.5	5.9	5.3	-4.8%
Georgia	..	..	..	..	3.5	0.1	0.0	0.0	0.1	0.5	1.3	-63.4%
Gibraltar	..	..	..	..	..	..	..	..	..	..	..	-
Kazakhstan	..	..	..	..	158.7	114.3	74.7	102.7	137.6	147.6	145.9	-8.1%
Kosovo ²	..	..	..	..	..	..	4.1	5.3	7.1	6.5	6.6	..
Kyrgyzstan	..	..	..	..	10.2	1.3	1.9	2.2	2.8	4.2	3.5	-65.5%
Latvia	..	..	..	..	2.8	1.1	0.5	0.3	0.4	0.4	0.3	-88.9%
Lithuania	..	..	..	..	3.2	1.0	0.4	0.8	0.8	0.9	1.1	-65.6%
Malta	..	..	..	0.5	0.7	0.1	-	-	-	-	-	-100.0%
Republic of Moldova	..	..	..	..	7.9	2.3	0.5	0.3	0.4	0.4	0.6	-92.5%
Montenegro ²	..	..	..	..	..	..	..	1.2	1.7	1.6	1.6	..
Romania	32.5	39.5	50.8	59.7	50.8	41.3	29.5	36.3	29.7	31.9	24.8	-51.2%
Russian Federation	..	..	..	..	707.3	483.7	443.2	413.7	405.0	378.8	359.8	-49.1%
Serbia ²	..	..	..	..	42.2	36.9	35.7	34.1	32.4	31.8	32.9	-22.0%
Tajikistan	..	..	..	..	2.5	0.1	0.0	0.2	0.4	0.8	0.9	-64.0%
Turkmenistan	..	..	..	..	1.2	-	-	-	-	-	-	-100.0%
Ukraine	..	..	..	..	292.8	166.3	120.5	122.0	132.9	149.2	146.9	-49.8%
Uzbekistan	..	..	..	..	14.0	4.5	5.2	4.7	5.5	5.8	5.9	-57.9%
Former Soviet Union ³	884.8	1 039.7	1 138.2	987.0	..	..	..	..	..	..	..	..
Former Yugoslavia ³	36.7	41.5	43.7	74.1	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia ¹	989.3	1 158.3	1 274.0	1 168.6	1 376.0	897.3	763.9	775.9	812.1	817.9	785.3	-42.9%
Algeria	0.4	0.3	0.2	1.0	1.3	1.4	0.7	1.1	0.8	0.6	0.4	-69.1%
Angola	-	-	-	-	-	-	-	-	-	-	-	-
Benin	-	-	-	-	-	-	-	-	-	-	-	-
Botswana	..	..	..	1.0	1.8	2.0	2.3	2.3	2.2	1.6	2.4	31.9%
Cameroon	-	-	-	-	-	-	-	-	-	-	-	-
Congo	-	-	-	-	-	-	-	-	-	-	-	-
Côte d'Ivoire	-	-	-	-	-	-	-	-	-	-	-	-
Dem. Rep. of Congo	1.0	0.8	0.9	0.8	0.9	-	-	-	-	-	-	-100.0%
Egypt	1.4	2.3	2.2	2.9	2.9	3.2	3.1	3.4	1.8	1.6	1.6	-43.2%
Eritrea	..	..	..	..	..	..	..	..	..	..	..	..
Ethiopia	-	-	-	-	-	-	-	-	0.1	0.5	0.7	x
Gabon	-	-	-	-	-	-	-	-	-	-	-	-
Ghana	-	-	-	-	-	-	-	-	-	-	-	-
Kenya	0.2	0.1	0.0	0.2	0.4	0.4	0.3	0.4	0.7	0.8	0.8	124.5%
Libya	-	-	-	-	-	-	-	-	-	-	-	-
Mauritius	-	-	-	0.1	0.1	0.2	0.6	0.9	1.6	1.6	1.7	+
Morocco	1.2	1.7	1.6	2.7	4.2	6.9	10.5	12.9	11.1	12.0	11.8	179.7%
Mozambique	1.5	1.2	0.7	0.3	0.1	0.1	-	-	0.0	0.0	0.0	-72.4%
Namibia	..	..	..	..	..	0.0	0.0	0.0	0.0	0.1	0.1	..
Niger	..	..	..	..	..	..	0.2	0.2	0.3	0.3	0.3	..
Nigeria	0.5	0.6	0.5	0.3	0.2	0.0	0.0	0.0	0.1	0.1	0.1	-42.4%
Senegal	-	-	-	-	-	-	-	0.4	0.7	0.9	0.9	x
South Africa	129.3	168.6	174.5	186.0	200.7	211.5	231.4	314.9	342.2	335.6	343.0	70.9%
South Sudan ²	..	..	..	..	..	..	..	..	..	..	..	..
Sudan ²	..	..	0.0	..	..	..	..	..	..	..	..	..
United Rep. of Tanzania	-	-	0.0	0.0	0.0	0.1	0.2	0.1	-	0.2	0.2	+
Togo	-	-	-	-	-	-	-	-	-	-	-	-
Tunisia	0.3	0.4	0.3	0.3	0.3	0.3	0.3	-	-	0.1	-	-100.0%
Zambia	2.0	1.9	1.4	1.1	0.9	0.3	0.3	0.3	0.0	0.2	0.9	6.7%
Zimbabwe	5.8	5.2	6.2	7.7	13.7	11.5	10.3	8.2	7.1	8.8	9.2	-32.5%
Other Africa	0.1	0.2	1.6	0.6	0.9	0.5	1.5	1.7	2.3	2.4	2.4	184.0%
Africa	143.7	183.3	190.0	205.2	228.4	238.6	261.8	346.8	371.0	367.4	376.6	64.9%

1. Includes Estonia and Slovenia prior to 1990.

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

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

CO₂ emissions from fuel combustion - coalmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Bangladesh	0.4	0.5	0.5	0.2	1.1	1.3	1.3	1.9	3.2	3.6	3.8	242.9%
Brunei Darussalam	-	-	-	-	-	-	-	-	-	-	-	-
Cambodia	..	..	..	..	..	..	..	..	0.0	0.0	0.2	..
DPR of Korea	66.6	74.3	100.0	122.0	108.9	72.6	66.8	72.5	63.0	44.5	45.1	-58.6%
India	128.6	158.7	182.2	263.8	369.9	481.8	578.9	724.4	1 104.6	1 256.7	1 348.3	264.5%
Indonesia	0.5	0.5	0.6	4.8	18.2	26.5	52.5	87.6	109.0	128.2	135.0	642.4%
Malaysia	0.0	0.0	0.2	1.4	5.3	6.6	9.8	27.3	58.5	62.9	59.7	+
Mongolia	..	..	..	9.6	10.4	9.2	7.7	9.3	11.7	13.7	15.0	43.7%
Myanmar	0.6	0.6	0.6	0.6	0.3	0.1	1.3	1.3	1.6	1.9	1.5	445.6%
Nepal	0.0	0.1	0.2	0.0	0.2	0.3	1.0	1.0	1.2	1.7	1.8	961.4%
Pakistan	2.6	2.2	2.7	5.0	7.3	8.0	6.9	14.6	16.4	14.5	15.2	107.3%
Philippines	0.1	0.2	1.5	5.6	5.1	6.9	19.9	22.7	29.8	34.4	42.5	737.6%
Singapore	0.0	0.0	0.0	0.1	0.1	0.1	-	0.0	0.0	0.1	1.0	992.2%
Sri Lanka	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	2.0	2.1	+
Chinese Taipei	10.2	8.6	14.9	26.6	42.7	64.4	111.3	147.6	155.0	150.5	152.7	258.0%
Thailand	0.5	0.6	1.9	6.7	16.4	30.0	32.1	47.8	65.5	65.8	69.0	320.7%
Viet Nam	5.7	10.2	9.4	11.5	9.1	13.7	18.0	34.0	60.2	65.2	64.8	608.1%
Other Asia	4.5	4.9	7.8	1.0	0.8	0.6	1.4	1.7	4.4	5.1	5.4	536.6%
Asia (excl. China)	220.2	261.5	322.5	458.8	595.7	722.0	908.9	1 193.9	1 684.3	1 850.7	1 963.1	229.5%
People's Rep. of China	710.5	876.4	1 173.2	1 457.4	1 885.6	2 571.0	2 687.6	4 519.2	5 893.7	7 153.9	7 507.2	298.1%
Hong Kong, China	0.1	0.0	0.0	12.6	24.1	23.7	16.8	26.4	25.2	30.1	31.7	31.2%
China	710.6	876.5	1 173.2	1 470.0	1 909.8	2 594.7	2 704.4	4 545.7	5 918.9	7 184.0	7 538.9	294.8%
Argentina	3.3	3.4	3.1	3.6	3.6	4.9	4.8	5.9	5.9	5.7	5.4	49.1%
Bolivia	-	-	-	0.3	-	-	-	-	-	-	-	-
Brazil	6.0	6.9	15.0	26.4	27.7	32.8	46.4	45.6	54.1	59.3	64.9	134.8%
Colombia	6.1	6.7	8.8	10.2	12.2	13.9	12.1	10.5	10.8	10.0	12.9	5.4%
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	0.0	-97.2%
Curaçao ¹	-	-	-	-	-	-	-	-	-	-	-	-
Dominican Republic	-	-	-	0.5	0.0	0.2	0.2	1.7	3.0	3.4	3.3	+
Ecuador	-	-	-	-	-	-	-	-	-	-	-	-
El Salvador	-	-	0.0	-	-	0.0	0.0	0.0	-	-	-	-
Guatemala	-	-	0.1	-	-	-	0.5	1.0	1.2	1.2	1.4	x
Haiti	-	-	-	0.1	0.0	-	-	-	-	-	-	-100.0%
Honduras	-	-	-	-	0.0	0.0	0.3	0.6	0.5	0.7	0.8	+
Jamaica	-	-	-	-	0.1	0.1	0.1	0.1	0.1	0.2	0.2	71.2%
Nicaragua	-	-	-	-	-	-	-	-	-	-	-	-
Panama	0.0	0.0	-	0.1	0.1	0.1	0.1	1.0	0.3	1.3	1.3	+
Paraguay	-	-	-	-	-	-	-	-	-	-	-	-
Peru	0.6	0.6	0.7	0.7	0.6	1.4	2.5	3.6	3.6	3.2	3.3	449.3%
Trinidad and Tobago	-	-	-	-	-	-	-	-	-	-	-	-
Uruguay	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-100.0%
Venezuela	0.6	1.1	0.7	0.8	1.9	0.0	0.5	0.1	0.8	0.8	0.8	-56.0%
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	4.1%
Non-OECD Americas	17.3	19.2	28.9	43.2	46.9	53.8	67.9	70.4	80.7	86.3	94.7	101.9%
Bahrain	-	-	-	-	-	-	-	-	-	-	-	-
Islamic Republic of Iran	0.4	2.1	2.0	1.6	1.2	1.9	3.4	4.7	2.7	2.7	2.8	128.2%
Iraq	-	-	-	-	-	-	-	-	-	-	-	-
Jordan	-	-	-	-	-	-	-	-	-	0.9	0.9	x
Kuwait	-	-	-	-	-	-	-	-	-	-	-	-
Lebanon	0.0	0.0	0.0	-	-	0.5	0.5	0.5	0.6	0.7	0.5	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	6.7	5.7	x
Yemen	-	-	-	-	-	-	-	-	0.4	0.4	0.5	x
Middle East	0.5	2.2	2.0	1.7	1.2	2.3	3.9	5.8	6.6	11.4	10.4	752.7%

1. Prior to 2012, Curaçao includes the entire territory of the former Netherlands Antilles.

CO₂ emissions from fuel combustion - oil

 million tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
World ¹	6 668.1	7 581.4	8 389.5	7 770.1	8 504.5	8 801.1	9 551.5	10 315.8	10 531.4	10 751.1	10 824.6	27.3%
<i>Annex I Parties</i>	..	..	..	..	5 462.8	5 109.3	5 263.6	5 385.1	4 825.7	4 735.0	4 681.4	-14.3%
<i>Annex II Parties</i>	4 431.3	4 671.6	4 727.3	4 071.9	4 305.3	4 421.5	4 651.1	4 780.2	4 220.4	4 102.3	4 070.2	-5.5%
<i>North America</i>	2 194.9	2 297.7	2 320.0	2 087.1	2 155.2	2 164.4	2 423.8	2 573.1	2 307.3	2 244.4	2 246.1	4.2%
<i>Europe</i>	1 622.3	1 659.4	1 692.4	1 369.6	1 417.3	1 491.8	1 494.5	1 494.2	1 305.4	1 199.6	1 177.3	-16.9%
<i>Asia Oceania</i>	614.1	714.5	715.0	615.2	732.8	765.4	732.9	713.0	607.7	658.3	646.8	-11.7%
<i>Annex I EIT</i>	..	..	..	..	1 091.0	603.3	523.5	520.3	526.7	550.5	527.3	-51.7%
<i>Non-Annex I Parties</i>	..	..	..	..	2 411.5	2 971.0	3 434.2	3 927.7	4 578.7	4 920.3	5 044.0	109.2%
<i>Annex I Kyoto Parties</i>	..	..	..	..	3 175.6	2 832.7	2 733.6	2 711.8	2 421.7	2 390.2	2 333.3	-26.5%
Intl. marine bunkers	353.7	341.0	357.3	306.7	371.5	429.9	498.7	580.3	667.2	615.1	608.8	63.9%
Intl. aviation bunkers	169.2	173.9	202.2	224.9	258.8	290.9	355.0	422.8	459.8	480.7	490.4	89.5%
Non-OECD Total ²	1 489.3	2 077.1	2 674.4	2 732.3	3 033.3	2 994.7	3 348.1	3 842.9	4 508.1	4 871.0	4 987.3	64.4%
OECD Total ³	4 655.9	4 989.4	5 155.7	4 506.1	4 841.0	5 085.5	5 349.8	5 469.8	4 896.3	4 784.4	4 738.1	-2.1%
Canada	208.0	230.2	243.5	184.4	203.9	204.2	227.2	257.0	252.2	254.4	256.4	25.7%
Chile	14.6	12.4	15.1	13.1	18.7	27.2	30.3	33.6	42.3	43.6	44.6	138.6%
Mexico	69.0	103.4	156.8	178.9	196.4	212.8	254.7	257.6	253.5	261.1	257.3	31.0%
United States	1 986.9	2 067.5	2 076.4	1 902.7	1 951.2	1 960.1	2 196.6	2 316.1	2 055.2	1 990.0	1 989.6	2.0%
OECD Americas	2 278.5	2 413.5	2 491.9	2 279.0	2 370.3	2 404.3	2 708.7	2 864.3	2 603.2	2 549.1	2 548.0	7.5%
Australia	64.1	77.9	83.8	77.0	85.5	90.4	99.8	109.6	116.0	125.2	127.7	49.5%
Israel	13.7	16.4	18.8	17.0	23.3	28.4	29.3	26.1	28.9	36.2	27.0	15.5%
Japan	540.7	625.0	620.5	528.6	635.6	660.9	617.3	585.6	474.4	515.7	501.4	-21.1%
Korea	30.7	45.6	75.0	71.7	132.9	226.5	205.3	185.3	163.0	155.4	156.1	17.4%
New Zealand	9.3	11.5	10.7	9.6	11.8	14.1	15.7	17.8	17.3	17.4	17.7	50.1%
OECD Asia Oceania	658.5	776.5	808.8	703.9	889.1	1 020.3	967.5	924.4	799.5	849.8	829.9	-6.7%
Austria	26.9	28.5	31.9	25.4	27.2	29.5	30.7	37.6	32.5	30.1	30.8	13.4%
Belgium	62.4	59.5	64.0	44.8	46.1	51.3	51.7	52.3	46.6	41.5	41.9	-9.0%
Czech Republic	19.6	27.6	30.2	27.1	22.0	17.0	17.4	21.5	19.8	19.0	18.3	-16.8%
Denmark	49.3	44.3	38.6	30.3	22.0	24.3	23.4	21.7	19.8	17.0	16.5	-24.9%
Estonia	..	..	..	..	9.0	3.5	2.7	3.1	3.0	3.1	3.0	-66.9%
Finland	31.2	33.1	33.0	26.0	26.8	25.0	24.6	25.1	24.0	22.5	21.6	-19.4%
France	265.4	284.0	285.4	206.2	214.1	218.7	223.5	220.2	195.7	183.4	180.0	-15.9%
Germany	381.5	386.6	372.0	308.9	303.6	323.8	301.8	276.5	249.3	240.5	248.2	-18.3%
Greece	18.3	23.3	31.9	29.6	36.2	39.1	45.5	51.2	42.9	35.8	32.6	-9.9%
Hungary	18.4	26.7	29.0	26.1	21.9	18.8	16.4	15.2	14.7	13.1	12.9	-41.2%
Iceland	1.4	1.6	1.7	1.4	1.6	1.7	1.7	1.8	1.6	1.5	1.6	-0.3%
Ireland	12.7	13.9	16.1	11.2	12.1	15.8	23.1	25.3	20.3	17.1	16.9	40.1%
Italy	232.6	244.6	264.5	225.1	244.7	253.0	242.4	227.2	177.6	158.2	146.6	-40.1%
Luxembourg	4.1	3.8	3.0	2.9	4.5	4.8	5.9	8.2	7.4	7.5	7.3	64.3%
Netherlands	65.2	50.4	63.9	42.0	44.6	48.7	49.7	52.4	49.8	50.0	48.1	7.8%
Norway	19.2	19.2	21.2	19.0	19.1	19.2	20.2	22.0	23.1	21.6	21.2	11.0%
Poland	21.4	32.8	41.6	37.8	33.4	39.4	49.7	56.6	65.3	61.7	57.1	70.6%
Portugal	11.9	16.4	22.1	21.0	27.1	33.0	37.9	38.7	29.8	24.3	24.9	-7.9%
Slovak Republic	12.0	14.4	17.9	13.8	11.6	6.6	5.4	8.4	9.1	8.7	8.7	-25.3%
Slovenia	..	..	..	..	5.1	6.8	6.8	7.2	7.5	7.2	6.9	36.3%
Spain	80.2	115.1	134.0	97.7	117.1	137.3	160.1	184.2	157.3	135.0	130.6	11.5%
Sweden	76.5	72.0	67.3	46.9	39.5	44.8	40.7	35.4	31.8	27.6	25.6	-35.0%
Switzerland	37.0	34.8	36.0	35.9	33.2	32.9	32.6	33.4	32.0	29.6	30.2	-8.9%
Turkey	25.3	38.4	43.9	48.8	61.2	77.3	80.7	74.9	68.9	73.0	76.0	24.1%
United Kingdom	246.4	228.3	205.8	195.3	197.8	188.9	178.7	181.0	163.8	156.5	152.5	-22.9%
OECD Europe ³	1 718.9	1 799.4	1 855.0	1 523.2	1 581.7	1 661.0	1 673.6	1 681.2	1 493.6	1 385.4	1 360.2	-14.0%
<i>European Union - 28</i>	..	..	..	..	1 590.4	1 607.5	1 604.5	1 621.6	1 432.3	1 323.9	1 290.5	-18.9%
G7	3 861.7	4 066.2	4 068.1	3 551.2	3 751.0	3 809.6	3 987.5	4 063.6	3 568.2	3 498.7	3 474.7	-7.4%
G8	..	..	..	..	4 369.5	4 150.5	4 305.5	4 357.5	3 865.6	3 826.4	3 789.8	-13.3%
G20	..	..	..	..	6 359.1	6 556.8	7 103.2	7 517.5	7 416.0	7 546.4	7 577.5	19.2%

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

2. Includes Estonia and Slovenia prior to 1990.

3. Excludes Estonia and Slovenia prior to 1990.

CO₂ emissions from fuel combustion - oilmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Non-OECD Total ¹	1 489.3	2 077.1	2 674.4	2 732.3	3 033.3	2 994.7	3 348.1	3 842.9	4 508.1	4 871.0	4 987.3	64.4%
Albania	2.4	2.2	3.5	2.4	2.8	1.7	2.9	3.7	3.4	3.1	3.3	21.0%
Armenia	..	..	..	..	10.5	0.7	0.8	1.0	1.0	0.9	0.9	-91.8%
Azerbaijan	..	..	..	..	20.9	16.8	16.9	11.9	7.4	9.5	10.0	-52.2%
Belarus	..	..	..	..	65.6	27.7	17.3	15.7	18.1	18.2	18.1	-72.4%
Bosnia and Herzegovina	..	..	..	..	5.4	1.5	3.2	3.2	4.5	4.1	4.1	-23.2%
Bulgaria	29.2	35.1	38.7	28.0	25.8	13.3	10.1	11.8	10.9	10.5	9.6	-62.8%
Croatia	..	..	..	..	13.1	10.7	11.1	12.7	10.5	9.7	9.1	-30.7%
Cyprus ²	1.7	1.7	2.6	2.6	3.6	5.0	6.2	6.9	7.1	6.5	5.6	54.5%
FYR of Macedonia	..	..	..	..	3.0	2.3	2.7	2.6	2.6	2.7	2.6	-11.4%
Georgia	..	..	..	..	19.3	5.9	2.4	2.1	2.8	2.8	2.7	-86.0%
Gibraltar	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.4	0.5	0.5	0.5	249.6%
Kazakhstan	..	..	..	..	53.6	32.6	22.0	25.6	29.7	32.6	46.6	-13.0%
Kosovo ²	..	..	..	..	..	..	1.0	1.4	1.6	1.6	1.7	..
Kyrgyzstan	..	..	..	..	9.0	1.4	1.2	1.4	2.7	4.7	4.8	-46.6%
Latvia	..	..	..	..	10.4	5.5	3.8	4.0	4.1	3.6	3.6	-65.3%
Lithuania	..	..	..	..	19.7	8.9	6.4	7.1	6.8	6.7	6.4	-67.3%
Malta	0.7	0.7	1.0	0.7	1.6	2.3	2.1	2.7	2.5	2.7	2.3	47.1%
Republic of Moldova	..	..	..	..	15.0	3.1	1.2	1.9	2.2	2.1	2.2	-85.6%
Montenegro ²	..	..	..	..	..	..	..	0.8	0.8	0.7	0.7	..
Romania	29.8	38.1	50.5	40.2	49.8	32.0	26.6	27.1	22.3	24.4	22.7	-54.4%
Russian Federation	..	..	..	..	618.5	340.8	318.0	293.9	297.5	327.8	315.0	-49.1%
Serbia ²	..	..	..	..	13.7	4.8	4.1	11.5	9.6	9.0	8.3	-39.3%
Tajikistan	..	..	..	..	5.2	1.2	0.7	0.9	1.6	1.7	1.8	-65.4%
Turkmenistan	..	..	..	..	14.7	6.9	11.1	14.9	16.5	18.3	18.5	26.1%
Ukraine	..	..	..	..	185.1	72.5	31.9	35.8	37.3	36.8	35.9	-80.6%
Uzbekistan	..	..	..	..	24.9	18.5	17.8	13.3	10.2	8.3	7.9	-68.3%
Former Soviet Union ³	635.5	937.1	1 119.7	1 102.5	..	..	..	..	..	..	..	..
Former Yugoslavia ³	23.8	29.9	35.6	34.5	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia ¹	723.1	1 044.7	1 251.7	1 211.1	1 191.1	616.4	521.7	514.5	514.2	549.4	545.0	-54.2%
Algeria	5.8	8.6	14.1	19.2	23.7	22.7	24.9	31.4	43.7	49.8	52.1	120.0%
Angola	1.5	1.8	2.5	2.6	2.9	2.8	3.5	4.9	13.7	16.1	17.7	513.9%
Benin	0.3	0.5	0.4	0.5	0.3	0.2	1.4	2.7	4.6	4.9	5.2	+
Botswana	..	..	..	0.5	1.0	1.2	1.7	2.0	2.6	2.9	3.1	211.4%
Cameroon	0.7	1.0	1.7	2.4	2.6	2.5	2.8	2.9	4.6	4.9	5.2	96.0%
Congo	0.6	0.6	0.7	0.8	0.6	0.4	0.5	0.8	1.6	1.8	1.9	215.3%
Côte d'Ivoire	2.4	3.0	3.4	3.0	2.7	3.2	3.4	2.9	3.1	4.5	4.9	81.9%
Dem. Rep. of Congo	1.6	1.8	2.3	2.4	2.1	1.1	0.9	1.3	1.8	2.4	2.6	25.6%
Egypt	18.5	23.2	35.8	54.9	61.6	57.7	66.8	78.5	100.8	105.7	99.0	60.7%
Eritrea	..	..	..	..	..	0.8	0.6	0.6	0.5	0.5	0.6	..
Ethiopia	1.3	1.2	1.4	1.4	2.2	2.3	3.2	4.5	5.8	6.7	7.8	259.1%
Gabon	0.5	0.8	1.3	1.6	0.7	1.1	1.2	1.4	1.7	1.9	2.0	189.8%
Ghana	1.9	2.3	2.2	2.1	2.5	3.2	5.0	6.4	9.6	12.0	13.0	413.5%
Kenya	3.0	3.3	4.4	4.4	5.1	5.3	7.5	7.1	10.6	9.5	10.9	111.2%
Libya	1.6	6.2	12.3	15.0	17.7	26.0	30.1	34.5	37.9	33.3	35.4	99.5%
Mauritius	0.3	0.4	0.6	0.5	1.0	1.4	1.8	2.1	2.0	2.1	2.1	103.6%
Morocco	5.3	7.8	11.9	13.4	15.3	19.2	18.9	25.7	33.6	37.1	36.2	136.1%
Mozambique	1.5	1.2	1.7	1.3	0.9	1.0	1.3	1.5	2.2	2.4	2.6	173.4%
Namibia	..	..	..	..	..	1.8	1.9	2.4	3.0	3.2	3.4	..
Niger	..	..	..	..	..	..	0.5	0.5	1.1	1.6	1.6	..
Nigeria	4.8	9.1	22.0	24.6	21.0	23.5	29.1	37.7	36.4	36.1	34.8	65.9%
Senegal	1.2	1.6	2.0	2.1	2.1	2.4	3.5	4.2	4.7	4.8	5.1	139.0%
South Africa	27.8	34.4	33.9	36.9	43.1	48.2	49.1	57.4	62.6	68.2	73.4	70.2%
South Sudan ²	..	..	..	..	..	..	..	..	..	1.4	1.5	..
Sudan ²	3.2	3.2	3.7	4.0	5.3	4.3	5.5	9.9	15.0	13.7	13.6	156.5%
United Rep. of Tanzania	1.4	1.4	1.5	1.4	1.7	2.4	2.4	4.2	4.6	6.4	7.6	356.6%
Togo	0.3	0.3	0.4	0.3	0.6	0.6	0.9	1.0	2.1	1.6	1.7	190.2%
Tunisia	3.4	4.0	6.8	7.2	9.0	9.1	10.9	11.7	11.4	11.0	11.3	24.8%
Zambia	1.4	2.4	1.8	1.6	1.7	1.7	1.4	1.8	1.6	2.4	2.5	48.8%
Zimbabwe	1.5	2.0	1.7	2.0	2.6	3.6	3.0	2.1	1.9	3.8	4.2	64.4%
Other Africa	8.3	9.4	11.7	10.2	11.8	13.6	14.9	17.8	22.1	26.5	27.2	130.7%
Africa	100.1	131.5	182.0	216.2	241.8	263.2	298.5	361.8	446.9	479.2	489.9	102.6%

1. Includes Estonia and Slovenia prior to 1990.

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

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

CO₂ emissions from fuel combustion - oilmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Bangladesh	2.2	3.3	4.6	4.4	4.9	7.1	7.9	11.0	10.9	15.3	14.9	203.0%
Brunei Darussalam	0.2	0.2	0.5	0.6	0.7	1.1	1.2	1.3	1.7	2.0	1.9	159.7%
Cambodia	..	..	..	..	..	1.5	2.0	2.6	4.6	5.0	5.0	..
DPR of Korea	2.6	4.3	8.1	7.5	8.0	4.0	3.1	2.9	2.6	2.5	2.6	-67.7%
India	52.8	58.9	80.0	109.9	151.1	201.3	276.9	307.7	395.9	440.5	447.3	196.0%
Indonesia	24.6	36.8	61.6	70.4	91.4	130.3	160.4	183.1	202.9	214.3	213.3	133.5%
Malaysia	12.7	16.1	23.3	26.9	37.2	48.1	55.8	63.4	66.8	70.7	81.5	119.0%
Mongolia	..	..	..	2.2	2.4	1.1	1.3	1.7	2.5	3.5	3.7	51.6%
Myanmar	3.8	3.0	3.9	3.5	2.1	4.0	5.4	6.3	3.3	6.1	8.1	292.5%
Nepal	0.2	0.2	0.3	0.5	0.7	1.5	2.1	2.1	2.9	3.3	3.4	362.9%
Pakistan	8.4	10.5	12.7	20.7	30.7	45.6	58.2	49.5	62.5	64.3	67.1	118.1%
Philippines	22.9	28.8	31.8	22.9	33.0	50.3	48.2	42.1	40.1	38.6	40.2	22.1%
Singapore	6.0	8.4	12.5	16.4	28.6	34.0	38.9	23.8	26.4	26.3	23.3	-18.3%
Sri Lanka	2.8	2.6	3.6	3.5	3.7	5.4	10.5	13.1	12.1	14.1	11.6	218.0%
Chinese Taipei	18.0	30.0	53.2	41.1	65.4	82.2	89.3	83.3	68.7	61.9	61.0	-6.7%
Thailand	15.8	20.6	31.8	28.5	52.8	89.5	79.4	91.5	83.2	93.9	94.8	79.7%
Viet Nam	10.6	6.7	5.5	5.8	8.2	13.3	23.6	34.1	46.8	43.0	44.8	444.5%
Other Asia	5.6	7.4	8.6	8.0	8.9	8.3	9.5	13.3	16.9	30.7	32.7	267.5%
Asia (excl. China)	189.2	237.6	342.1	372.8	529.7	728.5	873.6	932.8	1 050.8	1 135.9	1 157.2	118.5%
People's Rep. of China	113.4	193.5	234.2	225.0	278.1	400.4	534.5	768.7	997.8	1 078.9	1 139.5	309.7%
Hong Kong, China	9.1	10.8	14.4	9.3	8.4	11.6	16.5	8.4	8.8	8.9	8.7	2.9%
China	122.5	204.3	248.6	234.3	286.5	412.0	551.0	777.1	1 006.6	1 087.8	1 148.2	300.7%
Argentina	67.0	64.6	70.3	53.7	52.4	60.2	64.4	66.4	80.3	86.1	83.0	58.3%
Bolivia	2.0	2.9	3.7	3.3	3.7	4.5	4.7	5.7	8.0	10.1	9.9	168.3%
Brazil	80.9	121.6	151.1	126.1	150.9	187.4	229.5	227.8	266.5	304.2	317.1	110.1%
Colombia	18.0	18.4	20.2	21.9	26.0	32.1	29.2	28.7	30.9	37.2	35.3	35.8%
Costa Rica	1.3	1.7	2.2	1.9	2.6	4.4	4.5	5.3	6.3	6.6	6.8	163.2%
Cuba	20.3	23.6	29.9	31.5	33.4	22.0	26.1	23.5	27.7	24.9	27.7	-16.9%
Curaçao ¹	14.5	10.2	8.7	4.5	2.7	2.6	5.6	6.0	4.4	4.6	4.5	67.1%
Dominican Republic	3.5	5.2	6.3	5.7	7.4	11.0	16.0	15.4	14.5	14.5	14.2	93.5%
Ecuador	3.5	5.9	10.4	11.7	13.3	16.7	18.1	22.6	32.2	35.5	38.1	186.4%
El Salvador	1.3	1.9	1.6	1.6	2.1	4.6	5.2	6.2	5.9	6.1	5.8	174.5%
Guatemala	2.3	3.0	4.2	3.2	3.2	5.9	8.1	9.6	9.1	9.4	10.8	237.7%
Haiti	0.4	0.4	0.6	0.6	0.9	0.9	1.4	2.0	2.1	2.1	2.2	139.4%
Honduras	1.1	1.3	1.7	1.7	2.2	3.6	4.2	6.6	6.9	7.6	7.7	253.9%
Jamaica	5.5	7.4	6.5	4.7	7.1	8.3	9.7	10.1	6.8	6.8	7.2	1.7%
Nicaragua	1.5	1.8	1.8	1.8	1.8	2.5	3.5	4.0	4.4	4.4	4.2	129.1%
Panama	2.5	3.1	2.9	2.6	2.5	4.0	4.7	5.7	8.6	8.5	7.9	217.7%
Paraguay	0.6	0.7	1.3	1.4	1.9	3.5	3.3	3.5	4.7	5.0	4.9	155.8%
Peru	14.2	16.8	18.7	16.0	17.5	21.3	22.8	21.1	24.6	25.2	28.7	64.1%
Trinidad and Tobago	2.6	2.3	2.5	2.2	2.1	2.2	2.6	3.9	4.8	4.4	4.6	125.0%
Uruguay	5.0	5.3	5.3	3.0	3.6	4.4	5.0	5.0	5.8	8.1	7.0	95.4%
Venezuela	28.4	35.3	56.2	53.1	54.1	58.7	63.9	83.4	111.2	116.9	105.0	94.0%
Other Non-OECD Americas	8.1	10.8	10.1	9.2	12.3	13.2	14.4	14.7	17.4	18.9	19.5	58.8%
Non-OECD Americas	284.4	344.5	416.2	361.4	403.6	474.0	546.8	577.3	683.1	747.1	752.3	86.4%
Bahrain	1.1	1.1	1.5	1.6	2.0	2.3	2.4	3.5	4.1	3.8	3.9	99.6%
Islamic Republic of Iran	33.0	57.8	77.9	126.5	136.2	166.4	190.8	223.3	221.5	234.6	238.5	75.1%
Iraq	8.5	12.4	23.5	33.5	47.6	88.8	64.8	78.2	93.6	114.1	124.0	160.6%
Jordan	1.4	2.2	4.3	7.5	9.1	11.8	13.9	14.9	13.5	20.3	19.8	118.6%
Kuwait	4.1	5.2	13.2	27.0	16.2	14.5	27.9	41.1	49.1	51.2	48.6	199.5%
Lebanon	4.6	5.7	6.6	6.6	5.5	12.3	13.5	13.9	17.1	20.4	20.1	264.8%
Oman	0.3	0.7	1.5	3.5	5.2	7.9	8.7	9.9	11.3	15.1	16.0	207.6%
Qatar	0.3	0.7	1.4	1.6	1.9	2.4	2.8	6.6	14.1	15.1	14.7	677.4%
Saudi Arabia	10.0	17.1	78.5	89.0	107.9	137.0	167.8	196.5	288.2	318.7	325.0	201.3%
Syrian Arab Republic	5.4	8.2	12.2	19.2	24.0	27.1	29.6	44.5	40.2	27.7	23.9	-0.5%
United Arab Emirates	0.4	1.6	9.5	15.7	18.6	20.9	21.0	28.3	33.5	35.4	38.6	107.8%
Yemen	1.2	1.8	3.5	4.9	6.3	9.4	13.3	18.8	20.0	15.4	21.4	239.4%
Middle East	70.1	114.4	233.7	336.5	380.4	500.8	556.5	679.5	806.4	871.7	894.7	135.2%

1. Prior to 2012, Curaçao includes the entire territory of the former Netherlands Antilles.

CO₂ emissions from fuel combustion - natural gasmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
World ¹	2 043.6	2 249.4	2 709.2	3 070.1	3 676.6	3 970.7	4 535.5	5 178.3	6 011.7	6 243.2	6 380.6	73.5%
<i>Annex I Parties</i>	..	..	..	..	2 995.6	3 113.7	3 398.5	3 565.0	3 786.9	3 816.1	3 871.2	29.2%
<i>Annex II Parties</i>	1 443.2	1 500.2	1 652.2	1 600.4	1 756.9	2 086.5	2 383.3	2 455.9	2 656.7	2 675.4	2 712.9	54.4%
<i>North America</i>	1 263.7	1 149.2	1 181.6	1 057.5	1 113.6	1 287.1	1 396.3	1 347.4	1 459.0	1 549.0	1 596.4	43.3%
<i>Europe</i>	166.6	322.5	401.0	431.9	489.7	618.2	769.3	873.5	908.9	788.6	776.5	58.6%
<i>Asia Oceania</i>	12.8	28.6	69.6	110.9	153.5	181.2	217.6	234.9	288.8	337.8	340.0	121.4%
<i>Annex I EIT</i>	..	..	..	..	1 232.5	1 015.0	986.4	1 056.7	1 057.0	1 053.8	1 070.5	-13.1%
<i>Non-Annex I Parties</i>	..	..	..	..	680.9	857.0	1 137.0	1 613.3	2 224.8	2 427.1	2 509.4	268.5%
<i>Annex I Kyoto Parties</i>	..	..	..	..	1 851.0	1 790.7	1 942.4	2 128.4	2 215.2	2 143.7	2 150.2	16.2%
Intl. marine bunkers	-	-	-	-	-	-	-	-	-	-	-	-
Intl. aviation bunkers	-	-	-	-	-	-	-	-	-	-	-	-
Non-OECD Total ²	558.7	695.0	973.0	1 368.2	1 795.6	1 740.9	1 942.4	2 423.2	2 973.0	3 157.3	3 233.9	80.1%
OECD Total ³	1 484.9	1 554.5	1 736.2	1 701.9	1 881.0	2 229.8	2 593.1	2 755.1	3 038.7	3 085.8	3 146.7	67.3%
Canada	68.2	87.8	96.5	108.6	119.1	143.3	162.5	167.3	172.4	188.4	197.9	66.2%
Chile	1.3	1.1	1.4	1.6	0.9	1.0	6.7	10.6	8.7	9.0	9.2	879.1%
Mexico	19.6	24.5	40.4	50.5	48.4	46.4	61.8	85.3	120.1	131.0	140.5	190.4%
United States	1 195.5	1 061.4	1 085.1	949.0	994.6	1 143.8	1 233.8	1 180.2	1 286.6	1 360.6	1 398.5	40.6%
OECD Americas	1 284.6	1 174.7	1 223.5	1 109.7	1 163.0	1 334.5	1 464.9	1 443.3	1 587.8	1 689.0	1 746.1	50.1%
Australia	4.0	8.6	16.3	23.8	32.3	37.4	43.6	54.0	65.0	70.0	72.7	125.3%
Israel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	10.2	4.9	13.5	+
Japan	8.6	19.3	51.5	81.9	114.7	137.4	165.3	174.0	216.3	260.8	260.2	126.9%
Korea	-	-	-	-	6.4	19.5	40.1	64.1	91.2	106.5	110.7	+
New Zealand	0.2	0.6	1.9	5.3	6.6	6.4	8.7	6.9	7.4	7.0	7.1	7.8%
OECD Asia Oceania	12.9	28.6	69.6	110.9	159.9	200.7	257.8	302.2	390.1	449.3	464.1	190.2%
Austria	5.4	7.1	8.3	9.5	11.3	14.4	14.6	18.4	18.4	16.7	15.5	37.0%
Belgium	11.3	17.4	19.6	16.2	18.3	23.6	29.7	32.0	37.7	31.6	31.5	72.0%
Czech Republic	1.9	3.1	5.6	9.2	11.5	14.6	17.1	17.9	17.3	15.5	15.8	37.1%
Denmark	-	0.0	0.0	1.5	4.2	7.4	10.4	10.5	10.4	8.2	7.8	85.7%
Estonia	..	..	..	..	2.4	1.1	1.3	1.6	1.3	1.3	1.1	-53.2%
Finland	-	1.5	1.7	1.9	5.1	6.6	7.9	8.3	8.3	6.4	6.0	18.6%
France	17.7	30.7	44.2	51.1	53.3	62.8	77.9	90.1	94.0	83.6	88.1	65.1%
Germany	38.4	84.1	111.2	101.1	115.2	144.9	155.8	168.4	176.8	160.7	163.8	42.2%
Greece	-	-	-	0.0	0.1	0.1	3.7	5.2	6.7	7.5	6.8	+
Hungary	6.0	9.7	16.2	18.0	19.0	19.8	21.2	26.6	21.7	18.1	17.2	-9.5%
Iceland	-	-	-	-	-	-	-	-	-	-	-	-
Ireland	-	-	1.7	4.5	3.3	4.4	7.1	8.0	10.8	9.2	8.7	164.1%
Italy	24.1	41.0	46.3	57.0	87.0	101.8	133.1	162.4	157.3	142.2	132.7	52.5%
Luxembourg	0.0	0.8	1.0	0.7	1.0	1.3	1.6	2.8	2.8	2.5	2.1	108.1%
Netherlands	47.3	69.1	67.0	72.3	67.0	74.8	75.8	77.2	86.9	72.8	73.4	9.6%
Norway	-	0.4	2.0	2.8	4.6	8.1	7.4	9.3	11.3	10.2	10.2	120.8%
Poland	10.3	11.5	15.2	15.6	15.5	15.4	17.8	23.2	25.5	26.4	26.5	70.4%
Portugal	-	-	-	-	-	-	4.6	8.7	10.5	9.1	8.7	x
Slovak Republic	2.7	4.4	4.9	6.4	11.7	11.8	13.2	12.6	10.9	9.1	10.0	-15.0%
Slovenia	..	..	..	..	1.8	1.5	1.6	1.9	1.8	1.7	1.6	-10.4%
Spain	0.7	1.8	3.1	4.5	10.0	16.9	34.1	66.8	71.6	65.0	59.6	496.4%
Sweden	-	-	-	0.2	1.3	1.6	1.6	1.7	3.0	2.2	2.0	57.9%
Switzerland	0.0	1.0	1.9	2.9	3.8	5.1	5.7	6.5	7.0	6.8	7.2	90.6%
Turkey	-	-	-	0.1	6.3	12.2	28.9	52.3	73.3	86.9	87.8	+
United Kingdom	21.7	67.5	92.8	105.7	104.1	144.5	198.3	197.2	195.3	153.8	152.3	46.2%
OECD Europe ³	187.4	351.2	443.0	481.3	558.1	694.6	870.4	1 009.6	1 060.7	947.5	936.6	67.8%
<i>European Union - 28</i>	..	..	..	..	641.2	730.0	874.0	988.0	1 009.6	881.7	867.5	35.3%
G7	1 374.2	1 391.8	1 527.7	1 454.3	1 588.0	1 878.6	2 126.8	2 139.6	2 298.8	2 350.2	2 393.5	50.7%
G8	..	..	..	..	2 425.4	2 587.9	2 821.8	2 893.2	3 101.3	3 169.5	3 236.5	33.4%
G20	..	..	..	..	2 950.5	3 194.0	3 584.3	3 918.0	4 465.3	4 625.9	4 747.0	60.9%

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

2. Includes Estonia and Slovenia prior to 1990.

3. Excludes Estonia and Slovenia prior to 1990.

CO₂ emissions from fuel combustion - natural gasmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Non-OECD Total ¹	558.7	695.0	973.0	1 368.2	1 795.6	1 740.9	1 942.4	2 423.2	2 973.0	3 157.3	3 233.9	80.1%
Albania	0.2	0.6	0.8	0.8	0.5	0.1	0.0	0.0	0.0	0.0	0.0	-92.8%
Armenia	..	..	..	..	8.4	2.7	2.6	3.1	3.0	4.5	4.4	-47.7%
Azerbaijan	..	..	..	..	32.2	15.5	10.4	17.1	16.1	19.3	19.4	-39.9%
Belarus	..	..	..	..	24.7	23.7	30.9	36.8	39.4	36.5	36.8	49.2%
Bosnia and Herzegovina	..	..	..	..	0.9	0.3	0.5	0.7	0.5	0.5	0.4	-59.2%
Bulgaria	0.6	2.3	7.5	10.8	11.0	9.2	6.0	5.7	4.8	5.2	5.0	-55.0%
Croatia	..	..	..	..	4.2	3.4	4.0	4.5	5.1	4.2	4.2	0.4%
Cyprus ²	..	..	..	..	-	-	-	-	-	-	-	-
FYR of Macedonia	..	..	..	..	-	-	0.1	0.1	0.2	0.3	0.3	x
Georgia	..	..	..	..	10.7	2.2	2.2	1.9	2.1	3.4	2.7	-75.2%
Gibraltar	..	..	..	..	-	-	-	-	-	-	-	-
Kazakhstan	..	..	..	..	24.9	23.6	15.3	28.6	53.8	53.7	52.4	110.2%
Kosovo ²	..	..	..	..	..	..	-	-	-	-	-	..
Kyrgyzstan	..	..	..	..	3.6	1.7	1.3	1.2	0.5	0.7	0.6	-84.3%
Latvia	..	..	..	..	5.6	2.3	2.5	3.2	3.4	2.8	2.8	-49.9%
Lithuania	..	..	..	..	9.4	3.5	3.5	4.4	4.6	3.7	3.2	-66.4%
Malta	..	..	..	..	-	-	-	-	-	-	-	-
Republic of Moldova	..	..	..	..	7.6	6.5	4.8	5.5	5.3	5.1	3.9	-48.3%
Montenegro ²	..	..	..	..	..	..	-	-	-	-	-	..
Romania	52.3	62.9	76.0	75.0	67.7	42.3	29.5	28.7	22.6	22.2	21.1	-68.9%
Russian Federation	..	..	..	..	837.4	709.4	695.1	753.6	802.5	819.4	843.1	0.7%
Serbia ²	..	..	..	..	6.1	2.8	3.2	4.0	3.8	3.9	4.1	-32.5%
Tajikistan	..	..	..	..	3.3	1.2	1.5	1.3	0.4	0.3	0.6	-81.8%
Turkmenistan	..	..	..	..	28.8	26.3	25.6	33.5	40.7	46.2	47.5	65.1%
Ukraine	..	..	..	..	210.4	156.9	142.7	136.1	96.0	87.8	82.2	-60.9%
Uzbekistan	..	..	..	..	75.9	71.6	90.9	89.2	81.4	93.5	82.3	8.5%
Former Soviet Union ³	421.4	503.7	677.7	988.6	..	..	..	..	..	..	..	..
Former Yugoslavia ³	1.3	2.1	4.9	11.0	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia ¹	475.8	571.6	766.9	1 086.2	1 373.2	1 105.2	1 072.7	1 159.2	1 186.2	1 213.1	1 216.9	-11.4%
Algeria	2.4	4.6	13.5	21.8	26.2	31.2	35.9	44.9	51.3	60.3	61.4	134.3%
Angola	0.1	0.1	0.2	0.2	1.0	1.1	1.1	1.2	1.4	1.5	0.8	-24.4%
Benin	-	-	-	-	-	-	-	-	-	-	-	-
Botswana	..	..	..	..	-	-	-	-	-	-	-	-
Cameroon	..	..	..	..	-	-	-	-	0.5	0.4	0.7	x
Congo	0.0	0.0	-	0.0	-	-	-	0.0	0.2	0.4	0.4	x
Côte d'Ivoire	-	-	-	-	-	0.1	3.0	2.9	3.1	3.3	3.8	x
Dem. Rep. of Congo	-	-	-	-	-	-	-	-	0.0	0.0	0.0	x
Egypt	0.2	0.1	2.8	6.6	13.4	20.8	29.8	62.8	73.8	82.0	83.7	525.5%
Eritrea	..	..	..	..	..	..	-	-	-	-	-	..
Ethiopia	-	-	-	-	-	-	-	-	-	-	-	-
Gabon	-	-	0.0	0.1	0.2	0.3	0.2	0.3	0.6	0.7	0.8	282.7%
Ghana	-	-	-	-	-	-	-	-	0.8	0.8	0.6	x
Kenya	-	-	-	-	-	-	-	-	-	-	-	-
Libya	2.1	2.5	5.3	6.2	8.1	7.0	6.9	8.5	10.1	9.1	7.9	-3.1%
Mauritius	-	-	-	-	-	-	-	-	-	-	-	-
Morocco	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.9	1.3	2.5	2.3	+
Mozambique	-	-	-	-	-	0.0	0.0	0.0	0.2	0.2	0.3	x
Namibia	..	..	..	..	..	..	-	-	-	-	-	..
Niger	..	..	..	..	..	..	-	-	-	-	-	..
Nigeria	0.4	1.0	2.9	7.0	6.9	9.3	14.7	18.7	19.3	27.1	26.1	277.7%
Senegal	-	-	-	-	0.0	0.1	0.0	0.0	0.0	0.1	0.1	486.5%
South Africa	-	-	-	-	-	-	-	-	4.1	4.0	4.0	x
South Sudan ²	..	..	..	..	..	..	..	..	..	..	..	..
Sudan ²	..	..	..	..	..	..	..	..	..	..	..	..
United Rep. of Tanzania	-	-	-	-	-	-	-	0.8	1.5	1.9	1.9	x
Togo	-	-	-	-	-	-	-	-	-	-	-	-
Tunisia	0.0	0.5	0.8	2.2	2.8	4.6	6.4	7.8	11.9	12.5	12.4	340.0%
Zambia	-	-	-	-	-	-	-	-	-	-	-	-
Zimbabwe	-	-	-	-	-	-	-	-	-	-	-	-
Other Africa	-	-	-	-	-	-	0.0	0.1	0.9	0.9	1.0	x
Africa	5.3	9.0	25.6	44.3	58.8	74.4	98.0	149.0	181.0	207.7	208.2	254.3%

1. Includes Estonia and Slovenia prior to 1990.

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

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

CO₂ emissions from fuel combustion - natural gasmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Bangladesh	0.3	0.6	1.5	3.1	5.4	8.1	11.7	19.0	35.8	38.4	40.8	658.5%
Brunei Darussalam	0.2	1.2	2.1	2.3	2.5	3.4	3.2	3.5	5.1	5.0	4.9	95.8%
Cambodia	..	..	..	..	..	-	-	-	-	-	-	..
DPR of Korea	-	-	-	-	-	-	-	-	-	-	-	-
India	1.0	1.3	1.8	4.7	13.1	25.0	36.2	54.3	95.7	81.9	71.9	448.6%
Indonesia	0.1	0.5	5.4	8.7	24.3	47.3	45.4	50.9	71.3	73.8	76.2	213.2%
Malaysia	0.0	0.1	0.2	4.6	6.8	24.1	48.5	63.9	63.1	57.8	66.1	877.1%
Mongolia	..	..	..	-	-	-	-	-	-	-	-	-
Myanmar	0.1	0.3	0.6	1.6	1.6	2.7	2.6	3.0	3.0	3.5	3.8	138.8%
Nepal	-	-	-	-	-	-	-	-	-	-	-	-
Pakistan	4.9	7.2	8.9	10.8	17.9	25.6	30.9	52.6	52.5	55.4	52.6	194.0%
Philippines	-	-	-	-	-	0.0	0.0	6.7	7.2	7.4	6.8	x
Singapore	0.0	0.1	0.1	0.1	0.1	3.2	2.9	13.3	16.7	18.5	20.9	+
Sri Lanka	-	-	-	-	-	-	-	-	-	-	-	-
Chinese Taipei	1.6	2.2	3.3	1.5	3.0	7.4	12.9	20.8	30.6	31.7	32.4	965.7%
Thailand	-	-	-	6.9	11.7	20.5	40.8	60.9	74.7	79.3	83.7	613.0%
Viet Nam	-	-	-	0.1	0.0	0.4	2.6	11.0	19.1	19.0	20.5	+
Other Asia	0.5	0.5	0.2	1.2	0.6	0.5	0.5	0.5	0.9	0.6	0.7	15.9%
Asia (excl. China)	8.7	14.0	24.2	45.7	87.1	168.2	238.2	360.5	475.4	472.4	481.3	452.8%
People's Rep. of China	7.4	17.4	28.1	16.2	19.8	26.8	37.2	71.8	181.2	258.1	298.8	+
Hong Kong, China	0.1	0.1	0.2	0.4	0.8	1.2	7.1	6.5	8.0	6.0	5.7	653.9%
China	7.4	17.5	28.3	16.6	20.6	28.0	44.3	78.3	189.1	264.1	304.5	+
Argentina	12.1	17.1	21.7	30.4	43.3	52.2	70.2	77.1	87.3	93.5	93.9	116.5%
Bolivia	0.1	0.3	0.6	0.8	1.5	2.3	2.4	3.8	6.1	7.1	7.4	408.3%
Brazil	0.5	1.0	1.6	3.7	5.7	7.5	16.4	37.1	49.9	58.7	70.4	+
Colombia	2.6	3.3	5.7	7.4	7.6	8.4	12.8	14.4	18.5	18.2	20.1	166.5%
Costa Rica	-	-	-	-	-	-	-	-	-	-	-	-
Cuba	0.1	0.2	0.1	0.1	0.1	0.2	1.1	1.5	2.0	2.0	2.0	+
Curaçao ¹	-	-	-	-	-	-	-	-	-	-	-	-
Dominican Republic	-	-	-	-	-	-	-	0.4	1.5	2.1	2.1	x
Ecuador	-	-	-	-	-	-	-	0.7	1.0	1.2	1.4	x
El Salvador	-	-	-	-	-	-	-	-	-	-	-	-
Guatemala	-	-	-	-	-	-	-	-	-	-	-	-
Haiti	-	-	-	-	-	-	-	-	-	-	-	-
Honduras	-	-	-	-	-	-	-	-	-	-	-	-
Jamaica	-	-	-	-	-	-	-	-	-	-	-	-
Nicaragua	-	-	-	-	-	-	-	-	-	-	-	-
Panama	-	-	-	-	-	-	-	-	-	-	-	-
Paraguay	-	-	-	-	-	-	-	-	-	-	-	-
Peru	0.6	0.8	1.0	1.3	1.0	0.6	1.1	3.9	12.9	15.6	13.5	+
Trinidad and Tobago	2.8	2.3	3.9	4.5	5.8	6.0	7.5	13.6	17.6	17.7	18.3	213.6%
Uruguay	-	-	-	-	-	-	0.1	0.2	0.1	0.1	0.1	x
Venezuela	16.9	19.7	26.5	31.2	37.6	47.3	51.7	53.6	59.6	51.0	49.8	32.5%
Other Non-OECD Americas	0.0	-	0.0	0.1	0.0	0.0	0.7	1.4	1.6	1.5	1.6	+
Non-OECD Americas	35.8	44.7	61.1	79.5	102.7	124.6	164.1	207.5	258.2	268.6	280.5	173.2%
Bahrain	1.8	4.1	5.7	7.5	8.7	11.2	13.4	17.1	21.7	22.2	24.4	179.8%
Islamic Republic of Iran	5.5	8.1	8.6	16.9	33.8	76.2	118.0	189.6	274.2	279.0	284.6	742.7%
Iraq	1.8	3.2	2.5	1.6	3.8	6.1	6.0	3.5	9.8	11.6	14.0	268.8%
Jordan	-	-	-	-	0.2	0.5	0.5	3.2	5.4	1.5	2.1	792.9%
Kuwait	10.0	9.9	13.2	9.7	11.6	17.8	18.4	23.6	27.8	34.8	35.5	206.7%
Lebanon	-	-	-	-	-	-	-	-	0.5	-	-	-
Oman	-	-	0.7	2.1	4.9	6.8	11.7	14.8	36.6	40.8	41.9	747.3%
Qatar	1.9	4.2	5.6	9.1	10.5	14.4	18.5	26.6	43.0	55.8	57.7	447.4%
Saudi Arabia	2.7	5.4	20.9	28.8	43.2	54.6	66.8	101.5	130.8	144.6	147.3	241.1%
Syrian Arab Republic	-	-	0.1	0.3	3.2	4.0	7.4	8.9	15.7	11.0	9.6	198.4%
United Arab Emirates	2.1	3.3	9.7	19.9	33.3	48.8	64.5	79.8	115.4	128.5	123.3	270.3%
Yemen	-	-	-	-	-	-	-	-	2.0	1.6	2.1	x
Middle East	25.7	38.2	67.0	96.0	153.3	240.4	325.2	468.6	683.0	731.4	742.4	384.4%

1. Prior to 2012, Curaçao includes the entire territory of the former Netherlands Antilles.

CO₂ emissions from international marine bunkersmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
World	353.76	341.03	357.30	306.74	371.47	429.89	498.68	580.30	667.16	615.10	608.83	63.9%
<i>Annex I Parties</i>	..	..	..	..	236.44	232.80	254.06	276.59	269.61	221.02	224.09	-5.2%
<i>Annex II Parties</i>	205.15	219.47	237.59	173.40	225.91	229.26	248.28	267.06	255.27	207.07	196.87	-12.9%
<i>North America</i>	26.68	36.49	94.86	57.00	94.49	94.63	93.17	85.44	85.67	50.65	50.40	-46.7%
<i>Europe</i>	121.84	111.91	98.45	89.11	110.31	112.53	134.21	157.83	151.26	139.59	130.07	17.9%
<i>Asia Oceania</i>	56.64	71.08	44.28	27.29	21.11	22.10	20.90	23.79	18.34	16.83	16.41	-22.3%
<i>Annex I EIT</i>	..	..	..	..	9.88	2.60	1.82	3.17	7.91	8.92	19.68	99.3%
<i>Non-Annex I Parties</i>	..	..	..	..	135.03	197.08	244.63	303.70	397.56	394.08	384.74	184.9%
<i>Annex I Kyoto Parties</i>	..	..	..	..	141.30	137.24	156.93	184.79	177.51	165.34	166.16	17.6%
Non-OECD Total ¹	144.28	118.11	115.88	127.94	137.07	173.39	210.71	267.97	375.35	373.61	376.26	174.5%
OECD Total ²	209.48	222.92	241.43	178.80	234.40	256.49	287.98	312.32	291.81	241.49	232.57	-0.8%
Canada	3.10	2.61	4.76	1.19	2.90	3.20	3.37	2.86	2.20	1.33	1.32	-54.5%
Chile	0.61	0.37	0.27	0.09	0.58	1.13	1.96	3.33	1.30	0.54	0.67	15.9%
Mexico	0.26	0.39	1.01	1.34	..	2.58	3.87	2.73	2.53	2.90	2.53	..
United States	23.58	33.88	90.10	55.82	91.60	91.43	89.80	82.58	83.47	49.33	49.08	-46.4%
OECD Americas	27.54	37.25	96.15	58.44	95.07	98.33	99.01	91.50	89.49	54.09	53.60	-43.6%
Australia	5.15	5.08	3.71	2.31	2.16	2.82	2.99	2.76	2.28	2.77	2.24	3.9%
Israel	..	..	..	0.35	0.38	0.65	0.59	0.81	1.07	1.02	0.78	103.8%
Japan	50.44	64.91	39.38	24.24	17.90	18.15	17.14	20.02	14.98	13.08	13.19	-26.3%
Korea	1.54	0.17	0.31	1.71	5.32	21.57	30.77	33.58	29.04	27.49	26.88	405.0%
New Zealand	1.05	1.09	1.19	0.74	1.05	1.14	0.76	1.00	1.08	0.98	0.98	-6.7%
OECD Asia Oceania	58.18	71.25	44.60	29.35	26.81	44.32	52.25	58.18	48.45	45.34	44.07	64.3%
Austria	-	-	-	-	0.04	0.05	0.06	0.06	0.05	0.05	0.06	50.0%
Belgium	8.16	8.76	7.63	7.41	13.04	12.43	17.19	24.64	24.54	19.51	19.87	52.4%
Czech Republic	-	-	-	-	-	-	-	-	-	-	-	-
Denmark	2.11	1.69	1.34	1.36	3.05	5.01	4.08	2.43	2.19	1.63	1.99	-34.7%
Estonia	..	..	..	..	0.57	0.28	0.33	0.38	0.70	1.28	1.34	133.1%
Finland	0.24	0.31	1.86	1.47	1.80	1.05	2.12	1.61	0.67	0.39	0.41	-77.1%
France	12.89	14.71	12.72	7.65	7.86	6.78	8.99	8.25	7.41	7.51	6.86	-12.8%
Germany	13.13	10.71	11.22	11.05	7.95	6.57	6.98	7.93	8.84	8.09	7.31	-8.0%
Greece	1.90	2.82	2.66	3.54	8.11	11.34	11.45	9.15	8.73	7.25	6.83	-15.8%
Hungary	-	-	-	-	-	-	-	-	-	-	-	-
Iceland	..	..	..	0.02	0.10	0.14	0.21	0.20	0.18	0.18	0.08	-20.2%
Ireland	0.24	0.21	0.24	0.09	0.06	0.37	0.47	0.33	0.26	0.30	0.41	621.9%
Italy	23.10	18.22	13.29	10.93	8.52	7.75	5.30	7.23	9.59	7.96	7.04	-17.5%
Luxembourg	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	28.61	33.28	29.78	27.82	34.79	36.11	42.64	54.09	44.29	43.24	39.97	14.9%
Norway	1.94	1.52	0.88	1.04	1.41	2.22	2.59	2.18	1.22	1.03	1.13	-19.8%
Poland	1.65	2.23	2.24	1.65	1.25	0.44	0.91	1.02	0.69	0.46	0.44	-64.8%
Portugal	2.34	2.02	1.36	1.50	1.93	1.53	2.10	1.84	1.48	1.95	2.07	7.5%
Slovak Republic	-	-	-	-	-	-	-	-	-	-	-	-
Slovenia	..	..	..	..	..	..	..	0.07	0.06	0.16	0.19	..
Spain	6.00	3.47	5.12	6.83	11.57	10.10	19.16	25.25	26.79	26.77	23.01	98.8%
Sweden	3.62	3.48	2.69	1.77	2.11	3.33	4.33	6.18	6.25	5.39	5.09	140.8%
Switzerland	-	-	-	-	0.06	0.05	0.03	0.04	0.03	0.03	0.02	-66.7%
Turkey	0.27	0.29	..	0.25	0.38	0.58	1.26	3.34	1.16	0.59	2.87	663.1%
United Kingdom	17.54	10.70	7.65	6.63	7.92	7.70	6.50	6.41	8.75	8.31	7.94	0.2%
OECD Europe ²	123.75	114.43	100.68	91.01	112.51	113.84	136.72	162.64	153.87	142.07	134.91	19.9%
<i>European Union - 28</i>	..	..	..	..	112.98	113.08	135.89	161.60	158.17	146.07	136.94	21.2%
G7	143.78	155.73	179.12	117.50	144.64	141.58	138.08	135.28	135.24	95.61	92.72	-35.9%
G8	..	..	..	..	150.57	141.58	138.08	135.28	140.07	101.25	108.98	-27.6%
G20	..	..	..	..	266.91	294.41	333.14	376.03	404.82	348.46	346.63	29.9%

1. Includes Estonia and Slovenia prior to 1990.

2. Excludes Estonia and Slovenia prior to 1990.

CO₂ emissions from international marine bunkersmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Non-OECD Total ¹	144.28	118.11	115.88	127.94	137.07	173.39	210.71	267.97	375.35	373.61	376.26	174.5%
Albania	..	..	..	..	..	..	..	..	..	..	0.06	..
Armenia	..	..	..	..	..	..	..	..	..	..	..	..
Azerbaijan	..	..	..	..	..	..	..	..	0.23	0.27	0.25	..
Belarus	..	..	..	..	..	..	..	..	..	..	..	..
Bosnia and Herzegovina	..	..	..	..	..	..	..	..	..	..	..	..
Bulgaria	..	..	..	0.72	0.18	0.85	0.20	0.35	0.31	0.20	0.29	56.2%
Croatia	..	..	..	..	0.15	0.10	0.06	0.08	0.02	..	..	-100.0%
Cyprus ²	0.01	0.07	0.05	0.11	0.18	0.21	0.60	0.91	0.58	0.61	0.75	313.2%
FYR of Macedonia	..	..	..	..	..	..	..	..	..	..	..	..
Georgia	..	..	..	..	..	0.16	..	..	..	..	..	..
Gibraltar	3.54	3.85	4.20	4.67	5.51	5.97	8.41	12.67	13.28	13.34	12.20	121.6%
Kazakhstan	..	..	..	..	..	..	..	..	..	..	..	..
Kosovo ²	..	..	..	..	..	..	..	..	..	..	..	..
Kyrgyzstan	..	..	..	..	..	..	..	..	..	..	..	..
Latvia	..	..	..	..	1.50	0.48	0.03	0.82	0.80	0.76	0.76	-49.2%
Lithuania	..	..	..	..	0.30	0.45	0.29	0.46	0.45	0.39	0.28	-7.0%
Malta	0.19	0.08	0.09	0.06	0.09	0.14	2.09	2.11	4.69	3.83	3.92	+
Republic of Moldova	..	..	..	..	..	..	..	..	..	..	..	..
Montenegro ²	..	..	..	..	..	..	..	..	..	..	..	..
Romania	..	..	..	..	..	..	..	..	0.05	0.04	0.13	..
Russian Federation	..	..	..	..	5.93	..	..	..	4.84	5.64	16.26	174.4%
Serbia ²	..	..	..	..	..	..	..	..	..	0.01	0.03	..
Tajikistan	..	..	..	..	..	..	..	..	..	..	..	..
Turkmenistan	..	..	..	..	..	..	..	..	..	..	..	..
Ukraine	..	..	..	..	..	..	..	..	..	..	..	..
Uzbekistan	..	..	..	..	..	..	..	..	..	..	..	..
Former Soviet Union ³	13.31	14.24	14.24	13.93	..	..	..	..	..	..	..	..
Former Yugoslavia ³	..	..	..	..	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia ¹	17.04	18.23	18.58	19.49	13.83	8.36	11.68	17.39	25.24	25.09	34.93	152.5%
Algeria	0.61	0.77	1.30	1.17	1.37	1.18	0.77	1.18	1.02	0.83	0.88	-36.1%
Angola	0.78	0.49	0.84	0.11	0.02	0.03	..	0.34	0.55	0.46	0.21	+
Benin	..	..	..	..	..	..	..	..	..	..	..	..
Botswana	..	..	..	..	..	..	..	..	..	..	..	..
Cameroon	..	..	0.12	0.03	0.04	0.09	0.06	0.04	0.14	0.15	0.16	276.0%
Congo	..	..	..	..	..	..	..	..	..	..	..	..
Côte d'Ivoire	0.06	0.01	1.36	0.73	0.12	0.27	0.29	0.36	0.06	0.06	0.07	-43.8%
Dem. Rep. of Congo	0.41	0.22	0.08	0.09	0.11	0.01	..	..	..	..	..	-100.0%
Egypt	0.06	1.11	3.27	4.83	5.38	7.92	8.78	8.37	7.05	5.93	5.79	7.6%
Eritrea	..	..	..	..	..	0.43	..	..	..	..	..	..
Ethiopia	0.07	0.02	0.01	0.03	0.03	0.03	..	..	..	..	..	-100.0%
Gabon	0.20	0.14	0.20	0.23	0.08	0.44	0.61	0.61	0.70	0.65	0.62	674.8%
Ghana	0.16	0.14	0.10	..	..	..	0.16	0.12	0.31	0.43	0.51	..
Kenya	1.49	1.07	0.57	0.45	0.56	0.17	0.21	0.22	0.12	0.19	0.12	-78.7%
Libya	0.01	0.01	0.02	0.04	0.25	0.28	0.86	1.16	1.17	1.11	0.73	195.0%
Mauritius	0.05	0.11	0.17	0.22	0.19	0.27	0.69	0.60	0.74	0.84	0.85	347.1%
Morocco	0.24	0.18	0.21	0.04	0.06	0.04	0.05	0.07	0.43	0.43	0.43	568.8%
Mozambique	0.76	0.36	0.27	0.10	0.09	0.01	0.00	0.01	..	..	..	-100.0%
Namibia	..	..	..	..	..	..	..	..	..	..	..	..
Niger	..	..	..	..	..	..	..	..	..	..	..	..
Nigeria	0.02	0.11	0.25	0.35	0.59	1.43	1.21	1.29	1.32	1.27	1.17	98.6%
Senegal	3.02	2.11	0.85	0.33	0.11	0.09	0.30	0.36	0.21	0.22	0.22	89.5%
South Africa	10.92	7.22	5.31	3.44	6.01	10.41	8.60	8.60	9.82	11.24	10.84	80.3%
South Sudan ²	..	..	..	..	..	..	..	..	..	..	..	..
Sudan ²	..	0.01	0.02	0.02	0.02	0.03	0.03	0.04	0.06	0.05	0.05	114.3%
United Rep. of Tanzania	0.05	0.05	0.12	0.08	0.08	0.07	0.08	0.11	0.14	0.16	0.17	115.1%
Togo	..	..	..	..	..	..	0.01	0.01	0.05	0.05	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	3.23	1.88	1.58	1.72	1.47	1.10	0.79	0.76	0.77	0.69	0.71	-51.9%
Africa	22.20	16.03	16.66	14.02	16.66	24.35	23.58	24.30	24.69	24.80	23.61	41.8%

1. Includes Estonia and Slovenia prior to 1990.

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

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

CO₂ emissions from international marine bunkersmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Bangladesh	0.07	0.05	0.19	0.07	0.06	0.11	0.15	0.19	0.25	0.29	0.30	386.2%
Brunei Darussalam	..	..	0.00	..	0.12	0.21	0.22	0.27	0.28	0.21	0.25	116.2%
Cambodia	..	..	..	..	..	..	..	..	..	..	..	..
DPR of Korea	..	..	..	..	..	..	..	..	..	..	..	..
India	0.72	0.58	0.73	0.34	1.38	1.71	2.19	3.09	4.17	3.96	4.04	193.7%
Indonesia	0.71	1.10	0.80	0.69	1.70	1.30	0.36	0.43	0.56	0.64	0.67	-60.3%
Malaysia	0.11	0.22	0.19	0.31	0.30	0.54	0.70	0.19	0.19	0.18	1.13	282.9%
Mongolia	..	..	..	-	-	-	-	-	-	-	-	-
Myanmar	0.01	0.00	-	-	-	0.01	0.01	0.01	0.01	0.01	0.01	x
Nepal	-	-	-	-	-	-	-	-	-	-	-	-
Pakistan	0.29	0.22	0.47	0.08	0.11	0.05	0.08	0.26	0.56	0.29	0.31	185.3%
Philippines	1.31	0.45	0.59	0.50	0.21	0.36	0.68	0.38	0.59	0.58	0.52	151.0%
Singapore	8.98	10.53	15.11	15.29	34.21	35.63	58.16	79.39	127.21	132.90	132.27	286.6%
Sri Lanka	1.20	1.30	1.12	1.02	1.22	1.10	0.51	0.54	0.66	0.89	1.02	-16.7%
Chinese Taipei	0.39	0.33	0.67	1.64	4.90	7.63	11.11	7.56	5.50	3.66	3.79	-22.7%
Thailand	0.21	0.26	0.51	0.66	1.72	3.05	2.49	5.23	4.46	2.48	2.50	45.6%
Viet Nam	..	..	..	0.07	0.09	0.22	0.46	0.80	1.03	0.51	0.54	525.9%
Other Asia	0.57	0.54	0.47	0.20	0.21	0.30	0.33	0.44	0.41	0.55	0.58	176.4%
Asia (excl. China)	14.56	15.58	20.83	20.87	46.21	52.22	77.45	98.78	145.88	147.14	147.93	220.1%
People's Rep. of China	2.41	2.82	3.32	3.95	4.34	8.95	8.75	16.06	27.90	28.75	24.95	475.4%
Hong Kong, China	2.00	1.72	2.88	3.14	4.57	7.24	10.72	17.97	38.98	26.53	27.64	505.1%
China	4.40	4.53	6.20	7.09	8.90	16.19	19.47	34.03	66.88	55.28	52.59	490.6%
Argentina	0.66	0.29	1.34	2.02	2.24	1.72	1.50	2.22	3.80	5.48	5.68	153.2%
Bolivia	-	-	-	-	-	-	-	-	-	-	-	-
Brazil	1.01	1.18	1.43	1.73	1.73	3.67	9.25	11.03	12.74	12.15	10.86	526.4%
Colombia	0.96	0.49	0.31	0.22	0.33	0.58	0.75	1.15	2.04	3.94	2.60	682.7%
Costa Rica	0.10	..	0.13	0.14	0.24	0.37	0.34	0.36	0.09	0.02	0.01	-94.9%
Cuba	..	..	..	0.12	0.06	0.04	0.05	0.06	0.09	0.09	0.10	71.7%
Curaçao ¹	7.79	7.41	7.35	6.19	5.23	5.37	6.35	6.78	7.26	5.12	5.16	-1.4%
Dominican Republic	..	..	..	..	..	..	..	..	..	..	..	..
Ecuador	0.28	..	0.35	0.12	0.50	1.00	0.88	2.18	1.76	1.67	1.29	157.9%
El Salvador	..	..	..	..	..	..	..	..	..	..	..	..
Guatemala	0.18	0.27	0.41	0.38	0.43	0.53	0.64	0.75	0.90	0.97	1.00	132.8%
Haiti	..	..	..	..	..	..	..	..	..	..	..	..
Honduras	..	..	..	..	..	..	..	..	0.00	0.00	0.00	..
Jamaica	0.16	0.27	0.10	0.04	0.10	0.11	0.10	0.26	0.27	0.26	0.06	-36.6%
Nicaragua	..	..	..	..	..	..	..	..	..	..	..	..
Panama	1.72	3.44	3.13	4.07	5.00	6.49	8.15	7.37	9.56	10.63	10.73	114.5%
Paraguay	-	-	-	-	-	-	-	-	-	-	-	-
Peru	0.10	0.13	0.48	0.63	0.12	0.53	0.31	1.01	0.77	0.74	0.24	102.6%
Trinidad and Tobago	5.17	3.58	1.44	0.31	0.11	0.16	1.21	1.49	1.07	1.44	1.76	+
Uruguay	0.28	0.20	0.25	0.33	0.37	1.22	0.93	1.14	1.43	0.98	0.73	96.1%
Venezuela	9.22	4.87	2.01	1.78	2.53	2.32	2.08	2.35	2.77	3.03	3.03	19.9%
Other Non-OECD Americas	3.25	2.21	2.82	1.88	0.87	0.72	0.80	0.64	0.59	2.82	2.87	229.2%
Non-OECD Americas	30.88	24.34	21.53	19.97	19.87	24.84	33.33	38.78	45.13	49.32	46.11	132.1%
Bahrain	0.56	0.56	0.61	0.48	0.25	0.26	0.25	0.24	0.25	0.26	0.26	2.5%
Islamic Republic of Iran	1.03	1.25	1.23	0.91	1.24	1.86	2.27	2.98	7.38	6.04	5.52	345.0%
Iraq	0.26	0.30	0.37	0.47	0.40	0.02	0.49	0.33	0.44	0.57	0.56	37.7%
Jordan	..	..	..	..	..	0.03	0.13	0.25	0.05	0.06	0.03	..
Kuwait	6.36	6.38	5.66	2.40	0.56	1.84	1.44	2.17	1.70	3.44	3.56	537.2%
Lebanon	0.72	0.03	..	..	..	0.04	0.05	0.06	0.09	0.09	0.09	..
Oman	3.89	2.57	0.72	0.35	0.06	0.08	0.20	0.12	3.62	2.49	2.75	+
Qatar	..	..	..	..	..	..	..	..	..	..	..	..
Saudi Arabia	40.46	26.13	13.76	28.30	5.79	6.02	6.67	7.16	8.18	10.52	10.65	83.8%
Syrian Arab Republic	0.78	1.27	1.99	2.56	2.85	3.47	3.71	3.20	3.46	2.12	1.44	-49.6%
United Arab Emirates	..	..	5.59	9.78	19.19	33.50	29.68	37.81	42.01	46.10	45.95	139.5%
Yemen	1.14	0.92	2.16	1.25	1.25	0.31	0.31	0.36	0.34	0.29	0.29	-77.1%
Middle East	55.19	39.40	32.08	46.50	31.60	47.42	45.19	54.69	67.52	71.98	71.09	125.0%

1. Prior to 2012, Curaçao includes the entire territory of the former Netherlands Antilles.

CO₂ emissions from international aviation bunkersmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
World	169.22	173.87	202.15	224.90	258.77	290.92	355.00	422.80	459.81	480.66	490.35	89.5%
<i>Annex I Parties</i>	..	..	..	..	170.69	181.62	226.43	256.99	254.53	258.34	258.67	51.5%
<i>Annex II Parties</i>	59.17	62.37	71.49	82.30	132.22	161.14	206.41	231.68	225.19	228.58	230.72	74.5%
<i>North America</i>	16.77	17.70	21.39	22.05	41.92	49.03	60.81	71.41	68.72	66.90	67.72	61.5%
<i>Europe</i>	36.32	38.05	43.13	49.09	71.19	87.92	116.80	128.30	127.39	130.32	130.69	83.6%
<i>Asia Oceania</i>	6.07	6.61	6.96	11.16	19.12	24.20	28.80	31.97	29.08	31.36	32.31	69.0%
<i>Annex I EIT</i>	..	..	..	..	36.98	18.67	17.27	20.91	24.57	25.57	23.80	-35.7%
<i>Non-Annex I Parties</i>	..	..	..	..	88.09	109.30	128.57	165.81	205.28	222.32	231.69	163.0%
<i>Annex I Kyoto Parties</i>	..	..	..	..	127.29	130.78	162.87	181.18	181.04	187.25	186.49	46.5%
Non-OECD Total ¹	104.93	105.00	120.75	131.86	115.71	115.15	131.51	164.62	203.37	220.27	227.02	96.2%
OECD Total ²	64.29	68.87	81.40	93.05	143.06	175.77	223.49	258.18	256.44	260.40	263.33	84.1%
Canada	1.27	1.95	1.36	1.23	2.73	2.61	3.12	2.51	3.41	3.01	2.47	-9.6%
Chile	0.44	0.35	0.55	0.50	0.57	0.65	1.06	1.07	1.54	2.13	1.88	230.2%
Mexico	1.40	2.42	4.28	4.58	5.29	6.83	8.13	8.60	8.16	8.68	9.09	72.0%
United States	15.51	15.76	20.03	20.82	39.19	46.42	57.69	68.90	65.31	63.89	65.24	66.5%
OECD Americas	18.62	20.48	26.22	27.12	47.77	56.50	70.00	81.07	78.42	77.71	78.69	64.7%
Australia	1.59	1.91	2.43	2.79	4.34	5.80	7.22	8.16	10.19	9.53	10.09	132.7%
Israel	1.81	1.90	2.23	2.01	1.60	2.15	2.40	3.24	2.43	2.51	2.52	57.6%
Japan	3.83	4.36	3.96	7.71	13.45	16.78	19.77	21.58	16.55	19.36	19.62	45.9%
Korea	-	0.37	0.83	1.71	0.85	2.07	1.71	7.32	12.01	12.12	12.80	+
New Zealand	0.65	0.34	0.58	0.66	1.33	1.61	1.81	2.23	2.33	2.47	2.60	94.7%
OECD Asia Oceania	7.88	8.88	10.03	14.89	21.57	28.41	32.92	42.53	43.52	45.99	47.63	120.9%
Austria	0.28	0.25	0.39	0.65	0.86	1.29	1.65	1.91	2.00	2.03	1.93	123.1%
Belgium	1.23	1.06	1.24	1.64	2.84	2.63	4.42	3.83	4.12	4.05	3.81	34.1%
Czech Republic	0.70	0.59	0.86	0.64	0.66	0.57	0.48	0.95	0.93	0.87	0.84	28.0%
Denmark	1.94	1.57	1.61	1.57	1.72	1.85	2.34	2.58	2.42	2.50	2.48	43.9%
Estonia	..	..	..	..	0.10	0.05	0.06	0.14	0.11	0.11	0.09	-17.6%
Finland	0.18	0.40	0.46	0.49	0.98	0.87	1.03	1.25	1.60	1.83	1.89	92.2%
France	4.62	5.77	5.67	6.50	9.42	11.56	15.22	16.27	16.49	16.88	16.71	77.5%
Germany	7.65	8.24	8.30	9.55	13.31	15.64	19.33	22.39	23.90	24.57	25.06	88.3%
Greece	1.31	1.33	2.25	2.36	2.36	2.55	2.44	2.33	2.04	1.97	2.02	-14.7%
Hungary	0.15	0.21	0.37	0.45	0.49	0.54	0.70	0.80	0.70	0.51	0.50	1.9%
Iceland	0.22	0.14	0.09	0.18	0.22	0.20	0.40	0.40	0.37	0.43	0.49	122.5%
Ireland	0.97	0.74	0.61	0.57	1.04	1.12	1.74	2.38	2.16	1.69	1.87	79.6%
Italy	3.50	2.46	4.19	4.38	4.54	5.86	8.46	8.97	9.48	9.28	8.98	97.8%
Luxembourg	0.11	0.15	0.19	0.22	0.39	0.57	0.96	1.29	1.29	1.11	1.12	183.6%
Netherlands	2.03	2.29	2.75	3.50	4.34	7.46	9.75	10.78	10.11	10.11	10.31	137.7%
Norway	0.70	0.51	0.68	0.93	1.26	1.10	1.06	1.05	1.29	1.21	1.47	16.9%
Poland	0.53	0.53	0.68	0.68	0.66	0.81	0.82	0.96	1.52	1.61	1.57	138.1%
Portugal	0.71	0.81	0.89	1.28	1.38	1.56	1.94	2.18	2.63	2.76	2.79	102.9%
Slovak Republic	-	-	-	-	-	0.12	0.08	0.12	0.12	0.11	0.12	x
Slovenia	..	..	..	..	0.08	0.06	0.07	0.07	0.08	0.07	0.08	-3.8%
Spain	1.76	2.80	2.60	2.69	3.35	6.07	8.11	9.28	9.11	10.78	10.74	220.3%
Sweden	0.33	0.34	0.49	0.51	1.09	1.77	2.08	1.89	2.06	2.11	2.38	119.3%
Switzerland	1.64	1.81	2.04	2.44	3.03	3.66	4.61	3.52	4.20	4.59	4.61	52.1%
Turkey	0.09	0.14	0.12	0.18	0.54	0.79	1.56	3.25	3.64	3.08	3.11	478.9%
United Kingdom	7.15	7.39	8.68	9.63	19.05	22.14	31.24	36.01	32.13	32.43	32.03	68.2%
OECD Europe ²	37.79	39.51	45.16	51.03	73.72	90.85	120.58	134.57	134.51	136.70	137.01	85.8%
<i>European Union - 28</i>	..	..	..	..	71.80	88.04	115.00	128.84	127.74	130.09	130.09	81.2%
G7	43.52	45.93	52.20	59.80	101.68	121.01	154.84	176.63	167.27	169.42	170.12	67.3%
G8	..	..	..	..	128.31	135.14	168.24	192.06	185.94	189.19	188.30	46.8%
G20	..	..	..	..	183.88	211.83	260.07	312.35	328.41	338.54	342.06	86.0%

1. Includes Estonia and Slovenia prior to 1990.

2. Excludes Estonia and Slovenia prior to 1990.

CO₂ emissions from international aviation bunkersmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Non-OECD Total ¹	104.93	105.00	120.75	131.86	115.71	115.15	131.51	164.62	203.37	220.27	227.02	96.2%
Albania	-	-	-	-	-	-	0.12	0.18	0.05	0.06	0.06	x
Armenia	..	..	..	..	0.60	0.10	0.19	0.14	0.13	0.14	0.14	-76.3%
Azerbaijan	..	..	..	..	1.05	0.31	0.30	1.11	1.21	1.14	1.17	11.8%
Belarus	..	..	..	..	-	-	-	-	-	-	0.31	x
Bosnia and Herzegovina	..	..	..	..	0.08	0.11	0.03	0.02	0.02	0.02	0.01	-88.0%
Bulgaria	0.61	0.61	0.92	1.13	0.71	0.99	0.24	0.56	0.50	0.49	0.48	-33.2%
Croatia	..	..	..	..	0.15	0.18	0.10	0.12	0.16	0.20	0.24	64.6%
Cyprus ²	0.15	0.02	0.23	0.44	0.73	0.80	0.82	0.89	0.83	0.81	0.72	-0.4%
FYR of Macedonia	..	..	..	..	0.02	0.09	0.09	0.02	0.02	0.02	0.02	60.0%
Georgia	..	..	..	..	0.61	0.01	0.05	0.11	0.12	0.11	0.26	-57.4%
Gibraltar	0.02	0.02	0.01	0.01	0.02	0.01	0.01	0.02	0.02	0.02	0.02	-
Kazakhstan	..	..	..	..	2.70	0.79	0.23	0.49	0.62	0.61	0.50	-81.3%
Kosovo ²	..	..	..	..	..	..	-	-	0.04	0.04	0.05	..
Kyrgyzstan	..	..	..	..	0.26	0.19	0.12	0.39	0.83	0.09	0.15	-44.2%
Latvia	..	..	..	..	0.22	0.08	0.08	0.18	0.35	0.35	0.37	67.6%
Lithuania	..	..	..	..	0.40	0.12	0.07	0.14	0.14	0.19	0.21	-48.1%
Malta	0.18	0.18	0.23	0.14	0.22	0.22	0.37	0.26	0.30	0.30	0.31	45.7%
Republic of Moldova	..	..	..	..	0.22	0.03	0.06	0.04	0.04	0.07	0.06	-70.8%
Montenegro ²	..	..	..	..	..	..	..	0.04	0.01	0.04	0.04	..
Romania	0.06	0.05	-	-	0.70	0.55	0.38	0.33	0.43	0.35	0.43	-37.9%
Russian Federation	..	..	..	..	26.63	14.13	13.40	15.43	18.67	19.77	18.18	-31.7%
Serbia ²	..	..	..	..	0.43	0.11	0.09	0.15	0.13	0.12	0.13	-70.0%
Tajikistan	..	..	..	..	0.05	0.02	0.01	0.03	0.09	0.10	0.11	133.3%
Turkmenistan	..	..	..	..	0.76	0.62	0.98	1.35	1.63	1.28	1.40	84.2%
Ukraine	..	..	..	..	6.18	0.48	0.78	1.12	0.83	0.92	0.38	-93.8%
Uzbekistan	..	..	..	..	-	-	-	-	-	-	-	-
Former Soviet Union ³	67.33	62.72	71.33	77.48	..	..	..	..	..	..	..	..
Former Yugoslavia ³	0.65	0.89	1.01	1.00	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia ¹	69.00	64.50	73.74	80.20	42.71	19.94	18.53	23.11	27.17	27.24	25.76	-39.7%
Algeria	0.29	0.67	0.94	1.32	1.10	0.97	1.18	1.17	1.44	1.61	1.67	51.6%
Angola	0.23	0.31	0.26	1.00	1.04	1.18	1.43	0.57	0.64	0.55	0.64	-38.3%
Benin	0.02	0.01	0.03	0.06	0.05	0.07	0.07	0.03	0.48	0.52	0.55	968.8%
Botswana	..	..	..	0.01	0.04	0.02	0.02	0.03	0.05	0.06	0.06	72.7%
Cameroon	0.17	0.10	0.15	0.15	0.15	0.17	0.18	0.20	0.21	0.23	0.24	56.3%
Congo	-	0.05	0.11	0.09	0.08	0.05	0.10	0.14	0.19	0.19	0.20	166.7%
Côte d'Ivoire	0.13	0.21	0.26	0.29	0.27	0.26	0.37	0.28	0.18	0.19	0.21	-22.6%
Dem. Rep. of Congo	0.28	0.25	0.38	0.40	0.32	0.35	0.24	0.51	0.47	0.48	0.52	61.0%
Egypt	0.21	0.28	0.52	0.13	0.46	0.82	1.77	2.31	2.64	2.66	2.71	494.3%
Eritrea	..	..	..	..	..	0.02	0.03	0.03	0.00	0.00	0.00	..
Ethiopia	0.14	0.16	0.20	0.34	0.54	0.17	0.21	0.40	0.87	1.01	1.12	108.4%
Gabon	0.03	0.04	0.07	0.09	0.20	0.20	0.24	0.21	0.18	0.20	0.21	7.8%
Ghana	0.13	0.15	0.12	0.10	0.14	0.18	0.33	0.40	0.36	0.47	0.44	216.1%
Kenya	0.58	0.90	1.11	0.83	0.84	1.38	1.38	1.78	1.72	2.14	1.76	109.5%
Libya	0.27	0.54	0.90	1.06	0.64	0.92	1.34	0.52	0.62	0.66	0.50	-22.0%
Mauritius	0.06	0.10	0.14	0.18	0.21	0.21	0.61	0.73	0.73	0.78	0.72	238.8%
Morocco	0.35	0.44	0.78	0.70	0.79	0.74	0.91	1.17	1.79	1.61	1.84	131.3%
Mozambique	0.12	0.05	0.08	0.10	0.13	0.06	0.13	0.14	0.20	0.21	0.22	70.7%
Namibia	..	..	..	..	..	0.10	0.13	0.03	0.12	0.13	0.14	..
Niger	..	..	..	..	..	..	0.05	0.04	0.04	0.04	0.07	..
Nigeria	0.25	0.71	1.15	1.35	0.96	1.26	0.59	0.71	0.52	0.55	1.08	12.3%
Senegal	0.30	0.37	0.59	0.43	0.46	0.46	0.76	0.75	0.69	0.63	0.79	71.1%
South Africa	0.53	0.74	0.88	0.94	1.11	1.59	2.82	2.18	2.43	2.56	2.54	129.5%
South Sudan ²	..	..	..	..	..	..	..	..	..	0.10	0.11	..
Sudan ²	0.34	0.15	0.20	0.22	0.10	0.11	0.33	0.98	0.85	0.70	0.78	714.2%
United Rep. of Tanzania	0.09	0.20	0.18	0.13	0.22	0.19	0.18	0.26	0.34	0.39	0.41	85.9%
Togo	-	-	-	-	0.11	0.12	0.04	0.15	0.22	0.22	0.24	124.2%
Tunisia	0.39	0.38	0.57	0.31	0.57	0.75	0.86	0.66	0.76	0.87	0.88	52.8%
Zambia	0.04	0.14	0.23	0.12	0.20	0.10	0.13	0.17	0.09	0.15	0.15	-22.2%
Zimbabwe	0.09	0.19	0.21	0.33	0.25	0.35	0.36	0.03	0.03	0.03	0.03	-87.3%
Other Africa	0.40	0.64	0.74	0.72	0.79	0.81	1.17	1.36	1.48	1.72	1.77	124.0%
Africa	5.44	7.76	10.82	11.40	11.75	13.60	17.93	17.94	20.32	21.68	22.60	92.3%

1. Includes Estonia and Slovenia prior to 1990.

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

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

CO₂ emissions from international aviation bunkersmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Bangladesh	0.06	0.09	0.15	0.22	0.27	0.30	0.38	0.81	0.92	0.99	1.01	269.8%
Brunei Darussalam	0.00	0.06	0.07	0.05	0.11	0.21	0.21	0.25	0.33	0.26	0.26	130.6%
Cambodia	..	..	..	..	..	0.03	0.04	0.05	0.11	0.17	0.19	..
DPR of Korea	-	-	-	-	-	-	-	-	-	-	-	-
India	1.69	2.00	2.51	3.24	3.74	4.65	5.02	7.36	11.34	11.76	12.29	228.2%
Indonesia	0.17	0.33	0.73	0.66	0.97	1.18	1.22	1.54	2.04	2.31	2.44	150.8%
Malaysia	0.42	0.75	0.78	0.87	1.89	3.48	4.72	6.02	7.14	7.56	8.99	374.9%
Mongolia	..	..	..	-	0.01	0.06	0.06	0.06	0.05	0.11	0.12	875.0%
Myanmar	0.03	0.02	0.03	0.03	0.02	0.02	0.05	0.03	0.06	0.11	0.11	499.9%
Nepal	0.01	0.02	0.04	0.06	0.05	0.11	0.17	0.19	0.26	0.30	0.31	520.0%
Pakistan	1.14	1.09	1.71	1.42	1.41	1.72	0.36	0.64	0.49	0.57	0.59	-57.8%
Philippines	0.71	0.83	0.66	1.03	1.02	1.17	1.43	2.14	2.96	3.24	3.28	223.2%
Singapore	0.70	1.33	2.73	3.23	5.69	7.89	12.01	13.59	17.19	20.53	21.45	277.1%
Sri Lanka	-	0.00	0.00	-	-	-	0.32	0.94	0.35	1.22	1.09	x
Chinese Taipei	1.49	1.64	1.67	0.92	1.81	4.13	5.42	6.51	6.30	6.61	7.01	287.0%
Thailand	1.27	2.19	2.41	3.16	5.64	7.59	8.35	10.27	10.00	10.80	11.63	106.2%
Viet Nam	6.98	2.63	-	-	-	0.12	0.30	0.95	2.03	2.01	2.11	x
Other Asia	0.40	0.28	0.33	0.47	0.52	0.33	0.62	0.84	0.91	0.98	1.04	99.9%
Asia (excl. China)	15.07	13.26	13.84	15.36	23.17	32.99	40.68	52.19	62.47	69.52	73.96	219.3%
People's Rep. of China	-	-	0.10	0.85	1.30	2.22	4.22	10.81	16.62	19.59	20.93	+
Hong Kong, China	1.43	1.85	2.27	2.58	5.68	9.31	8.39	14.86	16.35	17.34	17.55	208.9%
China	1.43	1.85	2.37	3.43	6.98	11.53	12.61	25.67	32.98	36.93	38.48	451.0%
Argentina	-	-	-	-	-	1.59	2.86	2.17	1.87	2.14	2.68	x
Bolivia	-	-	-	-	-	-	0.14	0.15	0.14	0.13	0.17	x
Brazil	-	-	0.61	0.75	1.43	2.08	2.02	3.34	5.83	6.68	6.98	388.7%
Colombia	0.60	0.93	1.32	1.32	1.58	2.17	1.91	1.85	2.36	2.79	3.14	99.4%
Costa Rica	-	-	-	-	0.01	0.32	0.37	0.57	0.50	0.52	0.48	+
Cuba	0.27	0.44	0.66	0.90	0.99	0.54	0.65	0.54	0.44	0.39	0.47	-52.2%
Curaçao ¹	0.16	0.13	0.17	0.13	0.12	0.20	0.24	0.26	0.28	0.20	0.20	67.5%
Dominican Republic	0.08	0.10	0.17	0.17	0.11	0.18	1.30	1.34	1.23	1.49	1.36	+
Ecuador	0.27	0.14	0.45	0.45	0.39	0.55	0.49	0.97	1.04	1.02	1.16	196.7%
El Salvador	0.04	0.05	0.06	0.11	0.11	0.16	0.22	0.24	0.34	0.38	0.44	280.6%
Guatemala	0.15	0.11	0.13	0.12	0.13	0.14	0.15	0.23	0.20	0.13	0.13	-2.4%
Haiti	0.02	0.03	0.05	0.04	0.07	0.07	0.09	0.07	0.06	0.17	0.28	287.0%
Honduras	0.02	0.03	0.06	0.12	0.09	0.07	0.11	0.07	0.15	0.16	0.13	41.4%
Jamaica	0.42	0.33	0.30	0.40	0.47	0.53	0.54	0.61	0.59	0.54	0.55	17.7%
Nicaragua	0.05	0.06	0.06	0.04	0.08	0.06	0.08	0.05	0.06	0.06	0.06	-23.0%
Panama	0.44	1.12	0.42	0.26	0.20	0.32	0.55	0.57	1.08	1.36	1.63	696.9%
Paraguay	0.03	0.04	0.06	0.06	0.03	0.03	0.04	0.05	0.07	0.08	0.09	212.3%
Peru	0.52	0.75	0.92	0.72	0.65	1.11	1.07	0.97	1.95	2.06	2.42	272.1%
Trinidad and Tobago	0.21	0.12	0.17	0.22	0.20	0.18	0.33	1.21	0.85	0.54	0.86	335.5%
Uruguay	-	-	-	-	-	-	0.12	0.12	0.23	0.29	0.22	x
Venezuela	0.33	0.32	1.03	0.81	1.03	1.01	0.95	2.05	1.90	1.95	1.92	86.0%
Other Non-OECD Americas	1.01	0.50	0.91	0.87	1.03	1.07	1.81	1.40	1.53	1.87	1.90	85.4%
Non-OECD Americas	4.63	5.20	7.56	7.50	8.73	12.37	16.03	18.83	22.71	24.94	27.28	212.4%
Bahrain	0.43	0.85	1.55	1.22	1.44	1.16	1.13	1.74	1.99	1.76	1.26	-13.0%
Islamic Republic of Iran	7.10	7.08	2.17	1.66	1.50	1.99	2.73	2.71	3.84	3.56	3.91	160.9%
Iraq	0.24	0.82	1.06	0.59	0.99	1.28	1.64	2.00	2.52	1.01	1.26	27.0%
Jordan	0.12	0.18	0.57	0.62	0.67	0.76	0.75	0.98	1.09	1.09	1.11	65.1%
Kuwait	0.35	0.35	1.06	0.98	0.52	1.14	1.16	1.84	2.26	2.55	2.32	348.8%
Lebanon	0.29	0.24	0.15	0.32	0.16	0.66	0.40	0.47	0.71	0.66	0.83	418.0%
Oman	0.01	0.15	0.38	0.58	0.94	0.47	0.65	0.69	1.30	1.29	1.19	25.7%
Qatar	-	0.16	0.23	0.24	0.35	0.43	0.57	1.45	3.61	6.13	6.34	+
Saudi Arabia	0.48	1.42	3.49	4.61	4.84	5.74	5.91	5.50	6.23	6.64	5.96	23.1%
Syrian Arab Republic	0.24	0.66	0.72	0.88	0.88	0.63	0.42	0.33	0.10	0.07	0.07	-92.0%
United Arab Emirates	0.02	0.34	0.81	1.82	9.89	10.19	9.97	8.81	13.71	15.06	14.38	45.4%
Yemen	0.09	0.18	0.22	0.47	0.18	0.28	0.38	0.36	0.37	0.13	0.33	89.1%
Middle East	9.36	12.43	12.42	13.98	22.36	24.72	25.72	26.87	37.72	39.95	38.94	74.2%

1. Prior to 2012, Curaçao includes the entire territory of the former Netherlands Antilles.

CO₂ emissions by sector in 2013 ¹million tonnes of CO₂

	Total CO ₂ emissions from fuel combustion	Electricity and heat production	Other energy ind. own use ²	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
World ³	32 189.7	13 655.6	1 674.0	6 114.8	7 384.9	5 547.0	3 360.5	1 868.7
<i>Annex I Parties</i>	12 879.7	5 504.2	698.6	1 475.3	3 423.3	2 944.5	1 778.4	1 022.6
<i>Annex II Parties</i>	10 081.0	3 971.2	591.8	1 118.9	2 965.4	2 597.2	1 433.7	789.9
<i>North America</i>	5 656.0	2 233.2	373.8	494.7	1 874.5	1 584.8	679.9	364.2
<i>Europe</i>	2 770.5	938.1	141.6	349.0	772.9	731.2	569.0	360.7
<i>Asia Oceania</i>	1 654.5	799.9	76.4	275.2	318.0	281.3	184.9	65.1
<i>Annex I EIT</i>	2 506.9	1 419.0	95.1	308.5	399.6	293.2	284.7	201.8
<i>Non-Annex I Parties</i>	18 210.8	8 151.4	975.4	4 639.5	2 862.5	2 602.5	1 582.1	846.1
<i>Annex I Kyoto Parties</i>	6 873.6	3 127.8	309.6	927.4	1 478.1	1 295.1	1 030.7	622.8
Non-OECD Total	19 052.9	8 789.1	951.6	4 737.0	2 902.0	2 547.8	1 673.2	936.6
OECD Total	12 037.7	4 866.4	722.4	1 377.8	3 383.7	2 999.2	1 687.3	932.1
Canada	536.3	104.9	91.3	72.6	173.7	139.9	93.8	41.3
Chile	82.0	35.2	3.2	13.0	24.5	22.2	6.1	3.7
Mexico	451.8	150.4	53.2	65.8	150.6	146.5	31.6	17.8
United States	5 119.7	2 128.3	282.5	422.1	1 700.8	1 444.9	586.1	322.9
OECD Americas	6 189.8	2 418.8	430.2	573.6	2 049.6	1 753.4	717.5	385.7
Australia	388.7	198.8	32.7	46.6	90.9	77.0	19.7	8.8
Israel	68.2	41.6	3.6	1.7	13.3	13.3	8.0	1.7
Japan	1 235.1	594.4	42.2	222.8	213.5	191.9	162.2	55.8
Korea	572.2	304.4	41.4	74.8	90.9	87.7	60.7	33.2
New Zealand	30.7	6.7	1.5	5.8	13.7	12.4	3.0	0.5
OECD Asia Oceania	2 294.9	1 145.9	121.4	351.7	422.2	382.3	253.6	100.0
Austria	65.1	14.6	7.5	11.5	22.8	22.0	8.7	6.8
Belgium	89.1	18.1	5.7	13.8	24.3	23.6	27.1	17.8
Czech Republic	101.1	56.1	3.5	12.9	15.9	15.5	12.7	7.7
Denmark	38.8	16.9	2.1	3.5	11.2	10.3	5.1	2.5
Estonia	18.9	14.7	0.2	1.1	2.2	2.1	0.7	0.2
Finland	49.2	22.2	3.5	7.3	11.9	11.2	4.3	1.3
France	315.6	43.0	10.4	50.1	121.1	116.4	91.0	51.8
Germany	759.6	342.3	23.4	92.7	152.4	147.6	148.8	99.0
Greece	68.9	37.3	4.3	5.6	16.3	14.3	5.4	3.6
Hungary	39.5	12.1	1.6	4.6	9.9	9.7	11.2	6.5
Iceland	2.0	0.0	-	0.5	0.8	0.8	0.7	0.0
Ireland	34.4	11.2	0.4	3.5	10.4	10.2	8.9	6.4
Italy	338.2	111.2	11.4	38.8	100.7	94.9	76.1	50.3
Luxembourg	9.8	0.8	-	0.8	6.5	6.5	1.7	1.0
Netherlands	156.2	54.0	10.1	22.7	31.9	30.8	37.5	18.9
Norway	35.3	2.0	10.4	5.9	13.9	10.2	3.1	0.4
Poland	292.4	157.6	7.1	28.9	43.2	41.9	55.6	37.2
Portugal	44.9	15.8	4.2	5.4	15.6	14.8	4.0	2.0
Slovak Republic	32.4	7.7	5.0	7.0	6.5	5.9	6.2	2.8
Slovenia	14.3	5.8	0.0	1.7	5.4	5.3	1.5	0.8
Spain	235.7	69.1	17.5	35.5	82.2	74.2	31.5	15.9
Sweden	37.5	7.2	2.0	6.8	19.7	19.1	1.8	0.2
Switzerland	41.5	2.7	0.9	5.4	17.1	16.8	15.4	10.1
Turkey	283.8	109.6	11.7	47.3	55.9	51.8	59.3	30.5
United Kingdom	448.7	169.6	27.8	39.2	114.0	107.4	98.1	72.7
OECD Europe	3 553.0	1 301.7	170.7	452.5	911.9	863.4	716.2	446.4
<i>European Union - 28</i>	3 340.1	1 254.2	155.5	414.0	861.2	818.8	655.1	415.8
<i>G7</i>	8 753.2	3 493.7	489.0	938.3	2 576.1	2 243.1	1 256.0	693.7
<i>G8</i>	10 296.3	4 437.2	550.1	1 108.3	2 814.1	2 387.2	1 386.6	790.9
<i>G20</i>	26 314.7	11 883.3	1 315.3	5 212.5	5 128.4	4 450.1	2 775.1	1 522.3

1. This table shows CO₂ 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.

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

3. World includes international bunkers in the transport sector.

CO₂ emissions by sector in 2013million tonnes of CO₂

	Total CO ₂ 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
Non-OECD Total	19 052.9	8 789.1	951.6	4 737.0	2 902.0	2 547.8	1 673.2	936.6
Albania	3.6	-	0.0	0.6	2.5	2.3	0.6	0.2
Armenia	5.2	1.3	-	0.7	1.3	1.3	2.0	1.1
Azerbaijan	29.5	11.7	2.1	2.2	7.3	6.7	6.2	4.7
Belarus	58.2	29.2	3.5	5.3	12.5	10.6	7.8	4.8
Bosnia and Herzegovina	21.5	14.5	0.7	2.2	2.8	2.8	1.2	0.6
Bulgaria	39.3	26.1	1.0	3.3	7.3	6.8	1.7	0.9
Croatia	16.0	3.8	1.4	2.3	5.7	5.4	2.8	1.6
Cyprus ¹	5.6	2.8	-	0.5	1.8	1.8	0.5	0.3
FYR of Macedonia	8.3	5.1	0.0	1.4	1.4	1.4	0.4	0.1
Georgia	6.6	0.9	0.0	1.6	2.5	2.5	1.6	1.4
Gibraltar	0.5	0.1	-	-	0.4	0.4	-	-
Kazakhstan	244.9	88.9	49.0	69.9	13.7	12.8	23.3	11.1
Kosovo	8.3	6.4	-	0.6	1.0	1.0	0.4	0.1
Kyrgyzstan	8.9	1.7	0.0	0.7	3.9	3.9	2.5	0.4
Latvia	6.9	2.1	-	0.9	2.8	2.5	1.2	0.4
Lithuania	10.7	2.4	1.5	1.3	4.3	4.0	1.3	0.7
Malta	2.3	1.6	-	0.0	0.5	0.5	0.1	0.1
Republic of Moldova	6.7	2.8	-	0.8	1.5	1.4	1.6	1.2
Montenegro	2.3	1.5	-	0.2	0.5	0.5	0.0	0.0
Romania	68.8	28.0	3.9	12.3	14.8	14.0	9.9	6.4
Russian Federation	1 543.1	943.5	61.1	170.0	237.9	144.1	130.6	97.1
Serbia	45.3	32.2	0.6	4.2	5.6	5.0	2.8	1.5
Tajikistan	3.3	0.0	-	-	0.3	0.3	2.9	-
Turkmenistan	66.0	18.2	5.2	5.3	8.5	3.9	28.9	0.4
Ukraine	265.0	129.9	5.3	57.0	31.3	25.4	41.6	34.6
Uzbekistan	96.2	37.7	3.0	12.6	6.9	3.9	35.9	27.0
Non-OECD Europe and Eurasia	2 573.3	1 392.5	138.4	355.7	378.9	265.1	307.8	196.7
Algeria	113.9	31.0	12.8	10.1	37.4	36.0	22.6	18.0
Angola	18.5	2.4	0.3	1.6	8.5	7.8	5.7	2.0
Benin	5.2	0.1	-	0.2	3.6	3.6	1.3	1.3
Botswana	5.5	1.3	-	1.3	2.3	2.3	0.6	0.1
Cameroon	5.9	1.5	0.6	0.4	3.1	2.9	0.4	0.4
Congo	2.3	0.4	-	0.0	1.7	1.7	0.1	0.1
Côte d'Ivoire	8.7	3.9	0.2	1.1	2.6	2.3	0.9	0.4
Dem. Rep. of Congo	2.6	0.0	-	0.2	2.4	2.4	0.0	0.0
Egypt	184.3	74.0	15.0	27.6	45.2	42.4	22.5	15.5
Eritrea	0.6	0.3	-	0.0	0.2	0.2	0.1	0.0
Ethiopia	8.5	0.0	-	2.9	4.0	3.8	1.6	0.8
Gabon	2.8	1.1	0.0	0.9	0.6	0.6	0.3	0.2
Ghana	13.6	3.5	0.1	1.7	7.2	6.7	1.1	0.6
Kenya	11.7	2.5	0.1	2.3	5.7	5.7	1.1	0.9
Libya	43.2	17.4	0.8	1.3	21.8	21.8	1.9	1.9
Mauritius	3.8	2.3	-	0.3	1.0	0.9	0.2	0.1
Morocco	50.3	17.9	1.2	7.6	15.1	15.1	8.5	3.9
Mozambique	3.0	0.2	0.0	0.5	2.1	1.9	0.2	0.1
Namibia	3.4	0.1	-	0.3	1.9	1.8	1.2	0.0
Niger	1.9	0.5	-	0.2	1.1	1.1	0.0	0.0
Nigeria	61.0	11.9	10.9	6.2	24.0	23.9	8.0	1.6
Senegal	6.0	2.2	0.0	1.1	2.3	2.2	0.3	0.3
South Africa	420.4	234.6	43.8	52.4	55.3	51.4	34.3	15.9
South Sudan	1.5	0.4	0.0	0.0	1.0	0.9	0.1	0.0
Sudan	13.6	2.0	0.2	1.7	8.3	8.2	1.5	0.5
United Rep. of Tanzania	9.7	2.8	-	1.0	5.5	5.5	0.4	0.4
Togo	1.7	0.0	-	0.2	1.3	1.3	0.2	0.2
Tunisia	23.7	8.5	0.7	4.8	6.1	5.6	3.6	1.8
Zambia	3.4	0.0	0.0	2.0	1.0	0.9	0.4	0.0
Zimbabwe	13.5	4.0	0.1	2.4	2.8	2.6	4.2	0.1
Other Africa	30.5	8.2	0.9	4.3	13.5	12.3	3.7	1.5
Africa	1 074.7	434.9	87.8	136.6	288.5	275.7	127.0	68.9

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

CO₂ emissions by sector in 2013million tonnes of CO₂

	Total CO ₂ 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	30.8	0.1	10.6	8.2	6.3	9.8	6.1
Brunei Darussalam	6.9	2.7	2.2	0.4	1.3	1.3	0.1	0.1
Cambodia	5.2	0.7	-	0.2	3.5	2.9	0.7	0.3
DPR of Korea	47.7	7.5	0.0	29.7	1.3	1.3	9.0	0.1
India	1 868.6	944.6	43.1	492.9	222.3	206.4	165.7	87.2
Indonesia	424.6	164.1	24.4	71.0	135.2	119.3	29.8	18.9
Malaysia	207.2	95.9	17.9	29.1	56.7	56.5	7.7	1.9
Mongolia	18.7	11.1	0.0	2.2	1.9	1.3	3.4	1.7
Myanmar	13.3	2.3	0.7	4.1	3.9	2.9	2.3	0.0
Nepal	5.1	0.0	-	1.8	2.2	2.2	1.1	0.4
Pakistan	134.8	40.7	1.5	35.4	38.4	35.7	18.8	15.4
Philippines	89.6	43.4	1.2	13.1	25.6	22.3	6.3	2.4
Singapore	46.6	21.9	5.1	11.5	7.5	6.7	0.6	0.2
Sri Lanka	13.7	4.0	0.0	1.0	7.7	7.5	0.9	0.4
Chinese Taipei	248.7	145.7	15.4	43.0	35.2	34.4	9.4	4.3
Thailand	247.4	84.5	24.7	56.2	62.4	60.1	19.6	5.1
Viet Nam	130.1	44.8	-	42.5	31.3	30.6	11.4	6.8
Other Asia	38.8	7.4	-	6.7	23.1	21.0	1.5	0.7
Asia (excl. China)	3 606.6	1 652.3	136.4	851.5	668.0	618.8	298.4	152.1
People's Rep. of China	8 977.1	4 386.2	367.4	2 805.8	753.7	611.2	664.1	329.8
Hong Kong, China	46.0	30.6	-	7.3	6.5	6.5	1.6	0.8
China	9 023.1	4 416.9	367.4	2 813.1	760.2	617.7	665.7	330.6
Argentina	182.3	51.6	15.8	29.9	47.4	42.5	37.6	24.2
Bolivia	17.3	3.2	1.4	2.0	7.0	6.7	3.7	1.3
Brazil	452.4	76.6	28.5	100.5	208.1	188.0	38.7	17.9
Colombia	68.3	11.8	7.5	13.8	26.1	24.9	9.1	3.9
Costa Rica	7.1	0.8	0.0	1.0	4.8	4.8	0.5	0.2
Cuba	29.8	17.2	0.8	8.4	1.3	1.2	2.0	0.6
Curaçao	4.5	0.7	2.2	0.4	1.1	1.1	0.1	0.1
Dominican Republic	19.7	10.3	0.2	1.9	5.7	4.7	1.6	1.2
Ecuador	39.5	8.1	4.8	4.9	18.0	17.2	3.7	2.9
El Salvador	5.8	1.4	-	0.9	2.8	2.8	0.7	0.6
Guatemala	12.2	2.9	0.1	2.5	6.0	5.9	0.8	0.8
Haiti	2.2	0.7	-	0.5	0.9	0.9	0.1	0.1
Honduras	8.5	2.2	-	2.3	3.3	3.3	0.6	0.2
Jamaica	7.5	2.6	-	2.7	1.8	1.3	0.3	0.1
Nicaragua	4.2	1.4	0.1	0.5	1.7	1.7	0.5	0.1
Panama	9.2	2.3	-	2.6	3.7	3.7	0.7	0.5
Paraguay	4.9	-	-	0.1	4.6	4.6	0.2	0.2
Peru	45.5	11.0	3.7	8.4	19.0	17.8	3.5	2.2
Trinidad and Tobago	23.0	6.2	8.7	4.3	3.2	2.9	0.5	0.5
Uruguay	7.1	1.4	0.4	0.7	3.5	3.4	1.1	0.4
Venezuela	155.6	30.5	26.9	47.1	44.3	44.3	6.8	5.1
Other Non-OECD Americas	21.1	11.4	0.0	0.8	6.8	5.6	2.2	0.8
Non-OECD Americas	1 127.6	254.2	101.1	236.1	420.8	389.3	115.3	64.1
Bahrain	28.3	19.7	3.3	1.8	3.3	3.2	0.3	0.3
Islamic Rep. of Iran	525.9	151.2	35.0	88.9	124.7	123.7	126.0	96.7
Iraq	138.0	76.1	4.5	10.3	35.4	35.4	11.7	11.7
Jordan	22.8	11.0	0.6	2.3	7.1	7.1	1.8	1.2
Kuwait	84.1	44.4	14.9	11.5	12.9	12.9	0.5	0.5
Lebanon	20.6	12.9	-	0.9	5.1	5.1	1.7	1.7
Oman	57.9	15.0	6.9	21.8	12.3	12.3	2.0	0.4
Qatar	72.4	17.2	30.7	12.4	11.7	11.7	0.3	0.3
Saudi Arabia	472.4	206.5	20.7	116.4	124.5	122.2	4.3	4.3
Syrian Arab Republic	33.5	14.4	0.6	4.8	8.7	8.5	5.0	3.1
United Arab Emirates	167.6	63.7	2.0	69.5	31.5	30.8	0.9	0.9
Yemen	23.9	6.4	1.3	3.4	8.3	8.3	4.6	3.1
Middle East	1 647.5	638.5	120.6	343.9	385.5	381.2	159.0	124.2

CO₂ emissions with electricity and heat allocated to consuming sectors ¹ in 2013million tonnes of CO₂

	Total CO ₂ emissions from fuel combustion	Other energy ind. own use ²	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
World ³	32 189.7	2 260.6	12 026.4	7 543.6	5 548.1	10 359.2	5 409.2
<i>Annex I Parties</i>	12 879.7	966.9	3 112.8	3 506.7	2 945.4	5 293.3	2 800.2
<i>Annex II Parties</i>	10 081.0	716.0	2 220.0	3 001.4	2 598.0	4 143.5	2 073.7
<i>North America</i>	5 656.0	445.1	1 014.9	1 879.3	1 585.3	2 316.7	1 141.0
<i>Europe</i>	2 770.5	174.4	689.5	789.3	731.4	1 117.3	635.6
<i>Asia Oceania</i>	1 654.5	96.5	515.6	332.8	281.3	709.5	297.1
<i>Annex I EIT</i>	2 506.9	238.2	789.7	446.7	293.4	1 032.4	670.8
<i>Non-Annex I Parties</i>	18 210.8	1 293.7	8 913.6	2 937.7	2 602.6	5 065.9	2 609.1
<i>Annex I Kyoto Parties</i>	6 873.6	503.1	1 980.5	1 555.9	1 295.5	2 834.1	1 588.9
Non-OECD Total	19 052.9	1 385.3	9 147.3	3 017.9	2 548.1	5 502.4	2 981.4
OECD Total	12 037.7	875.3	2 879.1	3 426.5	3 000.0	4 856.8	2 427.8
Canada	536.3	97.1	110.4	174.7	140.1	154.1	72.9
Chile	82.0	3.7	35.7	24.8	22.2	17.8	9.5
Mexico	451.8	56.3	149.7	151.3	146.5	94.4	49.7
United States	5 119.7	348.0	904.5	1 704.6	1 445.2	2 162.6	1 068.1
OECD Americas	6 189.8	505.2	1 200.3	2 055.4	1 754.0	2 428.9	1 200.2
Australia	388.7	43.6	118.8	94.4	77.0	131.9	63.9
Israel	68.2	4.0	11.2	13.3	13.3	39.7	14.7
Japan	1 235.1	51.3	388.7	224.7	191.9	570.3	230.5
Korea	572.2	47.8	230.6	92.1	87.7	201.8	80.7
New Zealand	30.7	1.6	8.1	13.7	12.4	7.3	2.7
OECD Asia Oceania	2 294.9	148.3	757.4	438.2	382.3	951.0	392.5
Austria	65.1	7.8	16.8	23.3	22.0	17.2	11.2
Belgium	89.1	6.4	22.4	24.7	23.6	35.7	21.8
Czech Republic	101.1	7.4	32.0	17.2	15.6	44.5	25.3
Denmark	38.8	2.4	6.1	11.3	10.3	18.9	10.5
Estonia	18.9	0.8	4.0	2.3	2.1	11.8	6.7
Finland	49.2	3.8	16.9	12.0	11.2	16.5	8.2
France	315.6	11.9	60.0	122.2	116.4	121.6	68.0
Germany	759.6	32.4	237.2	158.7	147.7	331.3	196.7
Greece	68.9	5.5	13.9	16.5	14.3	32.9	16.7
Hungary	39.5	2.2	9.4	10.2	9.7	17.8	10.6
Iceland	2.0	0.0	0.5	0.8	0.8	0.7	0.0
Ireland	34.4	0.5	7.7	10.5	10.2	15.7	10.0
Italy	338.2	19.7	83.9	104.1	95.0	130.6	74.5
Luxembourg	9.8	-	1.1	6.5	6.5	2.2	1.1
Netherlands	156.2	13.8	41.1	32.6	30.8	68.7	30.0
Norway	35.3	10.5	6.6	13.9	10.2	4.2	1.0
Poland	292.4	19.0	70.5	45.5	41.9	157.4	95.5
Portugal	44.9	5.4	11.2	15.7	14.8	12.6	5.6
Slovak Republic	32.4	5.3	9.9	6.6	5.9	10.5	5.1
Slovenia	14.3	0.1	4.2	5.4	5.3	4.6	2.5
Spain	235.7	18.9	55.9	83.4	74.2	77.4	37.0
Sweden	37.5	2.1	9.1	19.8	19.1	6.5	3.0
Switzerland	41.5	0.9	6.2	17.2	16.8	17.2	11.0
Turkey	283.8	12.7	101.9	56.3	51.8	112.9	53.7
United Kingdom	448.7	32.5	92.7	116.0	107.4	207.5	129.3
OECD Europe	3 553.0	221.8	921.4	932.9	863.7	1 476.9	835.1
<i>European Union - 28</i>	3 340.1	210.1	847.8	882.5	819.2	1 399.7	804.0
G7	8 753.2	489.0	938.3	2 576.1	2 243.1	1 256.0	693.7
G8	10 296.3	550.1	1 108.3	2 814.1	2 387.2	1 386.6	790.9
G20	26 314.7	1 315.3	5 212.5	5 128.4	4 450.1	2 775.1	1 522.3

1. CO₂ 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.

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

3. World includes international bunkers in the transport sector.

CO₂ emissions with electricity and heat allocated to consuming sectors in 2013million tonnes of CO₂

	Total CO ₂ emissions from fuel combustion	Other energy ind. own use	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
Non-OECD Total	19 052.9	1 385.3	9 147.3	3 017.9	2 548.1	5 502.4	2 981.4
Albania	3.6	0.0	0.6	2.5	2.3	0.6	0.2
Armenia	5.2	-	1.0	1.3	1.3	3.0	1.6
Azerbaijan	29.5	3.8	3.9	7.6	6.7	14.1	9.1
Belarus	58.2	6.0	14.3	12.9	10.6	25.1	14.6
Bosnia and Herzegovina	21.5	1.1	7.0	2.9	2.8	10.5	7.1
Bulgaria	39.3	2.8	12.2	7.5	6.8	16.8	10.0
Croatia	16.0	1.5	3.1	5.8	5.4	5.7	3.3
Cyprus ¹	5.6	0.0	0.9	1.8	1.8	3.0	1.3
FYR of Macedonia	8.3	0.1	2.9	1.5	1.4	3.8	2.4
Georgia	6.6	0.0	1.9	2.5	2.5	2.2	1.8
Gibraltar	0.5	-	-	0.4	0.4	0.1	-
Kazakhstan	244.9	58.0	109.9	15.5	12.8	61.5	33.4
Kosovo	8.3	0.0	2.3	1.0	1.0	5.1	3.8
Kyrgyzstan	8.9	0.0	1.0	3.9	3.9	4.0	1.3
Latvia	6.9	-	1.2	2.8	2.5	2.9	1.5
Lithuania	10.7	1.6	1.9	4.3	4.0	2.9	1.7
Malta	2.3	-	0.3	0.5	0.5	1.5	0.6
Republic of Moldova	6.7	0.0	1.6	1.5	1.4	3.5	2.4
Montenegro	2.3	-	0.9	0.5	0.5	0.9	0.7
Romania	68.8	6.4	22.1	15.3	14.0	25.1	16.4
Russian Federation	1 543.1	170.5	501.9	275.7	144.1	595.0	400.9
Serbia	45.3	1.6	13.2	6.0	5.0	24.5	17.9
Tajikistan	3.3	0.0	0.0	0.3	0.3	3.0	0.0
Turkmenistan	66.0	7.5	9.9	8.8	3.9	39.8	3.1
Ukraine	265.0	14.6	103.0	35.2	25.4	112.2	76.7
Uzbekistan	96.2	3.8	21.4	7.7	3.9	63.2	31.1
Non-OECD Europe and Eurasia	2 573.3	279.6	838.3	425.5	265.2	1 029.9	642.9
Algeria	113.9	13.3	21.2	38.0	36.0	41.4	30.1
Angola	18.5	0.3	2.4	8.5	7.8	7.3	3.6
Benin	5.2	-	0.2	3.6	3.6	1.4	1.3
Botswana	5.5	-	1.8	2.3	2.3	1.4	0.4
Cameroon	5.9	0.6	1.2	3.1	2.9	1.1	0.7
Congo	2.3	-	0.3	1.7	1.7	0.4	0.4
Côte d'Ivoire	8.7	0.2	2.2	2.6	2.3	3.7	2.2
Dem. Rep. of Congo	2.6	-	0.2	2.4	2.4	0.0	0.0
Egypt	184.3	15.0	48.6	45.5	42.4	75.3	47.1
Eritrea	0.6	-	0.1	0.2	0.2	0.3	0.2
Ethiopia	8.5	-	2.9	4.0	3.8	1.7	0.8
Gabon	2.8	0.1	1.2	0.6	0.6	1.0	0.7
Ghana	13.6	0.1	3.3	7.2	6.7	3.0	1.9
Kenya	11.7	0.1	3.6	5.7	5.7	2.3	1.7
Libya	43.2	0.8	2.8	21.8	21.8	17.8	6.1
Mauritius	3.8	0.0	1.2	1.0	0.9	1.7	0.8
Morocco	50.3	1.9	13.9	15.3	15.1	19.3	9.6
Mozambique	3.0	0.0	0.7	2.1	1.9	0.2	0.1
Namibia	3.4	-	0.3	1.9	1.8	1.3	0.0
Niger	1.9	-	0.4	1.1	1.1	0.4	0.3
Nigeria	61.0	11.0	8.2	24.0	23.9	17.9	8.4
Senegal	6.0	0.0	1.7	2.3	2.2	1.9	1.0
South Africa	420.4	57.7	183.6	59.6	51.4	119.5	59.4
South Sudan	1.5	0.0	0.0	1.0	0.9	0.5	0.2
Sudan	13.6	0.2	2.0	8.3	8.2	3.1	1.6
United Rep. of Tanzania	9.7	0.0	1.7	5.5	5.5	2.5	1.6
Togo	1.7	-	0.2	1.3	1.3	0.2	0.2
Tunisia	23.7	0.9	7.8	6.1	5.6	8.9	4.3
Zambia	3.4	0.0	2.0	1.0	0.9	0.4	0.0
Zimbabwe	13.5	0.1	4.0	2.8	2.6	6.6	1.3
Other Africa	30.5	0.9	6.8	13.5	12.3	9.3	4.1
Africa	1 074.7	103.2	326.2	293.9	275.7	351.4	190.1

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

CO₂ emissions with electricity and heat allocated to consuming sectors in 2013million tonnes of CO₂

	Total CO ₂ 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	0.1	27.9	8.2	6.3	23.3	16.4
Brunei Darussalam	6.9	2.5	0.6	1.3	1.3	2.4	1.1
Cambodia	5.2	-	0.4	3.5	2.9	1.3	0.7
DPR of Korea	47.7	0.0	33.5	1.3	1.3	12.8	0.1
India	1 868.6	50.6	887.0	238.6	206.4	692.4	305.4
Indonesia	424.6	24.4	127.4	135.2	119.3	137.6	85.1
Malaysia	207.2	17.9	74.4	56.9	56.5	58.1	21.8
Mongolia	18.7	0.0	6.3	2.0	1.5	10.3	5.9
Myanmar	13.3	0.7	4.7	3.9	2.9	4.0	0.9
Nepal	5.1	-	1.8	2.2	2.2	1.1	0.4
Pakistan	134.8	1.5	47.4	38.4	35.7	47.5	34.4
Philippines	89.6	1.2	27.7	25.6	22.3	35.1	16.9
Singapore	46.6	5.1	20.4	8.7	6.7	12.4	3.4
Sri Lanka	13.7	0.0	2.4	7.7	7.5	3.6	2.1
Chinese Taipei	248.7	17.8	126.5	36.0	34.4	68.4	31.9
Thailand	247.4	24.7	91.5	62.5	60.1	68.8	24.5
Viet Nam	130.1	-	67.4	31.3	30.6	31.3	22.0
Other Asia	38.8	-	9.6	23.1	21.0	6.0	2.8
Asia (excl. China)	3 606.6	146.7	1 556.7	686.7	619.0	1 216.5	575.7
People's Rep. of China	8 977.1	615.1	5 594.0	797.5	611.2	1 970.4	1 041.7
Hong Kong, China	46.0	-	9.5	6.5	6.5	30.0	8.8
China	9 023.1	615.1	5 603.5	804.0	617.7	2 000.4	1 050.5
Argentina	182.3	15.8	50.8	47.7	42.5	68.1	41.3
Bolivia	17.3	1.4	2.9	7.0	6.7	6.0	2.5
Brazil	452.4	31.7	132.2	208.4	188.0	80.1	36.7
Colombia	68.3	7.5	17.4	26.1	24.9	17.3	8.7
Costa Rica	7.1	0.0	1.2	4.8	4.8	1.1	0.5
Cuba	29.8	0.8	12.8	1.7	1.2	14.5	9.4
Curaçao	4.5	2.2	0.8	1.1	1.1	0.4	0.1
Dominican Republic	19.7	0.2	6.4	5.7	4.7	7.4	4.6
Ecuador	39.5	4.8	8.2	18.0	17.2	8.5	5.2
El Salvador	5.8	-	1.4	2.8	2.8	1.6	1.1
Guatemala	12.2	0.1	3.7	6.0	5.9	2.5	1.7
Haiti	2.2	-	0.7	0.9	0.9	0.5	0.5
Honduras	8.5	-	3.0	3.3	3.3	2.1	1.1
Jamaica	7.5	-	3.5	1.8	1.3	2.1	1.0
Nicaragua	4.2	0.1	1.0	1.7	1.7	1.5	0.6
Panama	9.2	-	2.8	3.7	3.7	2.8	1.2
Paraguay	4.9	-	0.1	4.6	4.6	0.2	0.2
Peru	45.5	3.7	14.3	19.0	17.8	8.5	4.7
Trinidad and Tobago	23.0	8.7	8.1	3.2	2.9	3.0	2.3
Uruguay	7.1	0.4	1.1	3.5	3.4	2.2	1.0
Venezuela	155.6	27.5	62.3	44.4	44.3	21.4	12.5
Other Non-OECD Americas	21.1	0.0	6.4	6.8	5.6	7.9	4.6
Non-OECD Americas	1 127.6	104.9	341.1	422.0	389.3	259.7	141.5
Bahrain	28.3	3.3	12.3	3.3	3.2	9.4	5.4
Islamic Rep. of Iran	525.9	36.7	143.0	125.0	123.7	221.2	142.7
Iraq	138.0	4.5	23.2	35.4	35.4	74.8	32.4
Jordan	22.8	0.7	4.9	7.1	7.1	10.1	6.0
Kuwait	84.1	21.1	11.5	12.9	12.9	38.7	25.2
Lebanon	20.6	-	4.3	5.1	5.1	11.3	6.7
Oman	57.9	6.9	24.2	12.3	12.3	14.5	7.5
Qatar	72.4	30.7	18.1	11.7	11.7	11.9	7.5
Saudi Arabia	472.4	28.1	150.1	124.5	122.2	169.7	105.1
Syrian Arab Republic	33.5	0.6	9.6	8.7	8.5	14.5	9.7
United Arab Emirates	167.6	2.0	76.7	31.5	30.8	57.5	25.4
Yemen	23.9	1.3	3.6	8.3	8.3	10.7	7.1
Middle East	1 647.5	135.8	481.5	385.8	381.2	644.3	380.6

Total primary energy supply

petajoules

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
World ¹	231 217	258 850	301 638	323 421	367 108	385 979	421 048	480 682	535 450	558 014	566 946	54.4%
<i>Annex I Parties</i>	..	..	..	..	233 791	229 492	241 555	250 741	244 943	238 967	239 762	2.6%
<i>Annex II Parties</i>	130 357	138 416	153 270	154 071	167 924	180 297	194 934	201 112	193 346	185 376	187 282	11.5%
<i>North America</i>	72 382	76 179	83 594	82 355	88 912	96 216	105 710	108 399	103 278	100 152	102 223	15.0%
<i>Europe</i>	44 326	46 580	51 961	53 017	56 468	58 875	62 247	65 459	63 199	60 203	59 799	5.9%
<i>Asia Oceania</i>	13 648	15 658	17 715	18 699	22 544	25 205	26 977	27 253	26 869	25 021	25 259	12.0%
<i>Annex I EIT</i>	..	..	..	..	63 573	46 517	43 323	45 973	47 053	48 568	47 491	-25.3%
<i>Non-Annex I Parties</i>	..	..	..	..	124 852	146 815	168 031	216 479	275 399	304 329	312 416	150.2%
<i>Annex I Kyoto Parties</i>	..	..	..	..	140 681	129 561	131 518	137 566	135 969	132 514	131 408	-6.6%
Intl. marine bunkers	4 597	4 433	4 646	3 993	4 845	5 603	6 496	7 549	8 676	7 995	7 910	63.3%
Intl. aviation bunkers	2 368	2 432	2 828	3 146	3 619	4 069	4 965	5 914	6 431	6 723	6 859	89.5%
Non-OECD Total ²	83 063	100 531	123 859	143 678	169 287	172 313	188 030	236 551	294 053	323 440	330 294	95.1%
OECD Total ³	141 189	151 455	170 305	172 604	189 356	203 994	221 556	230 668	226 289	219 856	221 884	17.2%
Canada	5 918	6 948	8 036	8 080	8 732	9 662	10 530	11 317	10 524	10 562	10 601	21.4%
Chile	364	320	397	401	587	768	1 054	1 188	1 292	1 558	1 620	176.2%
Mexico	1 799	2 476	3 982	4 547	5 129	5 440	6 063	7 063	7 380	7 899	8 008	56.1%
United States	66 464	69 231	75 558	74 275	80 179	86 554	95 180	97 082	92 754	89 590	91 622	14.3%
OECD Americas	74 546	78 974	87 973	87 304	94 627	102 424	112 827	116 649	111 949	109 609	111 851	18.2%
Australia	2 161	2 528	2 914	3 037	3 616	3 881	4 526	4 751	5 211	5 289	5 407	49.5%
Israel	240	294	328	317	480	649	763	772	971	1 016	1 002	108.8%
Japan	11 201	12 772	14 424	15 194	18 391	20 701	21 735	21 794	20 889	18 924	19 035	3.5%
Korea	711	1 024	1 727	2 225	3 890	6 061	7 878	8 804	10 468	11 031	11 046	184.0%
New Zealand	286	358	376	469	537	623	716	709	770	808	817	52.0%
OECD Asia Oceania	14 599	16 976	19 770	21 241	26 915	31 915	35 618	36 830	38 308	37 068	37 307	38.6%
Austria	788	842	969	967	1 040	1 120	1 195	1 414	1 429	1 387	1 391	33.8%
Belgium	1 660	1 772	1 958	1 847	2 022	2 251	2 452	2 460	2 554	2 278	2 359	16.7%
Czech Republic	1 900	1 829	1 966	2 062	2 075	1 738	1 712	1 881	1 858	1 784	1 756	-15.4%
Denmark	775	732	801	808	727	812	780	791	815	725	730	0.5%
Estonia	..	..	..	..	409	218	197	218	235	231	255	-37.7%
Finland	761	825	1 030	1 082	1 188	1 211	1 352	1 436	1 531	1 421	1 383	16.4%
France	6 639	6 907	8 029	8 534	9 379	9 925	10 547	11 349	10 956	10 569	10 606	13.1%
Germany	12 772	13 126	14 954	14 955	14 704	14 088	14 092	14 110	13 685	13 055	13 300	-9.6%
Greece	364	492	627	735	898	949	1 134	1 266	1 156	1 112	980	9.1%
Hungary	797	959	1 187	1 246	1 205	1 082	1 047	1 153	1 075	986	945	-21.6%
Iceland	38	46	63	74	95	92	131	131	227	237	246	159.3%
Ireland	281	278	345	361	415	446	578	610	604	551	547	31.8%
Italy	4 413	4 889	5 478	5 414	6 136	6 662	7 181	7 685	7 117	6 754	6 505	6.0%
Luxembourg	170	158	149	128	142	132	140	184	177	172	166	17.2%
Netherlands	2 130	2 471	2 695	2 539	2 750	2 962	3 066	3 282	3 493	3 290	3 240	17.8%
Norway	558	613	768	837	882	984	1 095	1 124	1 421	1 242	1 369	55.3%
Poland	3 606	4 314	5 301	5 221	4 317	4 165	3 717	3 857	4 205	4 090	4 086	-5.4%
Portugal	263	322	418	459	703	845	1 030	1 108	984	907	912	29.8%
Slovak Republic	597	702	831	868	893	744	743	788	746	697	720	-19.3%
Slovenia	..	..	..	..	239	254	269	305	304	294	287	19.9%
Spain	1 784	2 407	2 834	2 969	3 771	4 220	5 102	5 942	5 349	5 255	4 887	29.6%
Sweden	1 509	1 634	1 695	1 977	1 976	2 107	1 991	2 159	2 131	2 100	2 063	4.4%
Switzerland	686	719	839	924	1 020	1 009	1 047	1 086	1 096	1 072	1 119	9.7%
Turkey	818	1 120	1 317	1 646	2 207	2 578	3 180	3 526	4 408	4 894	4 877	121.0%
United Kingdom	8 737	8 347	8 308	8 407	8 622	9 058	9 335	9 322	8 475	8 076	7 995	-7.3%
OECD Europe ³	52 045	55 505	62 562	64 059	67 815	69 655	73 112	77 189	76 032	73 179	72 725	7.2%
<i>European Union - 28</i>	..	..	..	..	68 864	68 862	70 857	74 834	72 074	68 921	68 062	-1.2%
G7	116 144	122 219	134 788	134 859	146 143	156 651	168 600	172 660	164 400	157 529	159 665	9.3%
G8	..	..	..	..	182 953	183 306	194 527	199 945	193 274	188 553	190 265	4.0%
G20	..	..	..	..	295 637	312 473	339 126	382 842	422 427	440 251	446 886	51.2%

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

2. Includes Estonia and Slovenia prior to 1990.

3. Excludes Estonia and Slovenia prior to 1990.

Total primary energy supply

petajoules

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Non-OECD Total ¹	83 063	100 531	123 859	143 678	169 287	172 313	188 030	236 551	294 053	323 440	330 294	95.1%
Albania	72	83	129	114	112	56	74	91	88	83	97	-13.2%
Armenia	..	..	..	..	323	69	84	105	104	124	121	-62.4%
Azerbaijan	..	..	..	..	949	582	473	562	485	573	581	-38.7%
Belarus	..	..	..	..	1 905	1 036	1 029	1 120	1 152	1 277	1 142	-40.0%
Bosnia and Herzegovina	..	..	..	..	294	63	182	211	271	280	270	-8.0%
Bulgaria	797	973	1 189	1 283	1 182	967	779	833	748	769	708	-40.1%
Croatia	..	..	..	..	378	295	326	373	359	332	323	-14.5%
Cyprus ²	25	24	36	39	57	71	89	93	102	93	81	41.4%
FYR of Macedonia	..	..	..	..	104	105	112	117	121	124	117	12.9%
Georgia	..	..	..	..	520	156	120	119	131	155	163	-68.6%
Gibraltar	1	1	1	2	2	4	5	6	7	7	8	219.5%
Kazakhstan	..	..	..	..	3 075	2 187	1 494	2 130	2 894	3 093	3 414	11.0%
Kosovo ²	..	..	..	..	..	..	65	81	104	99	99	..
Kyrgyzstan	..	..	..	..	313	100	97	108	115	173	165	-47.3%
Latvia	..	..	..	..	329	192	160	190	189	185	182	-44.7%
Lithuania	..	..	..	..	673	365	299	370	295	309	292	-56.6%
Malta	9	9	13	14	29	30	28	37	34	37	31	5.7%
Republic of Moldova	..	..	..	..	414	198	121	146	147	143	129	-69.0%
Montenegro ²	..	..	..	..	..	..	..	45	49	44	43	..
Romania	1 764	2 169	2 731	2 719	2 606	1 951	1 517	1 616	1 467	1 463	1 332	-48.9%
Russian Federation	..	..	..	..	36 810	26 655	25 927	27 286	28 874	31 023	30 601	-16.9%
Serbia ²	..	..	..	..	825	577	575	673	654	608	623	-24.5%
Tajikistan	..	..	..	..	222	93	90	98	91	95	103	-53.7%
Turkmenistan	..	..	..	..	733	573	623	803	950	1 071	1 100	49.9%
Ukraine	..	..	..	..	10 551	6 854	5 602	5 982	5 545	5 128	4 863	-53.9%
Uzbekistan	..	..	..	..	1 941	1 790	2 130	1 971	1 809	2 027	1 797	-7.4%
Former Soviet Union ³	32 169	39 351	46 453	52 248	..	..	..	..	..	..	..	..
Former Yugoslavia ³	918	1 068	1 411	1 722	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia ¹	35 753	43 678	51 963	58 141	64 349	44 968	42 001	45 167	46 786	49 316	48 385	-24.8%
Algeria	145	231	469	743	929	1 015	1 130	1 357	1 678	1 924	1 992	114.5%
Angola	161	173	191	209	246	268	314	382	562	654	643	161.0%
Benin	46	52	57	65	70	77	83	105	153	163	170	144.4%
Botswana	..	..	..	36	51	61	75	78	91	90	100	96.2%
Cameroon	113	127	153	187	209	232	264	295	292	291	308	47.5%
Congo	21	23	26	32	32	32	29	45	70	99	102	214.9%
Côte d'Ivoire	103	124	150	155	182	216	284	403	425	529	548	201.2%
Dem. Rep. of Congo	280	313	354	417	494	537	583	699	832	860	888	79.7%
Egypt	327	410	632	1 074	1 350	1 471	1 699	2 573	3 036	3 275	3 246	140.4%
Eritrea	..	..	..	..	..	42	30	32	31	33	34	..
Ethiopia	535	590	641	739	881	1 044	1 211	1 410	1 722	1 899	2 007	127.7%
Gabon	45	54	58	57	49	56	62	72	88	95	99	100.4%
Ghana	125	153	168	182	222	271	263	247	311	359	376	69.9%
Kenya	220	252	307	362	446	507	586	675	823	851	900	101.7%
Libya	66	153	295	424	468	586	666	746	861	718	711	52.1%
Mauritius	15	17	18	19	28	33	42	49	55	56	58	106.8%
Morocco	124	166	226	259	319	391	462	590	709	789	790	147.7%
Mozambique	289	280	281	267	248	263	300	355	414	437	451	82.1%
Namibia	..	..	..	..	..	40	43	56	65	69	73	..
Niger	..	..	..	..	..	..	62	73	93	95	117	..
Nigeria	1 389	1 614	2 046	2 390	2 781	3 085	3 602	4 409	5 023	5 611	5 593	101.1%
Senegal	52	58	65	65	71	78	100	117	160	169	155	120.1%
South Africa	1 902	2 260	2 737	3 617	3 808	4 335	4 565	5 370	5 936	5 876	5 915	55.3%
South Sudan ²	..	..	..	..	..	..	..	..	..	27	28	..
Sudan ²	294	313	350	396	445	502	557	627	699	595	604	35.8%
United Rep. of Tanzania	317	321	336	367	408	461	564	718	858	942	988	142.3%
Togo	30	33	37	41	53	66	88	99	130	131	134	153.7%
Tunisia	69	91	137	174	207	243	306	348	430	429	436	110.5%
Zambia	151	168	194	211	228	244	262	307	344	382	403	76.7%
Zimbabwe	228	248	272	310	389	412	419	403	396	453	473	21.4%
Other Africa	945	1 033	1 173	1 299	1 758	1 923	2 039	2 326	2 657	2 839	2 917	65.9%
Africa	7 993	9 256	11 374	14 097	16 372	18 491	20 691	24 965	28 947	30 742	31 261	90.9%

1. Includes Estonia and Slovenia prior to 1990.

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

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

Total primary energy supply

petajoules

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Bangladesh	238	282	352	417	533	666	764	953	1 274	1 387	1 418	165.9%
Brunei Darussalam	7	31	57	75	72	94	100	93	136	160	127	76.2%
Cambodia	..	..	..	..	..	119	143	144	222	242	250	..
DPR of Korea	813	932	1 271	1 507	1 391	920	826	893	792	597	605	-56.5%
India	6 370	7 215	8 394	10 368	12 837	15 546	18 477	21 673	29 001	31 483	32 466	152.9%
Indonesia	1 467	1 722	2 332	2 756	4 129	5 477	6 516	7 528	8 769	8 869	8 945	116.6%
Malaysia	253	306	506	663	928	1 467	2 072	2 787	3 118	3 310	3 725	301.5%
Mongolia	..	..	..	131	143	113	100	125	165	197	219	53.2%
Myanmar	331	351	394	460	447	494	538	621	585	654	694	55.2%
Nepal	153	169	191	213	242	281	339	382	428	423	431	77.7%
Pakistan	713	852	1 037	1 351	1 796	2 242	2 682	3 193	3 534	3 591	3 602	100.6%
Philippines	642	764	938	995	1 202	1 408	1 674	1 627	1 691	1 803	1 867	55.4%
Singapore	114	155	215	283	483	789	782	903	1 064	1 091	1 093	126.4%
Sri Lanka	159	172	190	209	231	251	349	377	408	471	420	81.9%
Chinese Taipei	419	599	1 168	1 390	1 999	2 660	3 552	4 286	4 666	4 460	4 548	127.5%
Thailand	573	726	921	1 036	1 756	2 593	3 026	4 145	4 934	5 284	5 613	219.6%
Viet Nam	554	582	603	668	748	916	1 203	1 727	2 467	2 509	2 509	235.4%
Other Asia	237	272	324	269	289	289	345	398	514	723	762	164.0%
Asia (excl. China)	13 044	15 131	18 892	22 791	29 227	36 324	43 490	51 856	63 765	67 255	69 295	137.1%
People's Rep. of China	16 373	20 238	25 038	28 945	36 454	43 728	48 599	74 327	103 374	121 747	126 001	245.6%
Hong Kong, China	126	152	194	275	362	446	567	538	573	597	583	61.1%
China	16 498	20 390	25 232	29 220	36 816	44 174	49 167	74 865	103 947	122 345	126 584	243.8%
Argentina	1 409	1 505	1 751	1 731	1 929	2 265	2 578	2 804	3 296	3 360	3 374	74.9%
Bolivia	43	62	102	106	109	158	205	218	268	325	342	212.8%
Brazil	2 922	3 814	4 767	5 416	5 870	6 745	7 848	9 016	11 131	11 795	12 296	109.5%
Colombia	580	646	741	837	1 014	1 156	1 081	1 134	1 306	1 323	1 325	30.7%
Costa Rica	34	42	53	53	70	98	120	162	195	198	203	188.7%
Cuba	452	506	627	654	743	465	541	453	481	454	490	-34.0%
Curaçao ¹	229	161	164	75	61	55	88	88	86	86	76	24.5%
Dominican Republic	98	129	144	144	169	220	295	286	307	325	315	86.0%
Ecuador	94	132	209	235	265	330	369	425	575	609	642	142.4%
El Salvador	73	95	105	110	103	141	166	189	177	183	177	71.1%
Guatemala	114	140	159	158	185	223	295	327	427	464	504	173.1%
Haiti	63	72	87	79	65	71	84	143	159	171	172	162.8%
Honduras	58	64	78	84	100	118	125	172	191	215	218	118.5%
Jamaica	84	112	95	72	117	134	161	156	113	118	123	5.6%
Nicaragua	51	62	64	81	85	95	105	120	124	138	148	74.8%
Panama	69	71	59	65	62	84	108	121	155	174	168	169.9%
Paraguay	57	62	87	95	129	164	161	166	201	209	207	60.8%
Peru	382	434	471	443	408	459	512	571	804	904	906	122.4%
Trinidad and Tobago	110	97	160	213	251	257	412	675	840	806	821	227.4%
Uruguay	101	102	111	84	94	108	129	124	171	194	193	104.5%
Venezuela	747	965	1 368	1 521	1 657	1 961	2 147	2 357	3 030	3 059	2 879	73.7%
Other Non-OECD Americas	203	252	242	151	213	210	236	256	292	314	325	52.7%
Non-OECD Americas	7 974	9 522	11 646	12 405	13 700	15 516	17 766	19 959	24 329	25 421	25 905	89.1%
Bahrain	59	89	117	174	219	269	334	434	526	526	575	162.2%
Islamic Republic of Iran	695	1 115	1 594	2 252	2 903	4 238	5 151	7 229	8 688	9 194	9 563	229.4%
Iraq	168	255	404	579	825	1 402	1 092	1 222	1 573	1 882	2 094	153.7%
Jordan	21	32	64	110	137	180	204	280	297	329	324	136.0%
Kuwait	256	271	438	587	381	623	787	1 105	1 348	1 449	1 468	284.9%
Lebanon	77	91	104	98	82	185	206	211	267	300	296	261.8%
Oman	4	10	48	88	177	255	323	465	838	991	1 019	477.1%
Qatar	39	85	139	236	273	341	457	698	1 157	1 595	1 682	515.6%
Saudi Arabia	308	367	1 302	1 926	2 429	3 538	4 097	5 131	7 766	8 388	8 046	231.3%
Syrian Arab Republic	100	128	187	328	438	507	646	871	907	627	541	23.4%
United Arab Emirates	42	81	303	574	855	1 159	1 421	1 820	2 586	2 831	2 911	240.4%
Yemen	31	29	53	73	105	143	199	276	328	250	346	228.9%
Middle East	1 800	2 554	4 752	7 025	8 825	12 840	14 916	19 740	26 280	28 362	28 865	227.1%

1. Prior to 2012, Curaçao includes the entire territory of the former Netherlands Antilles.

Total primary energy supply

million tonnes of oil equivalent

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
World ¹	5 522.5	6 182.5	7 204.5	7 724.8	8 768.2	9 218.9	10 056.6	11 480.9	12 789.0	13 327.9	13 541.3	54.4%
<i>Annex I Parties</i>	..	..	..	..	5 584.0	5 481.3	5 769.4	5 988.8	5 850.4	5 707.6	5 726.6	2.6%
<i>Annex II Parties</i>	3 113.5	3 306.0	3 660.8	3 679.9	4 010.8	4 306.3	4 655.9	4 803.5	4 618.0	4 427.6	4 473.1	11.5%
<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	2 589.1	2 466.8	2 392.1	2 441.6	15.0%
<i>Europe</i>	1 058.7	1 112.5	1 241.1	1 266.3	1 348.7	1 406.2	1 486.7	1 563.5	1 509.5	1 437.9	1 428.3	5.9%
<i>Asia Oceania</i>	326.0	374.0	423.1	446.6	538.5	602.0	644.3	650.9	641.8	597.6	603.3	12.0%
<i>Annex I EIT</i>	..	..	..	..	1 518.4	1 111.0	1 034.8	1 098.1	1 123.8	1 160.0	1 134.3	-25.3%
<i>Non-Annex I Parties</i>	..	..	..	..	2 982.0	3 506.6	4 013.4	5 170.5	6 577.8	7 268.8	7 461.9	150.2%
<i>Annex I Kyoto Parties</i>	..	..	..	..	3 360.1	3 094.5	3 141.3	3 285.7	3 247.6	3 165.0	3 138.6	-6.6%
Intl. marine bunkers	109.8	105.9	111.0	95.4	115.7	133.8	155.2	180.3	207.2	190.9	188.9	63.3%
Intl. aviation bunkers	56.6	58.1	67.5	75.1	86.5	97.2	118.6	141.2	153.6	160.6	163.8	89.5%
Non-OECD Total ²	1 983.9	2 401.1	2 958.3	3 431.7	4 043.3	4 115.6	4 491.0	5 649.9	7 023.3	7 725.2	7 888.9	95.1%
OECD Total ³	3 372.2	3 617.4	4 067.7	4 122.6	4 522.7	4 872.3	5 291.8	5 509.4	5 404.8	5 251.2	5 299.6	17.2%
Canada	141.4	165.9	191.9	193.0	208.6	230.8	251.5	270.3	251.4	252.3	253.2	21.4%
Chile	8.7	7.6	9.5	9.6	14.0	18.3	25.2	28.4	30.8	37.2	38.7	176.2%
Mexico	43.0	59.1	95.1	108.6	122.5	129.9	144.8	168.7	176.3	188.7	191.3	56.1%
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	2 139.8	2 188.4	14.3%
OECD Americas	1 780.5	1 886.3	2 101.2	2 085.2	2 260.1	2 446.4	2 694.8	2 786.1	2 673.9	2 618.0	2 671.5	18.2%
Australia	51.6	60.4	69.6	72.5	86.4	92.7	108.1	113.5	124.5	126.3	129.1	49.5%
Israel	5.7	7.0	7.8	7.6	11.5	15.5	18.2	18.4	23.2	24.3	23.9	108.8%
Japan	267.5	305.1	344.5	362.9	439.3	494.4	519.1	520.5	498.9	452.0	454.7	3.5%
Korea	17.0	24.5	41.3	53.1	92.9	144.8	188.2	210.3	250.0	263.5	263.8	184.0%
New Zealand	6.8	8.5	9.0	11.2	12.8	14.9	17.1	16.9	18.4	19.3	19.5	52.0%
OECD Asia Oceania	348.7	405.5	472.2	507.3	642.8	762.3	850.7	879.7	915.0	885.4	891.1	38.6%
Austria	18.8	20.1	23.2	23.1	24.8	26.8	28.5	33.8	34.1	33.1	33.2	33.8%
Belgium	39.7	42.3	46.8	44.1	48.3	53.8	58.6	58.7	61.0	54.4	56.4	16.7%
Czech Republic	45.4	43.7	47.0	49.2	49.6	41.5	40.9	44.9	44.4	42.6	42.0	-15.4%
Denmark	18.5	17.5	19.1	19.3	17.4	19.4	18.6	18.9	19.5	17.3	17.4	0.5%
Estonia	..	..	..	..	9.8	5.2	4.7	5.2	5.6	5.5	6.1	-37.7%
Finland	18.2	19.7	24.6	25.8	28.4	28.9	32.3	34.3	36.6	33.9	33.0	16.4%
France	158.6	165.0	191.8	203.8	224.0	237.1	251.9	271.1	261.7	252.4	253.3	13.1%
Germany	305.0	313.5	357.2	357.2	351.2	336.5	336.6	337.0	326.9	311.8	317.7	-9.6%
Greece	8.7	11.7	15.0	17.6	21.4	22.7	27.1	30.2	27.6	26.6	23.4	9.1%
Hungary	19.0	22.9	28.3	29.8	28.8	25.9	25.0	27.5	25.7	23.5	22.6	-21.6%
Iceland	0.9	1.1	1.5	1.8	2.3	2.2	3.1	3.1	5.4	5.7	5.9	159.3%
Ireland	6.7	6.6	8.2	8.6	9.9	10.7	13.8	14.6	14.4	13.2	13.1	31.8%
Italy	105.4	116.8	130.8	129.3	146.6	159.1	171.5	183.6	170.0	161.3	155.4	6.0%
Luxembourg	4.1	3.8	3.6	3.1	3.4	3.1	3.3	4.4	4.2	4.1	4.0	17.2%
Netherlands	50.9	59.0	64.4	60.6	65.7	70.7	73.2	78.4	83.4	78.6	77.4	17.8%
Norway	13.3	14.6	18.4	20.0	21.1	23.5	26.2	26.8	33.9	29.7	32.7	55.3%
Poland	86.1	103.0	126.6	124.7	103.1	99.5	88.8	92.1	100.4	97.7	97.6	-5.4%
Portugal	6.3	7.7	10.0	11.0	16.8	20.2	24.6	26.5	23.5	21.7	21.8	29.8%
Slovak Republic	14.3	16.8	19.8	20.7	21.3	17.8	17.7	18.8	17.8	16.7	17.2	-19.3%
Slovenia	..	..	..	..	5.7	6.1	6.4	7.3	7.3	7.0	6.8	19.9%
Spain	42.6	57.5	67.7	70.9	90.1	100.8	121.9	141.9	127.8	125.5	116.7	29.6%
Sweden	36.0	39.0	40.5	47.2	47.2	50.3	47.6	51.6	50.9	50.2	49.3	4.4%
Switzerland	16.4	17.2	20.0	22.1	24.4	24.1	25.0	25.9	26.2	25.6	26.7	9.7%
Turkey	19.5	26.8	31.4	39.3	52.7	61.6	76.0	84.2	105.3	116.9	116.5	121.0%
United Kingdom	208.7	199.4	198.4	200.8	205.9	216.4	223.0	222.7	202.4	192.9	191.0	-7.3%
OECD Europe ³	1 243.1	1 325.7	1 494.3	1 530.0	1 619.7	1 663.7	1 746.2	1 843.6	1 816.0	1 747.9	1 737.0	7.2%
<i>European Union - 28</i>	..	..	..	..	1 644.8	1 644.7	1 692.4	1 787.4	1 721.5	1 646.2	1 625.6	-1.2%
G7	2 774.0	2 919.2	3 219.3	3 221.0	3 490.6	3 741.5	4 026.9	4 123.9	3 926.6	3 762.5	3 813.5	9.3%
G8	..	..	..	..	4 369.8	4 378.2	4 646.2	4 775.6	4 616.3	4 503.5	4 544.4	4.0%
G20	..	..	..	..	7 061.2	7 463.3	8 099.9	9 144.0	10 089.5	10 515.2	10 673.7	51.2%

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

2. Includes Estonia and Slovenia prior to 1990.

3. 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	2012	2013	% change 90-13
Non-OECD Total ¹	1 983.9	2 401.1	2 958.3	3 431.7	4 043.3	4 115.6	4 491.0	5 649.9	7 023.3	7 725.2	7 888.9	95.1%
Albania	1.7	2.0	3.1	2.7	2.7	1.3	1.8	2.2	2.1	2.0	2.3	-13.2%
Armenia	..	..	..	..	7.7	1.6	2.0	2.5	2.5	3.0	2.9	-62.4%
Azerbaijan	..	..	..	..	22.7	13.9	11.3	13.4	11.6	13.7	13.9	-38.7%
Belarus	..	..	..	..	45.5	24.7	24.6	26.8	27.5	30.5	27.3	-40.0%
Bosnia and Herzegovina	..	..	..	..	7.0	1.5	4.3	5.0	6.5	6.7	6.5	-8.0%
Bulgaria	19.0	23.2	28.4	30.6	28.2	23.1	18.6	19.9	17.9	18.4	16.9	-40.1%
Croatia	..	..	..	..	9.0	7.1	7.8	8.9	8.6	7.9	7.7	-14.5%
Cyprus ²	0.6	0.6	0.9	0.9	1.4	1.7	2.1	2.2	2.4	2.2	1.9	41.4%
FYR of Macedonia	..	..	..	..	2.5	2.5	2.7	2.8	2.9	3.0	2.8	12.9%
Georgia	..	..	..	..	12.4	3.7	2.9	2.8	3.1	3.7	3.9	-68.6%
Gibraltar	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	219.7%
Kazakhstan	..	..	..	..	73.4	52.2	35.7	50.9	69.1	73.9	81.5	11.0%
Kosovo ²	..	..	..	..	..	..	1.5	1.9	2.5	2.4	2.4	..
Kyrgyzstan	..	..	..	..	7.5	2.4	2.3	2.6	2.8	4.1	3.9	-47.3%
Latvia	..	..	..	..	7.9	4.6	3.8	4.5	4.5	4.4	4.3	-44.7%
Lithuania	..	..	..	..	16.1	8.7	7.1	8.8	7.0	7.4	7.0	-56.6%
Malta	0.2	0.2	0.3	0.3	0.7	0.7	0.7	0.9	0.8	0.9	0.7	5.7%
Republic of Moldova	..	..	..	..	9.9	4.7	2.9	3.5	3.5	3.4	3.1	-69.0%
Montenegro ²	..	..	..	..	..	..	..	1.1	1.2	1.1	1.0	..
Romania	42.1	51.8	65.2	64.9	62.3	46.6	36.2	38.6	35.0	34.9	31.8	-48.9%
Russian Federation	..	..	..	..	879.2	636.6	619.3	651.7	689.7	741.0	730.9	-16.9%
Serbia ²	..	..	..	..	19.7	13.8	13.7	16.1	15.6	14.5	14.9	-24.5%
Tajikistan	..	..	..	..	5.3	2.2	2.1	2.3	2.2	2.3	2.5	-53.7%
Turkmenistan	..	..	..	..	17.5	13.7	14.9	19.2	22.7	25.6	26.3	49.9%
Ukraine	..	..	..	..	252.0	163.7	133.8	142.9	132.4	122.5	116.1	-53.9%
Uzbekistan	..	..	..	..	46.4	42.7	50.9	47.1	43.2	48.4	42.9	-7.4%
Former Soviet Union ³	768.3	939.9	1 109.5	1 247.9	..	..	..	..	..	..	..	..
Former Yugoslavia ³	21.9	25.5	33.7	41.1	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia ¹	853.9	1 043.2	1 241.1	1 388.7	1 536.9	1 074.0	1 003.2	1 078.8	1 117.5	1 177.9	1 155.6	-24.8%
Algeria	3.5	5.5	11.2	17.7	22.2	24.2	27.0	32.4	40.1	46.0	47.6	114.5%
Angola	3.9	4.1	4.6	5.0	5.9	6.4	7.5	9.1	13.4	15.6	15.4	161.0%
Benin	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.5	3.7	3.9	4.1	144.4%
Botswana	..	..	..	0.9	1.2	1.4	1.8	1.9	2.2	2.2	2.4	96.2%
Cameroon	2.7	3.0	3.7	4.5	5.0	5.5	6.3	7.1	7.0	7.0	7.3	47.5%
Congo	0.5	0.6	0.6	0.8	0.8	0.8	0.7	1.1	1.7	2.4	2.4	214.9%
Côte d'Ivoire	2.5	3.0	3.6	3.7	4.3	5.2	6.8	9.6	10.2	12.6	13.1	201.2%
Dem. Rep. of Congo	6.7	7.5	8.5	10.0	11.8	12.8	13.9	16.7	19.9	20.6	21.2	79.7%
Egypt	7.8	9.8	15.1	25.7	32.3	35.1	40.6	61.5	72.5	78.2	77.5	140.4%
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	45.4	47.9	127.7%
Gabon	1.1	1.3	1.4	1.4	1.2	1.3	1.5	1.7	2.1	2.3	2.4	100.4%
Ghana	3.0	3.7	4.0	4.4	5.3	6.5	6.3	5.9	7.4	8.6	9.0	69.9%
Kenya	5.3	6.0	7.3	8.6	10.7	12.1	14.0	16.1	19.7	20.3	21.5	101.7%
Libya	1.6	3.7	7.0	10.1	11.2	14.0	15.9	17.8	20.6	17.1	17.0	52.1%
Mauritius	0.4	0.4	0.4	0.4	0.7	0.8	1.0	1.2	1.3	1.3	1.4	106.8%
Morocco	3.0	4.0	5.4	6.2	7.6	9.3	11.0	14.1	16.9	18.9	18.9	147.7%
Mozambique	6.9	6.7	6.7	6.4	5.9	6.3	7.2	8.5	9.9	10.4	10.8	82.1%
Namibia	..	..	..	..	..	1.0	1.0	1.3	1.6	1.7	1.7	..
Niger	..	..	..	..	..	..	1.5	1.7	2.2	2.3	2.8	..
Nigeria	33.2	38.6	48.9	57.1	66.4	73.7	86.0	105.3	120.0	134.0	133.6	101.1%
Senegal	1.2	1.4	1.6	1.6	1.7	1.9	2.4	2.8	3.8	4.0	3.7	120.1%
South Africa	45.4	54.0	65.4	86.4	91.0	103.5	109.0	128.3	141.8	140.3	141.3	55.3%
South Sudan ²	..	..	..	..	..	..	..	..	..	0.6	0.7	..
Sudan ²	7.0	7.5	8.4	9.5	10.6	12.0	13.3	15.0	16.7	14.2	14.4	35.8%
United Rep. of Tanzania	7.6	7.7	8.0	8.8	9.7	11.0	13.5	17.2	20.5	22.5	23.6	142.3%
Togo	0.7	0.8	0.9	1.0	1.3	1.6	2.1	2.4	3.1	3.1	3.2	153.7%
Tunisia	1.7	2.2	3.3	4.2	4.9	5.8	7.3	8.3	10.3	10.2	10.4	110.5%
Zambia	3.6	4.0	4.6	5.0	5.4	5.8	6.2	7.3	8.2	9.1	9.6	76.7%
Zimbabwe	5.4	5.9	6.5	7.4	9.3	9.8	10.0	9.6	9.5	10.8	11.3	21.4%
Other Africa	22.6	24.7	28.0	31.0	42.0	45.9	48.7	55.6	63.5	67.8	69.7	65.9%
Africa	190.9	221.1	271.7	336.7	391.0	441.6	494.2	596.3	691.4	734.3	746.6	90.9%

1. Includes Estonia and Slovenia prior to 1990.

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

3. 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	2012	2013	% change 90-13
Bangladesh	5.7	6.7	8.4	10.0	12.7	15.9	18.3	22.8	30.4	33.1	33.9	165.9%
Brunei Darussalam	0.2	0.7	1.3	1.8	1.7	2.2	2.4	2.2	3.2	3.8	3.0	76.2%
Cambodia	..	..	..	..	..	2.8	3.4	3.4	5.3	5.8	6.0	..
DPR of Korea	19.4	22.3	30.4	36.0	33.2	22.0	19.7	21.3	18.9	14.3	14.5	-56.5%
India	152.1	172.3	200.5	247.6	306.6	371.3	441.3	517.7	692.7	752.0	775.4	152.9%
Indonesia	35.0	41.1	55.7	65.8	98.6	130.8	155.6	179.8	209.4	211.8	213.6	116.6%
Malaysia	6.1	7.3	12.1	15.8	22.2	35.0	49.5	66.6	74.5	79.1	89.0	301.5%
Mongolia	..	..	..	3.1	3.4	2.7	2.4	3.0	3.9	4.7	5.2	53.2%
Myanmar	7.9	8.4	9.4	11.0	10.7	11.8	12.8	14.8	14.0	15.6	16.6	55.2%
Nepal	3.7	4.0	4.6	5.1	5.8	6.7	8.1	9.1	10.2	10.1	10.3	77.7%
Pakistan	17.0	20.3	24.8	32.3	42.9	53.5	64.1	76.3	84.4	85.8	86.0	100.6%
Philippines	15.3	18.3	22.4	23.8	28.7	33.6	40.0	38.9	40.4	43.1	44.6	55.4%
Singapore	2.7	3.7	5.1	6.8	11.5	18.8	18.7	21.6	25.4	26.1	26.1	126.4%
Sri Lanka	3.8	4.1	4.5	5.0	5.5	6.0	8.3	9.0	9.7	11.3	10.0	81.9%
Chinese Taipei	10.0	14.3	27.9	33.2	47.7	63.5	84.8	102.4	111.4	106.5	108.6	127.5%
Thailand	13.7	17.3	22.0	24.7	41.9	61.9	72.3	99.0	117.8	126.2	134.1	219.6%
Viet Nam	13.2	13.9	14.4	16.0	17.9	21.9	28.7	41.3	58.9	59.9	59.9	235.4%
Other Asia	5.7	6.5	7.7	6.4	6.9	6.9	8.2	9.5	12.3	17.3	18.2	164.0%
Asia (excl. China)	311.6	361.4	451.2	544.3	698.1	867.6	1 038.7	1 238.6	1 523.0	1 606.4	1 655.1	137.1%
People's Rep. of China	391.1	483.4	598.0	691.3	870.7	1 044.4	1 160.8	1 775.3	2 469.1	2 907.9	3 009.5	245.6%
Hong Kong, China	3.0	3.6	4.6	6.6	8.6	10.6	13.6	12.8	13.7	14.3	13.9	61.1%
China	394.1	487.0	602.6	697.9	879.3	1 055.1	1 174.3	1 788.1	2 482.7	2 922.1	3 023.4	243.8%
Argentina	33.6	35.9	41.8	41.3	46.1	54.1	61.6	67.0	78.7	80.3	80.6	74.9%
Bolivia	1.0	1.5	2.4	2.5	2.6	3.8	4.9	5.2	6.4	7.8	8.2	212.8%
Brazil	69.8	91.1	113.9	129.4	140.2	161.1	187.4	215.3	265.9	281.7	293.7	109.5%
Colombia	13.9	15.4	17.7	20.0	24.2	27.6	25.8	27.1	31.2	31.6	31.6	30.7%
Costa Rica	0.8	1.0	1.3	1.3	1.7	2.3	2.9	3.9	4.6	4.7	4.8	188.6%
Cuba	10.8	12.1	15.0	15.6	17.8	11.1	12.9	10.8	11.5	10.8	11.7	-34.0%
Curaçao ¹	5.5	3.8	3.9	1.8	1.5	1.3	2.1	2.1	2.1	2.0	1.8	24.5%
Dominican Republic	2.3	3.1	3.4	3.4	4.0	5.3	7.0	6.8	7.3	7.8	7.5	86.0%
Ecuador	2.2	3.1	5.0	5.6	6.3	7.9	8.8	10.2	13.7	14.6	15.3	142.4%
El Salvador	1.8	2.3	2.5	2.6	2.5	3.4	4.0	4.5	4.2	4.4	4.2	71.1%
Guatemala	2.7	3.3	3.8	3.8	4.4	5.3	7.0	7.8	10.2	11.1	12.0	173.1%
Haiti	1.5	1.7	2.1	1.9	1.6	1.7	2.0	3.4	3.8	4.1	4.1	162.8%
Honduras	1.4	1.5	1.9	2.0	2.4	2.8	3.0	4.1	4.6	5.1	5.2	118.5%
Jamaica	2.0	2.7	2.3	1.7	2.8	3.2	3.8	3.7	2.7	2.8	2.9	5.6%
Nicaragua	1.2	1.5	1.5	1.9	2.0	2.3	2.5	2.9	3.0	3.3	3.5	74.8%
Panama	1.7	1.7	1.4	1.6	1.5	2.0	2.6	2.9	3.7	4.2	4.0	169.9%
Paraguay	1.4	1.5	2.1	2.3	3.1	3.9	3.9	4.0	4.8	5.0	4.9	60.8%
Peru	9.1	10.4	11.3	10.6	9.7	11.0	12.2	13.6	19.2	21.6	21.7	122.4%
Trinidad and Tobago	2.6	2.3	3.8	5.1	6.0	6.1	9.8	16.1	20.1	19.2	19.6	227.4%
Uruguay	2.4	2.4	2.6	2.0	2.3	2.6	3.1	3.0	4.1	4.6	4.6	104.4%
Venezuela	17.8	23.0	32.7	36.3	39.6	46.8	51.3	56.3	72.4	73.1	68.8	73.7%
Other Non-OECD Americas	4.9	6.0	5.8	3.6	5.1	5.0	5.6	6.1	7.0	7.5	7.8	52.7%
Non-OECD Americas	190.5	227.4	278.2	296.3	327.2	370.6	424.3	476.7	581.1	607.2	618.7	89.1%
Bahrain	1.4	2.1	2.8	4.2	5.2	6.4	8.0	10.4	12.6	12.6	13.7	162.2%
Islamic Republic of Iran	16.6	26.6	38.1	53.8	69.3	101.2	123.0	172.7	207.5	219.6	228.4	229.4%
Iraq	4.0	6.1	9.6	13.8	19.7	33.5	26.1	29.2	37.6	45.0	50.0	153.7%
Jordan	0.5	0.8	1.5	2.6	3.3	4.3	4.9	6.7	7.1	7.8	7.7	136.0%
Kuwait	6.1	6.5	10.5	14.0	9.1	14.9	18.8	26.4	32.2	34.6	35.1	284.9%
Lebanon	1.8	2.2	2.5	2.3	2.0	4.4	4.9	5.0	6.4	7.2	7.1	261.8%
Oman	0.1	0.2	1.2	2.1	4.2	6.1	7.7	11.1	20.0	23.7	24.3	477.1%
Qatar	0.9	2.0	3.3	5.6	6.5	8.1	10.9	16.7	27.6	38.1	40.2	515.6%
Saudi Arabia	7.4	8.8	31.1	46.0	58.0	84.5	97.9	122.5	185.5	200.3	192.2	231.3%
Syrian Arab Republic	2.4	3.1	4.5	7.8	10.5	12.1	15.4	20.8	21.7	15.0	12.9	23.4%
United Arab Emirates	1.0	1.9	7.2	13.7	20.4	27.7	33.9	43.5	61.8	67.6	69.5	240.4%
Yemen	0.7	0.7	1.3	1.7	2.5	3.4	4.7	6.6	7.8	6.0	8.3	228.9%
Middle East	43.0	61.0	113.5	167.8	210.8	306.7	356.3	471.5	627.7	677.4	689.4	227.1%

1. Prior to 2012, Curaçao includes the entire territory of the former Netherlands Antilles.

GDP using exchange rates

billion 2005 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
World	16 541.0	19 122.8	23 104.3	26 209.4	30 998.9	34 400.5	40 712.9	46 935.8	52 541.3	55 244.0	56 519.0	82.3%
<i>Annex I Parties</i>	..	..	..	..	25 673.7	27 718.8	32 336.7	36 102.3	37 831.8	38 911.6	39 416.3	53.5%
<i>Annex II Parties</i>	13 064.8	14 719.5	17 480.1	19 940.5	23 742.6	26 179.1	30 576.2	33 848.4	35 198.2	36 098.0	36 548.1	53.9%
<i>North America</i>	4 904.2	5 450.9	6 529.9	7 663.9	9 012.1	10 202.3	12 580.2	14 257.9	14 839.3	15 439.1	15 778.9	75.1%
<i>Europe</i>	6 193.2	6 944.4	8 106.8	8 800.4	10 355.3	11 229.9	12 950.5	14 141.4	14 718.8	14 898.2	14 905.8	43.9%
<i>Asia Oceania</i>	1 967.4	2 324.2	2 843.4	3 476.3	4 375.2	4 746.9	5 045.4	5 449.1	5 640.0	5 760.7	5 863.3	34.0%
<i>Annex I EIT</i>	..	..	..	..	1 648.4	1 207.4	1 353.8	1 748.0	2 042.6	2 160.2	2 189.2	32.8%
<i>Non-Annex I Parties</i>	..	..	..	..	5 325.1	6 681.8	8 376.1	10 833.5	14 709.6	16 332.4	17 102.7	221.2%
<i>Annex I Kyoto Parties</i>	..	..	..	..	16 355.2	17 168.7	19 328.7	21 308.2	22 358.5	22 773.0	22 911.9	40.1%
Non-OECD Total ¹	2 690.0	3 404.1	4 380.8	4 829.1	5 491.4	6 131.0	7 480.1	9 925.6	13 639.9	15 175.2	15 903.8	189.6%
OECD Total ²	13 851.0	15 718.7	18 723.6	21 380.3	25 507.5	28 269.5	33 232.8	37 010.2	38 901.5	40 068.8	40 615.2	59.2%
Canada	417.4	497.0	596.4	678.5	774.6	842.8	1 026.9	1 164.2	1 240.1	1 301.3	1 327.4	71.4%
Chile	29.4	25.2	35.8	37.4	51.8	78.6	98.4	123.1	147.9	165.0	172.0	232.0%
Mexico	257.5	339.4	468.4	515.6	560.2	604.4	788.2	864.8	952.0	1 029.2	1 044.0	86.4%
United States	4 486.8	4 953.9	5 933.6	6 985.4	8 237.5	9 359.5	11 553.3	13 093.7	13 599.3	14 137.8	14 451.5	75.4%
OECD Americas	5 191.1	5 815.5	7 034.1	8 216.9	9 624.2	10 885.3	13 466.9	15 245.8	15 939.2	16 633.3	16 995.0	76.6%
Australia	262.2	291.1	337.2	390.5	453.9	532.8	642.9	762.1	870.4	925.5	949.1	109.1%
Israel	32.7	42.5	49.1	57.3	71.1	98.4	127.4	141.2	177.1	190.0	196.2	175.9%
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	4 708.6	4 784.6	24.2%
Korea	64.9	94.3	141.6	221.4	364.3	545.7	712.8	898.1	1 098.7	1 165.3	1 199.0	229.1%
New Zealand	48.8	57.7	58.0	67.6	70.0	81.9	94.4	115.1	121.2	126.6	129.7	85.3%
OECD Asia Oceania	2 065.0	2 461.0	3 034.1	3 755.0	4 810.6	5 391.0	5 885.6	6 488.4	6 915.8	7 115.9	7 258.5	50.9%
Austria	131.7	152.0	178.6	192.1	223.1	249.0	288.9	314.6	335.4	348.7	349.5	56.7%
Belgium	173.5	199.3	232.9	244.2	284.2	307.6	355.0	386.9	412.2	419.2	420.5	47.9%
Czech Republic	74.0	84.4	94.0	98.7	106.8	102.7	112.2	136.0	153.3	155.1	154.0	44.2%
Denmark	127.7	135.2	154.7	176.9	190.0	213.3	247.4	264.6	265.1	266.4	265.1	39.5%
Estonia	..	..	..	..	10.2	7.2	9.9	14.0	13.8	15.6	15.9	55.6%
Finland	74.4	90.2	105.4	121.3	143.6	140.4	179.9	204.4	212.9	215.3	212.4	47.9%
France	952.8	1 093.5	1 290.9	1 397.3	1 650.0	1 758.9	2 030.0	2 203.6	2 289.8	2 345.3	2 351.9	42.5%
Germany	1 407.9	1 538.8	1 815.8	1 943.2	2 285.8	2 527.1	2 777.4	2 857.6	3 037.7	3 158.6	3 161.9	38.3%
Greece	103.2	122.3	150.0	151.0	160.6	170.9	205.0	247.7	244.2	207.9	199.8	24.4%
Hungary	51.7	66.3	79.0	86.2	88.5	78.5	91.0	111.9	111.1	111.4	113.1	27.8%
Iceland	4.9	6.0	8.1	9.0	10.6	10.7	13.7	16.8	17.9	18.5	19.2	81.5%
Ireland	38.1	46.9	58.5	66.4	83.6	104.8	165.9	210.4	211.7	216.9	217.3	160.0%
Italy	830.5	952.9	1 184.6	1 287.8	1 501.7	1 602.2	1 768.8	1 853.5	1 825.0	1 784.9	1 754.6	16.8%
Luxembourg	9.5	10.7	12.0	13.6	19.5	23.6	31.8	37.0	41.3	42.4	43.2	122.1%
Netherlands	285.3	322.9	371.7	393.1	463.4	519.1	633.8	672.4	725.7	726.1	720.8	55.5%
Norway	99.7	119.8	149.6	177.4	192.9	231.8	276.9	308.7	323.3	335.4	337.9	75.2%
Poland	137.1	175.3	182.9	184.4	181.6	202.2	261.3	304.4	383.3	408.6	415.4	128.8%
Portugal	69.3	80.5	103.3	107.9	142.2	154.7	189.0	197.3	203.4	191.7	188.6	32.6%
Slovak Republic	24.0	27.4	30.4	32.9	35.3	32.2	38.3	48.9	61.4	64.1	65.0	84.3%
Slovenia	..	..	..	..	25.5	24.7	30.5	36.3	39.6	38.8	38.4	50.9%
Spain	408.4	505.5	557.2	597.1	744.0	801.8	979.5	1 157.2	1 219.9	1 187.1	1 172.5	57.6%
Sweden	185.2	208.4	222.7	245.8	276.7	286.7	341.7	389.0	420.9	430.8	436.4	57.7%
Switzerland	247.9	248.0	269.6	290.5	335.8	338.0	378.4	407.5	454.9	468.3	477.3	42.1%
Turkey	115.0	144.4	162.3	205.8	269.7	315.9	386.6	483.0	565.1	627.8	654.1	142.5%
United Kingdom	1 043.2	1 111.7	1 241.1	1 385.9	1 647.6	1 789.4	2 087.5	2 412.1	2 477.5	2 534.9	2 577.1	56.4%
OECD Europe ²	6 594.9	7 442.2	8 655.3	9 408.4	11 072.7	11 993.3	13 880.3	15 276.0	16 046.5	16 319.6	16 361.7	47.8%
<i>European Union - 28</i>	..	..	..	..	10 473.7	11 268.3	13 007.6	14 298.9	14 948.5	15 139.7	15 148.4	44.6%
G7	10 794.9	12 123.3	14 510.4	16 696.2	19 948.5	22 012.0	25 551.9	28 156.5	29 117.9	29 971.2	30 409.0	52.4%
G8	..	..	..	..	20 791.5	22 535.7	26 119.3	28 920.5	30 027.1	30 951.8	31 402.5	51.0%
G20	..	..	..	..	28 058.2	31 147.3	36 831.2	42 150.6	46 639.3	48 866.4	49 941.0	78.0%

1. Includes Estonia and Slovenia prior to 1990.

2. Excludes Estonia and Slovenia prior to 1990.

GDP using exchange rates

billion 2005 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Non-OECD Total ¹	2 690.0	3 404.1	4 380.8	4 829.1	5 491.4	6 131.0	7 480.1	9 925.6	13 639.9	15 175.2	15 903.8	189.6%
Albania	3.0	3.8	5.0	5.5	5.6	4.9	6.4	8.4	10.7	11.2	11.3	101.9%
Armenia	..	..	..	..	4.1	2.1	2.8	4.9	5.9	6.6	6.9	69.2%
Azerbaijan	..	..	..	..	11.9	5.0	7.0	13.2	28.3	29.0	30.6	156.4%
Belarus	..	..	..	..	23.7	15.5	21.0	30.2	42.9	46.1	46.5	96.0%
Bosnia and Herzegovina	..	..	..	..	4.5	2.5	8.6	10.9	12.8	12.7	13.0	192.2%
Bulgaria	10.7	14.6	19.6	23.1	24.9	21.8	22.7	29.3	33.7	34.6	34.9	40.1%
Croatia	..	..	..	..	44.0	30.8	36.5	45.4	46.5	45.3	44.9	2.1%
Cyprus ²	2.5	3.0	5.3	6.9	9.6	12.0	14.5	17.0	19.2	18.8	17.8	84.7%
FYR of Macedonia	..	..	..	..	6.1	4.8	5.5	6.0	7.1	7.3	7.5	24.2%
Georgia	..	..	..	..	12.0	3.4	4.5	6.4	8.2	9.4	9.7	-19.2%
Gibraltar	0.5	0.5	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.1	1.1	56.8%
Kazakhstan	..	..	..	..	50.2	30.9	34.9	57.1	77.2	87.2	92.4	84.0%
Kosovo ²	..	..	..	..	..	..	2.6	3.7	4.6	4.9	5.1	..
Kyrgyzstan	..	..	..	..	3.1	1.6	2.0	2.5	3.1	3.2	3.6	16.6%
Latvia	..	..	..	..	14.4	8.2	10.8	16.0	15.5	17.1	17.8	24.0%
Lithuania	..	..	..	..	24.9	14.4	17.9	26.1	27.5	30.2	31.2	25.4%
Malta	0.9	1.3	2.3	2.5	3.4	4.5	5.7	6.0	6.7	6.9	7.1	107.6%
Republic of Moldova	..	..	..	..	6.0	2.4	2.1	3.0	3.5	3.7	4.0	-32.2%
Montenegro ²	..	..	..	..	..	..	..	2.3	2.8	2.8	2.9	..
Romania	37.8	57.2	82.5	97.1	88.6	79.6	74.7	99.2	114.1	117.1	121.2	36.8%
Russian Federation	..	..	..	..	843.0	523.7	567.4	764.0	909.2	980.6	993.5	17.8%
Serbia ²	..	..	..	..	35.0	17.4	19.5	25.2	27.9	27.9	28.4	-18.9%
Tajikistan	..	..	..	..	3.8	1.4	1.5	2.3	3.2	3.7	3.9	3.7%
Turkmenistan	..	..	..	..	8.0	5.1	6.3	8.1	13.3	16.9	18.6	131.8%
Ukraine	..	..	..	..	137.0	65.8	59.5	86.1	90.6	95.5	97.3	-29.0%
Uzbekistan	..	..	..	..	11.2	9.1	11.0	14.3	21.5	25.2	27.2	142.4%
Former Soviet Union ³	648.2	810.3	988.8	1 098.9	..	..	..	..	..	..	..	..
Former Yugoslavia ³	79.6	97.7	131.4	133.8	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia ¹	783.1	988.4	1 235.4	1 368.4	1 376.0	867.7	946.3	1 288.7	1 537.2	1 645.1	1 678.8	22.0%
Algeria	25.2	37.7	50.8	64.3	66.8	67.6	78.9	103.2	116.5	123.7	127.2	90.5%
Angola	12.3	12.4	12.5	13.6	16.0	12.7	17.2	28.2	50.4	55.0	58.8	267.7%
Benin	1.3	1.4	1.7	2.1	2.3	2.8	3.6	4.4	5.2	5.7	6.0	162.8%
Botswana	..	..	..	3.0	5.2	6.5	8.3	9.9	12.1	13.4	14.2	175.1%
Cameroon	4.8	6.4	8.7	13.6	12.1	11.0	13.8	16.6	19.1	20.9	22.0	82.4%
Congo	1.6	2.1	2.7	4.4	4.3	4.4	5.0	6.1	7.9	8.4	8.7	101.4%
Côte d'Ivoire	8.3	10.3	12.7	12.8	13.6	14.6	17.1	17.1	19.1	20.2	21.9	61.1%
Dem. Rep. of Congo	16.4	17.5	16.2	17.7	17.7	12.1	9.9	12.0	15.7	17.9	19.5	10.2%
Egypt	15.9	18.2	29.1	40.3	49.5	58.5	75.4	89.7	121.0	125.9	128.5	159.5%
Eritrea	..	..	..	..	..	0.8	1.0	1.1	1.1	1.2	1.2	..
Ethiopia	5.5	5.6	5.7	5.4	6.9	7.3	9.1	12.4	20.8	25.1	27.7	300.9%
Gabon	3.0	6.1	5.6	6.4	6.7	7.8	8.0	8.7	9.7	11.0	11.6	72.0%
Ghana	4.5	4.2	4.5	4.4	5.5	6.8	8.4	10.7	14.8	18.5	19.9	261.7%
Kenya	4.9	6.4	8.7	9.9	13.0	14.1	15.7	18.7	23.9	26.5	28.0	115.4%
Libya	42.7	34.5	54.4	38.8	35.1	33.9	35.9	44.0	55.0	42.6	38.0	8.2%
Mauritius	1.1	1.4	1.8	2.3	3.2	4.1	5.4	6.3	7.8	8.4	8.7	169.2%
Morocco	14.3	17.2	22.5	27.5	35.3	38.1	46.7	59.5	75.5	81.4	85.0	140.9%
Mozambique	2.9	2.4	2.5	1.9	2.5	3.0	4.3	6.6	9.1	10.4	11.2	341.2%
Namibia	..	..	..	..	..	4.8	5.7	7.3	9.0	10.0	10.5	..
Niger	..	..	..	..	..	..	2.8	3.4	4.4	5.0	5.2	..
Nigeria	44.5	51.1	61.9	53.7	56.4	57.8	67.9	112.2	159.0	173.9	183.3	224.9%
Senegal	3.3	3.8	4.0	4.6	5.1	5.7	6.9	8.7	10.4	10.9	11.3	119.9%
South Africa	115.0	131.9	153.6	164.3	178.4	186.1	213.6	257.8	300.2	316.7	323.7	81.5%
South Sudan ²	..	..	..	..	..	..	..	..	..	7.1	10.9	..
Sudan ²	6.4	7.9	8.9	9.2	11.3	14.5	19.5	26.5	35.8	31.1	29.3	158.5%
United Rep. of Tanzania	3.9	4.7	5.4	5.6	7.5	8.1	10.1	14.1	19.1	21.7	23.3	212.6%
Togo	1.0	1.1	1.5	1.4	1.6	1.6	2.0	2.1	2.5	2.8	2.9	79.5%
Tunisia	6.3	8.6	11.7	14.4	16.6	20.1	26.4	32.3	40.6	42.3	43.3	161.3%
Zambia	4.1	4.6	4.7	4.8	5.2	5.2	6.2	8.3	12.6	14.4	15.3	192.6%
Zimbabwe	3.7	4.3	4.6	5.7	7.1	7.5	8.4	5.8	5.2	6.4	6.7	-5.3%
Other Africa	30.3	32.4	36.8	37.2	42.7	41.8	50.9	72.4	92.7	101.5	103.9	143.4%
Africa	383.2	434.2	533.0	569.1	627.6	659.5	783.9	1 006.1	1 276.2	1 360.2	1 407.9	124.3%

1. Includes Estonia and Slovenia prior to 1990.

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

3. 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	2012	2013	% change 90-13
Bangladesh	17.5	16.4	20.1	24.1	29.0	35.9	46.3	60.3	80.9	91.7	97.3	235.9%
Brunei Darussalam	4.2	5.1	8.3	6.9	6.9	8.1	8.6	9.5	9.9	10.3	10.1	46.6%
Cambodia	..	..	..	..	..	2.8	4.0	6.3	8.7	10.0	10.7	..
DPR of Korea	7.7	12.0	20.7	33.1	39.4	31.0	27.5	28.6	26.6	27.4	27.8	-29.5%
India	154.2	175.0	204.0	262.3	350.2	448.7	602.7	834.2	1 243.7	1 393.6	1 489.8	325.4%
Indonesia	40.6	55.2	80.9	106.4	150.1	219.2	226.9	285.9	377.9	427.6	452.3	201.4%
Malaysia	16.0	21.3	32.1	41.1	57.3	90.1	113.9	143.5	178.7	198.6	208.0	262.8%
Mongolia	..	..	..	1.5	1.8	1.6	1.8	2.5	3.5	4.6	5.1	175.9%
Myanmar	1.9	2.1	2.9	3.7	3.3	4.4	6.5	12.0	17.4	19.6	21.0	538.8%
Nepal	2.1	2.4	2.7	3.4	4.2	5.4	6.9	8.1	10.1	11.0	11.4	168.9%
Pakistan	20.2	23.5	31.7	44.0	58.3	73.1	85.8	109.5	129.5	137.7	143.8	146.6%
Philippines	31.2	39.1	52.5	49.3	62.1	69.1	82.4	103.1	131.1	145.2	155.6	150.6%
Singapore	11.3	15.9	24.0	33.4	50.4	76.3	100.4	127.4	176.5	191.8	199.2	295.0%
Sri Lanka	5.3	6.2	8.0	10.2	12.1	15.7	20.1	24.4	33.3	38.3	41.1	239.8%
Chinese Taipei	30.6	46.5	80.1	109.3	167.0	236.8	305.8	364.8	446.6	470.9	481.3	188.1%
Thailand	22.6	28.5	41.8	54.5	88.9	134.5	137.5	176.4	210.1	226.4	230.4	159.1%
Viet Nam	10.7	10.8	11.4	15.7	19.9	29.5	41.3	57.6	78.3	87.5	92.3	363.9%
Other Asia	15.9	18.0	21.2	22.8	26.3	30.1	32.4	42.7	60.4	72.2	76.8	192.1%
Asia (excl. China)	391.8	477.9	642.3	821.6	1 127.4	1 512.2	1 850.7	2 396.9	3 223.0	3 564.4	3 753.8	233.0%
People's Rep. of China	126.6	157.7	216.3	359.7	525.3	936.6	1 417.0	2 256.9	3 839.3	4 517.5	4 864.0	826.0%
Hong Kong, China	23.7	30.3	52.3	69.1	100.2	129.7	147.6	181.6	220.1	234.2	241.0	140.5%
China	150.3	188.0	268.6	428.7	625.5	1 066.3	1 564.7	2 438.5	4 059.3	4 751.6	5 105.0	716.2%
Argentina	119.1	131.2	150.7	132.6	129.5	177.8	202.0	222.9	293.7	321.8	331.3	155.8%
Bolivia	4.0	5.1	5.6	5.1	5.7	6.9	8.2	9.5	12.0	13.2	14.1	149.2%
Brazil	253.7	371.7	513.4	541.8	598.5	696.1	769.0	882.2	1 096.8	1 138.3	1 166.7	94.9%
Colombia	41.1	51.1	66.3	74.1	94.3	115.5	122.7	146.5	182.9	202.8	212.3	125.1%
Costa Rica	4.7	5.9	7.7	7.7	9.8	12.8	16.3	20.0	25.0	27.5	28.5	189.9%
Cuba	18.3	22.0	25.8	38.9	38.5	26.7	33.4	42.6	55.4	60.7	62.8	63.0%
Curaçao ¹	1.1	1.2	1.4	1.5	1.7	1.9	2.3	2.5	2.7	1.8	1.8	7.6%
Dominican Republic	7.0	9.7	12.5	13.8	15.9	20.5	28.6	34.0	46.0	48.6	50.8	220.6%
Ecuador	11.3	16.7	20.7	23.4	26.8	31.0	32.8	41.5	49.0	55.7	58.2	117.3%
El Salvador	8.4	10.1	10.1	8.8	9.7	13.1	15.2	17.1	18.3	19.1	19.4	100.2%
Guatemala	8.7	10.9	14.4	13.6	15.7	19.3	23.4	27.2	32.6	34.9	36.2	131.2%
Haiti	3.2	3.4	4.5	4.3	4.3	3.8	4.3	4.2	4.3	4.7	4.9	13.6%
Honduras	2.7	3.1	4.4	4.8	5.6	6.6	7.7	9.7	11.5	12.5	12.8	129.0%
Jamaica	7.6	8.1	6.9	7.7	9.4	10.4	10.3	11.1	10.9	11.0	11.1	17.8%
Nicaragua	4.4	5.5	4.4	4.6	3.9	4.2	5.4	6.3	7.2	7.9	8.3	114.3%
Panama	4.9	5.6	6.7	7.9	7.6	10.0	12.5	15.5	22.6	27.6	29.9	291.3%
Paraguay	1.9	2.5	4.2	4.7	6.3	7.8	7.9	8.7	11.1	11.5	13.1	109.5%
Peru	32.1	39.4	45.9	45.8	41.5	53.5	60.8	75.0	104.6	118.0	124.8	201.2%
Trinidad and Tobago	6.1	6.9	10.1	9.0	8.0	8.6	11.0	16.1	19.0	19.0	19.3	140.3%
Uruguay	9.2	9.9	12.3	10.2	12.3	14.9	17.2	17.4	22.9	25.5	26.6	116.0%
Venezuela	74.8	85.2	96.2	91.8	104.3	123.6	128.3	145.5	174.6	192.1	194.7	86.6%
Other Non-OECD Americas	13.6	14.1	18.9	19.8	25.8	27.1	32.9	37.1	38.5	39.8	40.5	56.8%
Non-OECD Americas	637.8	819.2	1 043.0	1 071.8	1 175.1	1 392.4	1 552.1	1 792.5	2 241.6	2 394.0	2 468.1	110.0%
Bahrain	2.1	3.8	6.2	5.8	7.2	10.1	12.4	16.0	20.9	22.1	23.3	222.1%
Islamic Republic of Iran	67.3	95.5	82.7	100.2	101.5	120.0	146.3	192.0	242.7	257.5	242.5	138.9%
Iraq	88.5	112.4	169.1	108.2	57.7	22.1	48.7	50.0	66.4	80.7	84.1	45.7%
Jordan	2.3	2.2	4.6	5.9	5.6	7.9	9.2	12.6	17.0	17.9	18.4	229.3%
Kuwait	54.8	45.3	47.9	37.3	36.6	49.5	54.4	80.8	85.6	102.2	98.1	168.3%
Lebanon	13.7	13.5	11.4	16.0	9.1	16.2	17.4	21.3	30.8	32.1	32.3	255.2%
Oman	4.7	6.2	8.0	16.3	19.0	25.2	29.8	31.1	41.2	43.9	46.4	144.7%
Qatar	15.7	16.0	18.5	15.6	15.4	17.1	30.1	44.5	101.9	122.2	129.9	744.2%
Saudi Arabia	72.5	151.0	211.0	167.1	197.8	227.8	258.6	328.5	436.0	500.9	520.7	163.2%
Syrian Arab Republic	4.7	8.1	11.1	12.8	13.8	20.3	22.7	28.9	36.6	39.6	41.2	198.3%
United Arab Emirates	15.5	39.9	83.2	77.6	88.3	106.2	139.1	180.6	203.4	223.4	235.0	166.2%
Yemen	1.9	2.7	4.7	6.7	7.9	10.6	13.6	16.8	20.0	17.4	18.1	130.5%
Middle East	343.7	496.4	658.5	569.5	559.9	632.9	782.4	1 002.9	1 302.6	1 459.9	1 490.2	166.2%

1. Prior to 2012, Curaçao includes the entire territory of the former Netherlands Antilles.

GDP using purchasing power parities

billion 2005 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
World	20 711.1	24 503.0	30 077.2	33 874.1	39 954.2	44 659.7	53 616.3	64 630.8	77 730.9	83 552.4	86 334.2	116.1%
<i>Annex I Parties</i>	..	..	..	..	26 112.5	27 430.5	32 003.7	36 113.5	38 131.2	39 331.4	39 862.1	52.7%
<i>Annex II Parties</i>	12 159.7	13 701.8	16 279.0	18 568.9	22 098.4	24 400.4	28 589.9	31 694.8	32 962.3	33 806.9	34 233.5	54.9%
<i>North America</i>	4 903.5	5 450.1	6 529.0	7 662.8	9 010.9	10 201.0	12 578.6	14 256.1	14 837.4	15 437.1	15 776.8	75.1%
<i>Europe</i>	5 554.5	6 243.2	7 295.5	7 907.4	9 318.0	10 105.7	11 652.4	12 723.9	13 237.1	13 373.9	13 371.0	43.5%
<i>Asia Oceania</i>	1 701.7	2 008.6	2 454.5	2 998.6	3 769.4	4 093.8	4 358.9	4 714.9	4 887.8	4 995.9	5 085.7	34.9%
<i>Annex I EIT</i>	..	..	..	..	3 562.6	2 499.7	2 764.6	3 610.5	4 224.4	4 478.8	4 541.2	27.5%
<i>Non-Annex I Parties</i>	..	..	..	..	13 841.7	17 229.2	21 612.6	28 517.2	39 599.7	44 221.1	46 472.1	235.7%
<i>Annex I Kyoto Parties</i>	..	..	..	..	16 576.7	16 651.3	18 710.9	20 955.8	22 216.6	22 706.2	22 854.1	37.9%
Non-OECD Total ¹	7 313.6	9 235.2	11 864.4	13 086.4	15 173.0	17 118.8	21 044.7	28 202.0	39 232.3	43 805.1	46 017.8	203.3%
OECD Total ²	13 397.5	15 267.8	18 212.8	20 787.7	24 781.2	27 540.9	32 571.7	36 428.8	38 498.6	39 747.4	40 316.4	62.7%
Canada	416.7	496.3	595.4	677.5	773.4	841.5	1 025.3	1 162.4	1 238.1	1 299.3	1 325.3	71.4%
Chile	49.4	42.3	60.1	62.8	86.9	131.8	165.1	206.4	248.0	276.8	288.5	232.0%
Mexico	393.7	519.0	716.2	788.4	856.7	924.2	1 205.3	1 322.4	1 455.8	1 573.8	1 596.5	86.4%
United States	4 486.8	4 953.9	5 933.6	6 985.4	8 237.5	9 359.5	11 553.3	13 093.7	13 599.3	14 137.8	14 451.5	75.4%
OECD Americas	5 346.7	6 011.4	7 305.3	8 514.0	9 954.5	11 257.0	13 949.0	15 784.9	16 541.2	17 287.7	17 661.9	77.4%
Australia	247.3	274.5	318.1	368.3	428.1	502.5	606.4	718.8	820.9	872.9	895.1	109.1%
Israel	39.4	51.3	59.3	69.2	85.8	118.8	153.8	170.5	213.8	229.4	236.9	175.9%
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	4 005.9	4 070.5	24.2%
Korea	84.2	122.4	183.8	287.4	472.9	708.4	925.2	1 165.9	1 426.2	1 512.7	1 556.5	229.1%
New Zealand	45.2	53.3	53.7	62.5	64.8	75.8	87.4	106.5	112.1	117.1	120.0	85.3%
OECD Asia Oceania	1 825.3	2 182.3	2 697.7	3 355.3	4 328.1	4 921.0	5 438.0	6 051.3	6 527.8	6 738.0	6 879.0	58.9%
Austria	119.5	137.8	162.0	174.3	202.3	225.8	262.1	285.4	304.2	316.3	317.1	56.7%
Belgium	155.1	178.1	208.2	218.2	254.1	275.0	317.4	345.9	368.4	374.7	375.8	47.9%
Czech Republic	123.8	141.3	157.2	165.2	178.7	171.9	187.7	227.6	256.6	259.5	257.7	44.2%
Denmark	89.1	94.4	108.0	123.5	132.7	148.9	172.7	184.7	185.1	186.0	185.1	39.5%
Estonia	..	..	..	..	16.4	11.5	15.9	22.4	22.1	25.0	25.5	55.5%
Finland	61.2	74.2	86.7	99.8	118.2	115.5	148.0	168.2	175.2	177.1	174.8	47.9%
France	829.8	952.3	1 124.2	1 216.9	1 437.0	1 531.8	1 767.9	1 919.1	1 994.2	2 042.5	2 048.3	42.5%
Germany	1 306.0	1 427.4	1 684.4	1 802.5	2 120.3	2 344.1	2 576.3	2 650.7	2 817.8	2 929.9	2 933.0	38.3%
Greece	116.2	137.7	168.9	170.1	180.9	192.5	230.8	278.9	275.0	234.1	225.0	24.4%
Hungary	80.3	102.9	122.6	133.8	137.3	121.8	141.3	173.7	172.4	172.9	175.6	27.8%
Iceland	3.1	3.8	5.1	5.8	6.7	6.8	8.7	10.7	11.4	11.8	12.2	81.5%
Ireland	30.4	37.3	46.6	52.9	66.5	83.4	132.1	167.4	168.5	172.6	172.9	160.0%
Italy	770.6	884.2	1 099.1	1 194.9	1 393.4	1 486.6	1 641.2	1 719.7	1 693.3	1 656.1	1 628.0	16.8%
Luxembourg	8.1	9.1	10.1	11.4	16.4	19.9	26.8	31.2	34.9	35.7	36.5	122.1%
Netherlands	256.0	289.7	333.6	352.7	415.8	465.8	568.7	603.3	651.2	651.5	646.8	55.5%
Norway	72.2	86.7	108.4	128.4	139.7	167.8	200.5	223.6	234.1	242.9	244.7	75.2%
Poland	237.3	303.5	316.5	319.3	314.3	350.0	452.4	526.9	663.5	707.3	719.1	128.8%
Portugal	81.4	94.6	121.3	126.8	167.1	181.8	222.1	231.8	239.0	225.2	221.6	32.6%
Slovak Republic	43.6	49.8	55.4	59.9	64.1	58.6	69.6	89.0	111.7	116.6	118.2	84.3%
Slovenia	..	..	..	..	33.5	32.5	40.1	47.8	52.1	51.0	50.5	50.9%
Spain	429.3	531.5	585.7	627.7	782.2	842.9	1 029.7	1 216.6	1 282.4	1 247.9	1 232.6	57.6%
Sweden	147.5	166.1	177.5	195.8	220.5	228.4	272.3	310.0	335.4	343.3	347.7	57.7%
Switzerland	177.1	177.2	192.6	207.6	239.9	241.5	270.3	291.2	325.0	334.6	341.0	42.1%
Turkey	186.0	233.6	262.5	332.9	436.2	510.9	625.3	781.2	914.1	1 015.4	1 058.0	142.5%
United Kingdom	901.9	961.1	1 073.0	1 198.2	1 424.4	1 547.0	1 804.7	2 085.4	2 141.9	2 191.5	2 228.0	56.4%
OECD Europe ²	6 225.5	7 074.1	8 209.8	8 918.4	10 498.6	11 362.9	13 184.7	14 592.6	15 429.5	15 721.7	15 775.5	50.3%
<i>European Union - 28</i>	..	..	..	..	10 078.6	10 764.7	12 425.3	13 740.6	14 448.6	14 635.3	14 649.0	45.3%
G7	10 120.9	11 355.8	13 592.4	15 643.0	18 662.5	20 626.0	24 033.9	26 520.6	27 439.4	28 262.9	28 684.6	53.7%
G8	..	..	..	..	20 534.7	21 789.0	25 293.9	28 217.3	29 458.7	30 440.7	30 891.1	50.4%
G20	..	..	..	..	32 539.5	36 715.9	44 093.4	52 552.9	62 460.4	66 942.9	69 159.6	112.5%

1. Includes Estonia and Slovenia prior to 1990.

2. 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	2012	2013	% change 90-13
Non-OECD Total ¹	7 313.6	9 235.2	11 864.4	13 086.4	15 173.0	17 118.8	21 044.7	28 202.0	39 232.3	43 805.1	46 017.8	203.3%
Albania	6.9	8.6	11.3	12.5	12.9	11.3	14.7	19.2	24.6	25.6	26.0	101.9%
Armenia	..	..	..	..	11.8	6.2	8.0	14.2	17.2	19.3	19.9	69.2%
Azerbaijan	..	..	..	..	54.3	22.7	32.0	60.2	128.6	131.5	139.1	156.4%
Belarus	..	..	..	..	73.3	47.9	65.0	93.4	132.7	142.5	143.7	96.0%
Bosnia and Herzegovina	..	..	..	..	9.8	5.5	18.7	23.9	27.9	27.9	28.5	192.2%
Bulgaria	28.0	38.3	51.6	60.8	65.5	57.4	59.7	77.0	88.6	90.8	91.8	40.1%
Croatia	..	..	..	..	66.9	46.9	55.4	69.0	70.6	68.9	68.3	2.1%
Cyprus ²	2.8	3.3	5.7	7.5	10.5	13.1	15.8	18.5	20.9	20.5	19.4	84.7%
FYR of Macedonia	..	..	..	..	16.3	12.8	14.8	16.0	19.1	19.6	20.2	24.2%
Georgia	..	..	..	..	34.3	9.7	12.9	18.3	23.5	26.8	27.7	-19.2%
Gibraltar	0.4	0.4	0.4	0.5	0.6	0.6	0.8	0.9	0.9	0.9	1.0	65.4%
Kazakhstan	..	..	..	..	185.3	113.8	128.6	210.6	284.8	321.5	340.8	84.0%
Kosovo ²	..	..	..	..	..	..	6.1	8.6	11.1	12.1	12.4	..
Kyrgyzstan	..	..	..	..	13.6	6.9	9.0	10.9	13.5	14.3	15.8	16.6%
Latvia	..	..	..	..	26.9	15.4	20.2	30.0	29.0	32.1	33.4	24.0%
Lithuania	..	..	..	..	46.4	26.9	33.5	48.7	51.3	56.4	58.2	25.4%
Malta	1.3	1.9	3.3	3.6	4.8	6.3	8.1	8.5	9.5	9.8	10.1	107.6%
Republic of Moldova	..	..	..	..	21.1	8.5	7.5	10.6	12.4	13.2	14.3	-32.2%
Montenegro ²	..	..	..	..	..	..	..	5.2	6.4	6.5	6.7	..
Romania	77.4	117.2	168.9	198.7	181.5	163.0	152.9	203.1	233.6	239.8	248.2	36.8%
Russian Federation	..	..	..	..	1 872.3	1 163.0	1 260.1	1 696.7	2 019.3	2 177.7	2 206.5	17.8%
Serbia ²	..	..	..	..	88.0	43.7	48.9	63.4	70.0	70.0	71.3	-18.9%
Tajikistan	..	..	..	..	17.1	6.5	6.5	10.4	14.3	16.5	17.8	3.6%
Turkmenistan	..	..	..	..	27.3	17.2	21.4	27.5	45.0	57.4	63.2	131.8%
Ukraine	..	..	..	..	485.4	233.0	210.9	305.2	320.9	338.2	344.6	-29.0%
Uzbekistan	..	..	..	..	55.6	45.1	54.5	70.9	106.4	124.7	134.7	142.4%
Former Soviet Union ³	1 527.9	1 910.2	2 330.8	2 590.5	..	..	..	..	..	..	..	..
Former Yugoslavia ³	150.9	185.2	249.2	253.8	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia ¹	1 795.6	2 265.0	2 821.3	3 127.8	3 381.4	2 083.4	2 266.0	3 120.7	3 782.3	4 064.3	4 163.6	23.1%
Algeria	89.4	133.5	180.2	228.0	236.3	239.3	279.2	365.2	412.3	437.8	450.1	90.5%
Angola	30.1	30.3	30.4	33.2	38.9	30.8	42.0	68.8	122.7	134.0	143.1	267.7%
Benin	3.3	3.6	4.4	5.5	6.1	7.5	9.4	11.5	13.9	15.1	15.9	162.7%
Botswana	..	..	..	5.7	10.0	12.5	16.1	19.2	23.4	25.9	27.4	175.1%
Cameroon	11.3	15.1	20.5	32.1	29.8	27.1	34.1	40.9	47.2	51.4	54.3	82.4%
Congo	4.1	5.5	7.0	11.4	11.2	11.4	12.9	15.7	20.3	21.7	22.5	101.4%
Côte d'Ivoire	21.2	26.4	32.4	32.8	34.9	37.5	43.8	43.8	48.9	51.7	56.2	61.1%
Dem. Rep. of Congo	40.2	42.7	39.5	43.3	42.7	29.3	24.0	29.0	37.9	43.4	47.1	10.2%
Egypt	97.0	111.3	177.6	246.0	302.1	357.1	460.0	547.1	738.3	768.0	784.2	159.5%
Eritrea	..	..	..	..	..	4.4	5.1	5.8	5.5	6.4	6.5	..
Ethiopia	22.0	22.6	23.1	21.8	27.9	29.3	36.6	50.0	83.9	101.3	111.9	300.9%
Gabon	7.1	14.5	13.5	15.2	16.1	18.8	19.0	20.7	23.2	26.2	27.8	72.0%
Ghana	20.3	19.0	19.9	19.5	24.6	30.4	37.5	48.0	66.2	82.8	89.1	261.7%
Kenya	15.6	20.3	27.6	31.3	49.6	53.7	59.7	71.4	91.1	101.0	106.8	115.4%
Libya	78.4	63.4	99.9	71.3	64.5	62.4	66.0	80.9	101.0	78.4	74.3	15.3%
Mauritius	2.3	3.1	4.0	5.0	7.1	9.1	12.0	13.9	17.4	18.6	19.2	169.3%
Morocco	34.8	41.9	54.7	66.9	86.5	93.3	114.4	145.9	185.1	199.5	208.3	140.9%
Mozambique	6.0	5.1	5.2	4.0	5.6	6.6	9.5	14.5	19.9	22.9	24.6	341.3%
Namibia	..	..	..	..	..	8.7	10.3	13.1	16.4	18.1	19.0	..
Niger	..	..	..	..	..	..	7.6	9.3	11.9	13.5	14.1	..
Nigeria	205.2	235.5	285.5	247.3	258.0	264.5	310.3	513.3	727.1	795.3	838.2	224.9%
Senegal	8.1	9.1	9.6	11.1	12.4	13.8	16.8	21.1	25.2	26.6	27.3	119.9%
South Africa	209.0	239.7	279.2	298.6	324.8	338.9	388.9	469.3	546.6	576.7	589.4	81.5%
South Sudan ²	..	..	..	..	..	..	..	..	..	23.8	37.0	..
Sudan ²	22.9	28.3	31.8	32.9	42.7	54.7	73.3	100.0	135.0	117.4	110.4	158.6%
United Rep. of Tanzania	11.9	14.2	16.4	17.2	32.2	35.2	43.5	61.1	82.7	93.8	100.7	212.6%
Togo	2.7	3.2	4.0	4.0	4.6	4.6	5.7	6.0	7.0	7.8	8.2	79.5%
Tunisia	15.9	21.5	29.2	35.9	39.9	48.3	63.5	77.7	97.8	101.8	104.4	161.3%
Zambia	13.8	15.5	15.8	16.2	16.8	16.6	19.8	26.8	40.6	46.1	49.2	192.6%
Zimbabwe	2.5	2.9	3.1	3.8	4.8	5.1	5.7	3.9	3.5	4.0	4.2	-11.8%
Other Africa	82.2	86.8	98.1	99.8	116.7	117.9	142.3	198.1	254.8	279.6	287.3	146.3%
Africa	1 057.3	1 215.1	1 512.8	1 639.8	1 846.7	1 968.6	2 369.0	3 091.8	4 006.6	4 290.9	4 458.7	141.4%

1. Includes Estonia and Slovenia prior to 1990.

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

3. 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	2012	2013	% change 90-13
Bangladesh	61.8	57.8	70.9	85.1	118.4	146.8	189.3	246.6	330.9	375.3	397.8	235.9%
Brunei Darussalam	10.6	13.0	21.0	17.5	17.6	20.6	22.0	24.4	25.2	26.3	25.8	46.6%
Cambodia	..	..	..	..	..	10.5	14.9	23.3	32.1	36.9	39.7	..
DPR of Korea	28.7	45.0	77.6	124.2	148.0	116.2	103.2	107.5	99.8	102.8	104.3	-29.5%
India	618.0	701.2	817.5	1 051.3	1 374.4	1 760.8	2 364.9	3 273.6	4 880.4	5 468.8	5 846.1	325.4%
Indonesia	185.0	251.9	368.7	484.9	683.1	997.5	1 032.8	1 301.1	1 720.0	1 946.3	2 058.8	201.4%
Malaysia	45.9	61.2	92.2	118.3	164.7	259.0	327.3	412.5	513.5	570.7	597.7	262.8%
Mongolia	..	..	..	7.0	8.4	7.3	8.3	11.4	15.6	20.7	23.1	175.9%
Myanmar	8.7	9.7	13.2	16.7	15.0	20.0	30.0	54.9	79.8	89.9	96.0	538.9%
Nepal	10.2	11.3	12.7	16.1	20.0	25.8	32.5	38.5	47.8	51.8	53.8	168.9%
Pakistan	101.4	118.1	159.4	221.3	292.9	367.2	431.0	550.0	650.5	691.8	722.3	146.6%
Philippines	111.2	139.6	187.4	175.7	221.2	246.2	293.3	367.1	467.0	517.1	554.2	150.6%
Singapore	20.8	29.3	44.3	61.6	92.8	140.4	184.7	234.4	324.6	352.9	366.5	295.0%
Sri Lanka	22.1	26.0	33.6	42.8	50.6	65.8	84.1	102.2	139.2	160.3	171.9	239.8%
Chinese Taipei	50.9	77.3	133.2	181.7	277.8	393.8	508.5	606.8	742.8	783.2	800.4	188.1%
Thailand	81.5	102.8	150.9	196.7	320.8	485.2	496.2	636.3	758.0	816.8	831.2	159.1%
Viet Nam	47.5	48.0	50.7	69.9	88.2	130.9	183.1	255.6	347.2	388.3	409.3	363.9%
Other Asia	39.7	43.7	51.2	53.4	59.3	66.0	71.2	99.7	150.3	182.6	194.3	227.5%
Asia (excl. China)	1 444.1	1 735.8	2 284.7	2 924.2	3 953.4	5 259.9	6 377.3	8 345.7	11 324.8	12 582.2	13 293.2	236.2%
People's Rep. of China	363.1	452.3	620.3	1 031.5	1 504.1	2 681.8	4 057.5	6 462.5	10 993.5	12 935.4	13 927.7	826.0%
Hong Kong, China	32.4	41.5	71.6	94.5	137.0	177.4	201.9	248.3	300.9	320.2	329.6	140.5%
China	395.6	493.7	691.9	1 126.0	1 641.1	2 859.2	4 259.4	6 710.8	11 294.4	13 255.6	14 257.3	768.7%
Argentina	223.8	246.8	283.4	249.3	243.5	334.4	379.7	419.0	580.4	643.9	666.2	173.6%
Bolivia	16.0	20.2	22.4	20.3	22.6	27.7	32.8	38.1	47.7	52.8	56.4	149.2%
Brazil	565.2	828.2	1 143.8	1 207.2	1 332.0	1 549.2	1 711.4	1 963.3	2 440.8	2 533.3	2 596.5	94.9%
Colombia	100.5	124.9	162.2	181.2	229.9	281.5	298.9	357.0	445.6	494.2	517.4	125.1%
Costa Rica	9.6	12.1	15.6	15.6	20.1	26.3	33.5	40.9	51.2	56.3	58.3	189.9%
Cuba	35.8	42.9	50.4	76.0	75.2	52.2	65.1	83.2	107.8	118.4	122.6	63.0%
Curaçao ¹	0.9	1.1	1.2	1.3	1.5	1.7	2.1	2.2	2.4	1.6	1.7	7.6%
Dominican Republic	13.6	18.9	24.4	26.8	34.1	44.0	61.4	73.0	98.9	104.5	109.3	220.6%
Ecuador	28.0	41.3	51.3	57.9	68.0	78.7	83.1	105.3	124.4	141.1	147.7	117.3%
El Salvador	18.3	22.1	22.1	19.2	21.2	28.6	33.2	37.3	40.1	41.7	42.4	100.2%
Guatemala	23.5	29.2	38.6	36.5	42.1	51.9	63.0	73.1	87.5	93.8	97.3	131.2%
Haiti	9.7	10.3	13.6	13.3	13.1	11.5	13.2	12.9	13.4	14.5	15.1	15.4%
Honduras	6.8	7.8	11.0	12.0	14.0	16.7	19.3	24.3	29.0	31.2	32.0	129.0%
Jamaica	12.9	13.8	11.7	13.1	15.9	17.6	17.4	18.8	18.5	18.7	18.7	17.8%
Nicaragua	12.5	15.5	12.5	12.9	11.4	12.4	15.8	18.5	21.0	23.3	24.3	114.3%
Panama	9.7	11.1	13.3	15.7	16.5	21.6	27.1	33.4	48.9	59.7	64.7	291.3%
Paraguay	7.1	9.4	15.7	17.6	22.6	28.1	28.7	31.6	40.3	41.5	47.4	109.5%
Peru	78.1	95.7	111.5	111.3	102.3	132.1	150.1	185.1	258.3	291.4	308.2	201.2%
Trinidad and Tobago	11.1	12.6	18.4	16.4	14.6	15.7	20.0	29.4	34.7	34.6	35.2	140.2%
Uruguay	19.5	21.1	26.4	21.8	26.6	32.3	37.2	37.5	49.5	55.1	57.5	116.0%
Venezuela	183.5	209.0	235.9	225.1	255.5	302.7	314.2	356.5	427.6	470.5	476.8	86.6%
Other Non-OECD Americas	17.5	18.3	23.1	23.5	29.8	32.2	38.7	44.0	46.5	48.9	50.7	70.3%
Non-OECD Americas	1 403.8	1 812.2	2 308.5	2 374.0	2 612.6	3 099.0	3 446.0	3 984.5	5 014.4	5 371.2	5 546.4	112.3%
Bahrain	4.4	8.2	13.4	12.5	15.6	21.7	26.8	34.5	45.2	47.8	50.4	222.1%
Islamic Republic of Iran	288.9	410.2	355.4	430.5	435.5	514.7	627.5	823.7	1 042.4	1 105.9	1 041.8	139.2%
Iraq	463.3	588.9	885.9	566.9	302.4	115.7	249.3	255.7	339.9	413.2	430.6	42.4%
Jordan	8.0	7.9	16.4	21.1	19.9	28.1	32.9	44.8	60.6	63.8	65.6	229.3%
Kuwait	138.3	114.4	121.0	94.2	92.4	115.6	127.0	188.5	199.7	238.3	240.3	160.2%
Lebanon	28.6	28.0	23.8	33.3	18.6	33.1	35.5	43.5	62.9	65.5	66.1	255.2%
Oman	13.5	17.7	22.9	46.5	56.7	75.4	89.1	93.0	117.6	125.5	132.5	133.6%
Qatar	31.5	31.9	37.1	31.3	30.8	34.1	60.2	89.1	204.0	244.5	259.9	744.2%
Saudi Arabia	186.7	388.6	543.0	430.1	508.5	585.6	664.8	844.3	1 120.8	1 287.5	1 336.4	162.8%
Syrian Arab Republic	12.6	21.3	29.5	34.0	36.6	53.6	60.0	76.4	96.9	104.9	109.1	198.3%
United Arab Emirates	32.7	84.2	175.6	163.8	184.7	222.3	291.1	378.0	427.8	463.8	482.6	161.3%
Yemen	8.6	12.2	21.3	30.5	36.1	48.7	62.7	77.0	91.9	80.0	83.3	130.5%
Middle East	1 217.2	1 713.4	2 245.2	1 894.5	1 737.8	1 848.8	2 327.0	2 948.5	3 809.7	4 240.8	4 298.6	147.4%

1. Prior to 2012, Curaçao includes the entire territory of the former Netherlands Antilles.

Population

millions

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
World	3 760.2	4 061.0	4 434.9	4 836.1	5 278.3	5 687.7	6 089.9	6 479.8	6 882.2	7 039.3	7 117.7	34.8%
<i>Annex I Parties</i>	..	..	..	..	1 176.2	1 207.7	1 233.0	1 257.4	1 286.9	1 297.6	1 302.4	10.7%
<i>Annex II Parties</i>	705.3	729.4	755.0	775.9	799.4	827.6	853.0	881.6	910.2	919.0	923.2	15.5%
<i>North America</i>	229.7	239.1	252.2	264.3	277.9	295.9	313.1	328.2	343.8	349.0	351.6	26.5%
<i>Europe</i>	354.6	361.5	367.8	371.4	377.4	384.5	390.1	401.2	411.9	415.2	416.5	10.4%
<i>Asia Oceania</i>	121.0	128.8	135.0	140.2	144.2	147.2	149.8	152.2	154.6	154.8	155.1	7.6%
<i>Annex I EIT</i>	..	..	..	..	320.8	319.3	314.6	306.1	302.5	302.5	302.1	-5.8%
<i>Non-Annex I Parties</i>	..	..	..	..	4 102.1	4 480.0	4 856.9	5 222.4	5 595.3	5 741.7	5 815.3	41.8%
<i>Annex I Kyoto Parties</i>	..	..	..	..	832.1	840.9	844.6	849.8	859.4	863.0	864.2	3.9%
Non-OECD Total ¹	2 862.0	3 122.2	3 450.2	3 810.7	4 208.4	4 573.1	4 935.4	5 283.9	5 642.8	5 785.2	5 856.7	39.2%
OECD Total ²	898.2	938.8	984.6	1 025.4	1 069.9	1 114.7	1 154.4	1 195.9	1 239.5	1 254.1	1 261.0	17.9%
Canada	22.0	23.1	24.5	25.8	27.7	29.3	30.7	32.2	34.0	34.8	35.2	27.0%
Chile	9.7	10.4	11.2	12.1	13.2	14.4	15.4	16.3	17.1	17.5	17.6	33.8%
Mexico	53.4	60.8	70.4	78.8	87.1	94.5	100.9	107.2	114.3	117.1	118.4	36.0%
United States	207.7	216.0	227.7	238.5	250.2	266.6	282.4	296.0	309.8	314.2	316.5	26.5%
OECD Americas	292.8	310.3	333.8	355.2	378.1	404.8	429.4	451.7	475.1	483.5	487.7	29.0%
Australia	13.2	14.0	14.8	15.9	17.2	18.1	19.1	20.3	22.1	22.9	23.3	35.5%
Israel	3.0	3.5	3.9	4.2	4.7	5.5	6.3	7.0	7.6	7.9	8.1	72.8%
Japan	105.0	111.8	117.1	121.0	123.6	125.4	126.8	127.8	128.0	127.6	127.3	3.0%
Korea	32.9	35.3	38.1	40.8	42.9	45.1	47.0	48.1	49.4	50.0	50.2	17.1%
New Zealand	2.9	3.1	3.1	3.3	3.4	3.7	3.9	4.1	4.4	4.4	4.5	32.2%
OECD Asia Oceania	157.0	167.6	177.0	185.3	191.7	197.9	203.1	207.3	211.6	212.8	213.3	11.3%
Austria	7.5	7.6	7.5	7.6	7.7	7.9	8.0	8.2	8.4	8.4	8.5	10.4%
Belgium	9.7	9.8	9.9	9.9	10.0	10.1	10.2	10.5	10.9	11.1	11.1	11.4%
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	9.2%
Estonia	..	..	..	..	1.6	1.5	1.4	1.4	1.3	1.3	1.3	-18.5%
Finland	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.2	5.4	5.4	5.4	9.1%
France	52.4	53.9	55.2	56.6	58.2	59.5	60.9	63.1	65.0	65.6	65.9	13.2%
Germany	78.3	78.7	78.3	77.7	79.4	81.7	82.2	82.5	81.8	81.9	82.1	3.5%
Greece	9.0	9.2	9.8	10.1	10.3	10.6	10.9	11.1	11.2	11.1	11.0	6.7%
Hungary	10.4	10.5	10.7	10.6	10.4	10.3	10.2	10.1	10.0	9.9	9.9	-4.6%
Iceland	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	27.1%
Ireland	3.0	3.2	3.4	3.5	3.5	3.6	3.8	4.2	4.6	4.6	4.6	31.3%
Italy	54.1	55.4	56.4	56.6	56.7	56.8	56.9	58.2	59.8	60.3	60.6	6.9%
Luxembourg	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	42.7%
Netherlands	13.2	13.7	14.1	14.5	14.9	15.5	15.9	16.3	16.6	16.8	16.8	12.4%
Norway	3.9	4.0	4.1	4.2	4.2	4.4	4.5	4.6	4.9	5.0	5.1	19.8%
Poland	32.8	34.0	35.6	37.2	38.0	38.3	38.3	38.2	38.5	38.5	38.5	1.2%
Portugal	8.7	9.2	9.9	10.1	10.0	10.0	10.3	10.5	10.6	10.5	10.5	4.6%
Slovak Republic	4.6	4.7	5.0	5.2	5.3	5.4	5.4	5.4	5.4	5.4	5.4	2.2%
Slovenia	..	..	..	..	2.0	2.0	2.0	2.0	2.0	2.1	2.1	3.1%
Spain	34.3	35.7	37.7	38.6	39.0	39.4	40.3	43.7	46.6	46.8	46.6	19.4%
Sweden	8.1	8.2	8.3	8.4	8.6	8.8	8.9	9.0	9.4	9.5	9.6	12.2%
Switzerland	6.3	6.4	6.4	6.5	6.8	7.1	7.2	7.5	7.9	8.0	8.1	19.0%
Turkey	36.2	40.1	44.4	50.3	55.1	59.8	64.3	68.6	73.0	74.9	75.8	37.5%
United Kingdom	55.9	56.2	56.3	56.6	57.2	58.0	58.9	60.4	62.8	63.7	64.1	12.0%
OECD Europe ²	448.4	460.9	473.8	485.0	500.1	512.0	521.9	537.0	552.8	557.8	560.0	12.0%
<i>European Union - 28</i>	..	..	..	..	477.7	483.5	487.7	496.2	505.2	507.5	508.5	6.4%
G7	575.4	595.2	615.5	632.9	653.0	677.4	698.8	720.2	741.1	748.1	751.7	15.1%
G8	..	..	..	..	801.0	825.4	845.8	863.2	883.1	891.1	894.7	11.7%
G20	..	..	..	..	3 657.2	3 880.9	4 097.6	4 296.9	4 489.2	4 556.8	4 588.7	25.5%

1. Includes Estonia and Slovenia prior to 1990.

2. Excludes Estonia and Slovenia prior to 1990.

Population

millions

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Non-OECD Total ¹	2 862.0	3 122.2	3 450.2	3 810.7	4 208.4	4 573.1	4 935.4	5 283.9	5 642.8	5 785.2	5 856.7	39.2%
Albania	2.2	2.4	2.7	3.0	3.3	3.2	3.1	3.0	2.9	2.9	2.9	-11.9%
Armenia	..	..	..	..	3.5	3.2	3.1	3.0	3.0	3.0	3.0	-16.0%
Azerbaijan	..	..	..	..	7.2	7.7	8.0	8.4	9.1	9.3	9.4	31.5%
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	-15.4%
Bulgaria	8.5	8.7	8.9	9.0	8.7	8.4	8.2	7.7	7.4	7.3	7.3	-16.7%
Croatia	..	..	..	..	4.8	4.7	4.4	4.4	4.4	4.3	4.3	-11.0%
Cyprus ²	0.6	0.5	0.5	0.5	0.6	0.6	0.7	0.7	0.8	0.9	0.9	51.1%
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	-6.6%
Gibraltar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.9%
Kazakhstan	..	..	..	..	16.3	15.8	14.9	15.1	16.3	16.8	17.0	4.2%
Kosovo ²	..	..	..	..	..	..	1.7	1.7	1.8	1.8	1.8	..
Kyrgyzstan	..	..	..	..	4.4	4.6	4.9	5.2	5.4	5.6	5.7	30.3%
Latvia	..	..	..	..	2.7	2.5	2.4	2.2	2.1	2.0	2.0	-24.4%
Lithuania	..	..	..	..	3.7	3.6	3.5	3.3	3.1	3.0	3.0	-20.0%
Malta	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	19.5%
Republic of Moldova	..	..	..	..	3.7	3.7	3.6	3.6	3.6	3.6	3.6	-3.7%
Montenegro ²	..	..	..	..	..	..	..	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	20.0	-13.9%
Russian Federation	..	..	..	..	148.0	148.0	147.0	143.0	142.0	143.0	143.0	-3.4%
Serbia ²	..	..	..	..	10.1	10.3	8.1	7.4	7.3	7.2	7.2	-28.8%
Tajikistan	..	..	..	..	5.3	5.8	6.2	6.8	7.6	8.0	8.2	55.0%
Turkmenistan	..	..	..	..	3.7	4.2	4.5	4.7	5.0	5.2	5.2	42.9%
Ukraine	..	..	..	..	51.9	51.5	49.2	47.1	45.9	45.6	45.5	-12.3%
Uzbekistan	..	..	..	..	20.5	22.8	24.7	26.2	28.6	29.8	30.2	47.5%
Former Soviet Union ³	243.6	252.9	264.5	276.4	..	..	..	..	..	..	..	..
Former Yugoslavia ³	20.5	21.2	22.0	22.7	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia ¹	296.2	307.4	321.1	334.7	343.4	344.0	341.3	336.1	337.5	340.2	341.1	-0.7%
Algeria	15.1	16.8	19.5	22.8	26.2	29.3	31.7	34.0	37.1	38.5	39.2	49.4%
Angola	6.0	6.6	7.6	9.1	10.3	12.1	13.9	16.5	19.5	20.8	21.5	107.8%
Benin	3.0	3.3	3.7	4.3	5.0	6.0	6.9	8.2	9.5	10.1	10.3	106.4%
Botswana	..	..	..	1.2	1.4	1.6	1.8	1.9	2.0	2.0	2.0	46.0%
Cameroon	6.9	7.7	8.9	10.4	12.1	13.9	15.9	18.1	20.6	21.7	22.3	84.4%
Congo	1.4	1.6	1.8	2.1	2.4	2.7	3.1	3.5	4.1	4.3	4.4	86.7%
Côte d'Ivoire	5.5	6.6	8.3	10.2	12.1	14.2	16.1	17.4	19.0	19.8	20.3	67.7%
Dem. Rep. of Congo	20.6	22.9	26.4	30.0	34.9	42.0	46.9	54.0	62.2	65.7	67.5	93.4%
Egypt	37.2	40.4	44.9	50.3	56.3	61.2	66.1	71.8	78.1	80.7	82.1	45.7%
Eritrea	..	..	..	..	..	3.4	3.9	4.9	5.7	6.1	6.3	..
Ethiopia	29.2	32.6	35.2	40.8	48.0	57.0	66.0	76.2	87.1	91.7	94.1	95.9%
Gabon	0.6	0.6	0.7	0.8	0.9	1.1	1.2	1.4	1.6	1.6	1.7	76.6%
Ghana	8.8	9.8	10.8	12.7	14.6	16.8	18.8	21.4	24.3	25.4	25.9	77.1%
Kenya	11.7	13.5	16.3	19.7	23.4	27.4	31.3	35.8	40.9	43.2	44.4	89.2%
Libya	2.2	2.5	3.1	3.7	4.3	4.7	5.2	5.6	6.0	6.2	6.2	45.6%
Mauritius	0.8	0.9	1.0	1.0	1.1	1.1	1.2	1.2	1.3	1.3	1.3	18.9%
Morocco	16.3	17.7	19.8	22.3	24.7	26.8	28.7	30.1	31.6	32.5	33.0	33.8%
Mozambique	9.7	10.6	12.1	13.3	13.6	16.0	18.3	21.0	24.0	25.2	25.8	90.4%
Namibia	..	..	..	..	..	1.7	1.9	2.0	2.2	2.3	2.3	..
Niger	..	..	..	..	..	..	11.0	13.2	15.9	17.2	17.8	..
Nigeria	57.5	63.6	73.7	83.9	95.6	108.0	123.0	140.0	160.0	169.0	174.0	82.0%
Senegal	4.3	4.9	5.6	6.4	7.5	8.7	9.9	11.3	13.0	13.7	14.1	88.1%
South Africa	22.6	24.7	27.6	31.3	35.2	39.1	44.0	47.3	50.8	52.3	53.2	51.0%
South Sudan ²	..	..	..	..	..	..	..	..	..	10.8	11.3	..
Sudan ²	14.3	16.2	19.1	22.5	25.8	30.0	34.4	39.6	45.6	37.2	38.0	47.3%
United Rep. of Tanzania	14.0	16.0	18.7	21.9	25.5	29.9	34.0	38.8	45.0	47.8	49.3	93.3%
Togo	2.2	2.4	2.7	3.3	3.8	4.3	4.9	5.5	6.3	6.6	6.8	80.0%
Tunisia	5.2	5.6	6.4	7.3	8.2	9.0	9.6	10.0	10.5	10.8	10.9	33.5%
Zambia	4.3	5.0	5.8	6.8	7.8	8.8	10.1	11.5	13.2	14.1	14.5	85.3%
Zimbabwe	5.4	6.2	7.3	8.9	10.5	11.6	12.5	12.7	13.1	13.7	14.2	35.3%
Other Africa	68.9	75.6	87.4	98.1	113.8	125.1	135.0	155.9	180.4	190.9	196.4	72.6%
Africa	373.7	414.3	474.4	545.1	625.0	713.6	807.5	910.9	1 030.4	1 083.3	1 111.0	77.7%

1. Includes Estonia and Slovenia prior to 1990.

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

3. 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	2012	2013	% change 90-13
Bangladesh	67.6	72.3	82.5	94.3	107.0	120.0	132.0	143.0	151.0	155.0	157.0	46.7%
Brunei Darussalam	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	62.6%
Cambodia	..	..	..	..	..	10.8	12.2	13.4	14.4	14.9	15.1	..
DPR of Korea	14.8	16.3	17.4	18.8	20.2	21.8	22.8	23.8	24.5	24.8	24.9	23.3%
India	568.0	622.0	699.0	782.0	869.0	956.0	1 040.0	1 130.0	1 210.0	1 240.0	1 250.0	43.8%
Indonesia	117.0	129.0	145.0	162.0	179.0	194.0	209.0	224.0	241.0	247.0	250.0	39.7%
Malaysia	11.2	12.3	13.8	15.8	18.2	20.7	23.4	25.8	28.3	29.2	29.7	63.2%
Mongolia	..	..	..	1.9	2.2	2.3	2.4	2.5	2.7	2.8	2.8	30.0%
Myanmar	27.8	30.6	34.5	38.5	42.1	45.3	48.5	50.2	51.9	52.8	53.3	26.4%
Nepal	11.8	12.9	14.4	16.1	18.1	20.6	23.2	25.3	26.8	27.5	27.8	53.5%
Pakistan	60.8	68.2	80.0	94.8	111.0	127.0	144.0	158.0	173.0	179.0	182.0	64.0%
Philippines	36.9	41.3	47.4	54.3	61.9	69.6	77.7	85.8	93.4	96.7	98.4	58.8%
Singapore	2.1	2.3	2.4	2.7	3.0	3.5	4.0	4.3	5.1	5.3	5.4	77.2%
Sri Lanka	12.7	13.5	14.7	15.8	17.0	18.1	19.1	19.6	20.7	20.3	20.5	20.4%
Chinese Taipei	14.9	16.1	17.9	19.3	20.4	21.4	22.3	22.8	23.2	23.3	23.4	14.7%
Thailand	38.0	42.3	47.4	52.0	56.6	59.0	62.3	65.6	66.4	66.8	67.0	18.4%
Viet Nam	43.7	48.0	53.7	58.9	66.0	72.0	77.6	82.4	86.9	88.8	89.7	35.9%
Other Asia	27.7	30.3	31.0	30.0	32.9	31.3	35.7	41.5	46.8	49.0	50.1	52.2%
Asia (excl. China)	1 055.2	1 157.5	1 301.2	1 457.6	1 625.0	1 793.6	1 956.6	2 118.4	2 266.6	2 323.6	2 347.6	44.5%
People's Rep. of China	841.0	916.0	981.0	1 050.0	1 140.0	1 200.0	1 260.0	1 300.0	1 340.0	1 350.0	1 360.0	19.3%
Hong Kong, China	4.0	4.5	5.1	5.5	5.7	6.2	6.7	6.8	7.0	7.2	7.2	26.0%
China	845.0	920.5	986.1	1 055.5	1 145.7	1 206.2	1 266.7	1 306.8	1 347.0	1 357.2	1 367.2	19.3%
Argentina	24.4	26.1	28.1	30.3	32.6	34.8	36.9	38.6	40.4	41.1	41.4	27.0%
Bolivia	4.3	4.8	5.4	6.0	6.8	7.6	8.5	9.4	10.2	10.5	10.7	57.1%
Brazil	98.4	108.0	122.0	136.0	150.0	162.0	175.0	186.0	195.0	199.0	200.0	33.3%
Colombia	21.9	24.0	26.9	30.1	33.3	36.6	39.9	43.2	46.4	47.7	48.3	45.1%
Costa Rica	1.9	2.1	2.3	2.7	3.1	3.5	3.9	4.3	4.7	4.8	4.9	58.2%
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%
Curaçao ¹	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-18.5%
Dominican Republic	4.7	5.2	5.8	6.5	7.2	8.0	8.7	9.3	10.0	10.3	10.4	43.6%
Ecuador	6.2	6.9	7.9	9.0	10.1	11.3	12.5	13.8	15.0	15.5	15.7	55.5%
El Salvador	3.8	4.2	4.7	5.0	5.3	5.7	6.0	6.1	6.2	6.3	6.3	18.6%
Guatemala	5.6	6.2	7.0	7.9	8.9	10.0	11.2	12.7	14.3	15.1	15.5	74.0%
Haiti	4.8	5.1	5.7	6.4	7.1	7.8	8.6	9.3	9.9	10.2	10.3	45.1%
Honduras	2.8	3.1	3.6	4.2	4.9	5.6	6.2	6.9	7.6	7.9	8.1	65.1%
Jamaica	1.9	2.0	2.1	2.3	2.4	2.5	2.6	2.6	2.7	2.7	2.7	13.6%
Nicaragua	2.5	2.8	3.3	3.7	4.1	4.7	5.1	5.5	5.8	6.0	6.1	46.9%
Panama	1.6	1.8	2.0	2.2	2.5	2.8	3.1	3.4	3.7	3.8	3.9	55.4%
Paraguay	2.5	2.8	3.2	3.7	4.3	4.8	5.4	5.9	6.5	6.7	6.8	60.0%
Peru	13.6	15.2	17.3	19.5	21.8	23.9	26.0	27.7	29.3	30.0	30.4	39.5%
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	9.7%
Uruguay	2.8	2.8	2.9	3.0	3.1	3.2	3.3	3.3	3.4	3.4	3.4	9.5%
Venezuela	11.1	12.7	15.1	17.3	19.7	22.1	24.4	26.7	29.0	30.0	30.4	54.0%
Other Non-OECD Americas	2.6	2.7	2.8	2.9	3.0	3.2	3.4	3.6	3.8	4.0	4.0	32.3%
Non-OECD Americas	227.3	249.1	279.3	310.4	342.3	372.5	403.2	431.1	456.7	467.6	472.1	37.9%
Bahrain	0.2	0.3	0.4	0.4	0.5	0.6	0.7	0.9	1.3	1.3	1.3	168.5%
Islamic Republic of Iran	29.4	32.9	38.9	47.5	56.4	60.5	65.9	70.2	74.5	76.4	77.4	37.4%
Iraq	10.3	11.7	13.7	15.6	17.5	20.4	23.8	27.4	31.0	32.6	33.4	90.8%
Jordan	1.6	1.8	2.2	2.6	3.2	4.2	4.8	5.4	6.0	6.3	6.5	103.8%
Kuwait	0.8	1.1	1.4	1.7	2.1	1.6	1.9	2.3	3.0	3.3	3.4	63.5%
Lebanon	2.4	2.6	2.6	2.7	2.7	3.0	3.2	4.0	4.3	4.4	4.5	65.3%
Oman	0.7	0.9	1.2	1.5	1.8	2.2	2.2	2.5	2.8	3.3	3.6	100.7%
Qatar	0.1	0.2	0.2	0.4	0.5	0.5	0.6	0.8	1.8	2.1	2.2	354.7%
Saudi Arabia	6.1	7.4	9.8	13.3	16.2	18.6	20.1	24.7	27.3	28.3	28.8	77.9%
Syrian Arab Republic	6.6	7.6	9.0	10.7	12.5	14.3	16.4	18.2	21.5	22.4	22.8	83.5%
United Arab Emirates	0.3	0.5	1.0	1.3	1.8	2.3	3.0	4.1	8.4	9.2	9.3	417.5%
Yemen	6.2	6.7	7.9	9.7	11.8	15.0	17.5	20.1	22.8	23.9	24.4	107.0%
Middle East	64.6	73.5	88.2	107.4	126.9	143.1	160.2	180.6	204.6	213.4	217.7	71.6%

1. Prior to 2012, Curaçao includes the entire territory of the former Netherlands Antilles.

CO₂ emissions / TPEStonnes CO₂ / terajoule

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
World ¹	60.5	60.0	58.9	56.6	56.2	55.6	55.4	56.3	55.7	56.4	56.8	1.1%
<i>Annex I Parties</i>	..	..	..	..	58.7	56.6	56.1	55.4	54.0	53.9	53.7	-8.5%
<i>Annex II Parties</i>	65.8	63.9	61.4	58.9	57.5	55.7	55.6	55.2	53.8	54.0	53.8	-6.4%
<i>North America</i>	63.9	62.1	60.0	59.6	58.7	57.4	58.3	57.5	56.8	55.5	55.3	-5.8%
<i>Europe</i>	68.6	65.8	63.6	57.7	55.0	52.4	50.7	49.9	47.3	47.0	46.3	-15.8%
<i>Asia Oceania</i>	66.5	66.8	61.7	59.1	59.0	56.8	56.4	58.8	57.4	65.4	65.5	11.0%
<i>Annex I EIT</i>	..	..	..	..	61.8	60.0	58.0	55.4	54.2	52.5	52.8	-14.6%
<i>Non-Annex I Parties</i>	..	..	..	..	50.2	52.9	53.0	56.2	56.2	57.6	58.3	16.1%
<i>Annex I Kyoto Parties</i>	..	..	..	..	58.8	56.0	54.3	53.5	51.6	52.5	52.3	-11.0%
Non-OECD Total ²	49.7	52.5	53.6	51.8	53.1	53.7	53.3	55.9	55.8	56.9	57.7	8.7%
OECD Total ³	66.2	64.4	62.1	59.9	58.1	56.4	56.2	55.6	54.4	54.5	54.3	-6.7%
Canada	57.5	54.3	52.5	48.7	48.0	46.4	49.0	47.3	49.0	49.6	50.6	5.4%
Chile	57.7	53.5	53.9	48.9	50.2	48.3	46.1	45.8	53.1	49.6	50.6	0.9%
Mexico	52.1	54.3	51.4	53.0	50.6	52.5	56.7	54.1	56.1	54.9	56.4	11.5%
United States	64.5	62.9	60.8	60.8	59.9	58.6	59.3	58.7	57.7	56.2	55.9	-6.7%
OECD Americas	63.6	61.8	59.6	59.2	58.2	57.1	58.1	57.2	56.8	55.3	55.3	-5.0%
Australia	66.3	71.0	70.9	72.5	71.8	73.5	74.0	78.2	73.9	73.2	71.9	0.2%
Israel	57.3	55.8	57.5	76.7	68.3	69.1	71.8	76.1	70.5	73.6	68.0	-0.5%
Japan	67.0	66.5	60.3	57.0	57.1	54.2	53.2	54.9	53.9	64.3	64.9	13.7%
Korea	74.5	75.9	72.7	70.0	59.6	58.9	54.8	52.0	52.6	52.1	51.8	-13.0%
New Zealand	47.2	45.9	43.8	40.3	40.5	38.4	40.5	47.6	39.3	38.6	37.6	-7.0%
OECD Asia Oceania	66.7	67.1	62.6	60.5	59.3	57.4	56.3	57.5	56.4	61.7	61.5	3.8%
Austria	61.7	58.7	56.1	54.5	54.0	53.0	51.6	53.1	48.8	47.0	46.8	-13.3%
Belgium	71.0	65.2	64.1	54.7	52.6	49.6	46.5	43.6	39.9	38.9	37.8	-28.1%
Czech Republic	80.8	84.8	85.5	85.1	72.4	70.9	70.9	63.0	60.0	59.2	57.6	-20.5%
Denmark	71.5	71.9	78.7	75.5	70.1	71.9	65.0	61.2	58.1	51.1	53.1	-24.2%
Estonia	..	..	..	..	87.9	73.2	73.5	77.1	79.2	71.1	73.9	-15.8%
Finland	52.4	53.5	53.3	44.6	45.1	45.8	40.3	38.0	40.2	34.3	35.6	-21.1%
France	63.7	61.2	56.7	41.2	36.8	34.6	34.6	32.6	31.0	29.5	29.8	-19.2%
Germany	76.6	74.2	70.1	67.2	63.9	60.8	57.6	55.8	55.5	57.1	57.1	-10.7%
Greece	68.9	69.4	72.0	74.2	77.9	80.6	77.6	75.2	72.2	69.3	70.3	-9.7%
Hungary	75.6	73.2	69.6	64.0	54.5	52.0	50.9	47.4	44.2	42.7	41.8	-23.3%
Iceland	37.2	34.9	27.9	22.0	19.9	21.2	16.5	17.1	8.6	7.9	8.2	-58.7%
Ireland	76.9	76.0	75.1	73.2	72.6	73.2	70.7	72.5	65.2	64.8	62.8	-13.4%
Italy	65.6	64.8	64.8	63.2	63.4	60.2	58.5	59.4	55.1	54.3	52.0	-18.0%
Luxembourg	96.7	80.6	83.5	80.6	75.7	62.4	57.4	62.5	60.2	60.1	58.8	-22.4%
Netherlands	59.9	53.4	53.9	54.5	52.7	53.5	51.3	49.7	48.2	47.7	48.2	-8.5%
Norway	41.2	38.5	35.4	31.5	31.1	31.9	29.2	30.8	26.6	28.6	25.8	-17.2%
Poland	79.7	78.6	78.5	80.9	79.9	80.1	77.9	76.8	73.8	72.6	71.6	-10.4%
Portugal	54.7	56.0	56.8	52.1	53.9	55.9	56.2	55.4	48.3	51.1	49.3	-8.6%
Slovak Republic	65.1	61.5	67.2	62.7	61.4	55.4	49.6	47.3	46.3	44.8	44.9	-26.8%
Slovenia	..	..	..	..	56.6	55.4	52.4	50.6	50.9	50.6	50.0	-11.7%
Spain	66.7	64.7	65.7	58.3	53.7	54.1	54.6	56.1	49.0	49.6	48.2	-10.2%
Sweden	54.4	48.3	43.1	29.5	26.3	27.0	26.1	22.7	21.6	18.7	18.2	-31.0%
Switzerland	56.7	51.1	46.8	45.2	39.9	41.1	40.0	40.4	39.3	37.8	37.1	-7.0%
Turkey	51.0	53.2	54.3	57.9	57.6	58.9	63.3	61.3	60.2	61.8	58.2	1.0%
United Kingdom	71.1	69.0	68.7	64.6	63.5	56.7	55.8	57.0	56.2	57.1	56.1	-11.7%
OECD Europe ³	69.6	67.2	65.6	60.7	57.5	54.8	53.2	52.1	49.9	49.7	48.9	-15.1%
<i>European Union - 28</i>	..	..	..	..	58.4	55.3	53.4	52.3	50.1	49.7	49.1	-16.0%
G7	66.2	64.4	61.7	59.4	58.1	55.9	56.0	55.5	54.5	55.0	54.8	-5.7%
G8	..	..	..	..	58.2	56.2	56.1	55.3	54.3	54.1	54.1	-7.1%
G20	..	..	..	..	57.2	57.0	56.9	58.0	57.4	58.3	58.9	3.0%

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

2. Includes Estonia and Slovenia prior to 1990.

3. Excludes Estonia and Slovenia prior to 1990.

CO₂ emissions / TPEStonnes CO₂ / terajoule

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Non-OECD Total ¹	49.7	52.5	53.6	51.8	53.1	53.7	53.3	55.9	55.8	56.9	57.7	8.7%
Albania	53.7	52.1	53.0	61.0	50.7	33.2	40.9	42.2	44.3	41.8	37.5	-26.0%
Armenia	..	..	..	..	61.5	48.9	40.6	39.3	38.9	43.7	43.2	-29.8%
Azerbaijan	..	..	..	..	56.4	55.6	57.7	51.6	48.5	50.4	50.7	-10.1%
Belarus	..	..	..	..	52.4	55.0	50.7	49.1	52.0	45.3	51.0	-2.7%
Bosnia and Herzegovina	..	..	..	..	81.7	52.5	75.4	75.2	75.5	77.4	79.6	-2.6%
Bulgaria	80.1	75.3	71.6	64.1	63.1	54.6	54.2	55.8	59.3	57.8	55.5	-12.0%
Croatia	..	..	..	..	54.7	50.3	51.7	53.8	51.2	49.9	49.5	-9.4%
Cyprus ²	70.9	70.1	71.1	71.8	68.1	71.1	70.4	75.8	71.0	69.8	69.6	2.2%
FYR of Macedonia	..	..	..	..	82.9	79.5	76.4	75.9	69.1	71.0	70.8	-14.6%
Georgia	..	..	..	..	64.4	52.2	38.6	34.2	38.2	42.6	40.6	-36.9%
Gibraltar	55.4	47.4	68.8	59.2	59.2	63.9	63.5	64.2	65.4	65.0	64.8	9.4%
Kazakhstan	..	..	..	..	77.1	78.0	75.0	73.7	76.4	75.6	71.7	-7.0%
Kosovo ²	..	..	..	..	..	..	79.1	81.6	83.4	82.0	84.2	..
Kyrgyzstan	..	..	..	..	72.6	44.7	45.8	45.4	52.4	55.3	53.7	-26.1%
Latvia	..	..	..	..	57.1	46.2	42.6	40.0	42.8	37.8	38.1	-33.3%
Lithuania	..	..	..	..	47.9	36.8	34.2	33.1	41.3	36.8	36.8	-23.2%
Malta	74.2	74.3	74.4	80.3	79.6	80.1	75.3	73.9	73.6	73.2	75.7	-4.9%
Republic of Moldova	..	..	..	..	73.7	60.2	54.1	52.6	53.5	53.4	52.1	-29.3%
Montenegro ²	..	..	..	..	..	..	..	44.1	51.2	52.6	52.9	..
Romania	65.0	64.8	64.9	64.3	64.6	60.3	56.9	57.3	51.0	53.7	51.7	-20.0%
Russian Federation	..	..	..	..	58.8	58.1	56.9	54.3	53.0	50.0	50.4	-14.2%
Serbia ²	..	..	..	..	75.1	77.3	74.8	73.7	70.2	73.4	72.7	-3.2%
Tajikistan	..	..	..	..	49.6	26.4	24.2	24.0	25.3	29.2	32.2	-35.0%
Turkmenistan	..	..	..	..	60.9	58.0	58.8	60.3	60.2	60.3	60.0	-1.3%
Ukraine	..	..	..	..	65.2	57.7	52.7	49.1	48.0	53.4	54.5	-16.5%
Uzbekistan	..	..	..	..	59.2	52.8	53.5	54.3	53.6	53.1	53.5	-9.6%
Former Soviet Union ³	60.4	63.0	63.2	58.9	..	..	..	..	..	..	..	..
Former Yugoslavia ³	67.4	68.8	59.7	69.5	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia ¹	61.2	63.5	63.4	59.6	61.2	58.6	56.6	54.7	54.2	52.8	53.2	-13.1%
Algeria	59.2	58.6	59.1	56.6	55.1	54.5	54.4	57.1	57.1	57.5	57.2	3.8%
Angola	10.0	11.3	13.9	13.5	15.9	14.6	14.8	16.1	26.9	26.8	28.8	80.7%
Benin	6.6	8.9	7.0	7.3	3.7	2.9	17.2	25.6	29.7	30.2	30.7	732.7%
Botswana	..	..	..	41.6	55.0	52.6	53.7	54.7	53.2	49.6	54.7	-0.6%
Cameroon	6.5	8.0	10.9	12.7	12.7	10.6	10.6	9.9	17.3	18.3	19.2	51.4%
Congo	26.9	26.2	26.7	23.6	18.6	13.8	16.0	17.9	25.7	22.8	22.9	22.9%
Côte d'Ivoire	23.4	24.5	22.7	19.7	14.9	15.1	22.3	14.4	14.6	14.9	15.8	6.5%
Dem. Rep. of Congo	9.2	8.4	8.9	7.8	6.1	2.1	1.5	1.8	2.2	2.8	3.0	-50.9%
Egypt	61.4	62.4	64.5	60.0	57.6	55.5	58.7	56.2	58.1	57.8	56.8	-1.5%
Eritrea	..	..	..	..	..	18.6	20.7	18.1	15.5	16.4	16.1	..
Ethiopia	2.4	2.0	2.1	1.9	2.5	2.2	2.6	3.2	3.5	3.8	4.2	72.1%
Gabon	10.6	13.9	22.4	29.5	18.4	23.4	23.8	24.0	26.8	27.6	28.5	55.2%
Ghana	15.3	15.0	13.0	11.5	11.5	11.8	18.9	25.9	33.6	35.6	36.3	216.5%
Kenya	14.7	13.7	14.3	12.7	12.4	11.3	13.2	11.1	13.6	12.2	13.0	5.2%
Libya	56.6	56.5	59.6	50.1	55.3	56.3	55.6	57.7	55.7	59.1	60.8	10.0%
Mauritius	17.1	25.2	31.7	33.0	41.7	47.3	57.5	60.9	66.4	66.5	66.3	59.0%
Morocco	53.0	58.2	60.4	62.9	61.6	66.7	64.0	67.0	64.9	65.3	63.7	3.4%
Mozambique	10.2	8.5	8.3	5.6	4.4	4.4	4.4	4.3	5.7	6.0	6.5	49.6%
Namibia	..	..	..	..	..	45.0	43.9	44.3	47.2	46.6	47.1	..
Niger	..	..	..	..	..	..	10.5	10.1	14.5	19.6	15.8	..
Nigeria	4.1	6.7	12.4	13.3	10.1	10.6	12.1	12.8	11.1	11.3	10.9	8.1%
Senegal	23.4	27.7	31.2	32.5	30.2	31.7	35.1	39.6	34.0	33.6	38.6	27.9%
South Africa	82.6	89.8	76.1	61.6	64.0	59.9	61.4	69.3	68.9	69.4	71.1	11.0%
South Sudan ²	..	..	..	..	..	..	..	..	..	53.3	52.0	..
Sudan ²	10.9	10.3	10.5	10.0	11.9	8.6	9.8	15.7	21.4	23.0	22.5	88.9%
United Rep. of Tanzania	4.4	4.4	4.4	4.0	4.1	5.4	4.6	7.0	7.1	9.0	9.8	139.7%
Togo	11.3	9.7	9.9	7.2	10.9	8.8	10.7	9.7	15.9	12.4	12.4	14.4%
Tunisia	53.6	53.2	57.9	55.4	58.9	57.7	57.6	55.9	54.1	54.7	54.3	-7.8%
Zambia	22.3	25.8	16.9	12.8	11.2	8.2	6.3	6.9	4.8	6.9	8.5	-23.9%
Zimbabwe	31.8	28.9	29.3	31.4	41.7	36.6	31.7	25.5	22.8	27.9	28.5	-31.7%
Other Africa	8.9	9.3	11.3	8.4	7.2	7.4	8.0	8.4	9.5	10.5	10.5	45.8%
Africa	31.2	35.0	35.0	33.0	32.3	31.2	31.8	34.3	34.5	34.3	34.4	6.4%

1. Includes Estonia and Slovenia prior to 1990.

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

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

CO₂ emissions / TPEStonnes CO₂ / terajoule

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Bangladesh	12.1	15.7	18.7	18.5	21.4	24.8	27.4	33.5	39.1	41.3	42.0	96.1%
Brunei Darussalam	53.6	45.4	46.7	39.5	45.1	47.8	44.3	51.9	50.6	43.5	53.8	19.3%
Cambodia	..	..	..	..	..	12.4	13.7	18.4	20.8	20.9	20.7	..
DPR of Korea	85.2	84.4	85.0	85.9	84.0	83.1	84.8	84.3	82.8	78.7	78.8	-6.2%
India	28.6	30.3	31.4	36.5	41.6	45.5	48.3	50.1	55.1	56.5	57.6	38.3%
Indonesia	17.2	22.0	29.0	30.4	32.4	37.3	39.6	42.7	43.7	46.9	47.5	46.4%
Malaysia	50.5	53.0	46.9	49.6	53.0	53.8	55.0	55.5	60.4	57.8	55.6	4.9%
Mongolia	..	..	..	90.1	90.1	90.8	89.5	87.7	85.8	86.9	85.4	-5.3%
Myanmar	13.6	11.2	12.9	12.5	8.8	13.6	17.3	17.0	13.5	17.6	19.2	119.7%
Nepal	1.2	1.9	2.7	2.6	3.7	6.3	9.1	8.0	9.6	11.7	11.9	223.0%
Pakistan	22.2	23.4	23.5	27.0	31.2	35.3	35.8	36.6	37.2	37.4	37.4	20.1%
Philippines	35.9	37.9	35.5	28.6	31.6	40.7	40.7	43.9	45.6	44.6	48.0	51.7%
Singapore	53.0	54.3	58.9	58.6	60.0	47.6	53.9	41.9	41.6	42.3	42.6	-29.0%
Sri Lanka	17.3	15.3	19.1	16.7	15.9	21.7	30.2	35.5	30.4	34.1	32.7	105.5%
Chinese Taipei	71.1	68.0	61.1	49.7	55.6	57.9	60.3	59.2	54.9	55.3	54.7	-1.6%
Thailand	28.3	29.1	36.6	40.6	46.1	54.0	50.3	48.3	45.3	45.2	44.1	-4.3%
Viet Nam	29.4	29.1	24.7	26.1	23.2	30.0	36.8	45.8	51.1	50.7	51.8	123.1%
Other Asia	44.6	46.9	51.4	37.9	35.8	32.6	33.0	39.0	43.0	50.3	50.9	42.2%
Asia (excl. China)	32.1	33.9	36.5	38.5	41.5	44.6	46.5	48.0	50.4	51.5	52.0	25.4%
People's Rep. of China	50.8	53.7	57.3	58.7	59.9	68.6	67.1	72.1	68.6	70.0	71.2	18.9%
Hong Kong, China	73.4	71.7	75.3	81.0	92.0	81.9	71.1	76.9	73.3	75.5	78.9	-14.2%
China	50.9	53.9	57.5	58.9	60.2	68.7	67.1	72.1	68.7	70.0	71.3	18.4%
Argentina	58.6	56.6	54.3	50.7	51.5	51.8	54.0	53.3	52.7	55.2	54.0	4.8%
Bolivia	51.1	52.0	41.1	40.9	47.1	43.7	34.7	43.4	52.6	52.9	50.6	7.4%
Brazil	29.9	34.0	35.2	28.8	31.4	33.8	37.2	34.4	33.3	35.8	36.8	17.2%
Colombia	46.0	43.8	46.9	47.2	45.1	47.1	50.1	47.2	46.1	49.4	51.6	14.2%
Costa Rica	37.7	41.8	41.1	36.8	37.1	45.2	37.4	33.6	34.0	34.6	35.2	-5.0%
Cuba	46.1	47.8	48.6	49.2	45.9	48.2	50.5	55.4	62.0	59.3	60.7	32.4%
Curaçao ¹	63.3	63.4	52.8	60.2	43.6	47.9	63.7	68.5	51.5	53.3	58.6	34.3%
Dominican Republic	35.6	40.4	44.0	43.3	43.7	50.9	54.9	61.0	62.1	61.5	62.6	43.1%
Ecuador	37.3	45.1	49.7	49.6	50.2	50.6	49.1	54.6	57.8	60.2	61.5	22.4%
El Salvador	17.8	20.3	15.1	14.9	20.4	32.5	31.1	33.1	33.2	33.5	32.7	60.5%
Guatemala	19.8	21.6	26.5	20.2	17.4	26.3	29.1	32.5	24.2	22.8	24.2	39.6%
Haiti	6.0	5.7	7.1	10.1	14.3	12.7	16.4	13.9	13.2	12.2	12.6	-11.8%
Honduras	19.3	20.6	21.6	19.9	21.8	30.2	35.8	41.6	38.4	38.9	38.8	77.7%
Jamaica	65.7	66.3	68.6	64.7	62.1	62.7	61.0	66.0	61.5	59.5	60.5	-2.6%
Nicaragua	29.2	30.0	28.1	22.3	21.7	26.6	33.6	33.7	35.2	32.2	28.5	31.1%
Panama	35.9	43.7	49.2	40.8	41.1	48.9	45.3	55.8	57.3	56.3	54.7	33.2%
Paraguay	10.0	11.4	15.4	15.0	15.0	21.2	20.3	20.9	23.1	24.1	23.9	59.1%
Peru	40.3	42.1	43.3	40.7	47.0	50.7	51.6	50.1	51.1	48.7	50.2	6.9%
Trinidad and Tobago	48.6	47.1	39.7	31.2	31.5	31.7	24.5	26.0	26.6	27.4	28.0	-11.2%
Uruguay	50.4	52.1	48.2	36.0	38.2	40.8	39.3	41.6	34.8	42.2	36.9	-3.4%
Venezuela	61.4	58.1	60.9	55.9	56.4	54.1	54.1	58.2	56.6	55.2	54.0	-4.3%
Other Non-OECD Americas	40.2	43.1	42.4	61.2	58.0	63.4	64.1	63.1	65.0	65.3	64.9	11.9%
Non-OECD Americas	42.3	42.9	43.5	39.0	40.4	42.0	43.8	42.9	42.0	43.3	43.5	7.8%
Bahrain	49.0	58.6	61.6	52.2	48.7	50.0	47.5	47.4	49.1	49.5	49.2	1.1%
Islamic Republic of Iran	55.9	61.0	55.5	64.4	59.0	57.7	60.6	57.8	57.4	56.2	55.0	-6.7%
Iraq	61.3	60.9	64.3	60.8	62.2	67.7	64.9	66.9	65.8	66.7	65.9	5.9%
Jordan	65.5	68.2	67.6	68.2	67.9	68.1	70.8	64.8	63.5	69.3	70.5	4.0%
Kuwait	54.8	55.7	60.4	62.6	72.9	51.9	58.8	58.6	57.1	59.4	57.3	-21.4%
Lebanon	59.2	63.0	64.2	67.8	67.4	69.2	68.1	68.5	68.1	69.9	69.7	3.5%
Oman	72.1	72.2	46.6	63.8	57.5	57.5	63.2	53.0	57.1	56.4	56.8	-1.2%
Qatar	57.8	57.6	50.3	45.2	45.5	49.3	46.5	47.6	49.3	44.4	43.0	-5.4%
Saudi Arabia	41.1	61.3	76.3	61.2	62.2	54.2	57.3	58.1	54.0	55.2	58.7	-5.6%
Syrian Arab Republic	54.6	64.6	65.9	59.6	62.1	61.4	57.3	61.4	61.7	61.7	61.9	-0.3%
United Arab Emirates	58.1	60.6	63.5	62.0	60.7	60.1	60.2	59.7	58.7	60.2	57.6	-5.1%
Yemen	39.1	60.6	65.3	66.8	59.8	65.9	67.1	68.3	68.4	69.5	69.1	15.5%
Middle East	53.5	60.6	63.7	61.8	60.6	57.9	59.4	58.5	56.9	56.9	57.1	-5.8%

1. Prior to 2012, Curaçao includes the entire territory of the former Netherlands Antilles.

CO₂ emissions / TFCtonnes CO₂ / terajoule

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
World ¹	78.7	78.9	79.0	77.8	78.4	78.3	78.6	81.5	81.7	82.6	82.7	5.4%
<i>Annex I Parties</i>	..	..	..	..	85.5	83.0	82.2	82.0	79.6	79.8	79.0	-7.6%
<i>Annex II Parties</i>	86.3	85.9	84.6	82.8	83.7	81.6	80.7	80.9	78.5	78.7	77.6	-7.3%
<i>North America</i>	82.2	83.1	81.7	82.5	85.9	85.0	84.8	84.7	82.9	81.2	79.7	-7.1%
<i>Europe</i>	92.0	88.1	87.1	81.3	78.9	74.8	72.0	71.4	67.2	67.2	65.8	-16.5%
<i>Asia Oceania</i>	90.2	93.8	91.4	88.4	87.3	85.0	85.7	89.3	89.6	96.9	97.5	11.7%
<i>Annex I EIT</i>	..	..	..	..	90.8	89.0	89.0	87.4	84.2	84.3	85.6	-5.8%
<i>Non-Annex I Parties</i>	..	..	..	..	66.7	71.8	74.2	81.6	84.2	85.4	86.0	29.1%
<i>Annex I Kyoto Parties</i>	..	..	..	..	85.7	81.8	80.1	80.0	77.0	78.8	78.5	-8.4%
Non-OECD Total ²	64.9	67.7	70.3	70.4	72.2	74.0	75.5	82.1	83.8	85.0	85.8	18.9%
OECD Total ³	87.1	86.9	85.9	84.4	84.6	82.4	81.6	81.5	79.7	80.0	78.9	-6.8%
Canada	69.7	68.3	65.0	62.5	63.0	61.5	65.1	64.4	64.5	63.3	64.3	2.2%
Chile	76.8	68.9	70.1	61.4	63.3	58.1	57.0	59.5	68.7	73.9	73.5	16.1%
Mexico	65.2	69.7	74.1	72.8	73.5	76.3	83.6	86.6	87.0	88.5	91.3	24.2%
United States	83.4	84.7	83.7	84.9	88.7	88.0	87.2	87.3	85.2	83.7	81.8	-7.8%
OECD Americas	81.7	82.6	81.3	81.9	85.0	84.3	84.4	84.5	83.0	81.6	80.4	-5.5%
Australia	94.9	104.3	105.5	106.6	109.4	109.4	114.9	122.5	120.2	115.7	114.9	5.0%
Israel	100.0	100.8	99.7	114.8	112.5	109.3	109.3	117.5	110.2	121.2	111.1	-1.2%
Japan	90.0	92.8	89.6	85.7	84.2	81.6	80.9	83.2	83.6	93.7	94.7	12.5%
Korea	92.9	98.5	95.9	97.3	85.3	81.5	81.1	77.8	83.4	82.6	81.4	-4.5%
New Zealand	63.4	60.4	57.0	56.8	53.5	50.2	53.5	64.2	56.1	57.6	55.5	3.8%
OECD Asia Oceania	90.4	94.2	92.0	89.8	87.4	84.8	85.2	87.1	88.4	93.4	93.2	6.7%
Austria	79.7	74.0	69.6	66.3	68.1	66.9	62.6	64.7	59.0	56.8	55.7	-18.1%
Belgium	96.3	89.7	92.8	79.9	79.0	70.3	65.5	61.6	55.9	53.0	51.0	-35.5%
Czech Republic	112.5	115.0	115.8	112.3	109.6	108.2	112.1	101.8	100.7	99.8	95.3	-13.1%
Denmark	90.2	92.4	102.2	102.4	92.4	96.1	85.2	77.6	75.3	64.1	68.0	-26.4%
Estonia	..	..	..	..	146.8	140.9	134.2	131.8	150.3	134.1	149.5	1.9%
Finland	58.6	60.7	67.7	60.7	57.6	59.4	53.1	51.4	55.6	46.2	47.5	-17.4%
France	80.5	78.1	76.9	61.4	57.6	53.8	53.3	52.4	50.2	48.1	47.8	-17.0%
Germany	107.1	102.7	100.7	96.6	93.3	87.7	83.9	81.5	79.2	80.8	80.7	-13.5%
Greece	88.6	99.9	100.8	109.0	115.2	119.1	113.9	109.4	102.5	107.7	107.7	-6.5%
Hungary	97.3	94.8	91.5	86.7	75.8	77.9	73.9	65.4	62.6	61.5	57.0	-24.8%
Iceland	39.7	36.8	32.5	27.4	33.3	32.4	29.2	27.8	18.4	17.0	17.8	-46.6%
Ireland	102.9	101.5	97.5	97.8	95.2	96.2	90.7	86.7	82.0	83.2	79.7	-16.3%
Italy	80.1	81.4	83.0	81.1	80.9	79.5	77.9	78.6	72.0	69.7	66.7	-17.6%
Luxembourg	160.1	119.4	109.6	101.3	92.3	70.2	59.1	67.0	64.5	63.8	61.3	-33.6%
Netherlands	81.1	68.8	63.9	65.4	70.4	70.5	66.2	65.3	62.1	61.4	60.5	-14.0%
Norway	44.2	42.1	40.7	36.5	37.6	40.4	38.5	40.4	42.2	41.5	41.2	9.7%
Poland	122.8	121.4	127.4	130.5	134.1	123.4	119.7	113.5	104.9	104.3	104.3	-22.2%
Portugal	68.2	70.2	71.7	64.5	67.6	74.2	71.4	71.6	59.9	66.7	66.2	-2.1%
Slovak Republic	94.8	88.6	102.3	100.0	83.1	89.7	77.1	76.0	72.2	72.9	71.4	-14.1%
Slovenia	..	..	..	..	87.6	80.7	72.3	71.5	71.7	71.4	70.1	-19.9%
Spain	86.7	92.6	92.4	87.1	79.8	79.1	77.8	78.1	67.8	73.5	69.1	-13.4%
Sweden	60.2	54.0	50.5	42.7	38.7	38.0	35.2	33.9	31.5	28.5	27.7	-28.5%
Switzerland	61.2	59.8	56.4	55.9	53.4	53.0	51.9	51.6	49.7	48.8	48.9	-8.4%
Turkey	61.6	64.4	64.9	73.8	75.8	76.2	83.1	78.9	81.5	82.8	78.8	4.0%
United Kingdom	110.3	103.3	103.8	97.4	94.7	85.3	82.6	85.4	82.9	85.9	83.1	-12.3%
OECD Europe ³	94.2	90.8	90.6	86.1	83.1	78.7	75.8	74.6	71.1	71.2	69.6	-16.2%
<i>European Union - 28</i>	..	..	..	..	85.1	80.7	76.8	75.7	71.7	71.7	70.1	-17.7%
G7	87.1	87.0	85.6	84.0	85.0	82.7	81.9	82.0	80.2	80.4	79.2	-6.7%
G8	..	..	..	..	84.5	82.4	82.2	82.5	80.4	80.7	80.0	-5.3%
G20	..	..	..	..	81.1	81.6	82.2	85.9	86.4	87.6	87.7	8.0%

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

2. Includes Estonia and Slovenia prior to 1990.

3. Excludes Estonia and Slovenia prior to 1990.

CO₂ emissions / TFCtonnes CO₂ / terajoule

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Non-OECD Total ¹	64.9	67.7	70.3	70.4	72.2	74.0	75.5	82.1	83.8	85.0	85.8	18.9%
Albania	65.2	62.4	60.4	71.9	60.6	43.4	46.9	47.2	47.0	45.7	41.5	-31.5%
Armenia	..	..	..	..	73.2	70.1	73.8	57.5	53.0	60.8	59.6	-18.6%
Azerbaijan	..	..	..	..	76.5	81.1	99.8	86.0	81.2	88.5	85.7	12.1%
Belarus	..	..	..	..	69.2	74.4	69.5	69.5	72.7	60.0	70.1	1.2%
Bosnia and Herzegovina	..	..	..	..	117.1	63.2	145.1	145.0	152.0	161.5	172.7	47.4%
Bulgaria	103.7	103.6	103.6	104.8	101.9	105.6	105.6	107.1	116.3	111.1	103.4	1.4%
Croatia	..	..	..	..	74.8	67.5	67.1	68.4	63.6	61.9	60.9	-18.6%
Cyprus ²	95.2	102.0	100.6	102.1	105.9	100.1	104.5	106.0	101.1	102.7	97.0	-8.4%
FYR of Macedonia	..	..	..	..	136.1	134.1	129.8	124.8	109.2	112.4	109.5	-19.5%
Georgia	..	..	..	..	89.1	86.5	48.2	43.8	44.8	50.0	44.9	-49.6%
Gibraltar	63.1	58.7	87.4	77.8	74.7	74.5	73.9	74.7	77.1	76.3	76.4	2.3%
Kazakhstan	..	..	..	..	95.0	101.0	123.8	122.5	136.2	134.0	136.3	43.5%
Kosovo ²	..	..	..	..	..	..	159.2	161.8	175.0	154.4	156.0	..
Kyrgyzstan	..	..	..	..	78.7	59.8	62.3	63.5	63.5	64.7	61.8	-21.5%
Latvia	..	..	..	..	69.9	55.1	49.5	44.6	47.4	41.7	43.1	-38.3%
Lithuania	..	..	..	..	73.9	62.9	55.5	54.9	53.9	45.4	45.4	-38.6%
Malta	123.3	127.6	145.2	210.9	207.4	150.5	160.1	210.2	151.3	153.8	136.3	-34.3%
Republic of Moldova	..	..	..	..	109.1	91.1	97.6	77.7	78.0	77.2	70.6	-35.3%
Montenegro ²	..	..	..	..	..	..	..	58.1	74.8	76.0	75.3	..
Romania	84.0	83.1	73.2	85.9	93.4	104.8	86.6	85.4	76.5	77.6	71.9	-23.0%
Russian Federation	..	..	..	..	82.7	80.7	84.3	85.9	81.8	82.6	84.8	2.6%
Serbia ²	..	..	..	..	122.1	172.2	143.8	121.6	115.8	123.2	124.2	1.7%
Tajikistan	..	..	..	..	56.2	30.3	28.9	28.8	28.1	32.5	35.7	-36.5%
Turkmenistan	..	..	..	..	85.4	89.2	94.9	95.2	93.4	91.1	89.5	4.8%
Ukraine	..	..	..	..	109.5	101.9	97.4	84.8	86.0	90.2	90.3	-17.5%
Uzbekistan	..	..	..	..	78.5	68.8	72.5	74.9	74.7	72.2	75.8	-3.5%
Former Soviet Union ³	92.4	91.8	91.3	88.8	..	..	..	..	..	..	..	..
Former Yugoslavia ³	88.3	92.5	98.4	119.1	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia ¹	92.1	91.6	90.5	89.7	87.7	85.5	86.9	86.6	85.1	85.4	87.3	-0.5%
Algeria	96.5	98.7	112.6	111.1	96.0	99.0	95.4	89.8	86.3	86.7	85.3	-11.2%
Angola	13.3	15.2	18.6	17.6	20.7	18.9	19.3	20.9	34.0	34.1	35.9	73.7%
Benin	7.5	10.1	8.0	8.4	4.3	3.3	20.4	28.3	33.9	34.3	34.8	716.6%
Botswana	..	..	..	48.4	75.3	70.6	68.4	68.5	58.1	52.7	62.3	-17.3%
Cameroon	6.8	8.4	11.5	13.4	13.3	11.2	11.2	10.6	20.7	20.7	22.2	67.1%
Congo	32.2	31.6	32.4	30.4	23.9	18.9	23.7	26.0	34.5	29.2	29.6	23.8%
Côte d'Ivoire	33.9	35.7	32.7	28.6	22.2	23.7	34.9	27.5	26.0	27.2	28.8	29.5%
Dem. Rep. of Congo	9.7	8.9	9.3	8.3	6.7	2.3	1.5	1.9	2.3	2.9	3.1	-54.1%
Egypt	70.2	72.7	73.2	79.9	80.1	77.2	75.7	82.1	79.5	80.9	81.3	1.4%
Eritrea	..	..	..	..	..	25.1	27.6	29.0	23.4	24.8	24.4	..
Ethiopia	2.9	2.3	2.4	2.1	2.8	2.5	3.0	3.6	4.2	4.7	5.3	88.3%
Gabon	18.3	23.7	30.6	32.9	21.5	25.3	25.8	27.3	31.3	32.8	33.9	57.7%
Ghana	17.7	17.9	15.3	14.4	14.0	14.8	22.0	32.0	46.2	47.7	49.0	249.4%
Kenya	20.9	19.5	20.1	17.6	17.8	16.3	19.7	16.8	20.6	18.5	20.0	12.1%
Libya	114.3	107.0	105.3	102.3	112.3	100.5	94.1	98.7	83.6	85.1	83.3	-25.9%
Mauritius	18.1	27.1	35.4	38.4	52.5	61.8	89.5	98.5	117.7	116.2	115.3	119.6%
Morocco	58.0	70.0	73.6	81.5	83.1	88.3	82.5	90.0	84.0	85.8	82.8	-0.4%
Mozambique	12.9	10.8	10.6	7.2	5.4	5.4	4.8	4.6	6.3	6.8	7.4	35.9%
Namibia	..	..	..	..	..	47.8	47.0	48.5	51.7	51.5	51.4	..
Niger	..	..	..	..	..	..	11.3	10.8	15.7	21.7	17.5	..
Nigeria	4.3	7.0	13.2	14.5	11.3	11.6	13.3	14.4	12.5	13.0	12.4	10.1%
Senegal	35.6	43.9	46.4	47.8	47.1	49.3	57.2	64.1	51.0	50.0	55.9	18.8%
South Africa	113.0	121.7	113.8	116.5	114.1	118.7	119.5	138.3	141.3	137.0	135.1	18.4%
South Sudan ²	..	..	..	..	..	..	..	..	..	63.3	67.0	..
Sudan ²	20.2	18.8	18.8	18.0	20.8	16.0	17.5	25.3	30.7	32.6	32.3	55.2%
United Rep. of Tanzania	5.0	4.9	5.0	4.5	4.6	6.1	5.2	8.2	8.3	10.5	11.4	150.9%
Togo	17.3	14.8	14.8	11.0	16.2	14.2	17.7	15.8	24.4	19.5	19.5	20.4%
Tunisia	69.3	70.7	80.0	78.2	79.9	76.3	76.4	69.4	74.9	76.4	76.7	-4.0%
Zambia	27.2	28.9	21.1	16.2	14.1	10.3	8.0	8.7	6.2	8.7	10.7	-24.1%
Zimbabwe	35.0	31.1	31.2	34.6	48.8	44.9	36.7	30.3	25.2	30.8	31.5	-35.5%
Other Africa	9.0	9.4	11.5	8.8	7.6	7.8	8.9	9.6	11.0	12.3	12.3	61.0%
Africa	37.3	42.2	43.5	44.7	43.3	42.4	42.5	47.0	46.9	46.4	46.3	7.0%

1. Includes Estonia and Slovenia prior to 1990.

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

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

CO₂ emissions / TFCtonnes CO₂ / terajoule

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Bangladesh	12.8	16.5	20.2	21.3	25.1	29.3	33.0	41.8	52.5	56.0	57.7	130.1%
Brunei Darussalam	97.6	328.0	297.0	250.2	221.7	202.0	183.8	183.2	124.9	87.9	149.2	-32.7%
Cambodia	..	..	..	..	..	13.8	15.9	22.0	24.2	24.0	23.7	..
DPR of Korea	101.6	103.6	102.7	103.3	102.6	98.3	99.3	98.7	96.7	92.7	92.7	-9.6%
India	31.7	34.3	36.3	44.2	52.4	60.8	67.6	71.8	80.3	83.7	84.5	61.2%
Indonesia	18.8	24.0	32.5	34.9	40.0	49.0	50.9	57.1	61.1	62.3	62.6	56.4%
Malaysia	66.1	71.3	78.2	82.1	84.0	83.3	91.2	96.7	105.1	95.6	91.5	9.0%
Mongolia	..	..	..	117.1	109.8	136.3	146.3	131.2	126.4	124.3	127.6	16.2%
Myanmar	15.1	12.5	14.5	14.5	9.9	15.2	19.3	19.4	14.6	19.0	20.9	110.1%
Nepal	1.2	1.9	2.7	2.6	3.7	6.3	9.2	8.1	9.7	11.9	12.1	225.2%
Pakistan	24.2	25.8	25.8	30.2	36.9	42.6	44.4	44.4	44.7	44.6	44.6	20.7%
Philippines	43.4	45.9	48.1	42.9	46.2	59.3	68.0	74.9	77.7	78.9	82.9	79.3%
Singapore	132.1	135.4	142.0	108.9	138.1	148.0	121.0	67.2	68.6	67.0	56.4	-59.1%
Sri Lanka	18.2	16.0	20.2	17.3	16.6	22.9	34.1	39.7	33.7	39.4	36.5	120.4%
Chinese Taipei	97.4	93.7	92.1	79.7	90.2	94.0	105.1	100.2	90.2	90.2	87.8	-2.7%
Thailand	40.5	39.6	53.1	57.1	66.9	75.3	71.9	68.4	62.9	62.2	61.7	-7.8%
Viet Nam	31.2	31.0	27.2	29.2	25.9	32.8	42.1	53.8	62.4	61.5	60.9	135.7%
Other Asia	44.9	48.8	55.1	42.5	40.8	37.0	38.2	47.3	49.9	55.8	56.4	38.2%
Asia (excl. China)	36.4	39.1	43.7	47.8	53.6	60.1	64.8	67.7	71.9	73.1	73.4	36.8%
People's Rep. of China	58.2	62.6	69.4	71.3	78.5	90.6	95.5	110.0	111.1	109.9	110.3	40.5%
Hong Kong, China	104.1	108.9	120.0	144.5	152.3	126.9	102.7	127.6	122.4	125.2	127.2	-16.5%
China	58.4	62.9	69.7	71.8	79.1	90.9	95.5	110.2	111.1	110.0	110.4	39.6%
Argentina	84.8	81.5	77.5	72.0	79.0	67.8	70.5	70.2	73.1	74.5	72.0	-8.8%
Bolivia	60.9	61.9	51.2	49.0	57.0	60.4	59.3	66.1	68.1	69.1	67.0	17.5%
Brazil	33.4	38.9	41.8	36.8	39.5	42.1	45.5	43.2	42.0	44.9	47.3	19.7%
Colombia	54.7	54.4	57.8	59.4	57.8	57.7	61.3	59.0	64.1	62.8	66.1	14.4%
Costa Rica	44.3	48.0	45.1	39.2	42.4	54.5	47.4	43.7	45.3	47.2	48.5	14.4%
Cuba	54.2	58.6	63.3	63.3	57.1	67.7	66.1	85.5	110.3	109.0	107.2	87.9%
Curaçao ¹	163.0	155.9	189.8	122.4	101.3	81.2	154.3	154.5	106.1	161.9	155.8	53.7%
Dominican Republic	46.5	60.5	64.5	70.4	74.6	84.3	86.3	86.2	87.5	85.3	88.7	18.9%
Ecuador	39.3	52.5	62.5	56.4	57.0	67.8	64.4	71.7	79.6	80.1	81.3	42.6%
El Salvador	18.9	23.7	18.5	17.9	24.8	41.8	41.2	45.2	55.2	55.1	54.6	119.8%
Guatemala	22.5	23.4	30.5	22.5	19.0	29.2	34.3	40.1	29.5	29.5	31.0	63.6%
Haiti	7.2	6.9	8.7	12.4	18.1	15.9	19.3	17.7	17.2	16.8	17.1	-5.2%
Honduras	20.4	21.4	22.7	20.5	22.3	33.4	39.4	47.8	44.0	44.3	45.1	102.6%
Jamaica	92.3	80.9	87.1	90.5	88.4	121.5	107.3	87.9	88.7	91.3	88.6	0.1%
Nicaragua	33.1	34.3	32.3	28.5	30.0	37.3	44.4	48.5	50.1	48.1	45.1	50.6%
Panama	74.5	78.1	61.7	53.3	49.6	61.8	58.6	65.9	70.3	70.1	66.1	33.3%
Paraguay	10.6	12.1	16.3	15.7	15.7	22.3	21.5	22.6	25.7	26.9	26.5	68.4%
Peru	46.6	49.3	53.2	47.7	53.4	58.4	59.4	62.3	65.0	64.7	65.0	21.7%
Trinidad and Tobago	145.3	94.9	86.6	54.0	50.8	48.0	33.4	36.9	38.1	39.3	40.6	-20.0%
Uruguay	63.5	67.0	60.2	41.0	44.5	46.5	48.4	51.6	39.2	51.7	42.7	-4.1%
Venezuela	115.5	93.7	92.1	86.1	86.3	79.8	84.3	80.3	83.5	82.7	81.9	-5.1%
Other Non-OECD Americas	64.5	69.2	66.9	62.9	62.2	63.9	63.8	65.9	70.9	74.4	75.4	21.1%
Non-OECD Americas	54.3	54.5	56.2	51.2	53.1	54.1	56.2	55.3	55.7	57.2	57.9	9.0%
Bahrain	235.8	112.7	136.0	151.0	121.8	123.2	123.4	115.0	119.8	122.1	114.9	-5.6%
Islamic Republic of Iran	74.7	74.8	76.6	78.3	74.7	74.9	78.7	78.7	75.9	75.6	75.9	1.6%
Iraq	95.6	86.4	80.6	81.2	82.3	131.4	88.8	92.2	129.1	123.6	129.2	57.0%
Jordan	84.2	85.6	88.5	97.5	95.4	99.8	97.4	93.5	97.8	103.8	106.2	11.3%
Kuwait	98.4	103.3	100.9	108.1	168.0	109.7	135.7	127.0	129.8	126.6	129.6	-22.8%
Lebanon	77.2	83.7	107.3	96.9	115.7	84.8	101.0	97.7	112.5	114.5	115.7	-0.1%
Oman	75.0	84.8	97.4	97.3	131.7	138.7	159.8	122.2	78.7	76.1	76.4	-42.0%
Qatar	117.1	111.6	87.0	70.6	78.7	93.9	87.3	93.7	103.1	107.0	107.9	37.1%
Saudi Arabia	145.5	136.2	112.3	105.1	91.4	89.6	88.2	85.3	83.0	83.0	84.8	-7.2%
Syrian Arab Republic	77.9	71.7	76.4	78.3	85.5	89.7	86.4	92.2	98.7	99.1	93.2	9.1%
United Arab Emirates	61.0	72.9	82.5	79.9	76.5	77.2	80.3	97.3	81.7	80.2	82.0	7.1%
Yemen	89.3	81.6	83.6	87.2	83.0	88.4	96.1	90.7	100.0	102.9	96.1	15.8%
Middle East	88.2	86.1	91.0	88.4	85.3	88.1	87.0	87.6	86.0	85.8	87.0	2.0%

1. Prior to 2012, Curaçao includes the entire territory of the former Netherlands Antilles.

CO₂ emissions / GDP using exchange rateskilogrammes CO₂ / US dollar using 2005 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
World ¹	0.85	0.81	0.77	0.70	0.67	0.62	0.57	0.58	0.57	0.57	0.57	-14.4%
<i>Annex I Parties</i>	..	..	..	..	0.53	0.47	0.42	0.38	0.35	0.33	0.33	-38.9%
<i>Annex II Parties</i>	0.66	0.60	0.54	0.45	0.41	0.38	0.35	0.33	0.30	0.28	0.28	-32.2%
<i>North America</i>	0.94	0.87	0.77	0.64	0.58	0.54	0.49	0.44	0.40	0.36	0.36	-38.1%
<i>Europe</i>	0.49	0.44	0.41	0.35	0.30	0.27	0.24	0.23	0.20	0.19	0.19	-38.1%
<i>Asia Oceania</i>	0.46	0.45	0.38	0.32	0.30	0.30	0.30	0.29	0.27	0.28	0.28	-7.2%
<i>Annex I EIT</i>	..	..	..	..	2.38	2.31	1.86	1.46	1.25	1.18	1.15	-52.0%
<i>Non-Annex I Parties</i>	..	..	..	..	1.18	1.16	1.06	1.12	1.05	1.07	1.06	-9.5%
<i>Annex I Kyoto Parties</i>	..	..	..	..	0.51	0.42	0.37	0.35	0.31	0.31	0.30	-40.7%
Non-OECD Total ²	1.54	1.55	1.52	1.54	1.64	1.51	1.34	1.33	1.20	1.21	1.20	-26.8%
OECD Total ³	0.67	0.62	0.57	0.48	0.43	0.41	0.37	0.35	0.32	0.30	0.30	-31.3%
Canada	0.82	0.76	0.71	0.58	0.54	0.53	0.50	0.46	0.42	0.40	0.40	-25.3%
Chile	0.71	0.68	0.60	0.52	0.57	0.47	0.49	0.44	0.46	0.47	0.48	-16.1%
Mexico	0.36	0.40	0.44	0.47	0.46	0.47	0.44	0.44	0.43	0.42	0.43	-6.6%
United States	0.96	0.88	0.77	0.65	0.58	0.54	0.49	0.44	0.39	0.36	0.35	-39.2%
OECD Americas	0.91	0.84	0.75	0.63	0.57	0.54	0.49	0.44	0.40	0.36	0.36	-36.4%
Australia	0.55	0.62	0.61	0.56	0.57	0.54	0.52	0.49	0.44	0.42	0.41	-28.4%
Israel	0.42	0.39	0.38	0.42	0.46	0.46	0.43	0.42	0.39	0.39	0.35	-24.7%
Japan	0.45	0.43	0.36	0.29	0.27	0.27	0.27	0.26	0.24	0.26	0.26	-5.3%
Korea	0.82	0.82	0.89	0.70	0.64	0.65	0.61	0.51	0.50	0.49	0.48	-25.0%
New Zealand	0.28	0.29	0.28	0.28	0.31	0.29	0.31	0.29	0.25	0.25	0.24	-23.7%
OECD Asia Oceania	0.47	0.46	0.41	0.34	0.33	0.34	0.34	0.33	0.31	0.32	0.32	-4.6%
Austria	0.37	0.33	0.30	0.27	0.25	0.24	0.21	0.24	0.21	0.19	0.19	-26.0%
Belgium	0.68	0.58	0.54	0.41	0.37	0.36	0.32	0.28	0.25	0.21	0.21	-43.3%
Czech Republic	2.08	1.84	1.79	1.78	1.41	1.20	1.08	0.87	0.73	0.68	0.66	-53.4%
Denmark	0.43	0.39	0.41	0.34	0.27	0.27	0.21	0.18	0.18	0.14	0.15	-45.4%
Estonia	..	..	..	..	3.52	2.22	1.46	1.20	1.35	1.05	1.19	-66.3%
Finland	0.54	0.49	0.52	0.40	0.37	0.39	0.30	0.27	0.29	0.23	0.23	-37.9%
France	0.44	0.39	0.35	0.25	0.21	0.20	0.18	0.17	0.15	0.13	0.13	-35.9%
Germany	0.69	0.63	0.58	0.52	0.41	0.34	0.29	0.28	0.25	0.24	0.24	-41.6%
Greece	0.24	0.28	0.30	0.36	0.44	0.45	0.43	0.38	0.34	0.37	0.34	-20.8%
Hungary	1.17	1.06	1.05	0.93	0.74	0.72	0.59	0.49	0.43	0.38	0.35	-53.0%
Iceland	0.28	0.27	0.22	0.18	0.18	0.18	0.16	0.13	0.11	0.10	0.11	-41.0%
Ireland	0.57	0.45	0.44	0.40	0.36	0.31	0.25	0.21	0.19	0.16	0.16	-56.1%
Italy	0.35	0.33	0.30	0.27	0.26	0.25	0.24	0.25	0.21	0.21	0.19	-25.6%
Luxembourg	1.72	1.19	1.04	0.76	0.55	0.35	0.25	0.31	0.26	0.24	0.23	-59.0%
Netherlands	0.45	0.41	0.39	0.35	0.31	0.31	0.25	0.24	0.23	0.22	0.22	-30.6%
Norway	0.23	0.20	0.18	0.15	0.14	0.14	0.12	0.11	0.12	0.11	0.10	-26.6%
Poland	2.10	1.93	2.28	2.29	1.90	1.65	1.11	0.97	0.81	0.73	0.70	-62.9%
Portugal	0.21	0.22	0.23	0.22	0.27	0.31	0.31	0.31	0.23	0.24	0.24	-10.6%
Slovak Republic	1.62	1.58	1.83	1.65	1.55	1.28	0.96	0.76	0.56	0.49	0.50	-68.0%
Slovenia	..	..	..	..	0.53	0.57	0.46	0.43	0.39	0.38	0.37	-29.8%
Spain	0.29	0.31	0.33	0.29	0.27	0.28	0.28	0.29	0.21	0.22	0.20	-26.2%
Sweden	0.44	0.38	0.33	0.24	0.19	0.20	0.15	0.13	0.11	0.09	0.09	-54.4%
Switzerland	0.16	0.15	0.15	0.14	0.12	0.12	0.11	0.11	0.09	0.09	0.09	-28.3%
Turkey	0.36	0.41	0.44	0.46	0.47	0.48	0.52	0.45	0.47	0.48	0.43	-7.9%
United Kingdom	0.60	0.52	0.46	0.39	0.33	0.29	0.25	0.22	0.19	0.18	0.17	-47.6%
OECD Europe ³	0.55	0.50	0.47	0.41	0.35	0.32	0.28	0.26	0.24	0.22	0.22	-38.3%
<i>European Union - 28</i>	..	..	..	..	0.38	0.34	0.29	0.27	0.24	0.23	0.22	-42.6%
G7	0.71	0.65	0.57	0.48	0.43	0.40	0.37	0.34	0.31	0.29	0.29	-32.4%
G8	..	..	..	..	0.51	0.46	0.42	0.38	0.35	0.33	0.33	-36.0%
G20	..	..	..	..	0.60	0.57	0.52	0.53	0.52	0.53	0.53	-12.5%

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

2. Includes Estonia and Slovenia prior to 1990.

3. Excludes Estonia and Slovenia prior to 1990.

CO₂ emissions / GDP using exchange rateskilogrammes CO₂ / US dollar using 2005 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Non-OECD Total ¹	1.54	1.55	1.52	1.54	1.64	1.51	1.34	1.33	1.20	1.21	1.20	-26.8%
Albania	1.29	1.16	1.38	1.27	1.01	0.37	0.47	0.46	0.36	0.31	0.32	-68.2%
Armenia	..	..	..	..	4.88	1.57	1.24	0.84	0.68	0.82	0.76	-84.4%
Azerbaijan	..	..	..	..	4.48	6.47	3.88	2.19	0.83	1.00	0.96	-78.5%
Belarus	..	..	..	..	4.21	3.67	2.48	1.82	1.39	1.25	1.25	-70.2%
Bosnia and Herzegovina	..	..	..	..	5.38	1.30	1.60	1.45	1.61	1.70	1.65	-69.3%
Bulgaria	5.98	5.04	4.33	3.56	2.99	2.42	1.86	1.59	1.32	1.29	1.13	-62.4%
Croatia	..	..	..	..	0.47	0.48	0.46	0.44	0.40	0.36	0.36	-24.1%
Cyprus ²	0.69	0.55	0.49	0.40	0.40	0.42	0.43	0.41	0.38	0.35	0.32	-21.7%
FYR of Macedonia	..	..	..	..	1.42	1.74	1.54	1.49	1.17	1.21	1.10	-22.3%
Georgia	..	..	..	..	2.79	2.40	1.03	0.63	0.61	0.70	0.68	-75.5%
Gibraltar	0.15	0.12	0.17	0.15	0.20	0.36	0.37	0.39	0.45	0.43	0.45	123.0%
Kazakhstan	..	..	..	..	4.72	5.53	3.21	2.75	2.86	2.68	2.65	-43.9%
Kosovo ²	..	..	..	..	..	..	1.99	1.78	1.87	1.65	1.63	..
Kyrgyzstan	..	..	..	..	7.42	2.87	2.18	1.99	1.98	2.96	2.48	-66.6%
Latvia	..	..	..	..	1.30	1.08	0.63	0.47	0.52	0.41	0.39	-70.2%
Lithuania	..	..	..	..	1.29	0.93	0.57	0.47	0.44	0.38	0.34	-73.4%
Malta	0.70	0.48	0.43	0.46	0.68	0.53	0.37	0.46	0.38	0.39	0.33	-51.6%
Republic of Moldova	..	..	..	..	5.12	4.97	3.08	2.58	2.24	2.06	1.66	-67.6%
Montenegro ²	..	..	..	..	..	..	..	0.88	0.90	0.83	0.78	..
Romania	3.03	2.46	2.15	1.80	1.90	1.48	1.16	0.93	0.66	0.67	0.57	-70.1%
Russian Federation	..	..	..	..	2.57	2.96	2.60	1.94	1.68	1.58	1.55	-39.5%
Serbia ²	..	..	..	..	1.77	2.56	2.21	1.96	1.65	1.60	1.60	-9.8%
Tajikistan	..	..	..	..	2.89	1.70	1.50	1.02	0.72	0.75	0.84	-71.0%
Turkmenistan	..	..	..	..	5.55	6.54	5.80	5.97	4.31	3.82	3.54	-36.2%
Ukraine	..	..	..	..	5.02	6.02	4.96	3.41	2.94	2.87	2.72	-45.8%
Uzbekistan	..	..	..	..	10.24	10.39	10.36	7.49	4.52	4.27	3.54	-65.5%
Former Soviet Union ³	3.00	3.06	2.97	2.80	..	..	..	..	..	..	..	..
Former Yugoslavia ³	0.78	0.75	0.64	0.89	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia ¹	2.79	2.81	2.67	2.53	2.86	3.04	2.51	1.92	1.65	1.58	1.53	-46.5%
Algeria	0.34	0.36	0.55	0.65	0.77	0.82	0.78	0.75	0.82	0.89	0.90	16.8%
Angola	0.13	0.16	0.21	0.21	0.25	0.31	0.27	0.22	0.30	0.32	0.31	28.3%
Benin	0.24	0.34	0.24	0.23	0.11	0.08	0.40	0.61	0.87	0.87	0.87	674.9%
Botswana	..	..	..	0.51	0.54	0.49	0.49	0.43	0.40	0.33	0.39	-29.1%
Cameroon	0.15	0.16	0.19	0.17	0.22	0.22	0.20	0.18	0.26	0.26	0.27	22.4%
Congo	0.37	0.28	0.26	0.17	0.14	0.10	0.09	0.13	0.23	0.27	0.27	92.2%
Côte d'Ivoire	0.29	0.29	0.27	0.24	0.20	0.22	0.37	0.34	0.33	0.39	0.40	99.1%
Dem. Rep. of Congo	0.16	0.15	0.20	0.18	0.17	0.09	0.09	0.11	0.12	0.14	0.14	-20.0%
Egypt	1.26	1.40	1.40	1.60	1.57	1.39	1.32	1.61	1.46	1.50	1.43	-8.8%
Eritrea	..	..	..	..	..	0.93	0.64	0.53	0.45	0.44	0.44	..
Ethiopia	0.24	0.21	0.24	0.26	0.31	0.32	0.35	0.36	0.29	0.29	0.31	-2.3%
Gabon	0.16	0.12	0.23	0.26	0.13	0.17	0.18	0.20	0.24	0.24	0.24	80.9%
Ghana	0.42	0.54	0.49	0.48	0.46	0.47	0.59	0.60	0.71	0.69	0.69	48.7%
Kenya	0.65	0.54	0.50	0.46	0.42	0.41	0.50	0.40	0.47	0.39	0.42	-1.6%
Libya	0.09	0.25	0.32	0.55	0.74	0.97	1.03	0.98	0.87	1.00	1.14	54.6%
Mauritius	0.25	0.30	0.32	0.27	0.36	0.38	0.45	0.47	0.47	0.45	0.44	22.1%
Morocco	0.46	0.56	0.61	0.59	0.56	0.68	0.63	0.66	0.61	0.63	0.59	6.4%
Mozambique	1.02	0.97	0.94	0.77	0.43	0.38	0.31	0.23	0.26	0.25	0.26	-38.3%
Namibia	..	..	..	..	..	0.37	0.33	0.34	0.34	0.32	0.33	..
Niger	..	..	..	..	..	..	0.23	0.22	0.31	0.37	0.36	..
Nigeria	0.13	0.21	0.41	0.59	0.50	0.57	0.65	0.50	0.35	0.36	0.33	-33.1%
Senegal	0.36	0.43	0.51	0.47	0.42	0.44	0.51	0.53	0.53	0.52	0.53	28.0%
South Africa	1.37	1.54	1.36	1.36	1.37	1.40	1.31	1.44	1.36	1.29	1.30	-5.0%
South Sudan ²	..	..	..	..	..	..	..	..	..	0.20	0.13	..
Sudan ²	0.50	0.41	0.41	0.43	0.47	0.30	0.28	0.37	0.42	0.44	0.46	-0.8%
United Rep. of Tanzania	0.36	0.30	0.28	0.26	0.22	0.31	0.26	0.36	0.32	0.39	0.42	85.8%
Togo	0.36	0.28	0.25	0.21	0.36	0.36	0.47	0.46	0.84	0.59	0.58	61.7%
Tunisia	0.59	0.56	0.68	0.67	0.74	0.70	0.67	0.60	0.57	0.56	0.55	-25.7%
Zambia	0.82	0.93	0.69	0.56	0.49	0.39	0.27	0.25	0.13	0.18	0.22	-54.1%
Zimbabwe	1.96	1.67	1.73	1.71	2.29	2.00	1.57	1.79	1.74	1.96	2.00	-12.5%
Other Africa	0.28	0.30	0.36	0.29	0.30	0.34	0.32	0.27	0.27	0.29	0.29	-0.6%
Africa	0.65	0.75	0.75	0.82	0.84	0.87	0.84	0.85	0.78	0.78	0.76	-9.4%

1. Includes Estonia and Slovenia prior to 1990.

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

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

CO₂ emissions / GDP using exchange rateskilogrammes CO₂ / US dollar using 2005 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Bangladesh	0.16	0.27	0.33	0.32	0.39	0.46	0.45	0.53	0.62	0.62	0.61	55.3%
Brunei Darussalam	0.10	0.28	0.32	0.43	0.47	0.56	0.51	0.51	0.70	0.68	0.68	43.4%
Cambodia	..	..	..	..	..	0.52	0.49	0.42	0.53	0.51	0.48	..
DPR of Korea	9.05	6.55	5.23	3.91	2.96	2.47	2.55	2.63	2.47	1.72	1.72	-42.1%
India	1.18	1.25	1.29	1.44	1.52	1.58	1.48	1.30	1.28	1.28	1.25	-17.7%
Indonesia	0.62	0.68	0.84	0.79	0.89	0.93	1.14	1.12	1.01	0.97	0.94	5.2%
Malaysia	0.80	0.76	0.74	0.80	0.86	0.88	1.00	1.08	1.05	0.96	1.00	16.1%
Mongolia	..	..	..	7.65	6.96	6.36	4.87	4.36	4.10	3.76	3.66	-47.4%
Myanmar	2.36	1.85	1.76	1.57	1.19	1.54	1.42	0.88	0.45	0.59	0.64	-46.6%
Nepal	0.09	0.13	0.20	0.16	0.21	0.32	0.45	0.38	0.41	0.45	0.45	113.5%
Pakistan	0.79	0.85	0.77	0.83	0.96	1.08	1.12	1.07	1.01	0.97	0.94	-2.3%
Philippines	0.74	0.74	0.63	0.58	0.61	0.83	0.83	0.69	0.59	0.55	0.58	-6.0%
Singapore	0.54	0.53	0.53	0.50	0.57	0.49	0.42	0.30	0.25	0.24	0.23	-59.3%
Sri Lanka	0.52	0.43	0.45	0.34	0.30	0.35	0.52	0.55	0.37	0.42	0.33	10.0%
Chinese Taipei	0.97	0.88	0.89	0.63	0.67	0.65	0.70	0.70	0.57	0.52	0.52	-22.3%
Thailand	0.72	0.74	0.81	0.77	0.91	1.04	1.11	1.14	1.06	1.06	1.07	18.1%
Viet Nam	1.52	1.57	1.30	1.11	0.87	0.93	1.07	1.37	1.61	1.45	1.41	61.3%
Other Asia	0.66	0.71	0.79	0.45	0.39	0.31	0.35	0.36	0.37	0.50	0.50	28.6%
Asia (excl. China)	1.07	1.07	1.07	1.07	1.08	1.07	1.09	1.04	1.00	0.97	0.96	-10.7%
People's Rep. of China	6.56	6.90	6.64	4.72	4.16	3.20	2.30	2.37	1.85	1.89	1.85	-55.6%
Hong Kong, China	0.39	0.36	0.28	0.32	0.33	0.28	0.27	0.23	0.19	0.19	0.19	-42.5%
China	5.59	5.84	5.40	4.01	3.54	2.85	2.11	2.21	1.76	1.80	1.77	-50.1%
Argentina	0.69	0.65	0.63	0.66	0.77	0.66	0.69	0.67	0.59	0.58	0.55	-28.3%
Bolivia	0.54	0.64	0.75	0.85	0.91	1.00	0.87	0.99	1.18	1.30	1.23	34.8%
Brazil	0.34	0.35	0.33	0.29	0.31	0.33	0.38	0.35	0.34	0.37	0.39	25.9%
Colombia	0.65	0.55	0.52	0.53	0.49	0.47	0.44	0.37	0.33	0.32	0.32	-33.7%
Costa Rica	0.27	0.29	0.28	0.25	0.27	0.35	0.28	0.27	0.26	0.25	0.25	-5.4%
Cuba	1.13	1.10	1.18	0.83	0.88	0.84	0.82	0.59	0.54	0.44	0.47	-46.4%
Curaçao ¹	13.74	8.53	6.31	3.09	1.55	1.37	2.40	2.41	1.65	2.49	2.41	55.4%
Dominican Republic	0.50	0.54	0.50	0.45	0.47	0.55	0.57	0.51	0.41	0.41	0.39	-16.9%
Ecuador	0.31	0.36	0.50	0.50	0.50	0.54	0.55	0.56	0.68	0.66	0.68	36.5%
El Salvador	0.16	0.19	0.16	0.19	0.22	0.35	0.34	0.37	0.32	0.32	0.30	37.1%
Guatemala	0.26	0.28	0.29	0.23	0.20	0.30	0.37	0.39	0.32	0.30	0.34	64.9%
Haiti	0.12	0.12	0.14	0.18	0.22	0.24	0.32	0.48	0.49	0.44	0.44	104.0%
Honduras	0.42	0.43	0.39	0.35	0.39	0.54	0.58	0.74	0.64	0.67	0.66	69.5%
Jamaica	0.72	0.92	0.95	0.60	0.77	0.81	0.96	0.93	0.63	0.64	0.67	-12.6%
Nicaragua	0.34	0.34	0.41	0.39	0.47	0.59	0.65	0.64	0.61	0.56	0.51	6.9%
Panama	0.51	0.55	0.44	0.34	0.34	0.41	0.39	0.44	0.39	0.35	0.31	-8.1%
Paraguay	0.30	0.28	0.32	0.30	0.31	0.45	0.41	0.40	0.42	0.44	0.38	22.1%
Peru	0.48	0.46	0.44	0.39	0.46	0.44	0.43	0.38	0.39	0.37	0.36	-21.0%
Trinidad and Tobago	0.88	0.66	0.63	0.74	0.98	0.95	0.92	1.09	1.18	1.16	1.19	20.9%
Uruguay	0.56	0.54	0.43	0.30	0.29	0.29	0.30	0.30	0.26	0.32	0.27	-8.6%
Venezuela	0.61	0.66	0.87	0.93	0.90	0.86	0.91	0.94	0.98	0.88	0.80	-10.9%
Other Non-OECD Americas	0.60	0.77	0.54	0.47	0.48	0.49	0.46	0.44	0.49	0.52	0.52	9.0%
Non-OECD Americas	0.53	0.50	0.49	0.45	0.47	0.47	0.50	0.48	0.46	0.46	0.46	-3.0%
Bahrain	1.41	1.37	1.17	1.57	1.47	1.34	1.28	1.29	1.23	1.17	1.21	-17.7%
Islamic Republic of Iran	0.58	0.71	1.07	1.45	1.69	2.04	2.13	2.18	2.05	2.01	2.17	28.6%
Iraq	0.12	0.14	0.15	0.32	0.89	4.29	1.45	1.63	1.56	1.56	1.64	84.3%
Jordan	0.60	0.97	0.94	1.26	1.66	1.55	1.56	1.44	1.11	1.27	1.24	-25.5%
Kuwait	0.26	0.33	0.55	0.98	0.76	0.65	0.85	0.80	0.90	0.84	0.86	12.8%
Lebanon	0.33	0.42	0.58	0.41	0.61	0.79	0.80	0.68	0.59	0.66	0.64	5.4%
Oman	0.05	0.12	0.28	0.35	0.54	0.58	0.69	0.79	1.16	1.27	1.25	133.0%
Qatar	0.14	0.31	0.38	0.68	0.81	0.99	0.71	0.75	0.56	0.58	0.56	-31.0%
Saudi Arabia	0.17	0.15	0.47	0.70	0.76	0.84	0.91	0.91	0.96	0.93	0.91	18.8%
Syrian Arab Republic	1.14	1.03	1.11	1.52	1.97	1.54	1.63	1.85	1.53	0.98	0.81	-58.8%
United Arab Emirates	0.16	0.12	0.23	0.46	0.59	0.66	0.61	0.60	0.75	0.76	0.71	21.4%
Yemen	0.64	0.66	0.75	0.73	0.80	0.89	0.98	1.12	1.12	1.00	1.32	64.8%
Middle East	0.28	0.31	0.46	0.76	0.96	1.17	1.13	1.15	1.15	1.11	1.11	15.7%

1. Prior to 2012, Curaçao includes the entire territory of the former Netherlands Antilles.

CO₂ emissions / GDP using purchasing power paritieskilogrammes CO₂ / US dollar using 2005 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
World ¹	0.68	0.63	0.59	0.54	0.52	0.48	0.44	0.42	0.38	0.38	0.37	-27.8%
<i>Annex I Parties</i>	..	..	..	..	0.53	0.47	0.42	0.38	0.35	0.33	0.32	-38.5%
<i>Annex II Parties</i>	0.71	0.65	0.58	0.49	0.44	0.41	0.38	0.35	0.32	0.30	0.29	-32.6%
<i>North America</i>	0.94	0.87	0.77	0.64	0.58	0.54	0.49	0.44	0.40	0.36	0.36	-38.1%
<i>Europe</i>	0.55	0.49	0.45	0.39	0.33	0.31	0.27	0.26	0.23	0.21	0.21	-37.9%
<i>Asia Oceania</i>	0.53	0.52	0.45	0.37	0.35	0.35	0.35	0.34	0.32	0.33	0.33	-7.8%
<i>Annex I EIT</i>	..	..	..	..	1.10	1.12	0.91	0.71	0.60	0.57	0.55	-50.0%
<i>Non-Annex I Parties</i>	..	..	..	..	0.45	0.45	0.41	0.43	0.39	0.40	0.39	-13.5%
<i>Annex I Kyoto Parties</i>	..	..	..	..	0.50	0.44	0.38	0.35	0.32	0.31	0.30	-39.7%
Non-OECD Total ²	0.56	0.57	0.56	0.57	0.59	0.54	0.48	0.47	0.42	0.42	0.41	-30.1%
OECD Total ³	0.70	0.64	0.58	0.50	0.44	0.42	0.38	0.35	0.32	0.30	0.30	-32.8%
Canada	0.82	0.76	0.71	0.58	0.54	0.53	0.50	0.46	0.42	0.40	0.40	-25.3%
Chile	0.43	0.40	0.36	0.31	0.34	0.28	0.29	0.26	0.28	0.28	0.28	-16.1%
Mexico	0.24	0.26	0.29	0.31	0.30	0.31	0.29	0.29	0.28	0.28	0.28	-6.6%
United States	0.96	0.88	0.77	0.65	0.58	0.54	0.49	0.44	0.39	0.36	0.35	-39.2%
OECD Americas	0.89	0.81	0.72	0.61	0.55	0.52	0.47	0.42	0.38	0.35	0.35	-36.7%
Australia	0.58	0.65	0.65	0.60	0.61	0.57	0.55	0.52	0.47	0.44	0.43	-28.4%
Israel	0.35	0.32	0.32	0.35	0.38	0.38	0.36	0.34	0.32	0.33	0.29	-24.7%
Japan	0.53	0.51	0.42	0.34	0.32	0.32	0.32	0.31	0.28	0.30	0.30	-5.2%
Korea	0.63	0.64	0.68	0.54	0.49	0.50	0.47	0.39	0.39	0.38	0.37	-25.0%
New Zealand	0.30	0.31	0.31	0.30	0.34	0.32	0.33	0.32	0.27	0.27	0.26	-23.7%
OECD Asia Oceania	0.53	0.52	0.46	0.38	0.37	0.37	0.37	0.35	0.33	0.34	0.33	-9.5%
Austria	0.41	0.36	0.34	0.30	0.28	0.26	0.24	0.26	0.23	0.21	0.21	-26.0%
Belgium	0.76	0.65	0.60	0.46	0.42	0.41	0.36	0.31	0.28	0.24	0.24	-43.3%
Czech Republic	1.24	1.10	1.07	1.06	0.84	0.72	0.65	0.52	0.43	0.41	0.39	-53.4%
Denmark	0.62	0.56	0.58	0.49	0.38	0.39	0.29	0.26	0.26	0.20	0.21	-45.4%
Estonia	..	..	..	..	2.20	1.39	0.91	0.75	0.84	0.66	0.74	-66.3%
Finland	0.65	0.60	0.63	0.48	0.45	0.48	0.37	0.32	0.35	0.27	0.28	-37.9%
France	0.51	0.44	0.40	0.29	0.24	0.22	0.21	0.19	0.17	0.15	0.15	-35.9%
Germany	0.75	0.68	0.62	0.56	0.44	0.37	0.32	0.30	0.27	0.25	0.26	-41.6%
Greece	0.22	0.25	0.27	0.32	0.39	0.40	0.38	0.34	0.30	0.33	0.31	-20.8%
Hungary	0.75	0.68	0.67	0.60	0.48	0.46	0.38	0.32	0.28	0.24	0.23	-53.0%
Iceland	0.45	0.43	0.34	0.28	0.28	0.29	0.25	0.21	0.17	0.16	0.17	-41.1%
Ireland	0.71	0.57	0.56	0.50	0.45	0.39	0.31	0.26	0.23	0.21	0.20	-56.1%
Italy	0.38	0.36	0.32	0.29	0.28	0.27	0.26	0.27	0.23	0.22	0.21	-25.6%
Luxembourg	2.04	1.41	1.23	0.90	0.65	0.41	0.30	0.37	0.31	0.29	0.27	-59.0%
Netherlands	0.50	0.46	0.44	0.39	0.35	0.34	0.28	0.27	0.26	0.24	0.24	-30.6%
Norway	0.32	0.27	0.25	0.21	0.20	0.19	0.16	0.15	0.16	0.15	0.14	-26.7%
Poland	1.21	1.12	1.31	1.32	1.10	0.95	0.64	0.56	0.47	0.42	0.41	-62.9%
Portugal	0.18	0.19	0.20	0.19	0.23	0.26	0.26	0.26	0.20	0.21	0.20	-10.6%
Slovak Republic	0.89	0.87	1.01	0.91	0.85	0.70	0.53	0.42	0.31	0.27	0.27	-68.0%
Slovenia	..	..	..	..	0.40	0.43	0.35	0.32	0.30	0.29	0.28	-29.8%
Spain	0.28	0.29	0.32	0.28	0.26	0.27	0.27	0.27	0.20	0.21	0.19	-26.2%
Sweden	0.56	0.48	0.41	0.30	0.24	0.25	0.19	0.16	0.14	0.11	0.11	-54.3%
Switzerland	0.22	0.21	0.20	0.20	0.17	0.17	0.16	0.15	0.13	0.12	0.12	-28.3%
Turkey	0.22	0.26	0.27	0.29	0.29	0.30	0.32	0.28	0.29	0.30	0.27	-7.9%
United Kingdom	0.69	0.60	0.53	0.45	0.38	0.33	0.29	0.25	0.22	0.21	0.20	-47.6%
OECD Europe ³	0.58	0.53	0.50	0.44	0.37	0.34	0.29	0.28	0.25	0.23	0.23	-39.4%
<i>European Union - 28</i>	..	..	..	..	0.40	0.35	0.30	0.29	0.25	0.23	0.23	-42.9%
G7	0.76	0.69	0.61	0.51	0.46	0.42	0.39	0.36	0.33	0.31	0.31	-32.9%
G8	..	..	..	..	0.52	0.47	0.43	0.39	0.36	0.34	0.33	-35.8%
G20	..	..	..	..	0.52	0.49	0.44	0.42	0.39	0.38	0.38	-26.7%

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

2. Includes Estonia and Slovenia prior to 1990.

3. Excludes Estonia and Slovenia prior to 1990.

CO₂ emissions / GDP using purchasing power paritieskilogrammes CO₂ / US dollar using 2005 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Non-OECD Total ¹	0.56	0.57	0.56	0.57	0.59	0.54	0.48	0.47	0.42	0.42	0.41	-30.1%
Albania	0.56	0.51	0.60	0.55	0.44	0.16	0.20	0.20	0.16	0.14	0.14	-68.2%
Armenia	..	..	..	..	1.68	0.54	0.43	0.29	0.24	0.28	0.26	-84.4%
Azerbaijan	..	..	..	..	0.99	1.42	0.85	0.48	0.18	0.22	0.21	-78.5%
Belarus	..	..	..	..	1.36	1.19	0.80	0.59	0.45	0.41	0.41	-70.2%
Bosnia and Herzegovina	..	..	..	..	2.46	0.59	0.73	0.66	0.73	0.78	0.75	-69.3%
Bulgaria	2.28	1.92	1.65	1.35	1.14	0.92	0.71	0.60	0.50	0.49	0.43	-62.4%
Croatia	..	..	..	..	0.31	0.32	0.30	0.29	0.26	0.24	0.23	-24.1%
Cyprus ²	0.63	0.51	0.45	0.37	0.37	0.39	0.40	0.38	0.35	0.32	0.29	-21.7%
FYR of Macedonia	..	..	..	..	0.53	0.65	0.57	0.55	0.44	0.45	0.41	-22.3%
Georgia	..	..	..	..	0.98	0.84	0.36	0.22	0.21	0.25	0.24	-75.5%
Gibraltar	0.18	0.15	0.21	0.18	0.25	0.45	0.44	0.45	0.52	0.50	0.52	111.4%
Kazakhstan	..	..	..	..	1.28	1.50	0.87	0.74	0.78	0.73	0.72	-43.9%
Kosovo ²	..	..	..	..	..	..	0.84	0.77	0.79	0.67	0.67	..
Kyrgyzstan	..	..	..	..	1.68	0.65	0.49	0.45	0.45	0.67	0.56	-66.6%
Latvia	..	..	..	..	0.70	0.58	0.34	0.25	0.28	0.22	0.21	-70.2%
Lithuania	..	..	..	..	0.69	0.50	0.31	0.25	0.24	0.20	0.18	-73.4%
Malta	0.50	0.34	0.30	0.32	0.48	0.38	0.26	0.32	0.27	0.27	0.23	-51.5%
Republic of Moldova	..	..	..	..	1.45	1.40	0.87	0.73	0.63	0.58	0.47	-67.6%
Montenegro ²	..	..	..	..	..	..	..	0.38	0.39	0.36	0.34	..
Romania	1.48	1.20	1.05	0.88	0.93	0.72	0.56	0.46	0.32	0.33	0.28	-70.1%
Russian Federation	..	..	..	..	1.16	1.33	1.17	0.87	0.76	0.71	0.70	-39.5%
Serbia ²	..	..	..	..	0.70	1.02	0.88	0.78	0.66	0.64	0.64	-9.8%
Tajikistan	..	..	..	..	0.64	0.38	0.33	0.23	0.16	0.17	0.19	-71.0%
Turkmenistan	..	..	..	..	1.64	1.93	1.71	1.76	1.27	1.12	1.04	-36.2%
Ukraine	..	..	..	..	1.42	1.70	1.40	0.96	0.83	0.81	0.77	-45.8%
Uzbekistan	..	..	..	..	2.07	2.10	2.09	1.51	0.91	0.86	0.71	-65.5%
Former Soviet Union ³	1.27	1.30	1.26	1.19	..	..	..	..	..	..	..	..
Former Yugoslavia ³	0.41	0.40	0.34	0.47	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia ¹	1.22	1.23	1.17	1.11	1.17	1.26	1.05	0.79	0.67	0.64	0.62	-47.0%
Algeria	0.10	0.10	0.15	0.18	0.22	0.23	0.22	0.21	0.23	0.25	0.25	16.9%
Angola	0.05	0.06	0.09	0.08	0.10	0.13	0.11	0.09	0.12	0.13	0.13	28.3%
Benin	0.09	0.13	0.09	0.09	0.04	0.03	0.15	0.23	0.33	0.33	0.33	674.2%
Botswana	..	..	..	0.26	0.28	0.26	0.25	0.22	0.21	0.17	0.20	-29.1%
Cameroon	0.06	0.07	0.08	0.07	0.09	0.09	0.08	0.07	0.11	0.10	0.11	22.4%
Congo	0.14	0.11	0.10	0.07	0.05	0.04	0.04	0.05	0.09	0.10	0.10	92.1%
Côte d'Ivoire	0.11	0.11	0.10	0.09	0.08	0.09	0.14	0.13	0.13	0.15	0.15	99.2%
Dem. Rep. of Congo	0.06	0.06	0.08	0.08	0.07	0.04	0.04	0.04	0.05	0.06	0.06	-19.9%
Egypt	0.21	0.23	0.23	0.26	0.26	0.23	0.22	0.26	0.24	0.25	0.24	-8.7%
Eritrea	..	..	..	..	..	0.18	0.12	0.10	0.09	0.08	0.08	..
Ethiopia	0.06	0.05	0.06	0.06	0.08	0.08	0.09	0.09	0.07	0.07	0.08	-2.3%
Gabon	0.07	0.05	0.10	0.11	0.06	0.07	0.08	0.08	0.10	0.10	0.10	80.9%
Ghana	0.09	0.12	0.11	0.11	0.10	0.11	0.13	0.13	0.16	0.15	0.15	48.7%
Kenya	0.21	0.17	0.16	0.15	0.11	0.11	0.13	0.10	0.12	0.10	0.11	-1.5%
Libya	0.05	0.14	0.18	0.30	0.40	0.53	0.56	0.53	0.47	0.54	0.58	45.2%
Mauritius	0.11	0.14	0.14	0.12	0.16	0.17	0.20	0.21	0.21	0.20	0.20	22.1%
Morocco	0.19	0.23	0.25	0.24	0.23	0.28	0.26	0.27	0.25	0.26	0.24	6.3%
Mozambique	0.49	0.47	0.45	0.37	0.19	0.17	0.14	0.10	0.12	0.11	0.12	-38.3%
Namibia	..	..	..	..	..	0.21	0.18	0.19	0.19	0.18	0.18	..
Niger	..	..	..	..	..	..	0.09	0.08	0.11	0.14	0.13	..
Nigeria	0.03	0.05	0.09	0.13	0.11	0.12	0.14	0.11	0.08	0.08	0.07	-33.0%
Senegal	0.15	0.18	0.21	0.19	0.17	0.18	0.21	0.22	0.22	0.21	0.22	28.0%
South Africa	0.75	0.85	0.75	0.75	0.75	0.77	0.72	0.79	0.75	0.71	0.71	-5.0%
South Sudan ²	..	..	..	..	..	..	..	..	..	0.06	0.04	..
Sudan ²	0.14	0.11	0.12	0.12	0.12	0.08	0.07	0.10	0.11	0.12	0.12	-0.7%
United Rep. of Tanzania	0.12	0.10	0.09	0.08	0.05	0.07	0.06	0.08	0.07	0.09	0.10	85.7%
Togo	0.13	0.10	0.09	0.07	0.13	0.13	0.17	0.16	0.30	0.21	0.20	61.7%
Tunisia	0.23	0.23	0.27	0.27	0.31	0.29	0.28	0.25	0.24	0.23	0.23	-25.8%
Zambia	0.24	0.28	0.21	0.17	0.15	0.12	0.08	0.08	0.04	0.06	0.07	-54.1%
Zimbabwe	2.90	2.47	2.56	2.53	3.38	2.96	2.33	2.64	2.61	3.18	3.18	-6.0%
Other Africa	0.10	0.11	0.14	0.11	0.11	0.12	0.11	0.10	0.10	0.11	0.11	-1.8%
Africa	0.24	0.27	0.26	0.28	0.29	0.29	0.28	0.28	0.25	0.25	0.24	-15.9%

1. Includes Estonia and Slovenia prior to 1990.

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

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

CO₂ emissions / GDP using purchasing power paritieskilogrammes CO₂ / US dollar using 2005 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Bangladesh	0.05	0.08	0.09	0.09	0.10	0.11	0.11	0.13	0.15	0.15	0.15	55.3%
Brunei Darussalam	0.04	0.11	0.13	0.17	0.18	0.22	0.20	0.20	0.27	0.26	0.27	43.4%
Cambodia	..	..	..	..	..	0.14	0.13	0.11	0.14	0.14	0.13	..
DPR of Korea	2.41	1.75	1.39	1.04	0.79	0.66	0.68	0.70	0.66	0.46	0.46	-42.1%
India	0.30	0.31	0.32	0.36	0.39	0.40	0.38	0.33	0.33	0.33	0.32	-17.8%
Indonesia	0.14	0.15	0.18	0.17	0.20	0.20	0.25	0.25	0.22	0.21	0.21	5.2%
Malaysia	0.28	0.26	0.26	0.28	0.30	0.30	0.35	0.37	0.37	0.34	0.35	16.1%
Mongolia	..	..	..	1.69	1.54	1.40	1.08	0.96	0.90	0.83	0.81	-47.4%
Myanmar	0.52	0.40	0.38	0.34	0.26	0.34	0.31	0.19	0.10	0.13	0.14	-46.6%
Nepal	0.02	0.03	0.04	0.03	0.04	0.07	0.10	0.08	0.09	0.10	0.10	113.6%
Pakistan	0.16	0.17	0.15	0.16	0.19	0.22	0.22	0.21	0.20	0.19	0.19	-2.3%
Philippines	0.21	0.21	0.18	0.16	0.17	0.23	0.23	0.19	0.17	0.16	0.16	-6.0%
Singapore	0.29	0.29	0.29	0.27	0.31	0.27	0.23	0.16	0.14	0.13	0.13	-59.3%
Sri Lanka	0.12	0.10	0.11	0.08	0.07	0.08	0.13	0.13	0.09	0.10	0.08	10.1%
Chinese Taipei	0.59	0.53	0.54	0.38	0.40	0.39	0.42	0.42	0.34	0.31	0.31	-22.3%
Thailand	0.20	0.21	0.22	0.21	0.25	0.29	0.31	0.31	0.29	0.29	0.30	18.1%
Viet Nam	0.34	0.35	0.29	0.25	0.20	0.21	0.24	0.31	0.36	0.33	0.32	61.3%
Other Asia	0.27	0.29	0.33	0.19	0.17	0.14	0.16	0.16	0.15	0.20	0.20	14.7%
Asia (excl. China)	0.29	0.30	0.30	0.30	0.31	0.31	0.32	0.30	0.28	0.28	0.27	-11.5%
People's Rep. of China	2.29	2.40	2.31	1.65	1.45	1.12	0.80	0.83	0.65	0.66	0.64	-55.6%
Hong Kong, China	0.28	0.26	0.20	0.24	0.24	0.21	0.20	0.17	0.14	0.14	0.14	-42.5%
China	2.12	2.22	2.10	1.53	1.35	1.06	0.77	0.80	0.63	0.65	0.63	-53.1%
Argentina	0.37	0.35	0.34	0.35	0.41	0.35	0.37	0.36	0.30	0.29	0.27	-33.0%
Bolivia	0.14	0.16	0.19	0.21	0.23	0.25	0.22	0.25	0.30	0.33	0.31	34.8%
Brazil	0.15	0.16	0.15	0.13	0.14	0.15	0.17	0.16	0.15	0.17	0.17	26.0%
Colombia	0.27	0.23	0.21	0.22	0.20	0.19	0.18	0.15	0.14	0.13	0.13	-33.7%
Costa Rica	0.13	0.14	0.14	0.12	0.13	0.17	0.13	0.13	0.13	0.12	0.12	-5.4%
Cuba	0.58	0.56	0.60	0.42	0.45	0.43	0.42	0.30	0.28	0.23	0.24	-46.4%
Curaçao ¹	15.32	9.51	7.03	3.45	1.73	1.53	2.68	2.69	1.84	2.78	2.69	55.3%
Dominican Republic	0.26	0.28	0.26	0.23	0.22	0.25	0.26	0.24	0.19	0.19	0.18	-17.0%
Ecuador	0.12	0.14	0.20	0.20	0.20	0.21	0.22	0.22	0.27	0.26	0.27	36.5%
El Salvador	0.07	0.09	0.07	0.09	0.10	0.16	0.16	0.17	0.15	0.15	0.14	37.1%
Guatemala	0.10	0.10	0.11	0.09	0.08	0.11	0.14	0.15	0.12	0.11	0.13	65.0%
Haiti	0.04	0.04	0.05	0.06	0.07	0.08	0.10	0.15	0.16	0.14	0.14	100.8%
Honduras	0.17	0.17	0.15	0.14	0.16	0.21	0.23	0.29	0.25	0.27	0.26	69.6%
Jamaica	0.43	0.54	0.56	0.36	0.46	0.48	0.56	0.55	0.37	0.38	0.40	-12.6%
Nicaragua	0.12	0.12	0.14	0.14	0.16	0.20	0.22	0.22	0.21	0.19	0.17	6.9%
Panama	0.26	0.28	0.22	0.17	0.16	0.19	0.18	0.20	0.18	0.16	0.14	-8.1%
Paraguay	0.08	0.08	0.09	0.08	0.09	0.12	0.11	0.11	0.12	0.12	0.10	22.1%
Peru	0.20	0.19	0.18	0.16	0.19	0.18	0.18	0.15	0.16	0.15	0.15	-21.1%
Trinidad and Tobago	0.48	0.36	0.35	0.41	0.54	0.52	0.51	0.60	0.64	0.64	0.65	21.0%
Uruguay	0.26	0.25	0.20	0.14	0.14	0.14	0.14	0.14	0.12	0.15	0.12	-8.5%
Venezuela	0.25	0.27	0.35	0.38	0.37	0.35	0.37	0.38	0.40	0.36	0.33	-10.9%
Other Non-OECD Americas	0.47	0.59	0.44	0.39	0.42	0.41	0.39	0.37	0.41	0.42	0.42	0.3%
Non-OECD Americas	0.24	0.23	0.22	0.20	0.21	0.21	0.23	0.21	0.20	0.21	0.20	-4.0%
Bahrain	0.65	0.64	0.54	0.73	0.68	0.62	0.59	0.60	0.57	0.54	0.56	-17.7%
Islamic Republic of Iran	0.13	0.17	0.25	0.34	0.39	0.48	0.50	0.51	0.48	0.47	0.50	28.4%
Iraq	0.02	0.03	0.03	0.06	0.17	0.82	0.28	0.32	0.30	0.30	0.32	88.6%
Jordan	0.17	0.27	0.26	0.35	0.47	0.44	0.44	0.40	0.31	0.36	0.35	-25.5%
Kuwait	0.10	0.13	0.22	0.39	0.30	0.28	0.36	0.34	0.39	0.36	0.35	16.3%
Lebanon	0.16	0.20	0.28	0.20	0.30	0.39	0.39	0.33	0.29	0.32	0.31	5.4%
Oman	0.02	0.04	0.10	0.12	0.18	0.19	0.23	0.27	0.41	0.45	0.44	144.1%
Qatar	0.07	0.15	0.19	0.34	0.40	0.49	0.35	0.37	0.28	0.29	0.28	-31.0%
Saudi Arabia	0.07	0.06	0.18	0.27	0.30	0.33	0.35	0.35	0.37	0.36	0.35	19.0%
Syrian Arab Republic	0.43	0.39	0.42	0.57	0.74	0.58	0.62	0.70	0.58	0.37	0.31	-58.8%
United Arab Emirates	0.08	0.06	0.11	0.22	0.28	0.31	0.29	0.29	0.35	0.37	0.35	23.7%
Yemen	0.14	0.14	0.16	0.16	0.17	0.19	0.21	0.24	0.24	0.22	0.29	64.8%
Middle East	0.08	0.09	0.13	0.23	0.31	0.40	0.38	0.39	0.39	0.38	0.38	24.5%

1. Prior to 2012, Curaçao includes the entire territory of the former Netherlands Antilles.

CO₂ emissions / populationtonnes CO₂ / capita

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
World ¹	3.72	3.83	4.01	3.79	3.91	3.78	3.83	4.17	4.34	4.47	4.52	15.8%
<i>Annex I Parties</i>	..	..	..	..	11.67	10.75	11.00	11.04	10.28	9.92	9.89	-15.2%
<i>Annex II Parties</i>	12.16	12.12	12.47	11.69	12.08	12.13	12.70	12.60	11.43	10.90	10.92	-9.6%
<i>North America</i>	20.15	19.79	19.89	18.56	18.79	18.66	19.67	19.00	17.08	15.92	16.09	-14.4%
<i>Europe</i>	8.58	8.48	8.99	8.24	8.24	8.02	8.09	8.15	7.25	6.81	6.65	-19.2%
<i>Asia Oceania</i>	7.50	8.12	8.10	7.88	9.23	9.72	10.15	10.52	9.97	10.56	10.67	15.6%
<i>Annex I EIT</i>	..	..	..	..	12.25	8.74	7.99	8.33	8.43	8.42	8.30	-32.3%
<i>Non-Annex I Parties</i>	..	..	..	..	1.53	1.73	1.83	2.33	2.77	3.05	3.13	104.9%
<i>Annex I Kyoto Parties</i>	..	..	..	..	9.94	8.62	8.45	8.67	8.17	8.06	7.95	-20.0%
Non-OECD Total ²	1.44	1.69	1.92	1.95	2.14	2.03	2.03	2.50	2.91	3.18	3.25	52.3%
OECD Total ³	10.40	10.39	10.75	10.08	10.29	10.31	10.78	10.72	9.93	9.56	9.55	-7.2%
Canada	15.49	16.29	17.22	15.24	15.13	15.31	16.81	16.61	15.15	15.08	15.26	0.8%
Chile	2.16	1.64	1.92	1.62	2.23	2.57	3.16	3.35	4.01	4.43	4.65	108.2%
Mexico	1.75	2.21	2.91	3.06	2.98	3.02	3.41	3.56	3.62	3.71	3.82	28.0%
United States	20.65	20.16	20.18	18.92	19.20	19.03	19.98	19.26	17.29	16.01	16.18	-15.7%
OECD Americas	16.20	15.74	15.71	14.55	14.57	14.44	15.26	14.78	13.37	12.55	12.69	-12.9%
Australia	10.86	12.85	13.96	13.85	15.12	15.77	17.51	18.31	17.39	16.91	16.70	10.5%
Israel	4.52	4.75	4.86	5.74	7.04	8.09	8.70	8.45	8.98	9.46	8.46	20.2%
Japan	7.15	7.60	7.43	7.15	8.49	8.95	9.12	9.36	8.79	9.54	9.70	14.3%
Korea	1.61	2.20	3.29	3.82	5.41	7.92	9.18	9.50	11.15	11.50	11.39	110.8%
New Zealand	4.71	5.32	5.24	5.78	6.45	6.48	7.50	8.13	6.93	7.06	6.89	6.9%
OECD Asia Oceania	6.21	6.80	6.99	6.94	8.32	9.27	9.88	10.22	10.21	10.74	10.76	29.3%
Austria	6.48	6.53	7.20	6.96	7.31	7.48	7.70	9.13	8.34	7.74	7.68	5.0%
Belgium	12.21	11.81	12.73	10.24	10.66	11.01	11.13	10.25	9.36	8.03	8.02	-24.7%
Czech Republic	15.62	15.41	16.28	16.97	14.51	11.93	11.81	11.58	10.59	10.05	9.62	-33.7%
Denmark	11.16	10.40	12.30	11.93	9.91	11.16	9.51	8.94	8.55	6.63	6.91	-30.3%
Estonia	..	..	..	..	22.21	10.79	10.36	12.37	13.99	12.41	14.29	-35.6%
Finland	8.64	9.38	11.47	9.85	10.74	10.85	10.51	10.41	11.48	8.99	9.04	-15.8%
France	8.07	7.84	8.25	6.21	5.93	5.78	5.99	5.86	5.23	4.75	4.79	-19.3%
Germany	12.49	12.37	13.39	12.93	11.85	10.49	9.88	9.54	9.28	9.09	9.25	-21.9%
Greece	2.79	3.71	4.61	5.39	6.76	7.20	8.06	8.58	7.48	6.95	6.25	-7.6%
Hungary	5.82	6.66	7.72	7.54	6.34	5.45	5.22	5.43	4.75	4.24	3.99	-37.0%
Iceland	6.81	7.40	7.66	6.75	7.43	7.35	7.69	7.55	6.13	5.79	6.26	-15.8%
Ireland	7.27	6.65	7.61	7.47	8.59	9.06	10.73	10.63	8.62	7.78	7.47	-13.0%
Italy	5.35	5.72	6.29	6.04	6.86	7.05	7.38	7.84	6.55	6.08	5.58	-18.7%
Luxembourg	48.10	35.45	34.18	28.14	28.11	20.05	18.44	24.63	20.96	19.39	17.93	-36.2%
Netherlands	9.67	9.66	10.27	9.55	9.69	10.24	9.87	10.00	10.13	9.36	9.30	-4.0%
Norway	5.89	5.89	6.66	6.36	6.47	7.21	7.11	7.48	7.72	7.08	6.95	7.3%
Poland	8.76	9.96	11.69	11.36	9.07	8.71	7.57	7.76	8.06	7.70	7.60	-16.2%
Portugal	1.65	1.96	2.41	2.37	3.79	4.71	5.62	5.84	4.50	4.40	4.30	13.3%
Slovak Republic	8.53	9.11	11.21	10.55	10.35	7.69	6.83	6.92	6.37	5.78	5.98	-42.2%
Slovenia	..	..	..	..	6.78	7.07	7.07	7.72	7.54	7.23	6.96	2.7%
Spain	3.47	4.37	4.94	4.48	5.19	5.79	6.92	7.64	5.63	5.57	5.06	-2.6%
Sweden	10.13	9.64	8.80	6.99	6.08	6.45	5.86	5.44	4.91	4.13	3.91	-35.8%
Switzerland	6.13	5.74	6.15	6.39	5.99	5.85	5.81	5.85	5.46	5.06	5.14	-14.3%
Turkey	1.15	1.49	1.61	1.90	2.31	2.54	3.13	3.15	3.64	4.04	3.75	62.4%
United Kingdom	11.10	10.24	10.13	9.61	9.57	8.85	8.85	8.79	7.59	7.24	7.00	-26.9%
OECD Europe ³	8.08	8.10	8.66	8.01	7.80	7.46	7.45	7.49	6.86	6.52	6.34	-18.6%
<i>European Union - 28</i>	..	..	..	..	8.42	7.87	7.76	7.89	7.15	6.75	6.57	-22.0%
G7	13.37	13.22	13.51	12.66	13.01	12.93	13.50	13.30	12.10	11.57	11.64	-10.5%
G8	..	..	..	..	13.30	12.49	12.90	12.81	11.88	11.46	11.51	-13.5%
G20	..	..	..	..	4.62	4.59	4.71	5.17	5.40	5.64	5.73	24.1%

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

2. Includes Estonia and Slovenia prior to 1990.

3. Excludes Estonia and Slovenia prior to 1990.

CO₂ emissions / populationtonnes CO₂ / capita

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Non-OECD Total ¹	1.44	1.69	1.92	1.95	2.14	2.03	2.03	2.50	2.91	3.18	3.25	52.3%
Albania	1.77	1.80	2.55	2.34	1.73	0.58	0.98	1.27	1.34	1.20	1.26	-27.1%
Armenia	..	..	..	..	5.60	1.04	1.11	1.37	1.37	1.83	1.76	-68.5%
Azerbaijan	..	..	..	..	7.47	4.21	3.39	3.46	2.60	3.11	3.13	-58.1%
Belarus	..	..	..	..	9.80	5.59	5.21	5.69	6.31	6.11	6.15	-37.2%
Bosnia and Herzegovina	..	..	..	..	5.30	0.93	3.58	4.09	5.33	5.65	5.62	5.9%
Bulgaria	7.48	8.41	9.60	9.18	8.55	6.27	5.16	6.01	6.00	6.08	5.41	-36.7%
Croatia	..	..	..	..	4.32	3.18	3.81	4.51	4.16	3.87	3.76	-13.0%
Cyprus ²	2.83	3.28	5.09	5.14	6.79	7.82	9.13	9.61	8.86	7.55	6.49	-4.3%
FYR of Macedonia	..	..	..	..	4.28	4.23	4.16	4.26	3.97	4.18	3.94	-8.0%
Georgia	..	..	..	..	6.97	1.72	1.05	0.93	1.12	1.47	1.48	-78.8%
Gibraltar	2.63	2.39	3.34	3.22	5.10	9.68	11.72	13.08	15.29	14.62	15.12	196.7%
Kazakhstan	..	..	..	..	14.51	10.78	7.53	10.36	13.55	13.93	14.38	-0.9%
Kosovo ²	..	..	..	..	..	..	3.01	3.90	4.90	4.50	4.56	..
Kyrgyzstan	..	..	..	..	5.18	0.98	0.91	0.95	1.11	1.71	1.55	-70.1%
Latvia	..	..	..	..	7.05	3.58	2.89	3.38	3.85	3.44	3.44	-51.2%
Lithuania	..	..	..	..	8.71	3.70	2.92	3.69	3.94	3.80	3.63	-58.3%
Malta	2.16	2.14	3.13	3.45	6.54	6.43	5.59	6.74	6.11	6.38	5.50	-15.8%
Republic of Moldova	..	..	..	..	8.26	3.24	1.80	2.14	2.20	2.14	1.88	-77.2%
Montenegro ²	..	..	..	..	..	..	..	3.22	4.07	3.76	3.66	..
Romania	5.60	6.60	7.97	7.68	7.25	5.19	3.84	4.35	3.69	3.92	3.45	-52.5%
Russian Federation	..	..	..	..	14.62	10.46	10.03	10.36	10.77	10.84	10.79	-26.2%
Serbia ²	..	..	..	..	6.16	4.34	5.29	6.66	6.29	6.20	6.33	2.7%
Tajikistan	..	..	..	..	2.08	0.43	0.35	0.34	0.30	0.35	0.40	-80.6%
Turkmenistan	..	..	..	..	12.17	7.94	8.14	10.19	11.35	12.48	12.60	3.5%
Ukraine	..	..	..	..	13.27	7.68	6.00	6.24	5.80	6.01	5.83	-56.1%
Uzbekistan	..	..	..	..	5.60	4.15	4.62	4.09	3.40	3.61	3.18	-43.2%
Former Soviet Union ³	7.97	9.81	11.10	11.14	..	..	..	..	..	..	..	..
Former Yugoslavia ³	3.01	3.47	3.83	5.27	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia ¹	7.39	9.03	10.26	10.35	11.47	7.66	6.96	7.35	7.52	7.66	7.54	-34.2%
Algeria	0.57	0.80	1.42	1.84	1.95	1.89	1.94	2.28	2.58	2.88	2.90	49.0%
Angola	0.27	0.29	0.35	0.31	0.38	0.32	0.33	0.37	0.77	0.84	0.86	127.0%
Benin	0.10	0.14	0.11	0.11	0.05	0.04	0.20	0.33	0.48	0.49	0.51	885.2%
Botswana	..	..	..	1.27	2.03	2.01	2.30	2.28	2.47	2.23	2.71	33.6%
Cameroon	0.11	0.13	0.19	0.23	0.22	0.18	0.18	0.16	0.24	0.25	0.27	21.1%
Congo	0.42	0.39	0.39	0.36	0.25	0.16	0.15	0.23	0.43	0.52	0.53	107.3%
Côte d'Ivoire	0.44	0.46	0.41	0.30	0.22	0.23	0.39	0.33	0.33	0.40	0.43	91.4%
Dem. Rep. of Congo	0.13	0.11	0.12	0.11	0.09	0.03	0.02	0.02	0.03	0.04	0.04	-54.4%
Egypt	0.54	0.63	0.91	1.28	1.38	1.33	1.51	2.01	2.26	2.35	2.25	62.6%
Eritrea	..	..	..	..	..	0.23	0.16	0.12	0.08	0.09	0.09	..
Ethiopia	0.04	0.04	0.04	0.03	0.05	0.04	0.05	0.06	0.07	0.08	0.09	100.0%
Gabon	0.79	1.17	1.78	2.04	0.96	1.22	1.19	1.26	1.52	1.60	1.69	76.2%
Ghana	0.22	0.23	0.20	0.16	0.17	0.19	0.26	0.30	0.43	0.50	0.53	203.7%
Kenya	0.28	0.26	0.27	0.23	0.24	0.21	0.25	0.21	0.27	0.24	0.26	12.1%
Libya	1.72	3.42	5.71	5.68	6.06	6.94	7.15	7.69	7.94	6.90	6.97	14.9%
Mauritius	0.31	0.47	0.59	0.60	1.10	1.38	2.05	2.41	2.93	2.97	3.04	176.6%
Morocco	0.40	0.55	0.69	0.73	0.80	0.97	1.03	1.31	1.45	1.58	1.53	91.5%
Mozambique	0.30	0.22	0.19	0.11	0.08	0.07	0.07	0.07	0.10	0.10	0.11	43.2%
Namibia	..	..	..	..	..	1.08	1.00	1.23	1.41	1.43	1.49	..
Niger	..	..	..	..	..	..	0.06	0.06	0.09	0.11	0.10	..
Nigeria	0.10	0.17	0.34	0.38	0.29	0.30	0.36	0.40	0.35	0.37	0.35	19.5%
Senegal	0.28	0.33	0.37	0.33	0.28	0.28	0.36	0.41	0.42	0.41	0.42	49.6%
South Africa	6.95	8.21	7.56	7.12	6.93	6.64	6.38	7.86	8.05	7.79	7.91	14.2%
South Sudan ²	..	..	..	..	..	..	..	..	..	0.13	0.13	..
Sudan ²	0.22	0.20	0.19	0.18	0.21	0.14	0.16	0.25	0.33	0.37	0.36	74.1%
United Rep. of Tanzania	0.10	0.09	0.08	0.07	0.07	0.08	0.08	0.13	0.14	0.18	0.20	200.8%
Togo	0.16	0.13	0.13	0.09	0.15	0.14	0.20	0.17	0.33	0.24	0.24	61.3%
Tunisia	0.71	0.86	1.24	1.33	1.50	1.57	1.85	1.94	2.21	2.18	2.17	45.3%
Zambia	0.78	0.87	0.56	0.39	0.33	0.23	0.16	0.18	0.13	0.19	0.24	-27.5%
Zimbabwe	1.35	1.16	1.09	1.10	1.55	1.30	1.06	0.81	0.69	0.92	0.95	-38.7%
Other Africa	0.12	0.13	0.15	0.11	0.11	0.11	0.12	0.13	0.14	0.16	0.16	40.1%
Africa	0.67	0.78	0.84	0.85	0.85	0.81	0.82	0.94	0.97	0.97	0.97	14.3%

1. Includes Estonia and Slovenia prior to 1990.

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

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

CO₂ emissions / populationtonnes CO₂ / capita

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	% change 90-13
Bangladesh	0.04	0.06	0.08	0.08	0.11	0.14	0.16	0.22	0.33	0.37	0.38	255.6%
Brunei Darussalam	2.93	8.74	13.67	13.21	12.68	15.26	13.33	13.10	17.11	16.91	16.39	29.2%
Cambodia	..	..	..	..	..	0.14	0.16	0.20	0.32	0.34	0.34	..
DPR of Korea	4.67	4.83	6.22	6.89	5.79	3.52	3.06	3.16	2.68	1.90	1.92	-66.9%
India	0.32	0.35	0.38	0.48	0.61	0.74	0.86	0.96	1.32	1.44	1.49	143.2%
Indonesia	0.22	0.29	0.47	0.52	0.75	1.05	1.24	1.44	1.59	1.69	1.70	127.1%
Malaysia	1.14	1.32	1.71	2.09	2.70	3.81	4.87	5.98	6.66	6.55	6.97	158.1%
Mongolia	..	..	..	6.13	5.89	4.46	3.75	4.35	5.22	6.14	6.57	11.7%
Myanmar	0.16	0.13	0.15	0.15	0.09	0.15	0.19	0.21	0.15	0.22	0.25	169.6%
Nepal	0.02	0.02	0.04	0.03	0.05	0.09	0.13	0.12	0.15	0.18	0.18	274.1%
Pakistan	0.26	0.29	0.30	0.39	0.50	0.62	0.67	0.74	0.76	0.75	0.74	47.0%
Philippines	0.62	0.70	0.70	0.52	0.61	0.82	0.88	0.83	0.83	0.83	0.91	48.4%
Singapore	2.87	3.73	5.24	6.07	9.50	10.66	10.46	8.87	8.71	8.69	8.62	-9.3%
Sri Lanka	0.22	0.20	0.25	0.22	0.22	0.30	0.55	0.68	0.60	0.79	0.67	210.5%
Chinese Taipei	1.99	2.52	3.99	3.58	5.45	7.21	9.62	11.14	11.06	10.57	10.63	95.1%
Thailand	0.43	0.50	0.71	0.81	1.43	2.37	2.44	3.05	3.36	3.58	3.69	158.3%
Viet Nam	0.37	0.35	0.28	0.30	0.26	0.38	0.57	0.96	1.45	1.43	1.45	450.6%
Other Asia	0.38	0.42	0.54	0.34	0.31	0.30	0.32	0.37	0.47	0.74	0.77	146.7%
Asia (excl. China)	0.40	0.44	0.53	0.60	0.75	0.90	1.03	1.18	1.42	1.49	1.54	105.9%
People's Rep. of China	0.99	1.19	1.46	1.62	1.92	2.50	2.59	4.12	5.30	6.31	6.60	244.6%
Hong Kong, China	2.28	2.44	2.88	4.09	5.84	5.93	6.05	6.07	5.98	6.30	6.41	9.8%
China	0.99	1.19	1.47	1.63	1.93	2.52	2.61	4.13	5.30	6.31	6.60	241.1%
Argentina	3.38	3.27	3.38	2.89	3.05	3.37	3.78	3.87	4.30	4.51	4.40	44.4%
Bolivia	0.51	0.68	0.78	0.71	0.76	0.90	0.84	1.01	1.39	1.64	1.62	113.9%
Brazil	0.89	1.20	1.37	1.15	1.23	1.41	1.67	1.67	1.90	2.12	2.26	84.1%
Colombia	1.22	1.18	1.29	1.31	1.37	1.49	1.36	1.24	1.30	1.37	1.41	2.9%
Costa Rica	0.68	0.85	0.92	0.72	0.85	1.28	1.14	1.26	1.42	1.42	1.46	73.2%
Cuba	2.35	2.56	3.10	3.19	3.22	2.05	2.45	2.22	2.65	2.39	2.64	-17.8%
Curaçao ¹	90.11	60.30	50.13	24.57	14.09	13.23	26.80	27.43	19.34	30.04	28.91	105.1%
Dominican Republic	0.75	1.01	1.09	0.95	1.02	1.41	1.87	1.87	1.90	1.94	1.89	85.4%
Ecuador	0.56	0.86	1.32	1.30	1.32	1.47	1.45	1.68	2.21	2.37	2.51	90.8%
El Salvador	0.34	0.45	0.34	0.33	0.39	0.80	0.87	1.03	0.94	0.98	0.91	131.3%
Guatemala	0.41	0.49	0.60	0.40	0.36	0.59	0.77	0.84	0.72	0.70	0.79	119.2%
Haiti	0.08	0.08	0.11	0.12	0.13	0.12	0.16	0.21	0.21	0.20	0.21	59.9%
Honduras	0.41	0.43	0.47	0.39	0.44	0.64	0.72	1.04	0.96	1.05	1.04	135.1%
Jamaica	2.92	3.70	3.07	2.02	3.03	3.39	3.78	3.89	2.57	2.59	2.75	-9.4%
Nicaragua	0.60	0.66	0.56	0.49	0.44	0.54	0.69	0.74	0.75	0.74	0.69	55.9%
Panama	1.58	1.76	1.46	1.19	1.03	1.48	1.60	2.00	2.42	2.57	2.38	131.4%
Paraguay	0.22	0.25	0.42	0.38	0.45	0.73	0.61	0.59	0.72	0.75	0.73	59.8%
Peru	1.13	1.20	1.18	0.92	0.88	0.97	1.02	1.03	1.40	1.47	1.50	70.4%
Trinidad and Tobago	5.61	4.52	5.87	5.68	6.46	6.50	7.97	13.52	16.83	16.49	17.12	164.8%
Uruguay	1.81	1.88	1.83	1.00	1.16	1.36	1.53	1.55	1.77	2.41	2.09	80.3%
Venezuela	4.14	4.40	5.52	4.91	4.74	4.80	4.76	5.13	5.91	5.63	5.12	8.0%
Other Non-OECD Americas	3.11	4.03	3.67	3.19	4.10	4.16	4.46	4.48	4.99	5.18	5.30	29.1%
Non-OECD Americas	1.48	1.64	1.81	1.56	1.62	1.75	1.93	1.98	2.24	2.36	2.39	47.8%
Bahrain	13.09	19.58	20.10	21.71	21.53	23.85	23.71	23.36	20.62	19.73	21.24	-1.3%
Islamic Republic of Iran	1.32	2.07	2.27	3.05	3.04	4.04	4.74	5.95	6.69	6.76	6.79	123.6%
Iraq	1.01	1.33	1.90	2.26	2.93	4.66	2.98	2.98	3.34	3.86	4.13	40.8%
Jordan	0.86	1.19	1.98	2.83	2.93	2.92	3.01	3.35	3.12	3.61	3.53	20.4%
Kuwait	17.37	14.38	19.27	21.24	13.49	20.39	24.29	28.19	25.72	26.47	24.96	85.0%
Lebanon	1.95	2.22	2.55	2.47	2.04	4.22	4.32	3.63	4.19	4.75	4.62	126.5%
Oman	0.34	0.82	1.95	3.76	5.61	6.82	9.30	9.78	17.08	16.86	15.95	184.1%
Qatar	18.82	30.04	31.16	28.79	26.06	33.59	35.78	40.44	32.63	34.55	33.38	28.1%
Saudi Arabia	2.09	3.05	10.10	8.87	9.32	10.32	11.64	12.07	15.38	16.38	16.39	75.8%
Syrian Arab Republic	0.82	1.09	1.38	1.83	2.19	2.17	2.26	2.94	2.60	1.73	1.47	-33.0%
United Arab Emirates	9.05	9.23	18.93	26.45	28.72	29.68	28.26	26.19	17.98	18.53	17.93	-37.6%
Yemen	0.19	0.26	0.44	0.50	0.53	0.63	0.76	0.94	0.99	0.73	0.98	83.6%
Middle East	1.49	2.11	3.43	4.04	4.22	5.19	5.53	6.39	7.31	7.56	7.57	79.4%

1. Prior to 2012, Curaçao includes the entire territory of the former Netherlands Antilles.

Per capita emissions by sector in 2013 ¹kilogrammes CO₂ / capita

	Total CO ₂ emissions from fuel combustion	Electricity and heat production	Other energy ind. own use ²	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
World ³	4 523	1 919	235	859	1 038	779	472	263
<i>Annex I Parties</i>	9 889	4 226	536	1 133	2 628	2 261	1 365	785
<i>Annex II Parties</i>	10 920	4 302	641	1 212	3 212	2 813	1 553	856
<i>North America</i>	16 086	6 351	1 063	1 407	5 331	4 507	1 934	1 036
<i>Europe</i>	6 652	2 252	340	838	1 856	1 756	1 366	866
<i>Asia Oceania</i>	10 670	5 159	493	1 774	2 051	1 814	1 193	420
<i>Annex I EIT</i>	8 297	4 697	315	1 021	1 323	971	942	668
<i>Non-Annex I Parties</i>	3 132	1 402	168	798	492	448	272	145
<i>Annex I Kyoto Parties</i>	7 953	3 619	358	1 073	1 710	1 499	1 193	721
Non-OECD Total	3 253	1 501	162	809	496	435	286	160
OECD Total	9 546	3 859	573	1 093	2 683	2 378	1 338	739
Canada	15 256	2 984	2 596	2 066	4 942	3 978	2 669	1 174
Chile	4 649	1 996	184	738	1 388	1 257	344	212
Mexico	3 816	1 271	450	556	1 272	1 237	267	150
United States	16 178	6 725	893	1 334	5 374	4 566	1 852	1 020
OECD Americas	12 693	4 960	882	1 176	4 203	3 596	1 471	791
Australia	16 702	8 541	1 406	2 003	3 904	3 308	847	380
Israel	8 462	5 161	442	214	1 655	1 655	991	209
Japan	9 699	4 668	332	1 749	1 677	1 507	1 274	438
Korea	11 395	6 062	825	1 490	1 809	1 747	1 209	661
New Zealand	6 890	1 509	332	1 296	3 070	2 782	683	115
OECD Asia Oceania	10 757	5 371	569	1 649	1 979	1 792	1 189	469
Austria	7 683	1 721	890	1 358	2 692	2 591	1 023	806
Belgium	8 025	1 633	509	1 247	2 192	2 122	2 444	1 604
Czech Republic	9 622	5 338	332	1 231	1 517	1 476	1 204	737
Denmark	6 914	3 015	379	623	1 995	1 829	901	448
Estonia	14 290	11 157	119	817	1 674	1 602	523	140
Finland	9 044	4 079	648	1 338	2 190	2 052	788	236
France	4 789	652	158	760	1 837	1 767	1 382	786
Germany	9 252	4 169	285	1 129	1 856	1 798	1 812	1 206
Greece	6 247	3 381	387	510	1 478	1 300	490	325
Hungary	3 993	1 223	166	467	1 003	979	1 133	656
Iceland	6 260	10	-	1 685	2 515	2 410	2 050	19
Ireland	7 466	2 439	79	755	2 269	2 222	1 924	1 382
Italy	5 577	1 833	188	640	1 660	1 565	1 255	829
Luxembourg	17 929	1 391	-	1 545	11 893	11 864	3 099	1 757
Netherlands	9 300	3 216	602	1 351	1 901	1 833	2 231	1 124
Norway	6 947	393	2 049	1 154	2 742	2 018	610	78
Poland	7 595	4 094	185	750	1 121	1 089	1 445	965
Portugal	4 296	1 513	398	515	1 491	1 416	379	188
Slovak Republic	5 981	1 414	923	1 296	1 196	1 088	1 153	521
Slovenia	6 959	2 816	3	811	2 609	2 592	720	398
Spain	5 058	1 482	375	761	1 764	1 593	675	341
Sweden	3 906	752	210	711	2 049	1 994	184	23
Switzerland	5 135	339	112	662	2 113	2 074	1 908	1 253
Turkey	3 746	1 446	155	625	738	683	783	403
United Kingdom	6 999	2 646	434	611	1 778	1 676	1 530	1 134
OECD Europe	6 345	2 325	305	808	1 628	1 542	1 279	797
<i>European Union - 28</i>	6 569	2 467	306	814	1 694	1 610	1 288	818
<i>G7</i>	11 644	4 648	651	1 248	3 427	2 984	1 671	923
<i>G8</i>	11 508	4 959	615	1 239	3 145	2 668	1 550	884
<i>G20</i>	5 735	2 590	287	1 136	1 118	970	605	332

1. 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.

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

3. World includes international bunkers in the transport sector.

Per capita emissions by sector in 2013

kilogrammes CO₂ / capita

	Total CO ₂ 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
Non-OECD Total	3 253	1 501	162	809	496	435	286	160
Albania	1 258	-	16	201	847	809	193	73
Armenia	1 761	444	-	221	429	429	667	385
Azerbaijan	3 128	1 238	223	233	774	710	660	497
Belarus	6 153	3 084	370	556	1 316	1 115	828	504
Bosnia and Herzegovina	5 616	3 798	184	581	736	736	316	147
Bulgaria	5 412	3 596	135	448	1 004	937	229	128
Croatia	3 761	899	326	541	1 340	1 260	654	379
Cyprus ¹	6 495	3 201	-	626	2 070	2 070	598	383
FYR of Macedonia	3 937	2 424	16	642	685	678	170	39
Georgia	1 478	191	-	367	556	548	364	321
Gibraltar	15 121	4 314	-	-	10 807	10 807	-	-
Kazakhstan	14 376	5 218	2 879	4 103	806	751	1 370	650
Kosovo	4 555	3 522	-	305	526	523	202	67
Kyrgyzstan	1 552	291	1	129	689	684	442	62
Latvia	3 443	1 034	-	446	1 372	1 246	591	223
Lithuania	3 627	798	521	428	1 446	1 361	435	236
Malta	5 502	3 894	-	36	1 235	1 131	337	176
Republic of Moldova	1 882	786	-	225	418	405	454	330
Montenegro	3 660	2 473	-	272	848	813	66	22
Romania	3 445	1 402	195	616	740	701	493	319
Russian Federation	10 791	6 598	427	1 189	1 664	1 008	913	679
Serbia	6 325	4 490	78	579	782	697	395	212
Tajikistan	404	5	-	-	40	40	359	-
Turkmenistan	12 600	3 474	995	1 006	1 616	745	5 508	83
Ukraine	5 826	2 855	116	1 252	689	558	914	761
Uzbekistan	3 179	1 247	101	416	228	128	1 188	891
Non-OECD Europe and Eurasia	7 545	4 083	406	1 043	1 111	777	903	577
Algeria	2 904	790	326	258	954	918	576	459
Angola	861	110	13	76	397	361	265	93
Benin	505	12	-	16	353	352	125	124
Botswana	2 709	628	-	621	1 148	1 131	312	45
Cameroon	265	66	25	18	138	132	18	17
Congo	526	100	-	11	383	372	31	31
Côte d'Ivoire	427	190	10	54	128	113	45	19
Dem. Rep. of Congo	39	-	-	2	36	36	-	-
Egypt	2 246	902	182	336	551	517	275	189
Eritrea	87	49	-	3	27	27	8	7
Ethiopia	90	-	-	30	42	40	17	9
Gabon	1 693	632	27	528	334	334	172	95
Ghana	527	136	5	66	278	259	42	25
Kenya	264	56	2	51	129	128	26	21
Libya	6 970	2 799	131	216	3 522	3 520	302	302
Mauritius	3 040	1 863	-	252	780	738	145	109
Morocco	1 525	544	37	231	458	457	256	118
Mozambique	114	7	1	20	80	73	6	2
Namibia	1 490	33	-	127	810	765	519	3
Niger	104	25	-	14	62	62	3	3
Nigeria	351	69	62	36	138	137	46	9
Senegal	425	155	3	78	165	157	24	21
South Africa	7 909	4 413	825	987	1 040	967	645	299
South Sudan	131	36	4	1	85	82	5	1
Sudan	358	51	5	45	218	216	39	14
United Rep. of Tanzania	197	57	-	20	111	111	9	8
Togo	245	3	-	22	190	190	30	30
Tunisia	2 173	783	66	441	556	512	326	168
Zambia	237	2	2	139	68	64	26	1
Zimbabwe	951	280	5	169	199	184	299	7
Other Africa	156	42	5	22	69	63	19	8
Africa	967	391	79	123	260	248	114	62

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

Per capita emissions by sector in 2013

kilogrammes CO₂ / capita

	Total CO ₂ 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	379	196	1	68	52	40	62	39
Brunei Darussalam	16 392	6 529	5 338	997	3 172	3 172	356	226
Cambodia	342	45	-	16	234	195	47	21
DPR of Korea	1 915	302	2	1 195	54	54	363	5
India	1 495	756	34	394	178	165	133	70
Indonesia	1 698	656	98	284	541	477	119	76
Malaysia	6 974	3 227	602	979	1 908	1 902	258	66
Mongolia	6 573	3 918	9	771	666	460	1 209	596
Myanmar	250	44	13	76	74	54	44	-
Nepal	185	-	-	64	81	81	40	15
Pakistan	741	224	8	194	211	196	103	85
Philippines	911	441	12	134	260	226	65	24
Singapore	8 624	4 047	947	2 129	1 393	1 245	108	34
Sri Lanka	671	197	2	49	377	366	45	22
Chinese Taipei	10 625	6 224	658	1 838	1 503	1 468	403	184
Thailand	3 693	1 262	368	838	932	896	293	76
Viet Nam	1 450	500	-	474	349	341	127	75
Other Asia	773	148	-	134	461	420	30	14
Asia (excl. China)	1 536	704	58	363	285	264	127	65
People's Rep. of China	6 601	3 225	270	2 063	554	449	488	243
Hong Kong, China	6 406	4 262	-	1 014	905	902	225	110
China	6 600	3 231	269	2 058	556	452	487	242
Argentina	4 398	1 245	381	721	1 144	1 026	907	584
Bolivia	1 622	298	135	188	656	625	347	125
Brazil	2 262	383	142	503	1 040	940	194	90
Colombia	1 414	244	156	286	540	516	189	81
Costa Rica	1 464	169	6	207	990	986	93	32
Cuba	2 644	1 529	72	744	118	106	181	55
Curaçao	28 909	4 241	14 278	2 565	6 933	6 933	891	891
Dominican Republic	1 893	991	15	187	547	454	153	120
Ecuador	2 510	516	305	310	1 141	1 095	238	182
El Salvador	912	219	-	142	438	438	113	91
Guatemala	790	186	6	161	385	384	52	50
Haiti	210	64	-	46	87	86	13	12
Honduras	1 044	270	-	288	408	408	78	23
Jamaica	2 745	975	-	982	662	483	125	44
Nicaragua	693	236	14	85	276	273	82	19
Panama	2 384	584	-	662	947	947	190	133
Paraguay	725	-	-	18	676	672	31	31
Peru	1 499	361	122	276	624	587	116	73
Trinidad and Tobago	17 116	4 622	6 481	3 224	2 395	2 139	394	375
Uruguay	2 087	426	114	209	1 019	1 004	319	128
Venezuela	5 117	1 003	884	1 548	1 457	1 456	225	168
Other Non-OECD Americas	5 297	2 854	4	189	1 704	1 414	547	213
Non-OECD Americas	2 389	538	214	500	891	825	244	136
Bahrain	21 243	14 782	2 473	1 323	2 476	2 368	189	189
Islamic Rep. of Iran	6 791	1 953	452	1 148	1 610	1 597	1 627	1 249
Iraq	4 129	2 276	135	309	1 059	1 059	350	350
Jordan	3 533	1 709	99	351	1 101	1 095	274	193
Kuwait	24 962	13 165	4 426	3 402	3 816	3 816	153	153
Lebanon	4 619	2 898	-	200	1 135	1 135	386	386
Oman	15 947	4 118	1 888	6 007	3 395	3 395	539	111
Qatar	33 378	7 937	14 166	5 705	5 413	5 413	158	158
Saudi Arabia	16 386	7 163	717	4 038	4 319	4 240	148	148
Syrian Arab Republic	1 465	630	27	210	379	374	218	137
United Arab Emirates	17 934	6 819	211	7 440	3 371	3 295	94	94
Yemen	980	261	54	138	340	340	187	125
Middle East	7 567	2 932	554	1 580	1 771	1 751	730	571

Electricity output ¹

terawatt hours

	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	% change 90-13
World	11 826.1	13 244.4	15 426.0	18 282.2	19 826.3	20 216.6	20 161.6	21 460.3	22 158.7	22 656.6	23 321.6	97.2%
<i>Annex I Parties</i>	8 942.2	9 362.9	10 349.9	11 078.9	11 362.8	11 381.4	10 904.0	11 369.6	11 283.9	11 260.4	11 242.9	25.7%
<i>Annex II Parties</i>	7 030.8	7 787.7	8 723.1	9 277.5	9 446.1	9 435.5	9 054.9	9 422.7	9 291.1	9 250.0	9 250.0	31.6%
<i>North America</i>	3 684.9	4 118.4	4 631.5	4 893.9	4 953.2	4 975.0	4 774.5	4 953.3	4 959.6	4 903.8	4 938.7	34.0%
<i>Europe</i>	2 323.9	2 500.2	2 793.5	3 022.4	3 080.7	3 098.1	2 944.9	3 063.6	2 991.0	3 025.7	2 980.6	28.3%
<i>Asia Oceania</i>	1 022.1	1 169.2	1 298.1	1 361.2	1 412.2	1 362.4	1 335.5	1 405.8	1 340.5	1 320.4	1 330.7	30.2%
<i>Annex I EIT</i>	1 850.7	1 484.8	1 496.6	1 632.8	1 717.9	1 740.1	1 646.9	1 728.3	1 756.3	1 763.9	1 746.2	-5.7%
<i>Non-Annex I Parties</i>	2 883.9	3 881.5	5 076.1	7 203.3	8 463.5	8 835.3	9 257.6	10 090.7	10 874.7	11 396.2	12 078.7	318.8%
<i>Annex I Kyoto Parties</i>	5 157.2	5 129.3	5 562.1	5 985.5	6 179.0	6 165.5	5 896.9	6 162.7	6 055.6	6 079.2	6 026.0	16.8%
Non-OECD Total	4 197.0	4 699.0	5 698.3	7 780.3	9 051.5	9 426.5	9 763.6	10 603.2	11 353.8	11 870.5	12 525.4	198.4%
OECD Total	7 629.1	8 545.5	9 727.7	10 502.0	10 774.8	10 790.1	10 398.0	10 857.1	10 804.9	10 786.0	10 796.2	41.5%
Canada	482.0	560.0	605.6	625.0	629.3	632.0	609.1	599.0	633.0	633.1	651.8	35.2%
Chile	18.4	28.0	40.1	52.5	58.5	59.7	60.7	60.4	65.7	69.8	73.1	297.7%
Mexico	115.8	152.2	204.2	243.8	257.3	261.9	261.0	271.1	295.8	293.9	297.1	156.5%
United States	3 202.8	3 558.4	4 025.9	4 268.9	4 323.9	4 343.0	4 165.4	4 354.4	4 326.6	4 270.8	4 286.9	33.8%
OECD Americas	3 819.1	4 298.7	4 875.7	5 190.2	5 269.1	5 296.6	5 096.3	5 284.8	5 321.1	5 267.5	5 308.9	39.0%
Australia	154.3	172.8	209.9	228.3	243.0	243.1	248.7	252.2	253.2	250.0	249.0	61.4%
Israel	20.9	30.4	42.7	48.6	53.8	57.0	55.0	58.6	59.7	63.0	59.9	186.8%
Japan	835.5	960.3	1 049.0	1 089.9	1 125.5	1 075.5	1 043.4	1 108.7	1 042.8	1 026.2	1 038.5	24.3%
Korea	105.4	181.1	288.5	387.9	425.9	443.9	451.7	496.7	520.1	530.9	537.9	410.5%
New Zealand	32.3	36.1	39.2	43.0	43.7	43.8	43.5	44.9	44.5	44.3	43.3	34.1%
OECD Asia Oceania	1 148.3	1 380.7	1 629.3	1 797.7	1 891.9	1 863.3	1 842.2	1 961.1	1 920.2	1 914.3	1 928.5	67.9%
Austria	49.3	55.2	59.9	64.1	62.6	64.5	66.3	67.9	62.3	68.7	64.5	30.9%
Belgium	70.3	73.5	82.8	85.7	87.5	83.6	89.8	93.8	89.0	81.8	82.1	16.8%
Czech Republic	62.3	60.6	72.9	81.9	87.8	83.2	81.7	85.3	86.9	86.8	86.2	38.4%
Denmark	26.0	36.8	36.1	36.2	39.3	36.6	36.4	38.9	35.2	30.7	34.7	33.7%
Estonia	17.2	8.7	8.5	10.2	12.2	10.6	8.8	13.0	12.9	12.0	13.3	-22.7%
Finland	54.4	64.0	70.0	70.6	81.2	77.4	72.1	80.7	73.5	70.4	71.3	31.0%
France	417.2	491.2	535.2	571.4	564.1	569.0	530.8	564.4	556.4	560.9	567.4	36.0%
Germany	547.7	532.8	572.3	615.8	633.7	634.4	590.0	626.6	607.2	623.7	627.4	14.6%
Greece	34.8	41.3	53.4	59.4	62.7	62.9	61.1	57.4	59.2	60.8	57.1	64.2%
Hungary	28.4	34.0	35.2	35.8	40.0	40.0	35.9	37.4	36.0	34.6	30.3	6.5%
Iceland	4.5	5.0	7.7	8.7	12.0	16.5	16.8	17.1	17.2	17.5	18.1	301.7%
Ireland	14.2	17.6	23.7	25.6	27.8	29.9	28.0	28.4	27.5	27.4	25.8	81.2%
Italy	213.1	237.4	269.9	296.8	308.2	313.5	288.3	298.8	300.6	297.3	287.9	35.1%
Luxembourg	0.6	0.5	0.4	3.3	3.2	2.7	3.2	3.2	2.7	2.8	1.8	196.3%
Netherlands	71.9	80.9	89.6	100.2	105.2	107.6	113.5	118.1	113.0	102.5	100.9	40.2%
Norway	121.6	122.2	142.5	137.2	136.1	141.2	131.0	123.2	126.4	146.6	133.7	9.9%
Poland	134.4	137.0	143.2	155.4	158.8	154.7	151.1	157.1	163.1	161.7	164.0	22.0%
Portugal	28.4	33.2	43.4	46.2	46.9	45.5	49.5	53.7	51.9	45.6	50.5	78.2%
Slovak Republic	25.5	26.4	30.8	31.4	27.9	28.8	25.9	27.5	28.3	28.3	28.5	11.8%
Slovenia	12.4	12.9	13.6	15.1	15.0	16.4	16.4	16.2	15.9	15.5	15.8	26.9%
Spain	151.2	165.6	220.9	289.4	301.8	311.0	291.9	298.3	291.5	293.9	279.3	84.7%
Sweden	146.0	148.3	145.2	158.4	148.8	149.9	136.6	148.5	150.3	166.4	153.0	4.8%
Switzerland	55.0	62.2	66.1	57.8	66.4	67.0	66.7	66.1	62.9	68.2	68.8	25.1%
Turkey	57.5	86.2	124.9	162.0	191.6	198.4	194.8	211.2	229.4	239.5	240.2	317.3%
United Kingdom	317.8	332.5	374.4	395.4	393.0	384.8	373.0	378.6	364.3	360.4	356.3	12.1%
OECD Europe	2 661.7	2 866.1	3 222.6	3 514.0	3 613.8	3 630.2	3 459.5	3 611.2	3 563.5	3 604.2	3 558.8	33.7%
<i>European Union - 28</i>	2 576.3	2 721.9	3 005.2	3 290.1	3 349.9	3 354.8	3 190.6	3 333.4	3 267.8	3 265.8	3 229.9	25.4%
G7	6 016.1	6 672.5	7 432.3	7 863.3	7 977.7	7 952.2	7 600.1	7 930.3	7 831.0	7 772.4	7 816.1	29.9%
G8	7 098.3	7 531.6	8 308.8	8 814.4	8 991.1	8 990.6	8 590.1	8 966.4	8 884.0	8 841.7	8 873.7	25.0%
G20	10 095.6	11 396.6	13 212.2	15 557.9	16 855.5	17 153.1	17 061.5	18 185.2	18 794.5	19 133.2	19 720.3	95.3%

1. 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	2007	2008	2009	2010	2011	2012	2013	% change 90-13
Non-OECD Total	4 197.0	4 699.0	5 698.3	7 780.3	9 051.5	9 426.5	9 763.6	10 603.2	11 353.8	11 870.5	12 525.4	198.4%
Albania	3.2	4.4	4.7	5.4	2.9	3.8	5.2	7.6	4.2	4.7	7.0	117.6%
Armenia	10.4	5.6	6.0	6.3	5.9	5.8	5.7	6.5	7.4	8.0	7.7	-25.6%
Azerbaijan	23.2	17.0	18.7	22.9	21.8	21.6	18.9	18.7	20.3	23.0	23.4	0.9%
Belarus	39.5	24.9	26.1	31.0	31.8	35.0	30.4	34.9	32.2	30.8	31.5	-20.3%
Bosnia and Herzegovina	14.6	4.4	10.4	12.6	11.8	14.8	15.7	17.1	15.3	14.1	17.5	19.3%
Bulgaria	42.1	41.8	40.6	44.0	42.9	44.6	42.4	46.0	50.0	46.6	43.1	2.2%
Croatia	8.7	8.9	10.7	12.4	12.1	12.2	12.7	14.0	10.7	10.4	13.3	53.3%
Cyprus ¹	2.0	2.5	3.4	4.4	4.9	5.1	5.2	5.3	4.9	4.7	4.3	117.3%
FYR of Macedonia	5.8	6.1	6.8	6.9	6.5	6.3	6.8	7.3	6.8	6.3	6.1	5.8%
Georgia	13.7	8.2	7.4	7.3	8.3	8.5	8.6	10.1	10.2	9.7	10.1	-26.7%
Gibraltar	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	139.2%
Kazakhstan	87.4	66.7	51.3	67.8	76.6	80.3	78.7	82.6	86.6	92.8	95.4	9.1%
Kosovo ²	..	..	3.0	4.5	4.8	5.2	5.0	5.2	5.8	5.9	6.5	..
Kyrgyzstan	15.7	14.3	14.9	14.9	14.8	11.8	11.1	12.1	15.2	15.2	14.0	-10.9%
Latvia	6.6	4.0	4.1	4.9	4.8	5.3	5.6	6.6	6.1	6.2	6.2	-6.6%
Lithuania	28.4	13.5	11.1	14.4	13.5	13.3	14.6	5.0	4.2	4.5	4.2	-85.2%
Malta	1.1	1.6	1.9	2.2	2.3	2.3	2.2	2.1	2.2	2.3	2.3	104.9%
Republic of Moldova	16.2	7.6	5.6	6.0	5.9	6.0	6.2	6.1	5.8	5.8	4.5	-72.3%
Montenegro ²	..	..	..	2.9	2.1	2.8	2.8	4.0	2.7	2.8	3.9	..
Romania	64.3	59.3	51.9	59.4	61.7	65.0	57.7	60.6	62.0	58.8	58.5	-9.0%
Russian Federation	1 082.2	859.0	876.5	951.2	1 013.4	1 038.4	990.0	1 036.1	1 053.0	1 069.3	1 057.6	-2.3%
Serbia ²	40.9	34.5	34.1	36.5	36.6	36.8	37.7	37.4	38.0	36.2	39.2	-4.2%
Tajikistan	18.1	14.8	14.2	17.1	17.5	16.1	16.1	16.4	16.2	17.0	17.1	-5.7%
Turkmenistan	14.6	9.8	9.8	12.8	14.9	15.0	16.0	16.7	17.2	17.8	18.9	29.2%
Ukraine	298.6	193.8	171.3	185.9	196.1	192.6	173.6	188.6	194.9	198.4	193.7	-35.1%
Uzbekistan	56.3	47.5	46.9	49.2	49.0	49.4	50.0	51.7	52.4	52.5	54.2	-3.8%
Non-OECD Europe and Eurasia	1 893.8	1 450.2	1 431.7	1 582.9	1 663.0	1 698.3	1 618.9	1 699.0	1 724.5	1 743.9	1 740.3	-8.1%
Algeria	16.1	19.7	25.4	33.9	37.2	40.2	38.5	45.7	51.2	57.4	59.9	271.9%
Angola	0.8	1.0	1.4	2.8	3.2	4.2	4.7	5.4	5.7	5.6	6.0	612.8%
Benin	0.0	0.0	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2	723.8%
Botswana	0.9	1.0	1.1	1.1	0.8	0.7	0.6	0.5	0.5	0.3	0.9	-3.9%
Cameroon	2.7	2.8	3.5	4.0	5.2	5.7	5.8	5.9	5.9	6.3	6.8	153.9%
Congo	0.5	0.4	0.3	0.4	0.4	0.5	0.5	0.8	1.3	1.7	1.8	258.6%
Côte d'Ivoire	2.0	2.9	4.8	5.7	5.6	5.8	5.9	6.0	6.1	7.0	7.6	281.6%
Dem. Rep. of Congo	5.7	6.2	6.0	7.4	7.9	7.5	7.8	7.9	7.9	8.0	8.6	52.7%
Egypt	42.3	52.0	78.1	108.7	125.1	131.0	139.0	146.8	157.4	164.4	167.8	297.1%
Eritrea	..	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	..
Ethiopia	1.2	1.5	1.7	2.8	3.5	3.8	4.0	5.0	6.3	7.6	8.7	625.4%
Gabon	1.0	1.1	1.3	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.4	145.4%
Ghana	5.7	6.1	7.2	6.8	7.0	8.3	9.0	10.2	11.2	12.0	12.9	125.0%
Kenya	3.2	4.1	4.0	5.8	6.5	6.6	6.8	7.4	7.8	8.2	8.9	174.4%
Libya	10.2	11.4	15.5	22.7	26.2	30.7	31.0	32.8	27.6	34.0	30.3	197.8%
Mauritius	0.8	1.2	1.8	2.3	2.5	2.6	2.6	2.7	2.7	2.8	2.9	270.3%
Morocco	9.6	12.1	12.9	19.3	19.9	20.6	21.1	23.7	25.0	27.3	27.9	190.1%
Mozambique	0.5	0.4	0.9	13.3	16.1	15.1	17.0	16.7	16.8	15.2	14.9	+
Namibia	..	1.2	1.4	1.7	1.6	1.6	1.5	1.3	1.4	1.6	1.3	..
Niger	..	..	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	..
Nigeria	13.5	15.9	14.7	23.5	23.0	21.1	19.8	26.1	27.0	28.7	29.0	115.1%
Senegal	0.9	1.1	1.6	2.5	2.7	2.8	2.9	3.1	3.2	3.5	3.7	292.7%
South Africa	165.4	185.4	207.8	242.1	260.5	255.5	246.8	256.6	259.6	254.9	253.2	53.1%
South Sudan ³	..	..	..	..	..	..	..	..	..	0.4	0.5	..
Sudan ³	1.5	1.9	2.6	3.8	5.0	5.5	6.5	7.5	8.5	9.4	10.3	578.8%
United Rep. of Tanzania	1.6	1.9	2.5	3.6	4.2	4.4	4.7	5.3	5.1	5.6	5.6	242.4%
Togo	0.2	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	-29.7%
Tunisia	5.8	7.7	10.6	12.7	13.7	14.4	15.3	16.4	16.5	18.1	18.4	216.3%
Zambia	8.0	7.9	7.8	8.9	9.7	9.5	9.9	10.5	11.5	12.4	13.3	66.2%
Zimbabwe	9.4	7.8	7.0	9.4	7.6	7.6	7.3	8.6	9.2	9.1	9.5	1.3%
Other Africa	6.7	7.8	10.1	12.7	13.8	14.6	15.2	15.7	17.1	17.1	17.6	163.3%
Africa	316.1	363.0	441.6	560.2	611.6	622.9	626.8	671.3	695.4	721.8	731.6	131.5%

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

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

3. Prior to 2012, data for South Sudan were included in Sudan.

Electricity output

terawatt hours

	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	% change 90-13
Bangladesh	7.7	10.8	15.8	26.4	31.0	34.2	37.2	40.8	44.2	48.6	53.0	586.0%
Brunei Darussalam	1.2	2.0	2.5	3.3	3.4	3.4	3.6	3.8	3.7	3.9	4.4	275.6%
Cambodia	..	0.2	0.4	1.0	1.5	1.5	1.3	1.0	1.1	1.4	1.8	..
DPR of Korea	27.7	23.0	19.4	22.9	21.5	23.2	21.1	21.7	19.2	19.2	19.5	-29.5%
India	292.7	423.7	569.7	715.7	823.6	848.4	917.3	979.4	1 074.5	1 123.0	1 193.5	307.7%
Indonesia	32.7	59.2	93.3	127.5	142.2	149.3	156.8	169.8	183.3	193.1	215.6	560.0%
Malaysia	23.0	45.5	69.3	82.7	97.5	97.8	116.0	124.8	129.3	134.4	138.3	501.1%
Mongolia	3.3	2.6	2.9	3.4	3.7	4.0	4.0	4.3	4.5	4.8	5.0	49.9%
Myanmar	2.5	4.1	5.1	6.0	6.4	6.6	7.0	7.5	9.9	10.7	11.9	379.8%
Nepal	0.9	1.2	1.7	2.5	2.8	2.8	3.1	3.2	3.5	3.6	3.6	315.3%
Pakistan	37.7	57.0	68.1	93.6	95.7	91.6	95.4	94.4	95.1	96.1	97.8	159.6%
Philippines	26.3	33.6	45.3	56.6	59.6	60.8	61.9	67.7	69.2	72.9	75.3	185.9%
Singapore	15.7	22.2	31.7	38.2	41.1	41.7	41.8	45.4	46.0	47.0	48.0	205.2%
Sri Lanka	3.2	4.8	7.0	9.3	9.9	10.0	10.0	10.8	11.7	11.9	12.0	281.7%
Chinese Taipei	88.4	129.1	180.6	223.5	239.2	234.8	226.4	243.9	249.1	247.4	248.9	181.5%
Thailand	44.2	80.1	96.0	132.2	143.4	147.4	148.4	159.5	156.0	166.8	165.7	275.1%
Viet Nam	8.7	14.6	26.6	53.7	67.0	73.4	83.2	94.9	105.3	119.7	127.0	+
Other Asia	8.4	9.0	13.8	16.7	20.3	20.6	20.8	20.9	21.0	20.4	21.7	157.9%
Asia (excl. China)	624.3	922.5	1 249.1	1 615.2	1 809.7	1 851.7	1 955.2	2 093.8	2 226.5	2 325.1	2 443.1	291.4%
People's Rep. of China	621.3	1 007.9	1 356.4	2 502.5	3 287.5	3 482.0	3 742.0	4 197.3	4 704.9	4 984.7	5 436.6	775.1%
Hong Kong, China	28.9	27.9	31.3	38.5	39.0	38.0	38.7	38.4	39.1	38.8	39.2	35.3%
China	650.2	1 035.8	1 387.7	2 540.9	3 326.5	3 520.0	3 780.7	4 235.7	4 744.0	5 023.6	5 475.7	742.1%
Argentina	50.7	67.0	88.9	105.5	107.4	121.6	121.9	125.3	129.6	134.8	139.2	174.3%
Bolivia	2.3	3.0	3.9	4.9	5.7	5.8	6.1	6.8	7.2	7.7	8.1	248.7%
Brazil	222.8	275.6	348.9	403.0	445.1	463.1	466.1	515.7	531.8	552.7	570.3	156.0%
Colombia	36.4	42.7	43.1	50.3	55.2	55.9	57.1	59.4	61.0	62.3	64.7	77.9%
Costa Rica	3.5	4.9	6.9	8.3	9.1	9.5	9.3	9.6	9.8	10.2	10.2	195.1%
Cuba	15.0	12.5	15.0	15.3	17.6	17.7	17.7	17.4	17.8	18.4	19.1	27.4%
Curaçao ¹	0.8	1.0	1.1	1.2	1.3	1.2	1.3	1.3	1.3	0.9	0.9	16.1%
Dominican Republic	3.7	5.5	8.5	12.7	14.4	14.8	14.4	15.3	15.9	16.9	17.7	378.1%
Ecuador	6.3	8.4	10.6	12.7	16.4	18.8	18.6	19.5	20.5	22.8	23.3	266.3%
El Salvador	2.2	3.3	3.4	4.8	5.8	6.0	5.8	6.0	5.8	5.9	5.8	163.1%
Guatemala	2.2	3.5	6.0	8.0	8.8	8.7	9.0	8.9	9.2	9.4	9.9	353.8%
Haiti	0.6	0.5	0.5	0.6	0.5	0.5	0.7	0.6	0.9	1.1	1.1	85.1%
Honduras	2.3	2.7	3.7	5.6	6.3	6.5	6.6	6.8	7.7	7.7	8.1	248.2%
Jamaica	2.5	5.8	6.6	7.4	6.0	4.2	4.4	4.3	4.4	4.2	4.2	69.0%
Nicaragua	1.5	1.9	2.4	3.1	3.2	3.4	3.5	3.7	3.8	4.0	4.2	185.7%
Panama	2.7	3.5	4.9	5.8	6.5	6.4	7.0	7.4	7.9	8.6	9.0	236.6%
Paraguay	27.2	42.2	53.5	51.2	53.7	55.5	55.0	54.1	57.6	60.2	60.4	122.1%
Peru	13.8	16.1	19.9	25.5	29.9	32.4	32.9	35.9	39.2	39.9	43.4	214.1%
Trinidad and Tobago	3.6	4.3	5.5	7.1	7.7	7.7	7.8	8.5	8.8	9.1	9.5	165.7%
Uruguay	7.4	6.3	7.6	7.7	9.4	8.8	8.9	11.0	10.3	10.6	11.7	56.7%
Venezuela	59.3	73.4	85.3	105.4	114.2	119.3	119.6	113.8	118.0	121.7	123.2	107.6%
Other Non-OECD Americas	22.2	27.7	32.5	37.7	38.4	37.0	37.1	37.7	37.7	38.4	39.1	76.2%
Non-OECD Americas	489.0	612.0	758.8	883.8	962.5	1 004.9	1 010.9	1 068.9	1 106.2	1 147.7	1 182.9	141.9%
Bahrain	8.0	11.6	13.9	19.4	21.7	22.8	22.6	23.8	24.3	24.8	25.9	224.4%
Islamic Republic of Iran	59.1	85.0	121.4	178.1	204.0	214.5	221.4	233.0	240.1	254.3	270.4	357.5%
Iraq	24.0	29.7	31.9	30.4	33.2	36.8	45.6	50.2	54.2	61.7	73.6	206.5%
Jordan	3.6	5.6	7.4	9.7	13.0	13.8	14.3	14.8	14.6	16.6	17.3	374.5%
Kuwait	18.5	23.7	32.3	43.7	48.8	51.7	53.2	57.0	57.5	62.7	61.0	230.0%
Lebanon	1.5	5.3	9.6	12.3	12.0	13.3	13.8	15.7	16.4	14.8	18.2	+
Oman	4.5	6.5	9.1	12.7	14.6	16.0	18.4	19.8	21.9	25.0	26.2	483.0%
Qatar	4.8	6.0	9.1	14.4	19.5	21.6	24.2	28.1	30.7	34.8	34.7	619.6%
Saudi Arabia	69.2	97.8	126.2	176.1	190.5	204.2	217.1	240.1	250.1	271.7	284.0	310.4%
Syrian Arab Republic	11.6	16.6	25.2	34.9	38.6	41.0	43.3	46.4	42.1	32.5	25.9	123.3%
United Arab Emirates	17.1	25.0	39.9	60.7	76.1	86.3	90.6	97.7	99.1	102.6	106.2	521.9%
Yemen	1.7	2.4	3.4	4.8	6.0	6.5	6.8	7.8	6.2	7.1	8.5	411.2%
Middle East	223.6	315.3	429.5	597.2	678.1	728.8	771.1	834.4	857.2	908.5	951.8	325.7%

1. Prior to 2012, Curaçao includes the entire territory of the former Netherlands Antilles.

CO₂ emissions per kWh from electricity generation ¹grammes CO₂ / kilowatt hour

	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	average 11-13
World	533	533	533	547	551	536	530	528	536	530	528	531
<i>Annex I Parties</i>	503	481	475	470	470	454	433	433	435	429	424	429
<i>Annex II Parties</i>	493	478	474	468	466	447	426	426	424	418	415	419
<i>North America</i>	541	544	554	537	526	509	481	489	468	446	446	453
<i>Europe</i>	417	375	342	338	342	318	302	294	293	295	280	290
<i>Asia Oceania</i>	494	469	474	507	526	517	504	491	553	598	600	584
<i>Annex I EIT</i>	536	492	472	483	487	480	457	463	488	474	469	477
<i>Non-Annex I Parties</i>	626	659	653	666	660	643	645	636	640	631	626	632
<i>Annex I Kyoto Parties</i>	474	430	407	415	424	407	390	386	406	412	405	408
Non-OECD Total	576	606	610	642	641	626	625	617	626	616	612	618
OECD Total	508	492	487	476	475	458	441	441	441	436	432	436
Canada	200	179	220	200	210	195	173	183	169	161	158	163
Chile	452	261	342	320	383	405	377	415	448	490	482	473
Mexico	555	547	567	515	484	435	460	462	455	458	506	473
United States	593	601	604	586	572	554	526	531	512	488	489	497
OECD Americas	541	542	553	534	522	504	478	487	467	447	450	455
Australia	833	826	853	879	867	866	888	823	801	810	798	803
Israel	840	833	779	790	784	724	706	698	738	780	694	737
Japan	446	419	410	440	465	451	427	429	511	565	572	549
Korea	543	573	546	497	491	497	537	546	558	552	536	549
New Zealand	110	90	168	242	200	219	172	155	144	176	156	159
OECD Asia Oceania	504	491	495	513	525	519	518	511	560	591	585	579
Austria	244	210	174	225	211	193	168	200	218	168	166	184
Belgium	358	373	300	283	259	257	217	225	201	221	199	207
Czech Republic	760	811	734	625	648	633	599	599	600	559	516	559
Denmark	682	596	452	374	431	403	404	362	318	259	300	292
Estonia	962	1 095	1 082	1 067	1 067	1 103	1 096	1 031	963	927	1 016	969
Finland	193	227	178	168	244	182	193	234	195	137	175	169
France	108	75	77	81	78	71	77	80	63	67	64	64
Germany	624	601	542	506	522	489	480	475	483	486	486	485
Greece	1 007	964	836	793	765	759	737	730	718	695	649	688
Hungary	503	519	473	376	370	354	316	319	320	317	293	310
Iceland	1	1	0	0	1	1	0	0	0	0	0	0
Ireland	750	736	650	590	515	475	455	462	428	461	435	442
Italy	581	551	502	491	480	457	415	410	406	389	343	379
Luxembourg	2 769	1 861	467	345	345	336	344	341	339	337	306	328
Netherlands	616	554	482	459	460	446	423	419	408	446	452	435
Norway	1	2	1	2	4	3	11	17	13	9	8	10
Poland	1 009	924	884	836	838	833	816	800	799	772	769	780
Portugal	527	585	493	527	400	398	383	257	306	368	281	319
Slovak Republic	398	371	251	226	225	212	214	201	204	198	176	193
Slovenia	438	390	350	356	382	338	325	331	345	338	319	334
Spain	436	462	441	402	392	330	299	240	296	310	247	284
Sweden	12	22	22	20	18	18	19	26	17	12	13	14
Switzerland	22	21	23	29	26	26	24	25	27	25	24	25
Turkey	582	523	538	446	503	520	505	468	480	468	442	463
United Kingdom	686	538	480	501	515	498	448	451	442	489	459	463
OECD Europe	463	419	384	373	381	360	344	336	338	336	322	332
<i>European Union - 28</i>	504	452	409	396	404	380	361	352	356	356	337	350
G7	515	495	492	484	483	465	441	446	442	437	435	438
G8	499	481	483	480	478	462	437	443	443	437	435	438
G20	541	543	547	562	567	549	542	539	549	543	541	544

1. CO₂ 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.

CO₂ emissions per kWh from electricity generationgrammes CO₂ / kilowatt hour

	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	average 11-13
Non-OECD Total	576	606	610	642	641	626	625	617	626	616	612	618
Albania	164	39	43	26	31	-	1	2	7	-	-	7
Armenia	499	212	239	132	157	160	103	93	124	177	170	157
Azerbaijan	579	702	746	540	552	520	484	433	457	496	483	479
Belarus	553	503	474	461	454	467	468	451	443	427	419	430
Bosnia and Herzegovina	726	180	841	813	1 028	847	822	737	994	994	792	926
Bulgaria	776	589	487	517	611	578	552	553	603	545	507	552
Croatia	385	266	317	335	427	372	294	240	339	316	231	295
Cyprus ¹	847	831	846	796	768	766	754	712	740	734	646	706
FYR of Macedonia	935	897	815	807	887	923	814	697	877	871	816	855
Georgia	580	514	226	101	162	80	124	69	102	118	85	102
Gibraltar	744	745	767	747	759	764	765	752	778	756	753	762
Kazakhstan	621	632	743	608	695	576	449	416	439	471	496	468
Kosovo ²	..	..	1 342	1 144	1 111	1 110	1 312	1 314	1 131	1 047	982	1 053
Kyrgyzstan	167	100	78	55	52	89	75	37	32	35	33	33
Latvia	116	135	136	89	107	115	97	120	133	92	134	120
Lithuania	159	66	100	101	88	84	84	340	271	272	204	249
Malta	1 609	968	827	1 044	1 022	857	859	872	846	864	731	813
Republic of Moldova	732	720	646	490	494	485	499	488	489	500	474	487
Montenegro ²	..	..	..	394	469	544	295	431	668	557	389	538
Romania	865	755	589	502	552	521	481	420	508	489	356	451
Russian Federation	412	369	400	444	435	433	408	419	444	435	439	440
Serbia ²	910	1 022	904	779	749	747	755	726	799	775	748	774
Tajikistan	68	25	26	21	7	6	4	1	1	1	1	1
Turkmenistan	689	936	876	876	876	932	870	958	988	992	935	972
Ukraine	664	576	407	408	434	440	419	424	459	470	472	467
Uzbekistan	630	576	634	592	613	546	570	554	562	550	548	553
Non-OECD Europe and Eurasia	507	456	447	459	469	459	433	434	466	458	453	459
Algeria	635	636	623	609	600	599	641	549	559	552	517	543
Angola	347	179	504	275	303	333	470	435	394	395	394	395
Benin	1 212	960	607	717	669	686	727	727	724	728	723	725
Botswana	1 681	1 681	1 457	1 595	1 299	1 512	1 513	1 511	1 476	1 411	1 456	1 448
Cameroon	13	10	10	41	164	162	198	209	200	203	214	206
Congo	7	9	-	104	102	108	246	269	231	251	251	244
Côte d'Ivoire	208	278	381	460	411	451	393	463	439	493	511	481
Dem. Rep. of Congo	5	4	1	1	3	4	3	3	3	3	3	3
Egypt	529	448	346	478	442	465	470	427	424	447	441	437
Eritrea	..	1 721	1 347	985	951	810	841	859	858	858	857	858
Ethiopia	137	42	11	3	44	120	123	7	7	2	1	3
Gabon	272	257	328	377	424	354	365	414	442	443	440	442
Ghana	-	3	66	148	363	217	190	297	217	251	273	247
Kenya	51	64	481	258	258	335	406	281	301	229	279	270
Libya	787	1 142	1 032	910	786	698	711	686	640	573	573	596
Mauritius	560	544	651	691	808	792	784	821	803	809	812	808
Morocco	794	943	846	843	816	800	710	695	738	708	642	696
Mozambique	245	64	5	1	1	0	1	1	1	1	12	5
Namibia	..	38	5	26	107	151	73	24	14	56	57	42
Niger	..	..	1 100	1 083	914	968	935	1 116	1 107	1 070	1 024	1 067
Nigeria	423	339	456	338	368	368	389	382	395	405	412	404
Senegal	898	889	914	749	641	630	727	680	626	609	591	608
South Africa	866	902	911	869	844	967	924	945	887	925	926	913
South Sudan ¹	..	..	..	..	..	..	..	..	..	850	856	853
Sudan ¹	328	470	513	621	586	607	417	145	196	204	190	197
United Rep. of Tanzania	154	286	132	381	331	281	254	279	376	446	502	441
Togo	426	187	567	356	408	209	232	375	125	173	173	157
Tunisia	656	591	578	471	508	496	490	483	471	463	464	466
Zambia	12	7	7	6	3	3	2	2	3	3	2	3
Zimbabwe	728	938	755	639	441	342	372	350	373	414	417	401
Other Africa	345	281	370	418	443	445	444	445	455	467	468	463
Africa	681	699	664	645	619	665	640	623	594	603	594	597

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

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

CO₂ emissions per kWh from electricity generationgrammes CO₂ / kilowatt hour

	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	average 11-13
Bangladesh	558	605	558	554	579	574	573	591	569	579	581	577
Brunei Darussalam	928	885	799	804	743	795	793	734	720	726	620	689
Cambodia	..	813	843	801	813	829	825	812	801	535	379	572
DPR of Korea	577	491	595	532	478	491	525	477	386	385	385	386
India	745	817	808	792	797	807	830	807	768	813	791	791
Indonesia	688	599	664	729	780	759	757	722	762	805	761	776
Malaysia	699	580	541	662	651	697	636	769	683	681	693	686
Mongolia	733	1 318	1 139	1 188	1 195	1 079	1 099	1 161	1 171	1 201	1 347	1 240
Myanmar	513	511	460	398	361	311	201	265	192	218	195	202
Nepal	-	26	12	5	2	2	3	1	-	4	2	3
Pakistan	411	439	483	383	436	454	461	428	413	420	416	416
Philippines	345	469	501	499	450	491	483	489	500	510	577	529
Singapore	917	942	769	515	494	477	471	485	488	470	456	471
Sri Lanka	2	51	452	481	398	386	408	312	441	544	336	440
Chinese Taipei	470	542	635	659	662	657	644	633	609	591	585	595
Thailand	634	613	573	541	553	535	519	518	528	506	510	515
Viet Nam	562	306	433	452	431	411	389	437	395	366	353	371
Other Asia	352	267	281	415	330	314	319	318	330	341	341	337
Asia (excl. China)	638	673	686	675	683	687	693	687	665	686	675	675
People's Rep. of China	914	923	907	887	840	783	771	749	763	723	711	732
Hong Kong, China	845	872	723	769	789	771	777	734	780	771	782	778
China	911	922	904	885	839	782	771	749	763	723	712	733
Argentina	400	341	341	310	380	366	362	362	386	401	371	386
Bolivia	310	402	315	331	336	377	395	432	436	429	394	419
Brazil	57	57	90	85	73	91	65	87	69	100	134	101
Colombia	213	208	163	133	129	109	178	181	106	124	182	137
Costa Rica	20	156	8	28	72	64	40	56	64	55	81	67
Cuba	773	867	697	840	757	740	1 044	1 002	932	883	900	905
Curaçao ¹	724	721	721	718	716	714	714	715	714	713	712	713
Dominican Republic	877	904	790	640	619	636	627	602	601	577	583	587
Ecuador	189	311	217	379	347	262	331	396	338	314	349	334
El Salvador	68	395	328	306	320	273	276	222	246	241	238	242
Guatemala	75	299	397	396	374	348	353	286	272	258	290	273
Haiti	412	330	349	310	518	499	361	472	294	599	601	498
Honduras	10	330	284	413	423	413	345	333	379	236	271	295
Jamaica	765	897	832	577	621	657	649	660	671	668	637	659
Nicaragua	348	478	597	486	538	485	511	465	476	411	344	410
Panama	172	320	233	277	320	276	349	377	401	330	252	328
Paraguay	0	3	-	-	-	-	-	-	-	-	-	-
Peru	186	188	156	211	201	242	255	292	300	287	253	280
Trinidad and Tobago	712	714	689	764	758	703	713	703	707	680	652	680
Uruguay	43	54	57	104	105	310	255	80	198	276	124	199
Venezuela	282	185	190	209	208	204	209	246	223	254	248	242
Other Non-OECD Americas	..	..	..	..	..	..	..	..	..	..	..	..
Non-OECD Americas	182	172	176	180	180	186	185	195	183	201	215	200
Bahrain	845	795	820	773	756	770	789	754	754	759	760	758
Islamic Republic of Iran	607	610	578	545	551	586	583	569	582	573	559	571
Iraq	575	1 695	660	795	453	679	1 006	1 067	991	1 031	1 034	1 019
Jordan	823	841	715	665	591	597	587	579	643	642	639	641
Kuwait	895	582	788	807	789	785	878	764	794	751	727	758
Lebanon	1 854	685	745	596	669	722	724	716	714	814	713	747
Oman	767	836	800	696	685	666	650	642	616	604	570	597
Qatar	1 082	1 137	775	621	568	537	510	495	492	495	497	495
Saudi Arabia	837	820	812	745	732	741	763	743	761	744	727	744
Syrian Arab Republic	558	590	572	612	628	632	634	599	606	581	555	581
United Arab Emirates	747	741	732	848	724	752	635	601	600	600	600	600
Yemen	754	955	934	849	818	815	829	796	853	822	748	808
Middle East	742	814	708	688	653	681	698	677	685	681	671	679

1. Prior to 2012, Curaçao includes the entire territory of the former Netherlands Antilles.

CO₂ emissions per kWh from electricity generation using coal ¹grammes CO₂ / kilowatt hour

	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	average 11-13
World	1 000	1 010	989	1 003	991	969	967	959	955	951	945	951
<i>Annex I Parties</i>	976	969	941	956	966	944	941	943	949	947	947	948
<i>Annex II Parties</i>	948	965	942	944	956	936	934	933	934	938	938	937
<i>North America</i>	932	967	940	941	953	929	928	927	929	935	932	932
<i>Europe</i>	952	941	922	937	951	934	917	920	925	926	924	925
<i>Asia Oceania</i>	1 053	1 009	989	975	975	966	981	972	971	968	976	972
<i>Annex I EIT</i>	1 112	981	921	1 036	1 021	980	973	993	1 017	984	991	997
<i>Non-Annex I Parties</i>	1 074	1 104	1 075	1 061	1 015	993	986	970	959	954	943	952
<i>Annex I Kyoto Parties</i>	1 022	967	939	976	979	959	954	959	968	956	960	961
Non-OECD Total	1 089	1 081	1 056	1 071	1 025	997	989	973	962	958	946	955
OECD Total	961	972	947	945	954	938	938	939	945	941	942	943
Canada	979	962	925	940	996	993	964	967	953	1 020	1 033	1 002
Chile	1 018	863	974	942	760	928	883	905	966	887	869	907
Mexico	940	1 152	1 079	996	980	1 027	993	995	996	985	993	991
United States	929	967	941	941	951	926	926	926	928	931	928	929
OECD Americas	932	968	942	941	952	930	928	928	930	935	932	933
Australia	966	952	963	1 020	1 019	1 019	1 057	1 013	1 010	1 014	1 052	1 025
Israel	900	864	868	814	853	854	849	855	864	869	864	866
Japan	1 145	1 058	1 006	945	946	931	929	944	945	940	937	941
Korea	2 144	1 315	1 042	1 012	933	930	962	986	1 035	947	989	990
New Zealand	913	802	1 391	1 081	1 204	1 091	1 172	1 365	1 321	1 178	1 309	1 269
OECD Asia Oceania	1 118	1 042	994	976	960	952	970	971	986	957	975	973
Austria	979	1 097	925	1 041	1 118	1 059	1 102	1 115	1 086	1 116	1 206	1 136
Belgium	1 038	1 079	1 038	1 239	1 319	1 471	1 097	1 294	1 364	1 383	1 414	1 387
Czech Republic	981	1 083	951	963	993	1 006	994	1 014	1 036	1 025	998	1 020
Denmark	719	671	627	650	702	682	670	654	647	592	624	621
Estonia	1 047	1 113	1 148	1 124	1 100	1 162	1 181	1 143	1 078	1 067	1 128	1 091
Finland	653	681	728	744	760	758	699	738	741	682	726	716
France	1 090	1 149	1 054	999	1 050	974	994	951	907	1 034	981	974
Germany	960	966	905	919	946	930	922	923	922	919	916	919
Greece	1 160	1 149	1 012	1 030	1 011	1 030	1 021	1 046	1 039	1 045	1 071	1 052
Hungary	1 191	1 087	1 053	1 116	1 065	1 077	1 092	1 116	1 080	1 100	1 064	1 081
Iceland	-	-	-	-	-	-	-	-	-	-	-	-
Ireland	932	939	914	887	869	822	841	879	830	872	841	848
Italy	985	1 007	1 003	1 025	1 039	1 050	988	994	982	926	949	952
Luxembourg	3 470	4 051	-	-	-	-	-	-	-	-	-	-
Netherlands	913	892	872	889	870	873	836	861	862	947	957	922
Norway	1 506	926	1 125	1 143	1 149	1 205	1 232	1 231	1 361	1 321	1 263	1 315
Poland	1 027	936	901	879	887	895	892	890	901	895	886	894
Portugal	905	872	884	874	867	865	870	891	888	879	881	883
Slovak Republic	978	1 056	970	1 004	1 035	1 015	1 036	1 026	1 031	1 071	1 081	1 061
Slovenia	1 277	1 013	1 005	991	1 013	1 004	984	973	990	972	985	982
Spain	957	931	938	906	964	923	948	961	979	949	915	947
Sweden	655	537	901	1 037	856	713	799	705	637	723	708	690
Switzerland	679	-	-	-	-	-	-	-	-	-	-	-
Turkey	1 234	1 162	1 110	942	1 065	1 064	1 050	1 086	1 063	1 051	1 040	1 051
United Kingdom	930	899	950	964	961	926	911	902	916	914	923	918
OECD Europe	974	958	934	935	955	946	932	938	943	940	935	939
<i>European Union - 28</i>	977	963	931	943	957	946	932	935	943	938	932	938
<i>G7</i>	948	970	944	942	954	931	928	929	930	933	931	931
<i>G8</i>	960	959	936	950	960	933	930	933	936	934	936	935
<i>G20</i>	996	1 007	986	1 004	991	969	968	959	957	952	946	952

1. CO₂ 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.

CO₂ emissions per kWh from electricity generation using coalgrammes CO₂ / kilowatt hour

	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	average 11-13
Non-OECD Total	1 089	1 081	1 056	1 071	1 025	997	989	973	962	958	946	955
Albania	-	-	-	-	-	-	-	-	-	-	-	-
Armenia	-	-	-	-	-	-	-	-	-	-	-	-
Azerbaijan	-	-	-	-	-	-	-	-	-	-	-	-
Belarus	-	-	-	1 499	1 273	1 905	1 410	1 122	1 505	1 502	1 621	1 542
Bosnia and Herzegovina	915	997	1 648	1 563	1 566	1 261	1 372	1 396	1 400	1 424	1 357	1 394
Bulgaria	1 265	1 155	1 052	1 169	1 106	1 065	1 069	1 092	1 069	1 070	1 078	1 072
Croatia	989	1 064	912	915	880	875	900	884	857	886	916	886
Cyprus ¹	-	-	-	-	-	-	-	-	-	-	-	-
FYR of Macedonia	984	1 030	992	1 027	1 075	1 072	1 010	1 055	1 128	1 091	1 182	1 134
Georgia	-	-	-	-	-	-	-	-	-	-	-	-
Gibraltar	-	-	-	-	-	-	-	-	-	-	-	-
Kazakhstan	645	708	844	661	781	629	467	445	469	502	536	502
Kosovo ²	..	..	1 368	1 174	1 135	1 128	1 346	1 357	1 150	1 062	1 004	1 072
Kyrgyzstan	588	692	831	375	364	638	1 074	365	365	453	459	425
Latvia	864	1 254	1 520	-	..	..	..	..	..	..	..	..
Lithuania	-	-	-	-	1 023	1 124	-	-	-	-	-	-
Malta	1 191	1 410	-	-	-	-	-	-	-	-	-	-
Republic of Moldova	895	832	1 202	-	-	-	-	-	-	-	-	-
Montenegro ²	..	..	..	1 124	1 159	1 186	1 184	1 356	1 220	1 156	1 066	1 147
Romania	1 066	1 272	1 055	1 090	1 122	1 112	1 112	1 086	1 128	1 078	1 030	1 079
Russian Federation	1 141	779	815	1 100	1 074	940	946	988	1 028	957	1 007	997
Serbia ²	1 238	1 605	1 416	1 202	1 054	1 019	1 046	1 082	1 056	1 053	1 020	1 043
Tajikistan	-	-	-	-	-	-	-	-	-	-	-	-
Turkmenistan	-	-	-	-	-	-	-	-	-	-	-	-
Ukraine	1 206	1 282	1 091	1 241	1 078	1 089	1 031	1 060	1 099	1 081	1 066	1 082
Uzbekistan	1 854	1 614	1 598	1 599	1 597	1 597	1 597	1 598	1 598	1 598	1 598	1 598
Non-OECD Europe and Eurasia	1 088	978	949	1 069	1 046	956	930	942	970	940	947	952
Algeria	-	-	-	-	-	-	-	-	-	-	-	-
Angola	-	-	-	-	-	-	-	-	-	-	-	-
Benin	-	-	-	-	-	-	-	-	-	-	-	-
Botswana	1 760	1 694	1 466	1 598	1 301	1 512	1 513	1 511	1 512	1 509	1 513	1 511
Cameroon	-	-	-	-	-	-	-	-	-	-	-	-
Congo	-	-	-	-	-	-	-	-	-	-	-	-
Côte d'Ivoire	-	-	-	-	-	-	-	-	-	-	-	-
Dem. Rep. of Congo	-	-	-	-	-	-	-	-	-	-	-	-
Egypt	-	-	-	-	-	-	-	-	-	-	-	-
Eritrea	..	-	-	-	-	-	-	-	-	-	-	-
Ethiopia	-	-	-	-	-	-	-	-	-	-	-	-
Gabon	-	-	-	-	-	-	-	-	-	-	-	-
Ghana	-	-	-	-	-	-	-	-	-	-	-	-
Kenya	-	-	-	-	-	-	-	-	-	-	-	-
Libya	-	-	-	-	-	-	-	-	-	-	-	-
Mauritius	1 831	1 382	1 540	1 364	1 358	1 319	1 380	1 509	1 359	1 377	1 373	1 370
Morocco	1 268	1 041	957	970	990	987	981	1 010	1 003	1 007	972	994
Mozambique	901	-	-	-	-	-	-	-	-	-	-	-
Namibia	..	1 374	..	..	..	1 363	1 349	..	..	..	1 361	1 361
Niger	..	..	1 276	1 326	1 157	1 128	1 108	1 365	1 171	1 152	1 148	1 157
Nigeria	1 690	-	-	-	-	-	-	-	-	-	-	-
Senegal	-	-	-	-	-	-	-	-	-	-	-	-
South Africa	918	963	979	918	887	1 025	982	1 002	945	977	988	970
South Sudan ¹	..	..	..	..	..	..	..	..	..	-	-	..
Sudan ¹	-	-	-	-	-	-	-	-	-	-	-	-
United Rep. of Tanzania	-	1 139	1 129	1 131	1 153	1 156	-	-	-	-	-	-
Togo	-	-	-	-	-	-	-	-	-	-	-	-
Tunisia	-	-	-	-	-	-	-	-	-	-	-	-
Zambia	1 738	1 753	1 669	1 607	-	-	-	-	-	-	-	-
Zimbabwe	1 365	1 313	1 386	1 341	1 545	1 441	1 521	1 075	859	1 010	873	914
Other Africa	973	973	973	973	973	973	973	973	973	973	973	973
Africa	942	981	989	933	902	1 029	989	1 006	950	982	989	974

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

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

CO₂ emissions per kWh from electricity generation using coalgrammes CO₂ / kilowatt hour

	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	average 11-13
Bangladesh	-	-	-	1 421	1 419	851	890	1 280	1 022	998	1 008	1 010
Brunei Darussalam	-	-	-	-	-	-	-	-	-	-	-	-
Cambodia	..	-	-	-	-	-	1 092	1 048	1 068	1 084	1 085	1 079
DPR of Korea	1 320	1 278	1 241	1 232	1 232	1 232	1 278	1 241	1 215	1 281	1 281	1 259
India	1 013	1 045	1 052	1 069	1 095	1 070	1 107	1 071	1 039	1 049	1 019	1 036
Indonesia	957	961	994	1 043	1 073	1 100	1 091	1 106	1 087	1 134	1 055	1 092
Malaysia	1 099	1 099	770	1 098	1 098	1 221	1 091	1 197	973	1 004	1 004	993
Mongolia	725	1 341	1 147	1 192	1 201	1 081	1 100	1 165	1 176	1 207	1 384	1 256
Myanmar	1 220	-	-	1 057	1 056	1 053	1 053	1 055	978	959	959	965
Nepal	-	-	-	-	-	-	-	-	-	-	-	-
Pakistan	1 873	1 614	1 521	2 483	2 760	2 234	2 502	2 507	2 510	2 382	2 378	2 423
Philippines	1 041	1 465	979	1 161	1 009	1 246	1 161	939	974	956	1 045	992
Singapore	-	-	-	-	-	-	-	-	-	1 465	1 361	1 413
Sri Lanka	-	-	-	-	-	-	-	-	1 055	1 234	1 280	1 190
Chinese Taipei	1 004	871	961	944	950	964	947	946	904	897	897	899
Thailand	977	1 004	986	994	995	958	942	951	1 033	1 032	1 035	1 033
Viet Nam	1 826	1 444	1 509	1 008	1 008	1 007	1 007	1 008	1 008	1 008	1 007	1 008
Other Asia	-	-	1 000	1 003	1 002	1 001	1 000	1 000	1 003	1 003	1 002	1 002
Asia (excl. China)	1 024	1 029	1 033	1 049	1 066	1 061	1 079	1 057	1 022	1 035	1 014	1 024
People's Rep. of China	1 191	1 187	1 117	1 096	1 021	979	967	946	944	932	922	932
Hong Kong, China	849	873	887	899	909	916	906	903	911	905	894	904
China	1 170	1 177	1 113	1 094	1 020	978	966	946	944	932	921	932
Argentina	4 229	2 422	1 279	1 431	1 282	1 369	1 285	1 208	1 179	1 215	1 229	1 208
Bolivia	-	-	-	-	-	-	-	-	-	-	-	-
Brazil	1 780	1 634	1 555	1 527	1 600	1 428	1 486	1 583	1 199	1 443	1 285	1 309
Colombia	1 205	1 187	1 135	1 185	977	1 083	1 116	1 129	1 068	982	961	1 004
Costa Rica	-	-	-	-	-	-	-	-	-	-	-	-
Cuba	-	-	-	-	-	-	-	-	-	-	-	-
Curaçao ¹	-	-	-	-	-	-	-	-	-	-	-	-
Dominican Republic	965	971	974	973	973	973	973	973	973	973	973	973
Ecuador	-	-	-	-	-	-	-	-	-	-	-	-
El Salvador	-	-	-	-	-	-	-	-	-	-	-	-
Guatemala	-	-	974	937	968	966	979	1 024	1 009	980	891	960
Haiti	-	-	-	-	-	-	-	-	-	-	-	-
Honduras	-	-	-	-	-	-	-	-	942	945	945	944
Jamaica	-	-	-	-	-	-	-	-	-	-	-	-
Nicaragua	-	-	-	-	-	-	-	-	-	-	-	-
Panama	-	-	-	-	-	-	-	-	1 134	1 136	1 136	1 135
Paraguay	-	-	-	-	-	-	-	-	-	-	-	-
Peru	-	-	1 135	1 135	1 135	1 135	1 305	1 336	1 342	1 198	1 136	1 225
Trinidad and Tobago	-	-	-	-	-	-	-	-	-	-	-	-
Uruguay	-	-	-	-	-	-	-	-	-	-	-	-
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-
Other Non-OECD Americas	..	..	..	..	..	..	..	..	..	..	..	..
Non-OECD Americas	1 705	1 571	1 430	1 383	1 338	1 293	1 308	1 361	1 154	1 274	1 182	1 203
Bahrain	-	-	-	-	-	-	-	-	-	-	-	-
Islamic Republic of Iran	571	574	..	..	..	..	..	..	..	..	..	..
Iraq	-	-	-	-	-	-	-	-	-	-	-	-
Jordan	-	-	-	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-	-	-	-
Lebanon	-	-	-	-	-	-	-	-	-	-	-	-
Oman	-	-	-	-	-	-	-	-	-	-	-	-
Qatar	-	-	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	-	-	-	-	-	-	-	-	-	-	-	-
Syrian Arab Republic	-	-	-	-	-	-	-	-	-	-	-	-
United Arab Emirates	-	-	-	-	-	-	-	-	-	-	-	-
Yemen	-	-	-	-	-	-	-	-	-	-	-	-
Middle East	571	574	..	..	..	..	..	..	..	..	..	..

1. Prior to 2012, Curaçao includes the entire territory of the former Netherlands Antilles.

CO₂ emissions per kWh from electricity generation using oil ¹grammes CO₂ / kilowatt hour

	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	average 11-13
World	751	747	743	763	750	756	792	795	793	790	813	799
<i>Annex I Parties</i>	694	641	701	712	702	696	686	686	683	673	676	677
<i>Annex II Parties</i>	680	649	694	705	696	688	677	676	666	656	666	662
<i>North America</i>	684	573	800	766	756	724	715	727	715	693	739	716
<i>Europe</i>	680	659	645	695	711	726	705	710	710	697	660	689
<i>Asia Oceania</i>	680	684	651	645	654	644	626	622	634	634	646	638
<i>Annex I EIT</i>	722	588	714	720	694	705	700	726	778	780	803	787
<i>Non-Annex I Parties</i>	843	856	772	798	776	784	834	834	838	839	862	846
<i>Annex I Kyoto Parties</i>	694	653	658	679	680	684	673	669	674	668	662	668
Non-OECD Total	812	827	781	811	791	802	848	848	847	852	869	856
OECD Total	695	674	702	709	694	679	678	683	682	675	695	684
Canada	722	629	619	810	873	801	831	882	916	872	871	886
Chile	858	1 566	934	1 069	688	621	653	674	756	985	742	827
Mexico	789	778	788	786	767	737	763	760	763	701	831	765
United States	677	564	823	761	737	711	690	702	682	656	713	683
OECD Americas	716	662	796	777	753	717	727	736	741	715	784	747
Australia	841	907	922	957	972	989	709	582	617	686	848	717
Israel	780	785	583	857	853	712	805	849	1 140	878	1 493	1 170
Japan	677	681	647	639	648	633	622	624	634	633	642	636
Korea	773	721	566	592	575	549	575	582	558	655	657	623
New Zealand	..	866	-	789	-	741	701	-	-	1 051	1 051	1 051
OECD Asia Oceania	690	694	630	645	648	637	620	621	639	651	658	649
Austria	754	592	514	543	585	614	607	542	606	575	634	605
Belgium	460	443	718	759	728	580	676	523	523	602	458	528
Czech Republic	856	579	1 055	726	974	1 145	1 203	985	1 163	935	870	990
Denmark	613	650	671	491	515	498	508	660	619	588	715	641
Estonia	374	..	594	841	895	913	771	826	596	849	531	659
Finland	459	421	497	565	566	457	481	434	499	574	616	563
France	609	511	552	869	792	913	965	869	925	661	876	821
Germany	822	525	638	642	586	633	638	575	576	605	603	595
Greece	748	742	735	717	736	752	760	762	750	729	750	743
Hungary	742	759	695	909	932	852	703	855	1 232	858	966	1 019
Iceland	526	701	631	631	..	..	..	..	..	1 051	631	841
Ireland	762	737	702	747	657	661	732	706	718	701	658	693
Italy	678	668	706	711	779	782	717	820	775	750	652	726
Luxembourg	1 032	1 238	-	-	-	-	768	-	-	-	-	..
Netherlands	661	687	598	443	456	456	406	450	476	618	504	532
Norway	..	-	410	359	490	435	401	335	342	381	318	347
Poland	826	657	614	524	508	505	489	467	491	494	507	497
Portugal	714	743	641	653	620	637	611	566	529	532	551	537
Slovak Republic	384	524	482	411	409	435	618	679	716	773	788	759
Slovenia	485	1 389	696	641	819	819	694	1 060	769	1 052	901	907
Spain	812	799	637	702	728	719	670	677	716	712	652	693
Sweden	326	339	365	396	399	386	679	389	367	402	397	389
Switzerland	717	689	376	409	422	389	403	393	387	413	427	409
Turkey	908	961	879	688	693	730	804	787	774	649	675	700
United Kingdom	666	665	463	677	683	720	800	700	697	819	758	758
OECD Europe	681	670	661	691	704	719	704	704	704	692	657	684
<i>European Union - 28</i>	710	665	655	700	714	722	703	706	713	706	666	695
<i>G7</i>	677	647	700	709	696	685	678	683	666	652	664	661
<i>G8</i>	669	623	703	715	702	693	687	694	682	669	675	676
<i>G20</i>	716	692	746	741	736	735	745	746	744	736	761	747

1. CO₂ 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.

CO₂ emissions per kWh from electricity generation using oilgrammes CO₂ / kilowatt hour

	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	average 11-13
Non-OECD Total	812	827	781	811	791	802	848	848	847	852	869	856
Albania	886	624	1 363	2 034	1 246	-	..	..	..	-	-	..
Armenia	584	309	-	-	-	-	-	-	-	-	-	-
Azerbaijan	1 006	845	848	848	824	824	822	680	779	634	701	705
Belarus	694	703	659	590	610	643	593	623	555	578	579	570
Bosnia and Herzegovina	957	1 997	1 096	1 053	1 051	-	844	774	733	774	884	797
Bulgaria	472	625	713	747	743	757	699	828	949	769	860	859
Croatia	710	648	713	685	696	672	653	549	611	643	612	622
Cyprus ¹	847	831	846	797	769	768	758	722	767	776	699	748
FYR of Macedonia	1 201	921	788	1 214	784	847	797	812	831	821	834	829
Georgia	..	..	..	..	..	..	..	..	..	-	-	..
Gibraltar	744	745	767	747	759	764	765	752	778	756	753	762
Kazakhstan	1 230	348	315	347	673	387	314	310	310	296	367	324
Kosovo ²	..	..	1 150	1 041	906	851	829	850	1 358	1 480	1 040	1 293
Kyrgyzstan	-	-	-	926	951	919	944	927	925	946	..	935
Latvia	508	498	706	339	662	411	610	863	437	710	..	573
Lithuania	516	600	548	779	603	530	526	527	564	922	558	681
Malta	2 141	942	827	1 044	1 022	857	859	872	847	874	743	821
Republic of Moldova	936	2 011	2 946	771	..	235	671	..	..	..	..	..
Montenegro ²	..	..	..	-	-	-	-	-	-	-	-	-
Romania	1 284	653	608	601	620	668	633	589	852	694	722	756
Russian Federation	638	515	740	767	735	759	762	844	807	809	878	832
Serbia ²	911	923	923	788	710	792	998	754	690	468	359	506
Tajikistan	-	-	-	-	-	-	-	-	-	-	-	-
Turkmenistan	-	-	-	-	-	-	-	-	-	-	-	-
Ukraine	865	813	636	976	598	648	922	675	936	751	847	845
Uzbekistan	3 042	803	785	786	786	786	787	799	797	796	798	797
Non-OECD Europe and Eurasia	795	633	751	770	755	730	737	773	797	790	789	792
Algeria	1 060	1 190	871	957	925	919	946	1 008	918	945	981	948
Angola	..	..	1 366	1 353	1 356	1 355	1 356	1 356	1 356	1 357	1 356	1 356
Benin	1 212	960	622	723	678	695	732	732	729	732	727	730
Botswana	1 102	1 064	1 062	1 037	1 037	-	-	-	1 095	1 069	1 079	1 081
Cameroon	860	902	928	705	713	746	718	867	868	868	867	868
Congo	1 069	1 603	-	-	-	-	1 103	1 061	1 069	1 069	1 069	1 069
Côte d'Ivoire	623	699	979	1 347	1 048	1 058	794	954	948	938	935	940
Dem. Rep. of Congo	1 022	1 231	1 069	916	916	755	1 069	1 069	1 069	1 069	1 069	1 069
Egypt	974	826	..	829	843	843	843	843	843	843	843	843
Eritrea	..	1 721	1 353	988	958	816	847	865	863	863	862	863
Ethiopia	1 175	648	837	802	970	968	1 105	1 138	1 127	1 069	1 203	1 133
Gabon	904	811	785	799	777	773	947	965	953	901	906	920
Ghana	-	844	779	868	780	850	820	1 056	880	880	880	880
Kenya	719	625	908	910	909	908	909	908	908	907	909	908
Libya	787	1 303	1 155	1 005	960	760	823	822	781	867	867	838
Mauritius	714	702	673	675	698	642	650	641	642	635	628	635
Morocco	781	941	748	925	799	817	750	741	784	731	691	736
Mozambique	510	916	1 069	916	1 069	-	-	-	-	-	-	-
Namibia	..	841	-	-	1 122	1 009	1 122	1 122	1 122	1 122	1 122	1 122
Niger	..	..	767	556	412	493	486	583	917	926	901	915
Nigeria	780	555	-	-	-	-	-	-	-	-	-	-
Senegal	951	990	1 017	928	716	715	826	793	731	717	676	708
South Africa	-	828	-	-	761	756	778	758	758	754	762	758
South Sudan ¹	..	..	..	..	..	..	..	..	..	854	860	857
Sudan ¹	893	982	951	927	824	826	829	838	835	683	990	836
United Rep. of Tanzania	3 166	1 500	932	1 108	957	946	979	1 021	1 016	1 044	992	1 017
Togo	1 069	1 069	1 323	595	851	855	927	819	942	1 130	1 130	1 067
Tunisia	839	931	916	789	738	725	734	..	..	..	805	805
Zambia	1 102	927	931	856	1 006	939	887	905	968	856	834	886
Zimbabwe	-	-	1 555	2 004	2 138	2 138	2 138	2 138	2 138	2 138	2 138	2 138
Other Africa	680	550	767	805	793	794	753	759	756	760	760	759
Africa	863	934	682	907	858	815	834	842	829	838	849	839

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

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

CO₂ emissions per kWh from electricity generation using oilgrammes CO₂ / kilowatt hour

	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	average 11-13
Bangladesh	1 112	1 014	1 088	952	787	979	633	788	568	571	589	576
Brunei Darussalam	875	855	697	774	778	778	780	760	867	867	802	845
Cambodia	..	813	845	853	850	865	859	848	849	848	848	848
DPR of Korea	1 318	1 393	1 393	1 393	1 392	1 392	1 393	1 391	1 394	1 392	1 392	1 392
India	1 191	1 226	961	862	1 013	1 020	989	943	952	1 101	1 081	1 045
Indonesia	825	896	792	743	801	748	760	778	763	774	767	768
Malaysia	916	840	855	826	838	990	784	631	740	728	613	693
Mongolia	828	773	891	1 022	1 014	1 022	1 037	1 042	1 033	1 049	1 053	1 045
Myanmar	749	903	876	849	849	802	855	778	844	818	816	826
Nepal	-	835	763	858	760	760	789	1 140	-	720	684	702
Pakistan	899	863	761	705	726	737	769	774	714	708	708	710
Philippines	568	662	692	759	670	729	702	669	751	734	769	751
Singapore	919	1 163	843	769	758	698	772	750	770	817	953	847
Sri Lanka	1 244	703	834	766	664	661	672	666	690	675	644	670
Chinese Taipei	698	702	693	806	830	827	911	880	841	909	973	908
Thailand	794	748	756	736	771	735	769	722	689	695	706	697
Viet Nam	933	909	924	1 037	990	1 258	1 172	1 092	1 096	1 108	1 108	1 104
Other Asia	779	589	704	904	929	965	945	962	990	1 050	1 050	1 030
Asia (excl. China)	841	851	807	789	824	818	823	817	796	825	827	816
People's Rep. of China	802	807	848	812	821	848	827	765	741	727	736	735
Hong Kong, China	626	833	796	806	837	844	1 041	1 117	1 038	767	912	906
China	800	808	848	812	822	848	829	768	746	734	741	740
Argentina	1 090	606	1 015	811	766	753	750	740	734	738	738	737
Bolivia	951	957	962	952	953	949	956	955	948	952	953	951
Brazil	835	828	809	765	716	689	678	718	683	727	668	693
Colombia	899	900	873	885	880	880	902	903	925	931	914	923
Costa Rica	815	906	975	861	905	897	828	841	734	673	689	699
Cuba	862	924	773	922	828	817	1 181	1 118	1 025	972	994	997
Curaçao ¹	724	721	721	718	716	714	714	715	714	713	712	713
Dominican Republic	976	1 027	872	757	708	703	699	682	686	659	710	685
Ecuador	882	802	768	976	933	742	734	798	843	754	771	789
El Salvador	994	937	781	733	730	729	632	636	723	670	666	686
Guatemala	897	890	788	693	632	704	640	657	625	647	876	716
Haiti	2 000	676	723	593	772	794	507	676	337	741	689	589
Honduras	561	853	745	616	677	666	625	638	706	454	499	553
Jamaica	827	946	875	600	654	700	701	715	735	746	710	730
Nicaragua	901	877	759	743	758	752	739	738	721	718	722	720
Panama	1 168	1 037	789	777	742	728	800	873	797	821	814	811
Paraguay	907	934	-	-	-	-	-	-	-	-	-	-
Peru	810	973	890	1 142	1 374	1 056	918	955	986	907	874	922
Trinidad and Tobago	..	..	..	..	..	..	..	668	927	798	660	795
Uruguay	853	834	869	832	815	794	819	652	714	723	650	696
Venezuela	904	1 212	860	906	939	895	898	909	922	952	951	942
Other Non-OECD Americas	..	..	..	..	..	..	..	..	..	..	..	..
Non-OECD Americas	688	670	638	644	640	645	678	685	683	679	678	680
Bahrain	-	-	-	-	1 328	1 244	-	-	-	-	1 333	1 333
Islamic Republic of Iran	916	919	921	917	915	916	915	913	911	915	916	914
Iraq	675	2 046	713	1 448	739	1 252	2 269	2 564	2 591	2 274	2 269	2 378
Jordan	863	869	724	738	922	859	932	762	694	677	693	688
Kuwait	1 209	672	926	927	949	987	1 018	864	927	851	815	864
Lebanon	2 780	792	781	651	703	743	762	774	751	873	764	796
Oman	1 066	1 067	1 066	1 065	851	799	867	915	825	774	763	787
Qatar	-	-	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	843	840	884	849	784	803	840	831	851	829	880	853
Syrian Arab Republic	797	785	737	810	766	748	769	758	811	812	822	815
United Arab Emirates	983	977	963	1 207	1 207	1 207	1 203	1 207	1 208	1 208	1 208	1 208
Yemen	754	955	934	849	818	815	829	841	902	897	798	866
Middle East	886	1 045	851	902	828	870	960	952	955	949	986	963

1. Prior to 2012, Curaçao includes the entire territory of the former Netherlands Antilles.

CO₂ emissions per kWh from electricity generation using natural gas ¹grammes CO₂ / kilowatt hour

	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	average 11-13
World	481	506	484	468	457	456	454	454	452	451	452	452
<i>Annex I Parties</i>	447	474	452	431	422	419	416	418	423	421	424	423
<i>Annex II Parties</i>	503	490	445	416	406	401	400	402	402	402	401	402
<i>North America</i>	549	538	485	449	422	414	407	412	410	406	404	407
<i>Europe</i>	456	420	388	363	363	363	367	368	361	354	351	355
<i>Asia Oceania</i>	450	449	441	443	447	450	450	445	449	449	445	447
<i>Annex I EIT</i>	379	437	483	488	488	493	486	481	507	503	520	510
<i>Non-Annex I Parties</i>	603	590	557	531	518	517	511	506	495	496	488	493
<i>Annex I Kyoto Parties</i>	405	436	436	423	424	424	424	423	433	436	444	438
Non-OECD Total	462	524	539	531	523	525	519	513	513	510	508	510
OECD Total	505	490	442	414	404	399	398	401	400	402	400	401
Canada	405	407	457	398	480	492	438	499	466	431	437	445
Chile	781	577	371	468	466	504	452	385	412	440	438	430
Mexico	557	516	492	422	422	419	402	422	407	409	471	429
United States	552	543	486	451	419	410	405	407	406	405	402	404
OECD Americas	549	537	484	446	422	415	406	412	409	407	412	409
Australia	568	561	587	533	532	536	539	482	511	525	494	510
Israel	-	518	544	562	502	442	435	445	439	366	424	410
Japan	438	439	430	434	439	441	439	440	441	440	439	440
Korea	498	438	381	370	374	369	366	372	370	422	336	376
New Zealand	510	513	466	430	417	399	403	417	420	405	413	413
OECD Asia Oceania	452	448	435	431	434	434	435	429	432	441	419	431
Austria	439	495	397	330	337	330	321	304	304	295	277	292
Belgium	515	438	387	374	333	333	340	333	301	324	319	315
Czech Republic	252	416	467	462	349	424	452	407	425	421	325	391
Denmark	293	273	287	283	280	274	281	262	259	272	267	266
Estonia	254	254	254	246	246	240	238	274	268	241	269	259
Finland	271	333	243	241	244	245	237	237	240	243	236	239
France	339	337	290	266	320	324	466	522	475	343	351	390
Germany	466	448	417	353	352	355	360	348	343	333	334	337
Greece	461	437	508	461	418	425	387	492	403	390	426	406
Hungary	564	546	460	398	407	395	362	367	368	373	338	360
Iceland	-	-	-	-	-	-	-	-	-	-	-	-
Ireland	501	483	463	414	415	394	397	400	393	387	388	390
Italy	477	468	433	394	382	377	376	376	374	373	362	369
Luxembourg	665	636	583	350	355	349	356	356	353	359	349	354
Netherlands	446	355	312	323	332	336	334	332	317	302	303	307
Norway	-	303	304	304	343	313	304	376	337	353	344	345
Poland	529	447	509	348	356	348	341	327	339	338	344	340
Portugal	-	-	373	359	354	357	363	361	357	353	340	350
Slovak Republic	817	841	492	317	307	312	341	387	348	338	326	337
Slovenia	..	347	274	292	333	347	397	380	376	374	362	371
Spain	426	471	312	321	341	351	355	362	362	359	363	361
Sweden	218	219	250	219	216	217	210	210	209	215	219	214
Switzerland	312	252	247	257	267	271	275	271	284	279	279	281
Turkey	490	421	358	376	364	366	373	378	373	375	367	372
United Kingdom	523	429	398	395	390	389	392	386	381	389	385	385
OECD Europe	464	426	387	364	364	364	368	369	362	357	353	358
<i>European Union - 28</i>	489	437	393	365	366	365	367	367	360	354	349	355
G7	508	498	454	427	413	407	406	409	408	406	405	406
G8	443	480	462	445	432	430	427	428	434	430	434	432
G20	466	489	460	441	433	429	430	432	434	435	436	435

1. CO₂ 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.

CO₂ emissions per kWh from electricity generation using natural gasgrammes CO₂ / kilowatt hour

	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	average 11-13
Non-OECD Total	462	524	539	531	523	525	519	513	513	510	508	510
Albania	-	-	-	-	-	-	-	-	-	-	-	-
Armenia	603	361	528	457	623	612	506	418	386	419	414	406
Azerbaijan	398	492	685	527	567	557	543	531	522	537	515	524
Belarus	423	426	462	457	453	462	441	448	443	425	420	429
Bosnia and Herzegovina	-	-	-	-	-	-	633	636	702	698	704	701
Bulgaria	648	641	574	271	393	323	300	239	290	313	309	304
Croatia	463	570	493	405	462	418	419	369	365	367	357	363
Cyprus ¹	-	-	-	-	-	-	-	-	-	-	-	-
FYR of Macedonia	-	-	..	..	-	-	616	485	492	353	326	390
Georgia	524	858	891	523	851	479	770	731	436	461	479	459
Gibraltar	-	-	-	-	-	-	-	-	-	-	-	-
Kazakhstan	383	562	1 014	782	577	577	577	577	577	577	577	577
Kosovo ²	..	..	-	-	-	-	-	-	-	-	-	-
Kyrgyzstan	385	385	436	260	217	448	450	224	214	450	..	332
Latvia	307	374	315	282	251	282	255	259	260	258	298	272
Lithuania	352	..	463	378	388	404	403	426	388	352	324	355
Malta	-	-	-	-	-	-	-	-	-	-	-	-
Republic of Moldova	518	569	653	522	528	520	528	524	521	524	510	519
Montenegro ²	..	..	..	-	-	-	-	-	-	-	-	-
Romania	707	516	509	474	431	465	371	333	333	395	315	348
Russian Federation	358	431	490	505	502	507	501	496	526	523	542	531
Serbia ²	404	581	583	309	492	465	..	..	659	476	301	479
Tajikistan	..	..	..	..	315	288	266	339	332	295	325	318
Turkmenistan	724	936	876	876	876	932	870	958	988	992	935	972
Ukraine	385	402	424	395	421	395	350	372	411	374	352	379
Uzbekistan	470	568	647	647	646	647	645	645	646	646	645	646
Non-OECD Europe and Eurasia	393	457	513	514	514	518	514	508	532	530	542	535
Algeria	616	624	617	612	597	597	641	541	544	531	487	521
Angola	-	-	-	-	-	-	-	-	-	-	-	-
Benin	-	-	-	-	-	-	-	-	-	-	-	-
Botswana	-	-	-	-	-	-	-	-	-	-	-	-
Cameroon	-	-	-	-	541	541	541	541	540	540	539	540
Congo	-	-	-	576	578	579	577	577	587	587	587	587
Côte d'Ivoire	-	740	601	631	620	691	628	639	626	646	646	639
Dem. Rep. of Congo	-	-	-	-	576	576	576	576	576	576	576	576
Egypt	493	493	493	493	452	462	455	409	416	423	415	418
Eritrea	..	-	-	-	-	-	-	-	-	-	-	-
Ethiopia	-	-	-	-	-	-	-	-	-	-	-	-
Gabon	1 043	880	933	754	811	632	676	724	702	713	651	688
Ghana	-	-	-	-	-	-	527	759	596	566	460	541
Kenya	-	-	-	-	-	-	-	-	-	-	-	-
Libya	-	594	594	665	564	598	531	531	531	385	385	434
Mauritius	-	-	-	-	-	-	-	-	-	-	-	-
Morocco	-	-	-	399	411	352	377	416	389	379	384	384
Mozambique	-	..	..	728	576	505	715	603	767	858	502	709
Namibia	..	-	-	-	-	-	-	-	-	-	-	-
Niger	..	..	-	-	-	-	-	-	-	-	-	-
Nigeria	587	505	738	505	505	505	505	505	505	505	505	505
Senegal	594	607	438	516	516	515	736	583	593	390	515	499
South Africa	-	-	-	-	-	-	-	-	-	-	-	-
South Sudan ¹	..	..	..	..	..	..	..	..	..	-	-	..
Sudan ¹	-	-	-	-	-	-	-	-	-	-	-	-
United Rep. of Tanzania	-	-	-	571	773	650	552	540	551	545	610	569
Togo	-	-	-	-	-	-	-	-	-	-	-	-
Tunisia	562	536	538	472	485	487	487	503	481	477	479	479
Zambia	-	-	-	-	-	-	-	-	-	-	-	-
Zimbabwe	-	-	-	-	-	-	-	-	-	-	-	-
Other Africa	-	-	-	505	505	505	505	505	503	503	505	504
Africa	557	542	563	528	502	510	507	469	469	460	449	459

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

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

CO₂ emissions per kWh from electricity generation using natural gasgrammes CO₂ / kilowatt hour

	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	average 11-13
Bangladesh	605	589	550	541	560	563	567	581	573	581	582	579
Brunei Darussalam	929	885	800	805	743	795	793	734	719	725	619	688
Cambodia	-	-	-	-	-	-	-	-	-	-	-	-
DPR of Korea	-	-	-	-	-	-	-	-	-	-	-	-
India	816	541	388	445	427	422	488	550	492	506	498	499
Indonesia	673	512	521	506	549	545	575	505	508	533	522	521
Malaysia	577	562	558	560	518	552	488	598	511	497	576	528
Mongolia	-	-	-	-	-	-	-	-	-	-	-	-
Myanmar	1 046	847	690	729	729	729	729	729	729	729	729	729
Nepal	-	-	-	-	-	-	-	-	-	-	-	-
Pakistan	666	597	553	539	576	589	565	560	543	583	583	570
Philippines	-	858	-	347	340	342	350	331	356	358	342	352
Singapore	-	449	449	427	424	420	398	400	402	401	407	403
Sri Lanka	-	-	-	-	-	-	-	-	-	-	-	-
Chinese Taipei	507	510	467	431	426	431	424	425	428	386	385	400
Thailand	506	471	485	467	462	453	448	446	423	412	421	419
Viet Nam	-	517	594	437	434	430	417	406	406	406	406	406
Other Asia	-	504	504	505	505	505	505	505	505	504	504	505
Asia (excl. China)	635	536	496	480	471	474	476	495	468	465	473	469
People's Rep. of China	527	519	521	522	521	521	520	521	520	520	521	520
Hong Kong, China	-	864	470	456	456	456	456	456	456	434	446	445
China	527	527	487	490	505	503	509	509	512	511	514	512
Argentina	618	600	517	450	536	471	498	471	476	478	435	463
Bolivia	584	700	646	555	565	634	644	644	655	623	570	616
Brazil	516	744	490	475	452	442	440	426	463	430	448	447
Colombia	649	649	537	499	549	466	471	473	504	454	454	471
Costa Rica	-	-	-	-	-	-	-	-	-	-	-	-
Cuba	505	505	505	505	505	505	505	505	505	505	505	505
Curaçao ¹	-	-	-	-	-	-	-	-	-	-	-	-
Dominican Republic	-	-	-	473	467	467	467	462	461	460	459	460
Ecuador	-	-	-	454	454	454	454	454	454	494	429	459
El Salvador	-	-	-	-	-	-	-	-	-	-	-	-
Guatemala	-	-	-	-	-	-	-	-	-	-	-	-
Haiti	-	-	-	-	-	-	-	-	-	-	-	-
Honduras	-	-	-	-	-	-	-	-	-	-	-	-
Jamaica	-	-	-	-	-	-	-	-	-	-	-	-
Nicaragua	-	-	-	-	-	-	-	-	-	-	-	-
Panama	-	-	-	-	-	-	-	-	-	-	-	-
Paraguay	-	-	-	-	-	-	-	-	-	-	-	-
Peru	674	673	673	550	464	474	553	601	615	589	464	556
Trinidad and Tobago	718	720	691	712	739	705	708	703	706	680	652	679
Uruguay	-	-	-	471	580	468	507	502	503	499	453	485
Venezuela	682	548	649	661	633	628	610	610	610	610	610	610
Other Non-OECD Americas	508	508	505	505	505	505	505	507	505	505	505	505
Non-OECD Americas	650	600	555	508	545	501	525	504	521	503	473	499
Bahrain	845	795	820	773	750	769	789	754	754	759	760	758
Islamic Republic of Iran	508	527	495	522	507	515	512	504	482	475	476	478
Iraq	505	505	505	332	332	332	332	332	332	332	332	332
Jordan	551	684	674	613	527	552	558	511	518	502	491	503
Kuwait	505	505	505	449	449	421	531	577	577	577	577	577
Lebanon	-	-	-	-	-	-	505	505	-	-	-	-
Oman	700	780	745	688	682	663	646	635	611	599	565	592
Qatar	1 082	1 137	775	621	568	537	510	495	492	495	497	495
Saudi Arabia	831	796	727	665	680	677	669	640	643	640	590	624
Syrian Arab Republic	546	546	546	546	546	546	546	546	546	546	546	546
United Arab Emirates	738	734	725	840	715	744	625	592	592	592	592	592
Yemen	-	-	-	-	-	-	-	670	675	657	642	658
Middle East	696	677	625	627	598	599	575	559	552	551	538	547

1. Prior to 2012, Curaçao includes the entire territory of the former Netherlands Antilles.

CO₂ emissions and drivers (Kaya decomposition) ¹

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	avg. ch. ref-13 ²
World ³												
CO ₂ emissions	68	75	86	89	100	104	113	131	145	153	156	2.0%
Population	71	77	84	92	100	108	115	123	130	133	135	1.3%
GDP per population (GDP per capita)	73	80	90	93	100	104	116	132	149	157	160	2.1%
Energy intensity (TPES/GDP)	122	115	109	104	100	94	85	81	75	73	71	-1.4%
Carbon intensity: ESCII (CO ₂ /TPES)	108	107	105	101	100	99	99	100	99	100	101	0.0%
Annex I Parties												
CO ₂ emissions	..	..	..	..	100	95	99	101	96	94	94	-0.3%
Population	..	..	..	..	100	103	105	107	109	110	111	0.4%
GDP per population (GDP per capita)	..	..	..	..	100	102	117	129	133	137	138	1.4%
Energy intensity (TPES/GDP)	..	..	..	..	100	93	84	78	72	68	67	-1.7%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	96	96	94	92	92	92	-0.4%
Annex II Parties												
CO ₂ emissions	89	92	97	94	100	104	112	115	108	104	104	0.2%
Population	88	91	94	97	100	104	107	110	114	115	115	0.6%
GDP per population (GDP per capita)	62	68	78	87	100	107	121	130	131	133	134	1.3%
Energy intensity (TPES/GDP)	141	133	124	109	100	97	90	84	77	72	72	-1.4%
Carbon intensity: ESCII (CO ₂ /TPES)	114	111	107	102	100	97	97	96	94	94	94	-0.3%
Annex II North America												
CO ₂ emissions	89	91	96	94	100	106	118	119	112	106	108	0.3%
Population	83	86	91	95	100	106	113	118	124	126	127	1.0%
GDP per population (GDP per capita)	66	70	80	89	100	106	124	134	133	136	138	1.4%
Energy intensity (TPES/GDP)	150	142	130	109	100	96	85	77	71	66	66	-1.8%
Carbon intensity: ESCII (CO ₂ /TPES)	109	106	102	101	100	98	99	98	97	94	94	-0.3%
Annex II Europe												
CO ₂ emissions	98	99	106	98	100	99	102	105	96	91	89	-0.5%
Population	94	96	97	98	100	102	103	106	109	110	110	0.4%
GDP per population (GDP per capita)	63	70	80	86	100	106	121	128	130	130	130	1.1%
Energy intensity (TPES/GDP)	132	123	118	111	100	96	88	85	79	74	74	-1.3%
Carbon intensity: ESCII (CO ₂ /TPES)	125	120	116	105	100	95	92	91	86	85	84	-0.7%
Annex II Asia Oceania												
CO ₂ emissions	68	79	82	83	100	108	114	120	116	123	124	1.0%
Population	84	89	94	97	100	102	104	106	107	107	108	0.3%
GDP per population (GDP per capita)	54	60	70	82	100	106	111	118	121	123	125	1.0%
Energy intensity (TPES/GDP)	134	130	121	104	100	103	103	97	92	84	83	-0.8%
Carbon intensity: ESCII (CO ₂ /TPES)	113	113	105	100	100	96	95	100	97	111	111	0.5%
Annex I EIT												
CO ₂ emissions	..	..	..	..	100	71	64	65	65	65	64	-1.9%
Population	..	..	..	..	100	100	98	95	94	94	94	-0.3%
GDP per population (GDP per capita)	..	..	..	..	100	70	79	106	126	133	135	1.3%
Energy intensity (TPES/GDP)	..	..	..	..	100	104	88	71	62	61	59	-2.3%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	97	94	90	88	85	85	-0.7%
Non-Annex I Parties												
CO ₂ emissions	..	..	..	..	100	124	142	194	247	279	291	4.7%
Population	..	..	..	..	100	109	118	127	136	140	142	1.5%
GDP per population (GDP per capita)	..	..	..	..	100	114	132	162	210	228	237	3.8%
Energy intensity (TPES/GDP)	..	..	..	..	100	94	86	84	77	76	75	-1.3%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	105	106	112	112	115	116	0.7%
Annex I Kyoto Parties												
CO ₂ emissions	..	..	..	..	100	88	86	89	85	84	83	-0.8%
Population	..	..	..	..	100	101	101	102	103	104	104	0.2%
GDP per population (GDP per capita)	..	..	..	..	100	99	111	124	130	132	133	1.2%
Energy intensity (TPES/GDP)	..	..	..	..	100	92	83	77	72	69	68	-1.7%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	95	92	91	88	89	89	-0.5%

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

2. Average annual percentage change between the reference year and 2013. The reference year is 1990 unless otherwise specified.

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

CO₂ emissions and drivers (Kaya decomposition) ¹

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	avg. ch. ref-13 ²
Non-OECD Total												
CO ₂ emissions	46	59	74	83	100	103	112	147	183	205	212	3.3%
Population	68	74	82	91	100	109	117	126	134	137	139	1.4%
GDP per population (GDP per capita)	71	82	95	95	100	104	118	148	193	210	218	3.4%
Energy intensity (TPES/GDP)	102	98	94	98	100	90	80	75	67	66	64	-1.9%
Carbon intensity: ESCII (CO ₂ /TPES)	94	99	101	98	100	101	100	105	105	107	109	0.4%
OECD Total												
CO ₂ emissions	85	89	96	94	100	104	113	116	112	109	109	0.4%
Population	84	88	92	96	100	104	108	112	116	117	118	0.7%
GDP per population (GDP per capita)	64	70	80	88	100	107	122	132	134	137	138	1.4%
Energy intensity (TPES/GDP)	138	130	122	109	100	97	89	83	77	72	72	-1.4%
Carbon intensity: ESCII (CO ₂ /TPES)	114	111	107	103	100	97	97	96	94	94	93	-0.3%
Canada												
CO ₂ emissions	81	90	101	94	100	107	123	128	123	125	128	1.1%
Population	79	84	89	93	100	106	111	116	123	125	127	1.0%
GDP per population (GDP per capita)	68	77	87	94	100	103	120	129	130	134	135	1.3%
Energy intensity (TPES/GDP)	126	124	120	106	100	102	91	86	75	72	71	-1.5%
Carbon intensity: ESCII (CO ₂ /TPES)	120	113	109	102	100	97	102	99	102	103	105	0.2%
Chile												
CO ₂ emissions	71	58	73	67	100	126	165	185	233	262	279	4.6%
Population	74	79	85	92	100	109	117	123	130	132	134	1.3%
GDP per population (GDP per capita)	77	62	82	79	100	139	163	192	220	241	248	4.0%
Energy intensity (TPES/GDP)	109	112	98	95	100	86	95	85	77	83	83	-0.8%
Carbon intensity: ESCII (CO ₂ /TPES)	115	107	107	97	100	96	92	91	106	99	101	0.0%
Mexico												
CO ₂ emissions	36	52	79	93	100	110	133	147	160	167	174	2.4%
Population	61	70	81	90	100	109	116	123	131	134	136	1.3%
GDP per population (GDP per capita)	75	87	103	102	100	99	121	125	129	137	137	1.4%
Energy intensity (TPES/GDP)	76	80	93	96	100	98	84	89	85	84	84	-0.8%
Carbon intensity: ESCII (CO ₂ /TPES)	103	107	102	105	100	104	112	107	111	109	111	0.5%
United States												
CO ₂ emissions	89	91	96	94	100	106	117	119	112	105	107	0.3%
Population	83	86	91	95	100	107	113	118	124	126	126	1.0%
GDP per population (GDP per capita)	66	70	79	89	100	107	124	134	133	137	139	1.4%
Energy intensity (TPES/GDP)	152	144	131	109	100	95	85	76	70	65	65	-1.8%
Carbon intensity: ESCII (CO ₂ /TPES)	108	105	102	101	100	98	99	98	96	94	93	-0.3%
OECD Americas												
CO ₂ emissions	86	89	95	94	100	106	119	121	115	110	112	0.5%
Population	77	82	88	94	100	107	114	119	126	128	129	1.1%
GDP per population (GDP per capita)	69	74	83	91	100	106	123	133	132	136	138	1.4%
Energy intensity (TPES/GDP)	147	138	127	108	100	96	85	78	71	67	67	-1.8%
Carbon intensity: ESCII (CO ₂ /TPES)	109	106	102	102	100	98	100	98	97	95	95	-0.2%
Australia												
CO ₂ emissions	55	69	80	85	100	110	129	143	148	149	150	1.8%
Population	77	81	86	93	100	105	111	118	129	133	136	1.3%
GDP per population (GDP per capita)	75	79	86	93	100	111	127	142	149	153	154	1.9%
Energy intensity (TPES/GDP)	103	109	108	98	100	91	88	78	75	72	72	-1.4%
Carbon intensity: ESCII (CO ₂ /TPES)	92	99	99	101	100	102	103	109	103	102	100	0.0%
Israel												
CO ₂ emissions	42	50	57	74	100	137	167	179	209	228	208	3.2%
Population	65	74	83	91	100	119	135	149	164	170	173	2.4%
GDP per population (GDP per capita)	70	81	83	89	100	116	132	133	152	158	160	2.1%
Energy intensity (TPES/GDP)	109	102	99	82	100	98	89	81	81	79	76	-1.2%
Carbon intensity: ESCII (CO ₂ /TPES)	84	82	84	112	100	101	105	111	103	108	100	-0.0%

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

2. Average annual percentage change between the reference year and 2013. The reference year is 1990 unless otherwise specified.

CO₂ emissions and drivers (Kaya decomposition) ¹

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	avg. ch. ref-13 ²
Japan												
CO ₂ emissions	72	81	83	83	100	107	110	114	107	116	118	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	118	121	0.8%
Energy intensity (TPES/GDP)	142	135	123	105	100	105	106	100	94	84	83	-0.8%
Carbon intensity: ESCII (CO ₂ /TPES)	117	117	106	100	100	95	93	96	94	113	114	0.6%
Korea												
CO ₂ emissions	23	34	54	67	100	154	186	197	238	248	247	4.0%
Population	77	82	89	95	100	105	110	112	115	117	117	0.7%
GDP per population (GDP per capita)	23	31	44	64	100	142	178	220	262	274	281	4.6%
Energy intensity (TPES/GDP)	103	102	114	94	100	104	104	92	89	89	86	-0.6%
Carbon intensity: ESCII (CO ₂ /TPES)	125	127	122	117	100	99	92	87	88	88	87	-0.6%
New Zealand												
CO ₂ emissions	62	76	76	87	100	110	133	155	139	143	141	1.5%
Population	85	92	93	97	100	109	115	123	129	131	132	1.2%
GDP per population (GDP per capita)	82	90	89	99	100	107	118	134	134	138	140	1.5%
Energy intensity (TPES/GDP)	76	81	84	90	100	99	99	80	83	83	82	-0.9%
Carbon intensity: ESCII (CO ₂ /TPES)	117	113	108	100	100	95	100	118	97	95	93	-0.3%
OECD Asia Oceania												
CO ₂ emissions	61	71	78	81	100	115	126	133	135	143	144	1.6%
Population	82	87	92	97	100	103	106	108	110	111	111	0.5%
GDP per population (GDP per capita)	51	58	67	80	100	110	119	129	137	140	143	1.6%
Energy intensity (TPES/GDP)	129	125	118	102	100	104	105	98	94	88	87	-0.6%
Carbon intensity: ESCII (CO ₂ /TPES)	113	113	106	102	100	97	95	97	95	104	104	0.2%
Austria												
CO ₂ emissions	87	88	97	94	100	106	110	134	124	116	116	0.6%
Population	98	99	98	99	100	104	104	107	109	110	110	0.4%
GDP per population (GDP per capita)	60	69	81	87	100	108	124	132	138	142	142	1.5%
Energy intensity (TPES/GDP)	128	119	116	108	100	97	89	96	91	85	85	-0.7%
Carbon intensity: ESCII (CO ₂ /TPES)	114	109	104	101	100	98	96	98	90	87	87	-0.6%
Belgium												
CO ₂ emissions	111	109	118	95	100	105	107	101	96	84	84	-0.8%
Population	97	98	99	99	100	102	103	105	109	111	111	0.5%
GDP per population (GDP per capita)	63	71	83	87	100	106	122	130	133	133	133	1.2%
Energy intensity (TPES/GDP)	135	125	118	106	100	103	97	89	87	76	79	-1.0%
Carbon intensity: ESCII (CO ₂ /TPES)	135	124	122	104	100	94	89	83	76	74	72	-1.4%
Czech Republic												
CO ₂ emissions	102	103	112	117	100	82	81	79	74	70	67	-1.7%
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	129	142	143	142	1.5%
Energy intensity (TPES/GDP)	132	111	108	107	100	87	79	71	62	59	59	-2.3%
Carbon intensity: ESCII (CO ₂ /TPES)	112	117	118	117	100	98	98	87	83	82	79	-1.0%
Denmark												
CO ₂ emissions	109	103	124	120	100	115	100	95	93	73	76	-1.2%
Population	97	98	100	99	100	102	104	105	108	109	109	0.4%
GDP per population (GDP per capita)	70	72	82	94	100	110	125	132	129	129	128	1.1%
Energy intensity (TPES/GDP)	159	141	135	119	100	100	82	78	80	71	72	-1.4%
Carbon intensity: ESCII (CO ₂ /TPES)	102	103	112	108	100	103	93	87	83	73	76	-1.2%
Estonia												
CO ₂ emissions	..	..	..	..	100	44	40	47	52	46	52	-2.8%
Population	..	..	..	..	100	91	86	84	82	82	81	-0.9%
GDP per population (GDP per capita)	..	..	..	..	100	77	112	163	164	187	191	2.9%
Energy intensity (TPES/GDP)	..	..	..	..	100	76	50	39	43	37	40	-3.9%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	83	84	88	90	81	84	-0.7%

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

2. Average annual percentage change between the reference year and 2013. The reference year is 1990 unless otherwise specified.

CO₂ emissions and drivers (Kaya decomposition) ¹

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	avg. ch. ref-13 ²
Finland												
CO ₂ emissions	74	82	102	90	100	103	102	102	115	91	92	-0.4%
Population	92	94	96	98	100	102	104	105	108	109	109	0.4%
GDP per population (GDP per capita)	56	66	77	86	100	95	121	135	138	138	136	1.3%
Energy intensity (TPES/GDP)	123	111	118	108	100	104	91	85	87	80	79	-1.0%
Carbon intensity: ESCII (CO ₂ /TPES)	116	119	118	99	100	102	89	84	89	76	79	-1.0%
France												
CO ₂ emissions	122	122	132	102	100	99	106	107	98	90	91	-0.4%
Population	90	93	95	97	100	102	105	108	112	113	113	0.5%
GDP per population (GDP per capita)	64	72	83	87	100	104	118	123	124	126	126	1.0%
Energy intensity (TPES/GDP)	123	111	109	107	100	99	91	91	84	79	79	-1.0%
Carbon intensity: ESCII (CO ₂ /TPES)	173	166	154	112	100	94	94	89	84	80	81	-0.9%
Germany												
CO ₂ emissions	104	104	111	107	100	91	86	84	81	79	81	-0.9%
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	1.3%
Energy intensity (TPES/GDP)	141	133	128	120	100	87	79	77	70	64	65	-1.8%
Carbon intensity: ESCII (CO ₂ /TPES)	120	116	110	105	100	95	90	87	87	89	89	-0.5%
Greece												
CO ₂ emissions	36	49	65	78	100	109	126	136	119	110	99	-0.1%
Population	87	89	95	98	100	103	106	107	108	107	107	0.3%
GDP per population (GDP per capita)	74	86	98	96	100	103	121	144	141	121	117	0.7%
Energy intensity (TPES/GDP)	63	72	75	87	100	99	99	91	85	96	88	-0.6%
Carbon intensity: ESCII (CO ₂ /TPES)	88	89	93	95	100	104	100	97	93	89	90	-0.4%
Hungary ³												
CO ₂ emissions	76	89	105	101	83	71	67	69	60	53	50	-2.5%
Population	98	100	102	100	98	98	97	96	95	94	94	-0.2%
GDP per population (GDP per capita)	60	75	88	97	102	91	106	132	133	134	136	1.2%
Energy intensity (TPES/GDP)	108	102	105	101	96	97	81	72	68	62	59	-2.0%
Carbon intensity: ESCII (CO ₂ /TPES)	120	116	111	102	87	83	81	75	70	68	67	-1.5%
Iceland												
CO ₂ emissions	74	85	92	86	100	104	114	118	103	98	107	0.3%
Population	81	85	89	95	100	105	110	116	125	126	127	1.0%
GDP per population (GDP per capita)	58	66	85	91	100	97	117	137	135	139	143	1.6%
Energy intensity (TPES/GDP)	85	87	86	91	100	96	106	87	141	142	143	1.6%
Carbon intensity: ESCII (CO ₂ /TPES)	186	175	140	110	100	107	83	86	43	39	41	-3.8%
Ireland												
CO ₂ emissions	72	70	86	88	100	108	136	147	131	119	114	0.6%
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	183	212	195	198	198	3.0%
Energy intensity (TPES/GDP)	149	120	119	110	100	86	70	58	57	51	51	-2.9%
Carbon intensity: ESCII (CO ₂ /TPES)	106	105	103	101	100	101	97	100	90	89	87	-0.6%
Italy												
CO ₂ emissions	74	81	91	88	100	103	108	117	101	94	87	-0.6%
Population	95	98	99	100	100	100	100	103	105	106	107	0.3%
GDP per population (GDP per capita)	58	65	79	86	100	106	117	120	115	112	109	0.4%
Energy intensity (TPES/GDP)	130	126	113	103	100	102	99	101	95	93	91	-0.4%
Carbon intensity: ESCII (CO ₂ /TPES)	103	102	102	100	100	95	92	94	87	86	82	-0.9%
Luxembourg												
CO ₂ emissions	153	119	116	96	100	77	75	107	99	96	91	-0.4%
Population	90	94	95	96	100	107	114	122	133	139	143	1.6%
GDP per population (GDP per capita)	55	59	65	73	100	113	143	156	160	156	156	1.9%
Energy intensity (TPES/GDP)	244	202	170	130	100	77	60	68	59	56	53	-2.7%
Carbon intensity: ESCII (CO ₂ /TPES)	128	107	110	106	100	82	76	83	80	79	78	-1.1%

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

2. Average annual percentage change between the reference year and 2013. The reference year is 1990 unless otherwise specified.

3. The reference year for Hungary corresponds to its base year under the Convention (the average of 1985-1987).

CO₂ emissions and drivers (Kaya decomposition) ¹

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	avg. ch. ref-13 ²
Netherlands												
CO ₂ emissions	88	91	100	96	100	109	109	113	116	108	108	0.3%
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	133	141	140	138	1.4%
Energy intensity (TPES/GDP)	126	129	122	109	100	96	82	82	81	76	76	-1.2%
Carbon intensity: ESCII (CO ₂ /TPES)	114	101	102	103	100	102	97	94	91	91	92	-0.4%
Norway												
CO ₂ emissions	84	86	99	96	100	114	116	126	137	129	129	1.1%
Population	92	94	96	98	100	103	106	109	115	118	120	0.8%
GDP per population (GDP per capita)	56	66	81	94	100	117	136	147	145	147	146	1.7%
Energy intensity (TPES/GDP)	122	112	112	103	100	93	87	80	96	81	89	-0.5%
Carbon intensity: ESCII (CO ₂ /TPES)	132	124	114	101	100	103	94	99	85	92	83	-0.8%
Poland ³												
CO ₂ emissions	66	78	96	98	80	77	67	68	72	69	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	127	149	186	198	201	2.8%
Energy intensity (TPES/GDP)	96	90	106	104	87	76	52	46	40	37	36	-4.0%
Carbon intensity: ESCII (CO ₂ /TPES)	102	101	100	104	102	102	100	98	94	93	92	-0.4%
Portugal												
CO ₂ emissions	38	48	63	63	100	125	153	162	126	122	119	0.7%
Population	87	92	99	101	100	100	103	105	106	105	105	0.2%
GDP per population (GDP per capita)	56	62	74	75	100	108	129	132	135	128	127	1.0%
Energy intensity (TPES/GDP)	77	81	82	86	100	111	110	114	98	96	98	-0.1%
Carbon intensity: ESCII (CO ₂ /TPES)	102	104	105	97	100	104	104	103	90	95	91	-0.4%
Slovak Republic												
CO ₂ emissions	71	79	102	99	100	75	67	68	63	57	59	-2.3%
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	137	170	178	180	2.6%
Energy intensity (TPES/GDP)	98	101	108	104	100	91	77	64	48	43	44	-3.5%
Carbon intensity: ESCII (CO ₂ /TPES)	106	100	109	102	100	90	81	77	75	73	73	-1.3%
Slovenia ⁴												
CO ₂ emissions	..	..	..	..	92	96	96	105	105	101	98	-0.1%
Population	..	..	..	..	101	100	100	101	103	104	104	0.1%
GDP per population (GDP per capita)	..	..	..	..	112	109	135	160	170	166	164	1.9%
Energy intensity (TPES/GDP)	..	..	..	..	86	94	81	77	70	70	69	-1.4%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	95	93	87	85	85	85	84	-0.7%
Spain												
CO ₂ emissions	59	77	92	85	100	113	137	165	129	129	116	0.7%
Population	88	91	97	99	100	101	103	112	119	120	119	0.8%
GDP per population (GDP per capita)	62	74	78	81	100	107	128	139	137	133	132	1.2%
Energy intensity (TPES/GDP)	86	94	100	98	100	104	103	101	87	87	82	-0.8%
Carbon intensity: ESCII (CO ₂ /TPES)	124	120	122	108	100	101	102	105	91	92	90	-0.5%
Sweden												
CO ₂ emissions	158	152	140	112	100	109	100	94	88	76	72	-1.4%
Population	95	96	97	98	100	103	104	106	110	111	112	0.5%
GDP per population (GDP per capita)	71	79	83	91	100	100	119	133	139	140	141	1.5%
Energy intensity (TPES/GDP)	114	110	107	113	100	103	82	78	71	68	66	-1.8%
Carbon intensity: ESCII (CO ₂ /TPES)	206	184	164	112	100	103	99	86	82	71	69	-1.6%
Switzerland												
CO ₂ emissions	96	90	96	103	100	102	103	108	106	99	102	0.1%
Population	93	94	94	96	100	104	106	110	116	118	119	0.8%
GDP per population (GDP per capita)	79	78	85	90	100	97	106	110	117	119	119	0.8%
Energy intensity (TPES/GDP)	91	96	102	105	100	98	91	88	79	75	77	-1.1%
Carbon intensity: ESCII (CO ₂ /TPES)	142	128	117	113	100	103	100	101	98	95	93	-0.3%

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

2. Average annual percentage change between the reference year and 2013. The reference year is 1990 unless otherwise specified.

3. The reference year for Poland corresponds to its base year under the Convention (1988).

4. The reference year for Slovenia corresponds to its base year under the Convention (1986).

CO₂ emissions and drivers (Kaya decomposition) ¹

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	avg. ch. ref-13 ²
Turkey												
CO ₂ emissions	33	47	56	75	100	119	158	170	209	238	223	3.6%
Population	66	73	81	91	100	108	117	124	132	136	137	1.4%
GDP per population (GDP per capita)	65	74	75	84	100	108	123	144	158	171	176	2.5%
Energy intensity (TPES/GDP)	87	95	99	98	100	100	101	89	95	95	91	-0.4%
Carbon intensity: ESCII (CO ₂ /TPES)	89	92	94	101	100	102	110	106	105	107	101	0.0%
United Kingdom												
CO ₂ emissions	113	105	104	99	100	94	95	97	87	84	82	-0.9%
Population	98	98	98	99	100	101	103	106	110	111	112	0.5%
GDP per population (GDP per capita)	65	69	77	85	100	107	123	139	137	138	140	1.5%
Energy intensity (TPES/GDP)	160	143	128	116	100	97	85	74	65	61	59	-2.2%
Carbon intensity: ESCII (CO ₂ /TPES)	112	109	108	102	100	89	88	90	89	90	88	-0.5%
OECD Europe												
CO ₂ emissions	93	96	105	100	100	98	100	103	97	93	91	-0.4%
Population	90	92	95	97	100	102	104	107	111	112	112	0.5%
GDP per population (GDP per capita)	66	73	83	88	100	106	120	129	133	134	134	1.3%
Energy intensity (TPES/GDP)	129	121	118	111	100	95	86	82	76	72	71	-1.5%
Carbon intensity: ESCII (CO ₂ /TPES)	121	117	114	105	100	95	92	91	87	86	85	-0.7%
European Union - 28												
CO ₂ emissions	..	..	..	..	100	95	94	97	90	85	83	-0.8%
Population	..	..	..	..	100	101	102	104	106	106	106	0.3%
GDP per population (GDP per capita)	..	..	..	..	100	106	121	131	136	137	137	1.4%
Energy intensity (TPES/GDP)	..	..	..	..	100	94	83	80	73	69	68	-1.7%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	95	91	90	86	85	84	-0.8%
Albania												
CO ₂ emissions	68	76	120	122	100	33	53	67	69	61	64	-1.9%
Population	67	73	81	90	100	97	94	92	89	88	88	-0.5%
GDP per population (GDP per capita)	80	91	108	108	100	91	122	163	216	226	229	3.7%
Energy intensity (TPES/GDP)	121	111	130	104	100	57	58	54	41	37	43	-3.6%
Carbon intensity: ESCII (CO ₂ /TPES)	106	103	104	120	100	65	81	83	87	82	74	-1.3%
Armenia												
CO ₂ emissions	..	..	..	..	100	17	17	21	20	27	26	-5.6%
Population	..	..	..	..	100	91	87	85	84	84	84	-0.8%
GDP per population (GDP per capita)	..	..	..	..	100	58	78	142	174	195	201	3.1%
Energy intensity (TPES/GDP)	..	..	..	..	100	40	39	27	22	24	22	-6.3%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	80	66	64	63	71	70	-1.5%
Azerbaijan												
CO ₂ emissions	..	..	..	..	100	61	51	54	44	54	55	-2.6%
Population	..	..	..	..	100	107	112	117	126	130	132	1.2%
GDP per population (GDP per capita)	..	..	..	..	100	39	52	95	187	187	195	2.9%
Energy intensity (TPES/GDP)	..	..	..	..	100	147	85	53	22	25	24	-6.0%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	99	102	92	86	89	90	-0.5%
Belarus												
CO ₂ emissions	..	..	..	..	100	57	52	55	60	58	58	-2.3%
Population	..	..	..	..	100	100	98	95	93	93	93	-0.3%
GDP per population (GDP per capita)	..	..	..	..	100	65	90	134	194	209	211	3.3%
Energy intensity (TPES/GDP)	..	..	..	..	100	83	61	46	33	35	31	-5.0%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	105	97	94	99	86	97	-0.1%
Bosnia and Herzegovina												
CO ₂ emissions	..	..	..	..	100	14	57	66	85	90	90	-0.5%
Population	..	..	..	..	100	78	85	86	85	85	85	-0.7%
GDP per population (GDP per capita)	..	..	..	..	100	73	227	285	336	337	345	5.5%
Energy intensity (TPES/GDP)	..	..	..	..	100	38	32	29	32	33	31	-4.9%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	64	92	92	92	95	97	-0.1%

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

2. Average annual percentage change between the reference year and 2013. The reference year is 1990 unless otherwise specified.

CO₂ emissions and drivers (Kaya decomposition) ¹

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	avg. ch. ref-13 ²
Bulgaria ³												
CO ₂ emissions	77	88	102	99	90	63	51	56	53	53	47	-3.0%
Population	95	97	99	100	97	94	91	86	82	81	81	-0.8%
GDP per population (GDP per capita)	40	53	70	82	91	82	88	120	144	150	152	1.7%
Energy intensity (TPES/GDP)	161	145	131	120	102	96	74	61	48	48	44	-3.2%
Carbon intensity: ESCII (CO ₂ /TPES)	126	119	113	101	100	86	85	88	94	91	88	-0.5%
Croatia												
CO ₂ emissions	..	..	..	..	100	72	82	97	89	80	78	-1.1%
Population	..	..	..	..	100	98	93	93	92	89	89	-0.5%
GDP per population (GDP per capita)	..	..	..	..	100	72	89	111	114	115	115	0.6%
Energy intensity (TPES/GDP)	..	..	..	..	100	111	104	96	90	85	84	-0.8%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	92	95	98	94	91	91	-0.4%
Cyprus ⁴												
CO ₂ emissions	45	43	66	71	100	130	162	181	187	167	145	1.6%
Population	108	88	88	94	100	113	120	128	143	150	151	1.8%
GDP per population (GDP per capita)	24	35	62	76	100	111	125	138	139	130	122	0.9%
Energy intensity (TPES/GDP)	164	133	116	94	100	100	104	92	90	84	77	-1.2%
Carbon intensity: ESCII (CO ₂ /TPES)	104	103	104	105	100	104	104	111	104	103	102	0.1%
FYR of Macedonia												
CO ₂ emissions	..	..	..	..	100	97	99	104	97	102	96	-0.2%
Population	..	..	..	..	100	98	102	104	105	105	105	0.2%
GDP per population (GDP per capita)	..	..	..	..	100	81	89	95	112	115	118	0.7%
Energy intensity (TPES/GDP)	..	..	..	..	100	128	118	115	99	99	91	-0.4%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	96	92	92	83	86	85	-0.7%
Georgia												
CO ₂ emissions	..	..	..	..	100	24	14	12	15	20	20	-6.8%
Population	..	..	..	..	100	99	92	91	93	94	93	-0.3%
GDP per population (GDP per capita)	..	..	..	..	100	29	41	59	74	84	86	-0.6%
Energy intensity (TPES/GDP)	..	..	..	..	100	106	62	43	37	38	39	-4.0%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	81	60	53	59	66	63	-2.0%
Gibraltar												
CO ₂ emissions	48	43	66	63	100	197	238	284	332	328	350	5.6%
Population	93	93	100	100	100	104	104	111	111	114	118	0.7%
GDP per population (GDP per capita)	69	75	76	85	100	105	129	139	142	140	140	1.5%
Energy intensity (TPES/GDP)	80	78	74	74	100	168	167	171	191	187	193	2.9%
Carbon intensity: ESCII (CO ₂ /TPES)	94	80	116	100	100	108	107	108	110	110	109	0.4%
Kazakhstan												
CO ₂ emissions	..	..	..	..	100	72	47	66	93	99	103	0.1%
Population	..	..	..	..	100	97	91	93	100	103	104	0.2%
GDP per population (GDP per capita)	..	..	..	..	100	63	76	123	154	169	177	2.5%
Energy intensity (TPES/GDP)	..	..	..	..	100	116	70	61	61	58	60	-2.2%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	101	97	95	99	98	93	-0.3%
Kosovo ⁵												
CO ₂ emissions	..	..	..	..	..	..	100	130	170	159	163	3.8%
Population	..	..	..	..	..	..	100	100	104	106	107	0.5%
GDP per population (GDP per capita)	..	..	..	..	..	..	100	141	175	187	190	5.1%
Energy intensity (TPES/GDP)	..	..	..	..	..	..	100	89	89	77	75	-2.2%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	..	..	100	103	105	104	106	0.5%
Kyrgyzstan												
CO ₂ emissions	..	..	..	..	100	20	20	21	27	42	39	-4.0%
Population	..	..	..	..	100	104	112	118	124	128	130	1.2%
GDP per population (GDP per capita)	..	..	..	..	100	49	60	68	80	83	89	-0.5%
Energy intensity (TPES/GDP)	..	..	..	..	100	63	47	43	37	52	45	-3.4%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	61	63	63	72	76	74	-1.3%

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

2. Average annual percentage change between the reference year and 2013. The reference year is 1990 unless otherwise specified.

3. The reference year for Bulgaria corresponds to its base year under the Convention (1988).

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

5. 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).

CO₂ emissions and drivers (Kaya decomposition) ¹

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	avg. ch. ref-13 ²
Latvia												
CO ₂ emissions	..	..	..	..	100	47	36	40	43	37	37	-4.2%
Population	..	..	..	..	100	93	89	84	79	76	76	-1.2%
GDP per population (GDP per capita)	..	..	..	..	100	61	85	133	137	156	164	2.2%
Energy intensity (TPES/GDP)	..	..	..	..	100	103	65	52	53	47	45	-3.4%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	81	75	70	75	66	67	-1.7%
Lithuania												
CO ₂ emissions	..	..	..	..	100	42	32	38	38	35	33	-4.7%
Population	..	..	..	..	100	98	95	90	84	81	80	-1.0%
GDP per population (GDP per capita)	..	..	..	..	100	59	76	117	132	150	157	2.0%
Energy intensity (TPES/GDP)	..	..	..	..	100	94	62	53	40	38	35	-4.5%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	77	71	69	86	77	77	-1.1%
Malta												
CO ₂ emissions	28	28	43	50	100	103	92	118	110	116	101	0.0%
Population	86	86	90	95	100	105	108	114	117	118	119	0.8%
GDP per population (GDP per capita)	32	46	76	78	100	125	156	154	168	170	174	2.4%
Energy intensity (TPES/GDP)	111	76	67	67	100	78	58	72	60	62	51	-2.9%
Carbon intensity: ESCII (CO ₂ /TPES)	93	93	94	101	100	101	95	93	93	92	95	-0.2%
Republic of Moldova												
CO ₂ emissions	..	..	..	..	100	39	21	25	26	25	22	-6.4%
Population	..	..	..	..	100	99	98	97	96	96	96	-0.2%
GDP per population (GDP per capita)	..	..	..	..	100	40	36	52	61	65	70	-1.5%
Energy intensity (TPES/GDP)	..	..	..	..	100	119	82	71	60	55	46	-3.3%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	82	73	71	73	72	71	-1.5%
Montenegro ³												
CO ₂ emissions	..	..	..	..	..	..	..	100	127	118	115	1.7%
Population	..	..	..	..	..	..	..	100	101	101	101	0.1%
GDP per population (GDP per capita)	..	..	..	..	..	..	..	100	123	124	128	3.1%
Energy intensity (TPES/GDP)	..	..	..	..	..	..	..	100	88	79	74	-3.7%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	..	..	..	100	116	119	120	2.3%
Romania ⁴												
CO ₂ emissions	60	74	93	92	89	62	45	49	39	41	36	-4.1%
Population	88	92	96	98	100	98	97	92	87	87	86	-0.6%
GDP per population (GDP per capita)	46	66	91	105	94	87	82	115	139	144	150	1.7%
Energy intensity (TPES/GDP)	151	123	107	91	95	79	66	53	42	40	36	-4.2%
Carbon intensity: ESCII (CO ₂ /TPES)	99	99	99	98	99	92	87	87	78	82	79	-1.0%
Russian Federation												
CO ₂ emissions	..	..	..	..	100	72	68	68	71	72	71	-1.5%
Population	..	..	..	..	100	100	99	97	96	97	97	-0.1%
GDP per population (GDP per capita)	..	..	..	..	100	62	68	94	112	120	122	0.9%
Energy intensity (TPES/GDP)	..	..	..	..	100	117	105	82	73	72	71	-1.5%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	99	97	92	90	85	86	-0.7%
Serbia ³												
CO ₂ emissions	..	..	..	..	100	72	69	80	74	72	73	-1.4%
Population	..	..	..	..	100	102	81	74	72	72	71	-1.5%
GDP per population (GDP per capita)	..	..	..	..	100	49	69	97	110	111	114	0.6%
Energy intensity (TPES/GDP)	..	..	..	..	100	141	125	113	100	93	93	-0.3%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	103	100	98	93	98	97	-0.1%
Tajikistan												
CO ₂ emissions	..	..	..	..	100	22	20	21	21	25	30	-5.1%
Population	..	..	..	..	100	109	117	128	144	151	155	1.9%
GDP per population (GDP per capita)	..	..	..	..	100	35	33	47	58	64	67	-1.7%
Energy intensity (TPES/GDP)	..	..	..	..	100	110	106	73	49	44	45	-3.4%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	53	49	48	51	59	65	-1.9%

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

2. Average annual percentage change between the reference year and 2013. The reference year is 1990 unless otherwise specified.

3. Serbia includes Kosovo from 1990 to 1999 & Montenegro from 1990 to 2004. The reference year for Montenegro is the first year of available data (2005).

4. The reference year for Romania corresponds to its base year under the Convention (1989).

CO₂ emissions and drivers (Kaya decomposition) ¹

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	avg. ch. ref-13 ²
Turkmenistan												
CO ₂ emissions	..	..	..	..	100	74	82	108	128	145	148	1.7%
Population	..	..	..	..	100	114	123	129	137	141	143	1.6%
GDP per population (GDP per capita)	..	..	..	..	100	55	64	78	120	149	162	2.1%
Energy intensity (TPES/GDP)	..	..	..	..	100	124	108	109	78	69	65	-1.9%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	95	97	99	99	99	99	-0.1%
Ukraine												
CO ₂ emissions	..	..	..	..	100	57	43	43	39	40	39	-4.1%
Population	..	..	..	..	100	99	95	91	88	88	88	-0.6%
GDP per population (GDP per capita)	..	..	..	..	100	48	46	69	75	79	81	-0.9%
Energy intensity (TPES/GDP)	..	..	..	..	100	135	122	90	79	70	65	-1.9%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	88	81	75	74	82	84	-0.8%
Uzbekistan												
CO ₂ emissions	..	..	..	..	100	82	99	93	84	94	84	-0.8%
Population	..	..	..	..	100	111	120	128	139	145	147	1.7%
GDP per population (GDP per capita)	..	..	..	..	100	73	82	100	138	155	164	2.2%
Energy intensity (TPES/GDP)	..	..	..	..	100	114	112	80	49	47	38	-4.1%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	89	90	92	91	90	90	-0.4%
Non-OECD Europe and Eurasia												
CO ₂ emissions	56	70	84	88	100	67	60	63	64	66	65	-1.8%
Population	86	90	94	97	100	100	99	98	98	99	99	-0.0%
GDP per population (GDP per capita)	62	75	89	95	100	62	67	94	114	121	124	0.9%
Energy intensity (TPES/GDP)	105	101	97	98	100	113	97	76	65	64	61	-2.1%
Carbon intensity: ESCII (CO ₂ /TPES)	100	104	103	97	100	96	92	89	89	86	87	-0.6%
Algeria												
CO ₂ emissions	17	26	54	82	100	108	120	151	187	216	223	3.5%
Population	58	64	74	87	100	112	121	129	141	147	149	1.8%
GDP per population (GDP per capita)	66	88	103	111	100	91	98	119	124	126	127	1.1%
Energy intensity (TPES/GDP)	41	44	66	83	100	108	103	95	104	112	113	0.5%
Carbon intensity: ESCII (CO ₂ /TPES)	108	106	107	103	100	99	99	104	104	104	104	0.2%
Angola												
CO ₂ emissions	41	50	68	72	100	100	118	157	385	447	472	7.0%
Population	59	64	74	88	100	117	135	160	189	201	208	3.2%
GDP per population (GDP per capita)	132	121	106	97	100	68	80	110	167	171	177	2.5%
Energy intensity (TPES/GDP)	85	90	99	99	100	137	118	88	72	77	71	-1.5%
Carbon intensity: ESCII (CO ₂ /TPES)	63	71	87	85	100	92	93	101	169	168	181	2.6%
Benin												
CO ₂ emissions	119	180	154	184	100	86	556	1044	1775	1927	2035	14.0%
Population	59	65	74	86	100	120	139	164	190	201	206	3.2%
GDP per population (GDP per capita)	92	91	98	106	100	103	112	116	120	124	127	1.1%
Energy intensity (TPES/GDP)	121	126	112	102	100	90	77	79	96	95	93	-0.3%
Carbon intensity: ESCII (CO ₂ /TPES)	179	241	189	199	100	78	466	694	807	820	833	9.7%
Botswana												
CO ₂ emissions	..	..	..	53	100	114	144	152	173	159	195	2.9%
Population	..	..	..	86	100	114	127	136	142	145	146	1.7%
GDP per population (GDP per capita)	..	..	..	67	100	109	127	142	165	180	188	2.8%
Energy intensity (TPES/GDP)	..	..	..	124	100	95	92	80	76	68	71	-1.5%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	76	100	96	98	99	97	90	99	-0.0%
Cameroon												
CO ₂ emissions	28	39	63	90	100	93	105	111	191	202	223	3.6%
Population	58	64	74	86	100	115	132	150	171	180	184	2.7%
GDP per population (GDP per capita)	66	79	93	125	100	79	87	91	93	96	99	-0.0%
Energy intensity (TPES/GDP)	142	120	106	83	100	122	111	103	88	81	81	-0.9%
Carbon intensity: ESCII (CO ₂ /TPES)	51	63	86	101	100	84	83	78	137	145	151	1.8%

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

2. Average annual percentage change between the reference year and 2013. The reference year is 1990 unless otherwise specified.

CO₂ emissions and drivers (Kaya decomposition) ¹

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	avg. ch. ref-13 ²
Congo												
CO ₂ emissions	95	100	115	125	100	74	78	134	295	374	387	6.1%
Population	58	65	75	87	100	114	131	149	173	182	187	2.8%
GDP per population (GDP per capita)	63	76	83	117	100	90	88	95	105	107	108	0.3%
Energy intensity (TPES/GDP)	181	144	128	97	100	98	79	99	118	157	156	2.0%
Carbon intensity: ESCII (CO ₂ /TPES)	145	141	143	127	100	74	86	96	138	122	123	0.9%
Dem. Rep. of Congo												
CO ₂ emissions	86	88	106	109	100	38	29	43	62	81	88	-0.5%
Population	59	66	75	86	100	120	134	155	178	188	193	2.9%
GDP per population (GDP per capita)	160	152	123	118	100	57	42	44	50	54	57	-2.4%
Energy intensity (TPES/GDP)	60	63	78	83	100	159	210	209	190	172	163	2.2%
Carbon intensity: ESCII (CO ₂ /TPES)	152	138	148	129	100	35	24	30	37	47	49	-3.0%
Côte d'Ivoire												
CO ₂ emissions	89	112	125	113	100	121	234	215	230	291	321	5.2%
Population	45	55	68	84	100	117	133	144	157	164	168	2.3%
GDP per population (GDP per capita)	134	139	136	112	100	92	94	87	89	91	96	-0.2%
Energy intensity (TPES/GDP)	93	90	89	90	100	110	124	176	167	196	187	2.8%
Carbon intensity: ESCII (CO ₂ /TPES)	157	165	152	132	100	102	150	97	98	100	107	0.3%
Egypt												
CO ₂ emissions	26	33	52	83	100	105	128	186	227	243	237	3.8%
Population	66	72	80	89	100	109	117	127	139	143	146	1.6%
GDP per population (GDP per capita)	49	51	74	91	100	109	130	142	176	177	178	2.5%
Energy intensity (TPES/GDP)	75	82	80	98	100	92	83	105	92	95	93	-0.3%
Carbon intensity: ESCII (CO ₂ /TPES)	106	108	112	104	100	96	102	98	101	100	99	-0.1%
Eritrea ³												
CO ₂ emissions	..	..	..	..	..	178	141	133	110	125	127	1.1%
Population	..	..	..	..	..	102	118	146	172	184	190	3.1%
GDP per population (GDP per capita)	..	..	..	..	..	138	139	128	104	113	111	0.5%
Energy intensity (TPES/GDP)	..	..	..	..	..	80	49	47	47	44	44	-3.8%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	..	157	175	153	130	138	136	1.5%
Ethiopia ³												
CO ₂ emissions	60	54	62	64	100	107	147	207	274	335	392	6.1%
Population	61	68	73	85	100	119	137	159	181	191	196	3.0%
GDP per population (GDP per capita)	130	119	113	92	100	89	95	113	166	190	205	3.2%
Energy intensity (TPES/GDP)	77	83	88	108	100	113	105	89	65	59	57	-2.4%
Carbon intensity: ESCII (CO ₂ /TPES)	99	81	86	76	100	90	107	129	140	155	172	2.4%
Gabon												
CO ₂ emissions	52	83	142	185	100	145	161	190	261	287	311	5.1%
Population	63	68	77	87	100	114	129	146	164	172	177	2.5%
GDP per population (GDP per capita)	70	132	109	108	100	102	91	88	87	94	97	-0.1%
Energy intensity (TPES/GDP)	205	122	139	122	100	98	106	114	125	118	117	0.7%
Carbon intensity: ESCII (CO ₂ /TPES)	58	76	122	161	100	127	129	131	146	150	155	1.9%
Ghana												
CO ₂ emissions	75	91	86	83	100	126	196	252	412	503	538	7.6%
Population	60	67	74	87	100	115	129	146	166	173	177	2.5%
GDP per population (GDP per capita)	136	115	110	91	100	108	118	133	162	194	204	3.2%
Energy intensity (TPES/GDP)	69	90	94	104	100	99	78	57	52	48	47	-3.2%
Carbon intensity: ESCII (CO ₂ /TPES)	133	131	113	100	100	103	165	226	294	311	316	5.1%
Kenya												
CO ₂ emissions	59	63	80	83	100	104	141	136	203	188	212	3.3%
Population	50	58	69	84	100	117	133	153	174	184	189	2.8%
GDP per population (GDP per capita)	63	71	80	75	100	93	90	94	105	111	114	0.6%
Energy intensity (TPES/GDP)	157	138	124	129	100	105	109	105	100	94	94	-0.3%
Carbon intensity: ESCII (CO ₂ /TPES)	119	111	116	103	100	91	107	90	110	99	105	0.2%

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

2. Average annual percentage change between the reference year and 2013. The reference year is 1990 unless otherwise specified.

3. Data for Ethiopia include Eritrea until 1991. The reference year for Eritrea is the first year of available data (1992).

CO₂ emissions and drivers (Kaya decomposition) ¹

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	avg. ch. ref-13 ²
Libya												
CO ₂ emissions	14	34	68	82	100	128	143	167	186	164	167	2.3%
Population	51	59	72	88	100	111	122	131	142	144	146	1.6%
GDP per population (GDP per capita)	240	165	214	126	100	87	84	95	110	84	79	-1.0%
Energy intensity (TPES/GDP)	12	33	41	82	100	130	139	127	118	126	132	1.2%
Carbon intensity: ESCII (CO ₂ /TPES)	102	102	108	91	100	102	101	104	101	107	110	0.4%
Mauritius												
CO ₂ emissions	22	36	49	53	100	133	209	254	315	321	329	5.3%
Population	79	84	91	96	100	106	112	116	118	119	119	0.8%
GDP per population (GDP per capita)	41	52	61	73	100	120	150	169	206	220	226	3.6%
Energy intensity (TPES/GDP)	166	137	116	95	100	92	90	89	81	77	77	-1.1%
Carbon intensity: ESCII (CO ₂ /TPES)	41	60	76	79	100	114	138	146	159	159	159	2.0%
Morocco												
CO ₂ emissions	33	49	70	83	100	133	150	201	234	262	256	4.2%
Population	66	72	80	90	100	109	116	122	128	132	134	1.3%
GDP per population (GDP per capita)	61	68	79	86	100	99	114	138	167	175	180	2.6%
Energy intensity (TPES/GDP)	97	107	112	105	100	114	109	110	104	107	103	0.1%
Carbon intensity: ESCII (CO ₂ /TPES)	86	95	98	102	100	108	104	109	105	106	103	0.1%
Mozambique												
CO ₂ emissions	270	219	216	139	100	106	121	140	219	242	272	4.5%
Population	71	78	89	98	100	118	135	155	177	186	190	2.8%
GDP per population (GDP per capita)	151	116	104	74	100	101	126	168	202	221	232	3.7%
Energy intensity (TPES/GDP)	108	124	122	149	100	89	71	55	47	43	41	-3.8%
Carbon intensity: ESCII (CO ₂ /TPES)	232	194	190	129	100	100	100	97	131	137	150	1.8%
Namibia ³												
CO ₂ emissions	..	..	..	..	..	158	168	220	271	286	303	5.2%
Population	..	..	..	..	..	113	129	138	149	154	157	2.1%
GDP per population (GDP per capita)	..	..	..	..	..	99	102	122	141	151	155	2.0%
Energy intensity (TPES/GDP)	..	..	..	..	..	121	111	113	105	101	101	0.0%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	..	117	115	116	123	122	123	0.9%
Niger												
CO ₂ emissions	..	..	..	..	..	..	100	113	209	288	286	4.7%
Population	..	..	..	..	..	..	100	120	145	156	162	2.1%
GDP per population (GDP per capita)	..	..	..	..	..	..	100	101	108	114	114	0.6%
Energy intensity (TPES/GDP)	..	..	..	..	..	..	100	97	97	87	103	0.1%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	..	..	100	96	138	186	150	1.8%
Nigeria												
CO ₂ emissions	20	39	90	113	100	117	156	201	199	226	217	3.4%
Population	60	66	77	88	100	113	129	146	167	177	182	2.6%
GDP per population (GDP per capita)	132	137	144	109	100	91	93	136	168	174	179	2.6%
Energy intensity (TPES/GDP)	63	64	66	90	100	108	108	80	64	65	62	-2.1%
Carbon intensity: ESCII (CO ₂ /TPES)	41	66	123	132	100	105	120	127	110	112	108	0.3%
Senegal												
CO ₂ emissions	57	75	96	100	100	116	165	217	256	266	281	4.6%
Population	58	65	74	86	100	116	131	150	172	183	188	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	112	112	100	0.0%
Carbon intensity: ESCII (CO ₂ /TPES)	77	92	103	108	100	105	116	131	113	111	128	1.1%
South Africa												
CO ₂ emissions	64	83	85	91	100	107	115	153	168	167	172	2.4%
Population	64	70	78	89	100	111	125	135	144	149	151	1.8%
GDP per population (GDP per capita)	100	105	110	103	100	94	96	107	117	119	120	0.8%
Energy intensity (TPES/GDP)	78	80	84	103	100	109	100	98	93	87	86	-0.7%
Carbon intensity: ESCII (CO ₂ /TPES)	129	140	119	96	100	94	96	108	108	108	111	0.5%

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

2. Average annual percentage change between the reference year and 2013. The reference year is 1990 unless otherwise specified.

3. The reference year for Namibia is the first year of available data (1991).

CO₂ emissions and drivers (Kaya decomposition) ¹

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	avg. ch. ref-13 ²
South Sudan ³												
CO ₂ emissions	..	..	..	..	..	..	..	..	..	100	103	0.1%
Population	..	..	..	..	..	..	..	..	..	100	104	0.2%
GDP per population (GDP per capita)	..	..	..	..	..	..	..	..	..	100	149	1.8%
Energy intensity (TPES/GDP)	..	..	..	..	..	..	..	..	..	100	68	-1.7%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	..	..	..	..	..	100	98	-0.1%
Sudan ³												
CO ₂ emissions	61	61	69	75	100	81	104	186	283	258	257	4.2%
Population	55	63	74	87	100	116	133	154	177	144	147	1.7%
GDP per population (GDP per capita)	97	105	100	88	100	110	129	152	179	191	176	2.5%
Energy intensity (TPES/GDP)	123	106	106	116	100	88	73	60	50	49	53	-2.8%
Carbon intensity: ESCII (CO ₂ /TPES)	92	86	88	84	100	72	83	132	180	193	189	2.8%
United Rep. of Tanzania												
CO ₂ emissions	84	84	89	88	100	149	156	303	367	507	581	8.0%
Population	55	63	73	86	100	117	133	152	176	187	193	2.9%
GDP per population (GDP per capita)	67	70	70	62	100	93	101	125	146	155	162	2.1%
Energy intensity (TPES/GDP)	210	178	161	168	100	104	102	93	82	79	78	-1.1%
Carbon intensity: ESCII (CO ₂ /TPES)	108	107	108	97	100	132	113	172	174	220	240	3.9%
Togo												
CO ₂ emissions	60	55	64	52	100	101	165	167	361	282	290	4.7%
Population	58	64	72	86	100	113	128	146	166	175	180	2.6%
GDP per population (GDP per capita)	101	110	123	101	100	89	97	90	92	97	100	-0.0%
Energy intensity (TPES/GDP)	99	88	79	90	100	123	135	143	160	145	141	1.5%
Carbon intensity: ESCII (CO ₂ /TPES)	104	90	91	66	100	81	99	89	146	114	114	0.6%
Tunisia												
CO ₂ emissions	31	40	65	79	100	115	145	160	191	193	194	2.9%
Population	64	69	78	89	100	110	117	123	129	132	134	1.3%
GDP per population (GDP per capita)	62	78	93	101	100	110	136	158	189	193	196	3.0%
Energy intensity (TPES/GDP)	84	82	90	94	100	97	93	86	85	81	81	-0.9%
Carbon intensity: ESCII (CO ₂ /TPES)	91	90	98	94	100	98	98	95	92	93	92	-0.4%
Zambia												
CO ₂ emissions	132	169	128	105	100	78	65	83	65	104	134	1.3%
Population	55	63	75	87	100	113	129	146	168	179	185	2.7%
GDP per population (GDP per capita)	148	146	126	110	100	88	91	109	143	153	158	2.0%
Energy intensity (TPES/GDP)	81	80	90	96	100	108	97	84	62	61	60	-2.2%
Carbon intensity: ESCII (CO ₂ /TPES)	198	230	151	114	100	73	56	62	43	62	76	-1.2%
Zimbabwe												
CO ₂ emissions	45	44	49	60	100	93	82	63	56	78	83	-0.8%
Population	51	59	70	85	100	111	120	121	125	131	135	1.3%
GDP per population (GDP per capita)	101	102	93	94	100	95	100	67	58	63	65	-1.8%
Energy intensity (TPES/GDP)	113	105	107	100	100	100	90	128	141	140	138	1.4%
Carbon intensity: ESCII (CO ₂ /TPES)	76	69	70	75	100	88	76	61	55	67	68	-1.6%
Other Africa												
CO ₂ emissions	67	76	105	86	100	112	129	155	200	235	242	3.9%
Population	61	66	77	86	100	110	119	137	158	168	173	2.4%
GDP per population (GDP per capita)	116	112	110	99	100	92	103	124	138	143	143	1.6%
Energy intensity (TPES/GDP)	76	79	79	86	100	108	95	78	69	67	67	-1.7%
Carbon intensity: ESCII (CO ₂ /TPES)	124	129	158	116	100	103	112	117	132	146	146	1.7%
Africa												
CO ₂ emissions	47	61	75	88	100	109	124	162	189	199	203	3.1%
Population	60	66	76	87	100	114	129	146	165	173	178	2.5%
GDP per population (GDP per capita)	96	99	108	102	100	93	99	115	132	134	136	1.3%
Energy intensity (TPES/GDP)	85	86	85	97	100	106	99	91	81	81	79	-1.0%
Carbon intensity: ESCII (CO ₂ /TPES)	96	108	108	102	100	96	98	106	107	106	106	0.3%

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

2. Average annual percentage change between the reference year and 2013. The reference year is 1990 unless otherwise specified.

3. Data for Sudan include South Sudan until 2011. The reference year for South Sudan is the first year of available data (2012).

CO₂ emissions and drivers (Kaya decomposition) ¹

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	avg. ch. ref-13 ²
Bangladesh												
CO ₂ emissions	25	39	58	67	100	144	183	280	437	502	522	9.6%
Population	63	68	77	88	100	112	123	134	141	145	147	2.2%
GDP per population (GDP per capita)	83	72	78	82	100	111	130	156	198	219	229	4.7%
Energy intensity (TPES/GDP)	86	108	110	109	100	101	90	86	85	82	79	-1.3%
Carbon intensity: ESCII (CO ₂ /TPES)	56	73	87	86	100	116	128	157	183	193	196	3.8%
Brunei Darussalam												
CO ₂ emissions	12	43	81	90	100	138	136	148	210	214	210	3.3%
Population	53	63	75	87	100	115	129	143	156	160	163	2.1%
GDP per population (GDP per capita)	113	117	159	114	100	102	97	97	92	93	90	-0.5%
Energy intensity (TPES/GDP)	17	58	66	104	100	111	111	93	131	149	120	0.8%
Carbon intensity: ESCII (CO ₂ /TPES)	119	101	104	88	100	106	98	115	112	96	119	0.8%
Cambodia ³												
CO ₂ emissions	..	..	..	..	..	100	133	180	314	344	352	5.6%
Population	..	..	..	..	..	100	114	124	133	138	141	1.5%
GDP per population (GDP per capita)	..	..	..	..	..	100	125	179	230	256	270	4.4%
Energy intensity (TPES/GDP)	..	..	..	..	..	100	85	54	61	58	56	-2.5%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	..	100	111	149	168	169	167	2.3%
India												
CO ₂ emissions	34	41	49	71	100	133	167	203	299	333	350	5.6%
Population	65	72	80	90	100	110	120	130	139	143	144	1.6%
GDP per population (GDP per capita)	69	71	74	85	100	116	144	183	255	279	296	4.8%
Energy intensity (TPES/GDP)	110	110	110	106	100	95	84	71	64	62	59	-2.2%
Carbon intensity: ESCII (CO ₂ /TPES)	69	73	76	88	100	109	116	120	132	136	138	1.4%
Indonesia												
CO ₂ emissions	19	28	50	63	100	152	193	240	286	311	317	5.1%
Population	65	72	81	91	100	108	117	125	135	138	140	1.5%
GDP per population (GDP per capita)	41	51	67	78	100	135	129	152	187	206	216	3.4%
Energy intensity (TPES/GDP)	131	113	105	94	100	91	104	96	84	75	72	-1.4%
Carbon intensity: ESCII (CO ₂ /TPES)	53	68	89	94	100	115	122	132	135	145	146	1.7%
DPR of Korea												
CO ₂ emissions	59	67	93	111	100	66	60	64	56	40	41	-3.8%
Population	73	81	86	93	100	108	113	118	121	123	123	0.9%
GDP per population (GDP per capita)	26	38	61	90	100	73	62	62	56	57	57	-2.4%
Energy intensity (TPES/GDP)	301	220	174	129	100	84	85	88	84	62	62	-2.1%
Carbon intensity: ESCII (CO ₂ /TPES)	101	100	101	102	100	99	101	100	99	94	94	-0.3%
Malaysia												
CO ₂ emissions	26	33	48	67	100	160	232	314	383	389	421	6.5%
Population	61	68	76	87	100	114	129	142	155	161	163	2.2%
GDP per population (GDP per capita)	45	55	74	83	100	138	154	176	201	216	222	3.5%
Energy intensity (TPES/GDP)	98	89	97	99	100	101	112	120	108	103	111	0.4%
Carbon intensity: ESCII (CO ₂ /TPES)	95	100	88	94	100	101	104	105	114	109	105	0.2%
Mongolia												
CO ₂ emissions	..	..	..	92	100	80	70	86	110	134	145	1.6%
Population	..	..	..	88	100	105	110	116	124	128	130	1.1%
GDP per population (GDP per capita)	..	..	..	95	100	83	91	118	150	193	212	3.3%
Energy intensity (TPES/GDP)	..	..	..	110	100	91	70	64	62	56	56	-2.5%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	100	100	101	99	97	95	97	95	-0.2%
Myanmar												
CO ₂ emissions	115	100	130	147	100	172	237	270	202	294	341	5.5%
Population	66	73	82	92	100	108	115	119	123	125	126	1.0%
GDP per population (GDP per capita)	88	89	108	122	100	123	173	307	431	477	505	7.3%
Energy intensity (TPES/GDP)	127	121	100	92	100	83	60	38	25	24	24	-6.0%
Carbon intensity: ESCII (CO ₂ /TPES)	156	128	147	142	100	155	197	195	154	201	220	3.5%

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

2. Average annual percentage change between the reference year and 2013. The reference year is 1990 unless otherwise specified.

3. The reference year for Cambodia is the first year of available data (1995).

CO₂ emissions and drivers (Kaya decomposition) ¹

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	avg. ch. ref-13 ²
Nepal												
CO ₂ emissions	21	36	58	62	100	197	346	343	460	554	574	7.9%
Population	65	71	79	89	100	114	128	140	148	152	153	1.9%
GDP per population (GDP per capita)	78	79	80	90	100	113	127	138	161	171	175	2.5%
Energy intensity (TPES/GDP)	124	123	124	109	100	90	86	82	74	67	66	-1.8%
Carbon intensity: ESCII (CO ₂ /TPES)	34	51	74	70	100	170	247	218	261	318	323	5.2%
Pakistan												
CO ₂ emissions	28	36	43	65	100	142	171	209	235	240	241	3.9%
Population	55	61	72	85	100	114	130	142	156	161	164	2.2%
GDP per population (GDP per capita)	63	66	76	88	100	110	113	132	143	146	150	1.8%
Energy intensity (TPES/GDP)	115	118	106	100	100	100	101	95	89	85	81	-0.9%
Carbon intensity: ESCII (CO ₂ /TPES)	71	75	75	87	100	113	115	117	119	120	120	0.8%
Philippines												
CO ₂ emissions	60	76	88	75	100	150	179	188	203	211	236	3.8%
Population	59	67	77	88	100	112	125	139	151	156	159	2.0%
GDP per population (GDP per capita)	84	95	111	91	100	99	106	120	140	150	158	2.0%
Energy intensity (TPES/GDP)	106	101	92	104	100	105	105	82	67	64	62	-2.1%
Carbon intensity: ESCII (CO ₂ /TPES)	113	120	112	91	100	128	129	139	144	141	152	1.8%
Singapore												
CO ₂ emissions	21	29	44	57	100	130	145	131	153	159	161	2.1%
Population	69	74	79	90	100	116	132	140	167	174	177	2.5%
GDP per population (GDP per capita)	32	42	60	74	100	131	151	180	210	218	223	3.5%
Energy intensity (TPES/GDP)	105	102	93	88	100	108	81	74	63	59	57	-2.4%
Carbon intensity: ESCII (CO ₂ /TPES)	88	90	98	98	100	79	90	70	69	70	71	-1.5%
Sri Lanka												
CO ₂ emissions	75	72	99	95	100	148	286	364	338	437	374	5.9%
Population	75	79	87	93	100	107	112	115	121	119	120	0.8%
GDP per population (GDP per capita)	59	65	77	91	100	122	148	175	227	265	282	4.6%
Energy intensity (TPES/GDP)	157	145	124	107	100	84	91	81	64	64	54	-2.7%
Carbon intensity: ESCII (CO ₂ /TPES)	109	96	120	105	100	136	190	223	191	214	206	3.2%
Chinese Taipei												
CO ₂ emissions	27	37	64	62	100	139	193	228	231	222	224	3.6%
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	236	247	251	4.1%
Energy intensity (TPES/GDP)	114	108	122	106	100	94	97	98	87	79	79	-1.0%
Carbon intensity: ESCII (CO ₂ /TPES)	128	122	110	89	100	104	109	106	99	99	98	-0.1%
Thailand												
CO ₂ emissions	20	26	42	52	100	173	188	247	276	295	306	5.0%
Population	67	75	84	92	100	104	110	116	117	118	118	0.7%
GDP per population (GDP per capita)	38	43	56	67	100	145	140	171	201	216	219	3.5%
Energy intensity (TPES/GDP)	128	129	112	96	100	98	111	119	119	118	123	0.9%
Carbon intensity: ESCII (CO ₂ /TPES)	62	63	80	88	100	117	109	105	98	98	96	-0.2%
Uzbekistan												
CO ₂ emissions	..	..	..	..	100	82	99	93	84	94	84	-0.8%
Population	..	..	..	..	100	111	120	128	139	145	147	1.7%
GDP per population (GDP per capita)	..	..	..	..	100	73	82	100	138	155	164	2.2%
Energy intensity (TPES/GDP)	..	..	..	..	100	114	112	80	49	47	38	-4.1%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	89	90	92	91	90	90	-0.4%
Other Asia												
CO ₂ emissions	102	124	161	99	100	91	110	150	214	352	375	5.9%
Population	84	92	94	91	100	95	108	126	142	149	152	1.8%
GDP per population (GDP per capita)	80	80	92	99	100	117	111	133	178	207	215	3.4%
Energy intensity (TPES/GDP)	123	128	130	104	100	90	100	82	70	81	81	-0.9%
Carbon intensity: ESCII (CO ₂ /TPES)	125	131	144	106	100	91	92	109	120	141	142	1.5%

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

2. Average annual percentage change between the reference year and 2013. The reference year is 1990 unless otherwise specified.

CO₂ emissions and drivers (Kaya decomposition) ¹

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	avg. ch. ref-13 ²
Asia (excl. China)												
CO ₂ emissions	34	42	57	72	100	134	167	205	265	286	297	4.9%
Population	65	71	80	90	100	110	120	130	139	143	144	1.6%
GDP per population (GDP per capita)	56	62	72	82	100	121	134	162	205	223	233	3.7%
Energy intensity (TPES/GDP)	122	118	112	105	100	93	92	84	76	72	71	-1.5%
Carbon intensity: ESCII (CO ₂ /TPES)	77	82	88	93	100	107	112	116	121	124	125	1.0%
People's Rep. of China												
CO ₂ emissions	38	50	66	78	100	137	149	245	325	390	411	6.3%
Population	74	80	86	92	100	105	111	114	118	118	119	0.8%
GDP per population (GDP per capita)	33	37	48	74	100	169	244	377	622	726	776	9.3%
Energy intensity (TPES/GDP)	186	185	167	116	100	67	49	47	39	39	37	-4.2%
Carbon intensity: ESCII (CO ₂ /TPES)	85	90	96	98	100	114	112	120	115	117	119	0.8%
Hong Kong, China												
CO ₂ emissions	28	33	44	67	100	110	121	124	126	135	138	1.4%
Population	71	78	89	96	100	108	117	119	123	125	126	1.0%
GDP per population (GDP per capita)	33	39	59	72	100	120	126	152	178	186	191	2.9%
Energy intensity (TPES/GDP)	147	139	102	110	100	95	106	82	72	71	67	-1.7%
Carbon intensity: ESCII (CO ₂ /TPES)	80	78	82	88	100	89	77	84	80	82	86	-0.7%
China (incl. Hong Kong, China)												
CO ₂ emissions	38	50	65	78	100	137	149	244	322	386	407	6.3%
Population	74	80	86	92	100	105	111	114	118	118	119	0.8%
GDP per population (GDP per capita)	33	37	49	74	100	165	235	358	585	682	728	9.0%
Energy intensity (TPES/GDP)	186	184	163	116	100	69	51	50	41	41	40	-3.9%
Carbon intensity: ESCII (CO ₂ /TPES)	85	89	95	98	100	114	111	120	114	116	118	0.7%
Argentina												
CO ₂ emissions	83	86	96	88	100	118	140	150	175	186	183	2.7%
Population	75	80	86	93	100	107	113	118	124	126	127	1.0%
GDP per population (GDP per capita)	123	127	135	110	100	129	138	145	193	210	215	3.4%
Energy intensity (TPES/GDP)	79	77	78	88	100	85	86	84	72	66	64	-1.9%
Carbon intensity: ESCII (CO ₂ /TPES)	114	110	105	98	100	101	105	103	102	107	105	0.2%
Bolivia												
CO ₂ emissions	42	63	82	84	100	134	138	183	273	334	336	5.4%
Population	64	70	79	89	100	112	125	138	150	154	157	2.0%
GDP per population (GDP per capita)	111	127	125	101	100	109	116	122	141	151	159	2.0%
Energy intensity (TPES/GDP)	55	63	95	108	100	118	130	118	116	127	126	1.0%
Carbon intensity: ESCII (CO ₂ /TPES)	108	110	87	87	100	93	74	92	112	112	107	0.3%
Brazil												
CO ₂ emissions	47	70	91	85	100	124	159	169	201	229	246	4.0%
Population	66	72	81	91	100	108	117	124	130	133	133	1.3%
GDP per population (GDP per capita)	65	86	106	100	100	108	110	119	141	143	146	1.7%
Energy intensity (TPES/GDP)	117	104	95	102	100	99	104	104	103	106	107	0.3%
Carbon intensity: ESCII (CO ₂ /TPES)	95	108	112	92	100	108	119	110	106	114	117	0.7%
Colombia												
CO ₂ emissions	58	62	76	86	100	119	118	117	132	143	149	1.8%
Population	66	72	81	90	100	110	120	130	139	143	145	1.6%
GDP per population (GDP per capita)	67	75	87	87	100	112	109	120	139	150	155	1.9%
Energy intensity (TPES/GDP)	131	117	104	105	100	93	82	72	66	61	58	-2.3%
Carbon intensity: ESCII (CO ₂ /TPES)	102	97	104	104	100	104	111	105	102	109	114	0.6%
Costa Rica												
CO ₂ emissions	49	67	83	75	100	171	173	209	254	263	274	4.5%
Population	61	67	76	88	100	113	128	140	152	156	158	2.0%
GDP per population (GDP per capita)	79	90	102	89	100	116	130	145	168	179	183	2.7%
Energy intensity (TPES/GDP)	100	98	96	97	100	107	103	113	109	101	100	-0.0%
Carbon intensity: ESCII (CO ₂ /TPES)	102	113	111	99	100	122	101	91	92	93	95	-0.2%

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

2. Average annual percentage change between the reference year and 2013. The reference year is 1990 unless otherwise specified.

CO₂ emissions and drivers (Kaya decomposition) ¹

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	avg. ch. ref-13 ²
Cuba												
CO ₂ emissions	61	71	89	94	100	66	80	74	88	79	87	-0.6%
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	148	153	1.9%
Energy intensity (TPES/GDP)	128	119	126	87	100	90	84	55	45	39	40	-3.9%
Carbon intensity: ESCII (CO ₂ /TPES)	100	104	106	107	100	105	110	121	135	129	132	1.2%
Curaçao ³												
CO ₂ emissions	545	383	326	169	100	99	211	227	166	171	167	2.3%
Population	85	89	92	97	100	105	111	116	121	80	81	-0.9%
GDP per population (GDP per capita)	72	78	88	88	100	106	123	125	129	133	132	1.2%
Energy intensity (TPES/GDP)	610	378	336	144	100	80	106	99	90	131	116	0.6%
Carbon intensity: ESCII (CO ₂ /TPES)	145	145	121	138	100	110	146	157	118	122	134	1.3%
Dominican Republic												
CO ₂ emissions	47	70	86	84	100	152	219	236	258	270	266	4.3%
Population	64	71	80	90	100	110	120	129	138	142	144	1.6%
GDP per population (GDP per capita)	62	78	89	87	100	117	151	166	210	216	223	3.6%
Energy intensity (TPES/GDP)	145	138	119	108	100	101	97	79	62	63	58	-2.3%
Carbon intensity: ESCII (CO ₂ /TPES)	81	92	101	99	100	116	126	140	142	141	143	1.6%
Ecuador												
CO ₂ emissions	26	45	78	88	100	125	136	174	249	275	297	4.8%
Population	61	68	78	89	100	112	124	136	148	153	155	1.9%
GDP per population (GDP per capita)	67	89	97	96	100	104	99	114	123	136	140	1.5%
Energy intensity (TPES/GDP)	86	82	105	104	100	107	114	104	119	111	112	0.5%
Carbon intensity: ESCII (CO ₂ /TPES)	74	90	99	99	100	101	98	109	115	120	122	0.9%
El Salvador												
CO ₂ emissions	62	91	76	78	100	217	246	297	278	292	274	4.5%
Population	72	79	87	94	100	108	112	114	116	118	119	0.7%
GDP per population (GDP per capita)	120	132	119	97	100	125	141	155	162	167	169	2.3%
Energy intensity (TPES/GDP)	82	88	98	118	100	101	102	104	90	90	85	-0.7%
Carbon intensity: ESCII (CO ₂ /TPES)	87	100	74	73	100	160	153	163	163	165	160	2.1%
Guatemala												
CO ₂ emissions	71	94	131	99	100	183	268	331	322	330	381	6.0%
Population	63	70	79	89	100	112	126	143	161	170	174	2.4%
GDP per population (GDP per capita)	89	100	117	97	100	110	119	122	129	131	133	1.2%
Energy intensity (TPES/GDP)	111	109	94	99	100	98	107	102	111	113	118	0.7%
Carbon intensity: ESCII (CO ₂ /TPES)	114	124	153	116	100	151	168	187	139	132	140	1.5%
Haiti												
CO ₂ emissions	41	44	66	85	100	97	148	212	224	223	232	3.7%
Population	67	72	80	90	100	110	121	130	139	143	145	1.6%
GDP per population (GDP per capita)	109	109	129	113	100	80	84	75	73	77	80	-1.0%
Energy intensity (TPES/GDP)	131	140	129	119	100	124	128	222	239	236	228	3.6%
Carbon intensity: ESCII (CO ₂ /TPES)	42	40	50	71	100	89	115	97	92	85	88	-0.5%
Honduras												
CO ₂ emissions	52	61	78	77	100	164	206	329	337	384	388	6.1%
Population	56	63	74	86	100	114	127	141	155	162	165	2.2%
GDP per population (GDP per capita)	86	88	106	99	100	104	109	123	133	138	139	1.4%
Energy intensity (TPES/GDP)	121	116	100	98	100	100	91	100	93	96	95	-0.2%
Carbon intensity: ESCII (CO ₂ /TPES)	88	94	99	91	100	138	164	190	176	178	178	2.5%
Jamaica												
CO ₂ emissions	76	103	90	64	100	116	135	142	96	97	103	0.1%
Population	79	84	89	97	100	104	108	111	113	113	114	0.6%
GDP per population (GDP per capita)	102	103	82	85	100	107	101	107	103	104	104	0.2%
Energy intensity (TPES/GDP)	89	111	111	75	100	104	126	113	83	86	90	-0.5%
Carbon intensity: ESCII (CO ₂ /TPES)	106	107	110	104	100	101	98	106	99	96	97	-0.1%

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

2. Average annual percentage change between the reference year and 2013. The reference year is 1990 unless otherwise specified.

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

CO₂ emissions and drivers (Kaya decomposition) ¹

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	avg. ch. ref-13 ²
Nicaragua												
CO ₂ emissions	81	101	98	98	100	137	193	219	237	241	229	3.7%
Population	60	68	79	90	100	113	123	132	141	145	147	1.7%
GDP per population (GDP per capita)	184	201	140	127	100	97	113	124	131	141	146	1.7%
Energy intensity (TPES/GDP)	55	54	69	84	100	102	89	87	79	80	82	-0.9%
Carbon intensity: ESCII (CO ₂ /TPES)	134	138	129	103	100	122	155	155	162	148	131	1.2%
Panama												
CO ₂ emissions	97	121	114	104	100	160	190	263	347	382	359	5.7%
Population	63	71	80	90	100	111	123	135	148	153	155	1.9%
GDP per population (GDP per capita)	93	96	100	106	100	118	133	149	200	236	252	4.1%
Energy intensity (TPES/GDP)	189	168	118	110	100	103	105	96	84	77	69	-1.6%
Carbon intensity: ESCII (CO ₂ /TPES)	87	106	120	99	100	119	110	136	140	137	133	1.3%
Paraguay												
CO ₂ emissions	30	36	70	74	100	181	170	180	241	261	256	4.2%
Population	60	66	75	87	100	113	126	139	152	157	160	2.1%
GDP per population (GDP per capita)	52	63	92	89	100	110	101	100	117	117	131	1.2%
Energy intensity (TPES/GDP)	143	116	98	95	100	103	99	92	88	89	77	-1.1%
Carbon intensity: ESCII (CO ₂ /TPES)	66	76	103	100	100	142	136	140	154	161	159	2.0%
Peru												
CO ₂ emissions	80	95	107	94	100	122	138	150	215	230	238	3.8%
Population	62	70	80	90	100	110	119	127	134	138	140	1.5%
GDP per population (GDP per capita)	122	134	137	121	100	117	123	142	188	207	216	3.4%
Energy intensity (TPES/GDP)	123	114	106	100	100	87	86	78	78	78	74	-1.3%
Carbon intensity: ESCII (CO ₂ /TPES)	86	90	92	87	100	108	110	107	109	104	107	0.3%
Trinidad and Tobago												
CO ₂ emissions	68	58	81	84	100	103	128	222	283	279	291	4.7%
Population	78	83	89	96	100	103	104	106	109	109	110	0.4%
GDP per population (GDP per capita)	97	104	141	117	100	104	132	189	218	216	219	3.5%
Energy intensity (TPES/GDP)	58	45	51	76	100	96	120	134	142	136	136	1.4%
Carbon intensity: ESCII (CO ₂ /TPES)	154	149	126	99	100	101	78	82	84	87	89	-0.5%
Uruguay												
CO ₂ emissions	142	148	148	84	100	122	141	143	166	228	198	3.0%
Population	91	91	94	97	100	104	107	107	108	109	110	0.4%
GDP per population (GDP per capita)	81	87	106	84	100	117	131	132	172	190	197	3.0%
Energy intensity (TPES/GDP)	146	137	119	109	100	94	98	93	98	100	95	-0.2%
Carbon intensity: ESCII (CO ₂ /TPES)	132	136	126	94	100	107	103	109	91	110	97	-0.1%
Venezuela												
CO ₂ emissions	49	60	89	91	100	113	124	147	183	180	166	2.2%
Population	56	65	76	88	100	112	124	135	147	152	154	1.9%
GDP per population (GDP per capita)	128	127	121	100	100	106	99	103	114	121	121	0.8%
Energy intensity (TPES/GDP)	63	71	89	104	100	100	105	102	109	100	93	-0.3%
Carbon intensity: ESCII (CO ₂ /TPES)	109	103	108	99	100	96	96	103	100	98	96	-0.2%
Other Non-OECD Americas												
CO ₂ emissions	66	88	83	75	100	108	122	131	153	166	171	2.4%
Population	87	90	93	96	100	106	113	120	126	131	132	1.2%
GDP per population (GDP per capita)	67	69	84	82	100	102	115	124	124	125	129	1.1%
Energy intensity (TPES/GDP)	162	193	146	90	100	91	85	81	88	90	90	-0.5%
Carbon intensity: ESCII (CO ₂ /TPES)	69	74	73	105	100	109	111	109	112	113	112	0.5%
Non-OECD Americas												
CO ₂ emissions	61	74	92	87	100	118	141	155	185	199	204	3.1%
Population	66	73	82	91	100	109	118	126	133	137	138	1.4%
GDP per population (GDP per capita)	81	95	108	100	100	109	112	121	144	151	154	1.9%
Energy intensity (TPES/GDP)	108	100	96	100	100	95	98	96	93	90	89	-0.5%
Carbon intensity: ESCII (CO ₂ /TPES)	105	106	108	97	100	104	109	106	104	107	108	0.3%

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

2. Average annual percentage change between the reference year and 2013. The reference year is 1990 unless otherwise specified.

CO₂ emissions and drivers (Kaya decomposition) ¹

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	avg. ch. ref-13 ²
Bahrain												
CO ₂ emissions	27	49	68	85	100	126	148	193	242	244	265	4.3%
Population	45	54	73	84	100	114	135	177	252	266	269	4.4%
GDP per population (GDP per capita)	64	98	118	94	100	122	127	124	115	115	120	0.8%
Energy intensity (TPES/GDP)	95	78	63	100	100	88	89	90	83	78	81	-0.9%
Carbon intensity: ESCII (CO ₂ /TPES)	101	120	126	107	100	103	97	97	101	102	101	0.0%
Islamic Republic of Iran												
CO ₂ emissions	23	40	52	85	100	143	182	244	291	302	307	5.0%
Population	52	58	69	84	100	107	117	124	132	136	137	1.4%
GDP per population (GDP per capita)	127	161	118	117	100	110	123	152	181	187	174	2.4%
Energy intensity (TPES/GDP)	36	41	67	78	100	124	123	132	125	125	138	1.4%
Carbon intensity: ESCII (CO ₂ /TPES)	95	103	94	109	100	98	103	98	97	95	93	-0.3%
Iraq												
CO ₂ emissions	20	30	51	68	100	185	138	159	201	245	269	4.4%
Population	59	67	78	89	100	116	136	156	177	186	191	2.8%
GDP per population (GDP per capita)	262	292	376	211	100	33	61	54	64	73	75	-1.3%
Energy intensity (TPES/GDP)	13	16	17	37	100	444	160	175	170	167	178	2.5%
Carbon intensity: ESCII (CO ₂ /TPES)	98	98	103	98	100	109	104	107	106	107	106	0.2%
Jordan												
CO ₂ emissions	15	23	46	80	100	132	155	195	203	245	245	4.0%
Population	50	57	69	83	100	132	151	171	191	199	204	3.1%
GDP per population (GDP per capita)	81	69	120	127	100	107	109	132	159	161	162	2.1%
Energy intensity (TPES/GDP)	37	58	57	75	100	93	90	91	71	75	72	-1.4%
Carbon intensity: ESCII (CO ₂ /TPES)	97	100	100	100	100	100	104	95	94	102	104	0.2%
Kuwait												
CO ₂ emissions	50	54	95	132	100	116	167	233	277	309	303	4.9%
Population	39	51	67	84	100	77	93	111	145	158	164	2.2%
GDP per population (GDP per capita)	382	243	197	121	100	163	149	183	149	164	159	2.0%
Energy intensity (TPES/GDP)	45	57	88	151	100	130	150	142	164	147	148	1.7%
Carbon intensity: ESCII (CO ₂ /TPES)	75	76	83	86	100	71	81	80	78	81	79	-1.0%
Lebanon												
CO ₂ emissions	83	104	121	120	100	232	254	262	330	381	374	5.9%
Population	87	95	96	99	100	112	120	148	161	164	165	2.2%
GDP per population (GDP per capita)	176	158	132	181	100	158	160	158	210	215	215	3.4%
Energy intensity (TPES/GDP)	62	74	99	67	100	127	132	110	97	104	102	0.1%
Carbon intensity: ESCII (CO ₂ /TPES)	88	93	95	101	100	103	101	102	101	104	103	0.1%
Oman												
CO ₂ emissions	3	7	22	55	100	145	201	243	471	550	570	7.9%
Population	41	49	64	83	100	119	121	139	155	183	201	3.1%
GDP per population (GDP per capita)	58	64	63	99	100	112	130	118	134	121	116	0.7%
Energy intensity (TPES/GDP)	8	18	67	61	100	109	116	161	229	254	247	4.0%
Carbon intensity: ESCII (CO ₂ /TPES)	125	126	81	111	100	100	110	92	99	98	99	-0.1%
Qatar												
CO ₂ emissions	18	40	56	86	100	135	171	267	459	570	583	8.0%
Population	25	34	47	78	100	105	125	172	367	430	455	6.8%
GDP per population (GDP per capita)	410	302	257	131	100	106	157	168	181	185	186	2.7%
Energy intensity (TPES/GDP)	14	30	42	85	100	113	86	88	64	74	73	-1.4%
Carbon intensity: ESCII (CO ₂ /TPES)	127	127	111	99	100	108	102	105	108	98	95	-0.2%
Saudi Arabia												
CO ₂ emissions	8	15	66	78	100	127	155	197	277	307	313	5.1%
Population	37	46	61	82	100	115	124	152	168	175	178	2.5%
GDP per population (GDP per capita)	98	168	176	103	100	101	105	109	131	145	148	1.7%
Energy intensity (TPES/GDP)	35	20	50	94	100	126	129	127	145	136	126	1.0%
Carbon intensity: ESCII (CO ₂ /TPES)	66	99	123	98	100	87	92	93	87	89	94	-0.3%

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

2. Average annual percentage change between the reference year and 2013. The reference year is 1990 unless otherwise specified.

CO₂ emissions and drivers (Kaya decomposition) ¹

reference year for indices = 1990 unless otherwise specified

	1971	1975	1980	1985	1990	1995	2000	2005	2010	2012	2013	avg. ch. ref-13 ²
Syrian Arab Republic												
CO ₂ emissions	20	30	45	72	100	114	136	196	206	142	123	0.9%
Population	53	61	72	86	100	115	131	146	173	180	183	2.7%
GDP per population (GDP per capita)	65	96	112	109	100	127	125	143	153	159	163	2.1%
Energy intensity (TPES/GDP)	66	50	53	80	100	79	90	95	78	50	41	-3.8%
Carbon intensity: ESCII (CO ₂ /TPES)	88	104	106	96	100	99	92	99	99	99	100	-0.0%
United Arab Emirates												
CO ₂ emissions	5	9	37	69	100	134	165	210	293	329	323	5.2%
Population	15	30	56	75	100	130	168	230	467	510	517	7.4%
GDP per population (GDP per capita)	118	154	169	119	100	93	94	89	50	49	50	-2.9%
Energy intensity (TPES/GDP)	28	21	37	76	100	113	105	104	131	132	130	1.2%
Carbon intensity: ESCII (CO ₂ /TPES)	96	100	105	102	100	99	99	98	97	99	95	-0.2%
Yemen												
CO ₂ emissions	19	28	55	77	100	150	212	299	356	277	380	6.0%
Population	53	57	67	82	100	127	149	171	193	202	207	3.2%
GDP per population (GDP per capita)	45	60	88	103	100	106	117	125	132	109	111	0.5%
Energy intensity (TPES/GDP)	123	82	86	82	100	101	109	123	122	108	143	1.6%
Carbon intensity: ESCII (CO ₂ /TPES)	65	101	109	112	100	110	112	114	114	116	116	0.6%
Middle East												
CO ₂ emissions	18	29	57	81	100	139	166	216	280	302	308	5.0%
Population	51	58	69	85	100	113	126	142	161	168	172	2.4%
GDP per population (GDP per capita)	138	170	186	129	100	94	106	119	136	145	144	1.6%
Energy intensity (TPES/GDP)	29	29	42	73	100	137	126	132	136	132	132	1.2%
Carbon intensity: ESCII (CO ₂ /TPES)	88	100	105	102	100	96	98	96	94	94	94	-0.3%
G7												
CO ₂ emissions	91	93	98	94	100	103	111	113	106	102	103	0.1%
Population	88	91	94	97	100	104	107	110	113	115	115	0.6%
GDP per population (GDP per capita)	62	67	77	86	100	107	120	129	130	132	134	1.3%
Energy intensity (TPES/GDP)	147	137	127	110	100	97	90	83	77	71	71	-1.5%
Carbon intensity: ESCII (CO ₂ /TPES)	114	111	106	102	100	96	96	95	94	95	94	-0.3%
G8												
CO ₂ emissions	..	..	..	..	100	97	102	104	98	96	97	-0.1%
Population	..	..	..	..	100	103	106	108	110	111	112	0.5%
GDP per population (GDP per capita)	..	..	..	..	100	103	117	128	130	133	135	1.3%
Energy intensity (TPES/GDP)	..	..	..	..	100	94	86	80	74	70	69	-1.6%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	97	96	95	93	93	93	-0.3%
G20												
CO ₂ emissions	..	..	..	..	100	105	114	131	143	152	156	1.9%
Population	..	..	..	..	100	106	112	117	123	125	125	1.0%
GDP per population (GDP per capita)	..	..	..	..	100	106	121	137	156	165	169	2.3%
Energy intensity (TPES/GDP)	..	..	..	..	100	94	85	80	74	72	71	-1.5%
Carbon intensity: ESCII (CO ₂ /TPES)	..	..	..	..	100	100	99	101	100	102	103	0.1%

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

2. Average annual percentage change between the reference year and 2013. The reference year is 1990 unless otherwise specified.

GLOBAL AND REGIONAL TOTALS

World

Figure 1. CO₂ emissions by fuel

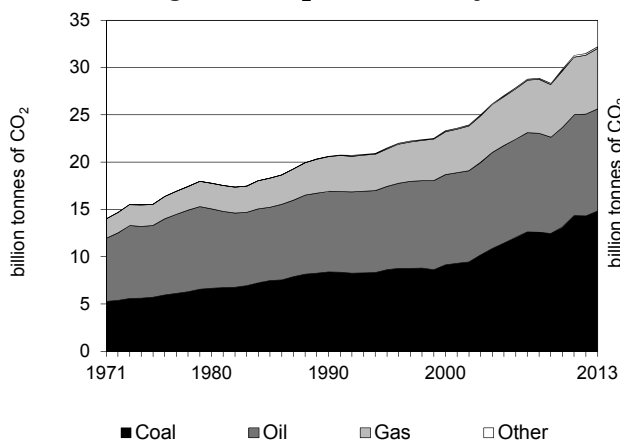


Figure 2. CO₂ emissions by sector

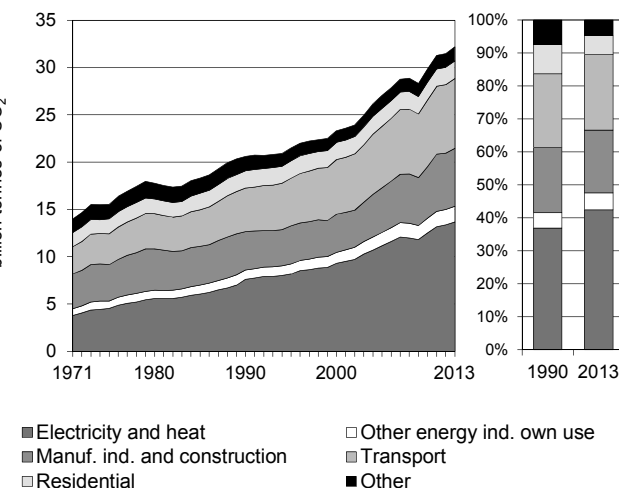


Figure 3. Electricity generation by fuel

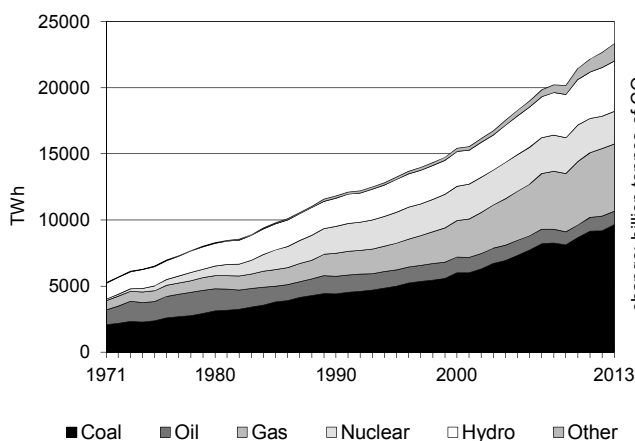


Figure 4. CO₂ from electricity generation: driving factors¹

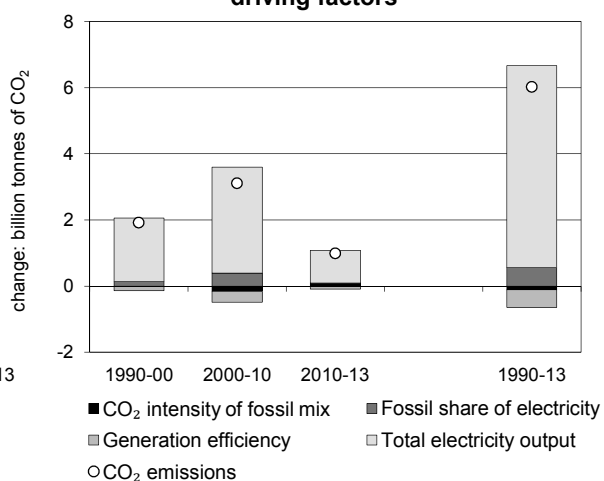


Figure 5. Changes in selected indicators

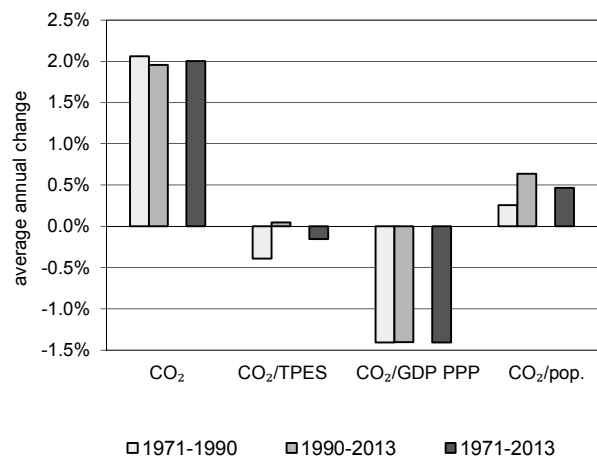
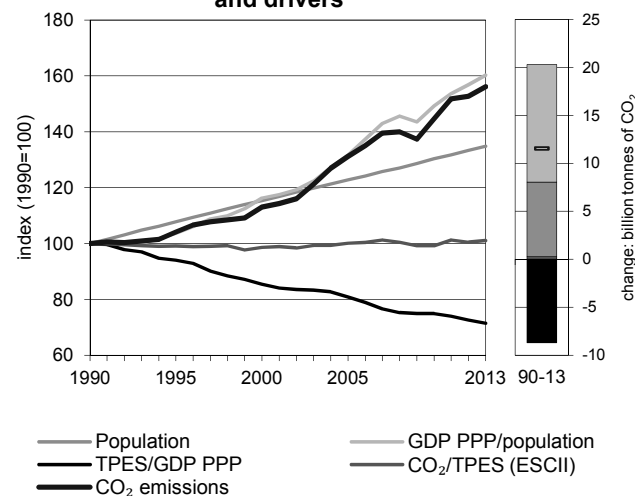


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

World

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	20 623.0	21 478.0	23 321.6	27 047.6	29 838.2	31 490.5	32 189.7	56%
Share of World CO ₂ from fuel combustion	100%	100%	100%	100%	100%	100%	100%	
TPES (PJ)	367 108	385 979	421 048	480 682	535 450	558 014	566 946	54%
GDP (billion 2005 USD)	30 998.9	34 400.5	40 712.9	46 935.8	52 541.3	55 244.0	56 519.0	82%
GDP PPP (billion 2005 USD)	39 954.2	44 659.7	53 616.3	64 630.8	77 730.9	83 552.4	86 334.2	116%
Population (millions)	5 278.3	5 687.7	6 089.9	6 479.8	6 882.2	7 039.3	7 117.7	35%
CO ₂ / TPES (tCO ₂ per TJ)	56.2	55.6	55.4	56.3	55.7	56.4	56.8	1%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.67	0.62	0.57	0.58	0.57	0.57	0.57	-14%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.52	0.48	0.44	0.42	0.38	0.38	0.37	-28%
CO ₂ / population (tCO ₂ per capita)	3.91	3.78	3.83	4.17	4.34	4.47	4.52	16%
Share of electricity output from fossil fuels	64%	62%	65%	67%	68%	68%	68%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	533	533	533	547	528	530	528	-1%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	104	113	131	145	153	156	56%
Population index	100	108	115	123	130	133	135	35%
GDP PPP per population index	100	104	116	132	149	157	160	60%
Energy intensity index - TPES / GDP PPP	100	94	85	81	75	73	71	-29%
Carbon intensity index - CO ₂ / TPES	100	99	99	100	99	100	101	1%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion ³	14 809.1	10 824.6	6 380.6	175.4	32 189.7	56%
Electricity and heat generation	9 887.2	887.5	2 753.2	127.7	13 655.6	79%
Other energy industry own use	422.5	548.1	702.0	1.3	1 674.0	74%
Manufacturing industries and construction	3 866.8	983.2	1 223.1	41.7	6 114.8	50%
Transport ³	12.8	7 146.1	226.0	-	7 384.9	60%
<i>of which: road</i>	-	5 463.6	83.4	-	5 547.0	68%
Other	619.7	1 259.8	1 476.3	4.7	3 360.5	0%
<i>of which: residential</i>	294.1	576.4	998.2	0.0	1 868.7	2%
<i>of which: services</i>	143.1	263.9	450.5	4.4	861.9	11%
<i>Memo: international marine bunkers</i>	0.0	608.8	-	-	608.8	64%
<i>Memo: international aviation bunkers</i>	-	490.4	-	-	490.4	89%

2. Other includes industrial waste and non-renewable municipal waste. 3. World includes international marine bunkers and international aviation bunkers.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ⁴	Cumulative total (%)
Main activity prod. elec. and heat - coal	9 191.2	98.9%	19.1	19.1
Road - oil	5 463.6	65.4%	11.3	30.4
Manufacturing industries - coal	3 866.8	76.5%	8.0	38.4
Main activity prod. elec. and heat - gas	2 268.7	119.3%	4.7	43.1
Other transport - oil	1 682.5	49.3%	3.5	46.6
Manufacturing industries - gas	1 223.1	44.4%	2.5	49.2
Residential - gas	998.2	55.0%	2.1	51.2
Manufacturing industries - oil	983.2	-4.2%	2.0	53.3
Main activity prod. elec. and heat - oil	723.2	-30.4%	1.5	54.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>32 189.7</i>	<i>56.1%</i>	<i>66.8</i>	<i>66.8</i>

4. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Annex I Parties

Figure 1. CO₂ emissions by fuel

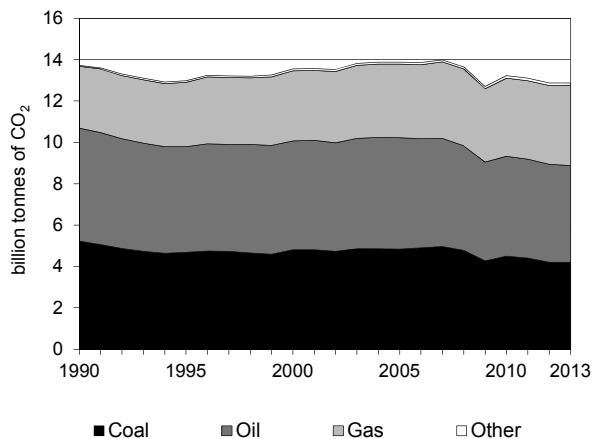


Figure 2. CO₂ emissions by sector

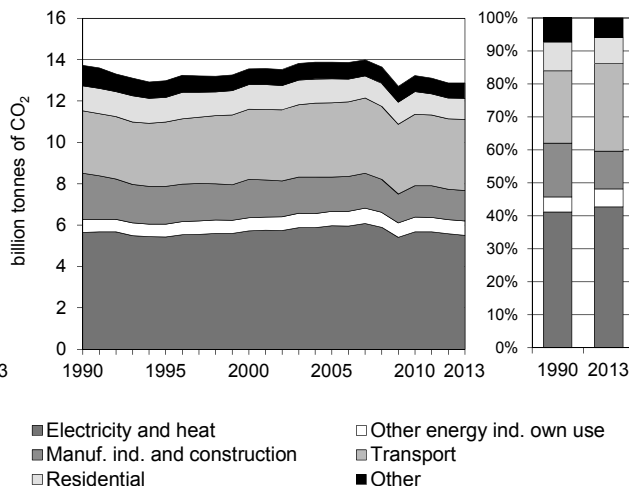


Figure 3. Electricity generation by fuel

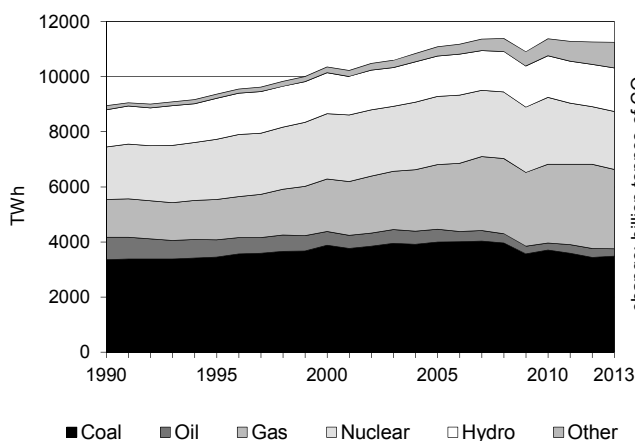


Figure 4. CO₂ from electricity generation: driving factors¹

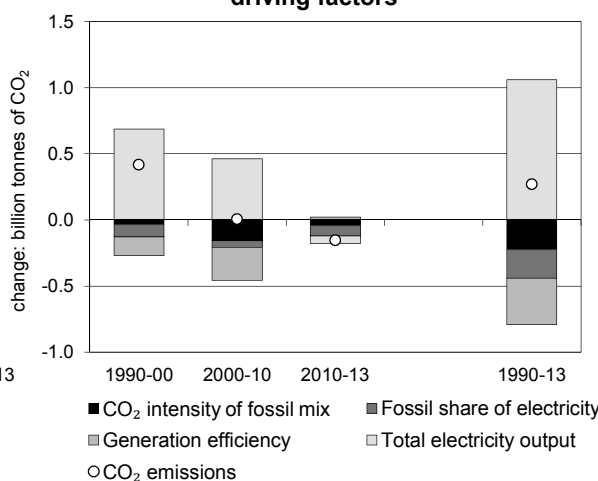


Figure 5. Changes in selected indicators

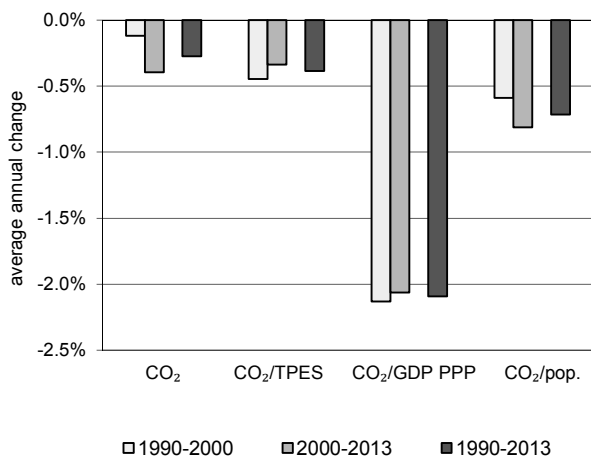
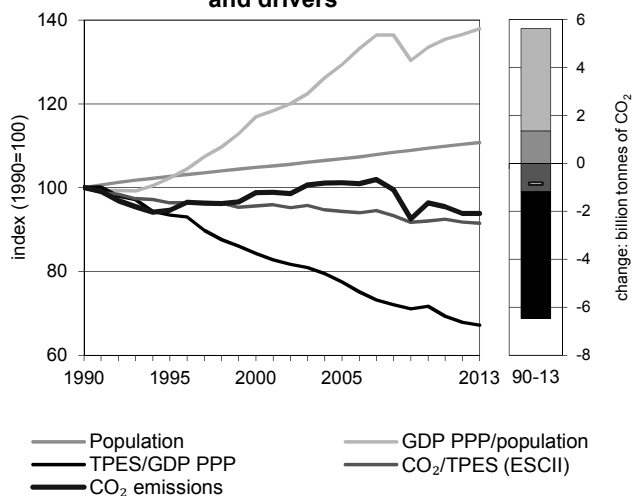


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Annex I Parties

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	13 724.4	12 987.3	13 559.6	13 882.5	13 226.5	12 878.7	12 879.7	-6%
Share of World CO ₂ from fuel combustion	67%	60%	58%	51%	44%	41%	40%	
TPES (PJ)	233 791	229 492	241 555	250 741	244 943	238 967	239 762	3%
GDP (billion 2005 USD)	25 673.7	27 718.8	32 336.7	36 102.3	37 831.8	38 911.6	39 416.3	54%
GDP PPP (billion 2005 USD)	26 112.5	27 430.5	32 003.7	36 113.5	38 131.2	39 331.4	39 862.1	53%
Population (millions)	1 176.2	1 207.7	1 233.0	1 257.4	1 286.9	1 297.6	1 302.4	11%
CO ₂ / TPES (tCO ₂ per TJ)	58.7	56.6	56.1	55.4	54.0	53.9	53.7	-8%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.53	0.47	0.42	0.38	0.35	0.33	0.33	-39%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.53	0.47	0.42	0.38	0.35	0.33	0.32	-39%
CO ₂ / population (tCO ₂ per capita)	11.67	10.75	11.00	11.04	10.28	9.92	9.89	-15%
Share of electricity output from fossil fuels	62%	59%	61%	62%	60%	61%	60%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	503	481	475	470	433	429	424	-16%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	95	99	101	96	94	94	-6%
Population index	100	103	105	107	109	110	111	11%
GDP PPP per population index	100	102	117	129	133	137	138	38%
Energy intensity index - TPES / GDP PPP	100	93	84	78	72	68	67	-33%
Carbon intensity index - CO ₂ / TPES	100	96	96	94	92	92	92	-8%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	4 204.8	4 681.4	3 871.2	122.2	12 879.7	-6%
Electricity and heat generation	3 534.2	221.5	1 662.4	86.0	5 504.2	-3%
Other energy industry own use	78.7	297.0	321.6	1.3	698.6	12%
Manufacturing industries and construction	497.1	310.3	635.6	32.3	1 475.3	-34%
Transport	0.7	3 289.1	133.5	-	3 423.3	14%
<i>of which: road</i>	-	2 938.4	6.1	-	2 944.5	20%
Other	94.0	563.5	1 118.2	2.6	1 778.4	-19%
<i>of which: residential</i>	58.0	242.5	722.0	0.0	1 022.6	-15%
<i>of which: services</i>	30.2	157.8	376.0	2.4	566.5	-13%
<i>Memo: international marine bunkers</i>	0.0	224.1	-	-	224.1	-5%
<i>Memo: international aviation bunkers</i>	-	258.7	-	-	258.7	52%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	3 308.8	-2.9%	19.1	19.1
Road - oil	2 938.4	19.5%	17.0	36.1
Main activity prod. elec. and heat - gas	1 316.1	61.7%	7.6	43.7
Residential - gas	722.0	19.8%	4.2	47.8
Manufacturing industries - gas	635.6	-6.7%	3.7	51.5
Manufacturing industries - coal	497.1	-48.6%	2.9	54.4
Non-specified other - gas	396.2	36.6%	2.3	56.7
Other transport - oil	350.7	-17.3%	2.0	58.7
Unallocated autoproducers - gas	346.2	15.0%	2.0	60.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>12 879.7</i>	<i>-6.2%</i>	<i>74.4</i>	<i>74.4</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Annex II Parties

Figure 1. CO₂ emissions by fuel

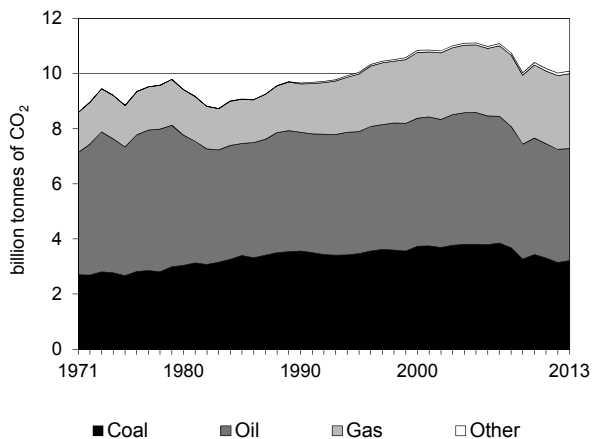


Figure 2. CO₂ emissions by sector

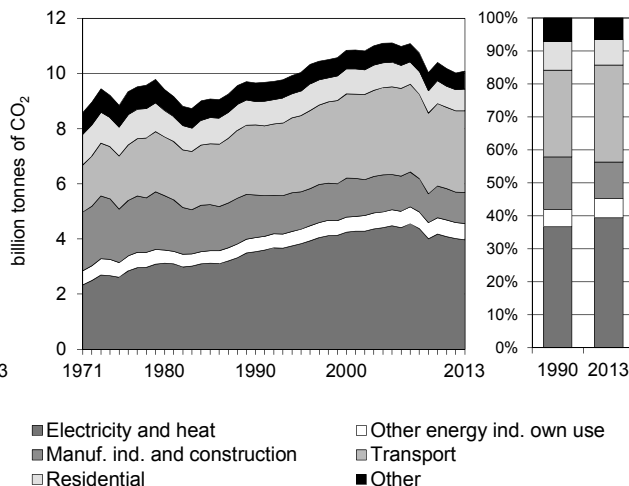


Figure 3. Electricity generation by fuel

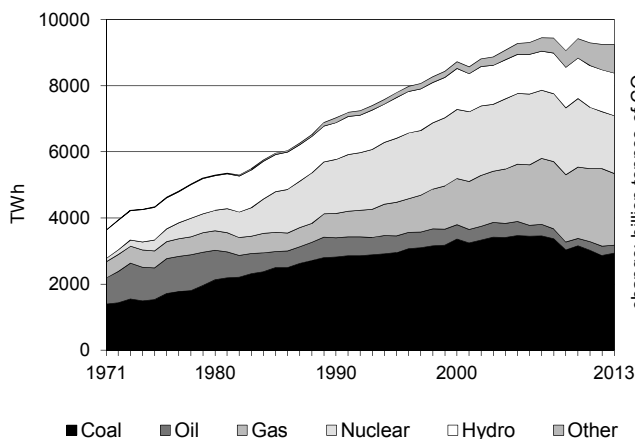


Figure 4. CO₂ from electricity generation: driving factors¹

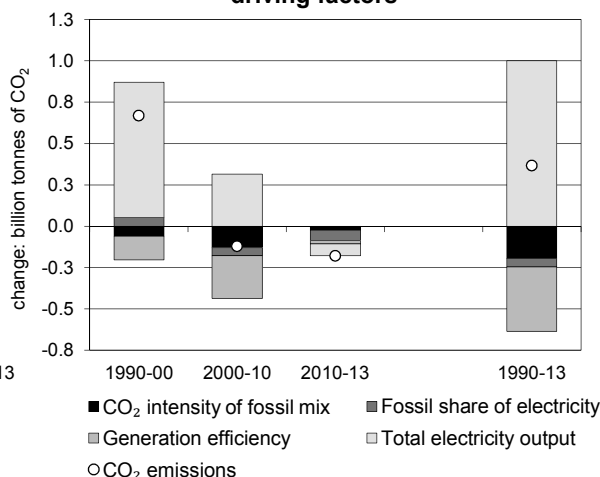


Figure 5. Changes in selected indicators

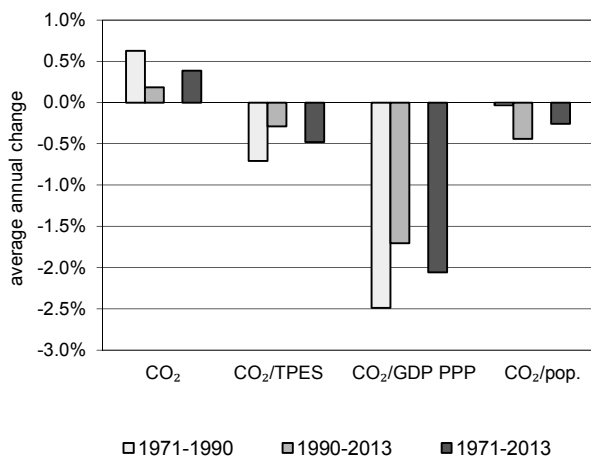
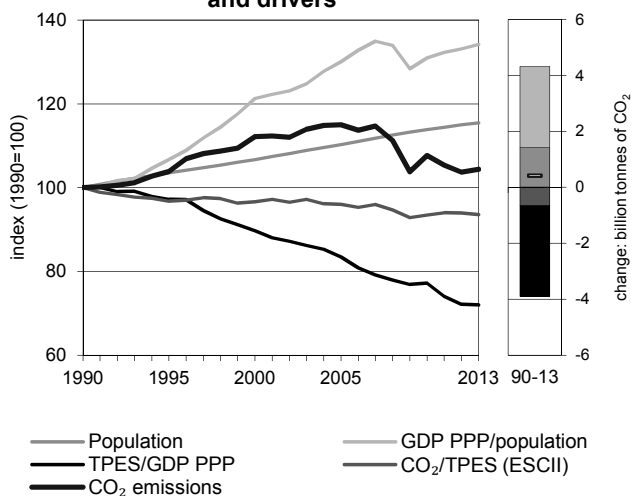


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Annex II Parties

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	9 660.0	10 035.7	10 836.5	11 107.9	10 400.4	10 019.4	10 081.0	4%
Share of World CO ₂ from fuel combustion	47%	47%	46%	41%	35%	32%	31%	
TPES (PJ)	167 924	180 297	194 934	201 112	193 346	185 376	187 282	12%
GDP (billion 2005 USD)	23 742.6	26 179.1	30 576.2	33 848.4	35 198.2	36 098.0	36 548.1	54%
GDP PPP (billion 2005 USD)	22 098.4	24 400.4	28 589.9	31 694.8	32 962.3	33 806.9	34 233.5	55%
Population (millions)	799.4	827.6	853.0	881.6	910.2	919.0	923.2	15%
CO ₂ / TPES (tCO ₂ per TJ)	57.5	55.7	55.6	55.2	53.8	54.0	53.8	-6%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.41	0.38	0.35	0.33	0.30	0.28	0.28	-32%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.44	0.41	0.38	0.35	0.32	0.30	0.29	-33%
CO ₂ / population (tCO ₂ per capita)	12.08	12.13	12.70	12.60	11.43	10.90	10.92	-10%
Share of electricity output from fossil fuels	59%	58%	60%	61%	59%	60%	58%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	493	478	474	468	426	418	415	-16%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	104	112	115	108	104	104	4%
Population index	100	104	107	110	114	115	115	15%
GDP PPP per population index	100	107	121	130	131	133	134	34%
Energy intensity index - TPES / GDP PPP	100	97	90	84	77	72	72	-28%
Carbon intensity index - CO ₂ / TPES	100	97	97	96	94	94	94	-6%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	3 207.1	4 070.2	2 712.9	90.9	10 081.0	4%
Electricity and heat generation	2 794.1	175.3	938.1	63.6	3 971.2	12%
Other energy industry own use	57.2	246.6	287.9	0.1	591.8	17%
Manufacturing industries and construction	339.8	258.2	495.3	25.6	1 118.9	-27%
Transport	0.6	2 902.5	62.3	-	2 965.4	17%
<i>of which: road</i>	-	2 591.8	5.4	-	2 597.2	21%
Other	15.3	487.5	929.3	1.6	1 433.7	-6%
<i>of which: residential</i>	8.7	216.0	565.3	0.0	789.9	-7%
<i>of which: services</i>	5.7	147.9	347.2	1.5	502.3	-0%
<i>Memo: international marine bunkers</i>	0.0	196.9	-	-	196.9	-13%
<i>Memo: international aviation bunkers</i>	-	230.7	-	-	230.7	74%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	2 683.4	4.1%	20.7	20.7
Road - oil	2 591.8	20.3%	20.0	40.6
Main activity prod. elec. and heat - gas	825.3	171.4%	6.4	47.0
Residential - gas	565.3	26.3%	4.4	51.3
Manufacturing industries - gas	495.3	3.4%	3.8	55.1
Non-specified other - gas	364.1	45.7%	2.8	57.9
Manufacturing industries - coal	339.8	-46.4%	2.6	60.6
Other transport - oil	310.7	-8.4%	2.4	63.0
Other energy industry own use - gas	287.9	88.0%	2.2	65.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>10 081.0</i>	<i>4.4%</i>	<i>77.6</i>	<i>77.6</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Annex II: North America

Figure 1. CO₂ emissions by fuel

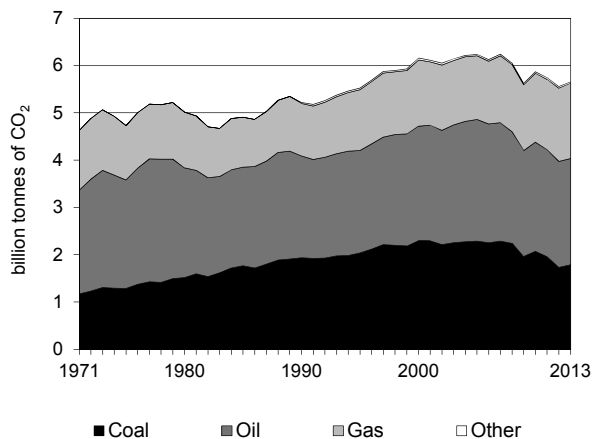


Figure 2. CO₂ emissions by sector

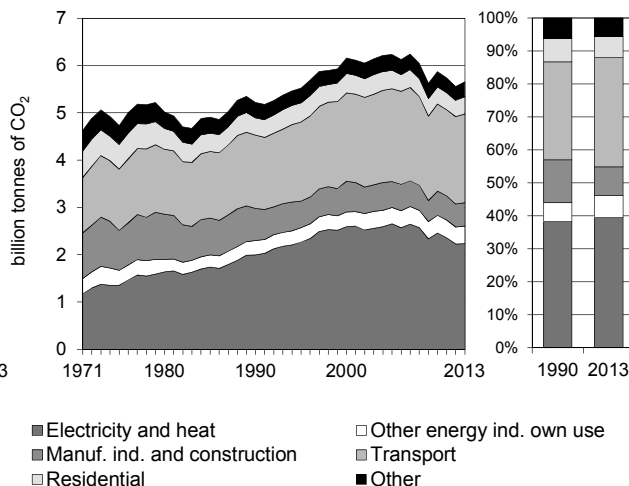


Figure 3. Electricity generation by fuel

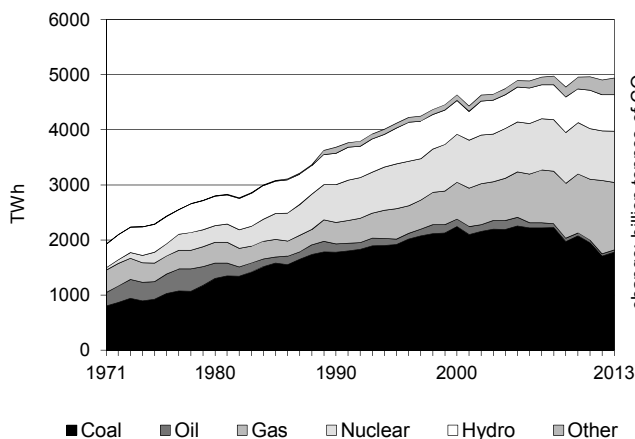


Figure 4. CO₂ from electricity generation: driving factors¹

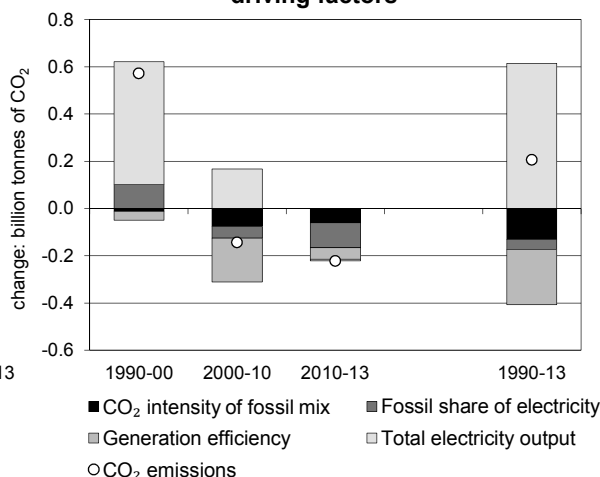


Figure 5. Changes in selected indicators

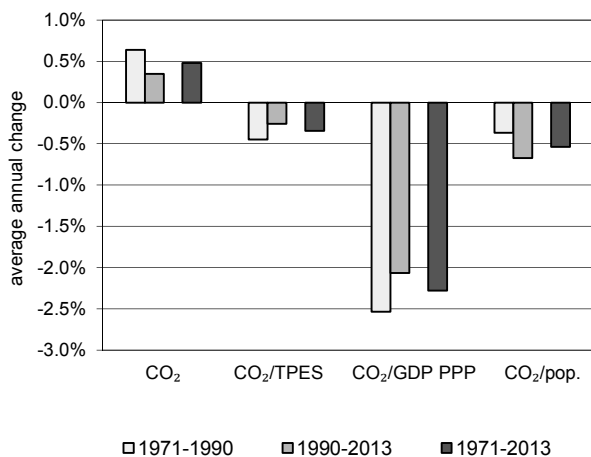
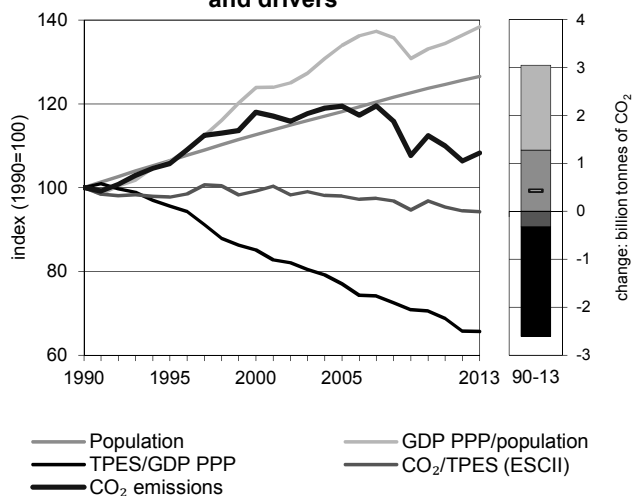


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Annex II: North America

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	5 221.5	5 521.7	6 158.5	6 237.9	5 870.7	5 555.6	5 656.0	8%
Share of World CO ₂ from fuel combustion	25%	26%	26%	23%	20%	18%	18%	
TPES (PJ)	88 912	96 216	105 710	108 399	103 278	100 152	102 223	15%
GDP (billion 2005 USD)	9 012.1	10 202.3	12 580.2	14 257.9	14 839.3	15 439.1	15 778.9	75%
GDP PPP (billion 2005 USD)	9 010.9	10 201.0	12 578.6	14 256.1	14 837.4	15 437.1	15 776.8	75%
Population (millions)	277.9	295.9	313.1	328.2	343.8	349.0	351.6	27%
CO ₂ / TPES (tCO ₂ per TJ)	58.7	57.4	58.3	57.5	56.8	55.5	55.3	-6%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.58	0.54	0.49	0.44	0.40	0.36	0.36	-38%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.58	0.54	0.49	0.44	0.40	0.36	0.36	-38%
CO ₂ / population (tCO ₂ per capita)	18.79	18.66	19.67	19.00	17.08	15.92	16.09	-14%
Share of electricity output from fossil fuels	63%	63%	66%	66%	65%	63%	62%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	541	544	554	537	489	446	446	-18%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	106	118	119	112	106	108	8%
Population index	100	106	113	118	124	126	127	27%
GDP PPP per population index	100	106	124	134	133	136	138	38%
Energy intensity index - TPES / GDP PPP	100	96	85	77	71	66	66	-34%
Carbon intensity index - CO ₂ / TPES	100	98	99	98	97	94	94	-6%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	1 786.1	2 246.1	1 596.4	27.5	5 656.0	8%
Electricity and heat generation	1 663.4	35.0	516.8	17.9	2 233.2	12%
Other energy industry own use	9.7	135.9	228.1	-	373.8	25%
Manufacturing industries and construction	109.9	89.7	286.5	8.7	494.7	-27%
Transport	-	1 819.0	55.4	-	1 874.5	21%
<i>of which: road</i>	-	1 582.9	1.9	-	1 584.8	27%
Other	3.1	166.4	509.5	0.8	679.9	-2%
<i>of which: residential</i>	0.1	60.5	303.6	-	364.2	-1%
<i>of which: services</i>	3.1	41.7	200.9	0.8	246.6	-2%
<i>Memo: international marine bunkers</i>	-	50.4	-	-	50.4	-47%
<i>Memo: international aviation bunkers</i>	-	67.7	-	-	67.7	62%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	1 645.6	0.0%	22.8	22.8
Road - oil	1 582.9	27.1%	21.9	44.7
Main activity prod. elec. and heat - gas	468.5	199.6%	6.5	51.2
Residential - gas	303.6	13.5%	4.2	55.4
Manufacturing industries - gas	286.5	-3.8%	4.0	59.4
Other transport - oil	236.2	-10.1%	3.3	62.7
Other energy industry own use - gas	228.1	81.5%	3.2	65.8
Non-specified other - gas	205.9	25.1%	2.9	68.7
Other energy industry own use - oil	135.9	-20.7%	1.9	70.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>5 656.0</i>	<i>8.3%</i>	<i>78.4</i>	<i>78.4</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Annex II: Europe

Figure 1. CO₂ emissions by fuel

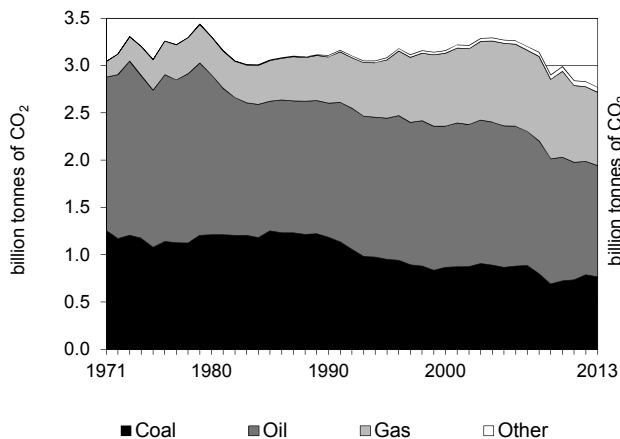


Figure 2. CO₂ emissions by sector

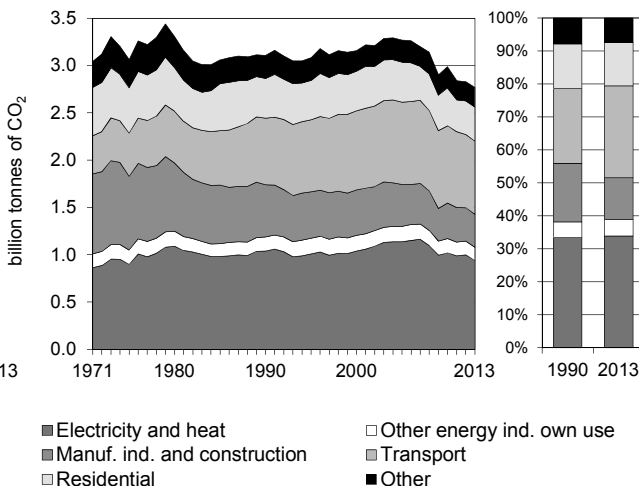


Figure 3. Electricity generation by fuel

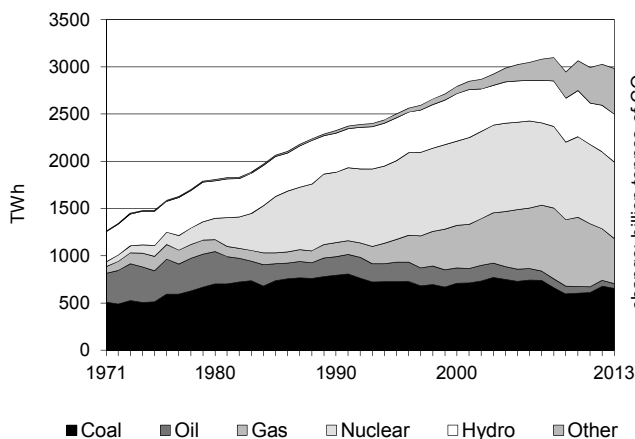


Figure 4. CO₂ from electricity generation: driving factors¹

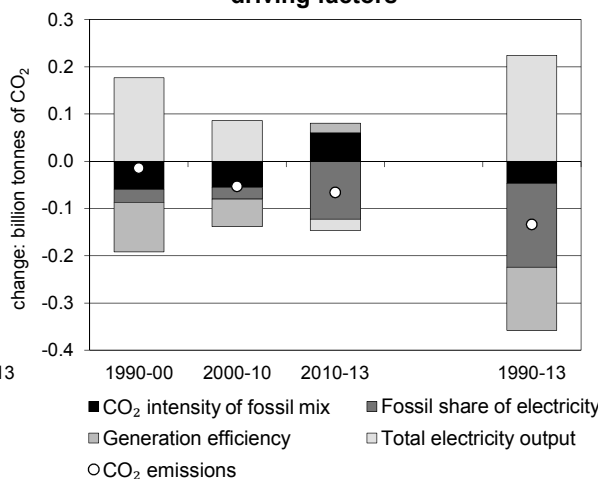


Figure 5. Changes in selected indicators

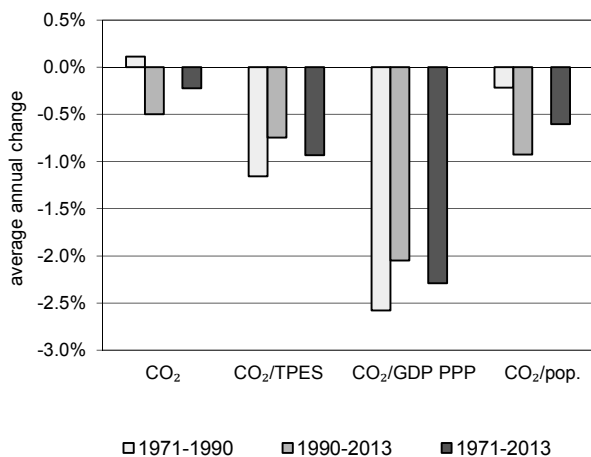
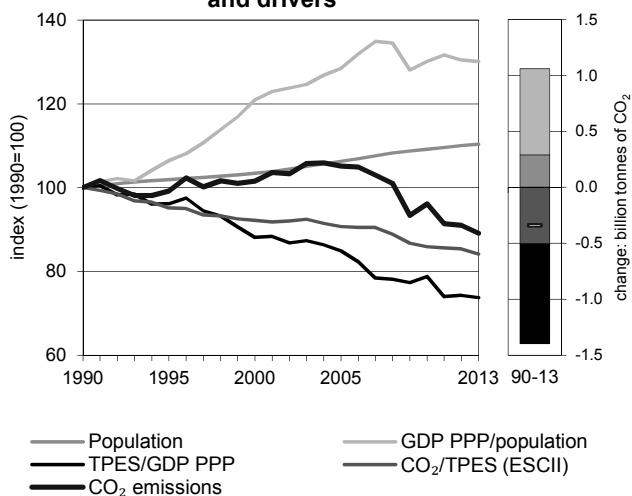


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Annex II: Europe

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	3 107.9	3 082.7	3 157.7	3 268.7	2 988.4	2 828.4	2 770.5	-11%
Share of World CO ₂ from fuel combustion	15.1%	14.4%	13.5%	12.1%	10.0%	9.0%	8.6%	
TPES (PJ)	56 468	58 875	62 247	65 459	63 199	60 203	59 799	6%
GDP (billion 2005 USD)	10 355.3	11 229.9	12 950.5	14 141.4	14 718.8	14 898.2	14 905.8	44%
GDP PPP (billion 2005 USD)	9 318.0	10 105.7	11 652.4	12 723.9	13 237.1	13 373.9	13 371.0	43%
Population (millions)	377.4	384.5	390.1	401.2	411.9	415.2	416.5	10%
CO ₂ / TPES (tCO ₂ per TJ)	55.0	52.4	50.7	49.9	47.3	47.0	46.3	-16%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.30	0.27	0.24	0.23	0.20	0.19	0.19	-38%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.33	0.31	0.27	0.26	0.23	0.21	0.21	-38%
CO ₂ / population (tCO ₂ per capita)	8.24	8.02	8.09	8.15	7.25	6.81	6.65	-19%
Share of electricity output from fossil fuels	49%	47%	48%	50%	47%	43%	41%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	417	375	342	338	294	295	280	-33%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	99	102	105	96	91	89	-11%
Population index	100	102	103	106	109	110	110	10%
GDP PPP per population index	100	106	121	128	130	130	130	30%
Energy intensity index - TPES / GDP PPP	100	96	88	85	79	74	74	-26%
Carbon intensity index - CO ₂ / TPES	100	95	92	91	86	85	84	-16%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	763.9	1 177.3	776.5	52.8	2 770.5	-11%
Electricity and heat generation	642.5	41.1	214.1	40.4	938.1	-10%
Other energy industry own use	23.9	78.7	38.9	0.1	141.6	-4%
Manufacturing industries and construction	87.9	79.2	170.4	11.5	349.0	-37%
Transport	0.0	767.4	5.4	-	772.9	10%
<i>of which: road</i>	-	728.0	3.2	-	731.2	11%
Other	9.7	210.9	347.7	0.7	569.0	-14%
<i>of which: residential</i>	8.6	119.1	233.0	0.0	360.7	-14%
<i>of which: services</i>	0.4	51.1	103.0	0.7	155.1	-6%
<i>Memo: international marine bunkers</i>	-	130.1	-	-	130.1	18%
<i>Memo: international aviation bunkers</i>	-	130.7	-	-	130.7	84%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	728.0	10.7%	19.9	19.9
Main activity prod. elec. and heat - coal	603.7	-15.5%	16.5	36.4
Residential - gas	233.0	47.4%	6.4	42.8
Manufacturing industries - gas	170.4	8.6%	4.7	47.5
Main activity prod. elec. and heat - gas	160.8	167.8%	4.4	51.9
Residential - oil	119.1	-35.9%	3.3	55.1
Non-specified other - gas	114.8	54.8%	3.1	58.3
Non-specified other - oil	91.7	-32.1%	2.5	60.8
Manufacturing industries - coal	87.9	-63.1%	2.4	63.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>2 770.5</i>	<i>-10.9%</i>	<i>75.8</i>	<i>75.8</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Annex II: Asia Oceania

Figure 1. CO₂ emissions by fuel

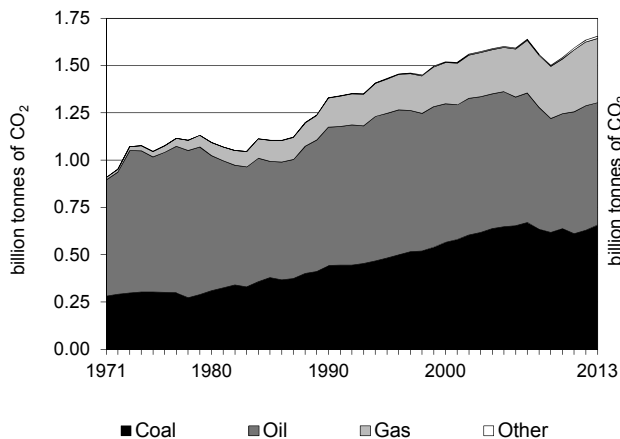


Figure 2. CO₂ emissions by sector

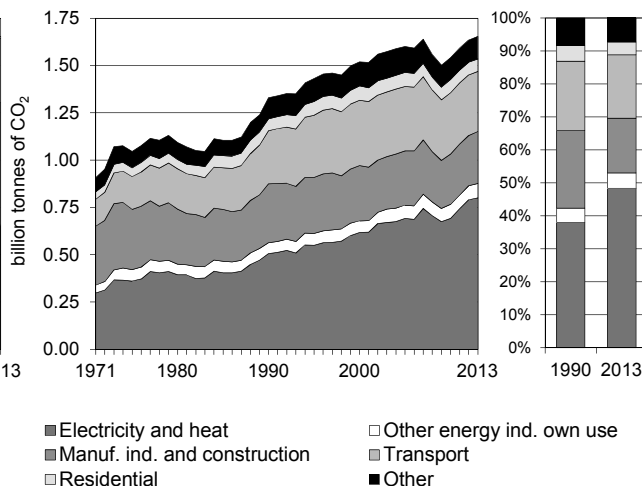


Figure 3. Electricity generation by fuel

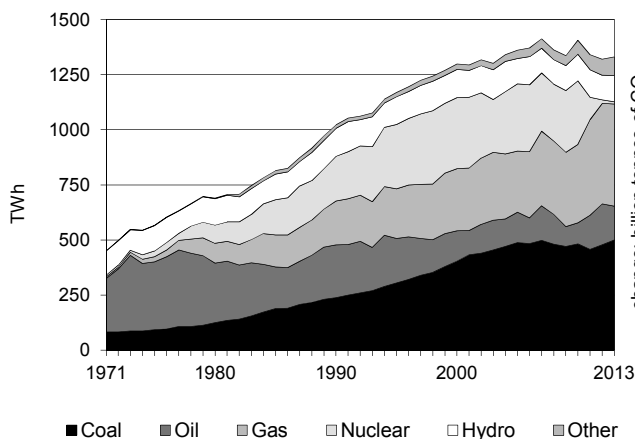


Figure 4. CO₂ from electricity generation: driving factors¹

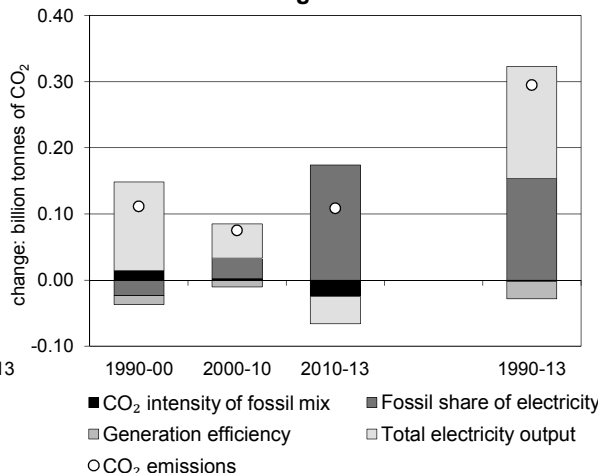


Figure 5. Changes in selected indicators

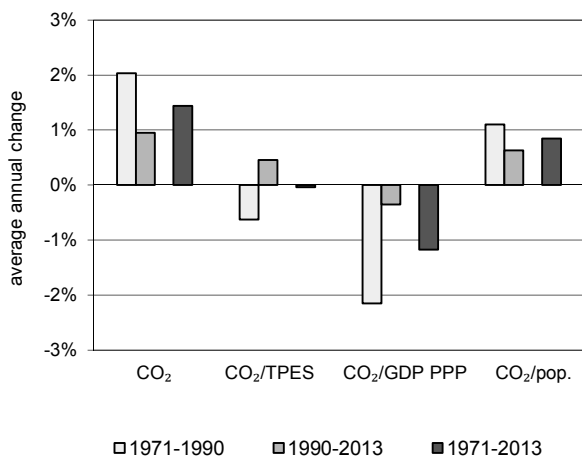
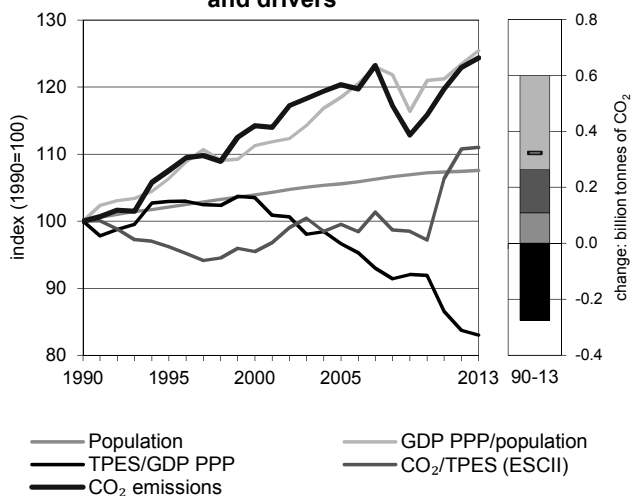


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Annex II: Asia Oceania

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	1 330.6	1 431.3	1 520.3	1 601.3	1 541.4	1 635.4	1 654.5	24%
Share of World CO ₂ from fuel combustion	6.5%	6.7%	6.5%	5.9%	5.2%	5.2%	5.1%	
TPES (PJ)	22 544	25 205	26 977	27 253	26 869	25 021	25 259	12%
GDP (billion 2005 USD)	4 375.2	4 746.9	5 045.4	5 449.1	5 640.0	5 760.7	5 863.3	34%
GDP PPP (billion 2005 USD)	3 769.4	4 093.8	4 358.9	4 714.9	4 887.8	4 995.9	5 085.7	35%
Population (millions)	144.2	147.2	149.8	152.2	154.6	154.8	155.1	8%
CO ₂ / TPES (tCO ₂ per TJ)	59.0	56.8	56.4	58.8	57.4	65.4	65.5	11%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.30	0.30	0.30	0.29	0.27	0.28	0.28	-7%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.35	0.35	0.35	0.34	0.32	0.33	0.33	-8%
CO ₂ / population (tCO ₂ per capita)	9.23	9.72	10.15	10.52	9.97	10.56	10.67	16%
Share of electricity output from fossil fuels	66%	63%	64%	67%	67%	85%	84%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	494	469	474	507	491	598	600	22%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	108	114	120	116	123	124	24%
Population index	100	102	104	106	107	107	108	8%
GDP PPP per population index	100	106	111	118	121	123	125	25%
Energy intensity index - TPES / GDP PPP	100	103	103	97	92	84	83	-17%
Carbon intensity index - CO ₂ / TPES	100	96	95	100	97	111	111	11%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	657.1	646.8	340.0	10.6	1 654.5	24%
Electricity and heat generation	488.3	99.1	207.2	5.3	799.9	58%
Other energy industry own use	23.6	32.0	20.8	-	76.4	31%
Manufacturing industries and construction	142.0	89.4	38.4	5.3	275.2	-12%
Transport	0.6	316.0	1.4	-	318.0	13%
<i>of which: road</i>	-	280.9	0.4	-	281.3	12%
Other	2.6	110.3	72.1	-	184.9	6%
<i>of which: residential</i>	0.0	36.4	28.7	-	65.1	4%
<i>of which: services</i>	2.2	55.0	43.3	-	100.6	17%
<i>Memo: international marine bunkers</i>	0.0	16.4	-	-	16.4	-22%
<i>Memo: international aviation bunkers</i>	-	32.3	-	-	32.3	69%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	434.1	99.7%	20.5	20.5
Road - oil	280.9	11.9%	13.3	33.8
Main activity prod. elec. and heat - gas	196.0	123.5%	9.3	43.1
Manufacturing industries - coal	142.0	-14.5%	6.7	49.8
Manufacturing industries - oil	89.4	-25.5%	4.2	54.0
Main activity prod. elec. and heat - oil	79.7	-40.9%	3.8	57.8
Non-specified other - oil	73.9	-23.0%	3.5	61.3
Unallocated autoproducers - coal	54.2	59.1%	2.6	63.8
Non-specified other - gas	43.4	288.6%	2.1	65.9
<i>Memo: total CO₂ from fuel combustion</i>	<i>1 654.5</i>	<i>24.3%</i>	<i>78.2</i>	<i>78.2</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Economies in Transition

Figure 1. CO₂ emissions by fuel

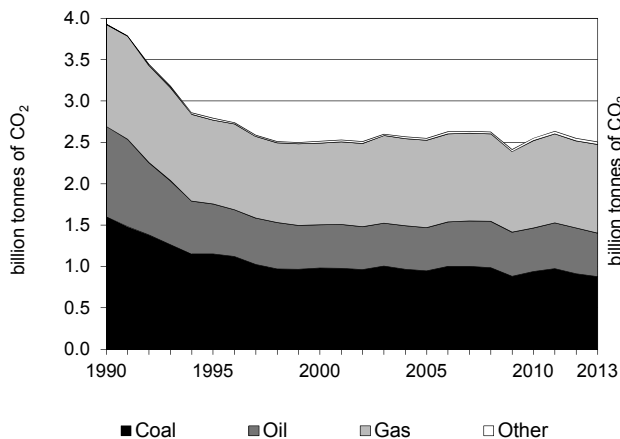


Figure 2. CO₂ emissions by sector

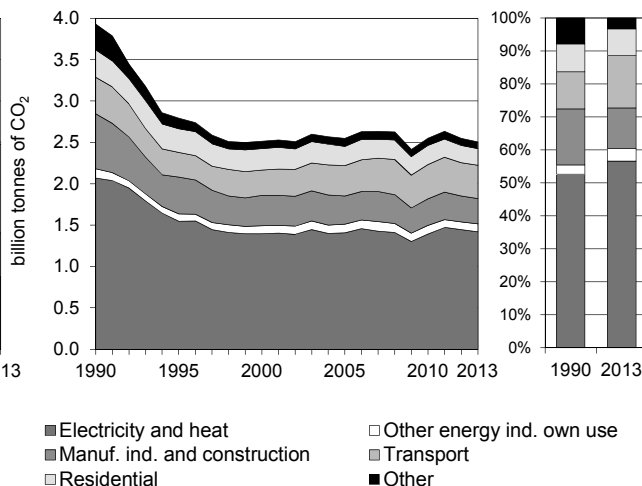


Figure 3. Electricity generation by fuel

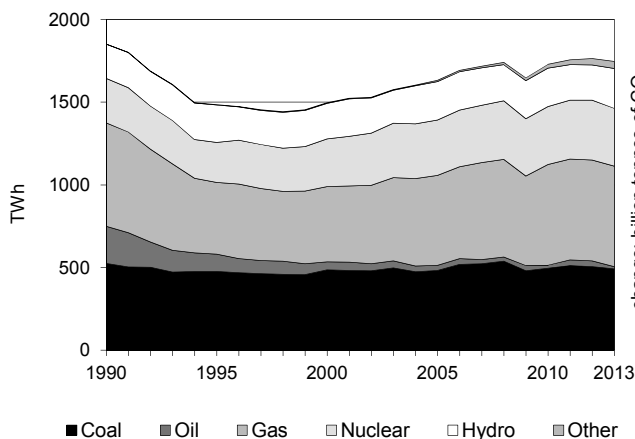


Figure 4. CO₂ from electricity generation: driving factors¹

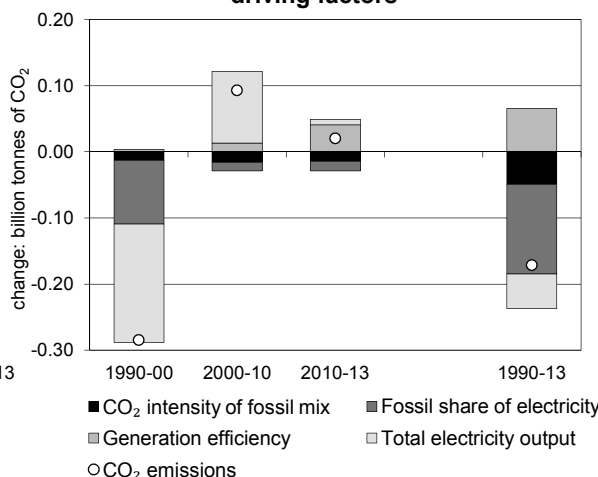


Figure 5. Changes in selected indicators

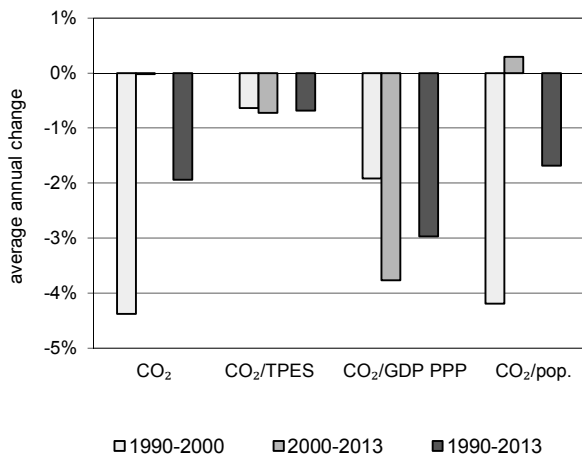
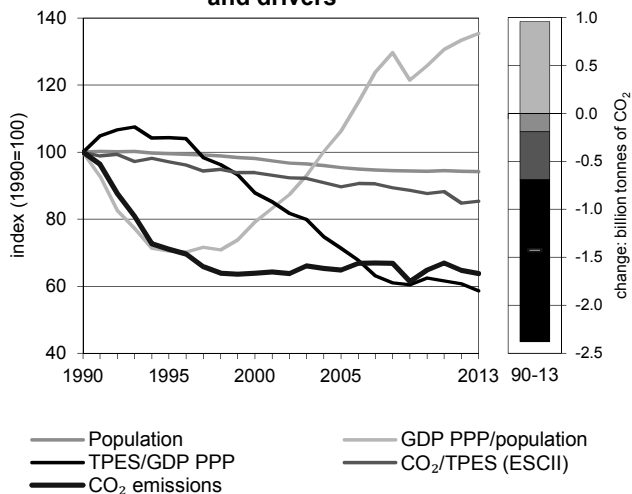


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Economies in Transition

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	3 931.1	2 792.4	2 513.4	2 548.6	2 550.8	2 547.4	2 506.9	-36%
Share of World CO ₂ from fuel combustion	19.1%	13.0%	10.8%	9.4%	8.6%	8.1%	7.8%	
TPES (PJ)	63 573	46 517	43 323	45 973	47 053	48 568	47 491	-25%
GDP (billion 2005 USD)	1 648.4	1 207.4	1 353.8	1 748.0	2 042.6	2 160.2	2 189.2	33%
GDP PPP (billion 2005 USD)	3 562.6	2 499.7	2 764.6	3 610.5	4 224.4	4 478.8	4 541.2	27%
Population (millions)	320.8	319.3	314.6	306.1	302.5	302.5	302.1	-6%
CO ₂ / TPES (tCO ₂ per TJ)	61.8	60.0	58.0	55.4	54.2	52.5	52.8	-15%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	2.38	2.31	1.86	1.46	1.25	1.18	1.15	-52%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	1.10	1.12	0.91	0.71	0.60	0.57	0.55	-50%
CO ₂ / population (tCO ₂ per capita)	12.25	8.74	7.99	8.33	8.43	8.42	8.30	-32%
Share of electricity output from fossil fuels	74%	69%	66%	65%	65%	65%	64%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	536	492	472	483	463	474	469	-12%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	71	64	65	65	65	64	-36%
Population index	100	100	98	95	94	94	94	-6%
GDP PPP per population index	100	70	79	106	126	133	135	35%
Energy intensity index - TPES / GDP PPP	100	104	88	71	62	61	59	-41%
Carbon intensity index - CO ₂ / TPES	100	97	94	90	88	85	85	-15%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	877.9	527.3	1 070.5	31.2	2 506.9	-36%
Electricity and heat generation	673.5	40.5	682.7	22.2	1 419.0	-31%
Other energy industry own use	15.0	47.5	31.4	1.2	95.1	-16%
Manufacturing industries and construction	132.1	48.2	121.4	6.7	308.5	-54%
Transport	0.1	329.1	70.5	-	399.6	-9%
<i>of which: road</i>	-	292.8	0.5	-	293.2	5%
Other	57.1	62.0	164.5	1.0	284.7	-56%
<i>of which: residential</i>	40.0	23.4	138.3	-	201.8	-39%
<i>of which: services</i>	12.5	9.8	23.0	0.8	46.0	-69%
<i>Memo: international marine bunkers</i>	-	19.7	-	-	19.7	99%
<i>Memo: international aviation bunkers</i>	-	23.8	-	-	23.8	-36%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	566.5	-29.9%	14.7	14.7
Main activity prod. elec. and heat - gas	453.7	-10.1%	11.8	26.5
Road - oil	292.8	5.9%	7.6	34.1
Unallocated autoproducers - gas	229.1	3.2%	5.9	40.0
Residential - gas	138.3	-10.7%	3.6	43.6
Manufacturing industries - coal	132.1	-57.8%	3.4	47.0
Manufacturing industries - gas	121.4	-39.6%	3.2	50.2
Unallocated autoproducers - coal	107.0	-36.9%	2.8	53.0
Other transport - gas	70.0	-9.8%	1.8	54.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>2 506.9</i>	<i>-36.2%</i>	<i>65.1</i>	<i>65.1</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Non-Annex I Parties

Figure 1. CO₂ emissions by fuel

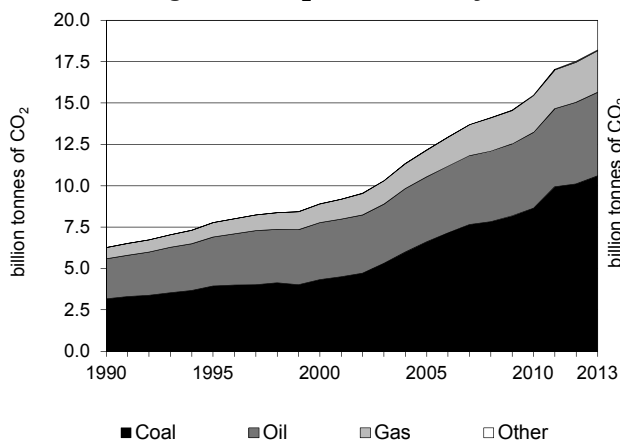


Figure 2. CO₂ emissions by sector

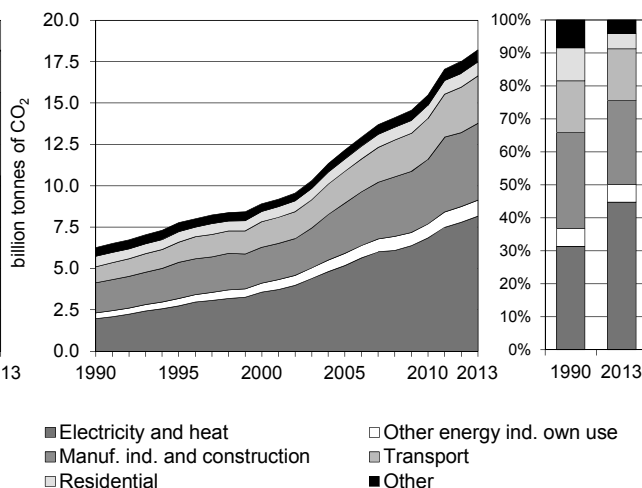


Figure 3. Electricity generation by fuel

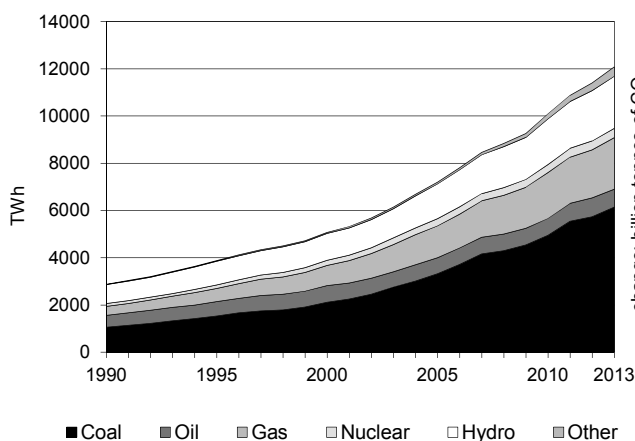


Figure 4. CO₂ from electricity generation: driving factors¹

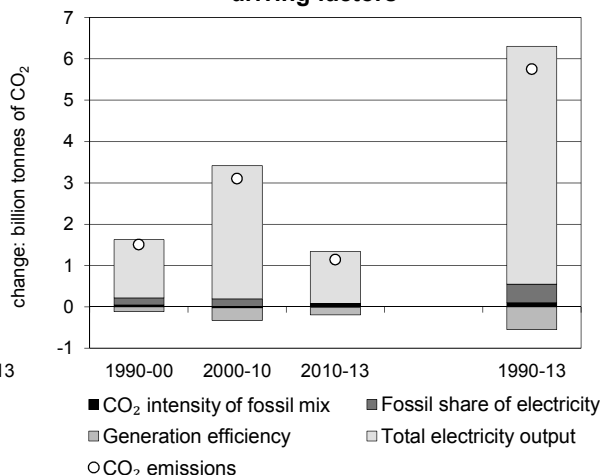


Figure 5. Changes in selected indicators

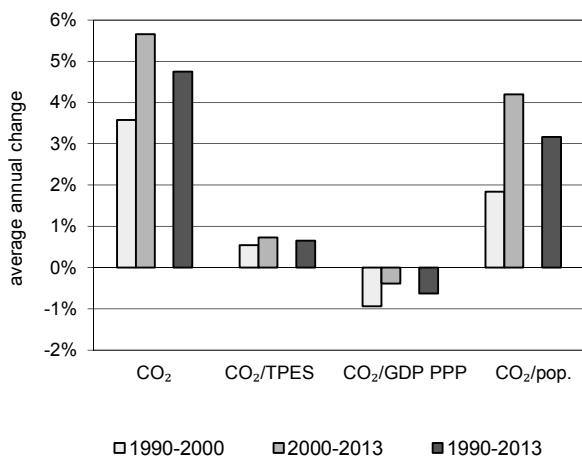
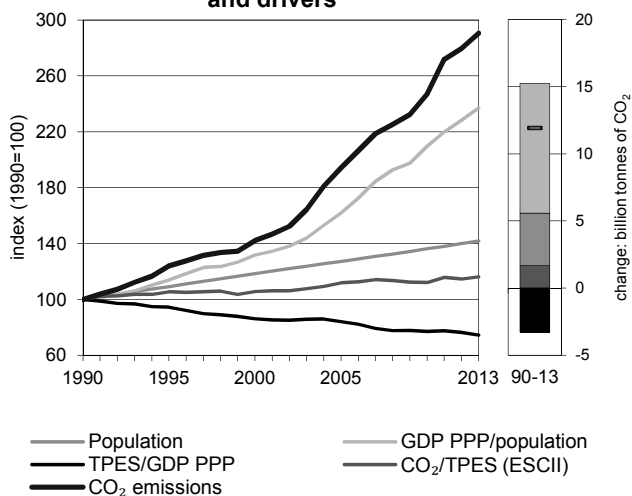


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Non-Annex I Parties

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	6 268.3	7 769.9	8 908.3	12 162.0	15 484.8	17 516.0	18 210.8	191%
Share of World CO ₂ from fuel combustion	30%	36%	38%	45%	52%	56%	57%	
TPES (PJ)	124 852	146 815	168 031	216 479	275 399	304 329	312 416	150%
GDP (billion 2005 USD)	5 325.1	6 681.8	8 376.1	10 833.5	14 709.6	16 332.4	17 102.7	221%
GDP PPP (billion 2005 USD)	13 841.7	17 229.2	21 612.6	28 517.2	39 599.7	44 221.1	46 472.1	236%
Population (millions)	4 102.1	4 480.0	4 856.9	5 222.4	5 595.3	5 741.7	5 815.3	42%
CO ₂ / TPES (tCO ₂ per TJ)	50.2	52.9	53.0	56.2	56.2	57.6	58.3	16%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	1.18	1.16	1.06	1.12	1.05	1.07	1.06	-10%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.45	0.45	0.41	0.43	0.39	0.40	0.39	-13%
CO ₂ / population (tCO ₂ per capita)	1.53	1.73	1.83	2.33	2.77	3.05	3.13	105%
Share of electricity output from fossil fuels	67%	70%	72%	74%	76%	75%	75%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	626	659	653	666	636	631	626	0%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	124	142	194	247	279	291	191%
Population index	100	109	118	127	136	140	142	42%
GDP PPP per population index	100	114	132	162	210	228	237	137%
Energy intensity index - TPES / GDP PPP	100	94	86	84	77	76	75	-25%
Carbon intensity index - CO ₂ / TPES	100	105	106	112	112	115	116	16%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	10 604.3	5 044.0	2 509.4	53.2	18 210.8	191%
Electricity and heat generation	6 353.0	665.9	1 090.8	41.7	8 151.4	314%
Other energy industry own use	343.8	251.2	380.4	-	975.4	188%
Manufacturing industries and construction	3 369.7	672.8	587.5	9.5	4 639.5	154%
Transport	12.1	2 757.8	92.6	-	2 862.5	194%
<i>of which: road</i>	-	2 525.1	77.3	-	2 602.5	208%
Other	525.7	696.3	358.1	2.1	1 582.1	37%
<i>of which: residential</i>	236.1	333.8	276.1	-	846.1	35%
<i>of which: services</i>	112.9	106.1	74.5	2.1	295.5	139%
<i>Memo: international marine bunkers</i>	-	384.7	-	-	384.7	185%
<i>Memo: international aviation bunkers</i>	-	231.7	-	-	231.7	163%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	5 882.5	384.4%	19.7	19.7
Manufacturing industries - coal	3 369.7	175.2%	11.3	31.1
Road - oil	2 525.1	198.6%	8.5	39.5
Main activity prod. elec. and heat - gas	952.6	331.2%	3.2	42.7
Manufacturing industries - oil	672.8	53.7%	2.3	45.0
Manufacturing industries - gas	587.5	255.0%	2.0	47.0
Main activity prod. elec. and heat - oil	571.8	42.0%	1.9	48.9
Unallocated autoproducers - coal	470.5	679.3%	1.6	50.5
Other energy industry own use - gas	380.4	217.8%	1.3	51.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>18 210.8</i>	<i>190.5%</i>	<i>61.1</i>	<i>61.1</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Annex I Kyoto Parties

Figure 1. CO₂ emissions by fuel

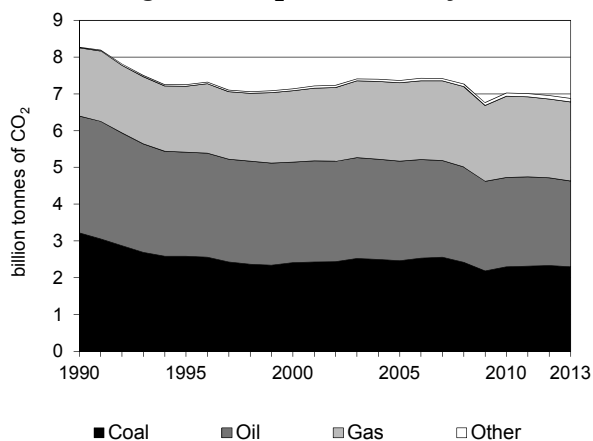


Figure 2. CO₂ emissions by sector

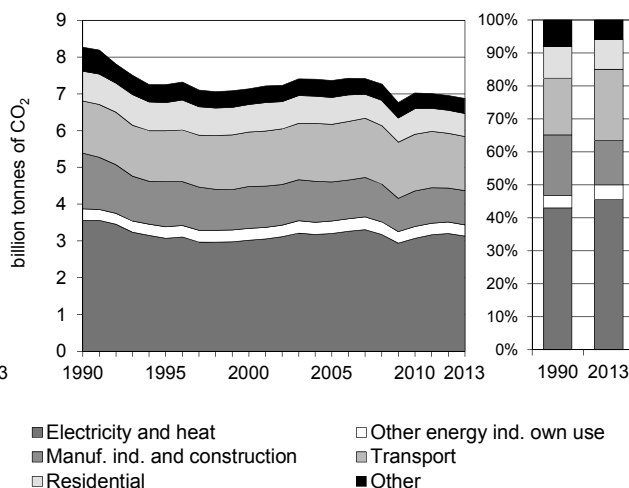


Figure 3. Electricity generation by fuel

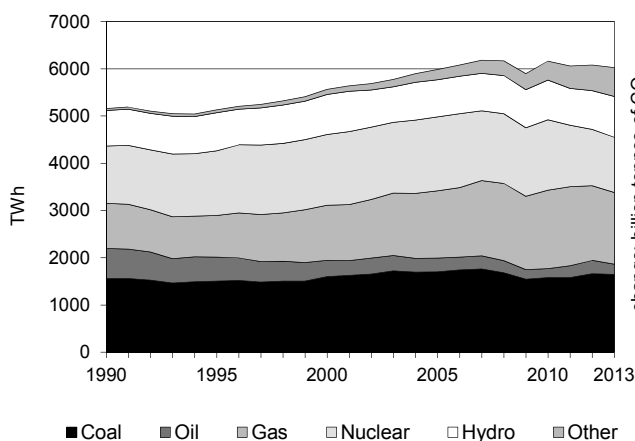


Figure 4. CO₂ from electricity generation: driving factors¹

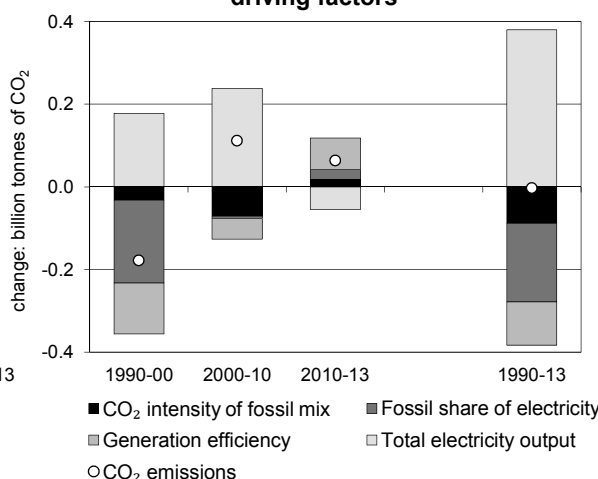


Figure 5. Changes in selected indicators

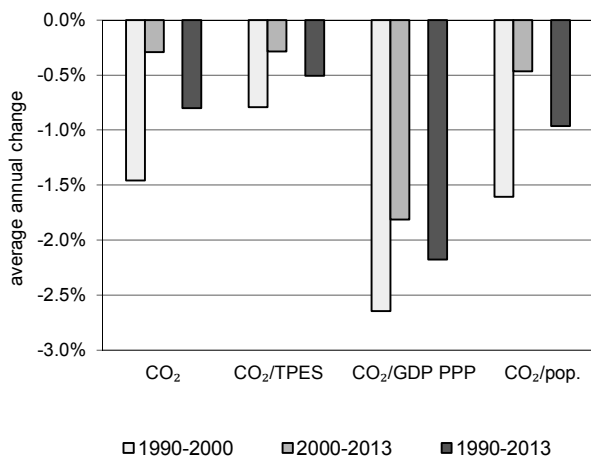
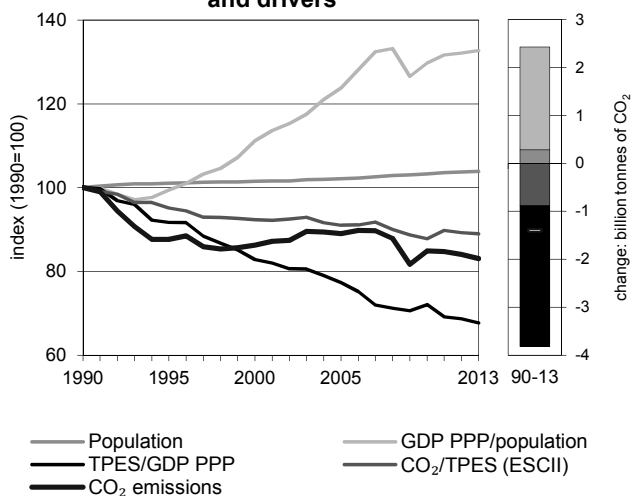


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Annex I Kyoto Parties

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	8 269.8	7 249.5	7 139.3	7 363.6	7 020.7	6 953.5	6 873.6	-17%
Share of World CO ₂ from fuel combustion	40%	34%	31%	27%	24%	22%	21%	
TPES (PJ)	140 681	129 561	131 518	137 566	135 969	132 514	131 408	-7%
GDP (billion 2005 USD)	16 355.2	17 168.7	19 328.7	21 308.2	22 358.5	22 773.0	22 911.9	40%
GDP PPP (billion 2005 USD)	16 576.7	16 651.3	18 710.9	20 955.8	22 216.6	22 706.2	22 854.1	38%
Population (millions)	832.1	840.9	844.6	849.8	859.4	863.0	864.2	4%
CO ₂ / TPES (tCO ₂ per TJ)	58.8	56.0	54.3	53.5	51.6	52.5	52.3	-11%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.51	0.42	0.37	0.35	0.31	0.31	0.30	-41%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.50	0.44	0.38	0.35	0.32	0.31	0.30	-40%
CO ₂ / population (tCO ₂ per capita)	9.94	8.62	8.45	8.67	8.17	8.06	7.95	-20%
Share of electricity output from fossil fuels	61%	57%	56%	58%	56%	59%	57%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	474	430	407	415	386	412	405	-15%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	88	86	89	85	84	83	-17%
Population index	100	101	101	102	103	104	104	4%
GDP PPP per population index	100	99	111	124	130	132	133	33%
Energy intensity index - TPES / GDP PPP	100	92	83	77	72	69	68	-32%
Carbon intensity index - CO ₂ / TPES	100	95	92	91	88	89	89	-11%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	2 295.7	2 333.3	2 150.2	94.4	6 873.6	-17%
Electricity and heat generation	1 803.7	180.2	1 076.1	67.8	3 127.8	-12%
Other energy industry own use	62.5	155.3	90.6	1.3	309.6	-1%
Manufacturing industries and construction	360.5	216.1	327.2	23.5	927.4	-39%
Transport	0.7	1 401.3	76.1	-	1 478.1	4%
<i>of which: road</i>	-	1 291.2	4.0	-	1 295.1	10%
Other	68.3	380.4	580.2	1.8	1 030.7	-30%
<i>of which: residential</i>	47.8	178.7	396.3	0.0	622.8	-23%
<i>of which: services</i>	14.9	115.6	169.1	1.5	301.1	-24%
<i>Memo: international marine bunkers</i>	0.0	166.2	-	-	166.2	18%
<i>Memo: international aviation bunkers</i>	-	186.5	-	-	186.5	47%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	1 604.0	-7.8%	16.8	16.8
Road - oil	1 291.2	9.8%	13.6	30.4
Main activity prod. elec. and heat - gas	787.3	23.8%	8.3	38.7
Residential - gas	396.3	18.9%	4.2	42.8
Manufacturing industries - coal	360.5	-49.7%	3.8	46.6
Manufacturing industries - gas	327.2	-14.0%	3.4	50.0
Unallocated autoproducers - gas	288.8	20.3%	3.0	53.1
Manufacturing industries - oil	216.1	-48.2%	2.3	55.3
Non-specified other - oil	201.8	-40.4%	2.1	57.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>6 873.6</i>	<i>-16.9%</i>	<i>72.2</i>	<i>72.2</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

OECD Total ¹

Figure 1. CO₂ emissions by fuel

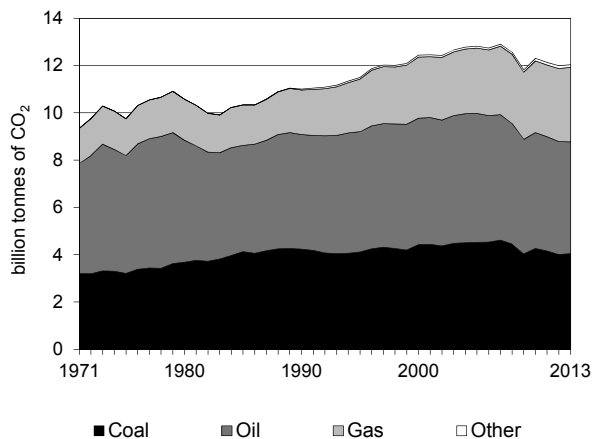


Figure 2. CO₂ emissions by sector

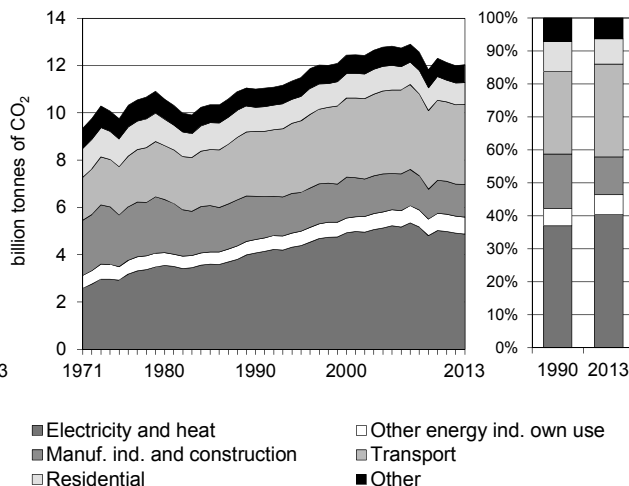


Figure 3. Electricity generation by fuel

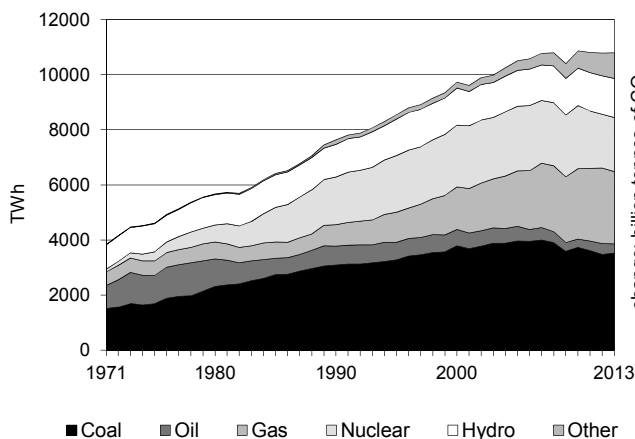


Figure 4. CO₂ from electricity generation: driving factors ²

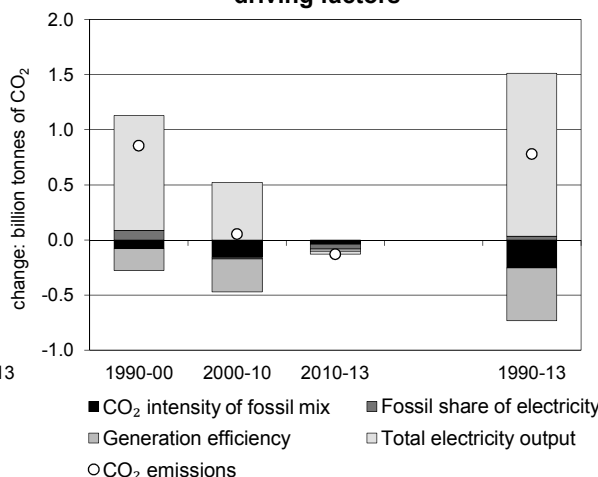


Figure 5. Changes in selected indicators

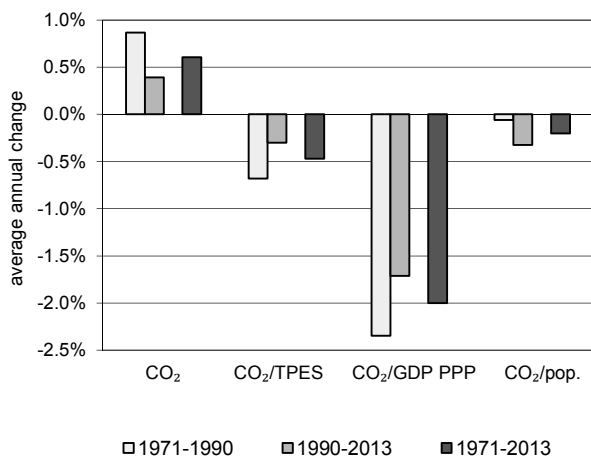
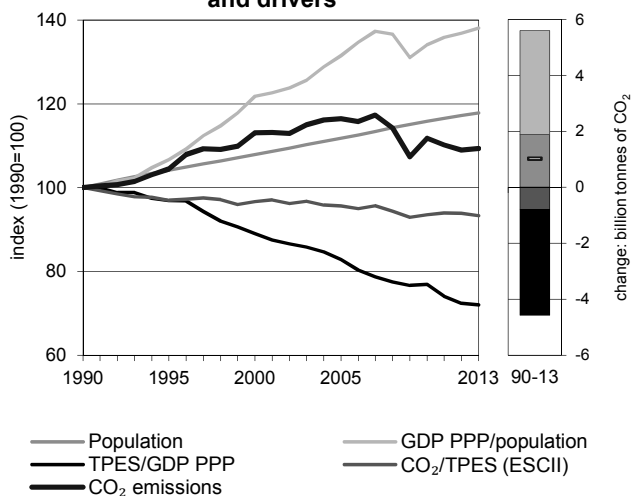


Figure 6. Total CO₂ emissions and drivers ³



1. Excludes Estonia and Slovenia prior to 1990.

2. Electricity decomposition: CO₂ emissions = CO₂ intensity of mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

3. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 1.

OECD Total

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	11 005.8	11 496.4	12 446.6	12 815.5	12 305.6	11 990.1	12 037.7	9%
Share of World CO ₂ from fuel combustion	53%	54%	53%	47%	41%	38%	37%	
TPES (PJ)	189 356	203 994	221 556	230 668	226 289	219 856	221 884	17%
GDP (billion 2005 USD)	25 507.5	28 269.5	33 232.8	37 010.2	38 901.5	40 068.8	40 615.2	59%
GDP PPP (billion 2005 USD)	24 781.2	27 540.9	32 571.7	36 428.8	38 498.6	39 747.4	40 316.4	63%
Population (millions)	1 069.9	1 114.7	1 154.4	1 195.9	1 239.5	1 254.1	1 261.0	18%
CO ₂ / TPES (tCO ₂ per TJ)	58.1	56.4	56.2	55.6	54.4	54.5	54.3	-7%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.43	0.41	0.37	0.35	0.32	0.30	0.30	-31%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.44	0.42	0.38	0.35	0.32	0.30	0.30	-33%
CO ₂ / population (tCO ₂ per capita)	10.29	10.31	10.78	10.72	9.93	9.56	9.55	-7%
Share of electricity output from fossil fuels	60%	59%	61%	62%	61%	62%	61%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	508	492	487	476	441	436	432	-15%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	104	113	116	112	109	109	9%
Population index	100	104	108	112	116	117	118	18%
GDP PPP per population index	100	107	122	132	134	137	138	38%
Energy intensity index - TPES / GDP PPP	100	97	89	83	77	72	72	-28%
Carbon intensity index - CO ₂ / TPES	100	97	97	96	94	94	93	-7%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	4 040.0	4 738.1	3 146.7	112.8	12 037.7	9%
Electricity and heat generation	3 414.8	243.0	1 139.0	69.7	4 866.4	19%
Other energy industry own use	98.2	291.1	333.0	0.1	722.4	27%
Manufacturing industries and construction	446.6	308.7	583.3	39.2	1 377.8	-24%
Transport	0.6	3 315.6	67.5	-	3 383.7	23%
<i>of which: road</i>	-	2 990.6	8.6	-	2 999.2	28%
Other	79.7	579.7	1 023.9	3.9	1 687.3	-6%
<i>of which: residential</i>	52.7	250.1	629.2	0.0	932.1	-8%
<i>of which: services</i>	21.7	161.7	377.0	3.8	564.1	1%
<i>Memo: international marine bunkers</i>	0.0	232.6	-	-	232.6	-1%
<i>Memo: international aviation bunkers</i>	-	263.3	-	-	263.3	84%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	3 250.4	12.3%	20.7	20.7
Road - oil	2 990.6	27.4%	19.1	39.8
Main activity prod. elec. and heat - gas	1 002.7	202.7%	6.4	46.2
Residential - gas	629.2	34.9%	4.0	50.2
Manufacturing industries - gas	583.3	10.1%	3.7	54.0
Manufacturing industries - coal	446.6	-40.8%	2.8	56.8
Non-specified other - gas	394.7	52.5%	2.5	59.3
Other energy industry own use - gas	333.0	97.8%	2.1	61.5
Non-specified other - oil	329.6	-20.9%	2.1	63.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>12 037.7</i>	<i>9.4%</i>	<i>76.8</i>	<i>76.8</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

OECD Americas

Figure 1. CO₂ emissions by fuel

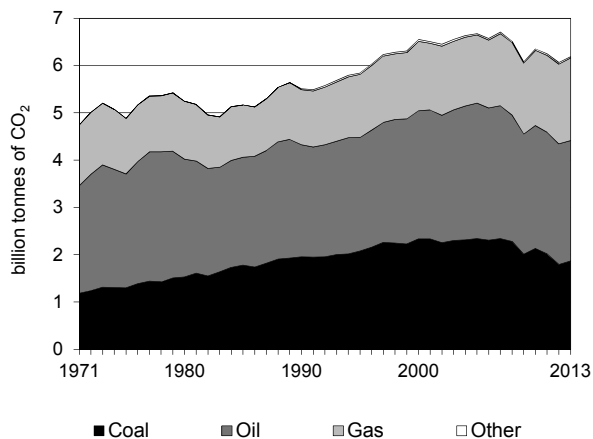


Figure 2. CO₂ emissions by sector

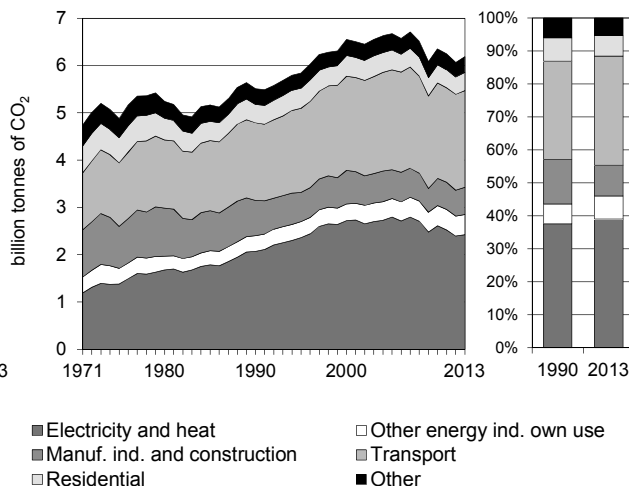


Figure 3. Electricity generation by fuel

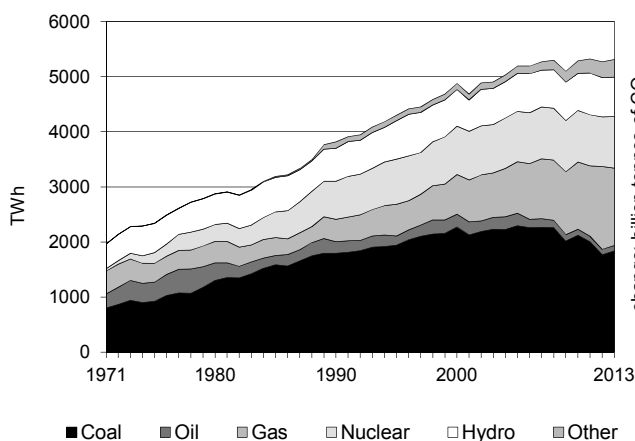


Figure 4. CO₂ from electricity generation: driving factors¹

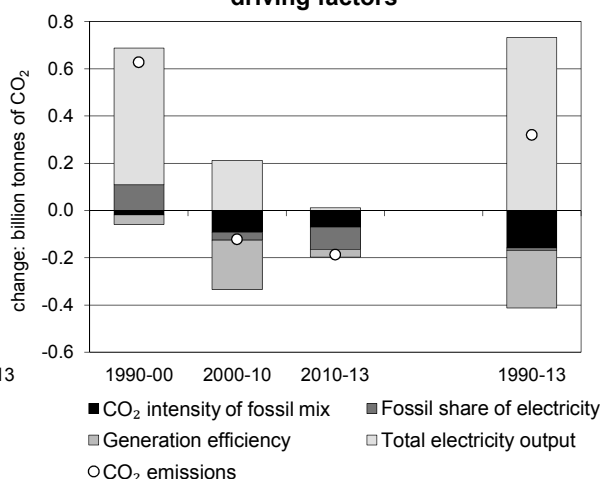


Figure 5. Changes in selected indicators

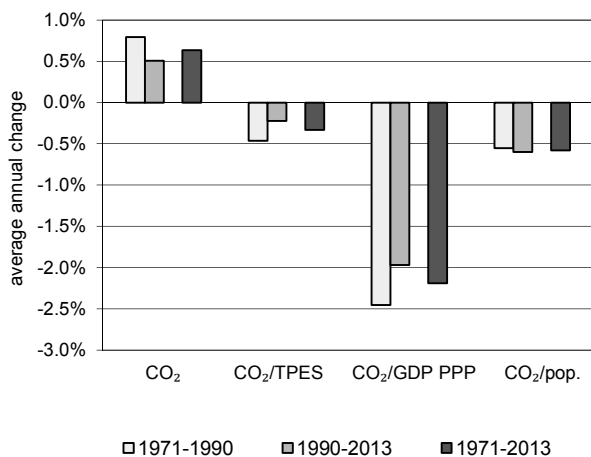
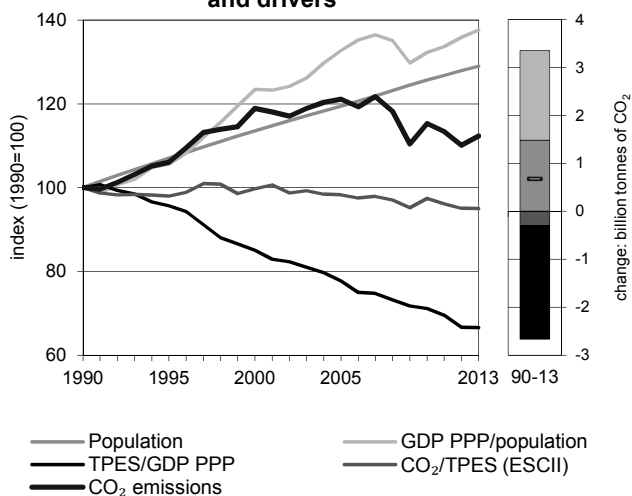


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

OECD Americas

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	5 510.4	5 844.4	6 551.1	6 674.0	6 353.3	6 066.5	6 189.8	12%
Share of World CO ₂ from fuel combustion	27%	27%	28%	25%	21%	19%	19%	
TPES (PJ)	94 627	102 424	112 827	116 649	111 949	109 609	111 851	18%
GDP (billion 2005 USD)	9 624.2	10 885.3	13 466.9	15 245.8	15 939.2	16 633.3	16 995.0	77%
GDP PPP (billion 2005 USD)	9 954.5	11 257.0	13 949.0	15 784.9	16 541.2	17 287.7	17 661.9	77%
Population (millions)	378.1	404.8	429.4	451.7	475.1	483.5	487.7	29%
CO ₂ / TPES (tCO ₂ per TJ)	58.2	57.1	58.1	57.2	56.8	55.3	55.3	-5%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.57	0.54	0.49	0.44	0.40	0.36	0.36	-36%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.55	0.52	0.47	0.42	0.38	0.35	0.35	-37%
CO ₂ / population (tCO ₂ per capita)	14.57	14.44	15.26	14.78	13.37	12.55	12.69	-13%
Share of electricity output from fossil fuels	63%	63%	66%	67%	66%	64%	63%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	541	542	553	534	487	447	450	-17%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	106	119	121	115	110	112	12%
Population index	100	107	114	119	126	128	129	29%
GDP PPP per population index	100	106	123	133	132	136	138	38%
Energy intensity index - TPES / GDP PPP	100	96	85	78	71	67	67	-33%
Carbon intensity index - CO ₂ / TPES	100	98	100	98	97	95	95	-5%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	1 867.3	2 548.0	1 746.1	28.3	6 189.8	12%
Electricity and heat generation	1 721.4	78.9	599.8	18.8	2 418.8	17%
Other energy industry own use	11.1	154.4	264.8	-	430.2	30%
Manufacturing industries and construction	131.7	120.3	313.0	8.7	573.6	-23%
Transport	-	1 994.0	55.5	-	2 049.6	25%
<i>of which: road</i>	-	1 751.4	2.0	-	1 753.4	31%
Other	3.2	200.5	513.0	0.8	717.5	-1%
<i>of which: residential</i>	0.1	79.3	306.3	-	385.7	-1%
<i>of which: services</i>	3.1	47.5	201.8	0.8	253.2	-0%
<i>Memo: international marine bunkers</i>	-	53.6	-	-	53.6	-44%
<i>Memo: international aviation bunkers</i>	-	78.7	-	-	78.7	65%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	1 751.4	31.2%	22.0	22.0
Main activity prod. elec. and heat - coal	1 702.4	2.8%	21.4	43.3
Main activity prod. elec. and heat - gas	535.5	225.4%	6.7	50.0
Manufacturing industries - gas	313.0	-3.1%	3.9	54.0
Residential - gas	306.3	13.5%	3.8	57.8
Other energy industry own use - gas	264.8	90.4%	3.3	61.1
Other transport - oil	242.6	-9.2%	3.0	64.2
Non-specified other - gas	206.7	25.6%	2.6	66.8
Other energy industry own use - oil	154.4	-18.0%	1.9	68.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>6 189.8</i>	<i>12.3%</i>	<i>77.7</i>	<i>77.7</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

OECD Asia Oceania

Figure 1. CO₂ emissions by fuel

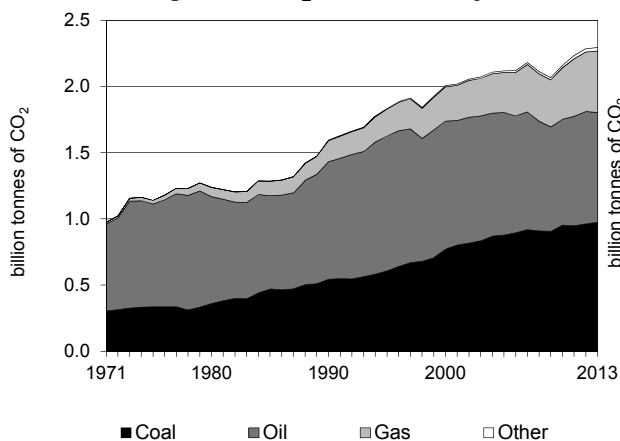


Figure 2. CO₂ emissions by sector

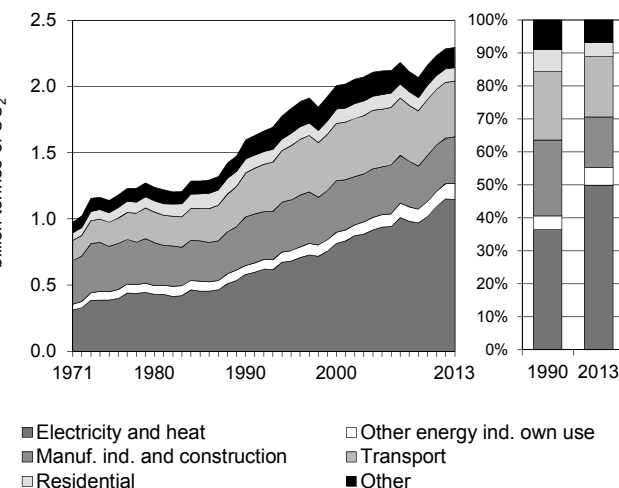


Figure 3. Electricity generation by fuel

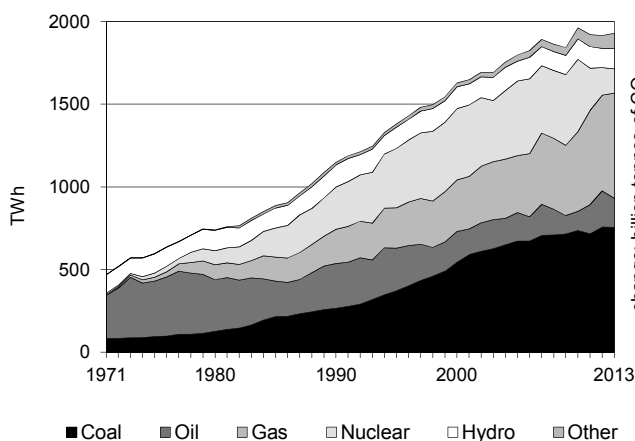


Figure 4. CO₂ from electricity generation: driving factors¹

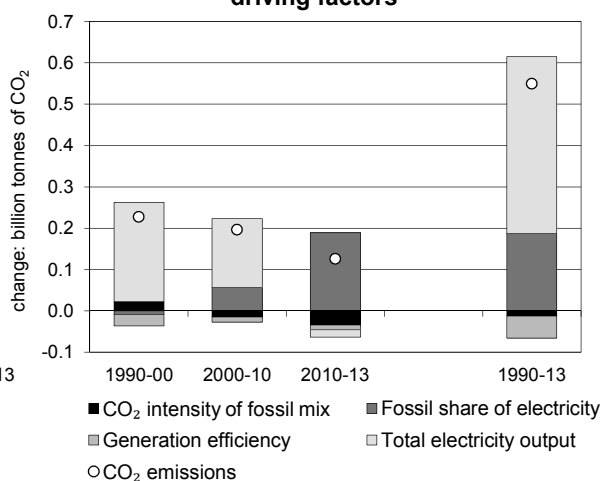


Figure 5. Changes in selected indicators

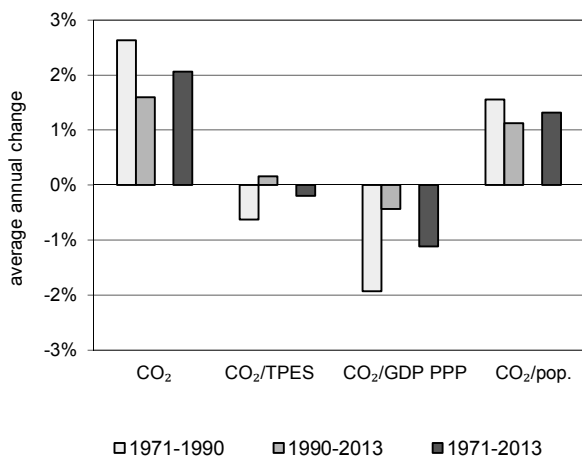
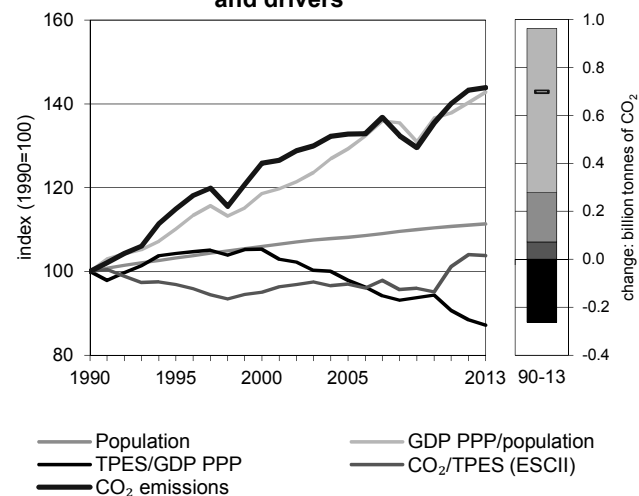


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

OECD Asia Oceania

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	1 595.1	1 833.3	2 006.8	2 117.6	2 160.6	2 285.4	2 294.9	44%
Share of World CO ₂ from fuel combustion	7.7%	8.5%	8.6%	7.8%	7.2%	7.3%	7.1%	
TPES (PJ)	26 915	31 915	35 618	36 830	38 308	37 068	37 307	39%
GDP (billion 2005 USD)	4 810.6	5 391.0	5 885.6	6 488.4	6 915.8	7 115.9	7 258.5	51%
GDP PPP (billion 2005 USD)	4 328.1	4 921.0	5 438.0	6 051.3	6 527.8	6 738.0	6 879.0	59%
Population (millions)	191.7	197.9	203.1	207.3	211.6	212.8	213.3	11%
CO ₂ / TPES (tCO ₂ per TJ)	59.3	57.4	56.3	57.5	56.4	61.7	61.5	4%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.33	0.34	0.34	0.33	0.31	0.32	0.32	-5%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.37	0.37	0.37	0.35	0.33	0.34	0.33	-9%
CO ₂ / population (tCO ₂ per capita)	8.32	9.27	9.88	10.22	10.21	10.74	10.76	29%
Share of electricity output from fossil fuels	65%	63%	64%	66%	68%	82%	82%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	504	491	495	513	511	591	585	16%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	115	126	133	135	143	144	44%
Population index	100	103	106	108	110	111	111	11%
GDP PPP per population index	100	110	119	129	137	140	143	43%
Energy intensity index - TPES / GDP PPP	100	104	105	98	94	88	87	-13%
Carbon intensity index - CO ₂ / TPES	100	97	95	97	95	104	104	4%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	974.6	829.9	464.1	26.3	2 294.9	44%
Electricity and heat generation	745.7	119.4	271.3	9.5	1 145.9	98%
Other energy industry own use	48.6	49.6	23.2	-	121.4	79%
Manufacturing industries and construction	173.7	100.8	62.4	14.8	351.7	-4%
Transport	0.6	417.4	4.2	-	422.2	27%
<i>of which: road</i>	-	379.2	3.2	-	382.3	32%
Other	6.0	142.6	102.9	2.1	253.6	2%
<i>of which: residential</i>	3.5	46.7	49.8	-	100.0	-6%
<i>of which: services</i>	2.2	61.2	53.0	2.1	118.5	10%
<i>Memo: international marine bunkers</i>	0.0	44.1	-	-	44.1	64%
<i>Memo: international aviation bunkers</i>	-	47.6	-	-	47.6	121%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	656.6	170.8%	22.8	22.8
Road - oil	379.2	31.0%	13.2	35.9
Main activity prod. elec. and heat - gas	258.4	179.5%	9.0	44.9
Manufacturing industries - coal	173.7	-4.1%	6.0	50.9
Manufacturing industries - oil	100.8	-36.1%	3.5	54.4
Non-specified other - oil	95.8	-24.3%	3.3	57.8
Main activity prod. elec. and heat - oil	93.5	-40.4%	3.2	61.0
Unallocated autoproducers - coal	89.1	58.1%	3.1	64.1
Manufacturing industries - gas	62.4	151.3%	2.2	66.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>2 294.9</i>	<i>43.9%</i>	<i>79.6</i>	<i>79.6</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

OECD Europe ¹

Figure 1. CO₂ emissions by fuel

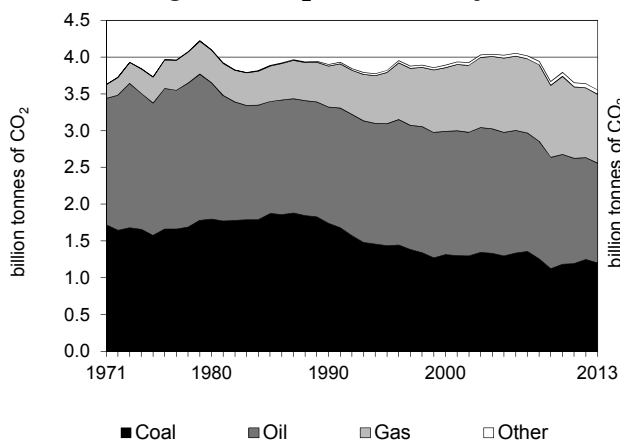


Figure 2. CO₂ emissions by sector

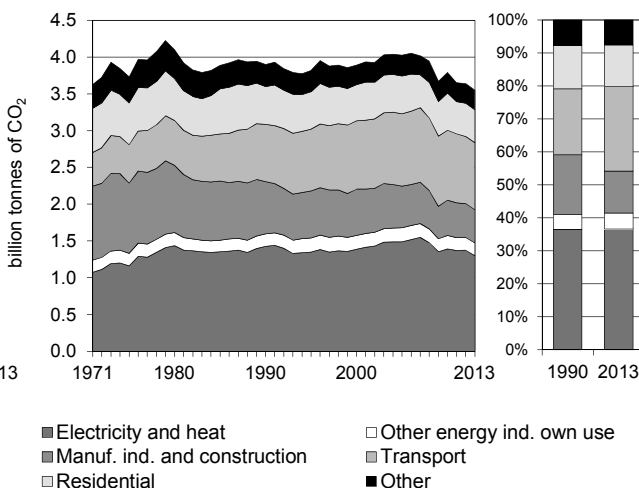


Figure 3. Electricity generation by fuel

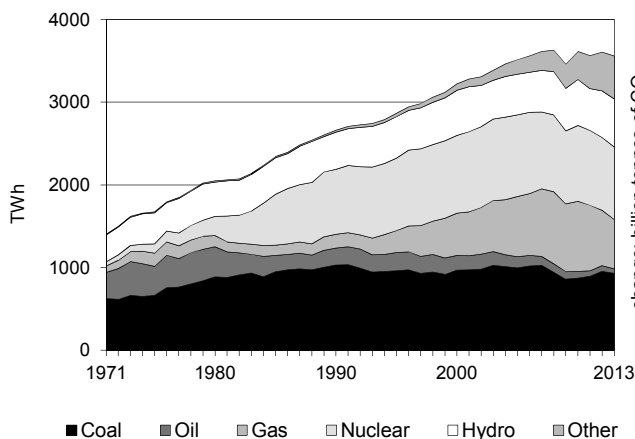


Figure 4. CO₂ from electricity generation: driving factors ²

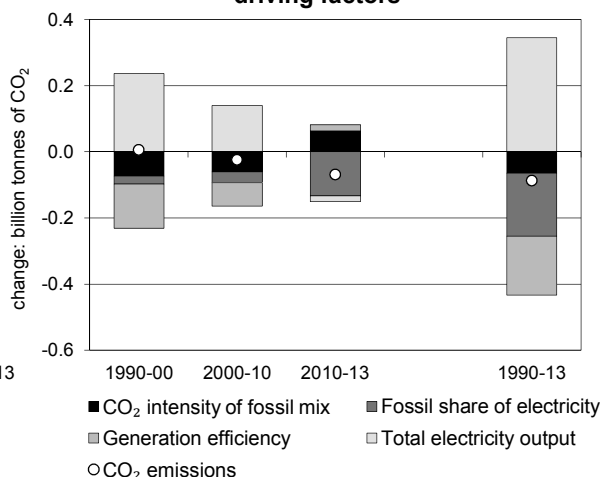


Figure 5. Changes in selected indicators

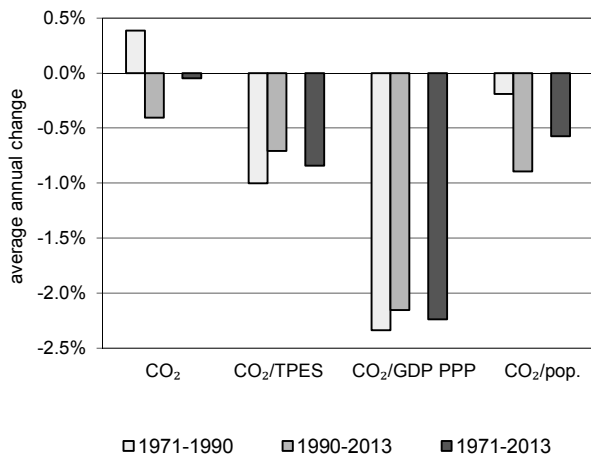
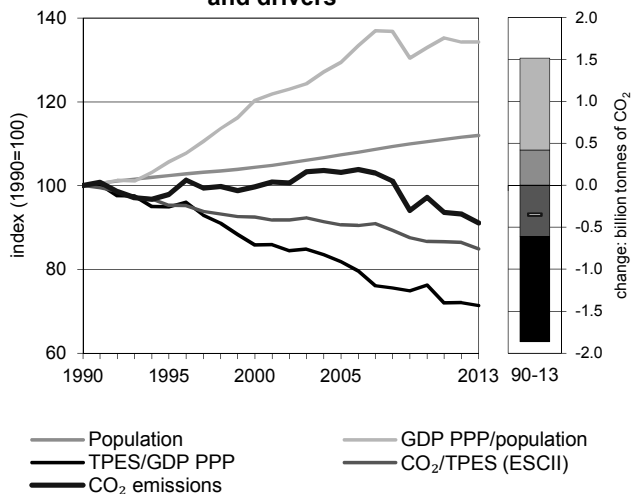


Figure 6. Total CO₂ emissions and drivers ³



1. Excludes Estonia and Slovenia prior to 1990.

2. Electricity decomposition: CO₂ emissions = CO₂ intensity of mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

3. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 1.

OECD Europe

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	3 900.2	3 818.8	3 888.6	4 023.9	3 791.7	3 638.2	3 553.0	-9%
Share of World CO ₂ from fuel combustion	19%	18%	17%	15%	13%	12%	11%	
TPES (PJ)	67 815	69 655	73 112	77 189	76 032	73 179	72 725	7%
GDP (billion 2005 USD)	11 072.7	11 993.3	13 880.3	15 276.0	16 046.5	16 319.6	16 361.7	48%
GDP PPP (billion 2005 USD)	10 498.6	11 362.9	13 184.7	14 592.6	15 429.5	15 721.7	15 775.5	50%
Population (millions)	500.1	512.0	521.9	537.0	552.8	557.8	560.0	12%
CO ₂ / TPES (tCO ₂ per TJ)	57.5	54.8	53.2	52.1	49.9	49.7	48.9	-15%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.35	0.32	0.28	0.26	0.24	0.22	0.22	-38%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.37	0.34	0.29	0.28	0.25	0.23	0.23	-39%
CO ₂ / population (tCO ₂ per capita)	7.80	7.46	7.45	7.49	6.86	6.52	6.34	-19%
Share of electricity output from fossil fuels	53%	51%	52%	54%	51%	48%	45%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	463	419	384	373	336	336	322	-31%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	98	100	103	97	93	91	-9%
Population index	100	102	104	107	111	112	112	12%
GDP PPP per population index	100	106	120	129	133	134	134	34%
Energy intensity index - TPES / GDP PPP	100	95	86	82	76	72	71	-29%
Carbon intensity index - CO ₂ / TPES	100	95	92	91	87	86	85	-15%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	1 198.1	1 360.2	936.6	58.2	3 553.0	-9%
Electricity and heat generation	947.8	44.7	267.9	41.4	1 301.7	-9%
Other energy industry own use	38.5	87.1	45.0	0.1	170.7	-0%
Manufacturing industries and construction	141.3	87.6	208.0	15.7	452.5	-36%
Transport	0.0	904.1	7.7	-	911.9	17%
<i>of which: road</i>	-	860.0	3.4	-	863.4	19%
Other	70.5	236.7	408.0	1.0	716.2	-12%
<i>of which: residential</i>	49.1	124.1	273.2	0.0	446.4	-13%
<i>of which: services</i>	16.4	53.0	122.2	0.9	192.4	-3%
<i>Memo: international marine bunkers</i>	-	134.9	-	-	134.9	20%
<i>Memo: international aviation bunkers</i>	-	137.0	-	-	137.0	86%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	891.4	-10.4%	18.5	18.5
Road - oil	860.0	18.7%	17.8	36.3
Residential - gas	273.2	57.2%	5.7	42.0
Main activity prod. elec. and heat - gas	208.8	181.4%	4.3	46.3
Manufacturing industries - gas	208.0	14.3%	4.3	50.7
Manufacturing industries - coal	141.3	-57.8%	2.9	53.6
Non-specified other - gas	134.8	62.9%	2.8	56.4
Residential - oil	124.1	-38.0%	2.6	59.0
Non-specified other - oil	112.6	-27.2%	2.3	61.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>3 553.0</i>	<i>-8.9%</i>	<i>73.7</i>	<i>73.7</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

European Union - 28

Figure 1. CO₂ emissions by fuel

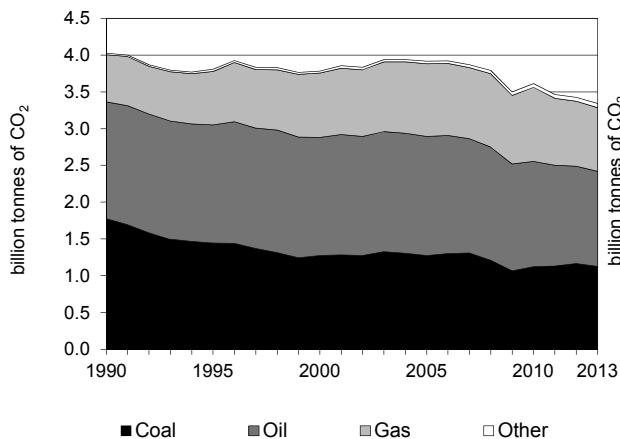


Figure 2. CO₂ emissions by sector

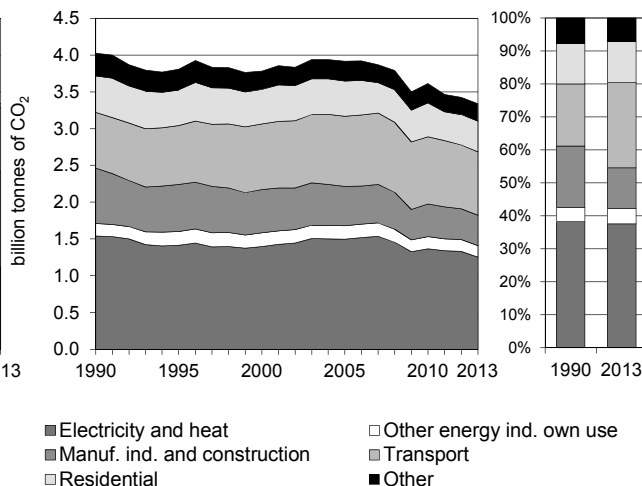


Figure 3. Electricity generation by fuel

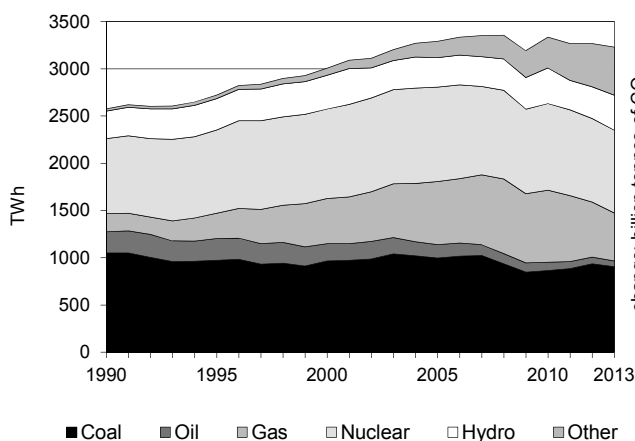


Figure 4. CO₂ from electricity generation: driving factors¹

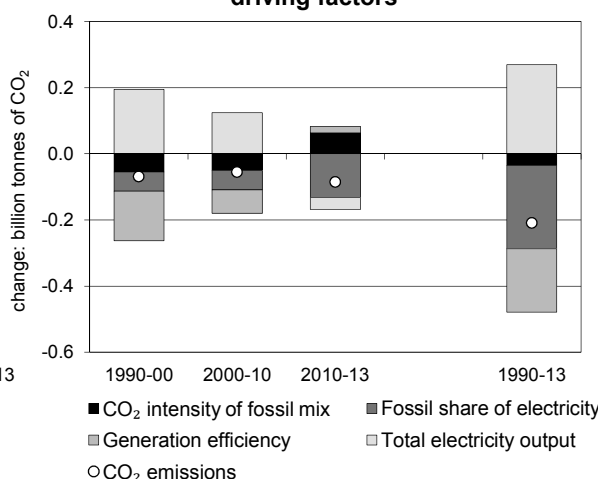


Figure 5. Changes in selected indicators

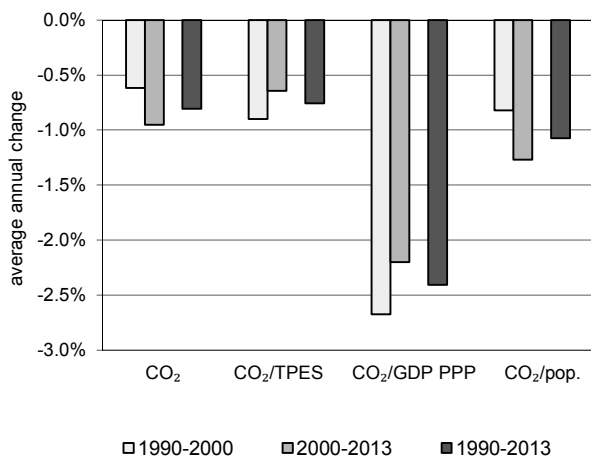
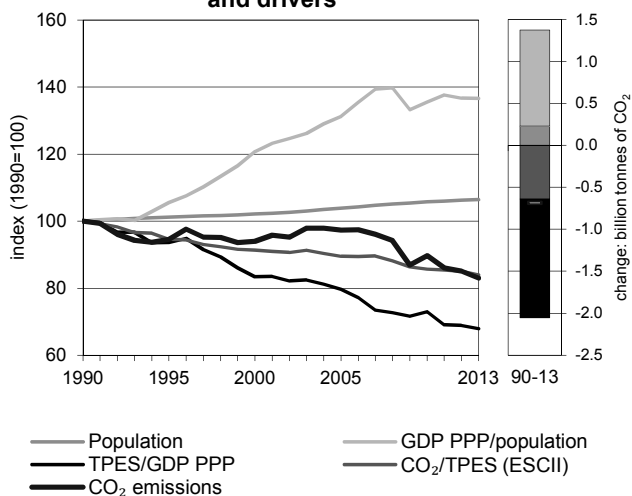


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

European Union - 28

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	4 023.8	3 807.1	3 782.2	3 915.9	3 611.2	3 424.8	3 340.1	-17%
Share of World CO ₂ from fuel combustion	20%	18%	16%	14%	12%	11%	10%	
TPES (PJ)	68 864	68 862	70 857	74 834	72 074	68 921	68 062	-1%
GDP (billion 2005 USD)	10 473.7	11 268.3	13 007.6	14 298.9	14 948.5	15 139.7	15 148.4	45%
GDP PPP (billion 2005 USD)	10 078.6	10 764.7	12 425.3	13 740.6	14 448.6	14 635.3	14 649.0	45%
Population (millions)	477.7	483.5	487.7	496.2	505.2	507.5	508.5	6%
CO ₂ / TPES (tCO ₂ per TJ)	58.4	55.3	53.4	52.3	50.1	49.7	49.1	-16%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.38	0.34	0.29	0.27	0.24	0.23	0.22	-43%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.40	0.35	0.30	0.29	0.25	0.23	0.23	-43%
CO ₂ / population (tCO ₂ per capita)	8.42	7.87	7.76	7.89	7.15	6.75	6.57	-22%
Share of electricity output from fossil fuels	57%	54%	55%	56%	52%	49%	46%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	504	452	409	396	352	356	337	-33%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	95	94	97	90	85	83	-17%
Population index	100	101	102	104	106	106	106	6%
GDP PPP per population index	100	106	121	131	136	137	137	37%
Energy intensity index - TPES / GDP PPP	100	94	83	80	73	69	68	-32%
Carbon intensity index - CO ₂ / TPES	100	95	91	90	86	85	84	-16%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	1 127.9	1 290.5	867.5	54.2	3 340.1	-17%
Electricity and heat generation	927.2	49.7	239.0	38.3	1 254.2	-19%
Other energy industry own use	32.0	87.3	36.1	0.1	155.5	-8%
Manufacturing industries and construction	118.1	85.5	195.4	15.0	414.0	-45%
Transport	0.0	853.9	7.3	-	861.2	14%
<i>of which: road</i>	-	815.5	3.3	-	818.8	16%
Other	50.5	214.2	389.6	0.8	655.1	-19%
<i>of which: residential</i>	41.0	115.4	259.4	0.0	415.8	-16%
<i>of which: services</i>	4.5	50.1	117.4	0.8	172.8	-12%
<i>Memo: international marine bunkers</i>	-	136.9	-	-	136.9	21%
<i>Memo: international aviation bunkers</i>	-	130.1	-	-	130.1	81%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	877.0	-14.8%	19.6	19.6
Road - oil	815.5	15.6%	18.2	37.8
Residential - gas	259.4	45.1%	5.8	43.6
Manufacturing industries - gas	195.4	-14.4%	4.4	48.0
Main activity prod. elec. and heat - gas	182.9	73.4%	4.1	52.1
Non-specified other - gas	130.2	52.8%	2.9	55.0
Manufacturing industries - coal	118.1	-64.3%	2.6	57.6
Residential - oil	115.4	-36.8%	2.6	60.2
Non-specified other - oil	98.8	-36.5%	2.2	62.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>3 340.1</i>	<i>-17.0%</i>	<i>74.6</i>	<i>74.6</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Non-OECD Total

Figure 1. CO₂ emissions by fuel

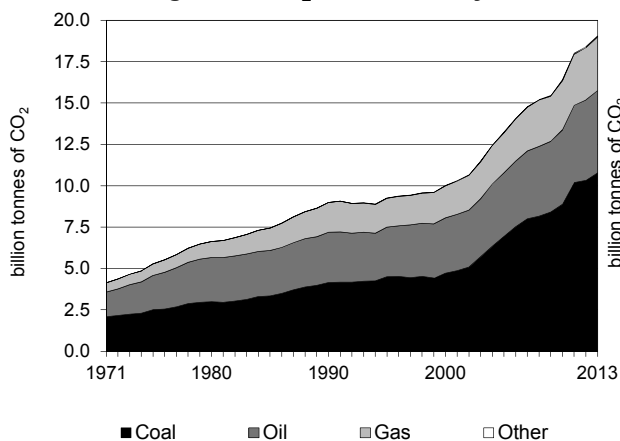


Figure 2. CO₂ emissions by sector

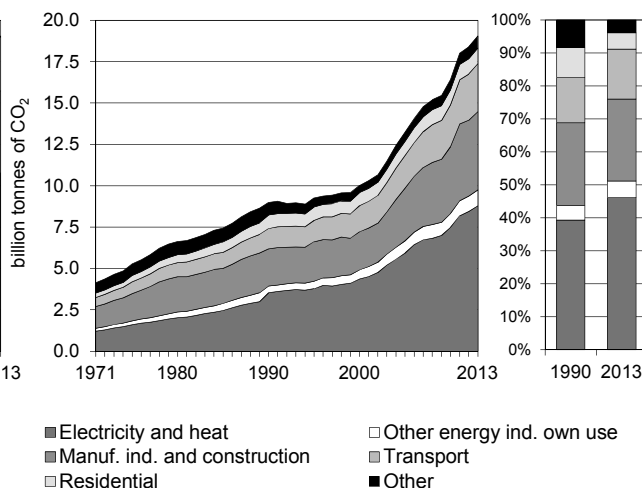


Figure 3. Electricity generation by fuel

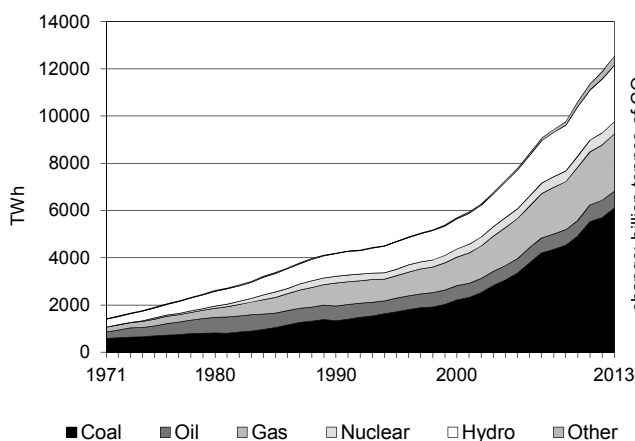


Figure 4. CO₂ from electricity generation: driving factors¹

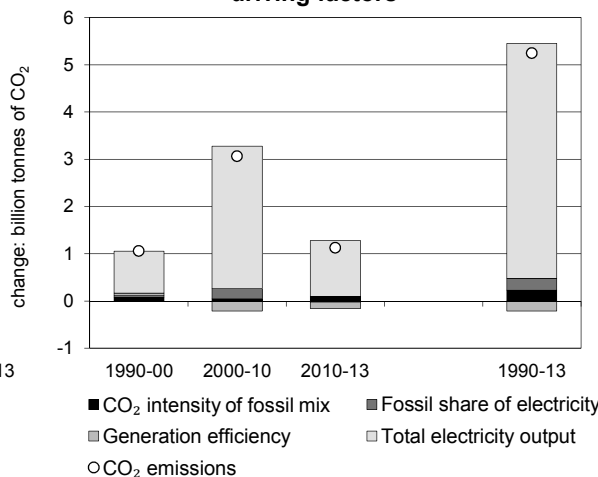


Figure 5. Changes in selected indicators

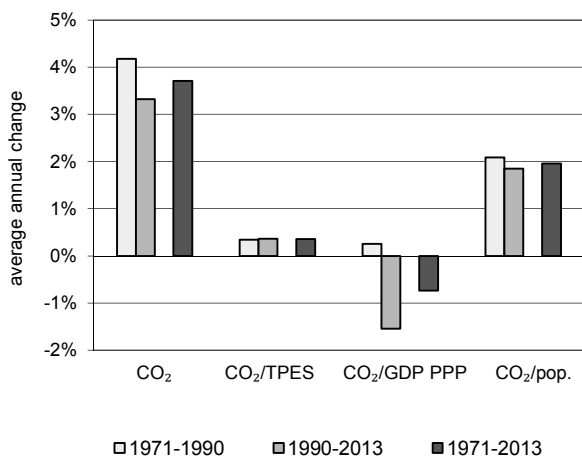
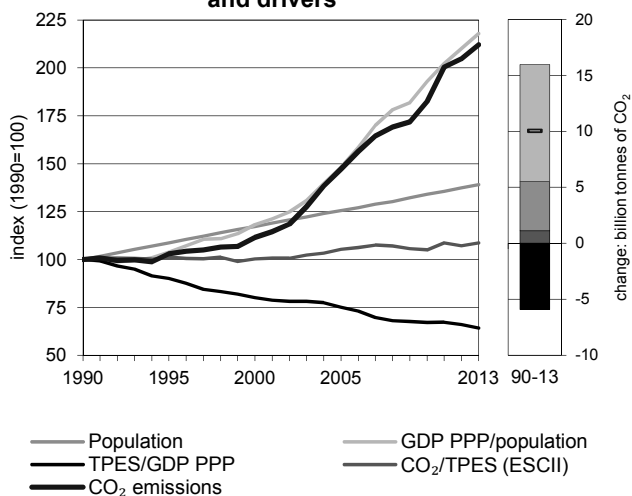


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Non-OECD Total

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	8 987.0	9 260.8	10 021.3	13 228.9	16 405.6	18 404.7	19 052.9	112%
Share of World CO ₂ from fuel combustion	44%	43%	43%	49%	55%	58%	59%	
TPES (PJ)	169 287	172 313	188 030	236 551	294 053	323 440	330 294	95%
GDP (billion 2005 USD)	5 491.4	6 131.0	7 480.1	9 925.6	13 639.9	15 175.2	15 903.8	190%
GDP PPP (billion 2005 USD)	15 173.0	17 118.8	21 044.7	28 202.0	39 232.3	43 805.1	46 017.8	203%
Population (millions)	4 208.4	4 573.1	4 935.4	5 283.9	5 642.8	5 785.2	5 856.7	39%
CO ₂ / TPES (tCO ₂ per TJ)	53.1	53.7	53.3	55.9	55.8	56.9	57.7	9%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	1.64	1.51	1.34	1.33	1.20	1.21	1.20	-27%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.59	0.54	0.48	0.47	0.42	0.42	0.41	-30%
CO ₂ / population (tCO ₂ per capita)	2.14	2.03	2.03	2.50	2.91	3.18	3.25	52%
Share of electricity output from fossil fuels	70%	69%	71%	73%	74%	74%	74%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	576	606	610	642	617	616	612	6%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	103	112	147	183	205	212	112%
Population index	100	109	117	126	134	137	139	39%
GDP PPP per population index	100	104	118	148	193	210	218	118%
Energy intensity index - TPES / GDP PPP	100	90	80	75	67	66	64	-36%
Carbon intensity index - CO ₂ / TPES	100	101	100	105	105	107	109	9%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	10 769.1	4 987.3	3 233.9	62.6	19 052.9	112%
Electricity and heat generation	6 472.4	644.5	1 614.2	58.0	8 789.1	148%
Other energy industry own use	324.3	257.0	369.0	1.2	951.6	142%
Manufacturing industries and construction	3 420.2	674.5	639.7	2.5	4 737.0	110%
Transport	12.2	2 731.3	158.5	-	2 902.0	136%
<i>of which: road</i>	-	2 473.0	74.8	-	2 547.8	166%
Other	540.0	680.0	452.4	0.8	1 673.2	6%
<i>of which: residential</i>	241.4	326.2	369.0	-	936.6	14%
<i>of which: services</i>	121.5	102.2	73.5	0.6	297.8	36%
<i>Memo: international marine bunkers</i>	-	376.3	-	-	376.3	175%
<i>Memo: international aviation bunkers</i>	-	227.0	-	-	227.0	96%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	5 940.8	243.9%	18.9	18.9
Manufacturing industries - coal	3 420.2	138.1%	10.9	29.8
Road - oil	2 473.0	158.8%	7.9	37.6
Main activity prod. elec. and heat - gas	1 266.1	80.0%	4.0	41.7
Manufacturing industries - oil	674.5	34.9%	2.1	43.8
Manufacturing industries - gas	639.7	101.8%	2.0	45.9
Main activity prod. elec. and heat - oil	534.4	-11.4%	1.7	47.6
Unallocated autoproducers - coal	531.6	284.1%	1.7	49.2
Other energy industry own use - gas	369.0	176.1%	1.2	50.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>19 052.9</i>	<i>112.0%</i>	<i>60.6</i>	<i>60.6</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Non-OECD Europe and Eurasia ¹

Figure 1. CO₂ emissions by fuel

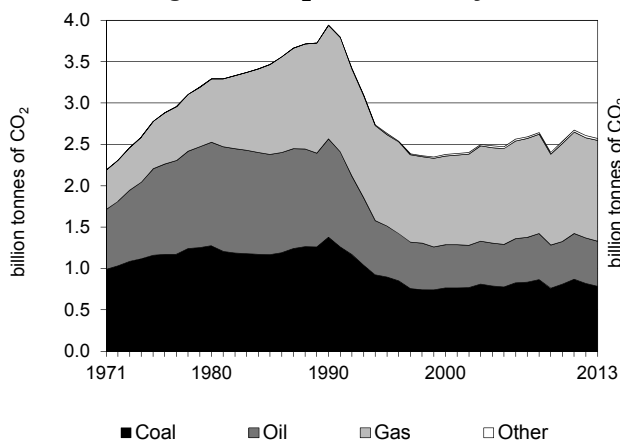


Figure 2. CO₂ emissions by sector

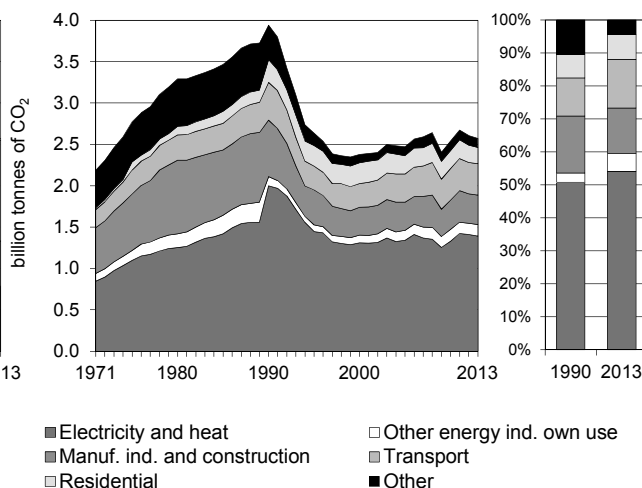


Figure 3. Electricity generation by fuel

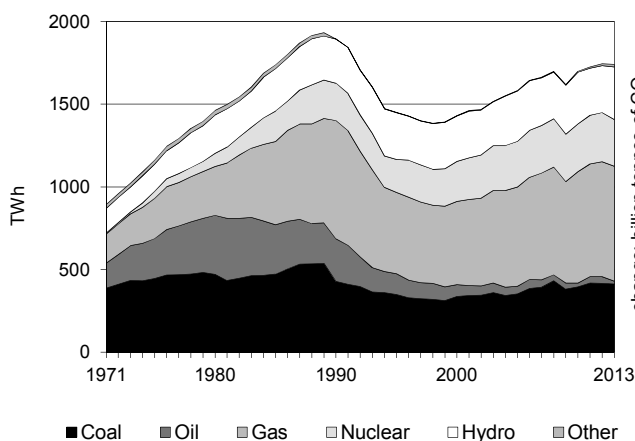


Figure 4. CO₂ from electricity generation: driving factors ²

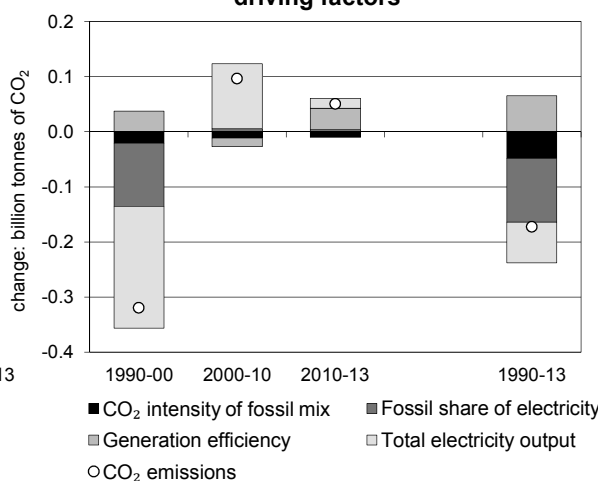


Figure 5. Changes in selected indicators

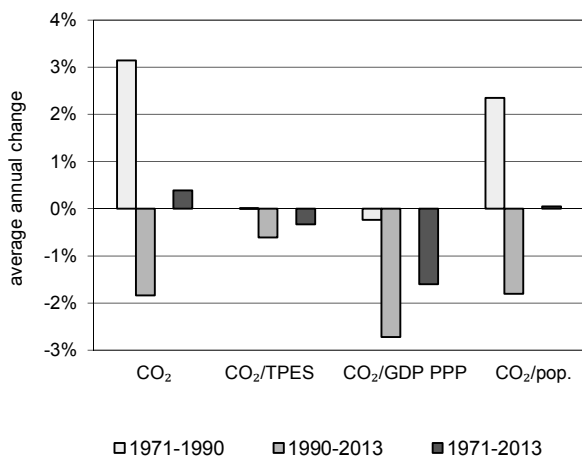
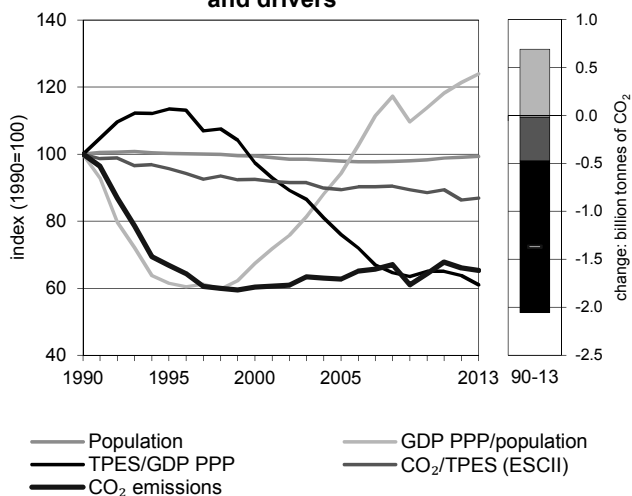


Figure 6. Total CO₂ emissions and drivers ³



1. Includes Estonia and Slovenia prior to 1990.

2. Electricity decomposition: CO₂ emissions = CO₂ intensity of mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

3. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 1.

Non-OECD Europe and Eurasia

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	3 940.4	2 634.9	2 377.0	2 471.2	2 537.1	2 606.0	2 573.3	-35%
Share of World CO ₂ from fuel combustion	19.1%	12.3%	10.2%	9.1%	8.5%	8.3%	8.0%	
TPES (PJ)	64 349	44 968	42 001	45 167	46 786	49 316	48 385	-25%
GDP (billion 2005 USD)	1 376.0	867.7	946.3	1 288.7	1 537.2	1 645.1	1 678.8	22%
GDP PPP (billion 2005 USD)	3 381.4	2 083.4	2 266.0	3 120.7	3 782.3	4 064.3	4 163.6	23%
Population (millions)	343.4	344.0	341.3	336.1	337.5	340.2	341.1	-1%
CO ₂ / TPES (tCO ₂ per TJ)	61.2	58.6	56.6	54.7	54.2	52.8	53.2	-13%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	2.86	3.04	2.51	1.92	1.65	1.58	1.53	-46%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	1.17	1.26	1.05	0.79	0.67	0.64	0.62	-47%
CO ₂ / population (tCO ₂ per capita)	11.47	7.66	6.96	7.35	7.52	7.66	7.54	-34%
Share of electricity output from fossil fuels	74%	67%	64%	63%	64%	66%	65%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	507	456	447	459	434	458	453	-11%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	67	60	63	64	66	65	-35%
Population index	100	100	99	98	98	99	99	-1%
GDP PPP per population index	100	62	67	94	114	121	124	24%
Energy intensity index - TPES / GDP PPP	100	113	97	76	65	64	61	-39%
Carbon intensity index - CO ₂ / TPES	100	96	92	89	89	86	87	-13%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	785.3	545.0	1 216.9	26.1	2 573.3	-35%
Electricity and heat generation	580.5	44.6	745.8	21.5	1 392.5	-30%
Other energy industry own use	8.5	51.4	77.2	1.2	138.4	26%
Manufacturing industries and construction	160.8	66.9	125.5	2.5	355.7	-48%
Transport	0.2	301.6	77.1	-	378.9	-17%
<i>of which: road</i>	-	263.6	1.6	-	265.1	-8%
Other	35.3	80.5	191.2	0.8	307.8	-55%
<i>of which: residential</i>	15.6	28.6	152.5	-	196.7	-29%
<i>of which: services</i>	12.0	11.8	33.4	0.6	57.9	-56%
<i>Memo: international marine bunkers</i>	-	34.9	-	-	34.9	152%
<i>Memo: international aviation bunkers</i>	-	25.8	-	-	25.8	-40%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - gas	516.7	-8.2%	12.9	12.9
Main activity prod. elec. and heat - coal	481.4	-32.6%	12.0	24.9
Road - oil	263.6	-7.7%	6.6	31.5
Unallocated autoproducers - gas	229.2	4.7%	5.7	37.2
Manufacturing industries - coal	160.8	-49.3%	4.0	41.2
Residential - gas	152.5	1.8%	3.8	45.0
Manufacturing industries - gas	125.5	-37.9%	3.1	48.1
Unallocated autoproducers - coal	99.1	-3.4%	2.5	50.6
Other energy industry own use - gas	77.2	115.1%	1.9	52.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>2 573.3</i>	<i>-34.7%</i>	<i>64.2</i>	<i>64.2</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Africa

Figure 1. CO₂ emissions by fuel

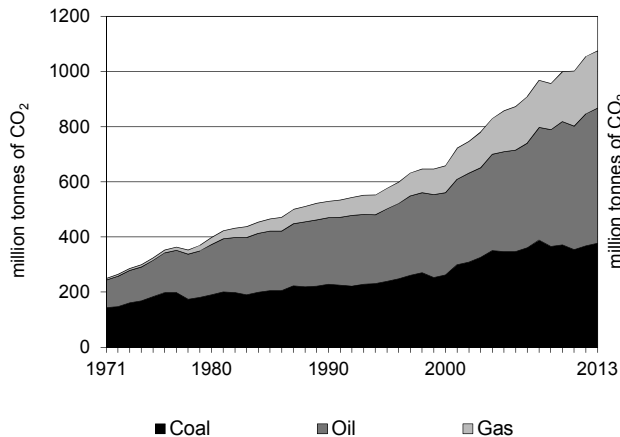


Figure 2. CO₂ emissions by sector

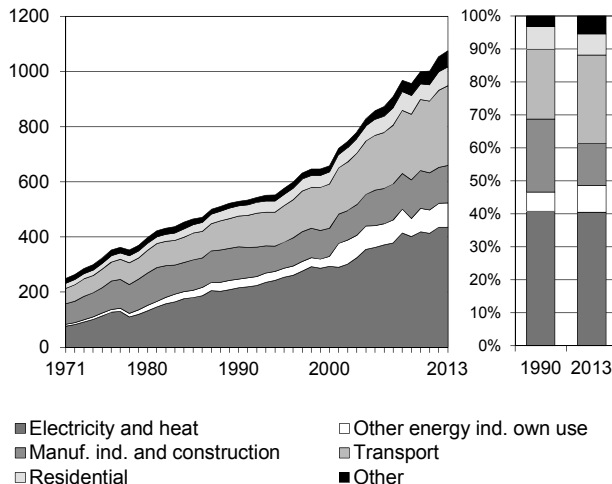


Figure 3. Electricity generation by fuel

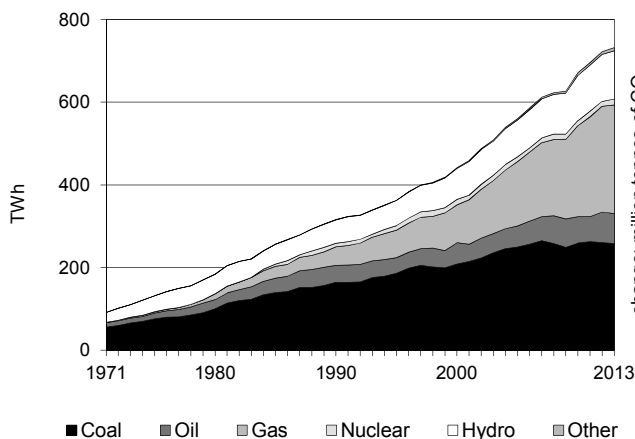


Figure 4. CO₂ from electricity generation: driving factors¹

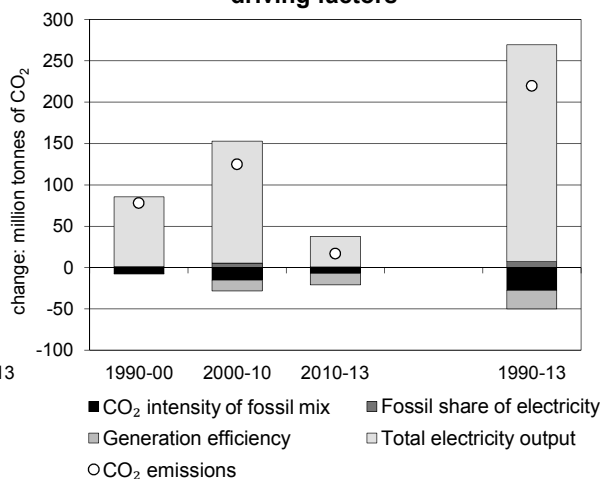


Figure 5. Changes in selected indicators

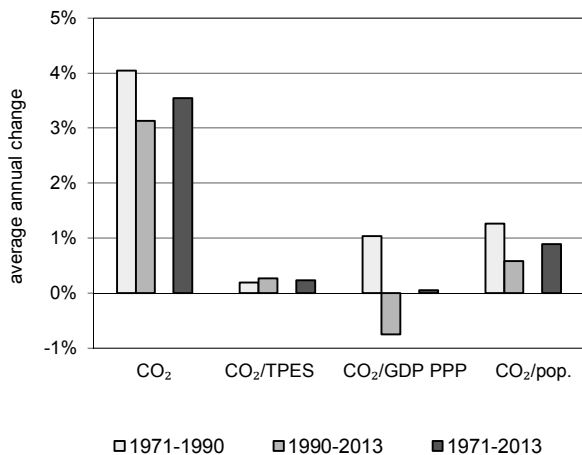
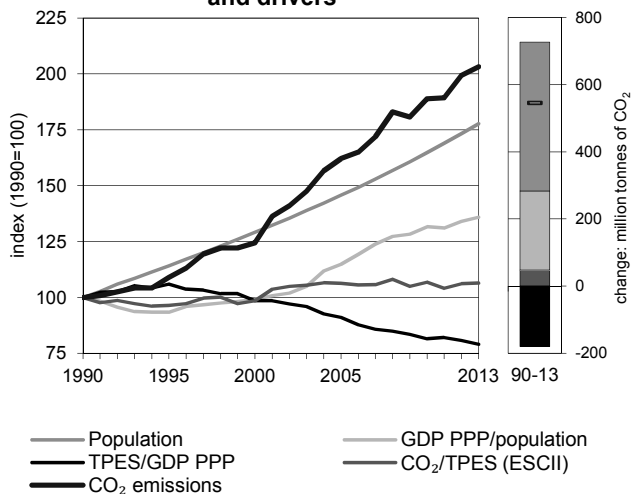


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Africa

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	529.0	576.1	658.3	857.6	999.0	1 054.3	1 074.7	103%
Share of World CO ₂ from fuel combustion	2.6%	2.7%	2.8%	3.2%	3.4%	3.4%	3.3%	
TPES (PJ)	16 372	18 491	20 691	24 965	28 947	30 742	31 261	91%
GDP (billion 2005 USD)	627.6	659.5	783.9	1 006.1	1 276.2	1 360.2	1 407.9	124%
GDP PPP (billion 2005 USD)	1 846.7	1 968.6	2 369.0	3 091.8	4 006.6	4 290.9	4 458.7	141%
Population (millions)	625.0	713.6	807.5	910.9	1 030.4	1 083.3	1 111.0	78%
CO ₂ / TPES (tCO ₂ per TJ)	32.3	31.2	31.8	34.3	34.5	34.3	34.4	6%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.84	0.87	0.84	0.85	0.78	0.78	0.76	-9%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.29	0.29	0.28	0.28	0.25	0.25	0.24	-16%
CO ₂ / population (tCO ₂ per capita)	0.85	0.81	0.82	0.94	0.97	0.97	0.97	14%
Share of electricity output from fossil fuels	79%	80%	80%	82%	81%	82%	81%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	681	699	664	645	623	603	594	-13%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	109	124	162	189	199	203	103%
Population index	100	114	129	146	165	173	178	78%
GDP PPP per population index	100	93	99	115	132	134	136	36%
Energy intensity index - TPES / GDP PPP	100	106	99	91	81	81	79	-21%
Carbon intensity index - CO ₂ / TPES	100	96	98	106	107	106	106	6%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	376.6	489.9	208.2	-	1 074.7	103%
Electricity and heat generation	255.1	62.0	117.8	-	434.9	102%
Other energy industry own use	40.7	12.6	34.5	-	87.8	185%
Manufacturing industries and construction	51.0	50.9	34.8	-	136.6	16%
Transport	0.1	285.9	2.5	-	288.5	158%
<i>of which: road</i>	-	274.7	1.0	-	275.7	158%
Other	29.7	78.6	18.6	-	127.0	137%
<i>of which: residential</i>	14.3	38.2	16.4	-	68.9	86%
<i>of which: services</i>	8.2	6.1	0.4	-	14.7	162%
<i>Memo: international marine bunkers</i>	-	23.6	-	-	23.6	42%
<i>Memo: international aviation bunkers</i>	-	22.6	-	-	22.6	92%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	274.7	157.5%	9.3	9.3
Main activity prod. elec. and heat - coal	246.7	68.8%	8.3	17.6
Main activity prod. elec. and heat - gas	114.0	354.6%	3.8	21.4
Main activity prod. elec. and heat - oil	54.3	70.8%	1.8	23.2
Manufacturing industries - coal	51.0	-15.5%	1.7	24.9
Manufacturing industries - oil	50.9	10.2%	1.7	26.7
Other energy industry - coal	40.7	+	1.4	28.0
Non-specified other - oil	40.5	272.8%	1.4	29.4
Residential - oil	38.2	35.5%	1.3	30.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>1 074.7</i>	<i>103.2%</i>	<i>36.2</i>	<i>36.2</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Asia (excluding China)

Figure 1. CO₂ emissions by fuel

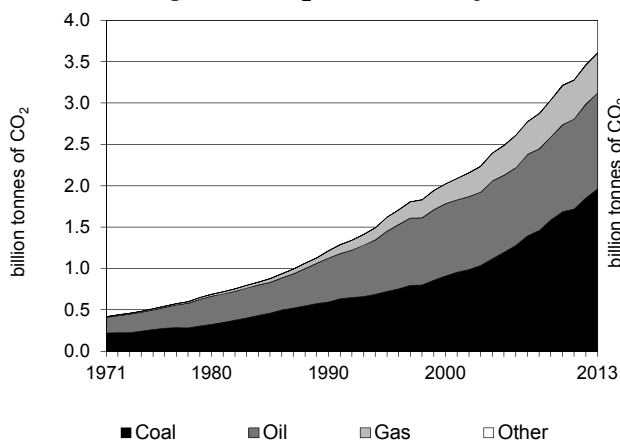


Figure 2. CO₂ emissions by sector

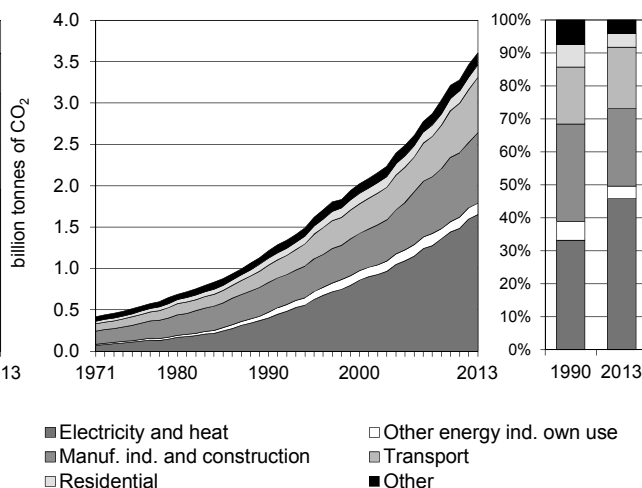


Figure 3. Electricity generation by fuel

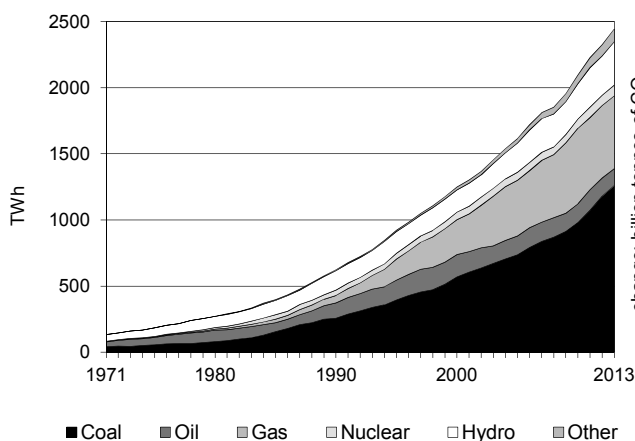


Figure 4. CO₂ from electricity generation: driving factors¹

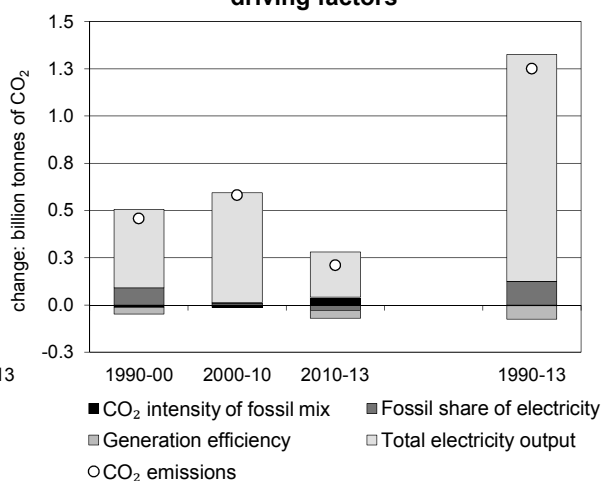


Figure 5. Changes in selected indicators

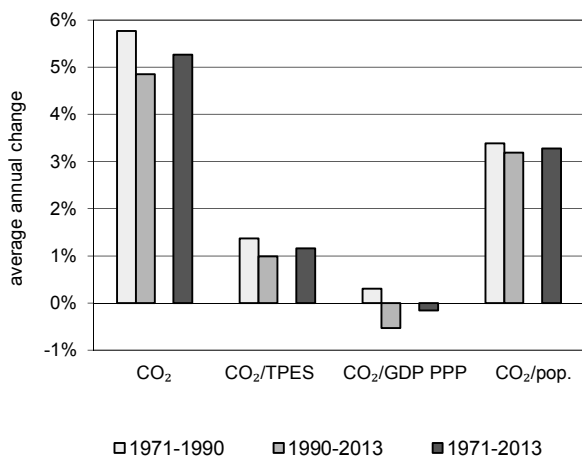
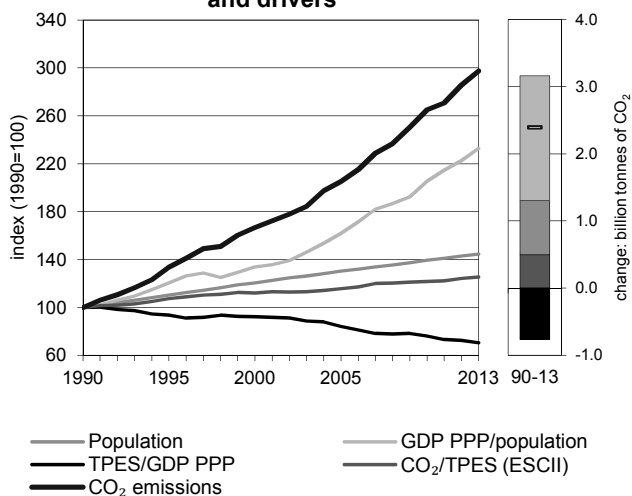


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Asia (excluding China)

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	1 212.7	1 619.0	2 021.9	2 490.0	3 214.4	3 463.7	3 606.6	197%
Share of World CO ₂ from fuel combustion	5.9%	7.5%	8.7%	9.2%	10.8%	11.0%	11.2%	
TPES (PJ)	29 227	36 324	43 490	51 856	63 765	67 255	69 295	137%
GDP (billion 2005 USD)	1 127.4	1 512.2	1 850.7	2 396.9	3 223.0	3 564.4	3 753.8	233%
GDP PPP (billion 2005 USD)	3 953.4	5 259.9	6 377.3	8 345.7	11 324.8	12 582.2	13 293.2	236%
Population (millions)	1 625.0	1 793.6	1 956.6	2 118.4	2 266.6	2 323.6	2 347.6	44%
CO ₂ / TPES (tCO ₂ per TJ)	41.5	44.6	46.5	48.0	50.4	51.5	52.0	25%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	1.08	1.07	1.09	1.04	1.00	0.97	0.96	-11%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.31	0.31	0.32	0.30	0.28	0.28	0.27	-12%
CO ₂ / population (tCO ₂ per capita)	0.75	0.90	1.03	1.18	1.42	1.49	1.54	106%
Share of electricity output from fossil fuels	69%	76%	80%	81%	81%	80%	79%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	638	673	686	675	687	686	675	6%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	134	167	205	265	286	297	197%
Population index	100	110	120	130	139	143	144	44%
GDP PPP per population index	100	121	134	162	205	223	233	133%
Energy intensity index - TPES / GDP PPP	100	93	92	84	76	72	71	-29%
Carbon intensity index - CO ₂ / TPES	100	107	112	116	121	124	125	25%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	1 963.1	1 157.2	481.3	5.0	3 606.6	197%
Electricity and heat generation	1 281.6	105.5	260.2	4.9	1 652.3	311%
Other energy industry own use	12.9	53.0	70.5	-	136.4	96%
Manufacturing industries and construction	600.9	153.4	97.2	0.0	851.5	138%
Transport	0.0	650.3	17.7	-	668.0	219%
<i>of which: road</i>	-	601.1	17.7	-	618.8	243%
Other	67.7	195.0	35.7	-	298.4	72%
<i>of which: residential</i>	19.7	103.6	28.7	-	152.1	81%
<i>of which: services</i>	19.9	20.5	6.1	-	46.5	100%
<i>Memo: international marine bunkers</i>	-	147.9	-	-	147.9	220%
<i>Memo: international aviation bunkers</i>	-	74.0	-	-	74.0	219%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	1 092.5	333.5%	17.1	17.1
Road - oil	601.1	233.2%	9.4	26.4
Manufacturing industries - coal	600.9	141.6%	9.4	35.8
Main activity prod. elec. and heat - gas	227.5	554.0%	3.6	39.4
Unallocated autoproducers - coal	189.1	+	3.0	42.3
Manufacturing industries - oil	153.4	60.7%	2.4	44.7
Residential - oil	103.6	57.2%	1.6	46.3
Manufacturing industries - gas	97.2	591.8%	1.5	47.9
Non-specified other - oil	91.4	123.9%	1.4	49.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>3 606.6</i>	<i>197.4%</i>	<i>56.3</i>	<i>56.3</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

China (incl. Hong Kong, China) ¹

Figure 1. CO₂ emissions by fuel

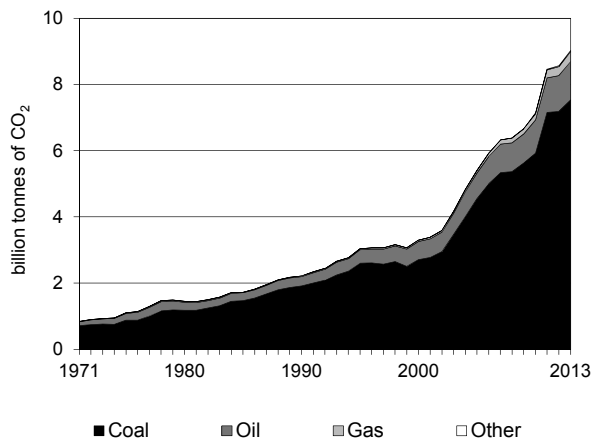


Figure 2. CO₂ emissions by sector

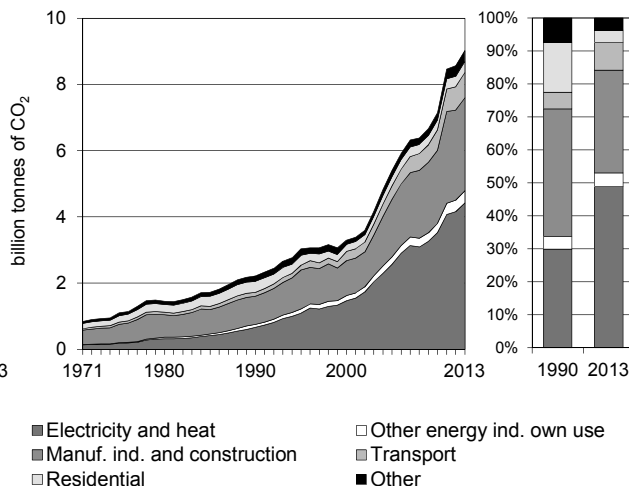


Figure 3. Electricity generation by fuel

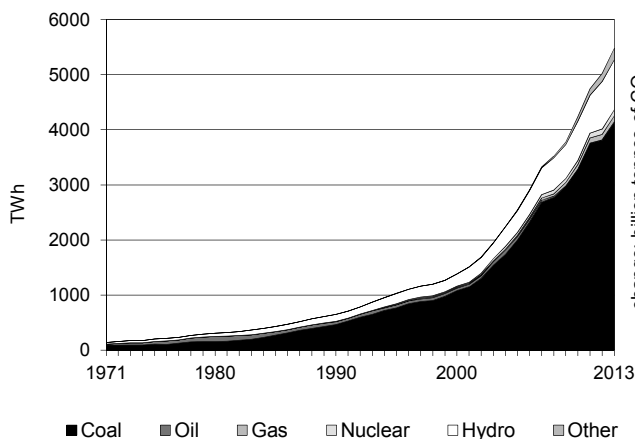


Figure 4. CO₂ from electricity generation: driving factors ²

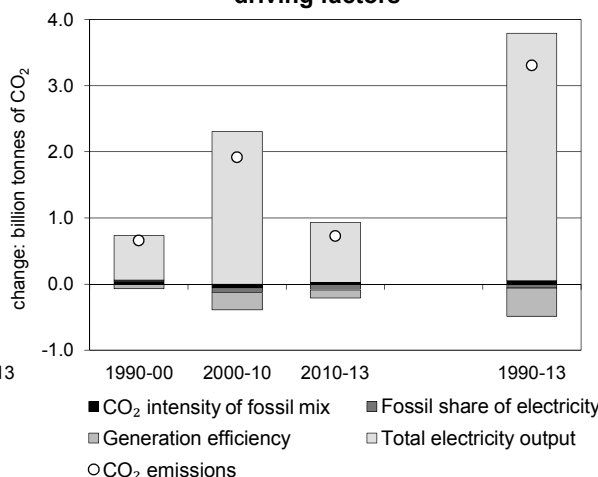


Figure 5. Changes in selected indicators

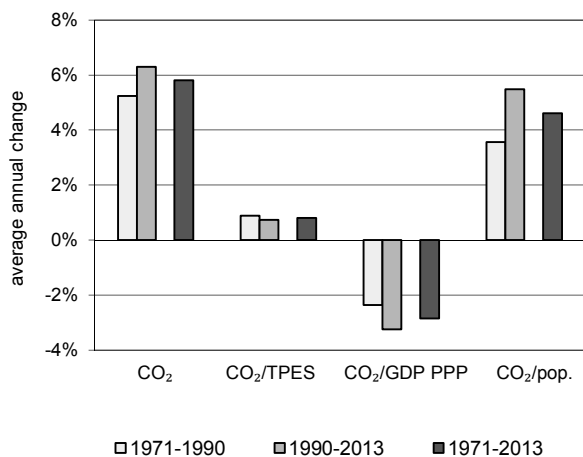
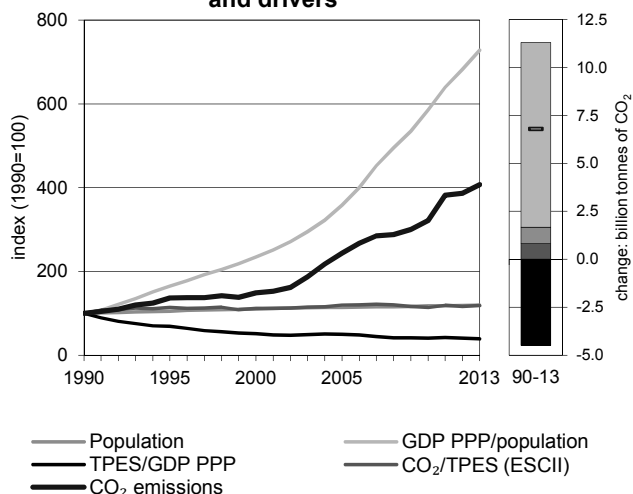


Figure 6. Total CO₂ emissions and drivers ³



1. Due to revisions to underlying energy data, breaks in time series occur between 2010 and 2011. Please refer to the country note in Part I (page I.9).
 2. Electricity decomposition: CO₂ emissions = CO₂ intensity of mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 3. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 1.

China (incl. Hong Kong, China) ¹

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	2 216.9	3 034.7	3 299.7	5 401.0	7 137.3	8 564.3	9 023.1	307%
Share of World CO ₂ from fuel combustion	11%	14%	14%	20%	24%	27%	28%	
TPES (PJ)	36 816	44 174	49 167	74 865	103 947	122 345	126 584	244%
GDP (billion 2005 USD)	625.5	1 066.3	1 564.7	2 438.5	4 059.3	4 751.6	5 105.0	716%
GDP PPP (billion 2005 USD)	1 641.1	2 859.2	4 259.4	6 710.8	11 294.4	13 255.6	14 257.3	769%
Population (millions)	1 145.7	1 206.2	1 266.7	1 306.8	1 347.0	1 357.2	1 367.2	19%
CO ₂ / TPES (tCO ₂ per TJ)	60.2	68.7	67.1	72.1	68.7	70.0	71.3	18%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	3.54	2.85	2.11	2.21	1.76	1.80	1.77	-50%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	1.35	1.06	0.77	0.80	0.63	0.65	0.63	-53%
CO ₂ / population (tCO ₂ per capita)	1.93	2.52	2.61	4.13	5.30	6.31	6.60	241%
Share of electricity output from fossil fuels	81%	80%	83%	82%	80%	78%	78%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	911	922	904	885	749	723	712	-22%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ²								
CO ₂ emissions index	100	137	149	244	322	386	407	307%
Population index	100	105	111	114	118	118	119	19%
GDP PPP per population index	100	165	235	358	585	682	728	628%
Energy intensity index - TPES / GDP PPP	100	69	51	50	41	41	40	-60%
Carbon intensity index - CO ₂ / TPES	100	114	111	120	114	116	118	18%

1. Breaks in time series occur between 2010 and 2011. Please refer to the country note in Part I (page I.9). 2. Based on GDP PPP.

2013 CO₂ emissions by sector

million tonnes of CO ₂	Coal	Oil	Natural gas	Other ³	Total	% change 90-13
CO₂ fuel combustion	7 538.9	1 148.2	304.5	31.6	9 023.1	307%
Electricity and heat generation	4 310.3	15.0	59.9	31.6	4 416.9	565%
Other energy industry own use	258.0	61.1	48.3	-	367.4	326%
Manufacturing industries and construction	2 551.8	176.4	84.8	-	2 813.1	229%
Transport	11.8	718.9	29.5	-	760.2	581%
<i>of which: road</i>	-	588.7	29.0	-	617.7	879%
Other	406.9	176.7	82.1	-	665.7	33%
<i>of which: residential</i>	191.5	74.9	64.2	-	330.6	-1%
<i>of which: services</i>	81.3	49.5	17.7	-	148.6	289%
<i>Memo: international marine bunkers</i>	-	52.6	-	-	52.6	491%
<i>Memo: international aviation bunkers</i>	-	38.5	-	-	38.5	451%

3. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ⁴	Cumulative total (%)
Main activity prod. elec. and heat - coal	4 093.0	573.5%	30.9	30.9
Manufacturing industries - coal	2 551.8	225.7%	19.3	50.2
Road - oil	588.7	832.8%	4.4	54.6
Other energy industry - coal	258.0	398.2%	1.9	56.6
Unallocated autoproducers - coal	217.3	+	1.6	58.2
Non-specified other sectors - coal	215.4	107.3%	1.6	59.8
Residential - coal	191.5	-40.6%	1.4	61.3
Manufacturing industries - oil	176.4	166.4%	1.3	62.6
Other transport - oil	130.2	+	1.0	63.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>9 023.1</i>	<i>307.0%</i>	<i>68.1</i>	<i>68.1</i>

4. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Non-OECD Americas

Figure 1. CO₂ emissions by fuel

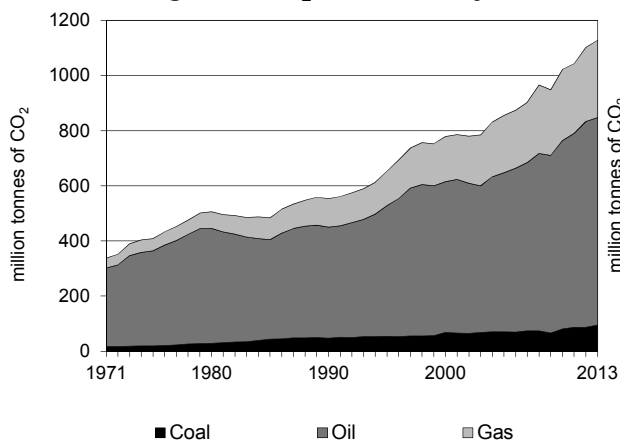


Figure 2. CO₂ emissions by sector

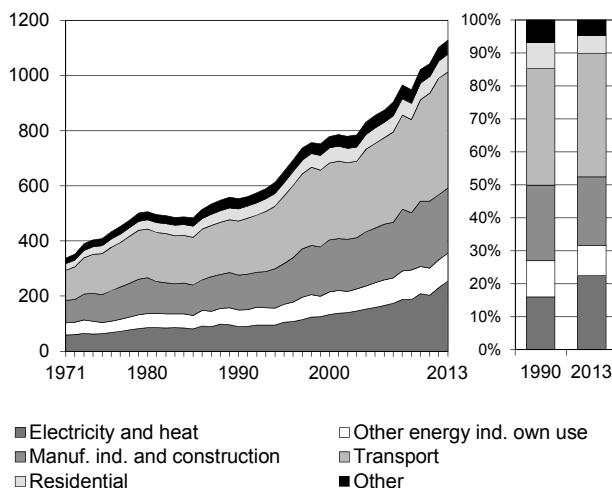


Figure 3. Electricity generation by fuel

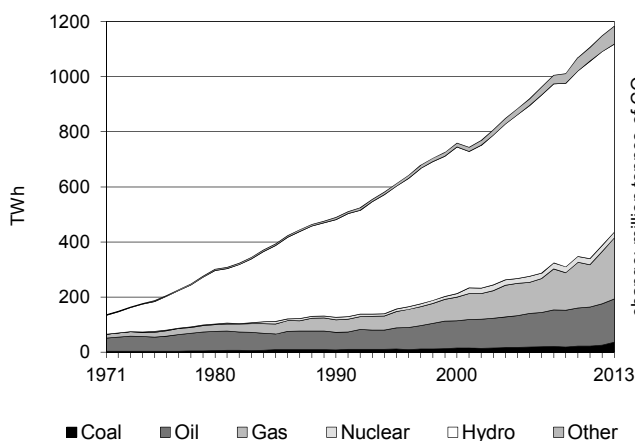


Figure 4. CO₂ from electricity generation: driving factors¹

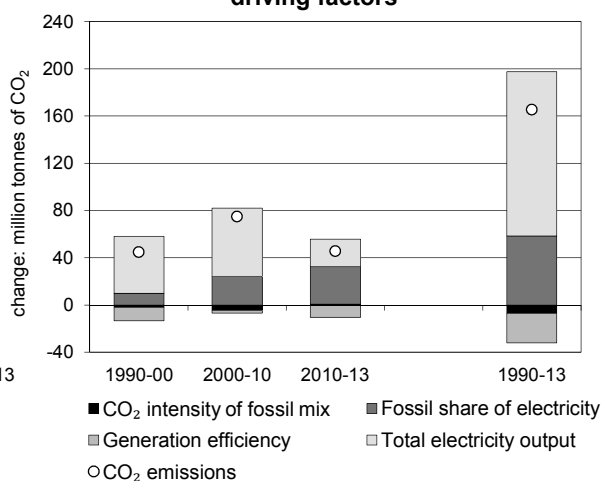


Figure 5. Changes in selected indicators

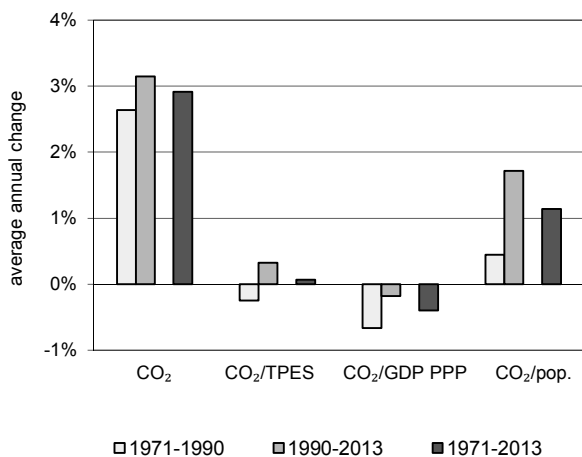
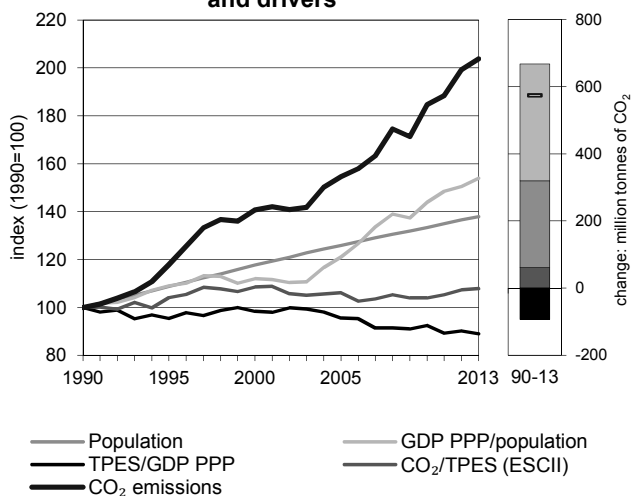


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Non-OECD Americas

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	553.2	652.4	778.8	855.3	1 021.9	1 101.9	1 127.6	104%
Share of World CO ₂ from fuel combustion	2.7%	3.0%	3.3%	3.2%	3.4%	3.5%	3.5%	
TPES (PJ)	13 700	15 516	17 766	19 959	24 329	25 421	25 905	89%
GDP (billion 2005 USD)	1 175.1	1 392.4	1 552.1	1 792.5	2 241.6	2 394.0	2 468.1	110%
GDP PPP (billion 2005 USD)	2 612.6	3 099.0	3 446.0	3 984.5	5 014.4	5 371.2	5 546.4	112%
Population (millions)	342.3	372.5	403.2	431.1	456.7	467.6	472.1	38%
CO ₂ / TPES (tCO ₂ per TJ)	40.4	42.0	43.8	42.9	42.0	43.3	43.5	8%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.47	0.47	0.50	0.48	0.46	0.46	0.46	-3%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.21	0.21	0.23	0.21	0.20	0.21	0.20	-4%
CO ₂ / population (tCO ₂ per capita)	1.62	1.75	1.93	1.98	2.24	2.36	2.39	48%
Share of electricity output from fossil fuels	24%	24%	26%	28%	31%	32%	35%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	182	172	176	180	195	201	215	18%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	118	141	155	185	199	204	104%
Population index	100	109	118	126	133	137	138	38%
GDP PPP per population index	100	109	112	121	144	151	154	54%
Energy intensity index - TPES / GDP PPP	100	95	98	96	93	90	89	-11%
Carbon intensity index - CO ₂ / TPES	100	104	109	106	104	107	108	8%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	94.7	752.3	280.5	-	1 127.6	104%
Electricity and heat generation	43.3	106.1	104.8	-	254.2	186%
Other energy industry own use	3.2	41.8	56.0	-	101.1	66%
Manufacturing industries and construction	47.9	116.5	71.8	-	236.1	87%
Transport	0.0	403.9	17.0	-	420.8	114%
<i>of which: road</i>	-	377.7	11.6	-	389.3	119%
Other	0.3	84.1	31.0	-	115.3	43%
<i>of which: residential</i>	0.3	37.6	26.2	-	64.1	46%
<i>of which: services</i>	-	6.6	4.7	-	11.3	6%
<i>Memo: international marine bunkers</i>	-	46.1	-	-	46.1	132%
<i>Memo: international aviation bunkers</i>	-	27.3	-	-	27.3	212%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	377.7	112.8%	15.1	15.1
Manufacturing industries - oil	116.5	69.5%	4.6	19.7
Main activity prod. elec. and heat - oil	95.0	162.9%	3.8	23.5
Main activity prod. elec. and heat - gas	90.8	276.4%	3.6	27.1
Manufacturing industries - gas	71.8	128.8%	2.9	30.0
Other energy industry own use - gas	56.0	103.2%	2.2	32.3
Manufacturing industries - coal	47.9	81.8%	1.9	34.2
Non-specified other - oil	46.5	43.1%	1.9	36.0
Other energy industry own use - oil	41.8	45.5%	1.7	37.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>1 127.6</i>	<i>103.8%</i>	<i>45.0</i>	<i>45.0</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Middle East

Figure 1. CO₂ emissions by fuel

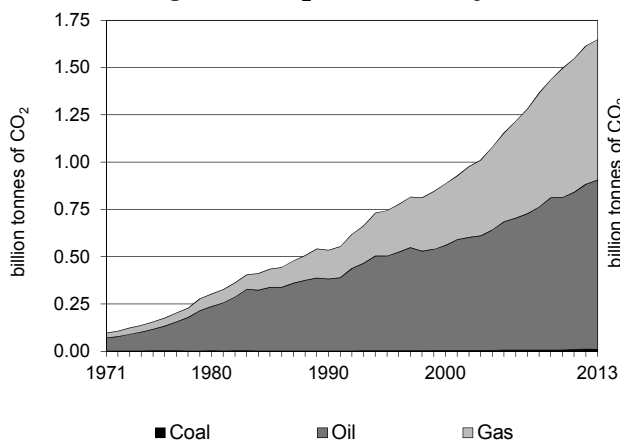


Figure 2. CO₂ emissions by sector

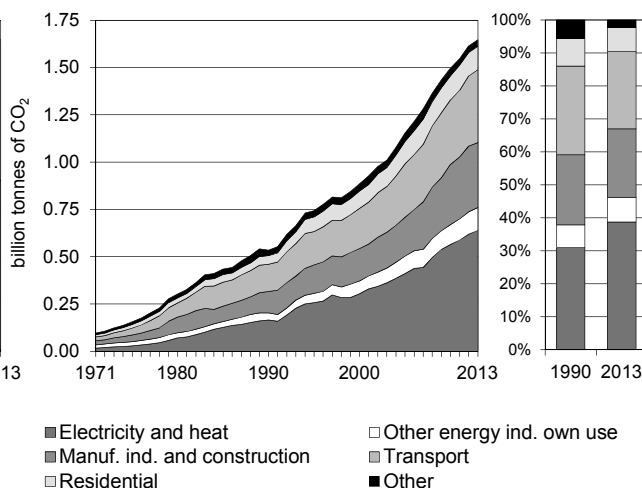


Figure 3. Electricity generation by fuel

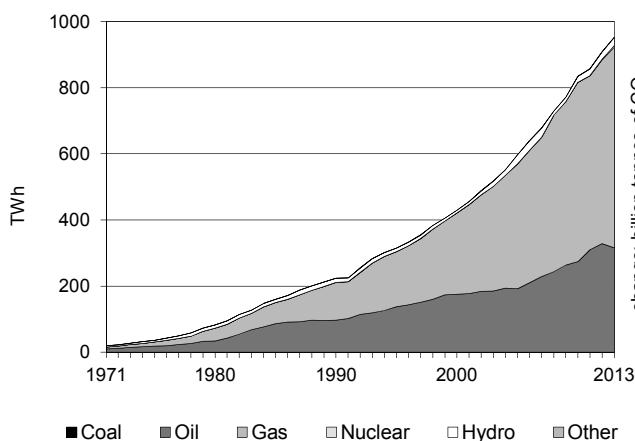


Figure 4. CO₂ from electricity generation: driving factors¹

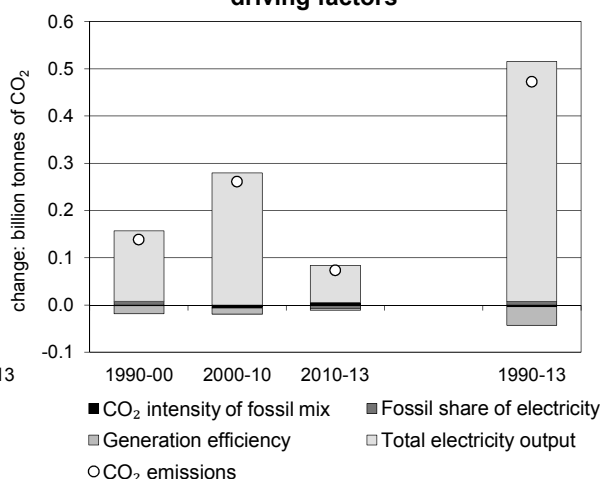


Figure 5. Changes in selected indicators

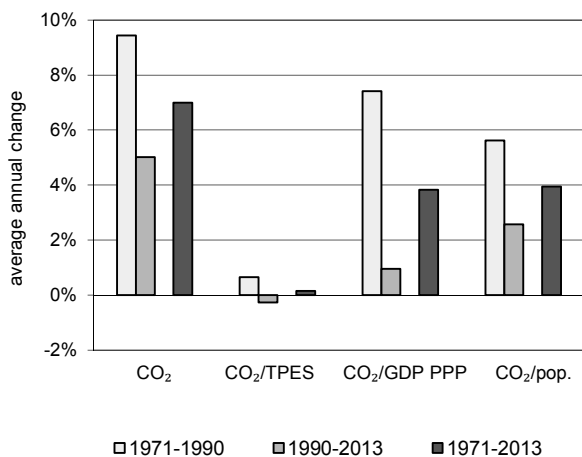
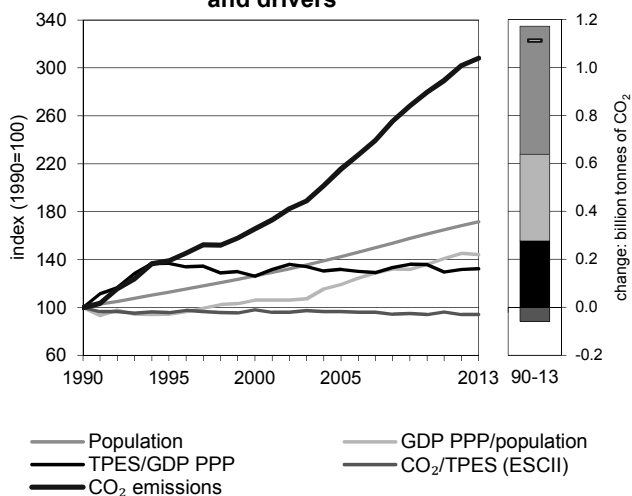


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Middle East

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	534.9	743.5	885.6	1 153.9	1 496.0	1 614.5	1 647.5	208%
Share of World CO ₂ from fuel combustion	2.6%	3.5%	3.8%	4.3%	5.0%	5.1%	5.1%	
TPES (PJ)	8 825	12 840	14 916	19 740	26 280	28 362	28 865	227%
GDP (billion 2005 USD)	559.9	632.9	782.4	1 002.9	1 302.6	1 459.9	1 490.2	166%
GDP PPP (billion 2005 USD)	1 737.8	1 848.8	2 327.0	2 948.5	3 809.7	4 240.8	4 298.6	147%
Population (millions)	126.9	143.1	160.2	180.6	204.6	213.4	217.7	72%
CO ₂ / TPES (tCO ₂ per TJ)	60.6	57.9	59.4	58.5	56.9	56.9	57.1	-6%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.96	1.17	1.13	1.15	1.15	1.11	1.11	16%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.31	0.40	0.38	0.39	0.39	0.38	0.38	25%
CO ₂ / population (tCO ₂ per capita)	4.22	5.19	5.53	6.39	7.31	7.56	7.57	79%
Share of electricity output from fossil fuels	95%	96%	98%	95%	98%	97%	97%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	742	814	708	688	677	681	671	-10%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	139	166	216	280	302	308	208%
Population index	100	113	126	142	161	168	172	72%
GDP PPP per population index	100	94	106	119	136	145	144	44%
Energy intensity index - TPES / GDP PPP	100	137	126	132	136	132	132	32%
Carbon intensity index - CO ₂ / TPES	100	96	98	96	94	94	94	-6%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	10.4	894.7	742.4	-	1 647.5	208%
Electricity and heat generation	1.6	311.2	325.7	-	638.5	285%
Other energy industry own use	0.9	37.1	82.5	-	120.6	226%
Manufacturing industries and construction	7.8	110.4	225.7	-	343.9	203%
Transport	-	370.7	14.8	-	385.5	168%
<i>of which: road</i>	-	367.2	14.0	-	381.2	168%
Other	0.0	65.2	93.8	-	159.0	113%
<i>of which: residential</i>	0.0	43.4	80.8	-	124.2	176%
<i>of which: services</i>	-	7.7	11.1	-	18.8	82%
<i>Memo: international marine bunkers</i>	-	71.1	-	-	71.1	125%
<i>Memo: international aviation bunkers</i>	-	38.9	-	-	38.9	74%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	367.2	158.4%	15.9	15.9
Main activity prod. elec. and heat - oil	284.4	247.0%	12.4	28.3
Main activity prod. elec. and heat - gas	257.2	371.3%	11.2	39.5
Manufacturing industries - gas	225.7	327.9%	9.8	49.3
Manufacturing industries - oil	110.4	83.6%	4.8	54.1
Other energy industry own use - gas	82.5	529.2%	3.6	57.6
Residential - gas	80.8	+	3.5	61.2
Unallocated autoproducers - gas	68.5	176.4%	3.0	64.1
Residential - oil	43.4	11.8%	1.9	66.0
<i>Memo: total CO₂ from fuel combustion</i>	<i>1 647.5</i>	<i>208.0%</i>	<i>71.5</i>	<i>71.5</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

G20

Figure 1. CO₂ emissions by fuel

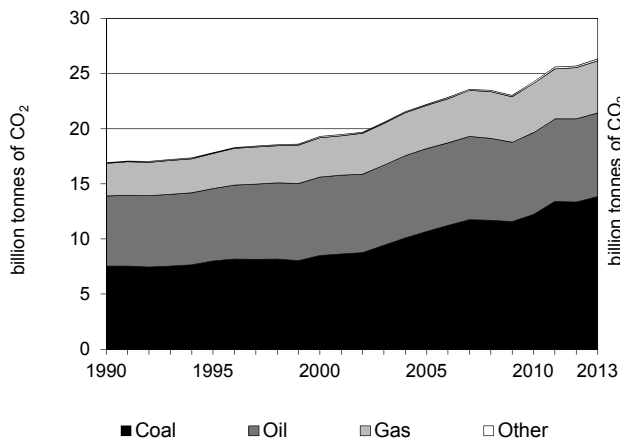


Figure 2. CO₂ emissions by sector

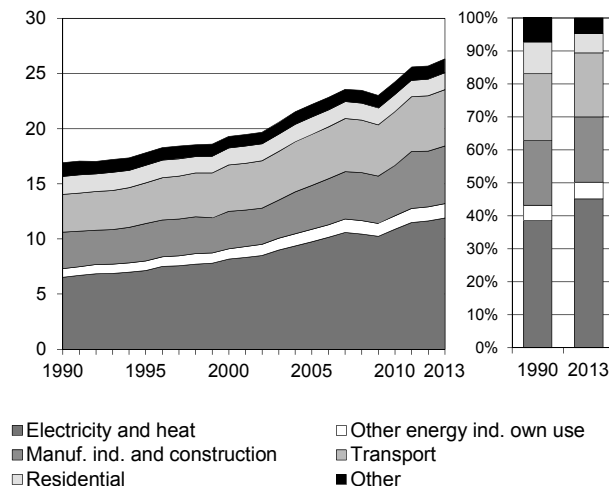


Figure 3. Electricity generation by fuel

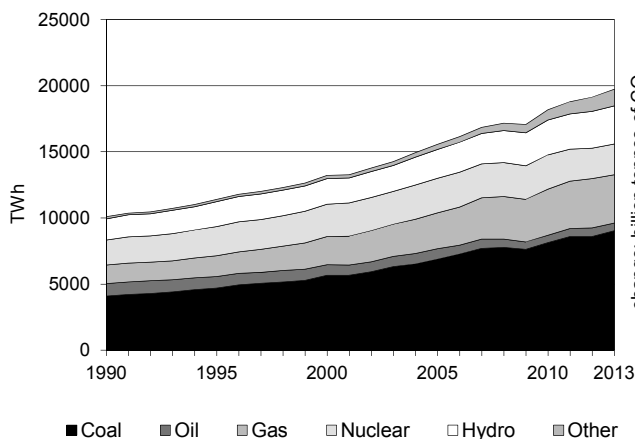


Figure 4. CO₂ from electricity generation: driving factors¹

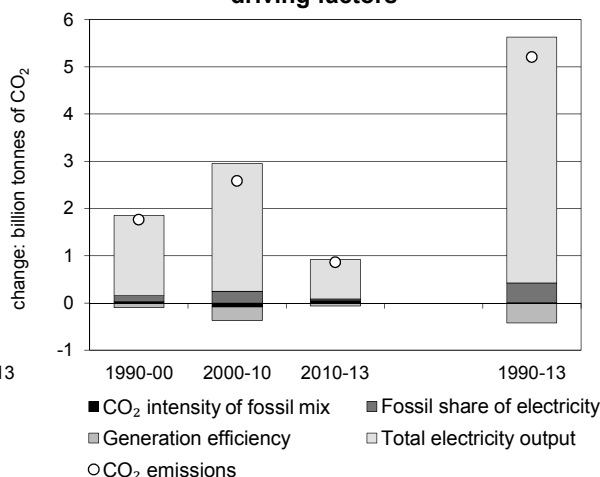


Figure 5. Changes in selected indicators

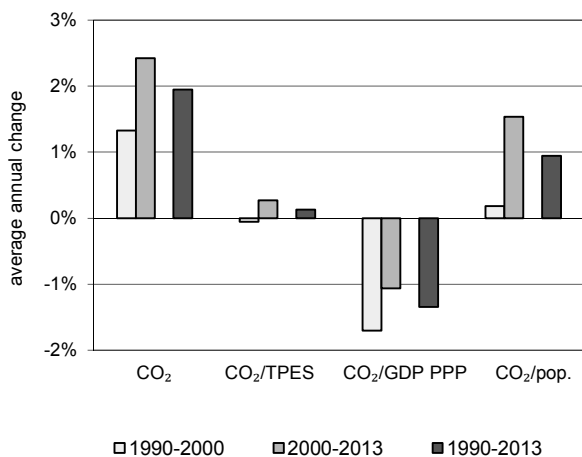
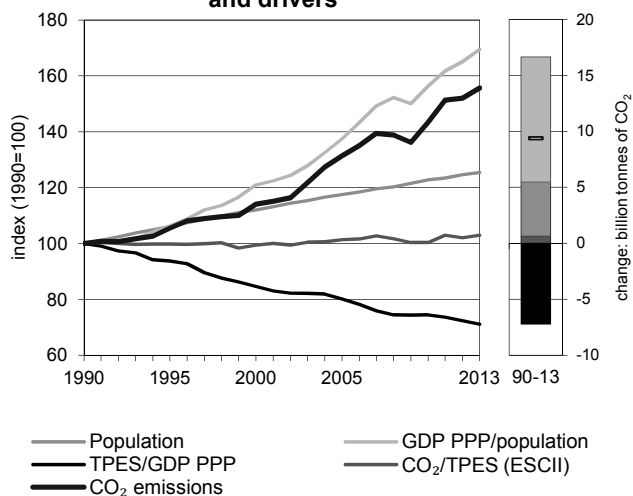


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

G20

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	16 899.0	17 822.0	19 279.9	22 197.7	24 241.3	25 686.3	26 314.7	56%
Share of World CO ₂ from fuel combustion	82%	83%	83%	82%	81%	82%	82%	
TPES (PJ)	295 637	312 473	339 126	382 842	422 427	440 251	446 886	51%
GDP (billion 2005 USD)	28 058.2	31 147.3	36 831.2	42 150.6	46 639.3	48 866.4	49 941.0	78%
GDP PPP (billion 2005 USD)	32 539.5	36 715.9	44 093.4	52 552.9	62 460.4	66 942.9	69 159.6	113%
Population (millions)	3 657.2	3 880.9	4 097.6	4 296.9	4 489.2	4 556.8	4 588.7	25%
CO ₂ / TPES (tCO ₂ per TJ)	57.2	57.0	56.9	58.0	57.4	58.3	58.9	3%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.60	0.57	0.52	0.53	0.52	0.53	0.53	-13%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.52	0.49	0.44	0.42	0.39	0.38	0.38	-27%
CO ₂ / population (tCO ₂ per capita)	4.62	4.59	4.71	5.17	5.40	5.64	5.73	24%
Share of electricity output from fossil fuels	64%	63%	65%	67%	67%	68%	68%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	541	543	547	562	539	543	541	0%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	105	114	131	143	152	156	56%
Population index	100	106	112	117	123	125	125	25%
GDP PPP per population index	100	106	121	137	156	165	169	69%
Energy intensity index - TPES / GDP PPP	100	94	85	80	74	72	71	-29%
Carbon intensity index - CO ₂ / TPES	100	100	99	101	100	102	103	3%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	13 823.3	7 577.5	4 747.0	166.9	26 314.7	56%
Electricity and heat generation	9 273.3	488.0	2 001.3	120.7	11 883.3	83%
Other energy industry own use	406.1	455.2	452.8	1.3	1 315.3	65%
Manufacturing industries and construction	3 556.2	724.1	891.9	40.4	5 212.5	58%
Transport	12.4	4 940.2	175.8	-	5 128.4	49%
<i>of which: road</i>	-	4 399.7	50.4	-	4 450.1	59%
Other	575.3	970.0	1 225.3	4.5	2 775.1	-3%
<i>of which: residential</i>	277.2	445.5	799.5	0.0	1 522.3	-7%
<i>of which: services</i>	136.7	222.6	406.0	4.3	769.6	6%
<i>Memo: international marine bunkers</i>	-	346.6	-	-	346.6	30%
<i>Memo: international aviation bunkers</i>	-	342.1	-	-	342.1	86%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	8 628.4	104.1%	22.9	22.9
Road - oil	4 399.7	57.3%	11.7	34.5
Manufacturing industries - coal	3 556.2	92.5%	9.4	43.9
Main activity prod. elec. and heat - gas	1 582.4	112.4%	4.2	48.1
Manufacturing industries - gas	891.9	30.6%	2.4	50.5
Residential - gas	799.5	34.4%	2.1	52.6
Manufacturing industries - oil	724.1	-5.9%	1.9	54.5
Unallocated autoproducers - coal	644.9	76.5%	1.7	56.2
Other transport - oil	540.6	16.8%	1.4	57.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>26 314.7</i>	<i>55.7%</i>	<i>69.7</i>	<i>69.7</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

COUNTRY TABLES

Albania

Figure 1. CO₂ emissions by fuel

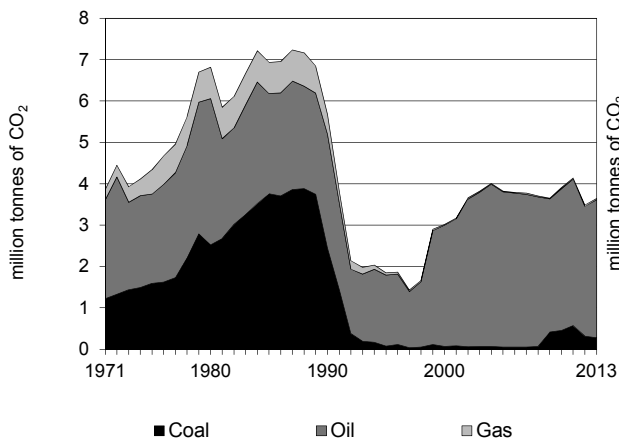


Figure 2. CO₂ emissions by sector

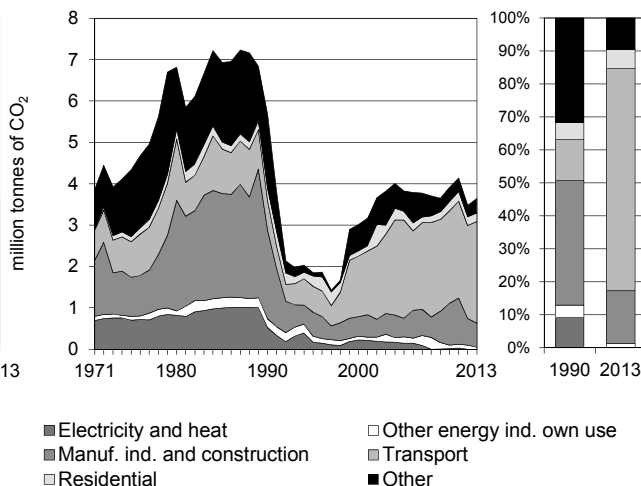


Figure 3. Electricity generation by fuel

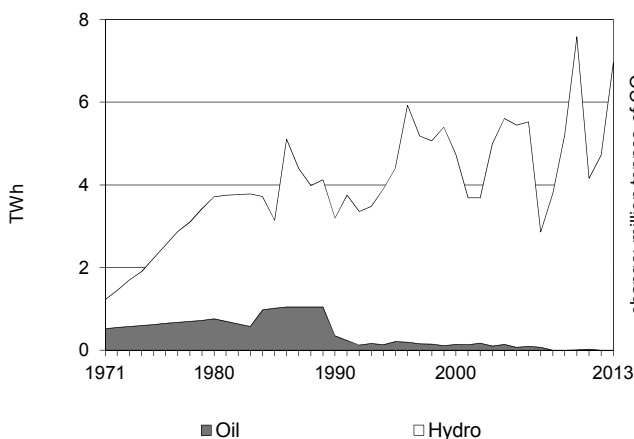


Figure 4. CO₂ from electricity generation: driving factors¹

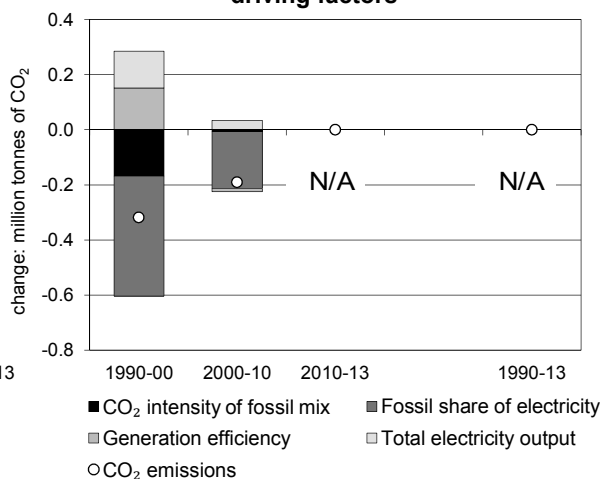


Figure 5. Changes in selected indicators

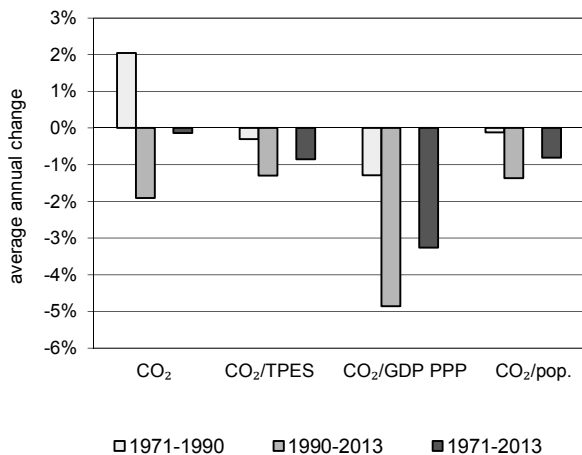
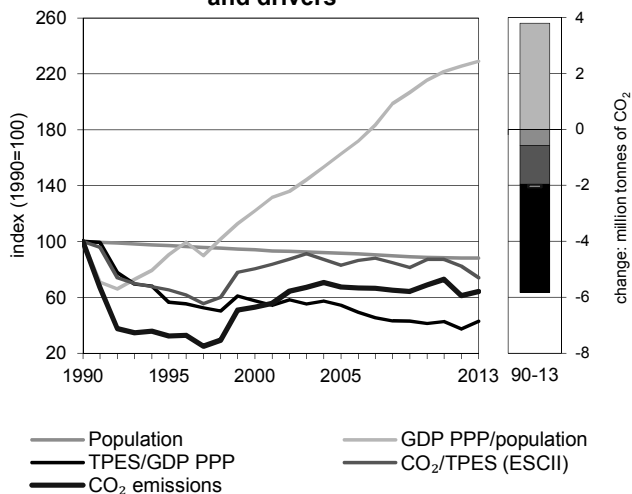


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Albania

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	5.67	1.85	3.02	3.82	3.91	3.48	3.64	-36%
Share of World CO ₂ from fuel combustion	0.03%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	
TPES (PJ)	112	56	74	91	88	83	97	-13%
GDP (billion 2005 USD)	5.62	4.94	6.44	8.38	10.74	11.19	11.35	102%
GDP PPP (billion 2005 USD)	12.86	11.30	14.74	19.17	24.57	25.60	25.97	102%
Population (millions)	3.29	3.19	3.09	3.01	2.91	2.90	2.90	-12%
CO ₂ / TPES (tCO ₂ per TJ)	50.7	33.2	40.9	42.2	44.3	41.8	37.5	-26%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	1.01	0.37	0.47	0.46	0.36	0.31	0.32	-68%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.44	0.16	0.20	0.20	0.16	0.14	0.14	-68%
CO ₂ / population (tCO ₂ per capita)	1.73	0.58	0.98	1.27	1.34	1.20	1.26	-27%
Share of electricity output from fossil fuels	11%	5%	3%	1%	0%	0%	0%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	164	39	43	26	2	-	-	-100%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	33	53	67	69	61	64	-36%
Population index	100	97	94	92	89	88	88	-12%
GDP PPP per population index	100	91	122	163	216	226	229	129%
Energy intensity index - TPES / GDP PPP	100	57	58	54	41	37	43	-57%
Carbon intensity index - CO ₂ / TPES	100	65	81	83	87	82	74	-26%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	0.28	3.33	0.03	-	3.64	-36%
Electricity and heat generation	-	-	-	-	-	-100%
Other energy industry own use	-	0.03	0.02	-	0.05	-77%
Manufacturing industries and construction	0.26	0.31	0.01	-	0.58	-73%
Transport	-	2.45	-	-	2.45	247%
<i>of which: road</i>	-	2.34	-	-	2.34	232%
Other	0.02	0.54	-	-	0.56	-73%
<i>of which: residential</i>	0.00	0.21	-	-	0.21	-30%
<i>of which: services</i>	0.02	0.09	-	-	0.11	x
<i>Memo: international marine bunkers</i>	-	0.06	-	-	0.06	..
<i>Memo: international aviation bunkers</i>	-	0.06	-	-	0.06	x

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	2.34	231.8%	28.2	28.2
Non-specified other - oil	0.33	x	4.0	32.2
Manufacturing industries - oil	0.31	-69.9%	3.7	36.0
Manufacturing industries - coal	0.26	-64.2%	3.1	39.1
Residential - oil	0.21	-25.5%	2.6	41.7
Other transport - oil	0.11	x	1.3	43.0
Other energy industry own use - oil	0.03	-87.5%	0.3	43.3
Other energy industry own use - gas	0.02	x	0.3	43.5
Non-specified other sectors - coal	0.02	-99.1%	0.2	43.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>3.64</i>	<i>-35.8%</i>	<i>43.9</i>	<i>43.9</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Algeria

Figure 1. CO₂ emissions by fuel

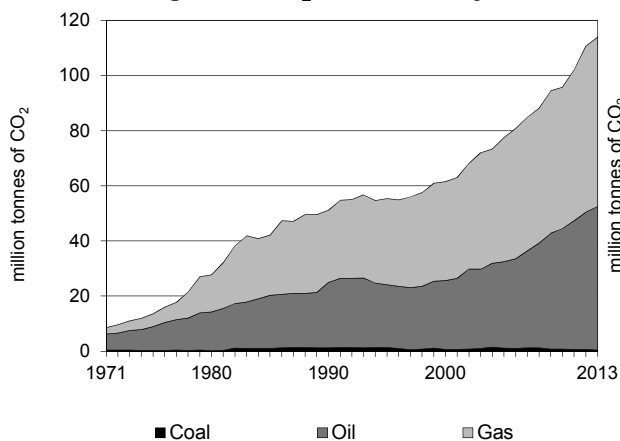


Figure 2. CO₂ emissions by sector

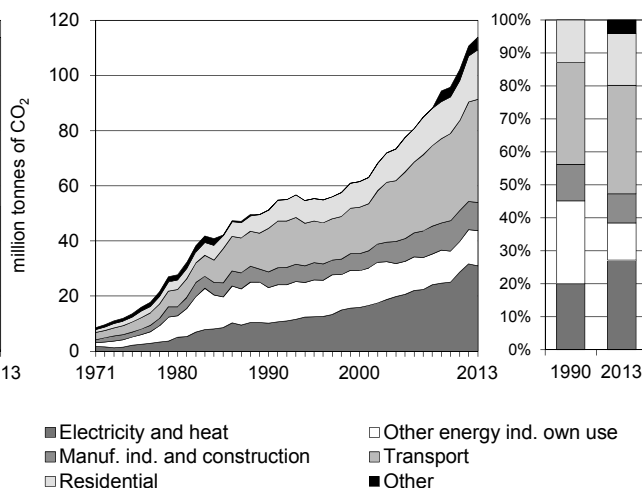


Figure 3. Electricity generation by fuel

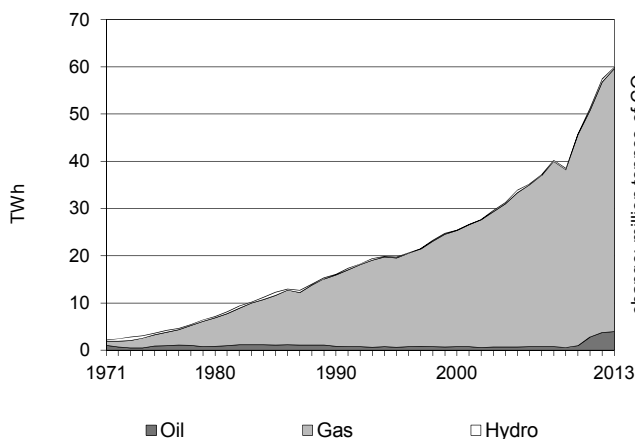


Figure 4. CO₂ from electricity generation: driving factors¹

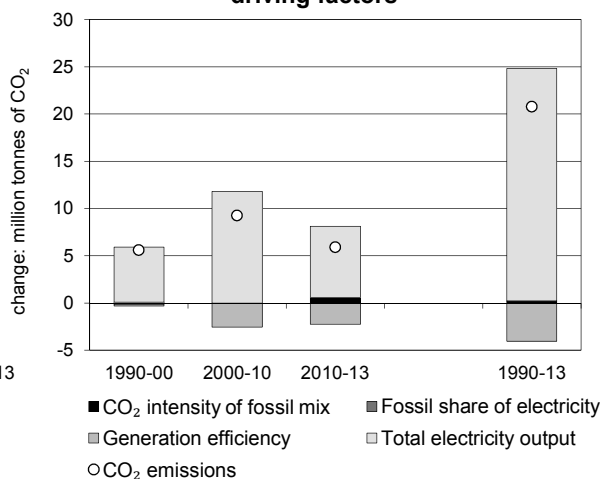


Figure 5. Changes in selected indicators

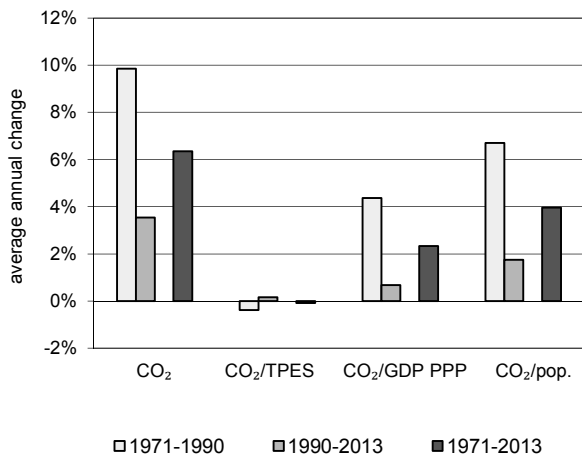
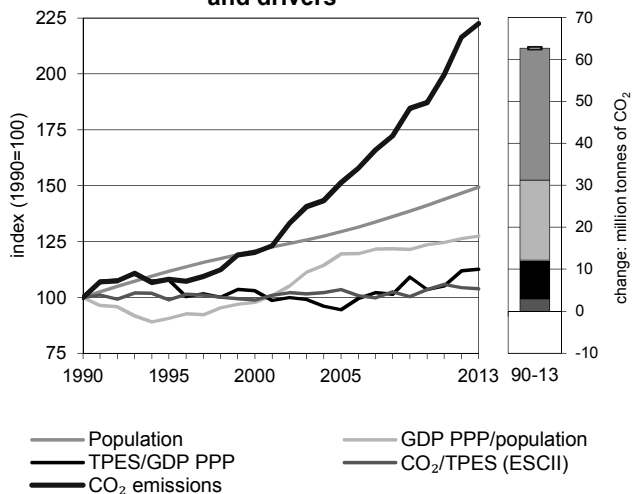


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Algeria

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	51.16	55.32	61.49	77.45	95.77	110.67	113.87	123%
Share of World CO ₂ from fuel combustion	0.25%	0.26%	0.26%	0.29%	0.32%	0.35%	0.35%	
TPES (PJ)	929	1 015	1 130	1 357	1 678	1 924	1 992	114%
GDP (billion 2005 USD)	66.77	67.63	78.90	103.20	116.51	123.73	127.19	91%
GDP PPP (billion 2005 USD)	236.26	239.30	279.18	365.17	412.28	437.81	450.07	91%
Population (millions)	26.24	29.32	31.72	33.96	37.06	38.48	39.21	49%
CO ₂ / TPES (tCO ₂ per TJ)	55.1	54.5	54.4	57.1	57.1	57.5	57.2	4%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.77	0.82	0.78	0.75	0.82	0.89	0.90	17%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.22	0.23	0.22	0.21	0.23	0.25	0.25	17%
CO ₂ / population (tCO ₂ per capita)	1.95	1.89	1.94	2.28	2.58	2.88	2.90	49%
Share of electricity output from fossil fuels	99%	99%	100%	98%	100%	99%	99%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	635	636	623	609	549	552	517	-19%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	108	120	151	187	216	223	123%
Population index	100	112	121	129	141	147	149	49%
GDP PPP per population index	100	91	98	119	124	126	127	27%
Energy intensity index - TPES / GDP PPP	100	108	103	95	104	112	113	13%
Carbon intensity index - CO ₂ / TPES	100	99	99	104	104	104	104	4%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	0.40	52.10	61.37	-	113.87	123%
Electricity and heat generation	-	3.89	27.09	-	30.98	203%
Other energy industry own use	-	1.92	10.85	-	12.78	-1%
Manufacturing industries and construction	0.40	2.38	7.35	-	10.13	79%
Transport	-	36.26	1.13	-	37.39	137%
<i>of which: road</i>	-	36.00	-	-	36.00	138%
Other	-	7.64	14.95	-	22.59	243%
<i>of which: residential</i>	-	4.77	13.21	-	17.98	173%
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	0.88	-	-	0.88	-36%
<i>Memo: international aviation bunkers</i>	-	1.67	-	-	1.67	52%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	36.00	138.2%	19.7	19.7
Main activity prod. elec. and heat - gas	27.09	191.4%	14.8	34.5
Residential - gas	13.21	438.3%	7.2	41.7
Other energy industry own use - gas	10.85	-1.8%	5.9	47.6
Manufacturing industries - gas	7.35	172.5%	4.0	51.6
Residential - oil	4.77	15.3%	2.6	54.2
Unallocated autoproducers - oil	3.36	359.6%	1.8	56.1
Non-specified other - oil	2.88	x	1.6	57.6
Manufacturing industries - oil	2.38	41.1%	1.3	58.9
<i>Memo: total CO₂ from fuel combustion</i>	<i>113.87</i>	<i>122.6%</i>	<i>62.2</i>	<i>62.2</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Angola

Figure 1. CO₂ emissions by fuel

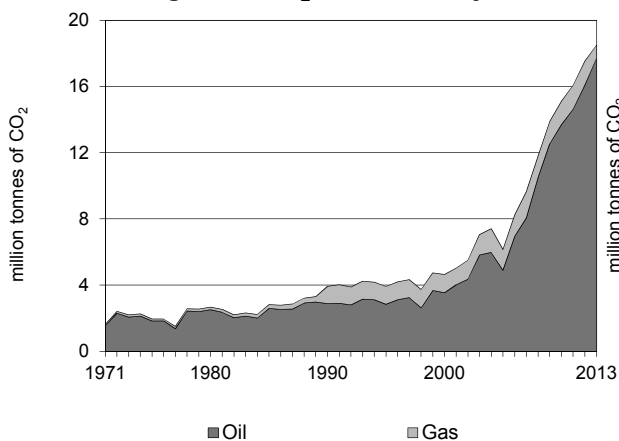


Figure 2. CO₂ emissions by sector

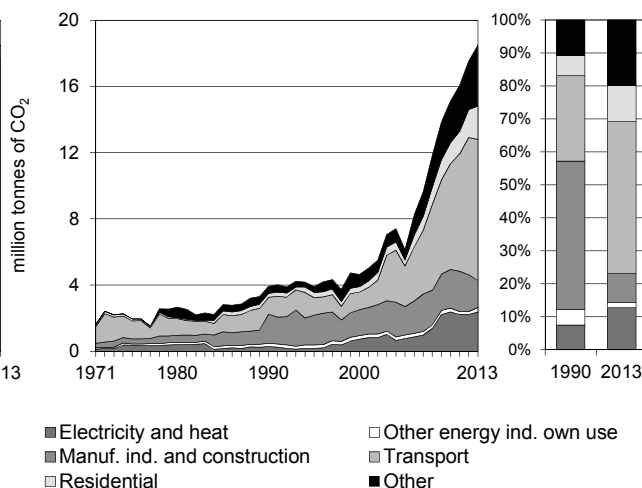


Figure 3. Electricity generation by fuel

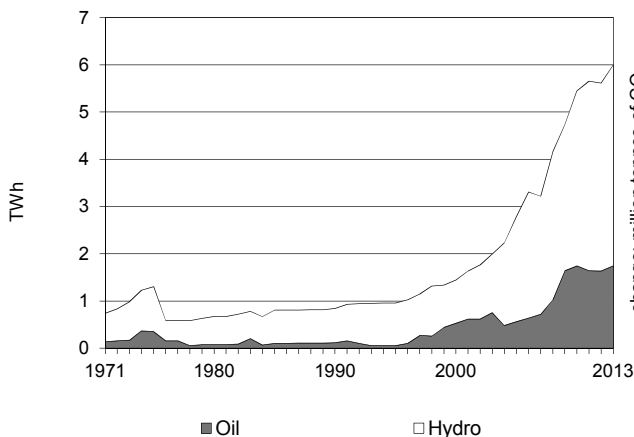


Figure 4. CO₂ from electricity generation: driving factors ¹

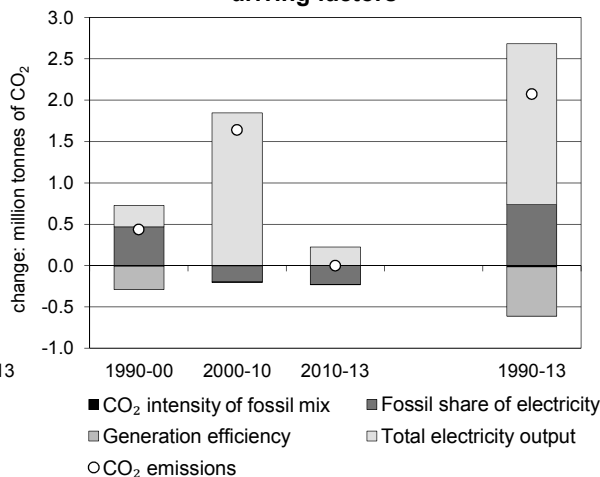


Figure 5. Changes in selected indicators

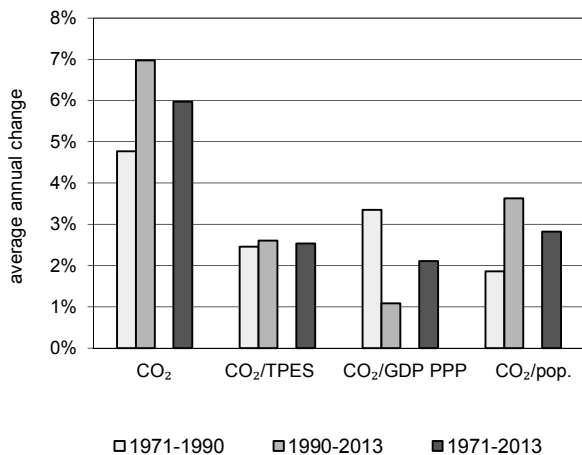
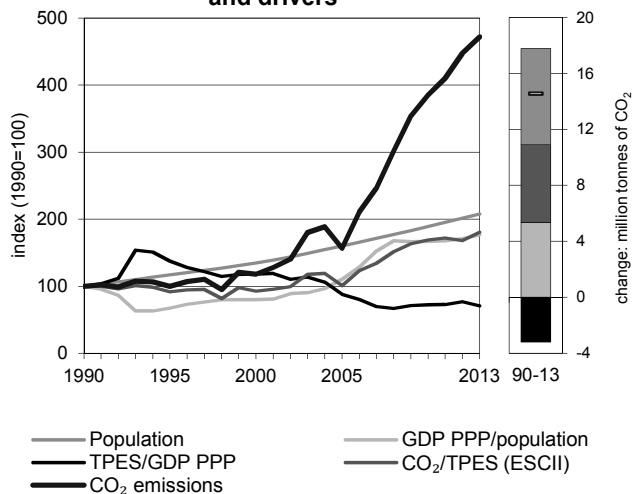


Figure 6. Total CO₂ emissions and drivers ²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Angola

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	3.92	3.91	4.63	6.15	15.11	17.53	18.49	372%
Share of World CO ₂ from fuel combustion	0.02%	0.02%	0.02%	0.02%	0.05%	0.06%	0.06%	
TPES (PJ)	246	268	314	382	562	654	643	161%
GDP (billion 2005 USD)	15.99	12.65	17.25	28.23	50.37	55.04	58.79	268%
GDP PPP (billion 2005 USD)	38.93	30.81	41.99	68.75	122.66	134.03	143.15	268%
Population (millions)	10.33	12.11	13.93	16.54	19.55	20.82	21.47	108%
CO ₂ / TPES (tCO ₂ per TJ)	15.9	14.6	14.8	16.1	26.9	26.8	28.8	81%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.25	0.31	0.27	0.22	0.30	0.32	0.31	28%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.10	0.13	0.11	0.09	0.12	0.13	0.13	28%
CO ₂ / population (tCO ₂ per capita)	0.38	0.32	0.33	0.37	0.77	0.84	0.86	127%
Share of electricity output from fossil fuels	14%	6%	37%	20%	32%	29%	29%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	347	179	504	275	435	395	394	14%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	100	118	157	385	447	472	372%
Population index	100	117	135	160	189	201	208	108%
GDP PPP per population index	100	68	80	110	167	171	177	77%
Energy intensity index - TPES / GDP PPP	100	137	118	88	72	77	71	-29%
Carbon intensity index - CO ₂ / TPES	100	92	93	101	169	168	181	81%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	17.71	0.78	-	18.49	372%
Electricity and heat generation	-	2.36	-	-	2.36	711%
Other energy industry own use	-	0.19	0.09	-	0.27	48%
Manufacturing industries and construction	-	0.94	0.70	-	1.64	-7%
Transport	-	8.53	-	-	8.53	740%
<i>of which: road</i>	-	7.75	-	-	7.75	663%
Other	-	5.68	-	-	5.68	757%
<i>of which: residential</i>	-	2.01	-	-	2.01	729%
<i>of which: services</i>	-	3.61	-	-	3.61	821%
<i>Memo: international marine bunkers</i>	-	0.21	-	-	0.21	+
<i>Memo: international aviation bunkers</i>	-	0.64	-	-	0.64	-38%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	7.75	662.8%	12.9	12.9
Non-specified other - oil	3.68	773.1%	6.1	19.0
Residential - oil	2.01	729.5%	3.3	22.3
Main activity prod. elec. and heat - oil	1.56	616.5%	2.6	24.9
Manufacturing industries - oil	0.94	29.1%	1.6	26.5
Unallocated autoproducers - oil	0.80	991.3%	1.3	27.8
Other transport - oil	0.78	x	1.3	29.1
Manufacturing industries - gas	0.70	-32.8%	1.2	30.3
Other energy industry own use - oil	0.19	1.5%	0.3	30.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>18.49</i>	<i>371.7%</i>	<i>30.7</i>	<i>30.7</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Argentina

Figure 1. CO₂ emissions by fuel

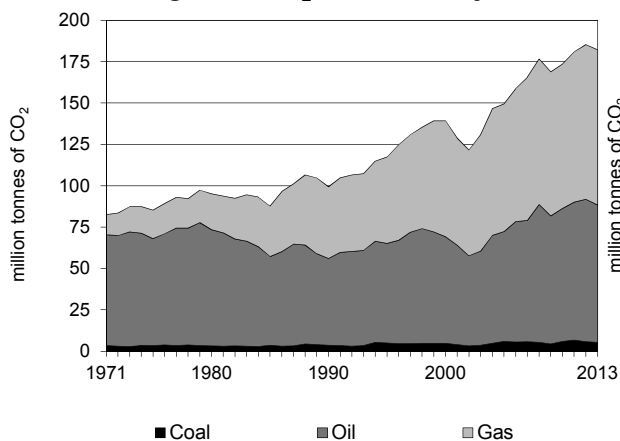


Figure 2. CO₂ emissions by sector

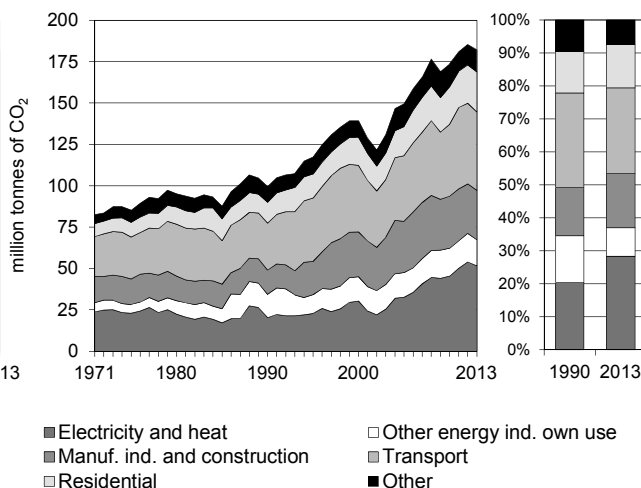


Figure 3. Electricity generation by fuel

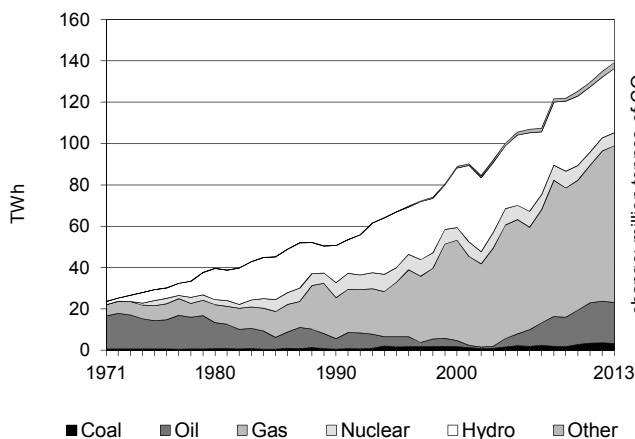


Figure 4. CO₂ from electricity generation: driving factors¹

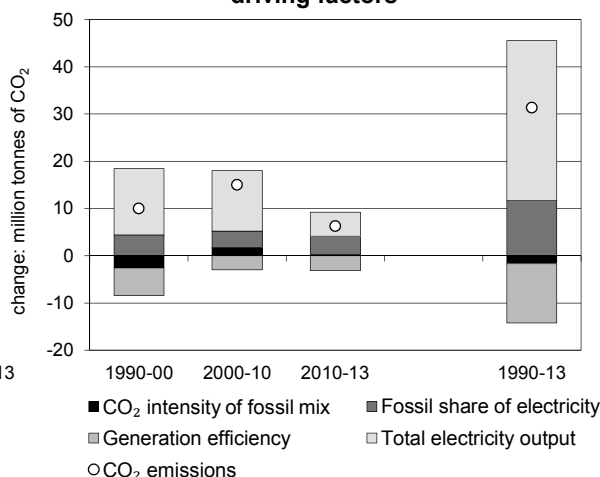


Figure 5. Changes in selected indicators

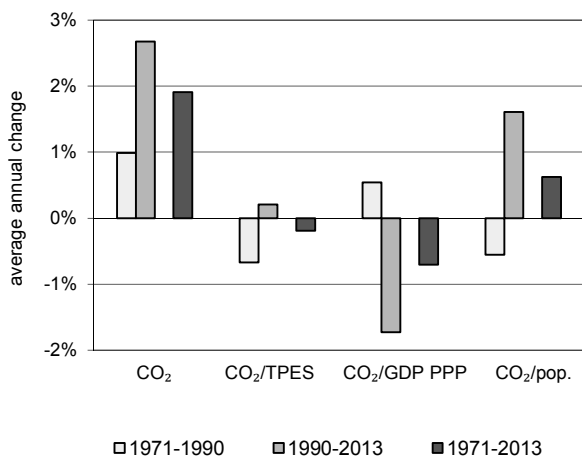
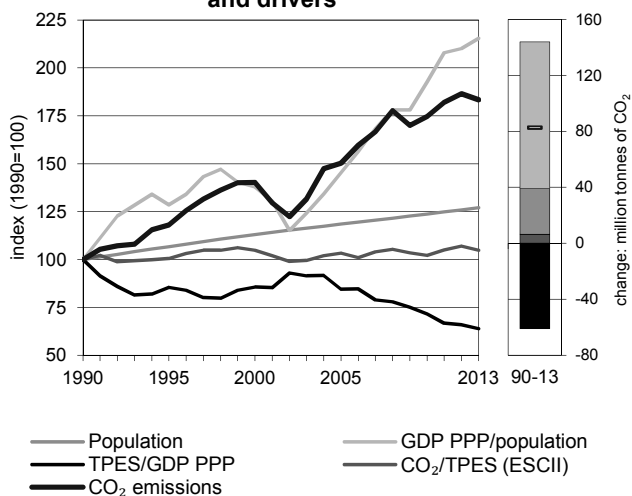


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Argentina

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	99.40	117.31	139.34	149.44	173.55	185.33	182.28	83%
Share of World CO ₂ from fuel combustion	0.48%	0.55%	0.60%	0.55%	0.58%	0.59%	0.57%	
TPES (PJ)	1 929	2 265	2 578	2 804	3 296	3 360	3 374	75%
GDP (billion 2005 USD)	129.48	177.84	201.96	222.91	293.70	321.84	331.26	156%
GDP PPP (billion 2005 USD)	243.46	334.38	379.74	419.05	580.44	643.91	666.21	174%
Population (millions)	32.63	34.83	36.90	38.65	40.37	41.09	41.45	27%
CO ₂ / TPES (tCO ₂ per TJ)	51.5	51.8	54.0	53.3	52.7	55.2	54.0	5%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.77	0.66	0.69	0.67	0.59	0.58	0.55	-28%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.41	0.35	0.37	0.36	0.30	0.29	0.27	-33%
CO ₂ / population (tCO ₂ per capita)	3.05	3.37	3.78	3.87	4.30	4.51	4.40	44%
Share of electricity output from fossil fuels	50%	49%	60%	60%	66%	71%	71%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	400	341	341	310	362	401	371	-7%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	118	140	150	175	186	183	83%
Population index	100	107	113	118	124	126	127	27%
GDP PPP per population index	100	129	138	145	193	210	215	115%
Energy intensity index - TPES / GDP PPP	100	85	86	84	72	66	64	-36%
Carbon intensity index - CO ₂ / TPES	100	101	105	103	102	107	105	5%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	5.43	83.00	93.85	-	182.28	83%
Electricity and heat generation	4.05	14.64	32.93	-	51.61	154%
Other energy industry own use	-	2.29	13.50	-	15.79	13%
Manufacturing industries and construction	1.38	12.18	16.32	-	29.88	104%
Transport	-	39.57	7.84	-	47.42	67%
<i>of which: road</i>	-	37.10	5.42	-	42.52	61%
Other	-	14.33	23.26	-	37.59	71%
<i>of which: residential</i>	-	3.59	20.62	-	24.20	92%
<i>of which: services</i>	-	0.74	2.64	-	3.38	-30%
<i>Memo: international marine bunkers</i>	-	5.68	-	-	5.68	153%
<i>Memo: international aviation bunkers</i>	-	2.68	-	-	2.68	x

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	37.10	43.1%	12.0	12.0
Main activity prod. elec. and heat - gas	26.15	149.9%	8.5	20.5
Residential - gas	20.62	143.4%	6.7	27.2
Manufacturing industries - gas	16.32	67.2%	5.3	32.5
Main activity prod. elec. and heat - oil	14.05	205.7%	4.6	37.0
Other energy industry own use - gas	13.50	51.1%	4.4	41.4
Manufacturing industries - oil	12.18	215.1%	3.9	45.3
Non-specified other - oil	10.74	80.9%	3.5	48.8
Unallocated autoproducers - gas	6.78	274.6%	2.2	51.0
<i>Memo: total CO₂ from fuel combustion</i>	<i>182.28</i>	<i>83.4%</i>	<i>59.1</i>	<i>59.1</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Armenia

Figure 1. CO₂ emissions by fuel

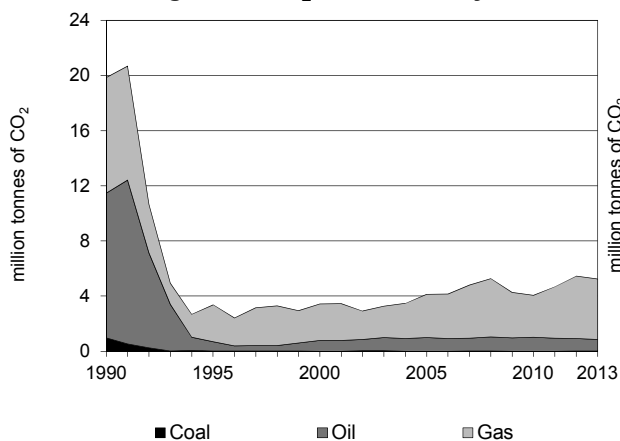


Figure 2. CO₂ emissions by sector

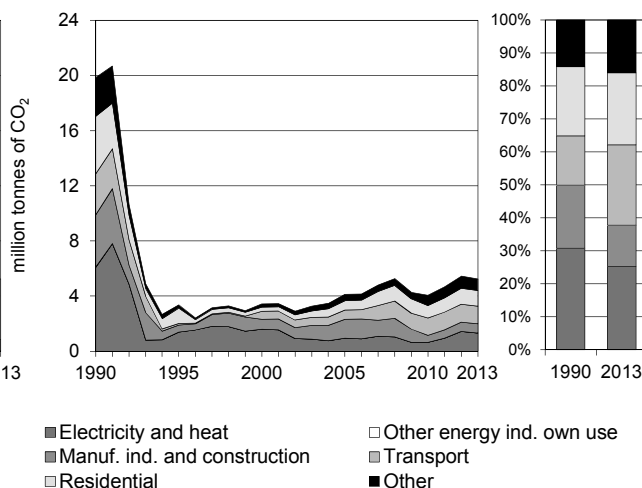


Figure 3. Electricity generation by fuel

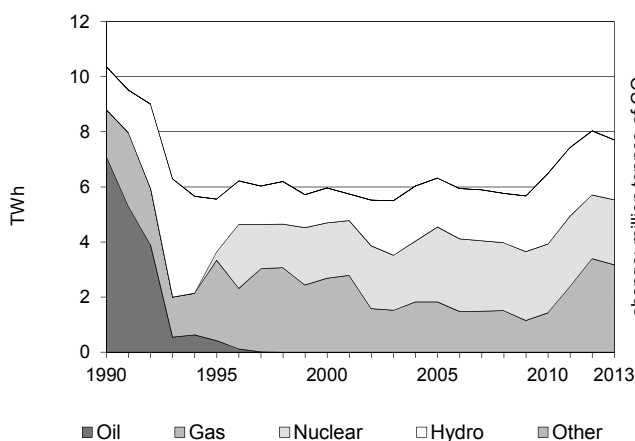


Figure 4. CO₂ from electricity generation: driving factors¹

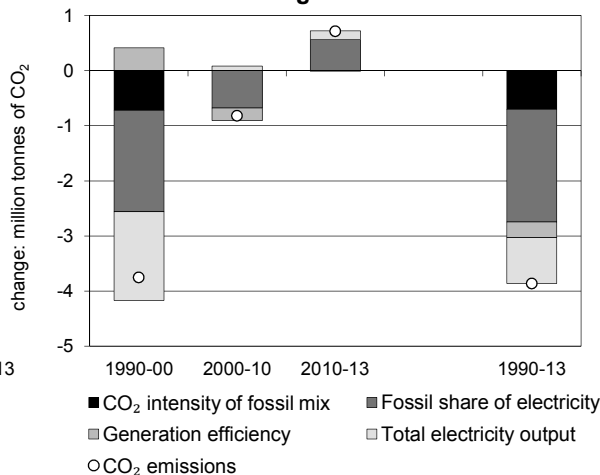


Figure 5. Changes in selected indicators

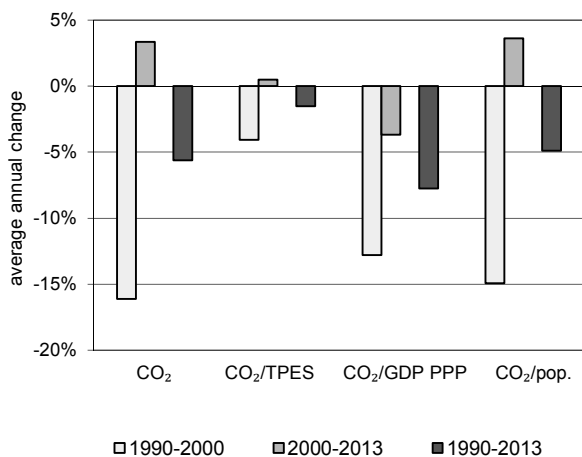
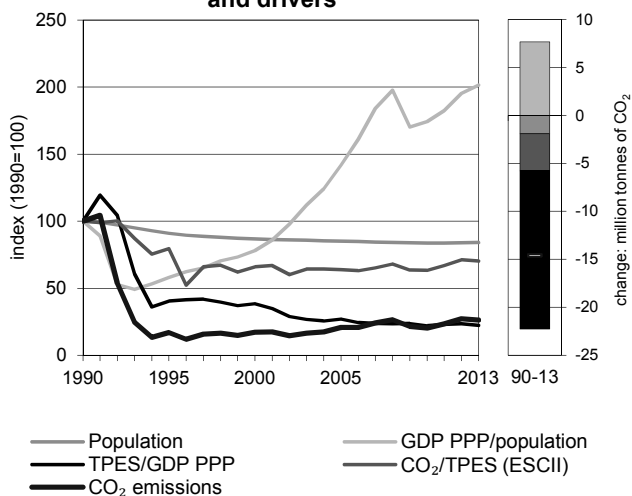


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Armenia

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	19.84	3.37	3.42	4.13	4.05	5.44	5.24	-74%
Share of World CO ₂ from fuel combustion	0.10%	0.02%	0.01%	0.02%	0.01%	0.02%	0.02%	
TPES (PJ)	323	69	84	105	104	124	121	-62%
GDP (billion 2005 USD)	4.06	2.15	2.76	4.90	5.92	6.64	6.88	69%
GDP PPP (billion 2005 USD)	11.79	6.23	7.99	14.22	17.17	19.27	19.95	69%
Population (millions)	3.55	3.22	3.08	3.02	2.96	2.97	2.98	-16%
CO ₂ / TPES (tCO ₂ per TJ)	61.5	48.9	40.6	39.3	38.9	43.7	43.2	-30%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	4.88	1.57	1.24	0.84	0.68	0.82	0.76	-84%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	1.68	0.54	0.43	0.29	0.24	0.28	0.26	-84%
CO ₂ / population (tCO ₂ per capita)	5.60	1.04	1.11	1.37	1.37	1.83	1.76	-69%
Share of electricity output from fossil fuels	85%	60%	45%	29%	22%	42%	41%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	499	212	239	132	93	177	170	-66%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	17	17	21	20	27	26	-74%
Population index	100	91	87	85	84	84	84	-16%
GDP PPP per population index	100	58	78	142	174	195	201	101%
Energy intensity index - TPES / GDP PPP	100	40	39	27	22	24	22	-78%
Carbon intensity index - CO ₂ / TPES	100	80	66	64	63	71	70	-30%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	0.00	0.86	4.38	-	5.24	-74%
Electricity and heat generation	-	-	1.32	-	1.32	-78%
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	-	0.66	-	0.66	-83%
Transport	-	0.40	0.88	-	1.28	-57%
<i>of which: road</i>	-	0.40	0.88	-	1.28	-57%
Other	0.00	0.46	1.53	-	1.99	-72%
<i>of which: residential</i>	0.00	-	1.14	-	1.15	-72%
<i>of which: services</i>	-	-	0.09	-	0.09	-96%
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.14	-	-	0.14	-76%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - gas	1.32	-31.5%	12.4	12.4
Residential - gas	1.14	-56.9%	10.7	23.2
Road - gas	0.88	x	8.2	31.4
Manufacturing industries - gas	0.66	-71.2%	6.2	37.6
Non-specified other - oil	0.46	-64.9%	4.3	41.9
Road - oil	0.40	-86.4%	3.8	45.6
Non-specified other - gas	0.38	-74.8%	3.6	49.3
Residential - coal	0.00	-99.7%	0.0	49.3
Non-specified other sectors - coal	0.00	x	0.0	49.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>5.24</i>	<i>-73.6%</i>	<i>49.3</i>	<i>49.3</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Australia

Figure 1. CO₂ emissions by fuel

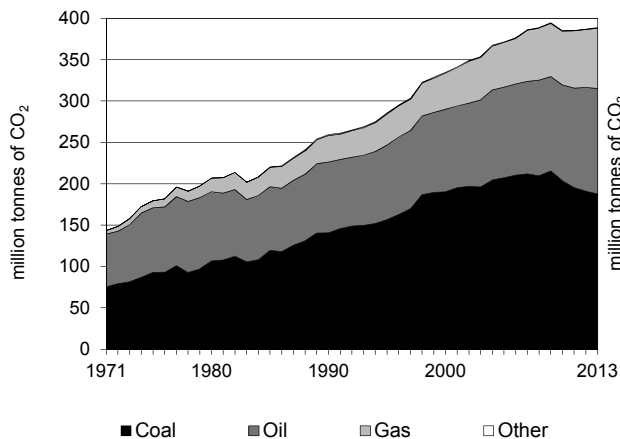


Figure 2. CO₂ emissions by sector

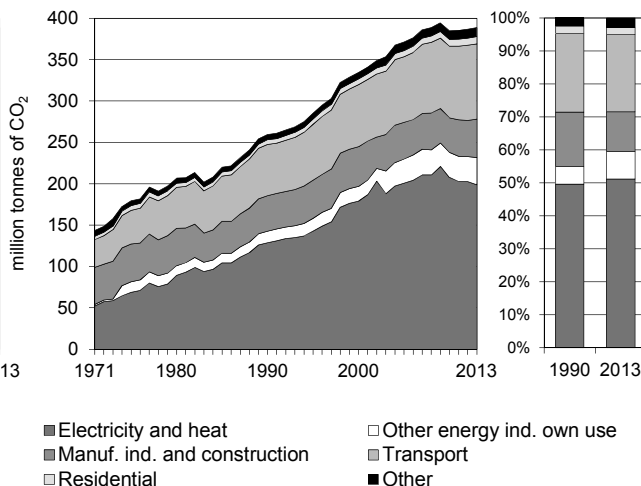


Figure 3. Electricity generation by fuel

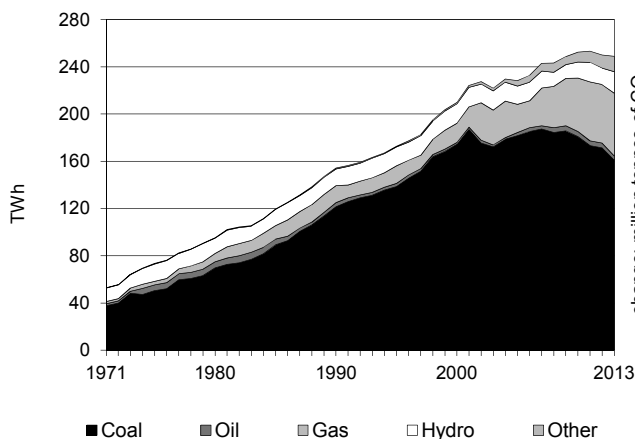


Figure 4. CO₂ from electricity generation: driving factors¹

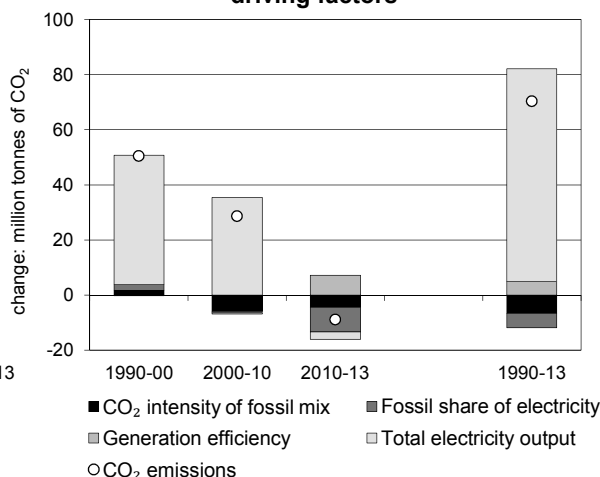


Figure 5. Changes in selected indicators

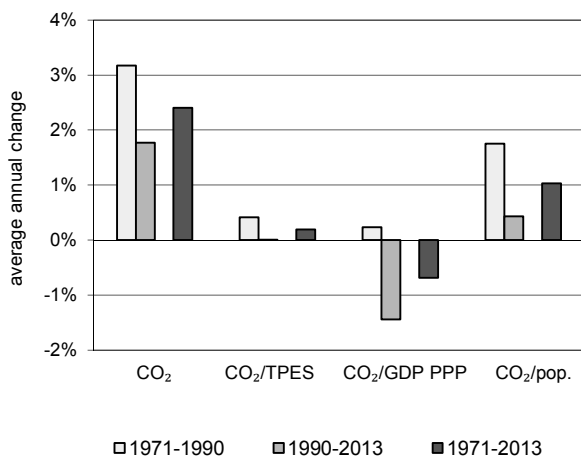
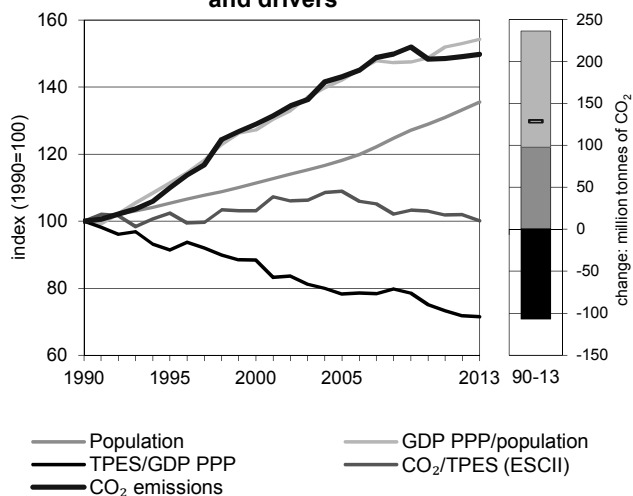


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Australia

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	259.55	285.34	334.70	371.41	385.05	386.97	388.68	50%
Share of World CO ₂ from fuel combustion	1.3%	1.3%	1.4%	1.4%	1.3%	1.2%	1.2%	
TPES (PJ)	3 616	3 881	4 526	4 751	5 211	5 289	5 407	50%
GDP (billion 2005 USD)	453.92	532.75	642.92	762.12	870.37	925.49	949.05	109%
GDP PPP (billion 2005 USD)	428.13	502.48	606.39	718.81	820.92	872.91	895.13	109%
Population (millions)	17.17	18.09	19.12	20.28	22.14	22.88	23.27	36%
CO ₂ / TPES (tCO ₂ per TJ)	71.8	73.5	74.0	78.2	73.9	73.2	71.9	0%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.57	0.54	0.52	0.49	0.44	0.42	0.41	-28%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.61	0.57	0.55	0.52	0.47	0.44	0.43	-28%
CO ₂ / population (tCO ₂ per capita)	15.12	15.77	17.51	18.31	17.39	16.91	16.70	10%
Share of electricity output from fossil fuels	90%	90%	92%	91%	91%	90%	87%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	833	826	853	879	823	810	798	-4%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	110	129	143	148	149	150	50%
Population index	100	105	111	118	129	133	136	36%
GDP PPP per population index	100	111	127	142	149	153	154	54%
Energy intensity index - TPES / GDP PPP	100	91	88	78	75	72	72	-28%
Carbon intensity index - CO ₂ / TPES	100	102	103	109	103	102	100	0%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	187.68	127.73	72.69	0.58	388.68	50%
Electricity and heat generation	169.63	2.89	26.24	-	198.77	54%
Other energy industry own use	3.58	12.61	16.54	-	32.72	134%
Manufacturing industries and construction	13.80	13.86	18.39	0.58	46.62	9%
Transport	0.58	89.07	1.21	-	90.86	46%
<i>of which: road</i>	-	76.82	0.15	-	76.97	40%
Other	0.09	9.30	10.32	-	19.70	64%
<i>of which: residential</i>	0.00	1.03	7.81	-	8.85	57%
<i>of which: services</i>	0.09	1.95	2.46	-	4.50	51%
<i>Memo: international marine bunkers</i>	-	2.24	-	-	2.24	4%
<i>Memo: international aviation bunkers</i>	-	10.09	-	-	10.09	133%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	168.85	46.9%	29.1	29.1
Road - oil	76.82	39.5%	13.3	42.4
Main activity prod. elec. and heat - gas	20.16	183.5%	3.5	45.9
Manufacturing industries - gas	18.39	40.4%	3.2	49.0
Other energy industry own use - gas	16.54	241.3%	2.9	51.9
Manufacturing industries - oil	13.86	54.2%	2.4	54.3
Manufacturing industries - coal	13.80	-29.7%	2.4	56.7
Other energy industry own use - oil	12.61	91.2%	2.2	58.9
Other transport - oil	12.25	84.2%	2.1	61.0
<i>Memo: total CO₂ from fuel combustion</i>	<i>388.68</i>	<i>49.7%</i>	<i>67.1</i>	<i>67.1</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Austria

Figure 1. CO₂ emissions by fuel

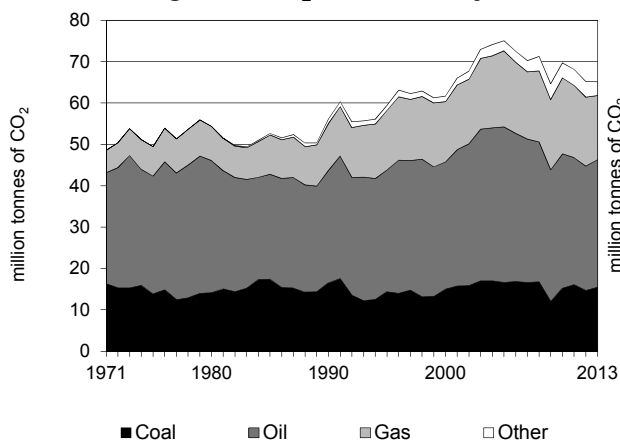


Figure 2. CO₂ emissions by sector

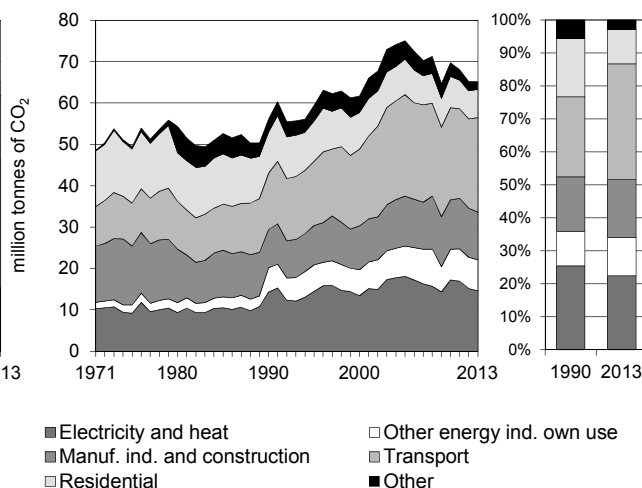


Figure 3. Electricity generation by fuel

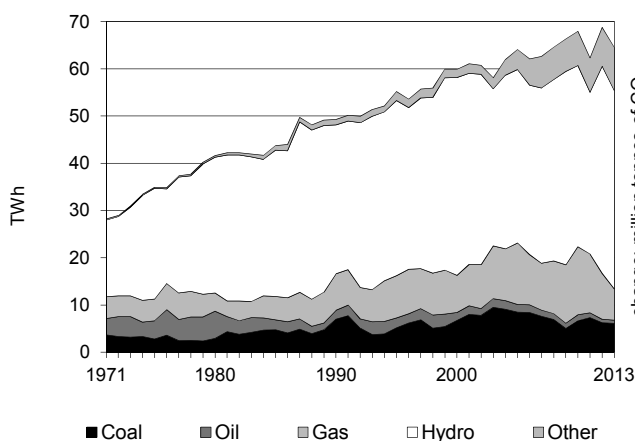


Figure 4. CO₂ from electricity generation: driving factors¹

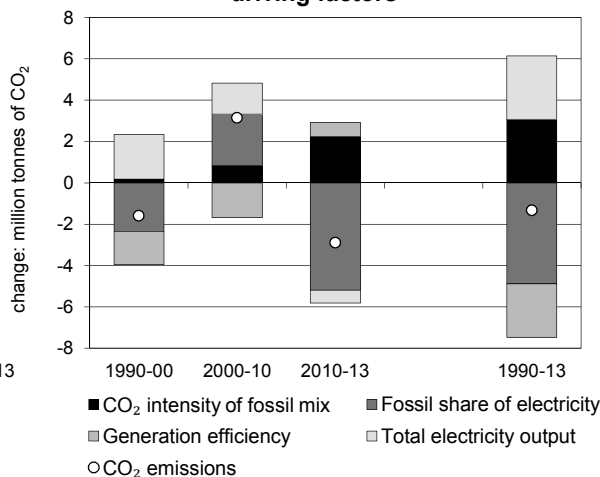


Figure 5. Changes in selected indicators

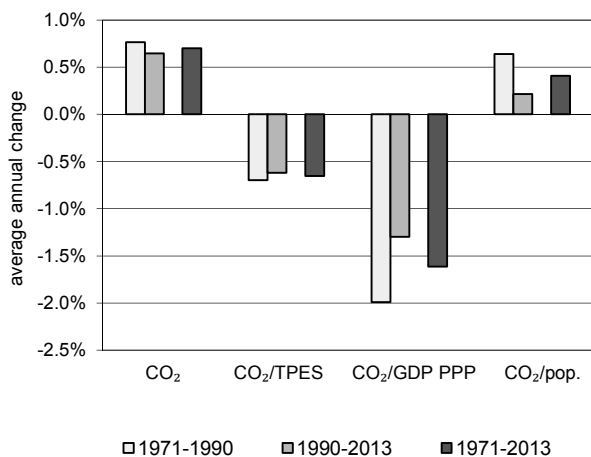
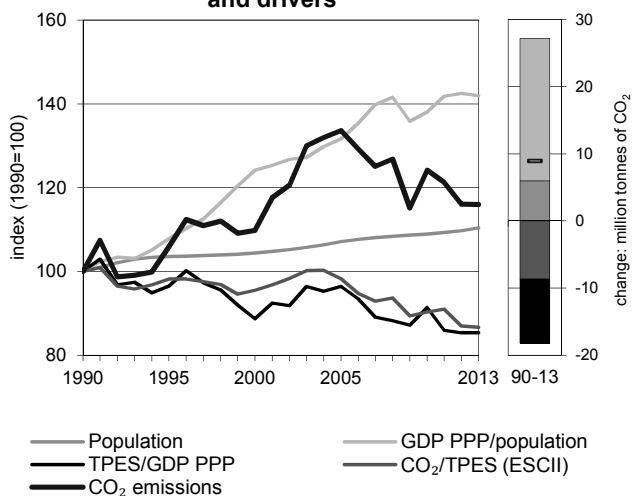


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Austria

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	56.16	59.42	61.68	75.06	69.72	65.19	65.13	16%
Share of World CO ₂ from fuel combustion	0.27%	0.28%	0.26%	0.28%	0.23%	0.21%	0.20%	
TPES (PJ)	1 040	1 120	1 195	1 414	1 429	1 387	1 391	34%
GDP (billion 2005 USD)	223.05	248.96	288.93	314.64	335.36	348.72	349.52	57%
GDP PPP (billion 2005 USD)	202.35	225.85	262.11	285.43	304.23	316.35	317.07	57%
Population (millions)	7.68	7.95	8.01	8.23	8.36	8.43	8.48	10%
CO ₂ / TPES (tCO ₂ per TJ)	54.0	53.0	51.6	53.1	48.8	47.0	46.8	-13%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.25	0.24	0.21	0.24	0.21	0.19	0.19	-26%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.28	0.26	0.24	0.26	0.23	0.21	0.21	-26%
CO ₂ / population (tCO ₂ per capita)	7.31	7.48	7.70	9.13	8.34	7.74	7.68	5%
Share of electricity output from fossil fuels	34%	29%	27%	37%	34%	25%	22%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	244	210	174	225	200	168	166	-32%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	106	110	134	124	116	116	16%
Population index	100	104	104	107	109	110	110	10%
GDP PPP per population index	100	108	124	132	138	142	142	42%
Energy intensity index - TPES / GDP PPP	100	97	89	96	91	85	85	-15%
Carbon intensity index - CO ₂ / TPES	100	98	96	98	90	87	87	-13%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	15.47	30.83	15.51	3.33	65.13	16%
Electricity and heat generation	7.81	0.81	4.08	1.89	14.59	2%
Other energy industry own use	5.63	1.21	0.70	-	7.54	28%
Manufacturing industries and construction	1.86	2.02	6.20	1.43	11.51	25%
Transport	-	22.18	0.64	-	22.82	67%
<i>of which: road</i>	-	21.94	0.02	-	21.97	67%
Other	0.18	4.60	3.89	0.00	8.67	-34%
<i>of which: residential</i>	0.16	3.74	2.93	-	6.84	-31%
<i>of which: services</i>	0.01	0.16	0.93	0.00	1.10	-43%
<i>Memo: international marine bunkers</i>	-	0.06	-	-	0.06	50%
<i>Memo: international aviation bunkers</i>	-	1.93	-	-	1.93	123%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	21.94	67.0%	25.5	25.5
Manufacturing industries - gas	6.20	61.7%	7.2	32.8
Other energy industry - coal	5.63	74.0%	6.5	39.3
Unallocated autoproducers - coal	4.40	179.7%	5.1	44.4
Residential - oil	3.74	-29.9%	4.4	48.8
Main activity prod. elec. and heat - coal	3.41	-42.8%	4.0	52.7
Main activity prod. elec. and heat - gas	3.39	2.7%	3.9	56.7
Residential - gas	2.93	63.4%	3.4	60.1
Manufacturing industries - oil	2.02	-5.8%	2.4	62.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>65.13</i>	<i>16.0%</i>	<i>75.8</i>	<i>75.8</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Azerbaijan

Figure 1. CO₂ emissions by fuel

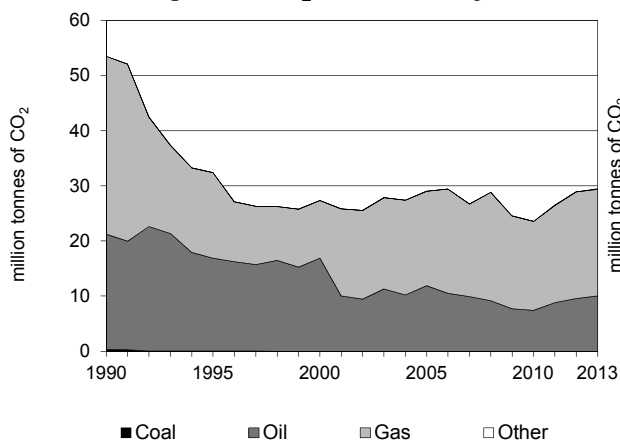


Figure 2. CO₂ emissions by sector

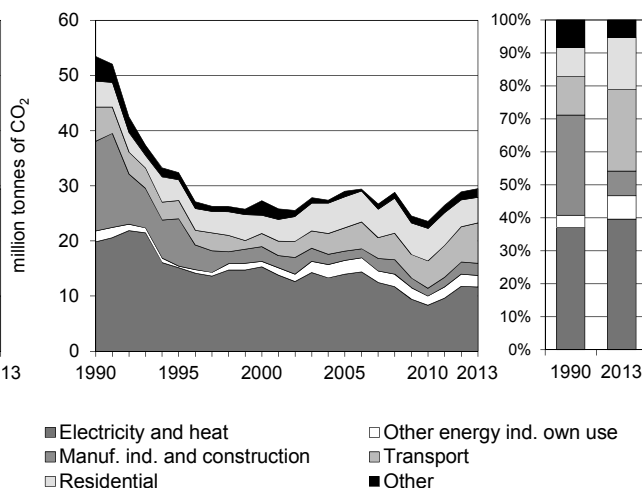


Figure 3. Electricity generation by fuel

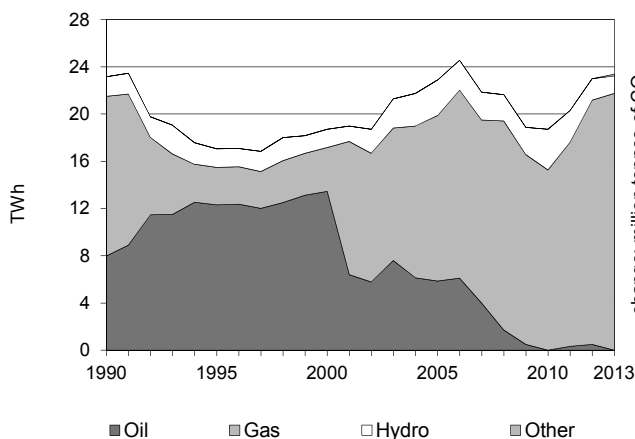


Figure 4. CO₂ from electricity generation: driving factors¹

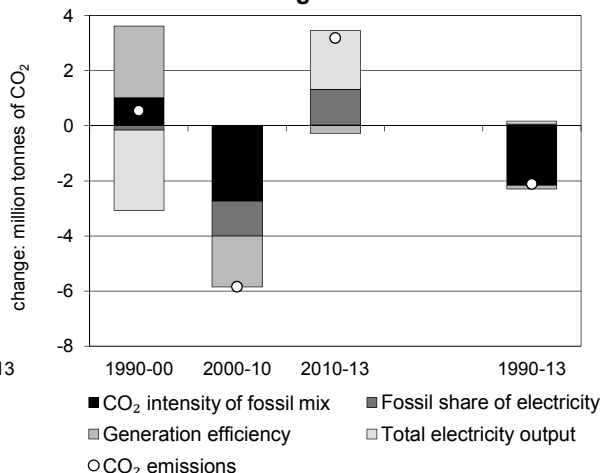


Figure 5. Changes in selected indicators

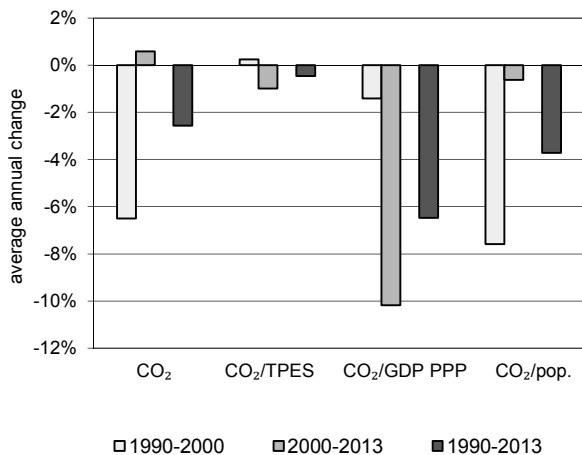
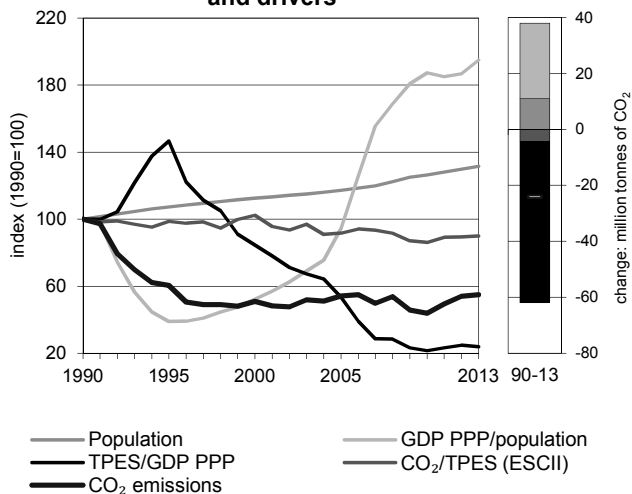


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Azerbaijan

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	53.47	32.36	27.30	29.01	23.53	28.89	29.45	-45%
Share of World CO ₂ from fuel combustion	0.26%	0.15%	0.12%	0.11%	0.08%	0.09%	0.09%	
TPES (PJ)	949	582	473	562	485	573	581	-39%
GDP (billion 2005 USD)	11.95	5.00	7.04	13.25	28.31	28.95	30.63	156%
GDP PPP (billion 2005 USD)	54.26	22.72	31.95	60.16	128.58	131.50	139.12	156%
Population (millions)	7.16	7.69	8.05	8.39	9.05	9.30	9.42	32%
CO ₂ / TPES (tCO ₂ per TJ)	56.4	55.6	57.7	51.6	48.5	50.4	50.7	-10%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	4.48	6.47	3.88	2.19	0.83	1.00	0.96	-79%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.99	1.42	0.85	0.48	0.18	0.22	0.21	-79%
CO ₂ / population (tCO ₂ per capita)	7.47	4.21	3.39	3.46	2.60	3.11	3.13	-58%
Share of electricity output from fossil fuels	93%	91%	92%	87%	82%	92%	93%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	579	702	746	540	433	496	483	-17%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	61	51	54	44	54	55	-45%
Population index	100	107	112	117	126	130	132	32%
GDP PPP per population index	100	39	52	95	187	187	195	95%
Energy intensity index - TPES / GDP PPP	100	147	85	53	22	25	24	-76%
Carbon intensity index - CO ₂ / TPES	100	99	102	92	86	89	90	-10%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	9.99	19.36	0.10	29.45	-45%
Electricity and heat generation	-	0.02	11.54	0.10	11.66	-41%
Other energy industry own use	-	1.22	0.88	-	2.10	6%
Manufacturing industries and construction	-	0.24	1.96	-	2.20	-86%
Transport	-	7.29	0.00	-	7.29	17%
<i>of which: road</i>	-	6.69	-	-	6.69	27%
Other	-	1.24	4.98	-	6.22	-32%
<i>of which: residential</i>	-	0.13	4.55	-	4.68	-1%
<i>of which: services</i>	-	0.03	0.34	-	0.37	63%
<i>Memo: international marine bunkers</i>	-	0.25	-	-	0.25	..
<i>Memo: international aviation bunkers</i>	-	1.17	-	-	1.17	12%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - gas	10.55	1.3%	22.2	22.2
Road - oil	6.69	30.5%	14.1	36.3
Residential - gas	4.55	-1.1%	9.6	45.9
Manufacturing industries - gas	1.96	-86.7%	4.1	50.1
Other energy industry own use - oil	1.22	-38.5%	2.6	52.6
Non-specified other - oil	1.10	-46.2%	2.3	54.9
Unallocated autoproducers - gas	1.00	x	2.1	57.0
Other energy industry own use - gas	0.88	x	1.9	58.9
Other transport - oil	0.60	-10.5%	1.3	60.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>29.45</i>	<i>-44.9%</i>	<i>62.1</i>	<i>62.1</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Bahrain

Figure 1. CO₂ emissions by fuel

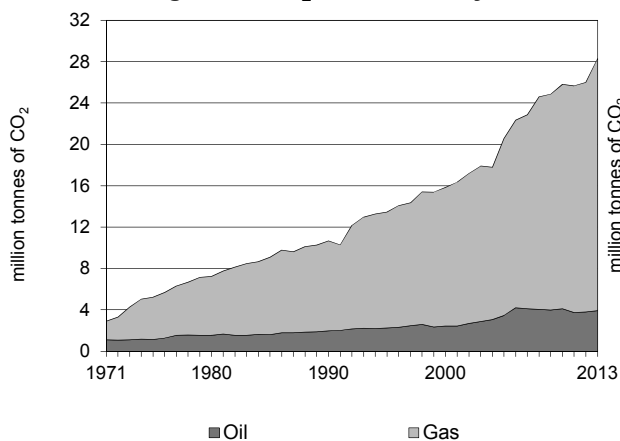


Figure 2. CO₂ emissions by sector

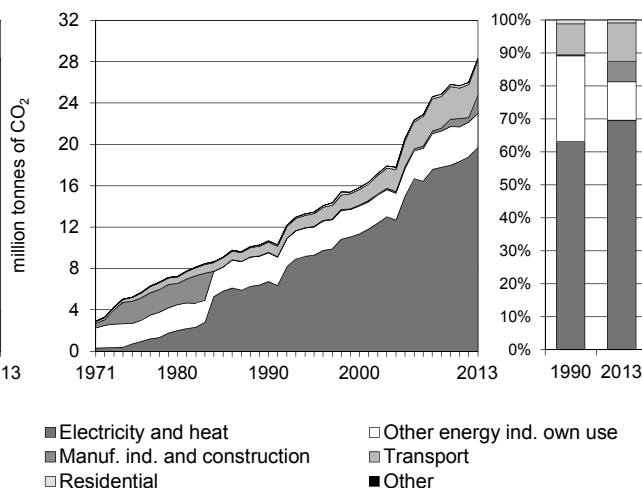


Figure 3. Electricity generation by fuel

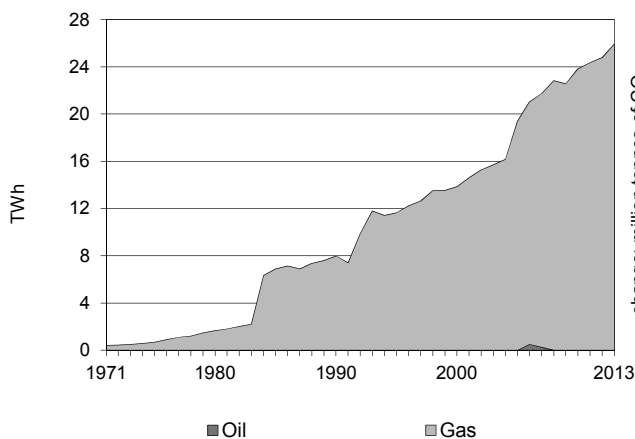


Figure 4. CO₂ from electricity generation: driving factors¹

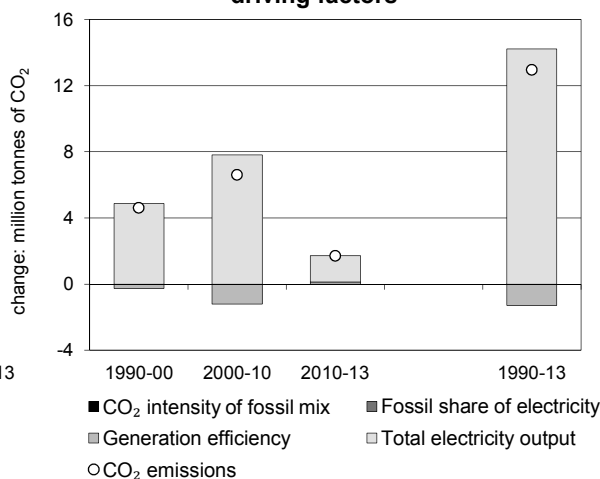


Figure 5. Changes in selected indicators

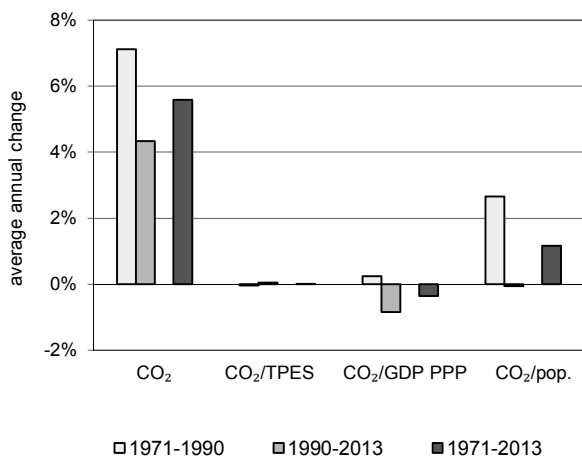
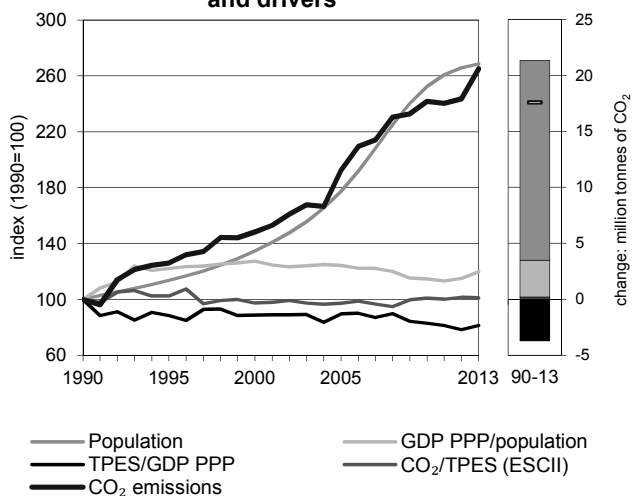


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Bahrain

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	10.68	13.45	15.84	20.56	25.81	26.01	28.30	165%
Share of World CO ₂ from fuel combustion	0.05%	0.06%	0.07%	0.08%	0.09%	0.08%	0.09%	
TPES (PJ)	219	269	334	434	526	526	575	162%
GDP (billion 2005 USD)	7.24	10.05	12.42	15.97	20.93	22.13	23.32	222%
GDP PPP (billion 2005 USD)	15.65	21.73	26.84	34.52	45.24	47.85	50.40	222%
Population (millions)	0.50	0.56	0.67	0.88	1.25	1.32	1.33	169%
CO ₂ / TPES (tCO ₂ per TJ)	48.7	50.0	47.5	47.4	49.1	49.5	49.2	1%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	1.47	1.34	1.28	1.29	1.23	1.17	1.21	-18%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.68	0.62	0.59	0.60	0.57	0.54	0.56	-18%
CO ₂ / population (tCO ₂ per capita)	21.53	23.85	23.71	23.36	20.62	19.73	21.24	-1%
Share of electricity output from fossil fuels	100%	100%	100%	100%	100%	100%	100%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	845	795	820	773	754	759	760	-10%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	126	148	193	242	244	265	165%
Population index	100	114	135	177	252	266	269	169%
GDP PPP per population index	100	122	127	124	115	115	120	20%
Energy intensity index - TPES / GDP PPP	100	88	89	90	83	78	81	-19%
Carbon intensity index - CO ₂ / TPES	100	103	97	97	101	102	101	1%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	3.93	24.37	-	28.30	165%
Electricity and heat generation	-	0.01	19.68	-	19.69	192%
Other energy industry own use	-	0.37	2.93	-	3.29	19%
Manufacturing industries and construction	-	-	1.76	-	1.76	+
Transport	-	3.30	-	-	3.30	230%
<i>of which: road</i>	-	3.15	-	-	3.15	215%
Other	-	0.25	-	-	0.25	101%
<i>of which: residential</i>	-	0.25	-	-	0.25	101%
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	0.26	-	-	0.26	2%
<i>Memo: international aviation bunkers</i>	-	1.26	-	-	1.26	-13%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - gas	12.17	227.5%	34.8	34.8
Unallocated autoproducers - gas	7.52	147.8%	21.5	56.2
Road - oil	3.15	215.4%	9.0	65.2
Other energy industry own use - gas	2.93	51.6%	8.4	73.6
Manufacturing industries - gas	1.76	+	5.0	78.6
Other energy industry own use - oil	0.37	-56.2%	1.1	79.7
Residential - oil	0.25	100.5%	0.7	80.4
Other transport - oil	0.14	x	0.4	80.8
Main activity prod. elec. and heat - oil	0.01	x	0.0	80.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>28.30</i>	<i>165.0%</i>	<i>80.8</i>	<i>80.8</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Bangladesh

Figure 1. CO₂ emissions by fuel

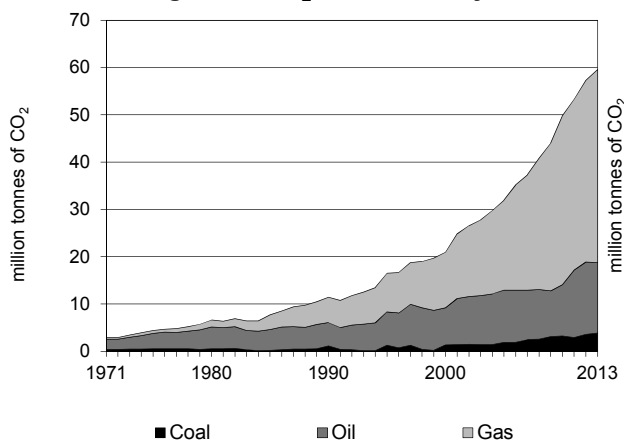


Figure 2. CO₂ emissions by sector

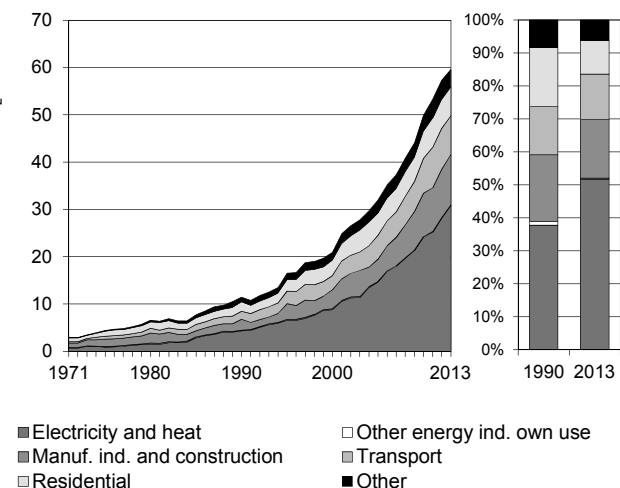


Figure 3. Electricity generation by fuel

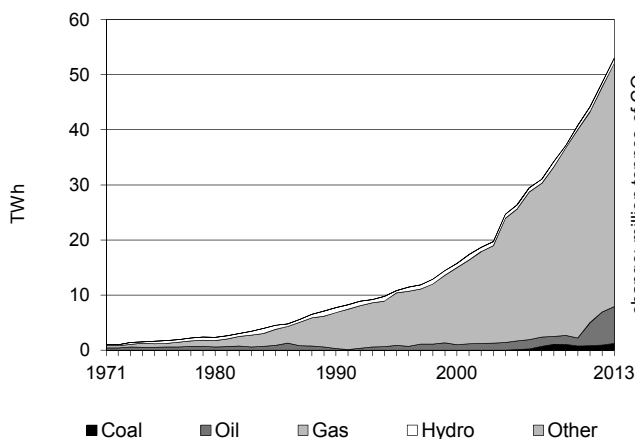


Figure 4. CO₂ from electricity generation: driving factors¹

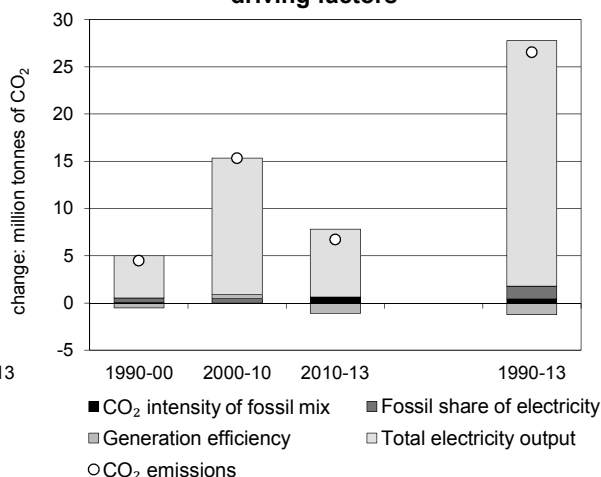


Figure 5. Changes in selected indicators

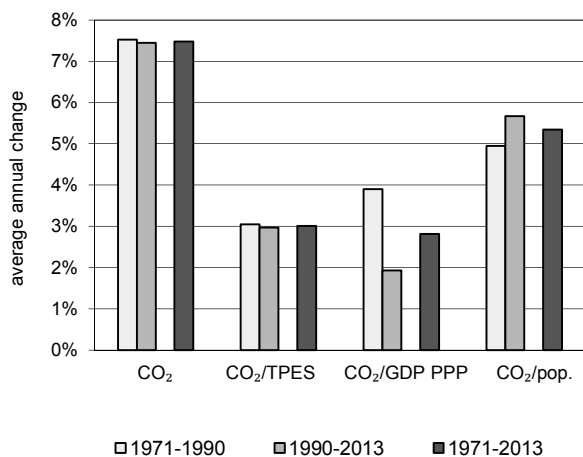
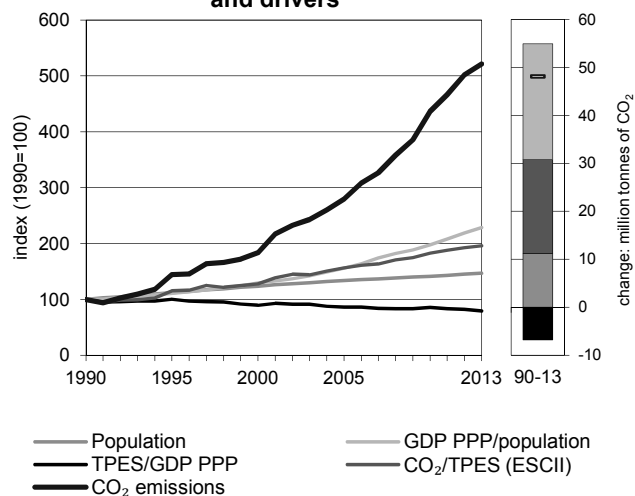


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Bangladesh

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	11.42	16.48	20.94	31.95	49.86	57.31	59.56	422%
Share of World CO ₂ from fuel combustion	0.06%	0.08%	0.09%	0.12%	0.17%	0.18%	0.19%	
TPES (PJ)	533	666	764	953	1 274	1 387	1 418	166%
GDP (billion 2005 USD)	28.95	35.89	46.27	60.28	80.90	91.75	97.26	236%
GDP PPP (billion 2005 USD)	118.43	146.82	189.25	246.56	330.90	375.27	397.83	236%
Population (millions)	107.00	120.00	132.00	143.00	151.00	155.00	157.00	47%
CO ₂ / TPES (tCO ₂ per TJ)	21.4	24.8	27.4	33.5	39.1	41.3	42.0	96%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.39	0.46	0.45	0.53	0.62	0.62	0.61	55%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.10	0.11	0.11	0.13	0.15	0.15	0.15	55%
CO ₂ / population (tCO ₂ per capita)	0.11	0.14	0.16	0.22	0.33	0.37	0.38	256%
Share of electricity output from fossil fuels	89%	97%	95%	97%	98%	98%	98%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	558	605	558	554	591	579	581	4%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	144	183	280	437	502	522	422%
Population index	100	112	123	134	141	145	147	47%
GDP PPP per population index	100	111	130	156	198	219	229	129%
Energy intensity index - TPES / GDP PPP	100	101	90	86	85	82	79	-21%
Carbon intensity index - CO ₂ / TPES	100	116	128	157	183	193	196	96%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	3.82	14.92	40.82	-	59.56	422%
Electricity and heat generation	1.24	3.94	25.66	-	30.84	615%
Other energy industry own use	-	0.14	-	-	0.14	4%
Manufacturing industries and construction	2.59	0.47	7.55	-	10.60	360%
Transport	-	6.08	2.15	-	8.22	393%
<i>of which: road</i>	-	4.19	2.15	-	6.34	427%
Other	-	4.29	5.47	-	9.76	226%
<i>of which: residential</i>	-	1.14	4.94	-	6.08	196%
<i>of which: services</i>	-	-	0.49	-	0.49	201%
<i>Memo: international marine bunkers</i>	-	0.30	-	-	0.30	386%
<i>Memo: international aviation bunkers</i>	-	1.01	-	-	1.01	270%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - gas	18.25	362.8%	8.7	8.7
Manufacturing industries - gas	7.55	912.2%	3.6	12.3
Unallocated autoproducers - gas	7.41	x	3.5	15.8
Residential - gas	4.94	828.7%	2.3	18.1
Road - oil	4.19	248.7%	2.0	20.1
Main activity prod. elec. and heat - oil	3.94	964.6%	1.9	22.0
Non-specified other - oil	3.15	304.5%	1.5	23.5
Manufacturing industries - coal	2.59	132.0%	1.2	24.7
Road - gas	2.15	x	1.0	25.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>59.56</i>	<i>421.6%</i>	<i>28.3</i>	<i>28.3</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Belarus

Figure 1. CO₂ emissions by fuel

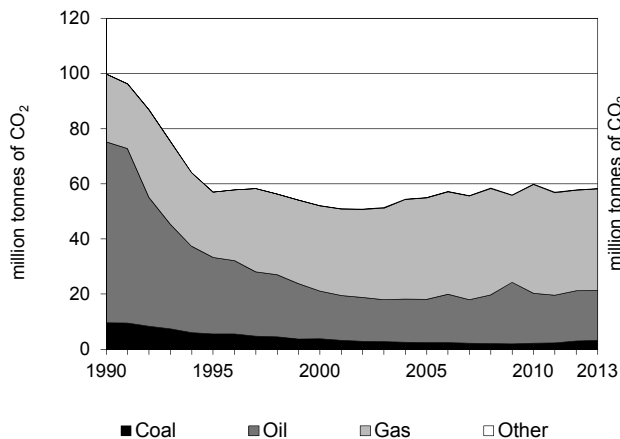


Figure 2. CO₂ emissions by sector

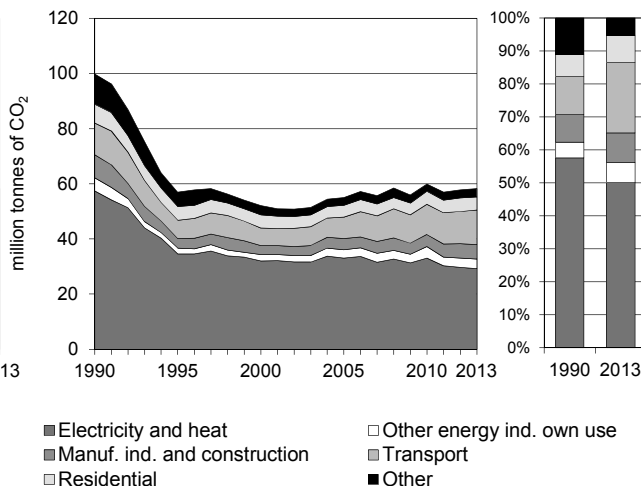


Figure 3. Electricity generation by fuel

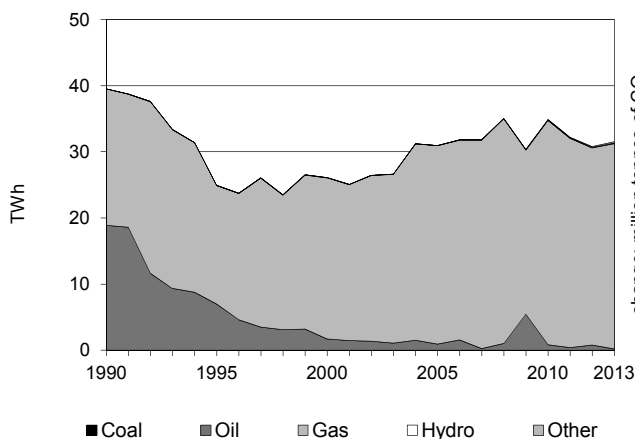


Figure 4. CO₂ from electricity generation: driving factors¹

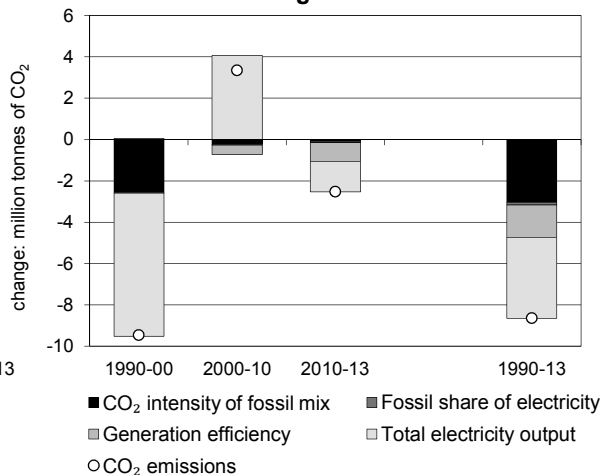


Figure 5. Changes in selected indicators

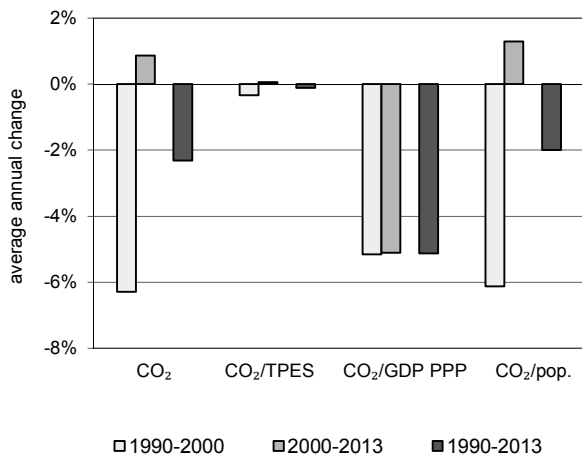
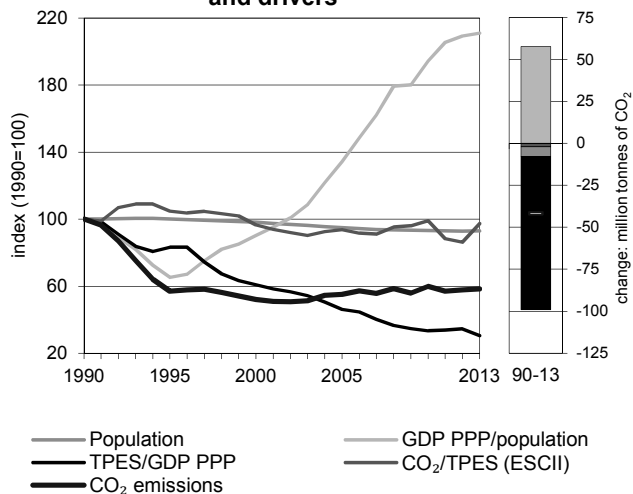


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Belarus

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	99.82	56.94	52.11	55.01	59.86	57.78	58.25	-42%
Share of World CO ₂ from fuel combustion	0.48%	0.27%	0.22%	0.20%	0.20%	0.18%	0.18%	
TPES (PJ)	1 905	1 036	1 029	1 120	1 152	1 277	1 142	-40%
GDP (billion 2005 USD)	23.73	15.49	21.04	30.21	42.93	46.10	46.51	96%
GDP PPP (billion 2005 USD)	73.33	47.88	65.02	93.36	132.68	142.46	143.73	96%
Population (millions)	10.19	10.19	10.01	9.66	9.49	9.46	9.47	-7%
CO ₂ / TPES (tCO ₂ per TJ)	52.4	55.0	50.7	49.1	52.0	45.3	51.0	-3%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	4.21	3.67	2.48	1.82	1.39	1.25	1.25	-70%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	1.36	1.19	0.80	0.59	0.45	0.41	0.41	-70%
CO ₂ / population (tCO ₂ per capita)	9.80	5.59	5.21	5.69	6.31	6.11	6.15	-37%
Share of electricity output from fossil fuels	100%	100%	100%	100%	100%	99%	99%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	553	503	474	461	451	427	419	-24%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	57	52	55	60	58	58	-42%
Population index	100	100	98	95	93	93	93	-7%
GDP PPP per population index	100	65	90	134	194	209	211	111%
Energy intensity index - TPES / GDP PPP	100	83	61	46	33	35	31	-69%
Carbon intensity index - CO ₂ / TPES	100	105	97	94	99	86	97	-3%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	3.21	18.10	36.79	0.15	58.25	-42%
Electricity and heat generation	0.54	0.57	27.96	0.12	29.19	-49%
Other energy industry own use	0.05	2.93	0.52	-	3.50	-27%
Manufacturing industries and construction	1.52	0.61	3.10	0.03	5.26	-37%
Transport	0.04	11.26	1.16	-	12.46	8%
<i>of which: road</i>	-	10.54	0.02	-	10.56	11%
Other	1.06	2.73	4.05	-	7.84	-56%
<i>of which: residential</i>	0.85	0.26	3.66	-	4.77	-30%
<i>of which: services</i>	0.19	0.35	0.13	-	0.68	-90%
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.31	-	-	0.31	x

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - gas	23.18	40.5%	23.3	23.3
Road - oil	10.54	12.6%	10.6	33.9
Unallocated autoproducers - gas	4.78	117.0%	4.8	38.7
Residential - gas	3.66	111.4%	3.7	42.4
Manufacturing industries - gas	3.10	29.3%	3.1	45.5
Other energy industry own use - oil	2.93	-33.8%	2.9	48.4
Non-specified other - oil	2.47	-66.9%	2.5	50.9
Manufacturing industries - coal	1.52	394.6%	1.5	52.4
Other transport - gas	1.14	370.3%	1.1	53.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>58.25</i>	<i>-41.6%</i>	<i>58.5</i>	<i>58.5</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Belgium

Figure 1. CO₂ emissions by fuel

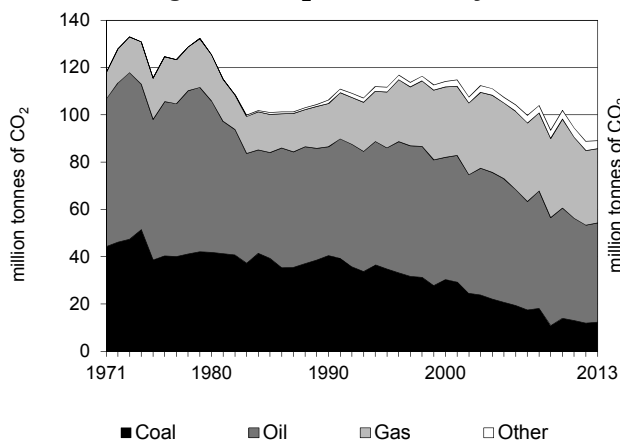


Figure 2. CO₂ emissions by sector

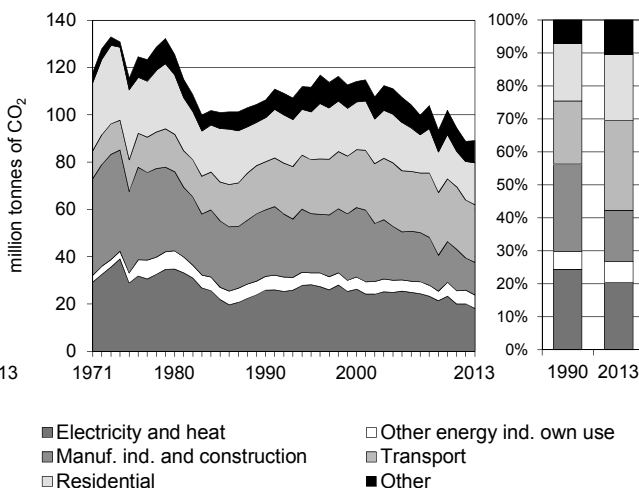


Figure 3. Electricity generation by fuel

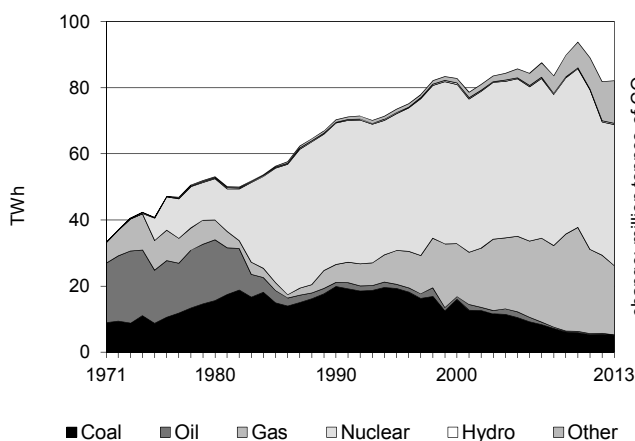


Figure 4. CO₂ from electricity generation: driving factors¹

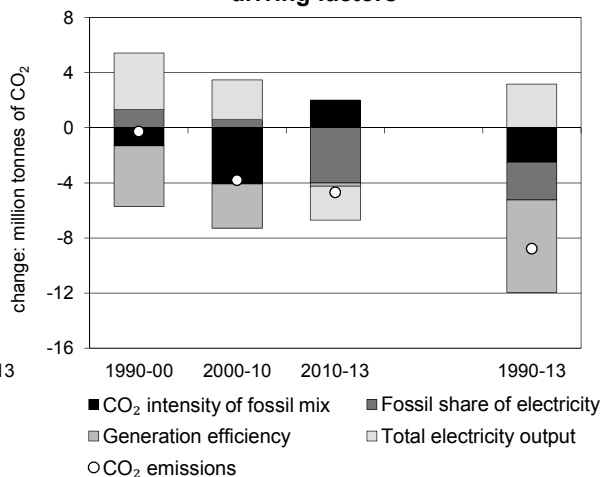


Figure 5. Changes in selected indicators

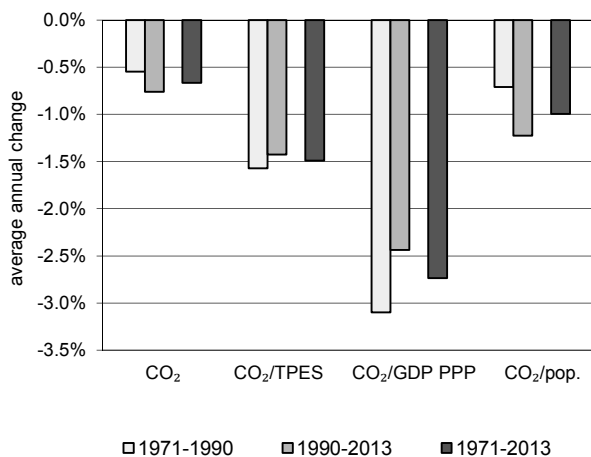
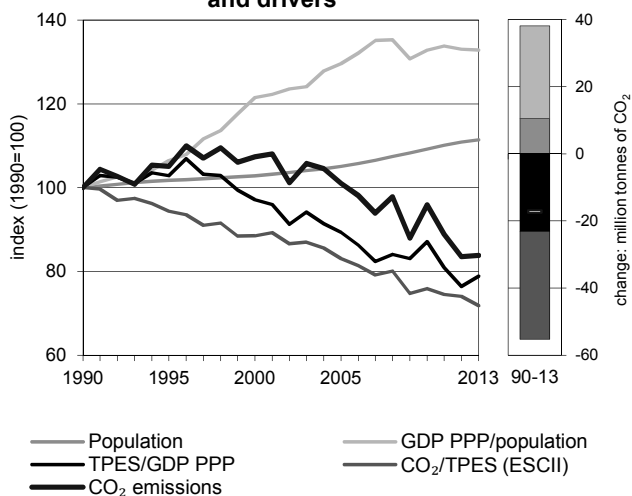


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Belgium

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	106.25	111.63	114.08	107.35	101.89	88.74	89.11	-16%
Share of World CO ₂ from fuel combustion	0.52%	0.52%	0.49%	0.40%	0.34%	0.28%	0.28%	
TPES (PJ)	2 022	2 251	2 452	2 460	2 554	2 278	2 359	17%
GDP (billion 2005 USD)	284.24	307.61	355.04	386.95	412.18	419.24	420.46	48%
GDP PPP (billion 2005 USD)	254.07	274.96	317.35	345.88	368.43	374.74	375.84	48%
Population (millions)	9.97	10.14	10.25	10.47	10.88	11.05	11.11	11%
CO ₂ / TPES (tCO ₂ per TJ)	52.6	49.6	46.5	43.6	39.9	38.9	37.8	-28%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.37	0.36	0.32	0.28	0.25	0.21	0.21	-43%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.42	0.41	0.36	0.31	0.28	0.24	0.24	-43%
CO ₂ / population (tCO ₂ per capita)	10.66	11.01	11.13	10.25	9.36	8.03	8.02	-25%
Share of electricity output from fossil fuels	38%	43%	41%	42%	42%	38%	34%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	358	373	300	283	225	221	199	-44%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	105	107	101	96	84	84	-16%
Population index	100	102	103	105	109	111	111	11%
GDP PPP per population index	100	106	122	130	133	133	133	33%
Energy intensity index - TPES / GDP PPP	100	103	97	89	87	76	79	-21%
Carbon intensity index - CO ₂ / TPES	100	94	89	83	76	74	72	-28%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	12.28	41.93	31.53	3.37	89.11	-16%
Electricity and heat generation	7.30	0.07	8.25	2.52	18.13	-30%
Other energy industry own use	1.72	3.24	0.70	-	5.66	-2%
Manufacturing industries and construction	2.78	1.42	8.79	0.86	13.85	-51%
Transport	-	24.23	0.11	-	24.34	20%
<i>of which: road</i>	-	23.57	0.00	-	23.57	21%
Other	0.48	12.96	13.69	-	27.14	4%
<i>of which: residential</i>	0.45	8.65	8.71	-	17.81	-4%
<i>of which: services</i>	-	2.91	4.45	-	7.36	23%
<i>Memo: international marine bunkers</i>	-	19.87	-	-	19.87	52%
<i>Memo: international aviation bunkers</i>	-	3.81	-	-	3.81	34%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	23.57	21.1%	19.4	19.4
Manufacturing industries - gas	8.79	29.9%	7.2	26.6
Residential - gas	8.71	49.3%	7.2	33.8
Residential - oil	8.65	-19.2%	7.1	40.9
Main activity prod. elec. and heat - gas	7.36	170.9%	6.1	46.9
Main activity prod. elec. and heat - coal	7.08	-61.6%	5.8	52.7
Non-specified other - gas	4.98	105.1%	4.1	56.8
Non-specified other - oil	4.31	-15.0%	3.5	60.4
Other energy industry own use - oil	3.24	-16.4%	2.7	63.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>89.11</i>	<i>-16.1%</i>	<i>73.3</i>	<i>73.3</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Benin

Figure 1. CO₂ emissions by fuel

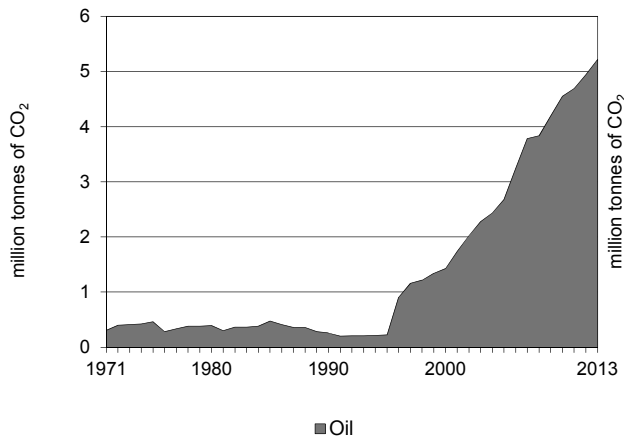


Figure 2. CO₂ emissions by sector

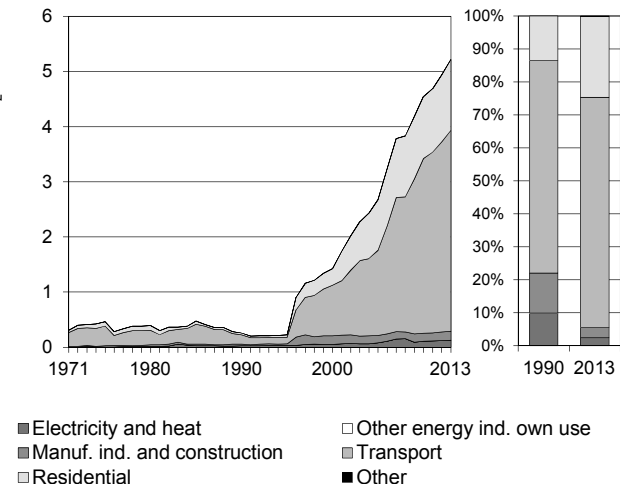


Figure 3. Electricity generation by fuel

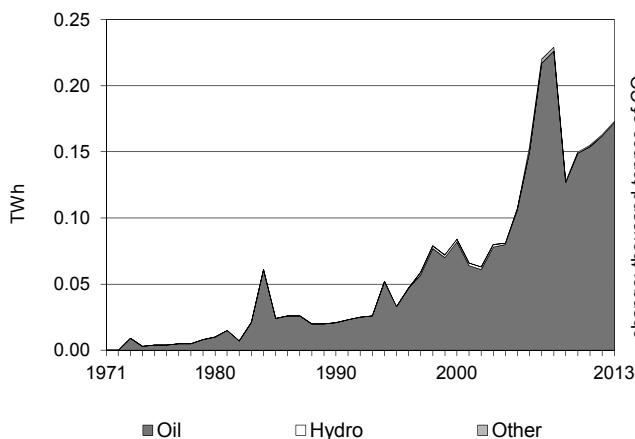


Figure 4. CO₂ from electricity generation: driving factors¹

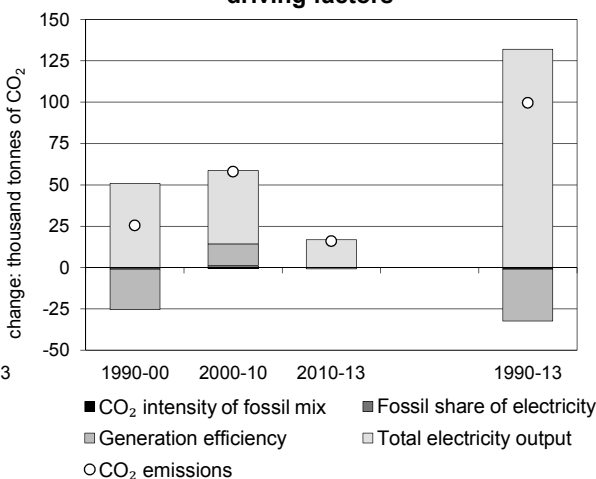


Figure 5. Changes in selected indicators

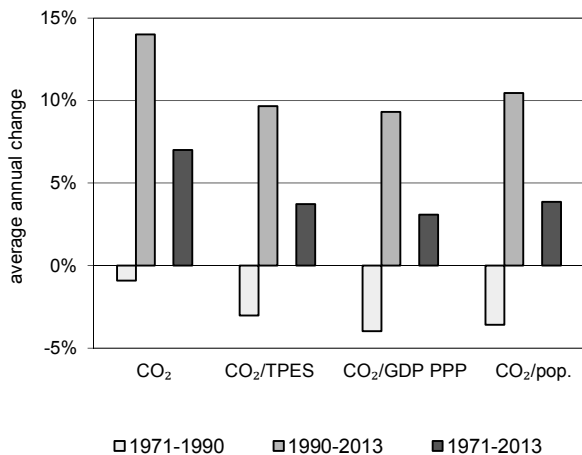
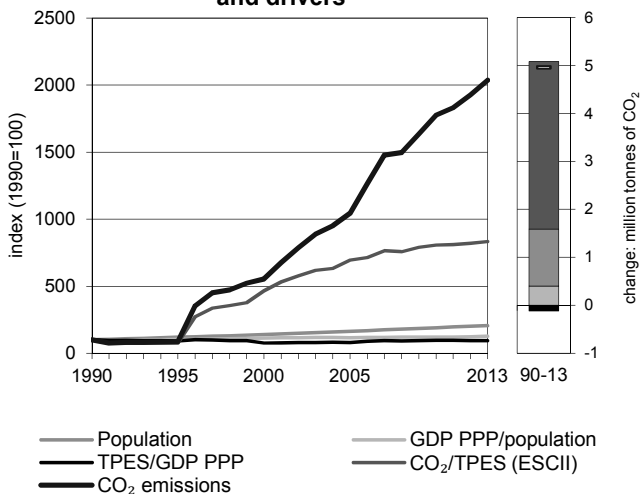


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Benin

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	0.26	0.22	1.42	2.68	4.55	4.94	5.22	+
Share of World CO ₂ from fuel combustion	0.00%	0.00%	0.01%	0.01%	0.02%	0.02%	0.02%	
TPES (PJ)	70	77	83	105	153	163	170	144%
GDP (billion 2005 USD)	2.29	2.81	3.57	4.36	5.23	5.70	6.02	163%
GDP PPP (billion 2005 USD)	6.06	7.45	9.44	11.54	13.86	15.08	15.93	163%
Population (millions)	5.00	5.99	6.95	8.18	9.51	10.05	10.32	106%
CO ₂ / TPES (tCO ₂ per TJ)	3.7	2.9	17.2	25.6	29.7	30.2	30.7	733%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.11	0.08	0.40	0.61	0.87	0.87	0.87	675%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.04	0.03	0.15	0.23	0.33	0.33	0.33	674%
CO ₂ / population (tCO ₂ per capita)	0.05	0.04	0.20	0.33	0.48	0.49	0.51	885%
Share of electricity output from fossil fuels	100%	100%	98%	99%	99%	99%	99%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	1212	960	607	717	727	728	723	-40%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	86	556	1044	1775	1927	2035	1935%
Population index	100	120	139	164	190	201	206	106%
GDP PPP per population index	100	103	112	116	120	124	127	27%
Energy intensity index - TPES / GDP PPP	100	90	77	79	96	95	93	-7%
Carbon intensity index - CO ₂ / TPES	100	78	466	694	807	820	833	733%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	5.22	-	-	5.22	+
Electricity and heat generation	-	0.13	-	-	0.13	391%
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.16	-	-	0.16	421%
Transport	-	3.64	-	-	3.64	+
<i>of which: road</i>	-	3.64	-	-	3.64	+
Other	-	1.29	-	-	1.29	+
<i>of which: residential</i>	-	1.28	-	-	1.28	+
<i>of which: services</i>	-	0.01	-	-	0.01	x
<i>Memo: international marine bunkers</i>	-	..	-	-
<i>Memo: international aviation bunkers</i>	-	0.55	-	-	0.55	969%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	3.64	+	20.0	20.0
Residential - oil	1.28	+	7.1	27.1
Manufacturing industries - oil	0.16	420.6%	0.9	28.0
Main activity prod. elec. and heat - oil	0.11	315.7%	0.6	28.5
Unallocated autoproducers - oil	0.02	x	0.1	28.6
Non-specified other - oil	0.01	x	0.0	28.7
Other transport - oil	0.00	x	0.0	28.7
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	5.22	+	28.7	28.7

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Plurinational State of Bolivia

Figure 1. CO₂ emissions by fuel

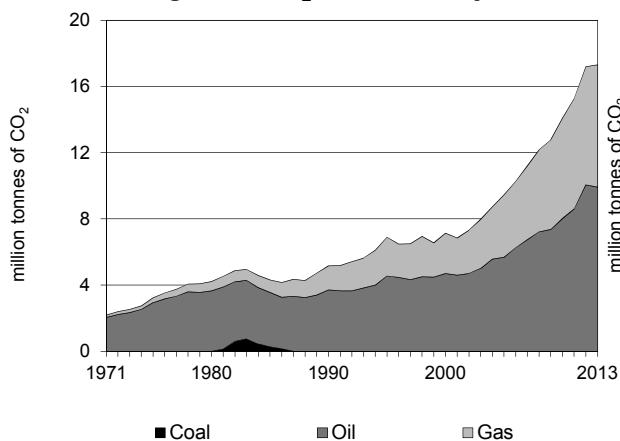


Figure 2. CO₂ emissions by sector

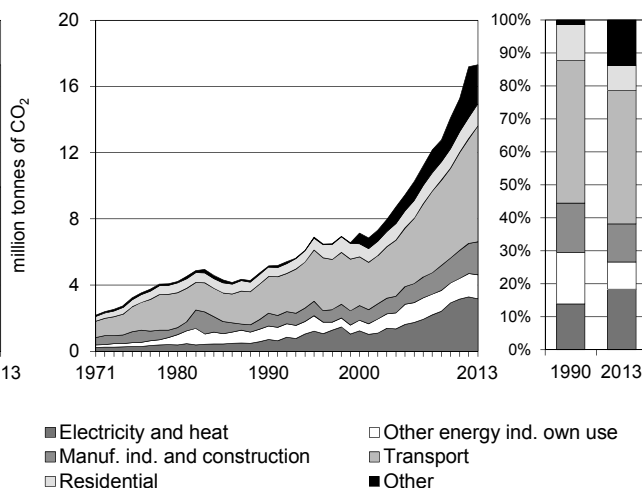


Figure 3. Electricity generation by fuel

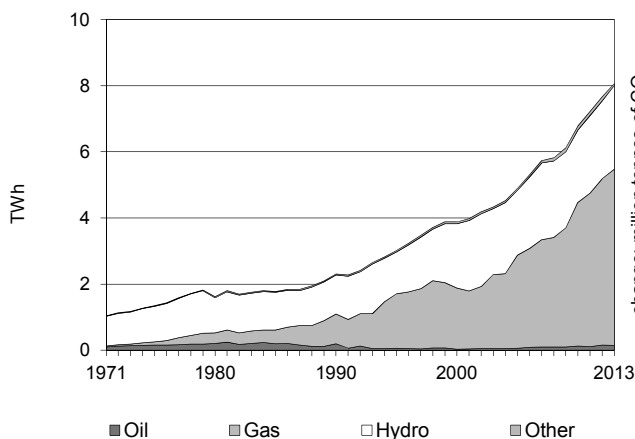


Figure 4. CO₂ from electricity generation: driving factors¹

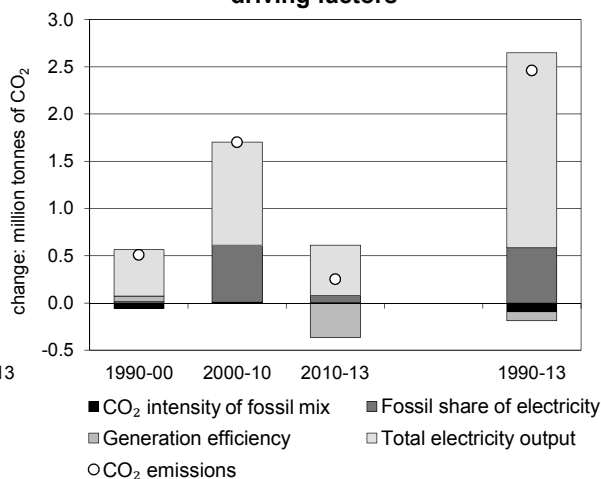


Figure 5. Changes in selected indicators

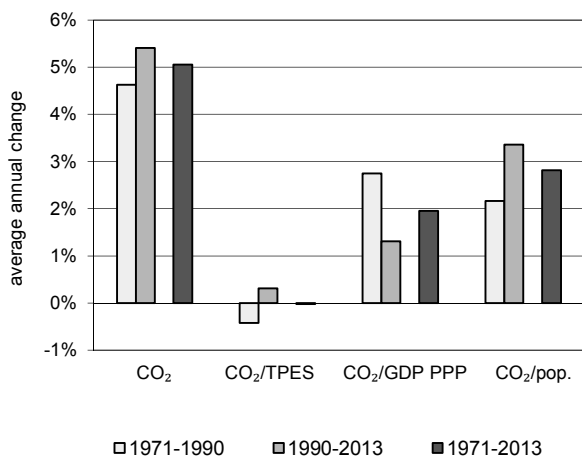
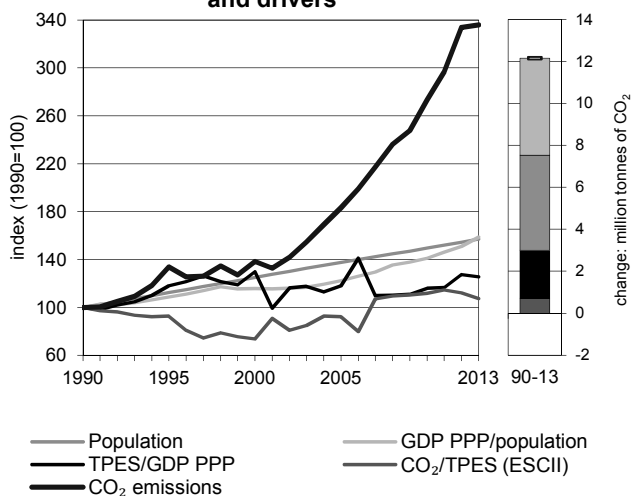


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Plurinational State of Bolivia

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	5.15	6.89	7.13	9.45	14.09	17.20	17.31	236%
Share of World CO ₂ from fuel combustion	0.02%	0.03%	0.03%	0.03%	0.05%	0.05%	0.05%	
TPES (PJ)	109	158	205	218	268	325	342	213%
GDP (billion 2005 USD)	5.67	6.93	8.20	9.55	11.95	13.22	14.12	149%
GDP PPP (billion 2005 USD)	22.62	27.65	32.75	38.13	47.74	52.80	56.38	149%
Population (millions)	6.79	7.64	8.50	9.36	10.16	10.50	10.67	57%
CO ₂ / TPES (tCO ₂ per TJ)	47.1	43.7	34.7	43.4	52.6	52.9	50.6	7%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.91	1.00	0.87	0.99	1.18	1.30	1.23	35%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.23	0.25	0.22	0.25	0.30	0.33	0.31	35%
CO ₂ / population (tCO ₂ per capita)	0.76	0.90	0.84	1.01	1.39	1.64	1.62	114%
Share of electricity output from fossil fuels	48%	57%	48%	59%	66%	68%	68%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	310	402	315	331	432	429	394	27%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	134	138	183	273	334	336	236%
Population index	100	112	125	138	150	154	157	57%
GDP PPP per population index	100	109	116	122	141	151	159	59%
Energy intensity index - TPES / GDP PPP	100	118	130	118	116	127	126	26%
Carbon intensity index - CO ₂ / TPES	100	93	74	92	112	112	107	7%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

million tonnes of CO ₂	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	9.93	7.38	-	17.31	236%
Electricity and heat generation	-	0.14	3.03	-	3.18	344%
Other energy industry own use	-	0.31	1.13	-	1.44	78%
Manufacturing industries and construction	-	0.31	1.70	-	2.00	160%
Transport	-	5.74	1.26	-	7.00	214%
<i>of which: road</i>	-	5.41	1.26	-	6.67	256%
Other	-	3.43	0.27	-	3.70	480%
<i>of which: residential</i>	-	1.15	0.18	-	1.33	132%
<i>of which: services</i>	-	0.01	0.09	-	0.10	x
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.17	-	-	0.17	x

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	5.41	188.7%	10.2	10.2
Main activity prod. elec. and heat - gas	3.03	476.4%	5.7	15.9
Non-specified other - oil	2.28	+	4.3	20.2
Manufacturing industries - gas	1.70	337.2%	3.2	23.4
Road - gas	1.26	x	2.4	25.8
Residential - oil	1.15	100.4%	2.2	27.9
Other energy industry own use - gas	1.13	109.5%	2.1	30.1
Other transport - oil	0.33	-7.4%	0.6	30.7
Other energy industry own use - oil	0.31	15.9%	0.6	31.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>17.31</i>	<i>235.9%</i>	<i>32.6</i>	<i>32.6</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Bosnia and Herzegovina

Figure 1. CO₂ emissions by fuel

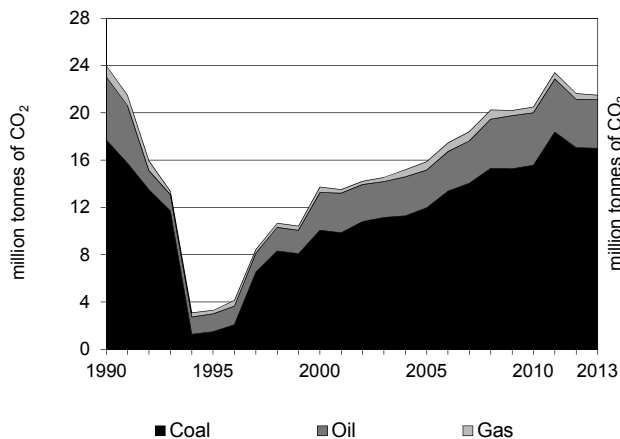


Figure 2. CO₂ emissions by sector

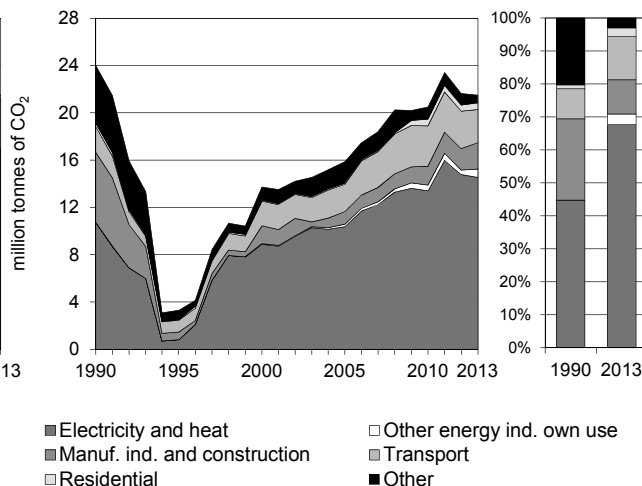


Figure 3. Electricity generation by fuel

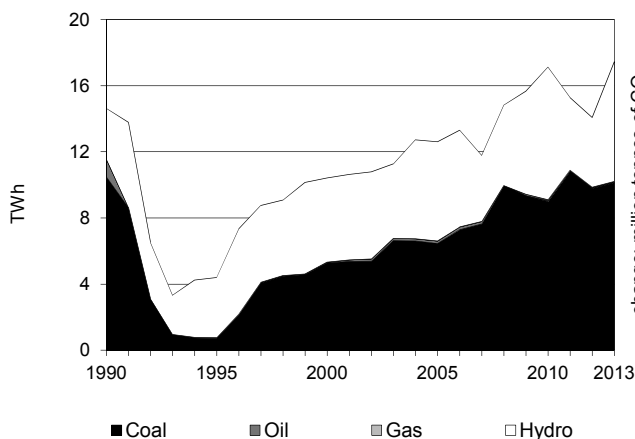


Figure 4. CO₂ from electricity generation: driving factors¹

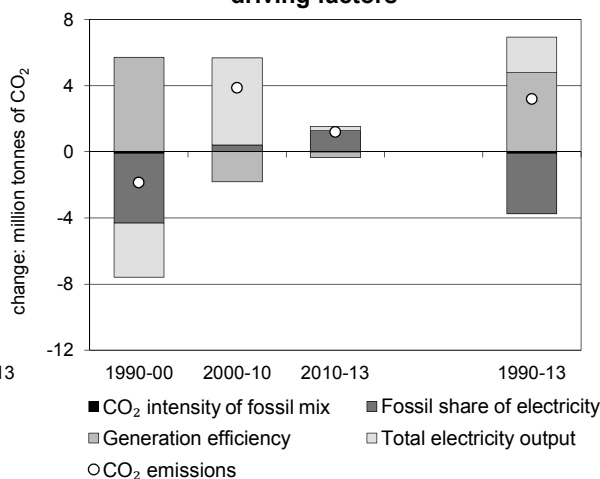


Figure 5. Changes in selected indicators

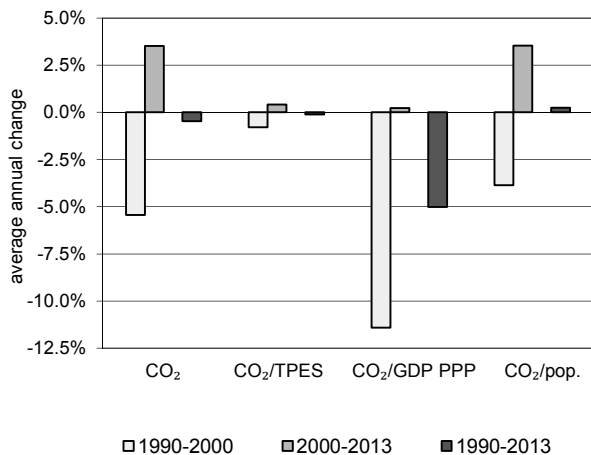
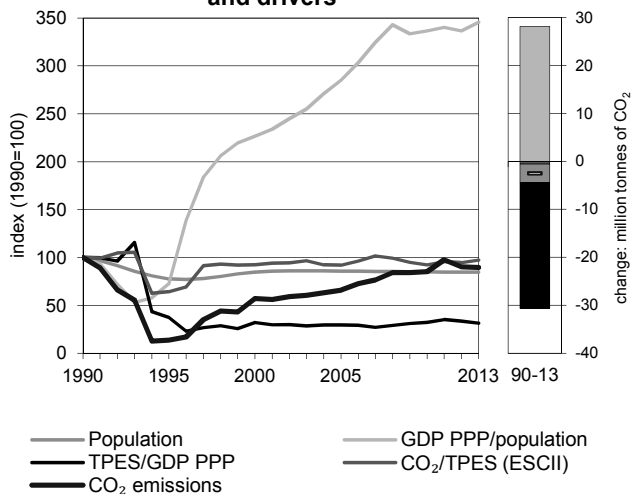


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Bosnia and Herzegovina

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	24.00	3.28	13.72	15.86	20.49	21.65	21.50	-10%
Share of World CO ₂ from fuel combustion	0.12%	0.02%	0.06%	0.06%	0.07%	0.07%	0.07%	
TPES (PJ)	294	63	182	211	271	280	270	-8%
GDP (billion 2005 USD)	4.46	2.52	8.56	10.90	12.75	12.72	13.03	192%
GDP PPP (billion 2005 USD)	9.77	5.52	18.75	23.88	27.92	27.85	28.54	192%
Population (millions)	4.53	3.52	3.83	3.88	3.85	3.83	3.83	-15%
CO ₂ / TPES (tCO ₂ per TJ)	81.7	52.5	75.4	75.2	75.5	77.4	79.6	-3%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	5.38	1.30	1.60	1.45	1.61	1.70	1.65	-69%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	2.46	0.59	0.73	0.66	0.73	0.78	0.75	-69%
CO ₂ / population (tCO ₂ per capita)	5.30	0.93	3.58	4.09	5.33	5.65	5.62	6%
Share of electricity output from fossil fuels	79%	17%	51%	52%	53%	70%	59%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	726	180	841	813	737	994	792	9%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	14	57	66	85	90	90	-10%
Population index	100	78	85	86	85	85	85	-15%
GDP PPP per population index	100	73	227	285	336	337	345	245%
Energy intensity index - TPES / GDP PPP	100	38	32	29	32	33	31	-69%
Carbon intensity index - CO ₂ / TPES	100	64	92	92	92	95	97	-3%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

million tonnes of CO ₂	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	17.01	4.12	0.38	-	21.50	-10%
Electricity and heat generation	14.30	0.13	0.12	-	14.54	35%
Other energy industry own use	0.26	0.44	-	-	0.71	x
Manufacturing industries and construction	1.81	0.28	0.13	-	2.23	-62%
Transport	-	2.82	-	-	2.82	29%
<i>of which: road</i>	-	2.82	-	-	2.82	29%
Other	0.63	0.45	0.13	-	1.21	-77%
<i>of which: residential</i>	0.25	0.24	0.08	-	0.56	91%
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.01	-	-	0.01	-88%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	13.25	37.9%	46.9	46.9
Road - oil	2.82	28.6%	10.0	56.9
Manufacturing industries - coal	1.81	-44.0%	6.4	63.3
Unallocated autoproducers - coal	1.05	x	3.7	67.1
Other energy industry own use - oil	0.44	x	1.6	68.6
Non-specified other sectors - coal	0.39	-92.1%	1.4	70.0
Manufacturing industries - oil	0.28	-85.3%	1.0	71.0
Other energy industry - coal	0.26	x	0.9	71.9
Residential - coal	0.25	x	0.9	72.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>21.50</i>	<i>-10.4%</i>	<i>76.2</i>	<i>76.2</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Botswana

Figure 1. CO₂ emissions by fuel

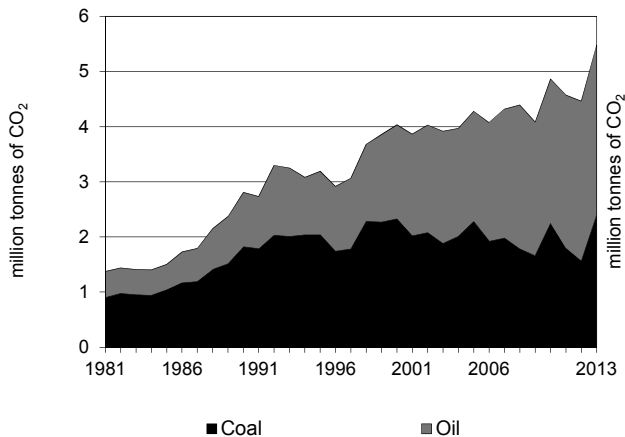


Figure 2. CO₂ emissions by sector

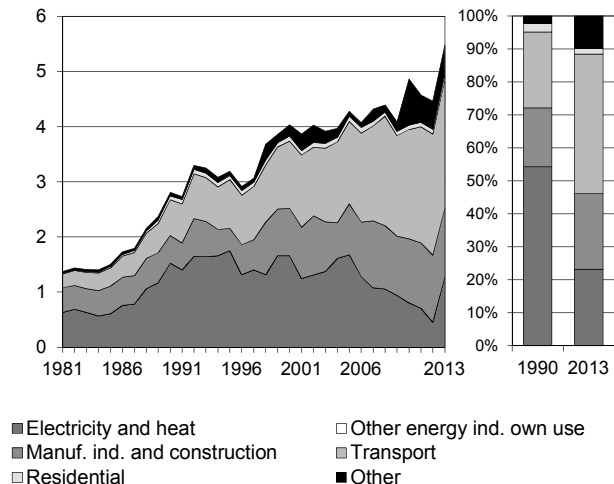


Figure 3. Electricity generation by fuel

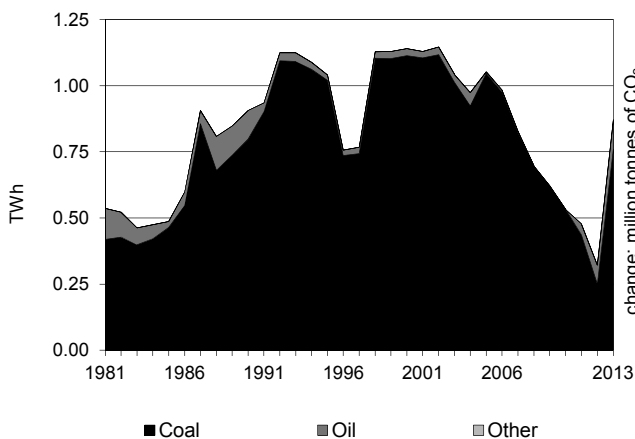


Figure 4. CO₂ from electricity generation: driving factors¹

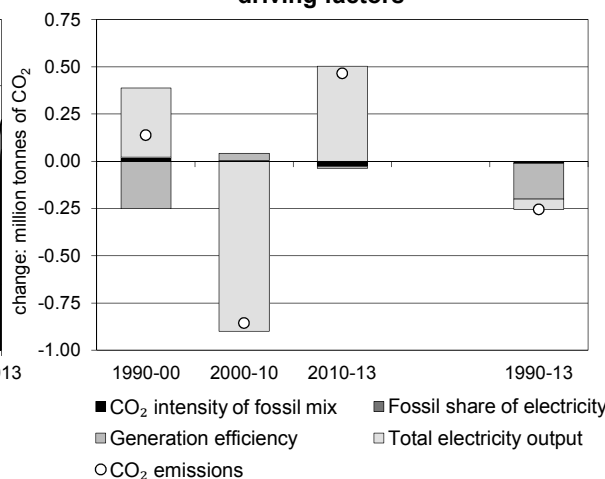


Figure 5. Changes in selected indicators

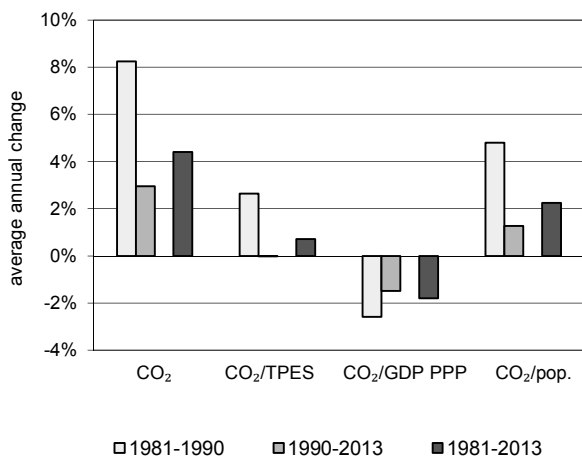
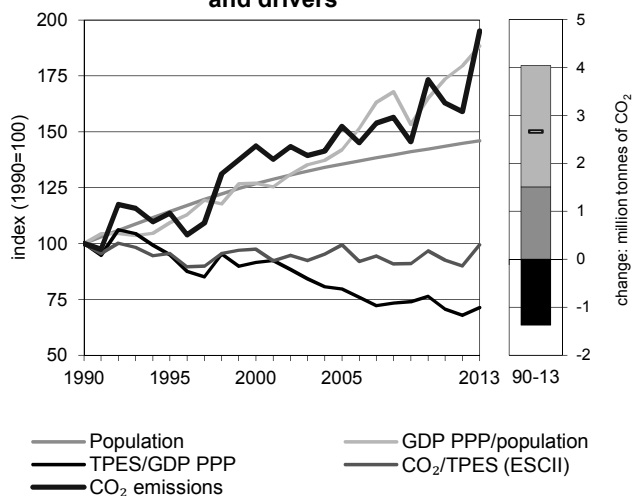


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Botswana

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	2.81	3.19	4.03	4.28	4.87	4.46	5.48	95%
Share of World CO ₂ from fuel combustion	0.01%	0.01%	0.02%	0.02%	0.02%	0.01%	0.02%	
TPES (PJ)	51	61	75	78	91	90	100	96%
GDP (billion 2005 USD)	5.16	6.45	8.31	9.93	12.12	13.42	14.20	175%
GDP PPP (billion 2005 USD)	9.97	12.47	16.06	19.18	23.41	25.93	27.44	175%
Population (millions)	1.38	1.58	1.76	1.88	1.97	2.00	2.02	46%
CO ₂ / TPES (tCO ₂ per TJ)	55.0	52.6	53.7	54.7	53.2	49.6	54.7	-1%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.54	0.49	0.49	0.43	0.40	0.33	0.39	-29%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.28	0.26	0.25	0.22	0.21	0.17	0.20	-29%
CO ₂ / population (tCO ₂ per capita)	2.03	2.01	2.30	2.28	2.47	2.23	2.71	34%
Share of electricity output from fossil fuels	100%	100%	100%	100%	100%	100%	100%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	1681	1681	1457	1595	1511	1411	1456	-13%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	114	144	152	173	159	195	95%
Population index	100	114	127	136	142	145	146	46%
GDP PPP per population index	100	109	127	142	165	180	188	88%
Energy intensity index - TPES / GDP PPP	100	95	92	80	76	68	71	-29%
Carbon intensity index - CO ₂ / TPES	100	96	98	99	97	90	99	-1%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	2.40	3.08	-	-	5.48	95%
Electricity and heat generation	1.15	0.12	-	-	1.27	-17%
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	0.82	0.44	-	-	1.26	151%
Transport	-	2.32	-	-	2.32	258%
<i>of which: road</i>	-	2.29	-	-	2.29	277%
Other	0.43	0.20	-	-	0.63	366%
<i>of which: residential</i>	-	0.09	-	-	0.09	24%
<i>of which: services</i>	0.00	0.07	-	-	0.07	136%
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.06	-	-	0.06	73%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	2.29	277.0%	17.8	17.8
Main activity prod. elec. and heat - coal	1.15	5.3%	9.0	26.8
Manufacturing industries - coal	0.82	103.3%	6.4	33.2
Manufacturing industries - oil	0.44	343.6%	3.4	36.6
Non-specified other sectors - coal	0.43	+	3.4	40.0
Main activity prod. elec. and heat - oil	0.12	-0.3%	0.9	40.9
Non-specified other - oil	0.11	86.0%	0.8	41.8
Residential - oil	0.09	41.0%	0.7	42.5
Other transport - oil	0.04	-15.4%	0.3	42.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>5.48</i>	<i>95.1%</i>	<i>42.8</i>	<i>42.8</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Brazil

Figure 1. CO₂ emissions by fuel

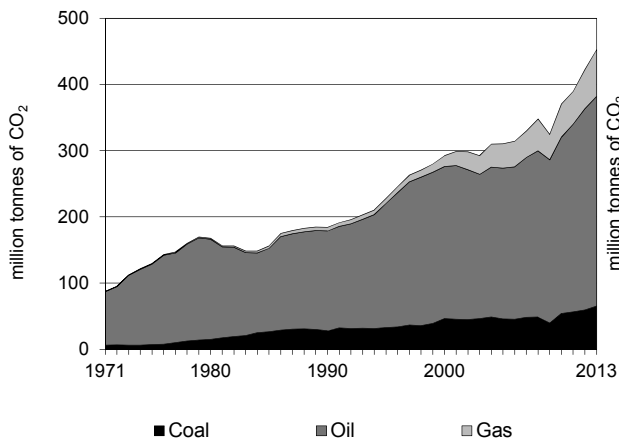


Figure 2. CO₂ emissions by sector

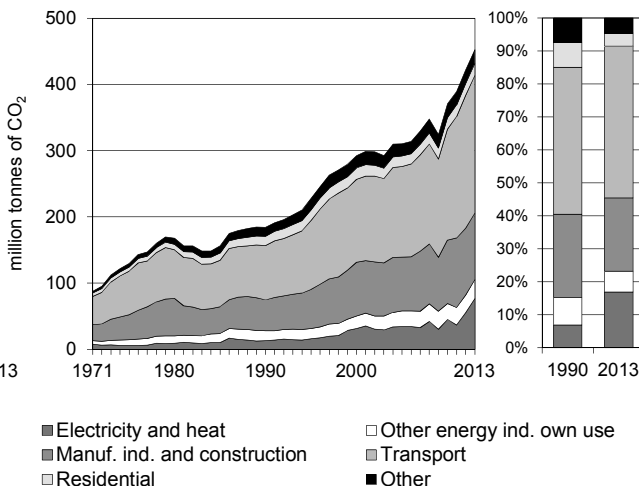


Figure 3. Electricity generation by fuel

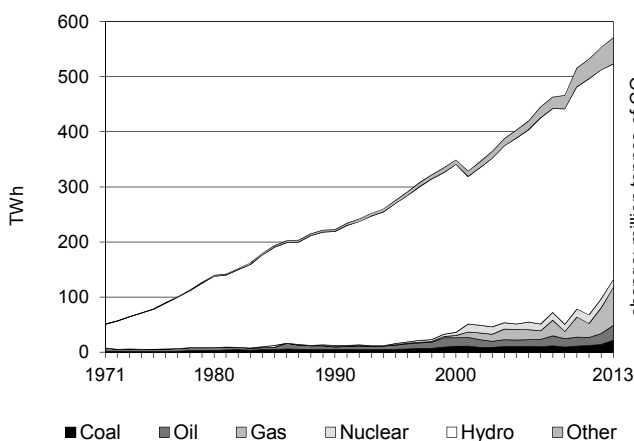


Figure 4. CO₂ from electricity generation: driving factors¹

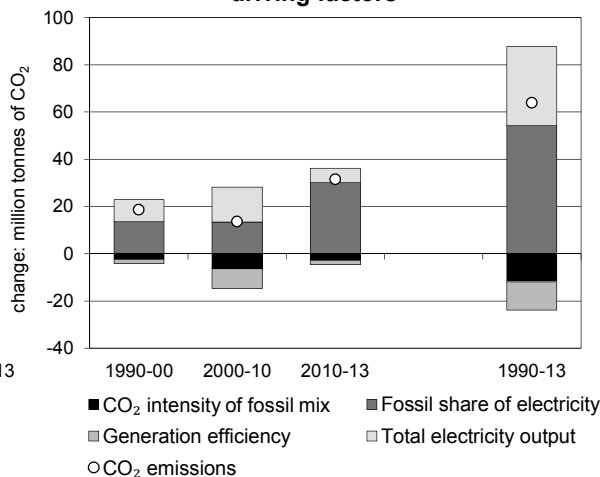


Figure 5. Changes in selected indicators

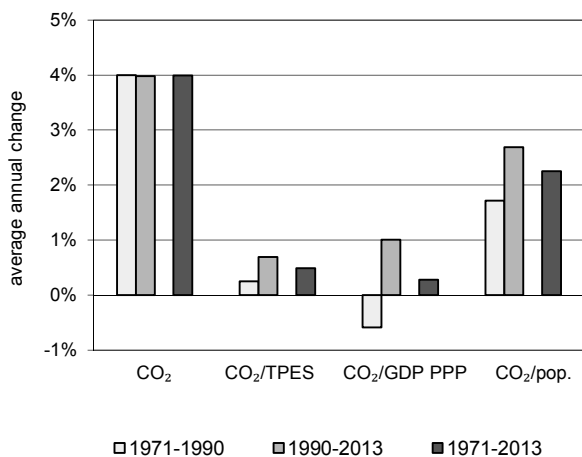
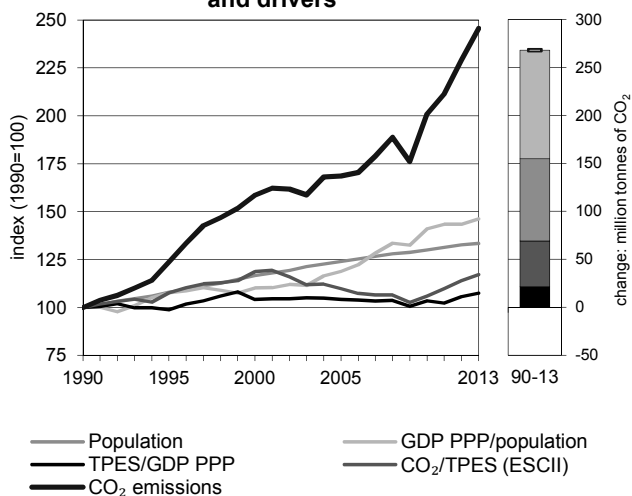


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Brazil

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	184.25	227.72	292.31	310.50	370.46	422.17	452.39	146%
Share of World CO ₂ from fuel combustion	0.89%	1.06%	1.25%	1.15%	1.24%	1.34%	1.41%	
TPES (PJ)	5 870	6 745	7 848	9 016	11 131	11 795	12 296	109%
GDP (billion 2005 USD)	598.51	696.14	768.99	882.19	1 096.75	1 138.35	1 166.72	95%
GDP PPP (billion 2005 USD)	1 331.95	1 549.23	1 711.36	1 963.26	2 440.77	2 533.34	2 596.47	95%
Population (millions)	150.00	162.00	175.00	186.00	195.00	199.00	200.00	33%
CO ₂ / TPES (tCO ₂ per TJ)	31.4	33.8	37.2	34.4	33.3	35.8	36.8	17%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.31	0.33	0.38	0.35	0.34	0.37	0.39	26%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.14	0.15	0.17	0.16	0.15	0.17	0.17	26%
CO ₂ / population (tCO ₂ per capita)	1.23	1.41	1.67	1.67	1.90	2.12	2.26	84%
Share of electricity output from fossil fuels	4%	5%	9%	10%	12%	15%	21%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	57	57	90	85	87	100	134	135%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	124	159	169	201	229	246	146%
Population index	100	108	117	124	130	133	133	33%
GDP PPP per population index	100	108	110	119	141	143	146	46%
Energy intensity index - TPES / GDP PPP	100	99	104	104	103	106	107	7%
Carbon intensity index - CO ₂ / TPES	100	108	119	110	106	114	117	17%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	64.93	317.10	70.36	-	452.39	146%
Electricity and heat generation	27.97	17.73	30.89	-	76.59	501%
Other energy industry own use	3.18	14.08	11.22	-	28.48	87%
Manufacturing industries and construction	33.77	45.11	21.64	-	100.53	116%
Transport	-	202.66	5.39	-	208.06	153%
<i>of which: road</i>	-	184.37	3.66	-	188.03	164%
Other	-	37.52	1.22	-	38.73	41%
<i>of which: residential</i>	-	17.23	0.71	-	17.95	29%
<i>of which: services</i>	-	1.90	0.50	-	2.40	-7%
<i>Memo: international marine bunkers</i>	-	10.86	-	-	10.86	526%
<i>Memo: international aviation bunkers</i>	-	6.98	-	-	6.98	389%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	184.37	159.2%	15.0	15.0
Manufacturing industries - oil	45.11	65.5%	3.7	18.7
Manufacturing industries - coal	33.77	109.8%	2.8	21.4
Main activity prod. elec. and heat - gas	25.73	+	2.1	23.5
Manufacturing industries - gas	21.64	572.3%	1.8	25.3
Non-specified other - oil	20.29	50.3%	1.7	27.0
Other transport - oil	18.29	66.5%	1.5	28.4
Residential - oil	17.23	27.1%	1.4	29.8
Main activity prod. elec. and heat - coal	14.56	251.4%	1.2	31.0
<i>Memo: total CO₂ from fuel combustion</i>	<i>452.39</i>	<i>145.5%</i>	<i>36.8</i>	<i>36.8</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Brunei Darussalam

Figure 1. CO₂ emissions by fuel

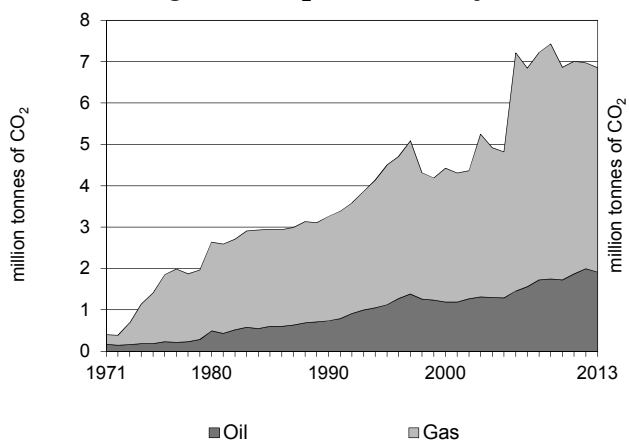


Figure 2. CO₂ emissions by sector

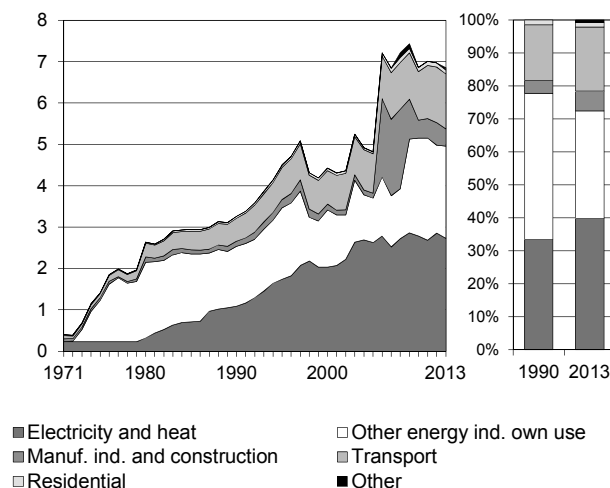


Figure 3. Electricity generation by fuel

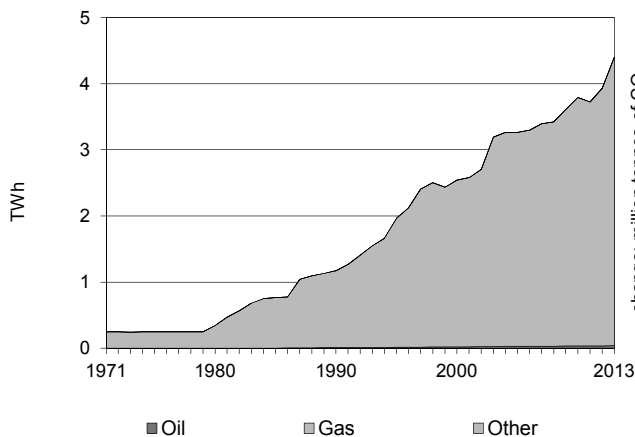


Figure 4. CO₂ from electricity generation: driving factors¹

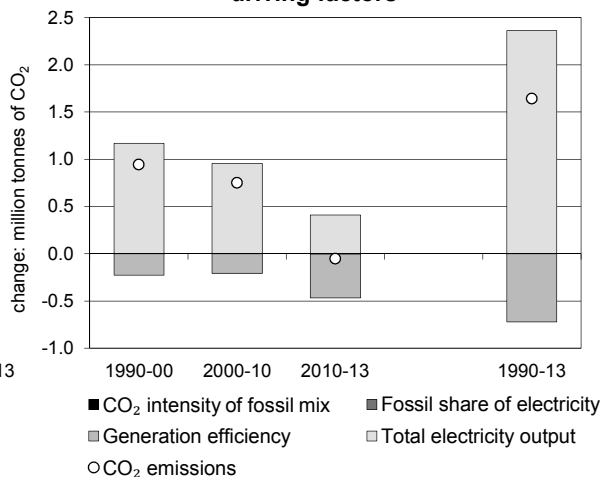


Figure 5. Changes in selected indicators

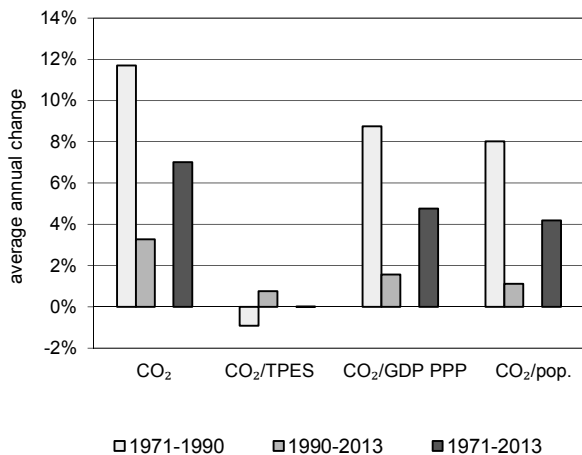
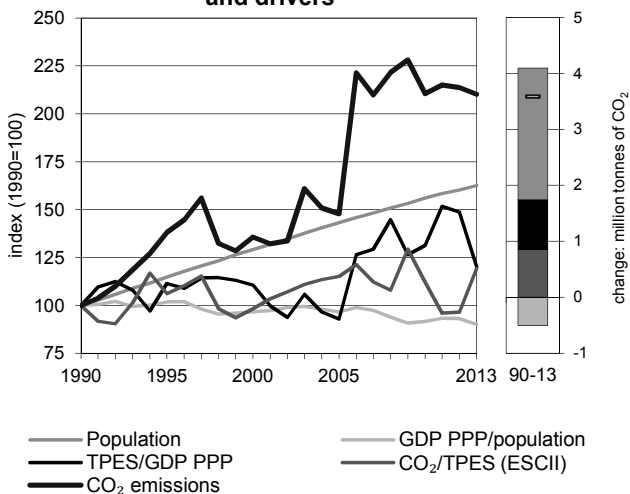


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Brunei Darussalam

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	3.26	4.50	4.42	4.82	6.86	6.97	6.85	110%
Share of World CO ₂ from fuel combustion	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	
TPES (PJ)	72	94	100	93	136	160	127	76%
GDP (billion 2005 USD)	6.89	8.05	8.60	9.53	9.85	10.28	10.10	47%
GDP PPP (billion 2005 USD)	17.63	20.59	22.00	24.38	25.19	26.30	25.84	47%
Population (millions)	0.26	0.30	0.33	0.37	0.40	0.41	0.42	63%
CO ₂ / TPES (tCO ₂ per TJ)	45.1	47.8	44.3	51.9	50.6	43.5	53.8	19%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.47	0.56	0.51	0.51	0.70	0.68	0.68	43%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.18	0.22	0.20	0.20	0.27	0.26	0.27	43%
CO ₂ / population (tCO ₂ per capita)	12.68	15.26	13.33	13.10	17.11	16.91	16.39	29%
Share of electricity output from fossil fuels	100%	100%	100%	100%	100%	100%	100%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	928	885	799	804	734	726	620	-33%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	138	136	148	210	214	210	110%
Population index	100	115	129	143	156	160	163	63%
GDP PPP per population index	100	102	97	97	92	93	90	-10%
Energy intensity index - TPES / GDP PPP	100	111	111	93	131	149	120	20%
Carbon intensity index - CO ₂ / TPES	100	106	98	115	112	96	119	19%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	1.91	4.94	-	6.85	110%
Electricity and heat generation	-	0.03	2.70	-	2.73	151%
Other energy industry own use	-	0.04	2.19	-	2.23	54%
Manufacturing industries and construction	-	0.42	-	-	0.42	234%
Transport	-	1.33	-	-	1.33	140%
<i>of which: road</i>	-	1.33	-	-	1.33	140%
Other	-	0.10	0.05	-	0.15	225%
<i>of which: residential</i>	-	0.04	0.05	-	0.09	106%
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	0.25	-	-	0.25	116%
<i>Memo: international aviation bunkers</i>	-	0.26	-	-	0.26	131%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - gas	2.36	119.0%	18.3	18.3
Other energy industry own use - gas	2.19	51.8%	16.9	35.2
Road - oil	1.33	139.6%	10.2	45.5
Manufacturing industries - oil	0.42	233.5%	3.2	48.7
Unallocated autoproducers - gas	0.34	x	2.6	51.3
Non-specified other - oil	0.05	x	0.4	51.7
Residential - gas	0.05	x	0.4	52.1
Residential - oil	0.04	-2.2%	0.3	52.4
Other energy industry own use - oil	0.04	+	0.3	52.7
<i>Memo: total CO₂ from fuel combustion</i>	6.85	110.2%	53.0	53.0

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Bulgaria

Figure 1. CO₂ emissions by fuel

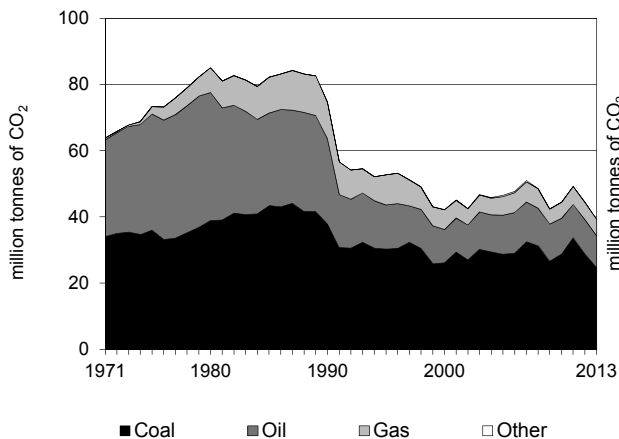


Figure 2. CO₂ emissions by sector

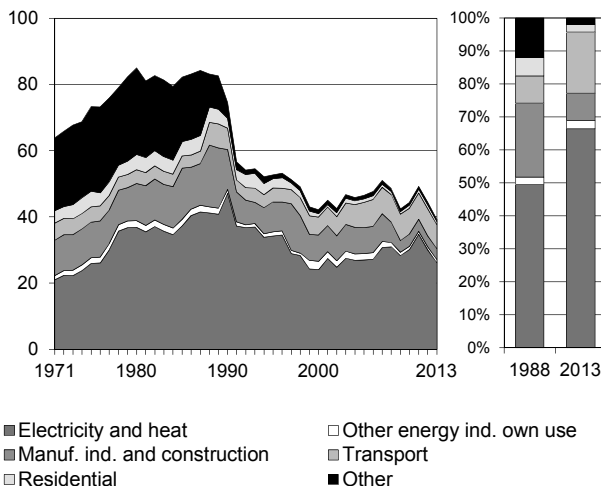


Figure 3. Electricity generation by fuel

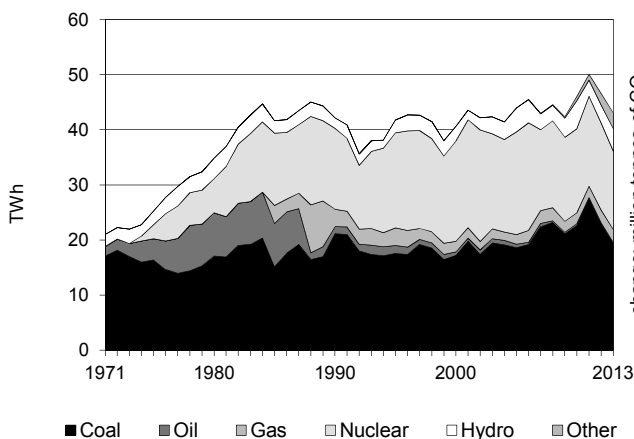


Figure 4. CO₂ from electricity generation: driving factors¹

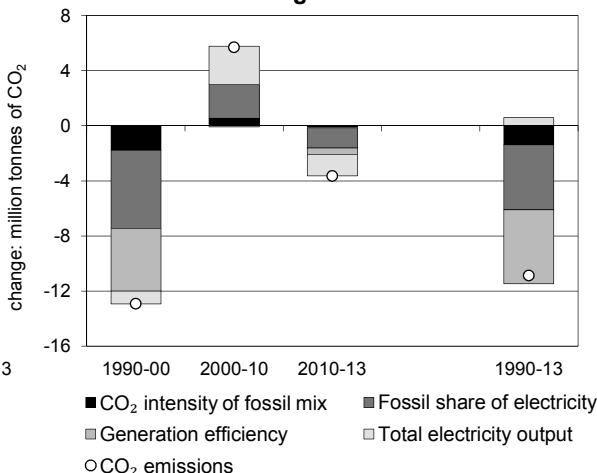


Figure 5. Changes in selected indicators

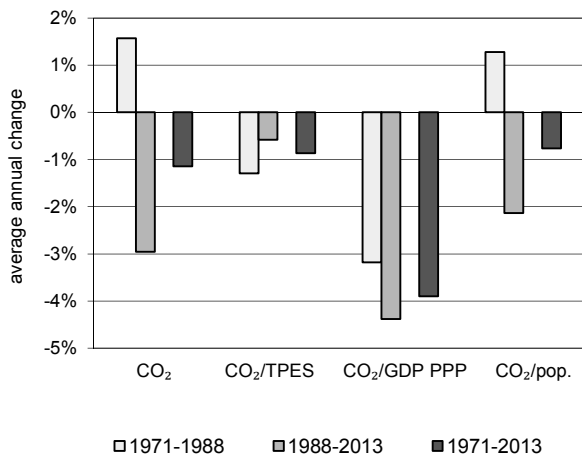
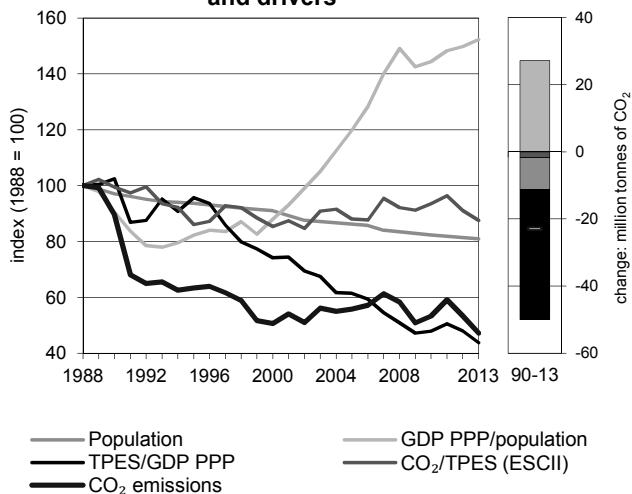


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Bulgaria ¹

Key indicators

	1988	1990	1995	2005	2010	2012	2013	% change 88-13
CO ₂ fuel combustion (MtCO ₂)	83.18	74.57	52.74	46.50	44.40	44.45	39.32	-53%
Share of World CO ₂ from fuel combustion	0.42%	0.36%	0.25%	0.17%	0.15%	0.14%	0.12%	
TPES (PJ)	1 312	1 182	967	833	748	769	708	-46%
GDP (billion 2005 USD)	28.36	24.93	21.83	29.30	33.72	34.56	34.93	23%
GDP PPP (billion 2005 USD)	74.51	65.49	57.37	76.99	88.61	90.81	91.78	23%
Population (millions)	8.98	8.72	8.41	7.74	7.40	7.31	7.27	-19%
CO ₂ / TPES (tCO ₂ per TJ)	63.4	63.1	54.6	55.8	59.3	57.8	55.5	-12%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	2.93	2.99	2.42	1.59	1.32	1.29	1.13	-62%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	1.12	1.14	0.92	0.60	0.50	0.49	0.43	-62%
CO ₂ / population (tCO ₂ per capita)	9.26	8.55	6.27	6.01	6.00	6.08	5.41	-42%
Share of electricity output from fossil fuels	59%	61%	53%	48%	54%	55%	51%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	..	776	589	517	553	545	507	..
CO₂ emissions and drivers - Kaya decomposition (1988=100) ²								
CO ₂ emissions index	100	90	63	56	53	53	47	-53%
Population index	100	97	94	86	82	81	81	-19%
GDP PPP per population index	100	91	82	120	144	150	152	52%
Energy intensity index - TPES / GDP PPP	100	102	96	61	48	48	44	-56%
Carbon intensity index - CO ₂ / TPES	100	100	86	88	94	91	88	-12%

1. Under the Convention Bulgaria is allowed use 1988 as its base year. 2. Please see Part I, Chapter 2 for methodological notes.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ³	Total	% change 88-13
CO₂ fuel combustion	24.72	9.60	4.96	0.05	39.32	-53%
Electricity and heat generation	23.24	0.70	2.19	-	26.13	-37%
Other energy industry own use	0.00	0.92	0.06	-	0.98	-47%
Manufacturing industries and construction	0.67	0.76	1.78	0.05	3.26	-83%
Transport	-	6.70	0.59	-	7.29	6%
<i>of which: road</i>	-	6.62	0.19	-	6.81	-1%
Other	0.81	0.52	0.34	-	1.66	-89%
<i>of which: residential</i>	0.76	0.06	0.11	-	0.93	-80%
<i>of which: services</i>	0.02	0.07	0.18	-	0.28	x
<i>Memo: international marine bunkers</i>	-	0.29	-	-	0.29	-70%
<i>Memo: international aviation bunkers</i>	-	0.48	-	-	0.48	-63%

3. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 88-13	Level assessment (%) ⁴	Cumulative total (%)
Main activity prod. elec. and heat - coal	23.24	-4.8%	36.7	36.7
Road - oil	6.62	-3.4%	10.5	47.2
Main activity prod. elec. and heat - gas	2.14	-67.7%	3.4	50.5
Manufacturing industries - gas	1.78	x	2.8	53.3
Other energy industry own use - oil	0.92	-50.6%	1.4	54.8
Residential - coal	0.76	-78.5%	1.2	56.0
Manufacturing industries - oil	0.76	-89.7%	1.2	57.2
Main activity prod. elec. and heat - oil	0.70	-91.5%	1.1	58.3
Manufacturing industries - coal	0.67	-94.1%	1.1	59.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>39.32</i>	<i>-52.7%</i>	<i>62.1</i>	<i>62.1</i>

4. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Cambodia

Figure 1. CO₂ emissions by fuel

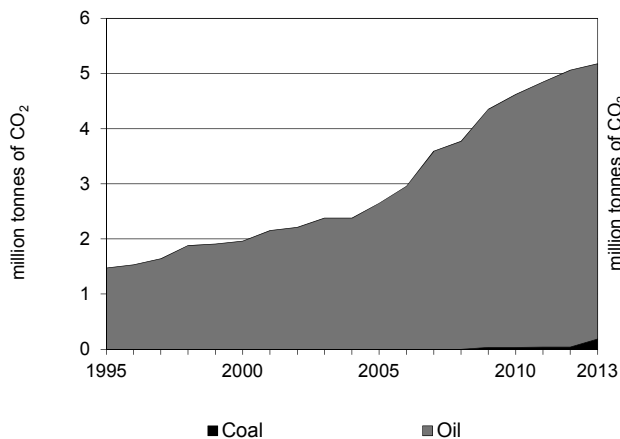


Figure 2. CO₂ emissions by sector

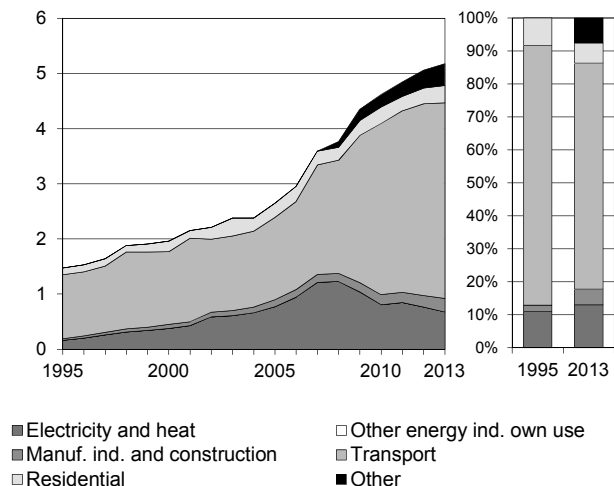


Figure 3. Electricity generation by fuel

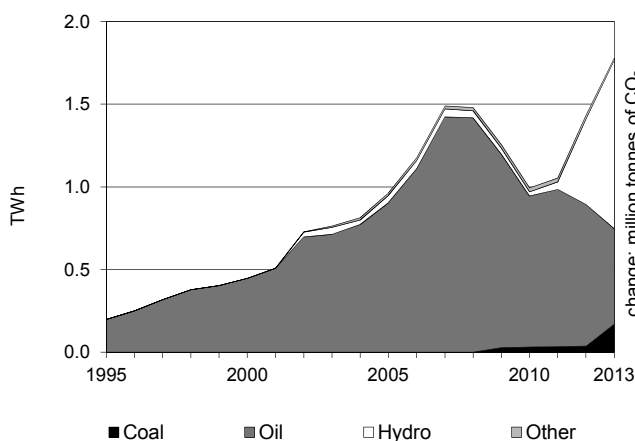


Figure 4. CO₂ from electricity generation: driving factors¹

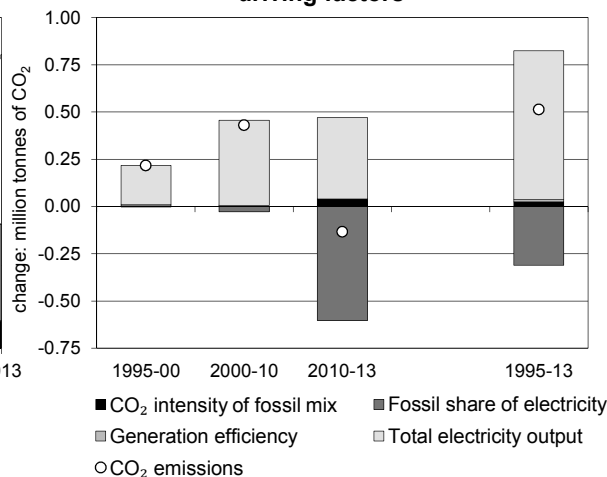


Figure 5. Changes in selected indicators

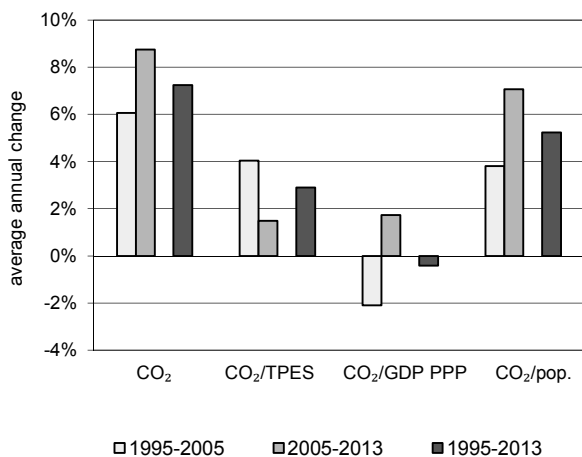
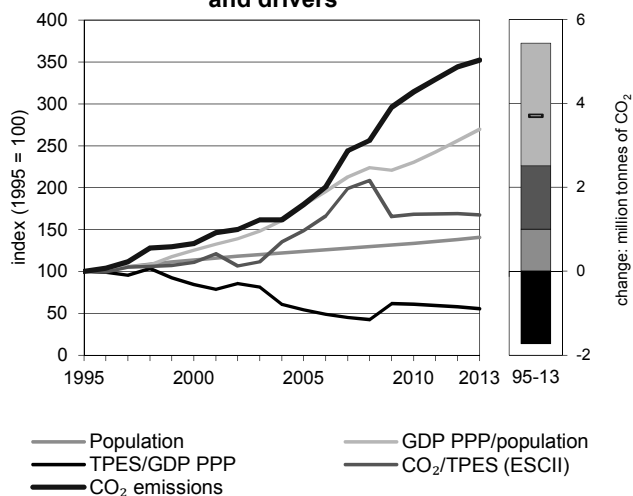


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Cambodia ¹

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 95-13
CO ₂ fuel combustion (MtCO ₂)	..	1.47	1.96	2.65	4.62	5.06	5.18	252%
Share of World CO ₂ from fuel combustion	..	0.01%	0.01%	0.01%	0.02%	0.02%	0.02%	
TPES (PJ)	..	119	143	144	222	242	250	111%
GDP (billion 2005 USD)	..	2.83	4.03	6.29	8.69	9.99	10.73	279%
GDP PPP (billion 2005 USD)	..	10.46	14.89	23.27	32.14	36.93	39.67	279%
Population (millions)	..	10.77	12.22	13.36	14.37	14.87	15.14	41%
CO ₂ / TPES (tCO ₂ per TJ)	..	12.4	13.7	18.4	20.8	20.9	20.7	67%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	..	0.52	0.49	0.42	0.53	0.51	0.48	-7%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	..	0.14	0.13	0.11	0.14	0.14	0.13	-7%
CO ₂ / population (tCO ₂ per capita)	..	0.14	0.16	0.20	0.32	0.34	0.34	151%
Share of electricity output from fossil fuels	..	100%	100%	94%	95%	62%	42%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	..	813	843	801	812	535	379	-53%
CO₂ emissions and drivers - Kaya decomposition (1995=100) ²								
CO ₂ emissions index	..	100	133	180	314	344	352	252%
Population index	..	100	114	124	133	138	141	41%
GDP PPP per population index	..	100	125	179	230	256	270	170%
Energy intensity index - TPES / GDP PPP	..	100	85	54	61	58	56	-44%
Carbon intensity index - CO ₂ / TPES	..	100	111	149	168	169	167	67%

1. Prior to 1995, data for Cambodia were included in Other Asia. 2. Please see Part I, Chapter 2 for methodological notes.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ³	Total	% change 95-13
CO₂ fuel combustion	0.18	4.99	-	-	5.18	252%
Electricity and heat generation	0.18	0.49	-	-	0.67	319%
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.25	-	-	0.25	747%
Transport	-	3.55	-	-	3.55	206%
<i>of which: road</i>	-	2.94	-	-	2.94	174%
Other	-	0.71	-	-	0.71	479%
<i>of which: residential</i>	-	0.32	-	-	0.32	159%
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.19	-	-	0.19	530%

3. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 95-13	Level assessment (%) ⁴	Cumulative total (%)
Road - oil	2.94	173.9%	4.9	4.9
Other transport - oil	0.60	626.7%	1.0	5.9
Main activity prod. elec. and heat - oil	0.49	205.0%	0.8	6.7
Non-specified other - oil	0.39	x	0.7	7.3
Residential - oil	0.32	158.9%	0.5	7.9
Manufacturing industries - oil	0.25	747.0%	0.4	8.3
Main activity prod. elec. and heat - coal	0.18	x	0.3	8.6
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>5.18</i>	<i>252.1%</i>	<i>8.6</i>	<i>8.6</i>

4. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Cameroon

Figure 1. CO₂ emissions by fuel

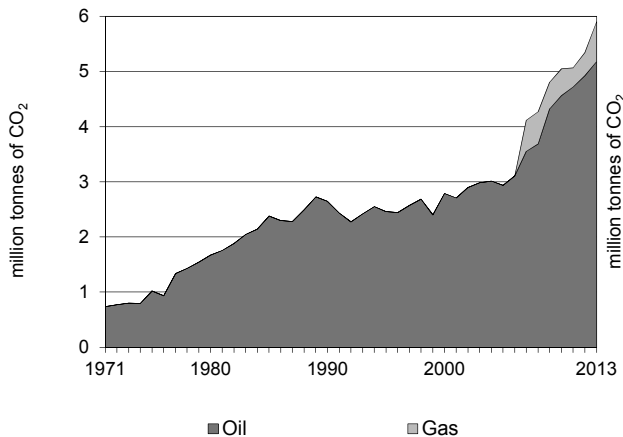


Figure 2. CO₂ emissions by sector

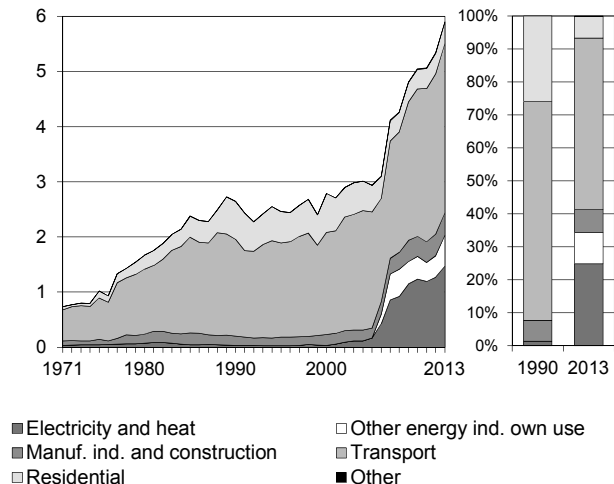


Figure 3. Electricity generation by fuel

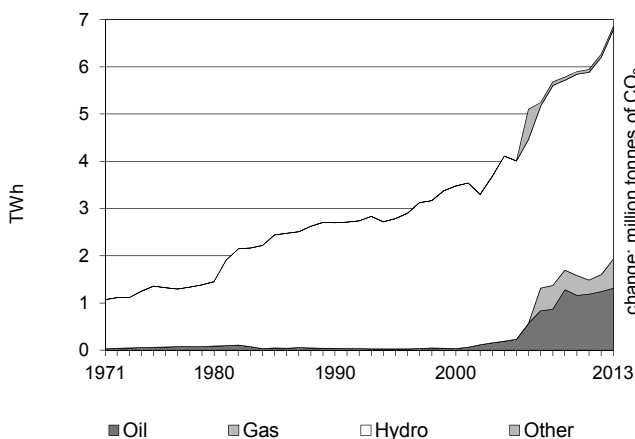


Figure 4. CO₂ from electricity generation: driving factors¹

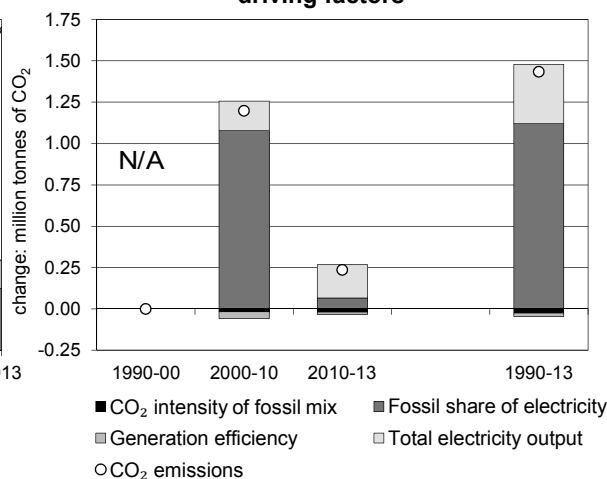


Figure 5. Changes in selected indicators

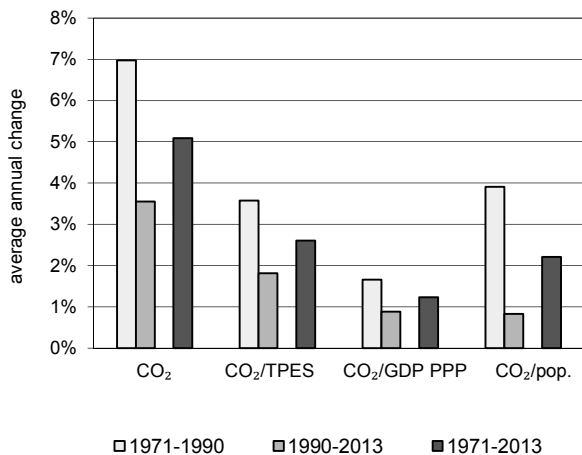
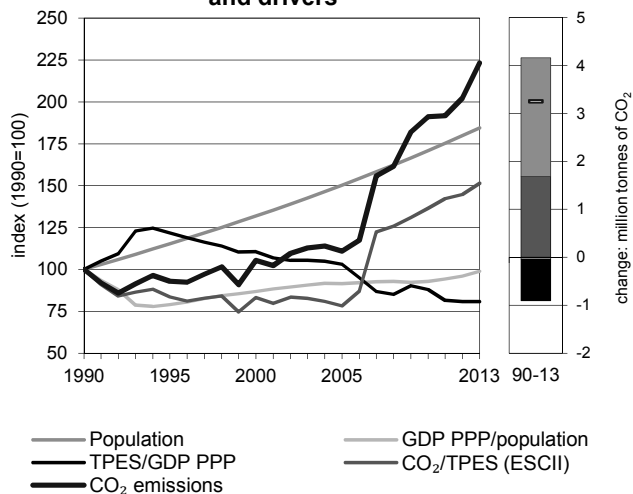


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Cameroon

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	2.64	2.46	2.79	2.93	5.05	5.34	5.90	123%
Share of World CO ₂ from fuel combustion	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.02%	
TPES (PJ)	209	232	264	295	292	291	308	47%
GDP (billion 2005 USD)	12.07	11.01	13.83	16.59	19.15	20.86	22.02	82%
GDP PPP (billion 2005 USD)	29.75	27.13	34.09	40.90	47.21	51.42	54.28	82%
Population (millions)	12.07	13.93	15.93	18.14	20.62	21.70	22.25	84%
CO ₂ / TPES (tCO ₂ per TJ)	12.7	10.6	10.6	9.9	17.3	18.3	19.2	51%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.22	0.22	0.20	0.18	0.26	0.26	0.27	22%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.09	0.09	0.08	0.07	0.11	0.10	0.11	22%
CO ₂ / population (tCO ₂ per capita)	0.22	0.18	0.18	0.16	0.24	0.25	0.27	21%
Share of electricity output from fossil fuels	2%	1%	1%	6%	27%	26%	28%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	13	10	10	41	209	203	214	1539%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	93	105	111	191	202	223	123%
Population index	100	115	132	150	171	180	184	84%
GDP PPP per population index	100	79	87	91	93	96	99	-1%
Energy intensity index - TPES / GDP PPP	100	122	111	103	88	81	81	-19%
Carbon intensity index - CO ₂ / TPES	100	84	83	78	137	145	151	51%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	5.18	0.72	-	5.90	123%
Electricity and heat generation	-	1.14	0.33	-	1.47	+
Other energy industry own use	-	0.17	0.39	-	0.56	x
Manufacturing industries and construction	-	0.41	-	-	0.41	143%
Transport	-	3.07	-	-	3.07	75%
<i>of which: road</i>	-	2.94	-	-	2.94	68%
Other	-	0.39	-	-	0.39	-43%
<i>of which: residential</i>	-	0.38	-	-	0.38	-44%
<i>of which: services</i>	-	0.01	-	-	0.01	x
<i>Memo: international marine bunkers</i>	-	0.16	-	-	0.16	276%
<i>Memo: international aviation bunkers</i>	-	0.24	-	-	0.24	56%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	2.94	67.7%	7.6	7.6
Unallocated autoproducers - oil	0.87	x	2.3	9.9
Manufacturing industries - oil	0.41	143.0%	1.1	10.9
Other energy industry own use - gas	0.39	x	1.0	11.9
Residential - oil	0.38	-44.3%	1.0	12.9
Unallocated autoproducers - gas	0.33	x	0.9	13.8
Main activity prod. elec. and heat - oil	0.26	645.8%	0.7	14.5
Other energy industry own use - oil	0.17	x	0.4	14.9
Other transport - oil	0.13	x	0.3	15.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>5.90</i>	<i>123.2%</i>	<i>15.3</i>	<i>15.3</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Canada

Figure 1. CO₂ emissions by fuel

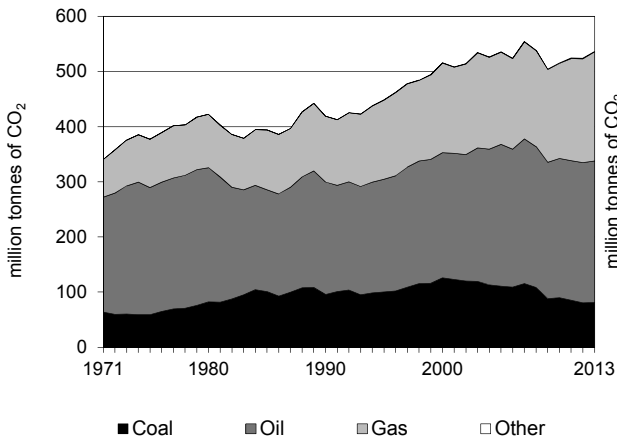


Figure 2. CO₂ emissions by sector

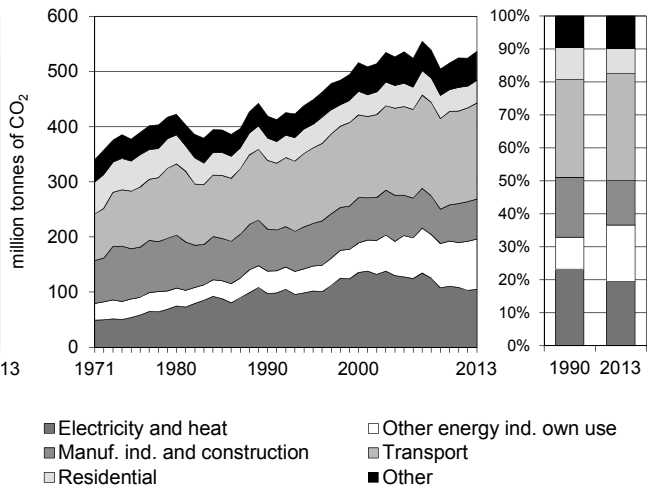


Figure 3. Electricity generation by fuel

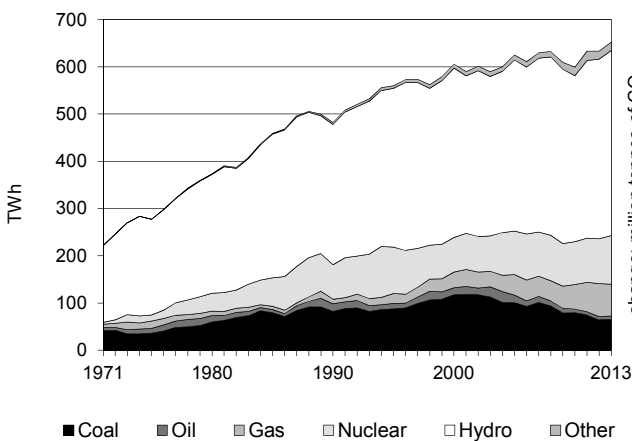


Figure 4. CO₂ from electricity generation: driving factors ¹

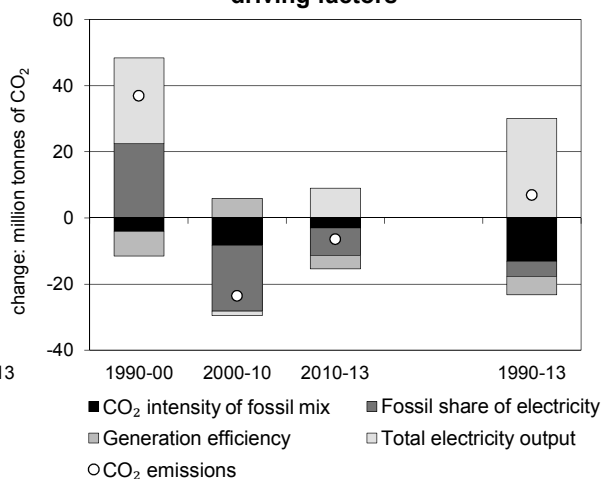


Figure 5. Changes in selected indicators

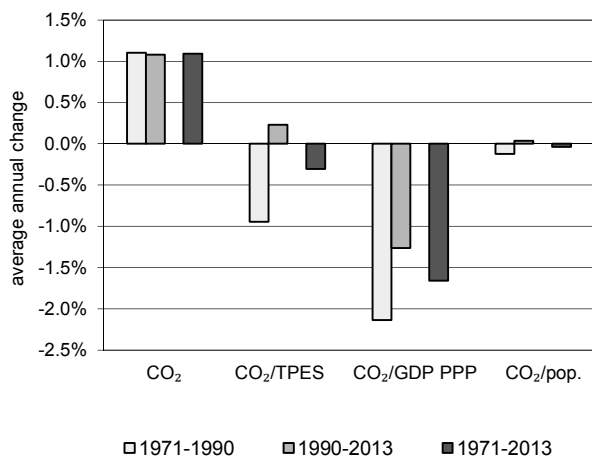
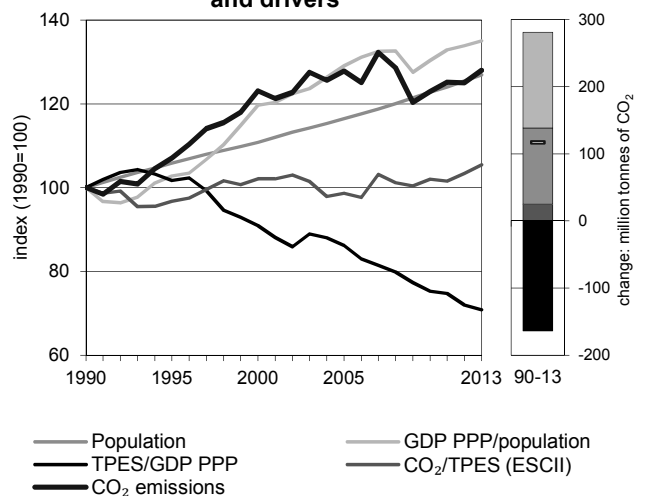


Figure 6. Total CO₂ emissions and drivers ²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Canada

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	419.02	448.48	515.87	535.59	515.24	523.94	536.32	28%
Share of World CO ₂ from fuel combustion	2.0%	2.1%	2.2%	2.0%	1.7%	1.7%	1.7%	
TPES (PJ)	8 732	9 662	10 530	11 317	10 524	10 562	10 601	21%
GDP (billion 2005 USD)	774.59	842.77	1 026.88	1 164.18	1 240.07	1 301.33	1 327.40	71%
GDP PPP (billion 2005 USD)	773.38	841.46	1 025.29	1 162.38	1 238.14	1 299.31	1 325.34	71%
Population (millions)	27.69	29.30	30.69	32.24	34.01	34.75	35.15	27%
CO ₂ / TPES (tCO ₂ per TJ)	48.0	46.4	49.0	47.3	49.0	49.6	50.6	5%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.54	0.53	0.50	0.46	0.42	0.40	0.40	-25%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.54	0.53	0.50	0.46	0.42	0.40	0.40	-25%
CO ₂ / population (tCO ₂ per capita)	15.13	15.31	16.81	16.61	15.15	15.08	15.26	1%
Share of electricity output from fossil fuels	22%	22%	27%	26%	23%	22%	21%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	200	179	220	200	183	161	158	-21%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	107	123	128	123	125	128	28%
Population index	100	106	111	116	123	125	127	27%
GDP PPP per population index	100	103	120	129	130	134	135	35%
Energy intensity index - TPES / GDP PPP	100	102	91	86	75	72	71	-29%
Carbon intensity index - CO ₂ / TPES	100	97	102	99	102	103	105	5%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	81.04	256.44	197.89	0.95	536.32	28%
Electricity and heat generation	67.28	6.54	30.91	0.18	104.91	8%
Other energy industry own use	-	26.68	64.59	-	91.26	123%
Manufacturing industries and construction	13.69	23.83	34.32	0.78	72.62	-4%
Transport	-	167.24	6.47	-	173.72	39%
<i>of which: road</i>	-	139.78	0.08	-	139.86	45%
Other	0.06	32.14	61.61	-	93.81	17%
<i>of which: residential</i>	0.06	6.63	34.59	-	41.28	1%
<i>of which: services</i>	-	11.50	25.07	-	36.57	14%
<i>Memo: international marine bunkers</i>	-	1.32	-	-	1.32	-55%
<i>Memo: international aviation bunkers</i>	-	2.47	-	-	2.47	-10%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	139.78	44.8%	18.7	18.7
Main activity prod. elec. and heat - coal	67.28	-16.3%	9.0	27.7
Other energy industry own use - gas	64.59	208.7%	8.7	36.4
Residential - gas	34.59	29.7%	4.6	41.0
Manufacturing industries - gas	34.32	-13.3%	4.6	45.6
Other transport - oil	27.46	28.8%	3.7	49.3
Non-specified other - gas	27.02	30.4%	3.6	52.9
Other energy industry own use - oil	26.68	36.3%	3.6	56.5
Non-specified other - oil	25.51	36.6%	3.4	59.9
<i>Memo: total CO₂ from fuel combustion</i>	<i>536.32</i>	<i>28.0%</i>	<i>71.9</i>	<i>71.9</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Chile

Figure 1. CO₂ emissions by fuel

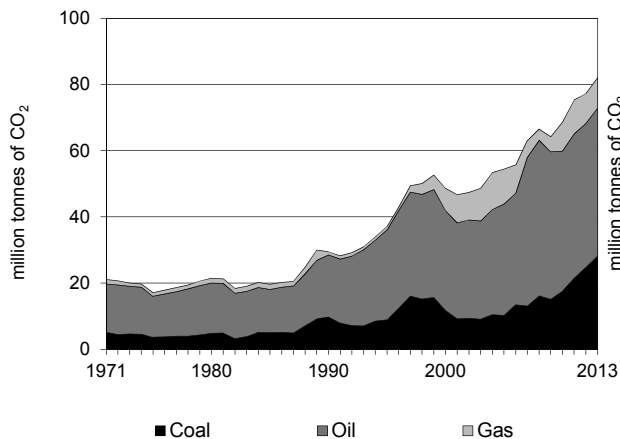


Figure 2. CO₂ emissions by sector

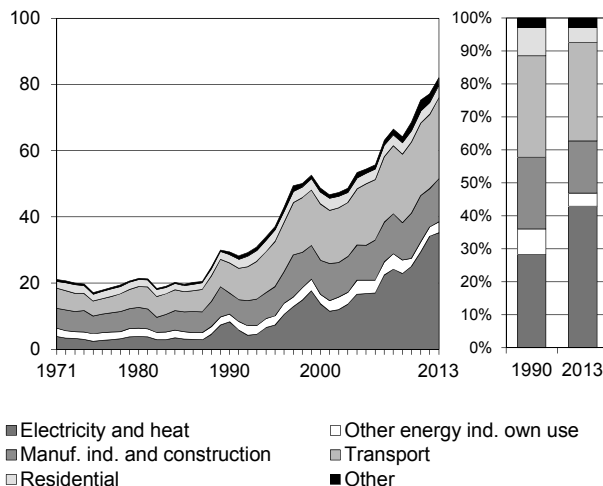


Figure 3. Electricity generation by fuel

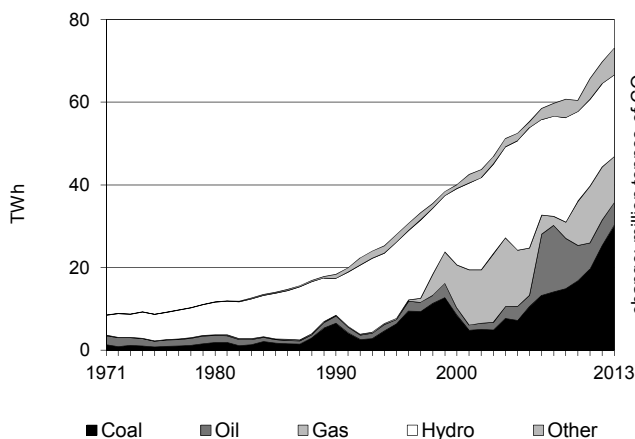


Figure 4. CO₂ from electricity generation: driving factors¹

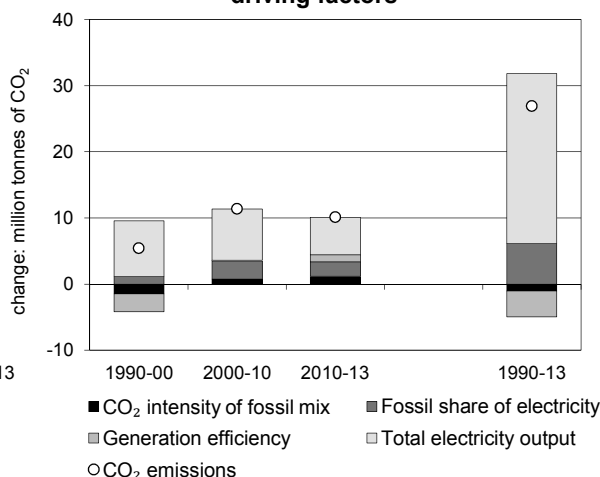


Figure 5. Changes in selected indicators

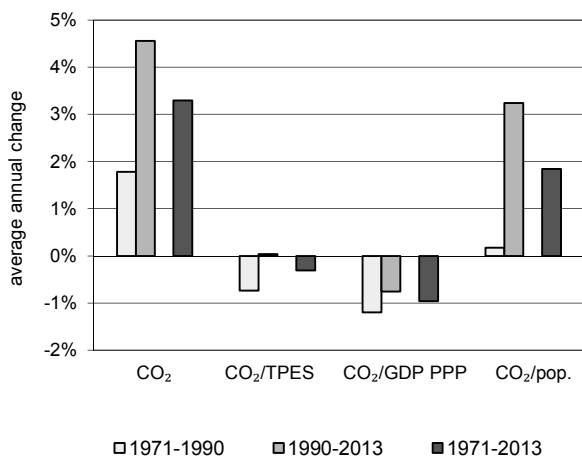
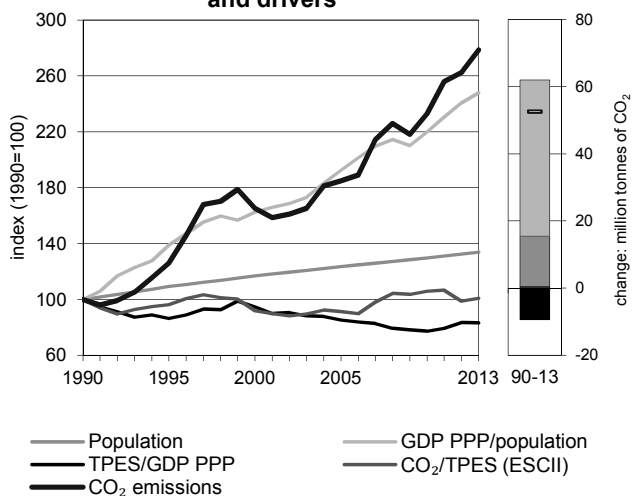


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Chile

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	29.43	37.06	48.61	54.42	68.59	77.22	82.01	179%
Share of World CO ₂ from fuel combustion	0.14%	0.17%	0.21%	0.20%	0.23%	0.25%	0.25%	
TPES (PJ)	587	768	1 054	1 188	1 292	1 558	1 620	176%
GDP (billion 2005 USD)	51.81	78.58	98.41	123.06	147.86	165.03	172.01	232%
GDP PPP (billion 2005 USD)	86.92	131.82	165.09	206.43	248.04	276.85	288.55	232%
Population (millions)	13.18	14.40	15.40	16.27	17.09	17.45	17.64	34%
CO ₂ / TPES (tCO ₂ per TJ)	50.2	48.3	46.1	45.8	53.1	49.6	50.6	1%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.57	0.47	0.49	0.44	0.46	0.47	0.48	-16%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.34	0.28	0.29	0.26	0.28	0.28	0.28	-16%
CO ₂ / population (tCO ₂ per capita)	2.23	2.57	3.16	3.35	4.01	4.43	4.65	108%
Share of electricity output from fossil fuels	46%	28%	51%	46%	60%	64%	64%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	452	261	342	320	415	490	482	7%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	126	165	185	233	262	279	179%
Population index	100	109	117	123	130	132	134	34%
GDP PPP per population index	100	139	163	192	220	241	248	148%
Energy intensity index - TPES / GDP PPP	100	86	95	85	77	83	83	-17%
Carbon intensity index - CO ₂ / TPES	100	96	92	91	106	99	101	1%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	28.18	44.63	9.20	-	82.01	179%
Electricity and heat generation	26.28	4.04	4.88	-	35.20	324%
Other energy industry own use	1.00	0.82	1.43	-	3.25	41%
Manufacturing industries and construction	0.87	10.57	1.57	-	13.01	104%
Transport	-	24.42	0.07	-	24.49	170%
<i>of which: road</i>	-	22.10	0.07	-	22.17	183%
Other	0.04	4.77	1.25	-	6.06	81%
<i>of which: residential</i>	0.02	2.76	0.95	-	3.73	47%
<i>of which: services</i>	0.01	1.36	0.30	-	1.66	301%
<i>Memo: international marine bunkers</i>	-	0.67	-	-	0.67	16%
<i>Memo: international aviation bunkers</i>	-	1.88	-	-	1.88	230%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	26.28	489.7%	22.4	22.4
Road - oil	22.10	182.7%	18.8	41.2
Manufacturing industries - oil	10.57	150.7%	9.0	50.2
Main activity prod. elec. and heat - gas	4.62	+	3.9	54.1
Main activity prod. elec. and heat - oil	3.33	303.9%	2.8	57.0
Residential - oil	2.76	31.3%	2.3	59.3
Other transport - oil	2.32	85.5%	2.0	61.3
Non-specified other - oil	2.02	244.6%	1.7	63.0
Manufacturing industries - gas	1.57	+	1.3	64.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>82.01</i>	<i>178.7%</i>	<i>69.8</i>	<i>69.8</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

People's Republic of China ¹

Figure 1. CO₂ emissions by fuel

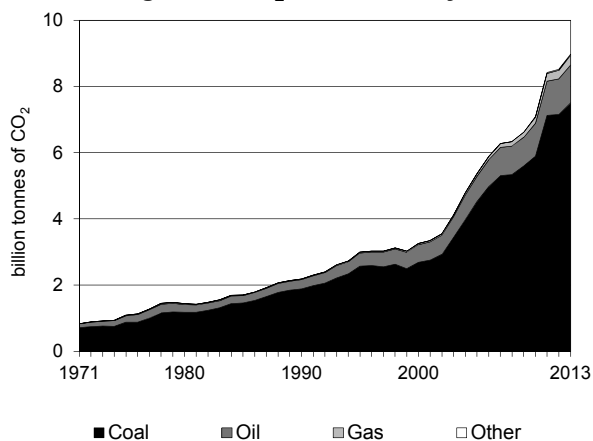


Figure 2. CO₂ emissions by sector

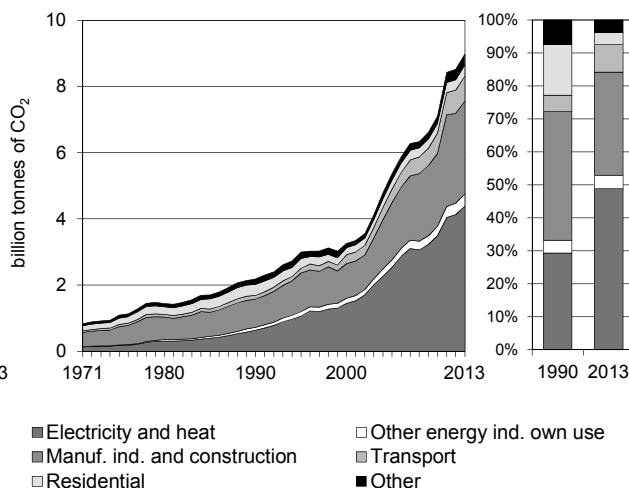


Figure 3. Electricity generation by fuel

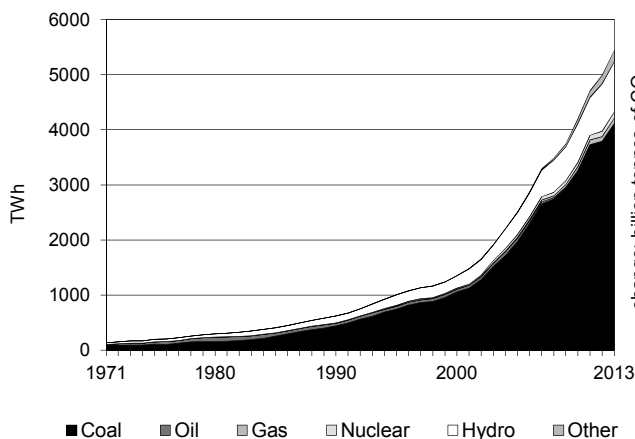


Figure 4. CO₂ from electricity generation: driving factors ²

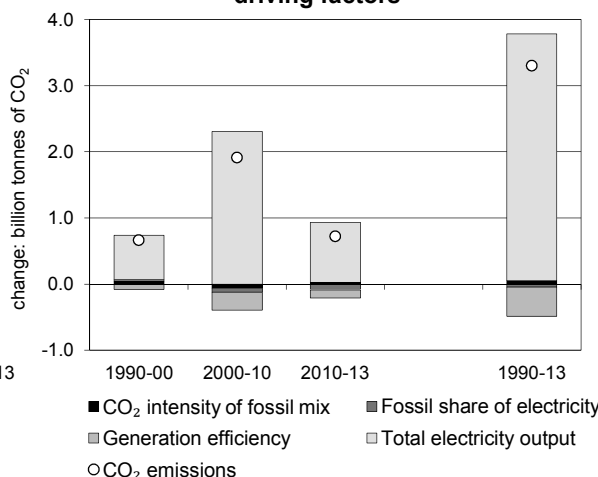


Figure 5. Changes in selected indicators

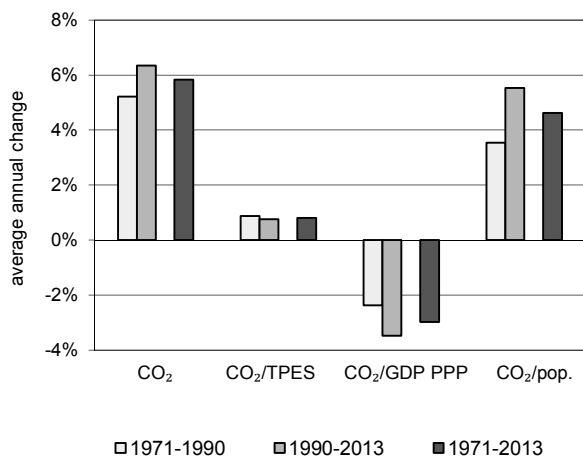
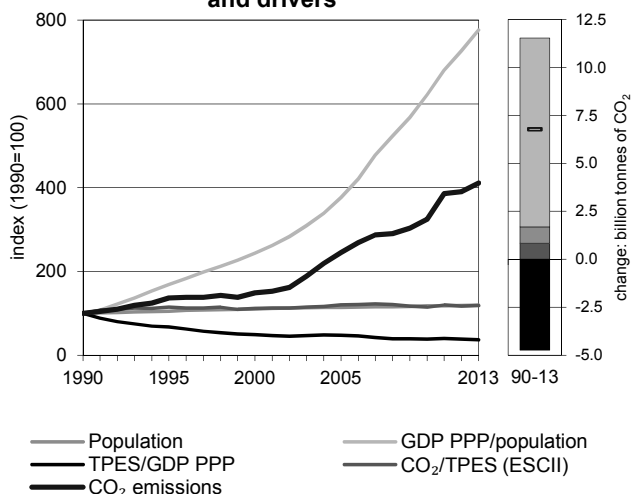


Figure 6. Total CO₂ emissions and drivers ³



1. Due to revisions to underlying energy data, breaks in time series occur between 2010 and 2011. Please refer to the country note in Part I (page I.9).
 2. Electricity decomposition: CO₂ emissions = CO₂ intensity of mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 3. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 1.

People's Republic of China ¹

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	2 183.6	2 998.2	3 259.3	5 359.7	7 095.3	8 519.2	8 977.1	311%
Share of World CO ₂ from fuel combustion	11%	14%	14%	20%	24%	27%	28%	
TPES (PJ)	36 454	43 728	48 599	74 327	103 374	121 747	126 001	246%
GDP (billion 2005 USD)	525.3	936.6	1 417.0	2 256.9	3 839.3	4 517.5	4 864.0	826%
GDP PPP (billion 2005 USD)	1 504.1	2 681.8	4 057.5	6 462.5	10 993.5	12 935.4	13 927.7	826%
Population (millions)	1 140.0	1 200.0	1 260.0	1 300.0	1 340.0	1 350.0	1 360.0	19%
CO ₂ / TPES (tCO ₂ per TJ)	59.9	68.6	67.1	72.1	68.6	70.0	71.2	19%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	4.16	3.20	2.30	2.37	1.85	1.89	1.85	-56%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	1.45	1.12	0.80	0.83	0.65	0.66	0.64	-56%
CO ₂ / population (tCO ₂ per capita)	1.92	2.50	2.59	4.12	5.30	6.31	6.60	245%
Share of electricity output from fossil fuels	80%	80%	82%	82%	80%	78%	78%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	914	923	907	887	749	723	711	-22%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ²								
CO ₂ emissions index	100	137	149	245	325	390	411	311%
Population index	100	105	111	114	118	118	119	19%
GDP PPP per population index	100	169	244	377	622	726	776	676%
Energy intensity index - TPES / GDP PPP	100	67	49	47	39	39	37	-63%
Carbon intensity index - CO ₂ / TPES	100	114	112	120	115	117	119	19%

1. Breaks in time series occur between 2010 and 2011. Please refer to the country note in Part I (page I.9). 2. Based on GDP PPP.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ³	Total	% change 90-13
CO₂ fuel combustion	7 507.2	1 139.5	298.8	31.6	8 977.1	311%
Electricity and heat generation	4 284.1	14.9	55.6	31.6	4 386.2	586%
Other energy industry own use	258.0	61.1	48.3	-	367.4	326%
Manufacturing industries and construction	2 546.4	174.7	84.7	-	2 805.8	229%
Transport	11.8	712.4	29.5	-	753.7	604%
<i>of which: road</i>	-	582.2	29.0	-	611.2	944%
Other	406.9	176.4	80.7	-	664.1	33%
<i>of which: residential</i>	191.5	74.9	63.5	-	329.8	-1%
<i>of which: services</i>	81.3	49.3	17.2	-	147.8	296%
<i>Memo: international marine bunkers</i>	-	25.0	-	-	25.0	475%
<i>Memo: international aviation bunkers</i>	-	20.9	-	-	20.9	+

3. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ⁴	Cumulative total (%)
Main activity prod. elec. and heat - coal	4 066.8	596.9%	30.8	30.8
Manufacturing industries - coal	2 546.4	225.0%	19.3	50.1
Road - oil	582.2	894.7%	4.4	54.5
Other energy industry - coal	258.0	398.2%	2.0	56.5
Unallocated autoproducers - coal	217.3	+	1.6	58.1
Non-specified other sectors - coal	215.4	107.3%	1.6	59.8
Residential - coal	191.5	-40.6%	1.5	61.2
Manufacturing industries - oil	174.7	176.0%	1.3	62.5
Other transport - oil	130.2	+	1.0	63.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>8 977.1</i>	<i>311.1%</i>	<i>68.0</i>	<i>68.0</i>

4. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Colombia

Figure 1. CO₂ emissions by fuel

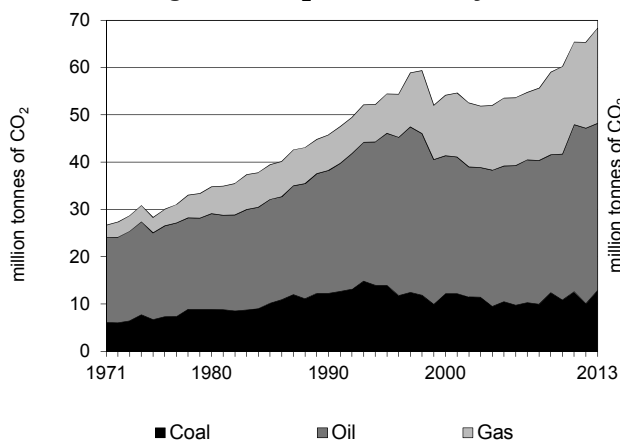


Figure 2. CO₂ emissions by sector

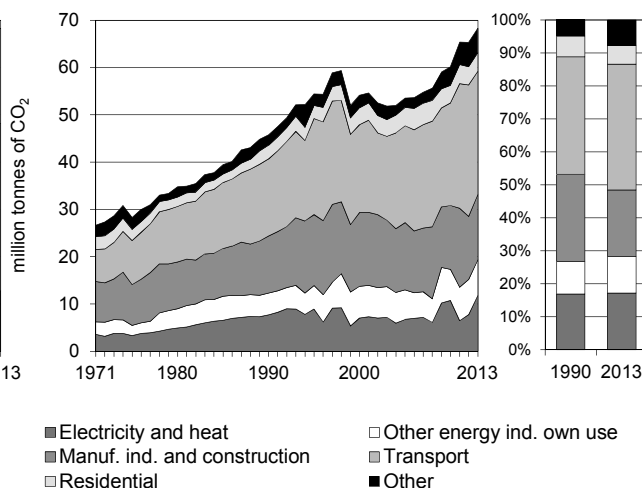


Figure 3. Electricity generation by fuel

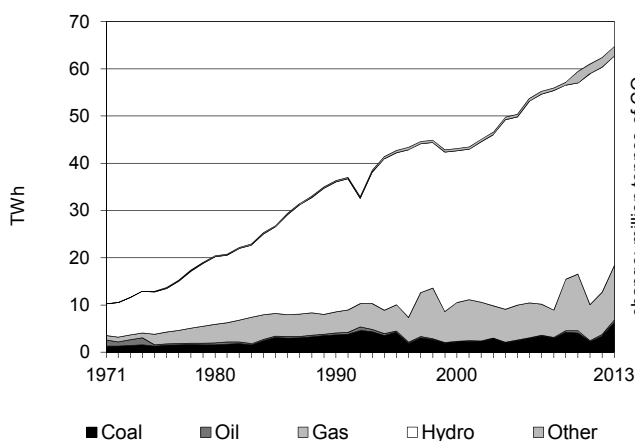


Figure 4. CO₂ from electricity generation: driving factors¹

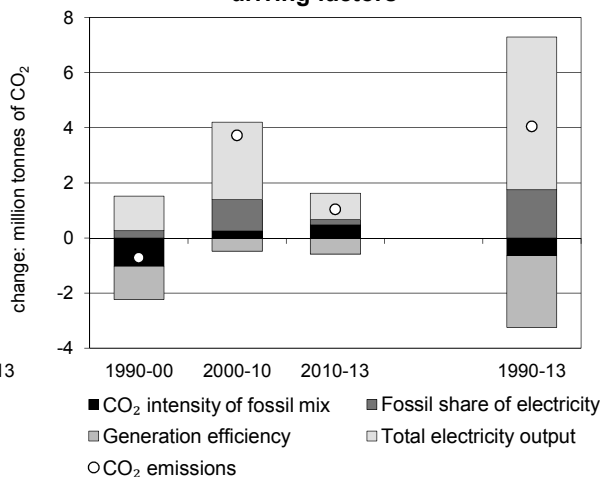


Figure 5. Changes in selected indicators

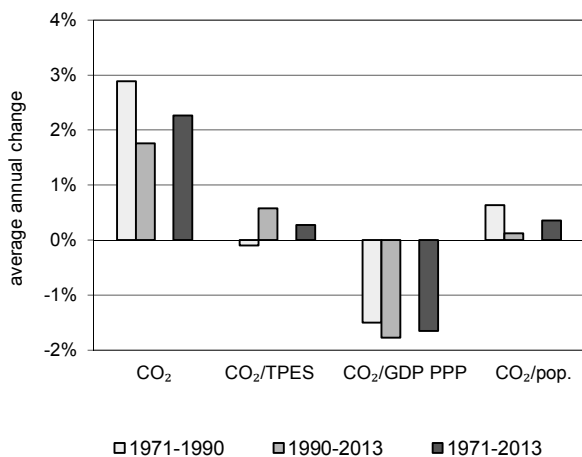
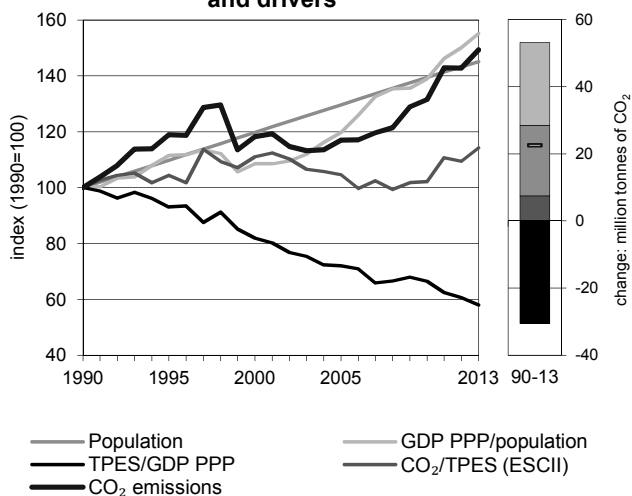


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Colombia

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	45.78	54.45	54.17	53.57	60.21	65.36	68.34	49%
Share of World CO ₂ from fuel combustion	0.22%	0.25%	0.23%	0.20%	0.20%	0.21%	0.21%	
TPES (PJ)	1 014	1 156	1 081	1 134	1 306	1 323	1 325	31%
GDP (billion 2005 USD)	94.34	115.51	122.66	146.52	182.89	202.84	212.33	125%
GDP PPP (billion 2005 USD)	229.87	281.45	298.87	357.01	445.64	494.24	517.36	125%
Population (millions)	33.31	36.57	39.90	43.18	46.45	47.70	48.32	45%
CO ₂ / TPES (tCO ₂ per TJ)	45.1	47.1	50.1	47.2	46.1	49.4	51.6	14%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.49	0.47	0.44	0.37	0.33	0.32	0.32	-34%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.20	0.19	0.18	0.15	0.14	0.13	0.13	-34%
CO ₂ / population (tCO ₂ per capita)	1.37	1.49	1.36	1.24	1.30	1.37	1.41	3%
Share of electricity output from fossil fuels	24%	24%	24%	20%	28%	20%	28%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	213	208	163	133	181	124	182	-14%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	119	118	117	132	143	149	49%
Population index	100	110	120	130	139	143	145	45%
GDP PPP per population index	100	112	109	120	139	150	155	55%
Energy intensity index - TPES / GDP PPP	100	93	82	72	66	61	58	-42%
Carbon intensity index - CO ₂ / TPES	100	104	111	105	102	109	114	14%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	12.89	35.32	20.13	-	68.34	49%
Electricity and heat generation	6.14	0.42	5.22	-	11.78	52%
Other energy industry own use	0.05	2.03	5.45	-	7.54	65%
Manufacturing industries and construction	6.41	2.29	5.11	-	13.82	15%
Transport	0.00	24.80	1.27	-	26.08	60%
<i>of which: road</i>	-	23.64	1.27	-	24.91	58%
Other	0.29	5.78	3.07	-	9.13	78%
<i>of which: residential</i>	0.29	1.22	2.38	-	3.89	35%
<i>of which: services</i>	-	0.68	0.69	-	1.36	73%
<i>Memo: international marine bunkers</i>	-	2.60	-	-	2.60	683%
<i>Memo: international aviation bunkers</i>	-	3.14	-	-	3.14	99%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	23.64	49.5%	14.1	14.1
Manufacturing industries - coal	6.41	7.9%	3.8	17.9
Other energy industry own use - gas	5.45	119.1%	3.2	21.1
Main activity prod. elec. and heat - gas	5.18	77.3%	3.1	24.2
Main activity prod. elec. and heat - coal	5.14	93.3%	3.1	27.2
Manufacturing industries - gas	5.11	174.1%	3.0	30.3
Non-specified other - oil	4.56	108.0%	2.7	33.0
Residential - gas	2.38	+	1.4	34.4
Manufacturing industries - oil	2.29	-45.9%	1.4	35.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>68.34</i>	<i>49.3%</i>	<i>40.6</i>	<i>40.6</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Congo

Figure 1. CO₂ emissions by fuel

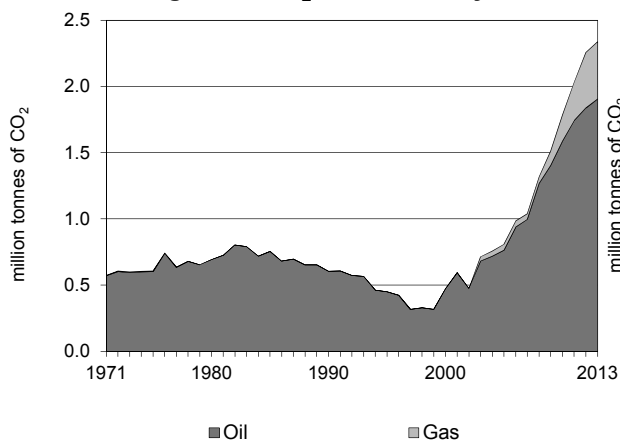


Figure 2. CO₂ emissions by sector

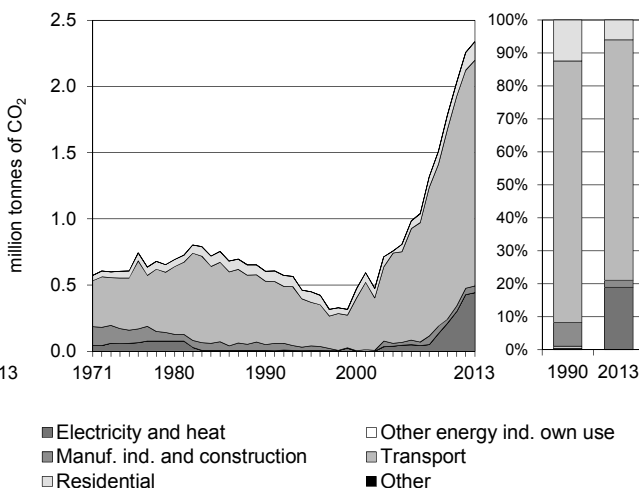


Figure 3. Electricity generation by fuel

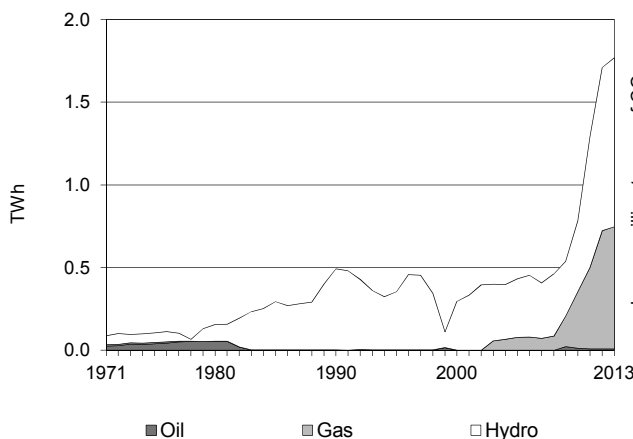


Figure 4. CO₂ from electricity generation: driving factors¹

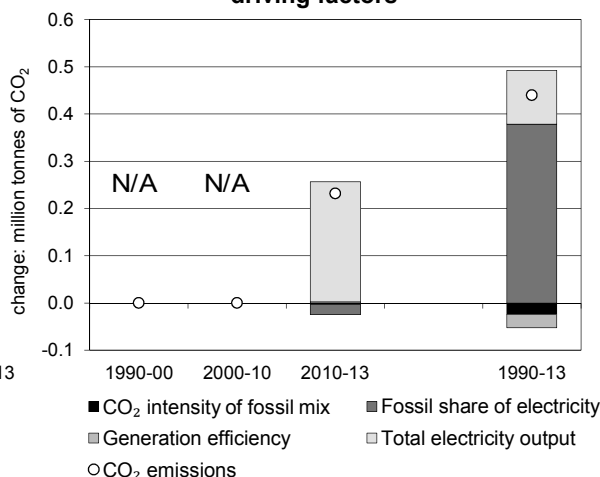


Figure 5. Changes in selected indicators

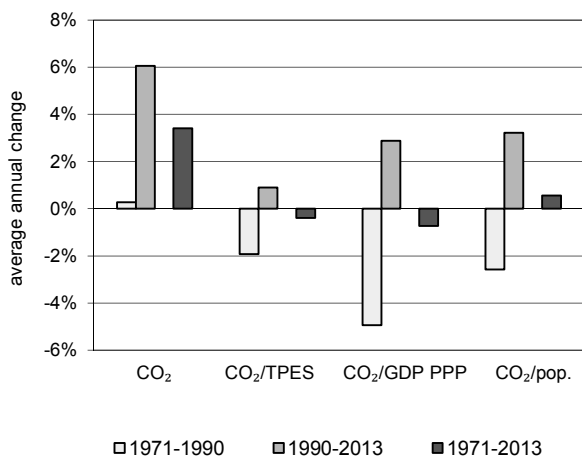
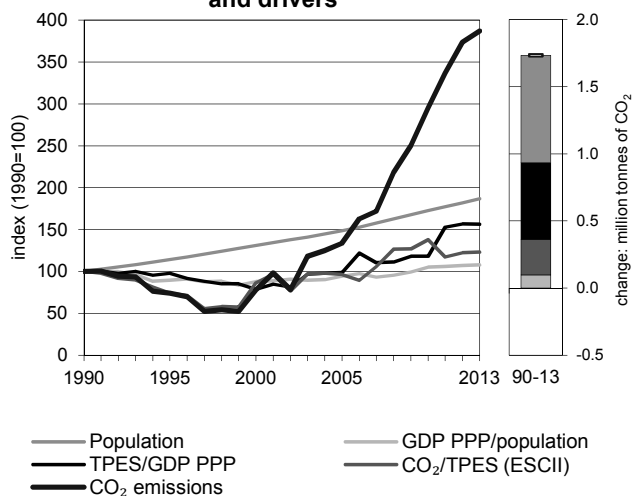


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Congo

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	0.60	0.45	0.47	0.81	1.78	2.26	2.34	287%
Share of World CO ₂ from fuel combustion	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	
TPES (PJ)	32	32	29	45	70	99	102	215%
GDP (billion 2005 USD)	4.33	4.43	4.99	6.09	7.85	8.43	8.72	101%
GDP PPP (billion 2005 USD)	11.17	11.42	12.87	15.70	20.26	21.75	22.49	101%
Population (millions)	2.38	2.72	3.13	3.54	4.11	4.34	4.45	87%
CO ₂ / TPES (tCO ₂ per TJ)	18.6	13.8	16.0	17.9	25.7	22.8	22.9	23%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.14	0.10	0.09	0.13	0.23	0.27	0.27	92%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.05	0.04	0.04	0.05	0.09	0.10	0.10	92%
CO ₂ / population (tCO ₂ per capita)	0.25	0.16	0.15	0.23	0.43	0.52	0.53	107%
Share of electricity output from fossil fuels	1%	1%	0%	18%	45%	42%	42%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	7	9	-	104	269	251	251	3752%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	74	78	134	295	374	387	287%
Population index	100	114	131	149	173	182	187	87%
GDP PPP per population index	100	90	88	95	105	107	108	8%
Energy intensity index - TPES / GDP PPP	100	98	79	99	118	157	156	56%
Carbon intensity index - CO ₂ / TPES	100	74	86	96	138	122	123	23%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	1.90	0.43	-	2.34	287%
Electricity and heat generation	-	0.01	0.43	-	0.44	+
Other energy industry own use	-	-	-	-	-	-100%
Manufacturing industries and construction	-	0.05	-	-	0.05	14%
Transport	-	1.71	-	-	1.71	256%
<i>of which: road</i>	-	1.65	-	-	1.65	262%
Other	-	0.14	-	-	0.14	87%
<i>of which: residential</i>	-	0.14	-	-	0.14	87%
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	..	-	-
<i>Memo: international aviation bunkers</i>	-	0.20	-	-	0.20	167%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	1.65	261.9%	9.8	9.8
Unallocated autoproducers - gas	0.43	x	2.6	12.3
Residential - oil	0.14	86.7%	0.8	13.2
Other transport - oil	0.05	129.1%	0.3	13.5
Manufacturing industries - oil	0.05	14.3%	0.3	13.8
Main activity prod. elec. and heat - oil	0.01	200.1%	0.1	13.8
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>2.34</i>	<i>287.0%</i>	<i>13.8</i>	<i>13.8</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Costa Rica

Figure 1. CO₂ emissions by fuel

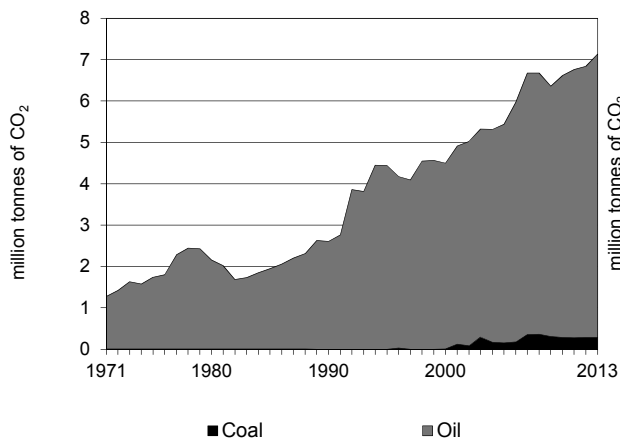


Figure 2. CO₂ emissions by sector

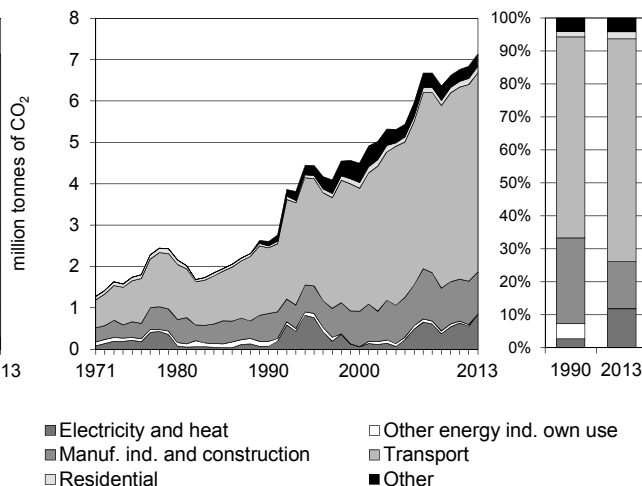


Figure 3. Electricity generation by fuel

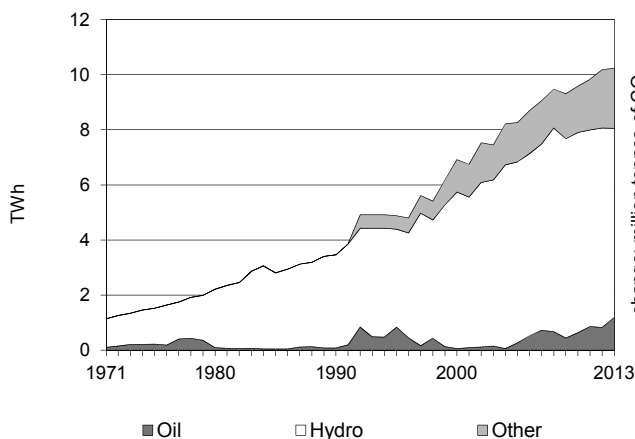


Figure 4. CO₂ from electricity generation: driving factors ¹

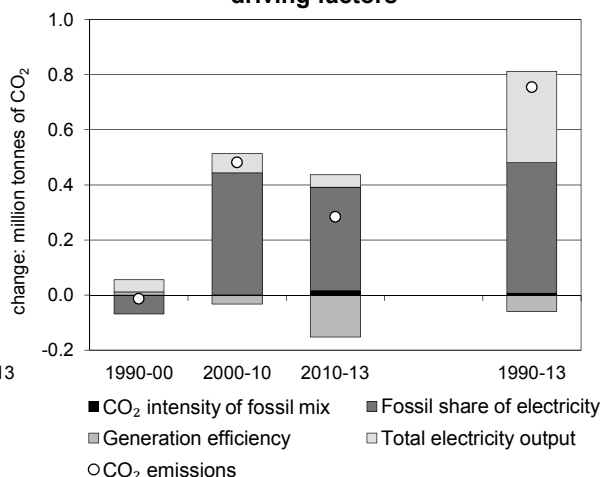


Figure 5. Changes in selected indicators

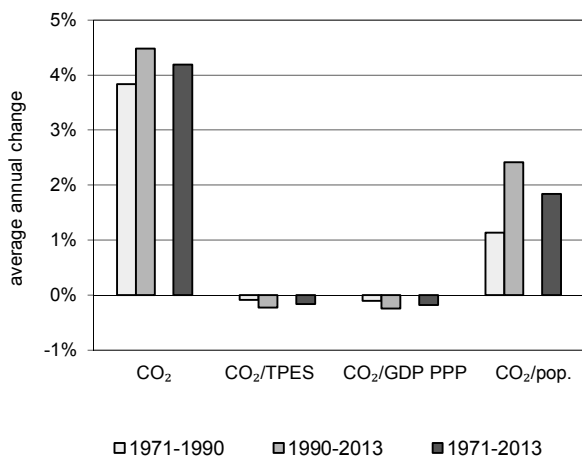
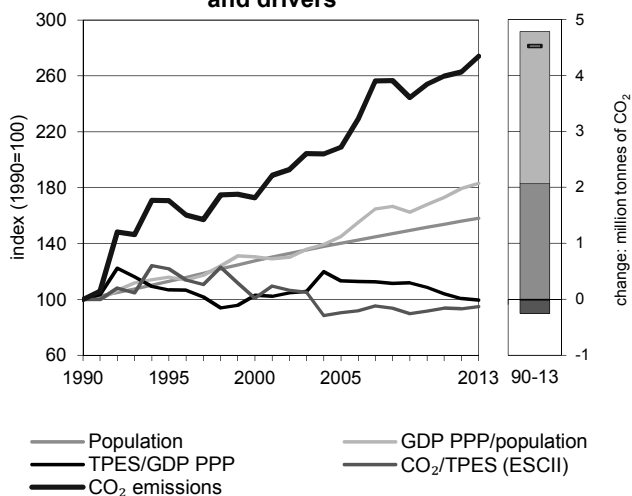


Figure 6. Total CO₂ emissions and drivers ²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Costa Rica

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	2.60	4.44	4.50	5.44	6.61	6.84	7.13	174%
Share of World CO ₂ from fuel combustion	0.01%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	
TPES (PJ)	70	98	120	162	195	198	203	189%
GDP (billion 2005 USD)	9.82	12.85	16.34	19.97	25.02	27.49	28.45	190%
GDP PPP (billion 2005 USD)	20.10	26.31	33.46	40.89	51.23	56.29	58.26	190%
Population (millions)	3.08	3.48	3.93	4.32	4.67	4.81	4.87	58%
CO ₂ / TPES (tCO ₂ per TJ)	37.1	45.2	37.4	33.6	34.0	34.6	35.2	-5%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.27	0.35	0.28	0.27	0.26	0.25	0.25	-5%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.13	0.17	0.13	0.13	0.13	0.12	0.12	-5%
CO ₂ / population (tCO ₂ per capita)	0.85	1.28	1.14	1.26	1.42	1.42	1.46	73%
Share of electricity output from fossil fuels	2%	17%	1%	3%	7%	8%	12%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	20	156	8	28	56	55	81	298%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	171	173	209	254	263	274	174%
Population index	100	113	128	140	152	156	158	58%
GDP PPP per population index	100	116	130	145	168	179	183	83%
Energy intensity index - TPES / GDP PPP	100	107	103	113	109	101	100	0%
Carbon intensity index - CO ₂ / TPES	100	122	101	91	92	93	95	-5%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	0.28	6.85	-	-	7.13	174%
Electricity and heat generation	-	0.82	-	-	0.82	+
Other energy industry own use	-	0.03	-	-	0.03	-74%
Manufacturing industries and construction	0.28	0.72	-	-	1.01	48%
Transport	-	4.82	-	-	4.82	204%
<i>of which: road</i>	-	4.80	-	-	4.80	702%
Other	-	0.45	-	-	0.45	204%
<i>of which: residential</i>	-	0.16	-	-	0.16	246%
<i>of which: services</i>	-	0.12	-	-	0.12	56%
<i>Memo: international marine bunkers</i>	-	0.01	-	-	0.01	-95%
<i>Memo: international aviation bunkers</i>	-	0.48	-	-	0.48	+

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	4.80	701.9%	40.6	40.6
Main activity prod. elec. and heat - oil	0.82	+	7.0	47.5
Manufacturing industries - oil	0.72	6.3%	6.1	53.6
Non-specified other - oil	0.30	185.4%	2.5	56.1
Manufacturing industries - coal	0.28	x	2.4	58.5
Residential - oil	0.16	246.0%	1.3	59.8
Other energy industry own use - oil	0.03	-73.7%	0.3	60.1
Other transport - oil	0.02	-98.4%	0.1	60.2
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>7.13</i>	<i>174.1%</i>	<i>60.2</i>	<i>60.2</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Côte d'Ivoire

Figure 1. CO₂ emissions by fuel

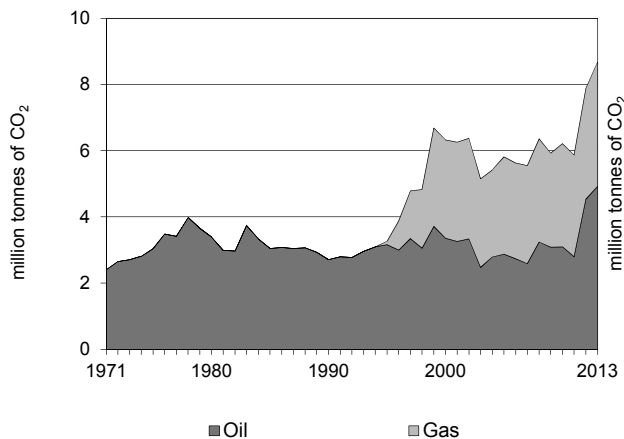


Figure 2. CO₂ emissions by sector

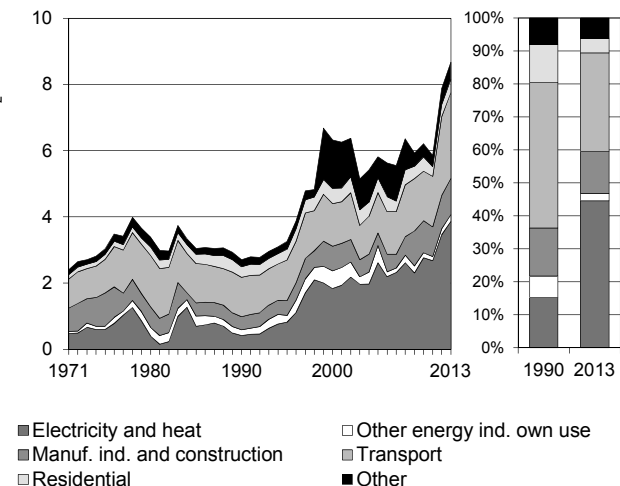


Figure 3. Electricity generation by fuel

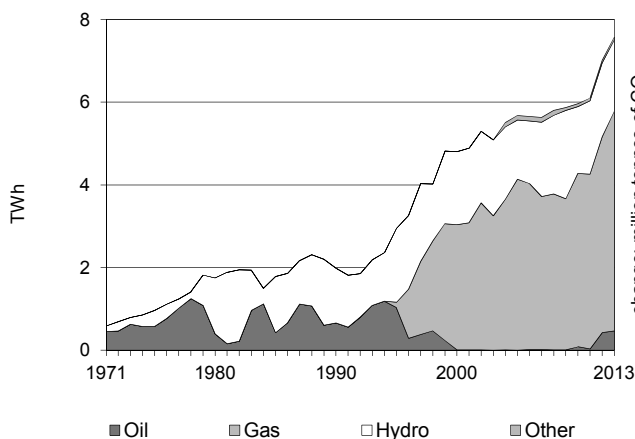


Figure 4. CO₂ from electricity generation: driving factors ¹

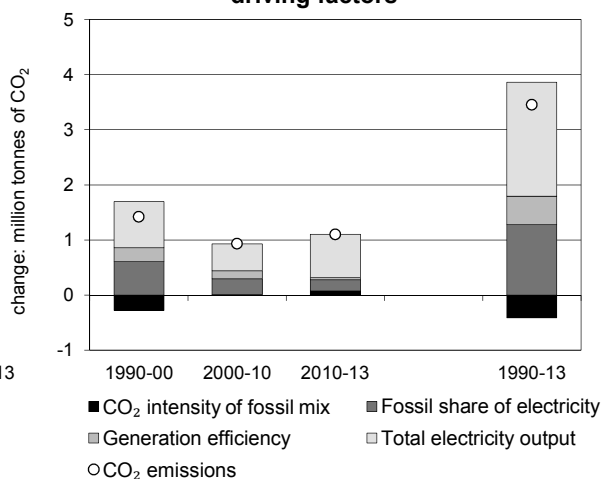


Figure 5. Changes in selected indicators

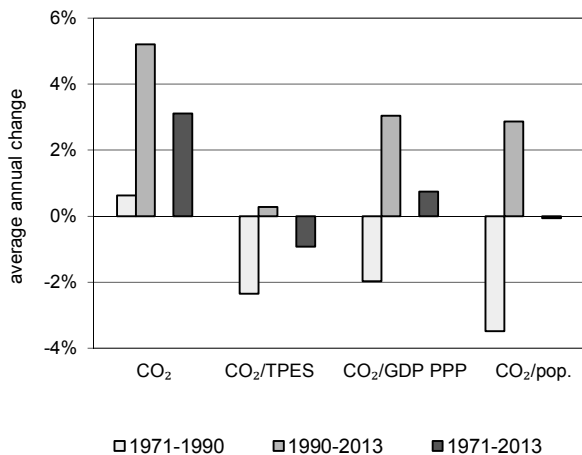
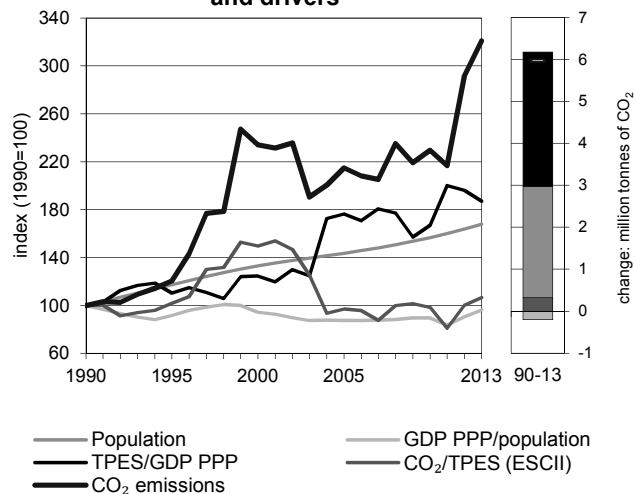


Figure 6. Total CO₂ emissions and drivers ²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Côte d'Ivoire

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	2.70	3.26	6.33	5.81	6.21	7.88	8.68	221%
Share of World CO ₂ from fuel combustion	0.01%	0.02%	0.03%	0.02%	0.02%	0.03%	0.03%	
TPES (PJ)	182	216	284	403	425	529	548	201%
GDP (billion 2005 USD)	13.61	14.64	17.09	17.09	19.06	20.17	21.93	61%
GDP PPP (billion 2005 USD)	34.88	37.52	43.79	43.79	48.87	51.71	56.21	61%
Population (millions)	12.12	14.22	16.13	17.39	18.98	19.84	20.32	68%
CO ₂ / TPES (tCO ₂ per TJ)	14.9	15.1	22.3	14.4	14.6	14.9	15.8	7%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.20	0.22	0.37	0.34	0.33	0.39	0.40	99%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.08	0.09	0.14	0.13	0.13	0.15	0.15	99%
CO ₂ / population (tCO ₂ per capita)	0.22	0.23	0.39	0.33	0.33	0.40	0.43	91%
Share of electricity output from fossil fuels	33%	39%	63%	73%	72%	74%	76%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	208	278	381	460	463	493	511	146%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	121	234	215	230	291	321	221%
Population index	100	117	133	144	157	164	168	68%
GDP PPP per population index	100	92	94	87	89	91	96	-4%
Energy intensity index - TPES / GDP PPP	100	110	124	176	167	196	187	87%
Carbon intensity index - CO ₂ / TPES	100	102	150	97	98	100	107	7%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	4.92	3.76	-	8.68	221%
Electricity and heat generation	-	0.44	3.43	-	3.86	839%
Other energy industry own use	-	0.20	-	-	0.20	13%
Manufacturing industries and construction	-	0.77	0.33	-	1.10	178%
Transport	-	2.59	-	-	2.59	118%
<i>of which: road</i>	-	2.29	-	-	2.29	122%
Other	-	0.92	-	-	0.92	74%
<i>of which: residential</i>	-	0.39	-	-	0.39	25%
<i>of which: services</i>	-	0.23	-	-	0.23	197%
<i>Memo: international marine bunkers</i>	-	0.07	-	-	0.07	-44%
<i>Memo: international aviation bunkers</i>	-	0.21	-	-	0.21	-23%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - gas	3.43	x	9.6	9.6
Road - oil	2.29	121.6%	6.4	16.0
Manufacturing industries - oil	0.77	95.5%	2.2	18.2
Non-specified other - oil	0.53	145.3%	1.5	19.7
Main activity prod. elec. and heat - oil	0.44	7.6%	1.2	20.9
Residential - oil	0.39	24.6%	1.1	22.0
Manufacturing industries - gas	0.33	x	0.9	22.9
Other transport - oil	0.30	92.2%	0.8	23.8
Other energy industry own use - oil	0.20	12.5%	0.6	24.3
<i>Memo: total CO₂ from fuel combustion</i>	8.68	220.8%	24.3	24.3

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Croatia

Figure 1. CO₂ emissions by fuel

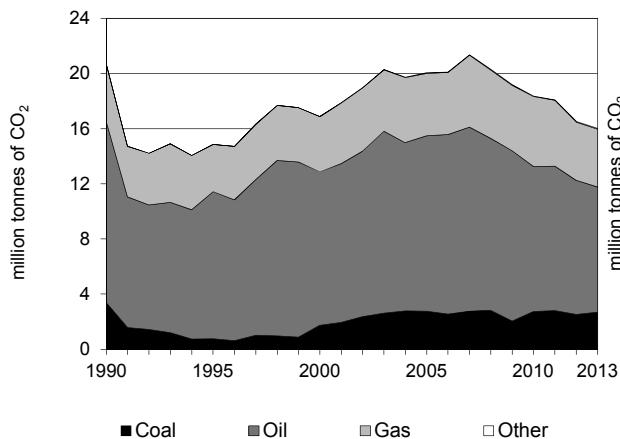


Figure 2. CO₂ emissions by sector

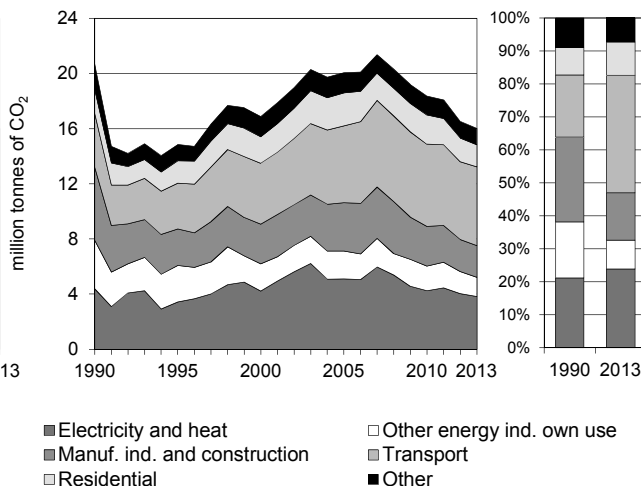


Figure 3. Electricity generation by fuel

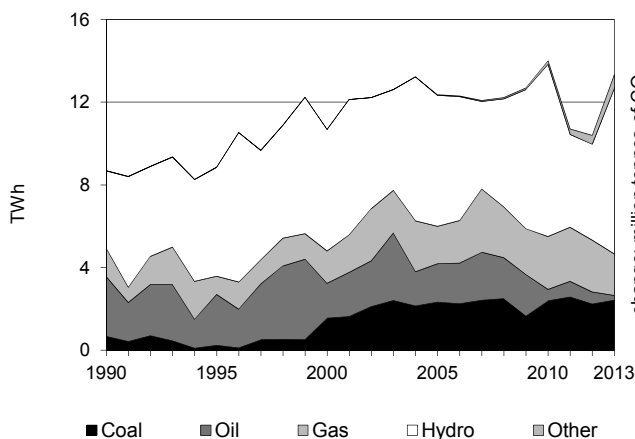


Figure 4. CO₂ from electricity generation: driving factors¹

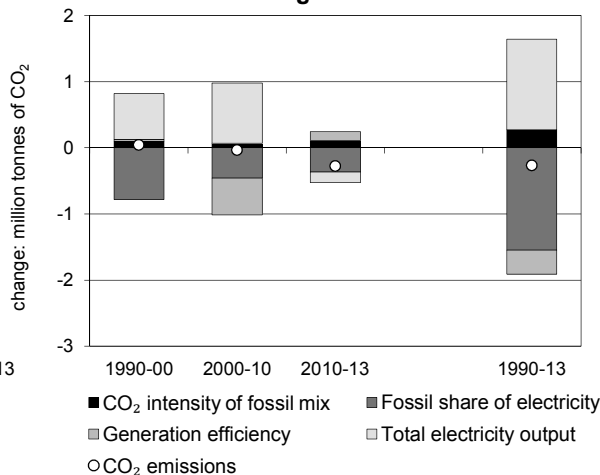


Figure 5. Changes in selected indicators

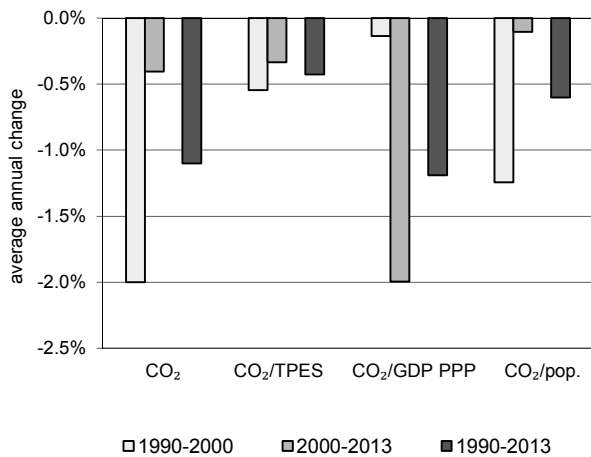
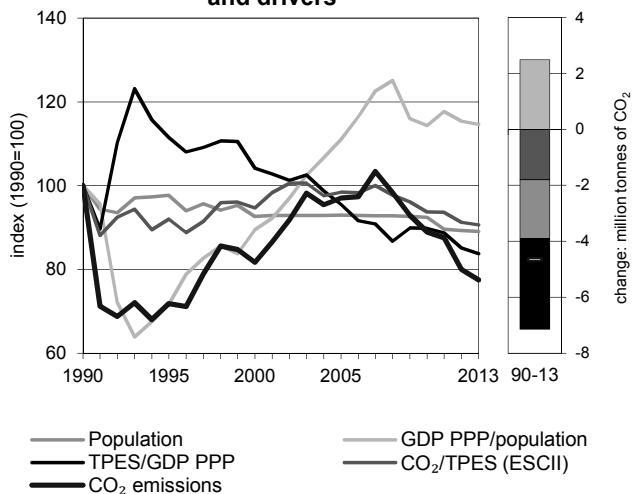


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Croatia

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	20.66	14.84	16.88	20.04	18.37	16.53	16.01	-22%
Share of World CO ₂ from fuel combustion	0.10%	0.07%	0.07%	0.07%	0.06%	0.05%	0.05%	
TPES (PJ)	378	295	326	373	359	332	323	-14%
GDP (billion 2005 USD)	44.00	30.83	36.46	45.42	46.49	45.35	44.92	2%
GDP PPP (billion 2005 USD)	66.86	46.85	55.39	69.01	70.64	68.90	68.26	2%
Population (millions)	4.78	4.67	4.43	4.44	4.42	4.27	4.26	-11%
CO ₂ / TPES (tCO ₂ per TJ)	54.7	50.3	51.7	53.8	51.2	49.9	49.5	-9%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.47	0.48	0.46	0.44	0.40	0.36	0.36	-24%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.31	0.32	0.30	0.29	0.26	0.24	0.23	-24%
CO ₂ / population (tCO ₂ per capita)	4.32	3.18	3.81	4.51	4.16	3.87	3.76	-13%
Share of electricity output from fossil fuels	57%	40%	45%	49%	39%	51%	35%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	385	266	317	335	240	316	231	-40%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	72	82	97	89	80	78	-22%
Population index	100	98	93	93	92	89	89	-11%
GDP PPP per population index	100	72	89	111	114	115	115	15%
Energy intensity index - TPES / GDP PPP	100	111	104	96	90	85	84	-16%
Carbon intensity index - CO ₂ / TPES	100	92	95	98	94	91	91	-9%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	2.69	9.07	4.19	0.05	16.01	-22%
Electricity and heat generation	2.22	0.21	1.40	-	3.83	-13%
Other energy industry own use	-	0.94	0.45	-	1.39	-60%
Manufacturing industries and construction	0.45	0.98	0.82	0.05	2.30	-57%
Transport	-	5.70	0.00	-	5.70	46%
<i>of which: road</i>	-	5.36	0.00	-	5.36	69%
Other	0.02	1.26	1.50	-	2.78	-22%
<i>of which: residential</i>	0.02	0.45	1.15	-	1.62	-7%
<i>of which: services</i>	0.00	0.19	0.32	-	0.51	-5%
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.24	-	-	0.24	65%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	5.36	68.6%	21.1	21.1
Main activity prod. elec. and heat - coal	2.20	254.1%	8.7	29.8
Main activity prod. elec. and heat - gas	1.28	18.5%	5.0	34.9
Residential - gas	1.15	198.9%	4.5	39.4
Manufacturing industries - oil	0.98	-50.5%	3.9	43.3
Other energy industry own use - oil	0.94	-59.6%	3.7	46.9
Manufacturing industries - gas	0.82	-43.7%	3.3	50.2
Non-specified other - oil	0.81	-47.5%	3.2	53.4
Other energy industry own use - gas	0.45	-50.5%	1.8	55.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>16.01</i>	<i>-22.5%</i>	<i>63.2</i>	<i>63.2</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Cuba

Figure 1. CO₂ emissions by fuel

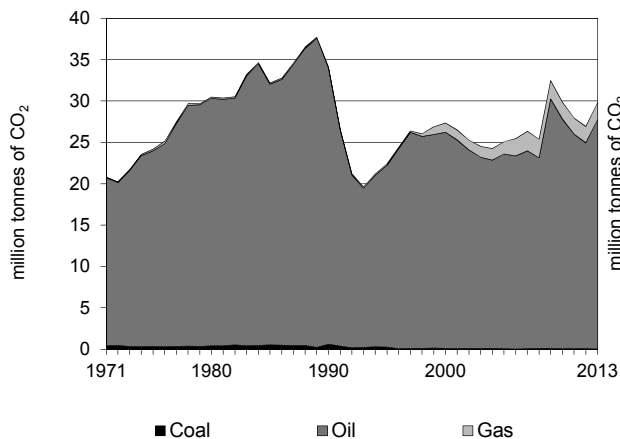


Figure 2. CO₂ emissions by sector

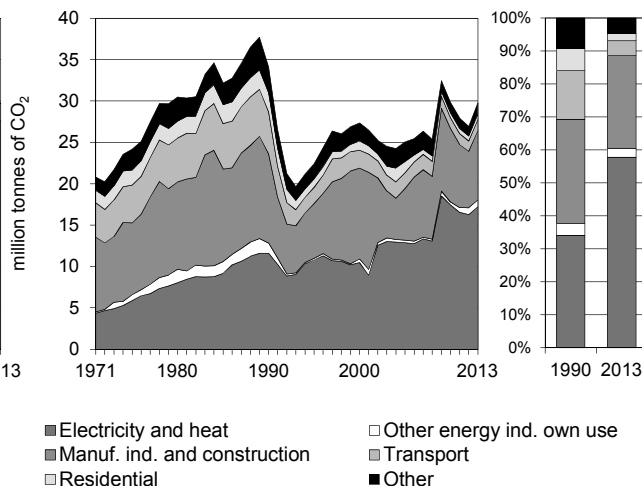


Figure 3. Electricity generation by fuel

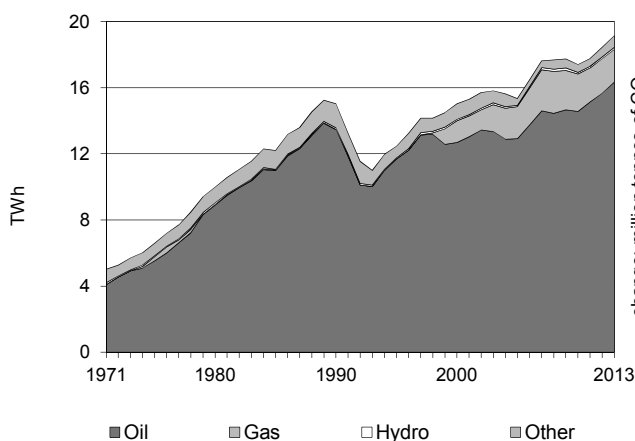


Figure 4. CO₂ from electricity generation: driving factors¹

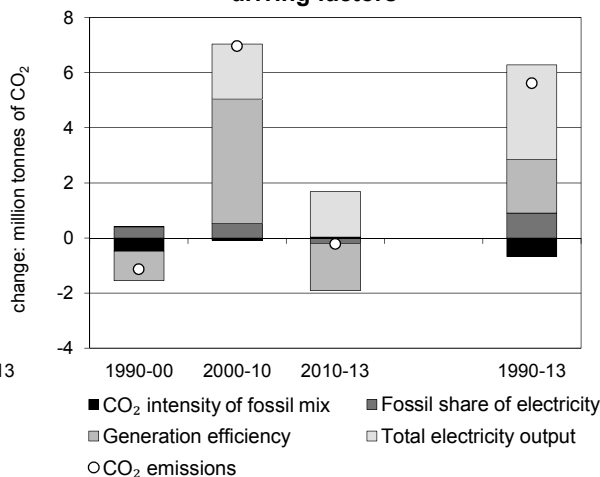


Figure 5. Changes in selected indicators

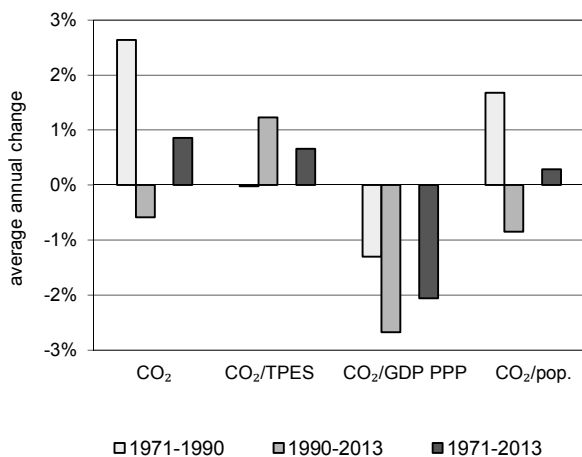
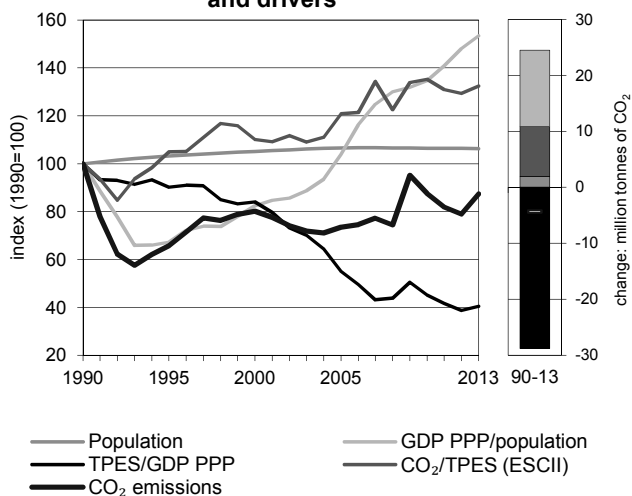


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Cuba

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	34.10	22.41	27.34	25.08	29.85	26.92	29.79	-13%
Share of World CO ₂ from fuel combustion	0.17%	0.10%	0.12%	0.09%	0.10%	0.09%	0.09%	
TPES (PJ)	743	465	541	453	481	454	490	-34%
GDP (billion 2005 USD)	38.54	26.73	33.38	42.64	55.44	60.68	62.80	63%
GDP PPP (billion 2005 USD)	75.21	52.17	65.14	83.23	107.85	118.42	122.56	63%
Population (millions)	10.60	10.93	11.14	11.29	11.28	11.27	11.27	6%
CO ₂ / TPES (tCO ₂ per TJ)	45.9	48.2	50.5	55.4	62.0	59.3	60.7	32%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.88	0.84	0.82	0.59	0.54	0.44	0.47	-46%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.45	0.43	0.42	0.30	0.28	0.23	0.24	-46%
CO ₂ / population (tCO ₂ per capita)	3.22	2.05	2.45	2.22	2.65	2.39	2.64	-18%
Share of electricity output from fossil fuels	90%	94%	93%	97%	97%	96%	96%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	773	867	697	840	1002	883	900	16%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	66	80	74	88	79	87	-13%
Population index	100	103	105	107	106	106	106	6%
GDP PPP per population index	100	67	82	104	135	148	153	53%
Energy intensity index - TPES / GDP PPP	100	90	84	55	45	39	40	-60%
Carbon intensity index - CO ₂ / TPES	100	105	110	121	135	129	132	32%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	0.02	27.74	2.03	-	29.79	-13%
Electricity and heat generation	-	16.22	1.00	-	17.22	48%
Other energy industry own use	-	0.81	-	-	0.81	-34%
Manufacturing industries and construction	0.02	7.48	0.89	-	8.38	-22%
Transport	-	1.33	-	-	1.33	-74%
<i>of which: road</i>	-	1.20	-	-	1.20	-73%
Other	-	1.90	0.14	-	2.04	-62%
<i>of which: residential</i>	-	0.50	0.13	-	0.62	-73%
<i>of which: services</i>	-	0.02	-	-	0.02	x
<i>Memo: international marine bunkers</i>	-	0.10	-	-	0.10	72%
<i>Memo: international aviation bunkers</i>	-	0.47	-	-	0.47	-52%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - oil	15.96	49.6%	34.7	34.7
Manufacturing industries - oil	7.48	-26.5%	16.3	50.9
Non-specified other - oil	1.41	-54.5%	3.1	54.0
Road - oil	1.20	-72.7%	2.6	56.6
Main activity prod. elec. and heat - gas	1.00	+	2.2	58.8
Manufacturing industries - gas	0.89	+	1.9	60.7
Other energy industry own use - oil	0.81	-34.0%	1.8	62.4
Residential - oil	0.50	-77.4%	1.1	63.5
Unallocated autoproducers - oil	0.26	-72.0%	0.6	64.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>29.79</i>	<i>-12.7%</i>	<i>64.7</i>	<i>64.7</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Curaçao ¹

Figure 1. CO₂ emissions by fuel

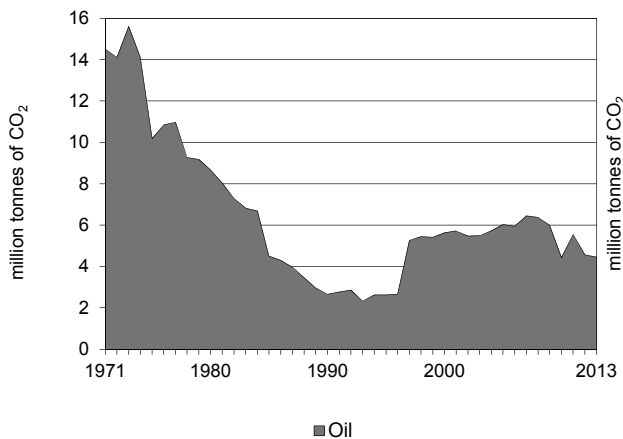


Figure 2. CO₂ emissions by sector

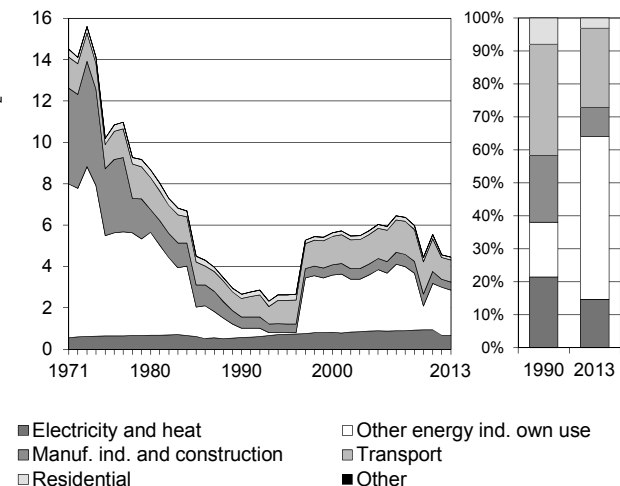


Figure 3. Electricity generation by fuel

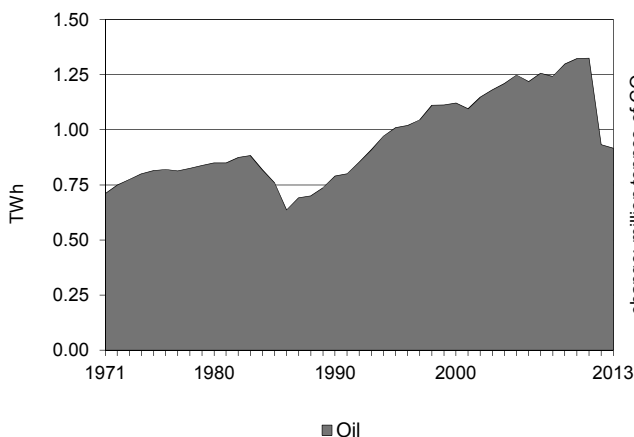


Figure 4. CO₂ from electricity generation: driving factors ²

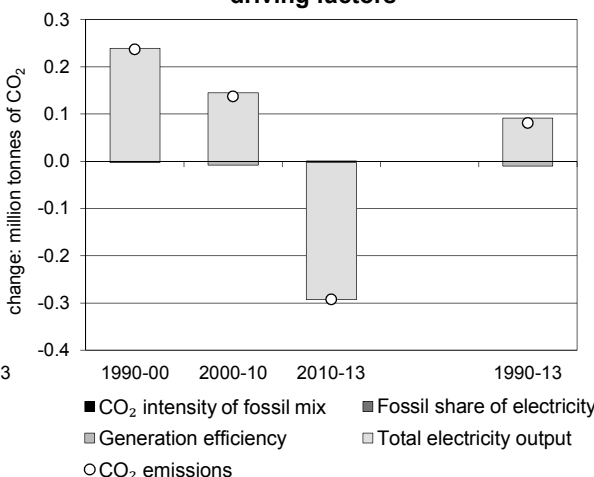


Figure 5. Changes in selected indicators

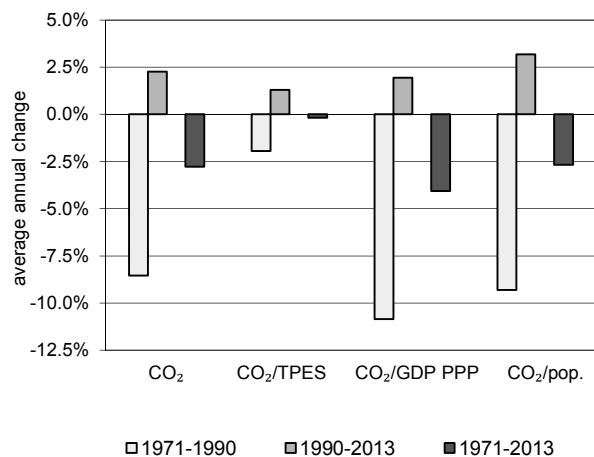
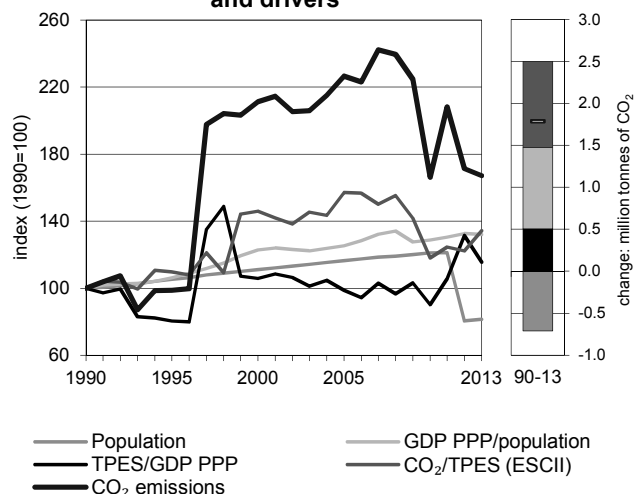


Figure 6. Total CO₂ emissions and drivers ³



1. From 2012, data refer to Curaçao island only, from 1971-2011 data refer to the Netherlands Antilles. See Part I, Chapter 4, *Geographical Coverage*.
 2. Electricity decomposition: CO₂ emissions = CO₂ intensity of mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 3. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 1.

Curaçao ¹

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	2.66	2.63	5.63	6.03	4.43	4.57	4.45	67%
Share of World CO ₂ from fuel combustion	0.01%	0.01%	0.02%	0.02%	0.01%	0.01%	0.01%	
TPES (PJ)	61	55	88	88	86	86	76	24%
GDP (billion 2005 USD)	1.72	1.92	2.34	2.50	2.68	1.83	1.85	8%
GDP PPP (billion 2005 USD)	1.54	1.72	2.10	2.24	2.40	1.64	1.66	8%
Population (millions)	0.19	0.20	0.21	0.22	0.23	0.15	0.15	-19%
CO ₂ / TPES (tCO ₂ per TJ)	43.6	47.9	63.7	68.5	51.5	53.3	58.6	34%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	1.55	1.37	2.40	2.41	1.65	2.49	2.41	55%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	1.73	1.53	2.68	2.69	1.84	2.78	2.69	55%
CO ₂ / population (tCO ₂ per capita)	14.09	13.23	26.80	27.43	19.34	30.04	28.91	105%
Share of electricity output from fossil fuels	100%	100%	100%	100%	100%	100%	100%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	724	721	721	718	715	713	712	-2%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ²								
CO ₂ emissions index	100	99	211	227	166	171	167	67%
Population index	100	105	111	116	121	80	81	-19%
GDP PPP per population index	100	106	123	125	129	133	132	32%
Energy intensity index - TPES / GDP PPP	100	80	106	99	90	131	116	16%
Carbon intensity index - CO ₂ / TPES	100	110	146	157	118	122	134	34%

1. Please refer to Part I, Chapter 4, *Geographical Coverage*. 2. Please see Part I, Chapter 2 for methodological notes.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ³	Total	% change 90-13
CO₂ fuel combustion	-	4.45	-	-	4.45	67%
Electricity and heat generation	-	0.65	-	-	0.65	14%
Other energy industry own use	-	2.20	-	-	2.20	398%
Manufacturing industries and construction	-	0.39	-	-	0.39	-27%
Transport	-	1.07	-	-	1.07	19%
<i>of which: road</i>	-	1.07	-	-	1.07	19%
Other	-	0.14	-	-	0.14	-36%
<i>of which: residential</i>	-	0.14	-	-	0.14	-36%
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	5.16	-	-	5.16	-1%
<i>Memo: international aviation bunkers</i>	-	0.20	-	-	0.20	68%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ⁴	Cumulative total (%)
Other energy industry own use - oil	2.20	397.9%	..	..
Road - oil	1.07	19.2%	..	..
Manufacturing industries - oil	0.39	-27.0%	..	..
Unallocated autoproducers - oil	0.33	12.8%	..	..
Main activity prod. elec. and heat - oil	0.32	15.6%	..	..
Residential - oil	0.14	-35.6%	..	..
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	4.45	67.1%	-	-

4. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Cyprus ¹

Figure 1. CO₂ emissions by fuel

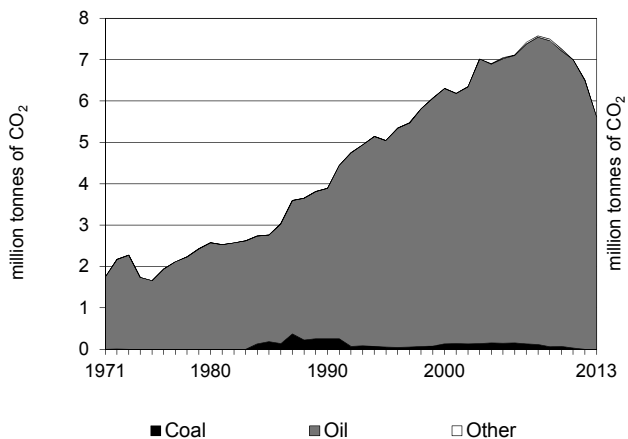


Figure 2. CO₂ emissions by sector

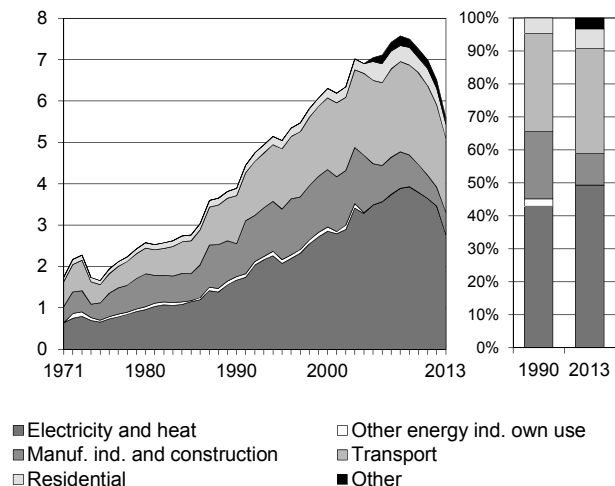


Figure 3. Electricity generation by fuel

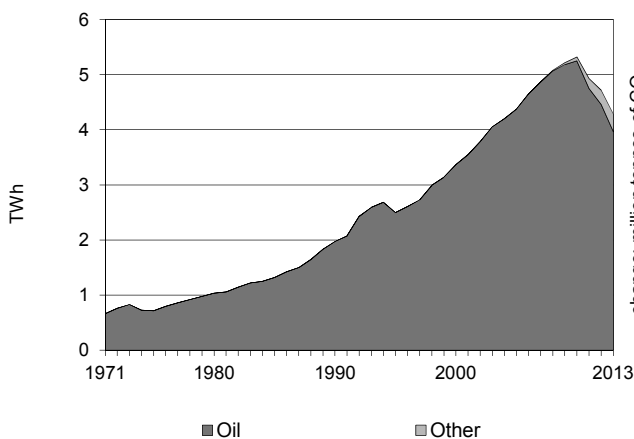


Figure 4. CO₂ from electricity generation: driving factors ²

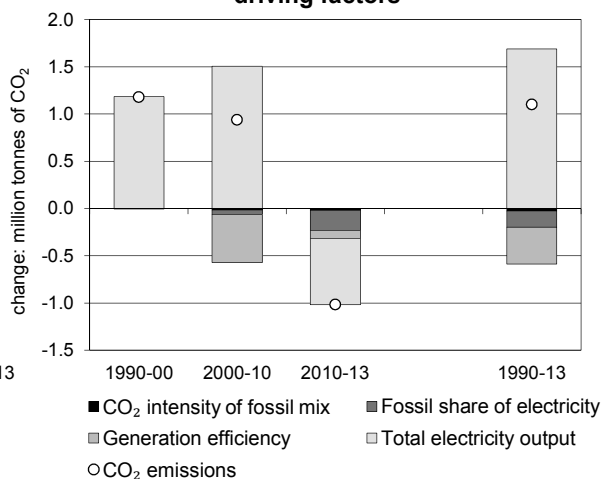


Figure 5. Changes in selected indicators

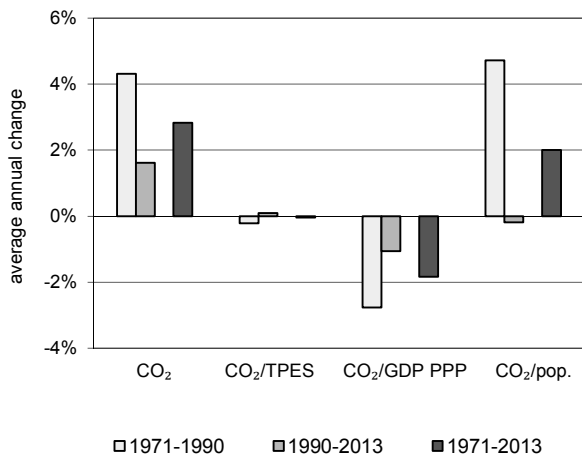
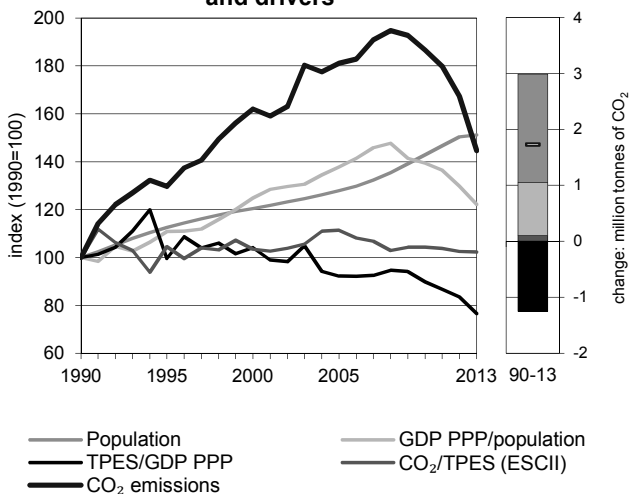


Figure 6. Total CO₂ emissions and drivers ³



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

2. Electricity decomposition: CO₂ emissions = CO₂ intensity of mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

3. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 1.

Cyprus ¹

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	3.89	5.05	6.30	7.05	7.26	6.51	5.62	45%
Share of World CO ₂ from fuel combustion	0.02%	0.02%	0.03%	0.03%	0.02%	0.02%	0.02%	
TPES (PJ)	57	71	89	93	102	93	81	41%
GDP (billion 2005 USD)	9.64	12.02	14.50	17.00	19.21	18.82	17.81	85%
GDP PPP (billion 2005 USD)	10.49	13.08	15.78	18.50	20.90	20.48	19.38	85%
Population (millions)	0.57	0.65	0.69	0.73	0.82	0.86	0.87	51%
CO ₂ / TPES (tCO ₂ per TJ)	68.1	71.1	70.4	75.8	71.0	69.8	69.6	2%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.40	0.42	0.43	0.41	0.38	0.35	0.32	-22%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.37	0.39	0.40	0.38	0.35	0.32	0.29	-22%
CO ₂ / population (tCO ₂ per capita)	6.79	7.82	9.13	9.61	8.86	7.55	6.49	-4%
Share of electricity output from fossil fuels	100%	100%	100%	100%	99%	95%	92%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	847	831	846	796	712	734	646	-24%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ²								
CO ₂ emissions index	100	130	162	181	187	167	145	45%
Population index	100	113	120	128	143	150	151	51%
GDP PPP per population index	100	111	125	138	139	130	122	22%
Energy intensity index - TPES / GDP PPP	100	100	104	92	90	84	77	-23%
Carbon intensity index - CO ₂ / TPES	100	104	104	111	104	103	102	2%

1. Please refer to Part I, Chapter 4, *Geographical Coverage*. 2. Please see Part I, Chapter 2 for methodological notes.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ³	Total	% change 90-13
CO₂ fuel combustion	0.00	5.62	-	0.01	5.62	45%
Electricity and heat generation	-	2.77	-	-	2.77	66%
Other energy industry own use	-	-	-	-	-	-100%
Manufacturing industries and construction	-	0.54	-	0.01	0.54	-32%
Transport	-	1.79	-	-	1.79	55%
<i>of which: road</i>	-	1.79	-	-	1.79	55%
Other	0.00	0.52	-	-	0.52	189%
<i>of which: residential</i>	-	0.33	-	-	0.33	85%
<i>of which: services</i>	-	0.09	-	-	0.09	x
<i>Memo: international marine bunkers</i>	-	0.75	-	-	0.75	313%
<i>Memo: international aviation bunkers</i>	-	0.72	-	-	0.72	-0%

3. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ⁴	Cumulative total (%)
Main activity prod. elec. and heat - oil	2.75	64.7%	36.4	36.4
Road - oil	1.79	54.6%	23.7	60.2
Manufacturing industries - oil	0.54	-1.0%	7.1	67.2
Residential - oil	0.33	85.0%	4.4	71.6
Non-specified other - oil	0.19	x	2.5	74.1
Unallocated autoproducers - oil	0.02	x	0.2	74.3
Manufacturing industries -other	0.01	x	0.1	74.4
Non-specified other sectors - coal	0.00	x	0.0	74.4
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	5.62	44.6%	74.4	74.4

4. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Czech Republic

Figure 1. CO₂ emissions by fuel

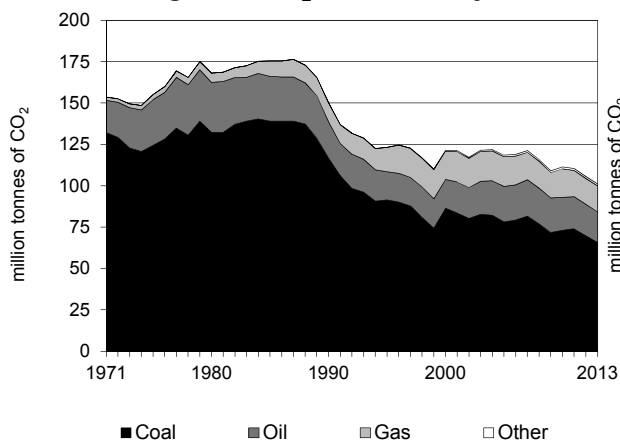


Figure 2. CO₂ emissions by sector

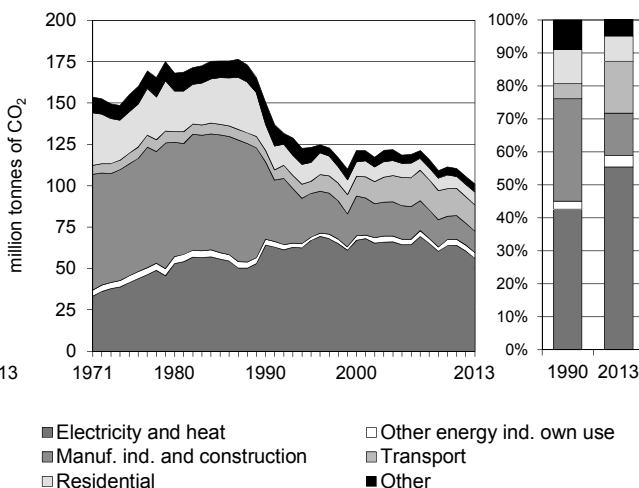


Figure 3. Electricity generation by fuel

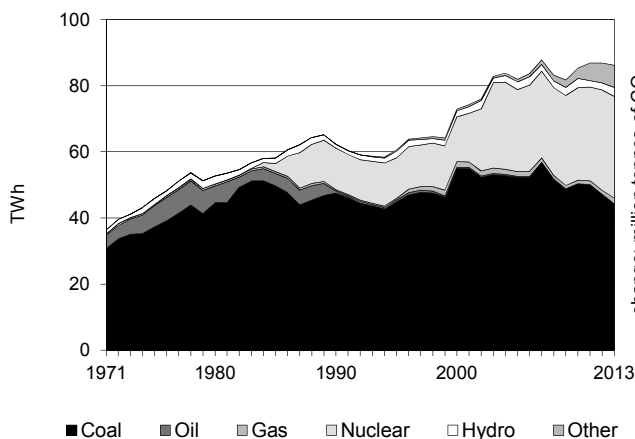


Figure 4. CO₂ from electricity generation: driving factors¹

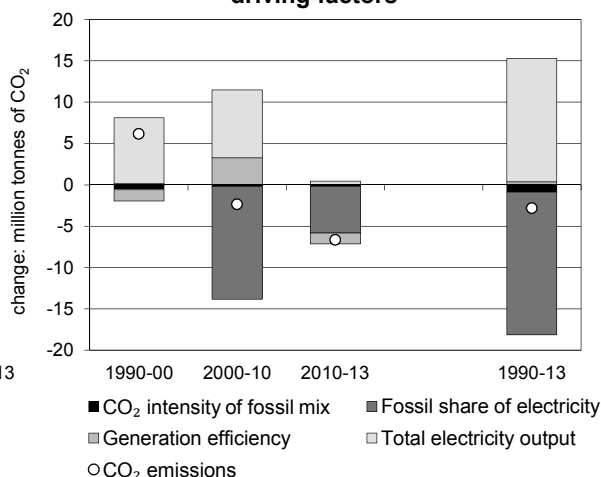


Figure 5. Changes in selected indicators

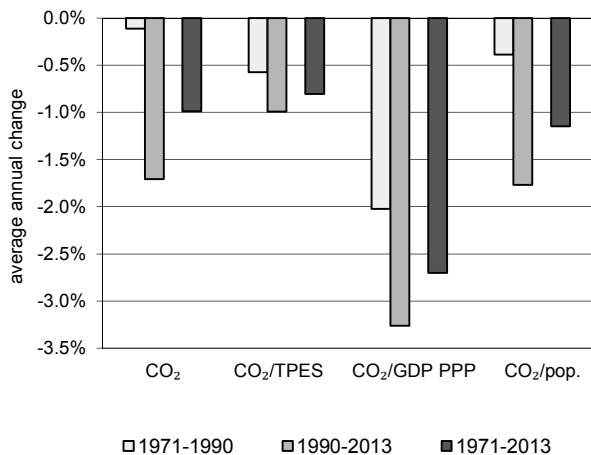
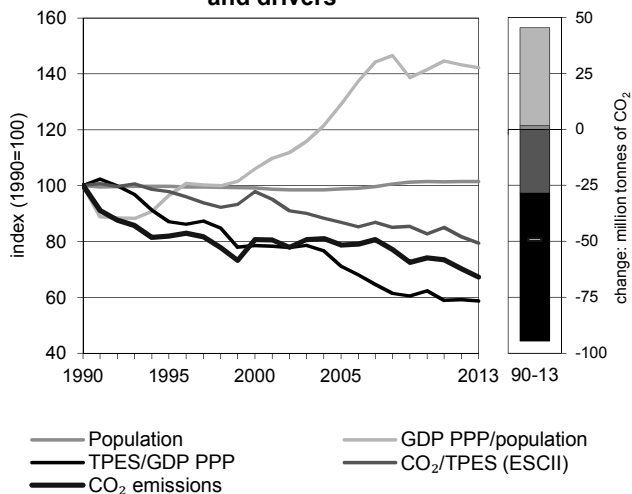


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Czech Republic

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	150.32	123.28	121.33	118.46	111.42	105.58	101.13	-33%
Share of World CO ₂ from fuel combustion	0.73%	0.57%	0.52%	0.44%	0.37%	0.34%	0.31%	
TPES (PJ)	2 075	1 738	1 712	1 881	1 858	1 784	1 756	-15%
GDP (billion 2005 USD)	106.77	102.69	112.18	135.99	153.35	155.10	154.01	44%
GDP PPP (billion 2005 USD)	178.67	171.85	187.72	227.57	256.62	259.55	257.72	44%
Population (millions)	10.36	10.33	10.27	10.23	10.52	10.51	10.51	1%
CO ₂ / TPES (tCO ₂ per TJ)	72.4	70.9	70.9	63.0	60.0	59.2	57.6	-21%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	1.41	1.20	1.08	0.87	0.73	0.68	0.66	-53%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.84	0.72	0.65	0.52	0.43	0.41	0.39	-53%
CO ₂ / population (tCO ₂ per capita)	14.51	11.93	11.81	11.58	10.59	10.05	9.62	-34%
Share of electricity output from fossil fuels	78%	76%	78%	66%	60%	56%	54%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	760	811	734	625	599	559	516	-32%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	82	81	79	74	70	67	-33%
Population index	100	100	99	99	101	101	101	1%
GDP PPP per population index	100	96	106	129	142	143	142	42%
Energy intensity index - TPES / GDP PPP	100	87	79	71	62	59	59	-41%
Carbon intensity index - CO ₂ / TPES	100	98	98	87	83	82	79	-21%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	65.84	18.34	15.78	1.17	101.13	-33%
Electricity and heat generation	53.51	0.09	2.28	0.23	56.10	-13%
Other energy industry own use	2.69	0.58	0.22	-	3.49	-3%
Manufacturing industries and construction	6.46	0.72	4.96	0.81	12.94	-72%
Transport	0.00	15.81	0.13	-	15.94	129%
<i>of which: road</i>	-	15.48	0.03	-	15.51	123%
Other	3.18	1.14	8.20	0.14	12.65	-56%
<i>of which: residential</i>	2.97	0.01	4.77	-	7.75	-50%
<i>of which: services</i>	0.15	0.03	3.14	0.14	3.46	-55%
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.84	-	-	0.84	28%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	49.26	-4.6%	37.7	37.7
Road - oil	15.48	122.8%	11.9	49.6
Manufacturing industries - coal	6.46	-79.7%	4.9	54.5
Manufacturing industries - gas	4.96	-12.6%	3.8	58.3
Residential - gas	4.77	121.1%	3.6	62.0
Unallocated autoproducers - coal	4.25	-54.1%	3.3	65.2
Non-specified other - gas	3.43	60.9%	2.6	67.8
Residential - coal	2.97	-77.5%	2.3	70.1
Other energy industry - coal	2.69	-16.9%	2.1	72.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>101.13</i>	<i>-32.7%</i>	<i>77.4</i>	<i>77.4</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Democratic People's Republic of Korea

Figure 1. CO₂ emissions by fuel

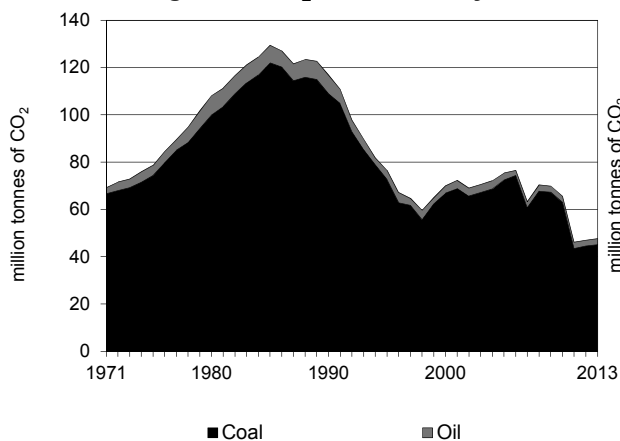


Figure 2. CO₂ emissions by sector

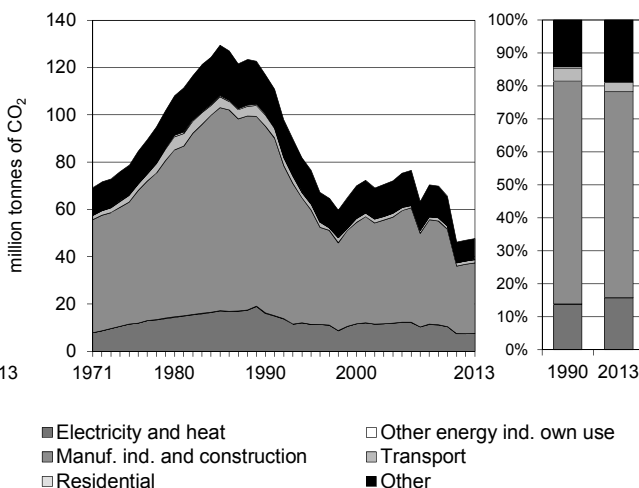


Figure 3. Electricity generation by fuel

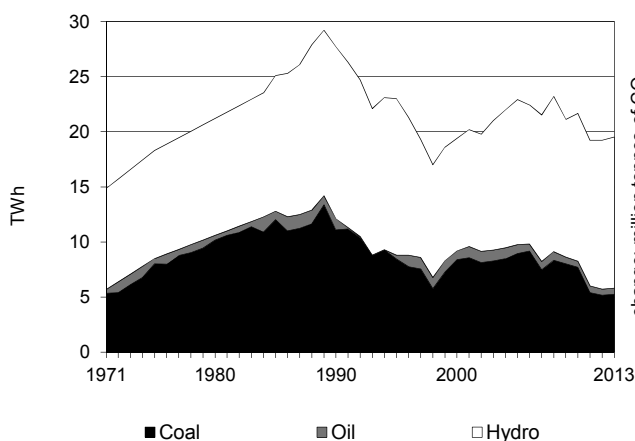


Figure 4. CO₂ from electricity generation: driving factors¹

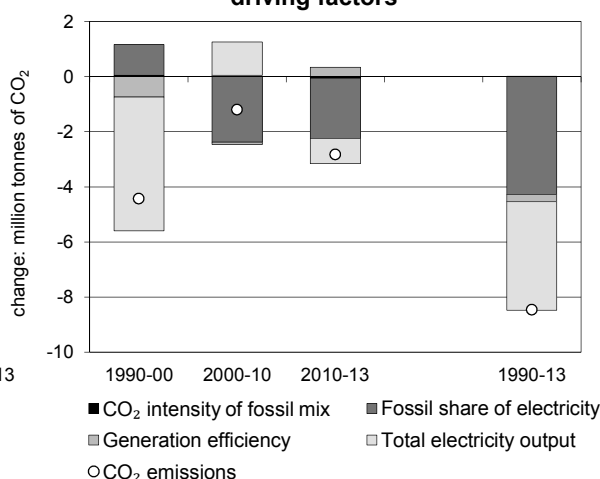


Figure 5. Changes in selected indicators

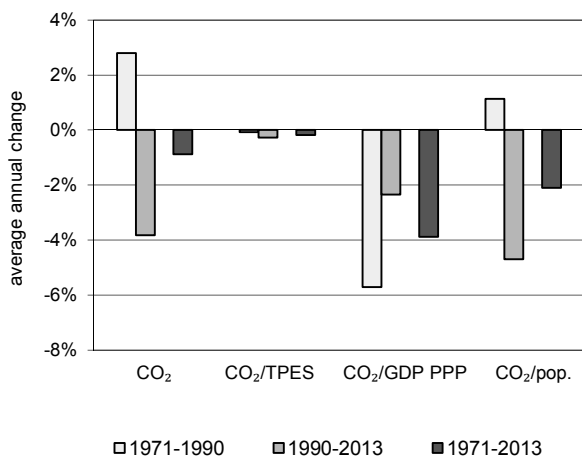
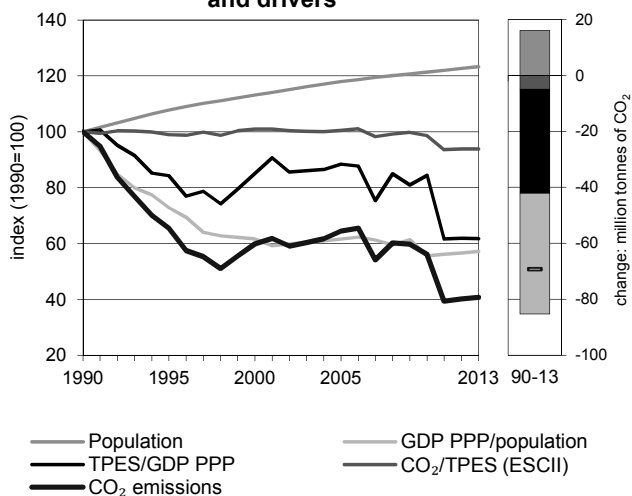


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Democratic People's Republic of Korea

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	116.83	76.52	69.96	75.33	65.55	47.00	47.68	-59%
Share of World CO ₂ from fuel combustion	0.57%	0.36%	0.30%	0.28%	0.22%	0.15%	0.15%	
TPES (PJ)	1 391	920	826	893	792	597	605	-56%
GDP (billion 2005 USD)	39.43	30.97	27.49	28.63	26.58	27.38	27.79	-30%
GDP PPP (billion 2005 USD)	147.99	116.23	103.17	107.48	99.76	102.78	104.32	-30%
Population (millions)	20.19	21.76	22.84	23.81	24.50	24.76	24.90	23%
CO ₂ / TPES (tCO ₂ per TJ)	84.0	83.1	84.8	84.3	82.8	78.7	78.8	-6%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	2.96	2.47	2.55	2.63	2.47	1.72	1.72	-42%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.79	0.66	0.68	0.70	0.66	0.46	0.46	-42%
CO ₂ / population (tCO ₂ per capita)	5.79	3.52	3.06	3.16	2.68	1.90	1.92	-67%
Share of electricity output from fossil fuels	44%	38%	47%	43%	38%	30%	30%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	577	491	595	532	477	385	385	-33%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	66	60	64	56	40	41	-59%
Population index	100	108	113	118	121	123	123	23%
GDP PPP per population index	100	73	62	62	56	57	57	-43%
Energy intensity index - TPES / GDP PPP	100	84	85	88	84	62	62	-38%
Carbon intensity index - CO ₂ / TPES	100	99	101	100	99	94	94	-6%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	45.11	2.57	-	-	47.68	-59%
Electricity and heat generation	6.74	0.78	-	-	7.52	-53%
Other energy industry own use	-	0.05	-	-	0.05	-77%
Manufacturing industries and construction	29.45	0.29	-	-	29.74	-62%
Transport	-	1.33	-	-	1.33	-72%
<i>of which: road</i>	-	1.33	-	-	1.33	-72%
Other	8.92	0.12	-	-	9.04	-47%
<i>of which: residential</i>	-	0.12	-	-	0.12	-78%
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	-	-	-	-	-

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Manufacturing industries - coal	29.45	-62.1%	38.0	38.0
Non-specified other sectors - coal	8.92	-45.9%	11.5	49.5
Main activity prod. elec. and heat - coal	6.74	-54.0%	8.7	58.2
Road - oil	1.33	-71.5%	1.7	60.0
Main activity prod. elec. and heat - oil	0.78	-41.1%	1.0	61.0
Manufacturing industries - oil	0.29	-75.8%	0.4	61.3
Residential - oil	0.12	-77.6%	0.2	61.5
Other energy industry own use - oil	0.05	-76.9%	0.1	61.6
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>47.68</i>	<i>-59.2%</i>	<i>61.6</i>	<i>61.6</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Democratic Republic of Congo

Figure 1. CO₂ emissions by fuel

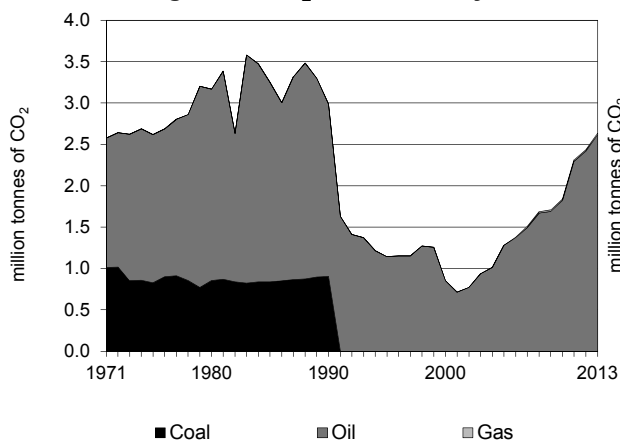


Figure 2. CO₂ emissions by sector

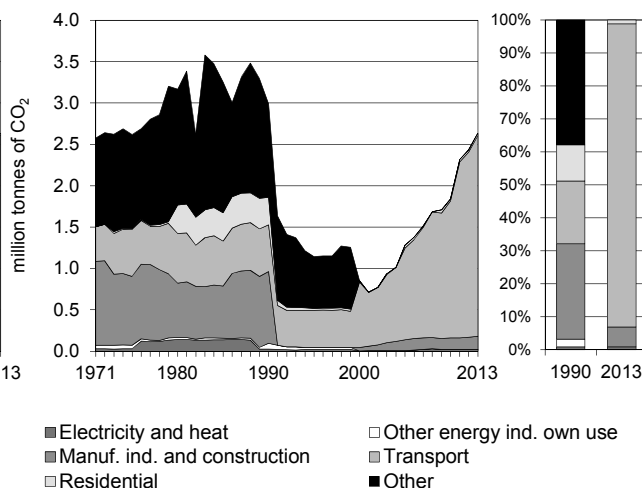


Figure 3. Electricity generation by fuel

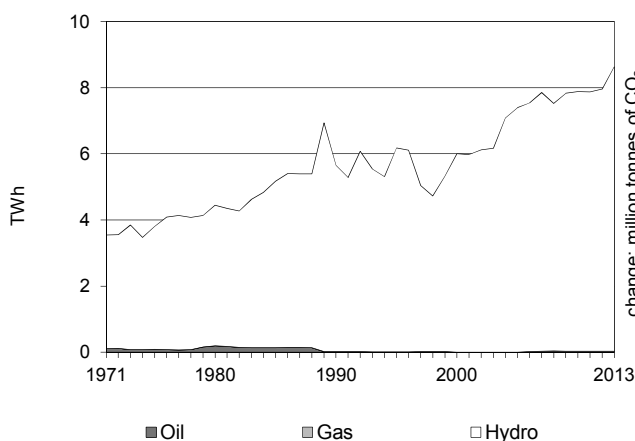


Figure 4. CO₂ from electricity generation: driving factors¹

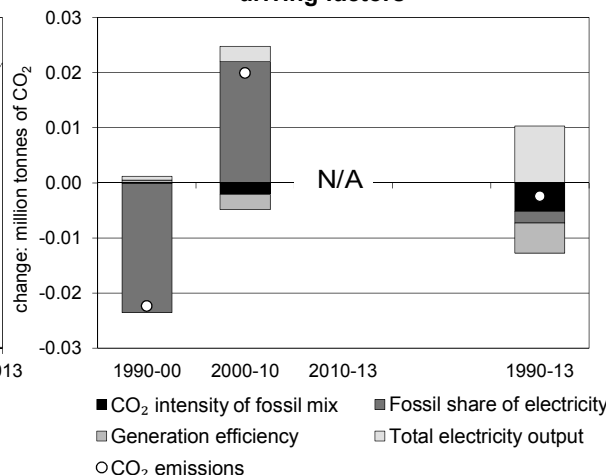


Figure 5. Changes in selected indicators

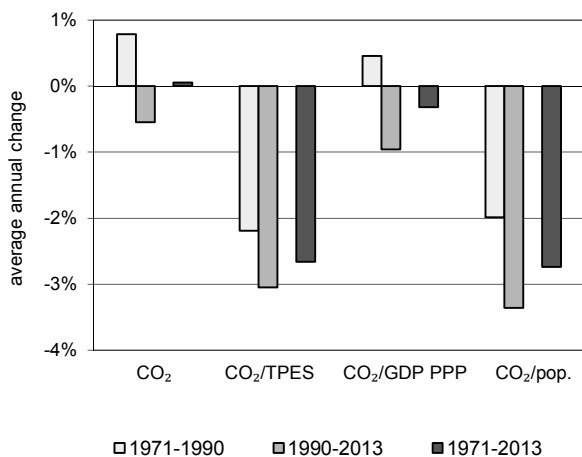
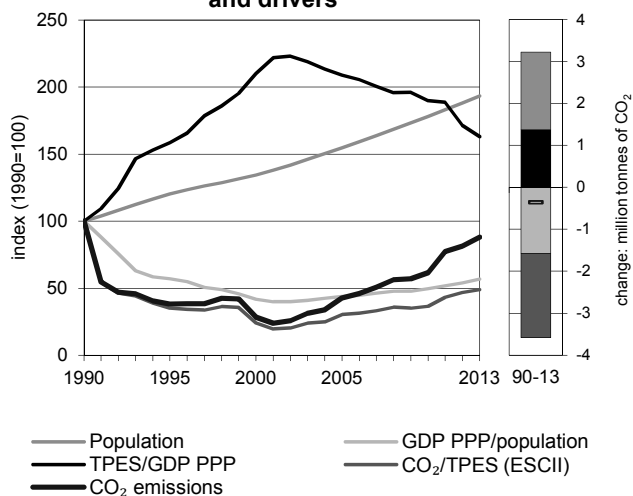


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Democratic Republic of Congo

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	2.99	1.14	0.85	1.28	1.84	2.44	2.63	-12%
Share of World CO ₂ from fuel combustion	0.01%	0.01%	0.00%	0.00%	0.01%	0.01%	0.01%	
TPES (PJ)	494	537	583	699	832	860	888	80%
GDP (billion 2005 USD)	17.66	12.12	9.93	11.96	15.67	17.93	19.46	10%
GDP PPP (billion 2005 USD)	42.73	29.33	24.02	28.96	37.92	43.40	47.08	10%
Population (millions)	34.91	42.01	46.95	54.03	62.19	65.71	67.51	93%
CO ₂ / TPES (tCO ₂ per TJ)	6.1	2.1	1.5	1.8	2.2	2.8	3.0	-51%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.17	0.09	0.09	0.11	0.12	0.14	0.14	-20%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.07	0.04	0.04	0.04	0.05	0.06	0.06	-20%
CO ₂ / population (tCO ₂ per capita)	0.09	0.03	0.02	0.02	0.03	0.04	0.04	-54%
Share of electricity output from fossil fuels	0%	0%	0%	0%	0%	0%	0%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	5	4	1	1	3	3	3	-41%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	38	29	43	62	81	88	-12%
Population index	100	120	134	155	178	188	193	93%
GDP PPP per population index	100	57	42	44	50	54	57	-43%
Energy intensity index - TPES / GDP PPP	100	159	210	209	190	172	163	63%
Carbon intensity index - CO ₂ / TPES	100	35	24	30	37	47	49	-51%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	2.62	0.02	-	2.63	-12%
Electricity and heat generation	-	0.01	0.02	-	0.02	-10%
Other energy industry own use	-	-	-	-	-	-100%
Manufacturing industries and construction	-	0.16	-	-	0.16	-82%
Transport	-	2.42	-	-	2.42	327%
<i>of which: road</i>	-	2.42	-	-	2.42	327%
Other	-	0.03	-	-	0.03	-98%
<i>of which: residential</i>	-	0.03	-	-	0.03	-90%
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	..	-	-
<i>Memo: international aviation bunkers</i>	-	0.52	-	-	0.52	61%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	2.42	326.9%	1.6	1.6
Manufacturing industries - oil	0.16	-12.1%	0.1	1.7
Residential - oil	0.03	-71.2%	0.0	1.7
Unallocated autoproducers - gas	0.02	x	0.0	1.7
Main activity prod. elec. and heat - oil	0.01	-74.9%	0.0	1.7
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	2.63	-11.8%	1.7	1.7

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Denmark

Figure 1. CO₂ emissions by fuel

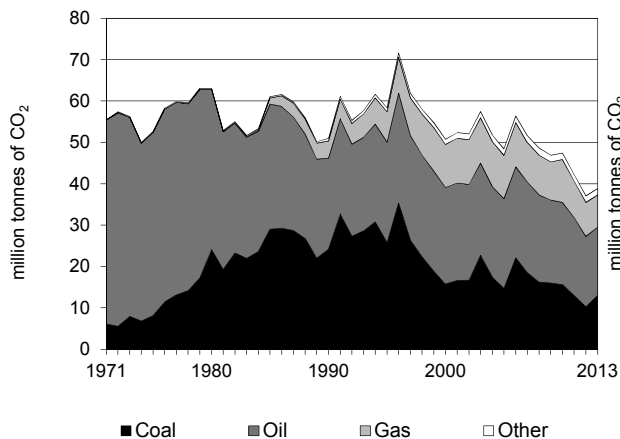


Figure 2. CO₂ emissions by sector

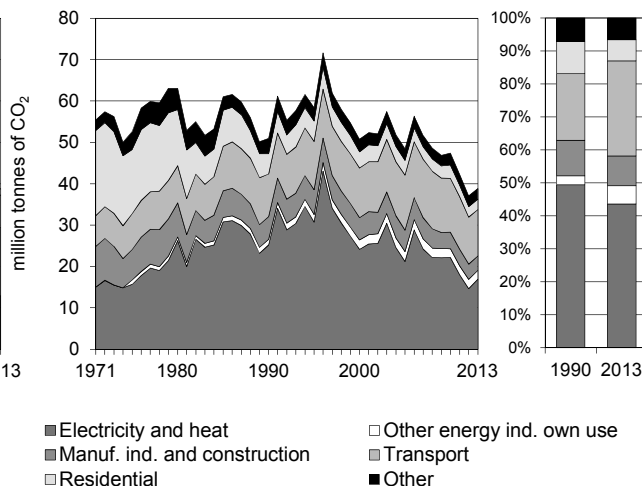


Figure 3. Electricity generation by fuel

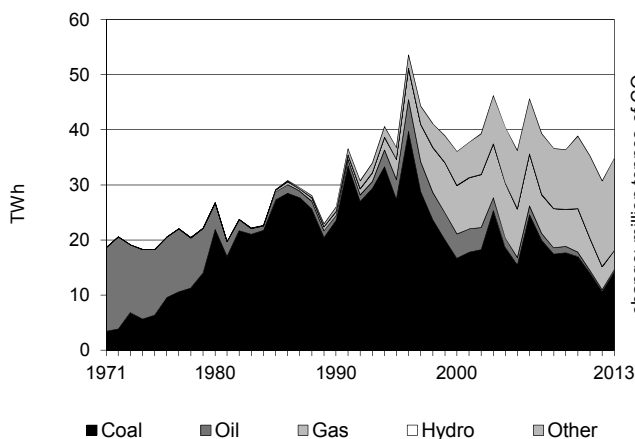


Figure 4. CO₂ from electricity generation: driving factors¹

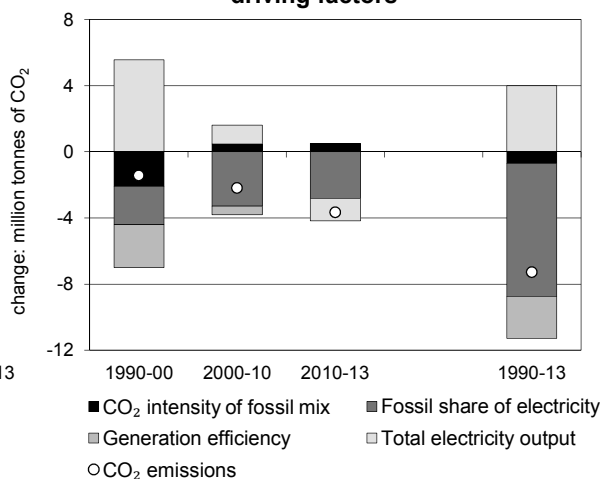


Figure 5. Changes in selected indicators

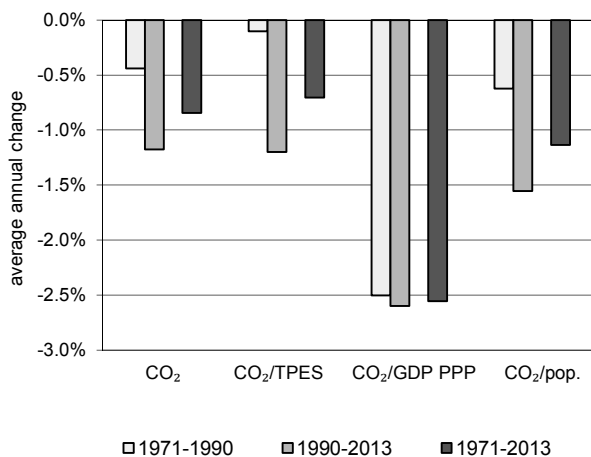
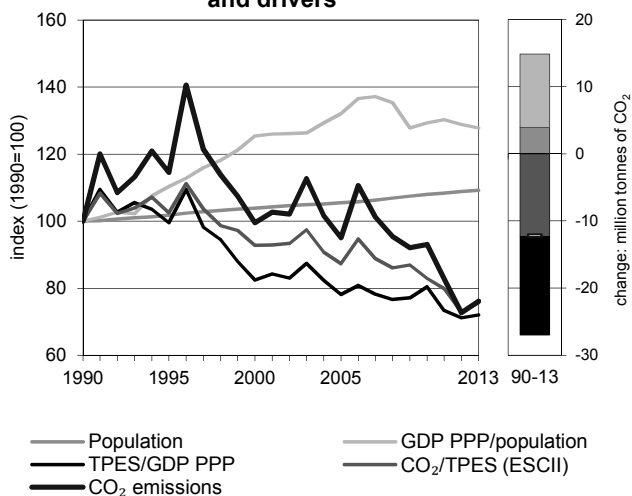


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Denmark

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	50.96	58.37	50.75	48.43	47.41	37.05	38.81	-24%
Share of World CO ₂ from fuel combustion	0.25%	0.27%	0.22%	0.18%	0.16%	0.12%	0.12%	
TPES (PJ)	727	812	780	791	815	725	730	0%
GDP (billion 2005 USD)	190.03	213.31	247.45	264.56	265.13	266.43	265.14	40%
GDP PPP (billion 2005 USD)	132.66	148.92	172.75	184.69	185.10	186.00	185.10	40%
Population (millions)	5.14	5.23	5.34	5.42	5.55	5.59	5.61	9%
CO ₂ / TPES (tCO ₂ per TJ)	70.1	71.9	65.0	61.2	58.1	51.1	53.1	-24%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.27	0.27	0.21	0.18	0.18	0.14	0.15	-45%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.38	0.39	0.29	0.26	0.26	0.20	0.21	-45%
CO ₂ / population (tCO ₂ per capita)	9.91	11.16	9.51	8.94	8.55	6.63	6.91	-30%
Share of electricity output from fossil fuels	97%	95%	85%	73%	68%	52%	54%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	682	596	452	374	362	259	300	-56%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	115	100	95	93	73	76	-24%
Population index	100	102	104	105	108	109	109	9%
GDP PPP per population index	100	110	125	132	129	129	128	28%
Energy intensity index - TPES / GDP PPP	100	100	82	78	80	71	72	-28%
Carbon intensity index - CO ₂ / TPES	100	103	93	87	83	73	76	-24%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	12.99	16.52	7.75	1.55	38.81	-24%
Electricity and heat generation	12.31	0.45	2.70	1.46	16.92	-33%
Other energy industry own use	-	0.82	1.31	-	2.13	57%
Manufacturing industries and construction	0.38	1.47	1.58	0.07	3.50	-36%
Transport	-	11.20	-	-	11.20	9%
<i>of which: road</i>	-	10.26	-	-	10.26	12%
Other	0.30	2.58	2.15	0.02	5.06	-41%
<i>of which: residential</i>	0.02	0.98	1.51	-	2.51	-49%
<i>of which: services</i>	0.00	0.20	0.49	0.02	0.71	-48%
<i>Memo: international marine bunkers</i>	-	1.99	-	-	1.99	-35%
<i>Memo: international aviation bunkers</i>	-	2.48	-	-	2.48	44%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	12.31	-45.0%	22.4	22.4
Road - oil	10.26	11.6%	18.7	41.1
Main activity prod. elec. and heat - gas	2.47	151.0%	4.5	45.7
Non-specified other - oil	1.61	-44.9%	2.9	48.6
Manufacturing industries - gas	1.58	26.0%	2.9	51.5
Residential - gas	1.51	67.5%	2.8	54.2
Manufacturing industries - oil	1.47	-50.1%	2.7	56.9
Other energy industry own use - gas	1.31	156.4%	2.4	59.3
Unallocated autoproducers - other	1.08	104.4%	2.0	61.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>38.81</i>	<i>-23.8%</i>	<i>70.7</i>	<i>70.7</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Dominican Republic

Figure 1. CO₂ emissions by fuel

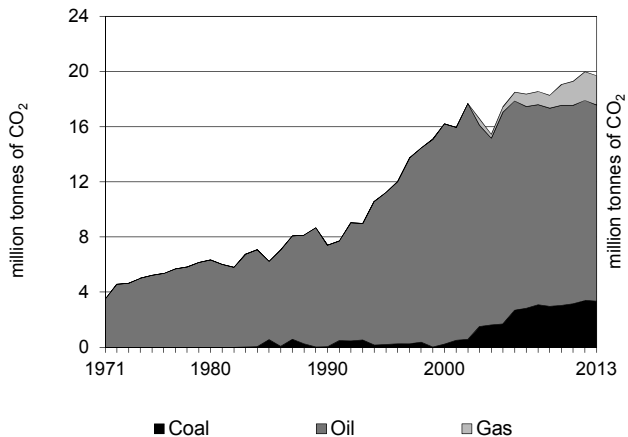


Figure 2. CO₂ emissions by sector

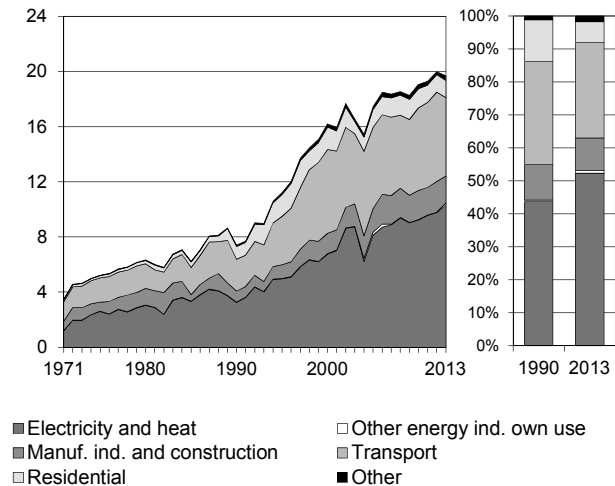


Figure 3. Electricity generation by fuel

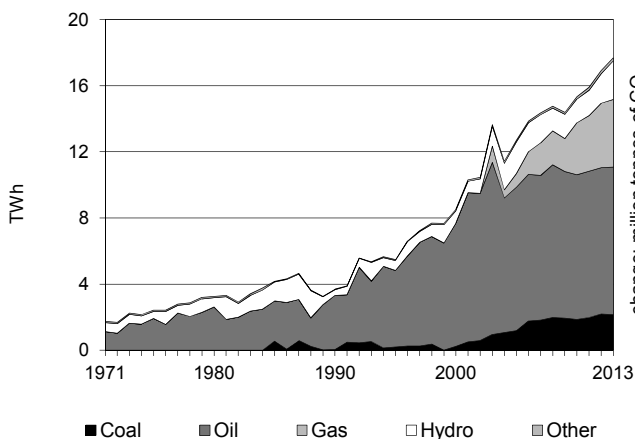


Figure 4. CO₂ from electricity generation: driving factors¹

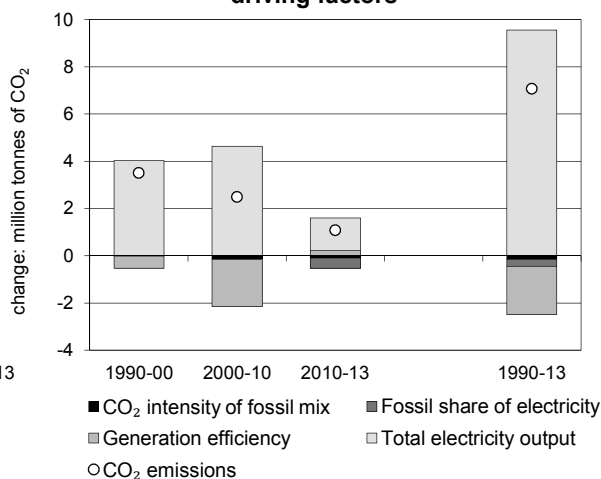


Figure 5. Changes in selected indicators

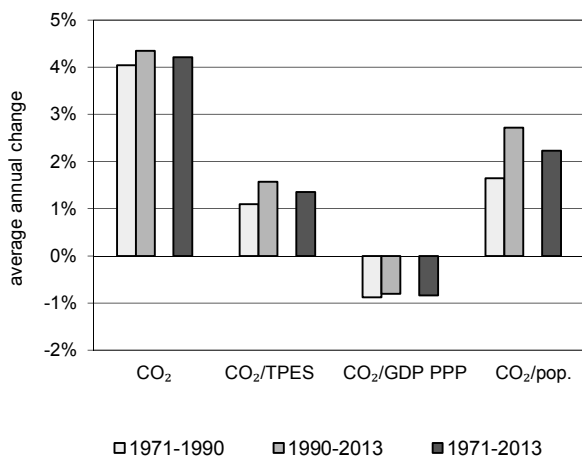
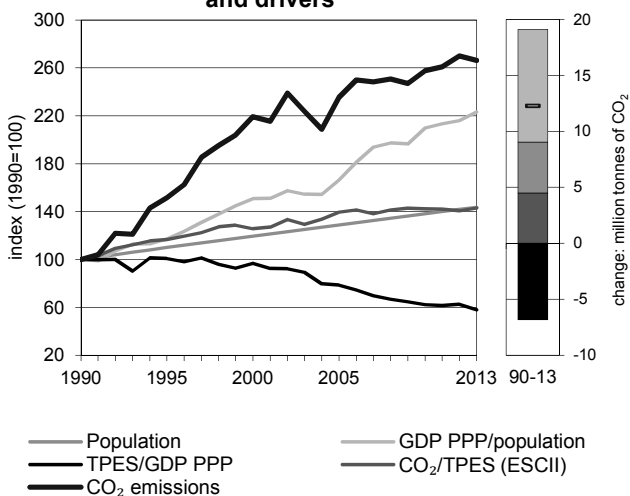


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Dominican Republic

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	7.40	11.21	16.21	17.43	19.05	19.98	19.69	166%
Share of World CO ₂ from fuel combustion	0.04%	0.05%	0.07%	0.06%	0.06%	0.06%	0.06%	
TPES (PJ)	169	220	295	286	307	325	315	86%
GDP (billion 2005 USD)	15.85	20.46	28.57	33.97	45.98	48.59	50.81	221%
GDP PPP (billion 2005 USD)	34.08	44.00	61.42	73.04	98.87	104.47	109.26	221%
Population (millions)	7.25	7.98	8.66	9.34	10.02	10.28	10.40	44%
CO ₂ / TPES (tCO ₂ per TJ)	43.7	50.9	54.9	61.0	62.1	61.5	62.6	43%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.47	0.55	0.57	0.51	0.41	0.41	0.39	-17%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.22	0.25	0.26	0.24	0.19	0.19	0.18	-17%
CO ₂ / population (tCO ₂ per capita)	1.02	1.41	1.87	1.87	1.90	1.94	1.89	85%
Share of electricity output from fossil fuels	90%	88%	90%	84%	90%	88%	86%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	877	904	790	640	602	577	583	-34%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	152	219	236	258	270	266	166%
Population index	100	110	120	129	138	142	144	44%
GDP PPP per population index	100	117	151	166	210	216	223	123%
Energy intensity index - TPES / GDP PPP	100	101	97	79	62	63	58	-42%
Carbon intensity index - CO ₂ / TPES	100	116	126	140	142	141	143	43%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	3.34	14.24	2.12	-	19.69	166%
Electricity and heat generation	2.10	6.33	1.87	-	10.31	218%
Other energy industry own use	-	0.16	-	-	0.16	469%
Manufacturing industries and construction	1.23	0.51	0.20	-	1.94	144%
Transport	-	5.64	0.05	-	5.69	146%
<i>of which: road</i>	-	4.73	-	-	4.73	112%
Other	-	1.59	-	-	1.59	56%
<i>of which: residential</i>	-	1.25	-	-	1.25	33%
<i>of which: services</i>	-	0.18	-	-	0.18	x
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	1.36	-	-	1.36	+

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	4.73	112.3%	15.0	15.0
Main activity prod. elec. and heat - oil	4.04	130.4%	12.8	27.8
Unallocated autoproducers - oil	2.29	58.4%	7.3	35.0
Main activity prod. elec. and heat - coal	2.10	+	6.7	41.7
Main activity prod. elec. and heat - gas	1.87	x	5.9	47.6
Residential - oil	1.25	32.9%	3.9	51.5
Manufacturing industries - coal	1.23	x	3.9	55.5
Other transport - oil	0.92	993.1%	2.9	58.4
Manufacturing industries - oil	0.51	-36.3%	1.6	60.0
<i>Memo: total CO₂ from fuel combustion</i>	<i>19.69</i>	<i>166.2%</i>	<i>62.4</i>	<i>62.4</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Ecuador

Figure 1. CO₂ emissions by fuel

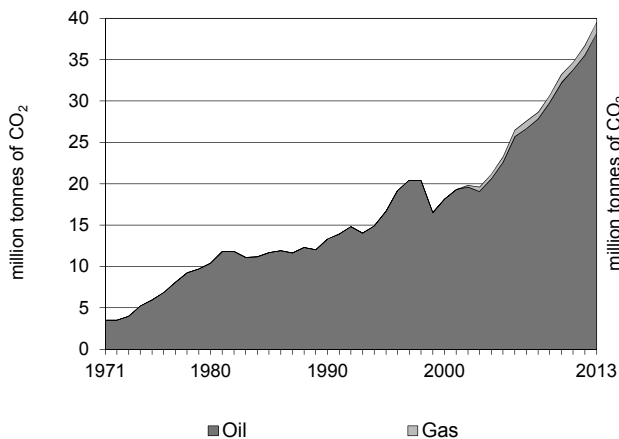


Figure 2. CO₂ emissions by sector

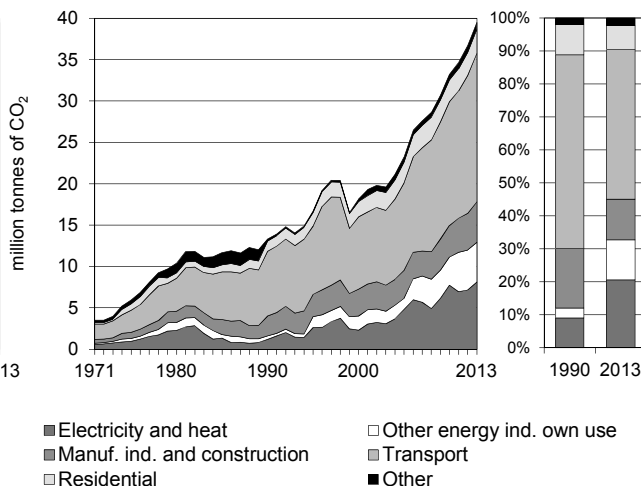


Figure 3. Electricity generation by fuel

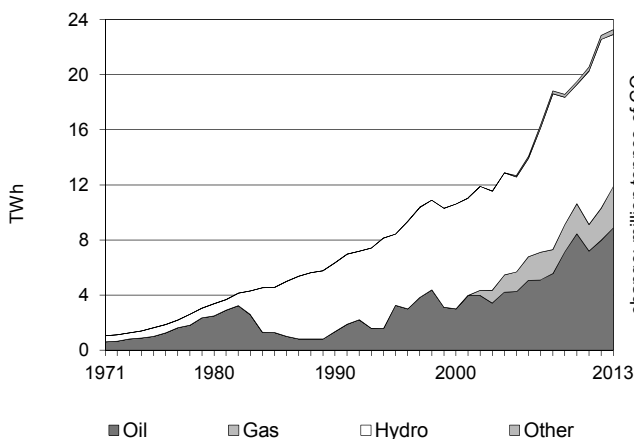


Figure 4. CO₂ from electricity generation: driving factors¹

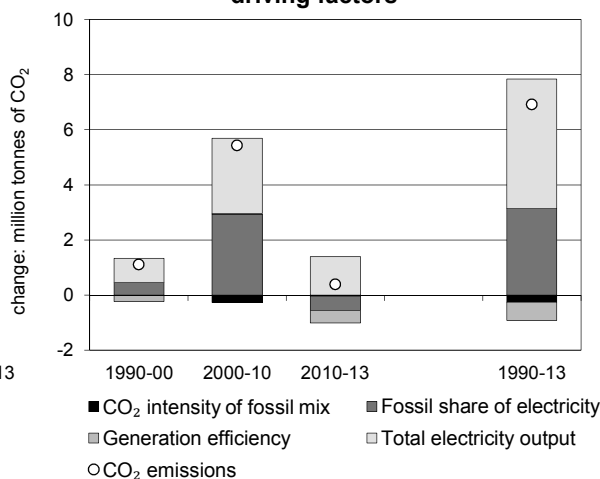


Figure 5. Changes in selected indicators

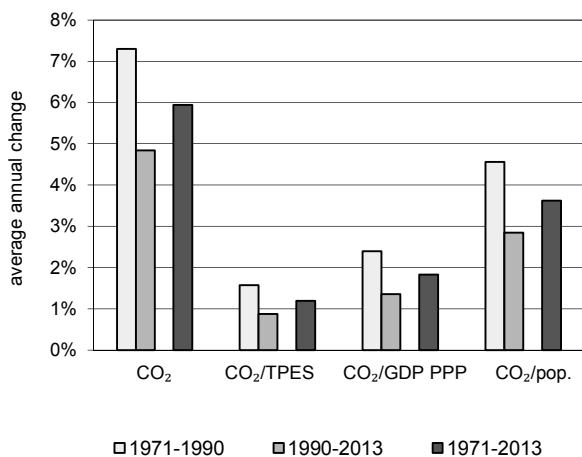
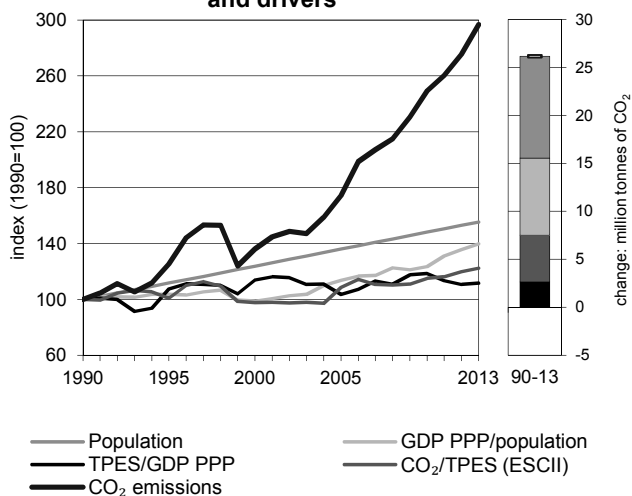


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Ecuador

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	13.32	16.69	18.13	23.21	33.21	36.68	39.50	197%
Share of World CO ₂ from fuel combustion	0.06%	0.08%	0.08%	0.09%	0.11%	0.12%	0.12%	
TPES (PJ)	265	330	369	425	575	609	642	142%
GDP (billion 2005 USD)	26.80	31.03	32.75	41.51	49.04	55.66	58.24	117%
GDP PPP (billion 2005 USD)	67.98	78.70	83.06	105.26	124.36	141.14	147.70	117%
Population (millions)	10.12	11.32	12.53	13.78	15.00	15.49	15.74	55%
CO ₂ / TPES (tCO ₂ per TJ)	50.3	50.6	49.1	54.6	57.8	60.2	61.5	22%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.50	0.54	0.55	0.56	0.68	0.66	0.68	37%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.20	0.21	0.22	0.22	0.27	0.26	0.27	36%
CO ₂ / population (tCO ₂ per capita)	1.32	1.47	1.45	1.68	2.21	2.37	2.51	91%
Share of electricity output from fossil fuels	21%	39%	28%	45%	55%	45%	51%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	189	311	217	379	396	314	349	85%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	125	136	174	249	275	297	197%
Population index	100	112	124	136	148	153	155	55%
GDP PPP per population index	100	104	99	114	123	136	140	40%
Energy intensity index - TPES / GDP PPP	100	107	114	104	119	111	112	12%
Carbon intensity index - CO ₂ / TPES	100	101	98	109	115	120	122	22%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	38.15	1.35	-	39.50	197%
Electricity and heat generation	-	6.84	1.28	-	8.12	576%
Other energy industry own use	-	4.80	-	-	4.80	+
Manufacturing industries and construction	-	4.88	-	-	4.88	103%
Transport	-	17.95	-	-	17.95	129%
<i>of which: road</i>	-	17.23	-	-	17.23	169%
Other	-	3.68	0.07	-	3.75	153%
<i>of which: residential</i>	-	2.80	0.07	-	2.87	132%
<i>of which: services</i>	-	0.05	-	-	0.05	17%
<i>Memo: international marine bunkers</i>	-	1.29	-	-	1.29	158%
<i>Memo: international aviation bunkers</i>	-	1.16	-	-	1.16	197%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	17.23	168.7%	25.3	25.3
Main activity prod. elec. and heat - oil	5.15	329.1%	7.6	32.8
Manufacturing industries - oil	4.88	102.8%	7.1	40.0
Other energy industry own use - oil	4.80	+	7.0	47.0
Residential - oil	2.80	126.6%	4.1	51.1
Unallocated autoproducers - oil	1.68	x	2.5	53.6
Non-specified other - oil	0.88	256.0%	1.3	54.8
Main activity prod. elec. and heat - gas	0.80	x	1.2	56.0
Other transport - oil	0.72	-48.9%	1.1	57.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>39.50</i>	<i>196.6%</i>	<i>57.9</i>	<i>57.9</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Egypt

Figure 1. CO₂ emissions by fuel

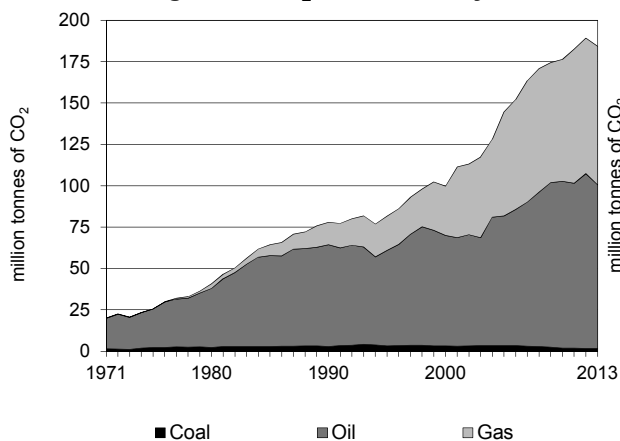


Figure 2. CO₂ emissions by sector

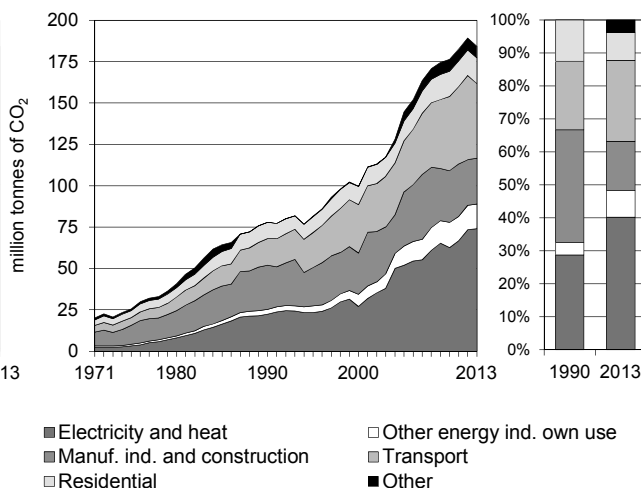


Figure 3. Electricity generation by fuel

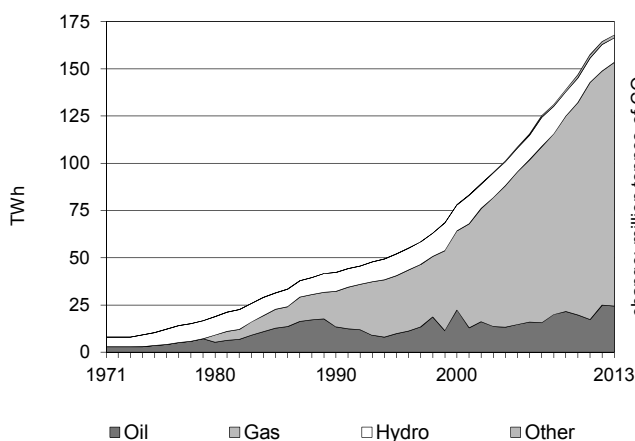


Figure 4. CO₂ from electricity generation: driving factors ¹

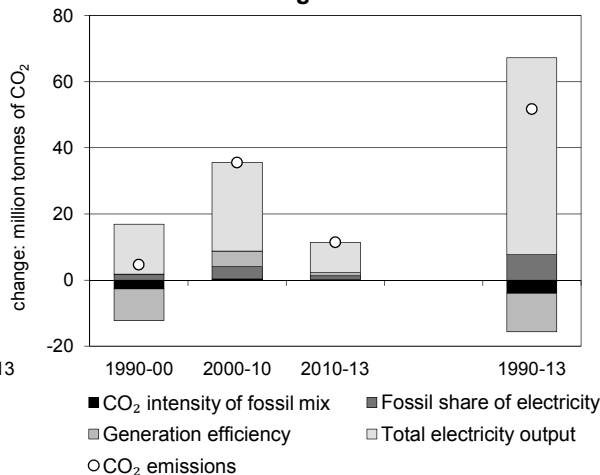


Figure 5. Changes in selected indicators

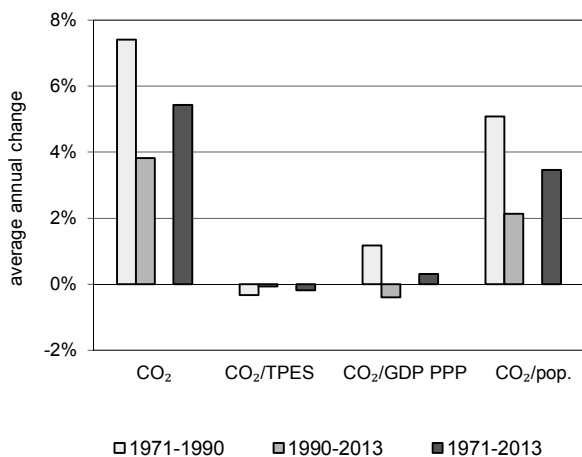
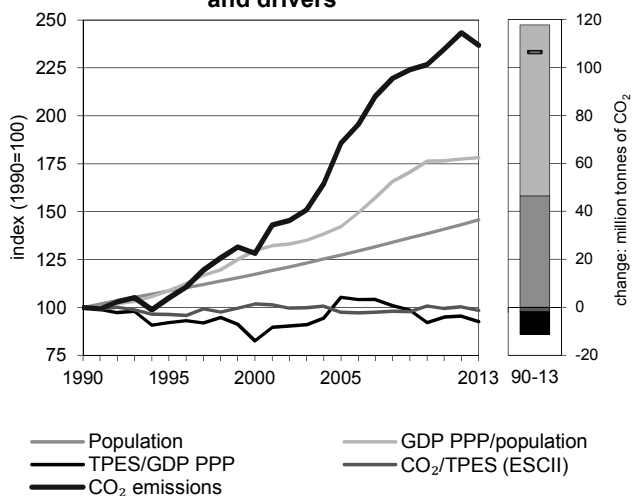


Figure 6. Total CO₂ emissions and drivers ²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Egypt

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	77.83	81.65	99.71	144.62	176.40	189.29	184.32	137%
Share of World CO ₂ from fuel combustion	0.38%	0.38%	0.43%	0.53%	0.59%	0.60%	0.57%	
TPES (PJ)	1 350	1 471	1 699	2 573	3 036	3 275	3 246	140%
GDP (billion 2005 USD)	49.53	58.53	75.40	89.69	121.02	125.90	128.55	160%
GDP PPP (billion 2005 USD)	302.14	357.07	459.99	547.11	738.28	768.03	784.16	160%
Population (millions)	56.34	61.17	66.14	71.78	78.08	80.72	82.06	46%
CO ₂ / TPES (tCO ₂ per TJ)	57.6	55.5	58.7	56.2	58.1	57.8	56.8	-1%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	1.57	1.39	1.32	1.61	1.46	1.50	1.43	-9%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.26	0.23	0.22	0.26	0.24	0.25	0.24	-9%
CO ₂ / population (tCO ₂ per capita)	1.38	1.33	1.51	2.01	2.26	2.35	2.25	63%
Share of electricity output from fossil fuels	76%	78%	82%	88%	90%	91%	91%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	529	448	346	478	427	447	441	-17%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	105	128	186	227	243	237	137%
Population index	100	109	117	127	139	143	146	46%
GDP PPP per population index	100	109	130	142	176	177	178	78%
Energy intensity index - TPES / GDP PPP	100	92	83	105	92	95	93	-7%
Carbon intensity index - CO ₂ / TPES	100	96	102	98	101	100	99	-1%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	1.62	98.97	83.73	-	184.32	137%
Electricity and heat generation	-	20.57	53.46	-	74.03	231%
Other energy industry own use	-	2.74	12.21	-	14.95	402%
Manufacturing industries and construction	1.62	11.62	14.35	-	27.58	4%
Transport	-	44.25	0.97	-	45.21	180%
<i>of which: road</i>	-	41.42	0.97	-	42.39	174%
Other	0.00	19.80	2.74	-	22.54	131%
<i>of which: residential</i>	0.00	12.80	2.74	-	15.55	59%
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	5.79	-	-	5.79	8%
<i>Memo: international aviation bunkers</i>	-	2.71	-	-	2.71	494%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - gas	53.46	473.2%	17.8	17.8
Road - oil	41.42	167.4%	13.8	31.6
Main activity prod. elec. and heat - oil	20.57	57.7%	6.8	38.4
Manufacturing industries - gas	14.35	362.9%	4.8	43.2
Residential - oil	12.80	33.5%	4.3	47.4
Other energy industry own use - gas	12.21	+	4.1	51.5
Manufacturing industries - oil	11.62	-43.7%	3.9	55.4
Non-specified other - oil	7.00	x	2.3	57.7
Other transport - oil	2.82	330.6%	0.9	58.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>184.32</i>	<i>136.8%</i>	<i>61.3</i>	<i>61.3</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

El Salvador

Figure 1. CO₂ emissions by fuel

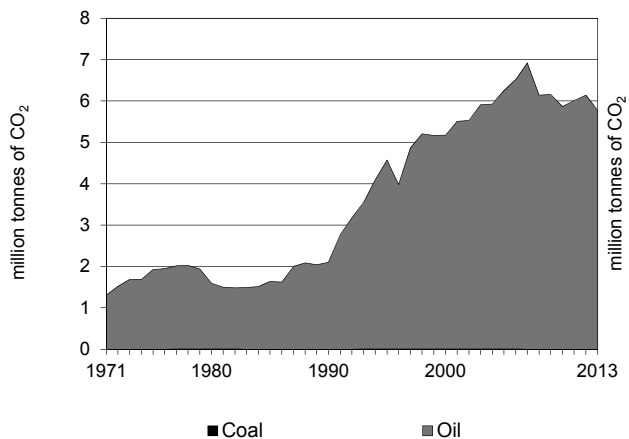


Figure 2. CO₂ emissions by sector

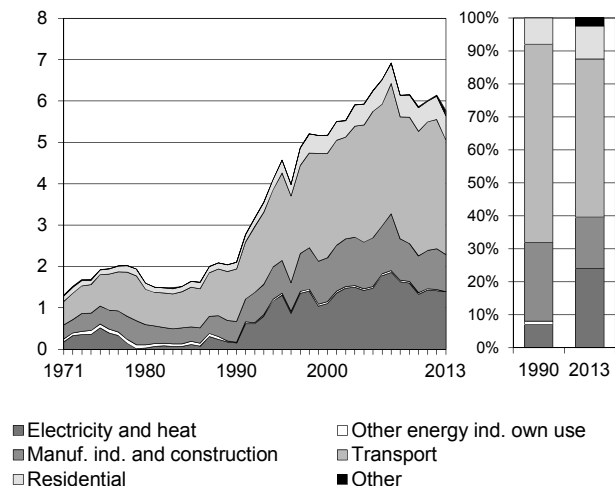


Figure 3. Electricity generation by fuel

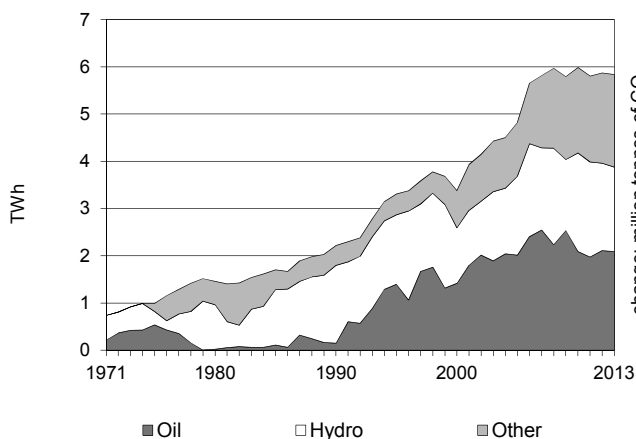


Figure 4. CO₂ from electricity generation: driving factors¹

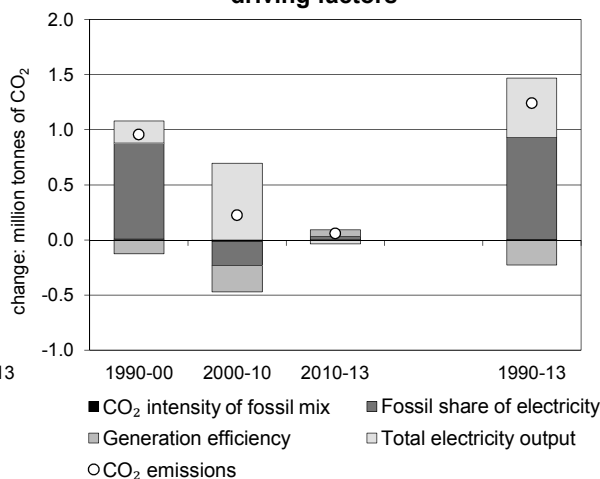


Figure 5. Changes in selected indicators

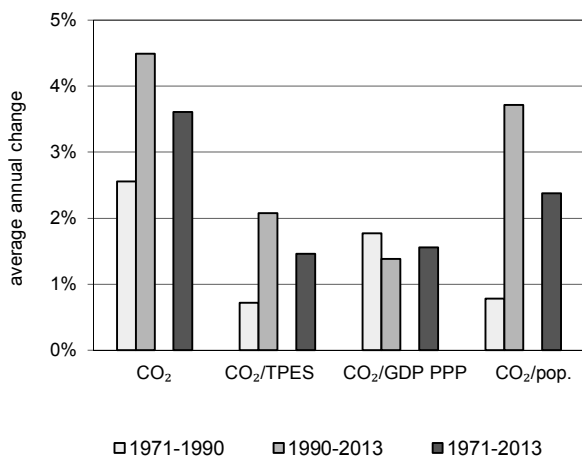
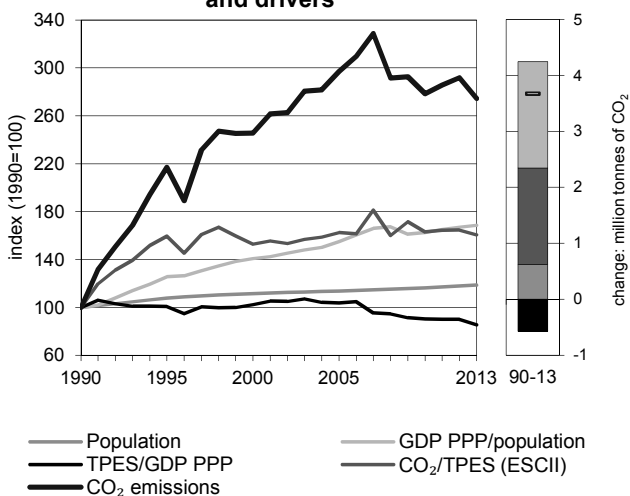


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

El Salvador

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	2.11	4.57	5.17	6.25	5.86	6.14	5.78	174%
Share of World CO ₂ from fuel combustion	0.01%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	
TPES (PJ)	103	141	166	189	177	183	177	71%
GDP (billion 2005 USD)	9.70	13.09	15.22	17.09	18.34	19.10	19.42	100%
GDP PPP (billion 2005 USD)	21.19	28.60	33.25	37.34	40.07	41.72	42.42	100%
Population (millions)	5.34	5.75	5.96	6.07	6.22	6.30	6.34	19%
CO ₂ / TPES (tCO ₂ per TJ)	20.4	32.5	31.1	33.1	33.2	33.5	32.7	60%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.22	0.35	0.34	0.37	0.32	0.32	0.30	37%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.10	0.16	0.16	0.17	0.15	0.15	0.14	37%
CO ₂ / population (tCO ₂ per capita)	0.39	0.80	0.87	1.03	0.94	0.98	0.91	131%
Share of electricity output from fossil fuels	7%	42%	42%	42%	35%	36%	36%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	68	395	328	306	222	241	238	252%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	217	246	297	278	292	274	174%
Population index	100	108	112	114	116	118	119	19%
GDP PPP per population index	100	125	141	155	162	167	169	69%
Energy intensity index - TPES / GDP PPP	100	101	102	104	90	90	85	-15%
Carbon intensity index - CO ₂ / TPES	100	160	153	163	163	165	160	60%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	5.78	-	-	5.78	174%
Electricity and heat generation	-	1.39	-	-	1.39	827%
Other energy industry own use	-	-	-	-	-	-100%
Manufacturing industries and construction	-	0.90	-	-	0.90	78%
Transport	-	2.78	-	-	2.78	119%
<i>of which: road</i>	-	2.78	-	-	2.78	119%
Other	-	0.72	-	-	0.72	330%
<i>of which: residential</i>	-	0.58	-	-	0.58	246%
<i>of which: services</i>	-	0.14	-	-	0.14	x
<i>Memo: international marine bunkers</i>	-	..	-	-
<i>Memo: international aviation bunkers</i>	-	0.44	-	-	0.44	281%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	2.78	119.3%	25.5	25.5
Main activity prod. elec. and heat - oil	1.18	687.7%	10.9	36.4
Manufacturing industries - oil	0.90	78.3%	8.3	44.6
Residential - oil	0.58	245.7%	5.3	49.9
Unallocated autoproducers - oil	0.21	x	1.9	51.8
Non-specified other - oil	0.14	x	1.3	53.1
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>5.78</i>	<i>174.5%</i>	<i>53.1</i>	<i>53.1</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Eritrea

Figure 1. CO₂ emissions by fuel

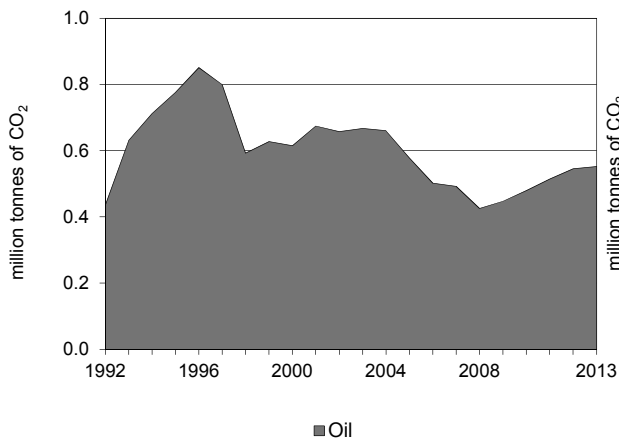


Figure 2. CO₂ emissions by sector

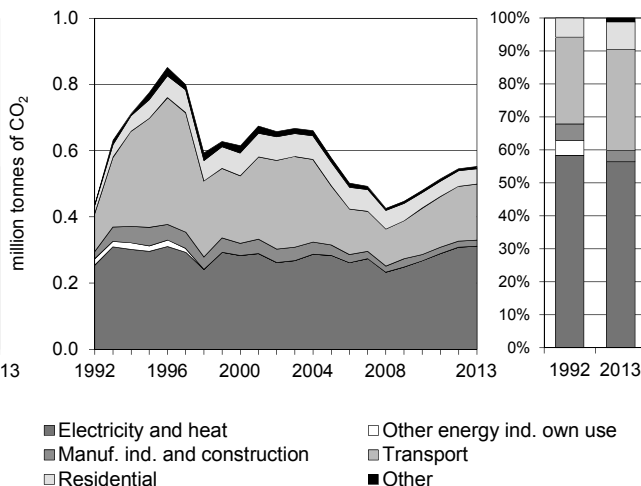


Figure 3. Electricity generation by fuel

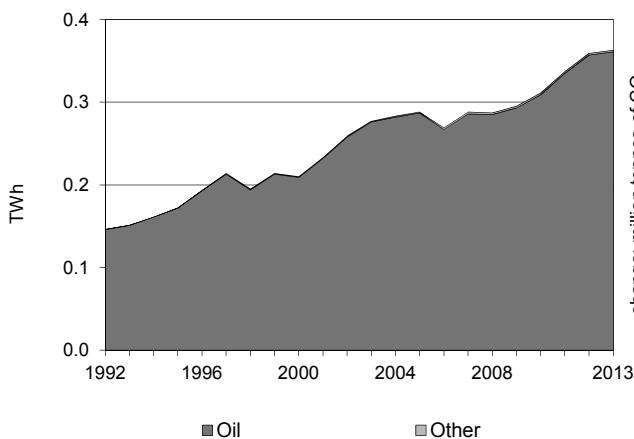


Figure 4. CO₂ from electricity generation: driving factors¹

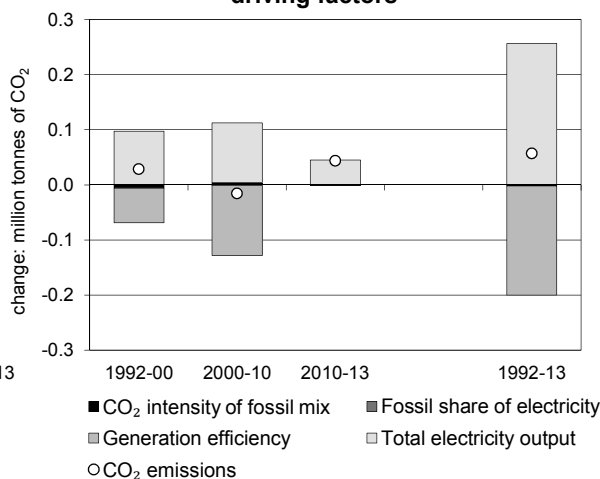


Figure 5. Changes in selected indicators

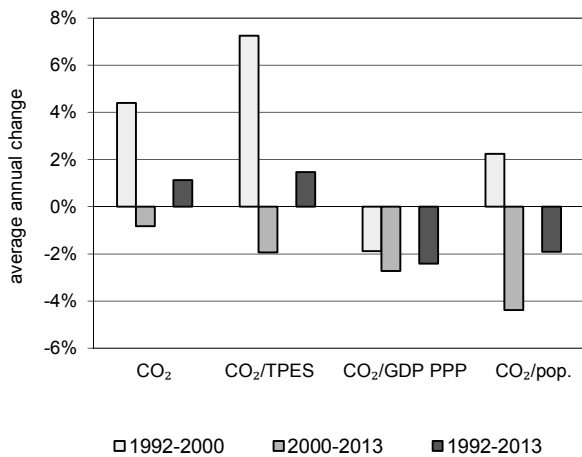
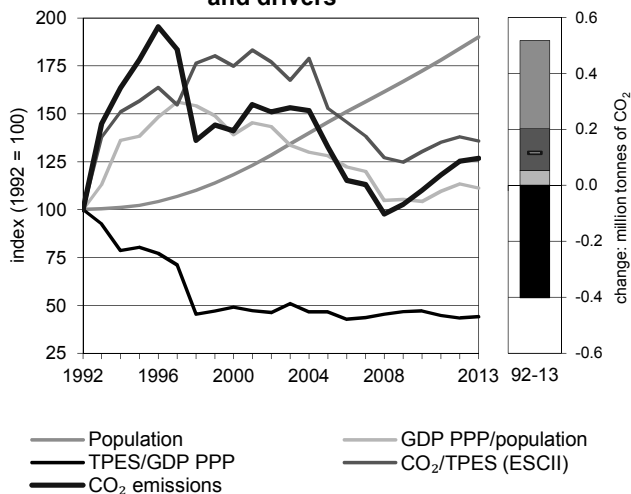


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Eritrea ¹

Key indicators

	1990	1992	2000	2005	2010	2012	2013	% change 92-13
CO ₂ fuel combustion (MtCO ₂)	..	0.44	0.61	0.58	0.48	0.55	0.55	27%
Share of World CO ₂ from fuel combustion	..	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
TPES (PJ)	..	37	30	32	31	33	34	-7%
GDP (billion 2005 USD)	..	0.59	0.97	1.10	1.06	1.23	1.25	111%
GDP PPP (billion 2005 USD)	..	3.09	5.07	5.76	5.54	6.44	6.53	112%
Population (millions)	..	3.33	3.94	4.85	5.74	6.13	6.33	90%
CO ₂ / TPES (tCO ₂ per TJ)	..	11.9	20.7	18.1	15.5	16.4	16.1	36%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	..	0.74	0.64	0.53	0.45	0.44	0.44	-40%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	..	0.14	0.12	0.10	0.09	0.08	0.08	-40%
CO ₂ / population (tCO ₂ per capita)	..	0.13	0.16	0.12	0.08	0.09	0.09	-33%
Share of electricity output from fossil fuels	..	100%	100%	100%	99%	99%	99%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	..	1741	1347	985	859	858	857	-51%
CO₂ emissions and drivers - Kaya decomposition (1992=100) ²								
CO ₂ emissions index	..	100	141	133	110	125	127	27%
Population index	..	100	118	146	172	184	190	90%
GDP PPP per population index	..	100	139	128	104	113	111	11%
Energy intensity index - TPES / GDP PPP	..	100	49	47	47	44	44	-56%
Carbon intensity index - CO ₂ / TPES	..	100	175	153	130	138	136	36%

1. Prior to 1992, data for Eritrea were included in Ethiopia. 2. Please see Part I, Chapter 2 for methodological notes.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ³	Total	% change 92-13
CO₂ fuel combustion	-	0.55	-	-	0.55	27%
Electricity and heat generation	-	0.31	-	-	0.31	22%
Other energy industry own use	-	-	-	-	-	-100%
Manufacturing industries and construction	-	0.02	-	-	0.02	-14%
Transport	-	0.17	-	-	0.17	47%
<i>of which: road</i>	-	0.17	-	-	0.17	47%
Other	-	0.05	-	-	0.05	111%
<i>of which: residential</i>	-	0.05	-	-	0.05	86%
<i>of which: services</i>	-	0.01	-	-	0.01	x
<i>Memo: international marine bunkers</i>	-	..	-	-
<i>Memo: international aviation bunkers</i>	-	0.00	-	-	0.00	-75%

3. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 92-13	Level assessment (%) ⁴	Cumulative total (%)
Main activity prod. elec. and heat - oil	0.30	212.5%	6.1	6.1
Road - oil	0.17	47.1%	3.5	9.6
Residential - oil	0.05	86.2%	1.0	10.6
Manufacturing industries - oil	0.02	-14.2%	0.4	11.0
Unallocated autoproducers - oil	0.01	-91.9%	0.3	11.2
Non-specified other - oil	0.01	x	0.1	11.4
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>0.55</i>	<i>26.7%</i>	<i>11.4</i>	<i>11.4</i>

4. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Estonia

Figure 1. CO₂ emissions by fuel

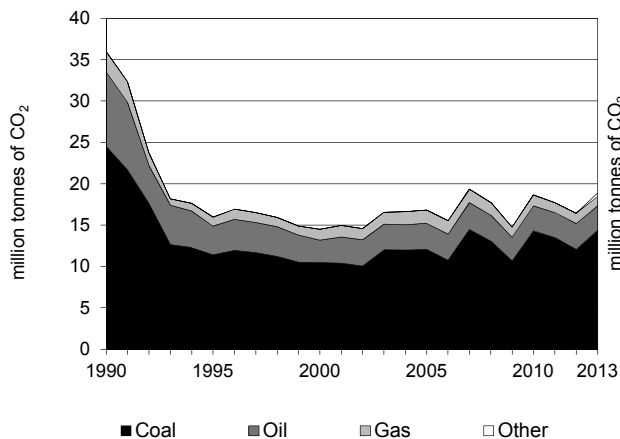


Figure 2. CO₂ emissions by sector

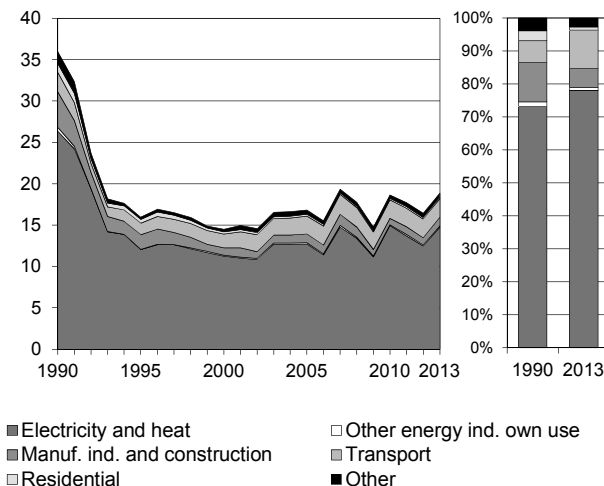


Figure 3. Electricity generation by fuel

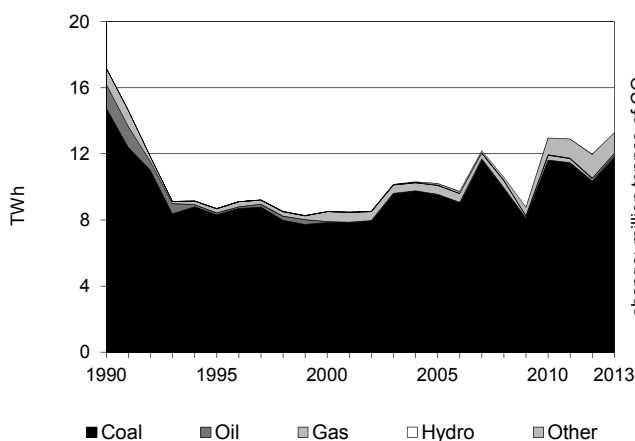


Figure 4. CO₂ from electricity generation: driving factors¹

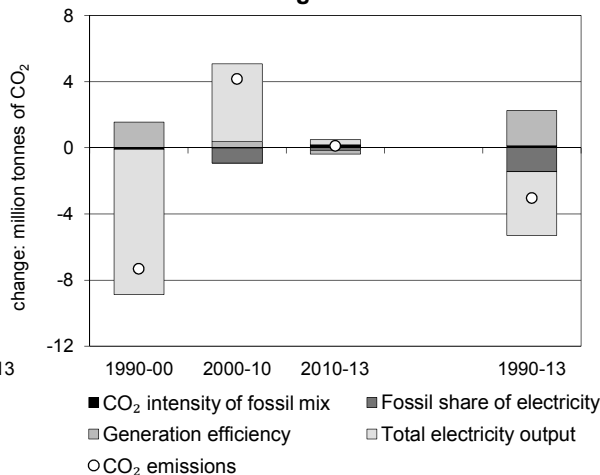


Figure 5. Changes in selected indicators

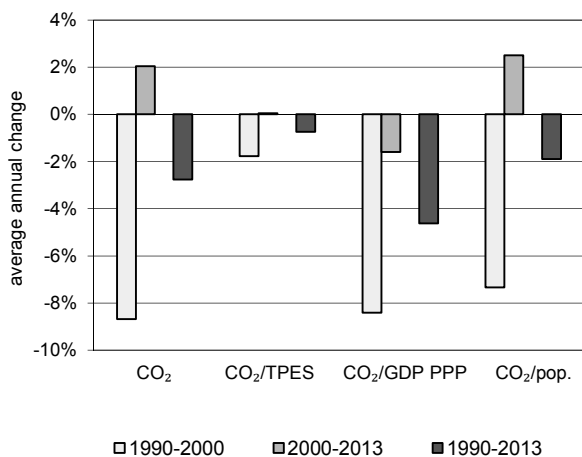
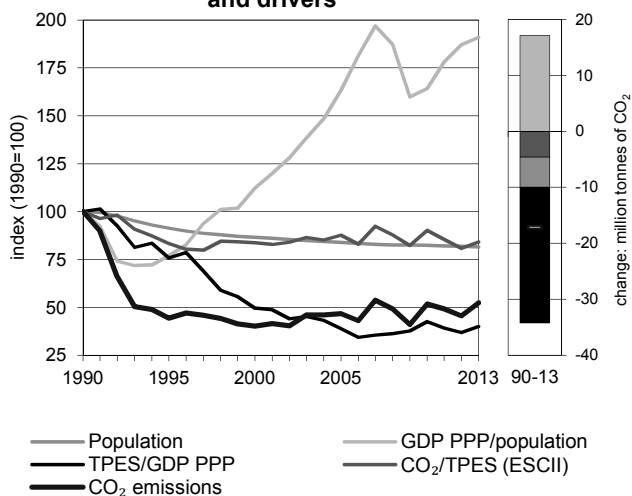


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Estonia

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	35.97	15.96	14.51	16.82	18.65	16.44	18.86	-48%
Share of World CO ₂ from fuel combustion	0.17%	0.07%	0.06%	0.06%	0.06%	0.05%	0.06%	
TPES (PJ)	409	218	197	218	235	231	255	-38%
GDP (billion 2005 USD)	10.21	7.18	9.92	14.00	13.80	15.63	15.89	56%
GDP PPP (billion 2005 USD)	16.37	11.50	15.89	22.43	22.11	25.05	25.45	56%
Population (millions)	1.62	1.48	1.40	1.36	1.33	1.33	1.32	-19%
CO ₂ / TPES (tCO ₂ per TJ)	87.9	73.2	73.5	77.1	79.2	71.1	73.9	-16%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	3.52	2.22	1.46	1.20	1.35	1.05	1.19	-66%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	2.20	1.39	0.91	0.75	0.84	0.66	0.74	-66%
CO ₂ / population (tCO ₂ per capita)	22.21	10.79	10.36	12.37	13.99	12.41	14.29	-36%
Share of electricity output from fossil fuels	100%	100%	100%	99%	92%	88%	91%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	962	1095	1082	1067	1031	927	1016	6%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	44	40	47	52	46	52	-48%
Population index	100	91	86	84	82	82	81	-19%
GDP PPP per population index	100	77	112	163	164	187	191	91%
Energy intensity index - TPES / GDP PPP	100	76	50	39	43	37	40	-60%
Carbon intensity index - CO ₂ / TPES	100	83	84	88	90	81	84	-16%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	14.34	2.98	1.14	0.40	18.86	-48%
Electricity and heat generation	13.89	0.12	0.54	0.18	14.73	-44%
Other energy industry own use	0.09	0.05	0.02	-	0.16	-67%
Manufacturing industries and construction	0.31	0.20	0.34	0.22	1.08	-75%
Transport	-	2.21	-	-	2.21	-6%
<i>of which: road</i>	-	2.11	-	-	2.11	-2%
Other	0.05	0.39	0.24	-	0.69	-72%
<i>of which: residential</i>	0.04	0.02	0.12	-	0.18	-83%
<i>of which: services</i>	0.01	0.12	0.10	-	0.24	-39%
<i>Memo: international marine bunkers</i>	-	1.34	-	-	1.34	133%
<i>Memo: international aviation bunkers</i>	-	0.09	-	-	0.09	-18%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	13.85	-34.1%	58.0	58.0
Road - oil	2.11	-2.4%	8.9	66.8
Main activity prod. elec. and heat - gas	0.49	-72.7%	2.0	68.9
Non-specified other - oil	0.37	-48.1%	1.6	70.4
Manufacturing industries - gas	0.34	-23.5%	1.4	71.9
Manufacturing industries - coal	0.31	-81.0%	1.3	73.1
Manufacturing industries - other	0.22	x	0.9	74.1
Manufacturing industries - oil	0.20	-90.9%	0.9	74.9
Main activity prod. elec. and heat - other	0.18	x	0.7	75.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>18.86</i>	<i>-47.6%</i>	<i>79.0</i>	<i>79.0</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Ethiopia

Figure 1. CO₂ emissions by fuel

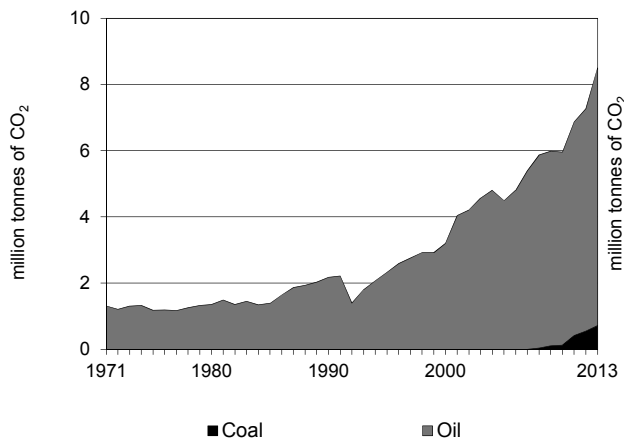


Figure 2. CO₂ emissions by sector

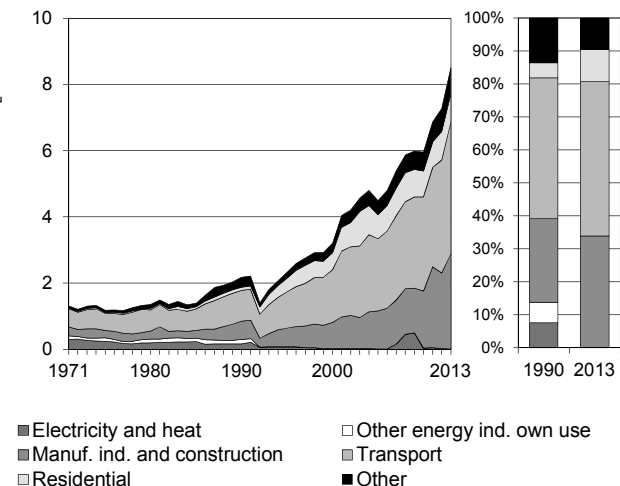


Figure 3. Electricity generation by fuel

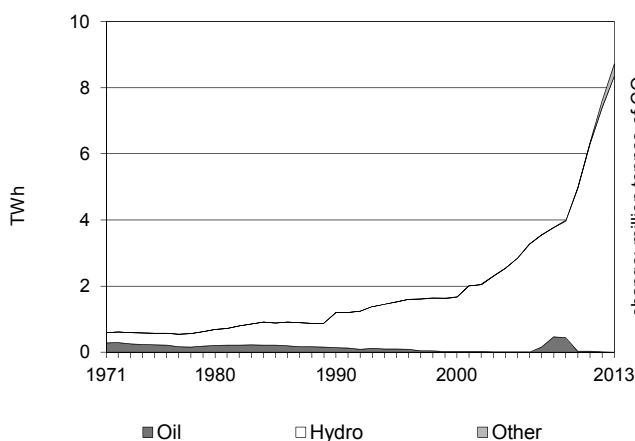


Figure 4. CO₂ from electricity generation: driving factors¹

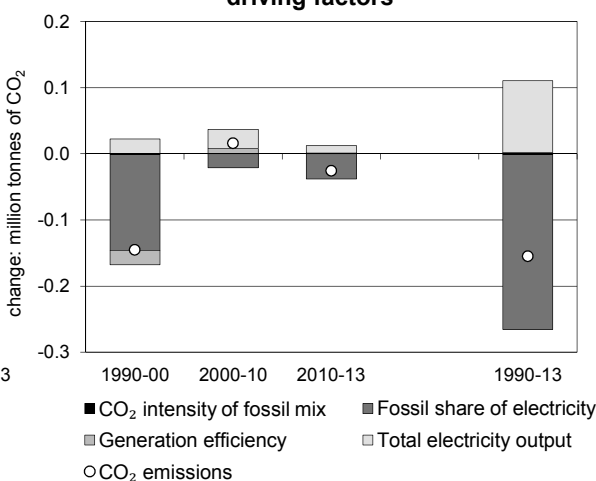


Figure 5. Changes in selected indicators

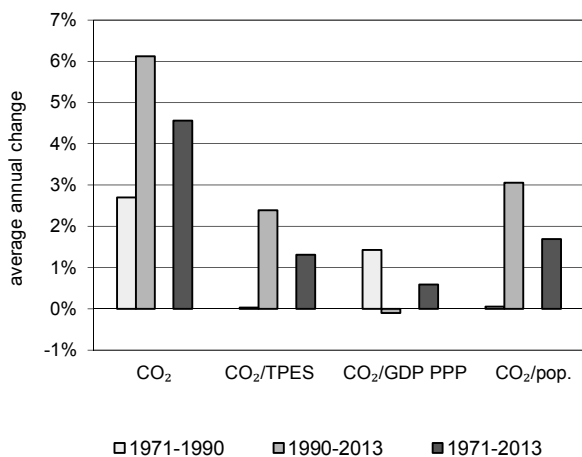
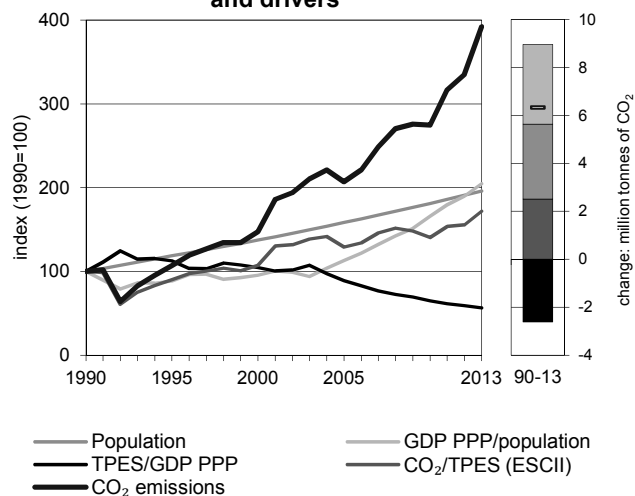


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Ethiopia ¹

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	2.17	2.32	3.20	4.49	5.96	7.27	8.50	292%
Share of World CO ₂ from fuel combustion	0.01%	0.01%	0.01%	0.02%	0.02%	0.02%	0.03%	
TPES (PJ)	881	1 044	1 211	1 410	1 722	1 899	2 007	128%
GDP (billion 2005 USD)	6.92	7.27	9.08	12.40	20.78	25.11	27.74	301%
GDP PPP (billion 2005 USD)	27.91	29.33	36.63	50.03	83.85	101.28	111.91	301%
Population (millions)	48.04	57.02	66.02	76.17	87.10	91.73	94.10	96%
CO ₂ / TPES (tCO ₂ per TJ)	2.5	2.2	2.6	3.2	3.5	3.8	4.2	72%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.31	0.32	0.35	0.36	0.29	0.29	0.31	-2%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.08	0.08	0.09	0.09	0.07	0.07	0.08	-2%
CO ₂ / population (tCO ₂ per capita)	0.05	0.04	0.05	0.06	0.07	0.08	0.09	100%
Share of electricity output from fossil fuels	12%	6%	1%	0%	1%	0%	0%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	137	42	11	3	7	2	1	-99%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ²								
CO ₂ emissions index	100	107	147	207	274	335	392	292%
Population index	100	119	137	159	181	191	196	96%
GDP PPP per population index	100	89	95	113	166	190	205	105%
Energy intensity index - TPES / GDP PPP	100	113	105	89	65	59	57	-43%
Carbon intensity index - CO ₂ / TPES	100	90	107	129	140	155	172	72%

1. Data for Ethiopia include Eritrea until 1991. 2. Please see Part I, Chapter 2 for methodological notes.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ³	Total	% change 90-13
CO₂ fuel combustion	0.71	7.79	-	-	8.50	292%
Electricity and heat generation	-	0.01	-	-	0.01	-94%
Other energy industry own use	-	-	-	-	-	-100%
Manufacturing industries and construction	0.71	2.16	-	-	2.87	422%
Transport	-	3.98	-	-	3.98	329%
<i>of which: road</i>	-	3.78	-	-	3.78	308%
Other	-	1.64	-	-	1.64	317%
<i>of which: residential</i>	-	0.83	-	-	0.83	736%
<i>of which: services</i>	-	0.14	-	-	0.14	529%
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	1.12	-	-	1.12	108%

3. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ⁴	Cumulative total (%)
Road - oil	3.78	307.8%	3.2	3.2
Manufacturing industries - oil	2.16	293.0%	1.8	5.1
Residential - oil	0.83	736.1%	0.7	5.8
Non-specified other - oil	0.81	176.1%	0.7	6.5
Manufacturing industries - coal	0.71	x	0.6	7.1
Other transport - oil	0.20	x	0.2	7.2
Main activity prod. elec. and heat - oil	0.01	-89.4%	0.0	7.2
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>8.50</i>	<i>291.8%</i>	<i>7.2</i>	<i>7.2</i>

4. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Finland

Figure 1. CO₂ emissions by fuel

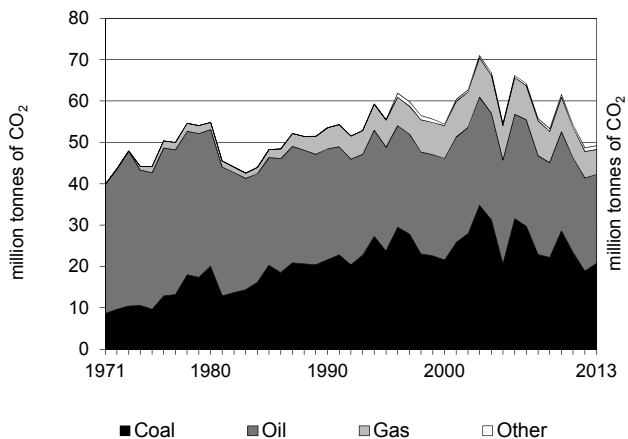


Figure 2. CO₂ emissions by sector

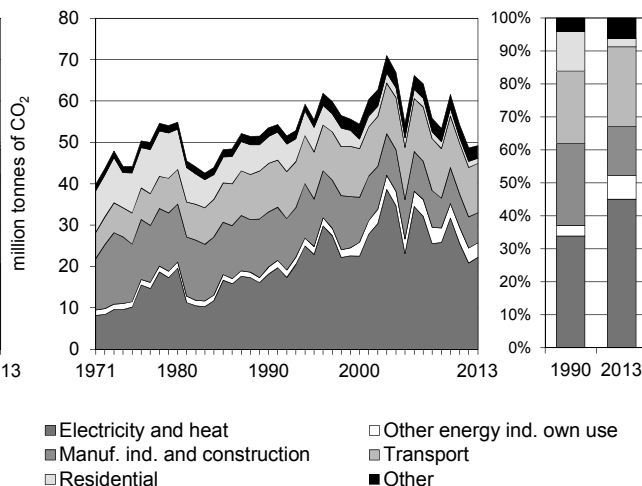


Figure 3. Electricity generation by fuel

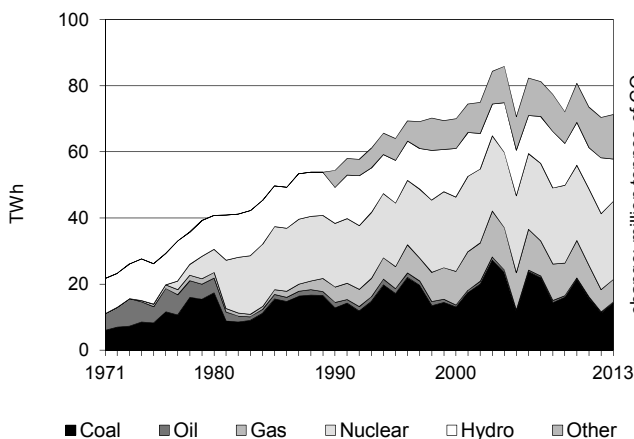


Figure 4. CO₂ from electricity generation: driving factors¹

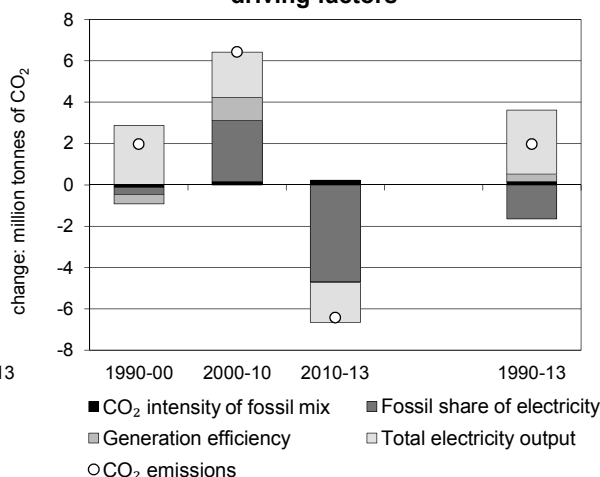


Figure 5. Changes in selected indicators

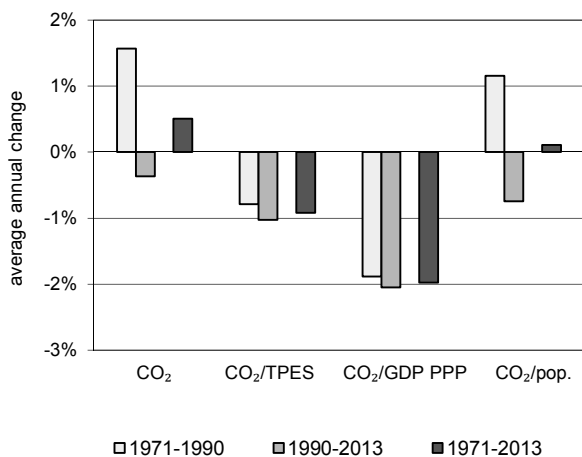
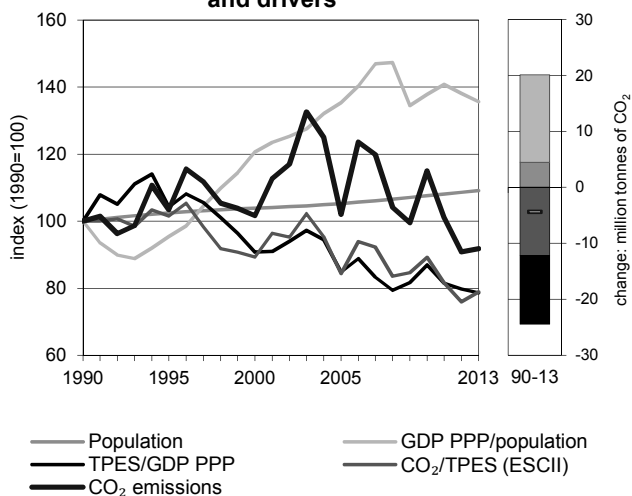


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Finland

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	53.55	55.42	54.42	54.61	61.57	48.68	49.19	-8%
Share of World CO ₂ from fuel combustion	0.26%	0.26%	0.23%	0.20%	0.21%	0.15%	0.15%	
TPES (PJ)	1 188	1 211	1 352	1 436	1 531	1 421	1 383	16%
GDP (billion 2005 USD)	143.59	140.43	179.90	204.43	212.91	215.27	212.43	48%
GDP PPP (billion 2005 USD)	118.16	115.55	148.03	168.22	175.20	177.14	174.80	48%
Population (millions)	4.99	5.11	5.18	5.25	5.36	5.41	5.44	9%
CO ₂ / TPES (tCO ₂ per TJ)	45.1	45.8	40.3	38.0	40.2	34.3	35.6	-21%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.37	0.39	0.30	0.27	0.29	0.23	0.23	-38%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.45	0.48	0.37	0.32	0.35	0.27	0.28	-38%
CO ₂ / population (tCO ₂ per capita)	10.74	10.85	10.51	10.41	11.48	8.99	9.04	-16%
Share of electricity output from fossil fuels	35%	39%	34%	34%	42%	27%	31%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	193	227	178	168	234	137	175	-9%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	103	102	102	115	91	92	-8%
Population index	100	102	104	105	108	109	109	9%
GDP PPP per population index	100	95	121	135	138	138	136	36%
Energy intensity index - TPES / GDP PPP	100	104	91	85	87	80	79	-21%
Carbon intensity index - CO ₂ / TPES	100	102	89	84	89	76	79	-21%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	20.71	21.57	6.00	0.91	49.19	-8%
Electricity and heat generation	17.07	0.72	3.73	0.66	22.18	22%
Other energy industry own use	1.24	1.63	0.64	-	3.52	106%
Manufacturing industries and construction	2.13	3.46	1.43	0.25	7.28	-45%
Transport	-	11.89	0.02	-	11.91	2%
<i>of which: road</i>	-	11.15	0.01	-	11.16	4%
Other	0.26	3.86	0.17	-	4.29	-50%
<i>of which: residential</i>	0.02	1.19	0.07	-	1.28	-80%
<i>of which: services</i>	0.01	0.81	0.08	-	0.90	x
<i>Memo: international marine bunkers</i>	-	0.41	-	-	0.41	-77%
<i>Memo: international aviation bunkers</i>	-	1.89	-	-	1.89	92%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	15.46	22.3%	23.0	23.0
Road - oil	11.15	3.7%	16.6	39.6
Manufacturing industries - oil	3.46	-5.8%	5.1	44.7
Main activity prod. elec. and heat - gas	3.24	65.8%	4.8	49.5
Non-specified other - oil	2.67	28.0%	4.0	53.5
Manufacturing industries - coal	2.13	-71.6%	3.2	56.7
Other energy industry own use - oil	1.63	38.3%	2.4	59.1
Unallocated autoproducers - coal	1.61	12.3%	2.4	61.5
Manufacturing industries - gas	1.43	-33.5%	2.1	63.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>49.19</i>	<i>-8.1%</i>	<i>73.1</i>	<i>73.1</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Former Yugoslav Republic of Macedonia

Figure 1. CO₂ emissions by fuel

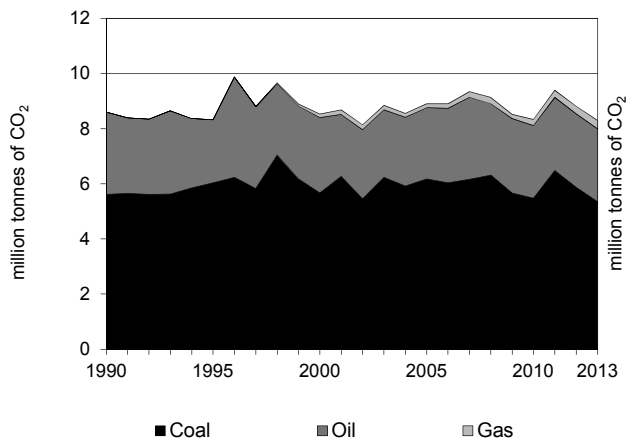


Figure 2. CO₂ emissions by sector

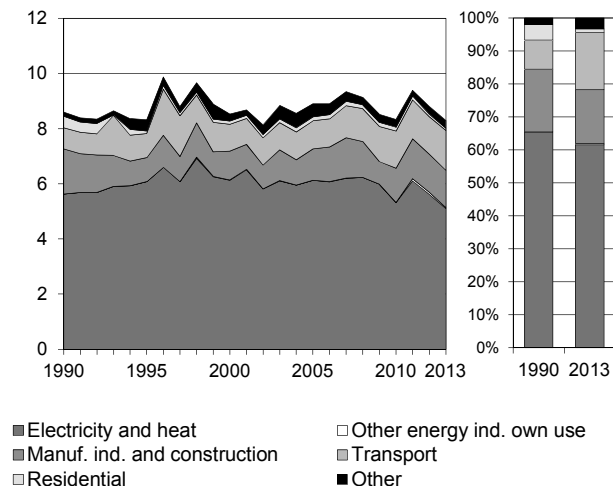


Figure 3. Electricity generation by fuel

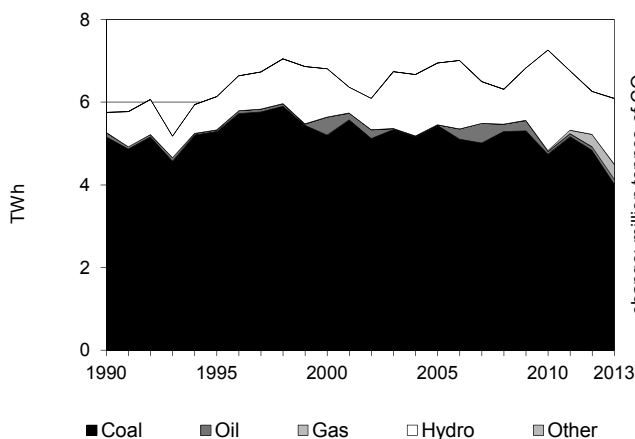


Figure 4. CO₂ from electricity generation: driving factors¹

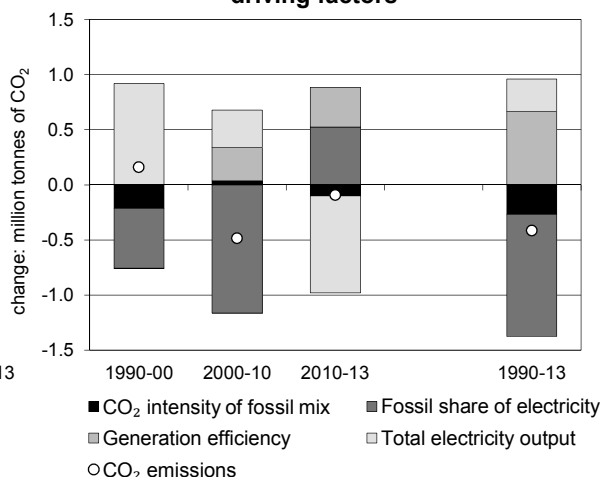


Figure 5. Changes in selected indicators

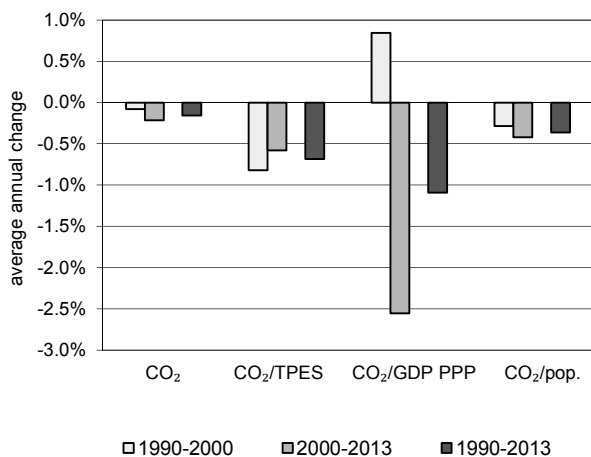
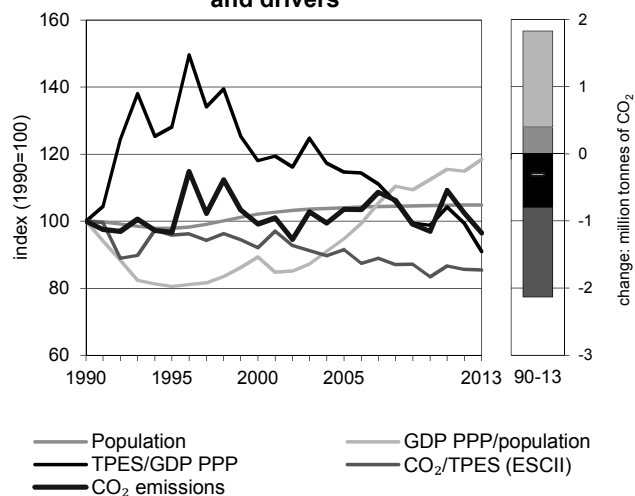


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Former Yugoslav Republic of Macedonia

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	8.60	8.32	8.53	8.90	8.34	8.81	8.30	-4%
Share of World CO ₂ from fuel combustion	0.04%	0.04%	0.04%	0.03%	0.03%	0.03%	0.03%	
TPES (PJ)	104	105	112	117	121	124	117	13%
GDP (billion 2005 USD)	6.07	4.78	5.54	5.99	7.14	7.31	7.54	24%
GDP PPP (billion 2005 USD)	16.27	12.82	14.84	16.05	19.14	19.60	20.21	24%
Population (millions)	2.01	1.97	2.05	2.09	2.10	2.11	2.11	5%
CO ₂ / TPES (tCO ₂ per TJ)	82.9	79.5	76.4	75.9	69.1	71.0	70.8	-15%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	1.42	1.74	1.54	1.49	1.17	1.21	1.10	-22%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.53	0.65	0.57	0.55	0.44	0.45	0.41	-22%
CO ₂ / population (tCO ₂ per capita)	4.28	4.23	4.16	4.26	3.97	4.18	3.94	-8%
Share of electricity output from fossil fuels	91%	87%	83%	79%	67%	83%	74%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	935	897	815	807	697	871	816	-13%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	97	99	104	97	102	96	-4%
Population index	100	98	102	104	105	105	105	5%
GDP PPP per population index	100	81	89	95	112	115	118	18%
Energy intensity index - TPES / GDP PPP	100	128	118	115	99	99	91	-9%
Carbon intensity index - CO ₂ / TPES	100	96	92	92	83	86	85	-15%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	5.35	2.64	0.30	-	8.30	-4%
Electricity and heat generation	4.77	0.10	0.24	-	5.11	-9%
Other energy industry own use	-	0.03	-	-	0.03	x
Manufacturing industries and construction	0.56	0.73	0.06	-	1.35	-17%
Transport	-	1.44	0.00	-	1.44	89%
<i>of which: road</i>	-	1.43	0.00	-	1.43	92%
Other	0.02	0.33	0.01	-	0.36	-37%
<i>of which: residential</i>	0.01	0.08	-	-	0.08	-80%
<i>of which: services</i>	0.01	0.22	0.01	-	0.24	+
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.02	-	-	0.02	60%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	4.75	-6.3%	41.9	41.9
Road - oil	1.43	92.1%	12.6	54.4
Manufacturing industries - oil	0.73	-38.9%	6.4	60.9
Manufacturing industries - coal	0.56	29.5%	5.0	65.8
Non-specified other - oil	0.26	81.6%	2.3	68.1
Main activity prod. elec. and heat - gas	0.24	x	2.1	70.2
Main activity prod. elec. and heat - oil	0.10	-41.1%	0.9	71.1
Residential - oil	0.08	-81.0%	0.7	71.8
Manufacturing industries - gas	0.06	x	0.5	72.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>8.30</i>	<i>-3.5%</i>	<i>73.1</i>	<i>73.1</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

France

Figure 1. CO₂ emissions by fuel

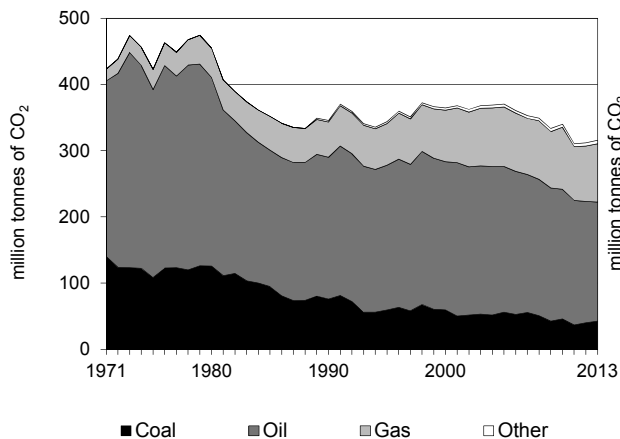


Figure 2. CO₂ emissions by sector

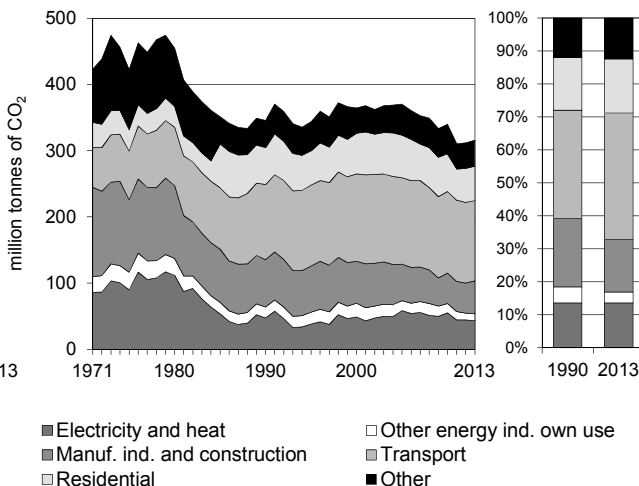


Figure 3. Electricity generation by fuel

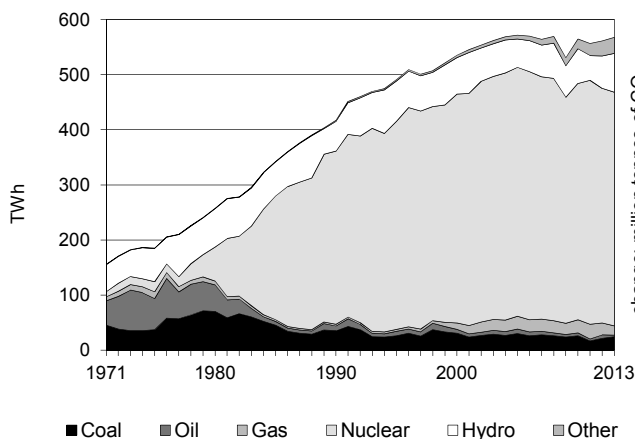


Figure 4. CO₂ from electricity generation: driving factors¹

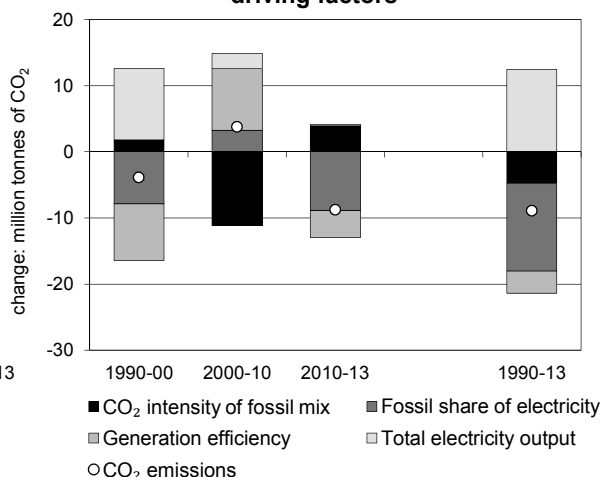


Figure 5. Changes in selected indicators

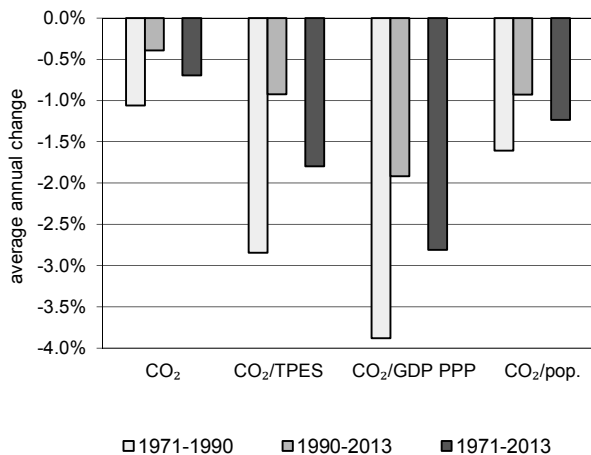
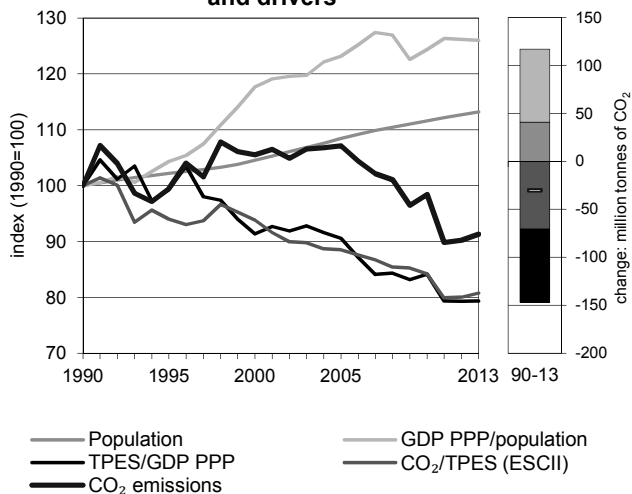


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

France

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	345.53	343.68	364.55	370.20	340.08	311.70	315.57	-9%
Share of World CO ₂ from fuel combustion	1.68%	1.60%	1.56%	1.37%	1.14%	0.99%	0.98%	
TPES (PJ)	9 379	9 925	10 547	11 349	10 956	10 569	10 606	13%
GDP (billion 2005 USD)	1 650.03	1 758.88	2 029.99	2 203.62	2 289.83	2 345.26	2 351.95	43%
GDP PPP (billion 2005 USD)	1 436.99	1 531.78	1 767.89	1 919.11	1 994.19	2 042.46	2 048.28	43%
Population (millions)	58.23	59.50	60.87	63.13	64.97	65.61	65.90	13%
CO ₂ / TPES (tCO ₂ per TJ)	36.8	34.6	34.6	32.6	31.0	29.5	29.8	-19%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.21	0.20	0.18	0.17	0.15	0.13	0.13	-36%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.24	0.22	0.21	0.19	0.17	0.15	0.15	-36%
CO ₂ / population (tCO ₂ per capita)	5.93	5.78	5.99	5.86	5.23	4.75	4.79	-19%
Share of electricity output from fossil fuels	11%	8%	9%	11%	10%	9%	8%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	108	75	77	81	80	67	64	-41%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	99	106	107	98	90	91	-9%
Population index	100	102	105	108	112	113	113	13%
GDP PPP per population index	100	104	118	123	124	126	126	26%
Energy intensity index - TPES / GDP PPP	100	99	91	91	84	79	79	-21%
Carbon intensity index - CO ₂ / TPES	100	94	94	89	84	80	81	-19%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	42.45	179.99	88.06	5.07	315.57	-9%
Electricity and heat generation	25.46	2.92	10.08	4.53	43.00	-9%
Other energy industry own use	2.85	5.23	2.26	0.07	10.41	-37%
Manufacturing industries and construction	13.83	8.58	27.66	0.00	50.07	-30%
Transport	-	120.80	0.26	-	121.05	7%
<i>of which: road</i>	-	116.18	0.25	-	116.43	7%
Other	0.31	42.47	47.80	0.46	91.04	-6%
<i>of which: residential</i>	0.24	21.66	29.88	-	51.78	-7%
<i>of which: services</i>	0.07	7.97	16.94	0.46	25.44	-15%
<i>Memo: international marine bunkers</i>	-	6.86	-	-	6.86	-13%
<i>Memo: international aviation bunkers</i>	-	16.71	-	-	16.71	77%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	116.18	6.8%	24.7	24.7
Residential - gas ⁴	29.88	93.1%	6.4	31.1
Manufacturing industries - gas	27.66	28.2%	5.9	36.9
Main activity prod. elec. and heat - coal	22.83	5.8%	4.9	41.8
Residential - oil	21.66	-35.0%	4.6	46.4
Non-specified other - oil	20.80	-21.6%	4.4	50.8
Non-specified other - gas	17.93	22.3%	3.8	54.6
Manufacturing industries - coal	13.83	-52.3%	2.9	57.6
Manufacturing industries - oil	8.58	-59.4%	1.8	59.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>315.57</i>	<i>-8.7%</i>	<i>67.1</i>	<i>67.1</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

4. The high growth in gas is also due to changes in methodology in 2000.

Gabon

Figure 1. CO₂ emissions by fuel

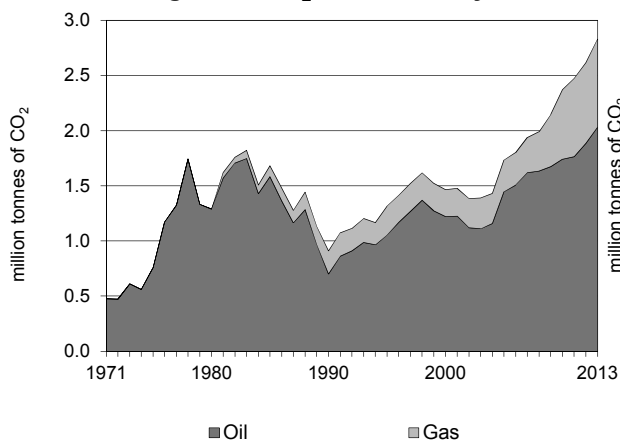


Figure 2. CO₂ emissions by sector

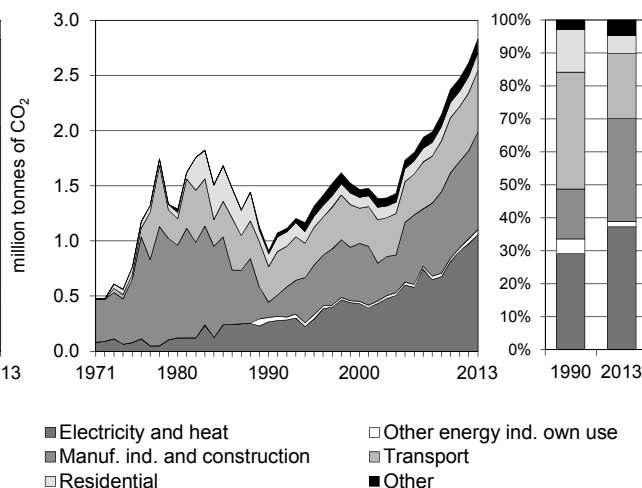


Figure 3. Electricity generation by fuel

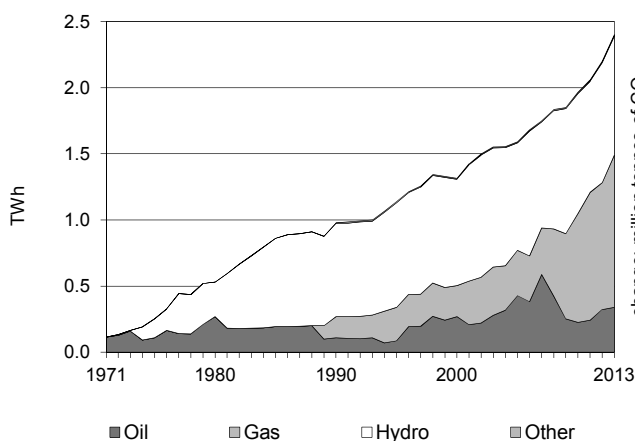


Figure 4. CO₂ from electricity generation: driving factors¹

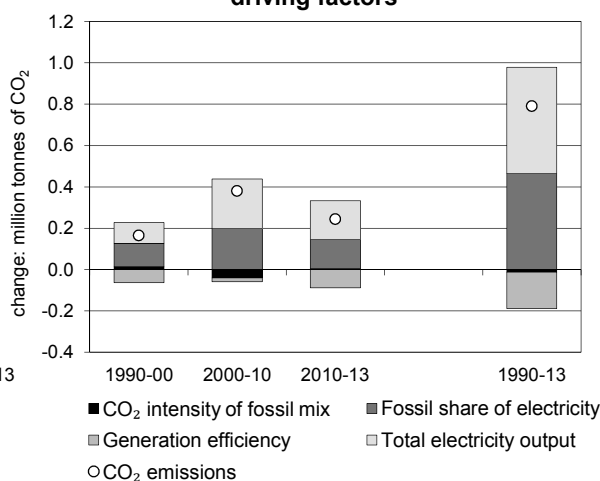


Figure 5. Changes in selected indicators

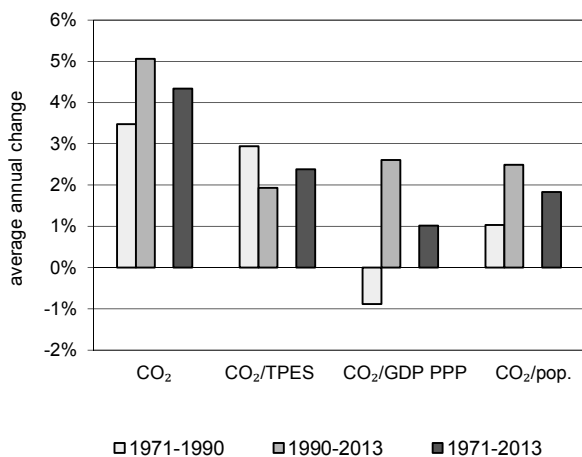
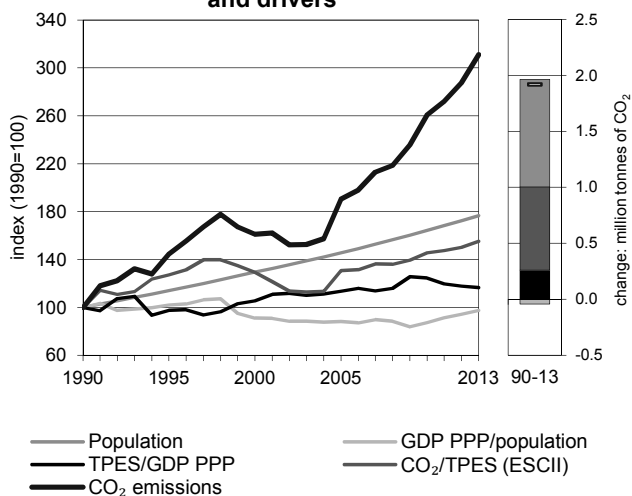


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Gabon

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	0.91	1.31	1.46	1.73	2.37	2.61	2.83	211%
Share of World CO ₂ from fuel combustion	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	
TPES (PJ)	49	56	62	72	88	95	99	100%
GDP (billion 2005 USD)	6.74	7.85	7.95	8.67	9.69	10.95	11.60	72%
GDP PPP (billion 2005 USD)	16.14	18.78	19.03	20.74	23.18	26.21	27.75	72%
Population (millions)	0.95	1.08	1.23	1.38	1.56	1.63	1.67	77%
CO ₂ / TPES (tCO ₂ per TJ)	18.4	23.4	23.8	24.0	26.8	27.6	28.5	55%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.13	0.17	0.18	0.20	0.24	0.24	0.24	81%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.06	0.07	0.08	0.08	0.10	0.10	0.10	81%
CO ₂ / population (tCO ₂ per capita)	0.96	1.22	1.19	1.26	1.52	1.60	1.69	76%
Share of electricity output from fossil fuels	28%	30%	38%	48%	53%	58%	62%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	272	257	328	377	414	443	440	62%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	145	161	190	261	287	311	211%
Population index	100	114	129	146	164	172	177	77%
GDP PPP per population index	100	102	91	88	87	94	97	-3%
Energy intensity index - TPES / GDP PPP	100	98	106	114	125	118	117	17%
Carbon intensity index - CO ₂ / TPES	100	127	129	131	146	150	155	55%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	2.03	0.80	-	2.83	211%
Electricity and heat generation	-	0.31	0.75	-	1.06	297%
Other energy industry own use	-	-	0.05	-	0.05	17%
Manufacturing industries and construction	-	0.88	0.01	-	0.88	542%
Transport	-	0.56	-	-	0.56	73%
<i>of which: road</i>	-	0.56	-	-	0.56	73%
Other	-	0.29	-	-	0.29	100%
<i>of which: residential</i>	-	0.16	-	-	0.16	35%
<i>of which: services</i>	-	0.09	-	-	0.09	x
<i>Memo: international marine bunkers</i>	-	0.62	-	-	0.62	675%
<i>Memo: international aviation bunkers</i>	-	0.21	-	-	0.21	8%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Manufacturing industries - oil	0.88	551.8%	7.8	7.8
Main activity prod. elec. and heat - gas	0.65	423.5%	5.8	13.5
Road - oil	0.56	72.7%	4.9	18.4
Main activity prod. elec. and heat - oil	0.19	130.8%	1.7	20.1
Residential - oil	0.16	34.6%	1.4	21.5
Non-specified other - oil	0.13	400.0%	1.1	22.7
Unallocated autoproducers - oil	0.12	620.0%	1.0	23.7
Unallocated autoproducers - gas	0.10	127.9%	0.9	24.5
Other energy industry own use - gas	0.05	16.8%	0.4	24.9
<i>Memo: total CO₂ from fuel combustion</i>	2.83	211.1%	25.0	25.0

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Georgia

Figure 1. CO₂ emissions by fuel

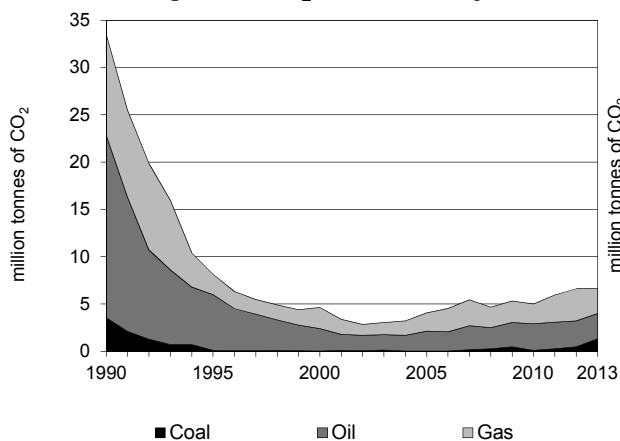


Figure 2. CO₂ emissions by sector

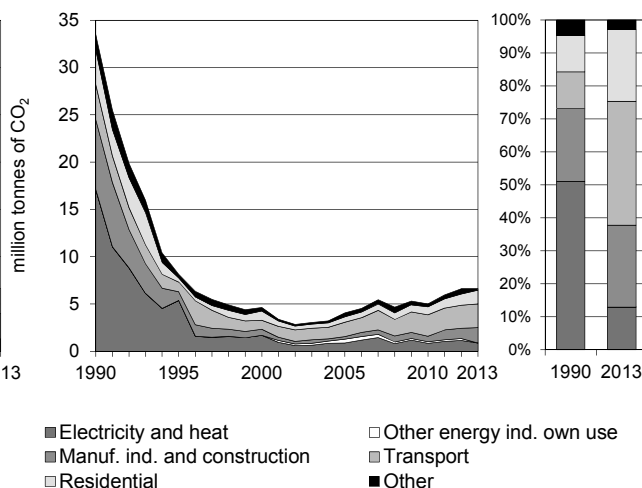


Figure 3. Electricity generation by fuel

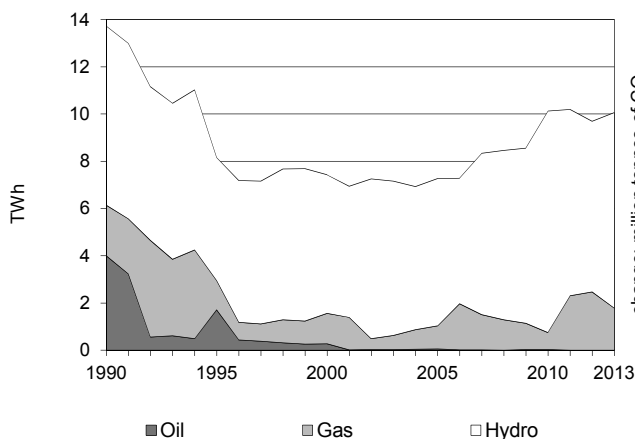


Figure 4. CO₂ from electricity generation: driving factors¹

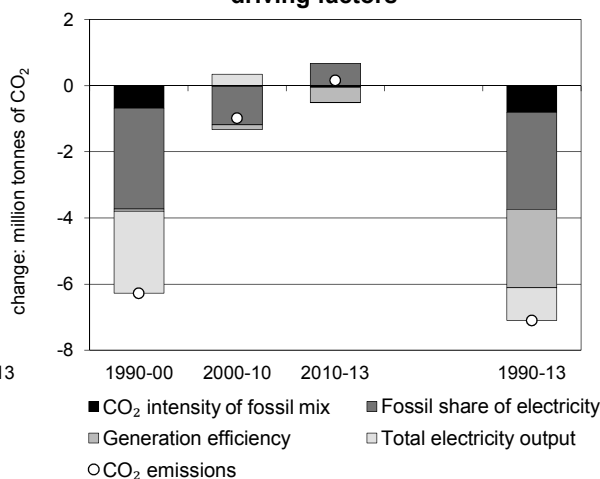


Figure 5. Changes in selected indicators

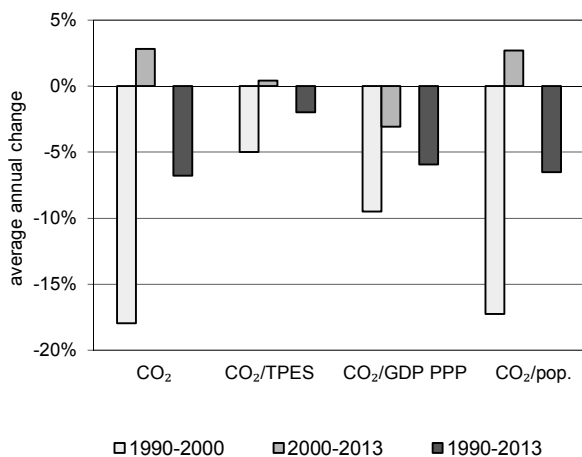
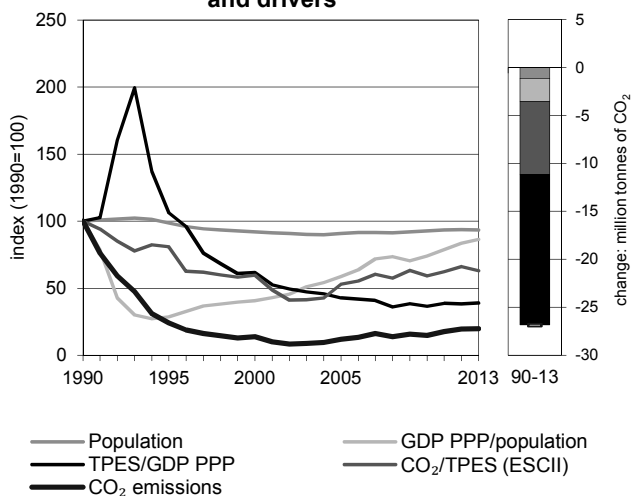


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Georgia

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	33.48	8.13	4.63	4.06	4.99	6.61	6.63	-80%
Share of World CO ₂ from fuel combustion	0.16%	0.04%	0.02%	0.02%	0.02%	0.02%	0.02%	
TPES (PJ)	520	156	120	119	131	155	163	-69%
GDP (billion 2005 USD)	12.00	3.39	4.50	6.41	8.24	9.38	9.69	-19%
GDP PPP (billion 2005 USD)	34.28	9.69	12.86	18.31	23.54	26.80	27.69	-19%
Population (millions)	4.80	4.73	4.42	4.36	4.45	4.49	4.49	-7%
CO ₂ / TPES (tCO ₂ per TJ)	64.4	52.2	38.6	34.2	38.2	42.6	40.6	-37%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	2.79	2.40	1.03	0.63	0.61	0.70	0.68	-75%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.98	0.84	0.36	0.22	0.21	0.25	0.24	-75%
CO ₂ / population (tCO ₂ per capita)	6.97	1.72	1.05	0.93	1.12	1.47	1.48	-79%
Share of electricity output from fossil fuels	45%	36%	21%	14%	7%	25%	18%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	580	514	226	101	69	118	85	-85%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	24	14	12	15	20	20	-80%
Population index	100	99	92	91	93	94	93	-7%
GDP PPP per population index	100	29	41	59	74	84	86	-14%
Energy intensity index - TPES / GDP PPP	100	106	62	43	37	38	39	-61%
Carbon intensity index - CO ₂ / TPES	100	81	60	53	59	66	63	-37%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	1.29	2.69	2.65	-	6.63	-80%
Electricity and heat generation	-	-	0.86	-	0.86	-95%
Other energy industry own use	0.00	-	-	-	0.00	x
Manufacturing industries and construction	1.29	0.21	0.15	-	1.65	-78%
Transport	-	2.40	0.10	-	2.49	-33%
<i>of which: road</i>	-	2.36	0.10	-	2.46	-30%
Other	0.00	0.08	1.55	-	1.63	-69%
<i>of which: residential</i>	0.00	0.04	1.40	-	1.44	-61%
<i>of which: services</i>	0.00	0.02	0.14	-	0.16	-85%
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.26	-	-	0.26	-57%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	2.36	-32.4%	15.5	15.5
Residential - gas	1.40	-46.7%	9.2	24.7
Manufacturing industries - coal	1.29	-44.3%	8.5	33.2
Main activity prod. elec. and heat - gas	0.86	-81.4%	5.6	38.8
Manufacturing industries - oil	0.21	-89.4%	1.4	40.2
Non-specified other - gas	0.15	-50.5%	1.0	41.2
Manufacturing industries - gas	0.15	-95.2%	1.0	42.2
Road - gas	0.10	x	0.7	42.8
Non-specified other - oil	0.04	-96.4%	0.3	43.1
<i>Memo: total CO₂ from fuel combustion</i>	6.63	-80.2%	43.6	43.6

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Germany

Figure 1. CO₂ emissions by fuel

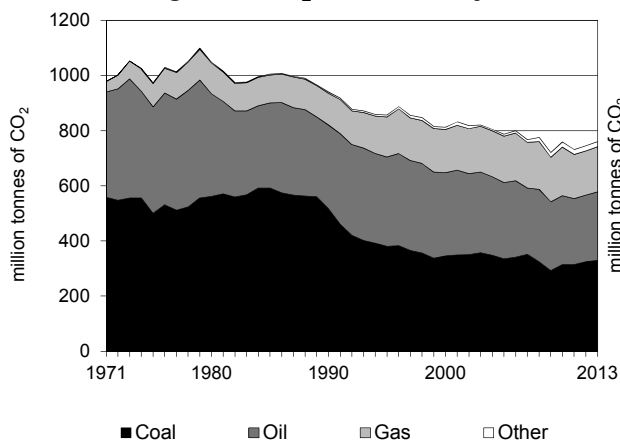


Figure 2. CO₂ emissions by sector

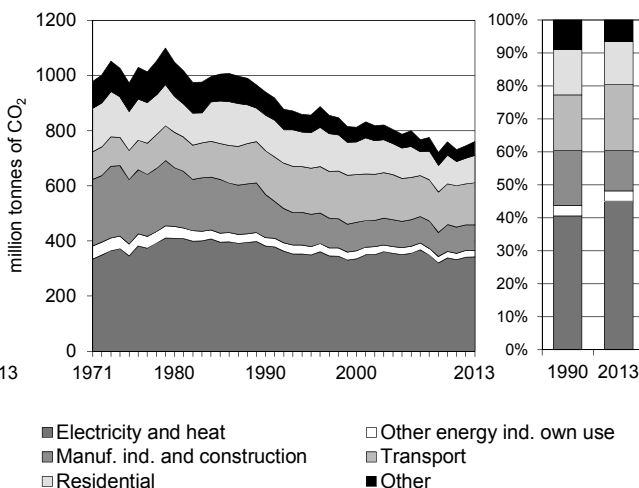


Figure 3. Electricity generation by fuel

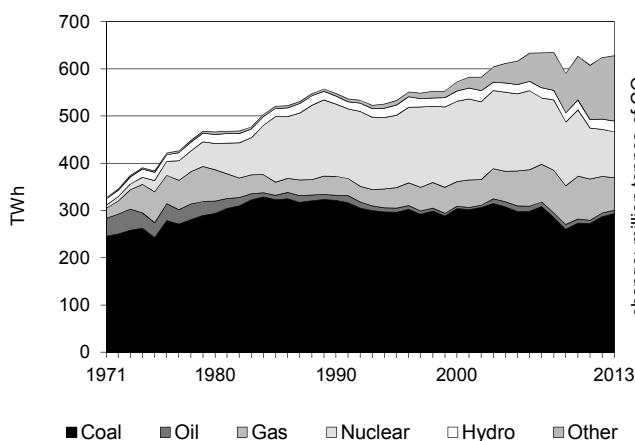


Figure 4. CO₂ from electricity generation: driving factors¹

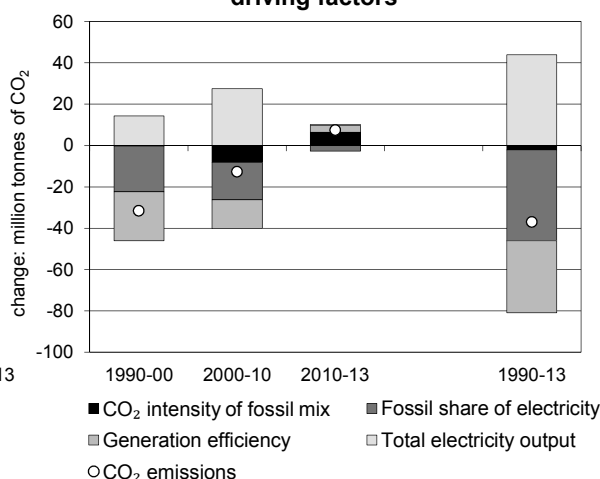


Figure 5. Changes in selected indicators

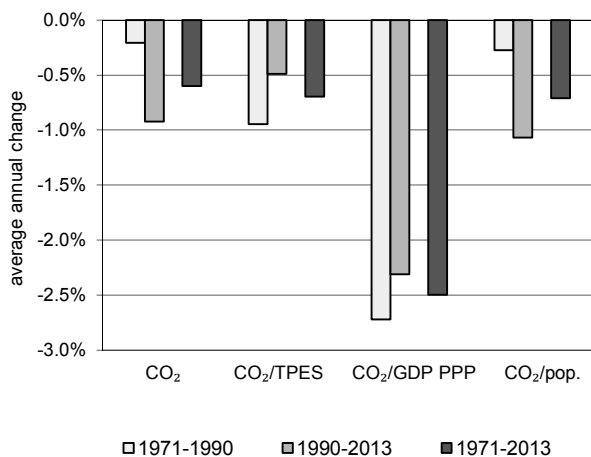
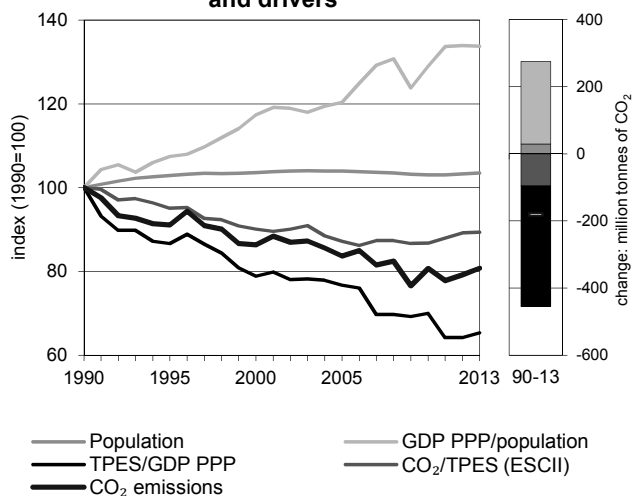


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Germany

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	940.27	856.69	812.36	786.76	759.04	744.88	759.60	-19%
Share of World CO ₂ from fuel combustion	4.6%	4.0%	3.5%	2.9%	2.5%	2.4%	2.4%	
TPES (PJ)	14 704	14 088	14 092	14 110	13 685	13 055	13 300	-10%
GDP (billion 2005 USD)	2 285.75	2 527.06	2 777.36	2 857.56	3 037.69	3 158.59	3 161.94	38%
GDP PPP (billion 2005 USD)	2 120.28	2 344.12	2 576.30	2 650.69	2 817.79	2 929.94	2 933.04	38%
Population (millions)	79.36	81.66	82.19	82.46	81.76	81.92	82.10	3%
CO ₂ / TPES (tCO ₂ per TJ)	64.0	60.8	57.6	55.8	55.5	57.1	57.1	-11%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.41	0.34	0.29	0.28	0.25	0.24	0.24	-42%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.44	0.37	0.32	0.30	0.27	0.25	0.26	-42%
CO ₂ / population (tCO ₂ per capita)	11.85	10.49	9.88	9.54	9.28	9.09	9.25	-22%
Share of electricity output from fossil fuels	69%	66%	64%	63%	61%	61%	60%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	624	601	542	506	475	486	486	-22%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	91	86	84	81	79	81	-19%
Population index	100	103	104	104	103	103	103	3%
GDP PPP per population index	100	107	117	120	129	134	134	34%
Energy intensity index - TPES / GDP PPP	100	87	79	77	70	64	65	-35%
Carbon intensity index - CO ₂ / TPES	100	95	90	87	87	89	89	-11%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	329.29	248.16	163.85	18.30	759.60	-19%
Electricity and heat generation	287.62	4.86	36.80	13.03	342.32	-10%
Other energy industry own use	5.72	14.81	2.87	0.02	23.42	-23%
Manufacturing industries and construction	32.93	9.47	45.05	5.25	92.70	-41%
Transport	-	151.26	1.15	-	152.41	-4%
<i>of which: road</i>	-	147.14	0.50	-	147.64	-2%
Other	3.02	67.76	77.97	-	148.75	-30%
<i>of which: residential</i>	2.83	43.36	52.85	-	99.05	-23%
<i>of which: services</i>	0.19	23.97	25.12	-	49.27	-28%
<i>Memo: international marine bunkers</i>	-	7.31	-	-	7.31	-8%
<i>Memo: international aviation bunkers</i>	-	25.06	-	-	25.06	88%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	269.02	-6.6%	28.9	28.9
Road - oil	147.14	-2.0%	15.8	44.7
Residential - gas	52.85	67.9%	5.7	50.4
Manufacturing industries - gas	45.05	12.5%	4.8	55.2
Residential - oil	43.36	-22.3%	4.7	59.9
Manufacturing industries - coal	32.93	-64.8%	3.5	63.4
Main activity prod. elec. and heat - gas	28.72	54.8%	3.1	66.5
Non-specified other - gas	25.12	68.4%	2.7	69.2
Non-specified other - oil	24.40	-38.9%	2.6	71.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>759.60</i>	<i>-19.2%</i>	<i>81.6</i>	<i>81.6</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Ghana

Figure 1. CO₂ emissions by fuel

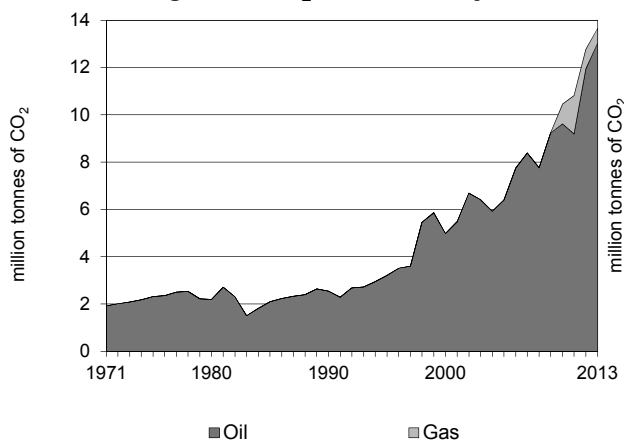


Figure 2. CO₂ emissions by sector

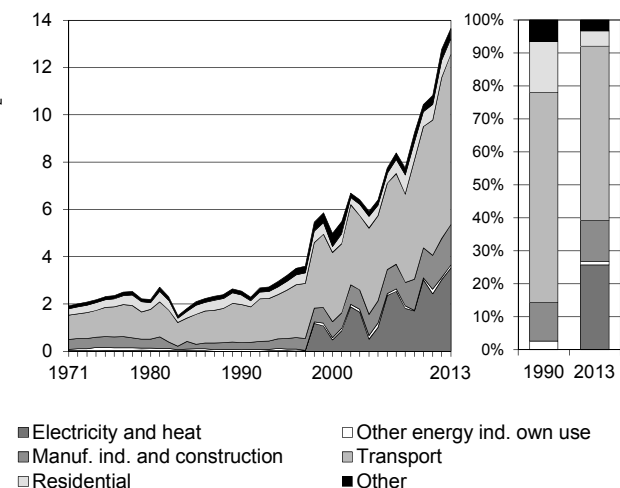


Figure 3. Electricity generation by fuel

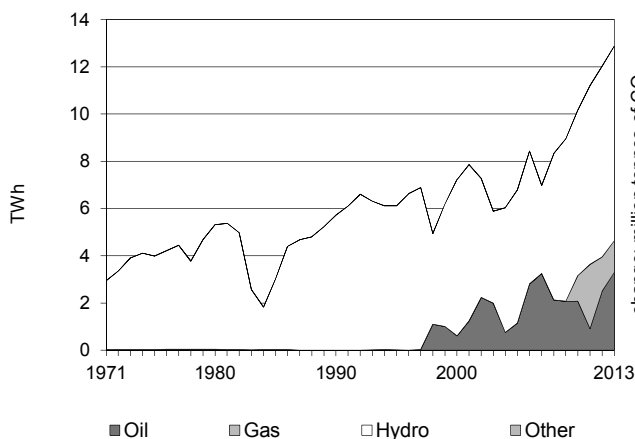


Figure 4. CO₂ from electricity generation: driving factors ¹

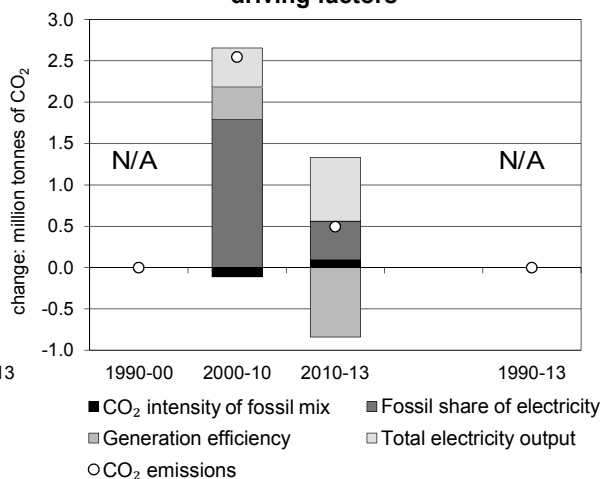


Figure 5. Changes in selected indicators

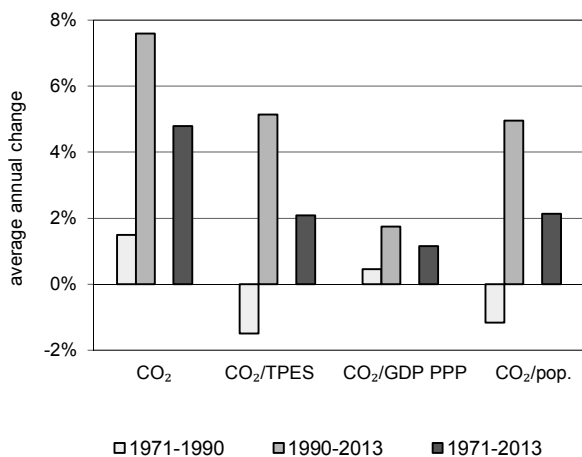
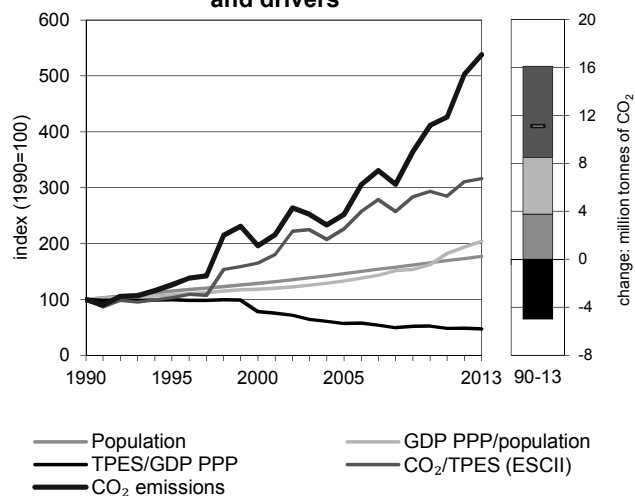


Figure 6. Total CO₂ emissions and drivers ²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Ghana

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	2.54	3.21	4.98	6.40	10.45	12.77	13.65	438%
Share of World CO ₂ from fuel combustion	0.01%	0.01%	0.02%	0.02%	0.04%	0.04%	0.04%	
TPES (PJ)	222	271	263	247	311	359	376	70%
GDP (billion 2005 USD)	5.51	6.79	8.39	10.73	14.81	18.52	19.93	262%
GDP PPP (billion 2005 USD)	24.64	30.38	37.54	47.99	66.21	82.84	89.12	262%
Population (millions)	14.63	16.76	18.83	21.38	24.26	25.37	25.91	77%
CO ₂ / TPES (tCO ₂ per TJ)	11.5	11.8	18.9	25.9	33.6	35.6	36.3	216%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.46	0.47	0.59	0.60	0.71	0.69	0.69	49%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.10	0.11	0.13	0.13	0.16	0.15	0.15	49%
CO ₂ / population (tCO ₂ per capita)	0.17	0.19	0.26	0.30	0.43	0.50	0.53	204%
Share of electricity output from fossil fuels	0%	0%	9%	17%	31%	33%	36%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	-	3	66	148	297	251	273	0%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	126	196	252	412	503	538	438%
Population index	100	115	129	146	166	173	177	77%
GDP PPP per population index	100	108	118	133	162	194	204	104%
Energy intensity index - TPES / GDP PPP	100	99	78	57	52	48	47	-53%
Carbon intensity index - CO ₂ / TPES	100	103	165	226	294	311	316	216%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	13.03	0.62	-	13.65	438%
Electricity and heat generation	-	2.90	0.62	-	3.52	x
Other energy industry own use	-	0.13	-	-	0.13	94%
Manufacturing industries and construction	-	1.70	-	-	1.70	474%
Transport	-	7.21	-	-	7.21	347%
<i>of which: road</i>	-	6.70	-	-	6.70	337%
Other	-	1.09	-	-	1.09	94%
<i>of which: residential</i>	-	0.64	-	-	0.64	62%
<i>of which: services</i>	-	0.09	-	-	0.09	125%
<i>Memo: international marine bunkers</i>	-	0.51	-	-	0.51	..
<i>Memo: international aviation bunkers</i>	-	0.44	-	-	0.44	216%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	6.70	337.2%	10.5	10.5
Main activity prod. elec. and heat - oil	2.90	x	4.6	15.1
Manufacturing industries - oil	1.70	474.1%	2.7	17.8
Residential - oil	0.64	61.6%	1.0	18.8
Main activity prod. elec. and heat - gas	0.62	x	1.0	19.7
Other transport - oil	0.52	519.2%	0.8	20.5
Non-specified other - oil	0.45	173.1%	0.7	21.3
Other energy industry own use - oil	0.13	93.5%	0.2	21.5
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>13.65</i>	<i>437.8%</i>	<i>21.5</i>	<i>21.5</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Gibraltar

Figure 1. CO₂ emissions by fuel

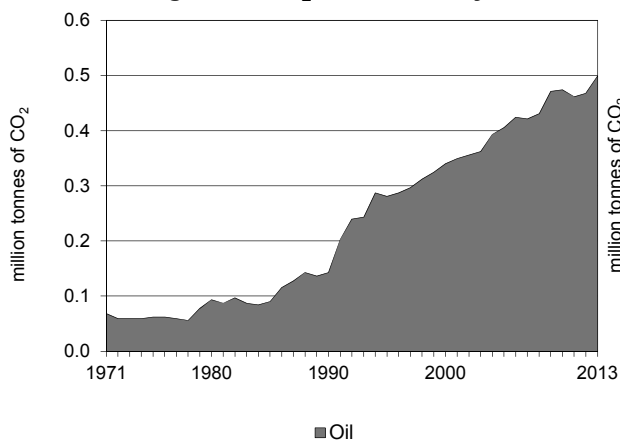


Figure 2. CO₂ emissions by sector

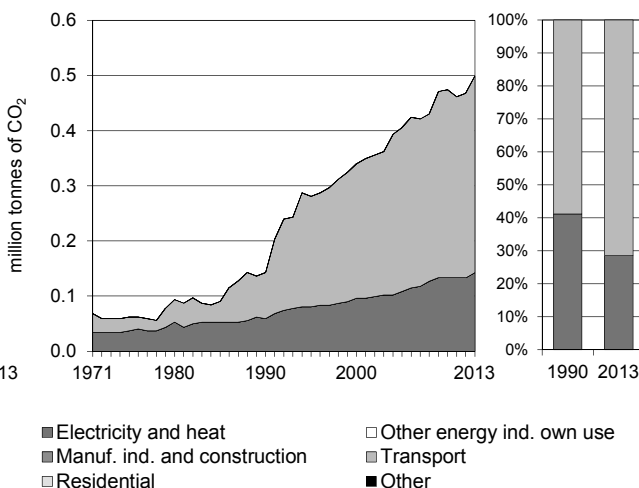


Figure 3. Electricity generation by fuel

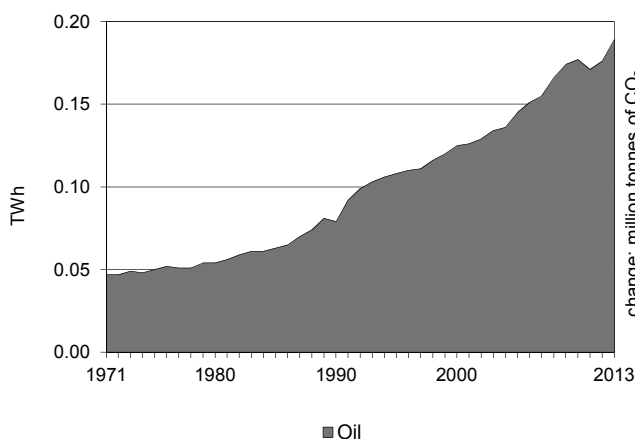


Figure 4. CO₂ from electricity generation: driving factors¹

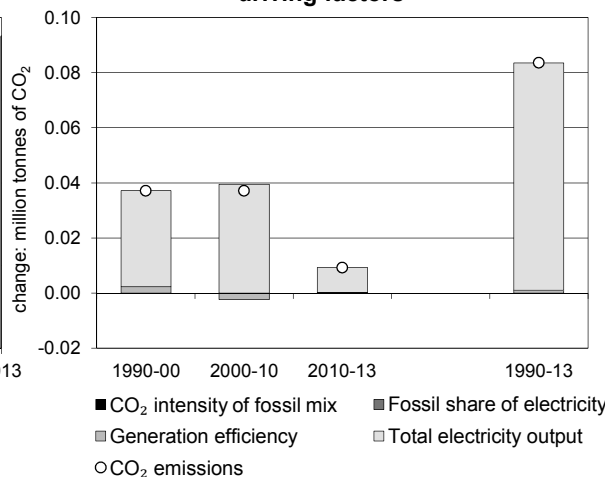


Figure 5. Changes in selected indicators

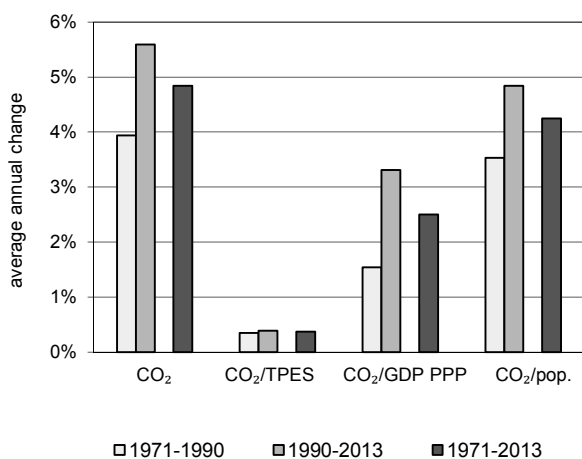
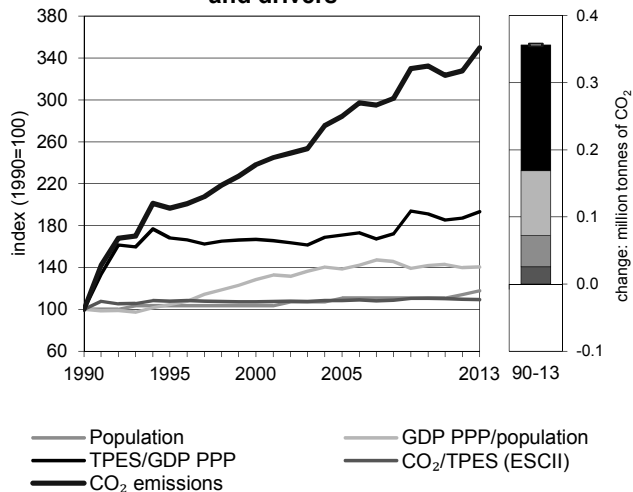


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Gibraltar

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	0.14	0.28	0.34	0.41	0.47	0.47	0.50	250%
Share of World CO ₂ from fuel combustion	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
TPES (PJ)	2	4	5	6	7	7	8	220%
GDP (billion 2005 USD)	0.71	0.77	0.91	1.03	1.05	1.09	1.12	57%
GDP PPP (billion 2005 USD)	0.58	0.63	0.77	0.89	0.91	0.93	0.96	65%
Population (millions)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	18%
CO ₂ / TPES (tCO ₂ per TJ)	59.2	63.9	63.5	64.2	65.4	65.0	64.8	9%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.20	0.36	0.37	0.39	0.45	0.43	0.45	123%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.25	0.45	0.44	0.45	0.52	0.50	0.52	111%
CO ₂ / population (tCO ₂ per capita)	5.10	9.68	11.72	13.08	15.29	14.62	15.12	197%
Share of electricity output from fossil fuels	100%	100%	100%	100%	100%	100%	100%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	744	745	767	747	752	756	753	1%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	197	238	284	332	328	350	250%
Population index	100	104	104	111	111	114	118	18%
GDP PPP per population index	100	105	129	139	142	140	140	40%
Energy intensity index - TPES / GDP PPP	100	168	167	171	191	187	193	93%
Carbon intensity index - CO ₂ / TPES	100	108	107	108	110	110	109	9%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

million tonnes of CO ₂	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	0.50	-	-	0.50	250%
Electricity and heat generation	-	0.14	-	-	0.14	142%
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	-	-	-	-	-
Transport	-	0.36	-	-	0.36	325%
<i>of which: road</i>	-	0.36	-	-	0.36	325%
Other	-	-	-	-	-	-
<i>of which: residential</i>	-	-	-	-	-	-
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	12.20	-	-	12.20	122%
<i>Memo: international aviation bunkers</i>	-	0.02	-	-	0.02	-

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	0.36	325.0%	69.0	69.0
Main activity prod. elec. and heat - oil	0.14	142.1%	27.5	96.5
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>0.50</i>	<i>249.6%</i>	<i>96.5</i>	<i>96.5</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Greece

Figure 1. CO₂ emissions by fuel

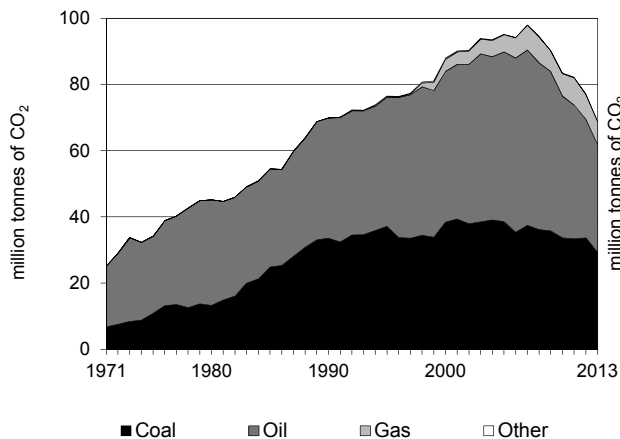


Figure 2. CO₂ emissions by sector

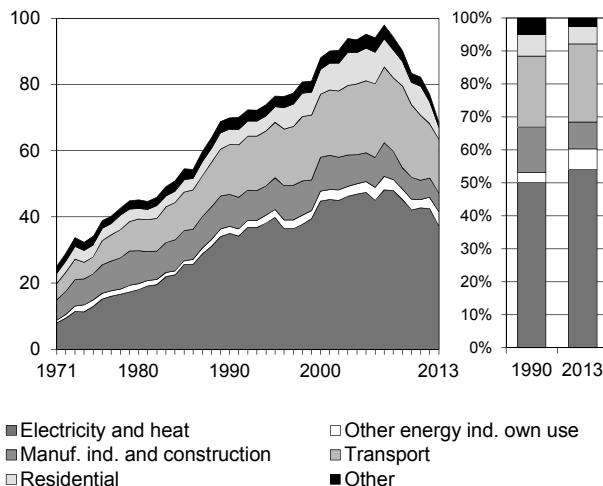


Figure 3. Electricity generation by fuel

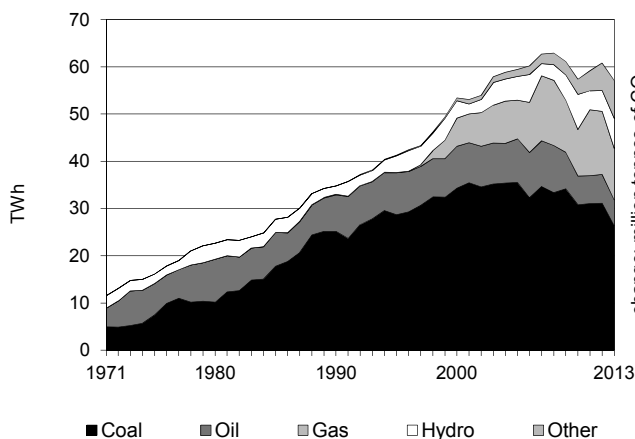


Figure 4. CO₂ from electricity generation: driving factors¹

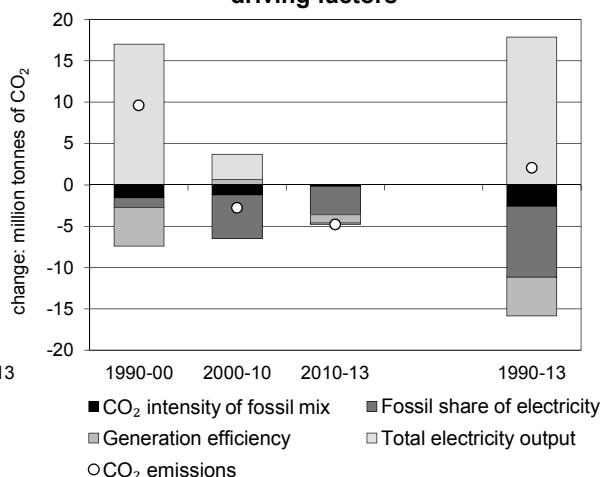


Figure 5. Changes in selected indicators

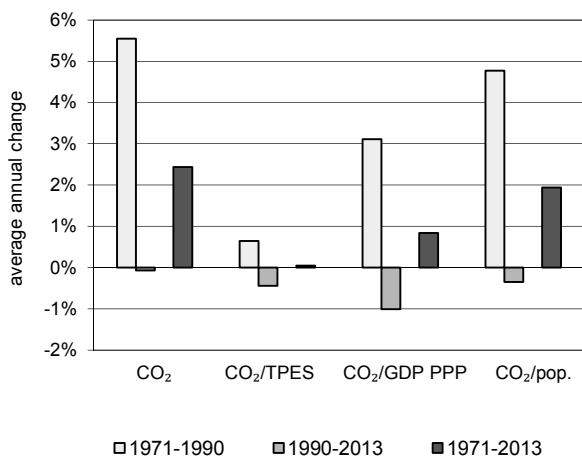
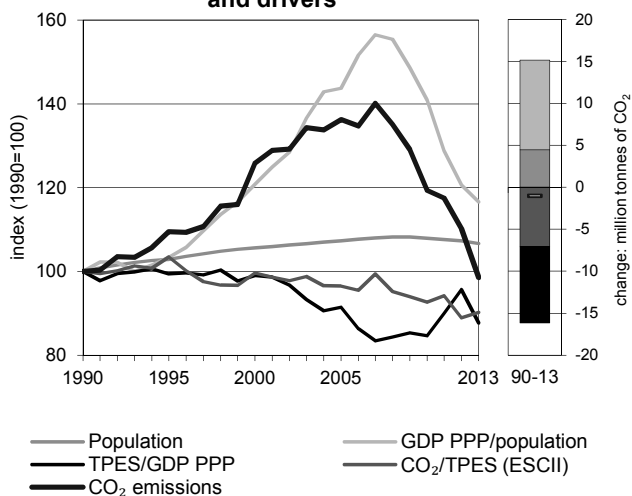


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Greece

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	69.90	76.53	87.98	95.21	83.42	77.07	68.89	-1%
Share of World CO ₂ from fuel combustion	0.34%	0.36%	0.38%	0.35%	0.28%	0.24%	0.21%	
TPES (PJ)	898	949	1 134	1 266	1 156	1 112	980	9%
GDP (billion 2005 USD)	160.63	170.90	204.95	247.67	244.19	207.92	199.82	24%
GDP PPP (billion 2005 USD)	180.89	192.46	230.81	278.91	275.00	234.15	225.03	24%
Population (millions)	10.34	10.63	10.92	11.09	11.15	11.09	11.03	7%
CO ₂ / TPES (tCO ₂ per TJ)	77.9	80.6	77.6	75.2	72.2	69.3	70.3	-10%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.44	0.45	0.43	0.38	0.34	0.37	0.34	-21%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.39	0.40	0.38	0.34	0.30	0.33	0.31	-21%
CO ₂ / population (tCO ₂ per capita)	6.76	7.20	8.06	8.58	7.48	6.95	6.25	-8%
Share of electricity output from fossil fuels	95%	91%	92%	89%	82%	83%	75%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	1007	964	836	793	730	695	649	-36%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	109	126	136	119	110	99	-1%
Population index	100	103	106	107	108	107	107	7%
GDP PPP per population index	100	103	121	144	141	121	117	17%
Energy intensity index - TPES / GDP PPP	100	99	99	91	85	96	88	-12%
Carbon intensity index - CO ₂ / TPES	100	104	100	97	93	89	90	-10%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	29.32	32.65	6.79	0.13	68.89	-1%
Electricity and heat generation	28.48	4.06	4.62	0.13	37.29	6%
Other energy industry own use	-	4.23	0.04	-	4.27	102%
Manufacturing industries and construction	0.84	3.53	1.26	-	5.63	-42%
Transport	-	16.27	0.03	-	16.30	8%
<i>of which: road</i>	-	14.30	0.03	-	14.33	23%
Other	0.01	4.56	0.84	-	5.40	-33%
<i>of which: residential</i>	0.00	3.04	0.55	-	3.59	-23%
<i>of which: services</i>	-	0.57	0.29	-	0.86	66%
<i>Memo: international marine bunkers</i>	-	6.83	-	-	6.83	-16%
<i>Memo: international aviation bunkers</i>	-	2.02	-	-	2.02	-15%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	28.48	-2.5%	32.6	32.6
Road - oil	14.30	23.1%	16.4	49.0
Other energy industry own use - oil	4.23	105.0%	4.8	53.8
Main activity prod. elec. and heat - gas	4.14	x	4.7	58.6
Manufacturing industries - oil	3.53	-34.3%	4.0	62.6
Main activity prod. elec. and heat - oil	3.50	-35.1%	4.0	66.6
Residential - oil	3.04	-33.3%	3.5	70.1
Other transport - oil	1.97	-42.7%	2.3	72.3
Non-specified other - oil	1.52	-55.2%	1.7	74.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>68.89</i>	<i>-1.4%</i>	<i>78.9</i>	<i>78.9</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Guatemala

Figure 1. CO₂ emissions by fuel

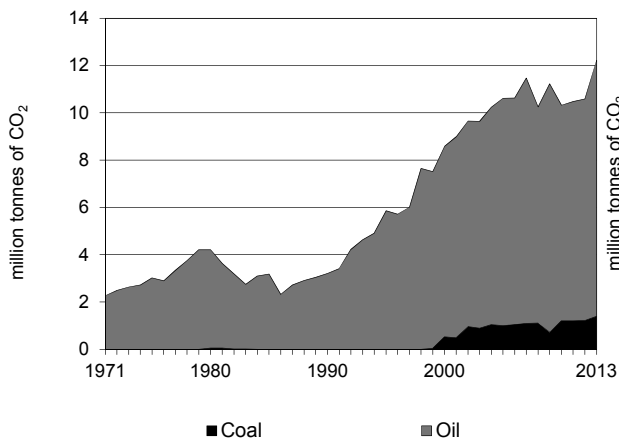


Figure 2. CO₂ emissions by sector

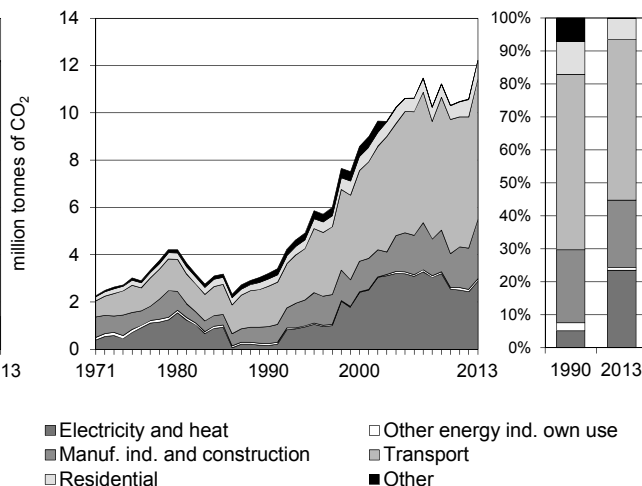


Figure 3. Electricity generation by fuel

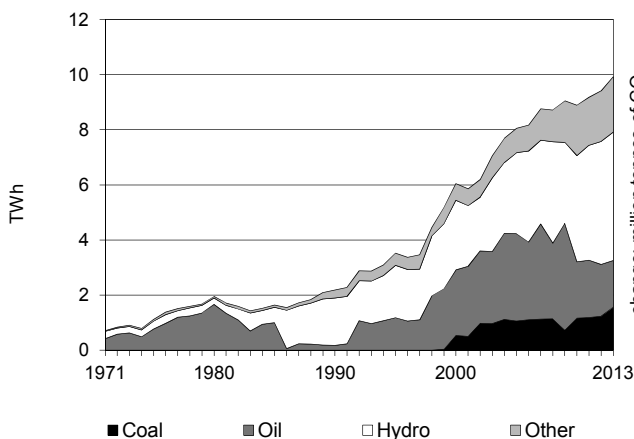


Figure 4. CO₂ from electricity generation: driving factors¹

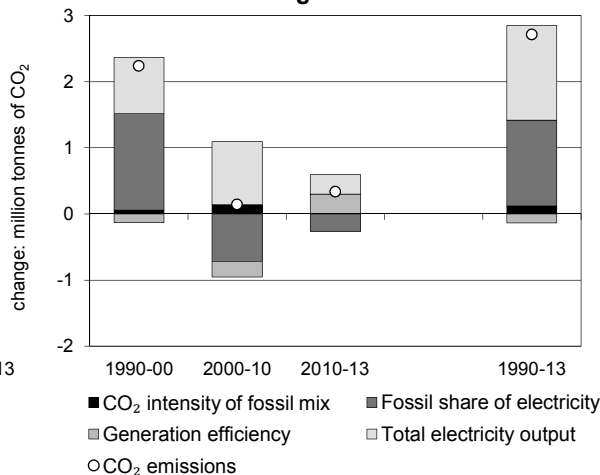


Figure 5. Changes in selected indicators

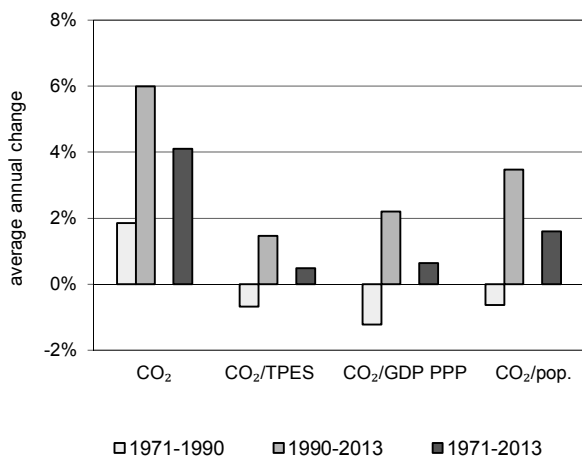
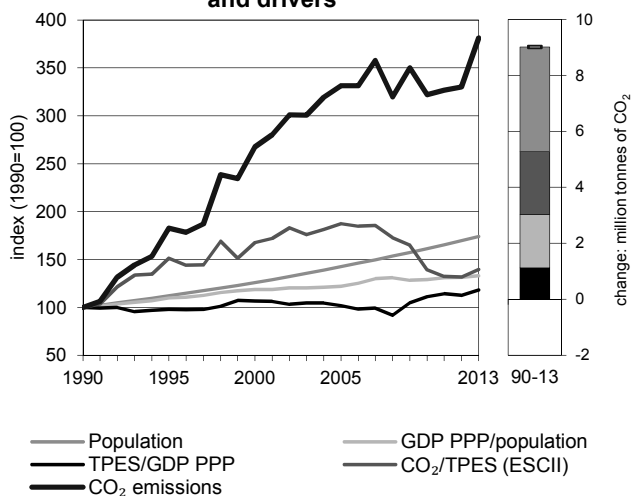


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Guatemala

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	3.21	5.86	8.58	10.62	10.32	10.59	12.22	281%
Share of World CO ₂ from fuel combustion	0.02%	0.03%	0.04%	0.04%	0.03%	0.03%	0.04%	
TPES (PJ)	185	223	295	327	427	464	504	173%
GDP (billion 2005 USD)	15.66	19.31	23.44	27.21	32.56	34.92	36.21	131%
GDP PPP (billion 2005 USD)	42.07	51.88	62.97	73.10	87.46	93.80	97.26	131%
Population (millions)	8.89	9.98	11.20	12.68	14.34	15.08	15.47	74%
CO ₂ / TPES (tCO ₂ per TJ)	17.4	26.3	29.1	32.5	24.2	22.8	24.2	40%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.20	0.30	0.37	0.39	0.32	0.30	0.34	65%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.08	0.11	0.14	0.15	0.12	0.11	0.13	65%
CO ₂ / population (tCO ₂ per capita)	0.36	0.59	0.77	0.84	0.72	0.70	0.79	119%
Share of electricity output from fossil fuels	8%	34%	48%	53%	36%	33%	33%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	75	299	397	396	286	258	290	286%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	183	268	331	322	330	381	281%
Population index	100	112	126	143	161	170	174	74%
GDP PPP per population index	100	110	119	122	129	131	133	33%
Energy intensity index - TPES / GDP PPP	100	98	107	102	111	113	118	18%
Carbon intensity index - CO ₂ / TPES	100	151	168	187	139	132	140	40%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	1.40	10.83	-	-	12.22	281%
Electricity and heat generation	1.40	1.48	-	-	2.88	+
Other energy industry own use	-	0.10	-	-	0.10	26%
Manufacturing industries and construction	-	2.50	-	-	2.50	251%
Transport	-	5.95	-	-	5.95	249%
<i>of which: road</i>	-	5.94	-	-	5.94	248%
Other	-	0.80	-	-	0.80	46%
<i>of which: residential</i>	-	0.78	-	-	0.78	143%
<i>of which: services</i>	-	0.02	-	-	0.02	-84%
<i>Memo: international marine bunkers</i>	-	1.00	-	-	1.00	133%
<i>Memo: international aviation bunkers</i>	-	0.13	-	-	0.13	-2%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	5.94	248.4%	23.6	23.6
Manufacturing industries - oil	2.50	251.3%	9.9	33.4
Main activity prod. elec. and heat - oil	1.42	764.3%	5.6	39.1
Main activity prod. elec. and heat - coal	1.40	x	5.5	44.6
Residential - oil	0.78	143.3%	3.1	47.7
Other energy industry own use - oil	0.10	26.1%	0.4	48.1
Unallocated autoproducers - oil	0.06	x	0.2	48.3
Non-specified other - oil	0.02	-89.4%	0.1	48.4
Other transport - oil	0.01	x	0.0	48.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>12.22</i>	<i>281.3%</i>	<i>48.4</i>	<i>48.4</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Haiti

Figure 1. CO₂ emissions by fuel

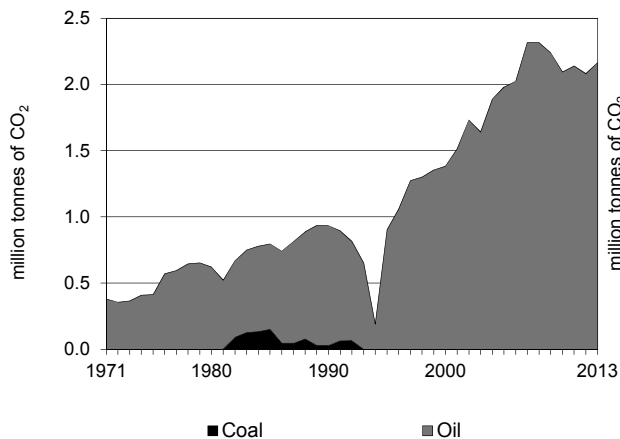


Figure 2. CO₂ emissions by sector

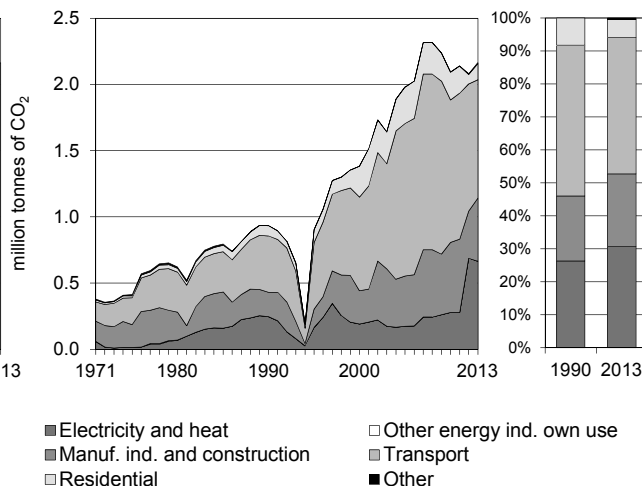


Figure 3. Electricity generation by fuel

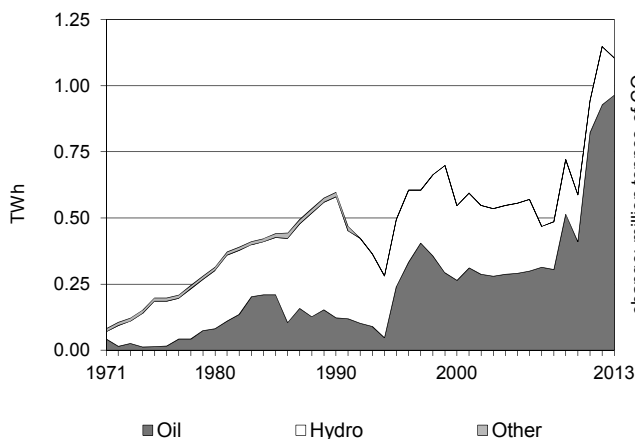


Figure 4. CO₂ from electricity generation: driving factors¹

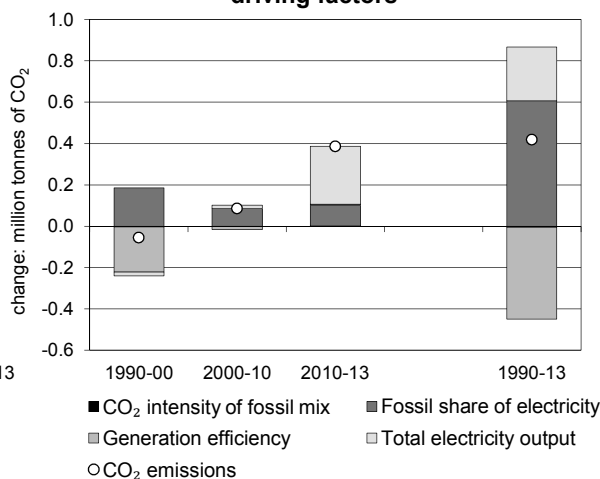


Figure 5. Changes in selected indicators

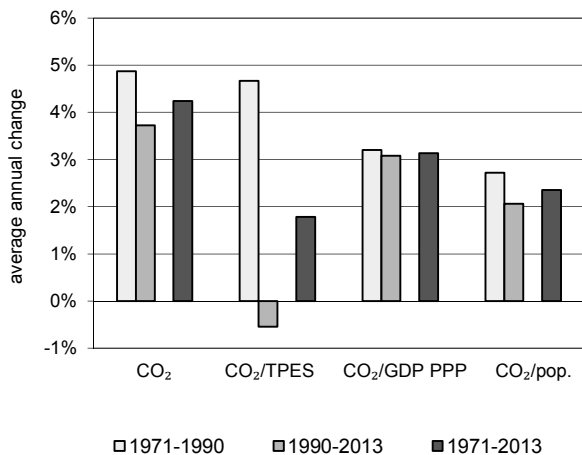
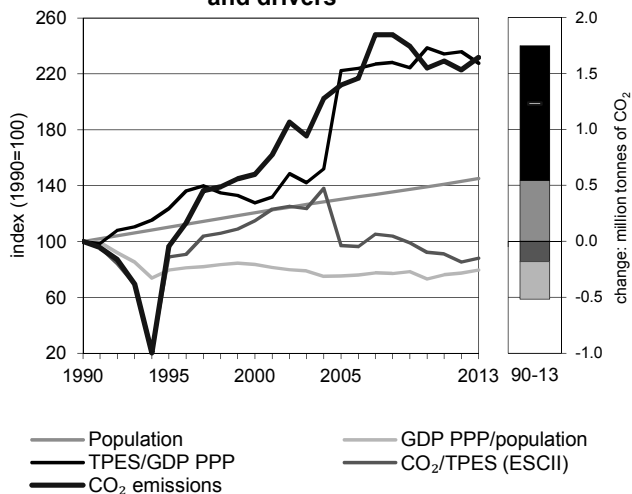


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Haiti

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	0.93	0.90	1.38	1.98	2.09	2.08	2.17	132%
Share of World CO ₂ from fuel combustion	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	
TPES (PJ)	65	71	84	143	159	171	172	163%
GDP (billion 2005 USD)	4.30	3.77	4.27	4.15	4.31	4.68	4.88	14%
GDP PPP (billion 2005 USD)	13.12	11.51	13.24	12.88	13.37	14.52	15.14	15%
Population (millions)	7.11	7.84	8.58	9.26	9.90	10.17	10.32	45%
CO ₂ / TPES (tCO ₂ per TJ)	14.3	12.7	16.4	13.9	13.2	12.2	12.6	-12%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.22	0.24	0.32	0.48	0.49	0.44	0.44	104%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.07	0.08	0.10	0.15	0.16	0.14	0.14	101%
CO ₂ / population (tCO ₂ per capita)	0.13	0.12	0.16	0.21	0.21	0.20	0.21	60%
Share of electricity output from fossil fuels	21%	49%	48%	52%	70%	81%	87%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	412	330	349	310	472	599	601	46%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	97	148	212	224	223	232	132%
Population index	100	110	121	130	139	143	145	45%
GDP PPP per population index	100	80	84	75	73	77	80	-20%
Energy intensity index - TPES / GDP PPP	100	124	128	222	239	236	228	128%
Carbon intensity index - CO ₂ / TPES	100	89	115	97	92	85	88	-12%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	2.17	-	-	2.17	132%
Electricity and heat generation	-	0.66	-	-	0.66	170%
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.48	-	-	0.48	160%
Transport	-	0.90	-	-	0.90	110%
<i>of which: road</i>	-	0.89	-	-	0.89	379%
Other	-	0.13	-	-	0.13	67%
<i>of which: residential</i>	-	0.12	-	-	0.12	55%
<i>of which: services</i>	-	0.01	-	-	0.01	x
<i>Memo: international marine bunkers</i>	-	..	-	-
<i>Memo: international aviation bunkers</i>	-	0.28	-	-	0.28	287%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	0.89	379.0%	10.3	10.3
Main activity prod. elec. and heat - oil	0.53	138.0%	6.1	16.5
Manufacturing industries - oil	0.48	208.9%	5.5	22.0
Unallocated autoproducers - oil	0.13	490.8%	1.5	23.5
Residential - oil	0.12	54.8%	1.4	24.9
Non-specified other - oil	0.01	x	0.1	25.0
Other transport - oil	0.00	-98.8%	0.0	25.0
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>2.17</i>	<i>131.8%</i>	<i>25.0</i>	<i>25.0</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Honduras

Figure 1. CO₂ emissions by fuel

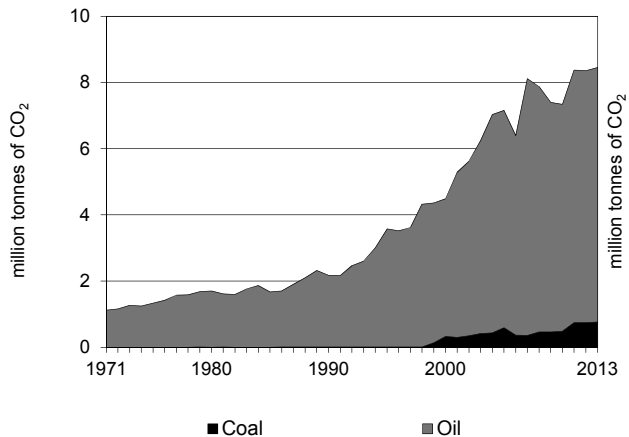


Figure 2. CO₂ emissions by sector

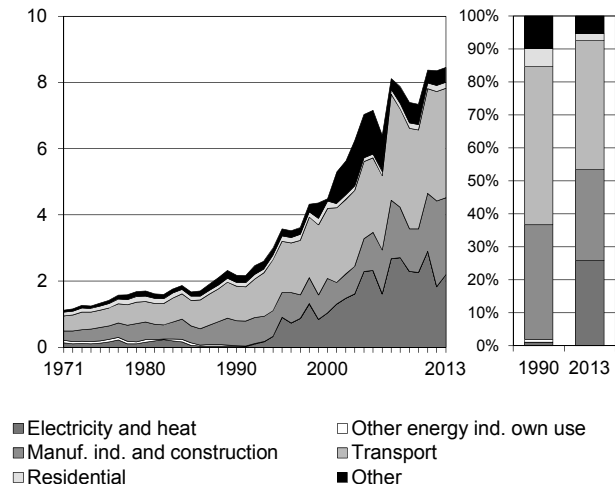


Figure 3. Electricity generation by fuel

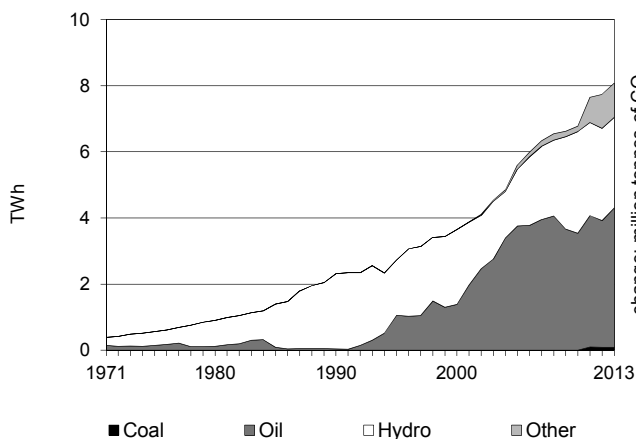


Figure 4. CO₂ from electricity generation: driving factors¹

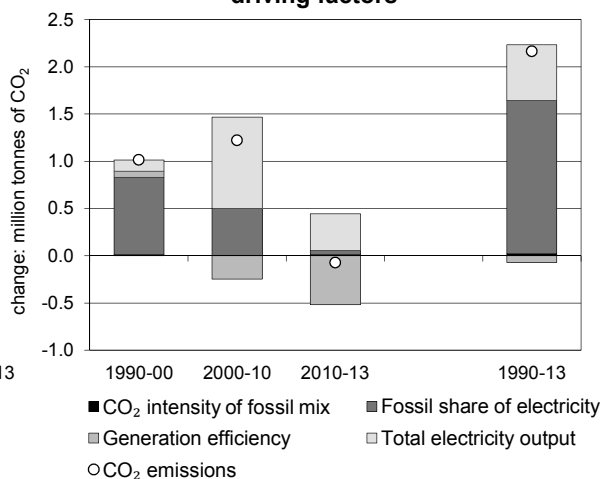


Figure 5. Changes in selected indicators

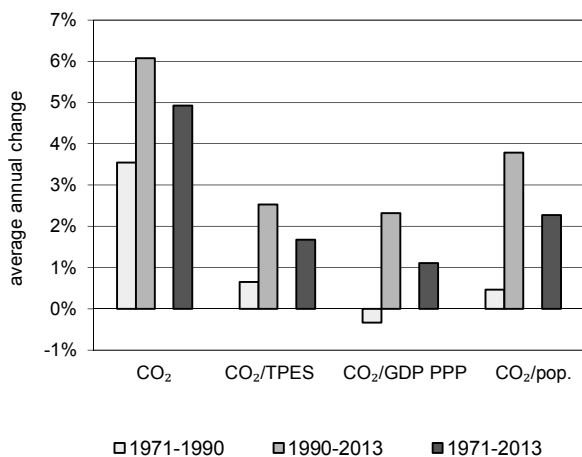
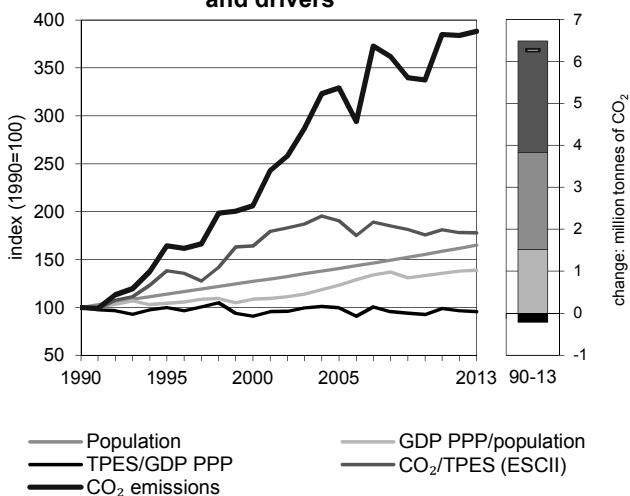


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Honduras

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	2.18	3.57	4.49	7.16	7.34	8.35	8.45	288%
Share of World CO ₂ from fuel combustion	0.01%	0.02%	0.02%	0.03%	0.02%	0.03%	0.03%	
TPES (PJ)	100	118	125	172	191	215	218	119%
GDP (billion 2005 USD)	5.58	6.64	7.71	9.67	11.55	12.45	12.77	129%
GDP PPP (billion 2005 USD)	13.99	16.65	19.34	24.27	28.97	31.25	32.05	129%
Population (millions)	4.90	5.59	6.24	6.90	7.62	7.94	8.10	65%
CO ₂ / TPES (tCO ₂ per TJ)	21.9	30.2	35.8	41.6	38.4	38.9	38.8	78%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.39	0.54	0.58	0.74	0.64	0.67	0.66	70%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.16	0.21	0.23	0.29	0.25	0.27	0.26	70%
CO ₂ / population (tCO ₂ per capita)	0.44	0.64	0.72	1.04	0.96	1.05	1.04	135%
Share of electricity output from fossil fuels	2%	39%	38%	67%	52%	51%	53%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	10	330	284	413	333	236	271	2697%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	164	206	329	337	384	388	288%
Population index	100	114	127	141	155	162	165	65%
GDP PPP per population index	100	104	109	123	133	138	139	39%
Energy intensity index - TPES / GDP PPP	100	100	91	100	93	96	95	-5%
Carbon intensity index - CO ₂ / TPES	100	138	164	190	176	178	178	78%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	0.76	7.69	-	-	8.45	288%
Electricity and heat generation	0.09	2.10	-	-	2.19	+
Other energy industry own use	-	-	-	-	-	-100%
Manufacturing industries and construction	0.67	1.66	-	-	2.33	208%
Transport	-	3.31	-	-	3.31	217%
<i>of which: road</i>	-	3.30	-	-	3.30	216%
Other	-	0.63	-	-	0.63	89%
<i>of which: residential</i>	-	0.18	-	-	0.18	56%
<i>of which: services</i>	-	0.13	-	-	0.13	-39%
<i>Memo: international marine bunkers</i>	-	0.00	-	-	0.00	..
<i>Memo: international aviation bunkers</i>	-	0.13	-	-	0.13	41%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	3.30	216.3%	17.8	17.8
Main activity prod. elec. and heat - oil	2.10	+	11.3	29.0
Manufacturing industries - oil	1.66	120.0%	8.9	38.0
Manufacturing industries - coal	0.67	+	3.6	41.6
Non-specified other - oil	0.44	106.7%	2.4	44.0
Residential - oil	0.18	55.6%	1.0	44.9
Main activity prod. elec. and heat - coal	0.09	x	0.5	45.4
Other transport - oil	0.00	x	0.0	45.4
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	8.45	288.3%	45.4	45.4

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Hong Kong, China

Figure 1. CO₂ emissions by fuel

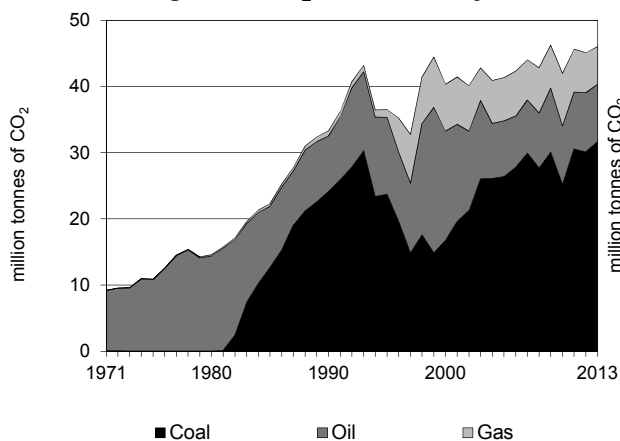


Figure 2. CO₂ emissions by sector

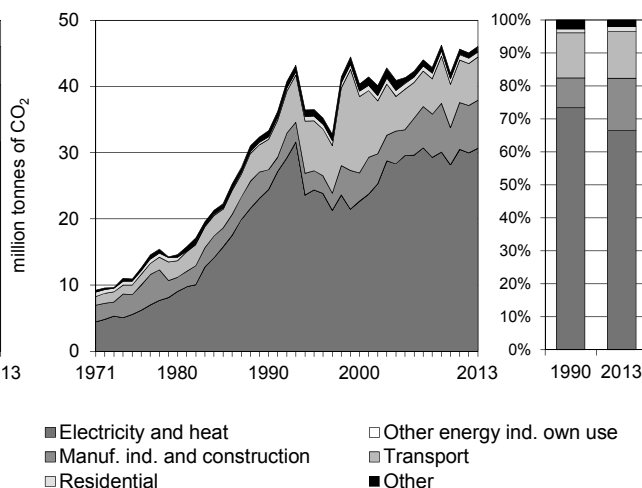


Figure 3. Electricity generation by fuel

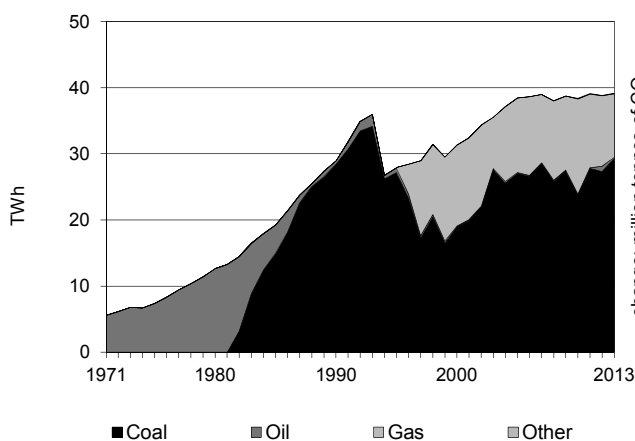


Figure 4. CO₂ from electricity generation: driving factors¹

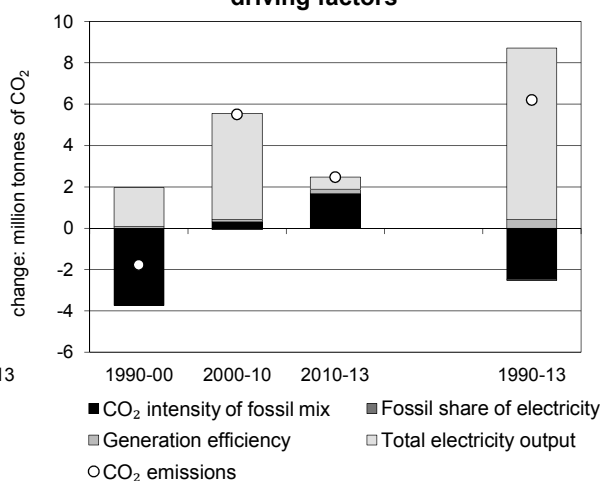


Figure 5. Changes in selected indicators

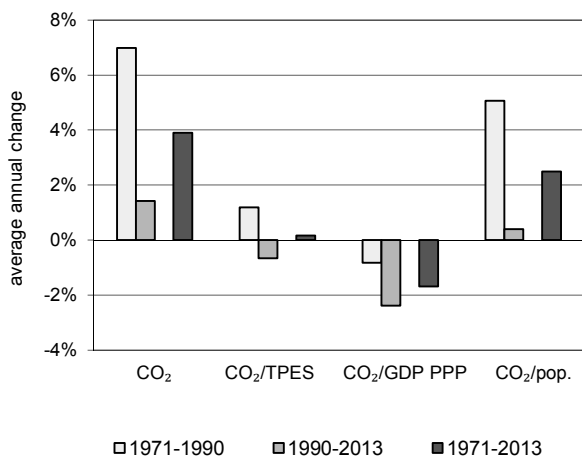
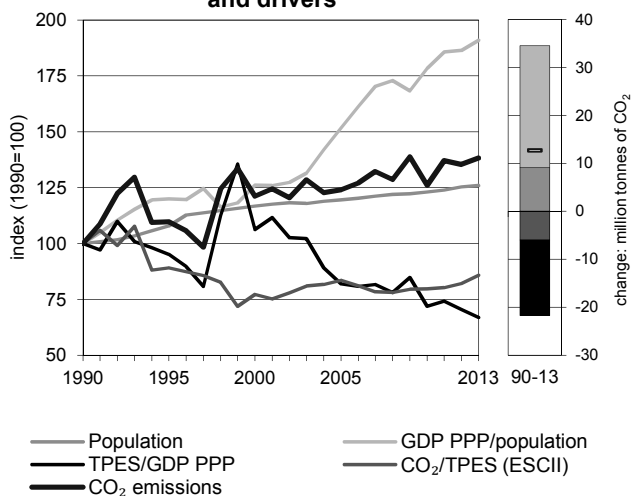


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Hong Kong, China

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	33.30	36.52	40.34	41.33	41.99	45.09	46.05	38%
Share of World CO ₂ from fuel combustion	0.16%	0.17%	0.17%	0.15%	0.14%	0.14%	0.14%	
TPES (PJ)	362	446	567	538	573	597	583	61%
GDP (billion 2005 USD)	100.21	129.72	147.65	181.57	220.06	234.16	241.03	141%
GDP PPP (billion 2005 USD)	137.04	177.40	201.91	248.31	300.94	320.23	329.62	141%
Population (millions)	5.71	6.16	6.67	6.81	7.02	7.16	7.19	26%
CO ₂ / TPES (tCO ₂ per TJ)	92.0	81.9	71.1	76.9	73.3	75.5	78.9	-14%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.33	0.28	0.27	0.23	0.19	0.19	0.19	-43%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.24	0.21	0.20	0.17	0.14	0.14	0.14	-43%
CO ₂ / population (tCO ₂ per capita)	5.84	5.93	6.05	6.07	5.98	6.30	6.41	10%
Share of electricity output from fossil fuels	100%	100%	100%	100%	100%	100%	100%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	845	872	723	769	734	771	782	-7%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	110	121	124	126	135	138	38%
Population index	100	108	117	119	123	125	126	26%
GDP PPP per population index	100	120	126	152	178	186	191	91%
Energy intensity index - TPES / GDP PPP	100	95	106	82	72	71	67	-33%
Carbon intensity index - CO ₂ / TPES	100	89	77	84	80	82	86	-14%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	31.66	8.66	5.73	-	46.05	38%
Electricity and heat generation	26.21	0.14	4.29	-	30.64	25%
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	5.45	1.75	0.08	-	7.29	144%
Transport	-	6.51	-	-	6.51	42%
<i>of which: road</i>	-	6.49	-	-	6.49	42%
Other	-	0.26	1.36	-	1.62	27%
<i>of which: residential</i>	-	0.02	0.77	-	0.79	106%
<i>of which: services</i>	-	0.24	0.59	-	0.83	-7%
<i>Memo: international marine bunkers</i>	-	27.64	-	-	27.64	505%
<i>Memo: international aviation bunkers</i>	-	17.55	-	-	17.55	209%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	26.21	8.6%	51.7	51.7
Road - oil	6.49	41.6%	12.8	64.5
Manufacturing industries - coal	5.45	+	10.8	75.3
Main activity prod. elec. and heat - gas	4.29	x	8.5	83.7
Manufacturing industries - oil	1.75	-40.8%	3.5	87.2
Residential - gas	0.77	101.0%	1.5	88.7
Non-specified other - gas	0.59	69.8%	1.2	89.8
Non-specified other - oil	0.24	-56.3%	0.5	90.3
Main activity prod. elec. and heat - oil	0.14	-55.6%	0.3	90.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>46.05</i>	<i>38.3%</i>	<i>90.8</i>	<i>90.8</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Hungary

Figure 1. CO₂ emissions by fuel

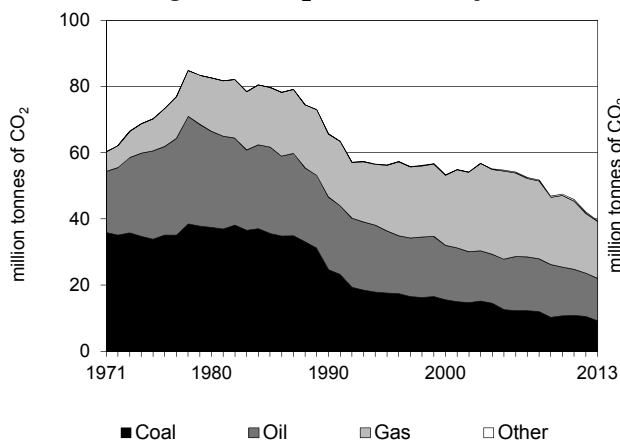


Figure 2. CO₂ emissions by sector

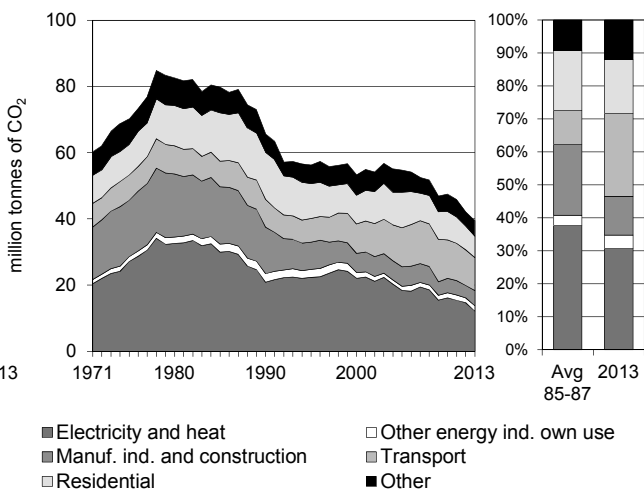


Figure 3. Electricity generation by fuel

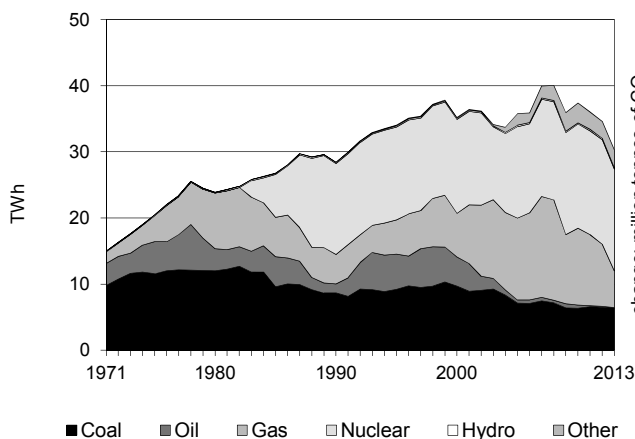


Figure 4. CO₂ from electricity generation: driving factors¹

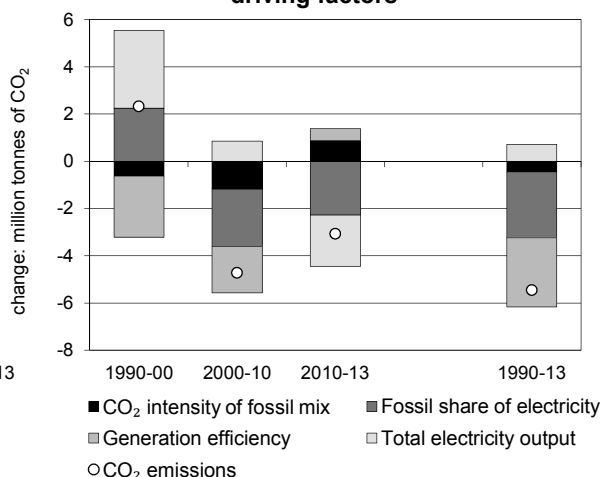


Figure 5. Changes in selected indicators

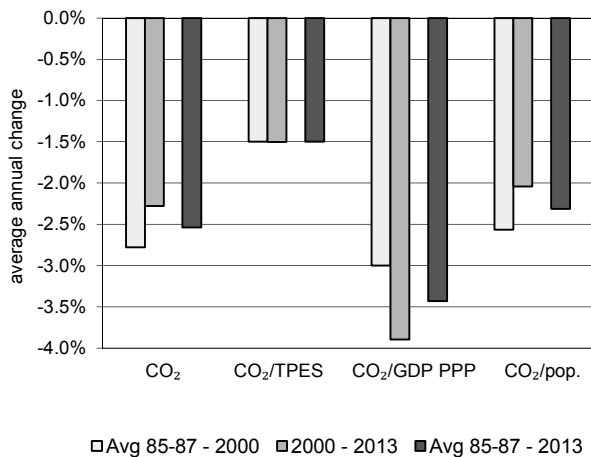
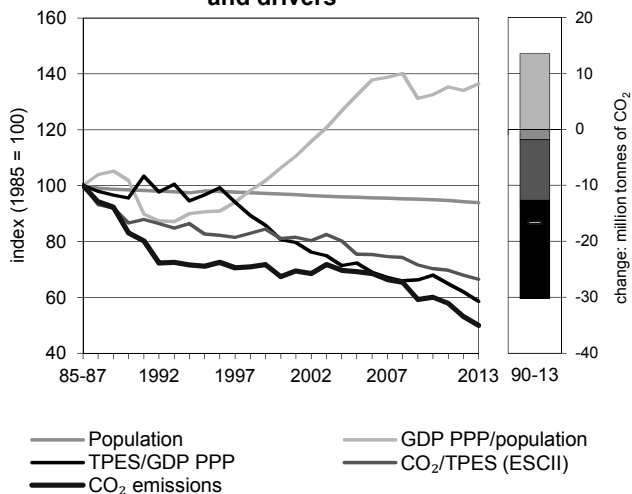


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Hungary ¹

Key indicators

	Avg 85-87	1990	1995	2005	2010	2012	2013	% change base-13
CO ₂ fuel combustion (MtCO ₂)	79.06	65.68	56.26	54.72	47.51	42.10	39.50	-50%
Share of World CO ₂ from fuel combustion	0.42%	0.32%	0.26%	0.20%	0.16%	0.13%	0.12%	
TPES (PJ)	1 258	1 205	1 082	1 153	1 075	986	945	-25%
GDP (billion 2005 USD)	88.28	88.49	78.51	111.89	111.09	111.43	113.12	28%
GDP PPP (billion 2005 USD)	137.01	137.34	121.85	173.66	172.42	172.94	175.57	28%
Population (millions)	10.53	10.37	10.33	10.09	10.00	9.92	9.89	-6%
CO ₂ / TPES (tCO ₂ per TJ)	62.9	54.5	52.0	47.4	44.2	42.7	41.8	-33%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.90	0.74	0.72	0.49	0.43	0.38	0.35	-61%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.58	0.48	0.46	0.32	0.28	0.24	0.23	-61%
CO ₂ / population (tCO ₂ per capita)	7.51	6.34	5.45	5.43	4.75	4.24	3.99	-47%
Share of electricity output from fossil fuels	0%	51%	58%	56%	50%	47%	40%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	-	503	519	376	319	317	293	0%

CO₂ emissions and drivers - Kaya decomposition (Avg 85-87=100) ²

CO ₂ emissions index	100	83	71	69	60	53	50	-50%
Population index	100	98	98	96	95	94	94	-6%
GDP PPP per population index	100	102	91	132	133	134	136	36%
Energy intensity index - TPES / GDP PPP	100	96	97	72	68	62	59	-41%
Carbon intensity index - CO ₂ / TPES	100	87	83	75	70	68	67	-33%

1. Under the Convention Hungary is allowed use the average of 85-87 as its base year. 2. Please see Part I, Ch. 2 for methodological notes.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ³	Total	% change base-13
CO₂ fuel combustion	9.12	12.89	17.24	0.24	39.50	-50%
Electricity and heat generation	7.66	0.07	4.16	0.21	12.10	-59%
Other energy industry own use	0.13	0.95	0.56	-	1.64	-34%
Manufacturing industries and construction	0.76	0.85	2.99	0.02	4.62	-73%
Transport	-	9.85	0.08	-	9.93	22%
<i>of which: road</i>	-	9.68	0.00	-	9.68	38%
Other	0.57	1.16	9.46	0.02	11.20	-48%
<i>of which: residential</i>	0.55	0.04	5.90	-	6.49	-55%
<i>of which: services</i>	0.01	0.09	3.31	0.02	3.43	16%
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.50	-	-	0.50	13%

3. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change base-13	Level assessment (%) ⁴	Cumulative total (%)
Road - oil	9.68	38.0%	17.4	17.4
Main activity prod. elec. and heat - coal	7.64	-55.2%	13.7	31.1
Residential - gas	5.90	136.2%	10.6	41.7
Main activity prod. elec. and heat - gas	3.97	-16.7%	7.1	48.9
Non-specified other - gas	3.55	104.7%	6.4	55.3
Manufacturing industries - gas	2.99	-61.0%	5.4	60.6
Non-specified other - oil	1.13	-73.1%	2.0	62.6
Other energy industry own use - oil	0.95	-47.4%	1.7	64.4
Manufacturing industries - oil	0.85	-73.7%	1.5	65.9
<i>Memo: total CO₂ from fuel combustion</i>	<i>39.50</i>	<i>-50.0%</i>	<i>71.0</i>	<i>71.0</i>

4. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Iceland

Figure 1. CO₂ emissions by fuel

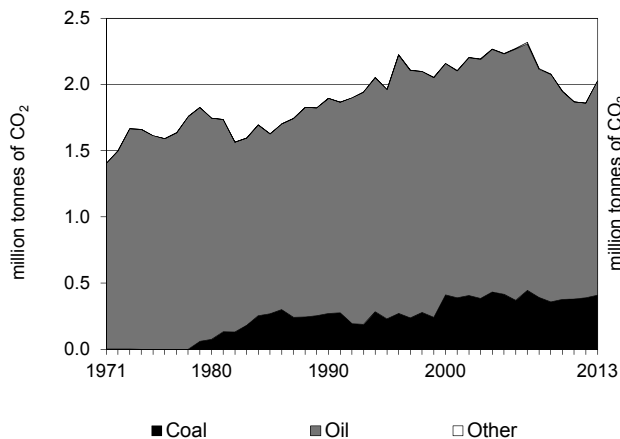


Figure 2. CO₂ emissions by sector

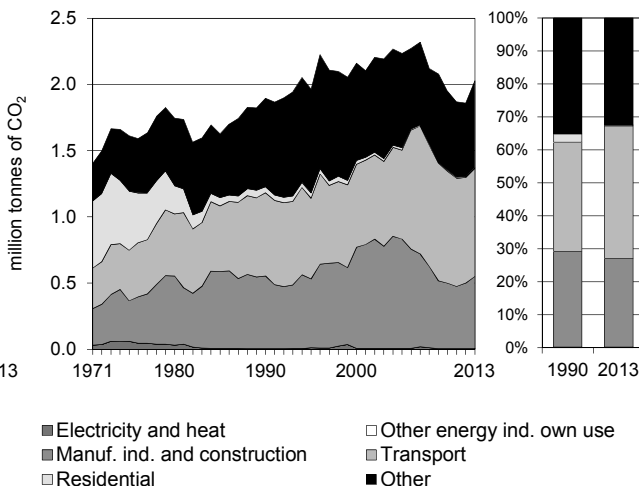


Figure 3. Electricity generation by fuel

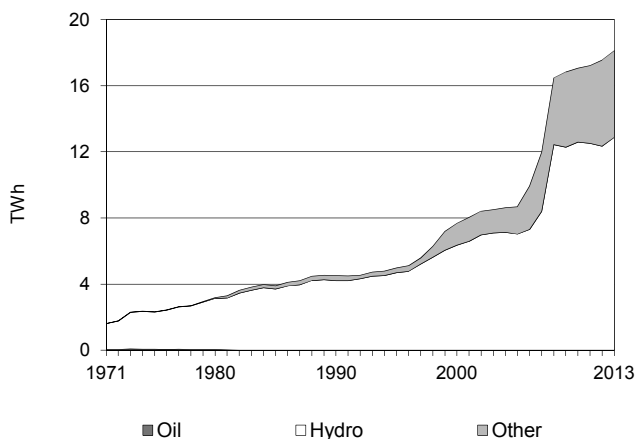


Figure 4. CO₂ from electricity generation: driving factors¹

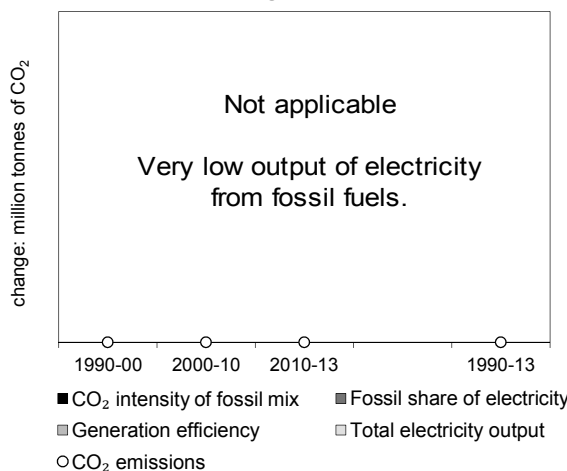


Figure 5. Changes in selected indicators

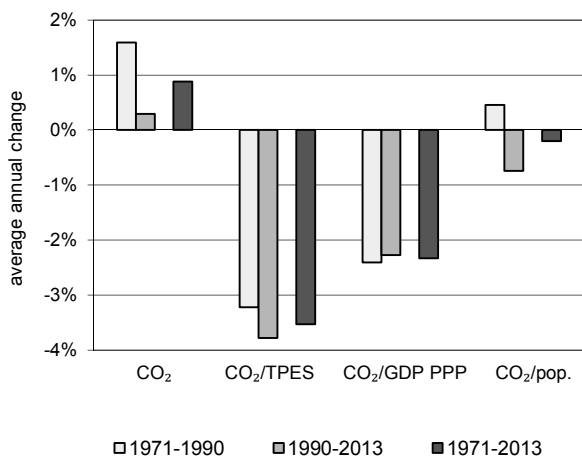
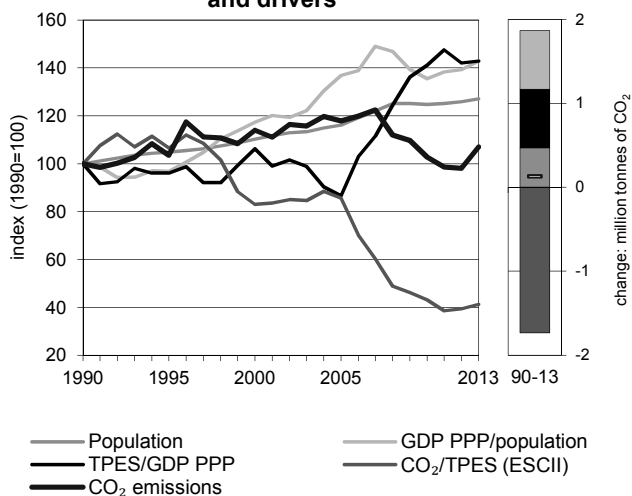


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Iceland

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	1.90	1.96	2.16	2.23	1.95	1.86	2.03	7%
Share of World CO ₂ from fuel combustion	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	
TPES (PJ)	95	92	131	131	227	237	246	159%
GDP (billion 2005 USD)	10.57	10.71	13.68	16.80	17.87	18.54	19.20	82%
GDP PPP (billion 2005 USD)	6.72	6.81	8.69	10.68	11.36	11.78	12.20	82%
Population (millions)	0.26	0.27	0.28	0.30	0.32	0.32	0.32	27%
CO ₂ / TPES (tCO ₂ per TJ)	19.9	21.2	16.5	17.1	8.6	7.9	8.2	-59%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.18	0.18	0.16	0.13	0.11	0.10	0.11	-41%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.28	0.29	0.25	0.21	0.17	0.16	0.17	-41%
CO ₂ / population (tCO ₂ per capita)	7.43	7.35	7.69	7.55	6.13	5.79	6.26	-16%
Share of electricity output from fossil fuels	0%	0%	0%	0%	0%	0%	0%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	1	1	0	0	0	0	0	-75%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	104	114	118	103	98	107	7%
Population index	100	105	110	116	125	126	127	27%
GDP PPP per population index	100	97	117	137	135	139	143	43%
Energy intensity index - TPES / GDP PPP	100	96	106	87	141	142	143	43%
Carbon intensity index - CO ₂ / TPES	100	107	83	86	43	39	41	-59%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	0.41	1.62	-	-	2.03	7%
Electricity and heat generation	-	0.00	-	-	0.00	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	0.41	0.14	-	-	0.55	-1%
Transport	-	0.81	-	-	0.81	30%
<i>of which: road</i>	-	0.78	-	-	0.78	46%
Other	-	0.66	-	-	0.66	-7%
<i>of which: residential</i>	-	0.01	-	-	0.01	-87%
<i>of which: services</i>	-	0.00	-	-	0.00	x
<i>Memo: international marine bunkers</i>	-	0.08	-	-	0.08	-20%
<i>Memo: international aviation bunkers</i>	-	0.49	-	-	0.49	123%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	0.78	46.0%	16.1	16.1
Non-specified other - oil	0.66	-1.3%	13.6	29.7
Manufacturing industries - coal	0.41	51.3%	8.4	38.1
Manufacturing industries - oil	0.14	-50.8%	2.8	41.0
Other transport - oil	0.03	-63.4%	0.7	41.7
Residential - oil	0.01	-87.1%	0.1	41.8
Main activity prod. elec. and heat - oil	0.00	-	0.1	41.9
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>2.03</i>	<i>7.0%</i>	<i>41.9</i>	<i>41.9</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

India

Figure 1. CO₂ emissions by fuel

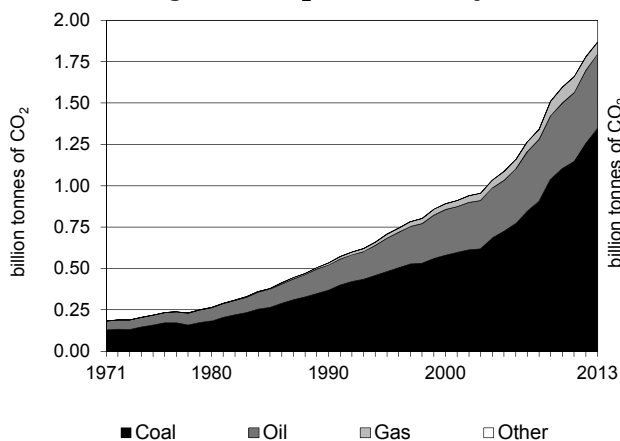


Figure 2. CO₂ emissions by sector

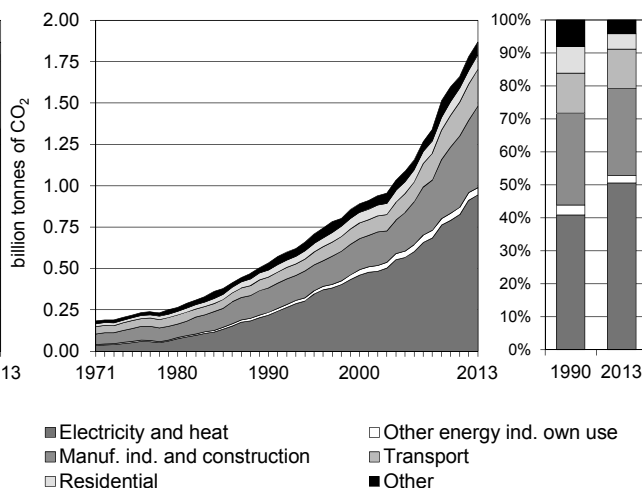


Figure 3. Electricity generation by fuel

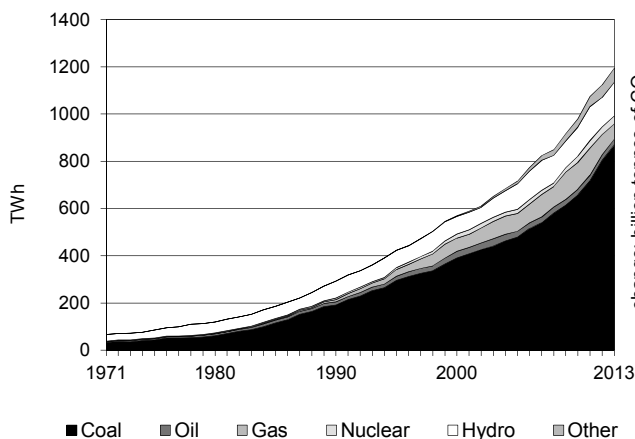


Figure 4. CO₂ from electricity generation: driving factors¹

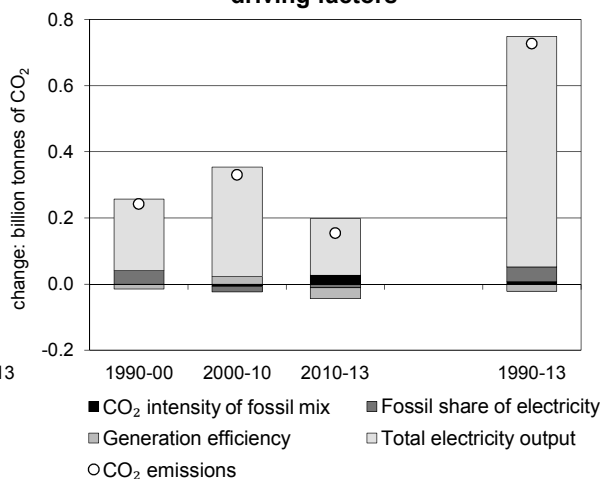


Figure 5. Changes in selected indicators

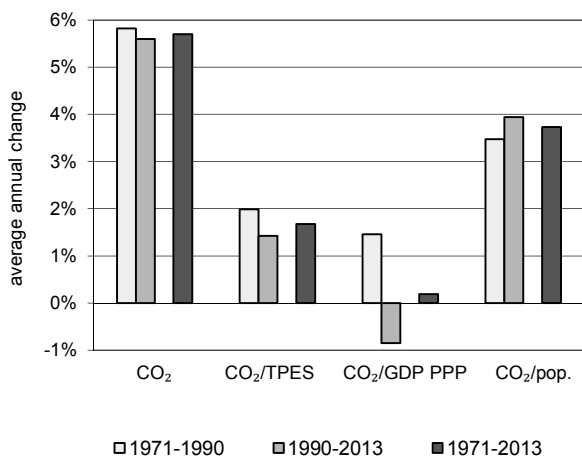
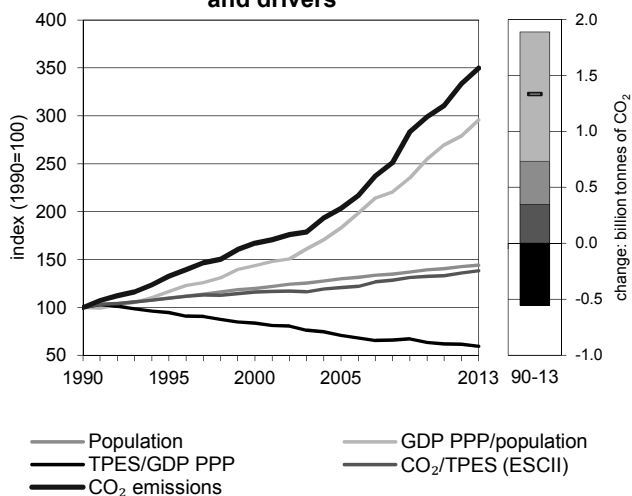


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

India

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	534.07	708.04	892.00	1 086.46	1 596.77	1 780.14	1 868.62	250%
Share of World CO ₂ from fuel combustion	2.6%	3.3%	3.8%	4.0%	5.4%	5.7%	5.8%	
TPES (PJ)	12 837	15 546	18 477	21 673	29 001	31 483	32 466	153%
GDP (billion 2005 USD)	350.24	448.72	602.65	834.22	1 243.68	1 393.63	1 489.78	325%
GDP PPP (billion 2005 USD)	1 374.40	1 760.85	2 364.90	3 273.58	4 880.36	5 468.79	5 846.09	325%
Population (millions)	869.00	956.00	1 040.00	1 130.00	1 210.00	1 240.00	1 250.00	44%
CO ₂ / TPES (tCO ₂ per TJ)	41.6	45.5	48.3	50.1	55.1	56.5	57.6	38%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	1.52	1.58	1.48	1.30	1.28	1.28	1.25	-18%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.39	0.40	0.38	0.33	0.33	0.33	0.32	-18%
CO ₂ / population (tCO ₂ per capita)	0.61	0.74	0.86	0.96	1.32	1.44	1.49	143%
Share of electricity output from fossil fuels	73%	81%	83%	81%	81%	81%	80%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	745	817	808	792	807	813	791	6%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	133	167	203	299	333	350	250%
Population index	100	110	120	130	139	143	144	44%
GDP PPP per population index	100	116	144	183	255	279	296	196%
Energy intensity index - TPES / GDP PPP	100	95	84	71	64	62	59	-41%
Carbon intensity index - CO ₂ / TPES	100	109	116	120	132	136	138	38%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	1 348.32	447.26	71.94	1.10	1 868.62	250%
Electricity and heat generation	885.99	25.06	32.43	1.10	944.58	333%
Other energy industry own use	2.76	30.80	9.53	-	43.09	164%
Manufacturing industries and construction	409.76	66.44	16.74	-	492.93	232%
Transport	-	218.80	3.52	-	222.32	243%
<i>of which: road</i>	-	202.83	3.52	-	206.35	335%
Other	49.81	106.16	9.73	-	165.70	92%
<i>of which: residential</i>	13.55	66.12	7.55	-	87.22	100%
<i>of which: services</i>	18.77	3.32	1.79	-	23.89	73%
<i>Memo: international marine bunkers</i>	-	4.04	-	-	4.04	194%
<i>Memo: international aviation bunkers</i>	-	12.29	-	-	12.29	228%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	765.03	321.0%	25.6	25.6
Manufacturing industries - coal	409.76	237.6%	13.7	39.3
Road - oil	202.83	327.6%	6.8	46.1
Unallocated autoproducers - coal	120.96	880.0%	4.0	50.1
Manufacturing industries - oil	66.44	155.8%	2.2	52.3
Residential - oil	66.12	105.6%	2.2	54.5
Non-specified other - oil	40.03	187.8%	1.3	55.9
Non-specified other sectors - coal	36.26	26.4%	1.2	57.1
Other energy industry own use - oil	30.80	310.5%	1.0	58.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>1868.62</i>	<i>249.9%</i>	<i>62.5</i>	<i>62.5</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Indonesia

Figure 1. CO₂ emissions by fuel

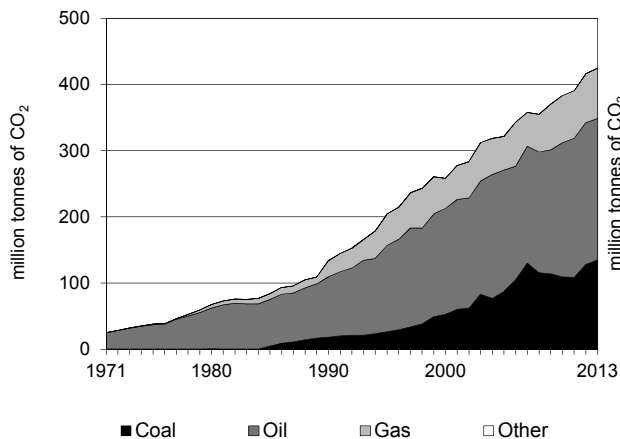


Figure 2. CO₂ emissions by sector

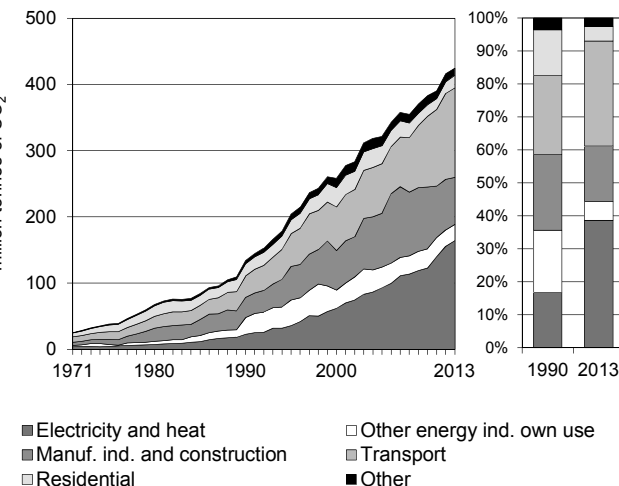


Figure 3. Electricity generation by fuel

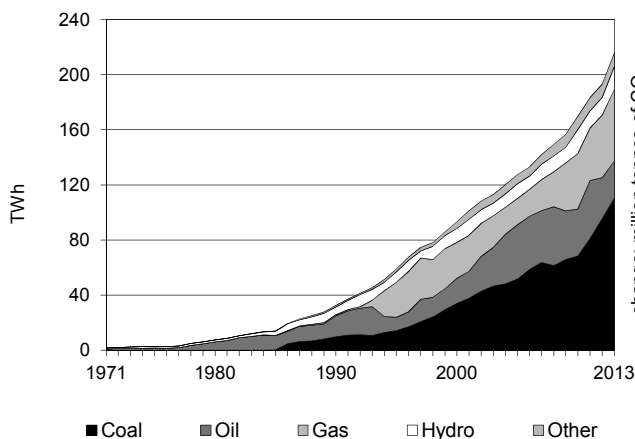


Figure 4. CO₂ from electricity generation: driving factors¹

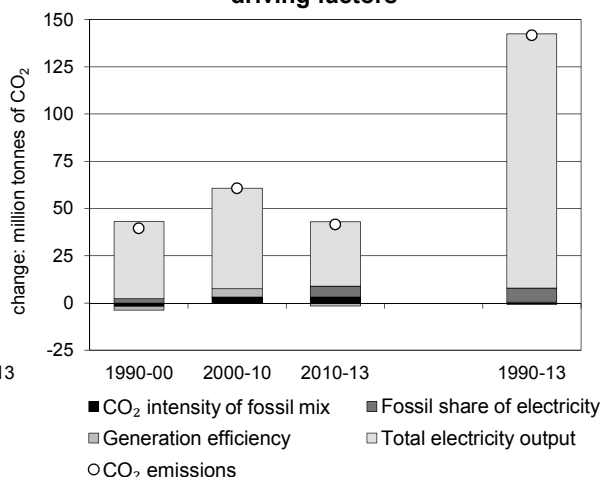


Figure 5. Changes in selected indicators

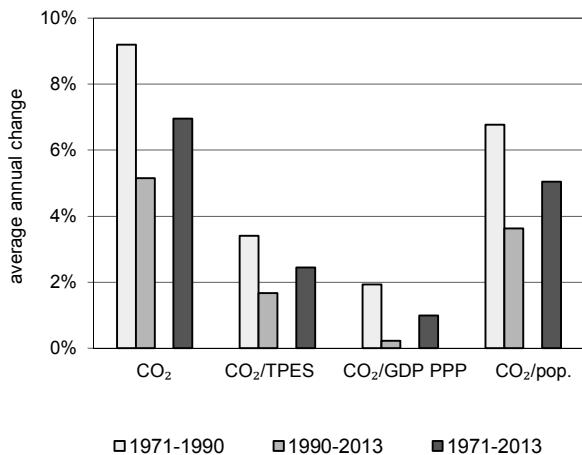
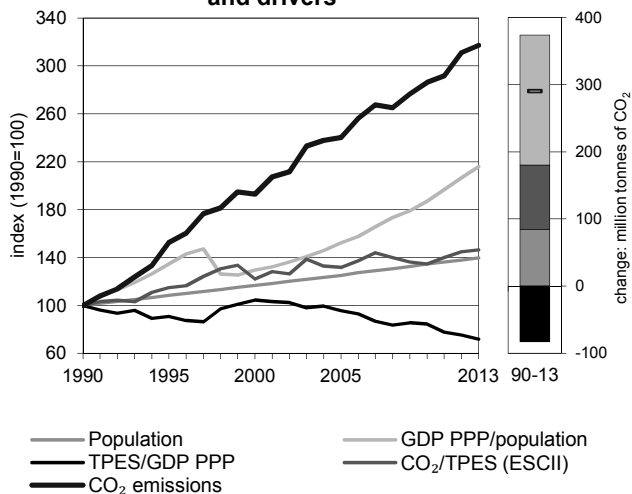


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Indonesia

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	133.89	204.14	258.29	321.56	383.20	416.27	424.61	217%
Share of World CO ₂ from fuel combustion	0.65%	0.95%	1.11%	1.19%	1.28%	1.32%	1.32%	
TPES (PJ)	4 129	5 477	6 516	7 528	8 769	8 869	8 945	117%
GDP (billion 2005 USD)	150.09	219.17	226.92	285.87	377.90	427.61	452.34	201%
GDP PPP (billion 2005 USD)	683.13	997.52	1 032.81	1 301.12	1 719.99	1 946.26	2 058.78	201%
Population (millions)	179.00	194.00	209.00	224.00	241.00	247.00	250.00	40%
CO ₂ / TPES (tCO ₂ per TJ)	32.4	37.3	39.6	42.7	43.7	46.9	47.5	46%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.89	0.93	1.14	1.12	1.01	0.97	0.94	5%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.20	0.20	0.25	0.25	0.22	0.21	0.21	5%
CO ₂ / population (tCO ₂ per capita)	0.75	1.05	1.24	1.44	1.59	1.69	1.70	127%
Share of electricity output from fossil fuels	79%	84%	84%	86%	84%	88%	88%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	688	599	664	729	722	805	761	11%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	152	193	240	286	311	317	217%
Population index	100	108	117	125	135	138	140	40%
GDP PPP per population index	100	135	129	152	187	206	216	116%
Energy intensity index - TPES / GDP PPP	100	91	104	96	84	75	72	-28%
Carbon intensity index - CO ₂ / TPES	100	115	122	132	135	145	146	46%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	135.04	213.35	76.19	0.03	424.61	217%
Electricity and heat generation	116.54	20.51	27.02	0.03	164.11	630%
Other energy industry own use	-	6.65	17.77	-	24.42	-3%
Manufacturing industries and construction	18.46	21.75	30.83	-	71.05	132%
Transport	-	135.18	0.06	-	135.24	320%
<i>of which: road</i>	-	119.26	0.06	-	119.32	313%
Other	0.04	29.26	0.50	-	29.80	28%
<i>of which: residential</i>	0.04	18.82	0.04	-	18.90	2%
<i>of which: services</i>	-	2.75	0.46	-	3.21	218%
<i>Memo: international marine bunkers</i>	-	0.67	-	-	0.67	-60%
<i>Memo: international aviation bunkers</i>	-	2.44	-	-	2.44	151%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	119.26	312.9%	14.3	14.3
Main activity prod. elec. and heat - coal	83.70	795.5%	10.0	24.3
Unallocated autoproducers - coal	32.85	x	3.9	28.2
Manufacturing industries - gas	30.83	580.7%	3.7	31.9
Main activity prod. elec. and heat - gas	23.79	+	2.8	34.8
Manufacturing industries - oil	21.75	26.0%	2.6	37.4
Main activity prod. elec. and heat - oil	20.48	62.0%	2.5	39.8
Residential - oil	18.82	1.8%	2.3	42.1
Manufacturing industries - coal	18.46	108.8%	2.2	44.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>424.61</i>	<i>217.1%</i>	<i>50.8</i>	<i>50.8</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Islamic Republic of Iran

Figure 1. CO₂ emissions by fuel

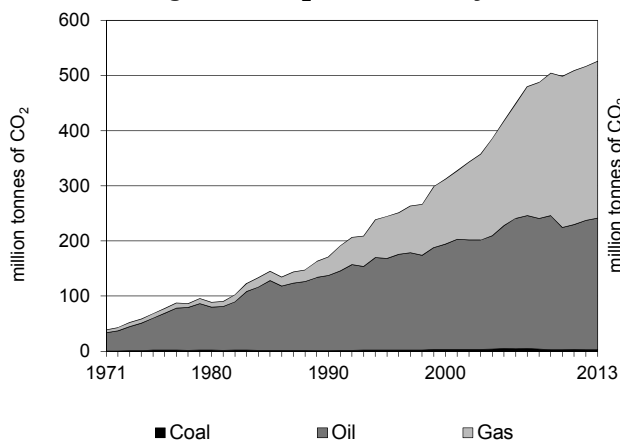


Figure 2. CO₂ emissions by sector

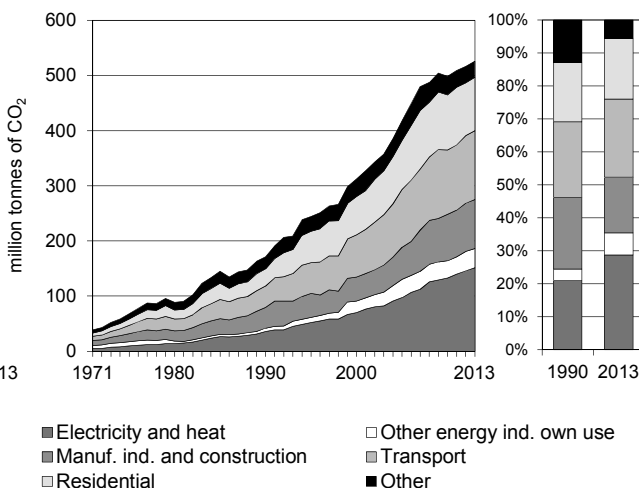


Figure 3. Electricity generation by fuel

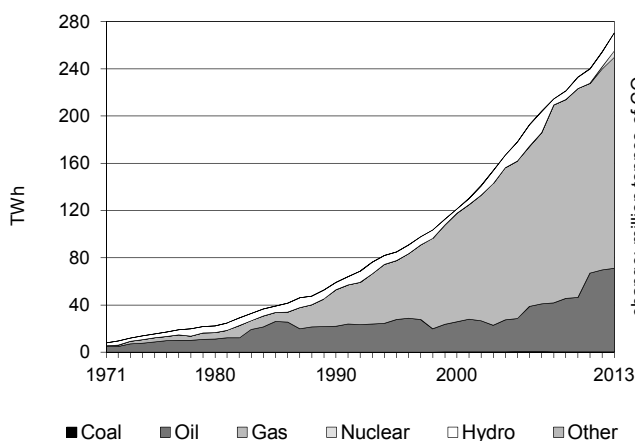


Figure 4. CO₂ from electricity generation: driving factors¹

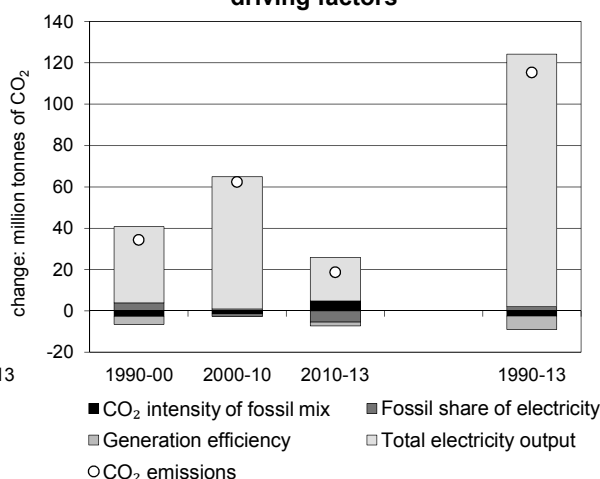


Figure 5. Changes in selected indicators

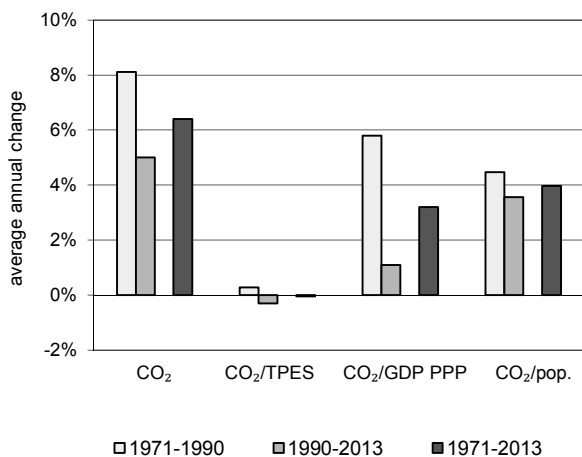
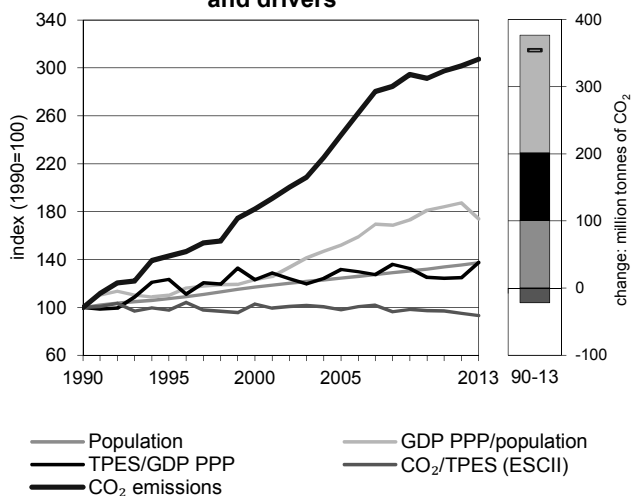


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Islamic Republic of Iran

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	171.18	244.48	312.16	417.65	498.45	516.36	525.92	207%
Share of World CO ₂ from fuel combustion	0.83%	1.14%	1.34%	1.54%	1.67%	1.64%	1.63%	
TPES (PJ)	2 903	4 238	5 151	7 229	8 688	9 194	9 563	229%
GDP (billion 2005 USD)	101.52	119.98	146.28	192.02	242.70	257.48	242.55	139%
GDP PPP (billion 2005 USD)	435.53	514.70	627.55	823.73	1 042.42	1 105.90	1 041.76	139%
Population (millions)	56.36	60.47	65.91	70.15	74.46	76.42	77.45	37%
CO ₂ / TPES (tCO ₂ per TJ)	59.0	57.7	60.6	57.8	57.4	56.2	55.0	-7%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	1.69	2.04	2.13	2.18	2.05	2.01	2.17	29%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.39	0.48	0.50	0.51	0.48	0.47	0.50	28%
CO ₂ / population (tCO ₂ per capita)	3.04	4.04	4.74	5.95	6.69	6.76	6.79	124%
Share of electricity output from fossil fuels	90%	91%	97%	91%	96%	94%	92%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	607	610	578	545	569	573	559	-8%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	143	182	244	291	302	307	207%
Population index	100	107	117	124	132	136	137	37%
GDP PPP per population index	100	110	123	152	181	187	174	74%
Energy intensity index - TPES / GDP PPP	100	124	123	132	125	125	138	38%
Carbon intensity index - CO ₂ / TPES	100	98	103	98	97	95	93	-7%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	2.78	238.52	284.62	-	525.92	207%
Electricity and heat generation	1.59	64.69	84.94	-	151.22	321%
Other energy industry own use	0.95	13.26	20.84	-	35.04	489%
Manufacturing industries and construction	0.21	17.98	70.71	-	88.90	138%
Transport	-	109.92	14.79	-	124.71	219%
<i>of which: road</i>	-	109.70	13.95	-	123.66	216%
Other	0.03	32.67	93.34	-	126.04	138%
<i>of which: residential</i>	0.03	15.92	80.79	-	96.74	213%
<i>of which: services</i>	-	6.10	11.11	-	17.21	77%
<i>Memo: international marine bunkers</i>	-	5.52	-	-	5.52	345%
<i>Memo: international aviation bunkers</i>	-	3.91	-	-	3.91	161%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	109.70	180.3%	14.5	14.5
Residential - gas	80.79	+	10.7	25.1
Main activity prod. elec. and heat - gas	78.73	399.9%	10.4	35.5
Manufacturing industries - gas	70.71	557.5%	9.3	44.8
Main activity prod. elec. and heat - oil	64.62	275.3%	8.5	53.4
Other energy industry own use - gas	20.84	+	2.7	56.1
Manufacturing industries - oil	17.98	-30.7%	2.4	58.5
Non-specified other - oil	16.75	-23.7%	2.2	60.7
Residential - oil	15.92	-35.7%	2.1	62.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>525.92</i>	<i>207.2%</i>	<i>69.4</i>	<i>69.4</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Iraq

Figure 1. CO₂ emissions by fuel

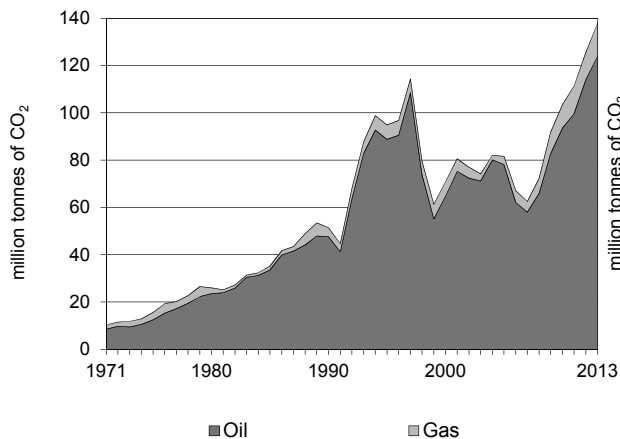


Figure 2. CO₂ emissions by sector

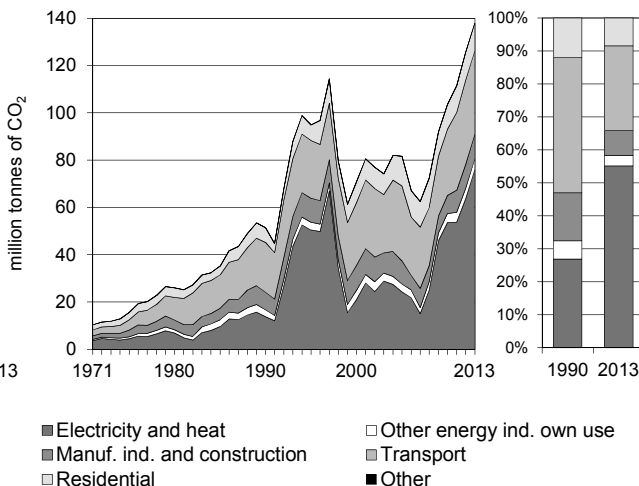


Figure 3. Electricity generation by fuel

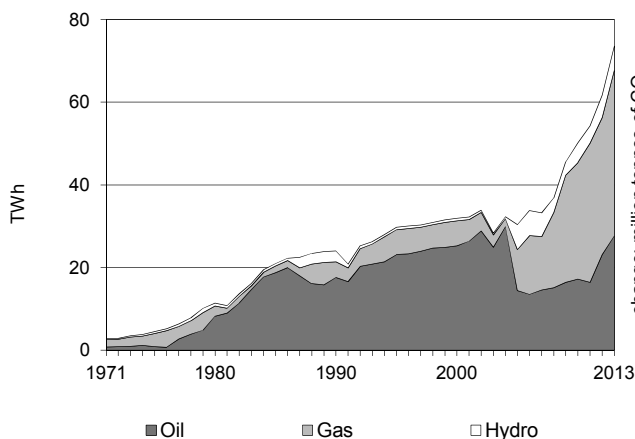


Figure 4. CO₂ from electricity generation: driving factors¹

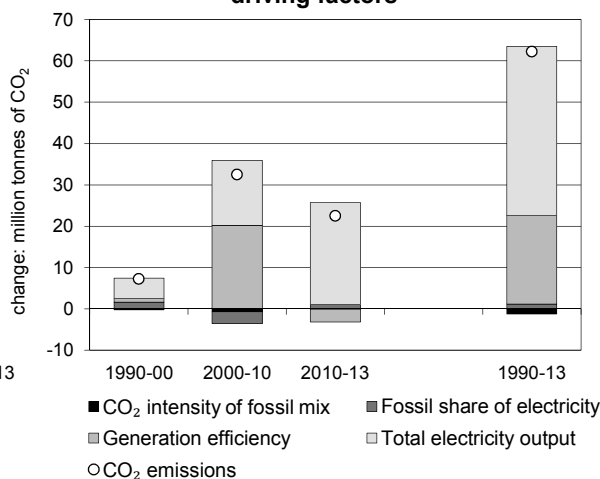


Figure 5. Changes in selected indicators

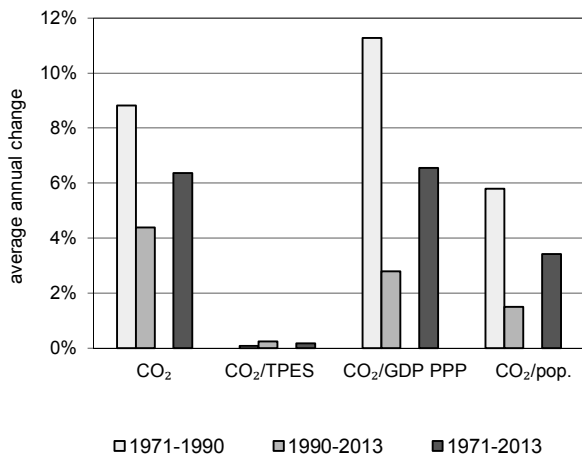
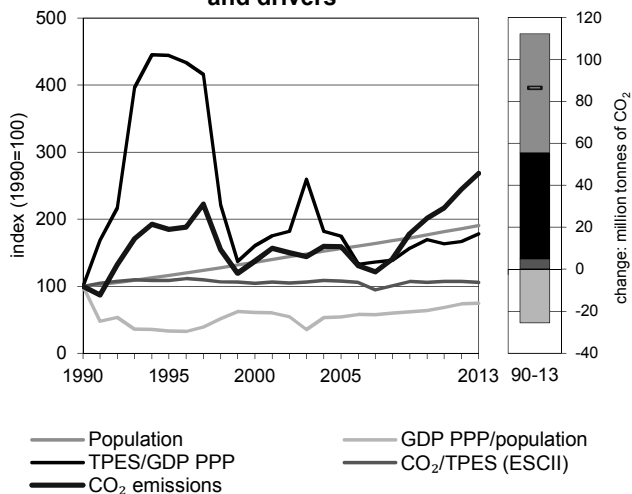


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Iraq

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	51.38	94.88	70.82	81.66	103.48	125.62	137.98	169%
Share of World CO ₂ from fuel combustion	0.25%	0.44%	0.30%	0.30%	0.35%	0.40%	0.43%	
TPES (PJ)	825	1 402	1 092	1 222	1 573	1 882	2 094	154%
GDP (billion 2005 USD)	57.73	22.10	48.71	49.96	66.42	80.73	84.13	46%
GDP PPP (billion 2005 USD)	302.39	115.74	249.30	255.66	339.89	413.17	430.57	42%
Population (millions)	17.52	20.36	23.80	27.38	30.96	32.58	33.42	91%
CO ₂ / TPES (tCO ₂ per TJ)	62.2	67.7	64.9	66.9	65.8	66.7	65.9	6%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.89	4.29	1.45	1.63	1.56	1.56	1.64	84%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.17	0.82	0.28	0.32	0.30	0.30	0.32	89%
CO ₂ / population (tCO ₂ per capita)	2.93	4.66	2.98	2.98	3.34	3.86	4.13	41%
Share of electricity output from fossil fuels	89%	98%	98%	80%	90%	91%	92%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	575	1695	660	795	1067	1031	1034	80%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	185	138	159	201	245	269	169%
Population index	100	116	136	156	177	186	191	91%
GDP PPP per population index	100	33	61	54	64	73	75	-25%
Energy intensity index - TPES / GDP PPP	100	444	160	175	170	167	178	78%
Carbon intensity index - CO ₂ / TPES	100	109	104	107	106	107	106	6%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	123.98	14.01	-	137.98	169%
Electricity and heat generation	-	62.72	13.34	-	76.06	451%
Other energy industry own use	-	4.51	-	-	4.51	57%
Manufacturing industries and construction	-	9.67	0.67	-	10.34	39%
Transport	-	35.40	-	-	35.40	68%
<i>of which: road</i>	-	35.40	-	-	35.40	68%
Other	-	11.68	-	-	11.68	89%
<i>of which: residential</i>	-	11.68	-	-	11.68	89%
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	0.56	-	-	0.56	38%
<i>Memo: international aviation bunkers</i>	-	1.26	-	-	1.26	27%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - oil	62.72	427.0%	31.5	31.5
Road - oil	35.40	67.9%	17.8	49.3
Main activity prod. elec. and heat - gas	13.34	602.6%	6.7	56.0
Residential - oil	11.68	89.1%	5.9	61.9
Manufacturing industries - oil	9.67	74.1%	4.9	66.7
Other energy industry own use - oil	4.51	57.3%	2.3	69.0
Manufacturing industries - gas	0.67	-64.9%	0.3	69.3
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>137.98</i>	<i>168.6%</i>	<i>69.3</i>	<i>69.3</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Ireland

Figure 1. CO₂ emissions by fuel

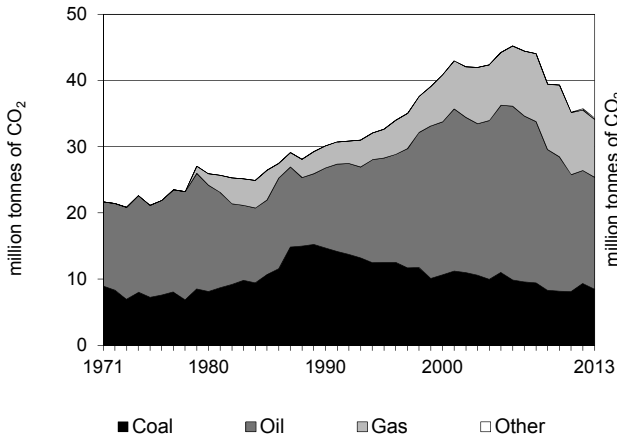


Figure 2. CO₂ emissions by sector

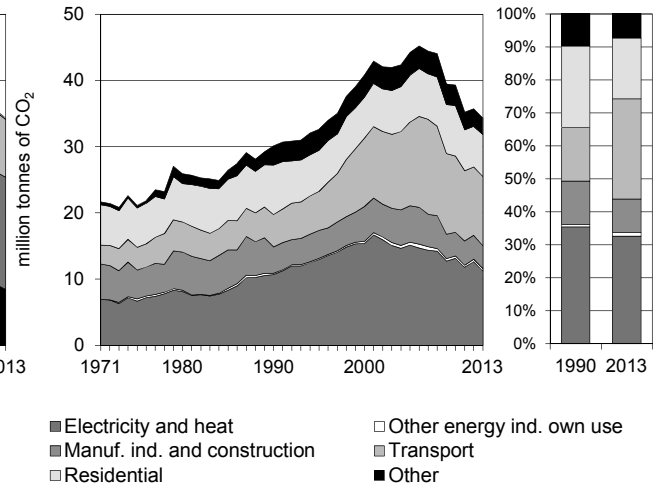


Figure 3. Electricity generation by fuel

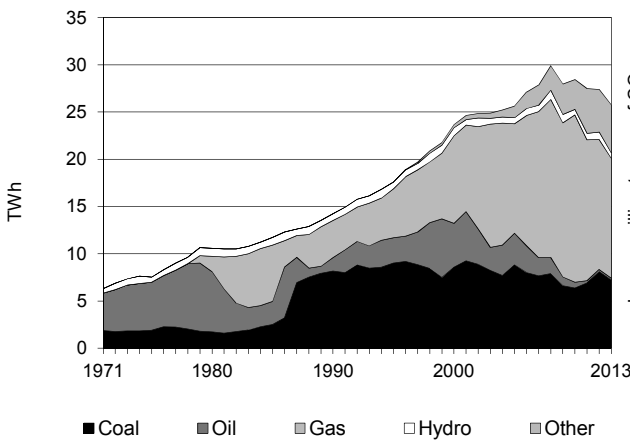


Figure 4. CO₂ from electricity generation: driving factors¹

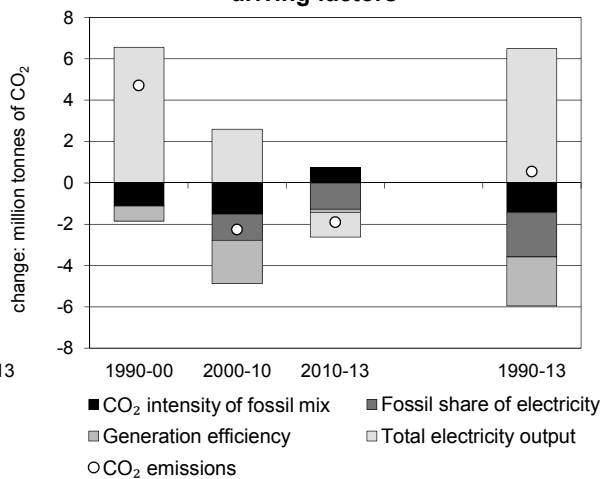


Figure 5. Changes in selected indicators

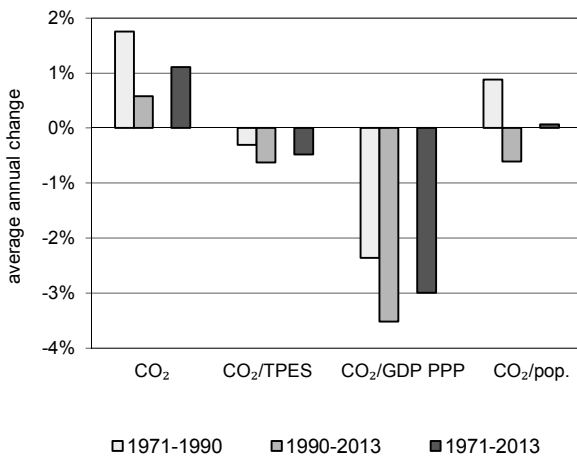
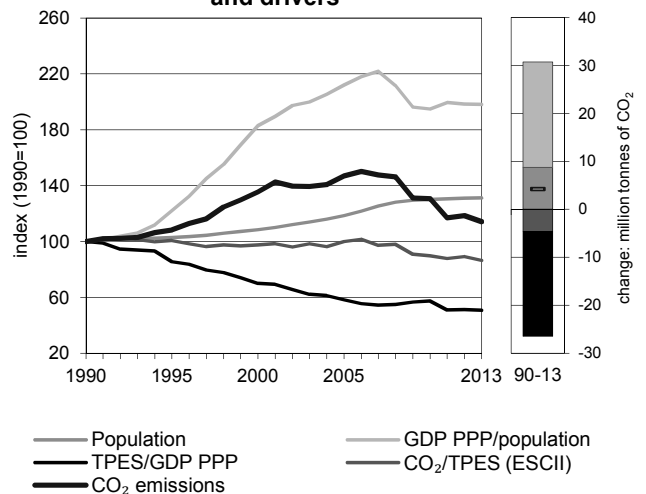


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Ireland

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	30.11	32.63	40.83	44.24	39.33	35.72	34.36	14%
Share of World CO ₂ from fuel combustion	0.15%	0.15%	0.18%	0.16%	0.13%	0.11%	0.11%	
TPES (PJ)	415	446	578	610	604	551	547	32%
GDP (billion 2005 USD)	83.57	104.81	165.93	210.36	211.70	216.89	217.27	160%
GDP PPP (billion 2005 USD)	66.52	83.43	132.08	167.44	168.51	172.64	172.94	160%
Population (millions)	3.51	3.60	3.80	4.16	4.56	4.59	4.60	31%
CO ₂ / TPES (tCO ₂ per TJ)	72.6	73.2	70.7	72.5	65.2	64.8	62.8	-13%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.36	0.31	0.25	0.21	0.19	0.16	0.16	-56%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.45	0.39	0.31	0.26	0.23	0.21	0.20	-56%
CO ₂ / population (tCO ₂ per capita)	8.59	9.06	10.73	10.63	8.62	7.78	7.47	-13%
Share of electricity output from fossil fuels	95%	96%	95%	93%	87%	81%	78%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	750	736	650	590	462	461	435	-42%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	108	136	147	131	119	114	14%
Population index	100	103	109	119	130	131	131	31%
GDP PPP per population index	100	122	183	212	195	198	198	98%
Energy intensity index - TPES / GDP PPP	100	86	70	58	57	51	51	-49%
Carbon intensity index - CO ₂ / TPES	100	101	97	100	90	89	87	-13%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	8.45	16.95	8.74	0.22	34.36	14%
Electricity and heat generation	6.09	0.13	4.92	0.09	11.23	5%
Other energy industry own use	0.07	0.30	-	-	0.37	91%
Manufacturing industries and construction	0.32	1.56	1.45	0.13	3.47	-13%
Transport	-	10.44	-	-	10.44	113%
<i>of which: road</i>	-	10.22	-	-	10.22	121%
Other	1.97	4.51	2.37	-	8.85	-15%
<i>of which: residential</i>	1.97	2.97	1.42	-	6.36	-15%
<i>of which: services</i>	-	0.98	0.95	-	1.93	-14%
<i>Memo: international marine bunkers</i>	-	0.41	-	-	0.41	622%
<i>Memo: international aviation bunkers</i>	-	1.87	-	-	1.87	80%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	10.22	121.4%	16.7	16.7
Main activity prod. elec. and heat - coal	6.05	-19.8%	9.9	26.6
Main activity prod. elec. and heat - gas	4.29	123.6%	7.0	33.6
Residential - oil	2.97	155.2%	4.9	38.5
Residential - coal	1.97	-67.2%	3.2	41.7
Manufacturing industries - oil	1.56	-28.2%	2.6	44.3
Non-specified other - oil	1.54	-41.0%	2.5	46.8
Manufacturing industries - gas	1.45	73.0%	2.4	49.2
Residential - gas	1.42	417.0%	2.3	51.5
<i>Memo: total CO₂ from fuel combustion</i>	34.36	14.1%	56.2	56.2

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Israel

Figure 1. CO₂ emissions by fuel

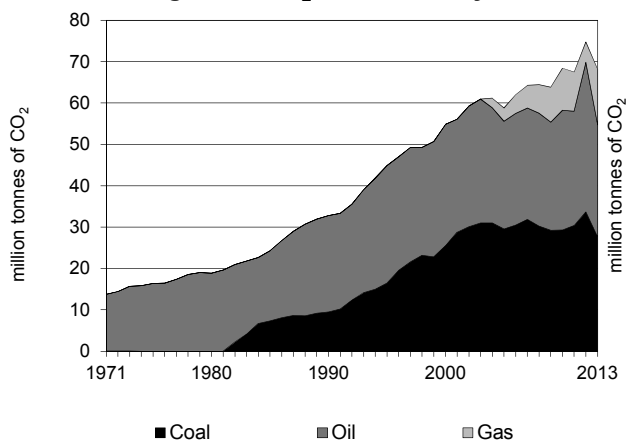


Figure 2. CO₂ emissions by sector

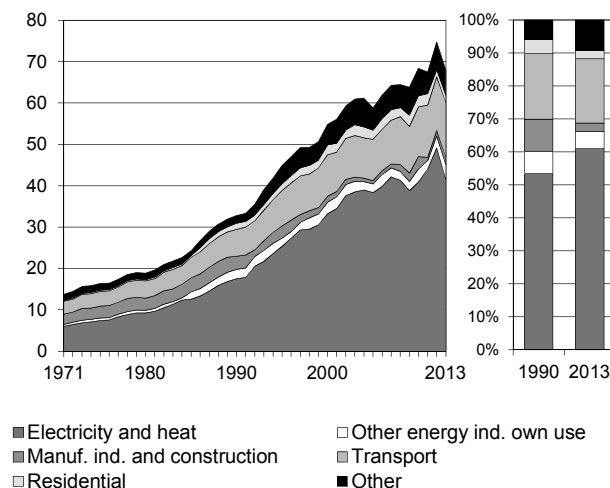


Figure 3. Electricity generation by fuel

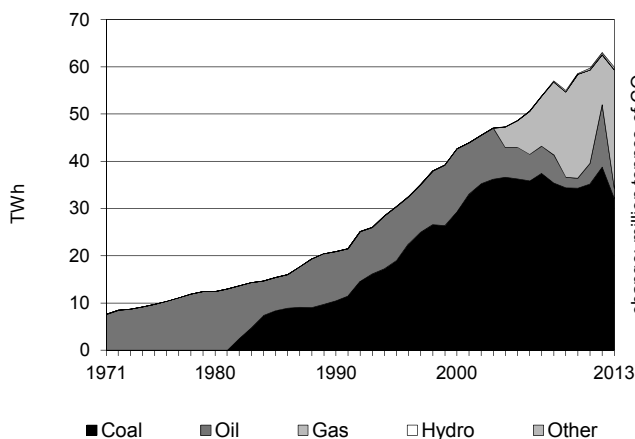


Figure 4. CO₂ from electricity generation: driving factors¹

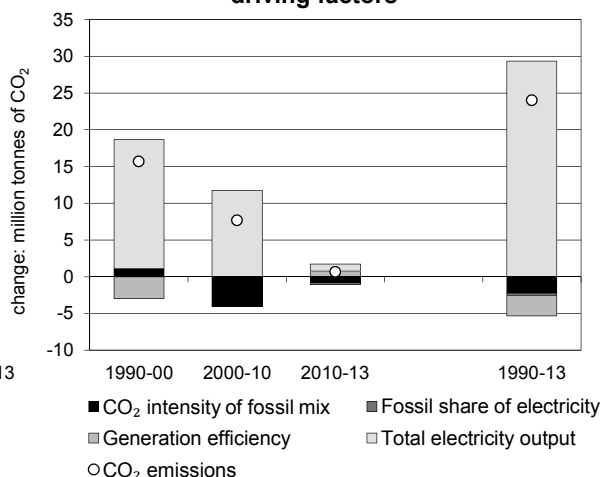


Figure 5. Changes in selected indicators

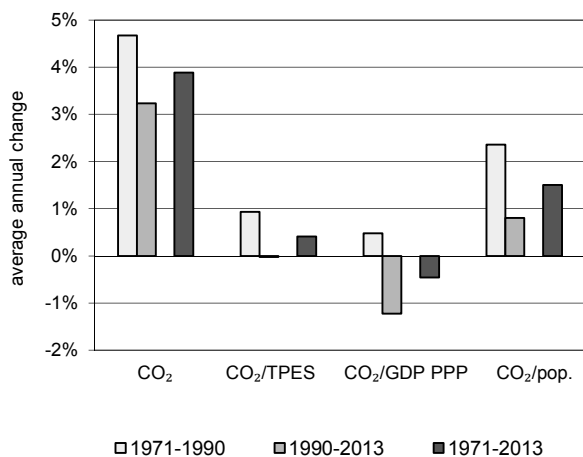
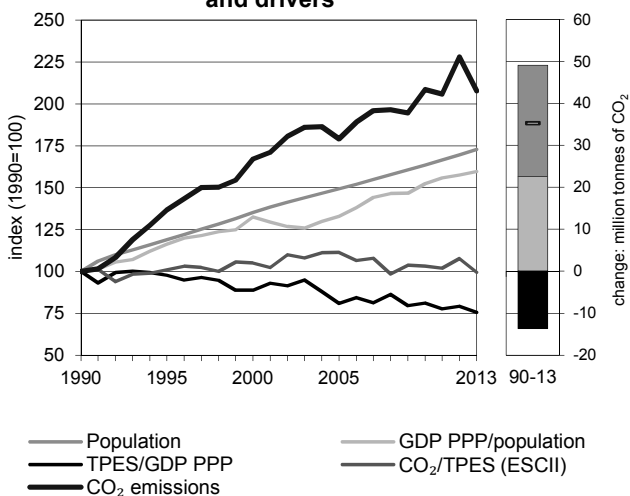


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Israel

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	32.81	44.87	54.83	58.79	68.43	74.77	68.17	108%
Share of World CO ₂ from fuel combustion	0.16%	0.21%	0.24%	0.22%	0.23%	0.24%	0.21%	
TPES (PJ)	480	649	763	772	971	1 016	1 002	109%
GDP (billion 2005 USD)	71.10	98.41	127.40	141.22	177.06	190.01	196.18	176%
GDP PPP (billion 2005 USD)	85.85	118.82	153.82	170.51	213.78	229.41	236.86	176%
Population (millions)	4.66	5.55	6.30	6.96	7.62	7.91	8.06	73%
CO ₂ / TPES (tCO ₂ per TJ)	68.4	69.1	71.8	76.1	70.5	73.6	68.0	0%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.46	0.46	0.43	0.42	0.39	0.39	0.35	-25%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.38	0.38	0.36	0.34	0.32	0.33	0.29	-25%
CO ₂ / population (tCO ₂ per capita)	7.04	8.09	8.70	8.45	8.98	9.46	8.46	20%
Share of electricity output from fossil fuels	100%	100%	100%	100%	100%	99%	99%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	840	833	779	790	698	780	694	-17%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	137	167	179	209	228	208	108%
Population index	100	119	135	149	164	170	173	73%
GDP PPP per population index	100	116	132	133	152	158	160	60%
Energy intensity index - TPES / GDP PPP	100	98	89	81	81	79	76	-24%
Carbon intensity index - CO ₂ / TPES	100	101	105	111	103	108	100	-1%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	27.73	26.97	13.48	-	68.17	108%
Electricity and heat generation	27.73	3.23	10.62	-	41.58	137%
Other energy industry own use	-	1.69	1.87	-	3.56	61%
Manufacturing industries and construction	-	0.74	0.98	-	1.73	-46%
Transport	-	13.33	-	-	13.33	104%
<i>of which: road</i>	-	13.33	-	-	13.33	105%
Other	-	7.98	-	-	7.98	140%
<i>of which: residential</i>	-	1.69	-	-	1.69	19%
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	0.78	-	-	0.78	104%
<i>Memo: international aviation bunkers</i>	-	2.52	-	-	2.52	58%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	27.73	194.3%	34.9	34.9
Road - oil	13.33	105.5%	16.8	51.6
Main activity prod. elec. and heat - gas	10.36	x	13.0	64.7
Non-specified other - oil	6.30	228.9%	7.9	72.6
Unallocated autoproducers - oil	2.01	337.1%	2.5	75.1
Other energy industry own use - gas	1.87	x	2.4	77.5
Residential - oil	1.69	19.2%	2.1	79.6
Other energy industry own use - oil	1.69	-23.9%	2.1	81.7
Main activity prod. elec. and heat - oil	1.22	-84.1%	1.5	83.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>68.17</i>	<i>107.8%</i>	<i>85.8</i>	<i>85.8</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Italy

Figure 1. CO₂ emissions by fuel

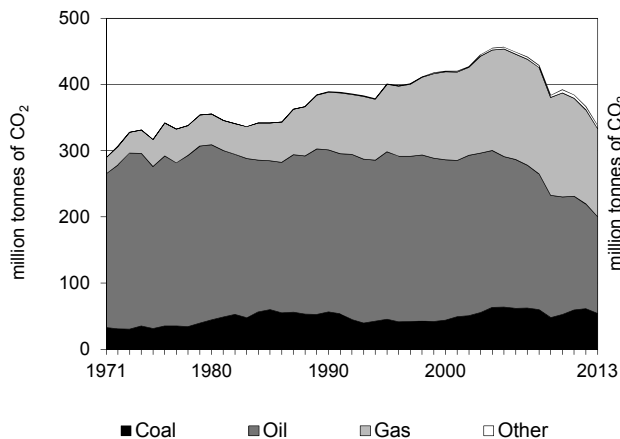


Figure 2. CO₂ emissions by sector

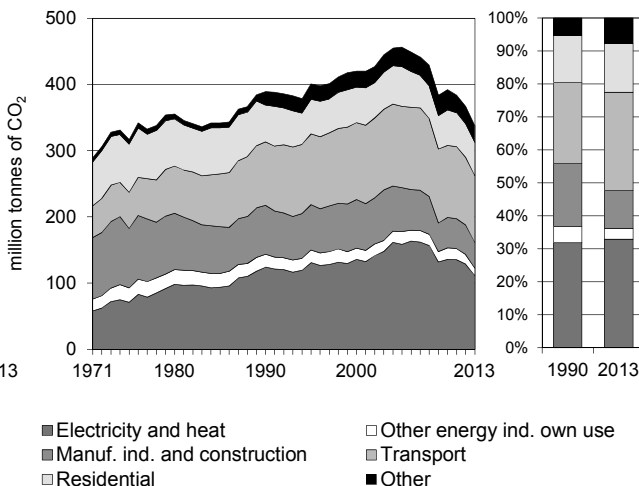


Figure 3. Electricity generation by fuel

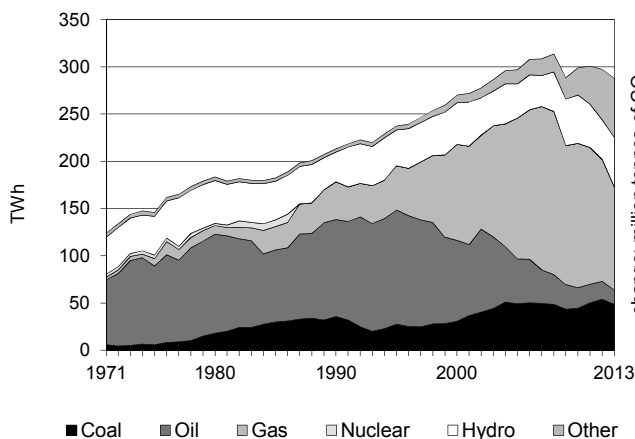


Figure 4. CO₂ from electricity generation: driving factors¹

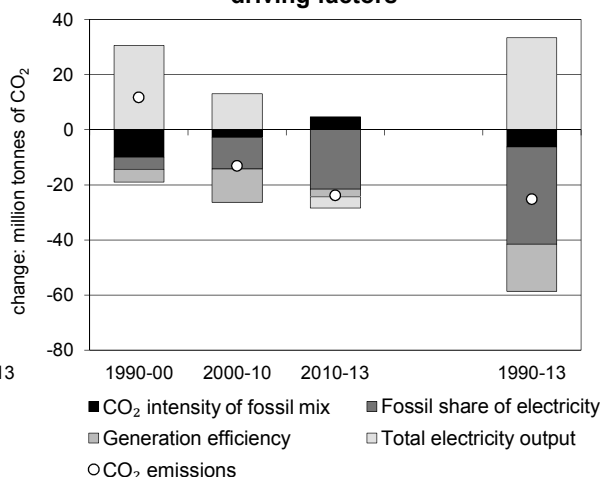


Figure 5. Changes in selected indicators

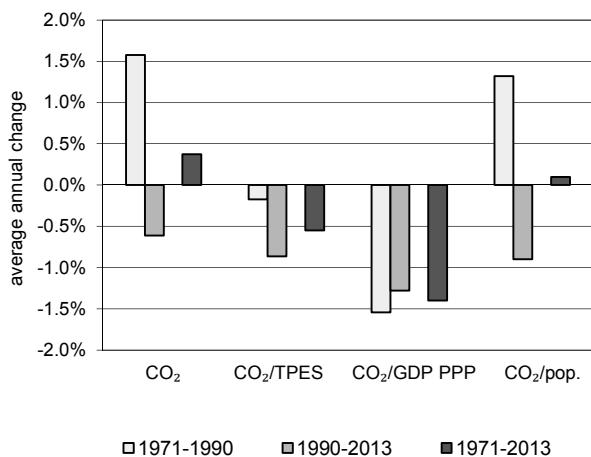
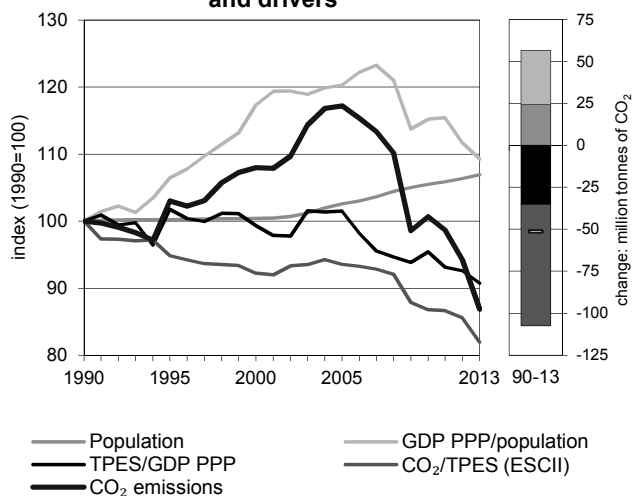


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Italy

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	389.29	400.98	420.31	456.27	392.01	366.78	338.22	-13%
Share of World CO ₂ from fuel combustion	1.9%	1.9%	1.8%	1.7%	1.3%	1.2%	1.1%	
TPES (PJ)	6 136	6 662	7 181	7 685	7 117	6 754	6 505	6%
GDP (billion 2005 USD)	1 501.71	1 602.16	1 768.79	1 853.47	1 825.02	1 784.87	1 754.56	17%
GDP PPP (billion 2005 USD)	1 393.36	1 486.57	1 641.18	1 719.74	1 693.35	1 656.10	1 627.97	17%
Population (millions)	56.72	56.84	56.94	58.19	59.83	60.34	60.65	7%
CO ₂ / TPES (tCO ₂ per TJ)	63.4	60.2	58.5	59.4	55.1	54.3	52.0	-18%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.26	0.25	0.24	0.25	0.21	0.21	0.19	-26%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.28	0.27	0.26	0.27	0.23	0.22	0.21	-26%
CO ₂ / population (tCO ₂ per capita)	6.86	7.05	7.38	7.84	6.55	6.08	5.58	-19%
Share of electricity output from fossil fuels	84%	83%	81%	84%	74%	69%	61%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	581	551	502	491	410	389	343	-41%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	103	108	117	101	94	87	-13%
Population index	100	100	100	103	105	106	107	7%
GDP PPP per population index	100	106	117	120	115	112	109	9%
Energy intensity index - TPES / GDP PPP	100	102	99	101	95	93	91	-9%
Carbon intensity index - CO ₂ / TPES	100	95	92	94	87	86	82	-18%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	53.89	146.57	132.73	5.03	338.22	-13%
Electricity and heat generation	46.80	13.64	47.39	3.35	111.18	-10%
Other energy industry own use	0.16	8.61	2.63	-	11.40	-41%
Manufacturing industries and construction	6.93	9.70	20.50	1.68	38.82	-48%
Transport	-	98.28	2.42	-	100.70	5%
<i>of which: road</i>	-	93.02	1.91	-	94.92	3%
Other	-	16.34	59.78	-	76.13	0%
<i>of which: residential</i>	-	7.85	42.44	-	50.29	-9%
<i>of which: services</i>	-	1.69	17.05	-	18.73	64%
<i>Memo: international marine bunkers</i>	-	7.04	-	-	7.04	-17%
<i>Memo: international aviation bunkers</i>	-	8.98	-	-	8.98	98%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	93.02	1.2%	21.6	21.6
Main activity prod. elec. and heat - coal	46.77	65.6%	10.9	32.4
Residential - gas	42.44	59.7%	9.8	42.3
Main activity prod. elec. and heat - gas	39.58	145.1%	9.2	51.5
Manufacturing industries - gas	20.50	-32.7%	4.8	56.2
Non-specified other - gas	17.35	74.5%	4.0	60.2
Main activity prod. elec. and heat - oil	9.97	-84.4%	2.3	62.6
Manufacturing industries - oil	9.70	-64.4%	2.3	64.8
Other energy industry own use - oil	8.61	-37.5%	2.0	66.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>338.22</i>	<i>-13.1%</i>	<i>78.5</i>	<i>78.5</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Jamaica

Figure 1. CO₂ emissions by fuel

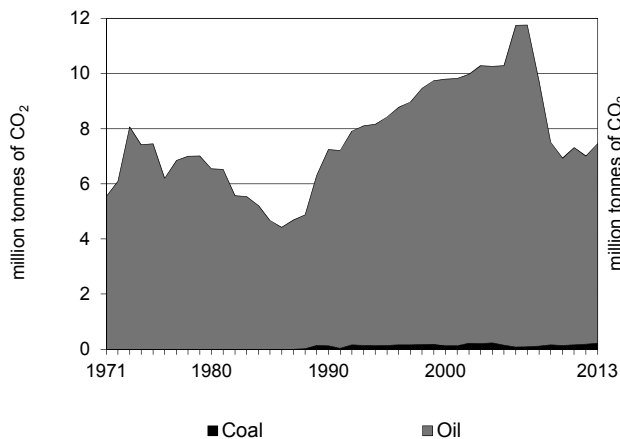


Figure 2. CO₂ emissions by sector

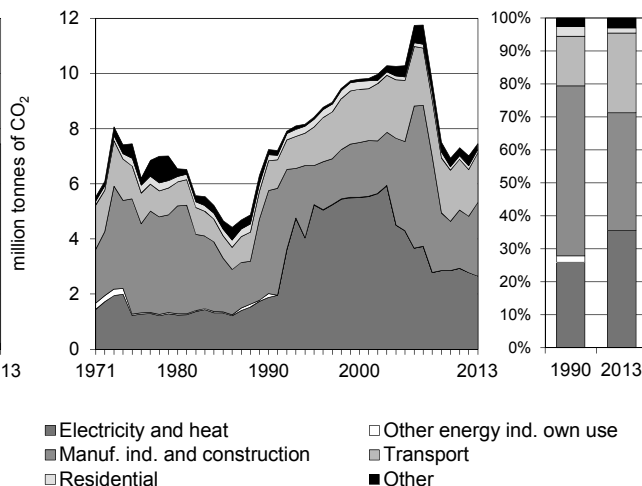


Figure 3. Electricity generation by fuel

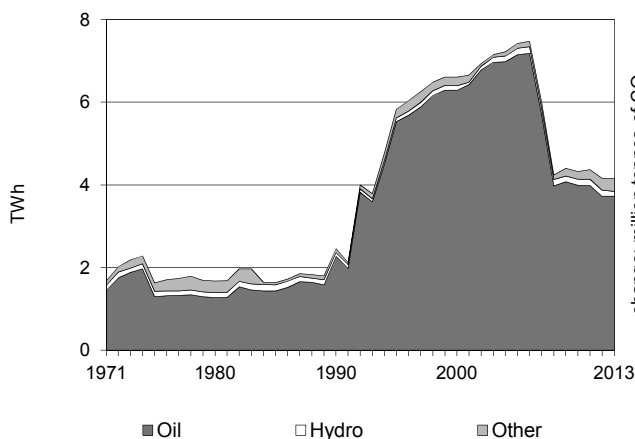


Figure 4. CO₂ from electricity generation: driving factors¹

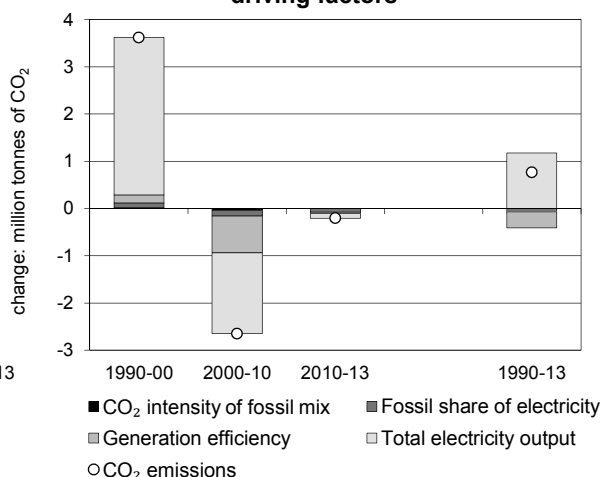


Figure 5. Changes in selected indicators

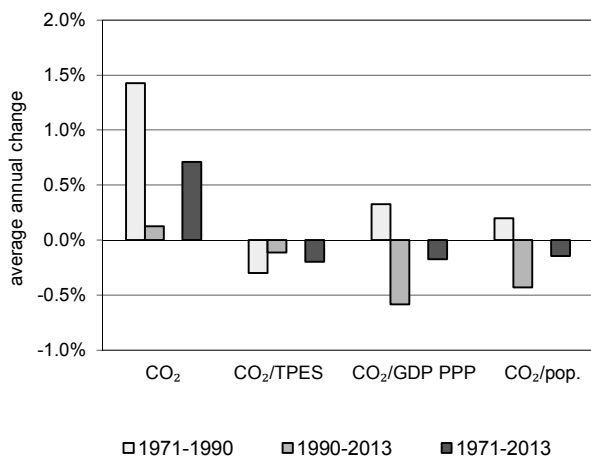
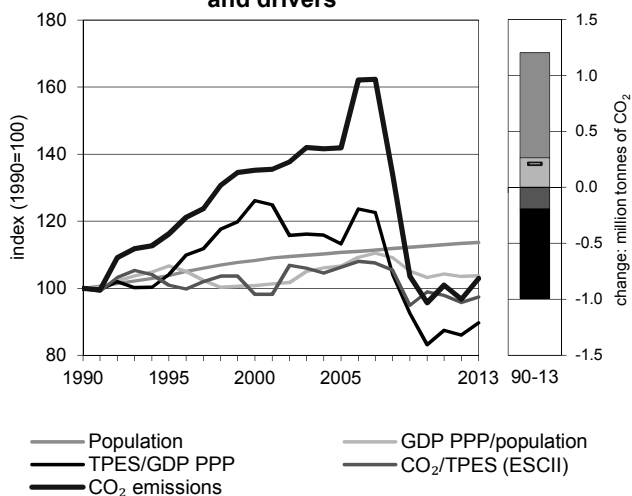


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Jamaica

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	7.24	8.42	9.79	10.28	6.93	7.01	7.45	3%
Share of World CO ₂ from fuel combustion	0.04%	0.04%	0.04%	0.04%	0.02%	0.02%	0.02%	
TPES (PJ)	117	134	161	156	113	118	123	6%
GDP (billion 2005 USD)	9.39	10.39	10.25	11.08	10.92	11.02	11.06	18%
GDP PPP (billion 2005 USD)	15.92	17.61	17.37	18.77	18.50	18.67	18.75	18%
Population (millions)	2.39	2.48	2.59	2.64	2.69	2.71	2.72	14%
CO ₂ / TPES (tCO ₂ per TJ)	62.1	62.7	61.0	66.0	61.5	59.5	60.5	-3%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.77	0.81	0.96	0.93	0.63	0.64	0.67	-13%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.46	0.48	0.56	0.55	0.37	0.38	0.40	-13%
CO ₂ / population (tCO ₂ per capita)	3.03	3.39	3.78	3.89	2.57	2.59	2.75	-9%
Share of electricity output from fossil fuels	92%	95%	95%	96%	92%	90%	90%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	765	897	832	577	660	668	637	-17%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	116	135	142	96	97	103	3%
Population index	100	104	108	111	113	113	114	14%
GDP PPP per population index	100	107	101	107	103	104	104	4%
Energy intensity index - TPES / GDP PPP	100	104	126	113	83	86	90	-10%
Carbon intensity index - CO ₂ / TPES	100	101	98	106	99	96	97	-3%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	0.22	7.24	-	-	7.45	3%
Electricity and heat generation	-	2.65	-	-	2.65	41%
Other energy industry own use	-	-	-	-	-	-100%
Manufacturing industries and construction	0.22	2.45	-	-	2.67	-29%
Transport	-	1.80	-	-	1.80	66%
<i>of which: road</i>	-	1.31	-	-	1.31	79%
Other	-	0.34	-	-	0.34	-16%
<i>of which: residential</i>	-	0.12	-	-	0.12	-45%
<i>of which: services</i>	-	0.15	-	-	0.15	114%
<i>Memo: international marine bunkers</i>	-	0.06	-	-	0.06	-37%
<i>Memo: international aviation bunkers</i>	-	0.55	-	-	0.55	18%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Manufacturing industries - oil	2.45	-32.1%	24.3	24.3
Main activity prod. elec. and heat - oil	1.92	2.4%	19.1	43.4
Road - oil	1.31	78.8%	13.0	56.4
Unallocated autoproducers - oil	0.72	x	7.2	63.6
Other transport - oil	0.49	38.7%	4.8	68.4
Non-specified other - oil	0.22	18.7%	2.2	70.6
Manufacturing industries - coal	0.22	71.2%	2.2	72.8
Residential - oil	0.12	-45.0%	1.2	74.0
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>7.45</i>	<i>2.9%</i>	<i>74.0</i>	<i>74.0</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Japan

Figure 1. CO₂ emissions by fuel

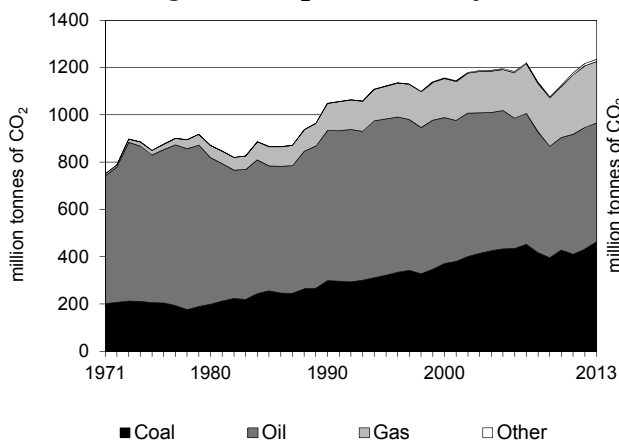


Figure 2. CO₂ emissions by sector

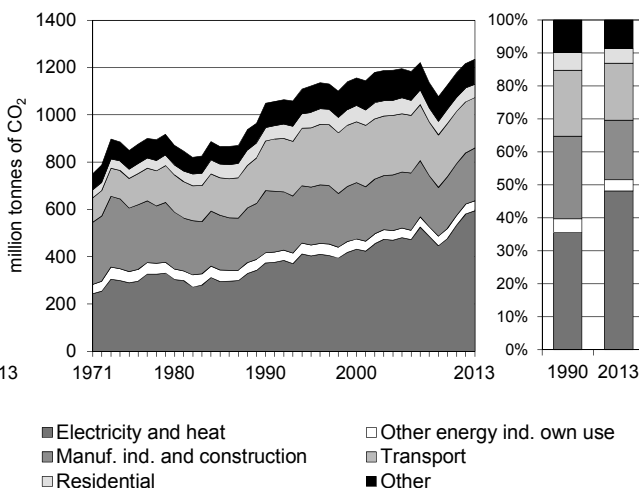


Figure 3. Electricity generation by fuel

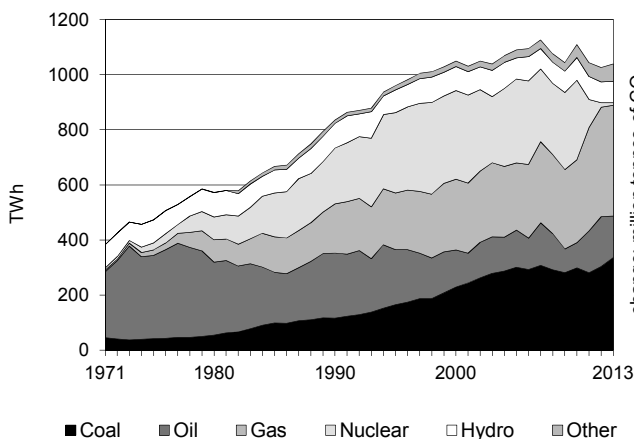


Figure 4. CO₂ from electricity generation: driving factors¹

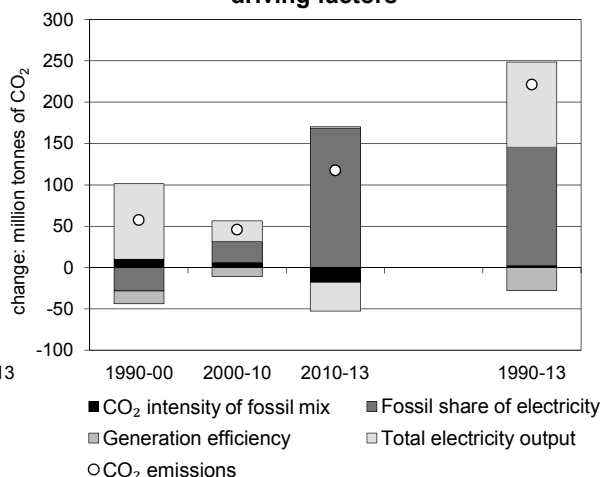


Figure 5. Changes in selected indicators

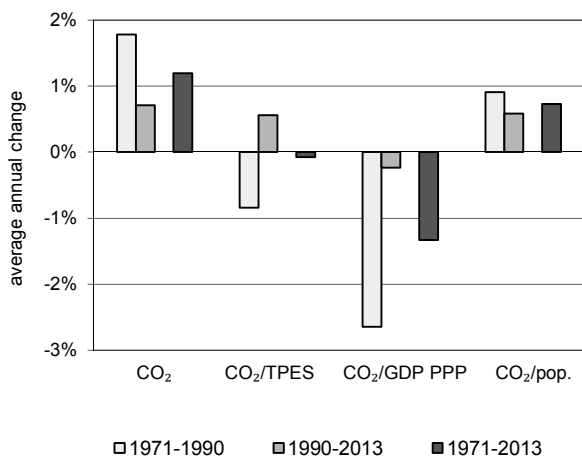
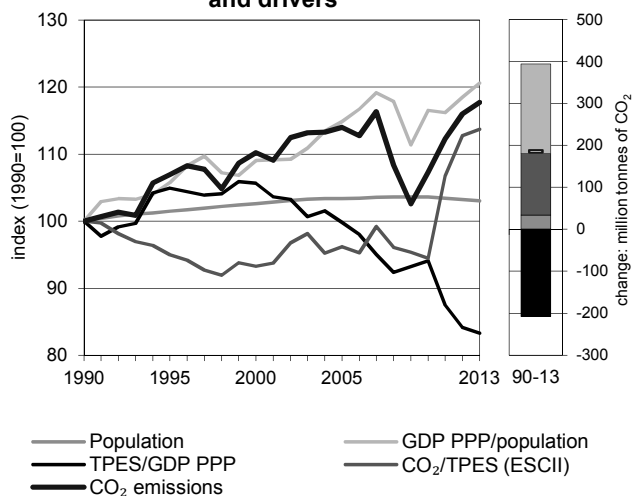


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Japan ¹

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	1 049.29	1 122.03	1 156.60	1 196.15	1 126.07	1 217.23	1 235.06	18%
Share of World CO ₂ from fuel combustion	5.1%	5.2%	5.0%	4.4%	3.8%	3.9%	3.8%	
TPES (PJ)	18 391	20 701	21 735	21 794	20 889	18 924	19 035	4%
GDP (billion 2005 USD)	3 851.27	4 132.19	4 308.10	4 571.88	4 648.48	4 708.58	4 784.55	24%
GDP PPP (billion 2005 USD)	3 276.52	3 515.51	3 665.17	3 889.58	3 954.75	4 005.89	4 070.52	24%
Population (millions)	123.61	125.44	126.83	127.76	128.04	127.55	127.33	3%
CO ₂ / TPES (tCO ₂ per TJ)	57.1	54.2	53.2	54.9	53.9	64.3	64.9	14%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.27	0.27	0.27	0.26	0.24	0.26	0.26	-5%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.32	0.32	0.32	0.31	0.28	0.30	0.30	-5%
CO ₂ / population (tCO ₂ per capita)	8.49	8.95	9.12	9.36	8.79	9.54	9.70	14%
Share of electricity output from fossil fuels	64%	60%	59%	63%	63%	86%	86%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	446	419	410	440	429	565	572	28%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ²								
CO ₂ emissions index	100	107	110	114	107	116	118	18%
Population index	100	101	103	103	104	103	103	3%
GDP PPP per population index	100	106	109	115	117	118	121	21%
Energy intensity index - TPES / GDP PPP	100	105	106	100	94	84	83	-17%
Carbon intensity index - CO ₂ / TPES	100	95	93	96	94	113	114	14%

1. Please see Part I, Chapter 1 for revisions provided by the Japanese Administration and for methodological notes. 2. Based on GDP PPP.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ³	Total	% change 90-13
CO₂ fuel combustion	463.42	501.42	260.18	10.04	1 235.06	18%
Electricity and heat generation	315.52	96.21	177.40	5.27	594.41	59%
Other energy industry own use	19.84	18.54	3.86	-	42.24	-2%
Manufacturing industries and construction	126.04	74.24	17.71	4.77	222.76	-15%
Transport	0.00	213.29	0.20	-	213.49	1%
<i>of which: road</i>	-	191.71	0.20	-	191.91	2%
Other	2.01	99.14	61.01	-	162.16	2%
<i>of which: residential</i>	-	35.20	20.56	-	55.76	-1%
<i>of which: services</i>	2.01	52.74	40.45	-	95.20	16%
<i>Memo: international marine bunkers</i>	-	13.19	-	-	13.19	-26%
<i>Memo: international aviation bunkers</i>	-	19.62	-	-	19.62	46%

3. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ⁴	Cumulative total (%)
Main activity prod. elec. and heat - coal	263.69	158.4%	18.0	18.0
Road - oil	191.71	1.6%	13.1	31.1
Main activity prod. elec. and heat - gas	172.36	121.8%	11.8	42.9
Manufacturing industries - coal	126.04	-12.7%	8.6	51.5
Main activity prod. elec. and heat - oil	78.92	-40.8%	5.4	56.9
Manufacturing industries - oil	74.24	-32.6%	5.1	62.0
Non-specified other - oil	63.94	-29.2%	4.4	66.3
Unallocated autoproducers - coal	51.83	65.8%	3.5	69.9
Non-specified other - gas	40.45	342.8%	2.8	72.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>1235.06</i>	<i>17.7%</i>	<i>84.4</i>	<i>84.4</i>

4. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Jordan

Figure 1. CO₂ emissions by fuel

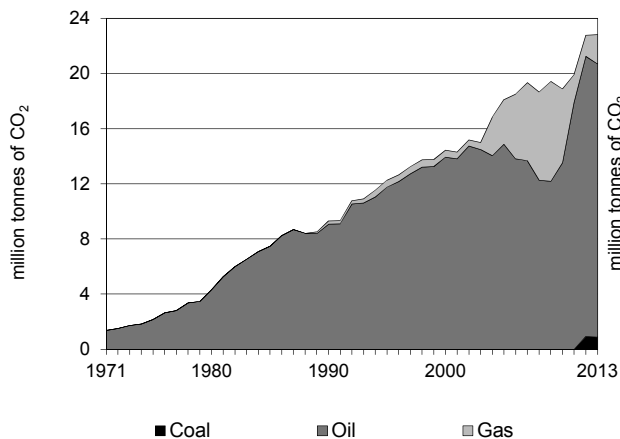


Figure 2. CO₂ emissions by sector

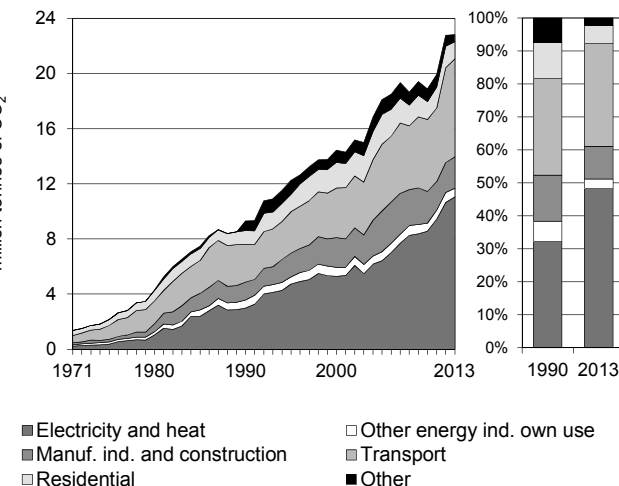


Figure 3. Electricity generation by fuel

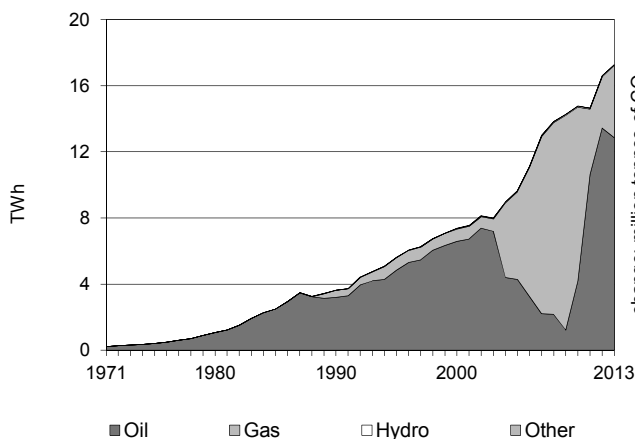


Figure 4. CO₂ from electricity generation: driving factors¹

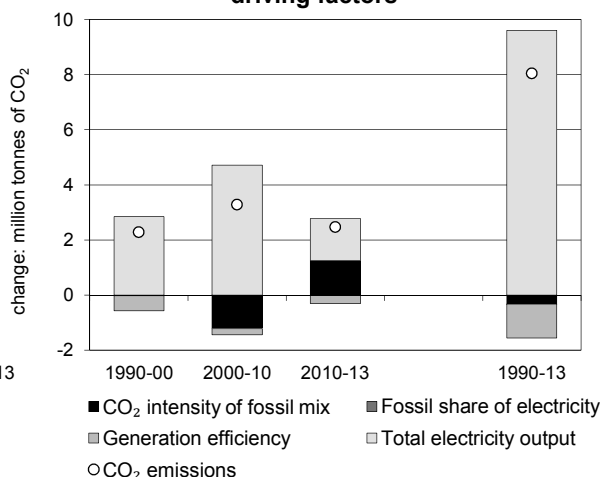


Figure 5. Changes in selected indicators

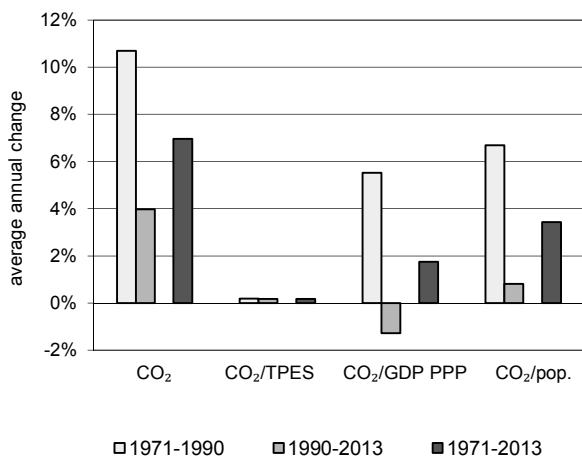
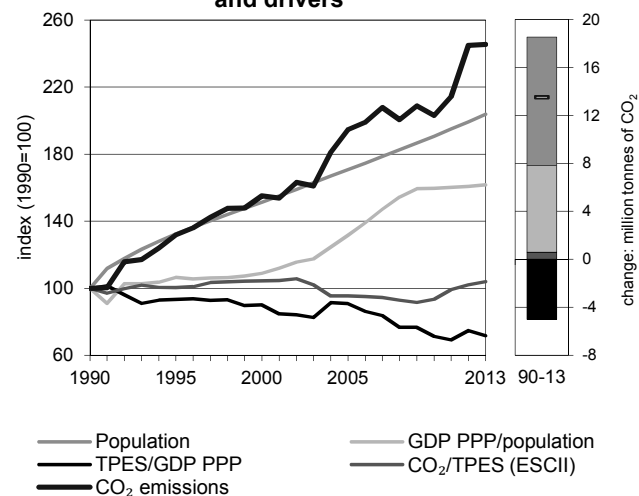


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Jordan

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	9.30	12.26	14.43	18.11	18.88	22.78	22.82	145%
Share of World CO ₂ from fuel combustion	0.05%	0.06%	0.06%	0.07%	0.06%	0.07%	0.07%	
TPES (PJ)	137	180	204	280	297	329	324	136%
GDP (billion 2005 USD)	5.60	7.89	9.24	12.59	17.04	17.94	18.45	229%
GDP PPP (billion 2005 USD)	19.92	28.07	32.86	44.77	60.59	63.79	65.60	229%
Population (millions)	3.17	4.20	4.80	5.41	6.05	6.32	6.46	104%
CO ₂ / TPES (tCO ₂ per TJ)	67.9	68.1	70.8	64.8	63.5	69.3	70.5	4%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	1.66	1.55	1.56	1.44	1.11	1.27	1.24	-25%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.47	0.44	0.44	0.40	0.31	0.36	0.35	-25%
CO ₂ / population (tCO ₂ per capita)	2.93	2.92	3.01	3.35	3.12	3.61	3.53	20%
Share of electricity output from fossil fuels	100%	100%	99%	99%	100%	100%	100%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	823	841	715	665	579	642	639	-22%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	132	155	195	203	245	245	145%
Population index	100	132	151	171	191	199	204	104%
GDP PPP per population index	100	107	109	132	159	161	162	62%
Energy intensity index - TPES / GDP PPP	100	93	90	91	71	75	72	-28%
Carbon intensity index - CO ₂ / TPES	100	100	104	95	94	102	104	4%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	0.88	19.81	2.13	-	22.82	145%
Electricity and heat generation	-	8.91	2.13	-	11.04	269%
Other energy industry own use	-	0.64	-	-	0.64	11%
Manufacturing industries and construction	0.88	1.39	-	-	2.27	74%
Transport	-	7.11	-	-	7.11	161%
<i>of which: road</i>	-	7.07	-	-	7.07	164%
Other	-	1.77	-	-	1.77	4%
<i>of which: residential</i>	-	1.25	-	-	1.25	24%
<i>of which: services</i>	-	0.28	-	-	0.28	655%
<i>Memo: international marine bunkers</i>	-	0.03	-	-	0.03	..
<i>Memo: international aviation bunkers</i>	-	1.11	-	-	1.11	65%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - oil	8.53	248.3%	30.1	30.1
Road - oil	7.07	163.6%	25.0	55.1
Main activity prod. elec. and heat - gas	2.13	792.9%	7.5	62.6
Manufacturing industries - oil	1.39	6.5%	4.9	67.5
Residential - oil	1.25	23.8%	4.4	71.9
Manufacturing industries - coal	0.88	x	3.1	75.0
Other energy industry own use - oil	0.64	11.4%	2.3	77.3
Non-specified other - oil	0.52	-24.9%	1.9	79.1
Unallocated autoproducers - oil	0.38	23.4%	1.3	80.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>22.82</i>	<i>145.4%</i>	<i>80.6</i>	<i>80.6</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Kazakhstan

Figure 1. CO₂ emissions by fuel

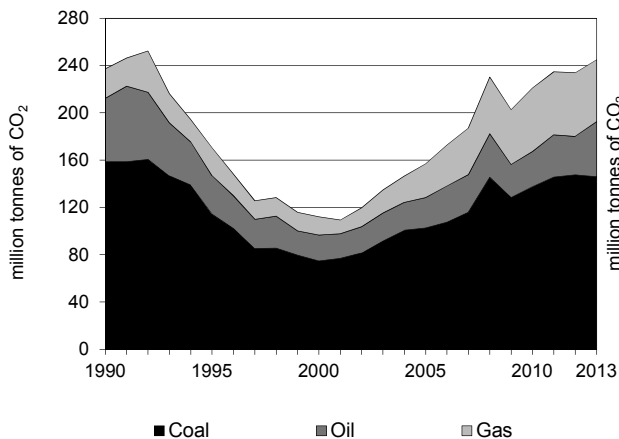


Figure 2. CO₂ emissions by sector

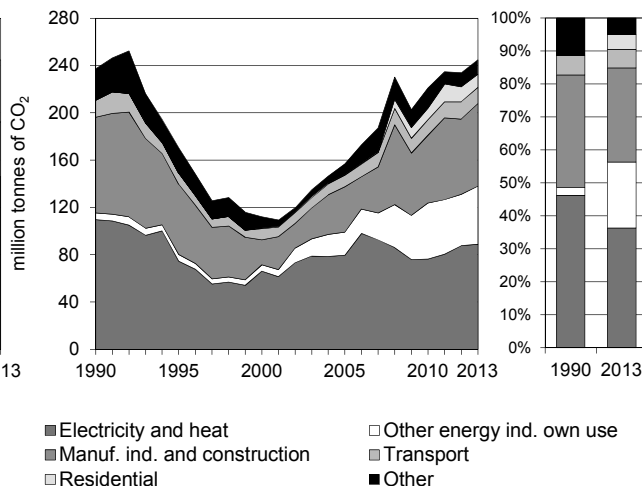


Figure 3. Electricity generation by fuel

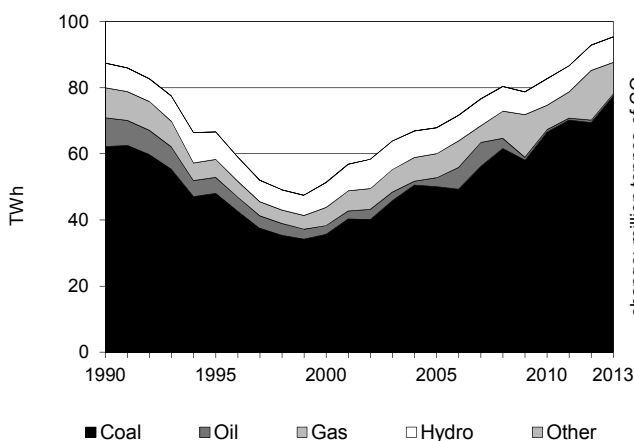


Figure 4. CO₂ from electricity generation: driving factors¹

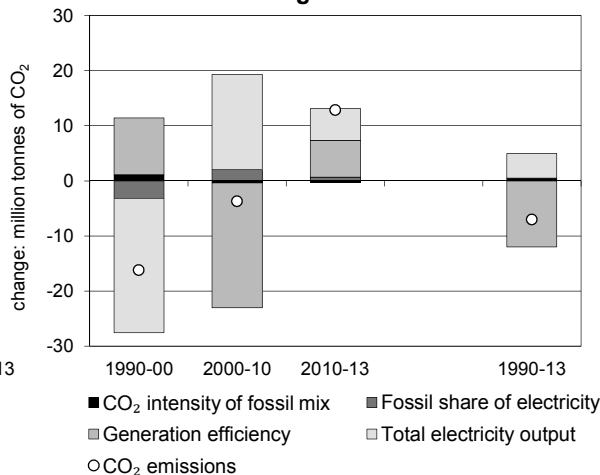


Figure 5. Changes in selected indicators

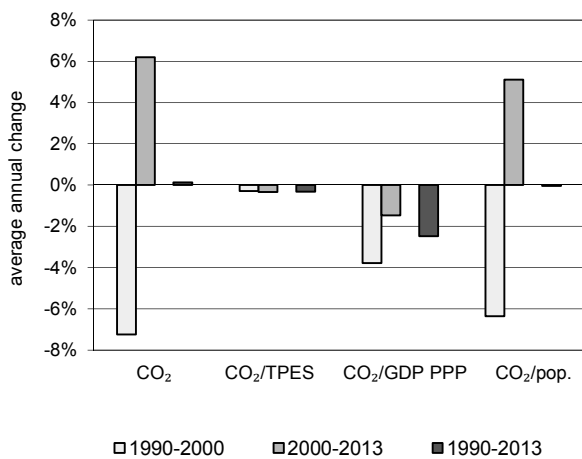
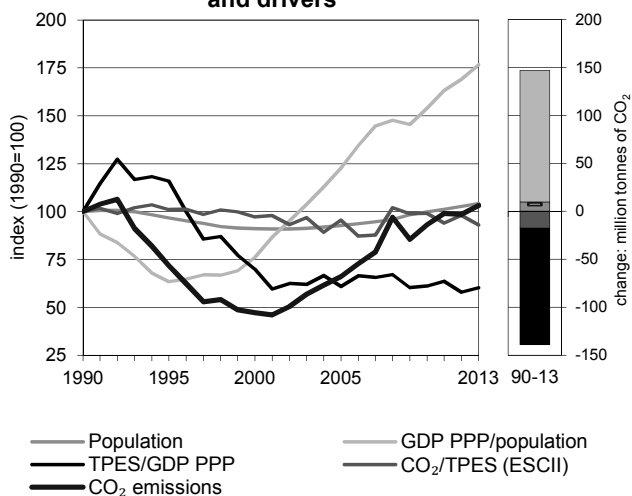


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Kazakhstan

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	237.24	170.52	112.00	156.89	221.09	233.83	244.89	3%
Share of World CO ₂ from fuel combustion	1.15%	0.79%	0.48%	0.58%	0.74%	0.74%	0.76%	
TPES (PJ)	3 075	2 187	1 494	2 130	2 894	3 093	3 414	11%
GDP (billion 2005 USD)	50.24	30.85	34.88	57.12	77.25	87.19	92.42	84%
GDP PPP (billion 2005 USD)	185.27	113.76	128.62	210.64	284.84	321.51	340.80	84%
Population (millions)	16.35	15.82	14.88	15.15	16.32	16.79	17.04	4%
CO ₂ / TPES (tCO ₂ per TJ)	77.2	78.0	75.0	73.7	76.4	75.6	71.7	-7%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	4.72	5.53	3.21	2.75	2.86	2.68	2.65	-44%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	1.28	1.50	0.87	0.74	0.78	0.73	0.72	-44%
CO ₂ / population (tCO ₂ per capita)	14.51	10.78	7.53	10.36	13.55	13.93	14.38	-1%
Share of electricity output from fossil fuels	92%	88%	85%	88%	90%	92%	92%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	621	632	743	608	416	471	496	-20%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	72	47	66	93	99	103	3%
Population index	100	97	91	93	100	103	104	4%
GDP PPP per population index	100	63	76	123	154	169	177	77%
Energy intensity index - TPES / GDP PPP	100	116	70	61	61	58	60	-40%
Carbon intensity index - CO ₂ / TPES	100	101	97	95	99	98	93	-7%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	145.86	46.62	52.41	-	244.89	3%
Electricity and heat generation	82.85	0.55	5.49	-	88.89	-19%
Other energy industry own use	1.34	6.88	40.82	-	49.04	784%
Manufacturing industries and construction	50.47	15.82	3.60	-	69.90	-14%
Transport	0.14	13.60	-	-	13.73	-5%
<i>of which: road</i>	-	12.80	-	-	12.80	6%
Other	11.06	9.77	2.50	-	23.33	-12%
<i>of which: residential</i>	5.11	4.69	1.27	-	11.07	x
<i>of which: services</i>	2.85	2.93	1.18	-	6.96	+
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.50	-	-	0.50	-81%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	82.85	-13.2%	23.5	23.5
Manufacturing industries - coal	50.47	-20.2%	14.3	37.8
Other energy industry own use - gas	40.82	+	11.6	49.4
Manufacturing industries - oil	15.82	-10.7%	4.5	53.9
Road - oil	12.80	6.0%	3.6	57.6
Other energy industry own use - oil	6.88	191.3%	2.0	59.5
Non-specified other sectors - coal	5.96	x	1.7	61.2
Main activity prod. elec. and heat - gas	5.49	56.8%	1.6	62.8
Residential - coal	5.11	x	1.5	64.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>244.89</i>	<i>3.2%</i>	<i>69.5</i>	<i>69.5</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Kenya

Figure 1. CO₂ emissions by fuel

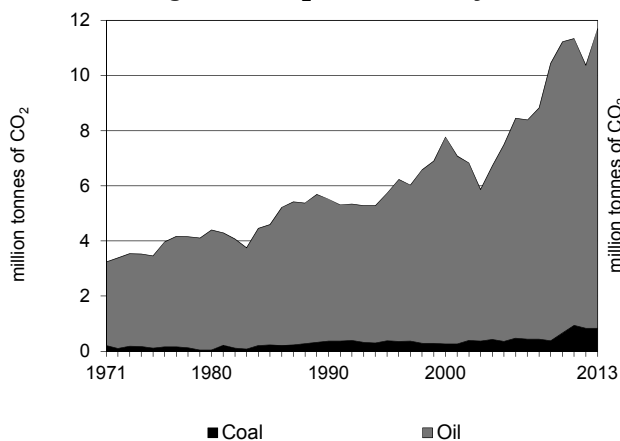


Figure 2. CO₂ emissions by sector

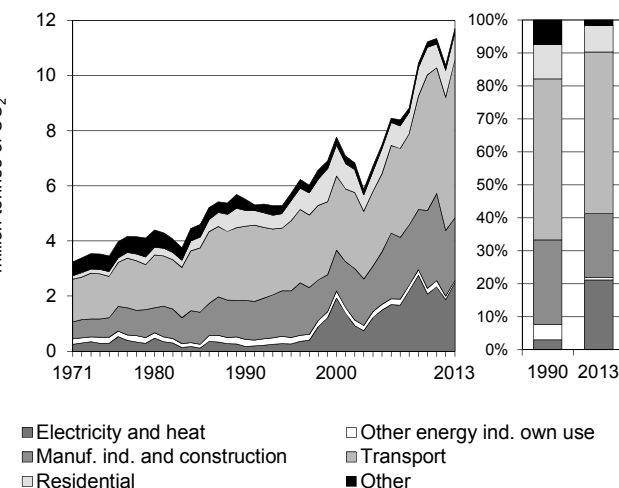


Figure 3. Electricity generation by fuel

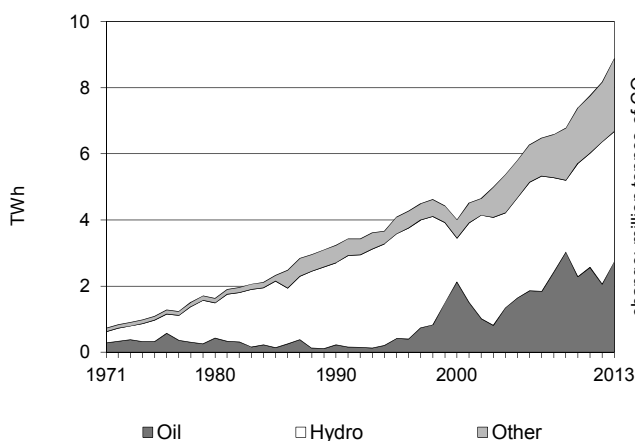


Figure 4. CO₂ from electricity generation: driving factors¹

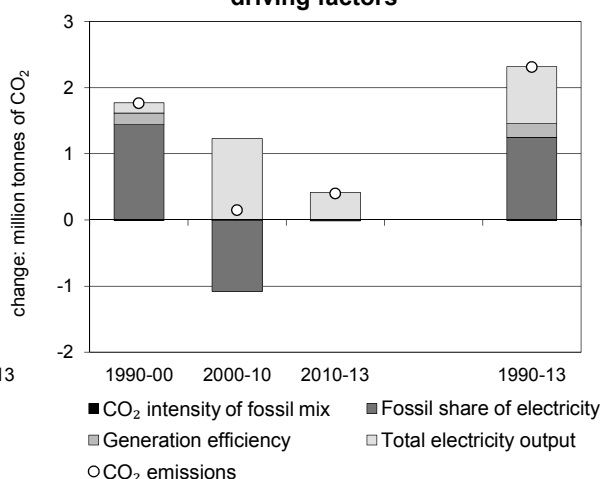


Figure 5. Changes in selected indicators

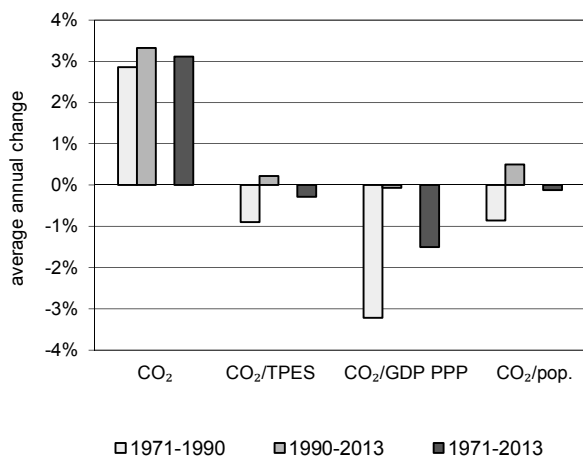
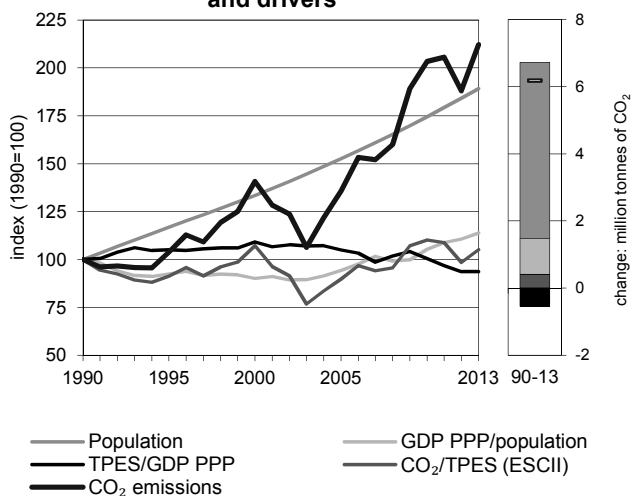


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Kenya

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	5.52	5.73	7.76	7.49	11.22	10.37	11.70	112%
Share of World CO ₂ from fuel combustion	0.03%	0.03%	0.03%	0.03%	0.04%	0.03%	0.04%	
TPES (PJ)	446	507	586	675	823	851	900	102%
GDP (billion 2005 USD)	13.02	14.09	15.67	18.74	23.93	26.53	28.05	115%
GDP PPP (billion 2005 USD)	49.59	53.66	59.70	71.37	91.14	101.03	106.83	115%
Population (millions)	23.45	27.42	31.29	35.79	40.91	43.18	44.35	89%
CO ₂ / TPES (tCO ₂ per TJ)	12.4	11.3	13.2	11.1	13.6	12.2	13.0	5%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.42	0.41	0.50	0.40	0.47	0.39	0.42	-2%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.11	0.11	0.13	0.10	0.12	0.10	0.11	-2%
CO ₂ / population (tCO ₂ per capita)	0.24	0.21	0.25	0.21	0.27	0.24	0.26	12%
Share of electricity output from fossil fuels	7%	10%	53%	28%	31%	25%	31%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	51	64	481	258	281	229	279	443%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	104	141	136	203	188	212	112%
Population index	100	117	133	153	174	184	189	89%
GDP PPP per population index	100	93	90	94	105	111	114	14%
Energy intensity index - TPES / GDP PPP	100	105	109	105	100	94	94	-6%
Carbon intensity index - CO ₂ / TPES	100	91	107	90	110	99	105	5%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	0.83	10.87	-	-	11.70	112%
Electricity and heat generation	-	2.48	-	-	2.48	+
Other energy industry own use	-	0.08	-	-	0.08	-69%
Manufacturing industries and construction	0.83	1.45	-	-	2.27	61%
Transport	-	5.73	-	-	5.73	113%
<i>of which: road</i>	-	5.68	-	-	5.68	122%
Other	-	1.14	-	-	1.14	15%
<i>of which: residential</i>	-	0.94	-	-	0.94	65%
<i>of which: services</i>	-	-	-	-	-	-100%
<i>Memo: international marine bunkers</i>	-	0.12	-	-	0.12	-79%
<i>Memo: international aviation bunkers</i>	-	1.76	-	-	1.76	110%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	5.68	122.2%	10.4	10.4
Main activity prod. elec. and heat - oil	2.48	+	4.5	14.9
Manufacturing industries - oil	1.45	38.4%	2.6	17.5
Residential - oil	0.94	64.6%	1.7	19.2
Manufacturing industries - coal	0.83	124.5%	1.5	20.8
Non-specified other - oil	0.19	-53.7%	0.3	21.1
Other energy industry own use - oil	0.08	-69.3%	0.1	21.2
Other transport - oil	0.05	-60.4%	0.1	21.3
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>11.70</i>	<i>112.1%</i>	<i>21.3</i>	<i>21.3</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Korea

Figure 1. CO₂ emissions by fuel

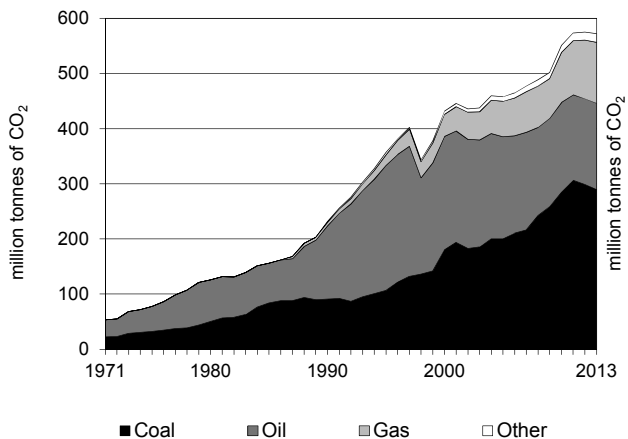


Figure 2. CO₂ emissions by sector

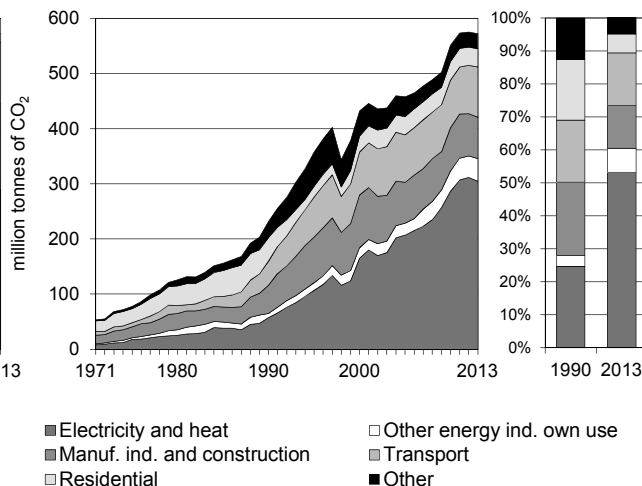


Figure 3. Electricity generation by fuel

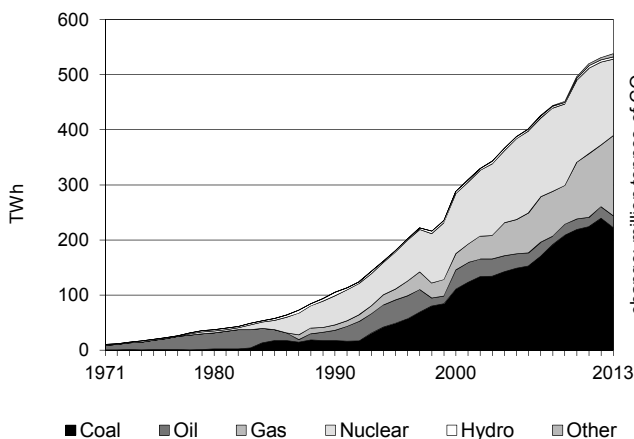


Figure 4. CO₂ from electricity generation: driving factors¹

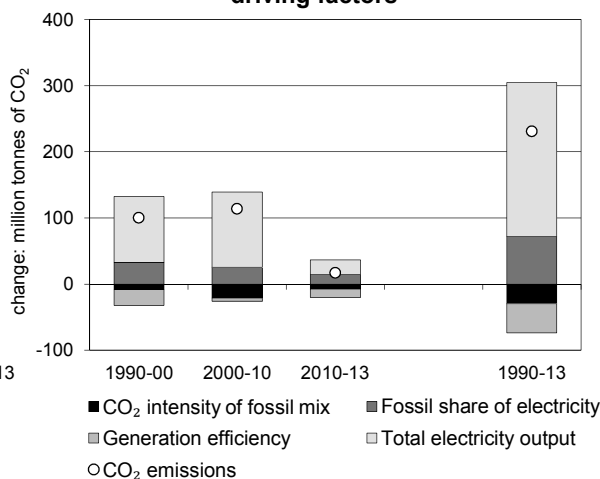


Figure 5. Changes in selected indicators

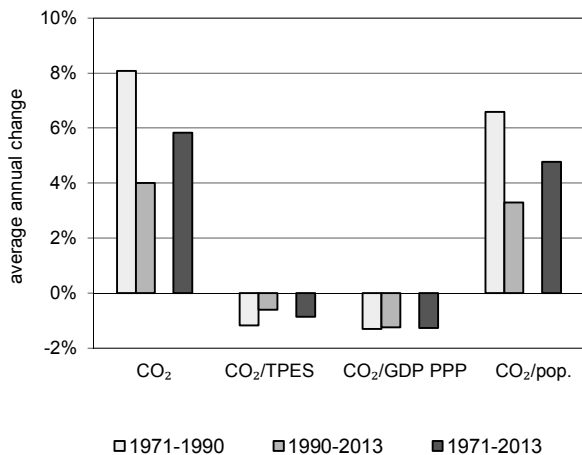
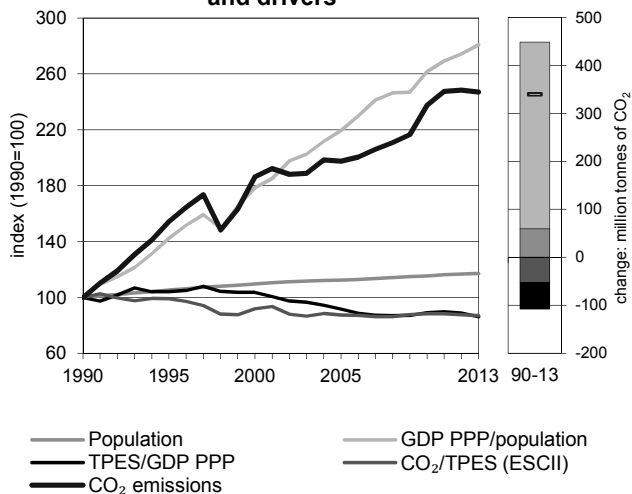


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Korea

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	231.71	357.14	431.71	457.51	550.80	575.27	572.25	147%
Share of World CO ₂ from fuel combustion	1.1%	1.7%	1.9%	1.7%	1.9%	1.8%	1.8%	
TPES (PJ)	3 890	6 061	7 878	8 804	10 468	11 031	11 046	184%
GDP (billion 2005 USD)	364.28	545.69	712.75	898.13	1 098.69	1 165.25	1 199.00	229%
GDP PPP (billion 2005 USD)	472.88	708.37	925.25	1 165.89	1 426.24	1 512.65	1 556.46	229%
Population (millions)	42.87	45.09	47.01	48.14	49.41	50.00	50.22	17%
CO ₂ / TPES (tCO ₂ per TJ)	59.6	58.9	54.8	52.0	52.6	52.1	51.8	-13%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.64	0.65	0.61	0.51	0.50	0.49	0.48	-25%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.49	0.50	0.47	0.39	0.39	0.38	0.37	-25%
CO ₂ / population (tCO ₂ per capita)	5.41	7.92	9.18	9.50	11.15	11.50	11.39	111%
Share of electricity output from fossil fuels	44%	61%	61%	61%	69%	70%	73%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	543	573	546	497	546	552	536	-1%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	154	186	197	238	248	247	147%
Population index	100	105	110	112	115	117	117	17%
GDP PPP per population index	100	142	178	220	262	274	281	181%
Energy intensity index - TPES / GDP PPP	100	104	104	92	89	89	86	-14%
Carbon intensity index - CO ₂ / TPES	100	99	92	87	88	88	87	-13%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	289.78	156.09	110.67	15.71	572.25	147%
Electricity and heat generation	229.64	17.11	53.48	4.22	304.44	432%
Other energy industry own use	25.03	15.92	0.50	-	41.44	444%
Manufacturing industries and construction	31.64	10.74	23.02	9.43	74.82	46%
Transport	-	88.02	2.83	-	90.85	108%
<i>of which: road</i>	-	84.89	2.83	-	87.72	175%
Other	3.48	24.30	30.84	2.07	60.69	-15%
<i>of which: residential</i>	3.48	8.63	21.09	-	33.21	-22%
<i>of which: services</i>	-	6.18	9.73	2.07	17.98	-15%
<i>Memo: international marine bunkers</i>	-	26.88	-	-	26.88	405%
<i>Memo: international aviation bunkers</i>	-	12.80	-	-	12.80	+

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	194.74	+	28.4	28.4
Road - oil	84.89	166.4%	12.4	40.8
Main activity prod. elec. and heat - gas	52.03	987.6%	7.6	48.4
Unallocated autoproducers - coal	34.90	56.5%	5.1	53.4
Manufacturing industries - coal	31.64	113.9%	4.6	58.1
Other energy industry - coal	25.03	821.0%	3.6	61.7
Manufacturing industries - gas	23.02	+	3.4	65.1
Residential - gas	21.09	+	3.1	68.1
Other energy industry own use - oil	15.92	226.6%	2.3	70.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>572.25</i>	<i>147.0%</i>	<i>83.4</i>	<i>83.4</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Kosovo

Figure 1. CO₂ emissions by fuel

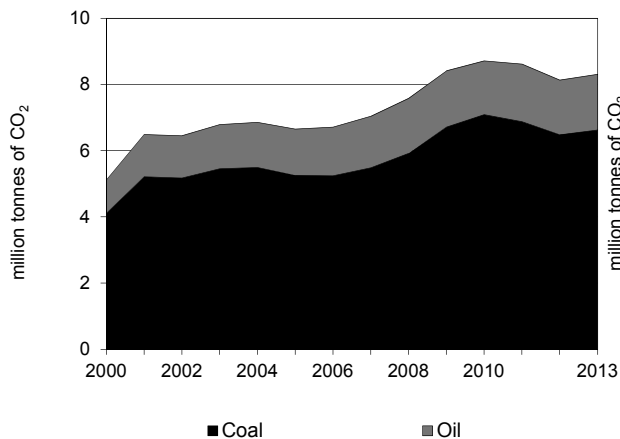


Figure 2. CO₂ emissions by sector

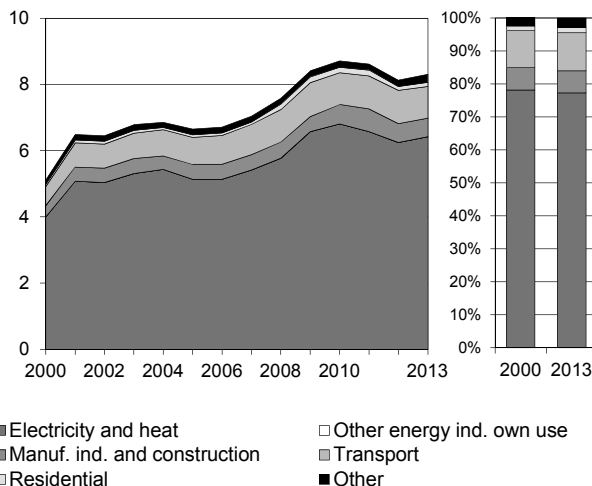


Figure 3. Electricity generation by fuel

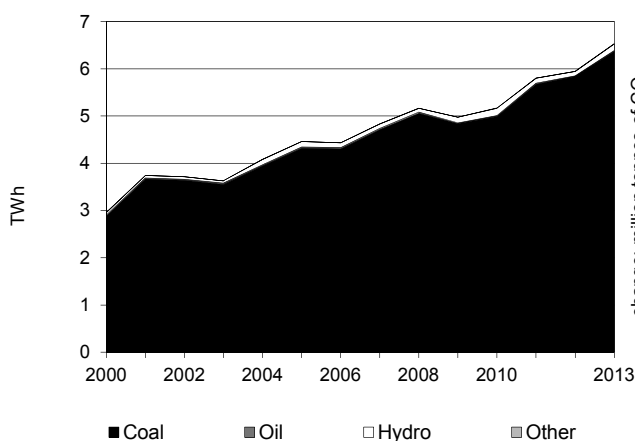


Figure 4. CO₂ from electricity generation: driving factors¹

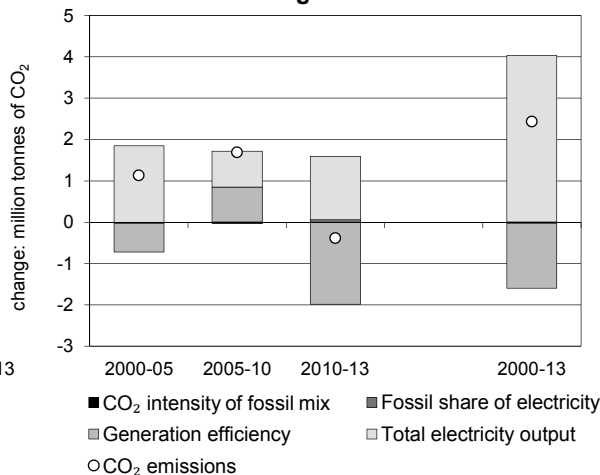


Figure 5. Changes in selected indicators

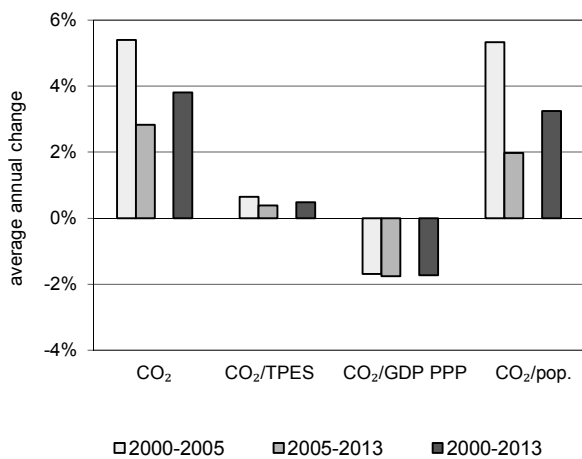
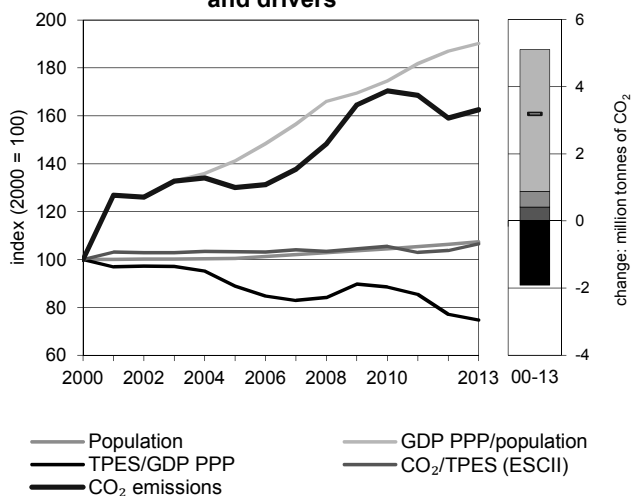


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Kosovo ¹

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 00-13
CO ₂ fuel combustion (MtCO ₂)	5.11	6.65	8.71	8.13	8.31	63%
Share of World CO ₂ from fuel combustion	0.02%	0.02%	0.03%	0.03%	0.03%	
TPES (PJ)	65	81	104	99	99	53%
GDP (billion 2005 USD)	2.58	3.74	4.65	4.94	5.09	98%
GDP PPP (billion 2005 USD)	6.08	8.60	11.08	12.08	12.40	104%
Population (millions)	1.70	1.71	1.78	1.81	1.82	7%
CO ₂ / TPES (tCO ₂ per TJ)	79.1	81.6	83.4	82.0	84.2	6%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	1.99	1.78	1.87	1.65	1.63	-18%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.84	0.77	0.79	0.67	0.67	-20%
CO ₂ / population (tCO ₂ per capita)	3.01	3.90	4.90	4.50	4.56	51%
Share of electricity output from fossil fuels	98%	97%	97%	98%	98%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	1342	1144	1314	1047	982	-27%
CO₂ emissions and drivers - Kaya decomposition (2000=100) ²								
CO ₂ emissions index	100	130	170	159	163	63%
Population index	100	100	104	106	107	7%
GDP PPP per population index	100	141	175	187	190	90%
Energy intensity index - TPES / GDP PPP	100	89	89	77	75	-25%
Carbon intensity index - CO ₂ / TPES	100	103	105	104	106	6%

1. Prior to 2000, data for Kosovo were included in Serbia. 2. Please see Part I, Chapter 2 for methodological notes.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ³	Total	% change 00-13
CO₂ fuel combustion	6.63	1.68	-	-	8.31	63%
Electricity and heat generation	6.39	0.03	-	-	6.42	61%
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	0.13	0.43	-	-	0.56	61%
Transport	-	0.96	-	-	0.96	66%
<i>of which: road</i>	-	0.95	-	-	0.95	66%
Other	0.11	0.26	-	-	0.37	89%
<i>of which: residential</i>	0.08	0.04	-	-	0.12	78%
<i>of which: services</i>	0.03	0.13	-	-	0.16	71%
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.05	-	-	0.05	x

3. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 00-13	Level assessment (%) ⁴	Cumulative total (%)
Main activity prod. elec. and heat - coal	6.39	61.9%	..	..
Road - oil	0.95	66.2%	..	..
Manufacturing industries - oil	0.43	79.0%	..	..
Non-specified other - oil	0.22	135.0%	..	..
Manufacturing industries - coal	0.13	20.6%	..	..
Residential - coal	0.08	444.5%	..	..
Residential - oil	0.04	-17.7%	..	..
Main activity prod. elec. and heat - oil	0.03	-26.7%	..	..
Non-specified other sectors - coal	0.03	-14.3%	..	..
<i>Memo: total CO₂ from fuel combustion</i>	8.31	62.5%	-	-

4. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Kuwait

Figure 1. CO₂ emissions by fuel

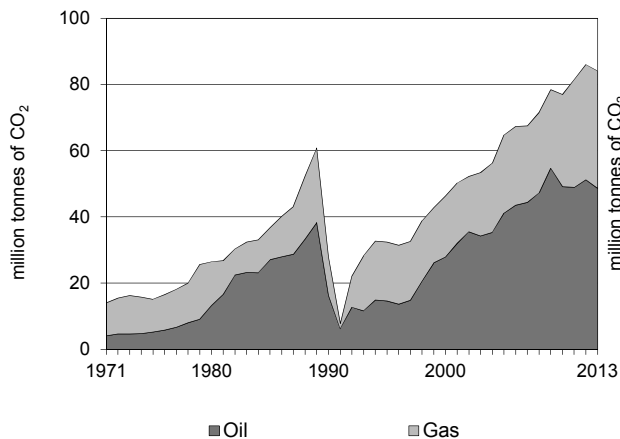


Figure 2. CO₂ emissions by sector

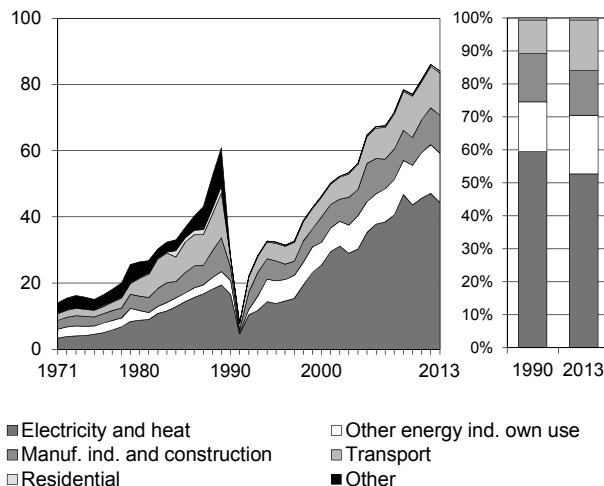


Figure 3. Electricity generation by fuel

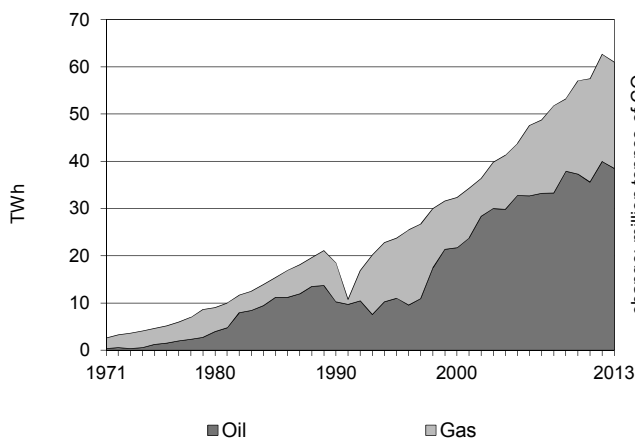


Figure 4. CO₂ from electricity generation: driving factors¹

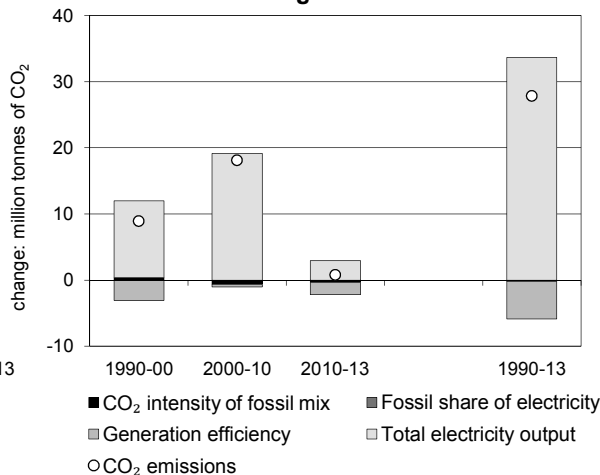


Figure 5. Changes in selected indicators

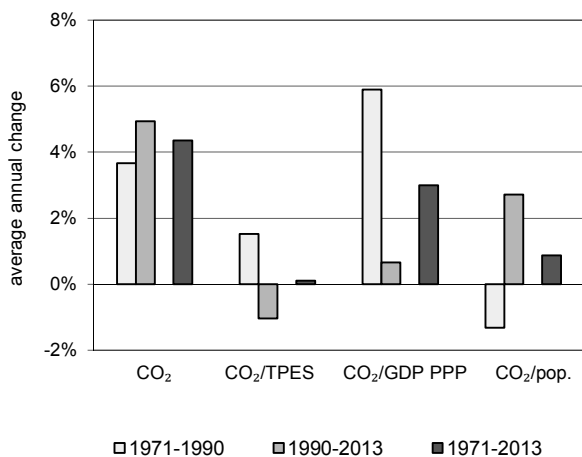
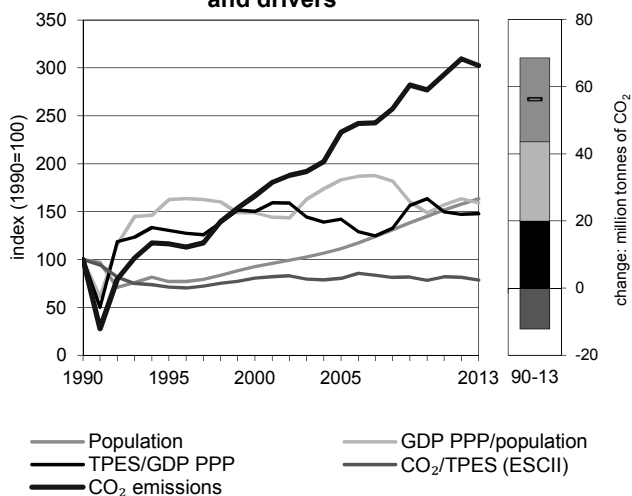


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Kuwait

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	27.80	32.34	46.29	64.74	76.97	86.02	84.10	203%
Share of World CO ₂ from fuel combustion	0.13%	0.15%	0.20%	0.24%	0.26%	0.27%	0.26%	
TPES (PJ)	381	623	787	1 105	1 348	1 449	1 468	285%
GDP (billion 2005 USD)	36.58	49.55	54.44	80.80	85.61	102.19	98.15	168%
GDP PPP (billion 2005 USD)	92.35	115.57	126.99	188.46	199.68	238.35	240.31	160%
Population (millions)	2.06	1.59	1.91	2.30	2.99	3.25	3.37	64%
CO ₂ / TPES (tCO ₂ per TJ)	72.9	51.9	58.8	58.6	57.1	59.4	57.3	-21%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.76	0.65	0.85	0.80	0.90	0.84	0.86	13%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.30	0.28	0.36	0.34	0.39	0.36	0.35	16%
CO ₂ / population (tCO ₂ per capita)	13.49	20.39	24.29	28.19	25.72	26.47	24.96	85%
Share of electricity output from fossil fuels	100%	100%	100%	100%	100%	100%	100%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	895	582	788	807	764	751	727	-19%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	116	167	233	277	309	303	203%
Population index	100	77	93	111	145	158	164	64%
GDP PPP per population index	100	163	149	183	149	164	159	59%
Energy intensity index - TPES / GDP PPP	100	130	150	142	164	147	148	48%
Carbon intensity index - CO ₂ / TPES	100	71	81	80	78	81	79	-21%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	48.63	35.47	-	84.10	203%
Electricity and heat generation	-	31.40	12.96	-	44.35	168%
Other energy industry own use	-	1.11	13.80	-	14.91	255%
Manufacturing industries and construction	-	2.75	8.71	-	11.46	182%
Transport	-	12.85	-	-	12.85	352%
<i>of which: road</i>	-	12.85	-	-	12.85	352%
Other	-	0.52	-	-	0.52	216%
<i>of which: residential</i>	-	0.52	-	-	0.52	216%
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	3.56	-	-	3.56	537%
<i>Memo: international aviation bunkers</i>	-	2.32	-	-	2.32	349%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - oil	31.40	153.6%	28.5	28.5
Other energy industry own use - gas	13.80	281.7%	12.5	41.1
Main activity prod. elec. and heat - gas	12.96	211.8%	11.8	52.9
Road - oil	12.85	352.5%	11.7	64.6
Manufacturing industries - gas	8.71	129.8%	7.9	72.5
Manufacturing industries - oil	2.75	932.5%	2.5	75.0
Other energy industry own use - oil	1.11	91.4%	1.0	76.0
Residential - oil	0.52	216.1%	0.5	76.5
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>84.10</i>	<i>202.5%</i>	<i>76.5</i>	<i>76.5</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Kyrgyzstan

Figure 1. CO₂ emissions by fuel

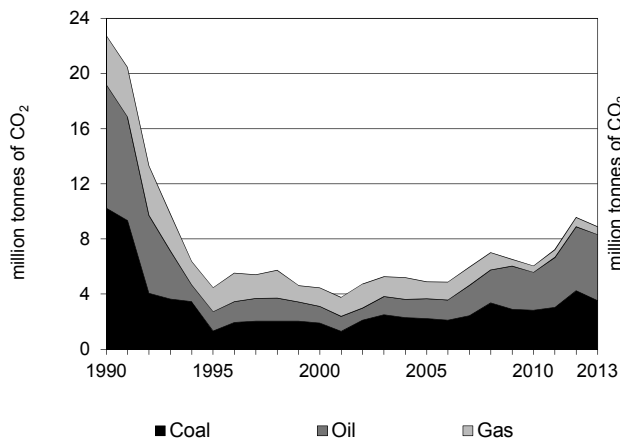


Figure 2. CO₂ emissions by sector

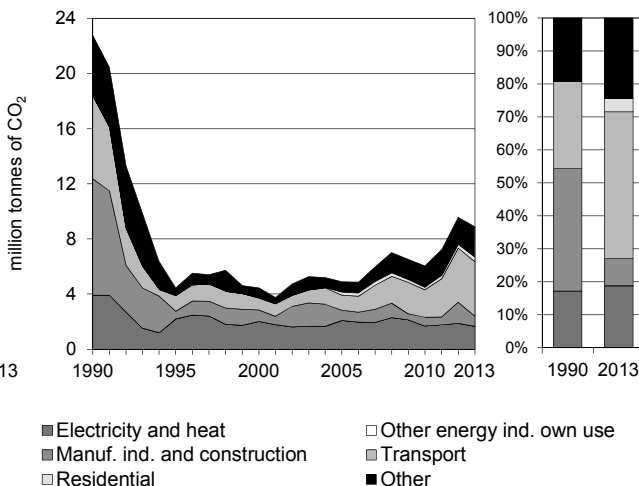


Figure 3. Electricity generation by fuel

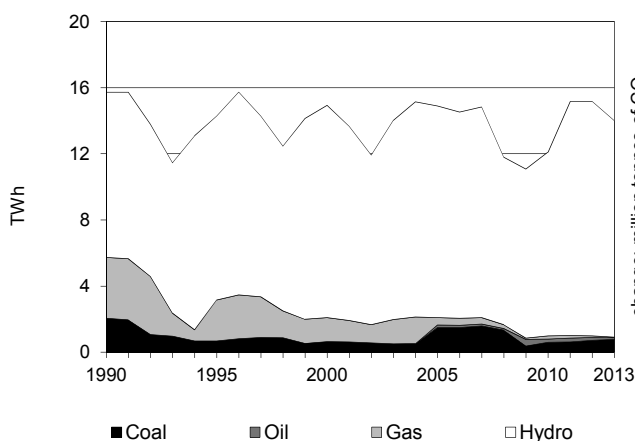


Figure 4. CO₂ from electricity generation: driving factors¹

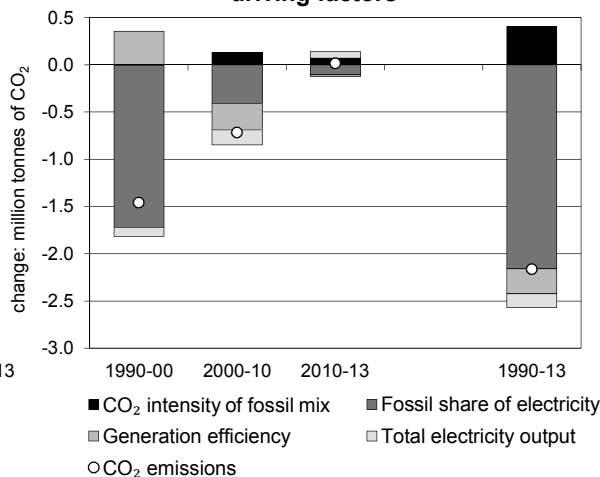


Figure 5. Changes in selected indicators

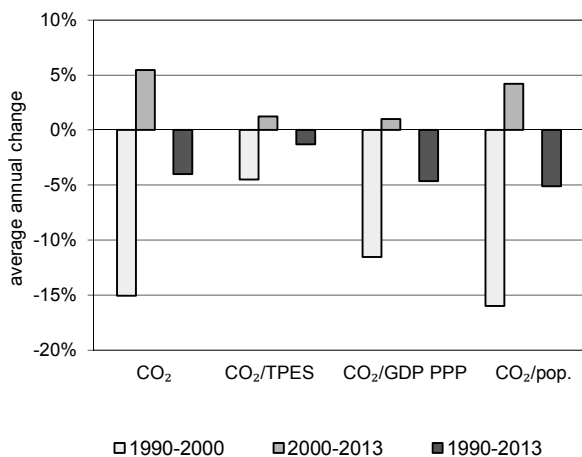
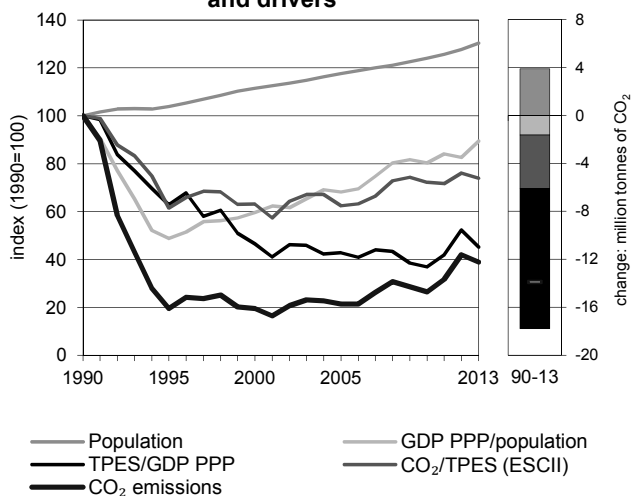


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Kyrgyzstan

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	22.77	4.46	4.45	4.89	6.04	9.57	8.88	-61%
Share of World CO ₂ from fuel combustion	0.11%	0.02%	0.02%	0.02%	0.02%	0.03%	0.03%	
TPES (PJ)	313	100	97	108	115	173	165	-47%
GDP (billion 2005 USD)	3.07	1.56	2.04	2.46	3.06	3.24	3.58	17%
GDP PPP (billion 2005 USD)	13.59	6.89	9.05	10.89	13.53	14.33	15.84	17%
Population (millions)	4.39	4.56	4.90	5.16	5.45	5.61	5.72	30%
CO ₂ / TPES (tCO ₂ per TJ)	72.6	44.7	45.8	45.4	52.4	55.3	53.7	-26%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	7.42	2.87	2.18	1.99	1.98	2.96	2.48	-67%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	1.68	0.65	0.49	0.45	0.45	0.67	0.56	-67%
CO ₂ / population (tCO ₂ per capita)	5.18	0.98	0.91	0.95	1.11	1.71	1.55	-70%
Share of electricity output from fossil fuels	37%	22%	14%	14%	8%	7%	7%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	167	100	78	55	37	35	33	-80%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	20	20	21	27	42	39	-61%
Population index	100	104	112	118	124	128	130	30%
GDP PPP per population index	100	49	60	68	80	83	89	-11%
Energy intensity index - TPES / GDP PPP	100	63	47	43	37	52	45	-55%
Carbon intensity index - CO ₂ / TPES	100	61	63	63	72	76	74	-26%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	3.53	4.79	0.56	-	8.88	-61%
Electricity and heat generation	1.48	0.10	0.09	-	1.66	-58%
Other energy industry own use	0.00	-	0.01	-	0.01	x
Manufacturing industries and construction	0.42	0.10	0.21	-	0.74	-91%
Transport	-	3.94	0.00	-	3.94	-35%
<i>of which: road</i>	-	3.91	0.00	-	3.91	-35%
Other	1.63	0.65	0.25	-	2.53	-42%
<i>of which: residential</i>	0.10	0.06	0.20	-	0.36	x
<i>of which: services</i>	-	0.12	-	-	0.12	x
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.15	-	-	0.15	-44%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	3.91	-35.1%	25.8	25.8
Non-specified other sectors - coal	1.52	x	10.1	35.9
Main activity prod. elec. and heat - coal	1.40	-21.0%	9.3	45.2
Non-specified other - oil	0.60	-79.8%	3.9	49.1
Manufacturing industries - coal	0.42	-95.0%	2.8	51.9
Manufacturing industries - gas	0.21	x	1.4	53.3
Residential - gas	0.20	x	1.3	54.6
Residential - coal	0.10	x	0.7	55.3
Manufacturing industries - oil	0.10	x	0.7	55.9
<i>Memo: total CO₂ from fuel combustion</i>	<i>8.88</i>	<i>-61.0%</i>	<i>58.6</i>	<i>58.6</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Latvia

Figure 1. CO₂ emissions by fuel

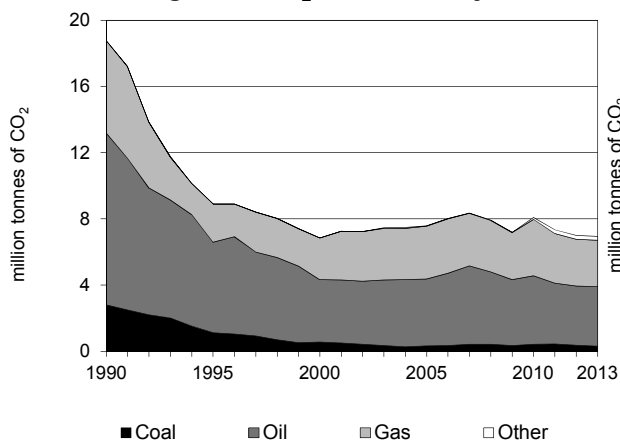


Figure 2. CO₂ emissions by sector

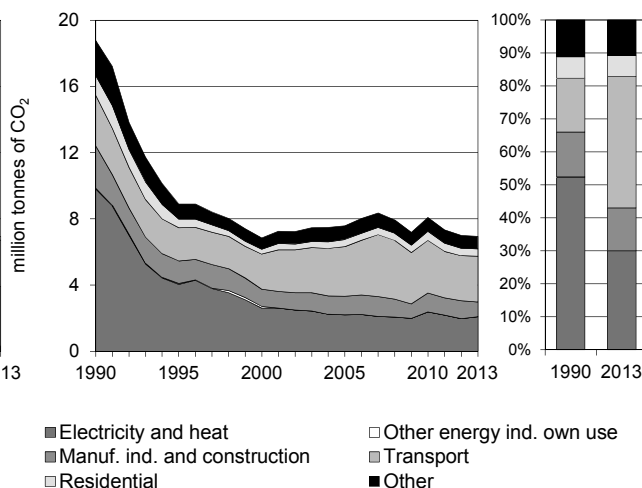


Figure 3. Electricity generation by fuel

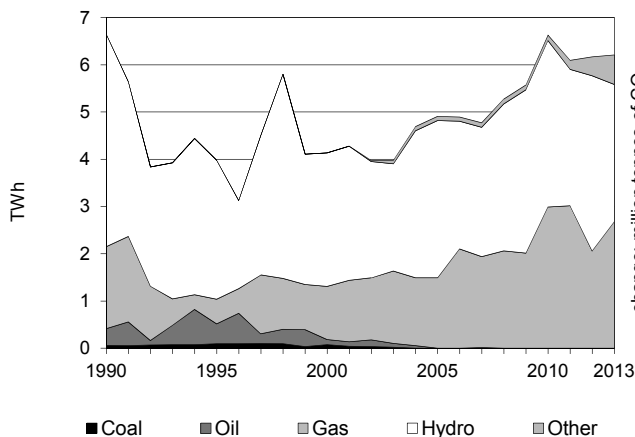


Figure 4. CO₂ from electricity generation: driving factors ¹

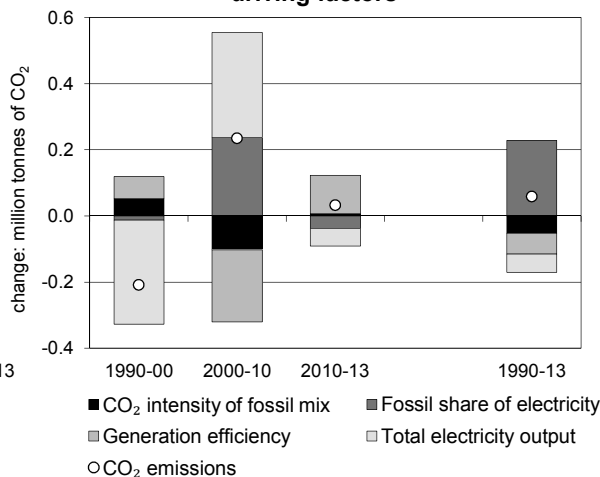


Figure 5. Changes in selected indicators

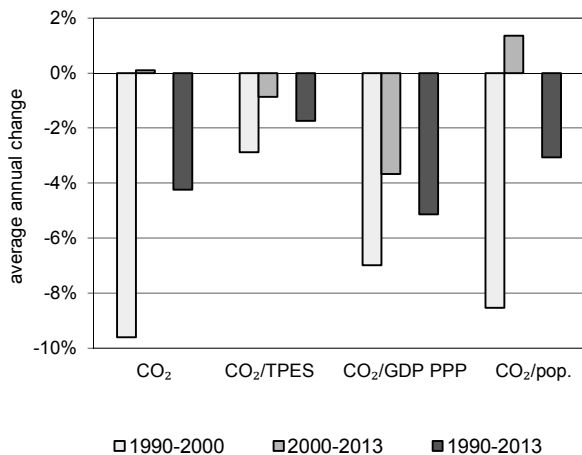
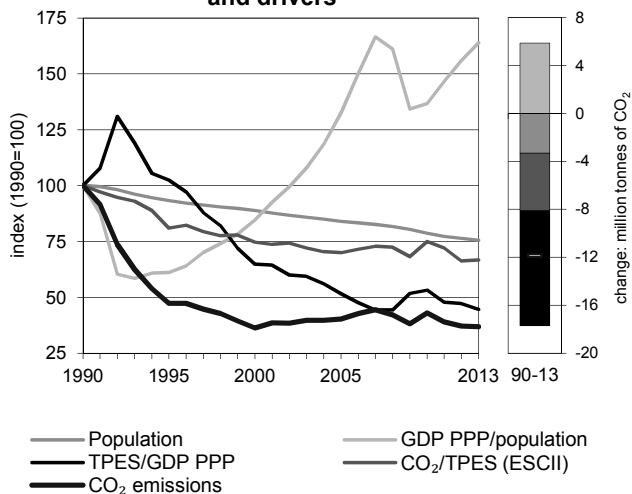


Figure 6. Total CO₂ emissions and drivers ²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Latvia

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	18.77	8.90	6.84	7.58	8.09	6.99	6.93	-63%
Share of World CO ₂ from fuel combustion	0.09%	0.04%	0.03%	0.03%	0.03%	0.02%	0.02%	
TPES (PJ)	329	192	160	190	189	185	182	-45%
GDP (billion 2005 USD)	14.40	8.22	10.82	16.04	15.50	17.14	17.85	24%
GDP PPP (billion 2005 USD)	26.92	15.36	20.24	30.00	28.99	32.05	33.37	24%
Population (millions)	2.66	2.49	2.37	2.24	2.10	2.03	2.01	-24%
CO ₂ / TPES (tCO ₂ per TJ)	57.1	46.2	42.6	40.0	42.8	37.8	38.1	-33%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	1.30	1.08	0.63	0.47	0.52	0.41	0.39	-70%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.70	0.58	0.34	0.25	0.28	0.22	0.21	-70%
CO ₂ / population (tCO ₂ per capita)	7.05	3.58	2.89	3.38	3.85	3.44	3.44	-51%
Share of electricity output from fossil fuels	32%	26%	32%	30%	45%	33%	43%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	116	135	136	89	120	92	134	15%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	47	36	40	43	37	37	-63%
Population index	100	93	89	84	79	76	76	-24%
GDP PPP per population index	100	61	85	133	137	156	164	64%
Energy intensity index - TPES / GDP PPP	100	103	65	52	53	47	45	-55%
Carbon intensity index - CO ₂ / TPES	100	81	75	70	75	66	67	-33%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	0.31	3.60	2.80	0.22	6.93	-63%
Electricity and heat generation	0.06	0.03	1.99	-	2.08	-79%
Other energy industry own use	-	-	-	-	-	-100%
Manufacturing industries and construction	0.15	0.19	0.34	0.22	0.90	-65%
Transport	-	2.76	-	-	2.76	-10%
<i>of which: road</i>	-	2.51	-	-	2.51	7%
Other	0.10	0.61	0.47	-	1.19	-64%
<i>of which: residential</i>	0.05	0.16	0.24	-	0.45	-63%
<i>of which: services</i>	0.05	0.14	0.20	-	0.38	-71%
<i>Memo: international marine bunkers</i>	-	0.76	-	-	0.76	-49%
<i>Memo: international aviation bunkers</i>	-	0.37	-	-	0.37	68%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	2.51	7.5%	17.3	17.3
Main activity prod. elec. and heat - gas	1.90	-30.9%	13.1	30.5
Non-specified other - oil	0.46	-65.4%	3.2	33.7
Manufacturing industries - gas	0.34	-67.5%	2.3	36.0
Other transport - oil	0.25	-61.0%	1.7	37.7
Residential - gas	0.24	6.3%	1.7	39.4
Non-specified other - gas	0.23	-23.5%	1.6	41.0
Manufacturing industries -other	0.22	x	1.5	42.5
Manufacturing industries - oil	0.19	-86.4%	1.3	43.8
<i>Memo: total CO₂ from fuel combustion</i>	6.93	-63.1%	47.9	47.9

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Lebanon

Figure 1. CO₂ emissions by fuel

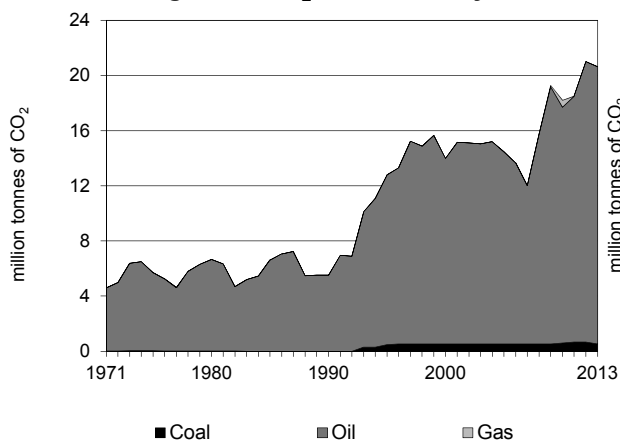


Figure 2. CO₂ emissions by sector

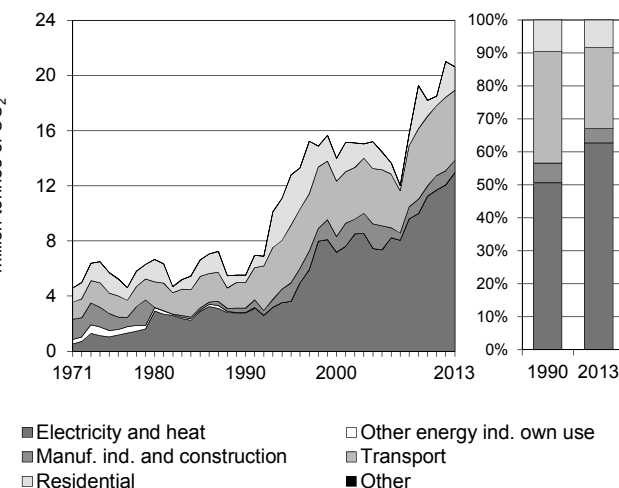


Figure 3. Electricity generation by fuel

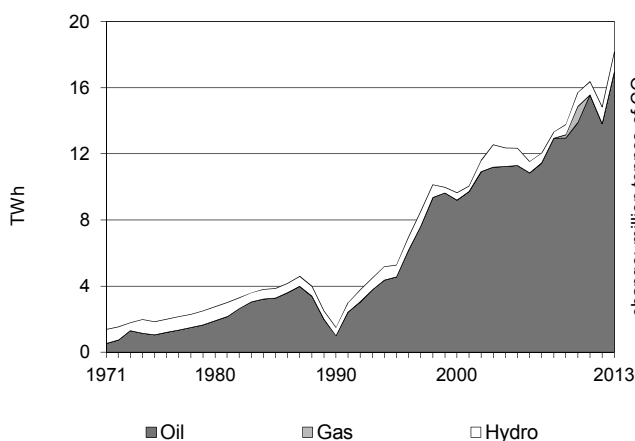


Figure 4. CO₂ from electricity generation: driving factors¹

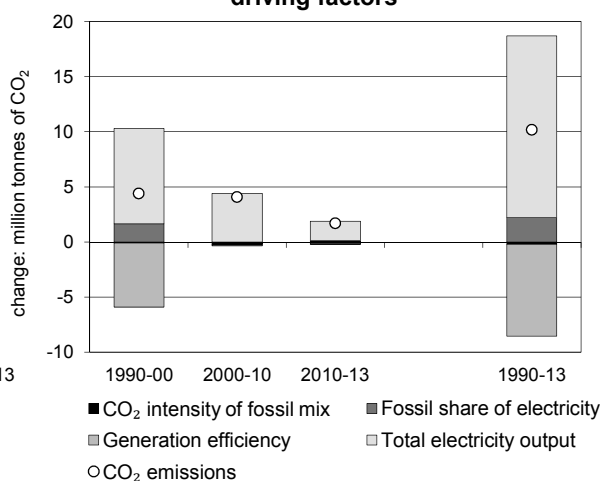


Figure 5. Changes in selected indicators

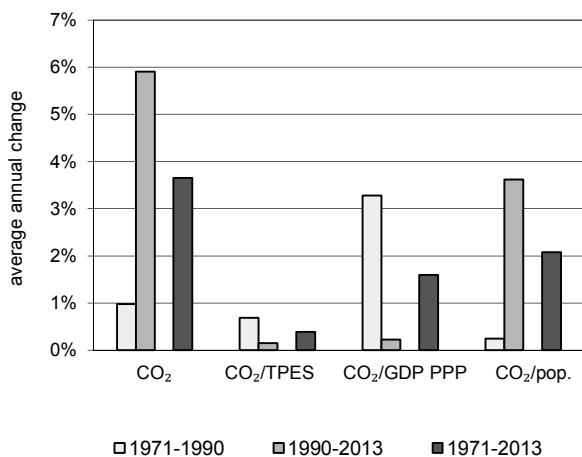
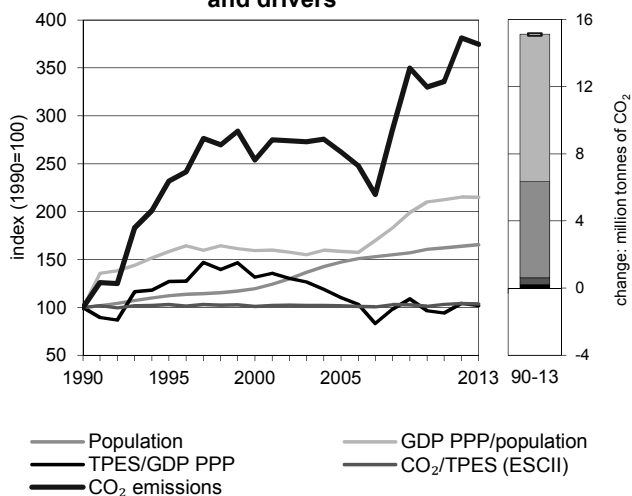


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Lebanon

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	5.51	12.79	13.99	14.46	18.20	21.00	20.64	274%
Share of World CO ₂ from fuel combustion	0.03%	0.06%	0.06%	0.05%	0.06%	0.07%	0.06%	
TPES (PJ)	82	185	206	211	267	300	296	262%
GDP (billion 2005 USD)	9.11	16.19	17.38	21.29	30.75	32.06	32.35	255%
GDP PPP (billion 2005 USD)	18.61	33.10	35.53	43.51	62.86	65.53	66.12	255%
Population (millions)	2.70	3.03	3.24	3.99	4.34	4.43	4.47	65%
CO ₂ / TPES (tCO ₂ per TJ)	67.4	69.2	68.1	68.5	68.1	69.9	69.7	3%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.61	0.79	0.80	0.68	0.59	0.66	0.64	5%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.30	0.39	0.39	0.33	0.29	0.32	0.31	5%
CO ₂ / population (tCO ₂ per capita)	2.04	4.22	4.32	3.63	4.19	4.75	4.62	127%
Share of electricity output from fossil fuels	67%	86%	95%	92%	95%	93%	93%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	1854	685	745	596	716	814	713	-62%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	232	254	262	330	381	374	274%
Population index	100	112	120	148	161	164	165	65%
GDP PPP per population index	100	158	160	158	210	215	215	115%
Energy intensity index - TPES / GDP PPP	100	127	132	110	97	104	102	2%
Carbon intensity index - CO ₂ / TPES	100	103	101	102	101	104	103	3%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	0.52	20.11	-	-	20.64	274%
Electricity and heat generation	-	12.95	-	-	12.95	366%
Other energy industry own use	-	-	-	-	-	-100%
Manufacturing industries and construction	0.52	0.37	-	-	0.89	174%
Transport	-	5.07	-	-	5.07	172%
<i>of which: road</i>	-	5.07	-	-	5.07	172%
Other	-	1.73	-	-	1.73	227%
<i>of which: residential</i>	-	1.73	-	-	1.73	227%
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	0.09	-	-	0.09	..
<i>Memo: international aviation bunkers</i>	-	0.83	-	-	0.83	418%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - oil	7.61	173.9%	30.6	30.6
Unallocated autoproducers - oil	5.33	x	21.4	52.0
Road - oil	5.07	172.1%	20.4	72.4
Residential - oil	1.73	227.4%	6.9	79.3
Manufacturing industries - coal	0.52	x	2.1	81.4
Manufacturing industries - oil	0.37	13.3%	1.5	82.9
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>20.64</i>	<i>274.3%</i>	<i>82.9</i>	<i>82.9</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Libya

Figure 1. CO₂ emissions by fuel

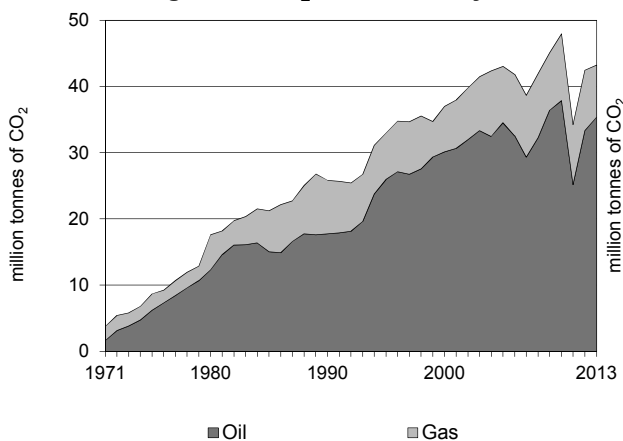


Figure 2. CO₂ emissions by sector

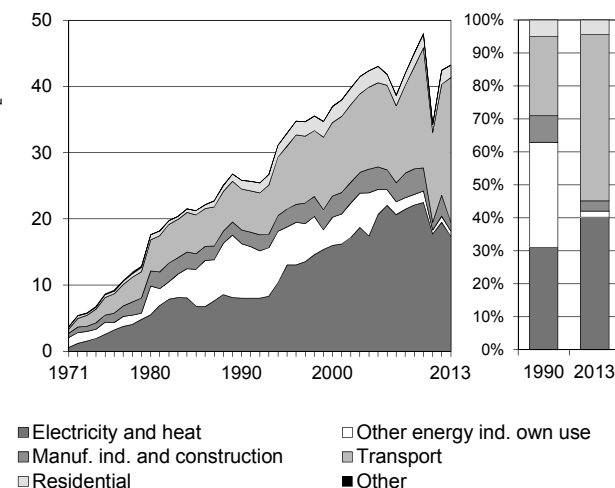


Figure 3. Electricity generation by fuel

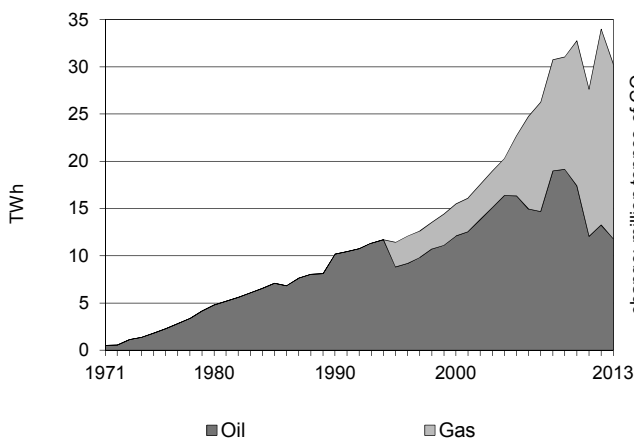


Figure 4. CO₂ from electricity generation: driving factors ¹

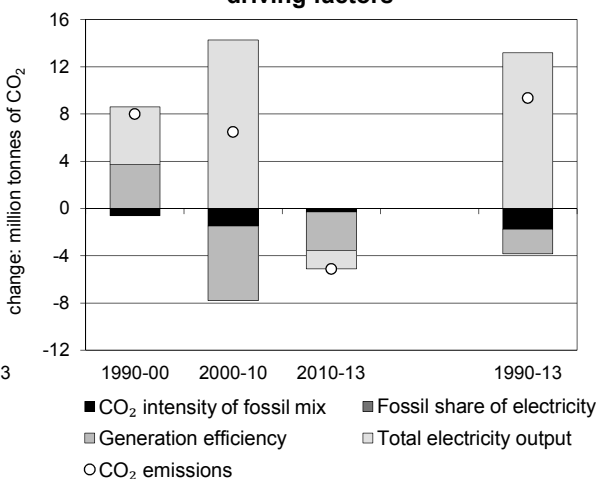


Figure 5. Changes in selected indicators

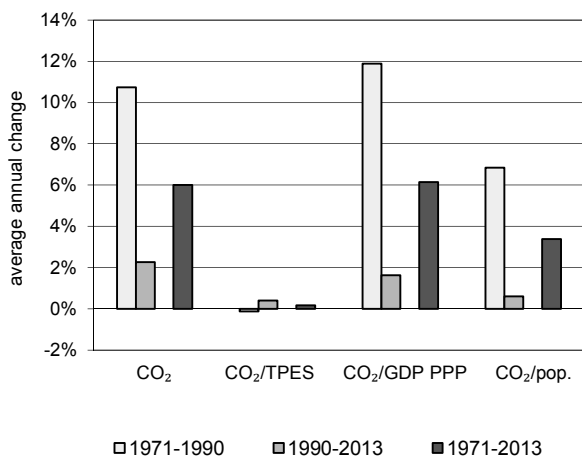
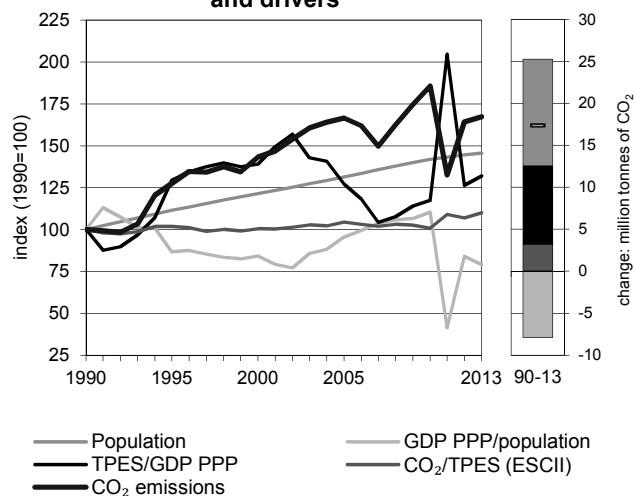


Figure 6. Total CO₂ emissions and drivers ²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Libya

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	25.83	32.94	36.99	43.03	47.96	42.45	43.23	67%
Share of World CO ₂ from fuel combustion	0.13%	0.15%	0.16%	0.16%	0.16%	0.13%	0.13%	
TPES (PJ)	468	586	666	746	861	718	711	52%
GDP (billion 2005 USD)	35.10	33.94	35.93	44.00	54.96	42.62	37.99	8%
GDP PPP (billion 2005 USD)	64.50	62.37	66.03	80.87	101.03	78.35	74.34	15%
Population (millions)	4.26	4.75	5.18	5.59	6.04	6.16	6.20	46%
CO ₂ / TPES (tCO ₂ per TJ)	55.3	56.3	55.6	57.7	55.7	59.1	60.8	10%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.74	0.97	1.03	0.98	0.87	1.00	1.14	55%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.40	0.53	0.56	0.53	0.47	0.54	0.58	45%
CO ₂ / population (tCO ₂ per capita)	6.06	6.94	7.15	7.69	7.94	6.90	6.97	15%
Share of electricity output from fossil fuels	100%	100%	100%	100%	100%	100%	100%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	787	1142	1032	910	686	573	573	-27%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	128	143	167	186	164	167	67%
Population index	100	111	122	131	142	144	146	46%
GDP PPP per population index	100	87	84	95	110	84	79	-21%
Energy intensity index - TPES / GDP PPP	100	130	139	127	118	126	132	32%
Carbon intensity index - CO ₂ / TPES	100	102	101	104	101	107	110	10%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	35.38	7.85	-	43.23	67%
Electricity and heat generation	-	10.24	7.12	-	17.36	117%
Other energy industry own use	-	0.70	0.12	-	0.81	-90%
Manufacturing industries and construction	-	0.72	0.62	-	1.34	-36%
Transport	-	21.85	-	-	21.85	253%
<i>of which: road</i>	-	21.83	-	-	21.83	253%
Other	-	1.87	-	-	1.87	43%
<i>of which: residential</i>	-	1.87	-	-	1.87	43%
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	0.73	-	-	0.73	195%
<i>Memo: international aviation bunkers</i>	-	0.50	-	-	0.50	-22%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	21.83	253.3%	32.0	32.0
Main activity prod. elec. and heat - oil	10.24	28.0%	15.0	47.0
Main activity prod. elec. and heat - gas	7.12	x	10.4	57.5
Residential - oil	1.87	42.8%	2.7	60.2
Manufacturing industries - oil	0.72	54.7%	1.1	61.3
Other energy industry own use - oil	0.70	-60.7%	1.0	62.3
Manufacturing industries - gas	0.62	-61.9%	0.9	63.2
Other energy industry own use - gas	0.12	-98.2%	0.2	63.4
Other transport - oil	0.01	100.0%	0.0	63.4
<i>Memo: total CO₂ from fuel combustion</i>	43.23	67.3%	63.4	63.4

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Lithuania

Figure 1. CO₂ emissions by fuel

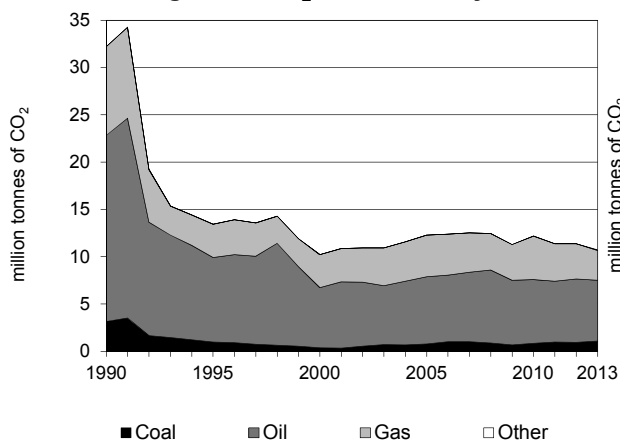


Figure 2. CO₂ emissions by sector

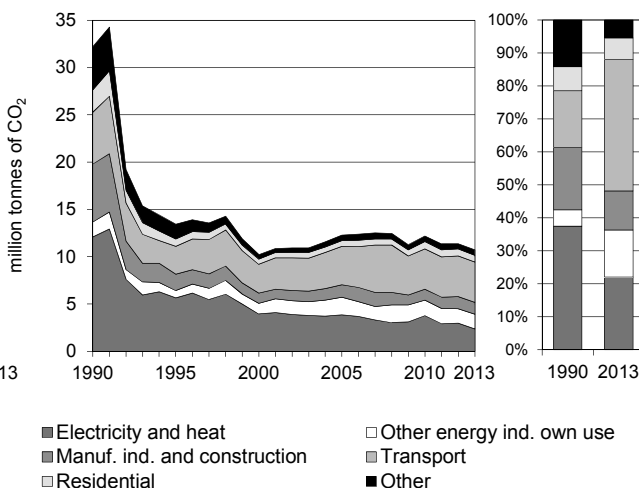


Figure 3. Electricity generation by fuel

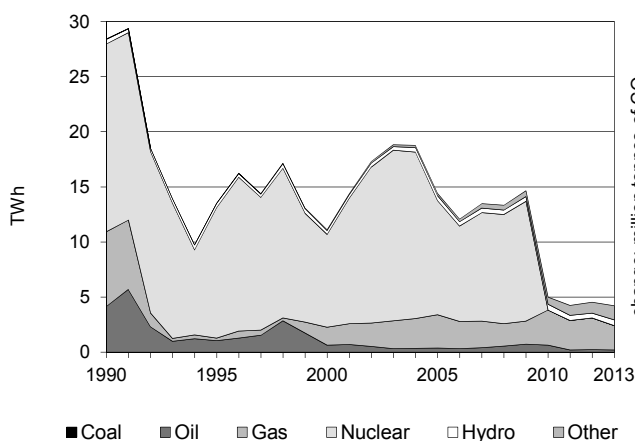


Figure 4. CO₂ from electricity generation: driving factors¹

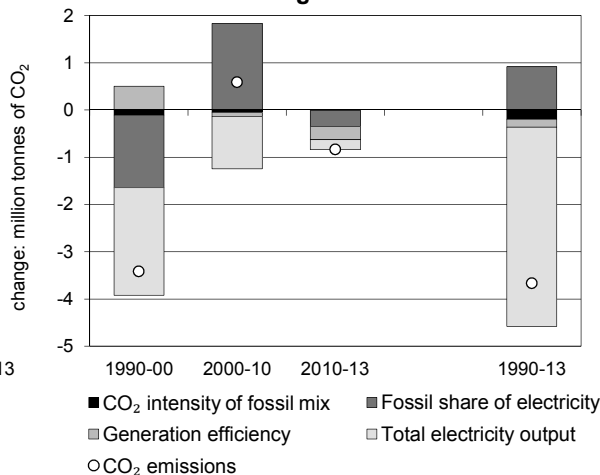


Figure 5. Changes in selected indicators

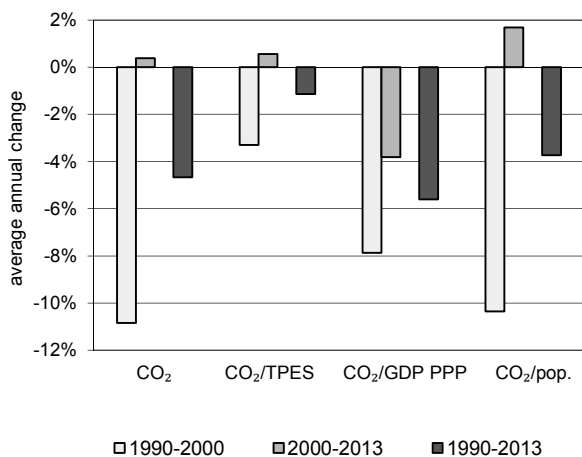
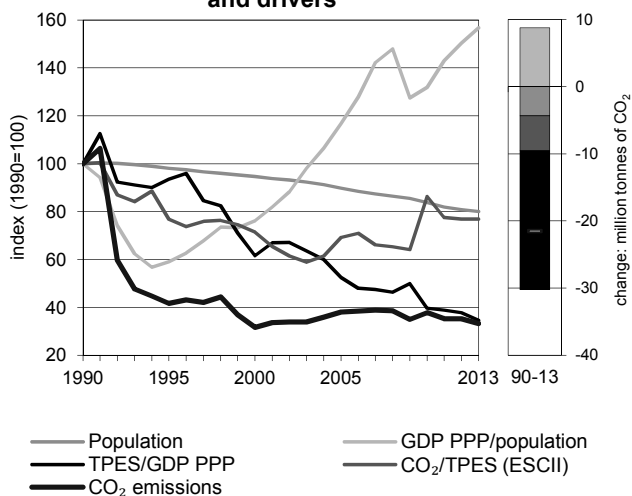


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Lithuania

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	32.21	13.43	10.22	12.27	12.19	11.36	10.73	-67%
Share of World CO ₂ from fuel combustion	0.16%	0.06%	0.04%	0.05%	0.04%	0.04%	0.03%	
TPES (PJ)	673	365	299	370	295	309	292	-57%
GDP (billion 2005 USD)	24.87	14.42	17.93	26.09	27.48	30.20	31.19	25%
GDP PPP (billion 2005 USD)	46.44	26.93	33.47	48.70	51.30	56.39	58.23	25%
Population (millions)	3.70	3.63	3.50	3.32	3.10	2.99	2.96	-20%
CO ₂ / TPES (tCO ₂ per TJ)	47.9	36.8	34.2	33.1	41.3	36.8	36.8	-23%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	1.29	0.93	0.57	0.47	0.44	0.38	0.34	-73%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.69	0.50	0.31	0.25	0.24	0.20	0.18	-73%
CO ₂ / population (tCO ₂ per capita)	8.71	3.70	2.92	3.69	3.94	3.80	3.63	-58%
Share of electricity output from fossil fuels	39%	10%	21%	25%	82%	74%	64%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	159	66	100	101	340	272	204	28%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	42	32	38	38	35	33	-67%
Population index	100	98	95	90	84	81	80	-20%
GDP PPP per population index	100	59	76	117	132	150	157	57%
Energy intensity index - TPES / GDP PPP	100	94	62	53	40	38	35	-65%
Carbon intensity index - CO ₂ / TPES	100	77	71	69	86	77	77	-23%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	1.09	6.42	3.16	0.07	10.73	-67%
Electricity and heat generation	0.06	0.25	1.99	0.07	2.36	-80%
Other energy industry own use	-	1.54	0.00	-	1.54	-2%
Manufacturing industries and construction	0.55	0.12	0.59	-	1.26	-79%
Transport	-	4.21	0.07	-	4.28	-22%
<i>of which: road</i>	-	4.02	0.01	-	4.03	-22%
Other	0.48	0.31	0.50	-	1.29	-81%
<i>of which: residential</i>	0.28	0.13	0.29	-	0.70	-70%
<i>of which: services</i>	0.19	0.01	0.15	-	0.36	-88%
<i>Memo: international marine bunkers</i>	-	0.28	-	-	0.28	-7%
<i>Memo: international aviation bunkers</i>	-	0.21	-	-	0.21	-48%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	4.02	-21.8%	16.0	16.0
Main activity prod. elec. and heat - gas	1.91	-64.9%	7.6	23.6
Other energy industry own use - oil	1.54	-2.5%	6.1	29.7
Manufacturing industries - gas	0.59	-71.5%	2.4	32.1
Manufacturing industries - coal	0.55	191.7%	2.2	34.3
Residential - gas	0.29	-44.2%	1.2	35.4
Residential - coal	0.28	-80.9%	1.1	36.5
Non-specified other - gas	0.21	-76.4%	0.8	37.4
Non-specified other sectors - coal	0.20	-84.8%	0.8	38.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>10.73</i>	<i>-66.7%</i>	<i>42.7</i>	<i>42.7</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Luxembourg

Figure 1. CO₂ emissions by fuel

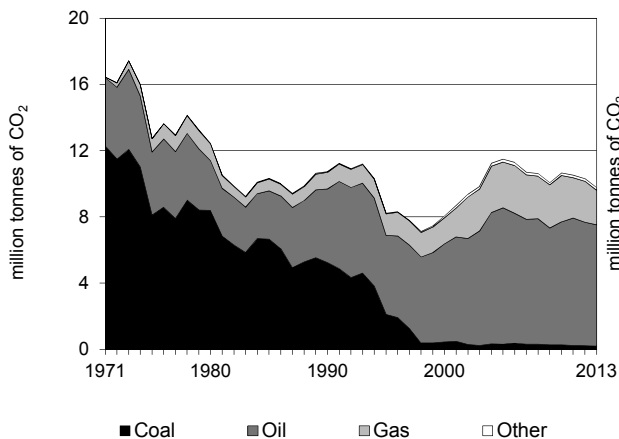


Figure 2. CO₂ emissions by sector

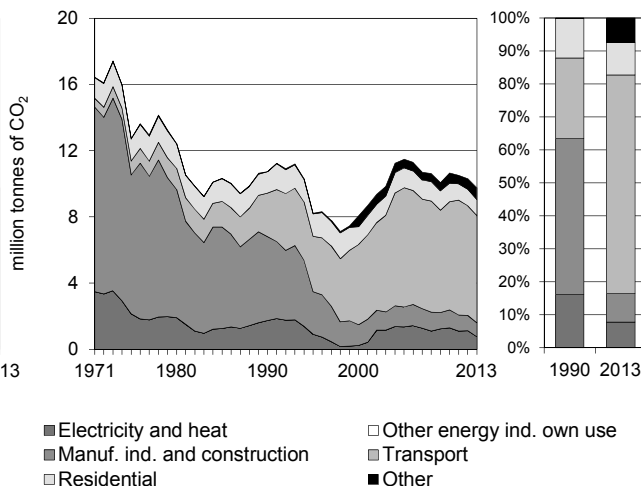


Figure 3. Electricity generation by fuel

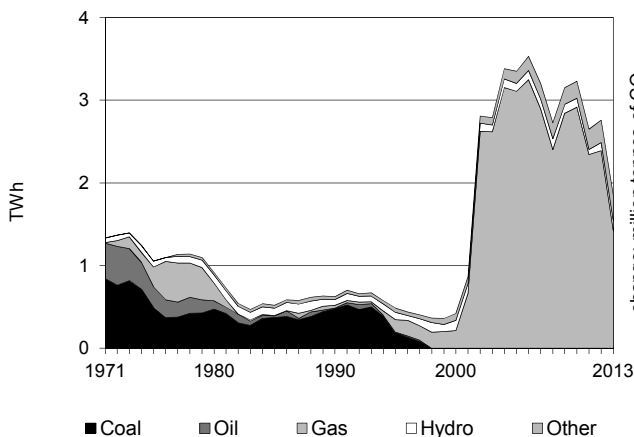


Figure 4. CO₂ from electricity generation: driving factors¹

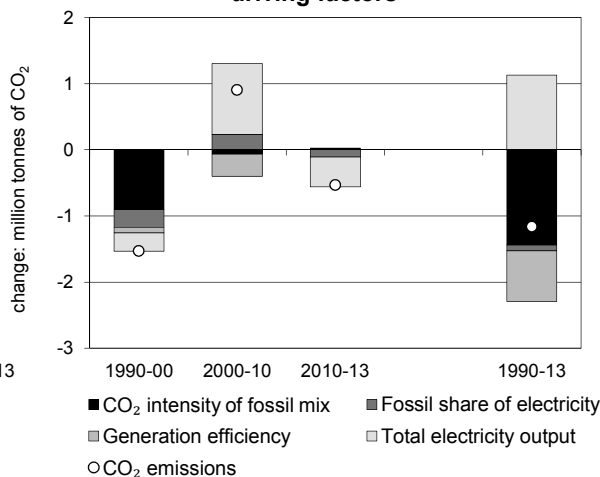


Figure 5. Changes in selected indicators

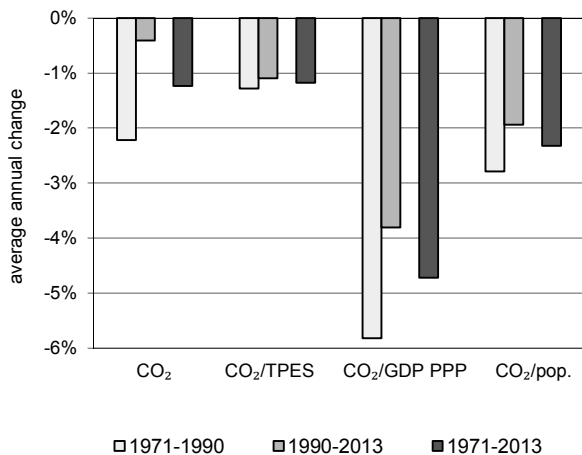
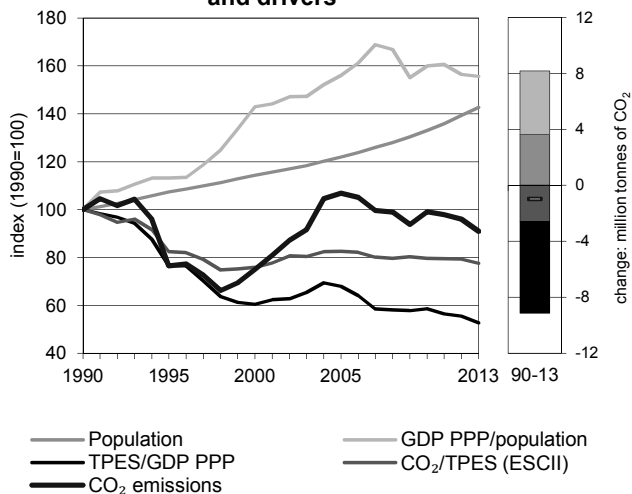


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Luxembourg

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	10.74	8.22	8.06	11.48	10.65	10.31	9.77	-9%
Share of World CO ₂ from fuel combustion	0.05%	0.04%	0.03%	0.04%	0.04%	0.03%	0.03%	
TPES (PJ)	142	132	140	184	177	172	166	17%
GDP (billion 2005 USD)	19.45	23.61	31.79	37.02	41.35	42.36	43.20	122%
GDP PPP (billion 2005 USD)	16.41	19.92	26.83	31.24	34.89	35.75	36.46	122%
Population (millions)	0.38	0.41	0.44	0.47	0.51	0.53	0.55	43%
CO ₂ / TPES (tCO ₂ per TJ)	75.7	62.4	57.4	62.5	60.2	60.1	58.8	-22%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.55	0.35	0.25	0.31	0.26	0.24	0.23	-59%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.65	0.41	0.30	0.37	0.31	0.29	0.27	-59%
CO ₂ / population (tCO ₂ per capita)	28.11	20.05	18.44	24.63	20.96	19.39	17.93	-36%
Share of electricity output from fossil fuels	87%	78%	59%	94%	92%	89%	80%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	2769	1861	467	345	341	337	306	-89%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	77	75	107	99	96	91	-9%
Population index	100	107	114	122	133	139	143	43%
GDP PPP per population index	100	113	143	156	160	156	156	56%
Energy intensity index - TPES / GDP PPP	100	77	60	68	59	56	53	-47%
Carbon intensity index - CO ₂ / TPES	100	82	76	83	80	79	78	-22%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	0.19	7.32	2.10	0.16	9.77	-9%
Electricity and heat generation	-	0.00	0.69	0.07	0.76	-56%
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	0.19	0.02	0.54	0.09	0.84	-83%
Transport	-	6.48	-	-	6.48	147%
<i>of which: road</i>	-	6.47	-	-	6.47	147%
Other	0.00	0.82	0.87	-	1.69	29%
<i>of which: residential</i>	0.00	0.53	0.42	-	0.96	-26%
<i>of which: services</i>	-	0.23	0.45	-	0.68	x
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	1.12	-	-	1.12	184%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	6.47	146.6%	54.0	54.0
Main activity prod. elec. and heat - gas	0.62	x	5.2	59.2
Manufacturing industries - gas	0.54	-17.3%	4.5	63.8
Residential - oil	0.53	-42.9%	4.5	68.2
Non-specified other - gas	0.45	x	3.7	71.9
Residential - gas	0.42	27.8%	3.5	75.5
Non-specified other - oil	0.28	+	2.4	77.9
Manufacturing industries - coal	0.19	-94.7%	1.6	79.4
Manufacturing industries - other	0.09	x	0.8	80.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>9.77</i>	<i>-9.0%</i>	<i>81.6</i>	<i>81.6</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Malaysia

Figure 1. CO₂ emissions by fuel

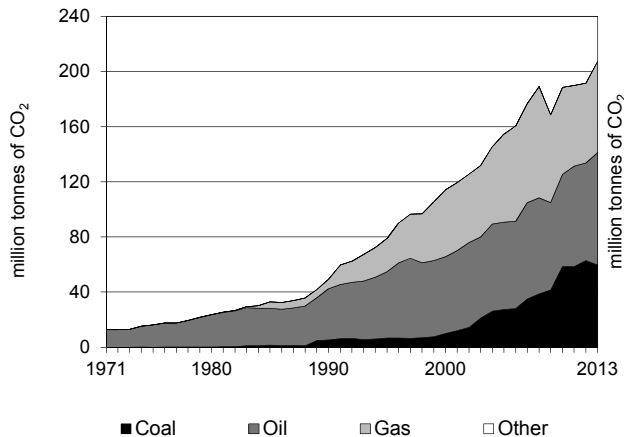


Figure 2. CO₂ emissions by sector

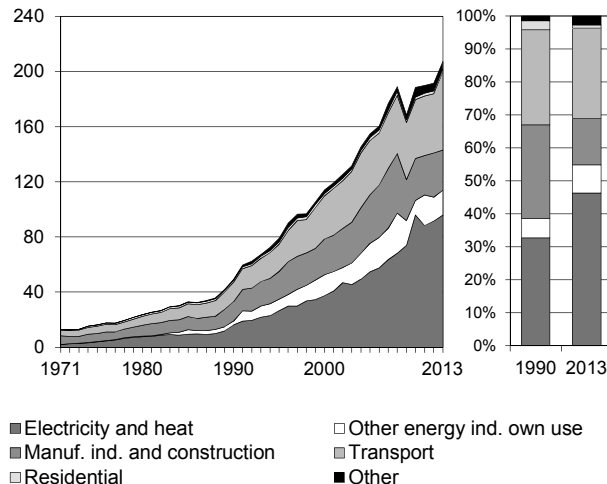


Figure 3. Electricity generation by fuel

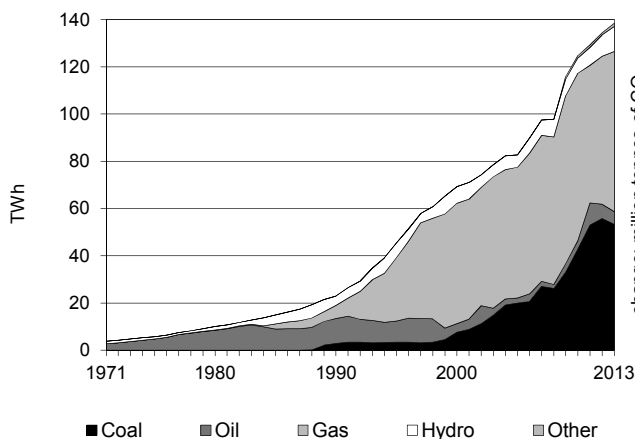


Figure 4. CO₂ from electricity generation: driving factors¹

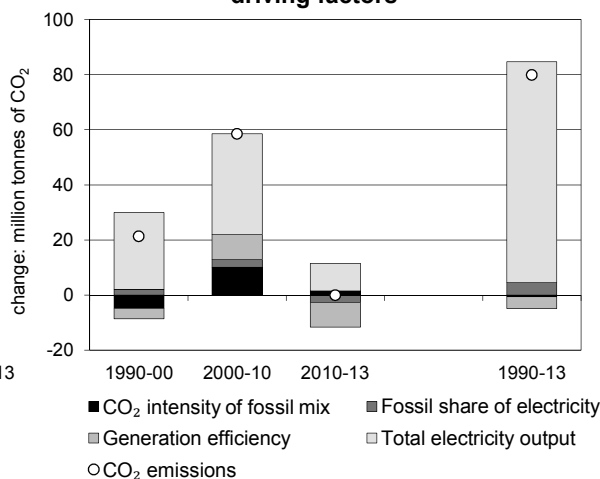


Figure 5. Changes in selected indicators

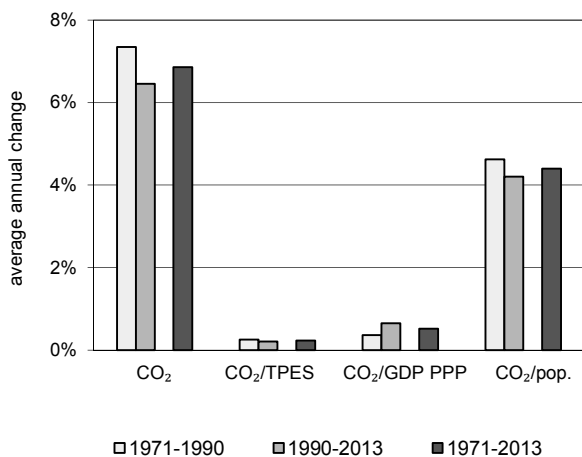
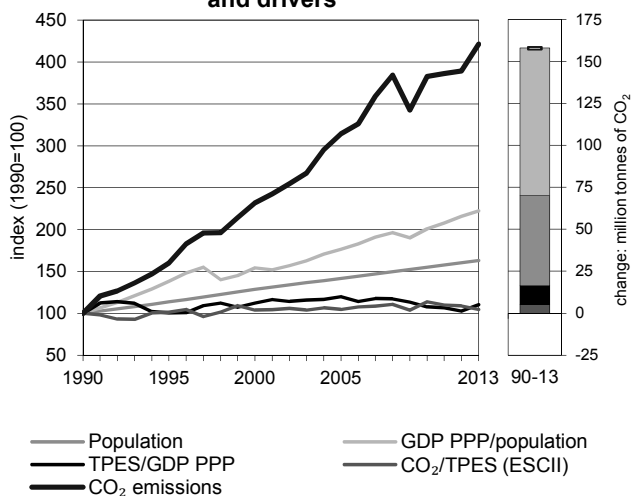


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Malaysia

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	49.21	78.87	114.09	154.60	188.41	191.44	207.25	321%
Share of World CO ₂ from fuel combustion	0.24%	0.37%	0.49%	0.57%	0.63%	0.61%	0.64%	
TPES (PJ)	928	1 467	2 072	2 787	3 118	3 310	3 725	301%
GDP (billion 2005 USD)	57.31	90.11	113.87	143.53	178.67	198.55	207.95	263%
GDP PPP (billion 2005 USD)	164.72	258.99	327.27	412.53	513.53	570.66	597.67	263%
Population (millions)	18.21	20.73	23.42	25.84	28.28	29.24	29.72	63%
CO ₂ / TPES (tCO ₂ per TJ)	53.0	53.8	55.0	55.5	60.4	57.8	55.6	5%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.86	0.88	1.00	1.08	1.05	0.96	1.00	16%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.30	0.30	0.35	0.37	0.37	0.34	0.35	16%
CO ₂ / population (tCO ₂ per capita)	2.70	3.81	4.87	5.98	6.66	6.55	6.97	158%
Share of electricity output from fossil fuels	83%	86%	90%	94%	94%	93%	91%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	699	580	541	662	769	681	693	-1%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	160	232	314	383	389	421	321%
Population index	100	114	129	142	155	161	163	63%
GDP PPP per population index	100	138	154	176	201	216	222	122%
Energy intensity index - TPES / GDP PPP	100	101	112	120	108	103	111	11%
Carbon intensity index - CO ₂ / TPES	100	101	104	105	114	109	105	5%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	59.68	81.46	66.10	0.01	207.25	321%
Electricity and heat generation	53.58	3.27	39.03	0.01	95.89	496%
Other energy industry own use	-	2.09	15.80	-	17.89	518%
Manufacturing industries and construction	6.10	12.46	10.54	-	29.09	108%
Transport	-	56.03	0.68	-	56.71	300%
<i>of which: road</i>	-	55.84	0.68	-	56.52	302%
Other	-	7.61	0.05	-	7.66	274%
<i>of which: residential</i>	-	1.94	0.00	-	1.95	45%
<i>of which: services</i>	-	2.52	0.05	-	2.57	267%
<i>Memo: international marine bunkers</i>	-	1.13	-	-	1.13	283%
<i>Memo: international aviation bunkers</i>	-	8.99	-	-	8.99	375%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	55.84	297.6%	19.9	19.9
Main activity prod. elec. and heat - coal	53.58	+	19.1	39.1
Main activity prod. elec. and heat - gas	35.15	999.9%	12.5	51.6
Other energy industry own use - gas	15.80	549.6%	5.6	57.3
Manufacturing industries - oil	12.46	14.7%	4.4	61.7
Manufacturing industries - gas	10.54	842.8%	3.8	65.5
Manufacturing industries - coal	6.10	200.0%	2.2	67.6
Non-specified other - oil	5.66	719.9%	2.0	69.7
Unallocated autoproducers - gas	3.87	x	1.4	71.0
<i>Memo: total CO₂ from fuel combustion</i>	<i>207.25</i>	<i>321.1%</i>	<i>74.0</i>	<i>74.0</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Malta

Figure 1. CO₂ emissions by fuel

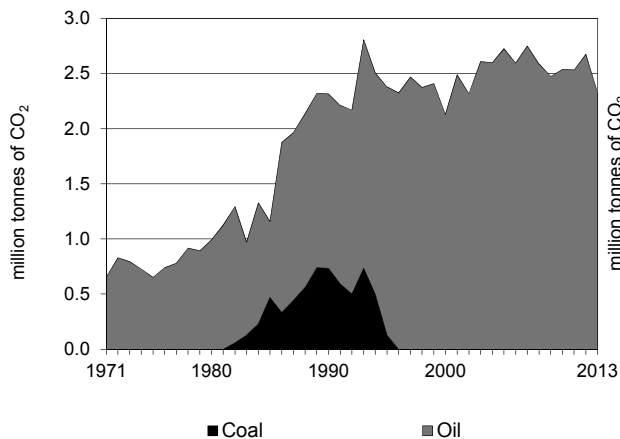


Figure 2. CO₂ emissions by sector

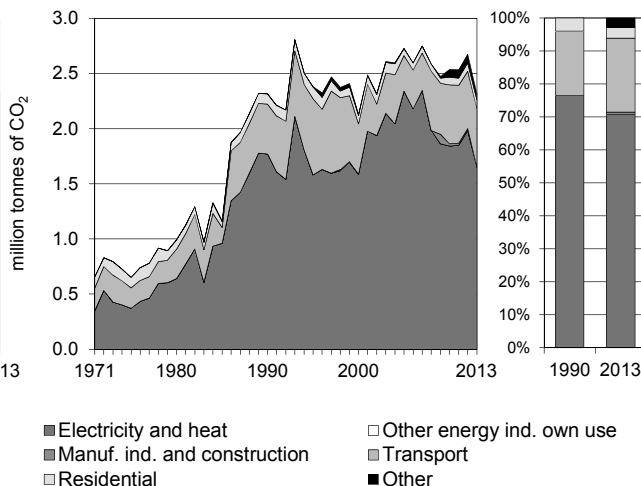


Figure 3. Electricity generation by fuel

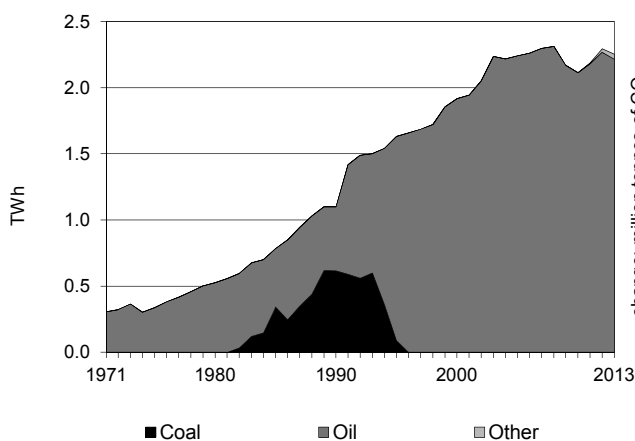


Figure 4. CO₂ from electricity generation: driving factors¹

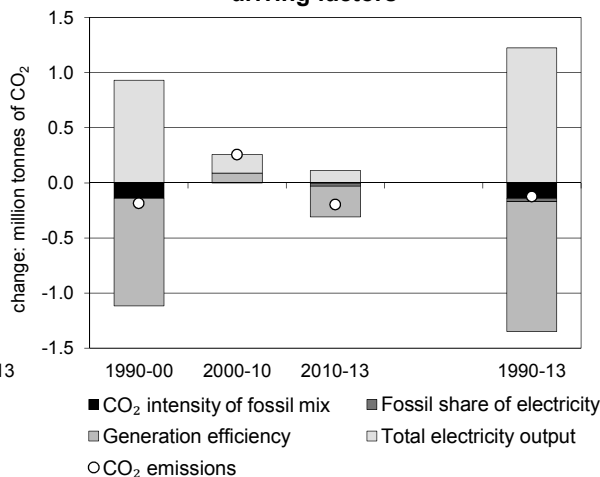


Figure 5. Changes in selected indicators

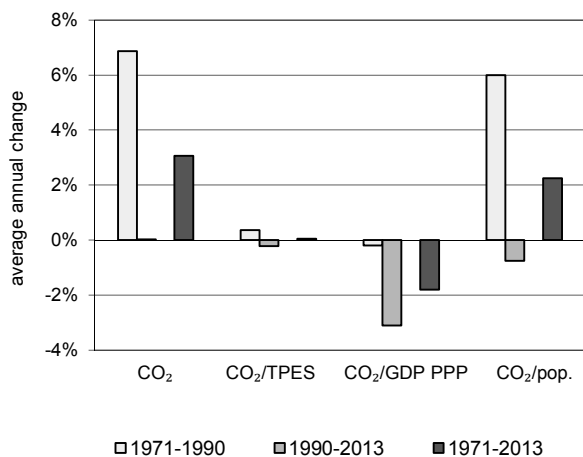
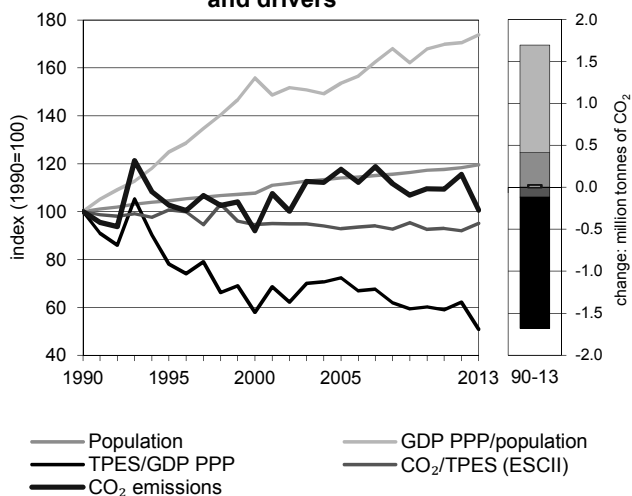


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Malta

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	2.31	2.38	2.13	2.72	2.54	2.67	2.33	1%
Share of World CO ₂ from fuel combustion	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	
TPES (PJ)	29	30	28	37	34	37	31	6%
GDP (billion 2005 USD)	3.41	4.46	5.72	5.98	6.72	6.88	7.08	108%
GDP PPP (billion 2005 USD)	4.84	6.32	8.12	8.49	9.53	9.77	10.05	108%
Population (millions)	0.35	0.37	0.38	0.40	0.42	0.42	0.42	19%
CO ₂ / TPES (tCO ₂ per TJ)	79.6	80.1	75.3	73.9	73.6	73.2	75.7	-5%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.68	0.53	0.37	0.46	0.38	0.39	0.33	-52%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.48	0.38	0.26	0.32	0.27	0.27	0.23	-52%
CO ₂ / population (tCO ₂ per capita)	6.54	6.43	5.59	6.74	6.11	6.38	5.50	-16%
Share of electricity output from fossil fuels	100%	100%	100%	100%	100%	99%	98%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	1609	968	827	1044	872	864	731	-55%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	103	92	118	110	116	101	1%
Population index	100	105	108	114	117	118	119	19%
GDP PPP per population index	100	125	156	154	168	170	174	74%
Energy intensity index - TPES / GDP PPP	100	78	58	72	60	62	51	-49%
Carbon intensity index - CO ₂ / TPES	100	101	95	93	93	92	95	-5%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	2.33	-	-	2.33	1%
Electricity and heat generation	-	1.65	-	-	1.65	-7%
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.02	-	-	0.02	x
Transport	-	0.52	-	-	0.52	16%
<i>of which: road</i>	-	0.48	-	-	0.48	6%
Other	-	0.14	-	-	0.14	53%
<i>of which: residential</i>	-	0.07	-	-	0.07	-20%
<i>of which: services</i>	-	0.06	-	-	0.06	x
<i>Memo: international marine bunkers</i>	-	3.92	-	-	3.92	+
<i>Memo: international aviation bunkers</i>	-	0.31	-	-	0.31	46%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - oil	1.65	58.6%	58.0	58.0
Road - oil	0.48	6.1%	16.8	74.8
Residential - oil	0.07	-19.8%	2.6	77.4
Non-specified other - oil	0.07	x	2.4	79.8
Other transport - oil	0.04	x	1.6	81.4
Manufacturing industries - oil	0.02	x	0.5	81.9
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	2.33	0.6%	81.9	81.9

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Mauritius

Figure 1. CO₂ emissions by fuel

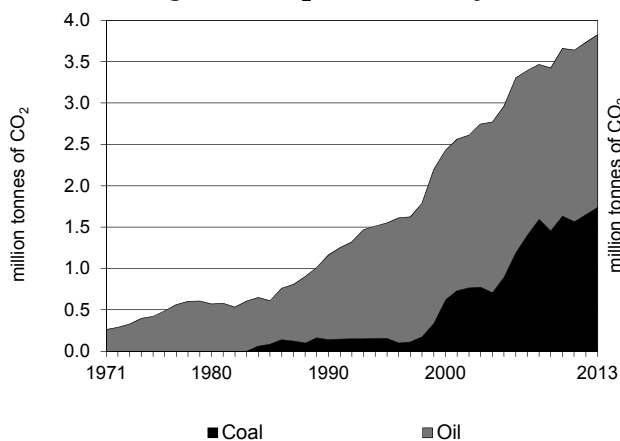


Figure 2. CO₂ emissions by sector

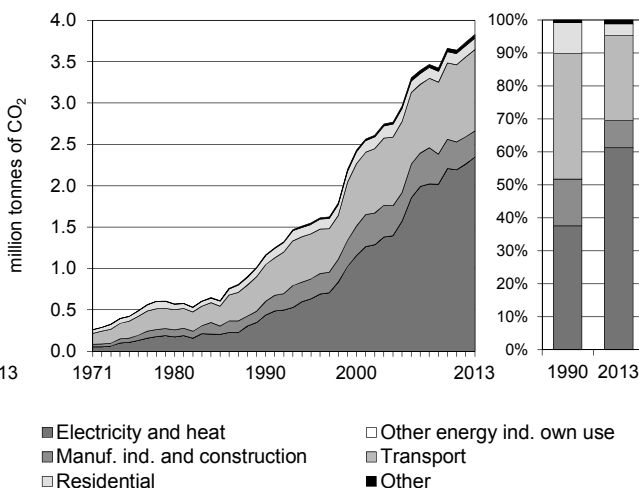


Figure 3. Electricity generation by fuel

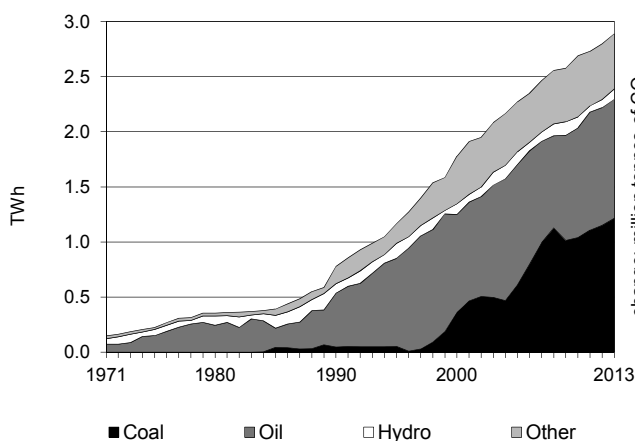


Figure 4. CO₂ from electricity generation: driving factors¹

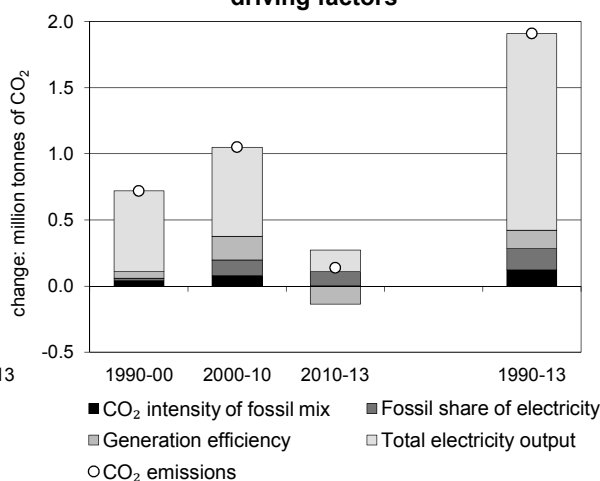


Figure 5. Changes in selected indicators

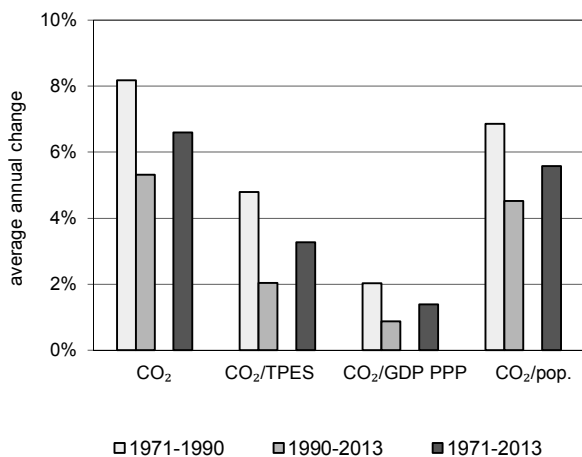
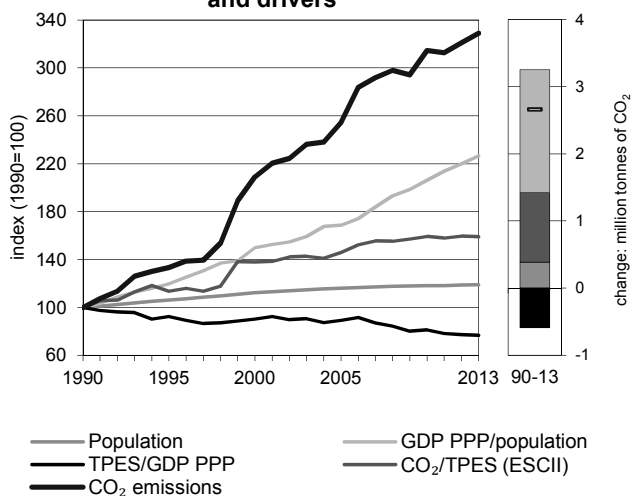


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Mauritius

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	1.16	1.55	2.43	2.96	3.66	3.73	3.83	229%
Share of World CO ₂ from fuel combustion	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	
TPES (PJ)	28	33	42	49	55	56	58	107%
GDP (billion 2005 USD)	3.22	4.08	5.41	6.28	7.83	8.39	8.66	169%
GDP PPP (billion 2005 USD)	7.14	9.06	12.00	13.94	17.36	18.62	19.21	169%
Population (millions)	1.06	1.12	1.19	1.23	1.25	1.26	1.26	19%
CO ₂ / TPES (tCO ₂ per TJ)	41.7	47.3	57.5	60.9	66.4	66.5	66.3	59%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.36	0.38	0.45	0.47	0.47	0.45	0.44	22%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.16	0.17	0.20	0.21	0.21	0.20	0.20	22%
CO ₂ / population (tCO ₂ per capita)	1.10	1.38	2.05	2.41	2.93	2.97	3.04	177%
Share of electricity output from fossil fuels	69%	73%	70%	75%	76%	79%	79%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	560	544	651	691	821	809	812	45%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	133	209	254	315	321	329	229%
Population index	100	106	112	116	118	119	119	19%
GDP PPP per population index	100	120	150	169	206	220	226	126%
Energy intensity index - TPES / GDP PPP	100	92	90	89	81	77	77	-23%
Carbon intensity index - CO ₂ / TPES	100	114	138	146	159	159	159	59%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	1.74	2.09	-	-	3.83	229%
Electricity and heat generation	1.67	0.68	-	-	2.35	437%
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	0.07	0.25	-	-	0.32	92%
Transport	-	0.98	-	-	0.98	122%
<i>of which: road</i>	-	0.93	-	-	0.93	898%
Other	-	0.18	-	-	0.18	53%
<i>of which: residential</i>	-	0.14	-	-	0.14	25%
<i>of which: services</i>	-	0.04	-	-	0.04	550%
<i>Memo: international marine bunkers</i>	-	0.85	-	-	0.85	347%
<i>Memo: international aviation bunkers</i>	-	0.72	-	-	0.72	239%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Unallocated autoproducers - coal	1.67	+	38.4	38.4
Road - oil	0.93	898.1%	21.4	59.8
Main activity prod. elec. and heat - oil	0.68	94.3%	15.6	75.5
Manufacturing industries - oil	0.25	114.0%	5.7	81.2
Residential - oil	0.14	24.9%	3.2	84.3
Manufacturing industries - coal	0.07	40.0%	1.6	85.9
Other transport - oil	0.05	-84.9%	1.2	87.1
Non-specified other - oil	0.05	392.8%	1.0	88.2
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	3.83	228.8%	88.2	88.2

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Mexico

Figure 1. CO₂ emissions by fuel

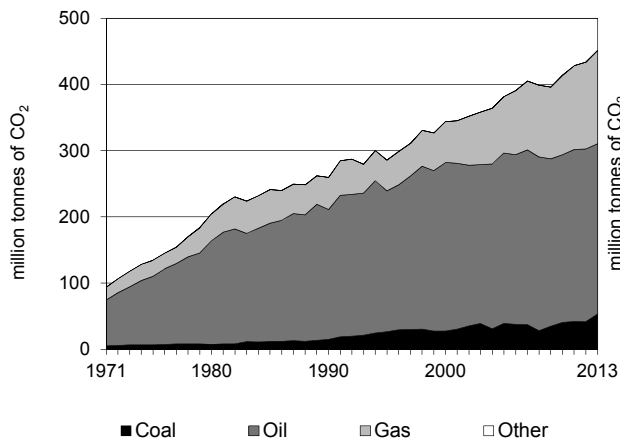


Figure 2. CO₂ emissions by sector

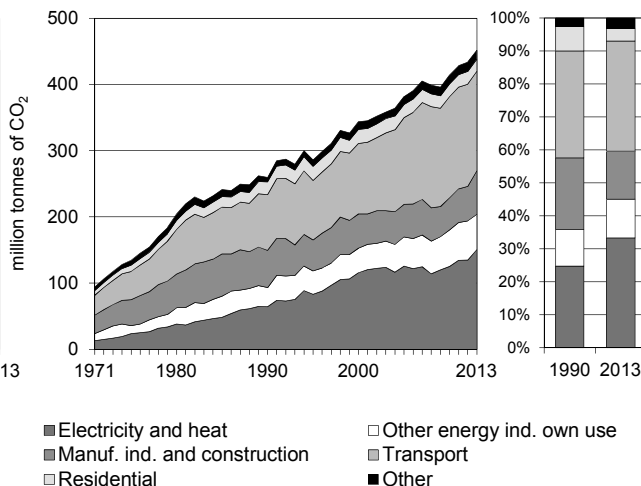


Figure 3. Electricity generation by fuel

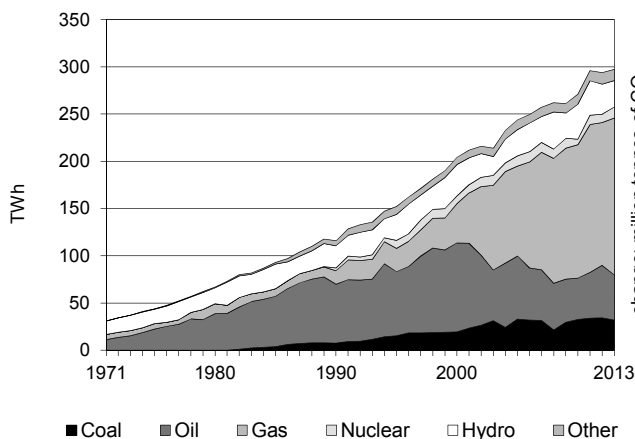


Figure 4. CO₂ from electricity generation: driving factors ¹

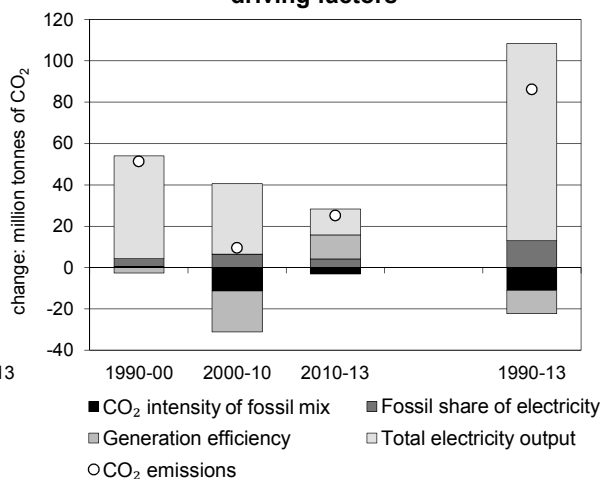


Figure 5. Changes in selected indicators

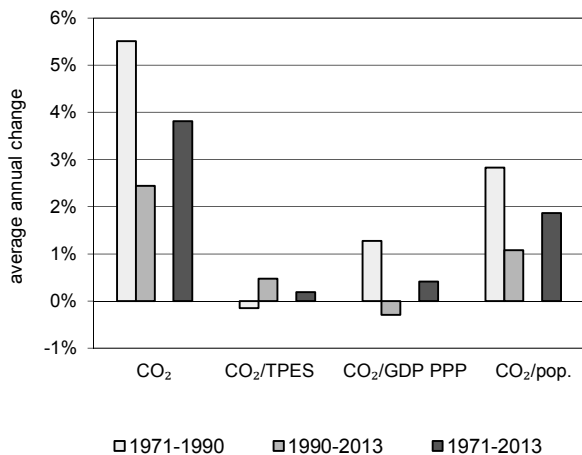
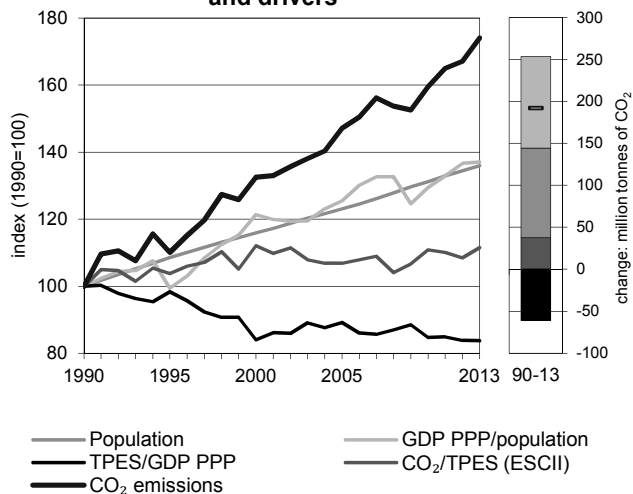


Figure 6. Total CO₂ emissions and drivers ²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Mexico

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	259.52	285.66	343.99	381.75	413.96	433.70	451.76	74%
Share of World CO ₂ from fuel combustion	1.3%	1.3%	1.5%	1.4%	1.4%	1.4%	1.4%	
TPES (PJ)	5 129	5 440	6 063	7 063	7 380	7 899	8 008	56%
GDP (billion 2005 USD)	560.25	604.41	788.25	864.81	952.04	1 029.21	1 044.04	86%
GDP PPP (billion 2005 USD)	856.69	924.22	1 205.33	1 322.41	1 455.79	1 573.79	1 596.47	86%
Population (millions)	87.07	94.49	100.90	107.15	114.26	117.05	118.40	36%
CO ₂ / TPES (tCO ₂ per TJ)	50.6	52.5	56.7	54.1	56.1	54.9	56.4	11%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.46	0.47	0.44	0.44	0.43	0.42	0.43	-7%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.30	0.31	0.29	0.29	0.28	0.28	0.28	-7%
CO ₂ / population (tCO ₂ per capita)	2.98	3.02	3.41	3.56	3.62	3.71	3.82	28%
Share of electricity output from fossil fuels	73%	71%	76%	80%	80%	82%	83%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	555	547	567	515	462	458	506	-9%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	110	133	147	160	167	174	74%
Population index	100	109	116	123	131	134	136	36%
GDP PPP per population index	100	99	121	125	129	137	137	37%
Energy intensity index - TPES / GDP PPP	100	98	84	89	85	84	84	-16%
Carbon intensity index - CO ₂ / TPES	100	104	112	107	111	109	111	11%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	53.08	257.34	140.48	0.85	451.76	74%
Electricity and heat generation	31.74	39.79	78.07	0.85	150.45	134%
Other energy industry own use	0.41	17.64	35.20	-	53.25	85%
Manufacturing industries and construction	20.93	20.00	24.90	-	65.83	17%
Transport	-	150.58	0.04	-	150.62	79%
<i>of which: road</i>	-	146.43	0.04	-	146.48	81%
Other	-	29.34	2.27	-	31.61	22%
<i>of which: residential</i>	-	16.06	1.71	-	17.76	-8%
<i>of which: services</i>	-	4.37	0.56	-	4.93	242%
<i>Memo: international marine bunkers</i>	-	2.53	-	-	2.53	..
<i>Memo: international aviation bunkers</i>	-	9.09	-	-	9.09	72%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	146.43	81.3%	23.0	23.0
Main activity prod. elec. and heat - gas	62.38	674.1%	9.8	32.7
Other energy industry own use - gas	35.20	171.0%	5.5	38.3
Main activity prod. elec. and heat - oil	33.66	-31.2%	5.3	43.5
Main activity prod. elec. and heat - coal	30.46	316.9%	4.8	48.3
Manufacturing industries - gas	24.90	-2.1%	3.9	52.2
Manufacturing industries - coal	20.93	189.0%	3.3	55.5
Manufacturing industries - oil	20.00	-15.7%	3.1	58.6
Other energy industry own use - oil	17.64	13.2%	2.8	61.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>451.76</i>	<i>74.1%</i>	<i>70.8</i>	<i>70.8</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Republic of Moldova

Figure 1. CO₂ emissions by fuel

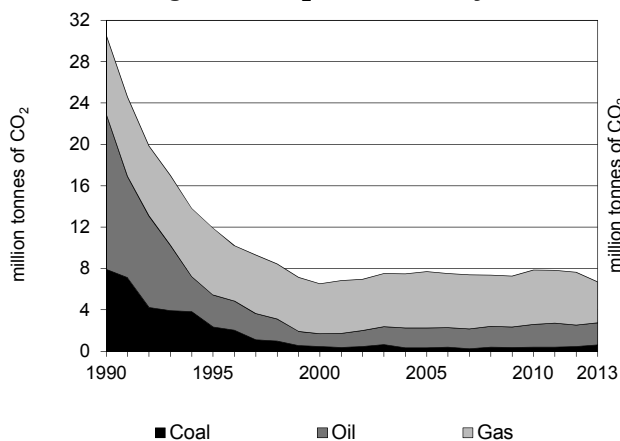


Figure 2. CO₂ emissions by sector

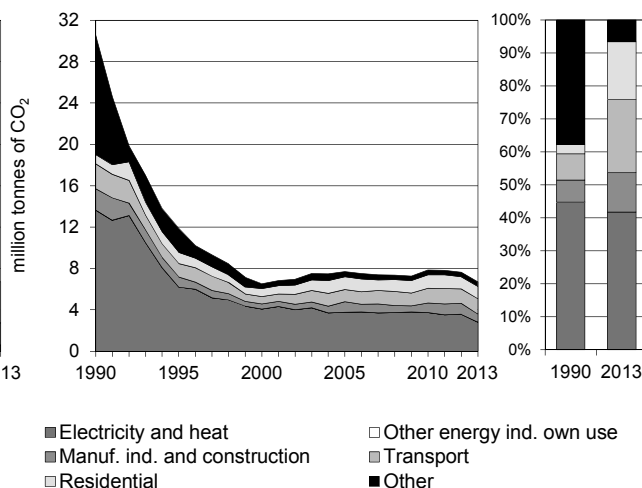


Figure 3. Electricity generation by fuel

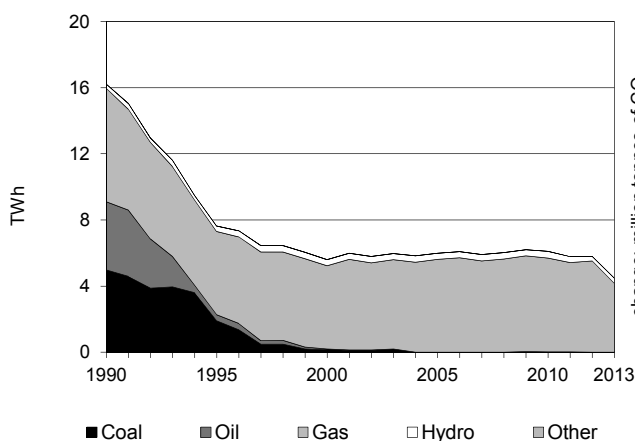


Figure 4. CO₂ from electricity generation: driving factors¹

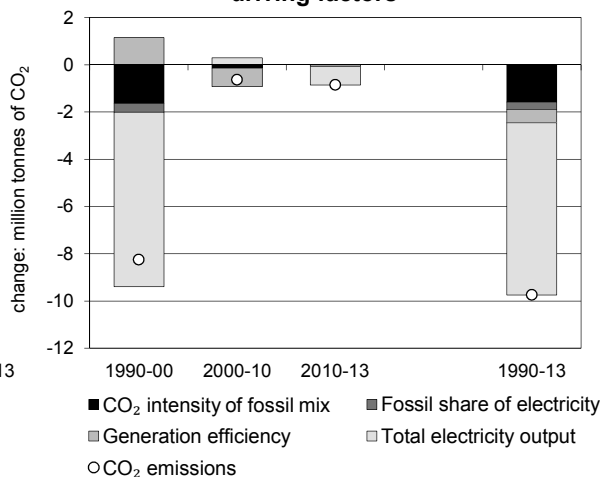


Figure 5. Changes in selected indicators

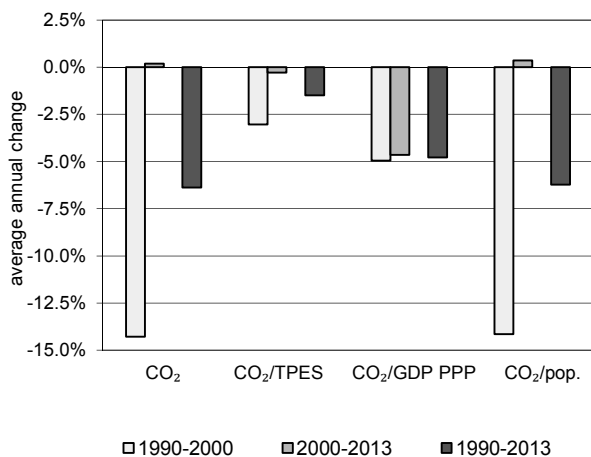
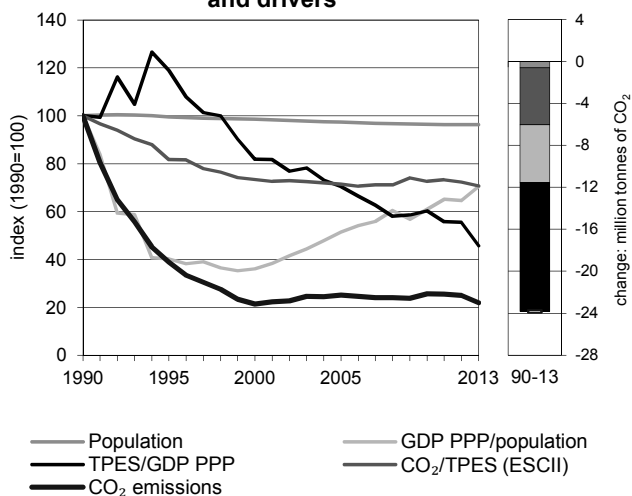


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Republic of Moldova

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	30.52	11.89	6.54	7.70	7.85	7.63	6.70	-78%
Share of World CO ₂ from fuel combustion	0.15%	0.06%	0.03%	0.03%	0.03%	0.02%	0.02%	
TPES (PJ)	414	198	121	146	147	143	129	-69%
GDP (billion 2005 USD)	5.96	2.39	2.12	2.99	3.50	3.71	4.04	-32%
GDP PPP (billion 2005 USD)	21.12	8.47	7.52	10.59	12.40	13.15	14.32	-32%
Population (millions)	3.70	3.68	3.64	3.60	3.56	3.56	3.56	-4%
CO ₂ / TPES (tCO ₂ per TJ)	73.7	60.2	54.1	52.6	53.5	53.4	52.1	-29%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	5.12	4.97	3.08	2.58	2.24	2.06	1.66	-68%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	1.45	1.40	0.87	0.73	0.63	0.58	0.47	-68%
CO ₂ / population (tCO ₂ per capita)	8.26	3.24	1.80	2.14	2.20	2.14	1.88	-77%
Share of electricity output from fossil fuels	98%	96%	93%	94%	93%	95%	93%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	732	720	646	490	488	500	474	-35%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	39	21	25	26	25	22	-78%
Population index	100	99	98	97	96	96	96	-4%
GDP PPP per population index	100	40	36	52	61	65	70	-30%
Energy intensity index - TPES / GDP PPP	100	119	82	71	60	55	46	-54%
Carbon intensity index - CO ₂ / TPES	100	82	73	71	73	72	71	-29%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	0.60	2.16	3.95	-	6.70	-78%
Electricity and heat generation	0.03	0.05	2.72	-	2.80	-80%
Other energy industry own use	-	-	-	-	-	-100%
Manufacturing industries and construction	0.22	0.05	0.52	-	0.80	-61%
Transport	-	1.47	0.01	-	1.49	-38%
<i>of which: road</i>	-	1.44	0.00	-	1.44	-39%
Other	0.34	0.58	0.69	-	1.61	-87%
<i>of which: residential</i>	0.24	0.44	0.49	-	1.18	33%
<i>of which: services</i>	0.10	0.01	0.19	-	0.30	+
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.06	-	-	0.06	-71%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - gas	2.59	-51.4%	22.7	22.7
Road - oil	1.44	-39.1%	12.6	35.3
Manufacturing industries - gas	0.52	-57.6%	4.6	39.9
Residential - gas	0.49	-3.8%	4.3	44.2
Residential - oil	0.44	20.2%	3.9	48.1
Residential - coal	0.24	x	2.1	50.2
Manufacturing industries - coal	0.22	-72.3%	2.0	52.2
Non-specified other - gas	0.19	-63.2%	1.7	53.8
Non-specified other - oil	0.14	-98.3%	1.2	55.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>6.70</i>	<i>-78.1%</i>	<i>58.7</i>	<i>58.7</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Mongolia

Figure 1. CO₂ emissions by fuel

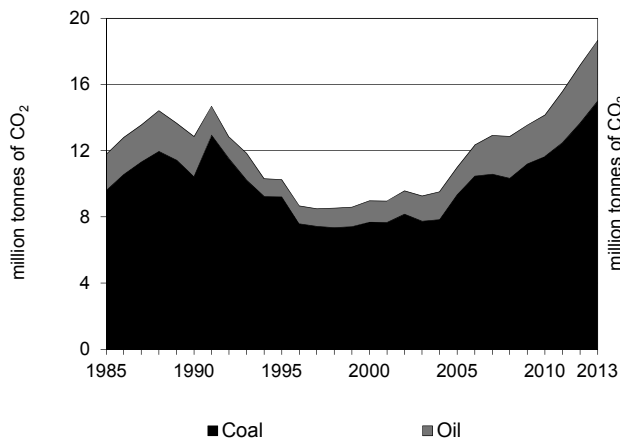


Figure 2. CO₂ emissions by sector

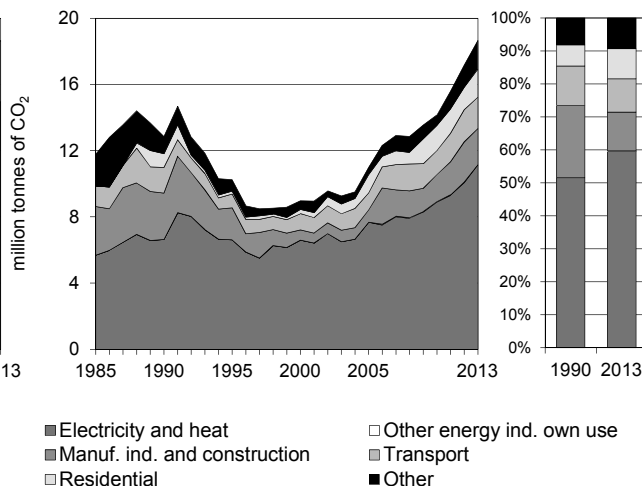


Figure 3. Electricity generation by fuel

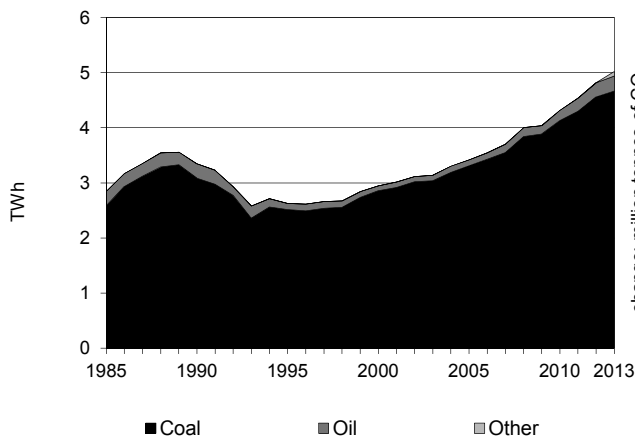


Figure 4. CO₂ from electricity generation: driving factors¹

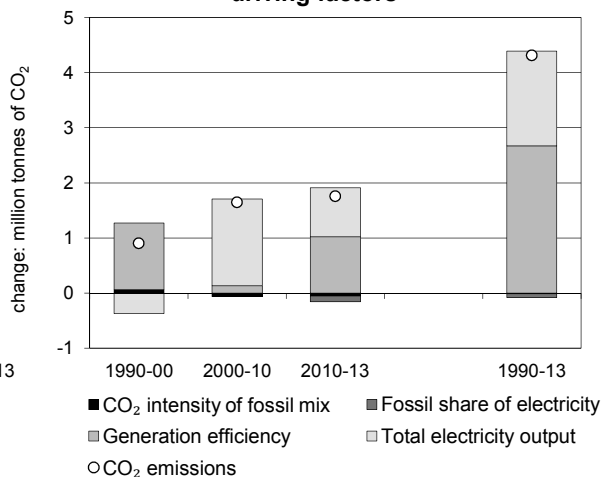


Figure 5. Changes in selected indicators

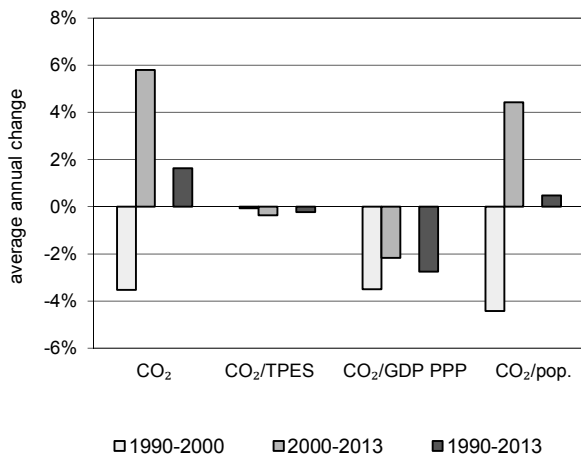
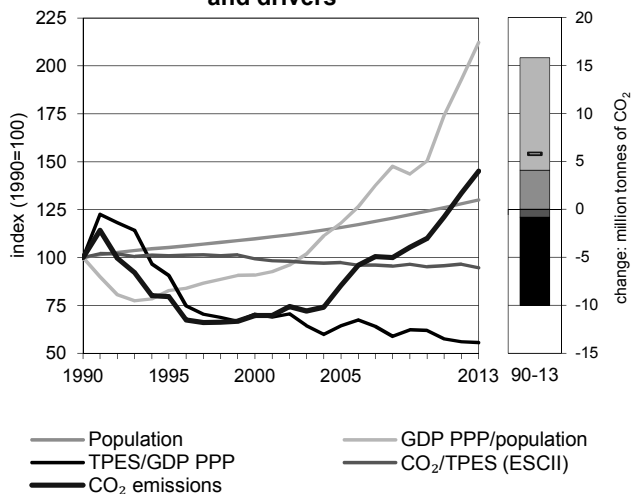


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Mongolia

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	12.86	10.25	8.98	11.00	14.15	17.17	18.66	45%
Share of World CO ₂ from fuel combustion	0.06%	0.05%	0.04%	0.04%	0.05%	0.05%	0.06%	
TPES (PJ)	143	113	100	125	165	197	219	53%
GDP (billion 2005 USD)	1.85	1.61	1.84	2.52	3.45	4.56	5.10	176%
GDP PPP (billion 2005 USD)	8.37	7.29	8.35	11.43	15.64	20.66	23.08	176%
Population (millions)	2.18	2.30	2.40	2.53	2.71	2.80	2.84	30%
CO ₂ / TPES (tCO ₂ per TJ)	90.1	90.8	89.5	87.7	85.8	86.9	85.4	-5%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	6.96	6.36	4.87	4.36	4.10	3.76	3.66	-47%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	1.54	1.40	1.08	0.96	0.90	0.83	0.81	-47%
CO ₂ / population (tCO ₂ per capita)	5.89	4.46	3.75	4.35	5.22	6.14	6.57	12%
Share of electricity output from fossil fuels	100%	100%	100%	100%	100%	100%	98%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	733	1318	1139	1188	1161	1201	1347	84%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	80	70	86	110	134	145	45%
Population index	100	105	110	116	124	128	130	30%
GDP PPP per population index	100	83	91	118	150	193	212	112%
Energy intensity index - TPES / GDP PPP	100	91	70	64	62	56	56	-44%
Carbon intensity index - CO ₂ / TPES	100	101	99	97	95	97	95	-5%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	14.99	3.67	-	-	18.66	45%
Electricity and heat generation	10.83	0.29	-	-	11.12	68%
Other energy industry own use	0.03	-	-	-	0.03	x
Manufacturing industries and construction	0.86	1.32	-	-	2.19	-22%
Transport	0.03	1.86	-	-	1.89	23%
<i>of which: road</i>	-	1.30	-	-	1.30	17%
Other	3.23	0.20	-	-	3.43	84%
<i>of which: residential</i>	1.69	-	-	-	1.69	105%
<i>of which: services</i>	-	-	-	-	-	-100%
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.12	-	-	0.12	875%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	10.83	71.9%	38.2	38.2
Residential - coal	1.69	105.5%	6.0	44.1
Non-specified other sectors - coal	1.54	62.5%	5.4	49.5
Manufacturing industries - oil	1.32	112.9%	4.7	54.2
Road - oil	1.30	16.9%	4.6	58.8
Manufacturing industries - coal	0.86	-60.6%	3.0	61.8
Other transport - oil	0.55	113.6%	2.0	63.8
Main activity prod. elec. and heat - oil	0.29	-11.9%	1.0	64.8
Non-specified other - oil	0.20	106.7%	0.7	65.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>18.66</i>	<i>45.2%</i>	<i>65.7</i>	<i>65.7</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Montenegro

Figure 1. CO₂ emissions by fuel

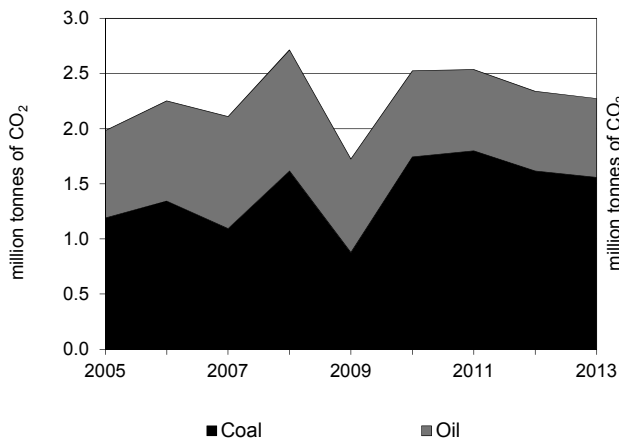


Figure 2. CO₂ emissions by sector

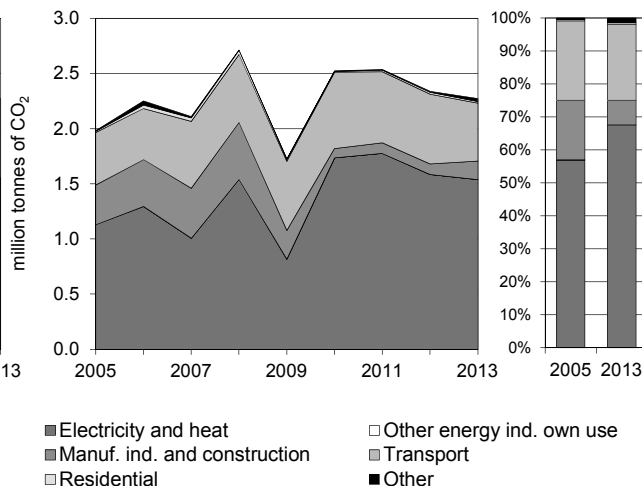


Figure 3. Electricity generation by fuel

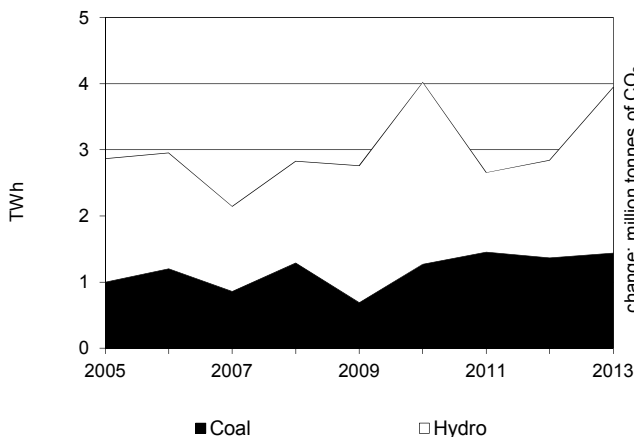


Figure 4. CO₂ from electricity generation: driving factors¹

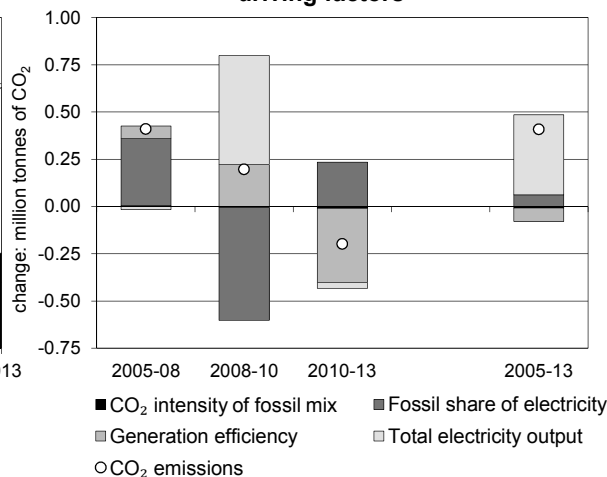


Figure 5. Changes in selected indicators

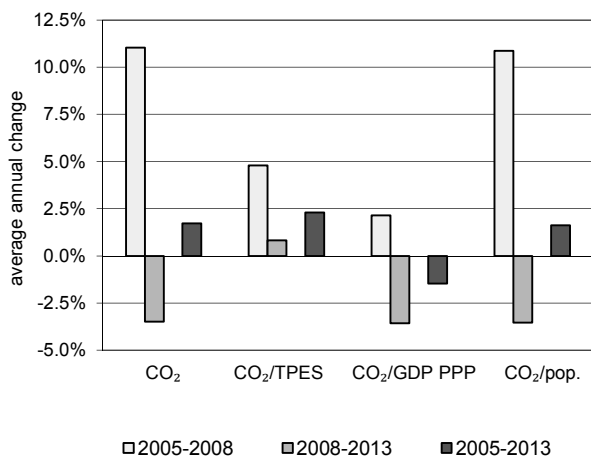
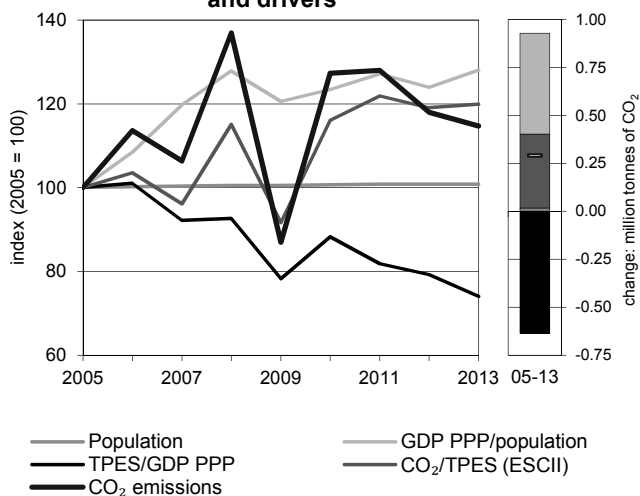


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Montenegro ¹

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 05-13
CO ₂ fuel combustion (MtCO ₂)	1.98	2.52	2.34	2.27	15%
Share of World CO ₂ from fuel combustion	0.01%	0.01%	0.01%	0.01%	
TPES (PJ)	45	49	44	43	-4%
GDP (billion 2005 USD)	2.26	2.80	2.82	2.91	29%
GDP PPP (billion 2005 USD)	5.16	6.41	6.45	6.67	29%
Population (millions)	0.62	0.62	0.62	0.62	1%
CO ₂ / TPES (tCO ₂ per TJ)	44.1	51.2	52.6	52.9	20%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.88	0.90	0.83	0.78	-11%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.38	0.39	0.36	0.34	-11%
CO ₂ / population (tCO ₂ per capita)	3.22	4.07	3.76	3.66	14%
Share of electricity output from fossil fuels	35%	32%	48%	37%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	394	431	557	389	-1%
CO₂ emissions and drivers - Kaya decomposition (2005=100) ²								
CO ₂ emissions index	100	127	118	115	15%
Population index	100	101	101	101	1%
GDP PPP per population index	100	123	124	128	28%
Energy intensity index - TPES / GDP PPP	100	88	79	74	-26%
Carbon intensity index - CO ₂ / TPES	100	116	119	120	20%

1. Prior to 2005, data for Montenegro were included in Serbia. 2. Please see Part I, Chapter 2 for methodological notes.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ³	Total	% change 05-13
CO₂ fuel combustion	1.56	0.71	-	-	2.27	15%
Electricity and heat generation	1.54	-	-	-	1.54	36%
Other energy industry own use	-	-	-	-	-	-100%
Manufacturing industries and construction	0.01	0.16	-	-	0.17	-53%
Transport	-	0.53	-	-	0.53	10%
<i>of which: road</i>	-	0.50	-	-	0.50	9%
Other	0.01	0.03	-	-	0.04	141%
<i>of which: residential</i>	0.01	0.00	-	-	0.01	35%
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.04	-	-	0.04	-

3. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 05-13	Level assessment (%) ⁴	Cumulative total (%)
Main activity prod. elec. and heat - coal	1.54	36.9%	..	..
Road - oil	0.50	8.6%	..	..
Manufacturing industries - oil	0.16	-47.3%	..	..
Non-specified other - oil	0.03	345.2%	..	..
Other transport - oil	0.02	79.8%	..	..
Manufacturing industries - coal	0.01	-79.9%	..	..
Residential - coal	0.01	175.0%	..	..
Residential - oil	0.00	-49.0%	..	..
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	2.27	14.7%	-	-

4. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Morocco

Figure 1. CO₂ emissions by fuel

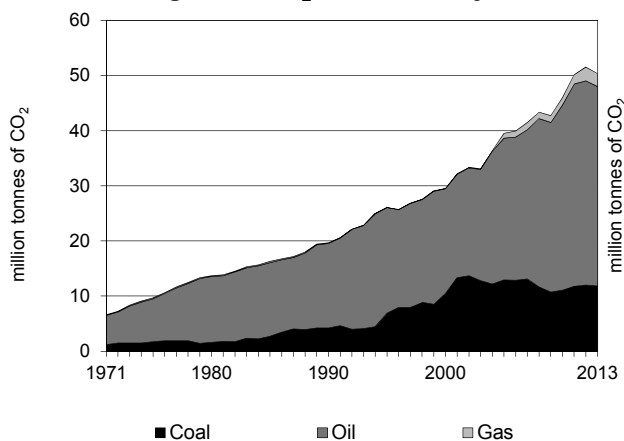


Figure 2. CO₂ emissions by sector

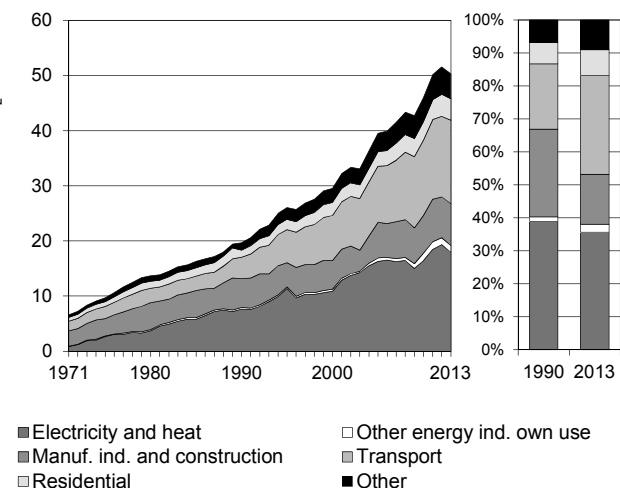


Figure 3. Electricity generation by fuel

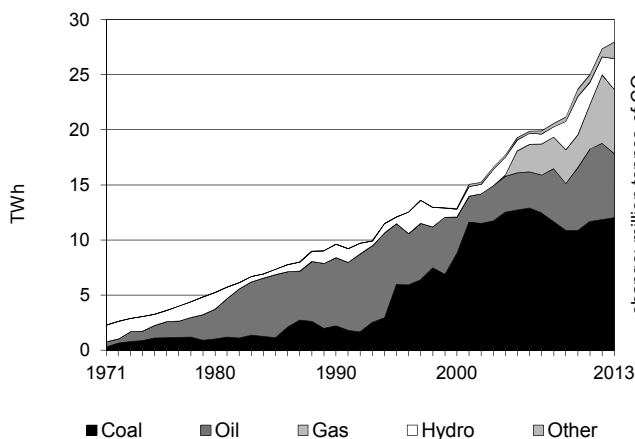


Figure 4. CO₂ from electricity generation: driving factors¹

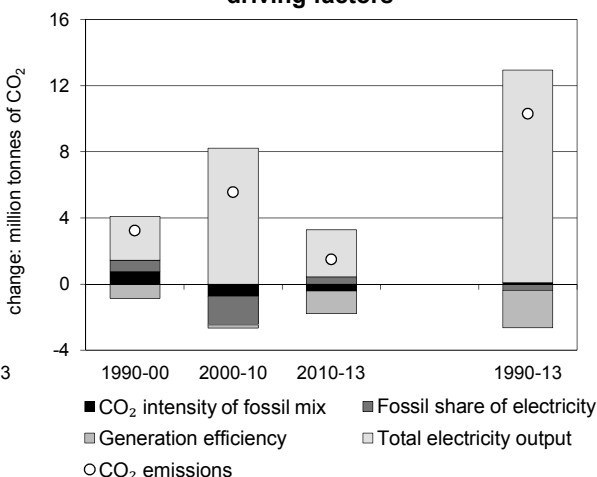


Figure 5. Changes in selected indicators

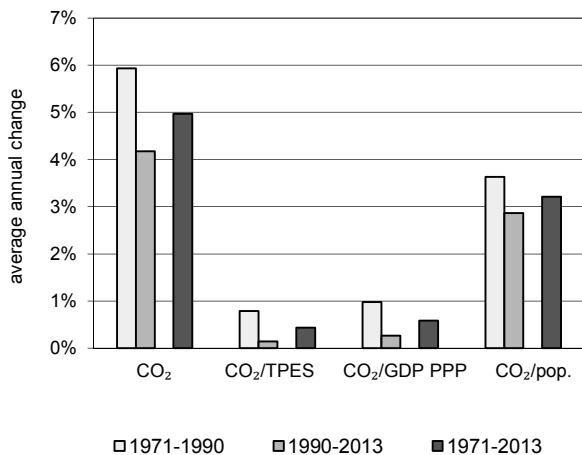
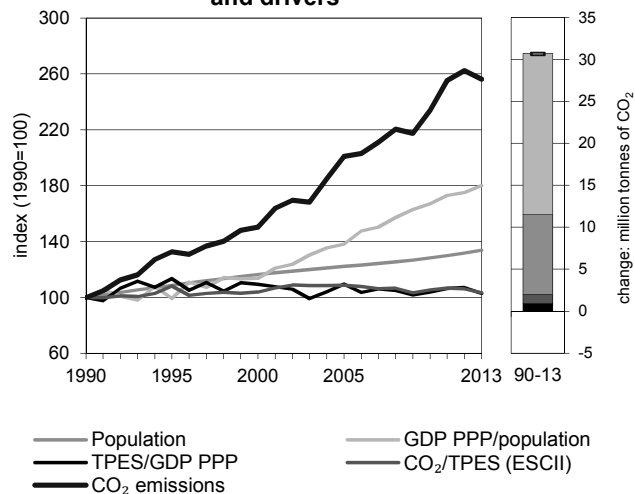


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Morocco

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	19.65	26.07	29.54	39.49	45.98	51.54	50.34	156%
Share of World CO ₂ from fuel combustion	0.10%	0.12%	0.13%	0.15%	0.15%	0.16%	0.16%	
TPES (PJ)	319	391	462	590	709	789	790	148%
GDP (billion 2005 USD)	35.27	38.08	46.69	59.52	75.52	81.41	84.97	141%
GDP PPP (billion 2005 USD)	86.45	93.33	114.43	145.90	185.12	199.53	208.28	141%
Population (millions)	24.68	26.83	28.71	30.13	31.64	32.52	33.01	34%
CO ₂ / TPES (tCO ₂ per TJ)	61.6	66.7	64.0	67.0	64.9	65.3	63.7	3%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.56	0.68	0.63	0.66	0.61	0.63	0.59	6%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.23	0.28	0.26	0.27	0.25	0.26	0.24	6%
CO ₂ / population (tCO ₂ per capita)	0.80	0.97	1.03	1.31	1.45	1.58	1.53	92%
Share of electricity output from fossil fuels	87%	95%	94%	94%	83%	91%	85%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	794	943	846	843	695	708	642	-19%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	133	150	201	234	262	256	156%
Population index	100	109	116	122	128	132	134	34%
GDP PPP per population index	100	99	114	138	167	175	180	80%
Energy intensity index - TPES / GDP PPP	100	114	109	110	104	107	103	3%
Carbon intensity index - CO ₂ / TPES	100	108	104	109	105	106	103	3%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	11.80	36.20	2.34	-	50.34	156%
Electricity and heat generation	11.69	4.02	2.24	-	17.94	135%
Other energy industry own use	0.02	1.20	-	-	1.22	341%
Manufacturing industries and construction	0.09	7.42	0.11	-	7.61	46%
Transport	-	15.11	-	-	15.11	288%
<i>of which: road</i>	-	15.09	-	-	15.09	288%
Other	-	8.45	-	-	8.45	223%
<i>of which: residential</i>	-	3.89	-	-	3.89	200%
<i>of which: services</i>	-	0.21	-	-	0.21	902%
<i>Memo: international marine bunkers</i>	-	0.43	-	-	0.43	569%
<i>Memo: international aviation bunkers</i>	-	1.84	-	-	1.84	131%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	15.09	287.5%	19.8	19.8
Main activity prod. elec. and heat - coal	11.69	316.8%	15.4	35.2
Manufacturing industries - oil	7.42	100.3%	9.8	45.0
Non-specified other - oil	4.56	246.2%	6.0	51.0
Residential - oil	3.89	199.6%	5.1	56.1
Main activity prod. elec. and heat - oil	2.90	-23.3%	3.8	59.9
Main activity prod. elec. and heat - gas	2.24	x	2.9	62.9
Other energy industry own use - oil	1.20	333.2%	1.6	64.4
Unallocated autoproducers - oil	1.12	5.3%	1.5	65.9
<i>Memo: total CO₂ from fuel combustion</i>	<i>50.34</i>	<i>156.2%</i>	<i>66.2</i>	<i>66.2</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Mozambique

Figure 1. CO₂ emissions by fuel

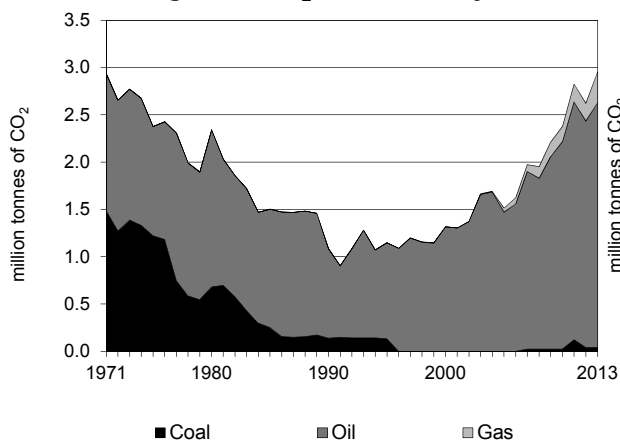


Figure 2. CO₂ emissions by sector

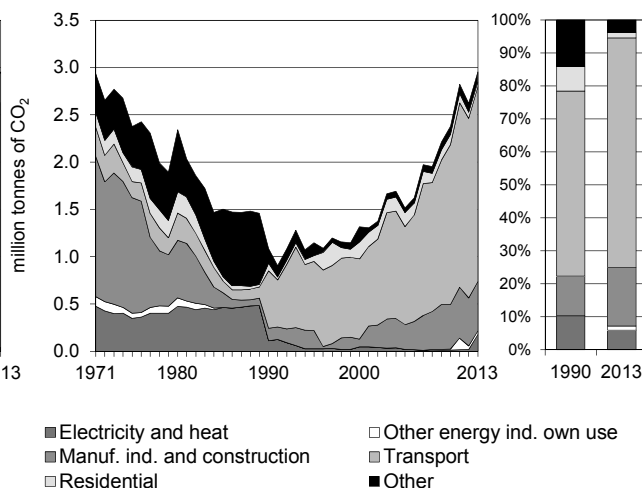


Figure 3. Electricity generation by fuel

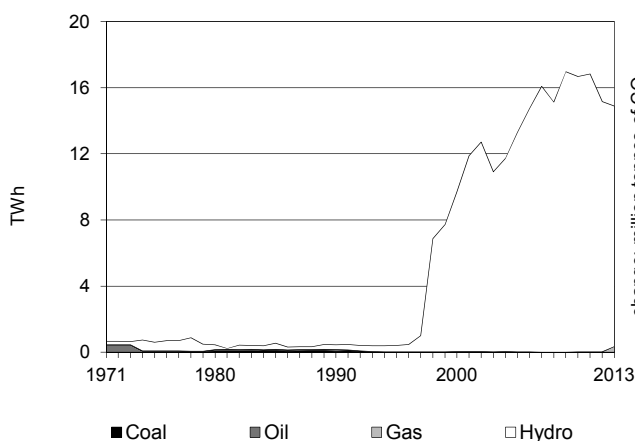


Figure 4. CO₂ from electricity generation: driving factors¹

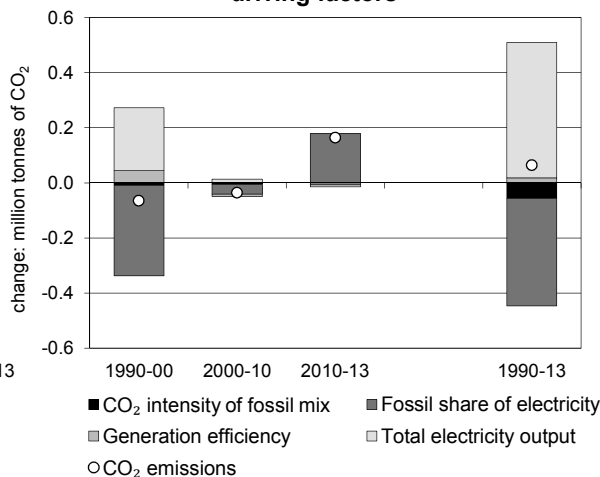


Figure 5. Changes in selected indicators

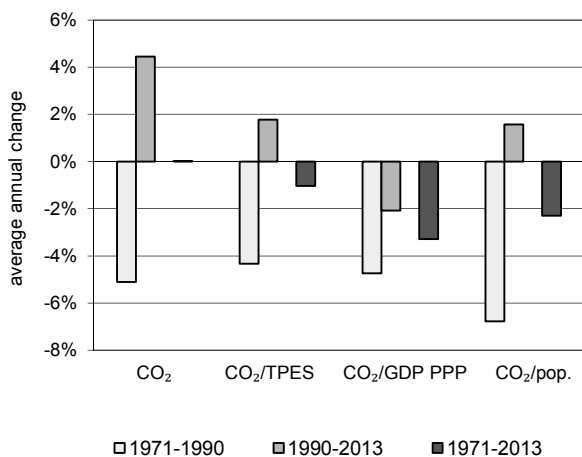
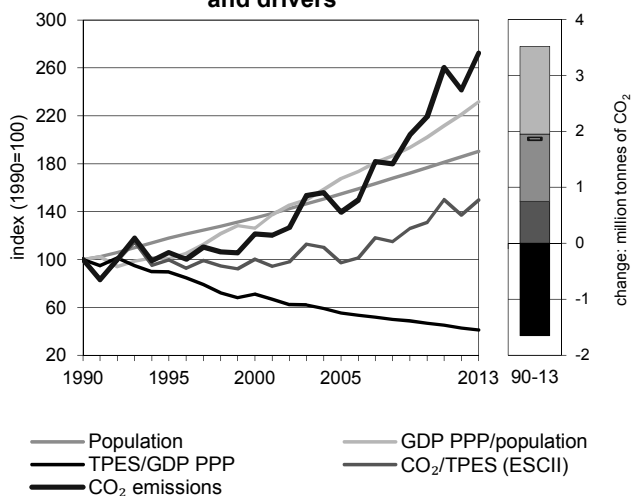


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Mozambique

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	1.08	1.15	1.32	1.51	2.38	2.62	2.95	172%
Share of World CO ₂ from fuel combustion	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	
TPES (PJ)	248	263	300	355	414	437	451	82%
GDP (billion 2005 USD)	2.54	3.01	4.31	6.58	9.05	10.41	11.19	341%
GDP PPP (billion 2005 USD)	5.58	6.61	9.48	14.46	19.90	22.90	24.60	341%
Population (millions)	13.57	15.98	18.28	21.01	23.97	25.20	25.83	90%
CO ₂ / TPES (tCO ₂ per TJ)	4.4	4.4	4.4	4.3	5.7	6.0	6.5	50%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.43	0.38	0.31	0.23	0.26	0.25	0.26	-38%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.19	0.17	0.14	0.10	0.12	0.11	0.12	-38%
CO ₂ / population (tCO ₂ per capita)	0.08	0.07	0.07	0.07	0.10	0.10	0.11	43%
Share of electricity output from fossil fuels	37%	7%	0%	0%	0%	0%	2%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	245	64	5	1	1	1	12	-95%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	106	121	140	219	242	272	172%
Population index	100	118	135	155	177	186	190	90%
GDP PPP per population index	100	101	126	168	202	221	232	132%
Energy intensity index - TPES / GDP PPP	100	89	71	55	47	43	41	-59%
Carbon intensity index - CO ₂ / TPES	100	100	100	97	131	137	150	50%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	0.04	2.59	0.33	-	2.95	172%
Electricity and heat generation	-	-	0.18	-	0.18	57%
Other energy industry own use	0.04	-	-	-	0.04	x
Manufacturing industries and construction	-	0.38	0.14	-	0.52	300%
Transport	-	2.05	0.01	-	2.06	238%
<i>of which: road</i>	-	1.88	0.01	-	1.89	255%
Other	-	0.16	0.00	-	0.16	-32%
<i>of which: residential</i>	-	0.05	0.00	-	0.05	-38%
<i>of which: services</i>	-	0.08	0.00	-	0.08	x
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.22	-	-	0.22	71%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	1.88	254.2%	9.9	9.9
Manufacturing industries - oil	0.38	658.6%	2.0	11.9
Other transport - oil	0.17	120.8%	0.9	12.8
Main activity prod. elec. and heat - gas	0.15	x	0.8	13.6
Manufacturing industries - gas	0.14	x	0.7	14.3
Non-specified other - oil	0.11	-30.9%	0.6	14.9
Residential - oil	0.05	-38.2%	0.3	15.2
Other energy industry - coal	0.04	x	0.2	15.4
Unallocated autoproducers - gas	0.02	x	0.1	15.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>2.95</i>	<i>172.4%</i>	<i>15.5</i>	<i>15.5</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Myanmar

Figure 1. CO₂ emissions by fuel

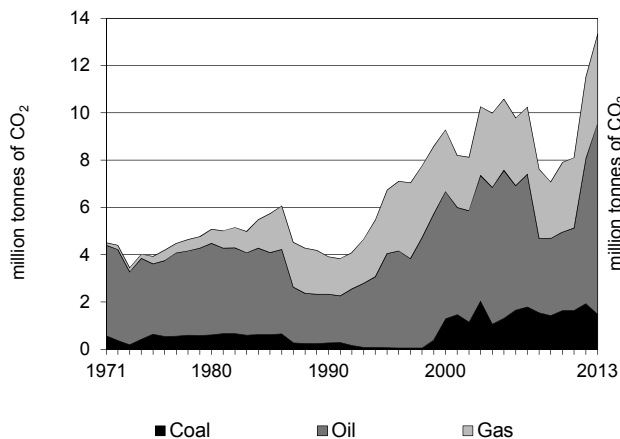


Figure 2. CO₂ emissions by sector

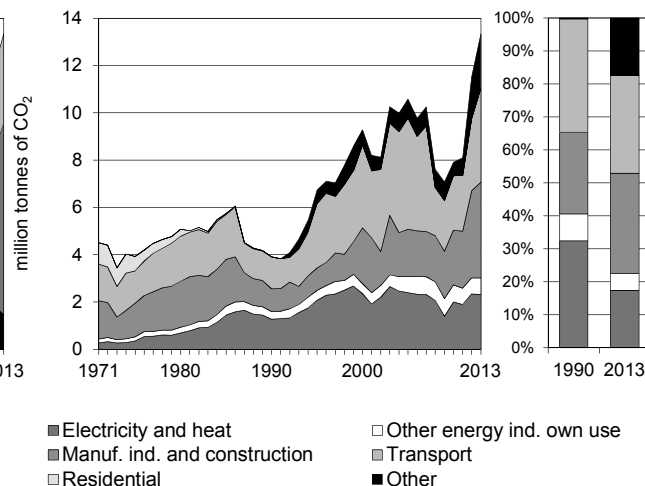


Figure 3. Electricity generation by fuel

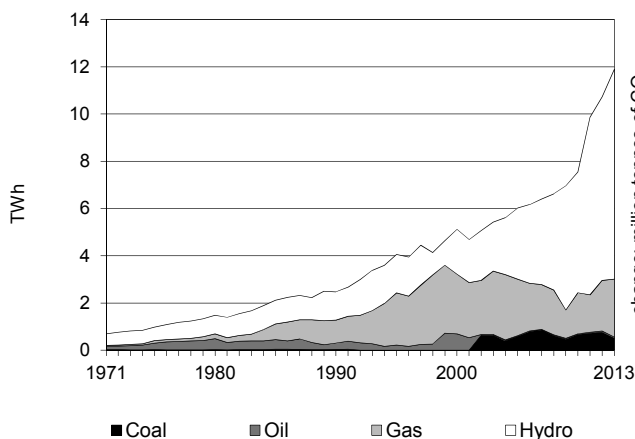


Figure 4. CO₂ from electricity generation: driving factors¹

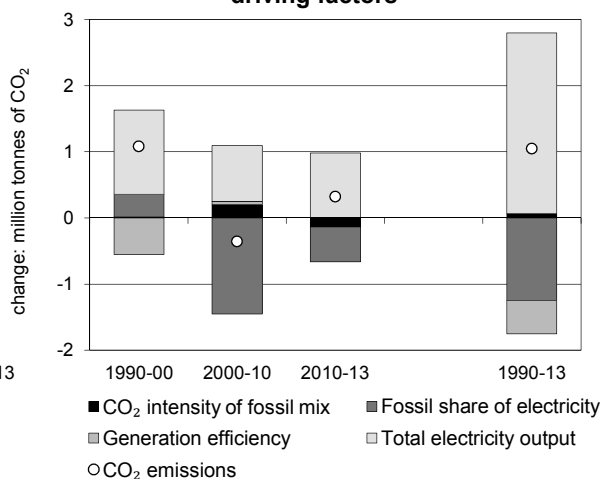


Figure 5. Changes in selected indicators

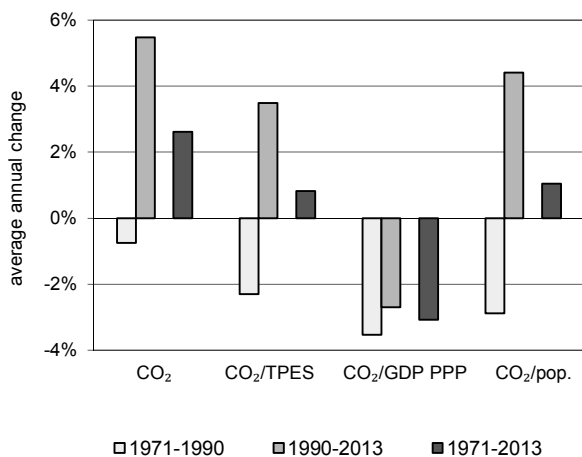
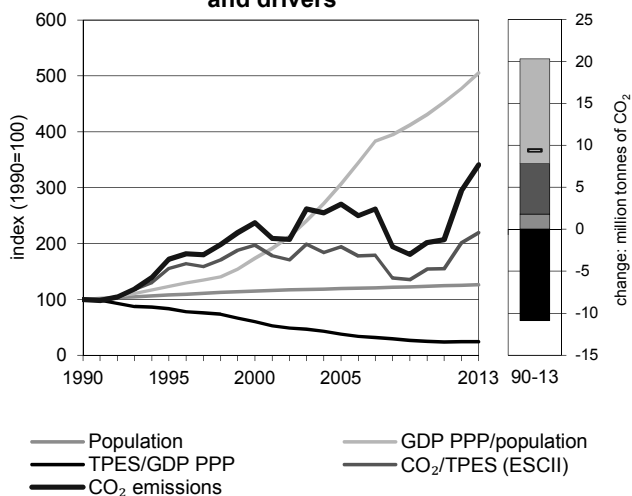


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Myanmar

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	3.91	6.72	9.28	10.58	7.90	11.52	13.34	241%
Share of World CO ₂ from fuel combustion	0.02%	0.03%	0.04%	0.04%	0.03%	0.04%	0.04%	
TPES (PJ)	447	494	538	621	585	654	694	55%
GDP (billion 2005 USD)	3.28	4.36	6.55	11.99	17.42	19.62	20.96	539%
GDP PPP (billion 2005 USD)	15.03	19.96	29.99	54.92	79.81	89.91	96.03	539%
Population (millions)	42.12	45.33	48.45	50.18	51.93	52.80	53.26	26%
CO ₂ / TPES (tCO ₂ per TJ)	8.8	13.6	17.3	17.0	13.5	17.6	19.2	120%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	1.19	1.54	1.42	0.88	0.45	0.59	0.64	-47%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.26	0.34	0.31	0.19	0.10	0.13	0.14	-47%
CO ₂ / population (tCO ₂ per capita)	0.09	0.15	0.19	0.21	0.15	0.22	0.25	170%
Share of electricity output from fossil fuels	52%	60%	63%	50%	32%	28%	25%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	513	511	460	398	265	218	195	-62%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	172	237	270	202	294	341	241%
Population index	100	108	115	119	123	125	126	26%
GDP PPP per population index	100	123	173	307	431	477	505	405%
Energy intensity index - TPES / GDP PPP	100	83	60	38	25	24	24	-76%
Carbon intensity index - CO ₂ / TPES	100	155	197	195	154	201	220	120%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	1.47	8.09	3.78	-	13.34	241%
Electricity and heat generation	0.49	0.04	1.78	-	2.32	82%
Other energy industry own use	-	0.17	0.53	-	0.69	118%
Manufacturing industries and construction	0.93	2.15	0.98	-	4.05	318%
Transport	-	3.50	0.45	-	3.95	194%
<i>of which: road</i>	-	2.45	0.45	-	2.90	128%
Other	0.05	2.23	0.05	-	2.33	+
<i>of which: residential</i>	-	0.00	-	-	0.00	-67%
<i>of which: services</i>	-	0.00	-	-	0.00	x
<i>Memo: international marine bunkers</i>	-	0.01	-	-	0.01	x
<i>Memo: international aviation bunkers</i>	-	0.11	-	-	0.11	500%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	2.45	92.5%	2.0	2.0
Non-specified other - oil	2.22	+	1.8	3.8
Manufacturing industries - oil	2.15	405.0%	1.7	5.5
Main activity prod. elec. and heat - gas	1.78	74.7%	1.4	6.9
Other transport - oil	1.05	+	0.8	7.8
Manufacturing industries - gas	0.98	202.8%	0.8	8.5
Manufacturing industries - coal	0.93	320.0%	0.7	9.3
Other energy industry own use - gas	0.53	121.7%	0.4	9.7
Main activity prod. elec. and heat - coal	0.49	910.0%	0.4	10.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>13.34</i>	<i>240.9%</i>	<i>10.7</i>	<i>10.7</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Namibia

Figure 1. CO₂ emissions by fuel

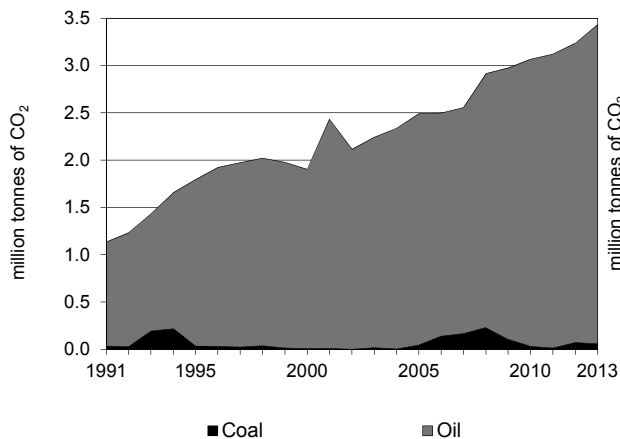


Figure 2. CO₂ emissions by sector

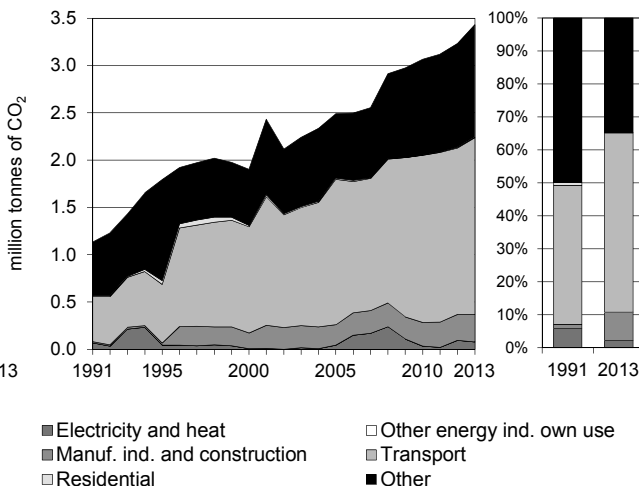


Figure 3. Electricity generation by fuel

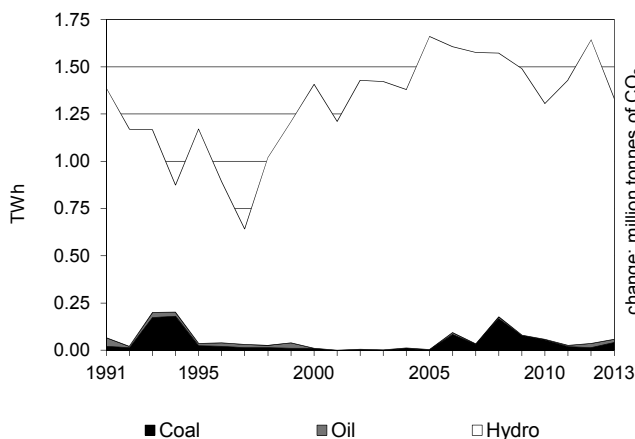


Figure 4. CO₂ from electricity generation: driving factors¹

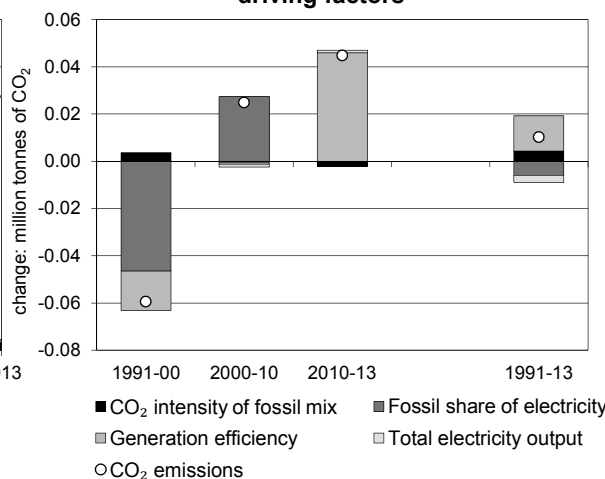


Figure 5. Changes in selected indicators

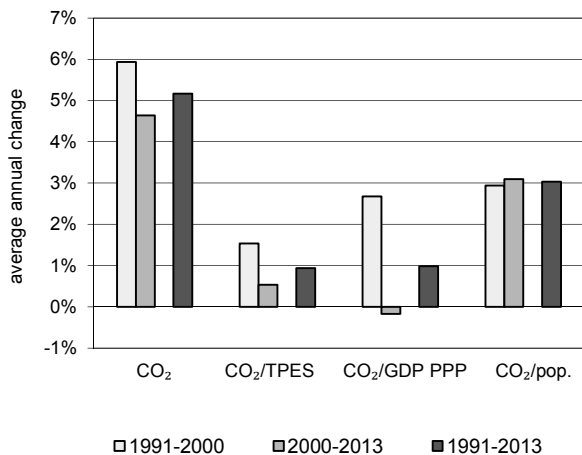
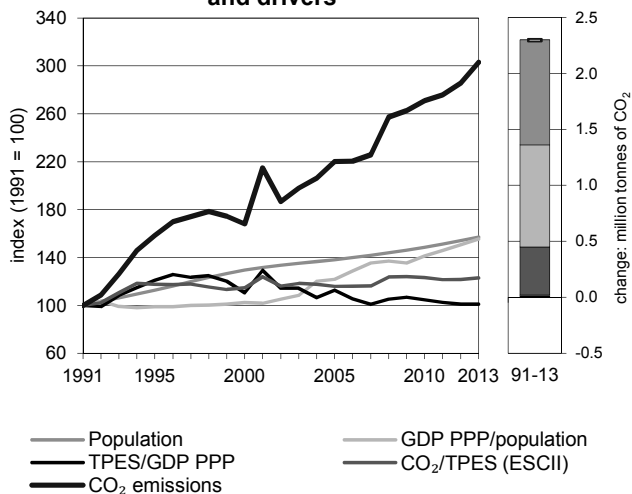


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Namibia ¹

Key indicators

	1990	1991	2000	2005	2010	2012	2013	% change 91-13
CO ₂ fuel combustion (MtCO ₂)	..	1.13	1.90	2.49	3.07	3.23	3.43	203%
Share of World CO ₂ from fuel combustion	..	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	
TPES (PJ)	..	30	43	56	65	69	73	147%
GDP (billion 2005 USD)	..	4.31	5.71	7.26	9.05	10.00	10.52	144%
GDP PPP (billion 2005 USD)	..	7.79	10.33	13.14	16.37	18.10	19.02	144%
Population (millions)	..	1.47	1.90	2.03	2.18	2.26	2.30	57%
CO ₂ / TPES (tCO ₂ per TJ)	..	38.3	43.9	44.3	47.2	46.6	47.1	23%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	..	0.26	0.33	0.34	0.34	0.32	0.33	24%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	..	0.15	0.18	0.19	0.19	0.18	0.18	24%
CO ₂ / population (tCO ₂ per capita)	..	0.77	1.00	1.23	1.41	1.43	1.49	93%
Share of electricity output from fossil fuels	..	5%	1%	0%	4%	2%	4%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	..	47	5	26	24	56	57	20%
CO₂ emissions and drivers - Kaya decomposition (1991=100) ²								
CO ₂ emissions index	..	100	168	220	271	286	303	203%
Population index	..	100	129	138	149	154	157	57%
GDP PPP per population index	..	100	102	122	141	151	155	55%
Energy intensity index - TPES / GDP PPP	..	100	111	113	105	101	101	1%
Carbon intensity index - CO ₂ / TPES	..	100	115	116	123	122	123	23%

1. Prior to 1991, data for Namibia were included in Other Africa. 2. Please see Part I, Chapter 2 for methodological notes.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ³	Total	% change 91-13
CO₂ fuel combustion	0.06	3.38	-	-	3.43	203%
Electricity and heat generation	0.06	0.02	-	-	0.08	15%
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.29	-	-	0.29	+
Transport	-	1.87	-	-	1.87	291%
<i>of which: road</i>	-	1.76	-	-	1.76	284%
Other	-	1.20	-	-	1.20	108%
<i>of which: residential</i>	-	0.01	-	-	0.01	-33%
<i>of which: services</i>	-	0.01	-	-	0.01	x
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.14	-	-	0.14	70%

3. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 91-13	Level assessment (%) ⁴	Cumulative total (%)
Road - oil	1.76	284.3%	15.0	15.0
Non-specified other - oil	1.19	110.6%	10.1	25.1
Manufacturing industries - oil	0.29	+	2.5	27.6
Other transport - oil	0.11	456.2%	0.9	28.5
Main activity prod. elec. and heat - coal	0.06	73.3%	0.5	29.0
Main activity prod. elec. and heat - oil	0.02	-40.0%	0.2	29.2
Residential - oil	0.01	-33.3%	0.1	29.2
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	3.43	203.1%	29.2	29.2

4. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Nepal

Figure 1. CO₂ emissions by fuel

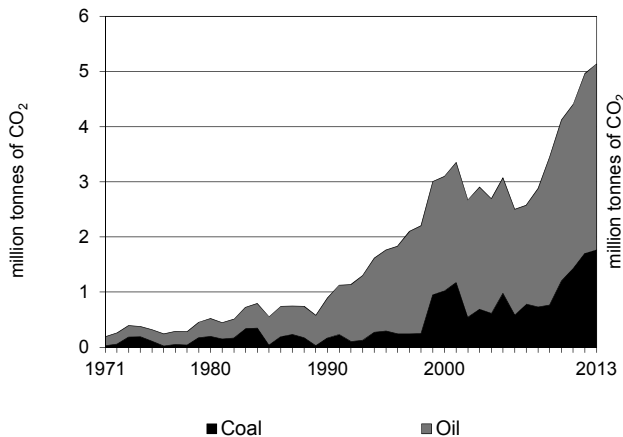


Figure 2. CO₂ emissions by sector

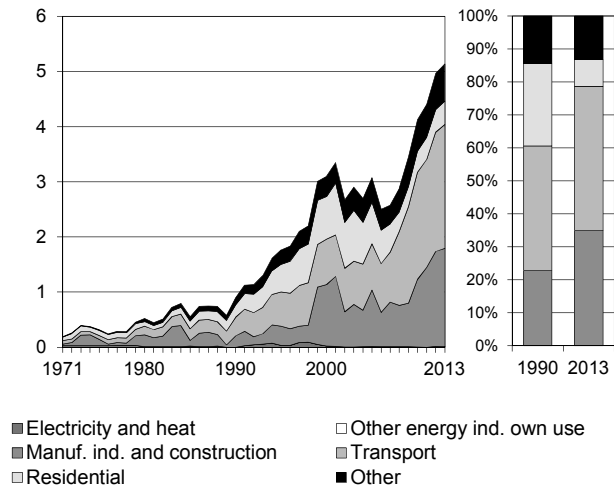


Figure 3. Electricity generation by fuel

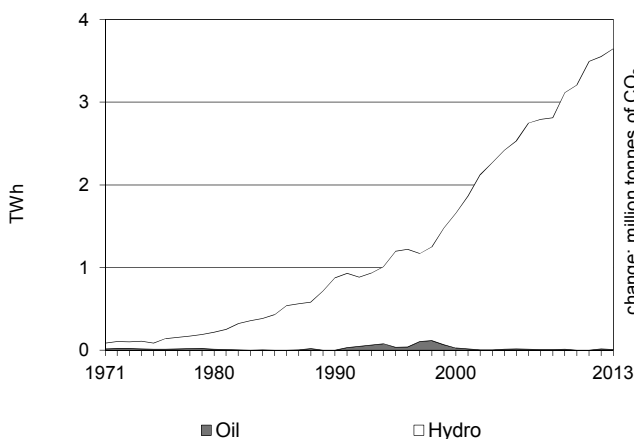


Figure 4. CO₂ from electricity generation: driving factors¹

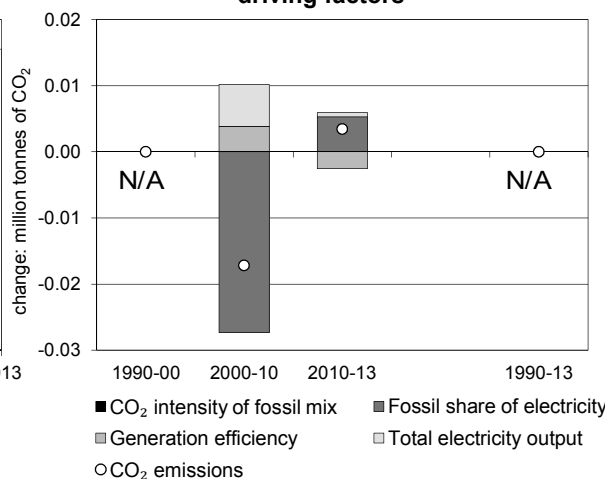


Figure 5. Changes in selected indicators

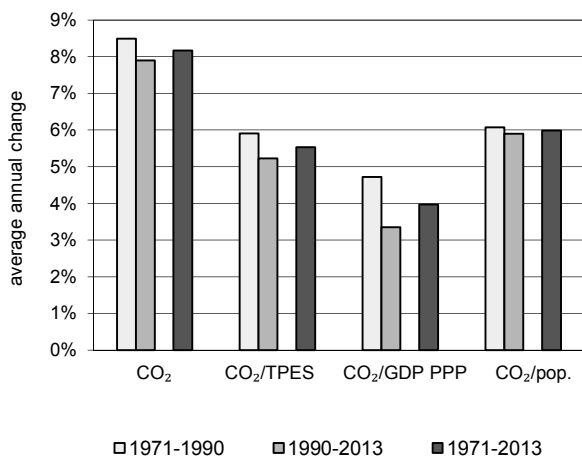
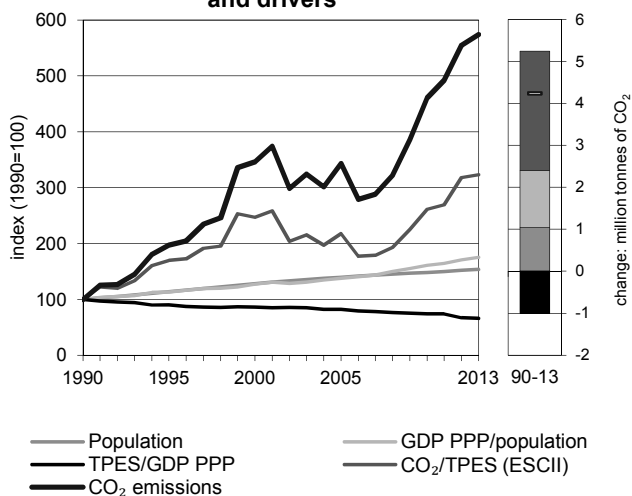


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Nepal

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	0.89	1.76	3.10	3.07	4.12	4.96	5.14	474%
Share of World CO ₂ from fuel combustion	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	
TPES (PJ)	242	281	339	382	428	423	431	78%
GDP (billion 2005 USD)	4.23	5.45	6.88	8.13	10.10	10.96	11.37	169%
GDP PPP (billion 2005 USD)	20.00	25.75	32.55	38.45	47.78	51.82	53.78	169%
Population (millions)	18.11	20.59	23.18	25.29	26.85	27.47	27.80	53%
CO ₂ / TPES (tCO ₂ per TJ)	3.7	6.3	9.1	8.0	9.6	11.7	11.9	223%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.21	0.32	0.45	0.38	0.41	0.45	0.45	113%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.04	0.07	0.10	0.08	0.09	0.10	0.10	114%
CO ₂ / population (tCO ₂ per capita)	0.05	0.09	0.13	0.12	0.15	0.18	0.18	274%
Share of electricity output from fossil fuels	0%	3%	2%	1%	0%	1%	0%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	-	26	12	5	1	4	2	0%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	197	346	343	460	554	574	474%
Population index	100	114	128	140	148	152	153	53%
GDP PPP per population index	100	113	127	138	161	171	175	75%
Energy intensity index - TPES / GDP PPP	100	90	86	82	74	67	66	-34%
Carbon intensity index - CO ₂ / TPES	100	170	247	218	261	318	323	223%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	1.77	3.37	-	-	5.14	474%
Electricity and heat generation	-	0.01	-	-	0.01	x
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	1.76	0.03	-	-	1.79	777%
Transport	-	2.24	-	-	2.24	563%
<i>of which: road</i>	-	2.24	-	-	2.24	563%
Other	0.01	1.09	-	-	1.10	212%
<i>of which: residential</i>	0.01	0.41	-	-	0.42	89%
<i>of which: services</i>	-	0.29	-	-	0.29	867%
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.31	-	-	0.31	520%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	2.24	563.2%	6.3	6.3
Manufacturing industries - coal	1.76	955.7%	5.0	11.3
Non-specified other - oil	0.68	425.7%	1.9	13.2
Residential - oil	0.41	84.6%	1.2	14.4
Manufacturing industries - oil	0.03	-18.6%	0.1	14.5
Residential - coal	0.01	x	0.0	14.5
Main activity prod. elec. and heat - oil	0.01	x	0.0	14.5
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>5.14</i>	<i>474.1%</i>	<i>14.5</i>	<i>14.5</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Netherlands

Figure 1. CO₂ emissions by fuel

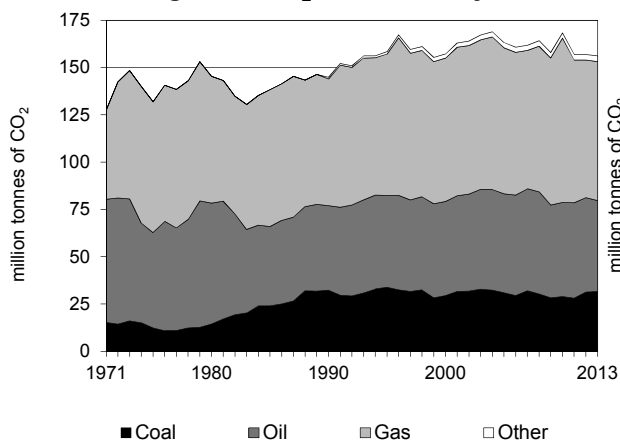


Figure 2. CO₂ emissions by sector

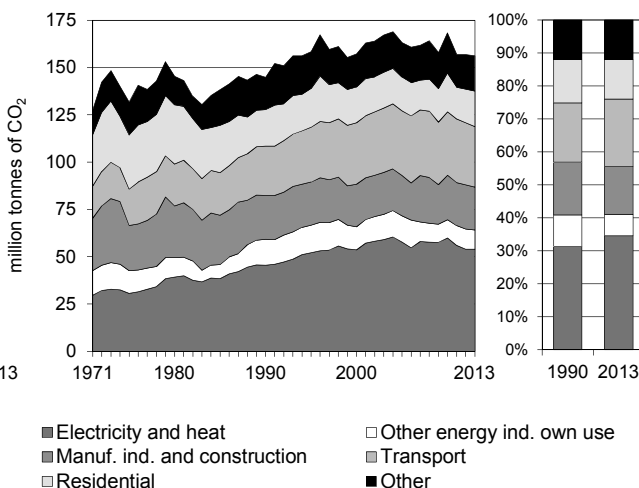


Figure 3. Electricity generation by fuel

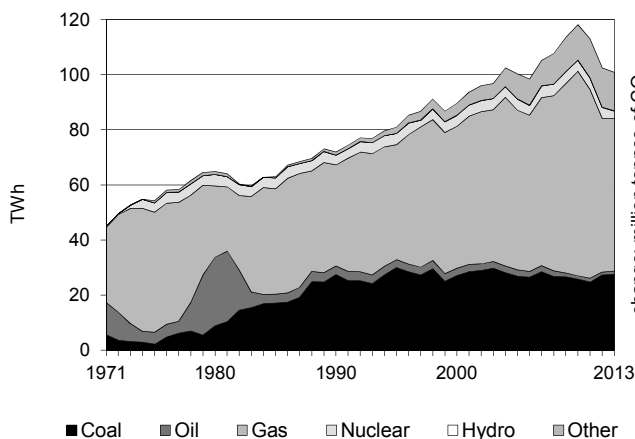


Figure 4. CO₂ from electricity generation: driving factors¹

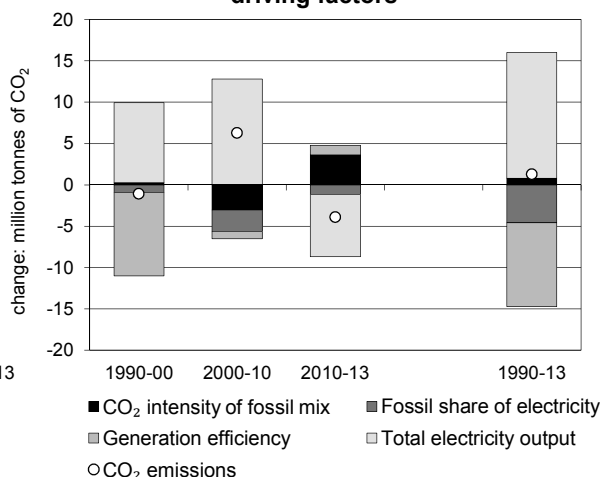


Figure 5. Changes in selected indicators

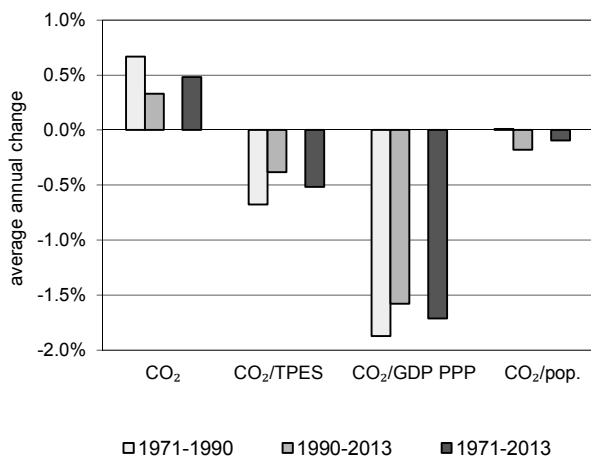
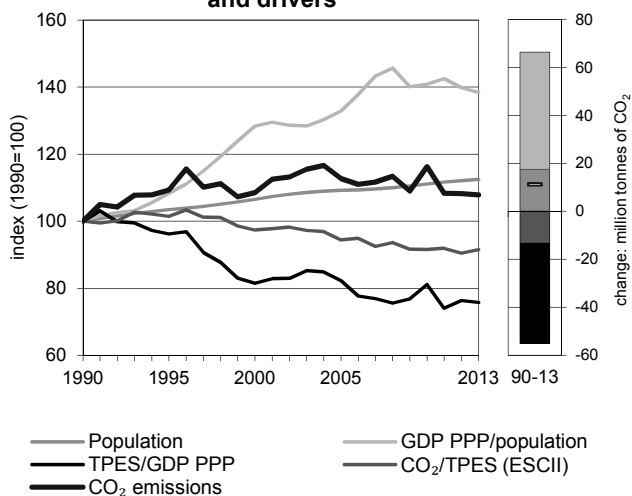


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Netherlands

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	144.85	158.36	157.19	163.25	168.33	156.84	156.23	8%
Share of World CO ₂ from fuel combustion	0.70%	0.74%	0.67%	0.60%	0.56%	0.50%	0.49%	
TPES (PJ)	2 750	2 962	3 066	3 282	3 493	3 290	3 240	18%
GDP (billion 2005 USD)	463.44	519.07	633.77	672.36	725.68	726.06	720.79	56%
GDP PPP (billion 2005 USD)	415.84	465.77	568.68	603.31	651.16	651.49	646.76	56%
Population (millions)	14.95	15.46	15.92	16.32	16.61	16.75	16.80	12%
CO ₂ / TPES (tCO ₂ per TJ)	52.7	53.5	51.3	49.7	48.2	47.7	48.2	-8%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.31	0.31	0.25	0.24	0.23	0.22	0.22	-31%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.35	0.34	0.28	0.27	0.26	0.24	0.24	-31%
CO ₂ / population (tCO ₂ per capita)	9.69	10.24	9.87	10.00	10.13	9.36	9.30	-4%
Share of electricity output from fossil fuels	94%	93%	92%	89%	87%	84%	85%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	616	554	482	459	419	446	452	-27%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	109	109	113	116	108	108	8%
Population index	100	103	107	109	111	112	112	12%
GDP PPP per population index	100	108	128	133	141	140	138	38%
Energy intensity index - TPES / GDP PPP	100	96	82	82	81	76	76	-24%
Carbon intensity index - CO ₂ / TPES	100	102	97	94	91	91	92	-8%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	31.62	48.11	73.45	3.05	156.23	8%
Electricity and heat generation	27.08	0.99	22.91	3.05	54.03	19%
Other energy industry own use	0.64	5.26	4.21	-	10.11	-27%
Manufacturing industries and construction	3.87	7.14	11.68	-	22.69	-2%
Transport	-	31.88	0.05	-	31.93	23%
<i>of which: road</i>	-	30.74	0.05	-	30.79	24%
Other	0.03	2.84	34.60	-	37.48	3%
<i>of which: residential</i>	0.02	0.26	18.60	-	18.88	-2%
<i>of which: services</i>	0.01	0.86	11.34	-	12.21	26%
<i>Memo: international marine bunkers</i>	-	39.97	-	-	39.97	15%
<i>Memo: international aviation bunkers</i>	-	10.31	-	-	10.31	138%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	30.74	23.5%	15.4	15.4
Main activity prod. elec. and heat - coal	26.93	6.0%	13.5	28.9
Residential - gas	18.60	0.7%	9.3	38.2
Main activity prod. elec. and heat - gas	17.87	37.2%	8.9	47.1
Non-specified other - gas	16.00	13.0%	8.0	55.2
Manufacturing industries - gas	11.68	-23.6%	5.9	61.0
Manufacturing industries - oil	7.14	216.0%	3.6	64.6
Other energy industry own use - oil	5.26	-50.8%	2.6	67.2
Unallocated autoproducers - gas	5.04	37.3%	2.5	69.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>156.23</i>	<i>7.9%</i>	<i>78.2</i>	<i>78.2</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

New Zealand

Figure 1. CO₂ emissions by fuel

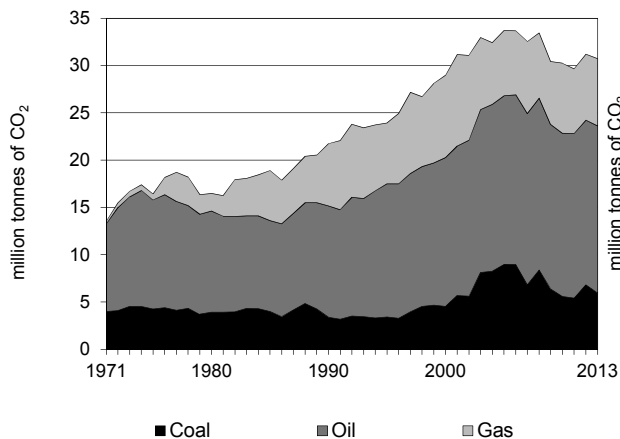


Figure 2. CO₂ emissions by sector

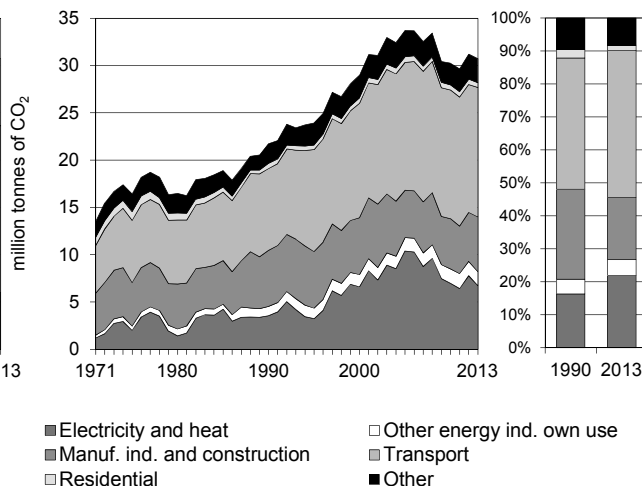


Figure 3. Electricity generation by fuel

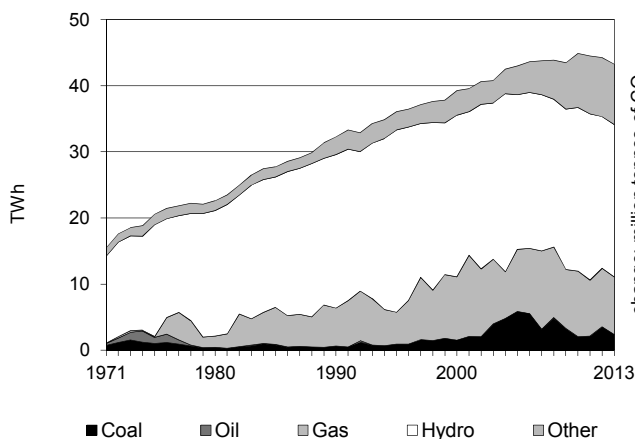


Figure 4. CO₂ from electricity generation: driving factors¹

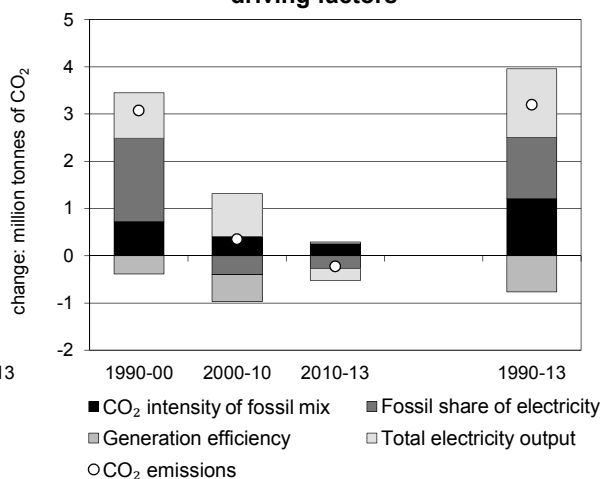


Figure 5. Changes in selected indicators

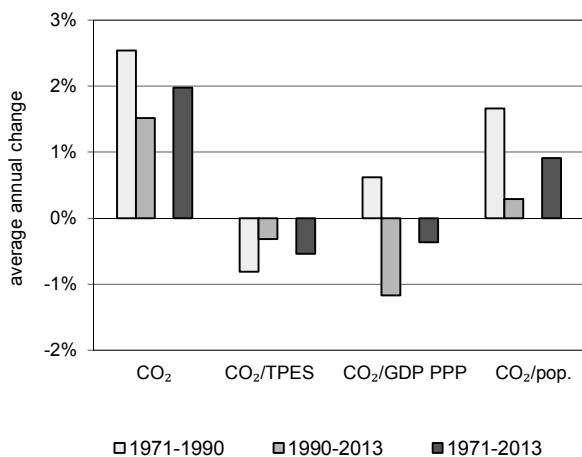
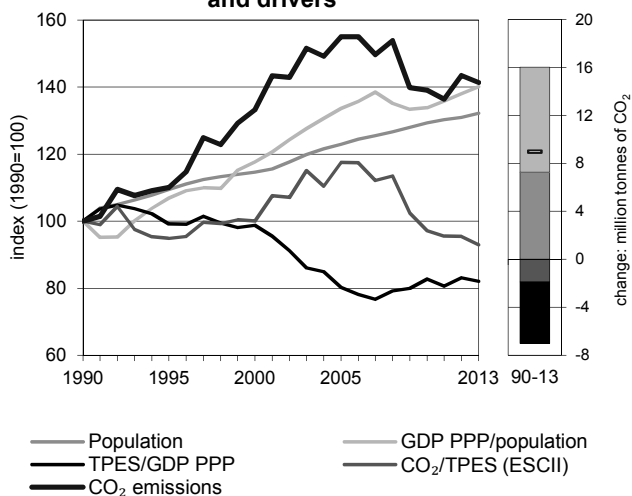


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

New Zealand

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	21.74	23.93	28.97	33.70	30.25	31.20	30.73	41%
Share of World CO ₂ from fuel combustion	0.11%	0.11%	0.12%	0.12%	0.10%	0.10%	0.10%	
TPES (PJ)	537	623	716	709	770	808	817	52%
GDP (billion 2005 USD)	70.02	81.92	94.43	115.06	121.20	126.58	129.72	85%
GDP PPP (billion 2005 USD)	64.78	75.79	87.37	106.46	112.14	117.12	120.02	85%
Population (millions)	3.37	3.69	3.87	4.15	4.36	4.42	4.46	32%
CO ₂ / TPES (tCO ₂ per TJ)	40.5	38.4	40.5	47.6	39.3	38.6	37.6	-7%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.31	0.29	0.31	0.29	0.25	0.25	0.24	-24%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.34	0.32	0.33	0.32	0.27	0.27	0.26	-24%
CO ₂ / population (tCO ₂ per capita)	6.45	6.48	7.50	8.13	6.93	7.06	6.89	7%
Share of electricity output from fossil fuels	20%	16%	28%	36%	27%	28%	26%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	110	90	168	242	155	176	156	42%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	110	133	155	139	143	141	41%
Population index	100	109	115	123	129	131	132	32%
GDP PPP per population index	100	107	118	134	134	138	140	40%
Energy intensity index - TPES / GDP PPP	100	99	99	80	83	83	82	-18%
Carbon intensity index - CO ₂ / TPES	100	95	100	118	97	95	93	-7%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	5.96	17.67	7.09	-	30.73	41%
Electricity and heat generation	3.14	0.00	3.59	-	6.73	90%
Other energy industry own use	0.18	0.86	0.43	-	1.48	50%
Manufacturing industries and construction	2.19	1.27	2.32	-	5.78	-2%
Transport	-	13.69	0.00	-	13.69	58%
<i>of which: road</i>	-	12.41	0.00	-	12.41	67%
Other	0.46	1.84	0.75	-	3.05	15%
<i>of which: residential</i>	0.03	0.20	0.29	-	0.51	-8%
<i>of which: services</i>	0.13	0.34	0.39	-	0.87	-1%
<i>Memo: international marine bunkers</i>	0.00	0.98	-	-	0.98	-7%
<i>Memo: international aviation bunkers</i>	-	2.60	-	-	2.60	95%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	12.41	70.4%	17.1	17.1
Main activity prod. elec. and heat - gas	3.50	21.8%	4.8	21.9
Manufacturing industries - gas	2.32	-19.5%	3.2	25.1
Manufacturing industries - coal	2.19	1.3%	3.0	28.1
Non-specified other - oil	1.64	3.7%	2.3	30.4
Main activity prod. elec. and heat - coal	1.59	238.2%	2.2	32.6
Unallocated autoproducers - coal	1.55	+	2.1	34.7
Other transport - oil	1.28	3.4%	1.8	36.5
Manufacturing industries - oil	1.27	45.9%	1.8	38.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>30.73</i>	<i>41.3%</i>	<i>42.3</i>	<i>42.3</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Nicaragua

Figure 1. CO₂ emissions by fuel

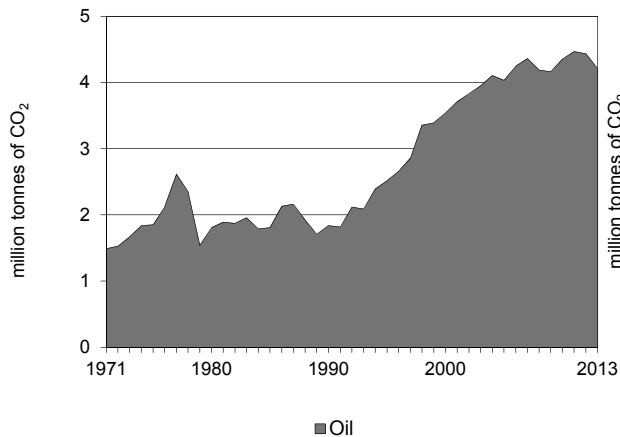


Figure 2. CO₂ emissions by sector

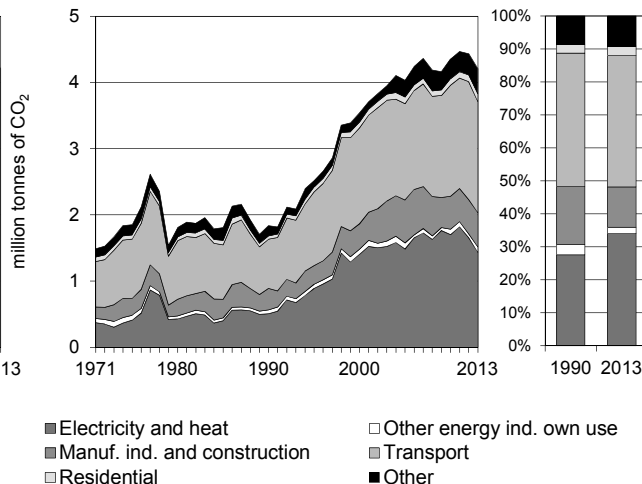


Figure 3. Electricity generation by fuel

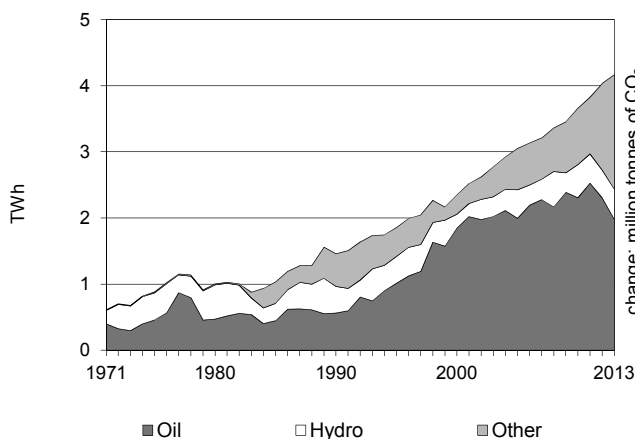


Figure 4. CO₂ from electricity generation: driving factors ¹

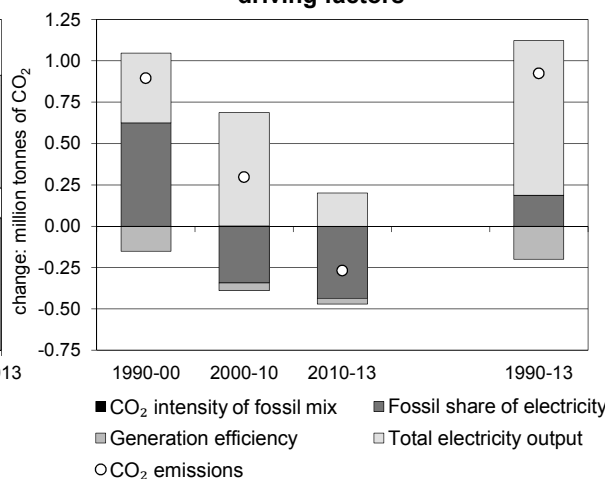


Figure 5. Changes in selected indicators

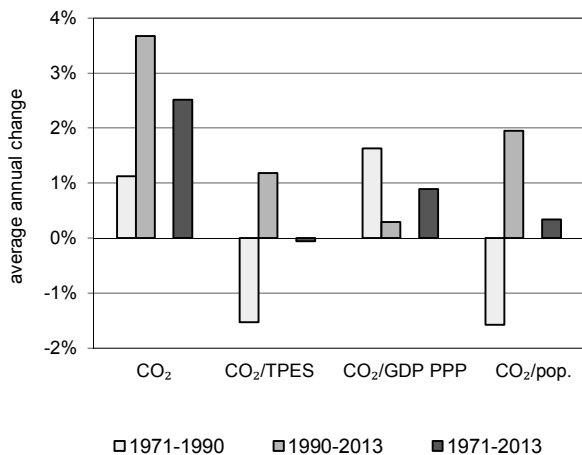
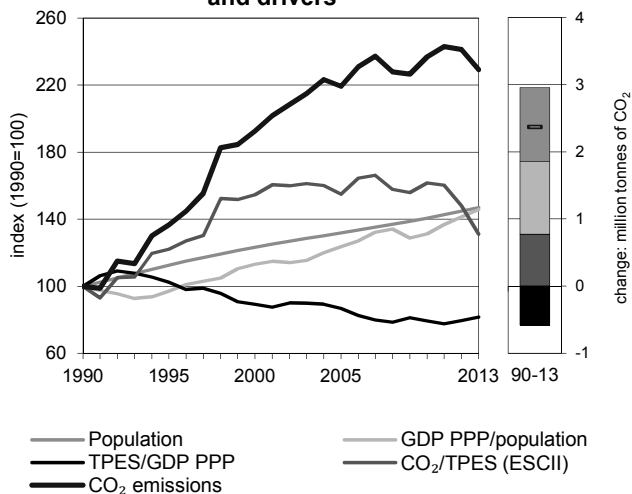


Figure 6. Total CO₂ emissions and drivers ²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Nicaragua

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	1.84	2.51	3.54	4.03	4.35	4.43	4.21	129%
Share of World CO ₂ from fuel combustion	0.01%	0.01%	0.02%	0.01%	0.01%	0.01%	0.01%	
TPES (PJ)	85	95	105	120	124	138	148	75%
GDP (billion 2005 USD)	3.88	4.24	5.41	6.32	7.16	7.95	8.31	114%
GDP PPP (billion 2005 USD)	11.35	12.40	15.84	18.51	20.97	23.26	24.33	114%
Population (millions)	4.14	4.66	5.10	5.46	5.82	5.99	6.08	47%
CO ₂ / TPES (tCO ₂ per TJ)	21.8	26.6	33.6	33.7	35.2	32.2	28.5	31%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.47	0.59	0.65	0.64	0.61	0.56	0.51	7%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.16	0.20	0.22	0.22	0.21	0.19	0.17	7%
CO ₂ / population (tCO ₂ per capita)	0.44	0.54	0.69	0.74	0.75	0.74	0.69	56%
Share of electricity output from fossil fuels	39%	55%	79%	65%	63%	57%	48%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	348	478	597	486	465	411	344	-1%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	137	193	219	237	241	229	129%
Population index	100	113	123	132	141	145	147	47%
GDP PPP per population index	100	97	113	124	131	141	146	46%
Energy intensity index - TPES / GDP PPP	100	102	89	87	79	80	82	-18%
Carbon intensity index - CO ₂ / TPES	100	122	155	155	162	148	131	31%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	4.21	-	-	4.21	129%
Electricity and heat generation	-	1.43	-	-	1.43	182%
Other energy industry own use	-	0.08	-	-	0.08	46%
Manufacturing industries and construction	-	0.51	-	-	0.51	60%
Transport	-	1.68	-	-	1.68	126%
<i>of which: road</i>	-	1.66	-	-	1.66	135%
Other	-	0.50	-	-	0.50	142%
<i>of which: residential</i>	-	0.12	-	-	0.12	135%
<i>of which: services</i>	-	0.35	-	-	0.35	315%
<i>Memo: international marine bunkers</i>	-	..	-	-
<i>Memo: international aviation bunkers</i>	-	0.06	-	-	0.06	-23%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	1.66	135.0%	11.2	11.2
Main activity prod. elec. and heat - oil	1.39	184.0%	9.4	20.6
Manufacturing industries - oil	0.51	59.7%	3.5	24.0
Non-specified other - oil	0.39	144.2%	2.6	26.6
Residential - oil	0.12	135.2%	0.8	27.4
Other energy industry own use - oil	0.08	46.2%	0.6	28.0
Unallocated autoproducers - oil	0.04	135.2%	0.3	28.3
Other transport - oil	0.02	-43.9%	0.1	28.4
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>4.21</i>	<i>129.1%</i>	<i>28.4</i>	<i>28.4</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Niger

Figure 1. CO₂ emissions by fuel

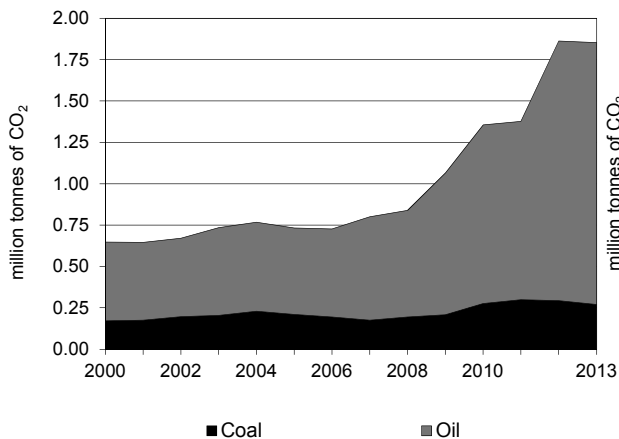


Figure 2. CO₂ emissions by sector

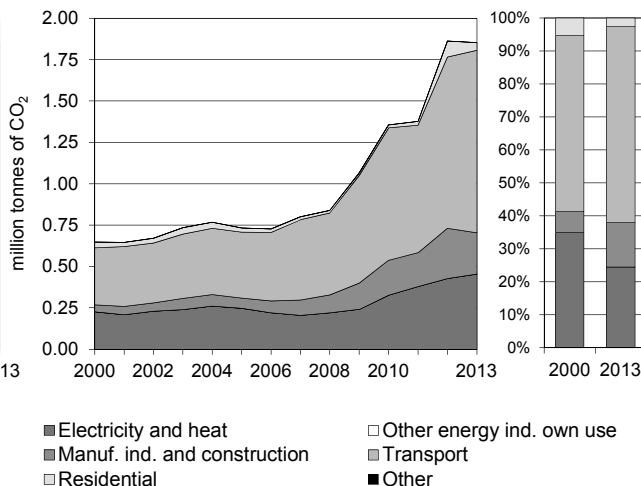


Figure 3. Electricity generation by fuel

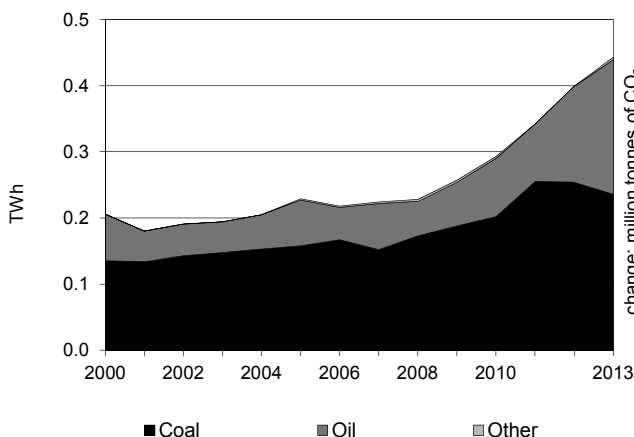


Figure 4. CO₂ from electricity generation: driving factors¹

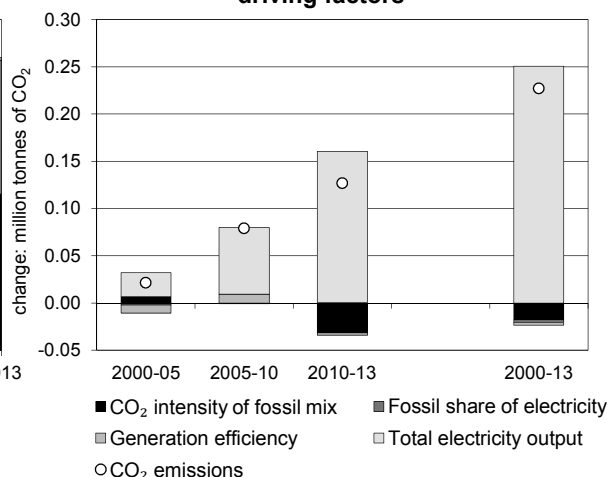


Figure 5. Changes in selected indicators

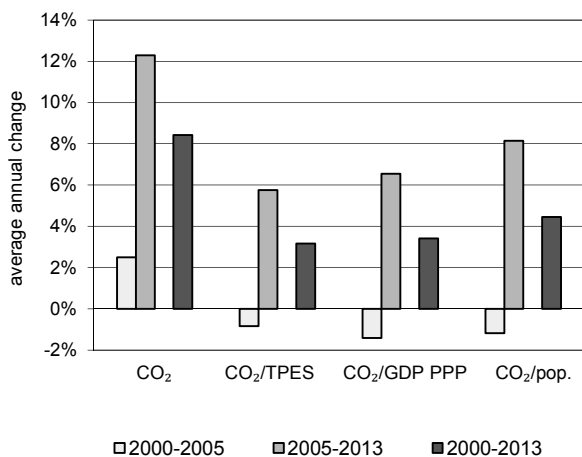
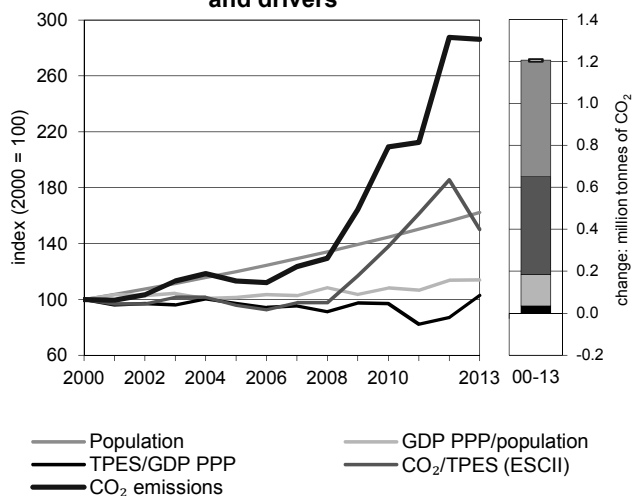


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Niger ¹

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 00-13
CO ₂ fuel combustion (MtCO ₂)	0.65	0.73	1.36	1.86	1.85	186%
Share of World CO ₂ from fuel combustion	0.00%	0.00%	0.00%	0.01%	0.01%	
TPES (PJ)	62	73	93	95	117	91%
GDP (billion 2005 USD)	2.80	3.41	4.38	4.98	5.18	85%
GDP PPP (billion 2005 USD)	7.61	9.25	11.90	13.52	14.08	85%
Population (millions)	10.99	13.18	15.89	17.16	17.83	62%
CO ₂ / TPES (tCO ₂ per TJ)	10.5	10.1	14.5	19.6	15.8	50%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.23	0.22	0.31	0.37	0.36	55%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.09	0.08	0.11	0.14	0.13	55%
CO ₂ / population (tCO ₂ per capita)	0.06	0.06	0.09	0.11	0.10	76%
Share of electricity output from fossil fuels	100%	99%	99%	100%	99%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	1100	1083	1116	1070	1024	-7%
CO₂ emissions and drivers - Kaya decomposition (2000=100) ²								
CO ₂ emissions index	100	113	209	288	286	186%
Population index	100	120	145	156	162	62%
GDP PPP per population index	100	101	108	114	114	14%
Energy intensity index - TPES / GDP PPP	100	97	97	87	103	3%
Carbon intensity index - CO ₂ / TPES	100	96	138	186	150	50%

1. Prior to 2000, data for Niger were included in Other Africa. 2. Please see Part I, Chapter 2 for methodological notes.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ³	Total	% change 00-13
CO₂ fuel combustion	0.27	1.58	-	-	1.85	186%
Electricity and heat generation	0.27	0.18	-	-	0.45	100%
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.25	-	-	0.25	509%
Transport	-	1.10	-	-	1.10	219%
<i>of which: road</i>	-	1.10	-	-	1.10	219%
Other	-	0.05	-	-	0.05	39%
<i>of which: residential</i>	-	0.05	-	-	0.05	39%
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.07	-	-	0.07	47%

3. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 00-13	Level assessment (%) ⁴	Cumulative total (%)
Road - oil	1.10	218.6%	..	..
Main activity prod. elec. and heat - coal	0.25	46.9%	..	..
Manufacturing industries - oil	0.25	509.2%	..	..
Main activity prod. elec. and heat - oil	0.15	194.3%	..	..
Residential - oil	0.05	39.5%	..	..
Unallocated autoproducers - oil	0.03	900.3%	..	..
Unallocated autoproducers - coal	0.02	x	..	..
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>1.85</i>	<i>186.1%</i>	-	-

4. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Nigeria

Figure 1. CO₂ emissions by fuel

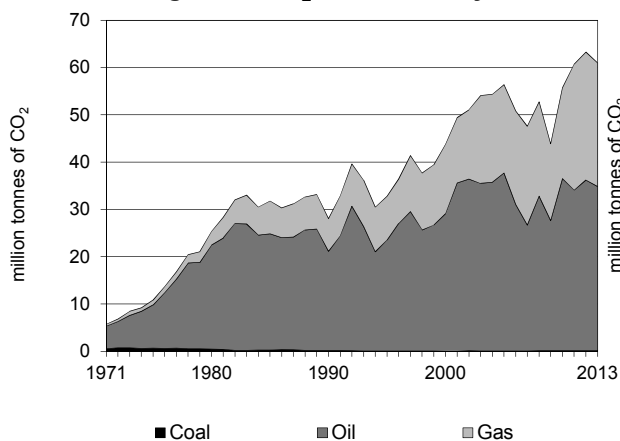


Figure 2. CO₂ emissions by sector

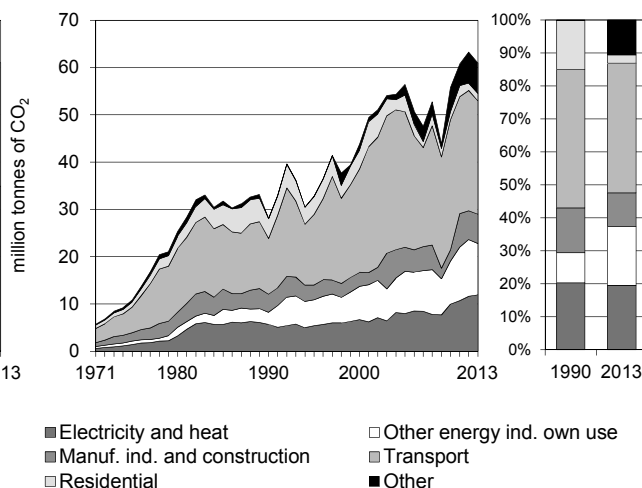


Figure 3. Electricity generation by fuel

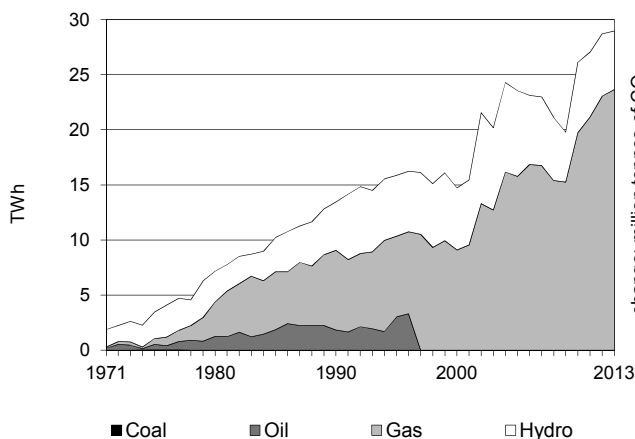


Figure 4. CO₂ from electricity generation: driving factors¹

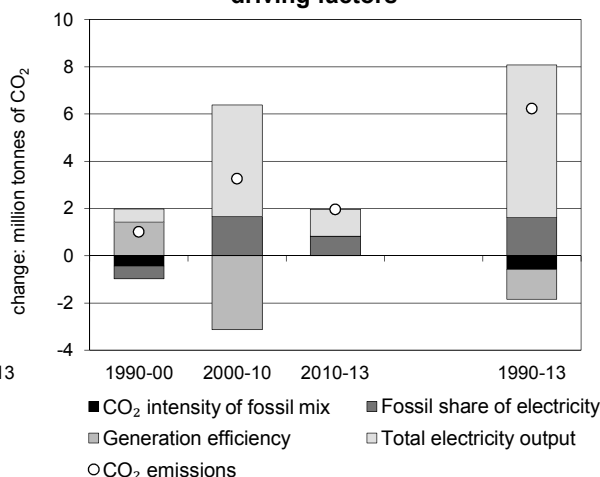


Figure 5. Changes in selected indicators

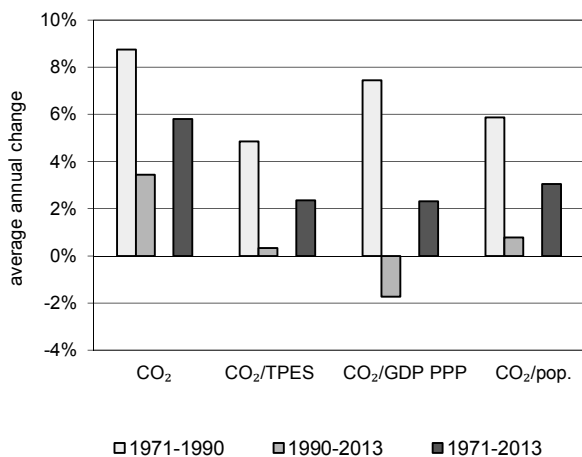
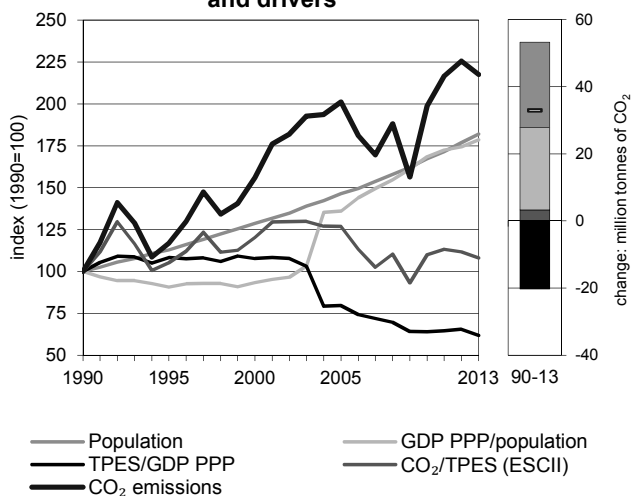


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Nigeria

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	28.06	32.77	43.76	56.40	55.77	63.28	61.00	117%
Share of World CO ₂ from fuel combustion	0.14%	0.15%	0.19%	0.21%	0.19%	0.20%	0.19%	
TPES (PJ)	2 781	3 085	3 602	4 409	5 023	5 611	5 593	101%
GDP (billion 2005 USD)	56.42	57.84	67.85	112.25	159.02	173.93	183.31	225%
GDP PPP (billion 2005 USD)	257.99	264.47	310.26	513.28	727.14	795.32	838.22	225%
Population (millions)	95.62	108.00	123.00	140.00	160.00	169.00	174.00	82%
CO ₂ / TPES (tCO ₂ per TJ)	10.1	10.6	12.1	12.8	11.1	11.3	10.9	8%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.50	0.57	0.65	0.50	0.35	0.36	0.33	-33%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.11	0.12	0.14	0.11	0.08	0.08	0.07	-33%
CO ₂ / population (tCO ₂ per capita)	0.29	0.30	0.36	0.40	0.35	0.37	0.35	19%
Share of electricity output from fossil fuels	67%	65%	62%	67%	76%	80%	82%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	423	339	456	338	382	405	412	-3%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	117	156	201	199	226	217	117%
Population index	100	113	129	146	167	177	182	82%
GDP PPP per population index	100	91	93	136	168	174	179	79%
Energy intensity index - TPES / GDP PPP	100	108	108	80	64	65	62	-38%
Carbon intensity index - CO ₂ / TPES	100	105	120	127	110	112	108	8%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	0.11	34.77	26.12	-	61.00	117%
Electricity and heat generation	-	-	11.93	-	11.93	109%
Other energy industry own use	-	1.46	9.41	-	10.87	327%
Manufacturing industries and construction	0.11	1.31	4.78	-	6.20	62%
Transport	-	23.98	-	-	23.98	104%
<i>of which: road</i>	-	23.90	-	-	23.90	107%
Other	-	8.02	-	-	8.02	90%
<i>of which: residential</i>	-	1.58	-	-	1.58	-62%
<i>of which: services</i>	-	0.00	-	-	0.00	-65%
<i>Memo: international marine bunkers</i>	-	1.17	-	-	1.17	99%
<i>Memo: international aviation bunkers</i>	-	1.08	-	-	1.08	12%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	23.90	107.2%	9.3	9.3
Other energy industry own use - gas	9.41	847.4%	3.7	13.0
Main activity prod. elec. and heat - gas	9.32	119.9%	3.6	16.6
Non-specified other - oil	6.43	+	2.5	19.2
Manufacturing industries - gas	4.78	184.4%	1.9	21.0
Unallocated autoproducers - gas	2.61	x	1.0	22.0
Residential - oil	1.58	-62.4%	0.6	22.7
Other energy industry own use - oil	1.46	-6.0%	0.6	23.2
Manufacturing industries - oil	1.31	-34.1%	0.5	23.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>61.00</i>	<i>117.4%</i>	<i>23.8</i>	<i>23.8</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Norway

Figure 1. CO₂ emissions by fuel

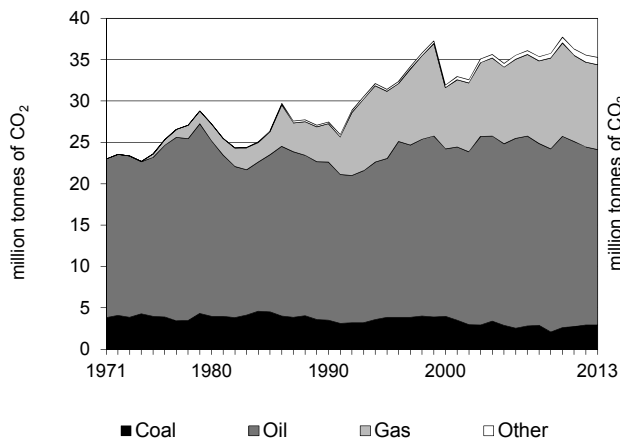


Figure 2. CO₂ emissions by sector

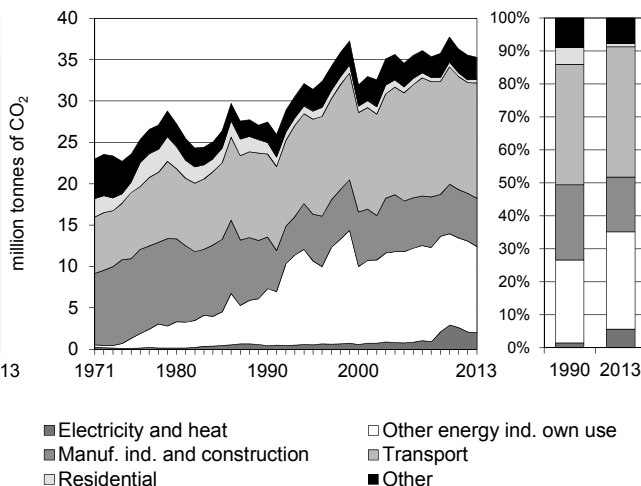


Figure 3. Electricity generation by fuel

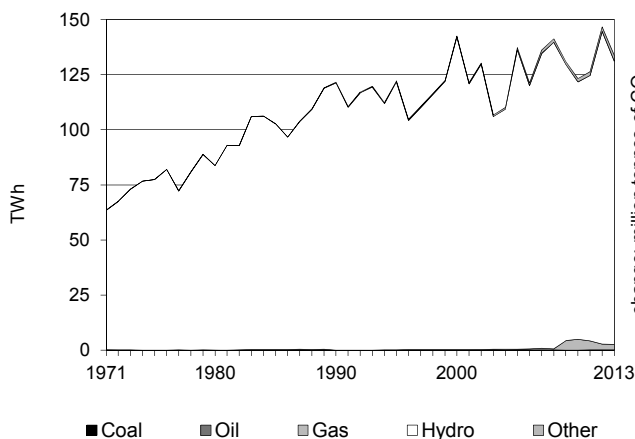


Figure 4. CO₂ from electricity generation: driving factors¹

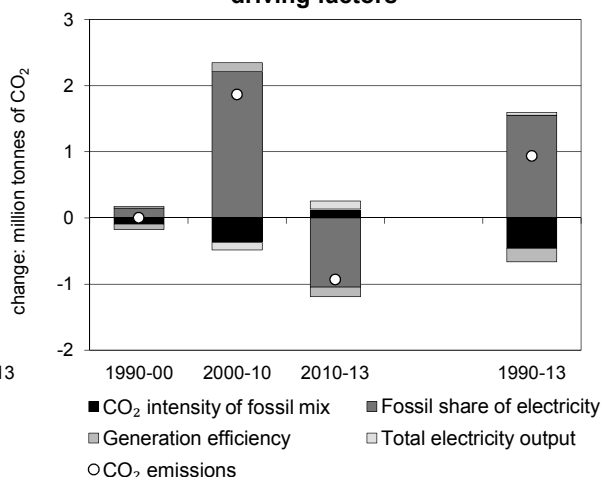


Figure 5. Changes in selected indicators

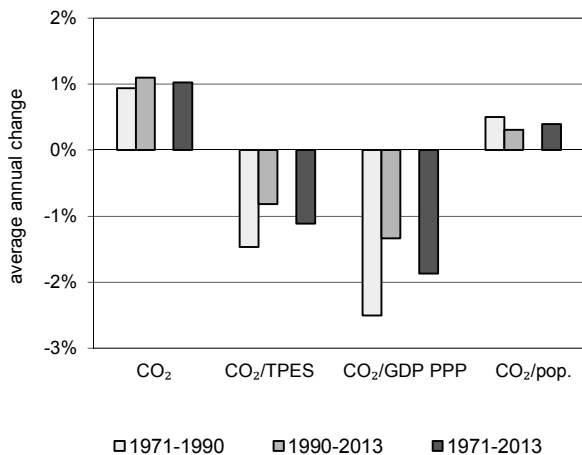
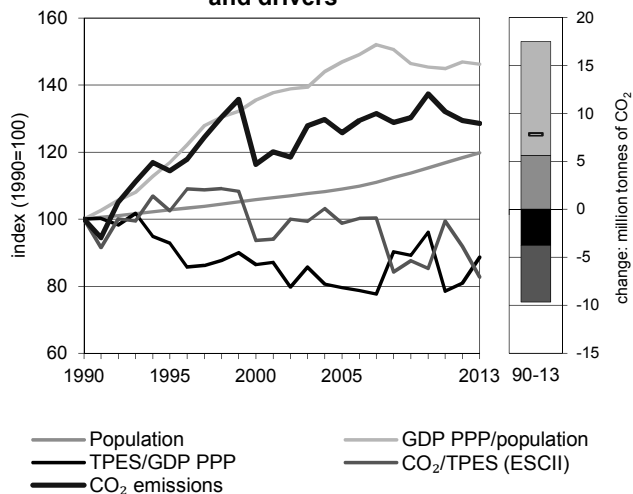


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Norway

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	27.46	31.42	31.94	34.55	37.72	35.54	35.29	29%
Share of World CO ₂ from fuel combustion	0.13%	0.15%	0.14%	0.13%	0.13%	0.11%	0.11%	
TPES (PJ)	882	984	1 095	1 124	1 421	1 242	1 369	55%
GDP (billion 2005 USD)	192.89	231.76	276.89	308.72	323.26	335.37	337.86	75%
GDP PPP (billion 2005 USD)	139.68	167.83	200.52	223.57	234.10	242.86	244.66	75%
Population (millions)	4.24	4.36	4.49	4.62	4.89	5.02	5.08	20%
CO ₂ / TPES (tCO ₂ per TJ)	31.1	31.9	29.2	30.8	26.6	28.6	25.8	-17%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.14	0.14	0.12	0.11	0.12	0.11	0.10	-27%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.20	0.19	0.16	0.15	0.16	0.15	0.14	-27%
CO ₂ / population (tCO ₂ per capita)	6.47	7.21	7.11	7.48	7.72	7.08	6.95	7%
Share of electricity output from fossil fuels	0%	0%	0%	1%	4%	2%	2%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	1	2	1	2	17	9	8	482%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	114	116	126	137	129	129	29%
Population index	100	103	106	109	115	118	120	20%
GDP PPP per population index	100	117	136	147	145	147	146	46%
Energy intensity index - TPES / GDP PPP	100	93	87	80	96	81	89	-11%
Carbon intensity index - CO ₂ / TPES	100	103	94	99	85	92	83	-17%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	2.94	21.19	10.24	0.92	35.29	29%
Electricity and heat generation	0.20	0.07	0.87	0.85	1.99	407%
Other energy industry own use	-	2.07	8.34	-	10.41	50%
Manufacturing industries and construction	2.74	2.37	0.69	0.07	5.86	-6%
Transport	-	13.69	0.24	-	13.93	39%
<i>of which: road</i>	-	10.22	0.03	-	10.25	33%
Other	-	3.00	0.10	-	3.10	-20%
<i>of which: residential</i>	-	0.39	0.01	-	0.40	-72%
<i>of which: services</i>	-	0.60	0.05	-	0.65	-39%
<i>Memo: international marine bunkers</i>	-	1.13	-	-	1.13	-20%
<i>Memo: international aviation bunkers</i>	-	1.47	-	-	1.47	17%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	10.22	33.1%	15.3	15.3
Other energy industry own use - gas	8.34	79.8%	12.5	27.9
Other transport - oil	3.47	47.5%	5.2	33.1
Manufacturing industries - coal	2.74	-17.8%	4.1	37.2
Non-specified other - oil	2.61	6.5%	3.9	41.1
Manufacturing industries - oil	2.37	-18.7%	3.6	44.6
Other energy industry own use - oil	2.07	-9.5%	3.1	47.7
Unallocated autoproducers - gas	0.84	x	1.3	49.0
Main activity prod. elec. and heat - other	0.83	301.6%	1.2	50.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>35.29</i>	<i>28.5%</i>	<i>53.0</i>	<i>53.0</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Oman

Figure 1. CO₂ emissions by fuel

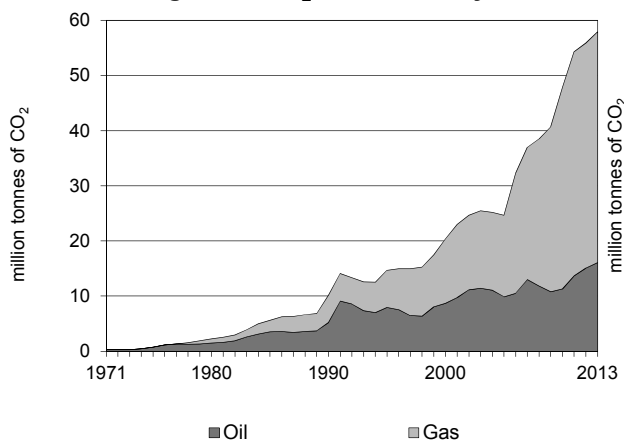


Figure 2. CO₂ emissions by sector

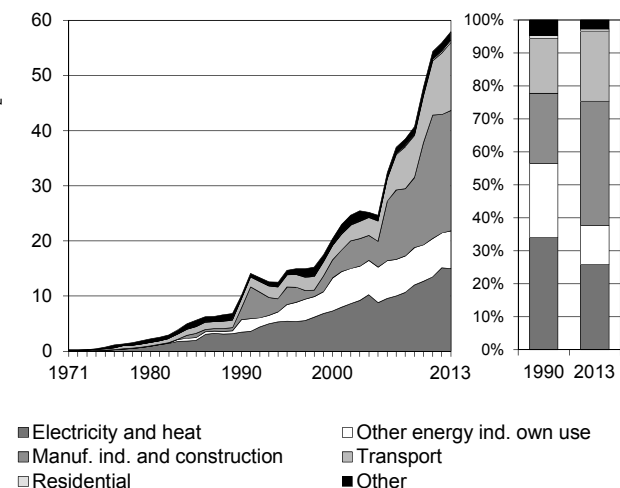


Figure 3. Electricity generation by fuel

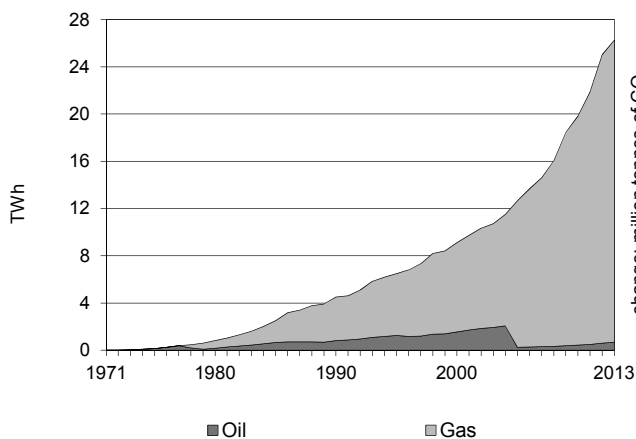


Figure 4. CO₂ from electricity generation: driving factors¹

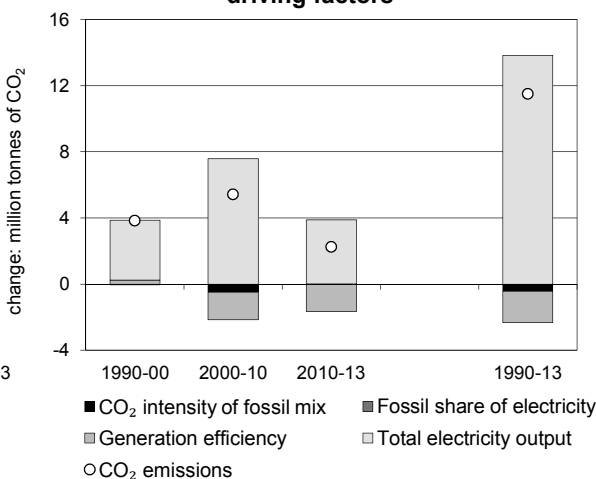


Figure 5. Changes in selected indicators

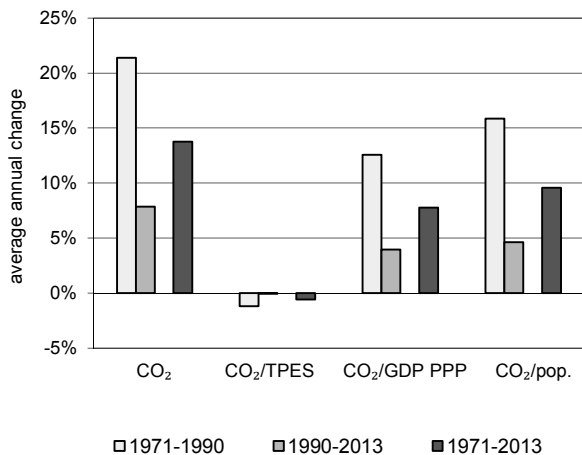
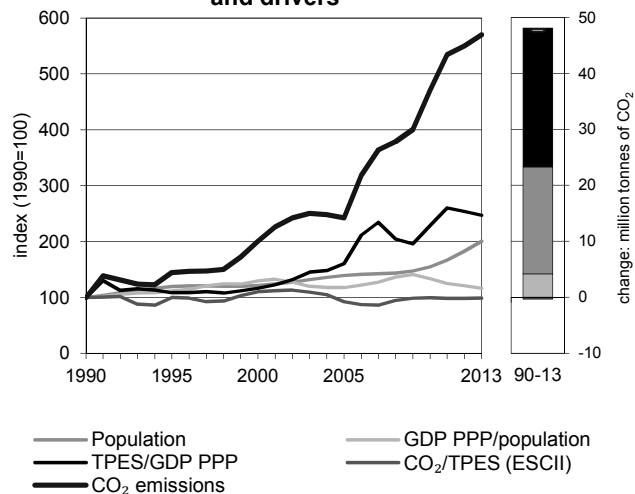


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Oman

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	10.16	14.69	20.40	24.66	47.87	55.88	57.92	470%
Share of World CO ₂ from fuel combustion	0.05%	0.07%	0.09%	0.09%	0.16%	0.18%	0.18%	
TPES (PJ)	177	255	323	465	838	991	1 019	477%
GDP (billion 2005 USD)	18.96	25.22	29.77	31.08	41.16	43.92	46.39	145%
GDP PPP (billion 2005 USD)	56.72	75.44	89.06	92.99	117.60	125.46	132.51	134%
Population (millions)	1.81	2.16	2.19	2.52	2.80	3.31	3.63	101%
CO ₂ / TPES (tCO ₂ per TJ)	57.5	57.5	63.2	53.0	57.1	56.4	56.8	-1%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.54	0.58	0.69	0.79	1.16	1.27	1.25	133%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.18	0.19	0.23	0.27	0.41	0.45	0.44	144%
CO ₂ / population (tCO ₂ per capita)	5.61	6.82	9.30	9.78	17.08	16.86	15.95	184%
Share of electricity output from fossil fuels	100%	100%	100%	100%	100%	100%	100%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	767	836	800	696	642	604	570	-26%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	145	201	243	471	550	570	470%
Population index	100	119	121	139	155	183	201	101%
GDP PPP per population index	100	112	130	118	134	121	116	16%
Energy intensity index - TPES / GDP PPP	100	109	116	161	229	254	247	147%
Carbon intensity index - CO ₂ / TPES	100	100	110	92	99	98	99	-1%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	16.05	41.87	-	57.92	470%
Electricity and heat generation	-	0.52	14.43	-	14.96	333%
Other energy industry own use	-	0.48	6.38	-	6.86	200%
Manufacturing industries and construction	-	1.19	20.63	-	21.82	910%
Transport	-	12.33	-	-	12.33	633%
<i>of which: road</i>	-	12.33	-	-	12.33	633%
Other	-	1.53	0.43	-	1.96	240%
<i>of which: residential</i>	-	0.40	-	-	0.40	286%
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	2.75	-	-	2.75	+
<i>Memo: international aviation bunkers</i>	-	1.19	-	-	1.19	26%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Manufacturing industries - gas	20.63	+	23.2	23.2
Main activity prod. elec. and heat - gas	14.43	461.5%	16.3	39.5
Road - oil	12.33	632.7%	13.9	53.4
Other energy industry own use - gas	6.38	295.4%	7.2	60.6
Manufacturing industries - oil	1.19	-24.0%	1.3	61.9
Non-specified other - oil	1.12	264.6%	1.3	63.2
Main activity prod. elec. and heat - oil	0.52	-40.7%	0.6	63.7
Other energy industry own use - oil	0.48	-28.7%	0.5	64.3
Non-specified other - gas	0.43	163.8%	0.5	64.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>57.92</i>	<i>470.1%</i>	<i>65.2</i>	<i>65.2</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Pakistan

Figure 1. CO₂ emissions by fuel

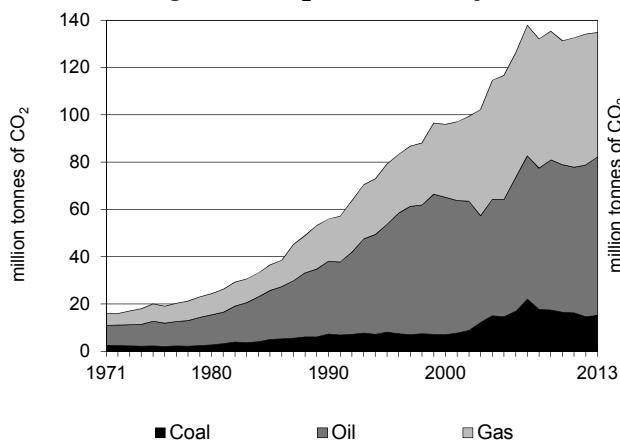


Figure 2. CO₂ emissions by sector

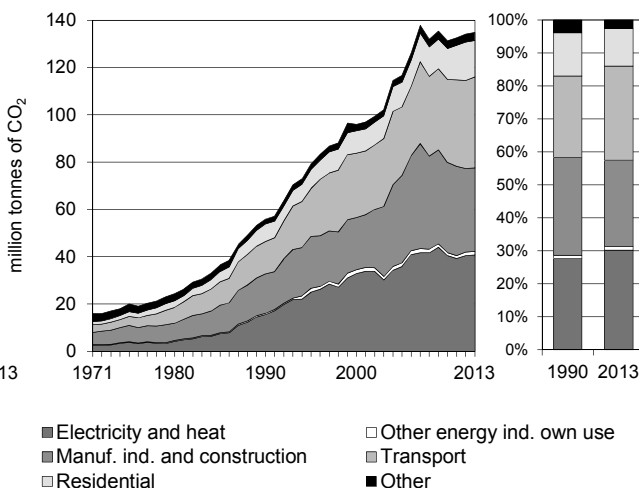


Figure 3. Electricity generation by fuel

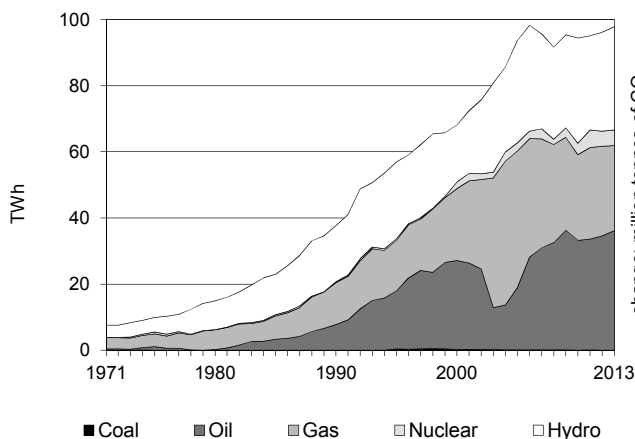


Figure 4. CO₂ from electricity generation: driving factors¹

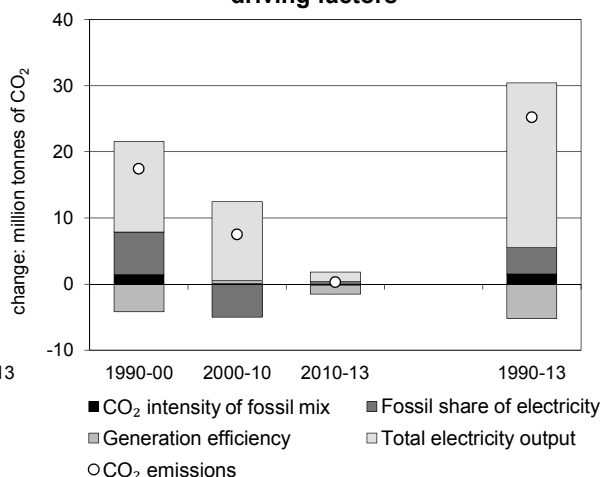


Figure 5. Changes in selected indicators

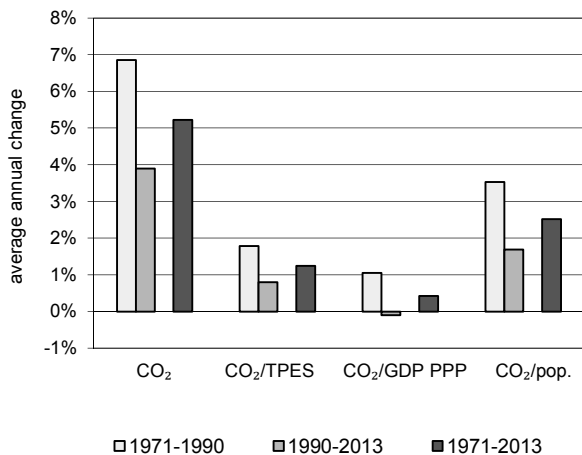
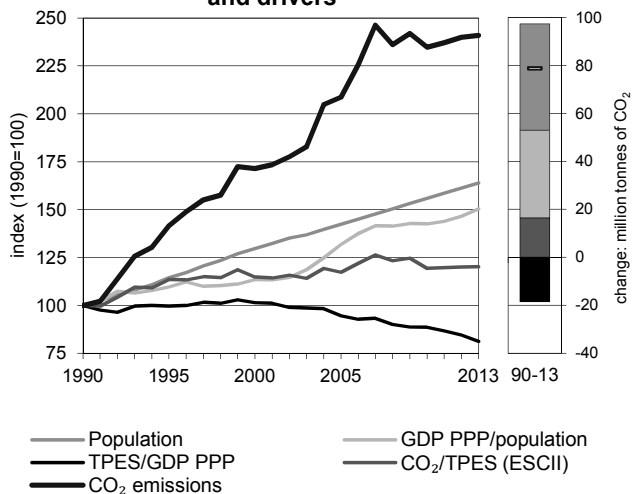


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Pakistan

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	55.96	79.22	95.96	116.75	131.36	134.23	134.83	141%
Share of World CO ₂ from fuel combustion	0.27%	0.37%	0.41%	0.43%	0.44%	0.43%	0.42%	
TPES (PJ)	1 796	2 242	2 682	3 193	3 534	3 591	3 602	101%
GDP (billion 2005 USD)	58.31	73.11	85.82	109.50	129.52	137.74	143.82	147%
GDP PPP (billion 2005 USD)	292.88	367.21	431.04	549.97	650.49	691.81	722.31	147%
Population (millions)	111.00	127.00	144.00	158.00	173.00	179.00	182.00	64%
CO ₂ / TPES (tCO ₂ per TJ)	31.2	35.3	35.8	36.6	37.2	37.4	37.4	20%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.96	1.08	1.12	1.07	1.01	0.97	0.94	-2%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.19	0.22	0.22	0.21	0.20	0.19	0.19	-2%
CO ₂ / population (tCO ₂ per capita)	0.50	0.62	0.67	0.74	0.76	0.75	0.74	47%
Share of electricity output from fossil fuels	54%	58%	72%	64%	63%	64%	63%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	411	439	483	383	428	420	416	1%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	142	171	209	235	240	241	141%
Population index	100	114	130	142	156	161	164	64%
GDP PPP per population index	100	110	113	132	143	146	150	50%
Energy intensity index - TPES / GDP PPP	100	100	101	95	89	85	81	-19%
Carbon intensity index - CO ₂ / TPES	100	113	115	117	119	120	120	20%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	15.19	67.06	52.58	-	134.83	141%
Electricity and heat generation	0.15	25.54	15.01	-	40.70	163%
Other energy industry own use	-	1.02	0.46	-	1.48	176%
Manufacturing industries and construction	15.04	4.67	15.66	-	35.37	112%
Transport	-	33.48	4.97	-	38.44	179%
<i>of which: road</i>	-	30.70	4.97	-	35.67	177%
Other	-	2.35	16.49	-	18.83	98%
<i>of which: residential</i>	-	0.97	14.47	-	15.44	110%
<i>of which: services</i>	-	1.04	2.02	-	3.06	151%
<i>Memo: international marine bunkers</i>	-	0.31	-	-	0.31	185%
<i>Memo: international aviation bunkers</i>	-	0.59	-	-	0.59	-58%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	30.70	138.2%	8.6	8.6
Main activity prod. elec. and heat - oil	25.54	266.7%	7.2	15.8
Manufacturing industries - gas	15.66	194.5%	4.4	20.2
Manufacturing industries - coal	15.04	107.6%	4.2	24.5
Main activity prod. elec. and heat - gas	15.01	77.9%	4.2	28.7
Residential - gas	14.47	314.9%	4.1	32.8
Road - gas	4.97	+	1.4	34.2
Manufacturing industries - oil	4.67	13.7%	1.3	35.5
Other transport - oil	2.78	210.8%	0.8	36.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>134.83</i>	<i>141.0%</i>	<i>37.9</i>	<i>37.9</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Panama

Figure 1. CO₂ emissions by fuel

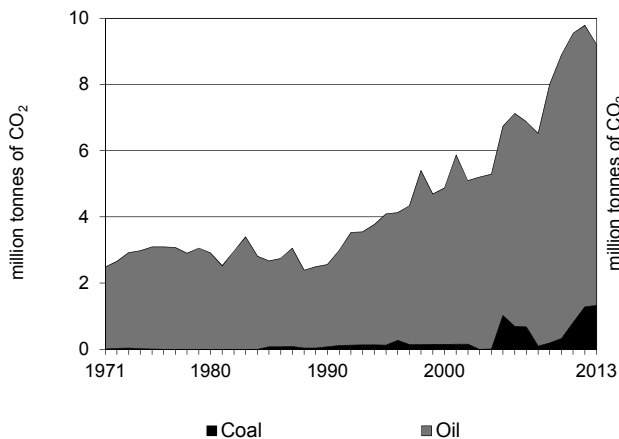


Figure 2. CO₂ emissions by sector

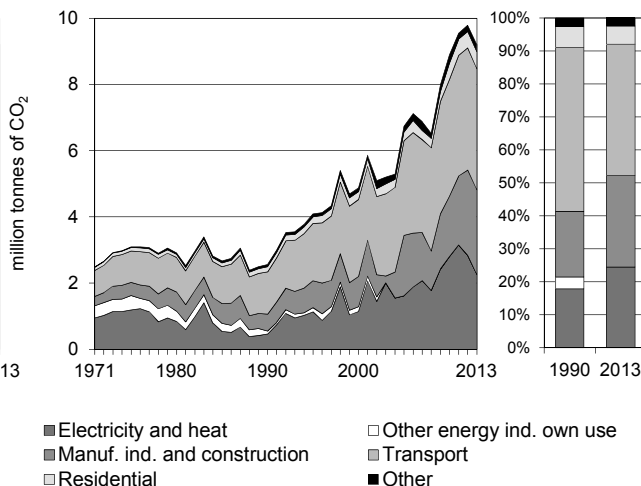


Figure 3. Electricity generation by fuel

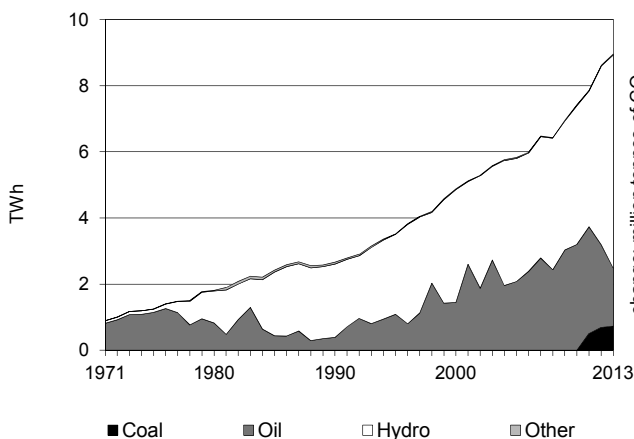


Figure 4. CO₂ from electricity generation: driving factors¹

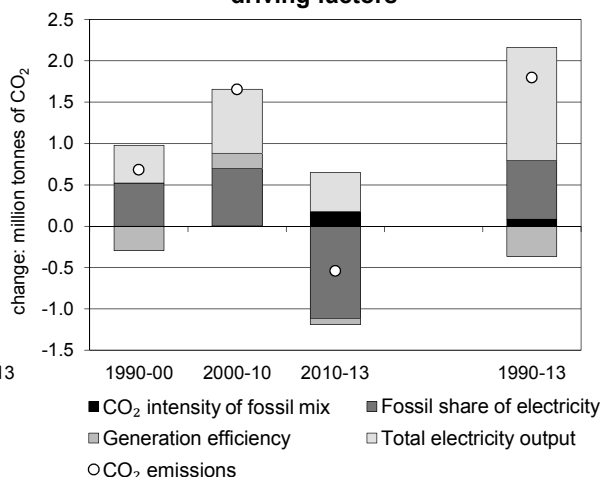


Figure 5. Changes in selected indicators

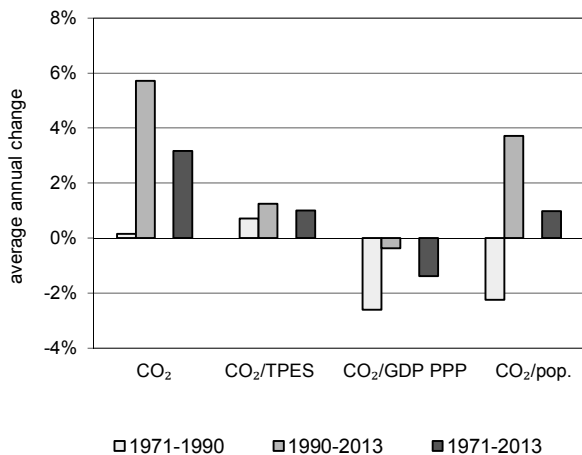
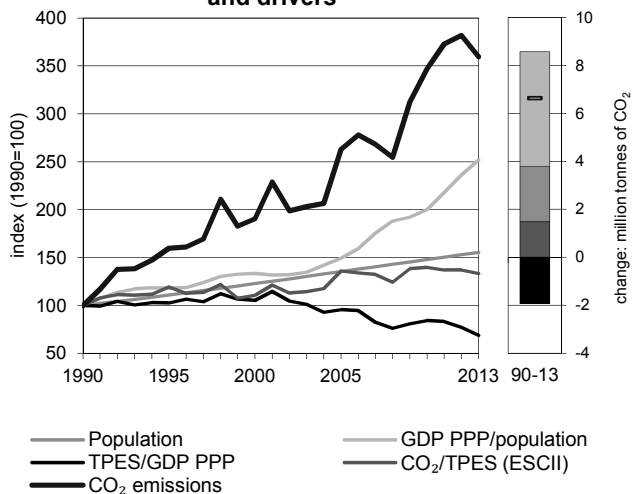


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Panama

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	2.56	4.09	4.88	6.74	8.90	9.79	9.21	259%
Share of World CO ₂ from fuel combustion	0.01%	0.02%	0.02%	0.02%	0.03%	0.03%	0.03%	
TPES (PJ)	62	84	108	121	155	174	168	170%
GDP (billion 2005 USD)	7.64	9.99	12.52	15.47	22.60	27.60	29.91	291%
GDP PPP (billion 2005 USD)	16.52	21.59	27.07	33.43	48.86	59.67	64.66	291%
Population (millions)	2.49	2.76	3.06	3.37	3.68	3.80	3.86	55%
CO ₂ / TPES (tCO ₂ per TJ)	41.1	48.9	45.3	55.8	57.3	56.3	54.7	33%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.34	0.41	0.39	0.44	0.39	0.35	0.31	-8%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.16	0.19	0.18	0.20	0.18	0.16	0.14	-8%
CO ₂ / population (tCO ₂ per capita)	1.03	1.48	1.60	2.00	2.42	2.57	2.38	131%
Share of electricity output from fossil fuels	15%	31%	30%	36%	43%	37%	28%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	172	320	233	277	377	330	252	46%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	160	190	263	347	382	359	259%
Population index	100	111	123	135	148	153	155	55%
GDP PPP per population index	100	118	133	149	200	236	252	152%
Energy intensity index - TPES / GDP PPP	100	103	105	96	84	77	69	-31%
Carbon intensity index - CO ₂ / TPES	100	119	110	136	140	137	133	33%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	1.32	7.89	-	-	9.21	259%
Electricity and heat generation	0.83	1.42	-	-	2.26	393%
Other energy industry own use	-	-	-	-	-	-100%
Manufacturing industries and construction	0.48	2.08	-	-	2.56	402%
Transport	-	3.66	-	-	3.66	187%
<i>of which: road</i>	-	3.66	-	-	3.66	187%
Other	-	0.74	-	-	0.74	221%
<i>of which: residential</i>	-	0.51	-	-	0.51	217%
<i>of which: services</i>	-	0.17	-	-	0.17	160%
<i>Memo: international marine bunkers</i>	-	10.73	-	-	10.73	114%
<i>Memo: international aviation bunkers</i>	-	1.63	-	-	1.63	697%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	3.66	187.0%	24.9	24.9
Manufacturing industries - oil	2.08	381.4%	14.1	39.0
Main activity prod. elec. and heat - oil	1.42	246.4%	9.7	48.7
Main activity prod. elec. and heat - coal	0.83	x	5.7	54.4
Residential - oil	0.51	216.6%	3.5	57.9
Manufacturing industries - coal	0.48	518.5%	3.3	61.2
Non-specified other - oil	0.22	231.5%	1.5	62.7
Other transport - oil	0.00	x	0.0	62.7
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>9.21</i>	<i>259.5%</i>	<i>62.7</i>	<i>62.7</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Paraguay

Figure 1. CO₂ emissions by fuel

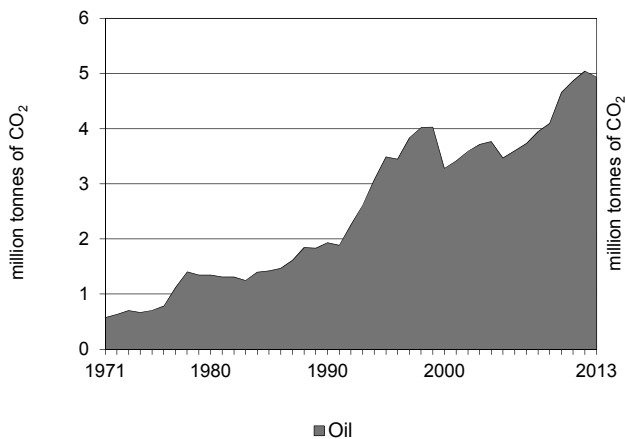


Figure 2. CO₂ emissions by sector

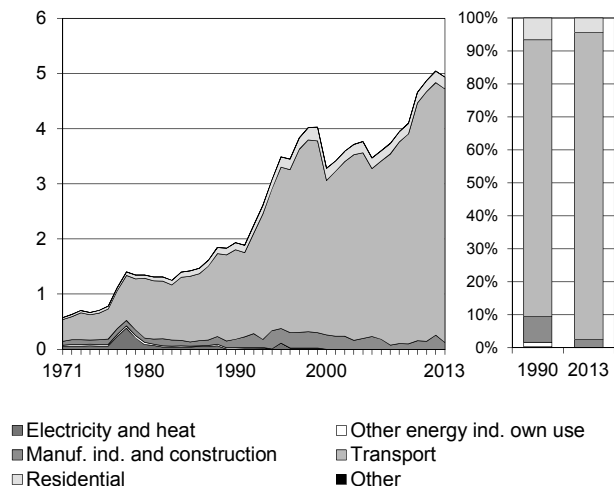


Figure 3. Electricity generation by fuel

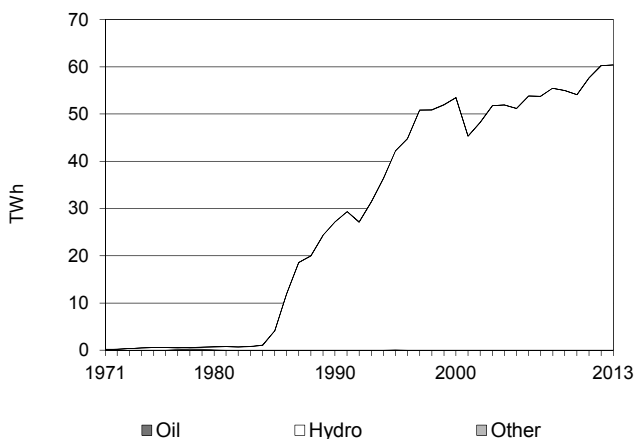


Figure 4. CO₂ from electricity generation: driving factors ¹

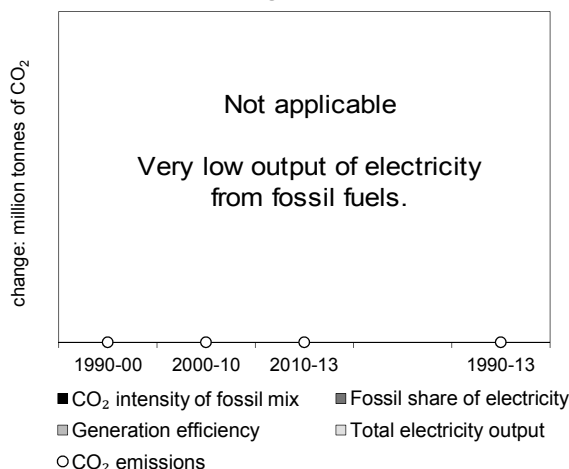


Figure 5. Changes in selected indicators

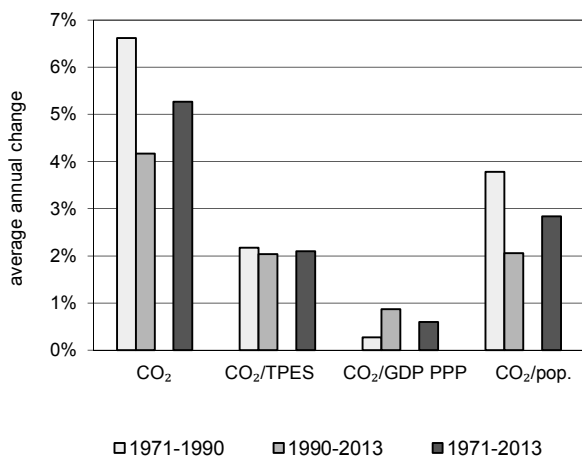
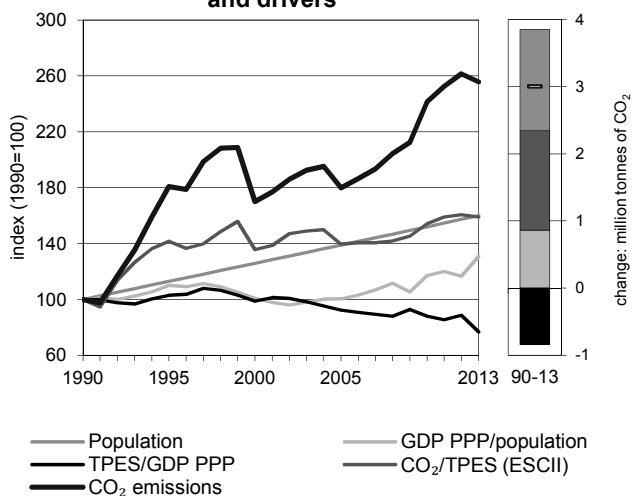


Figure 6. Total CO₂ emissions and drivers ²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Paraguay

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	1.93	3.49	3.28	3.47	4.66	5.04	4.93	156%
Share of World CO ₂ from fuel combustion	0.01%	0.02%	0.01%	0.01%	0.02%	0.02%	0.02%	
TPES (PJ)	129	164	161	166	201	209	207	61%
GDP (billion 2005 USD)	6.26	7.78	7.95	8.74	11.15	11.49	13.12	109%
GDP PPP (billion 2005 USD)	22.65	28.14	28.73	31.58	40.30	41.53	47.44	109%
Population (millions)	4.25	4.80	5.35	5.90	6.46	6.69	6.80	60%
CO ₂ / TPES (tCO ₂ per TJ)	15.0	21.2	20.3	20.9	23.1	24.1	23.9	59%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.31	0.45	0.41	0.40	0.42	0.44	0.38	22%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.09	0.12	0.11	0.11	0.12	0.12	0.10	22%
CO ₂ / population (tCO ₂ per capita)	0.45	0.73	0.61	0.59	0.72	0.75	0.73	60%
Share of electricity output from fossil fuels	0%	0%	0%	0%	0%	0%	0%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	0	3	-	-	-	-	-	-100%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	181	170	180	241	261	256	156%
Population index	100	113	126	139	152	157	160	60%
GDP PPP per population index	100	110	101	100	117	117	131	31%
Energy intensity index - TPES / GDP PPP	100	103	99	92	88	89	77	-23%
Carbon intensity index - CO ₂ / TPES	100	142	136	140	154	161	159	59%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	4.93	-	-	4.93	156%
Electricity and heat generation	-	-	-	-	-	-100%
Other energy industry own use	-	-	-	-	-	-100%
Manufacturing industries and construction	-	0.12	-	-	0.12	-17%
Transport	-	4.60	-	-	4.60	184%
<i>of which: road</i>	-	4.57	-	-	4.57	189%
Other	-	0.21	-	-	0.21	68%
<i>of which: residential</i>	-	0.21	-	-	0.21	68%
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.09	-	-	0.09	212%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	4.57	189.3%	13.9	13.9
Residential - oil	0.21	67.8%	0.7	14.6
Manufacturing industries - oil	0.12	-17.3%	0.4	15.0
Other transport - oil	0.03	-30.5%	0.1	15.1
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	4.93	155.8%	15.1	15.1

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Peru

Figure 1. CO₂ emissions by fuel

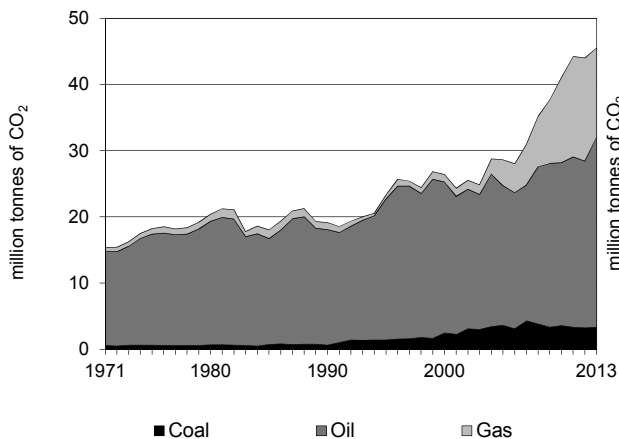


Figure 2. CO₂ emissions by sector

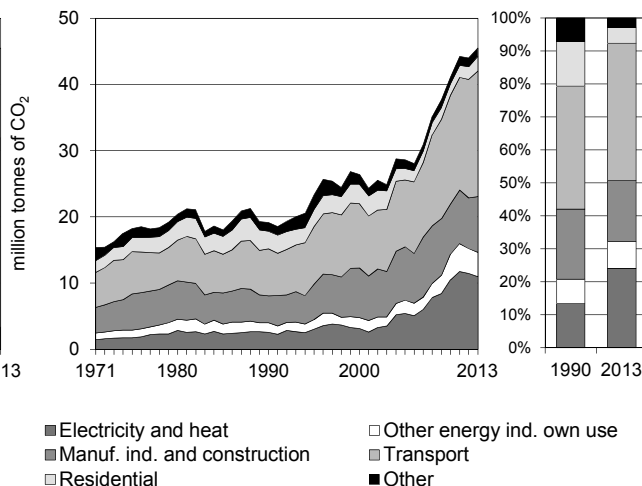


Figure 3. Electricity generation by fuel

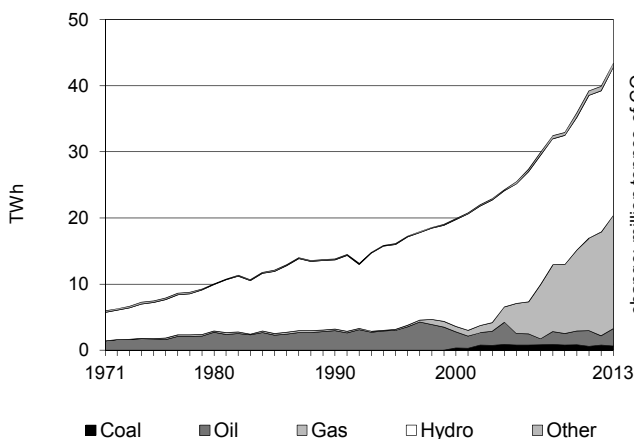


Figure 4. CO₂ from electricity generation: driving factors¹

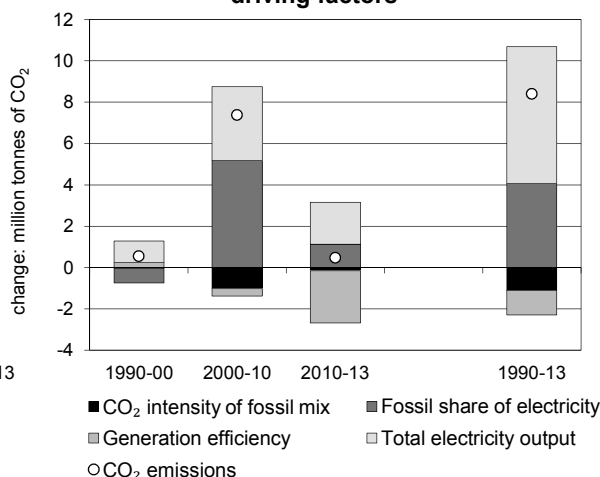


Figure 5. Changes in selected indicators

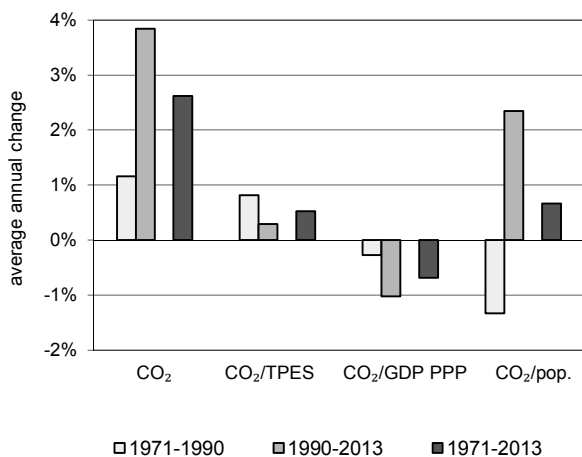
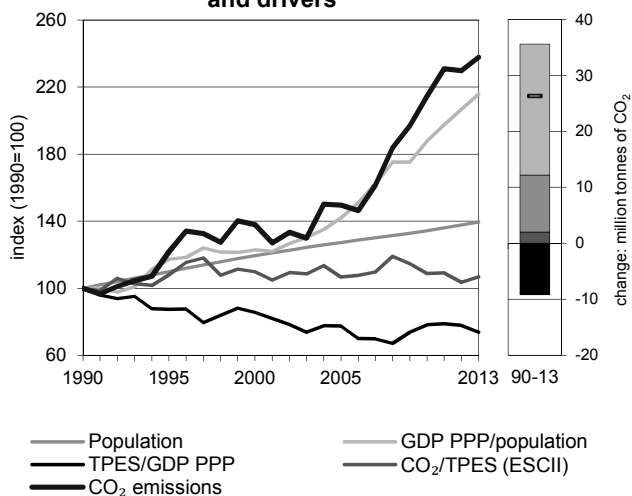


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Peru

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	19.14	23.30	26.39	28.62	41.09	44.00	45.52	138%
Share of World CO ₂ from fuel combustion	0.09%	0.11%	0.11%	0.11%	0.14%	0.14%	0.14%	
TPES (PJ)	408	459	512	571	804	904	906	122%
GDP (billion 2005 USD)	41.45	53.50	60.80	74.96	104.63	118.01	124.83	201%
GDP PPP (billion 2005 USD)	102.34	132.10	150.12	185.09	258.33	291.36	308.21	201%
Population (millions)	21.77	23.94	26.00	27.72	29.26	29.99	30.38	40%
CO ₂ / TPES (tCO ₂ per TJ)	47.0	50.7	51.6	50.1	51.1	48.7	50.2	7%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.46	0.44	0.43	0.38	0.39	0.37	0.36	-21%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.19	0.18	0.18	0.15	0.16	0.15	0.15	-21%
CO ₂ / population (tCO ₂ per capita)	0.88	0.97	1.02	1.03	1.40	1.47	1.50	70%
Share of electricity output from fossil fuels	23%	20%	18%	28%	42%	45%	47%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	186	188	156	211	292	287	253	36%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	122	138	150	215	230	238	138%
Population index	100	110	119	127	134	138	140	40%
GDP PPP per population index	100	117	123	142	188	207	216	116%
Energy intensity index - TPES / GDP PPP	100	87	86	78	78	78	74	-26%
Carbon intensity index - CO ₂ / TPES	100	108	110	107	109	104	107	7%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	3.30	28.72	13.51	-	45.52	138%
Electricity and heat generation	0.73	2.28	7.95	-	10.96	328%
Other energy industry own use	-	1.01	2.69	-	3.70	161%
Manufacturing industries and construction	2.57	4.30	1.51	-	8.39	106%
Transport	-	17.84	1.12	-	18.96	166%
<i>of which: road</i>	-	17.84	-	-	17.84	159%
Other	-	3.28	0.23	-	3.51	-11%
<i>of which: residential</i>	-	2.18	0.04	-	2.22	-15%
<i>of which: services</i>	-	0.57	0.18	-	0.75	14%
<i>Memo: international marine bunkers</i>	-	0.24	-	-	0.24	103%
<i>Memo: international aviation bunkers</i>	-	2.42	-	-	2.42	272%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	17.84	159.4%	22.3	22.3
Main activity prod. elec. and heat - gas	7.55	x	9.4	31.7
Manufacturing industries - oil	4.30	25.0%	5.4	37.1
Other energy industry own use - gas	2.69	266.9%	3.4	40.4
Manufacturing industries - coal	2.57	348.7%	3.2	43.6
Residential - oil	2.18	-12.7%	2.7	46.4
Main activity prod. elec. and heat - oil	1.57	93.3%	2.0	48.3
Manufacturing industries - gas	1.51	+	1.9	50.2
Other transport - gas	1.12	x	1.4	51.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>45.52</i>	<i>137.8%</i>	<i>56.8</i>	<i>56.8</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Philippines

Figure 1. CO₂ emissions by fuel

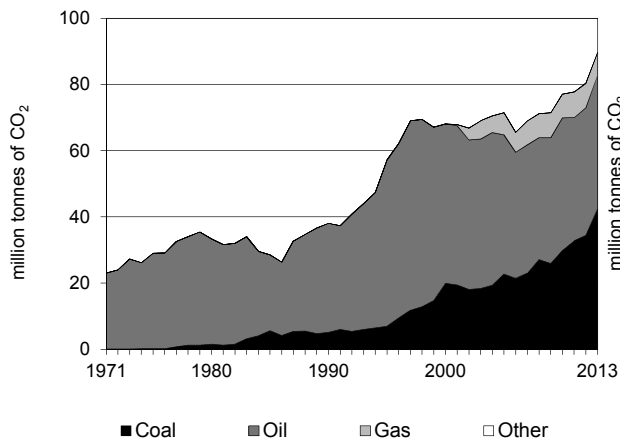


Figure 2. CO₂ emissions by sector

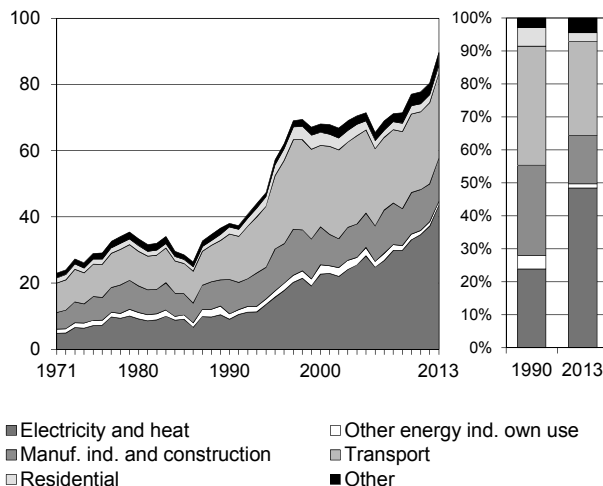


Figure 3. Electricity generation by fuel

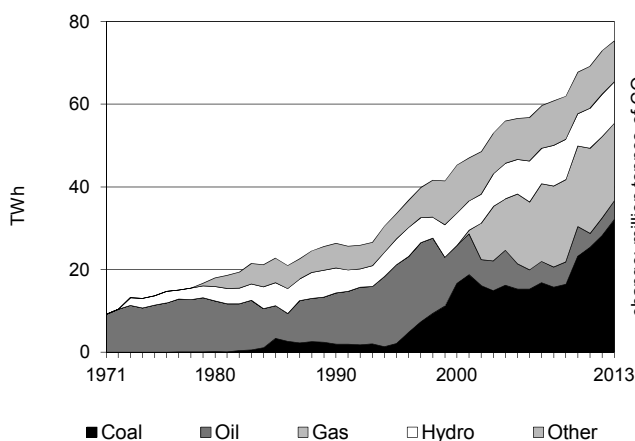


Figure 4. CO₂ from electricity generation: driving factors¹

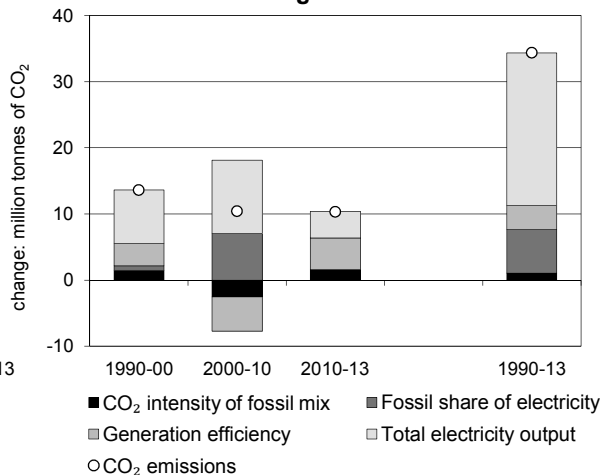


Figure 5. Changes in selected indicators

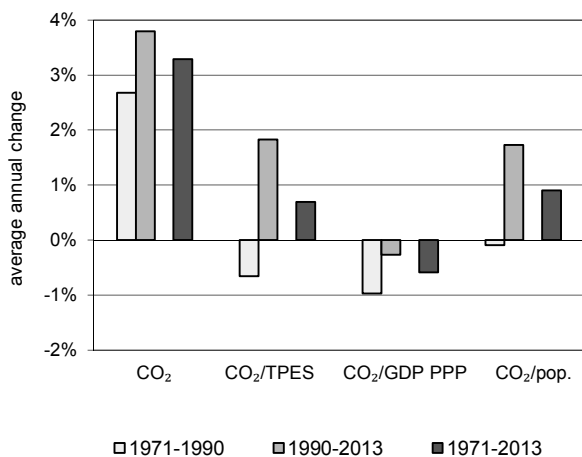
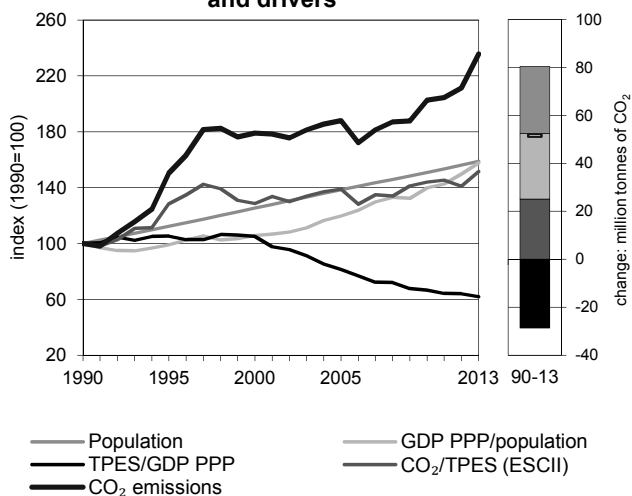


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Philippines

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	38.04	57.24	68.11	71.48	77.11	80.39	89.63	136%
Share of World CO ₂ from fuel combustion	0.18%	0.27%	0.29%	0.26%	0.26%	0.26%	0.28%	
TPES (PJ)	1 202	1 408	1 674	1 627	1 691	1 803	1 867	55%
GDP (billion 2005 USD)	62.10	69.13	82.35	103.07	131.13	145.18	155.60	151%
GDP PPP (billion 2005 USD)	221.18	246.20	293.32	367.09	467.05	517.07	554.20	151%
Population (millions)	61.95	69.61	77.65	85.82	93.44	96.71	98.39	59%
CO ₂ / TPES (tCO ₂ per TJ)	31.7	40.7	40.7	43.9	45.6	44.6	48.0	52%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.61	0.83	0.83	0.69	0.59	0.55	0.58	-6%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.17	0.23	0.23	0.19	0.17	0.16	0.16	-6%
CO ₂ / population (tCO ₂ per capita)	0.61	0.82	0.88	0.83	0.83	0.83	0.91	48%
Share of electricity output from fossil fuels	55%	63%	57%	68%	74%	72%	74%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	345	469	501	499	489	510	577	67%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	150	179	188	203	211	236	136%
Population index	100	112	125	139	151	156	159	59%
GDP PPP per population index	100	99	106	120	140	150	158	58%
Energy intensity index - TPES / GDP PPP	100	105	105	82	67	64	62	-38%
Carbon intensity index - CO ₂ / TPES	100	128	129	139	144	141	152	52%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	42.52	40.24	6.83	0.03	89.63	136%
Electricity and heat generation	33.52	3.45	6.42	0.03	43.42	378%
Other energy industry own use	-	0.90	0.26	-	1.16	-26%
Manufacturing industries and construction	9.01	3.99	0.15	-	13.14	26%
Transport	-	25.55	0.00	-	25.56	86%
<i>of which: road</i>	-	22.27	0.00	-	22.27	93%
Other	-	6.35	-	-	6.35	95%
<i>of which: residential</i>	-	2.36	-	-	2.36	8%
<i>of which: services</i>	-	3.40	-	-	3.40	+
<i>Memo: international marine bunkers</i>	-	0.52	-	-	0.52	151%
<i>Memo: international aviation bunkers</i>	-	3.28	-	-	3.28	223%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	33.52	+	18.5	18.5
Road - oil	22.27	93.3%	12.3	30.8
Manufacturing industries - coal	9.01	194.1%	5.0	35.8
Main activity prod. elec. and heat - gas	6.42	x	3.5	39.3
Manufacturing industries - oil	3.99	-45.6%	2.2	41.5
Non-specified other - oil	3.98	269.5%	2.2	43.7
Main activity prod. elec. and heat - oil	3.45	-51.1%	1.9	45.6
Other transport - oil	3.28	48.2%	1.8	47.5
Residential - oil	2.36	8.3%	1.3	48.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>89.63</i>	<i>135.6%</i>	<i>49.5</i>	<i>49.5</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Poland

Figure 1. CO₂ emissions by fuel

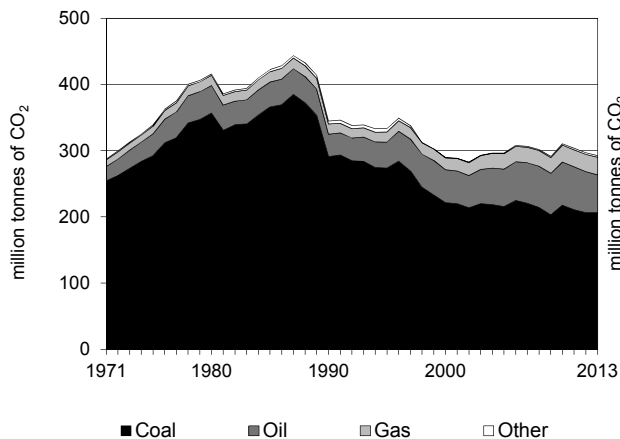


Figure 2. CO₂ emissions by sector

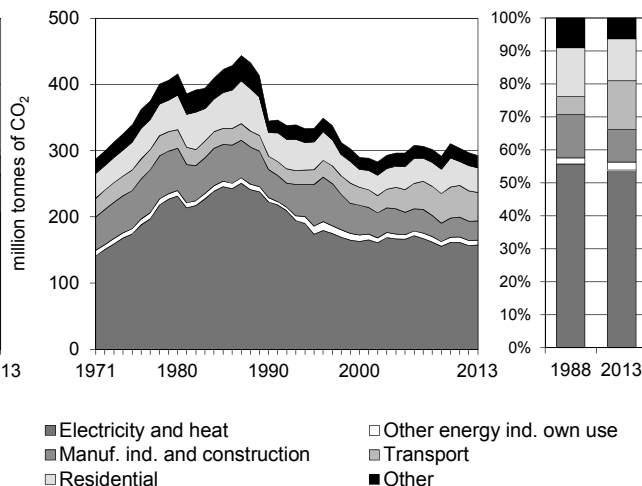


Figure 3. Electricity generation by fuel

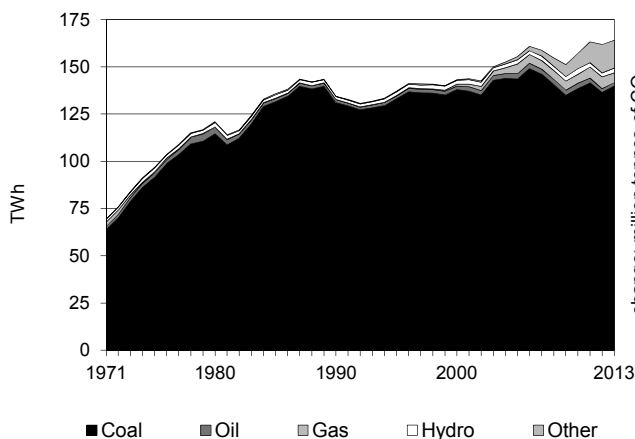


Figure 4. CO₂ from electricity generation: driving factors¹

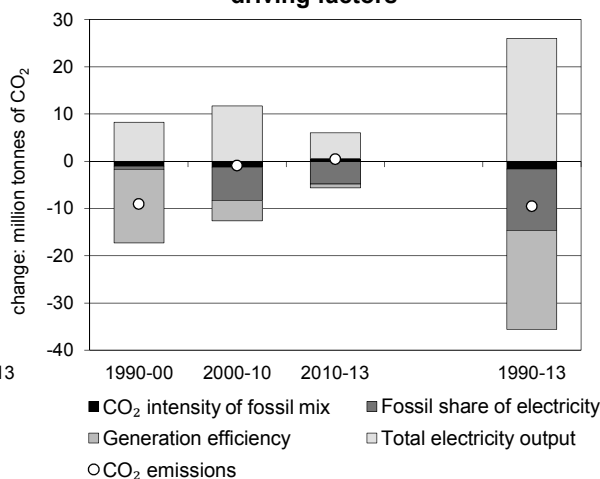


Figure 5. Changes in selected indicators

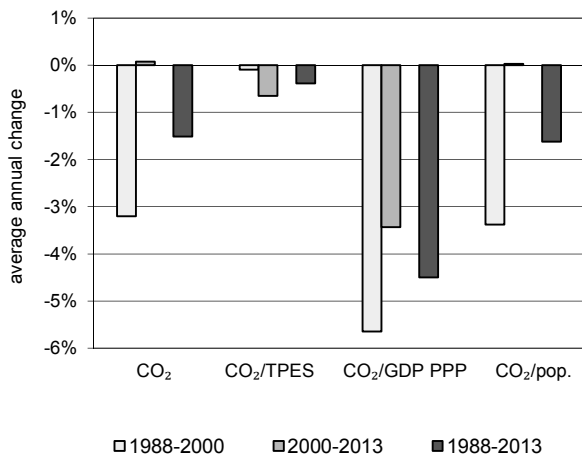
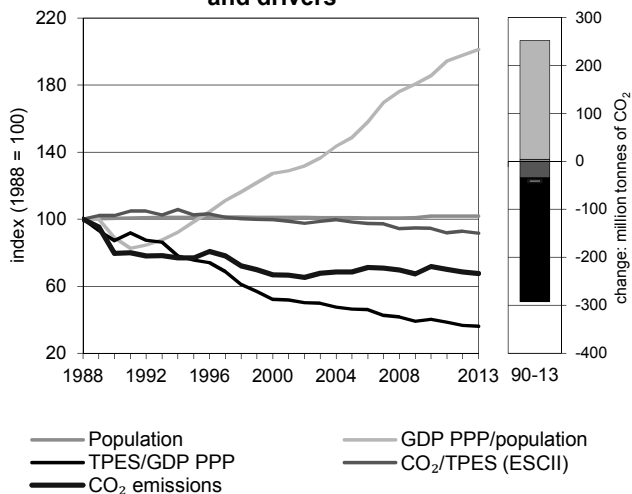


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Poland ¹

Key indicators

	1988	1990	1995	2005	2010	2012	2013	% change 88-13
CO ₂ fuel combustion (MtCO ₂)	432.76	344.83	333.41	296.30	310.39	296.82	292.44	-32%
Share of World CO ₂ from fuel combustion	2.17%	1.67%	1.55%	1.10%	1.04%	0.94%	0.91%	
TPES (PJ)	5 538	4 317	4 165	3 857	4 205	4 090	4 086	-26%
GDP (billion 2005 USD)	203.09	181.59	202.22	304.41	383.29	408.61	415.43	105%
GDP PPP (billion 2005 USD)	351.55	314.34	350.05	526.94	663.48	707.32	719.11	105%
Population (millions)	37.86	38.03	38.28	38.16	38.52	38.53	38.50	2%
CO ₂ / TPES (tCO ₂ per TJ)	78.1	79.9	80.1	76.8	73.8	72.6	71.6	-8%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	2.13	1.90	1.65	0.97	0.81	0.73	0.70	-67%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	1.23	1.10	0.95	0.56	0.47	0.42	0.41	-67%
CO ₂ / population (tCO ₂ per capita)	11.43	9.07	8.71	7.76	8.06	7.70	7.60	-34%
Share of electricity output from fossil fuels	99%	99%	99%	98%	93%	90%	90%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	..	1009	924	836	800	772	769	..
CO₂ emissions and drivers - Kaya decomposition (1988=100) ²								
CO ₂ emissions index	100	80	77	68	72	69	68	-32%
Population index	100	100	101	101	102	102	102	2%
GDP PPP per population index	100	89	98	149	186	198	201	101%
Energy intensity index - TPES / GDP PPP	100	87	76	46	40	37	36	-64%
Carbon intensity index - CO ₂ / TPES	100	102	102	98	94	93	92	-8%

1. Under the Convention Poland is allowed to use 1988 as its base year. 2. Please see Part I, Chapter 2 for methodological notes.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ³	Total	% change 88-13
CO₂ fuel combustion	206.41	57.06	26.48	2.49	292.44	-32%
Electricity and heat generation	153.34	1.20	3.00	0.09	157.62	-35%
Other energy industry own use	2.05	2.46	2.62	0.00	7.14	-14%
Manufacturing industries and construction	16.26	2.67	7.59	2.34	28.87	-49%
Transport	-	42.30	0.86	-	43.16	79%
<i>of which: road</i>	-	41.92	-	-	41.92	104%
Other	34.75	8.43	12.41	0.06	55.64	-46%
<i>of which: residential</i>	27.50	1.62	8.03	-	37.15	-42%
<i>of which: services</i>	3.02	1.28	4.29	0.06	8.65	-71%
<i>Memo: international marine bunkers</i>	-	0.44	-	-	0.44	-75%
<i>Memo: international aviation bunkers</i>	-	1.57	-	-	1.57	39%

3. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 88-13	Level assessment (%) ⁴	Cumulative total (%)
Main activity prod. elec. and heat - coal	148.71	-11.6%	35.6	35.6
Road - oil	41.92	104.1%	10.0	45.6
Residential - coal	27.50	-52.5%	6.6	52.2
Manufacturing industries - coal	16.26	-60.4%	3.9	56.1
Residential - gas	8.03	39.5%	1.9	58.0
Manufacturing industries - gas	7.59	-3.6%	1.8	59.8
Non-specified other sectors - coal	7.24	-78.7%	1.7	61.6
Non-specified other - oil	6.81	76.1%	1.6	63.2
Unallocated autoproducers - coal	4.64	-92.9%	1.1	64.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>292.44</i>	<i>-32.4%</i>	<i>70.0</i>	<i>70.0</i>

4. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Portugal

Figure 1. CO₂ emissions by fuel

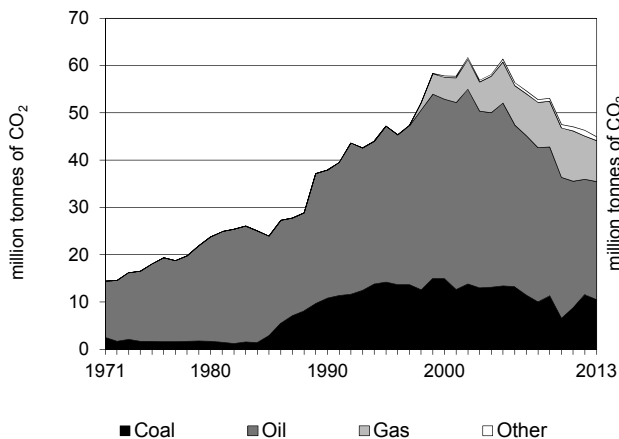


Figure 2. CO₂ emissions by sector

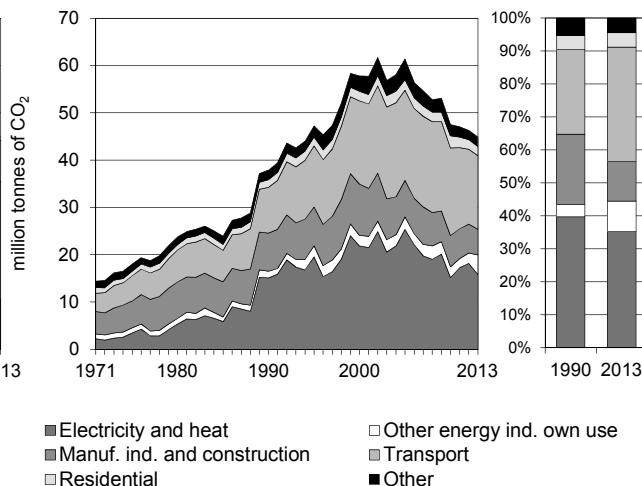


Figure 3. Electricity generation by fuel

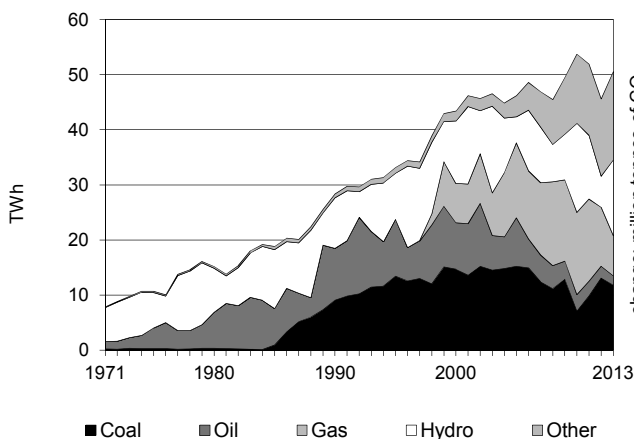


Figure 4. CO₂ from electricity generation: driving factors¹

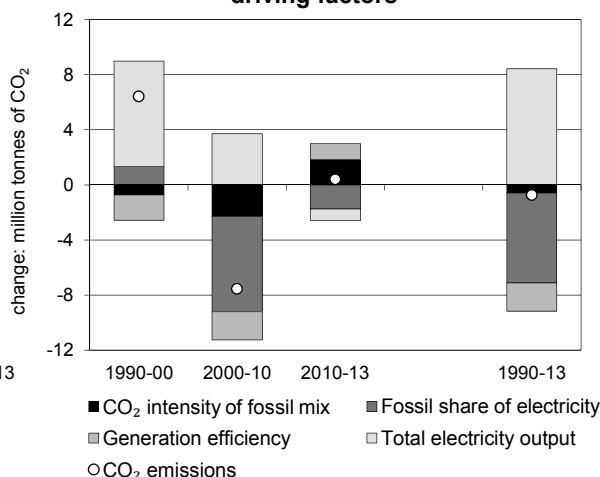


Figure 5. Changes in selected indicators

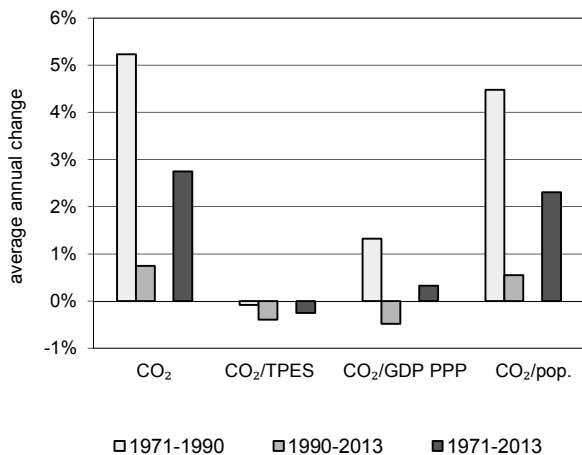
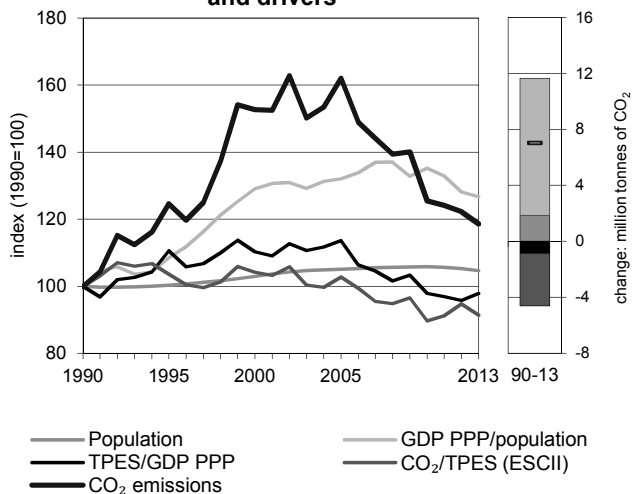


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Portugal

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	37.88	47.22	57.84	61.37	47.55	46.30	44.92	19%
Share of World CO ₂ from fuel combustion	0.18%	0.22%	0.25%	0.23%	0.16%	0.15%	0.14%	
TPES (PJ)	703	845	1 030	1 108	984	907	912	30%
GDP (billion 2005 USD)	142.21	154.75	188.98	197.30	203.43	191.67	188.59	33%
GDP PPP (billion 2005 USD)	167.11	181.84	222.05	231.84	239.04	225.22	221.60	33%
Population (millions)	10.00	10.03	10.29	10.50	10.57	10.52	10.46	5%
CO ₂ / TPES (tCO ₂ per TJ)	53.9	55.9	56.2	55.4	48.3	51.1	49.3	-9%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.27	0.31	0.31	0.31	0.23	0.24	0.24	-11%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.23	0.26	0.26	0.26	0.20	0.21	0.20	-11%
CO ₂ / population (tCO ₂ per capita)	3.79	4.71	5.62	5.84	4.50	4.40	4.30	13%
Share of electricity output from fossil fuels	65%	72%	70%	82%	47%	57%	42%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	527	585	493	527	257	368	281	-47%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	125	153	162	126	122	119	19%
Population index	100	100	103	105	106	105	105	5%
GDP PPP per population index	100	108	129	132	135	128	127	27%
Energy intensity index - TPES / GDP PPP	100	111	110	114	98	96	98	-2%
Carbon intensity index - CO ₂ / TPES	100	104	104	103	90	95	91	-9%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	10.51	24.94	8.66	0.81	44.92	19%
Electricity and heat generation	10.43	1.00	4.00	0.39	15.82	5%
Other energy industry own use	-	3.18	0.99	-	4.16	191%
Manufacturing industries and construction	0.08	2.34	2.54	0.42	5.39	-33%
Transport	-	15.56	0.03	-	15.59	61%
<i>of which: road</i>	-	14.77	0.03	-	14.80	62%
Other	-	2.86	1.11	-	3.96	9%
<i>of which: residential</i>	-	1.39	0.57	-	1.96	21%
<i>of which: services</i>	-	0.38	0.51	-	0.89	67%
<i>Memo: international marine bunkers</i>	-	2.07	-	-	2.07	8%
<i>Memo: international aviation bunkers</i>	-	2.79	-	-	2.79	103%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	14.77	61.8%	22.4	22.4
Main activity prod. elec. and heat - coal	10.43	29.9%	15.8	38.3
Unallocated autoproducers - gas	3.37	x	5.1	43.4
Other energy industry own use - oil	3.18	127.3%	4.8	48.2
Manufacturing industries - gas	2.54	x	3.9	52.1
Manufacturing industries - oil	2.34	-58.4%	3.6	55.6
Non-specified other - oil	1.47	-26.5%	2.2	57.9
Residential - oil	1.39	-10.3%	2.1	60.0
Other energy industry own use - gas	0.99	x	1.5	61.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>44.92</i>	<i>18.6%</i>	<i>68.2</i>	<i>68.2</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Qatar

Figure 1. CO₂ emissions by fuel

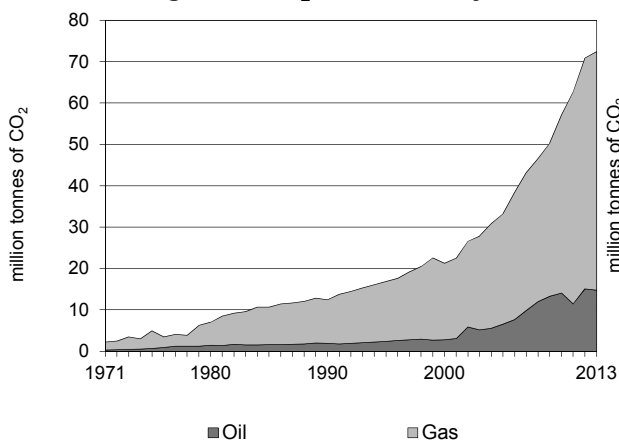


Figure 2. CO₂ emissions by sector

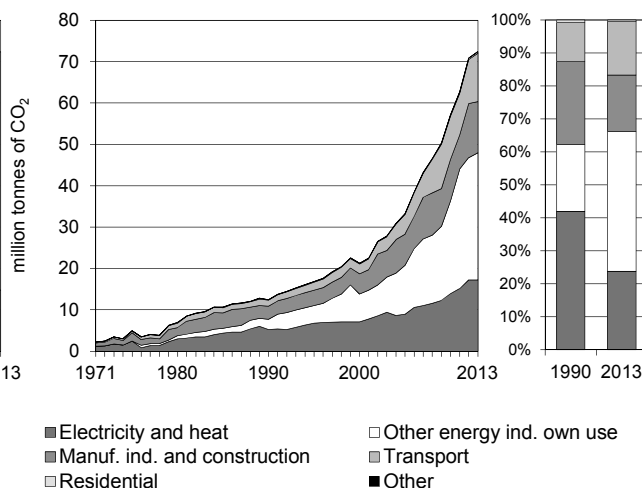


Figure 3. Electricity generation by fuel

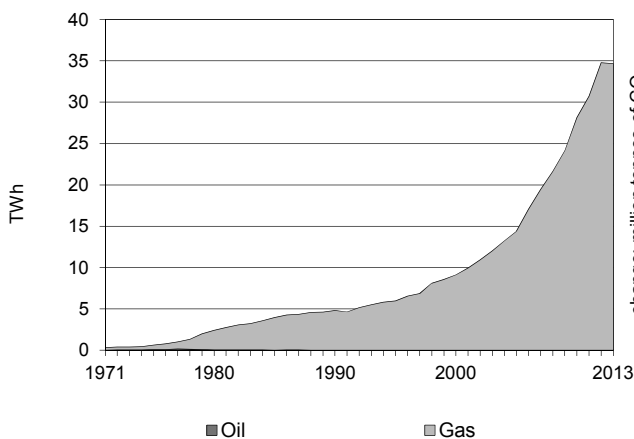


Figure 4. CO₂ from electricity generation: driving factors ¹

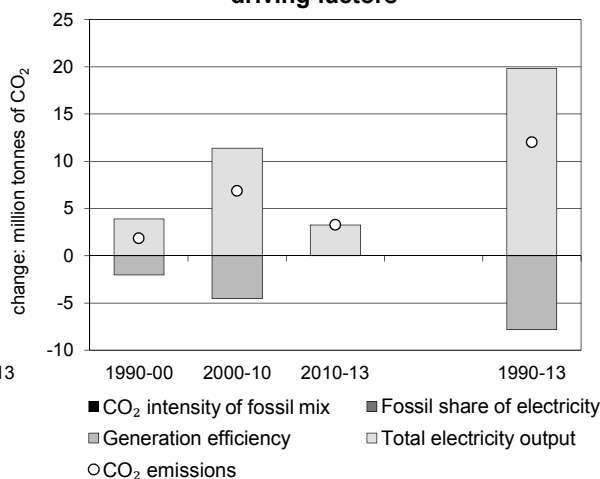


Figure 5. Changes in selected indicators

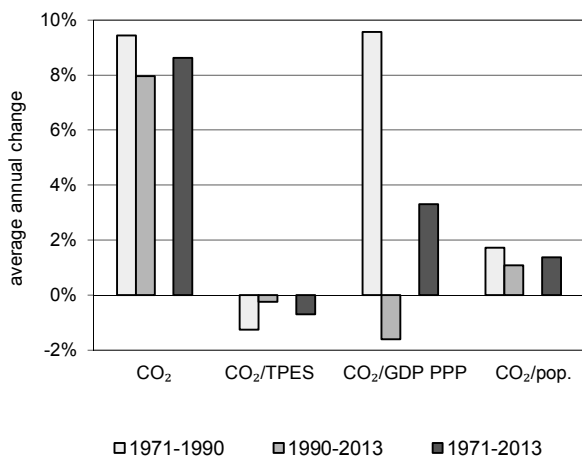
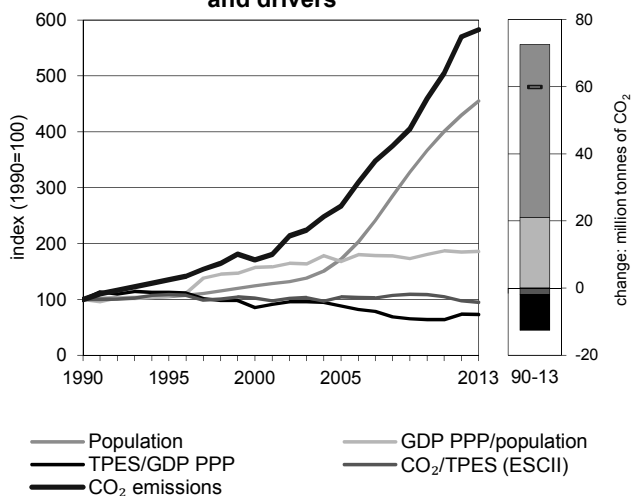


Figure 6. Total CO₂ emissions and drivers ²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Qatar

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	12.43	16.83	21.25	33.20	57.10	70.86	72.40	483%
Share of World CO ₂ from fuel combustion	0.06%	0.08%	0.09%	0.12%	0.19%	0.23%	0.22%	
TPES (PJ)	273	341	457	698	1 157	1 595	1 682	516%
GDP (billion 2005 USD)	15.39	17.06	30.08	44.53	101.94	122.17	129.89	744%
GDP PPP (billion 2005 USD)	30.79	34.13	60.20	89.11	203.99	244.47	259.93	744%
Population (millions)	0.48	0.50	0.59	0.82	1.75	2.05	2.17	355%
CO ₂ / TPES (tCO ₂ per TJ)	45.5	49.3	46.5	47.6	49.3	44.4	43.0	-5%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.81	0.99	0.71	0.75	0.56	0.58	0.56	-31%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.40	0.49	0.35	0.37	0.28	0.29	0.28	-31%
CO ₂ / population (tCO ₂ per capita)	26.06	33.59	35.78	40.44	32.63	34.55	33.38	28%
Share of electricity output from fossil fuels	100%	100%	100%	100%	100%	100%	100%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	1082	1137	775	621	495	495	497	-54%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	135	171	267	459	570	583	483%
Population index	100	105	125	172	367	430	455	355%
GDP PPP per population index	100	106	157	168	181	185	186	86%
Energy intensity index - TPES / GDP PPP	100	113	86	88	64	74	73	-27%
Carbon intensity index - CO ₂ / TPES	100	108	102	105	108	98	95	-5%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	14.74	57.66	-	72.40	483%
Electricity and heat generation	-	-	17.22	-	17.22	230%
Other energy industry own use	-	0.36	30.36	-	30.73	+
Manufacturing industries and construction	-	2.29	10.08	-	12.37	296%
Transport	-	11.74	-	-	11.74	697%
<i>of which: road</i>	-	11.74	-	-	11.74	697%
Other	-	0.34	-	-	0.34	264%
<i>of which: residential</i>	-	0.34	-	-	0.34	264%
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	..	-	-
<i>Memo: international aviation bunkers</i>	-	6.34	-	-	6.34	+

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Other energy industry own use - gas	30.36	+	23.9	23.9
Unallocated autoproducers - gas	14.68	266.7%	11.6	35.5
Road - oil	11.74	697.0%	9.3	44.8
Manufacturing industries - gas	10.08	222.6%	7.9	52.7
Main activity prod. elec. and heat - gas	2.54	109.7%	2.0	54.7
Manufacturing industries - oil	2.29	x	1.8	56.5
Other energy industry own use - oil	0.36	10.5%	0.3	56.8
Residential - oil	0.34	264.5%	0.3	57.1
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>72.40</i>	<i>482.5%</i>	<i>57.1</i>	<i>57.1</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Romania

Figure 1. CO₂ emissions by fuel

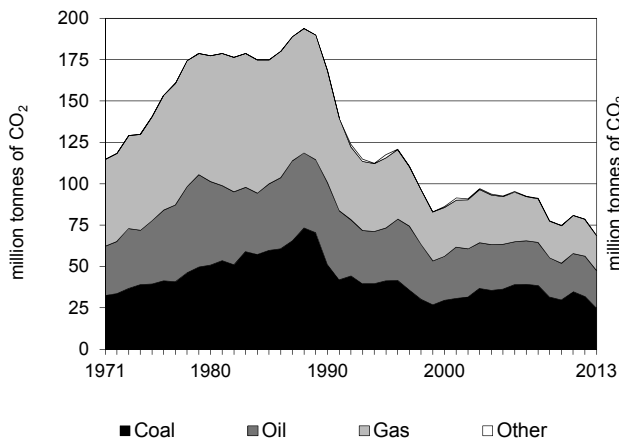


Figure 2. CO₂ emissions by sector

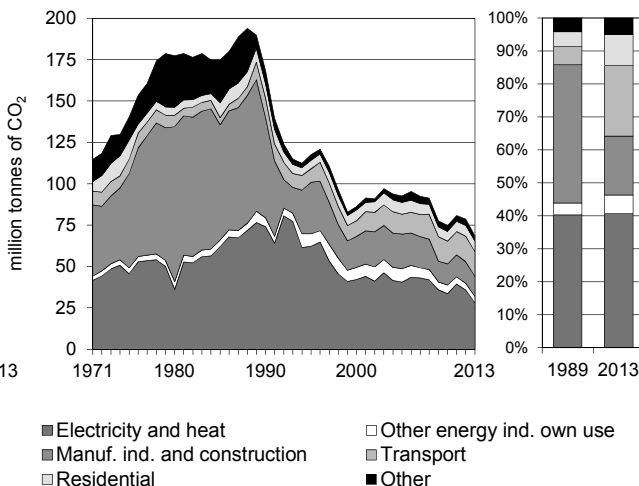


Figure 3. Electricity generation by fuel

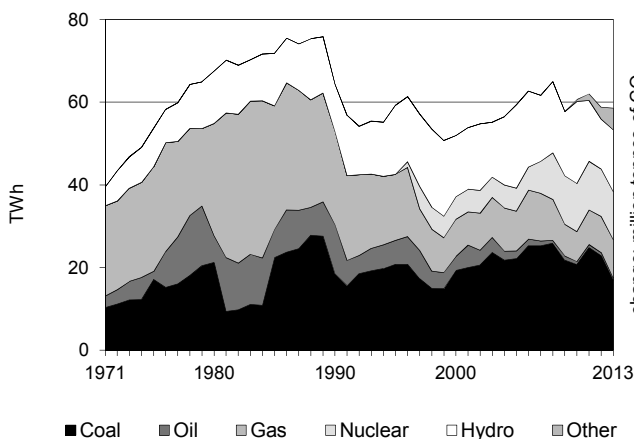


Figure 4. CO₂ from electricity generation: driving factors ¹

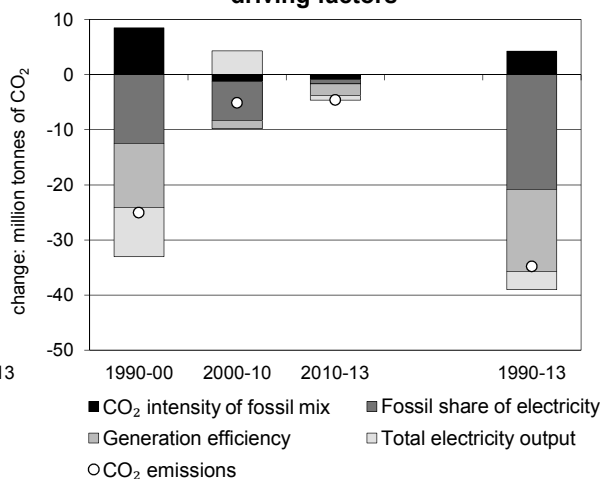


Figure 5. Changes in selected indicators

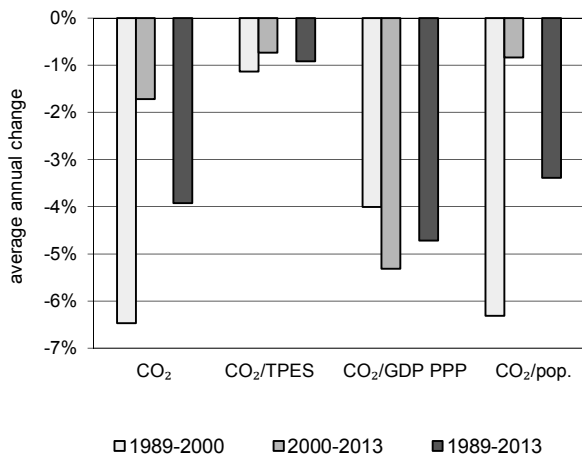
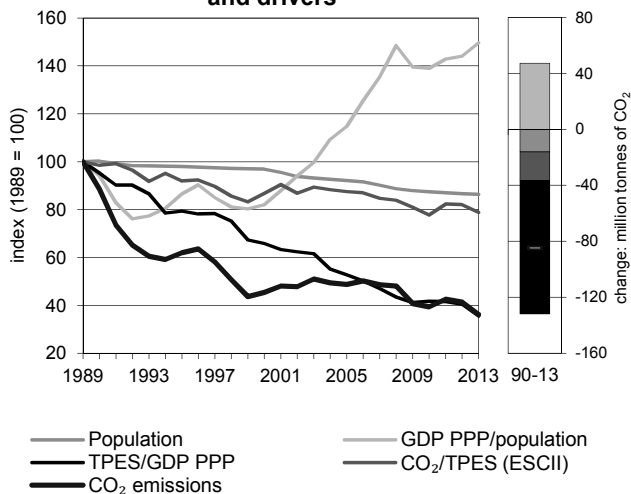


Figure 6. Total CO₂ emissions and drivers ²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Romania ¹

Key indicators

	1989	1990	1995	2005	2010	2012	2013	% change 89-13
CO ₂ fuel combustion (MtCO ₂)	189.86	168.31	117.62	92.66	74.76	78.61	68.84	-64%
Share of World CO ₂ from fuel combustion	0.93%	0.82%	0.55%	0.34%	0.25%	0.25%	0.21%	
TPES (PJ)	2 897	2 606	1 951	1 616	1 467	1 463	1 332	-54%
GDP (billion 2005 USD)	93.90	88.64	79.60	99.17	114.09	117.14	121.24	29%
GDP PPP (billion 2005 USD)	192.25	181.49	162.98	203.06	233.60	239.84	248.23	29%
Population (millions)	23.16	23.20	22.68	21.32	20.25	20.06	19.98	-14%
CO ₂ / TPES (tCO ₂ per TJ)	65.5	64.6	60.3	57.3	51.0	53.7	51.7	-21%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	2.02	1.90	1.48	0.93	0.66	0.67	0.57	-72%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.99	0.93	0.72	0.46	0.32	0.33	0.28	-72%
CO ₂ / population (tCO ₂ per capita)	8.20	7.25	5.19	4.35	3.69	3.92	3.45	-58%
Share of electricity output from fossil fuels	82%	82%	72%	57%	47%	55%	46%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	..	865	755	502	420	489	356	..
CO₂ emissions and drivers - Kaya decomposition (1989=100) ²								
CO ₂ emissions index	100	89	62	49	39	41	36	-64%
Population index	100	100	98	92	87	87	86	-14%
GDP PPP per population index	100	94	87	115	139	144	150	50%
Energy intensity index - TPES / GDP PPP	100	95	79	53	42	40	36	-64%
Carbon intensity index - CO ₂ / TPES	100	99	92	87	78	82	79	-21%

1. Under the Convention Romania is allowed to use 1989 as its base year. 2. Please see Part I, Chapter 2 for methodological notes.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ³	Total	% change 89-13
CO₂ fuel combustion	24.79	22.72	21.09	0.24	68.84	-64%
Electricity and heat generation	20.71	0.84	6.45	0.00	28.00	-63%
Other energy industry own use	-	2.59	1.30	-	3.89	-43%
Manufacturing industries and construction	3.93	2.54	5.60	0.24	12.31	-85%
Transport	-	14.77	0.01	-	14.78	39%
<i>of which: road</i>	-	14.01	-	-	14.01	55%
Other	0.15	1.98	7.73	0.00	9.86	-40%
<i>of which: residential</i>	0.11	0.52	5.74	-	6.37	-25%
<i>of which: services</i>	0.00	0.23	1.84	0.00	2.07	x
<i>Memo: international marine bunkers</i>	-	0.13	-	-	0.13	..
<i>Memo: international aviation bunkers</i>	-	0.43	-	-	0.43	-42%

3. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 89-13	Level assessment (%) ⁴	Cumulative total (%)
Main activity prod. elec. and heat - coal	19.11	-46.1%	17.2	17.2
Road - oil	14.01	54.6%	12.6	29.9
Residential - gas	5.74	12.5%	5.2	35.0
Manufacturing industries - gas	5.60	-87.8%	5.1	40.1
Main activity prod. elec. and heat - gas	4.51	-79.8%	4.1	44.2
Manufacturing industries - coal	3.93	-83.4%	3.5	47.7
Other energy industry own use - oil	2.59	-55.6%	2.3	50.0
Manufacturing industries - oil	2.54	-74.5%	2.3	52.3
Non-specified other - gas	1.99	-0.2%	1.8	54.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>68.84</i>	<i>-63.7%</i>	<i>62.1</i>	<i>62.1</i>

4. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Russian Federation

Figure 1. CO₂ emissions by fuel

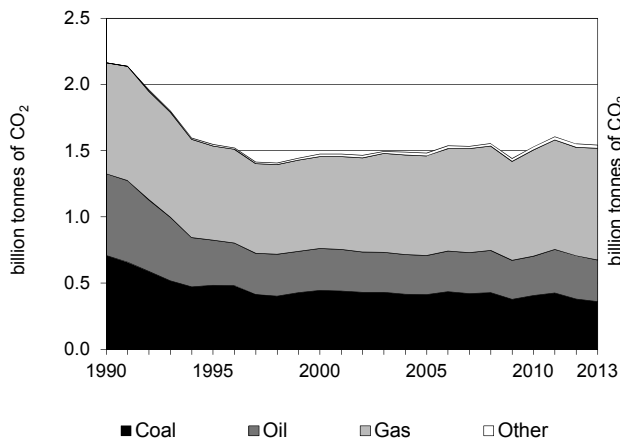


Figure 2. CO₂ emissions by sector

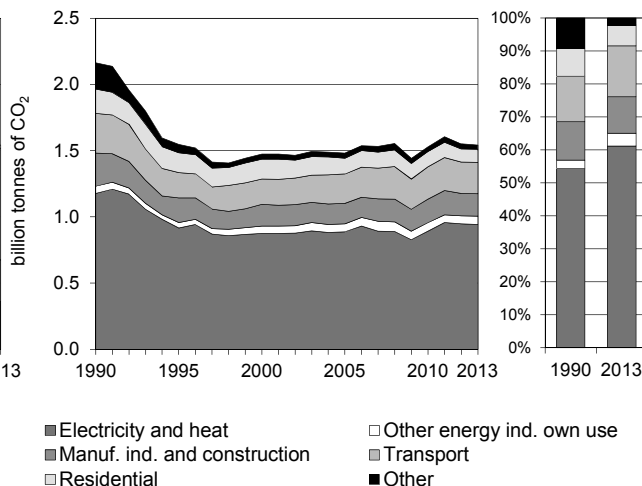


Figure 3. Electricity generation by fuel

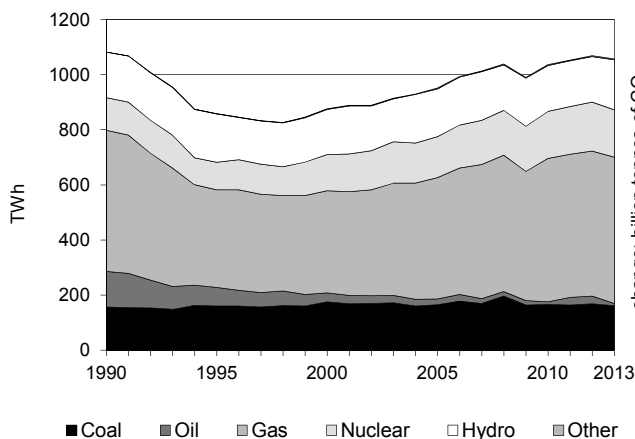


Figure 4. CO₂ from electricity generation: driving factors¹

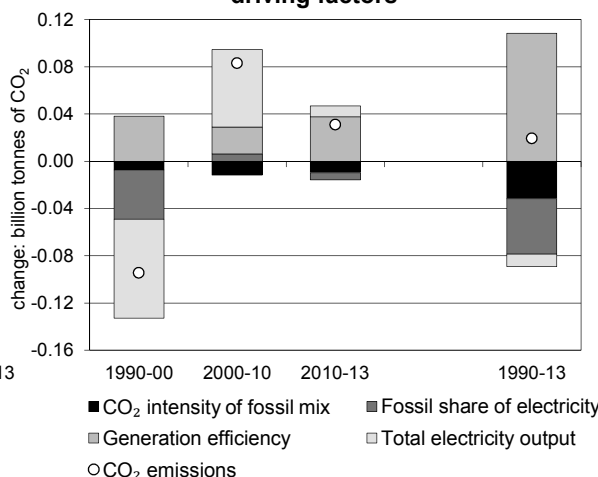


Figure 5. Changes in selected indicators

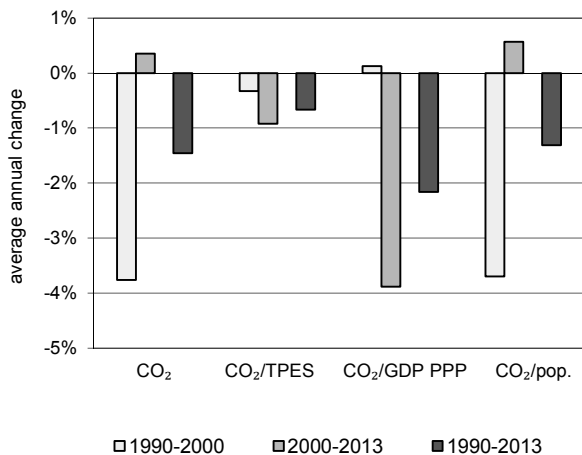
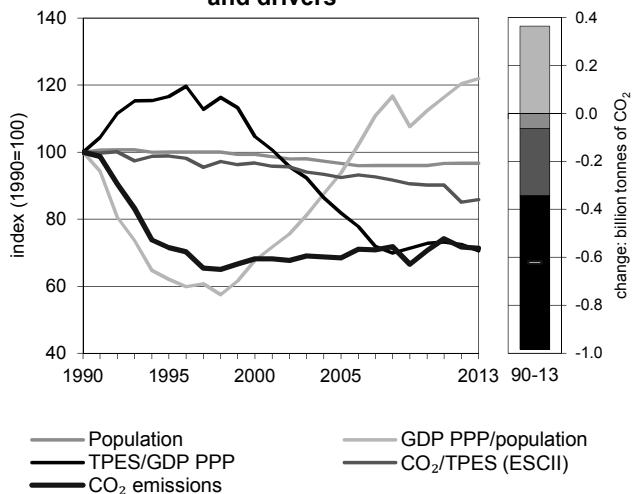


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Russian Federation

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	2 163.2	1 548.0	1 474.2	1 481.7	1 528.9	1 550.8	1 543.1	-29%
Share of World CO ₂ from fuel combustion	10.5%	7.2%	6.3%	5.5%	5.1%	4.9%	4.8%	
TPES (PJ)	36 810	26 655	25 927	27 286	28 874	31 023	30 601	-17%
GDP (billion 2005 USD)	843.1	523.7	567.4	764.0	909.2	980.6	993.5	18%
GDP PPP (billion 2005 USD)	1 872.3	1 163.0	1 260.1	1 696.7	2 019.3	2 177.7	2 206.5	18%
Population (millions)	148.0	148.0	147.0	143.0	142.0	143.0	143.0	-3%
CO ₂ / TPES (tCO ₂ per TJ)	58.8	58.1	56.9	54.3	53.0	50.0	50.4	-14%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	2.57	2.96	2.60	1.94	1.68	1.58	1.55	-39%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	1.16	1.33	1.17	0.87	0.76	0.71	0.70	-39%
CO ₂ / population (tCO ₂ per capita)	14.62	10.46	10.03	10.36	10.77	10.84	10.79	-26%
Share of electricity output from fossil fuels	74%	68%	66%	66%	67%	68%	67%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	412	369	400	444	419	435	439	7%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	72	68	68	71	72	71	-29%
Population index	100	100	99	97	96	97	97	-3%
GDP PPP per population index	100	62	68	94	112	120	122	22%
Energy intensity index - TPES / GDP PPP	100	117	105	82	73	72	71	-29%
Carbon intensity index - CO ₂ / TPES	100	99	97	92	90	85	86	-14%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	359.8	315.0	843.1	25.2	1 543.1	-29%
Electricity and heat generation	290.3	34.7	597.2	21.3	943.5	-20%
Other energy industry own use	4.5	31.9	23.5	1.2	61.1	11%
Manufacturing industries and construction	53.2	34.8	80.2	1.9	170.0	-32%
Transport	-	176.2	61.7	-	237.9	-20%
<i>of which: road</i>	-	144.0	0.1	-	144.1	-6%
Other	11.9	37.4	80.5	0.8	130.6	-66%
<i>of which: residential</i>	4.0	19.4	73.6	-	97.1	-47%
<i>of which: services</i>	7.6	6.6	5.5	0.6	20.3	-80%
<i>Memo: international marine bunkers</i>	-	16.3	-	-	16.3	174%
<i>Memo: international aviation bunkers</i>	-	18.2	-	-	18.2	-32%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - gas	380.8	9.2%	15.7	15.7
Unallocated autoproducers - gas	216.4	16.4%	8.9	24.6
Main activity prod. elec. and heat - coal	202.7	-42.9%	8.4	33.0
Road - oil	144.0	-4.8%	5.9	38.9
Unallocated autoproducers - coal	87.6	-0.1%	3.6	42.5
Manufacturing industries - gas	80.2	12.0%	3.3	45.8
Residential - gas	73.6	-33.5%	3.0	48.9
Other transport - gas	61.6	-20.4%	2.5	51.4
Manufacturing industries - coal	53.2	-48.5%	2.2	53.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>1 543.1</i>	<i>-28.7%</i>	<i>63.6</i>	<i>63.6</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Saudi Arabia

Figure 1. CO₂ emissions by fuel

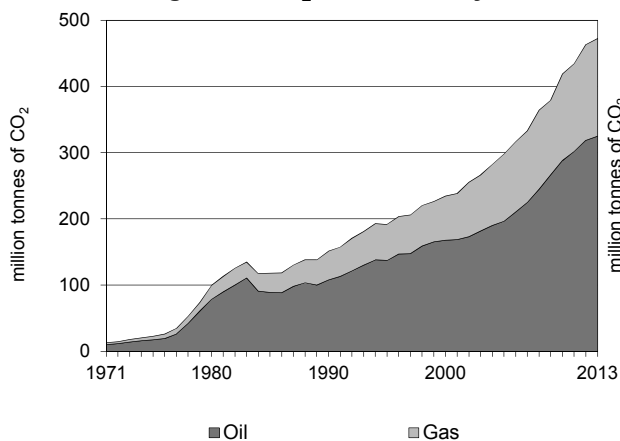


Figure 2. CO₂ emissions by sector

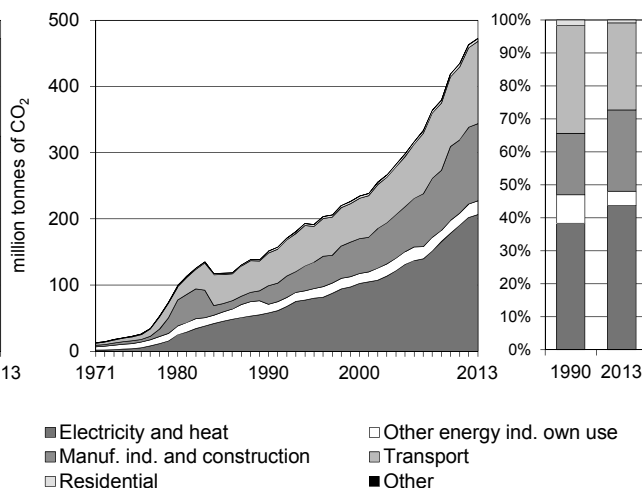


Figure 3. Electricity generation by fuel

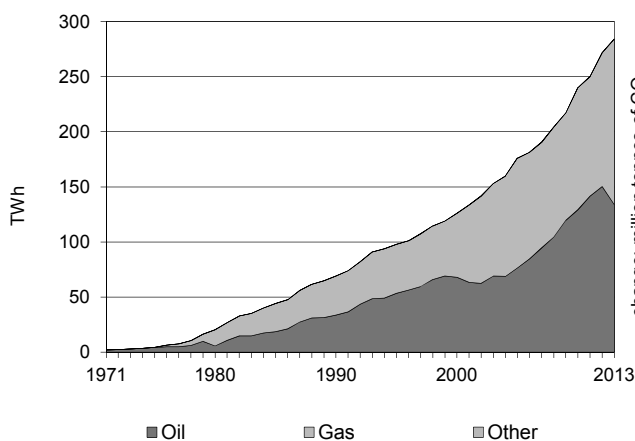


Figure 4. CO₂ from electricity generation: driving factors¹

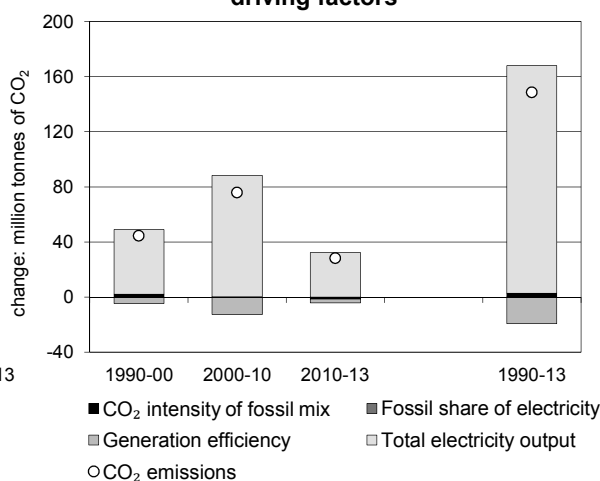


Figure 5. Changes in selected indicators

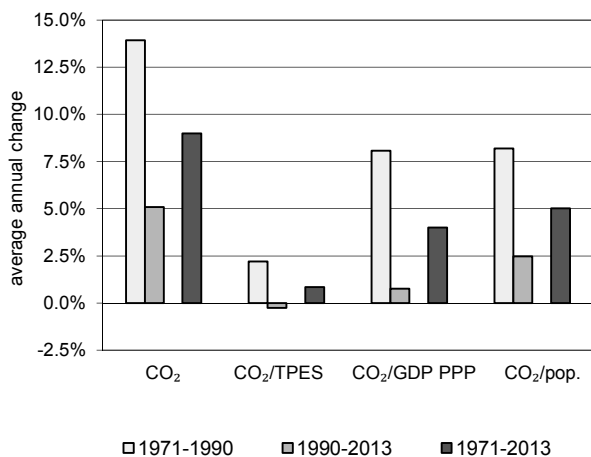
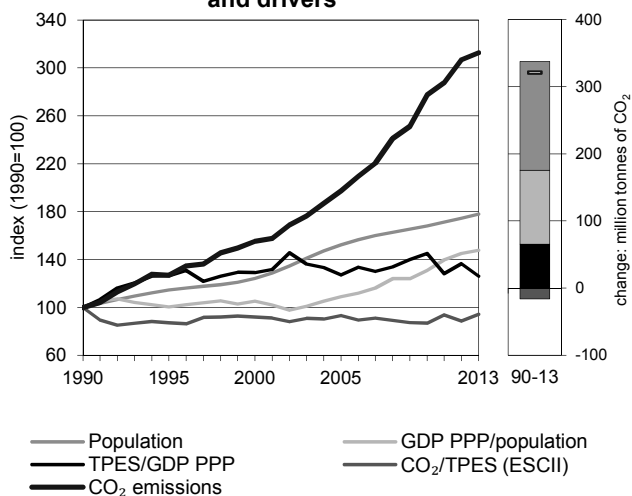


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Saudi Arabia

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	151.08	191.62	234.57	297.96	419.10	463.34	472.38	213%
Share of World CO ₂ from fuel combustion	0.73%	0.89%	1.01%	1.10%	1.40%	1.47%	1.47%	
TPES (PJ)	2 429	3 538	4 097	5 131	7 766	8 388	8 046	231%
GDP (billion 2005 USD)	197.80	227.81	258.61	328.46	435.99	500.87	520.66	163%
GDP PPP (billion 2005 USD)	508.46	585.61	664.79	844.35	1 120.78	1 287.55	1 336.45	163%
Population (millions)	16.21	18.57	20.15	24.69	27.26	28.29	28.83	78%
CO ₂ / TPES (tCO ₂ per TJ)	62.2	54.2	57.3	58.1	54.0	55.2	58.7	-6%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.76	0.84	0.91	0.91	0.96	0.93	0.91	19%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.30	0.33	0.35	0.35	0.37	0.36	0.35	19%
CO ₂ / population (tCO ₂ per capita)	9.32	10.32	11.64	12.07	15.38	16.38	16.39	76%
Share of electricity output from fossil fuels	100%	100%	100%	100%	100%	100%	100%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	837	820	812	745	743	744	727	-13%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	127	155	197	277	307	313	213%
Population index	100	115	124	152	168	175	178	78%
GDP PPP per population index	100	101	105	109	131	145	148	48%
Energy intensity index - TPES / GDP PPP	100	126	129	127	145	136	126	26%
Carbon intensity index - CO ₂ / TPES	100	87	92	93	87	89	94	-6%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	325.04	147.34	-	472.38	213%
Electricity and heat generation	-	118.08	88.41	-	206.49	256%
Other energy industry own use	-	14.38	6.29	-	20.67	58%
Manufacturing industries and construction	-	63.77	52.65	-	116.42	313%
Transport	-	124.53	-	-	124.53	152%
<i>of which: road</i>	-	122.24	-	-	122.24	156%
Other	-	4.28	-	-	4.28	69%
<i>of which: residential</i>	-	4.28	-	-	4.28	69%
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	10.65	-	-	10.65	84%
<i>Memo: international aviation bunkers</i>	-	5.96	-	-	5.96	23%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	122.24	155.9%	19.5	19.5
Main activity prod. elec. and heat - oil	97.89	242.5%	15.6	35.1
Manufacturing industries - oil	63.77	295.3%	10.2	45.3
Manufacturing industries - gas	52.65	337.7%	8.4	53.7
Main activity prod. elec. and heat - gas	48.30	316.9%	7.7	61.4
Unallocated autoproducers - gas	40.11	125.9%	6.4	67.8
Unallocated autoproducers - oil	20.19	x	3.2	71.0
Other energy industry own use - oil	14.38	28.1%	2.3	73.3
Other energy industry own use - gas	6.29	243.5%	1.0	74.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>472.38</i>	<i>212.7%</i>	<i>75.3</i>	<i>75.3</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Senegal

Figure 1. CO₂ emissions by fuel

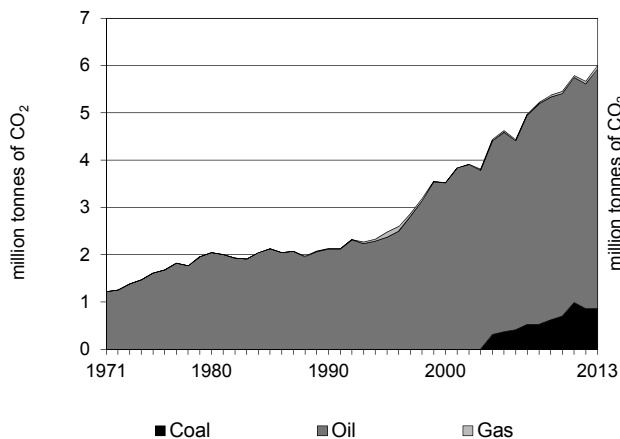


Figure 2. CO₂ emissions by sector

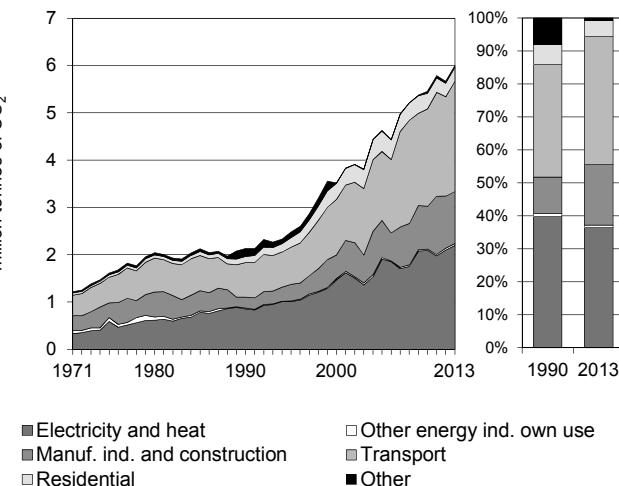


Figure 3. Electricity generation by fuel

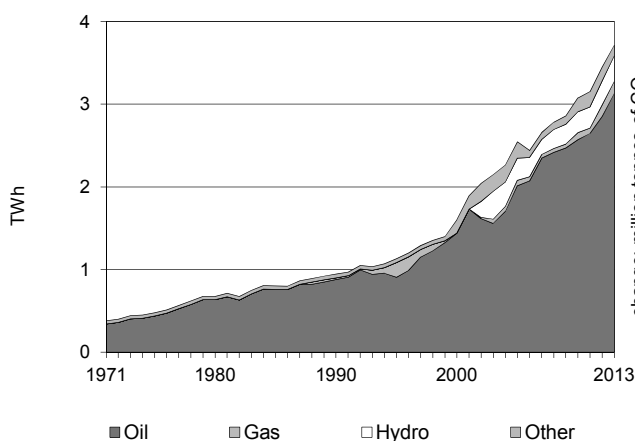


Figure 4. CO₂ from electricity generation: driving factors¹

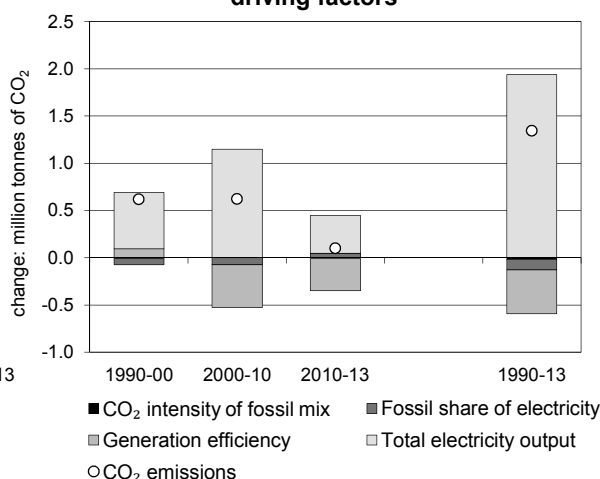


Figure 5. Changes in selected indicators

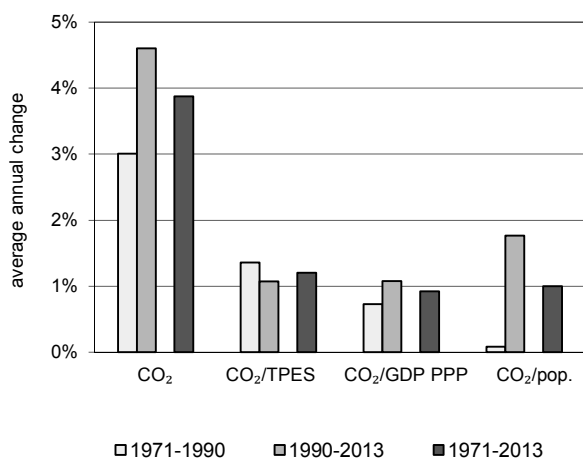
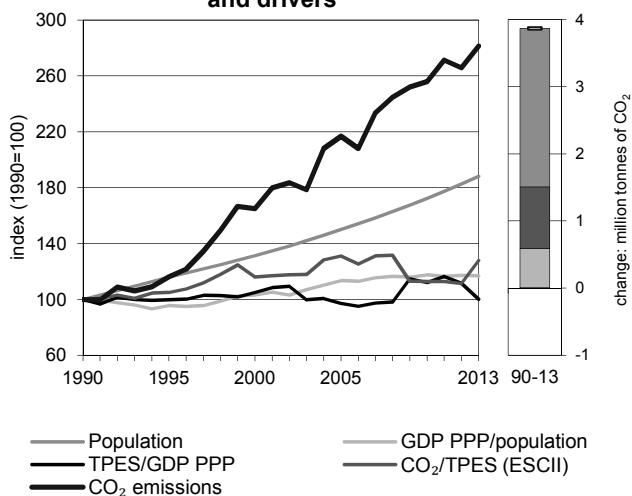


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Senegal

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	2.13	2.48	3.52	4.62	5.46	5.67	6.00	181%
Share of World CO ₂ from fuel combustion	0.01%	0.01%	0.02%	0.02%	0.02%	0.02%	0.02%	
TPES (PJ)	71	78	100	117	160	169	155	120%
GDP (billion 2005 USD)	5.12	5.67	6.93	8.71	10.37	10.95	11.25	120%
GDP PPP (billion 2005 USD)	12.42	13.76	16.83	21.13	25.16	26.56	27.31	120%
Population (millions)	7.51	8.71	9.86	11.27	12.95	13.73	14.13	88%
CO ₂ / TPES (tCO ₂ per TJ)	30.2	31.7	35.1	39.6	34.0	33.6	38.6	28%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.42	0.44	0.51	0.53	0.53	0.52	0.53	28%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.17	0.18	0.21	0.22	0.22	0.21	0.22	28%
CO ₂ / population (tCO ₂ per capita)	0.28	0.28	0.36	0.41	0.42	0.41	0.42	50%
Share of electricity output from fossil fuels	95%	96%	97%	87%	89%	90%	90%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	898	889	914	749	680	609	591	-34%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	116	165	217	256	266	281	181%
Population index	100	116	131	150	172	183	188	88%
GDP PPP per population index	100	96	103	113	118	117	117	17%
Energy intensity index - TPES / GDP PPP	100	100	105	97	112	112	100	0%
Carbon intensity index - CO ₂ / TPES	100	105	116	131	113	111	128	28%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	0.86	5.07	0.08	-	6.00	181%
Electricity and heat generation	-	2.12	0.08	-	2.19	158%
Other energy industry own use	-	0.04	-	-	0.04	114%
Manufacturing industries and construction	0.86	0.24	-	-	1.10	368%
Transport	-	2.33	-	-	2.33	220%
<i>of which: road</i>	-	2.22	-	-	2.22	233%
Other	-	0.34	-	-	0.34	12%
<i>of which: residential</i>	-	0.29	-	-	0.29	126%
<i>of which: services</i>	-	0.01	-	-	0.01	x
<i>Memo: international marine bunkers</i>	-	0.22	-	-	0.22	90%
<i>Memo: international aviation bunkers</i>	-	0.79	-	-	0.79	71%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	2.22	232.6%	8.3	8.3
Main activity prod. elec. and heat - oil	1.81	119.8%	6.7	15.0
Manufacturing industries - coal	0.86	x	3.2	18.2
Unallocated autoproducers - oil	0.31	+	1.1	19.3
Residential - oil	0.29	125.6%	1.1	20.4
Manufacturing industries - oil	0.24	2.6%	0.9	21.3
Other transport - oil	0.11	79.7%	0.4	21.7
Main activity prod. elec. and heat - gas	0.08	486.5%	0.3	22.0
Non-specified other - oil	0.04	-74.1%	0.2	22.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>6.00</i>	<i>181.4%</i>	<i>22.3</i>	<i>22.3</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Serbia

Figure 1. CO₂ emissions by fuel

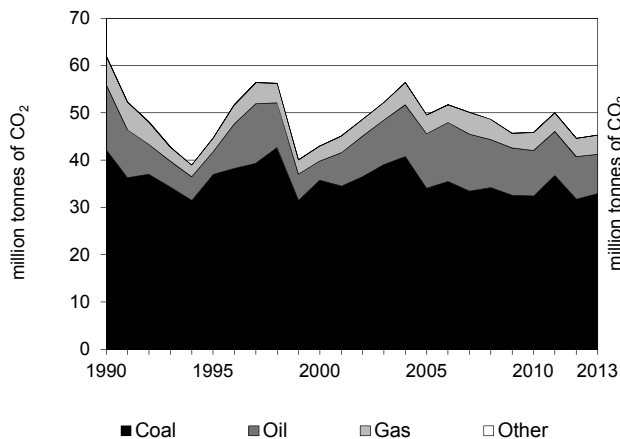


Figure 2. CO₂ emissions by sector

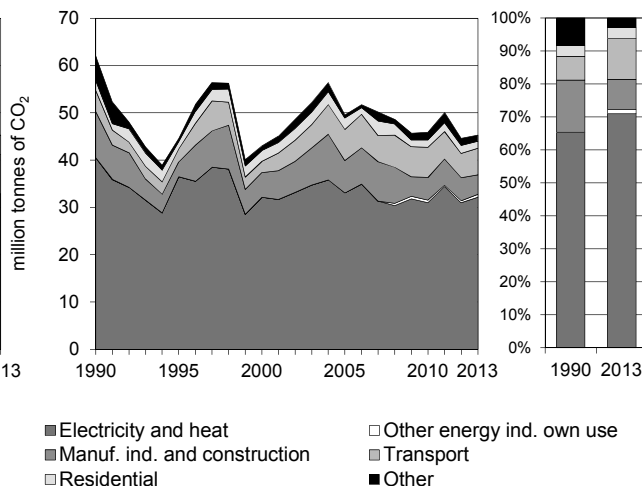


Figure 3. Electricity generation by fuel

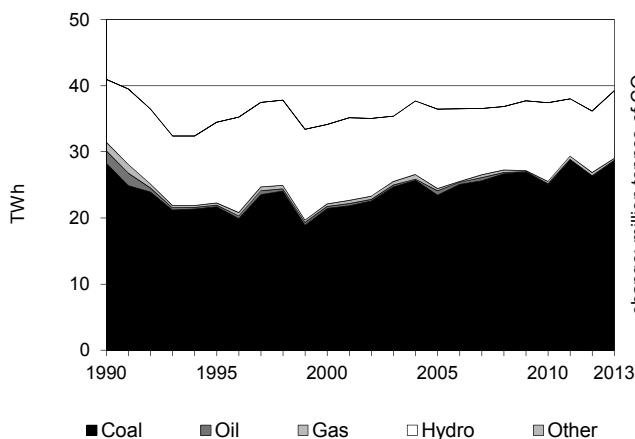


Figure 4. CO₂ from electricity generation: driving factors¹

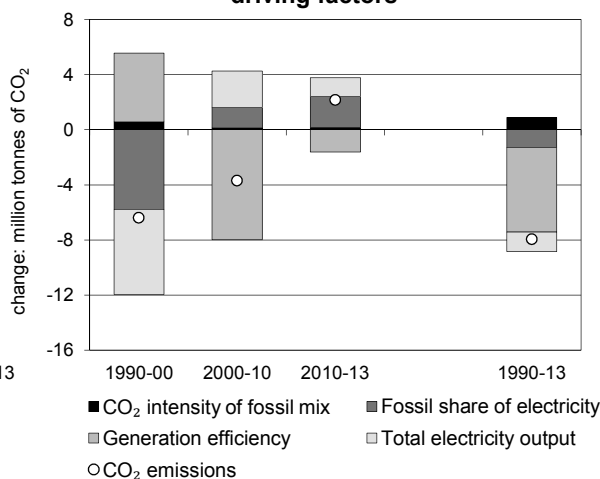


Figure 5. Changes in selected indicators

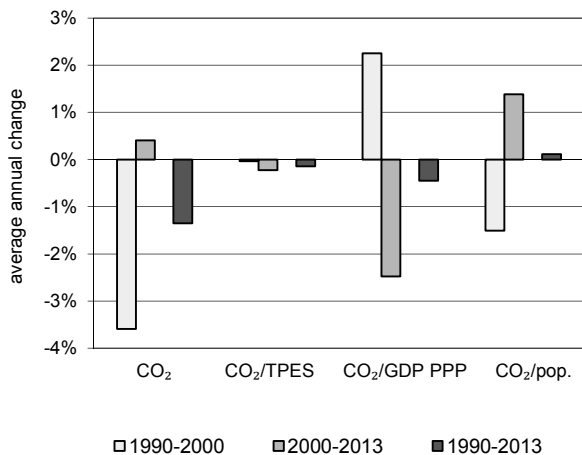
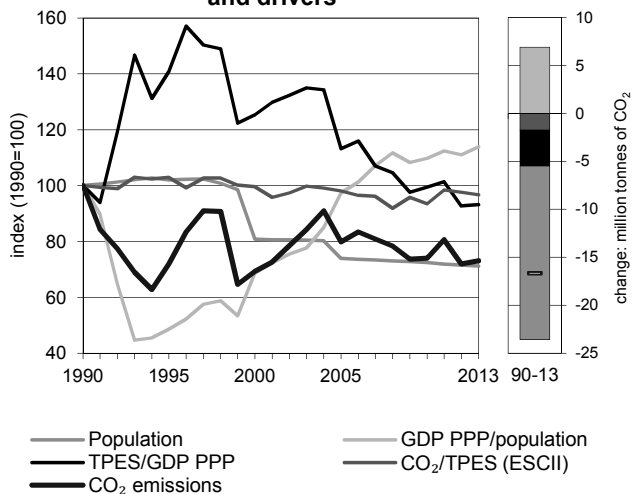


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Serbia ¹

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	61.98	44.62	43.00	49.55	45.88	44.63	45.31	-27%
Share of World CO ₂ from fuel combustion	0.30%	0.21%	0.18%	0.18%	0.15%	0.14%	0.14%	
TPES (PJ)	825	577	575	673	654	608	623	-24%
GDP (billion 2005 USD)	35.05	17.40	19.46	25.23	27.88	27.85	28.41	-19%
GDP PPP (billion 2005 USD)	88.01	43.71	48.87	63.37	70.02	69.95	71.35	-19%
Population (millions)	10.06	10.27	8.13	7.44	7.29	7.20	7.16	-29%
CO ₂ / TPES (tCO ₂ per TJ)	75.1	77.3	74.8	73.7	70.2	73.4	72.7	-3%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	1.77	2.56	2.21	1.96	1.65	1.60	1.60	-10%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.70	1.02	0.88	0.78	0.66	0.64	0.64	-10%
CO ₂ / population (tCO ₂ per capita)	6.16	4.34	5.29	6.66	6.29	6.20	6.33	3%
Share of electricity output from fossil fuels	77%	65%	65%	67%	68%	74%	74%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	910	1022	904	779	726	775	748	-18%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ²								
CO ₂ emissions index	100	72	69	80	74	72	73	-27%
Population index	100	102	81	74	72	72	71	-29%
GDP PPP per population index	100	49	69	97	110	111	114	14%
Energy intensity index - TPES / GDP PPP	100	141	125	113	100	93	93	-7%
Carbon intensity index - CO ₂ / TPES	100	103	100	98	93	98	97	-3%

1. Data for Serbia include Montenegro until 2004 and Kosovo until 1999. 2. Please see Part I, Chapter 2 for methodological notes.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ³	Total	% change 90-13
CO₂ fuel combustion	32.87	8.34	4.10	0.01	45.31	-27%
Electricity and heat generation	30.23	0.48	1.45	0.01	32.17	-21%
Other energy industry own use	-	0.26	0.30	-	0.56	x
Manufacturing industries and construction	1.28	1.21	1.66	-	4.15	-58%
Transport	-	5.59	0.02	-	5.60	25%
<i>of which: road</i>	-	4.98	0.01	-	4.99	12%
Other	1.36	0.80	0.67	-	2.83	-61%
<i>of which: residential</i>	0.92	0.19	0.41	-	1.52	-27%
<i>of which: services</i>	0.44	0.19	0.23	-	0.86	x
<i>Memo: international marine bunkers</i>	-	0.03	-	-	0.03	..
<i>Memo: international aviation bunkers</i>	-	0.13	-	-	0.13	-70%

3. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ⁴	Cumulative total (%)
Main activity prod. elec. and heat - coal	29.56	-22.7%	..	..
Road - oil	4.98	11.4%	..	..
Manufacturing industries - gas	1.66	-9.1%	..	..
Manufacturing industries - coal	1.28	-18.0%	..	..
Manufacturing industries - oil	1.21	-81.1%	..	..
Main activity prod. elec. and heat - gas	1.06	100.4%	..	..
Residential - coal	0.92	-52.4%	..	..
Unallocated autoproducers - coal	0.68	x	..	..
Other transport - oil	0.61	x	..	..
<i>Memo: total CO₂ from fuel combustion</i>	<i>45.31</i>	<i>-26.9%</i>	<i>-</i>	<i>-</i>

4. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Singapore

Figure 1. CO₂ emissions by fuel

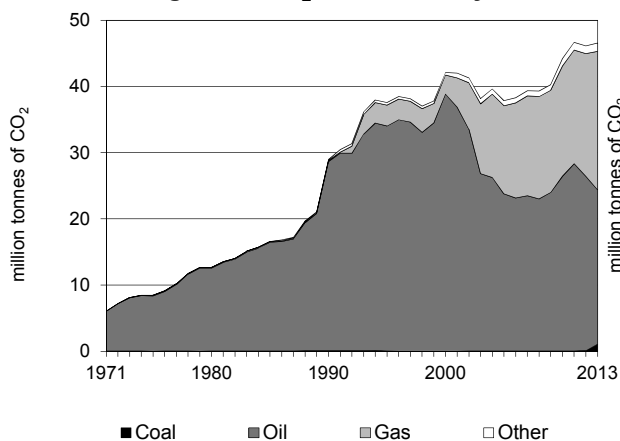


Figure 2. CO₂ emissions by sector

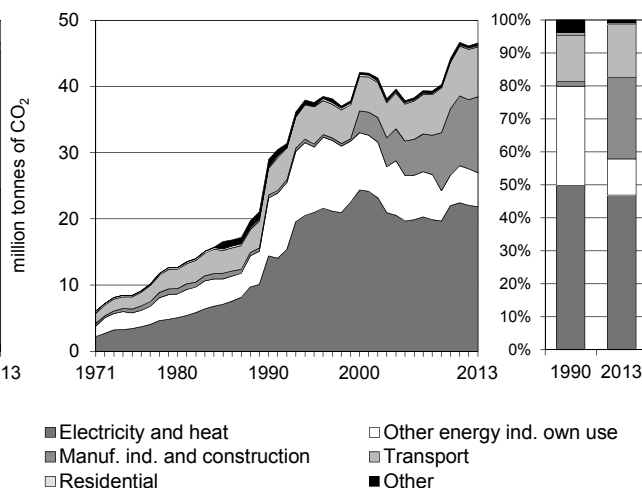


Figure 3. Electricity generation by fuel

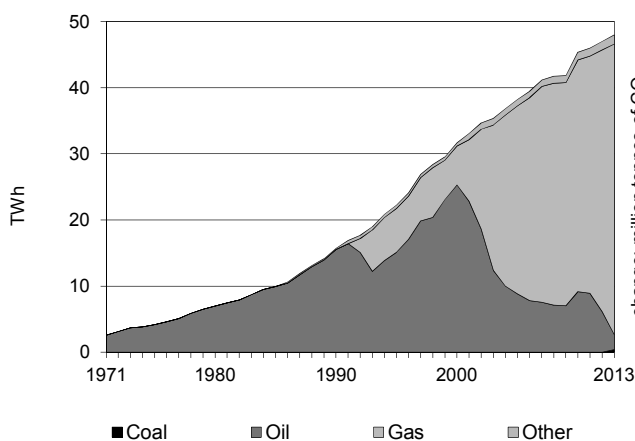


Figure 4. CO₂ from electricity generation: driving factors¹

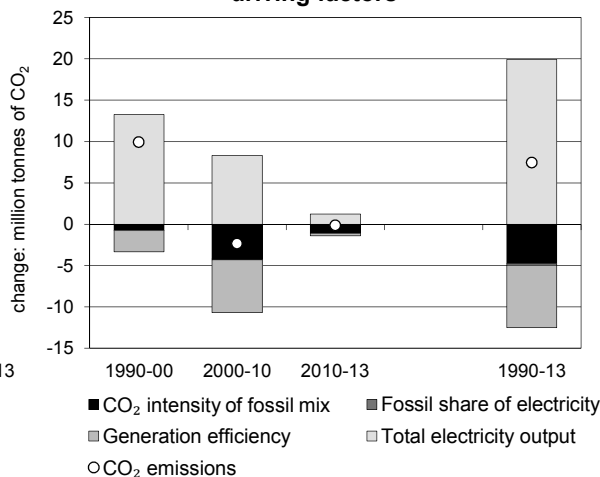


Figure 5. Changes in selected indicators

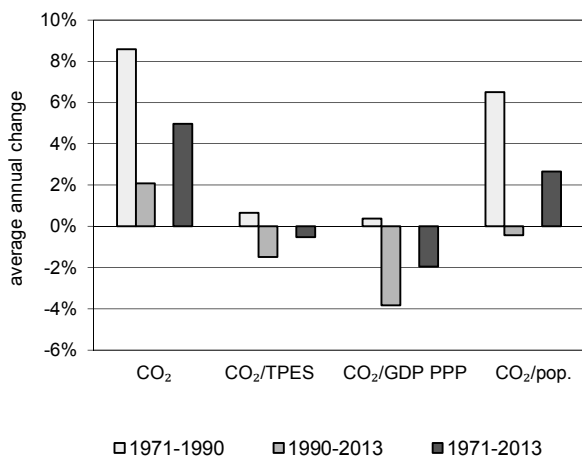
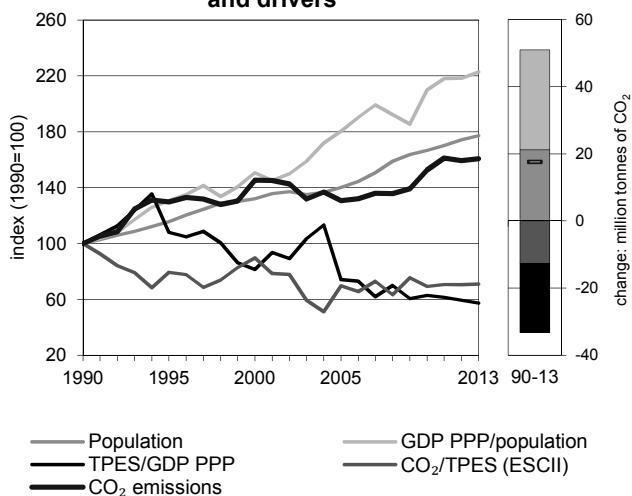


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Singapore

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	28.96	37.57	42.12	37.86	44.22	46.14	46.56	61%
Share of World CO ₂ from fuel combustion	0.14%	0.17%	0.18%	0.14%	0.15%	0.15%	0.14%	
TPES (PJ)	483	789	782	903	1 064	1 091	1 093	126%
GDP (billion 2005 USD)	50.44	76.31	100.38	127.42	176.46	191.83	199.22	295%
GDP PPP (billion 2005 USD)	92.79	140.38	184.66	234.39	324.61	352.89	366.48	295%
Population (millions)	3.05	3.53	4.03	4.27	5.08	5.31	5.40	77%
CO ₂ / TPES (tCO ₂ per TJ)	60.0	47.6	53.9	41.9	41.6	42.3	42.6	-29%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.57	0.49	0.42	0.30	0.25	0.24	0.23	-59%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.31	0.27	0.23	0.16	0.14	0.13	0.13	-59%
CO ₂ / population (tCO ₂ per capita)	9.50	10.66	10.46	8.87	8.71	8.69	8.62	-9%
Share of electricity output from fossil fuels	99%	99%	99%	99%	99%	99%	98%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	917	942	769	515	485	470	456	-50%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	130	145	131	153	159	161	61%
Population index	100	116	132	140	167	174	177	77%
GDP PPP per population index	100	131	151	180	210	218	223	123%
Energy intensity index - TPES / GDP PPP	100	108	81	74	63	59	57	-43%
Carbon intensity index - CO ₂ / TPES	100	79	90	70	69	70	71	-29%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	1.05	23.34	20.93	1.23	46.56	61%
Electricity and heat generation	0.53	2.22	17.86	1.23	21.85	52%
Other energy industry own use	-	5.09	0.02	-	5.11	-41%
Manufacturing industries and construction	0.52	8.31	2.66	-	11.50	+
Transport	-	7.48	0.04	-	7.52	85%
<i>of which: road</i>	-	6.68	0.04	-	6.72	65%
Other	-	0.24	0.34	-	0.58	-56%
<i>of which: residential</i>	-	0.06	0.12	-	0.18	-0%
<i>of which: services</i>	-	0.18	0.22	-	0.40	-62%
<i>Memo: international marine bunkers</i>	-	132.27	-	-	132.27	287%
<i>Memo: international aviation bunkers</i>	-	21.45	-	-	21.45	277%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - gas	16.08	x	26.3	26.3
Manufacturing industries - oil	8.31	+	13.6	40.0
Road - oil	6.68	64.3%	10.9	50.9
Other energy industry own use - oil	5.09	-41.6%	8.3	59.2
Manufacturing industries - gas	2.66	x	4.4	63.6
Unallocated autoproducers - gas	1.78	x	2.9	66.5
Main activity prod. elec. and heat - oil	1.47	-89.6%	2.4	68.9
Main activity prod. elec. and heat - other	1.23	816.8%	2.0	71.0
Other transport - oil	0.80	x	1.3	72.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>46.56</i>	<i>60.8%</i>	<i>76.3</i>	<i>76.3</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Slovak Republic

Figure 1. CO₂ emissions by fuel

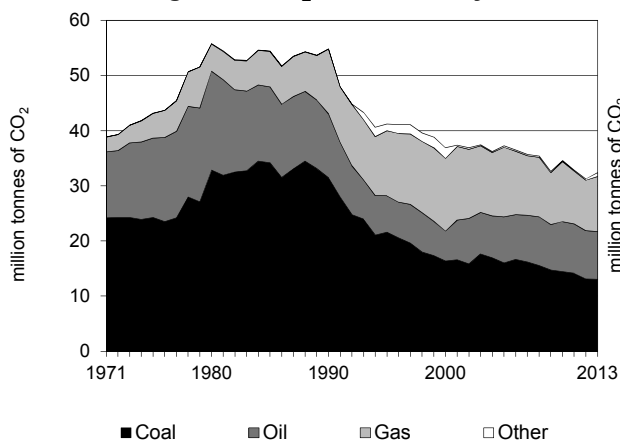


Figure 2. CO₂ emissions by sector

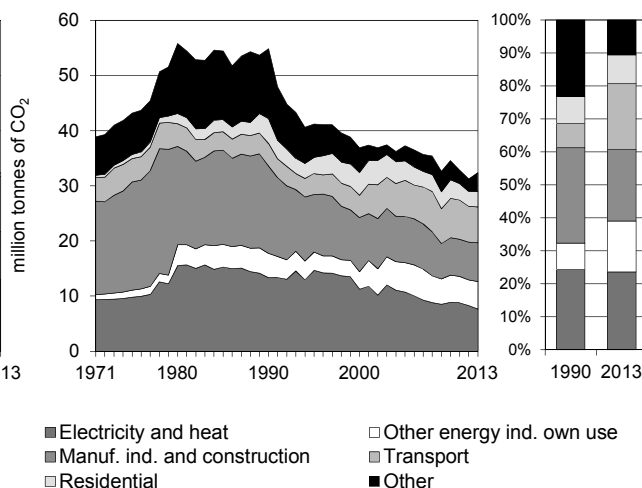


Figure 3. Electricity generation by fuel

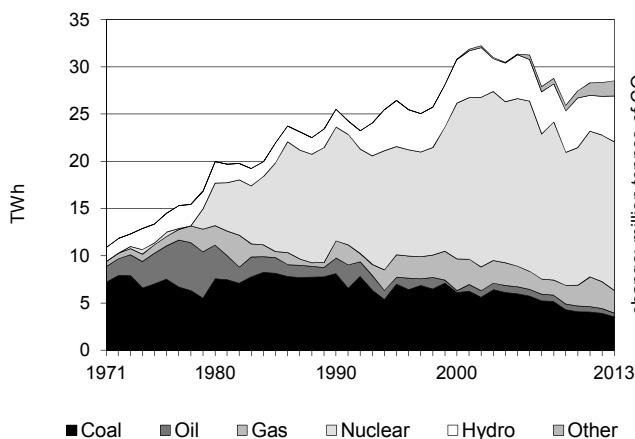


Figure 4. CO₂ from electricity generation: driving factors¹

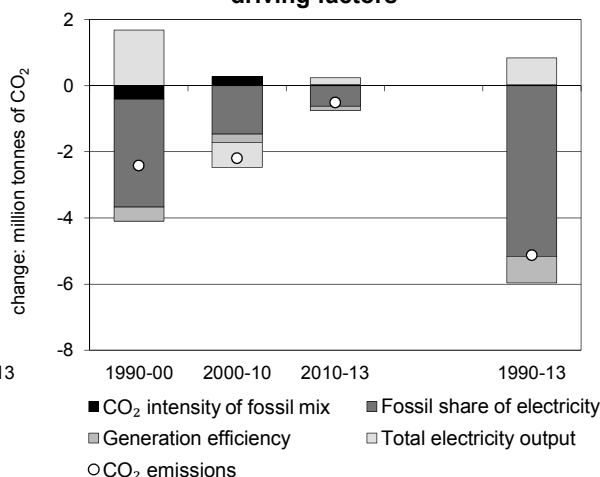


Figure 5. Changes in selected indicators

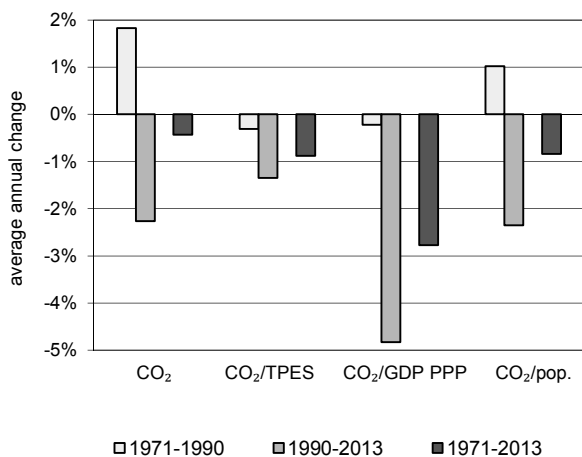
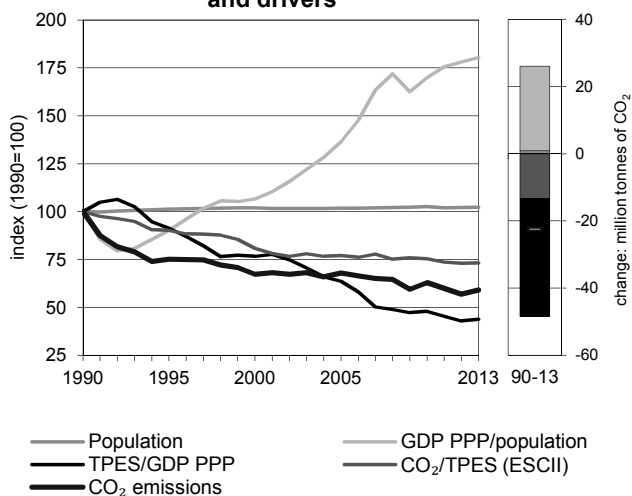


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Slovak Republic

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	54.83	41.22	36.88	37.25	34.56	31.24	32.38	-41%
Share of World CO ₂ from fuel combustion	0.27%	0.19%	0.16%	0.14%	0.12%	0.10%	0.10%	
TPES (PJ)	893	744	743	788	746	697	720	-19%
GDP (billion 2005 USD)	35.26	32.18	38.28	48.95	61.40	64.07	64.99	84%
GDP PPP (billion 2005 USD)	64.15	58.55	69.64	89.05	111.70	116.56	118.22	84%
Population (millions)	5.30	5.36	5.40	5.39	5.43	5.41	5.41	2%
CO ₂ / TPES (tCO ₂ per TJ)	61.4	55.4	49.6	47.3	46.3	44.8	44.9	-27%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	1.55	1.28	0.96	0.76	0.56	0.49	0.50	-68%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.85	0.70	0.53	0.42	0.31	0.27	0.27	-68%
CO ₂ / population (tCO ₂ per capita)	10.35	7.69	6.83	6.92	6.37	5.78	5.98	-42%
Share of electricity output from fossil fuels	45%	38%	31%	29%	25%	26%	23%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	398	371	251	226	201	198	176	-56%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	75	67	68	63	57	59	-41%
Population index	100	101	102	102	102	102	102	2%
GDP PPP per population index	100	90	106	137	170	178	180	80%
Energy intensity index - TPES / GDP PPP	100	91	77	64	48	43	44	-56%
Carbon intensity index - CO ₂ / TPES	100	90	81	77	75	73	73	-27%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	13.01	8.68	9.96	0.72	32.38	-41%
Electricity and heat generation	4.88	0.71	1.99	0.07	7.65	-43%
Other energy industry own use	3.17	1.48	0.34	-	5.00	14%
Manufacturing industries and construction	4.17	0.23	1.97	0.65	7.02	-56%
Transport	-	5.98	0.49	-	6.47	58%
<i>of which: road</i>	-	5.89	-	-	5.89	44%
Other	0.78	0.27	5.18	0.01	6.24	-64%
<i>of which: residential</i>	0.11	0.02	2.69	-	2.82	-37%
<i>of which: services</i>	0.67	0.03	2.41	0.01	3.12	-71%
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.12	-	-	0.12	x

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	5.89	44.1%	12.3	12.3
Manufacturing industries - coal	4.17	-50.3%	8.7	21.0
Main activity prod. elec. and heat - coal	4.12	-50.6%	8.6	29.7
Other energy industry - coal	3.17	-14.4%	6.6	36.3
Residential - gas	2.69	4.9%	5.6	41.9
Non-specified other - gas	2.49	-28.8%	5.2	47.1
Manufacturing industries - gas	1.97	-37.2%	4.1	51.2
Main activity prod. elec. and heat - gas	1.79	-13.0%	3.8	55.0
Other energy industry own use - oil	1.48	248.7%	3.1	58.1
<i>Memo: total CO₂ from fuel combustion</i>	32.38	-40.9%	67.7	67.7

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Slovenia

Figure 1. CO₂ emissions by fuel

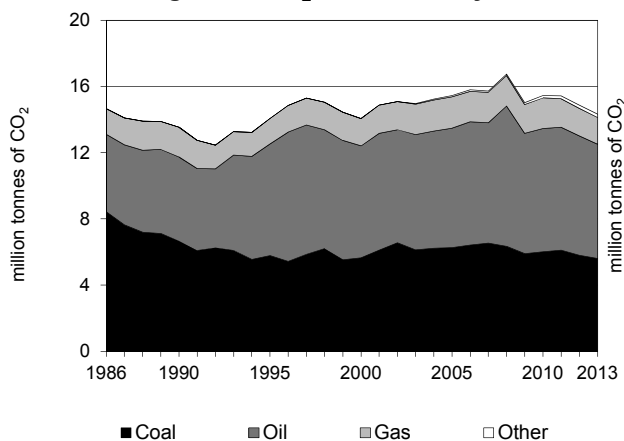


Figure 2. CO₂ emissions by sector

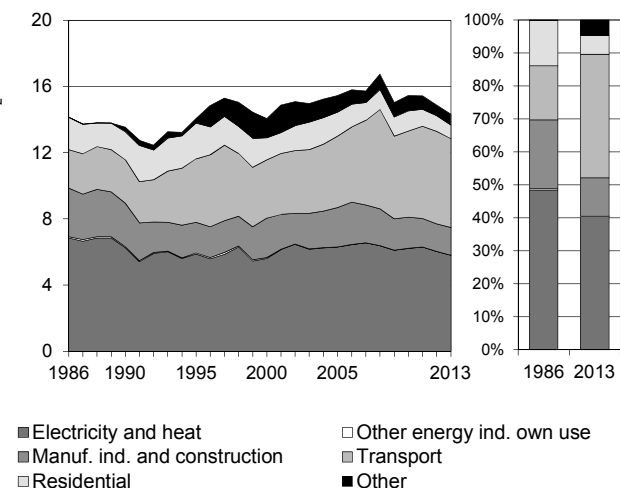


Figure 3. Electricity generation by fuel

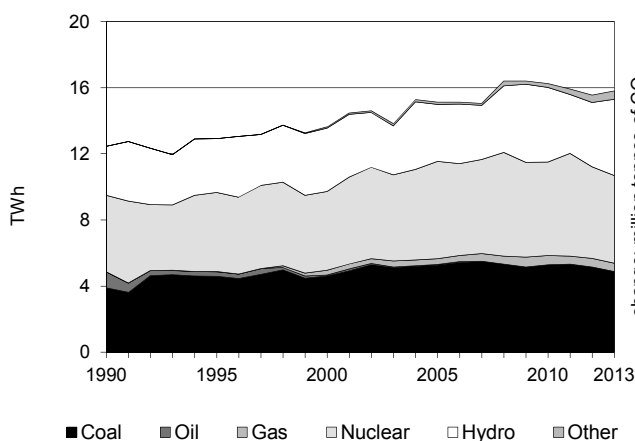


Figure 4. CO₂ from electricity generation: driving factors¹

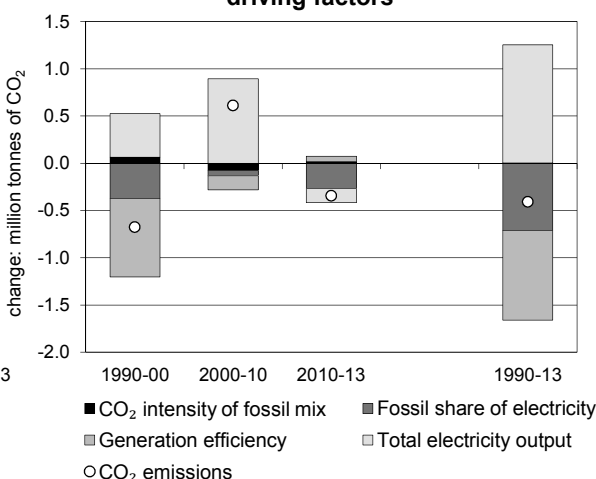


Figure 5. Changes in selected indicators

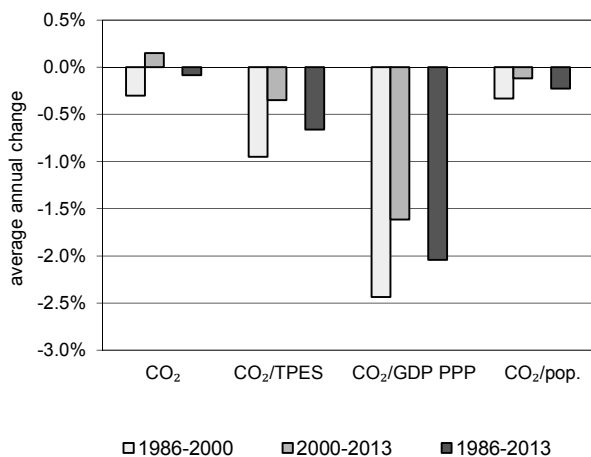
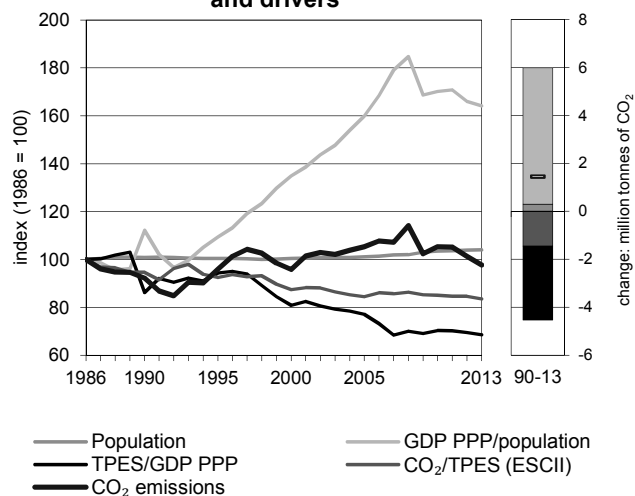


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Slovenia ¹

Key indicators

	1986	1990	1995	2005	2010	2012	2013	% change 86-13
CO ₂ fuel combustion (MtCO ₂)	14.67e	13.54	14.07	15.45	15.45	14.87	14.34	-2%
Share of World CO ₂ from fuel combustion	0.08%	0.07%	0.07%	0.06%	0.05%	0.05%	0.04%	
TPES (PJ)	245e	239	254	305	304	294	287	17%
GDP (billion 2005 USD)	24e	25.45	24.72	36.35	39.59	38.78	38.40	57%
GDP PPP (billion 2005 USD)	29.58e	33.47	32.50	47.79	52.06	50.99	50.48	71%
Population (millions)	1.98e	2.00	1.99	2.00	2.05	2.06	2.06	4%
CO ₂ / TPES (tCO ₂ per TJ)	59.8e	56.6	55.4	50.6	50.9	50.6	50.0	-16%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.6e	0.53	0.57	0.43	0.39	0.38	0.37	-38%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.5e	0.40	0.43	0.32	0.30	0.29	0.28	-43%
CO ₂ / population (tCO ₂ per capita)	7.4e	6.78	7.07	7.72	7.54	7.23	6.96	-6%
Share of electricity output from fossil fuels	..	39%	38%	37%	36%	37%	34%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	..	438	390	356	331	338	319	..
CO₂ emissions and drivers - Kaya decomposition (1986=100) ²								
CO ₂ emissions index	100	92	96	105	105	101	98	-2%
Population index	100	101	100	101	103	104	104	4%
GDP PPP per population index	100	112	109	160	170	166	164	64%
Energy intensity index - TPES / GDP PPP	100	86	94	77	70	70	69	-31%
Carbon intensity index - CO ₂ / TPES	100	95	93	85	85	85	84	-16%

1. Under the Convention Slovenia is allowed to use 1986 as its base year. 2. Please see Part I, Chapter 2 for methodological notes.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ³	Total	% change 86-13
CO₂ fuel combustion	5.60	6.92	1.61	0.21	14.34	-2%
Electricity and heat generation	5.39	0.03	0.34	0.04	5.80	-15%
Other energy industry own use	-	-	0.01	-	0.01	-90%
Manufacturing industries and construction	0.20	0.38	0.92	0.16	1.67	-43%
Transport	-	5.37	0.00	-	5.37	131%
<i>of which: road</i>	-	5.34	0.00	-	5.34	133%
Other	-	1.14	0.34	-	1.48	-24%
<i>of which: residential</i>	-	0.55	0.27	-	0.82	-58%
<i>of which: services</i>	-	0.33	0.07	-	0.41	x
<i>Memo: international marine bunkers</i>	-	0.19	-	-	0.19	..
<i>Memo: international aviation bunkers</i>	-	0.08	-	-	0.08	-22%

3. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 86-13	Level assessment (%) ⁴	Cumulative total (%)
Main activity prod. elec. and heat - coal	5.36	-7.8%	25.5	25.5
Road - oil	5.34	133.2%	25.4	50.9
Manufacturing industries - gas	0.92	-18.9%	4.4	55.3
Non-specified other - oil	0.59	x	2.8	58.1
Residential - oil	0.55	-19.4%	2.6	60.7
Manufacturing industries - oil	0.38	-64.6%	1.8	62.5
Main activity prod. elec. and heat - gas	0.31	562.9%	1.5	64.0
Residential - gas	0.27	663.5%	1.3	65.3
Manufacturing industries - coal	0.20	-72.5%	1.0	66.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>14.34</i>	<i>-2.3%</i>	<i>68.2</i>	<i>68.2</i>

4. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

South Africa

Figure 1. CO₂ emissions by fuel

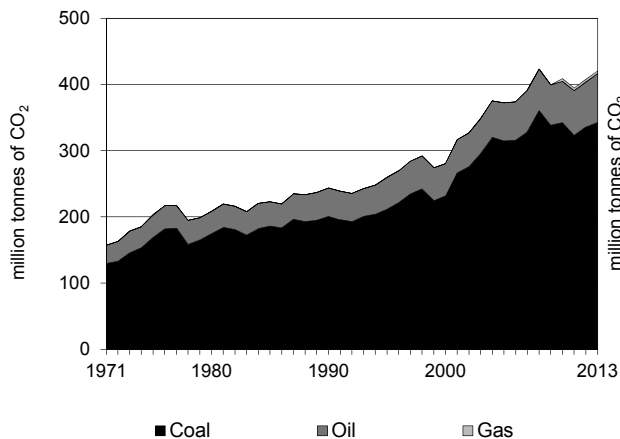


Figure 2. CO₂ emissions by sector

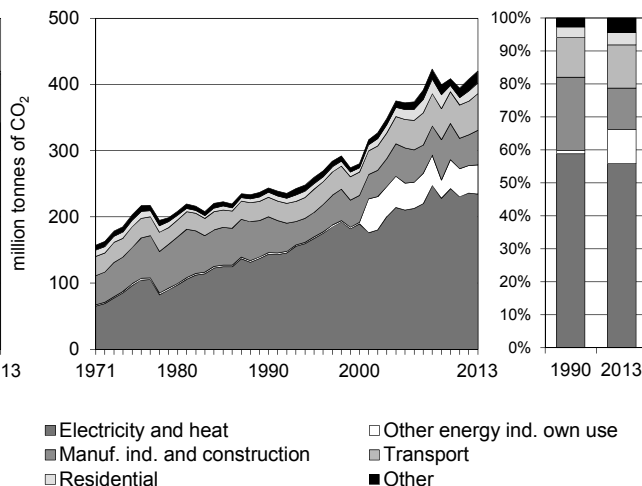


Figure 3. Electricity generation by fuel

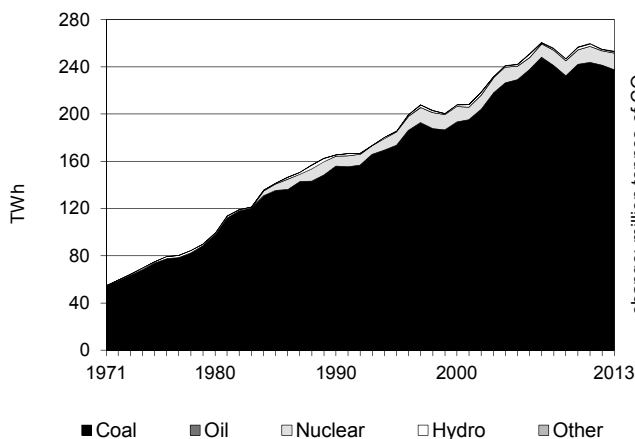


Figure 4. CO₂ from electricity generation: driving factors¹

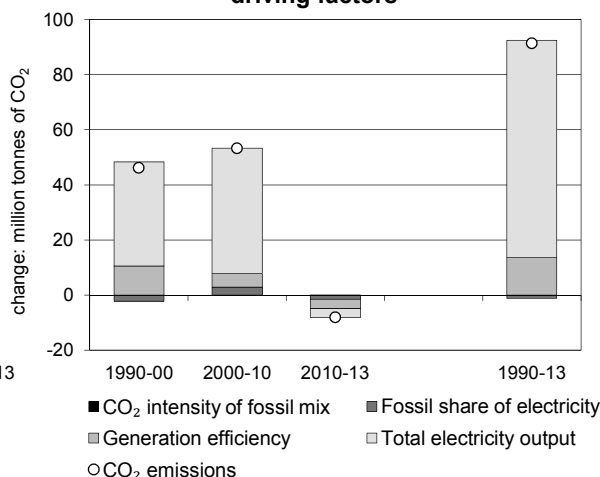


Figure 5. Changes in selected indicators

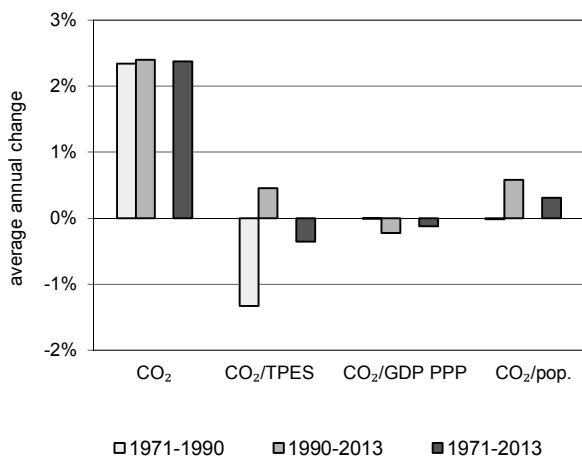
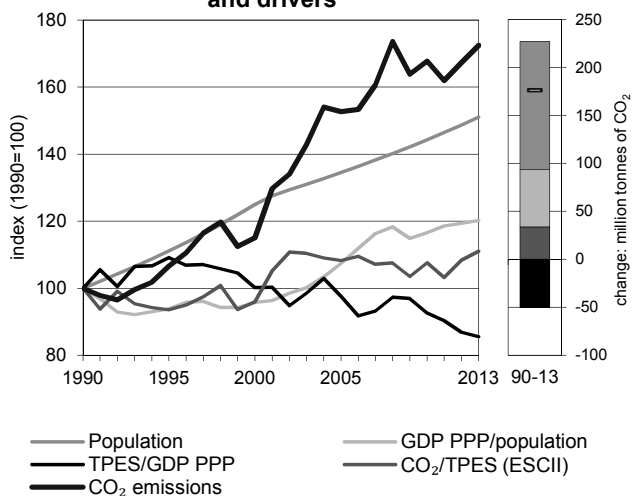


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

South Africa

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	243.82	259.75	280.51	372.29	408.88	407.79	420.40	72%
Share of World CO ₂ from fuel combustion	1.2%	1.2%	1.2%	1.4%	1.4%	1.3%	1.3%	
TPES (PJ)	3 808	4 335	4 565	5 370	5 936	5 876	5 915	55%
GDP (billion 2005 USD)	178.40	186.13	213.59	257.77	300.22	316.74	323.75	81%
GDP PPP (billion 2005 USD)	324.80	338.89	388.88	469.32	546.59	576.67	589.43	81%
Population (millions)	35.20	39.12	44.00	47.35	50.79	52.34	53.16	51%
CO ₂ / TPES (tCO ₂ per TJ)	64.0	59.9	61.4	69.3	68.9	69.4	71.1	11%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	1.37	1.40	1.31	1.44	1.36	1.29	1.30	-5%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.75	0.77	0.72	0.79	0.75	0.71	0.71	-5%
CO ₂ / population (tCO ₂ per capita)	6.93	6.64	6.38	7.86	8.05	7.79	7.91	14%
Share of electricity output from fossil fuels	94%	94%	93%	95%	94%	95%	94%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	866	902	911	869	945	925	926	7%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	107	115	153	168	167	172	72%
Population index	100	111	125	135	144	149	151	51%
GDP PPP per population index	100	94	96	107	117	119	120	20%
Energy intensity index - TPES / GDP PPP	100	109	100	98	93	87	86	-14%
Carbon intensity index - CO ₂ / TPES	100	94	96	108	108	108	111	11%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	343.02	73.39	3.99	-	420.40	72%
Electricity and heat generation	234.41	0.15	-	-	234.56	64%
Other energy industry own use	40.58	3.26	-	-	43.84	+
Manufacturing industries and construction	42.16	6.29	3.99	-	52.45	-3%
Transport	0.06	55.23	0.00	-	55.29	87%
<i>of which: road</i>	-	51.38	0.00	-	51.38	82%
Other	25.80	8.46	0.00	-	34.27	139%
<i>of which: residential</i>	14.27	1.65	-	-	15.92	107%
<i>of which: services</i>	7.13	0.62	0.00	-	7.75	114%
<i>Memo: international marine bunkers</i>	-	10.84	-	-	10.84	80%
<i>Memo: international aviation bunkers</i>	-	2.54	-	-	2.54	129%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	227.72	69.0%	40.7	40.7
Road - oil	51.38	82.1%	9.2	49.8
Manufacturing industries - coal	42.16	-11.0%	7.5	57.4
Other energy industry - coal	40.58	+	7.2	64.6
Residential - coal	14.27	143.1%	2.5	67.2
Non-specified other sectors - coal	11.54	208.2%	2.1	69.2
Non-specified other - oil	6.81	135.1%	1.2	70.5
Unallocated autoproducers - coal	6.69	-23.4%	1.2	71.6
Manufacturing industries - oil	6.29	-6.2%	1.1	72.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>420.40</i>	<i>72.4%</i>	<i>75.1</i>	<i>75.1</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

South Sudan ¹

Figure 1. CO₂ emissions by fuel

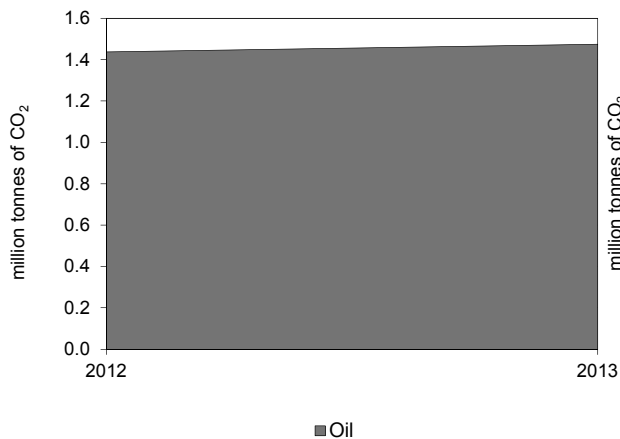


Figure 2. CO₂ emissions by sector

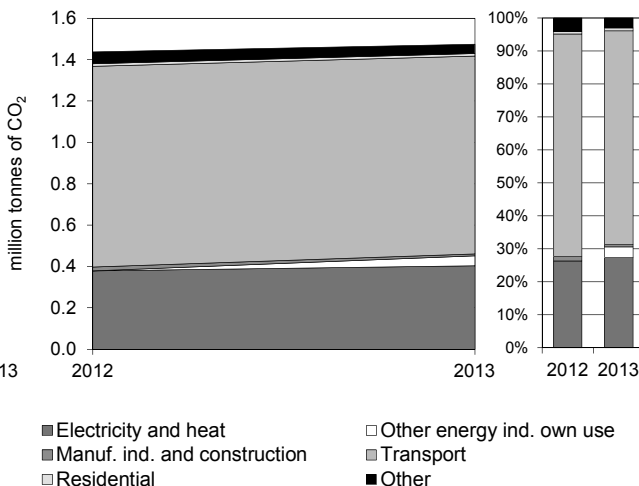


Figure 3. Electricity generation by fuel

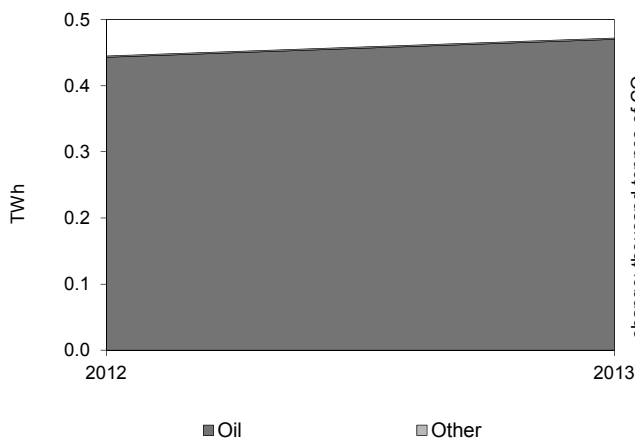


Figure 4. CO₂ from electricity generation: driving factors ²

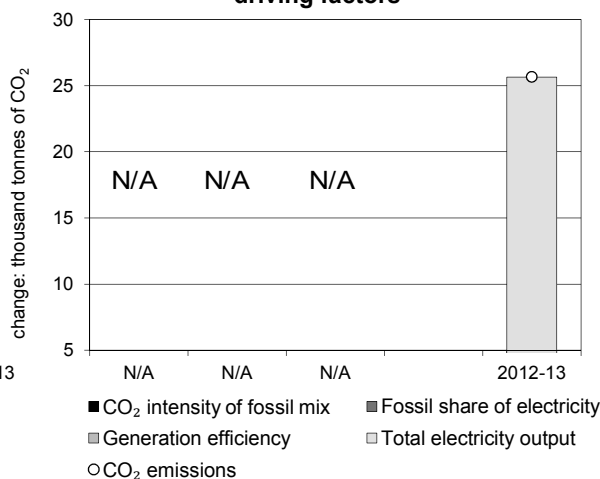


Figure 5. Changes in selected indicators

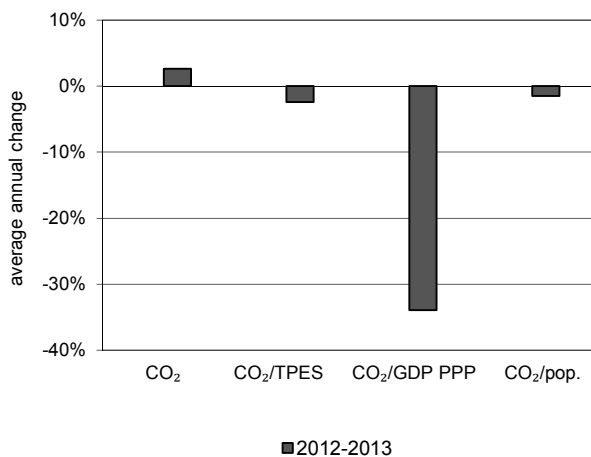
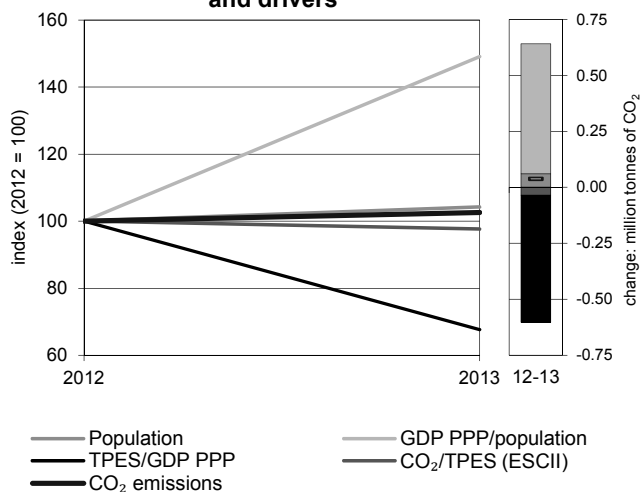


Figure 6. Total CO₂ emissions and drivers ³



1. Prior to 2012, data for South Sudan are included in Sudan.

2. Electricity decomposition: CO₂ emissions = CO₂ intensity of mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

3. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 1.

South Sudan ¹

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 12-13
CO ₂ fuel combustion (MtCO ₂)	1.44	1.47	3%
Share of World CO ₂ from fuel combustion	0.00%	0.00%	
TPES (PJ)	27	28	5%
GDP (billion 2005 USD)	7.11	10.95	54%
GDP PPP (billion 2005 USD)	23.80	36.98	55%
Population (millions)	10.84	11.30	4%
CO ₂ / TPES (tCO ₂ per TJ)	53.3	52.0	-2%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.20	0.13	-33%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.06	0.04	-34%
CO ₂ / population (tCO ₂ per capita)	0.13	0.13	-2%
Share of electricity output from fossil fuels	100%	100%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	850	856	1%
CO₂ emissions and drivers - Kaya decomposition (2012=100) ²								
CO ₂ emissions index	100	103	3%
Population index	100	104	4%
GDP PPP per population index	100	149	49%
Energy intensity index - TPES / GDP PPP	100	68	-32%
Carbon intensity index - CO ₂ / TPES	100	98	-2%

1. Prior to 2012, data for South Sudan were included in Sudan. 2. Please see Part I, Chapter 2 for methodological notes.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ³	Total	% change 12-13
CO₂ fuel combustion	-	1.47	-	-	1.47	3%
Electricity and heat generation	-	0.40	-	-	0.40	7%
Other energy industry own use	-	0.05	-	-	0.05	x
Manufacturing industries and construction	-	0.01	-	-	0.01	-49%
Transport	-	0.96	-	-	0.96	-1%
<i>of which: road</i>	-	0.93	-	-	0.93	-2%
Other	-	0.06	-	-	0.06	-18%
<i>of which: residential</i>	-	0.01	-	-	0.01	-
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.11	-	-	0.11	16%

3. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 12-13	Level assessment (%) ⁴	Cumulative total (%)
Road - oil	0.93	-1.7%	..	..
Unallocated autoproducers - oil	0.21	6.5%	..	..
Main activity prod. elec. and heat - oil	0.19	7.1%	..	..
Other energy industry own use - oil	0.05	x	..	..
Non-specified other - oil	0.04	-22.2%	..	..
Other transport - oil	0.03	12.5%	..	..
Residential - oil	0.01	-	..	..
Manufacturing industries - oil	0.01	-49.4%	..	..
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	1.47	2.6%	-	-

4. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Spain

Figure 1. CO₂ emissions by fuel

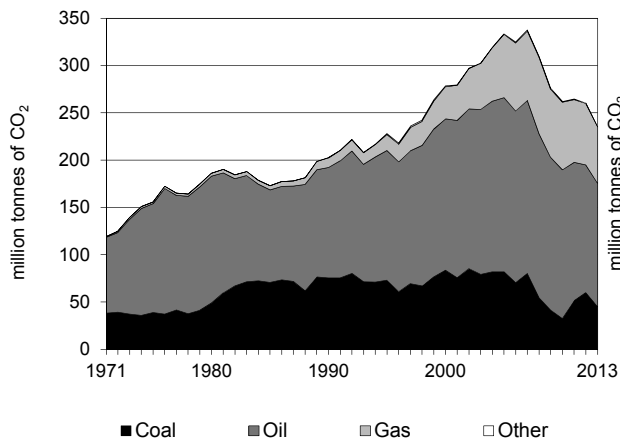


Figure 2. CO₂ emissions by sector

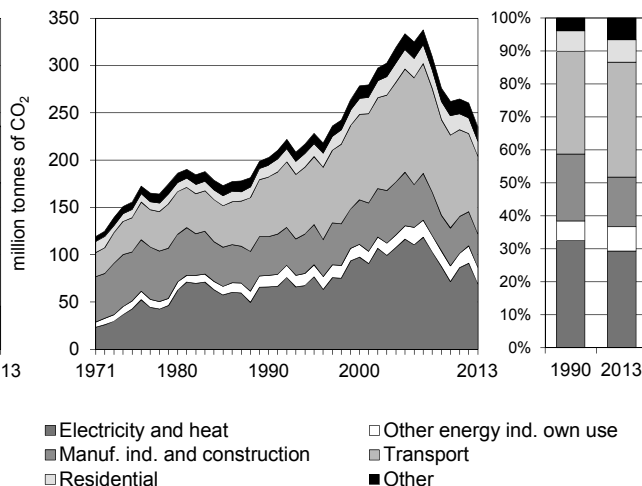


Figure 3. Electricity generation by fuel

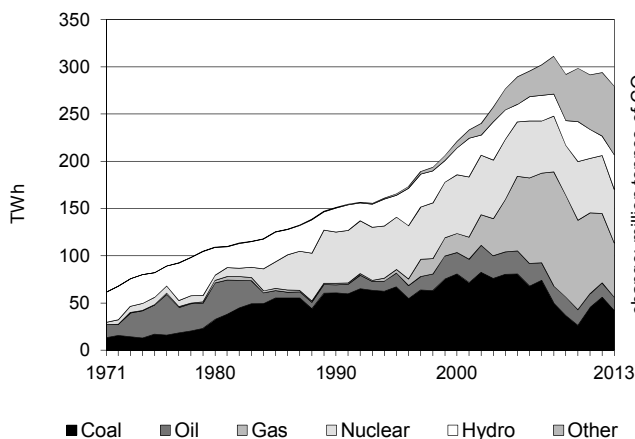


Figure 4. CO₂ from electricity generation: driving factors¹

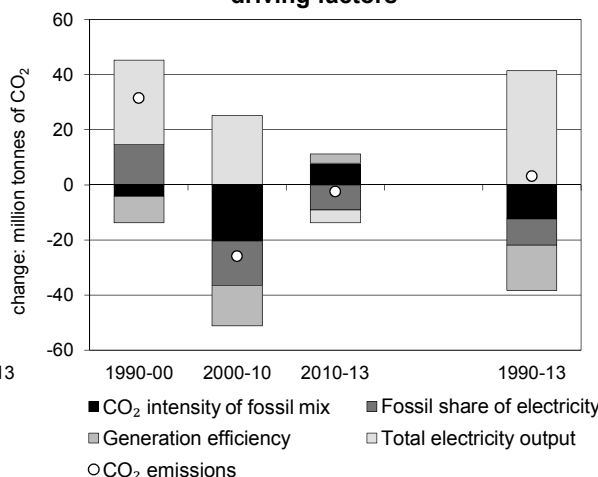


Figure 5. Changes in selected indicators

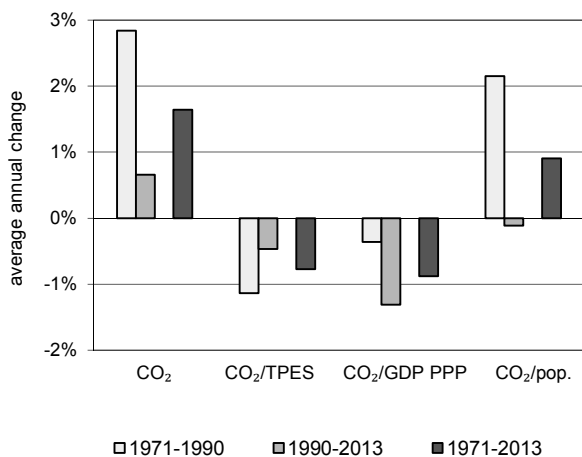
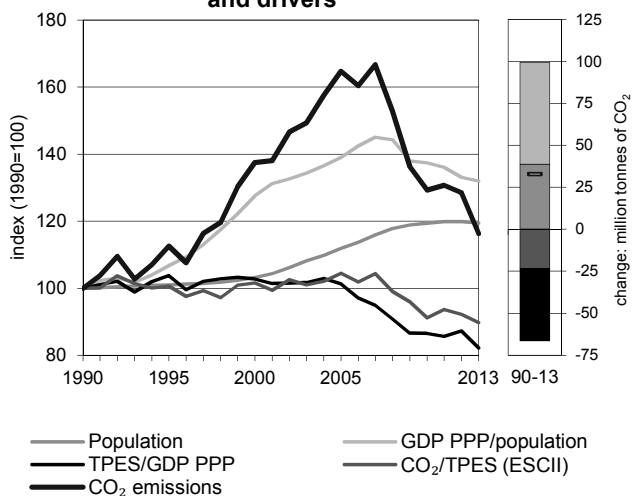


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Spain

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	202.60	228.17	278.53	333.63	261.98	260.44	235.66	16%
Share of World CO ₂ from fuel combustion	0.98%	1.06%	1.19%	1.23%	0.88%	0.83%	0.73%	
TPES (PJ)	3 771	4 220	5 102	5 942	5 349	5 255	4 887	30%
GDP (billion 2005 USD)	744.04	801.81	979.53	1 157.25	1 219.91	1 187.05	1 172.45	58%
GDP PPP (billion 2005 USD)	782.18	842.91	1 029.74	1 216.57	1 282.44	1 247.90	1 232.55	58%
Population (millions)	39.01	39.39	40.26	43.66	46.56	46.77	46.59	19%
CO ₂ / TPES (tCO ₂ per TJ)	53.7	54.1	54.6	56.1	49.0	49.6	48.2	-10%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.27	0.28	0.28	0.29	0.21	0.22	0.20	-26%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.26	0.27	0.27	0.27	0.20	0.21	0.19	-26%
CO ₂ / population (tCO ₂ per capita)	5.19	5.79	6.92	7.64	5.63	5.57	5.06	-3%
Share of electricity output from fossil fuels	47%	52%	56%	66%	46%	50%	41%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	436	462	441	402	240	310	247	-43%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	113	137	165	129	129	116	16%
Population index	100	101	103	112	119	120	119	19%
GDP PPP per population index	100	107	128	139	137	133	132	32%
Energy intensity index - TPES / GDP PPP	100	104	103	101	87	87	82	-18%
Carbon intensity index - CO ₂ / TPES	100	101	102	105	91	92	90	-10%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	44.88	130.57	59.64	0.56	235.66	16%
Electricity and heat generation	38.81	8.97	20.73	0.56	69.07	5%
Other energy industry own use	0.66	12.61	4.20	-	17.47	45%
Manufacturing industries and construction	4.85	9.40	21.22	-	35.47	-14%
Transport	-	81.90	0.28	-	82.18	30%
<i>of which: road</i>	-	74.04	0.18	-	74.23	39%
Other	0.56	17.69	13.22	-	31.47	54%
<i>of which: residential</i>	0.39	8.01	7.50	-	15.90	27%
<i>of which: services</i>	0.00	3.89	3.51	-	7.40	100%
<i>Memo: international marine bunkers</i>	-	23.01	-	-	23.01	99%
<i>Memo: international aviation bunkers</i>	-	10.74	-	-	10.74	220%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	74.04	38.9%	23.0	23.0
Main activity prod. elec. and heat - coal	38.17	-33.5%	11.9	34.9
Manufacturing industries - gas	21.22	165.9%	6.6	41.5
Other energy industry own use - oil	12.61	25.3%	3.9	45.5
Unallocated autoproducers - gas	10.77	+	3.4	48.8
Main activity prod. elec. and heat - gas	9.96	+	3.1	51.9
Non-specified other - oil	9.68	31.3%	3.0	54.9
Manufacturing industries - oil	9.40	-51.7%	2.9	57.8
Main activity prod. elec. and heat - oil	8.06	33.5%	2.5	60.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>235.66</i>	<i>16.3%</i>	<i>73.4</i>	<i>73.4</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Sri Lanka

Figure 1. CO₂ emissions by fuel

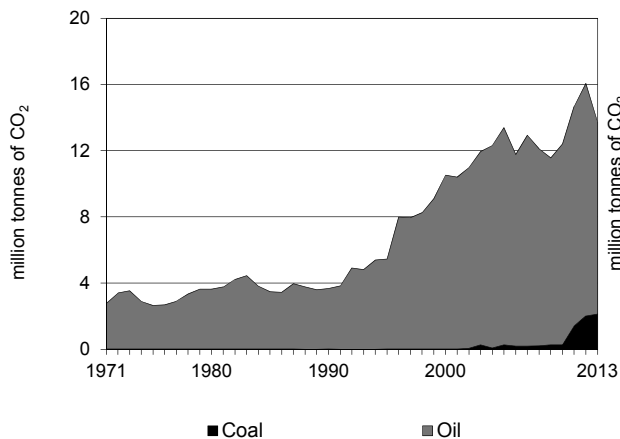


Figure 2. CO₂ emissions by sector

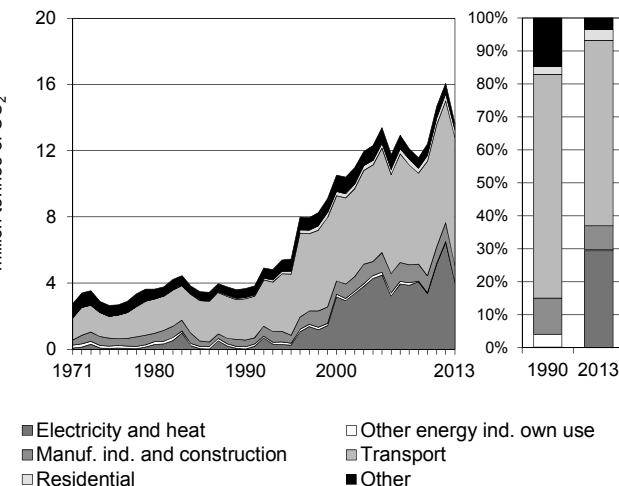


Figure 3. Electricity generation by fuel

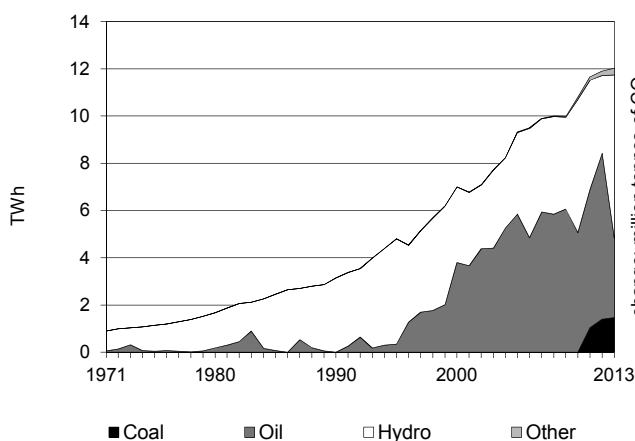


Figure 4. CO₂ from electricity generation: driving factors¹

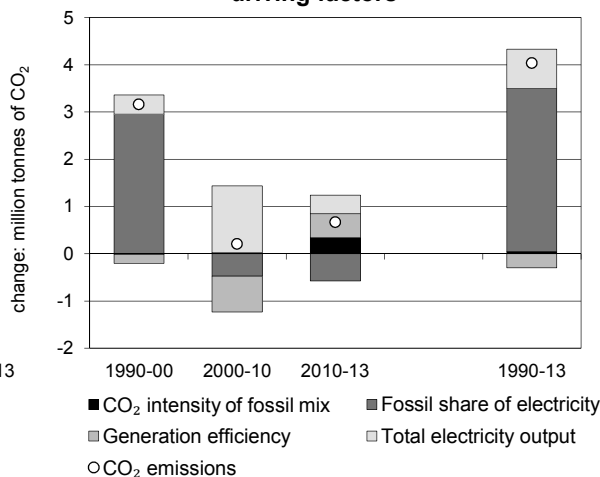


Figure 5. Changes in selected indicators

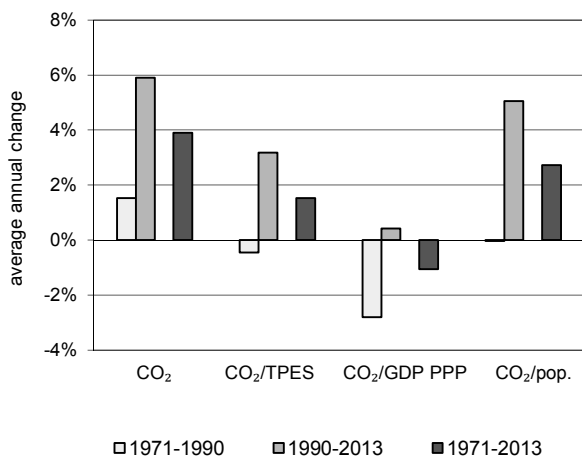
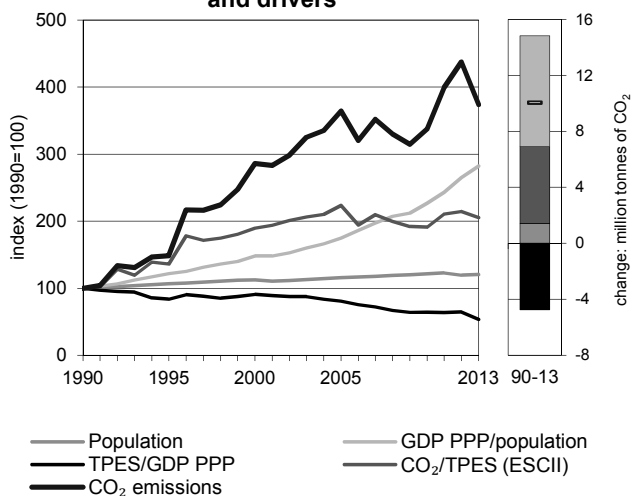


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Sri Lanka

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	3.67	5.45	10.52	13.39	12.40	16.06	13.74	274%
Share of World CO ₂ from fuel combustion	0.02%	0.03%	0.05%	0.05%	0.04%	0.05%	0.04%	
TPES (PJ)	231	251	349	377	408	471	420	82%
GDP (billion 2005 USD)	12.08	15.71	20.09	24.41	33.25	38.28	41.05	240%
GDP PPP (billion 2005 USD)	50.59	65.80	84.12	102.19	139.24	160.27	171.90	240%
Population (millions)	17.02	18.14	19.10	19.64	20.65	20.33	20.48	20%
CO ₂ / TPES (tCO ₂ per TJ)	15.9	21.7	30.2	35.5	30.4	34.1	32.7	106%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.30	0.35	0.52	0.55	0.37	0.42	0.33	10%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.07	0.08	0.13	0.13	0.09	0.10	0.08	10%
CO ₂ / population (tCO ₂ per capita)	0.22	0.30	0.55	0.68	0.60	0.79	0.67	210%
Share of electricity output from fossil fuels	0%	7%	54%	63%	47%	71%	40%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	2	51	452	481	312	544	336	16915%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	148	286	364	338	437	374	274%
Population index	100	107	112	115	121	119	120	20%
GDP PPP per population index	100	122	148	175	227	265	282	182%
Energy intensity index - TPES / GDP PPP	100	84	91	81	64	64	54	-46%
Carbon intensity index - CO ₂ / TPES	100	136	190	223	191	214	206	106%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	2.11	11.62	-	-	13.74	274%
Electricity and heat generation	1.88	2.16	-	-	4.04	+
Other energy industry own use	-	0.04	-	-	0.04	-75%
Manufacturing industries and construction	0.23	0.78	-	-	1.01	151%
Transport	-	7.72	-	-	7.72	210%
<i>of which: road</i>	-	7.49	-	-	7.49	237%
Other	-	0.93	-	-	0.93	48%
<i>of which: residential</i>	-	0.45	-	-	0.45	436%
<i>of which: services</i>	-	0.11	-	-	0.11	510%
<i>Memo: international marine bunkers</i>	-	1.02	-	-	1.02	-17%
<i>Memo: international aviation bunkers</i>	-	1.09	-	-	1.09	x

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	7.49	237.0%	26.2	26.2
Main activity prod. elec. and heat - oil	2.16	+	7.6	33.8
Main activity prod. elec. and heat - coal	1.88	x	6.6	40.4
Manufacturing industries - oil	0.78	103.2%	2.7	43.1
Non-specified other - oil	0.48	-11.9%	1.7	44.8
Residential - oil	0.45	436.2%	1.6	46.3
Manufacturing industries - coal	0.23	+	0.8	47.2
Other transport - oil	0.23	-14.7%	0.8	48.0
Other energy industry own use - oil	0.04	-75.1%	0.1	48.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>13.74</i>	<i>273.8%</i>	<i>48.1</i>	<i>48.1</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Sudan

Figure 1. CO₂ emissions by fuel

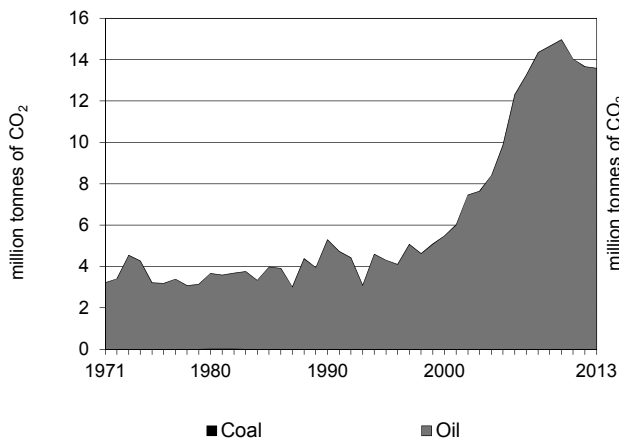


Figure 2. CO₂ emissions by sector

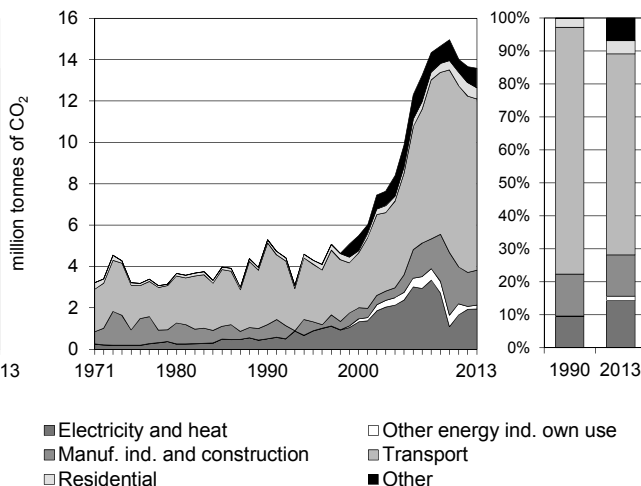


Figure 3. Electricity generation by fuel

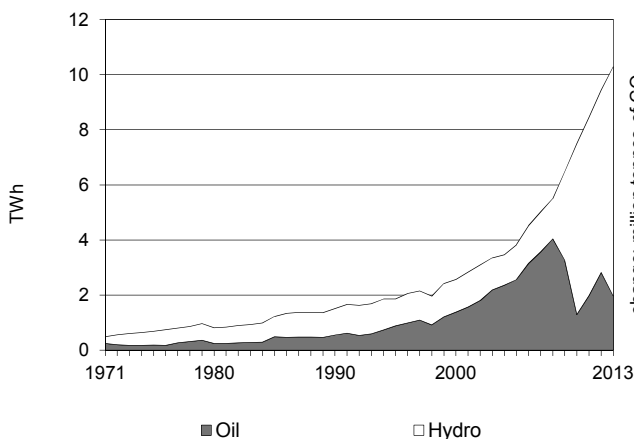


Figure 4. CO₂ from electricity generation: driving factors¹

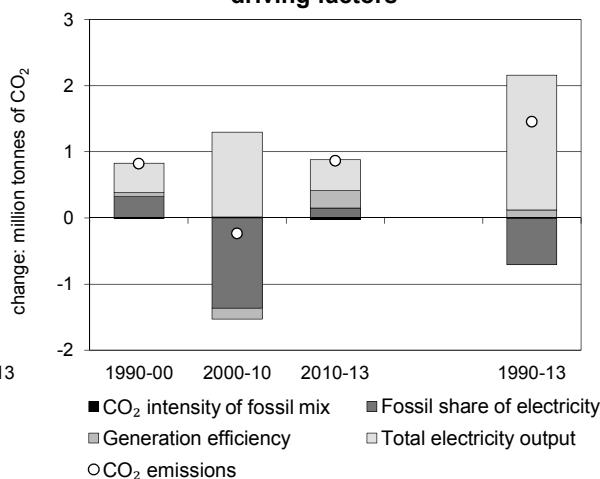


Figure 5. Changes in selected indicators

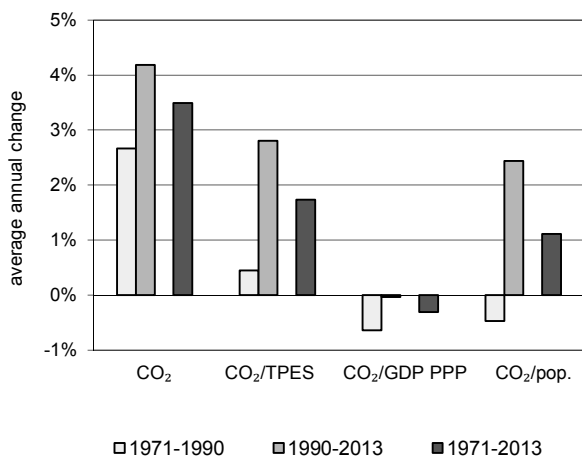
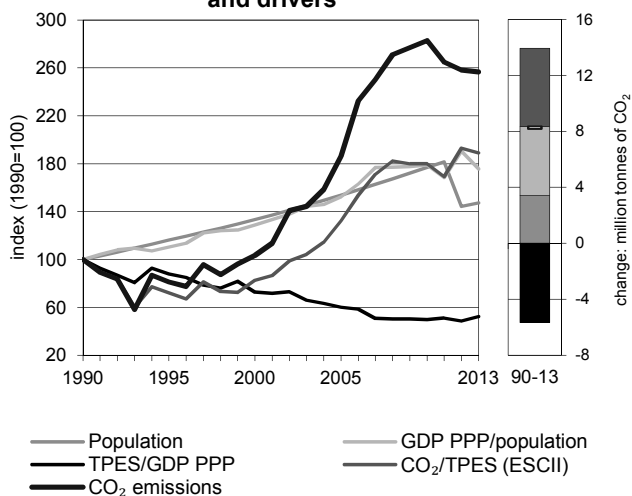


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Sudan ¹

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	5.29	4.31	5.48	9.86	14.97	13.66	13.58	157%
Share of World CO ₂ from fuel combustion	0.03%	0.02%	0.02%	0.04%	0.05%	0.04%	0.04%	
TPES (PJ)	445	502	557	627	699	595	604	36%
GDP (billion 2005 USD)	11.32	14.52	19.45	26.53	35.82	31.14	29.27	159%
GDP PPP (billion 2005 USD)	42.68	54.75	73.33	99.99	135.04	117.40	110.35	159%
Population (millions)	25.77	29.96	34.38	39.63	45.59	37.20	37.96	47%
CO ₂ / TPES (tCO ₂ per TJ)	11.9	8.6	9.8	15.7	21.4	23.0	22.5	89%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.47	0.30	0.28	0.37	0.42	0.44	0.46	-1%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.12	0.08	0.07	0.10	0.11	0.12	0.12	-1%
CO ₂ / population (tCO ₂ per capita)	0.21	0.14	0.16	0.25	0.33	0.37	0.36	74%
Share of electricity output from fossil fuels	37%	48%	54%	67%	17%	30%	19%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	328	470	513	621	145	204	190	-42%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ²								
CO ₂ emissions index	100	81	104	186	283	258	257	157%
Population index	100	116	133	154	177	144	147	47%
GDP PPP per population index	100	110	129	152	179	191	176	76%
Energy intensity index - TPES / GDP PPP	100	88	73	60	50	49	53	-47%
Carbon intensity index - CO ₂ / TPES	100	72	83	132	180	193	189	89%

1. Data for Sudan include South Sudan until 2011. 2. Please see Part I, Chapter 2 for methodological notes.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ³	Total	% change 90-13
CO₂ fuel combustion	-	13.58	-	-	13.58	157%
Electricity and heat generation	-	1.95	-	-	1.95	292%
Other energy industry own use	-	0.18	-	-	0.18	+
Manufacturing industries and construction	-	1.70	-	-	1.70	152%
Transport	-	8.27	-	-	8.27	109%
<i>of which: road</i>	-	8.21	-	-	8.21	107%
Other	-	1.48	-	-	1.48	896%
<i>of which: residential</i>	-	0.55	-	-	0.55	283%
<i>of which: services</i>	-	0.36	-	-	0.36	x
<i>Memo: international marine bunkers</i>	-	0.05	-	-	0.05	114%
<i>Memo: international aviation bunkers</i>	-	0.78	-	-	0.78	714%

3. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ⁴	Cumulative total (%)
Road - oil	8.21	107.2%	4.1	4.1
Main activity prod. elec. and heat - oil	1.95	292.0%	1.0	5.0
Manufacturing industries - oil	1.70	151.6%	0.8	5.9
Non-specified other - oil	0.93	+	0.5	6.3
Residential - oil	0.55	283.5%	0.3	6.6
Other energy industry own use - oil	0.18	+	0.1	6.7
Other transport - oil	0.06	x	0.0	6.7
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>13.58</i>	<i>156.5%</i>	<i>6.7</i>	<i>6.7</i>

4. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Sweden

Figure 1. CO₂ emissions by fuel

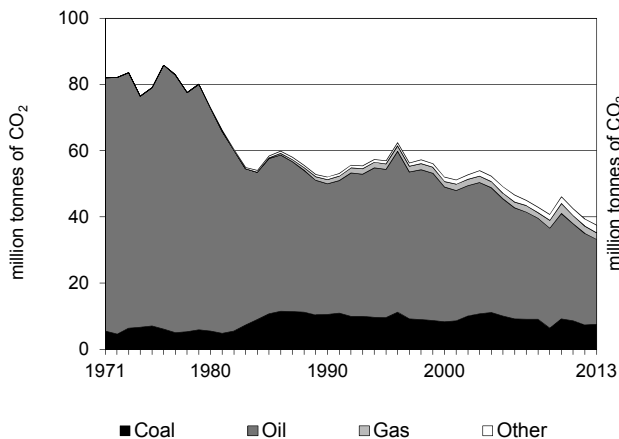


Figure 2. CO₂ emissions by sector

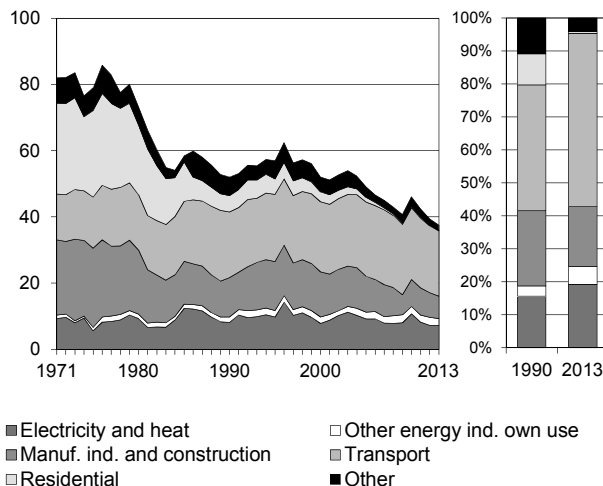


Figure 3. Electricity generation by fuel

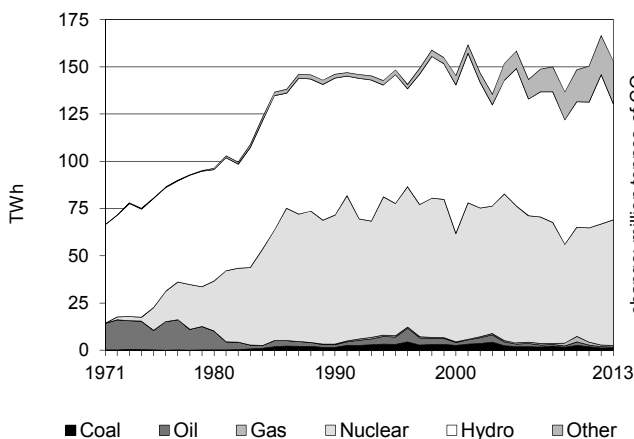


Figure 4. CO₂ from electricity generation: driving factors¹

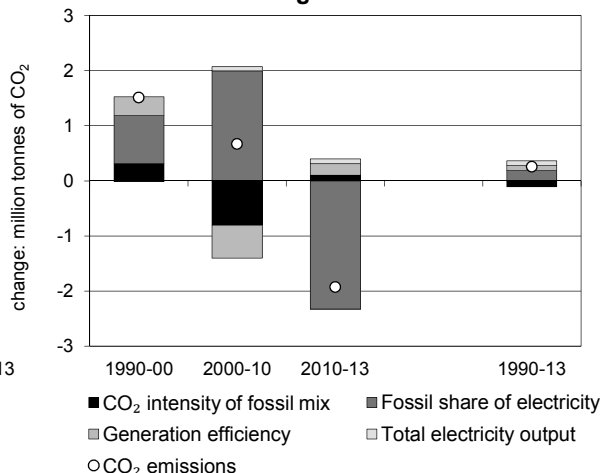


Figure 5. Changes in selected indicators

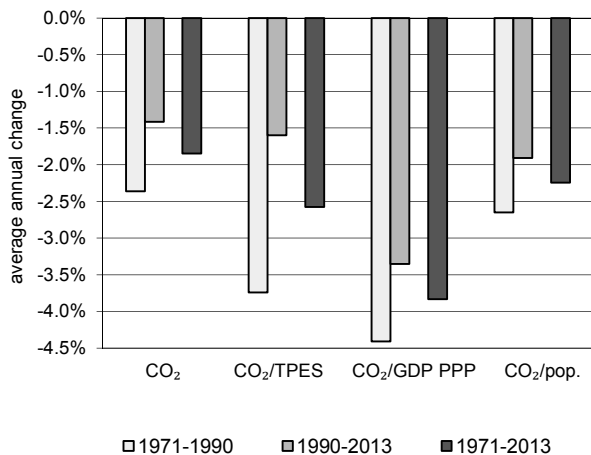
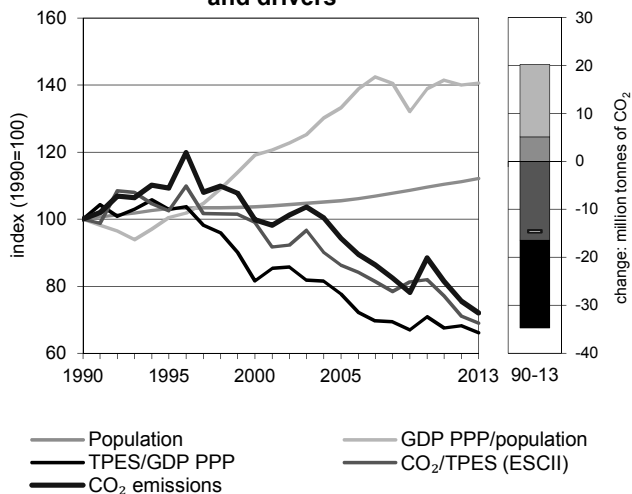


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Sweden

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	52.06	56.92	51.97	49.09	46.04	39.34	37.50	-28%
Share of World CO ₂ from fuel combustion	0.25%	0.27%	0.22%	0.18%	0.15%	0.12%	0.12%	
TPES (PJ)	1 976	2 107	1 991	2 159	2 131	2 100	2 063	4%
GDP (billion 2005 USD)	276.69	286.68	341.72	389.04	420.87	430.85	436.37	58%
GDP PPP (billion 2005 USD)	220.48	228.44	272.30	310.01	335.37	343.32	347.72	58%
Population (millions)	8.56	8.83	8.87	9.03	9.38	9.52	9.60	12%
CO ₂ / TPES (tCO ₂ per TJ)	26.4	27.0	26.1	22.7	21.6	18.7	18.2	-31%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.19	0.20	0.15	0.13	0.11	0.09	0.09	-54%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.24	0.25	0.19	0.16	0.14	0.11	0.11	-54%
CO ₂ / population (tCO ₂ per capita)	6.08	6.45	5.86	5.44	4.91	4.13	3.91	-36%
Share of electricity output from fossil fuels	2%	5%	3%	3%	6%	2%	3%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	12	22	22	20	26	12	13	10%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	109	100	94	88	76	72	-28%
Population index	100	103	104	106	110	111	112	12%
GDP PPP per population index	100	100	119	133	139	140	141	41%
Energy intensity index - TPES / GDP PPP	100	103	82	78	71	68	66	-34%
Carbon intensity index - CO ₂ / TPES	100	103	99	86	82	71	69	-31%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	7.56	25.64	1.98	2.32	37.50	-28%
Electricity and heat generation	3.58	0.54	0.78	2.32	7.22	-11%
Other energy industry own use	0.29	1.69	0.04	-	2.02	23%
Manufacturing industries and construction	3.68	2.49	0.66	-	6.83	-43%
Transport	-	19.55	0.12	-	19.67	-1%
<i>of which: road</i>	-	19.02	0.12	-	19.15	6%
Other	0.01	1.37	0.38	-	1.76	-83%
<i>of which: residential</i>	0.01	0.13	0.08	-	0.22	-96%
<i>of which: services</i>	0.00	0.88	0.25	-	1.13	-74%
<i>Memo: international marine bunkers</i>	-	5.09	-	-	5.09	141%
<i>Memo: international aviation bunkers</i>	-	2.38	-	-	2.38	119%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	19.02	5.7%	31.4	31.4
Manufacturing industries - coal	3.68	-19.8%	6.1	37.5
Main activity prod. elec. and heat - coal	3.54	-33.9%	5.8	43.3
Manufacturing industries - oil	2.49	-62.6%	4.1	47.5
Main activity prod. elec. and heat - other	2.25	179.9%	3.7	51.2
Other energy industry own use - oil	1.69	26.3%	2.8	54.0
Non-specified other - oil	1.24	-77.0%	2.0	56.0
Main activity prod. elec. and heat - gas	0.77	71.9%	1.3	57.3
Manufacturing industries - gas	0.66	10.9%	1.1	58.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>37.50</i>	<i>-28.0%</i>	<i>62.0</i>	<i>62.0</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Switzerland

Figure 1. CO₂ emissions by fuel

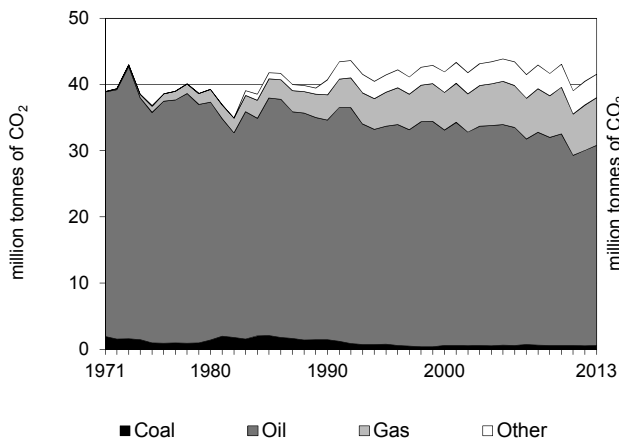


Figure 2. CO₂ emissions by sector

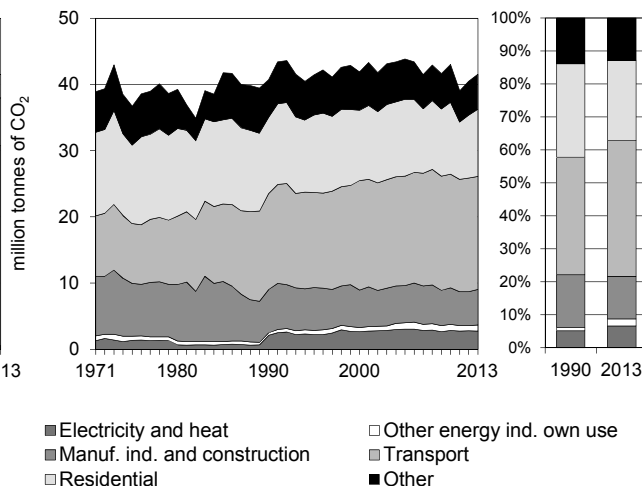


Figure 3. Electricity generation by fuel

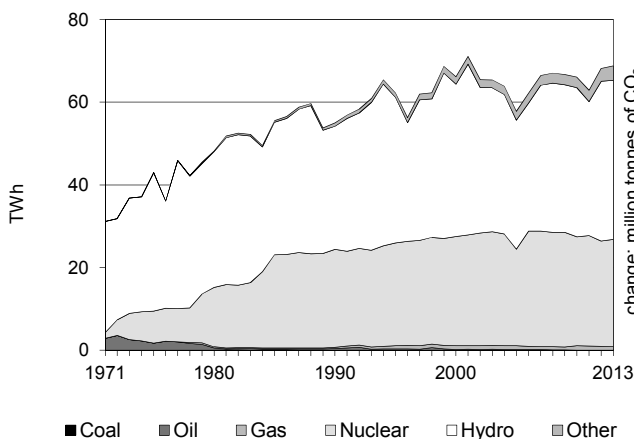


Figure 4. CO₂ from electricity generation: driving factors¹

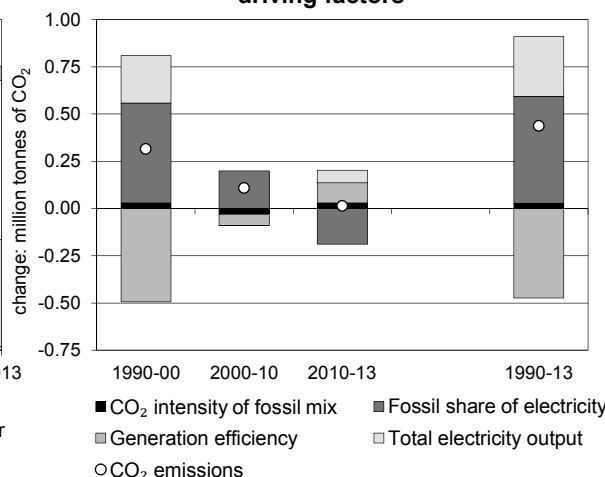


Figure 5. Changes in selected indicators

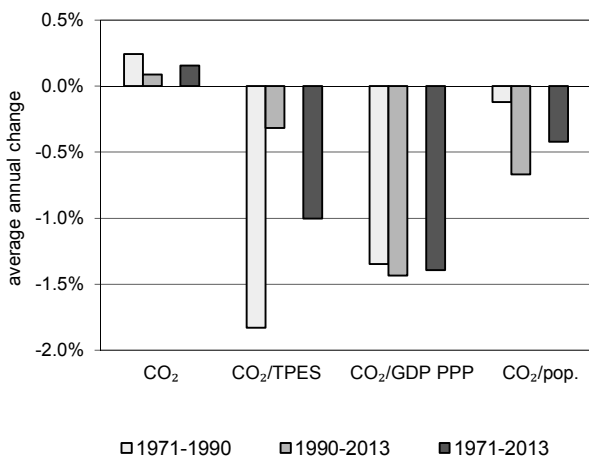
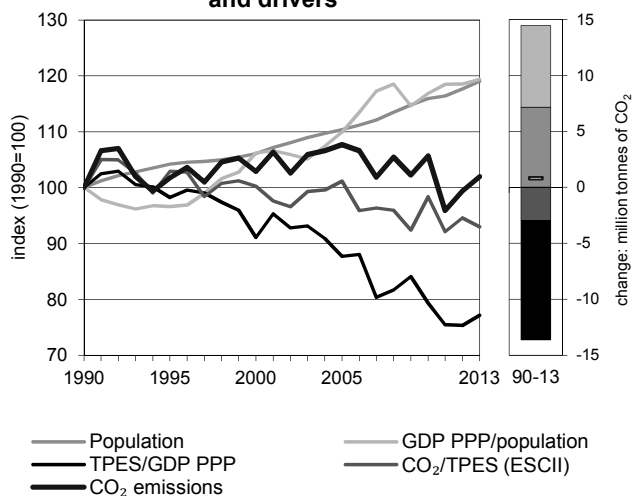


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Switzerland

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	40.73	41.44	41.90	43.86	43.05	40.47	41.54	2%
Share of World CO ₂ from fuel combustion	0.20%	0.19%	0.18%	0.16%	0.14%	0.13%	0.13%	
TPES (PJ)	1 020	1 009	1 047	1 086	1 096	1 072	1 119	10%
GDP (billion 2005 USD)	335.79	337.99	378.38	407.54	454.94	468.28	477.25	42%
GDP PPP (billion 2005 USD)	239.92	241.49	270.35	291.18	325.05	334.58	340.99	42%
Population (millions)	6.80	7.08	7.21	7.50	7.88	8.00	8.09	19%
CO ₂ / TPES (tCO ₂ per TJ)	39.9	41.1	40.0	40.4	39.3	37.8	37.1	-7%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.12	0.12	0.11	0.11	0.09	0.09	0.09	-28%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.17	0.17	0.16	0.15	0.13	0.12	0.12	-28%
CO ₂ / population (tCO ₂ per capita)	5.99	5.85	5.81	5.85	5.46	5.06	5.14	-14%
Share of electricity output from fossil fuels	2%	3%	3%	4%	3%	3%	3%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	22	21	23	29	25	25	24	9%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	102	103	108	106	99	102	2%
Population index	100	104	106	110	116	118	119	19%
GDP PPP per population index	100	97	106	110	117	119	119	19%
Energy intensity index - TPES / GDP PPP	100	98	91	88	79	75	77	-23%
Carbon intensity index - CO ₂ / TPES	100	103	100	101	98	95	93	-7%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	0.54	30.25	7.22	3.53	41.54	2%
Electricity and heat generation	-	0.05	0.56	2.13	2.75	31%
Other energy industry own use	-	0.90	0.01	-	0.90	142%
Manufacturing industries and construction	0.54	1.40	2.18	1.23	5.36	-18%
Transport	-	17.03	0.06	-	17.09	18%
<i>of which: road</i>	-	16.74	0.04	-	16.78	20%
Other	-	10.86	4.40	0.17	15.44	-10%
<i>of which: residential</i>	-	7.32	2.81	-	10.13	-12%
<i>of which: services</i>	-	3.04	1.54	0.17	4.74	-7%
<i>Memo: international marine bunkers</i>	-	0.02	-	-	0.02	-67%
<i>Memo: international aviation bunkers</i>	-	4.61	-	-	4.61	52%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	16.74	19.5%	31.1	31.1
Residential - oil	7.32	-28.0%	13.6	44.7
Non-specified other - oil	3.54	-23.6%	6.6	51.3
Residential - gas	2.81	111.8%	5.2	56.5
Manufacturing industries - gas	2.18	119.3%	4.1	60.6
Unallocated autoproducers - other	1.94	78.5%	3.6	64.2
Non-specified other - gas	1.59	76.3%	3.0	67.1
Manufacturing industries - oil	1.40	-55.3%	2.6	69.8
Manufacturing industries - other	1.23	3.3%	2.3	72.0
<i>Memo: total CO₂ from fuel combustion</i>	<i>41.54</i>	<i>2.0%</i>	<i>77.2</i>	<i>77.2</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Syrian Arab Republic

Figure 1. CO₂ emissions by fuel

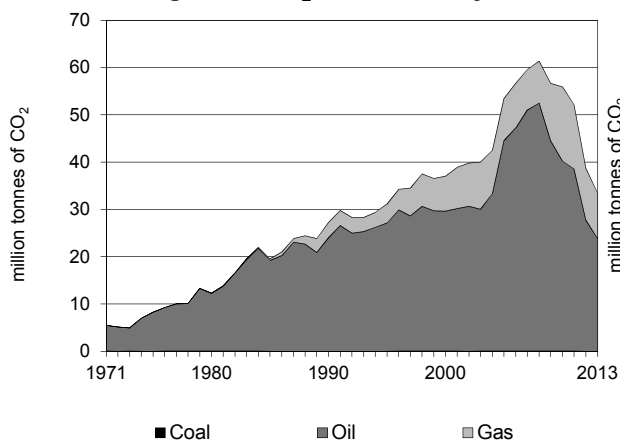


Figure 2. CO₂ emissions by sector

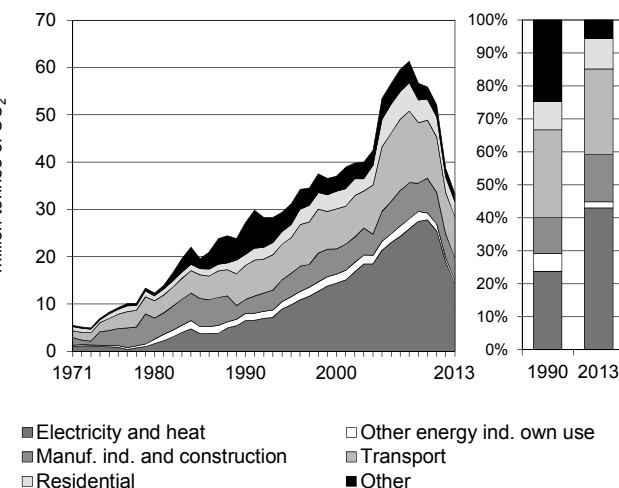


Figure 3. Electricity generation by fuel

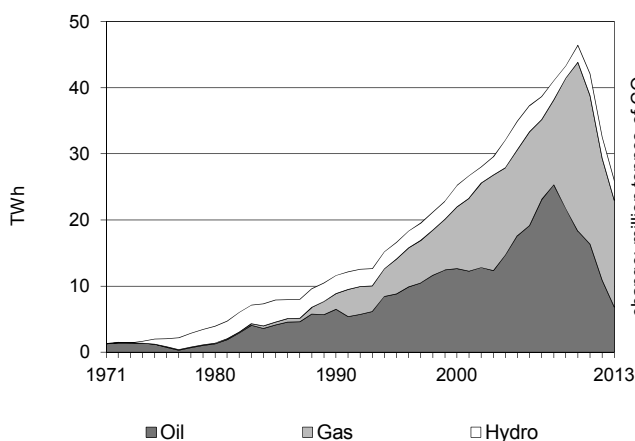


Figure 4. CO₂ from electricity generation: driving factors¹

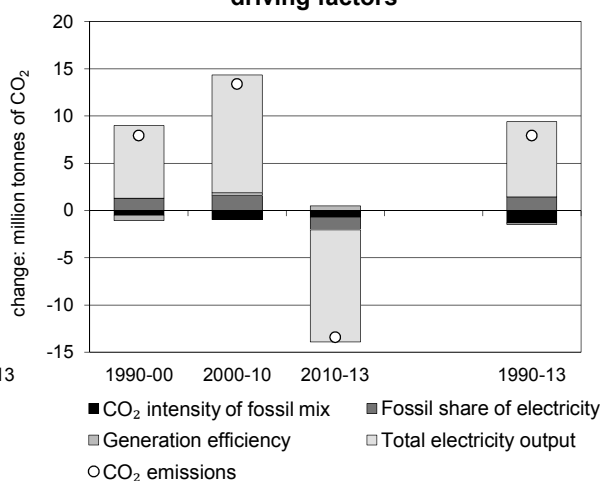


Figure 5. Changes in selected indicators

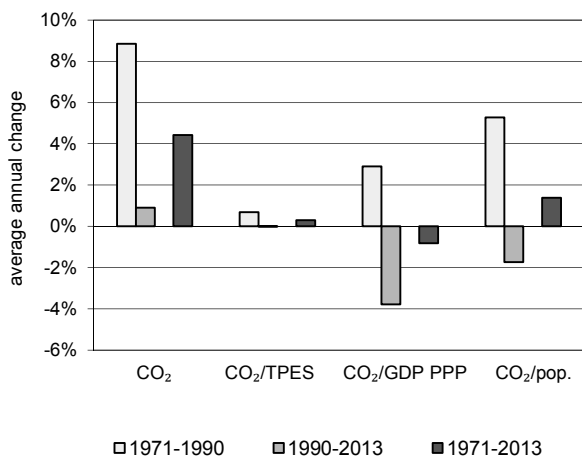
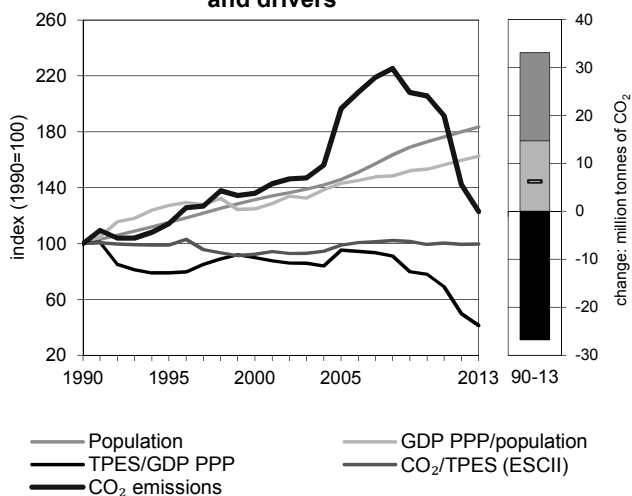


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Syrian Arab Republic

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	27.22	31.12	37.01	53.45	55.95	38.70	33.47	23%
Share of World CO ₂ from fuel combustion	0.13%	0.14%	0.16%	0.20%	0.19%	0.12%	0.10%	
TPES (PJ)	438	507	646	871	907	627	541	23%
GDP (billion 2005 USD)	13.82	20.25	22.68	28.86	36.61	39.64	41.21	198%
GDP PPP (billion 2005 USD)	36.58	53.62	60.05	76.40	96.93	104.93	109.09	198%
Population (millions)	12.45	14.34	16.37	18.17	21.53	22.40	22.85	83%
CO ₂ / TPES (tCO ₂ per TJ)	62.1	61.4	57.3	61.4	61.7	61.7	61.9	0%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	1.97	1.54	1.63	1.85	1.53	0.98	0.81	-59%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.74	0.58	0.62	0.70	0.58	0.37	0.31	-59%
CO ₂ / population (tCO ₂ per capita)	2.19	2.17	2.26	2.94	2.60	1.73	1.47	-33%
Share of electricity output from fossil fuels	77%	85%	87%	88%	94%	90%	88%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	558	590	572	612	599	581	555	0%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	114	136	196	206	142	123	23%
Population index	100	115	131	146	173	180	183	83%
GDP PPP per population index	100	127	125	143	153	159	163	63%
Energy intensity index - TPES / GDP PPP	100	79	90	95	78	50	41	-59%
Carbon intensity index - CO ₂ / TPES	100	99	92	99	99	99	100	0%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	0.00	23.88	9.59	-	33.47	23%
Electricity and heat generation	-	5.60	8.80	-	14.40	122%
Other energy industry own use	-	0.46	0.16	-	0.62	-58%
Manufacturing industries and construction	0.00	4.17	0.63	-	4.80	62%
Transport	-	8.67	-	-	8.67	20%
<i>of which: road</i>	-	8.54	-	-	8.54	18%
Other	-	4.99	-	-	4.99	-45%
<i>of which: residential</i>	-	3.13	-	-	3.13	33%
<i>of which: services</i>	-	0.75	-	-	0.75	33%
<i>Memo: international marine bunkers</i>	-	1.44	-	-	1.44	-50%
<i>Memo: international aviation bunkers</i>	-	0.07	-	-	0.07	-92%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - gas	8.80	576.2%	16.8	16.8
Road - oil	8.54	17.9%	16.3	33.2
Main activity prod. elec. and heat - oil	4.94	17.1%	9.4	42.6
Manufacturing industries - oil	4.17	40.3%	8.0	50.6
Residential - oil	3.13	32.8%	6.0	56.5
Non-specified other - oil	1.86	-62.4%	3.5	60.1
Unallocated autoproducers - oil	0.66	-31.0%	1.3	61.4
Manufacturing industries - gas	0.63	x	1.2	62.6
Other energy industry own use - oil	0.46	-65.3%	0.9	63.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>33.47</i>	<i>23.0%</i>	<i>64.0</i>	<i>64.0</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Chinese Taipei

Figure 1. CO₂ emissions by fuel

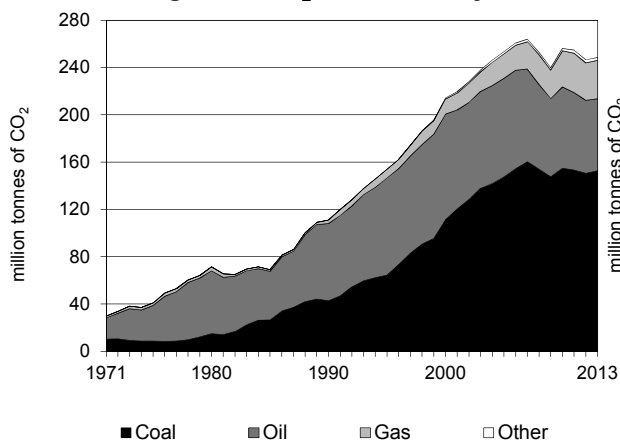


Figure 2. CO₂ emissions by sector

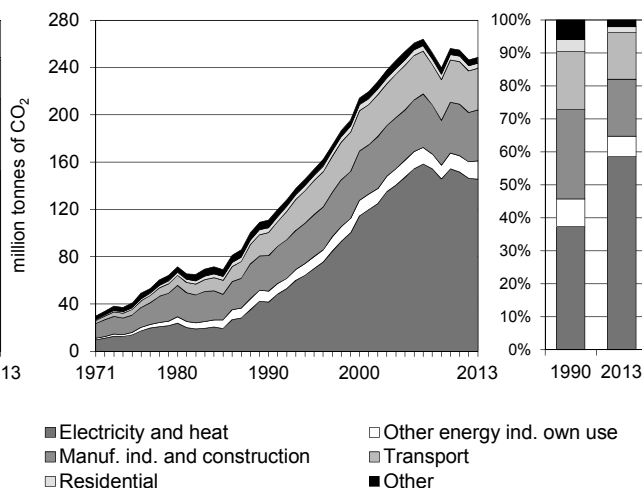


Figure 3. Electricity generation by fuel

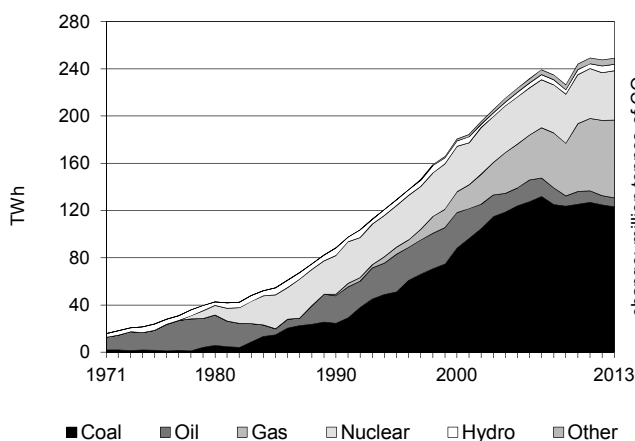


Figure 4. CO₂ from electricity generation: driving factors¹

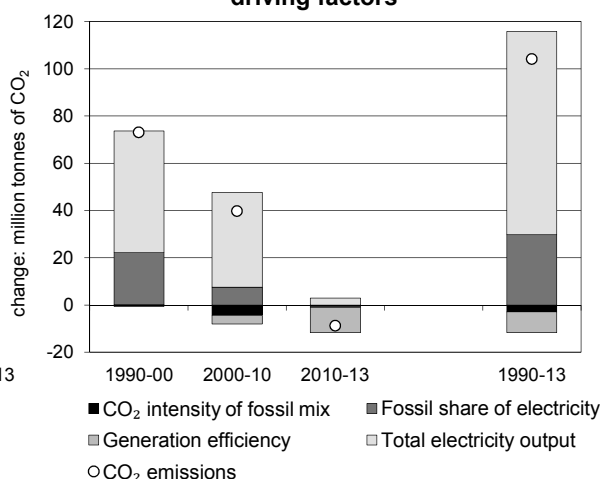


Figure 5. Changes in selected indicators

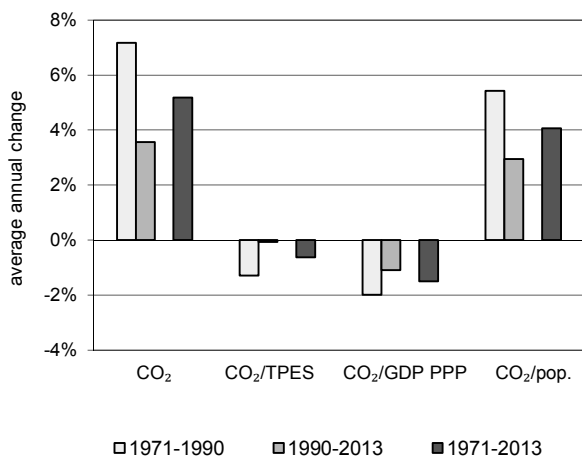
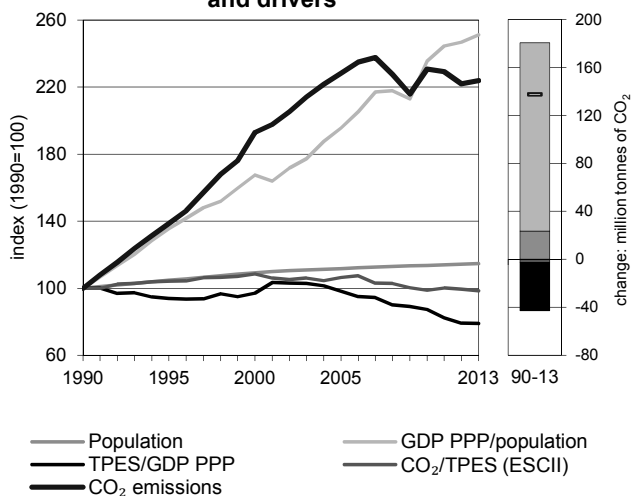


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Chinese Taipei

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	111.09	153.96	214.30	253.64	256.22	246.55	248.70	124%
Share of World CO ₂ from fuel combustion	0.54%	0.72%	0.92%	0.94%	0.86%	0.78%	0.77%	
TPES (PJ)	1 999	2 660	3 552	4 286	4 666	4 460	4 548	128%
GDP (billion 2005 USD)	167.05	236.79	305.75	364.85	446.63	470.94	481.26	188%
GDP PPP (billion 2005 USD)	277.81	393.80	508.50	606.78	742.80	783.22	800.38	188%
Population (millions)	20.40	21.36	22.28	22.77	23.16	23.32	23.41	15%
CO ₂ / TPES (tCO ₂ per TJ)	55.6	57.9	60.3	59.2	54.9	55.3	54.7	-2%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.67	0.65	0.70	0.70	0.57	0.52	0.52	-22%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.40	0.39	0.42	0.42	0.34	0.31	0.31	-22%
CO ₂ / population (tCO ₂ per capita)	5.45	7.21	9.62	11.14	11.06	10.57	10.63	95%
Share of electricity output from fossil fuels	56%	69%	76%	79%	80%	80%	80%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	470	542	635	659	633	591	585	25%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	139	193	228	231	222	224	124%
Population index	100	105	109	112	114	114	115	15%
GDP PPP per population index	100	135	168	196	236	247	251	151%
Energy intensity index - TPES / GDP PPP	100	94	97	98	87	79	79	-21%
Carbon intensity index - CO ₂ / TPES	100	104	109	106	99	99	98	-2%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	152.74	61.00	32.42	2.54	248.70	124%
Electricity and heat generation	110.48	7.32	25.38	2.50	145.69	251%
Other energy industry own use	10.11	4.18	1.10	-	15.39	67%
Manufacturing industries and construction	32.15	7.58	3.27	0.04	43.03	43%
Transport	-	35.17	-	-	35.17	80%
<i>of which: road</i>	-	34.36	-	-	34.36	86%
Other	-	6.76	2.66	-	9.42	-11%
<i>of which: residential</i>	-	2.76	1.55	-	4.31	5%
<i>of which: services</i>	-	2.53	1.10	-	3.63	16%
<i>Memo: international marine bunkers</i>	-	3.79	-	-	3.79	-23%
<i>Memo: international aviation bunkers</i>	-	7.01	-	-	7.01	287%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	80.40	298.2%	27.9	27.9
Road - oil	34.36	85.9%	11.9	39.8
Manufacturing industries - coal	32.15	129.7%	11.2	51.0
Unallocated autoproducers - coal	30.09	583.5%	10.4	61.4
Main activity prod. elec. and heat - gas	25.24	+	8.8	70.2
Other energy industry - coal	10.11	149.7%	3.5	73.7
Manufacturing industries - oil	7.58	-51.6%	2.6	76.3
Other energy industry own use - oil	4.18	-5.9%	1.5	77.8
Non-specified other - oil	4.00	-36.5%	1.4	79.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>248.70</i>	<i>123.9%</i>	<i>86.3</i>	<i>86.3</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Tajikistan

Figure 1. CO₂ emissions by fuel

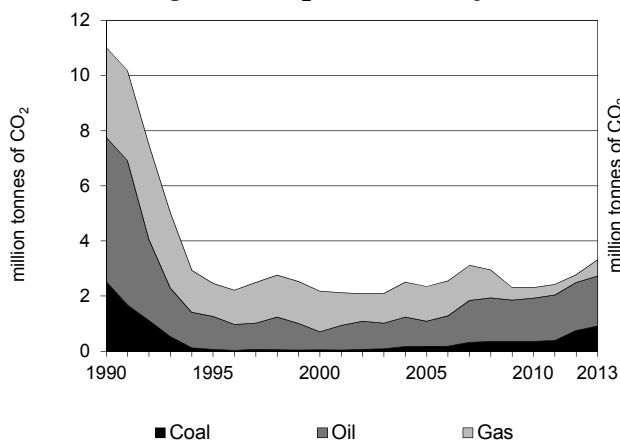


Figure 2. CO₂ emissions by sector

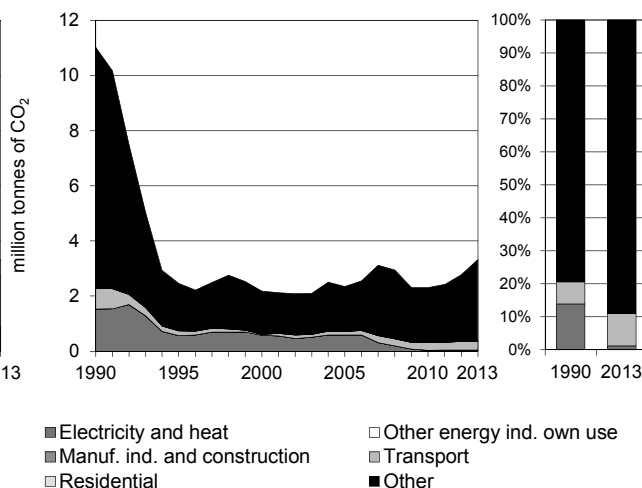


Figure 3. Electricity generation by fuel

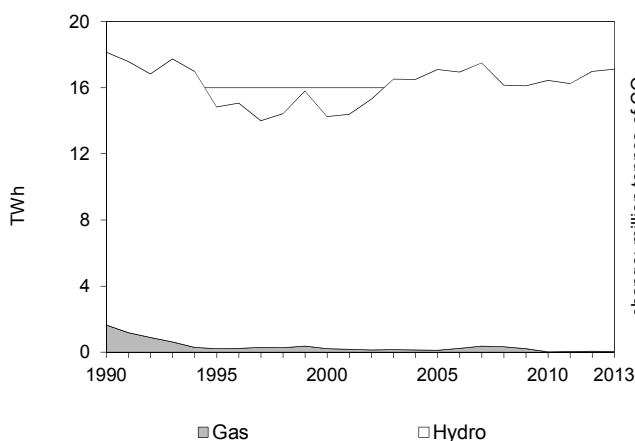


Figure 4. CO₂ from electricity generation: driving factors¹

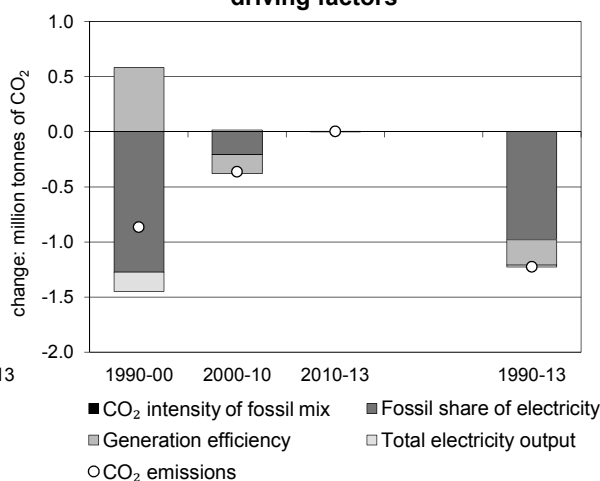


Figure 5. Changes in selected indicators

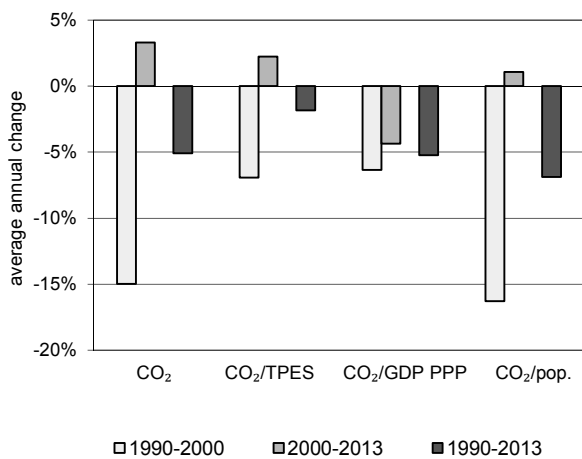
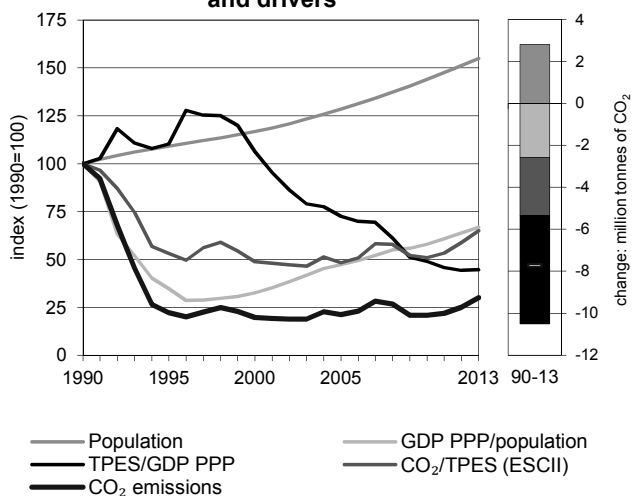


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Tajikistan

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	11.02	2.46	2.18	2.35	2.30	2.77	3.31	-70%
Share of World CO ₂ from fuel combustion	0.05%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	
TPES (PJ)	222	93	90	98	91	95	103	-54%
GDP (billion 2005 USD)	3.81	1.45	1.45	2.31	3.18	3.67	3.95	4%
GDP PPP (billion 2005 USD)	17.15	6.52	6.53	10.42	14.33	16.55	17.77	4%
Population (millions)	5.30	5.78	6.19	6.81	7.63	8.01	8.21	55%
CO ₂ / TPES (tCO ₂ per TJ)	49.6	26.4	24.2	24.0	25.3	29.2	32.2	-35%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	2.89	1.70	1.50	1.02	0.72	0.75	0.84	-71%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.64	0.38	0.33	0.23	0.16	0.17	0.19	-71%
CO ₂ / population (tCO ₂ per capita)	2.08	0.43	0.35	0.34	0.30	0.35	0.40	-81%
Share of electricity output from fossil fuels	9%	2%	2%	1%	0%	0%	0%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	68	25	26	21	1	1	1	-99%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	22	20	21	21	25	30	-70%
Population index	100	109	117	128	144	151	155	55%
GDP PPP per population index	100	35	33	47	58	64	67	-33%
Energy intensity index - TPES / GDP PPP	100	110	106	73	49	44	45	-55%
Carbon intensity index - CO ₂ / TPES	100	53	49	48	51	59	65	-35%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	0.91	1.81	0.59	-	3.31	-70%
Electricity and heat generation	-	-	0.04	-	0.04	-97%
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	-	-	-	-	-
Transport	-	0.30	0.03	-	0.33	-56%
<i>of which: road</i>	-	0.30	0.03	-	0.33	-56%
Other	0.91	1.51	0.53	-	2.95	-66%
<i>of which: residential</i>	-	-	-	-	-	-
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.11	-	-	0.11	133%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Non-specified other - oil	1.51	-66.5%	12.9	12.9
Non-specified other sectors - coal	0.91	-64.0%	7.8	20.7
Non-specified other - gas	0.53	-69.4%	4.5	25.2
Road - oil	0.30	-59.2%	2.6	27.8
Main activity prod. elec. and heat - gas	0.04	-97.4%	0.3	28.1
Road - gas	0.03	x	0.2	28.4
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>3.31</i>	<i>-69.9%</i>	<i>28.4</i>	<i>28.4</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

United Republic of Tanzania

Figure 1. CO₂ emissions by fuel

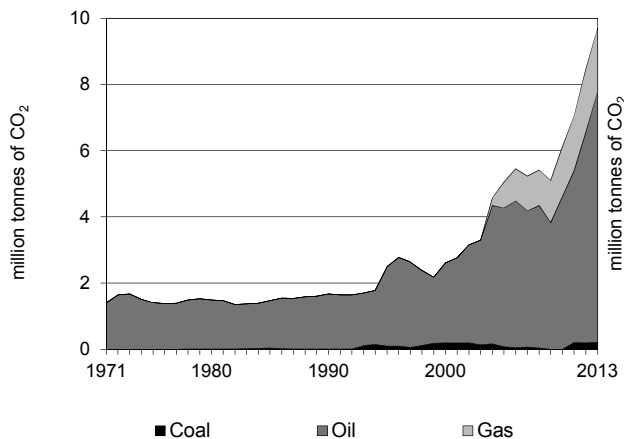


Figure 2. CO₂ emissions by sector

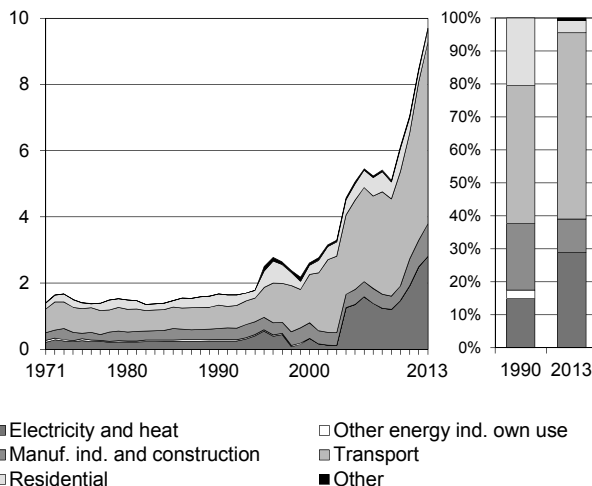


Figure 3. Electricity generation by fuel

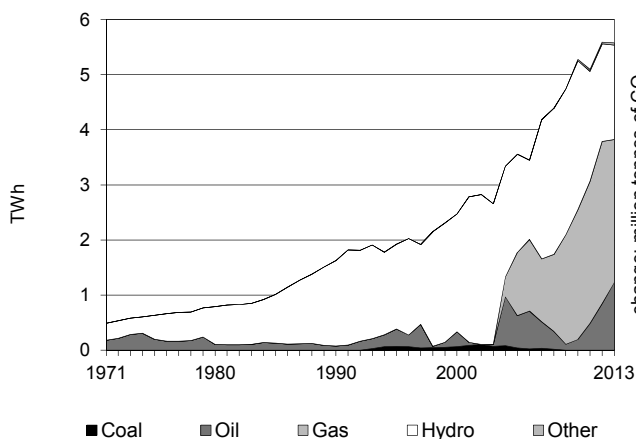


Figure 4. CO₂ from electricity generation: driving factors¹

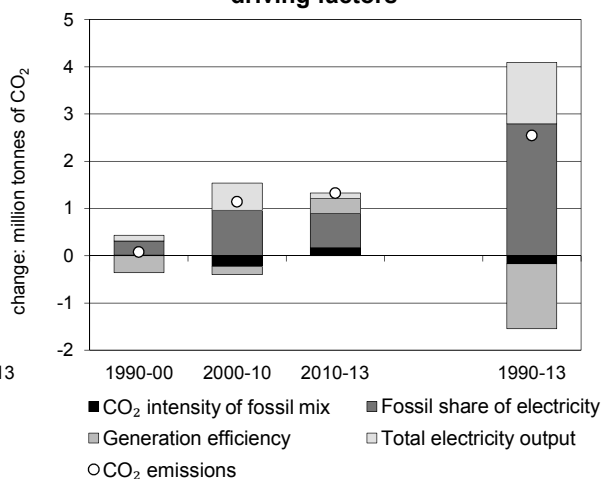


Figure 5. Changes in selected indicators

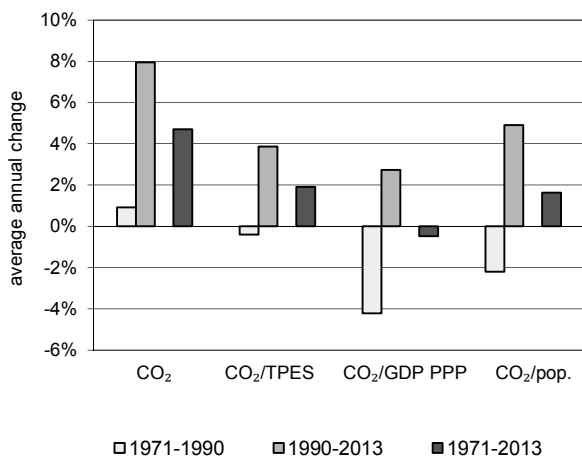
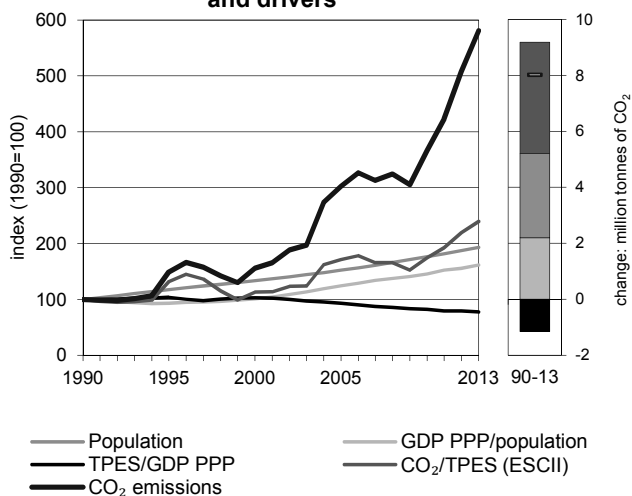


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

United Republic of Tanzania

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	1.67	2.49	2.61	5.05	6.13	8.47	9.70	481%
Share of World CO ₂ from fuel combustion	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.03%	
TPES (PJ)	408	461	564	718	858	942	988	142%
GDP (billion 2005 USD)	7.45	8.15	10.06	14.14	19.14	21.72	23.30	213%
GDP PPP (billion 2005 USD)	32.21	35.20	43.47	61.10	82.71	93.85	100.68	213%
Population (millions)	25.49	29.94	34.02	38.82	44.97	47.78	49.25	93%
CO ₂ / TPES (tCO ₂ per TJ)	4.1	5.4	4.6	7.0	7.1	9.0	9.8	140%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.22	0.31	0.26	0.36	0.32	0.39	0.42	86%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.05	0.07	0.06	0.08	0.07	0.09	0.10	86%
CO ₂ / population (tCO ₂ per capita)	0.07	0.08	0.08	0.13	0.14	0.18	0.20	201%
Share of electricity output from fossil fuels	5%	20%	14%	50%	48%	68%	69%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	154	286	132	381	279	446	502	227%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	149	156	303	367	507	581	481%
Population index	100	117	133	152	176	187	193	93%
GDP PPP per population index	100	93	101	125	146	155	162	62%
Energy intensity index - TPES / GDP PPP	100	104	102	93	82	79	78	-22%
Carbon intensity index - CO ₂ / TPES	100	132	113	172	174	220	240	140%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	0.21	7.58	1.92	-	9.70	481%
Electricity and heat generation	-	1.21	1.59	-	2.80	+
Other energy industry own use	-	-	-	-	-	-100%
Manufacturing industries and construction	0.21	0.45	0.33	-	0.99	193%
Transport	-	5.48	-	-	5.48	684%
<i>of which: road</i>	-	5.48	-	-	5.48	684%
Other	-	0.43	-	-	0.43	27%
<i>of which: residential</i>	-	0.37	-	-	0.37	9%
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	0.17	-	-	0.17	115%
<i>Memo: international aviation bunkers</i>	-	0.41	-	-	0.41	86%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	5.48	684.2%	10.2	10.2
Main activity prod. elec. and heat - gas	1.59	x	2.9	13.1
Main activity prod. elec. and heat - oil	1.21	384.4%	2.2	15.4
Manufacturing industries - oil	0.45	37.1%	0.8	16.2
Residential - oil	0.37	9.0%	0.7	16.9
Manufacturing industries - gas	0.33	x	0.6	17.5
Manufacturing industries - coal	0.21	+	0.4	17.9
Non-specified other - oil	0.06	x	0.1	18.0
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>9.70</i>	<i>481.0%</i>	<i>18.0</i>	<i>18.0</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Thailand

Figure 1. CO₂ emissions by fuel

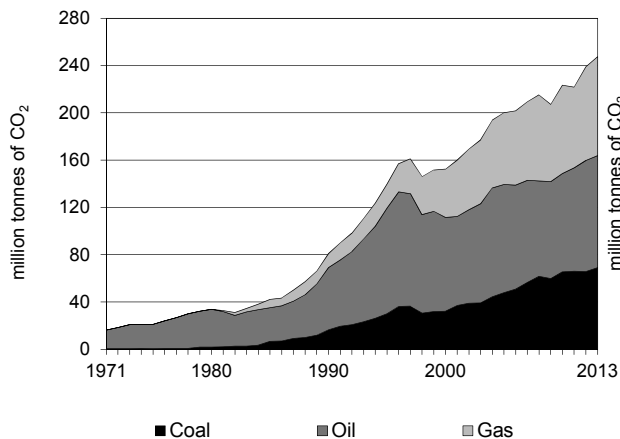


Figure 2. CO₂ emissions by sector

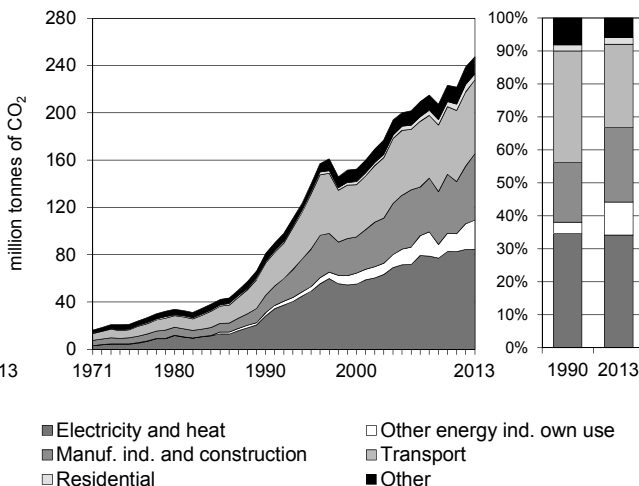


Figure 3. Electricity generation by fuel

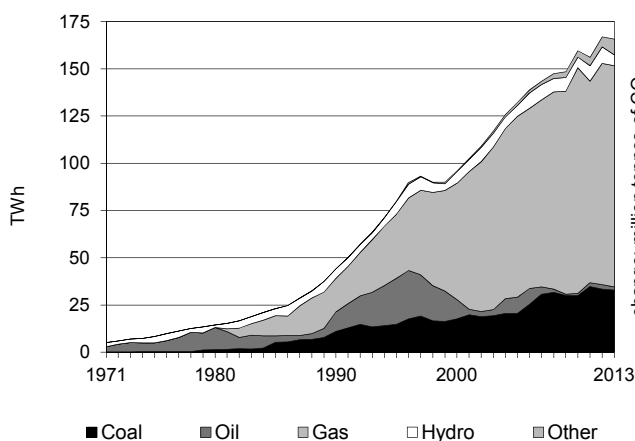


Figure 4. CO₂ from electricity generation: driving factors¹

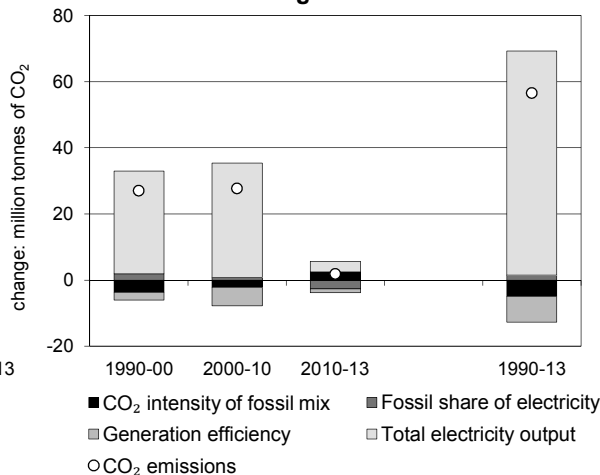


Figure 5. Changes in selected indicators

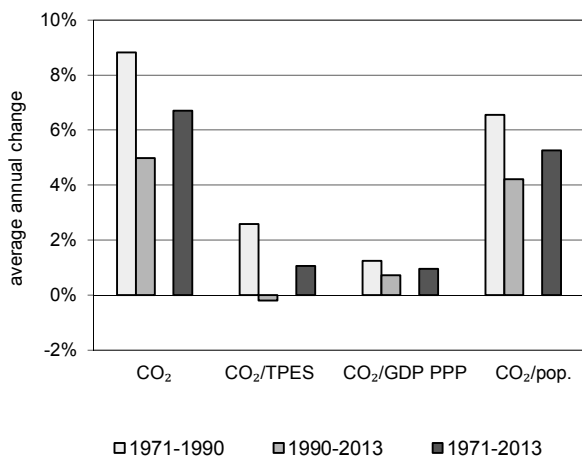
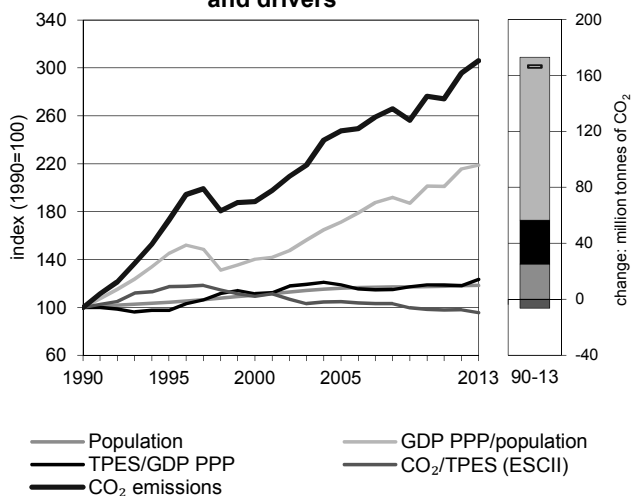


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Thailand

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	80.89	139.95	152.29	200.20	223.41	238.96	247.45	206%
Share of World CO ₂ from fuel combustion	0.39%	0.65%	0.65%	0.74%	0.75%	0.76%	0.77%	
TPES (PJ)	1 756	2 593	3 026	4 145	4 934	5 284	5 613	220%
GDP (billion 2005 USD)	88.92	134.47	137.52	176.35	210.09	226.37	230.37	159%
GDP PPP (billion 2005 USD)	320.84	485.17	496.17	636.29	758.02	816.77	831.20	159%
Population (millions)	56.58	58.98	62.34	65.56	66.40	66.79	67.01	18%
CO ₂ / TPES (tCO ₂ per TJ)	46.1	54.0	50.3	48.3	45.3	45.2	44.1	-4%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.91	1.04	1.11	1.14	1.06	1.06	1.07	18%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.25	0.29	0.31	0.31	0.29	0.29	0.30	18%
CO ₂ / population (tCO ₂ per capita)	1.43	2.37	2.44	3.05	3.36	3.58	3.69	158%
Share of electricity output from fossil fuels	89%	91%	93%	94%	94%	92%	91%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	634	613	573	541	518	506	510	-20%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	173	188	247	276	295	306	206%
Population index	100	104	110	116	117	118	118	18%
GDP PPP per population index	100	145	140	171	201	216	219	119%
Energy intensity index - TPES / GDP PPP	100	98	111	119	119	118	123	23%
Carbon intensity index - CO ₂ / TPES	100	117	109	105	98	98	96	-4%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	69.00	94.80	83.66	-	247.45	206%
Electricity and heat generation	34.06	1.18	49.31	-	84.55	202%
Other energy industry own use	-	1.80	22.86	-	24.66	801%
Manufacturing industries and construction	34.94	15.55	5.66	-	56.15	281%
Transport	-	56.62	5.83	-	62.44	128%
<i>of which: road</i>	-	54.23	5.83	-	60.06	132%
Other	-	19.64	0.00	-	19.65	144%
<i>of which: residential</i>	-	5.07	-	-	5.07	247%
<i>of which: services</i>	-	2.42	0.00	-	2.42	147%
<i>Memo: international marine bunkers</i>	-	2.50	-	-	2.50	46%
<i>Memo: international aviation bunkers</i>	-	11.63	-	-	11.63	106%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	54.23	109.2%	12.7	12.7
Main activity prod. elec. and heat - gas	44.07	390.4%	10.3	23.0
Manufacturing industries - coal	34.94	523.1%	8.2	31.2
Main activity prod. elec. and heat - coal	29.44	172.7%	6.9	38.0
Other energy industry own use - gas	22.86	843.7%	5.3	43.4
Manufacturing industries - oil	15.55	76.5%	3.6	47.0
Non-specified other - oil	14.57	121.2%	3.4	50.4
Road - gas	5.83	+	1.4	51.8
Manufacturing industries - gas	5.66	+	1.3	53.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>247.45</i>	<i>205.9%</i>	<i>57.9</i>	<i>57.9</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Togo

Figure 1. CO₂ emissions by fuel

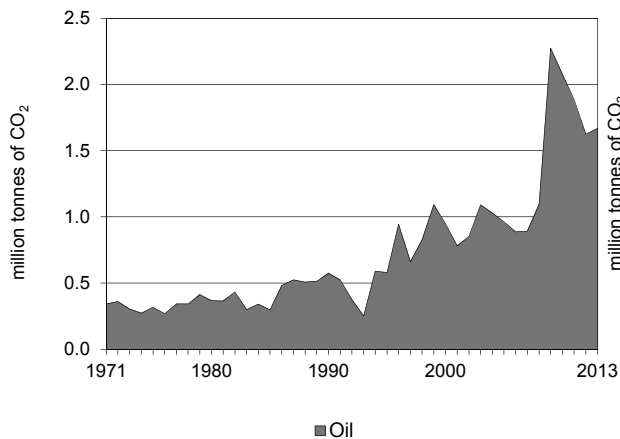


Figure 2. CO₂ emissions by sector

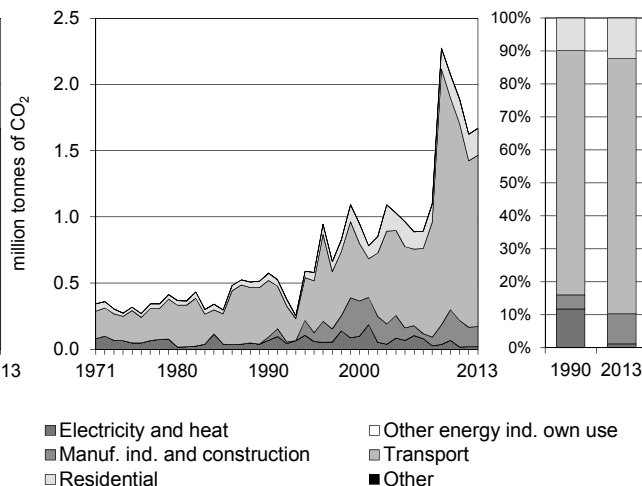


Figure 3. Electricity generation by fuel

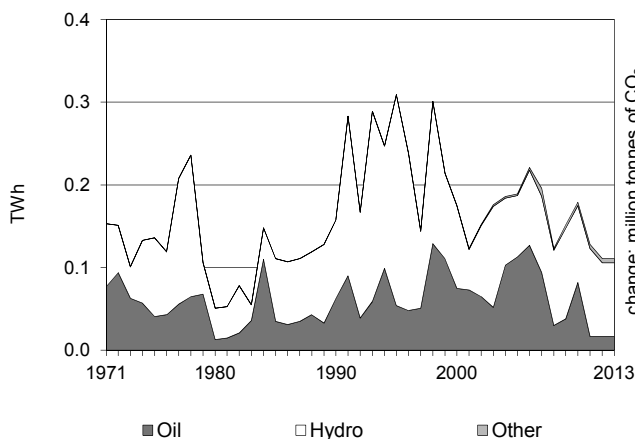


Figure 4. CO₂ from electricity generation: driving factors ¹

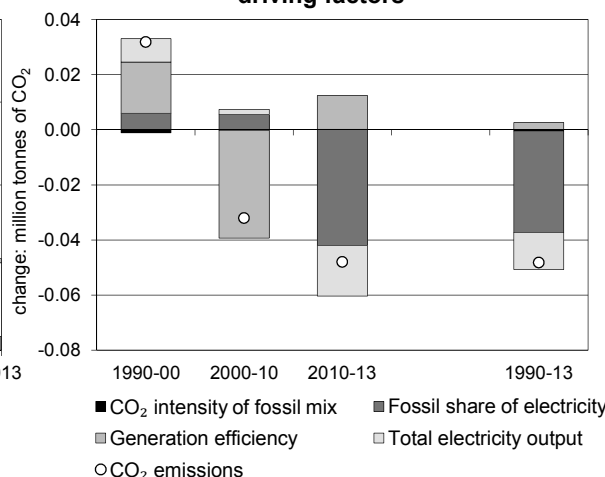


Figure 5. Changes in selected indicators

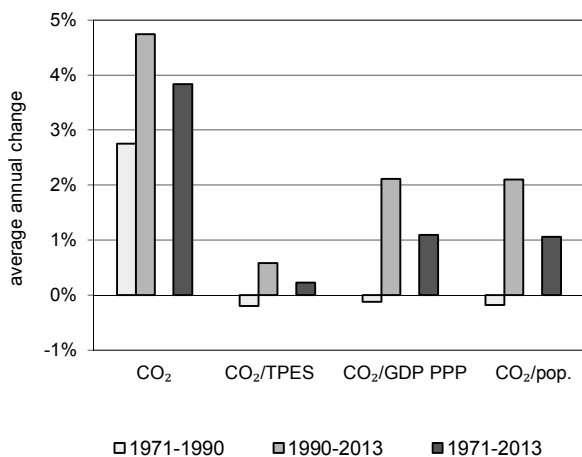
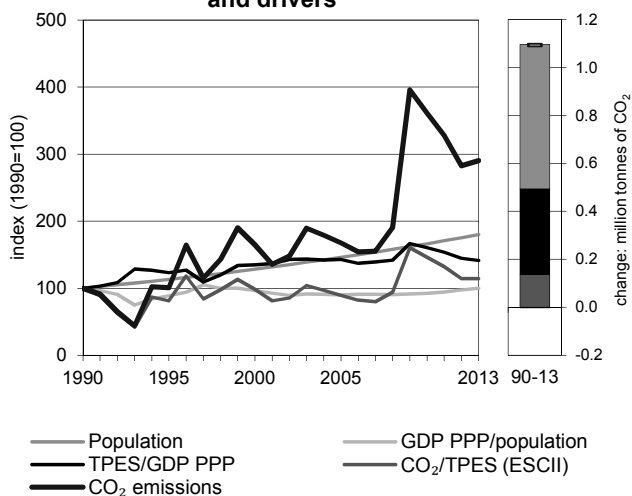


Figure 6. Total CO₂ emissions and drivers ²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Togo

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	0.58	0.58	0.95	0.96	2.08	1.62	1.67	190%
Share of World CO ₂ from fuel combustion	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	
TPES (PJ)	53	66	88	99	130	131	134	154%
GDP (billion 2005 USD)	1.61	1.62	2.00	2.12	2.48	2.75	2.89	79%
GDP PPP (billion 2005 USD)	4.55	4.57	5.65	5.97	7.00	7.77	8.17	79%
Population (millions)	3.79	4.28	4.87	5.54	6.31	6.64	6.82	80%
CO ₂ / TPES (tCO ₂ per TJ)	10.9	8.8	10.7	9.7	15.9	12.4	12.4	14%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.36	0.36	0.47	0.46	0.84	0.59	0.58	62%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.13	0.13	0.17	0.16	0.30	0.21	0.20	62%
CO ₂ / population (tCO ₂ per capita)	0.15	0.14	0.20	0.17	0.33	0.24	0.24	61%
Share of electricity output from fossil fuels	40%	17%	43%	60%	46%	15%	15%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	426	187	567	356	375	173	173	-59%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	101	165	167	361	282	290	190%
Population index	100	113	128	146	166	175	180	80%
GDP PPP per population index	100	89	97	90	92	97	100	0%
Energy intensity index - TPES / GDP PPP	100	123	135	143	160	145	141	41%
Carbon intensity index - CO ₂ / TPES	100	81	99	89	146	114	114	14%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	1.67	-	-	1.67	190%
Electricity and heat generation	-	0.02	-	-	0.02	-71%
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.15	-	-	0.15	513%
Transport	-	1.29	-	-	1.29	203%
<i>of which: road</i>	-	1.29	-	-	1.29	203%
Other	-	0.20	-	-	0.20	260%
<i>of which: residential</i>	-	0.20	-	-	0.20	260%
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	0.05	-	-	0.05	..
<i>Memo: international aviation bunkers</i>	-	0.24	-	-	0.24	124%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	1.29	203.4%	11.8	11.8
Residential - oil	0.20	260.1%	1.9	13.7
Manufacturing industries - oil	0.15	513.3%	1.4	15.1
Main activity prod. elec. and heat - oil	0.01	-79.0%	0.1	15.2
Unallocated autoproducers - oil	0.01	-	0.1	15.3
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>1.67</i>	<i>190.2%</i>	<i>15.3</i>	<i>15.3</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Trinidad and Tobago

Figure 1. CO₂ emissions by fuel

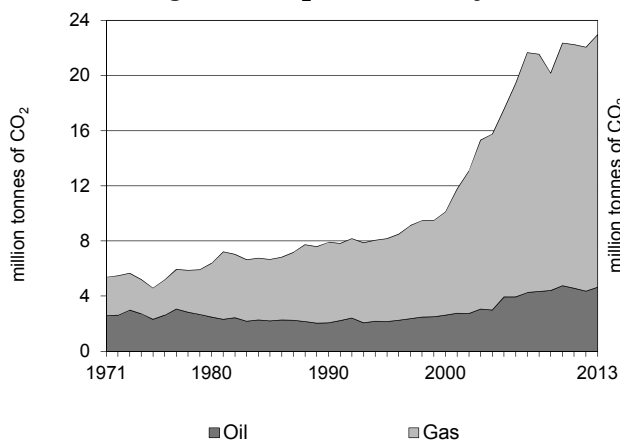


Figure 2. CO₂ emissions by sector

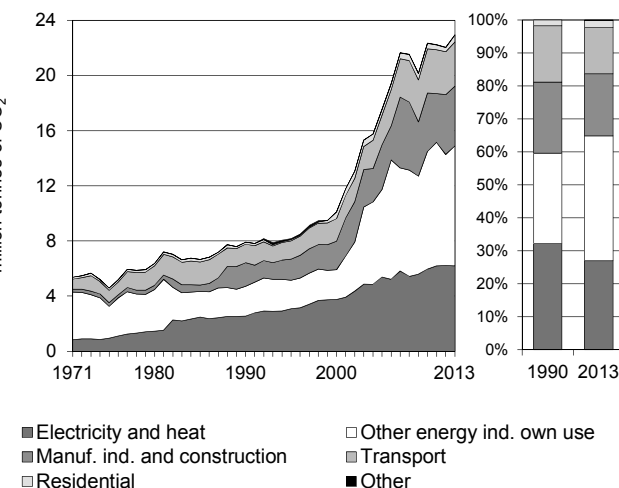


Figure 3. Electricity generation by fuel

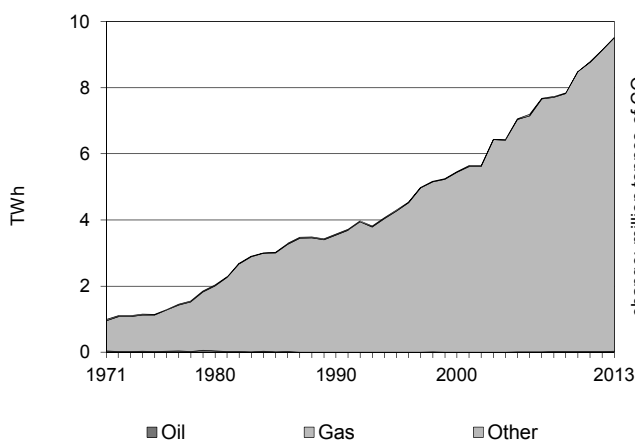


Figure 4. CO₂ from electricity generation: driving factors¹

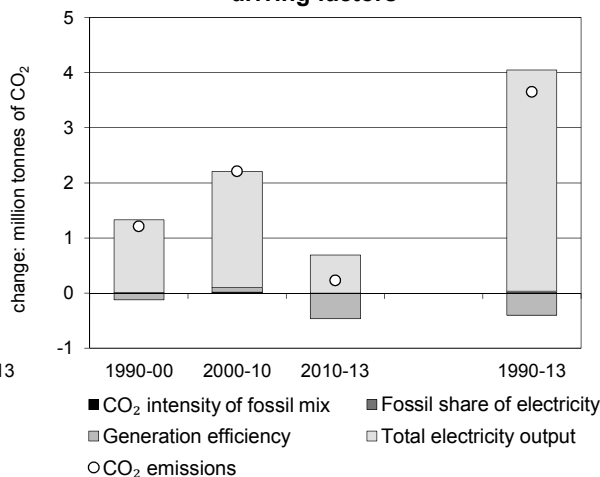


Figure 5. Changes in selected indicators

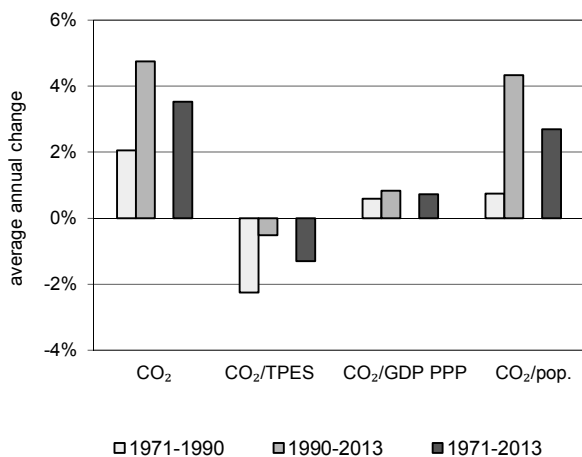
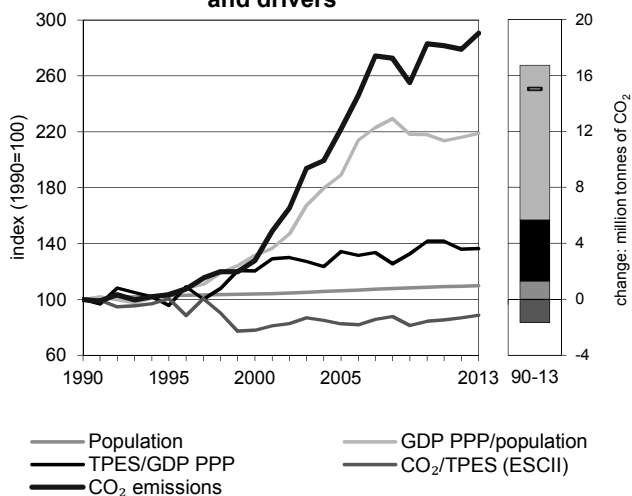


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Trinidad and Tobago

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	7.90	8.16	10.10	17.54	22.34	22.04	22.95	191%
Share of World CO ₂ from fuel combustion	0.04%	0.04%	0.04%	0.06%	0.07%	0.07%	0.07%	
TPES (PJ)	251	257	412	675	840	806	821	227%
GDP (billion 2005 USD)	8.02	8.60	10.96	16.09	18.99	18.97	19.27	140%
GDP PPP (billion 2005 USD)	14.65	15.70	20.01	29.38	34.67	34.63	35.19	140%
Population (millions)	1.22	1.26	1.27	1.30	1.33	1.34	1.34	10%
CO ₂ / TPES (tCO ₂ per TJ)	31.5	31.7	24.5	26.0	26.6	27.4	28.0	-11%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.98	0.95	0.92	1.09	1.18	1.16	1.19	21%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.54	0.52	0.51	0.60	0.64	0.64	0.65	21%
CO ₂ / population (tCO ₂ per capita)	6.46	6.50	7.97	13.52	16.83	16.49	17.12	165%
Share of electricity output from fossil fuels	99%	99%	100%	100%	100%	100%	100%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	712	714	689	764	703	680	652	-8%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	103	128	222	283	279	291	191%
Population index	100	103	104	106	109	109	110	10%
GDP PPP per population index	100	104	132	189	218	216	219	119%
Energy intensity index - TPES / GDP PPP	100	96	120	134	142	136	136	36%
Carbon intensity index - CO ₂ / TPES	100	101	78	82	84	87	89	-11%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

million tonnes of CO ₂	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	4.63	18.33	-	22.95	191%
Electricity and heat generation	-	0.02	6.18	-	6.20	143%
Other energy industry own use	-	0.59	8.10	-	8.69	303%
Manufacturing industries and construction	-	0.50	3.83	-	4.32	153%
Transport	-	3.21	-	-	3.21	139%
<i>of which: road</i>	-	2.87	-	-	2.87	121%
Other	-	0.31	0.22	-	0.53	277%
<i>of which: residential</i>	-	0.28	0.22	-	0.50	259%
<i>of which: services</i>	-	0.03	-	-	0.03	x
<i>Memo: international marine bunkers</i>	-	1.76	-	-	1.76	+
<i>Memo: international aviation bunkers</i>	-	0.86	-	-	0.86	335%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Other energy industry own use - gas	8.10	332.7%	15.9	15.9
Main activity prod. elec. and heat - gas	6.13	153.5%	12.0	27.8
Manufacturing industries - gas	3.83	168.0%	7.5	35.3
Road - oil	2.87	120.8%	5.6	40.9
Other energy industry own use - oil	0.59	105.4%	1.2	42.1
Manufacturing industries - oil	0.50	77.3%	1.0	43.1
Other transport - oil	0.34	638.2%	0.7	43.7
Residential - oil	0.28	99.4%	0.5	44.3
Residential - gas	0.22	x	0.4	44.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>22.95</i>	<i>190.6%</i>	<i>44.9</i>	<i>44.9</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Tunisia

Figure 1. CO₂ emissions by fuel

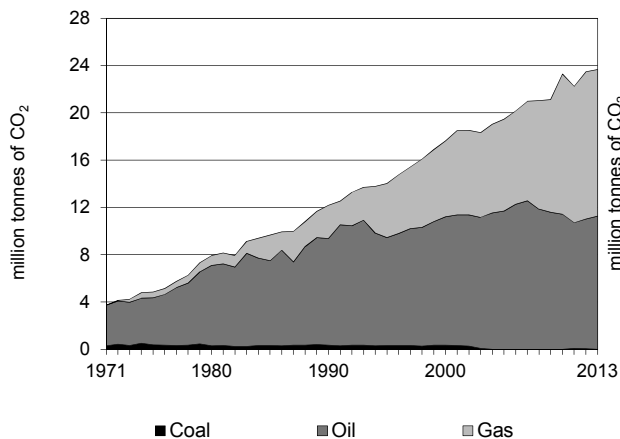


Figure 2. CO₂ emissions by sector

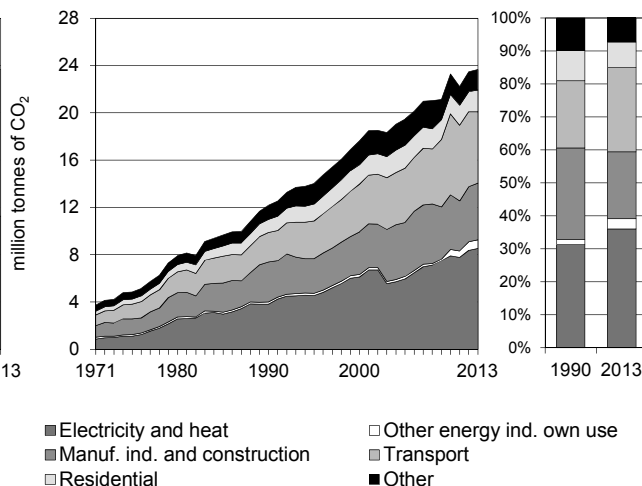


Figure 3. Electricity generation by fuel

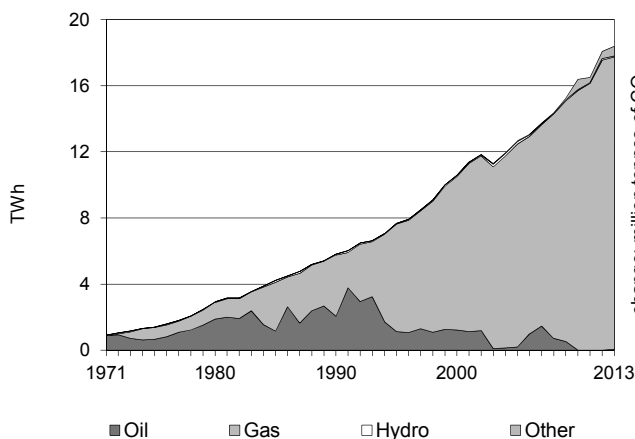


Figure 4. CO₂ from electricity generation: driving factors¹

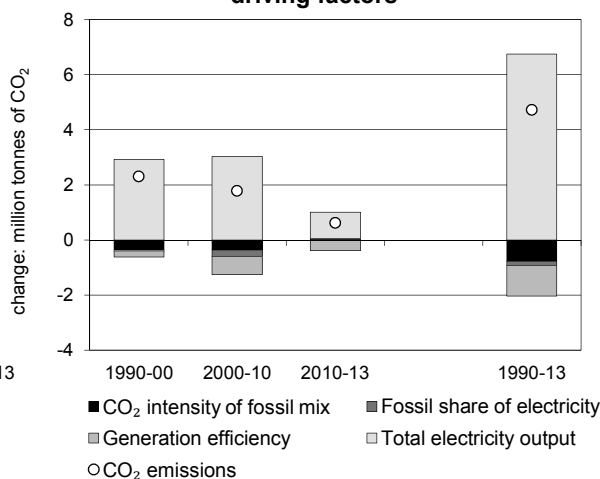


Figure 5. Changes in selected indicators

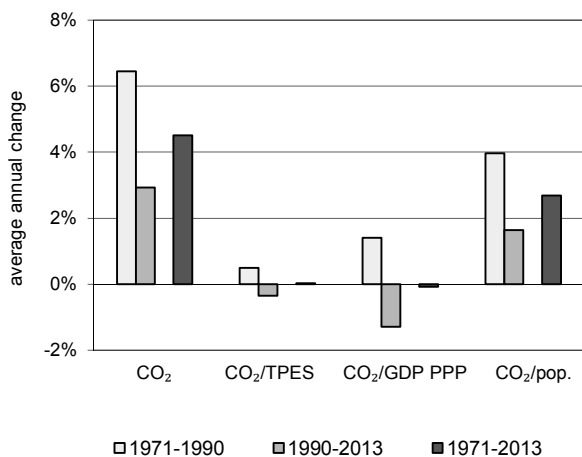
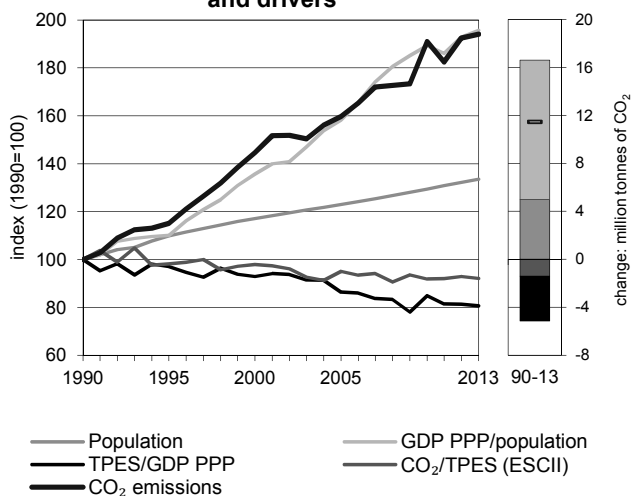


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Tunisia

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	12.19	14.03	17.63	19.47	23.29	23.47	23.65	94%
Share of World CO ₂ from fuel combustion	0.06%	0.07%	0.08%	0.07%	0.08%	0.07%	0.07%	
TPES (PJ)	207	243	306	348	430	429	436	110%
GDP (billion 2005 USD)	16.59	20.05	26.36	32.28	40.59	42.27	43.34	161%
GDP PPP (billion 2005 USD)	39.95	48.29	63.48	77.75	97.76	101.80	104.37	161%
Population (millions)	8.15	8.96	9.55	10.03	10.55	10.78	10.89	34%
CO ₂ / TPES (tCO ₂ per TJ)	58.9	57.7	57.6	55.9	54.1	54.7	54.3	-8%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.74	0.70	0.67	0.60	0.57	0.56	0.55	-26%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.31	0.29	0.28	0.25	0.24	0.23	0.23	-26%
CO ₂ / population (tCO ₂ per capita)	1.50	1.57	1.85	1.94	2.21	2.18	2.17	45%
Share of electricity output from fossil fuels	99%	99%	99%	99%	99%	98%	98%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	656	591	578	471	483	463	464	-29%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	115	145	160	191	193	194	94%
Population index	100	110	117	123	129	132	134	34%
GDP PPP per population index	100	110	136	158	189	193	196	96%
Energy intensity index - TPES / GDP PPP	100	97	93	86	85	81	81	-19%
Carbon intensity index - CO ₂ / TPES	100	98	98	95	92	93	92	-8%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	11.26	12.39	-	23.65	94%
Electricity and heat generation	-	0.05	8.47	-	8.53	124%
Other energy industry own use	-	0.20	0.52	-	0.72	282%
Manufacturing industries and construction	-	2.71	2.09	-	4.80	42%
Transport	-	5.65	0.41	-	6.05	143%
<i>of which: road</i>	-	5.57	-	-	5.57	127%
Other	-	2.65	0.90	-	3.55	53%
<i>of which: residential</i>	-	1.36	0.47	-	1.83	65%
<i>of which: services</i>	-	0.29	0.40	-	0.69	32%
<i>Memo: international marine bunkers</i>	-	0.04	-	-	0.04	-44%
<i>Memo: international aviation bunkers</i>	-	0.88	-	-	0.88	53%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - gas	8.19	294.0%	21.9	21.9
Road - oil	5.57	126.6%	14.9	36.9
Manufacturing industries - oil	2.71	11.1%	7.3	44.1
Manufacturing industries - gas	2.09	249.2%	5.6	49.7
Residential - oil	1.36	33.0%	3.6	53.4
Non-specified other - oil	1.29	11.9%	3.5	56.8
Other energy industry own use - gas	0.52	x	1.4	58.2
Residential - gas	0.47	442.8%	1.3	59.5
Non-specified other - gas	0.43	735.3%	1.2	60.6
<i>Memo: total CO₂ from fuel combustion</i>	23.65	94.0%	63.4	63.4

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Turkey

Figure 1. CO₂ emissions by fuel

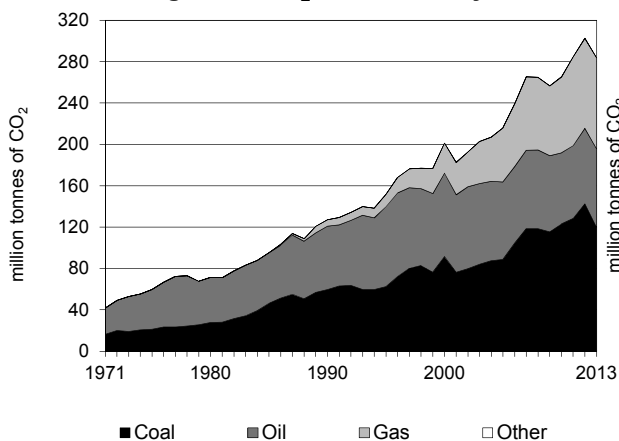


Figure 2. CO₂ emissions by sector

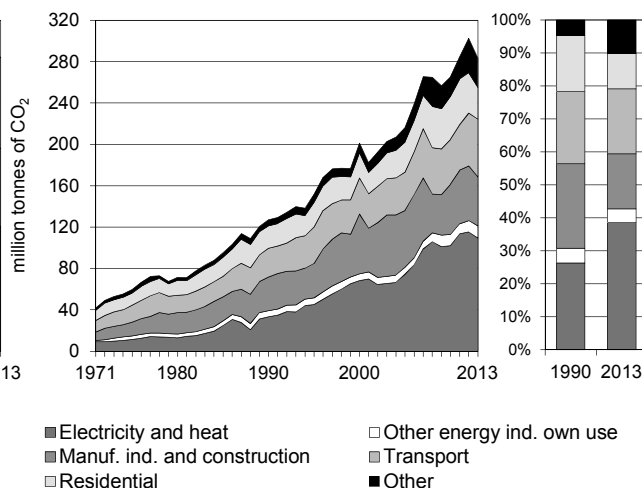


Figure 3. Electricity generation by fuel

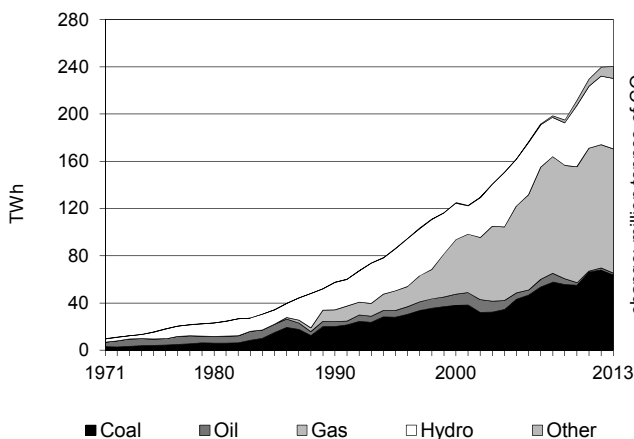


Figure 4. CO₂ from electricity generation: driving factors¹

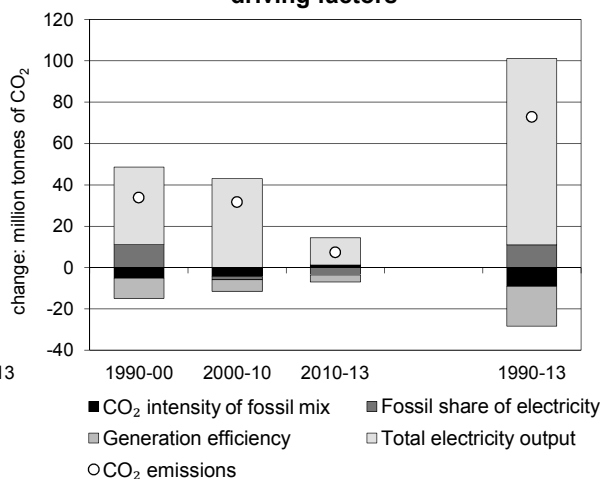


Figure 5. Changes in selected indicators

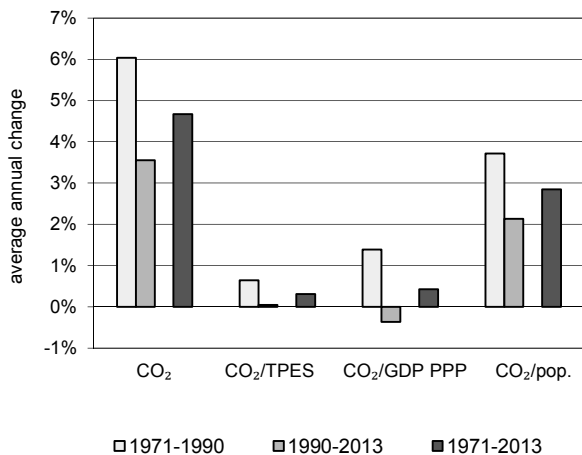
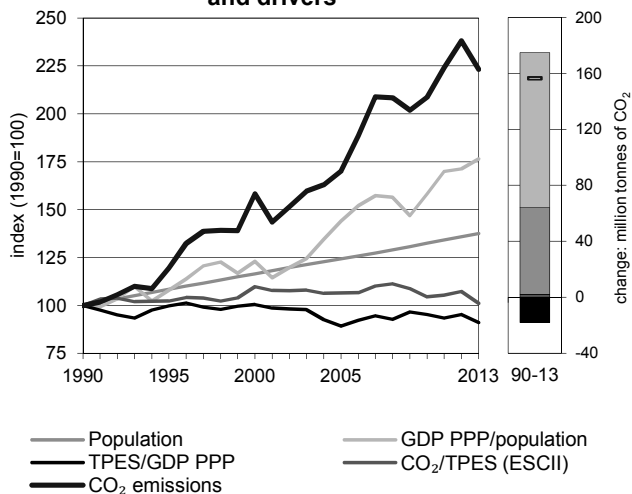


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Turkey

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	127.13	151.82	201.24	216.19	265.38	302.67	283.84	123%
Share of World CO ₂ from fuel combustion	0.62%	0.71%	0.86%	0.80%	0.89%	0.96%	0.88%	
TPES (PJ)	2 207	2 578	3 180	3 526	4 408	4 894	4 877	121%
GDP (billion 2005 USD)	269.69	315.86	386.59	482.99	565.10	627.75	654.07	143%
GDP PPP (billion 2005 USD)	436.22	510.91	625.31	781.24	914.06	1 015.40	1 057.98	143%
Population (millions)	55.12	59.76	64.25	68.57	73.00	74.90	75.77	37%
CO ₂ / TPES (tCO ₂ per TJ)	57.6	58.9	63.3	61.3	60.2	61.8	58.2	1%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.47	0.48	0.52	0.45	0.47	0.48	0.43	-8%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.29	0.30	0.32	0.28	0.29	0.30	0.27	-8%
CO ₂ / population (tCO ₂ per capita)	2.31	2.54	3.13	3.15	3.64	4.04	3.75	62%
Share of electricity output from fossil fuels	60%	58%	75%	75%	74%	73%	71%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	582	523	538	446	468	468	442	-24%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	119	158	170	209	238	223	123%
Population index	100	108	117	124	132	136	137	37%
GDP PPP per population index	100	108	123	144	158	171	176	76%
Energy intensity index - TPES / GDP PPP	100	100	101	89	95	95	91	-9%
Carbon intensity index - CO ₂ / TPES	100	102	110	106	105	107	101	1%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	119.86	76.00	87.82	0.17	283.84	123%
Electricity and heat generation	66.61	1.32	41.48	0.17	109.57	227%
Other energy industry own use	6.48	2.87	2.36	-	11.72	109%
Manufacturing industries and construction	25.20	3.33	18.81	-	47.34	45%
Transport	-	55.19	0.72	-	55.91	101%
<i>of which: road</i>	-	51.59	0.17	-	51.75	103%
Other	21.56	13.28	24.45	-	59.30	116%
<i>of which: residential</i>	9.36	2.73	18.44	-	30.53	41%
<i>of which: services</i>	12.13	-	5.86	-	17.99	+
<i>Memo: international marine bunkers</i>	-	2.87	-	-	2.87	663%
<i>Memo: international aviation bunkers</i>	-	3.11	-	-	3.11	479%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	58.85	177.5%	12.6	12.6
Road - oil	51.59	102.8%	11.0	23.6
Main activity prod. elec. and heat - gas	37.16	643.7%	8.0	31.6
Manufacturing industries - coal	25.20	25.4%	5.4	37.0
Manufacturing industries - gas	18.81	+	4.0	41.0
Residential - gas	18.44	+	3.9	45.0
Non-specified other sectors - coal	12.21	+	2.6	47.6
Non-specified other - oil	10.56	78.9%	2.3	49.8
Residential - coal	9.36	-25.1%	2.0	51.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>283.84</i>	<i>123.3%</i>	<i>60.7</i>	<i>60.7</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Turkmenistan

Figure 1. CO₂ emissions by fuel

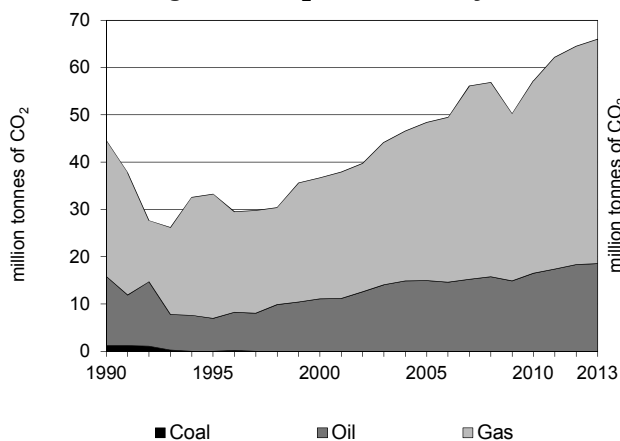


Figure 2. CO₂ emissions by sector

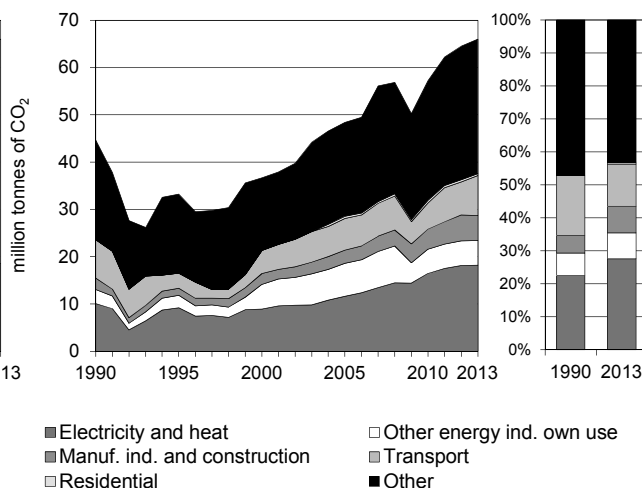


Figure 3. Electricity generation by fuel

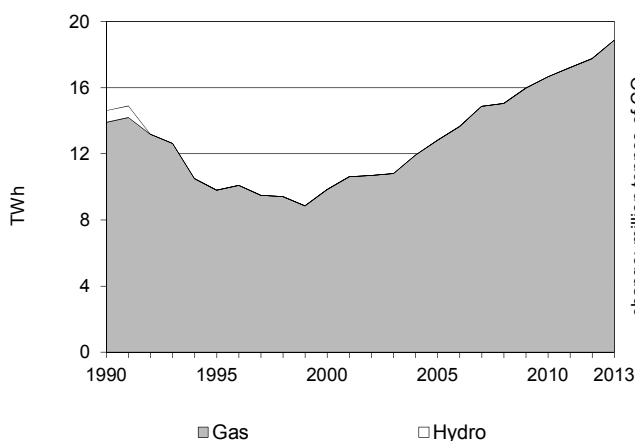


Figure 4. CO₂ from electricity generation: driving factors¹

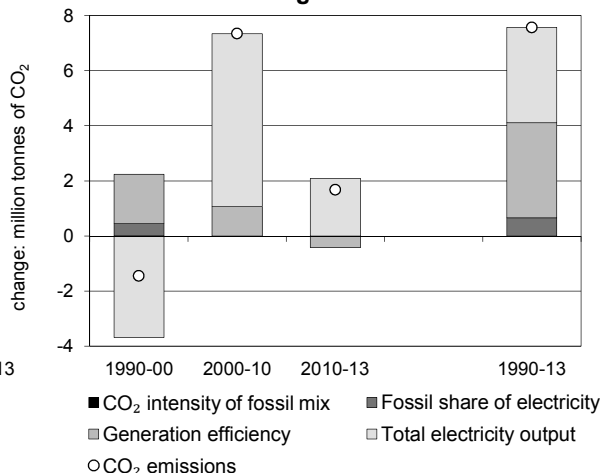


Figure 5. Changes in selected indicators

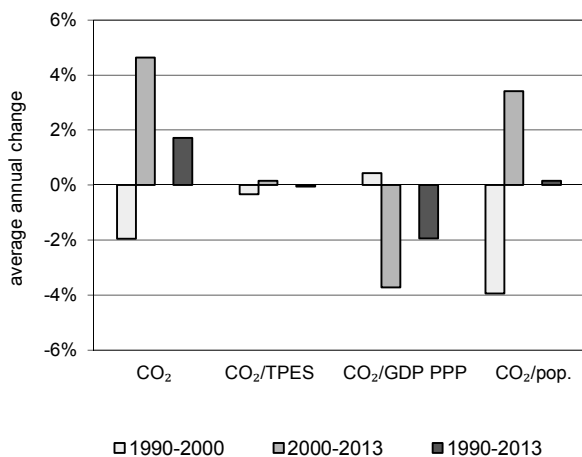
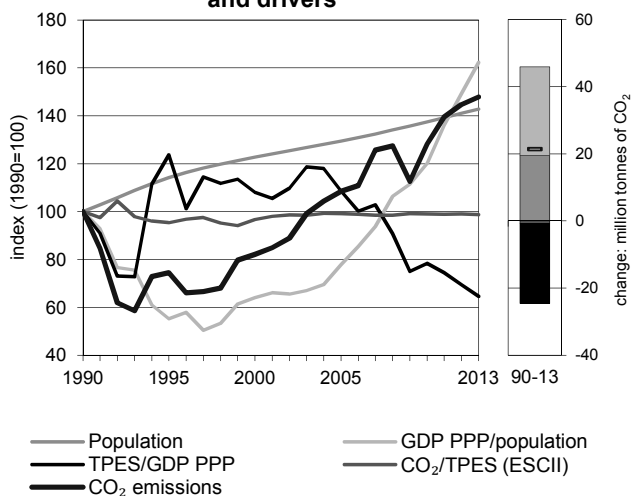


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Turkmenistan

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	44.63	33.25	36.66	48.40	57.21	64.54	66.02	48%
Share of World CO ₂ from fuel combustion	0.22%	0.15%	0.16%	0.18%	0.19%	0.20%	0.21%	
TPES (PJ)	733	573	623	803	950	1 071	1 100	50%
GDP (billion 2005 USD)	8.04	5.08	6.32	8.10	13.27	16.91	18.64	132%
GDP PPP (billion 2005 USD)	27.28	17.24	21.44	27.50	45.03	57.39	63.24	132%
Population (millions)	3.67	4.19	4.50	4.75	5.04	5.17	5.24	43%
CO ₂ / TPES (tCO ₂ per TJ)	60.9	58.0	58.8	60.3	60.2	60.3	60.0	-1%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	5.55	6.54	5.80	5.97	4.31	3.82	3.54	-36%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	1.64	1.93	1.71	1.76	1.27	1.12	1.04	-36%
CO ₂ / population (tCO ₂ per capita)	12.17	7.94	8.14	10.19	11.35	12.48	12.60	4%
Share of electricity output from fossil fuels	95%	100%	100%	100%	100%	100%	100%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	689	936	876	876	958	992	935	36%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	74	82	108	128	145	148	48%
Population index	100	114	123	129	137	141	143	43%
GDP PPP per population index	100	55	64	78	120	149	162	62%
Energy intensity index - TPES / GDP PPP	100	124	108	109	78	69	65	-35%
Carbon intensity index - CO ₂ / TPES	100	95	97	99	99	99	99	-1%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	18.51	47.51	-	66.02	48%
Electricity and heat generation	-	-	18.21	-	18.21	81%
Other energy industry own use	-	0.36	4.85	-	5.21	74%
Manufacturing industries and construction	-	3.12	2.15	-	5.27	118%
Transport	-	3.90	4.57	-	8.47	4%
<i>of which: road</i>	-	3.90	-	-	3.90	60%
Other	-	11.12	17.74	-	28.86	37%
<i>of which: residential</i>	-	0.43	-	-	0.43	x
<i>of which: services</i>	-	-	16.34	-	16.34	89%
<i>Memo: international marine bunkers</i>	-	..	-	-
<i>Memo: international aviation bunkers</i>	-	1.40	-	-	1.40	84%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - gas	18.21	80.8%	19.1	19.1
Non-specified other - gas	17.74	88.7%	18.6	37.6
Non-specified other - oil	10.69	2.5%	11.2	48.8
Other energy industry own use - gas	4.85	68.7%	5.1	53.9
Other transport - gas	4.57	-19.8%	4.8	58.7
Road - oil	3.90	60.0%	4.1	62.8
Manufacturing industries - oil	3.12	84.7%	3.3	66.1
Manufacturing industries - gas	2.15	193.3%	2.2	68.3
Residential - oil	0.43	x	0.5	68.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>66.02</i>	<i>47.9%</i>	<i>69.1</i>	<i>69.1</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Ukraine

Figure 1. CO₂ emissions by fuel

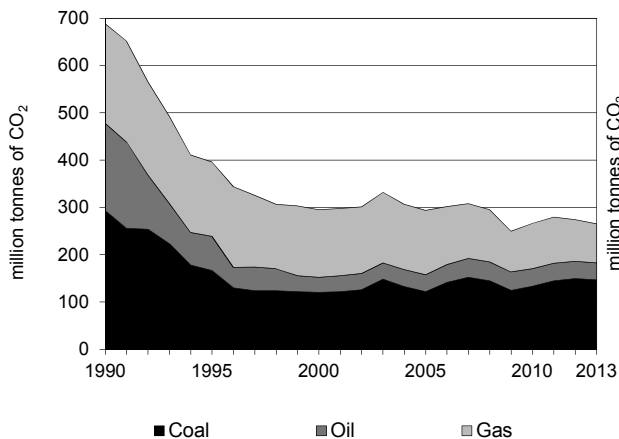


Figure 2. CO₂ emissions by sector

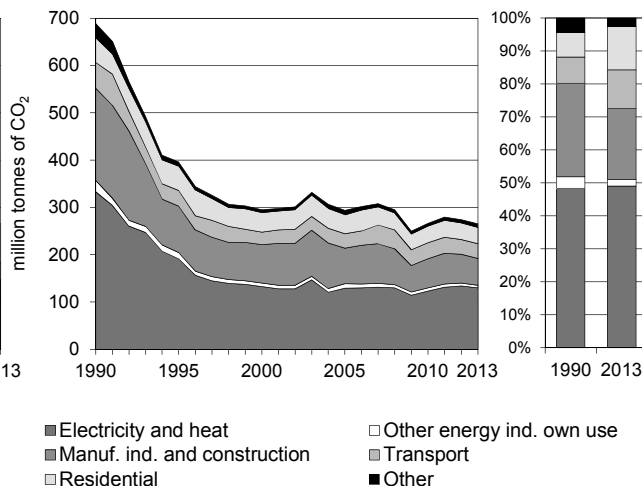


Figure 3. Electricity generation by fuel

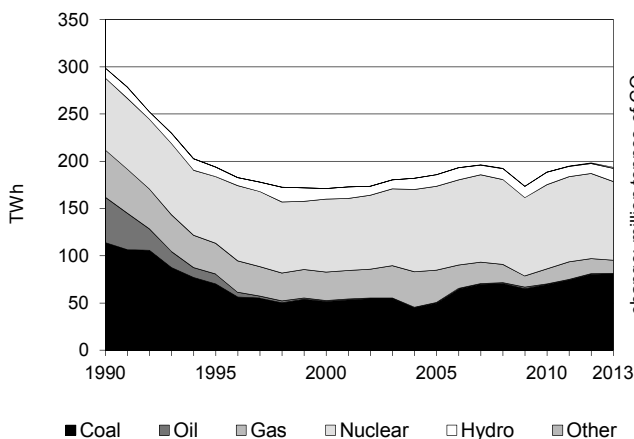


Figure 4. CO₂ from electricity generation: driving factors¹

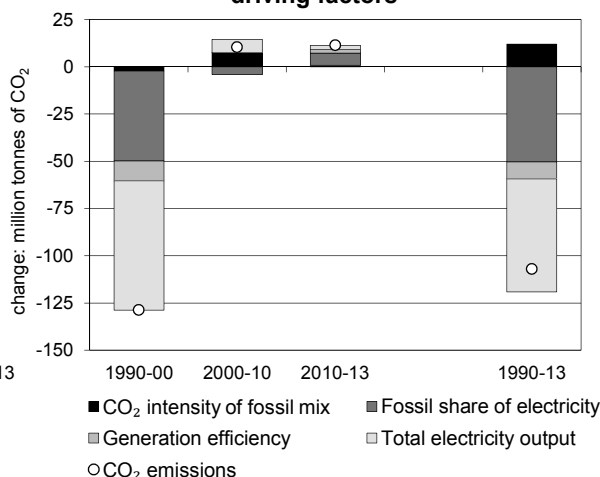


Figure 5. Changes in selected indicators

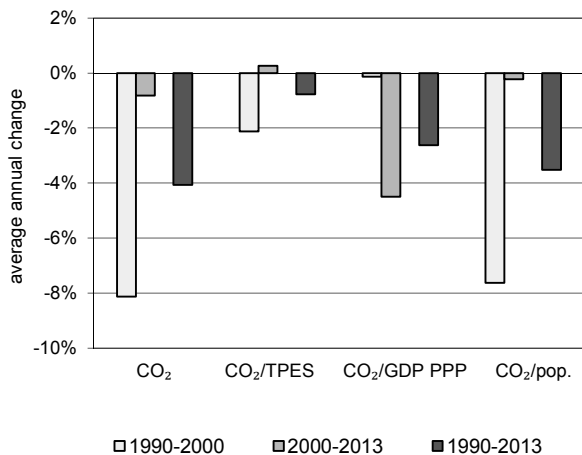
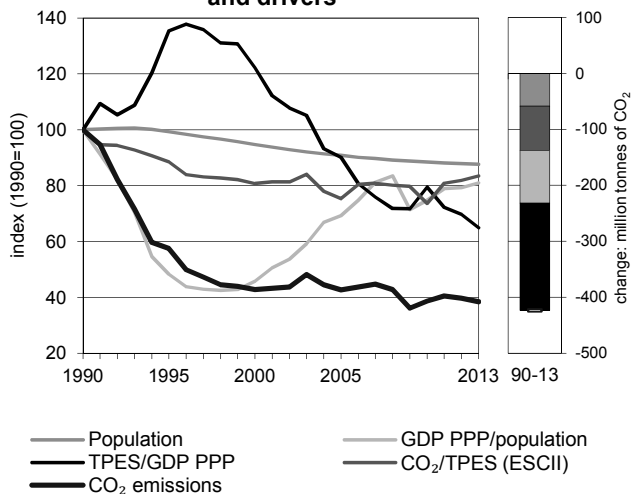


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Ukraine

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	688.38	395.71	295.00	293.93	266.27	273.84	265.05	-61%
Share of World CO ₂ from fuel combustion	3.34%	1.84%	1.26%	1.09%	0.89%	0.87%	0.82%	
TPES (PJ)	10 551	6 854	5 602	5 982	5 545	5 128	4 863	-54%
GDP (billion 2005 USD)	137.03	65.78	59.54	86.14	90.58	95.48	97.27	-29%
GDP PPP (billion 2005 USD)	485.45	233.02	210.91	305.16	320.88	338.24	344.58	-29%
Population (millions)	51.89	51.51	49.18	47.11	45.87	45.59	45.49	-12%
CO ₂ / TPES (tCO ₂ per TJ)	65.2	57.7	52.7	49.1	48.0	53.4	54.5	-16%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	5.02	6.02	4.96	3.41	2.94	2.87	2.72	-46%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	1.42	1.70	1.40	0.96	0.83	0.81	0.77	-46%
CO ₂ / population (tCO ₂ per capita)	13.27	7.68	6.00	6.24	5.80	6.01	5.83	-56%
Share of electricity output from fossil fuels	71%	58%	48%	46%	46%	49%	49%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	664	576	407	408	424	470	472	-29%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	57	43	43	39	40	39	-61%
Population index	100	99	95	91	88	88	88	-12%
GDP PPP per population index	100	48	46	69	75	79	81	-19%
Energy intensity index - TPES / GDP PPP	100	135	122	90	79	70	65	-35%
Carbon intensity index - CO ₂ / TPES	100	88	81	75	74	82	84	-16%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	146.93	35.88	82.24	-	265.05	-61%
Electricity and heat generation	97.70	0.96	31.23	-	129.89	-61%
Other energy industry own use	2.34	1.13	1.82	-	5.29	-78%
Manufacturing industries and construction	43.53	3.19	10.24	-	56.96	-71%
Transport	0.05	25.89	5.41	-	31.35	-43%
<i>of which: road</i>	-	25.29	0.10	-	25.38	-46%
Other	3.31	4.71	33.54	-	41.56	-49%
<i>of which: residential</i>	2.75	0.11	31.74	-	34.60	-34%
<i>of which: services</i>	0.51	0.27	1.33	-	2.12	-25%
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.38	-	-	0.38	-94%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	89.99	-35.2%	23.0	23.0
Manufacturing industries - coal	43.53	-61.1%	11.1	34.1
Residential - gas	31.74	54.7%	8.1	42.2
Main activity prod. elec. and heat - gas	27.18	-70.9%	6.9	49.1
Road - oil	25.29	-46.7%	6.5	55.6
Manufacturing industries - gas	10.24	-81.3%	2.6	58.2
Unallocated autoproducers - coal	7.72	235.1%	2.0	60.2
Other transport - gas	5.31	x	1.4	61.5
Non-specified other - oil	4.60	-74.8%	1.2	62.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>265.05</i>	<i>-61.5%</i>	<i>67.7</i>	<i>67.7</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

United Arab Emirates

Figure 1. CO₂ emissions by fuel

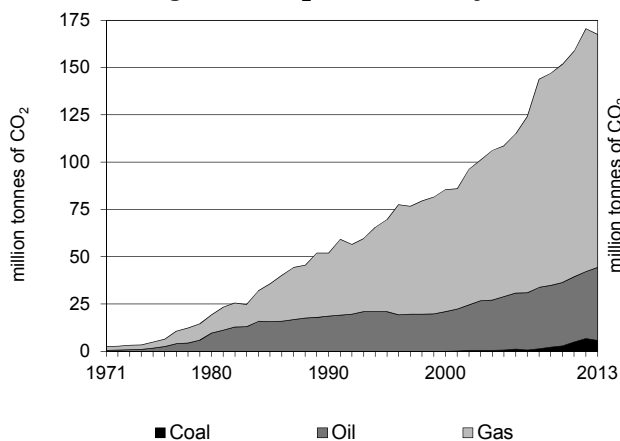


Figure 2. CO₂ emissions by sector

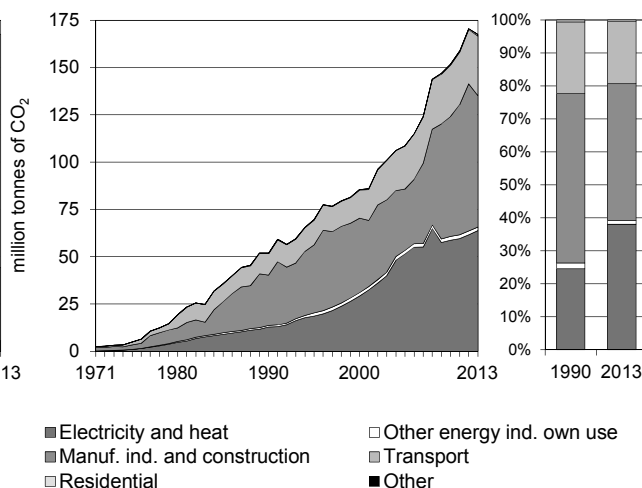


Figure 3. Electricity generation by fuel

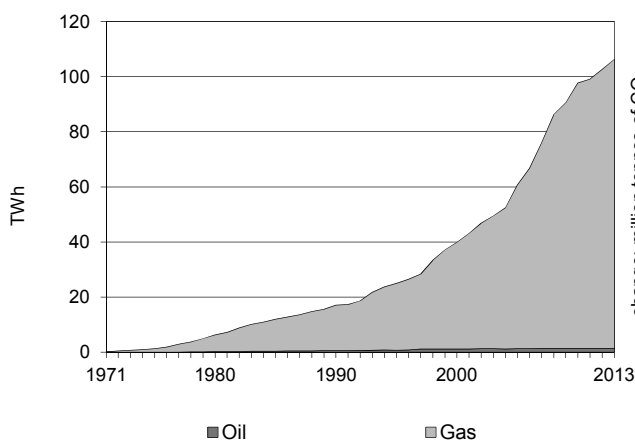


Figure 4. CO₂ from electricity generation: driving factors¹

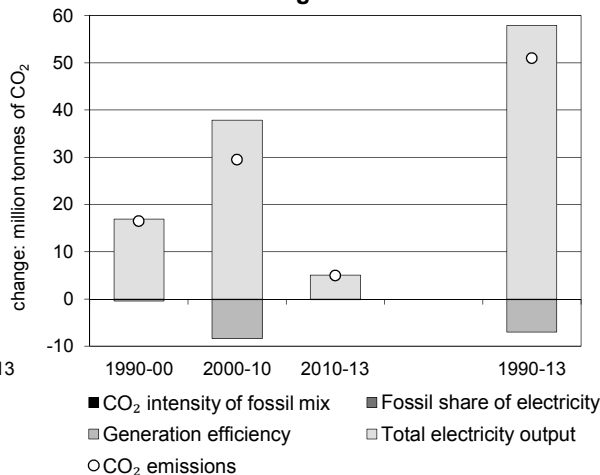


Figure 5. Changes in selected indicators

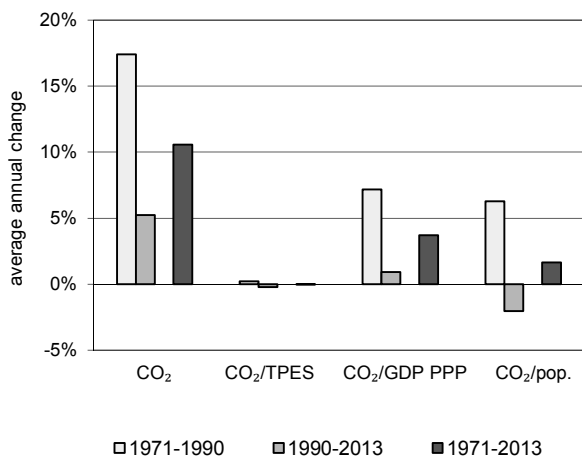
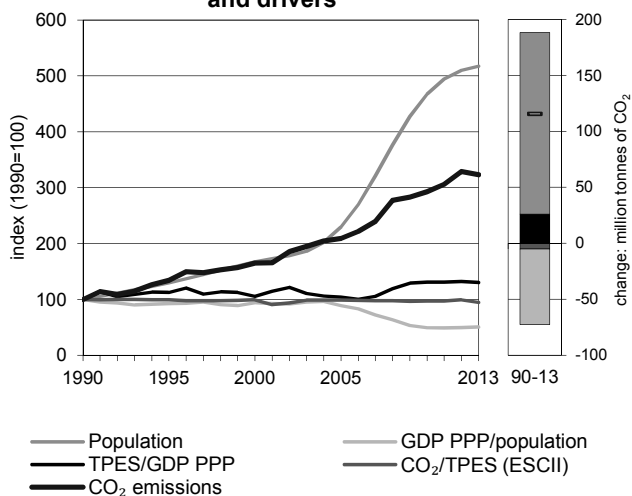


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

United Arab Emirates

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	51.87	69.64	85.52	108.67	151.78	170.54	167.61	223%
Share of World CO ₂ from fuel combustion	0.25%	0.32%	0.37%	0.40%	0.51%	0.54%	0.52%	
TPES (PJ)	855	1 159	1 421	1 820	2 586	2 831	2 911	240%
GDP (billion 2005 USD)	88.26	106.24	139.12	180.62	203.44	223.35	234.97	166%
GDP PPP (billion 2005 USD)	184.70	222.32	291.13	377.97	427.85	463.85	482.62	161%
Population (millions)	1.81	2.35	3.03	4.15	8.44	9.21	9.35	417%
CO ₂ / TPES (tCO ₂ per TJ)	60.7	60.1	60.2	59.7	58.7	60.2	57.6	-5%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.59	0.66	0.61	0.60	0.75	0.76	0.71	21%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.28	0.31	0.29	0.29	0.35	0.37	0.35	24%
CO ₂ / population (tCO ₂ per capita)	28.72	29.68	28.26	26.19	17.98	18.53	17.93	-38%
Share of electricity output from fossil fuels	100%	100%	100%	100%	100%	100%	100%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	747	741	732	848	601	600	600	-20%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	134	165	210	293	329	323	223%
Population index	100	130	168	230	467	510	517	417%
GDP PPP per population index	100	93	94	89	50	49	50	-50%
Energy intensity index - TPES / GDP PPP	100	113	105	104	131	132	130	30%
Carbon intensity index - CO ₂ / TPES	100	99	99	98	97	99	95	-5%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	5.74	38.61	123.26	-	167.61	223%
Electricity and heat generation	-	1.68	62.04	-	63.73	399%
Other energy industry own use	-	0.60	1.37	-	1.97	123%
Manufacturing industries and construction	5.74	3.95	59.85	-	69.53	161%
Transport	-	31.51	-	-	31.51	179%
<i>of which: road</i>	-	30.80	-	-	30.80	173%
Other	-	0.87	-	-	0.87	187%
<i>of which: residential</i>	-	0.87	-	-	0.87	187%
<i>of which: services</i>	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	45.95	-	-	45.95	140%
<i>Memo: international aviation bunkers</i>	-	14.38	-	-	14.38	45%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - gas	62.04	410.9%	29.1	29.1
Manufacturing industries - gas	59.85	191.7%	28.0	57.1
Road - oil	30.80	172.9%	14.4	71.5
Manufacturing industries - coal	5.74	x	2.7	74.2
Manufacturing industries - oil	3.95	-35.5%	1.8	76.0
Main activity prod. elec. and heat - oil	1.68	170.5%	0.8	76.8
Other energy industry own use - gas	1.37	117.4%	0.6	77.5
Residential - oil	0.87	187.3%	0.4	77.9
Other transport - oil	0.71	x	0.3	78.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>167.61</i>	<i>223.1%</i>	<i>78.5</i>	<i>78.5</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

United Kingdom

Figure 1. CO₂ emissions by fuel

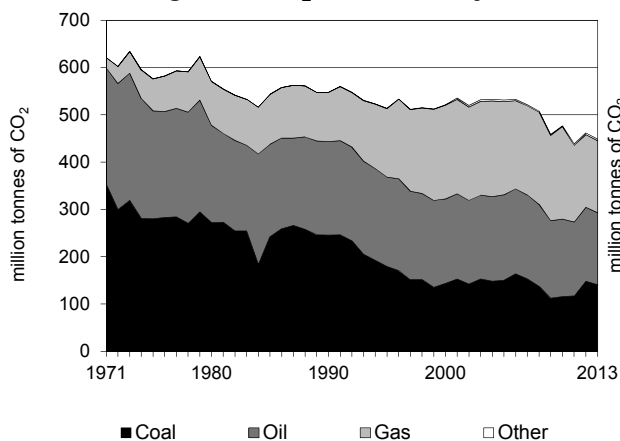


Figure 2. CO₂ emissions by sector

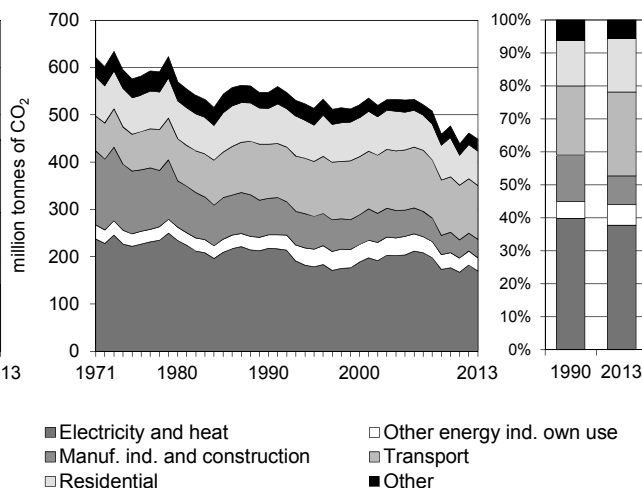


Figure 3. Electricity generation by fuel

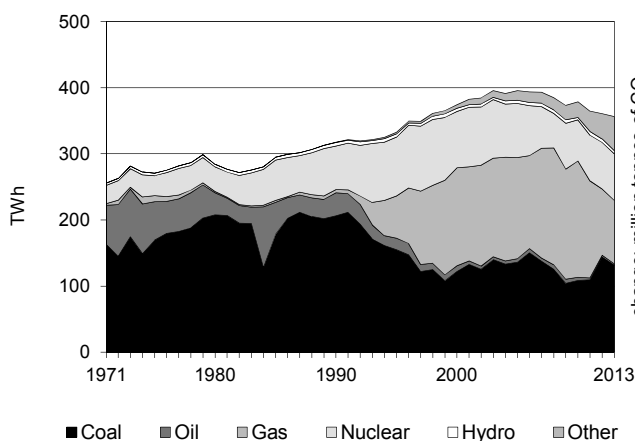


Figure 4. CO₂ from electricity generation: driving factors¹

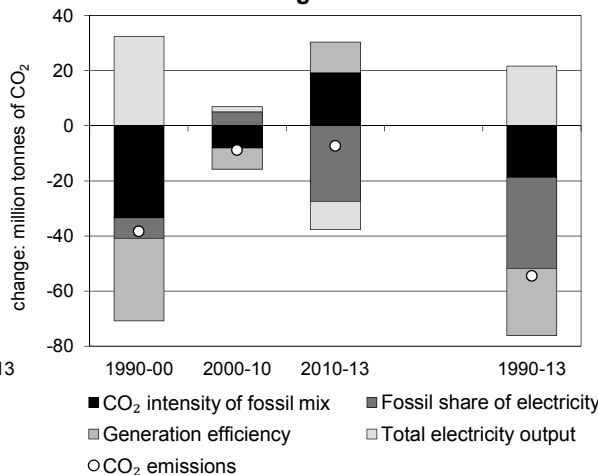


Figure 5. Changes in selected indicators

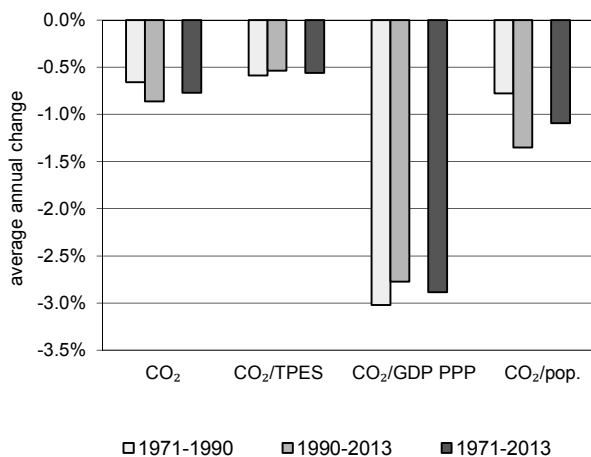
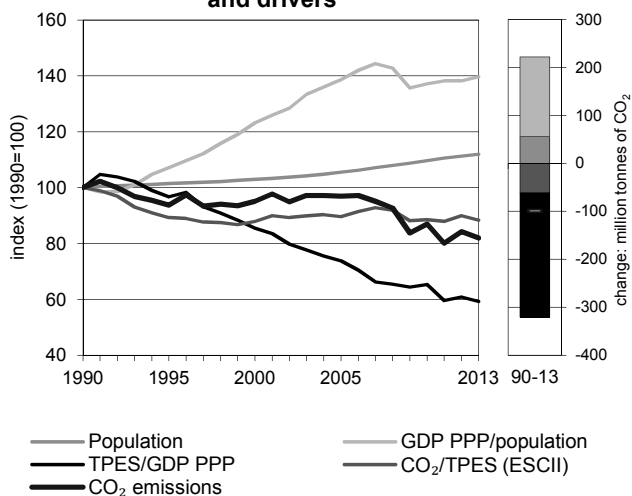


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

United Kingdom

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	547.71	513.68	521.15	531.15	476.62	461.51	448.71	-18%
Share of World CO ₂ from fuel combustion	2.7%	2.4%	2.2%	2.0%	1.6%	1.5%	1.4%	
TPES (PJ)	8 622	9 058	9 335	9 322	8 475	8 076	7 995	-7%
GDP (billion 2005 USD)	1 647.60	1 789.44	2 087.47	2 412.12	2 477.51	2 534.86	2 577.06	56%
GDP PPP (billion 2005 USD)	1 424.42	1 547.05	1 804.71	2 085.38	2 141.91	2 191.49	2 227.97	56%
Population (millions)	57.24	58.03	58.89	60.41	62.76	63.71	64.11	12%
CO ₂ / TPES (tCO ₂ per TJ)	63.5	56.7	55.8	57.0	56.2	57.1	56.1	-12%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.33	0.29	0.25	0.22	0.19	0.18	0.17	-48%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.38	0.33	0.29	0.25	0.22	0.21	0.20	-48%
CO ₂ / population (tCO ₂ per capita)	9.57	8.85	8.85	8.79	7.59	7.24	7.00	-27%
Share of electricity output from fossil fuels	77%	71%	75%	75%	77%	69%	65%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	686	538	480	501	451	489	459	-33%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	94	95	97	87	84	82	-18%
Population index	100	101	103	106	110	111	112	12%
GDP PPP per population index	100	107	123	139	137	138	140	40%
Energy intensity index - TPES / GDP PPP	100	97	85	74	65	61	59	-41%
Carbon intensity index - CO ₂ / TPES	100	89	88	90	89	90	88	-12%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	140.44	152.50	152.26	3.50	448.71	-18%
Electricity and heat generation	123.46	1.82	40.97	3.39	169.64	-22%
Other energy industry own use	4.88	12.94	9.97	-	27.79	-2%
Manufacturing industries and construction	9.54	12.64	16.96	0.05	39.19	-49%
Transport	0.03	113.97	-	-	114.01	-1%
<i>of which: road</i>	-	107.43	-	-	107.43	-0%
Other	2.53	11.12	84.36	0.07	98.08	-10%
<i>of which: residential</i>	2.45	7.64	62.60	0.02	72.71	-4%
<i>of which: services</i>	0.06	1.97	19.04	0.05	21.12	6%
<i>Memo: international marine bunkers</i>	-	7.94	-	-	7.94	0%
<i>Memo: international aviation bunkers</i>	-	32.03	-	-	32.03	68%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	112.98	-38.6%	20.2	20.2
Road - oil	107.43	-0.3%	19.2	39.4
Residential - gas	62.60	14.7%	11.2	50.5
Main activity prod. elec. and heat - gas ⁴	29.61	x	5.3	55.8
Non-specified other - gas	21.76	40.8%	3.9	59.7
Manufacturing industries - gas	16.96	-30.6%	3.0	62.7
Other energy industry own use - oil	12.94	-31.4%	2.3	65.1
Manufacturing industries - oil	12.64	-35.6%	2.3	67.3
Unallocated autoproducers - gas ⁴	11.36	334.4%	2.0	69.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>448.71</i>	<i>-18.1%</i>	<i>80.1</i>	<i>80.1</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

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

United States

Figure 1. CO₂ emissions by fuel

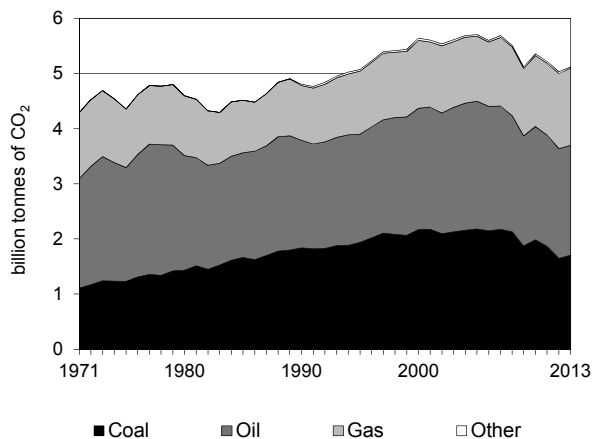


Figure 2. CO₂ emissions by sector

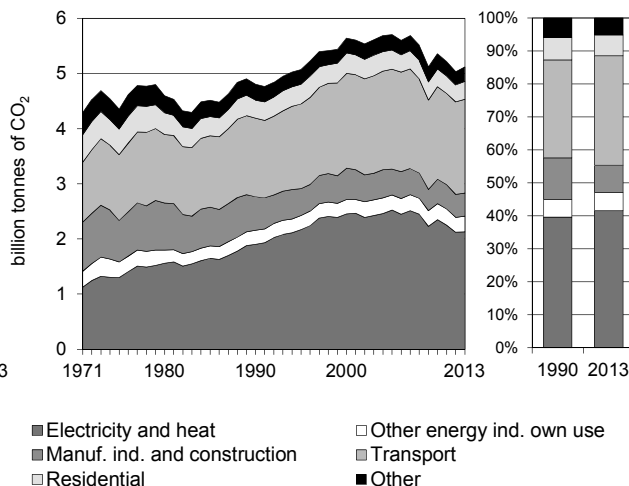


Figure 3. Electricity generation by fuel

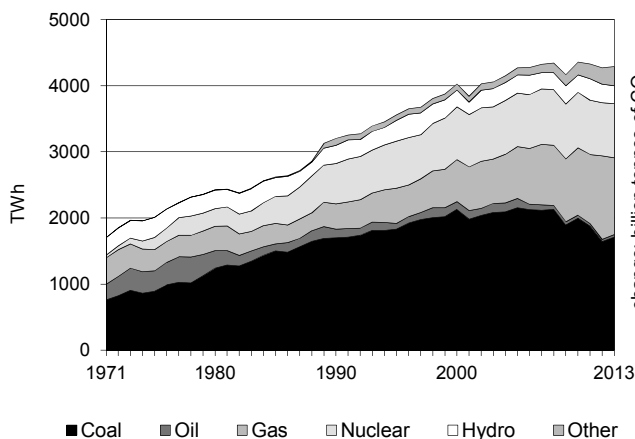


Figure 4. CO₂ from electricity generation: driving factors¹

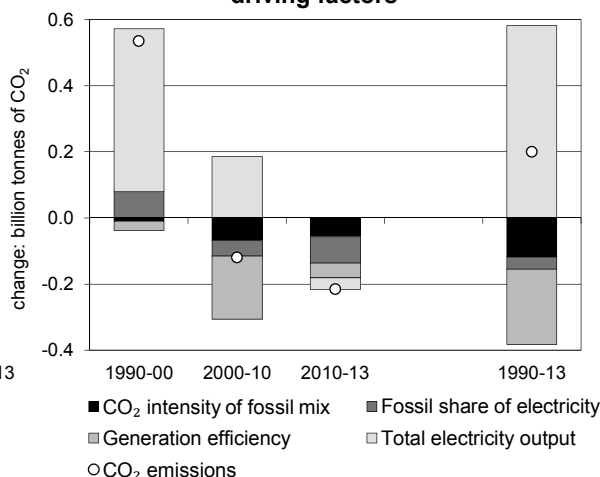


Figure 5. Changes in selected indicators

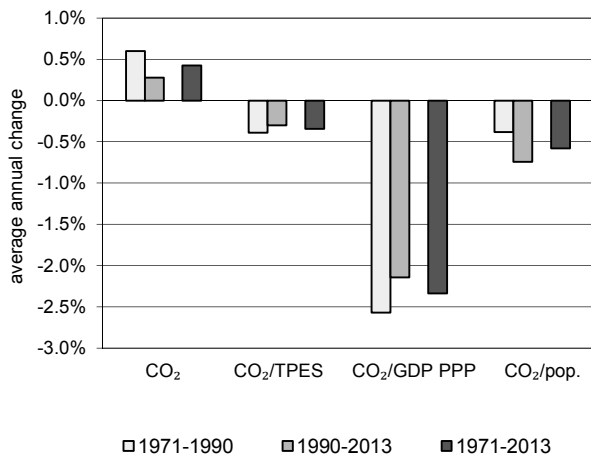
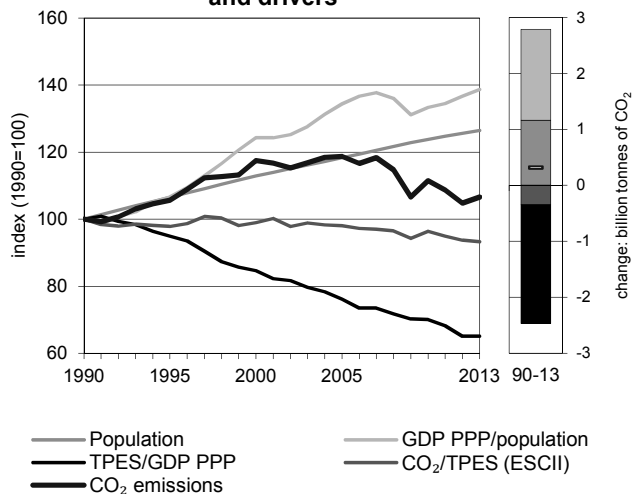


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

United States

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	4 802.5	5 073.2	5 642.6	5 702.3	5 355.5	5 031.7	5 119.7	7%
Share of World CO ₂ from fuel combustion	23%	24%	24%	21%	18%	16%	16%	
TPES (PJ)	80 179	86 554	95 180	97 082	92 754	89 590	91 622	14%
GDP (billion 2005 USD)	8 237.5	9 359.5	11 553.3	13 093.7	13 599.3	14 137.8	14 451.5	75%
GDP PPP (billion 2005 USD)	8 237.5	9 359.5	11 553.3	13 093.7	13 599.3	14 137.8	14 451.5	75%
Population (millions)	250.2	266.6	282.4	296.0	309.8	314.2	316.5	26%
CO ₂ / TPES (tCO ₂ per TJ)	59.9	58.6	59.3	58.7	57.7	56.2	55.9	-7%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.58	0.54	0.49	0.44	0.39	0.36	0.35	-39%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.58	0.54	0.49	0.44	0.39	0.36	0.35	-39%
CO ₂ / population (tCO ₂ per capita)	19.20	19.03	19.98	19.26	17.29	16.01	16.18	-16%
Share of electricity output from fossil fuels	69%	69%	72%	72%	71%	69%	68%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	593	601	604	586	531	488	489	-17%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	106	117	119	112	105	107	7%
Population index	100	107	113	118	124	126	126	26%
GDP PPP per population index	100	107	124	134	133	137	139	39%
Energy intensity index - TPES / GDP PPP	100	95	85	76	70	65	65	-35%
Carbon intensity index - CO ₂ / TPES	100	98	99	98	96	94	93	-7%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	1 705.0	1 989.6	1 398.5	26.5	5 119.7	7%
Electricity and heat generation	1 596.1	28.5	485.9	17.8	2 128.3	12%
Other energy industry own use	9.7	109.2	163.5	-	282.5	9%
Manufacturing industries and construction	96.2	65.9	252.2	7.9	422.1	-30%
Transport	-	1 651.8	49.0	-	1 700.8	19%
<i>of which: road</i>	-	1 443.1	1.8	-	1 444.9	26%
Other	3.1	134.2	447.9	0.8	586.1	-4%
<i>of which: residential</i>	-	53.8	269.0	-	322.9	-1%
<i>of which: services</i>	3.1	30.2	175.9	0.8	210.0	-4%
<i>Memo: international marine bunkers</i>	-	49.1	-	-	49.1	-46%
<i>Memo: international aviation bunkers</i>	-	65.2	-	-	65.2	67%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	1 578.3	0.9%	24.4	24.4
Road - oil	1 443.1	25.6%	22.3	46.7
Main activity prod. elec. and heat - gas	447.2	191.5%	6.9	53.6
Residential - gas	269.0	11.7%	4.2	57.8
Manufacturing industries - gas	252.2	-2.3%	3.9	61.7
Other transport - oil	208.7	-13.5%	3.2	64.9
Non-specified other - gas	178.9	24.3%	2.8	67.7
Other energy industry own use - gas	163.5	56.1%	2.5	70.2
Other energy industry own use - oil	109.2	-28.1%	1.7	71.9
<i>Memo: total CO₂ from fuel combustion</i>	<i>5 119.7</i>	<i>6.6%</i>	<i>79.1</i>	<i>79.1</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Uruguay

Figure 1. CO₂ emissions by fuel

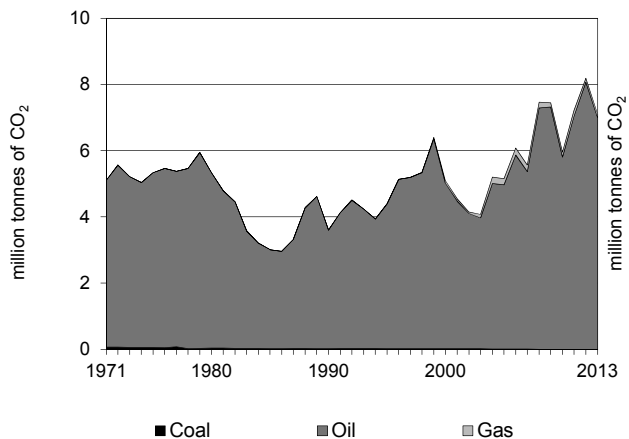


Figure 2. CO₂ emissions by sector

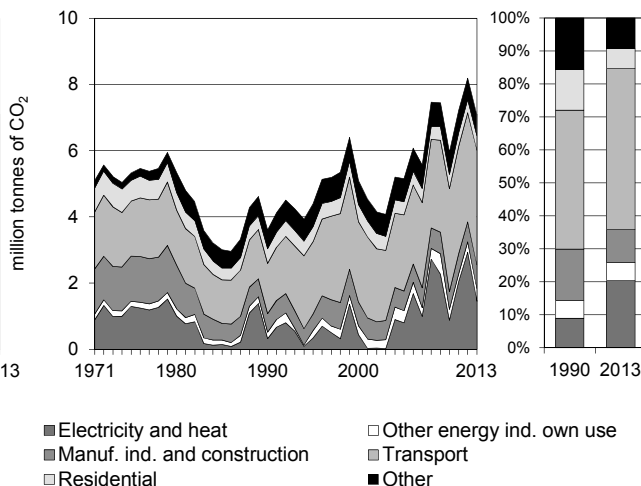


Figure 3. Electricity generation by fuel

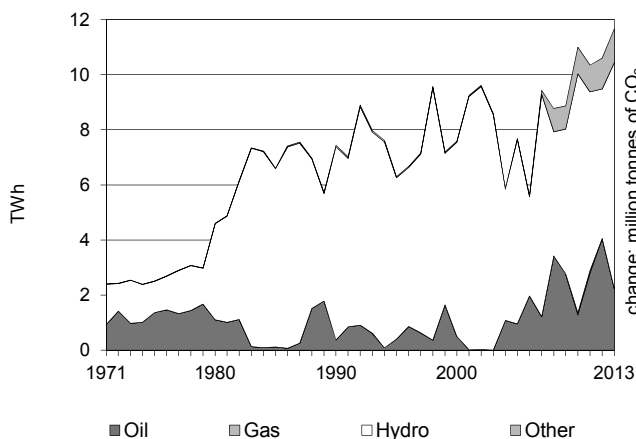


Figure 4. CO₂ from electricity generation: driving factors¹

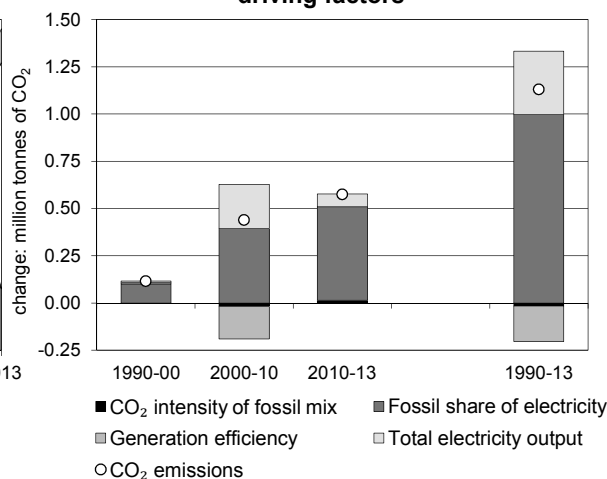


Figure 5. Changes in selected indicators

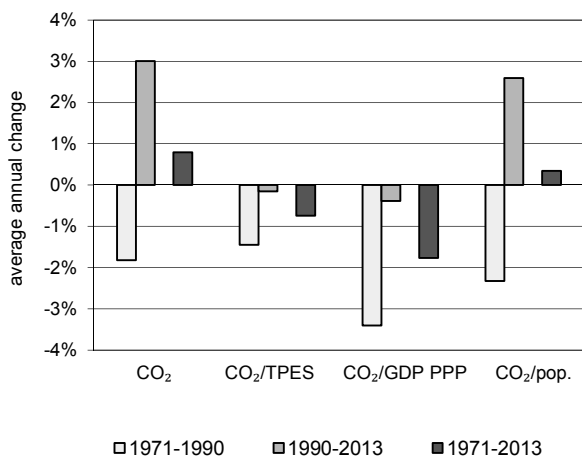
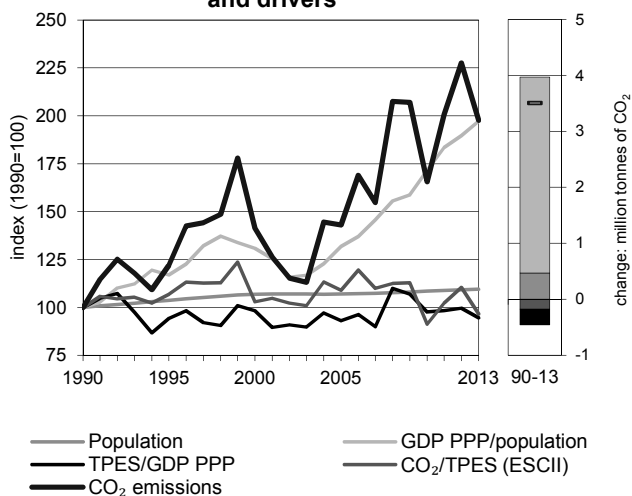


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Uruguay

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	3.60	4.39	5.09	5.15	5.96	8.19	7.11	98%
Share of World CO ₂ from fuel combustion	0.02%	0.02%	0.02%	0.02%	0.02%	0.03%	0.02%	
TPES (PJ)	94	108	129	124	171	194	193	104%
GDP (billion 2005 USD)	12.31	14.94	17.21	17.36	22.90	25.48	26.60	116%
GDP PPP (billion 2005 USD)	26.63	32.30	37.21	37.55	49.52	55.11	57.53	116%
Population (millions)	3.11	3.22	3.32	3.33	3.37	3.40	3.41	10%
CO ₂ / TPES (tCO ₂ per TJ)	38.2	40.8	39.3	41.6	34.8	42.2	36.9	-3%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.29	0.29	0.30	0.30	0.26	0.32	0.27	-9%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.14	0.14	0.14	0.14	0.12	0.15	0.12	-9%
CO ₂ / population (tCO ₂ per capita)	1.16	1.36	1.53	1.55	1.77	2.41	2.09	80%
Share of electricity output from fossil fuels	5%	6%	7%	12%	12%	38%	19%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	43	54	57	104	80	276	124	189%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	122	141	143	166	228	198	98%
Population index	100	104	107	107	108	109	110	10%
GDP PPP per population index	100	117	131	132	172	190	197	97%
Energy intensity index - TPES / GDP PPP	100	94	98	93	98	100	95	-5%
Carbon intensity index - CO ₂ / TPES	100	107	103	109	91	110	97	-3%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	-	7.00	0.11	-	7.11	98%
Electricity and heat generation	-	1.45	0.00	-	1.45	352%
Other energy industry own use	-	0.39	0.00	-	0.39	98%
Manufacturing industries and construction	-	0.68	0.03	-	0.71	27%
Transport	-	3.47	-	-	3.47	129%
<i>of which: road</i>	-	3.42	-	-	3.42	137%
Other	-	1.01	0.08	-	1.09	8%
<i>of which: residential</i>	-	0.38	0.05	-	0.43	-2%
<i>of which: services</i>	-	0.12	0.03	-	0.14	2%
<i>Memo: international marine bunkers</i>	-	0.73	-	-	0.73	96%
<i>Memo: international aviation bunkers</i>	-	0.22	-	-	0.22	x

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	3.42	136.9%	9.8	9.8
Main activity prod. elec. and heat - oil	1.45	383.9%	4.1	13.9
Manufacturing industries - oil	0.68	22.3%	1.9	15.9
Non-specified other - oil	0.63	13.3%	1.8	17.7
Other energy industry own use - oil	0.39	97.3%	1.1	18.8
Residential - oil	0.38	-12.2%	1.1	19.9
Residential - gas	0.05	x	0.2	20.0
Other transport - oil	0.05	-29.8%	0.2	20.2
Manufacturing industries - gas	0.03	x	0.1	20.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>7.11</i>	<i>97.6%</i>	<i>20.3</i>	<i>20.3</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Uzbekistan

Figure 1. CO₂ emissions by fuel

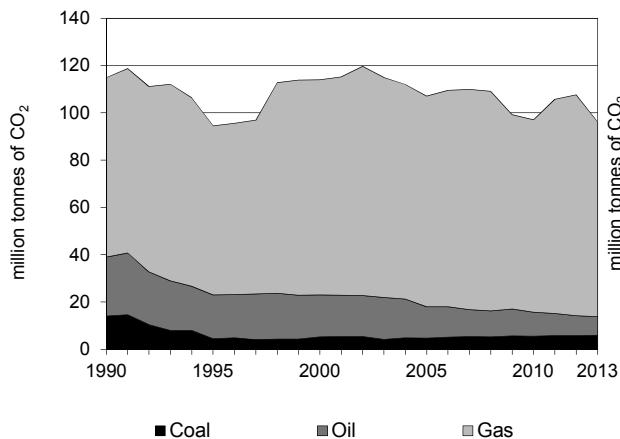


Figure 2. CO₂ emissions by sector

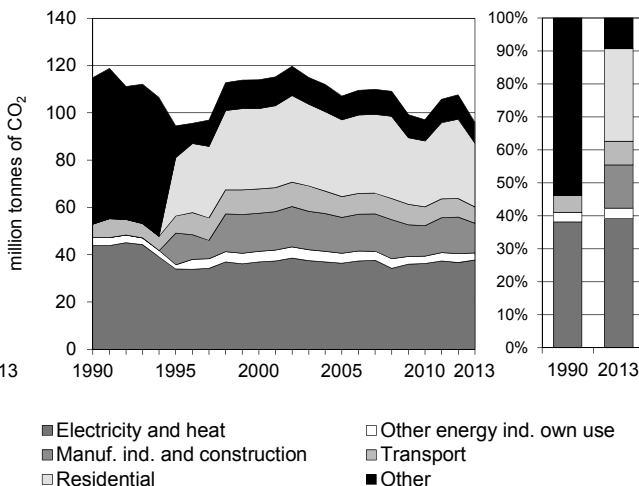


Figure 3. Electricity generation by fuel

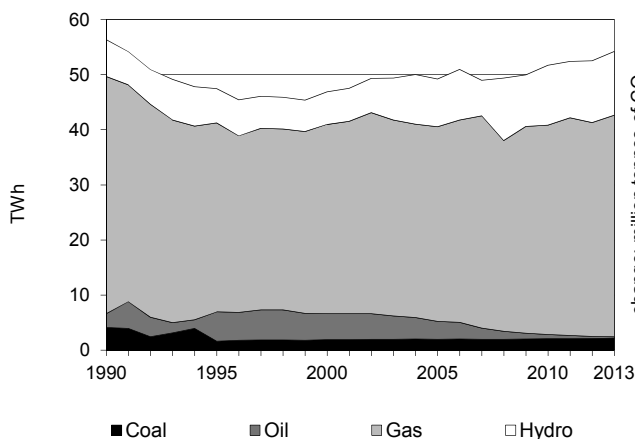


Figure 4. CO₂ from electricity generation: driving factors¹

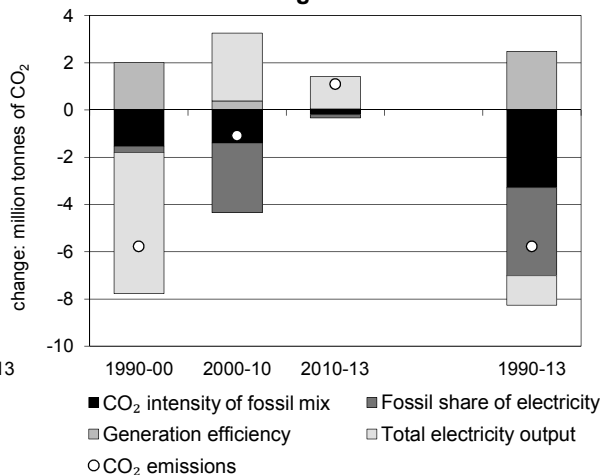


Figure 5. Changes in selected indicators

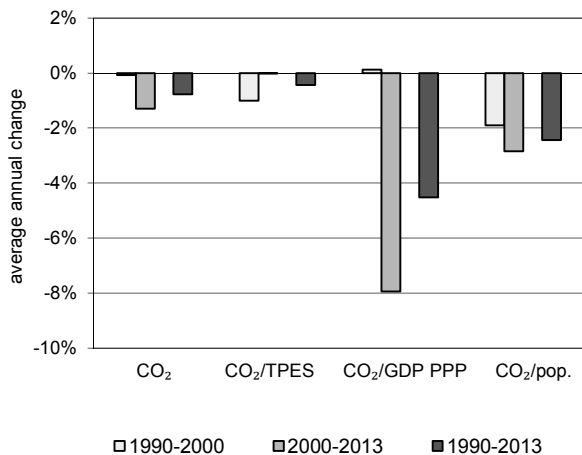
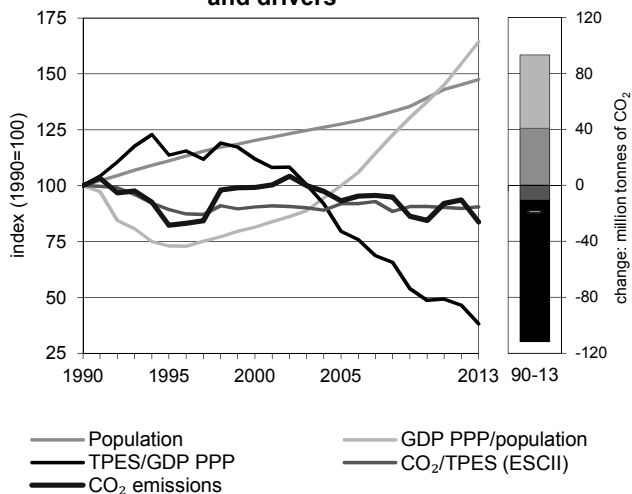


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Uzbekistan

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	114.88	94.54	113.96	107.14	97.06	107.60	96.16	-16%
Share of World CO ₂ from fuel combustion	0.56%	0.44%	0.49%	0.40%	0.33%	0.34%	0.30%	
TPES (PJ)	1 941	1 790	2 130	1 971	1 809	2 027	1 797	-7%
GDP (billion 2005 USD)	11.22	9.10	11.00	14.31	21.49	25.18	27.20	142%
GDP PPP (billion 2005 USD)	55.57	45.07	54.45	70.85	106.43	124.71	134.69	142%
Population (millions)	20.51	22.79	24.65	26.17	28.56	29.78	30.24	47%
CO ₂ / TPES (tCO ₂ per TJ)	59.2	52.8	53.5	54.3	53.6	53.1	53.5	-10%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	10.24	10.39	10.36	7.49	4.52	4.27	3.54	-65%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	2.07	2.10	2.09	1.51	0.91	0.86	0.71	-65%
CO ₂ / population (tCO ₂ per capita)	5.60	4.15	4.62	4.09	3.40	3.61	3.18	-43%
Share of electricity output from fossil fuels	88%	87%	87%	82%	79%	79%	79%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	630	576	634	592	554	550	548	-13%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	82	99	93	84	94	84	-16%
Population index	100	111	120	128	139	145	147	47%
GDP PPP per population index	100	73	82	100	138	155	164	64%
Energy intensity index - TPES / GDP PPP	100	114	112	80	49	47	38	-62%
Carbon intensity index - CO ₂ / TPES	100	89	90	92	91	90	90	-10%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	5.90	7.91	82.34	-	96.16	-16%
Electricity and heat generation	4.10	0.29	33.32	-	37.71	-14%
Other energy industry own use	-	0.29	2.75	-	3.04	-10%
Manufacturing industries and construction	0.38	0.53	11.68	-	12.60	x
Transport	-	4.33	2.57	-	6.89	20%
<i>of which: road</i>	-	3.77	0.11	-	3.88	-29%
Other	1.42	2.48	32.02	-	35.92	-42%
<i>of which: residential</i>	0.07	0.44	26.45	-	26.96	x
<i>of which: services</i>	-	-	5.29	-	5.29	x
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	-	-	-	-	-

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - gas	33.25	21.9%	21.6	21.6
Residential - gas	26.45	x	17.1	38.7
Manufacturing industries - gas	11.68	x	7.6	46.3
Non-specified other - gas	5.57	-87.9%	3.6	49.9
Main activity prod. elec. and heat - coal	4.10	-54.3%	2.7	52.5
Road - oil	3.77	-31.4%	2.4	55.0
Other energy industry own use - gas	2.75	13.2%	1.8	56.8
Other transport - gas	2.45	x	1.6	58.4
Non-specified other - oil	2.03	-81.0%	1.3	59.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>96.16</i>	<i>-16.3%</i>	<i>62.3</i>	<i>62.3</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Bolivarian Republic of Venezuela

Figure 1. CO₂ emissions by fuel

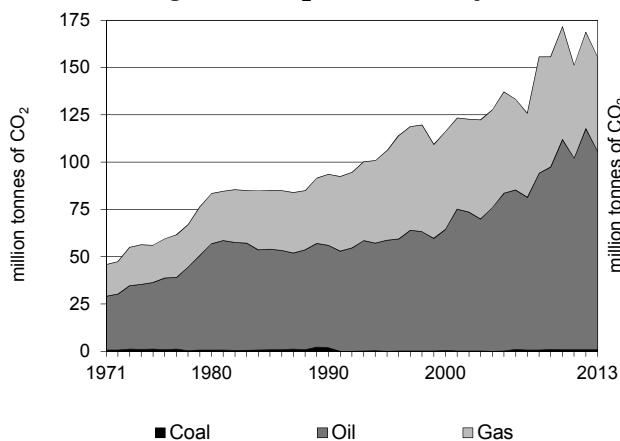


Figure 2. CO₂ emissions by sector

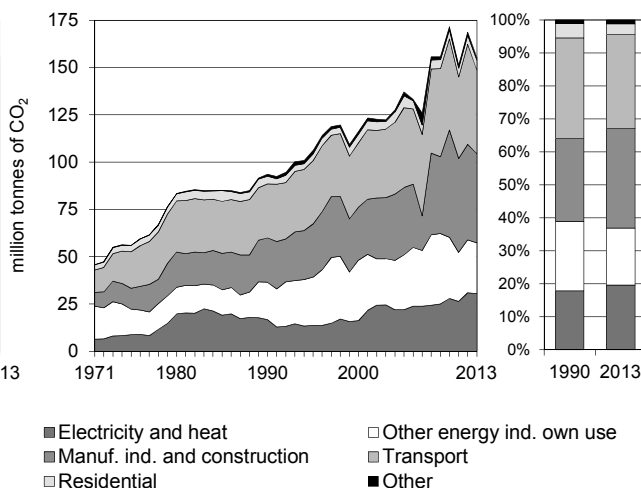


Figure 3. Electricity generation by fuel

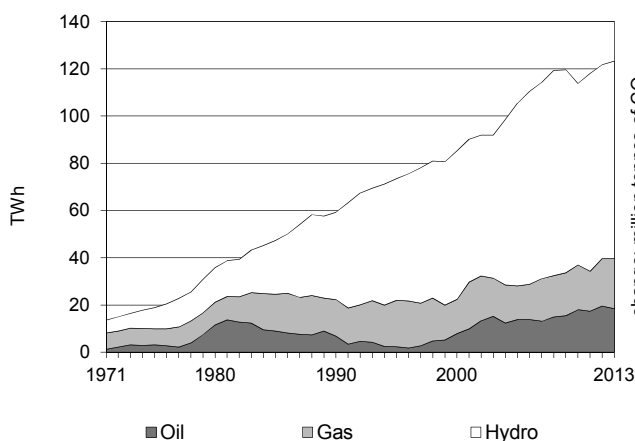


Figure 4. CO₂ from electricity generation: driving factors¹

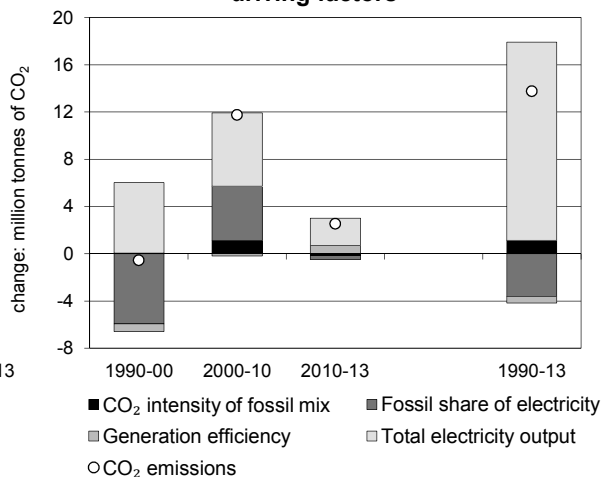


Figure 5. Changes in selected indicators

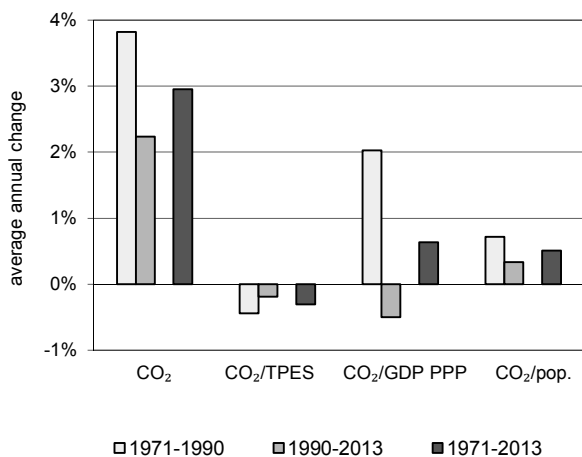
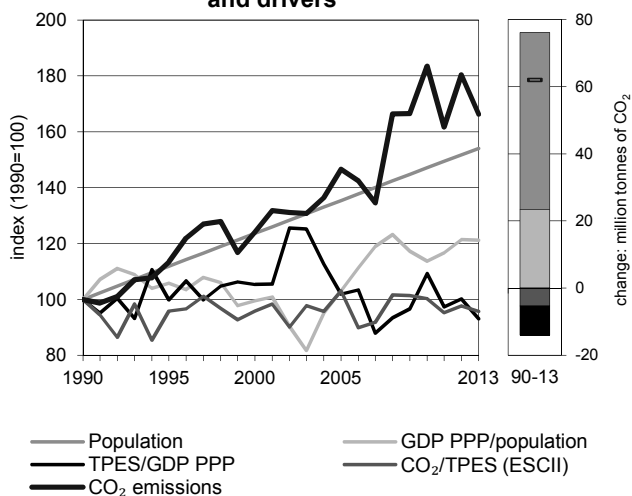


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Bolivarian Republic of Venezuela

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	93.56	106.07	116.18	137.13	171.64	168.75	155.57	66%
Share of World CO ₂ from fuel combustion	0.45%	0.49%	0.50%	0.51%	0.58%	0.54%	0.48%	
TPES (PJ)	1 657	1 961	2 147	2 357	3 030	3 059	2 879	74%
GDP (billion 2005 USD)	104.32	123.57	128.28	145.51	174.55	192.07	194.65	87%
GDP PPP (billion 2005 USD)	255.54	302.72	314.25	356.47	427.61	470.52	476.84	87%
Population (millions)	19.74	22.09	24.41	26.73	29.04	29.96	30.41	54%
CO ₂ / TPES (tCO ₂ per TJ)	56.5	54.1	54.1	58.2	56.6	55.2	54.0	-4%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.90	0.86	0.91	0.94	0.98	0.88	0.80	-11%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.37	0.35	0.37	0.38	0.40	0.36	0.33	-11%
CO ₂ / population (tCO ₂ per capita)	4.74	4.80	4.76	5.13	5.91	5.63	5.12	8%
Share of electricity output from fossil fuels	38%	30%	26%	27%	33%	33%	32%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	282	185	190	209	246	254	248	-12%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	113	124	147	183	180	166	66%
Population index	100	112	124	135	147	152	154	54%
GDP PPP per population index	100	106	99	103	114	121	121	21%
Energy intensity index - TPES / GDP PPP	100	100	105	102	109	100	93	-7%
Carbon intensity index - CO ₂ / TPES	100	96	96	103	100	98	96	-4%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	0.83	104.96	49.78	-	155.57	66%
Electricity and heat generation	-	17.62	12.87	-	30.49	82%
Other energy industry own use	-	12.96	13.93	-	26.89	36%
Manufacturing industries and construction	0.83	25.66	20.57	-	47.06	100%
Transport	-	44.28	0.02	-	44.30	55%
<i>of which: road</i>	-	44.28	-	-	44.28	55%
Other	-	4.45	2.39	-	6.84	35%
<i>of which: residential</i>	-	3.25	1.84	-	5.09	24%
<i>of which: services</i>	-	1.19	0.55	-	1.74	86%
<i>Memo: international marine bunkers</i>	-	3.03	-	-	3.03	20%
<i>Memo: international aviation bunkers</i>	-	1.92	-	-	1.92	86%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	44.28	55.3%	17.5	17.5
Manufacturing industries - oil	25.66	268.6%	10.1	27.7
Manufacturing industries - gas	20.57	40.4%	8.1	35.8
Main activity prod. elec. and heat - oil	17.62	208.3%	7.0	42.8
Other energy industry own use - gas	13.93	24.5%	5.5	48.3
Other energy industry own use - oil	12.96	52.1%	5.1	53.4
Main activity prod. elec. and heat - gas	11.87	52.8%	4.7	58.1
Residential - oil	3.25	-13.0%	1.3	59.4
Residential - gas	1.84	417.2%	0.7	60.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>155.57</i>	<i>66.3%</i>	<i>61.5</i>	<i>61.5</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Viet Nam ¹

Figure 1. CO₂ emissions by fuel

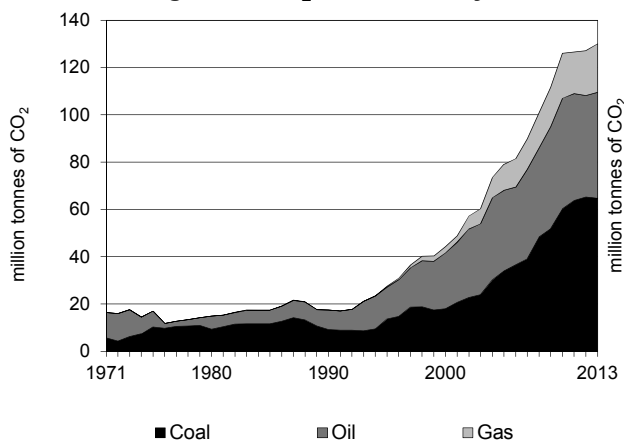


Figure 2. CO₂ emissions by sector

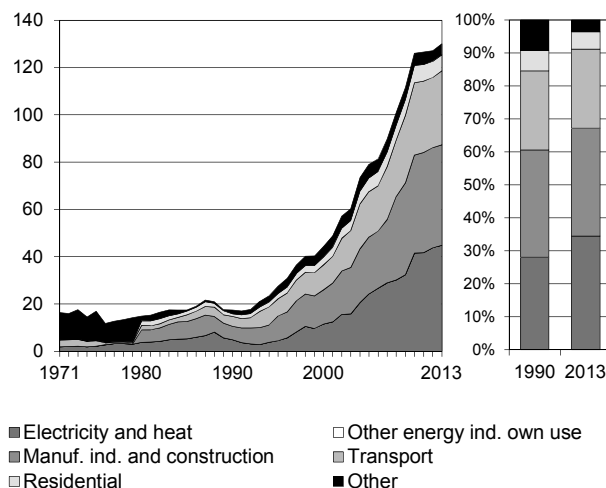


Figure 3. Electricity generation by fuel

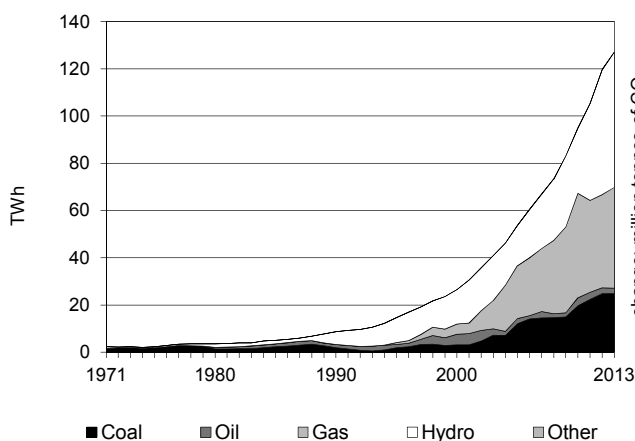


Figure 4. CO₂ from electricity generation: driving factors ²

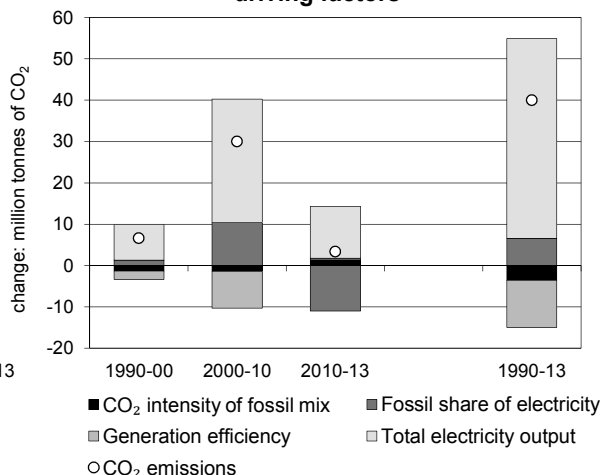


Figure 5. Changes in selected indicators

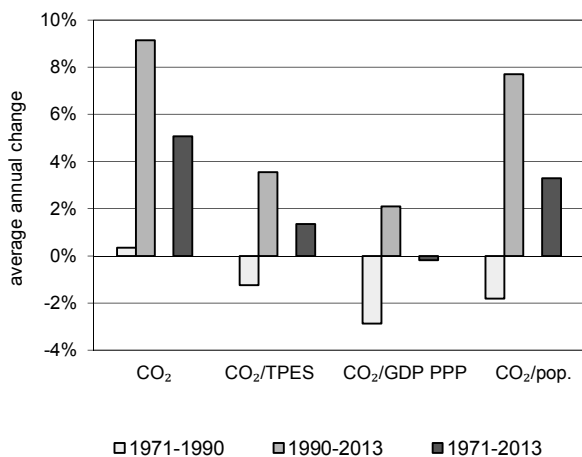
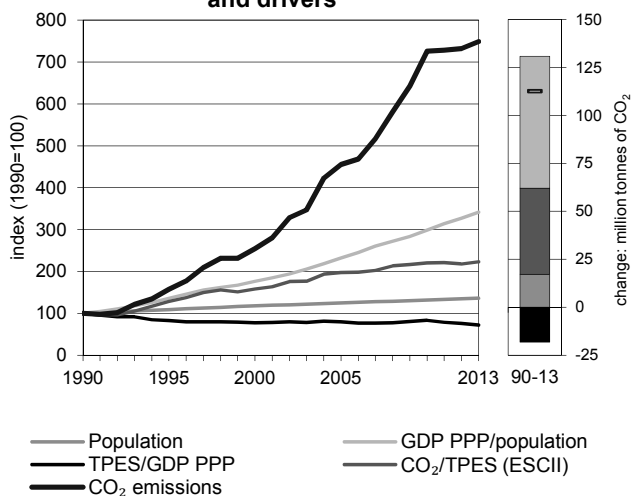


Figure 6. Total CO₂ emissions and drivers ³



1. A detailed sectoral breakdown is available starting in 1980.

2. Electricity decomposition: CO₂ emissions = CO₂ intensity of mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.

3. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 1.

Viet Nam

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	17.38	27.45	44.22	79.09	126.09	127.18	130.05	648%
Share of World CO ₂ from fuel combustion	0.08%	0.13%	0.19%	0.29%	0.42%	0.40%	0.40%	
TPES (PJ)	748	916	1 203	1 727	2 467	2 509	2 509	235%
GDP (billion 2005 USD)	19.89	29.51	41.29	57.63	78.28	87.53	92.28	364%
GDP PPP (billion 2005 USD)	88.23	130.88	183.14	255.64	347.23	388.26	409.31	364%
Population (millions)	66.02	72.00	77.63	82.39	86.93	88.77	89.71	36%
CO ₂ / TPES (tCO ₂ per TJ)	23.2	30.0	36.8	45.8	51.1	50.7	51.8	123%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.87	0.93	1.07	1.37	1.61	1.45	1.41	61%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.20	0.21	0.24	0.31	0.36	0.33	0.32	61%
CO ₂ / population (tCO ₂ per capita)	0.26	0.38	0.57	0.96	1.45	1.43	1.45	451%
Share of electricity output from fossil fuels	38%	28%	45%	68%	71%	56%	55%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	562	306	433	452	437	366	353	-37%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	158	254	455	725	732	748	648%
Population index	100	109	118	125	132	134	136	36%
GDP PPP per population index	100	136	177	232	299	327	341	241%
Energy intensity index - TPES / GDP PPP	100	83	77	80	84	76	72	-28%
Carbon intensity index - CO ₂ / TPES	100	129	158	197	220	218	223	123%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	64.76	44.81	20.48	-	130.05	648%
Electricity and heat generation	25.01	2.51	17.31	-	44.84	819%
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	34.14	5.20	3.17	-	42.51	651%
Transport	-	31.28	-	-	31.28	651%
<i>of which: road</i>	-	30.62	-	-	30.62	709%
Other	5.61	5.81	-	-	11.43	326%
<i>of which: residential</i>	4.41	2.35	-	-	6.76	524%
<i>of which: services</i>	1.13	1.95	-	-	3.08	246%
<i>Memo: international marine bunkers</i>	-	0.54	-	-	0.54	526%
<i>Memo: international aviation bunkers</i>	-	2.11	-	-	2.11	x

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Manufacturing industries - coal	34.14	705.4%	11.0	11.0
Road - oil	30.62	708.8%	9.9	20.9
Main activity prod. elec. and heat - coal	24.41	568.0%	7.9	28.8
Main activity prod. elec. and heat - gas	16.74	+	5.4	34.2
Manufacturing industries - oil	5.20	266.3%	1.7	35.9
Residential - coal	4.41	417.6%	1.4	37.3
Non-specified other - oil	3.46	176.2%	1.1	38.4
Manufacturing industries - gas	3.17	x	1.0	39.4
Residential - oil	2.35	918.6%	0.8	40.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>130.05</i>	<i>648.2%</i>	<i>42.0</i>	<i>42.0</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Yemen

Figure 1. CO₂ emissions by fuel

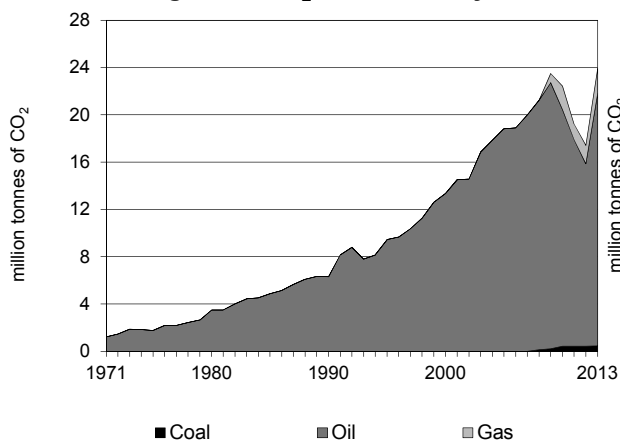


Figure 2. CO₂ emissions by sector

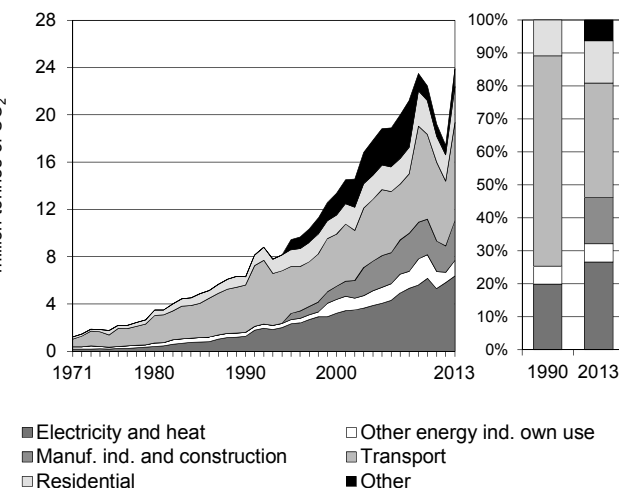


Figure 3. Electricity generation by fuel

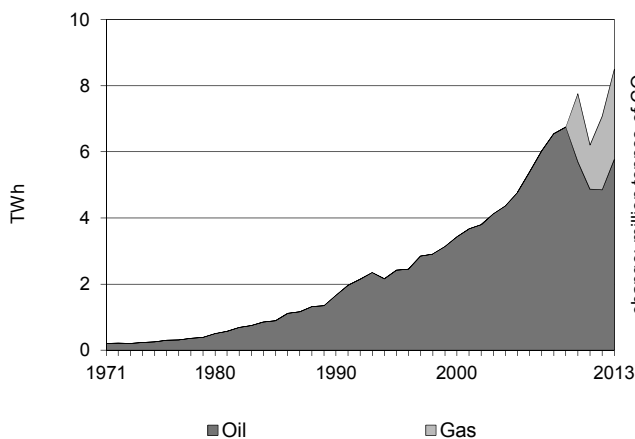


Figure 4. CO₂ from electricity generation: driving factors ¹

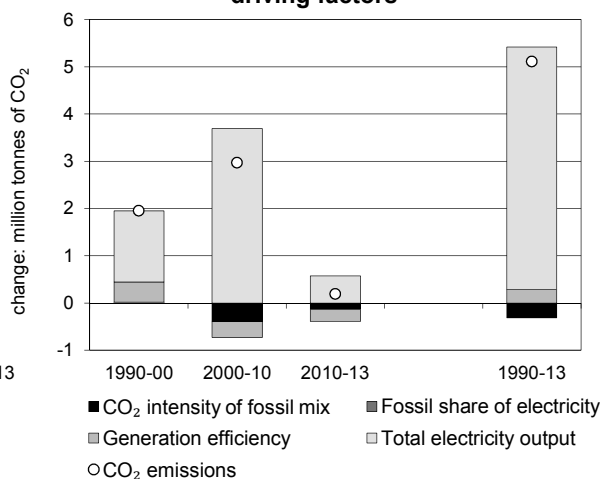


Figure 5. Changes in selected indicators

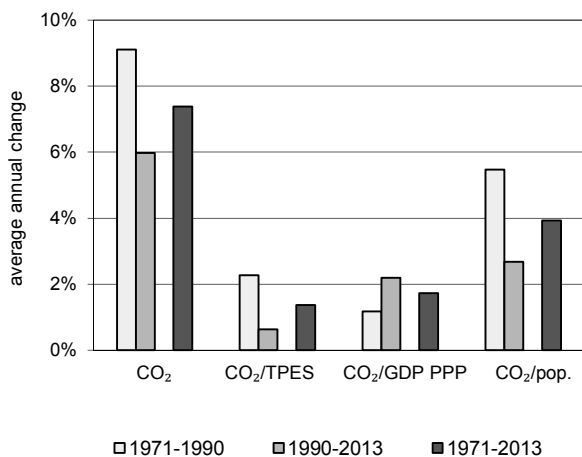
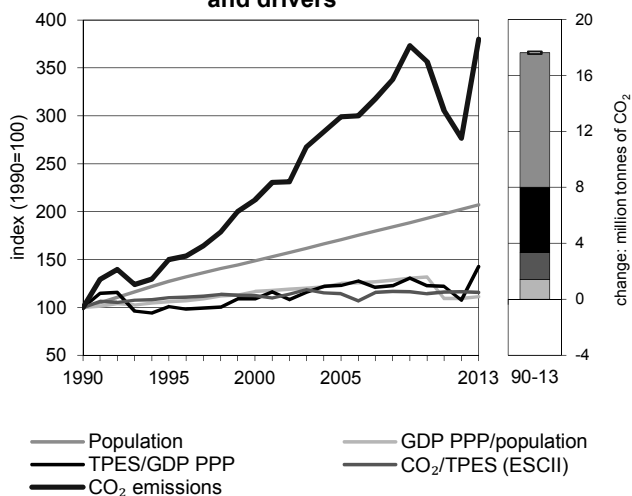


Figure 6. Total CO₂ emissions and drivers ²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Yemen

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	6.30	9.43	13.34	18.83	22.44	17.42	23.92	280%
Share of World CO ₂ from fuel combustion	0.03%	0.04%	0.06%	0.07%	0.08%	0.06%	0.07%	
TPES (PJ)	105	143	199	276	328	250	346	229%
GDP (billion 2005 USD)	7.86	10.60	13.63	16.75	19.99	17.39	18.12	131%
GDP PPP (billion 2005 USD)	36.12	48.73	62.68	77.02	91.89	79.96	83.28	131%
Population (millions)	11.79	15.02	17.52	20.14	22.76	23.85	24.41	107%
CO ₂ / TPES (tCO ₂ per TJ)	59.8	65.9	67.1	68.3	68.4	69.5	69.1	16%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.80	0.89	0.98	1.12	1.12	1.00	1.32	65%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.17	0.19	0.21	0.24	0.24	0.22	0.29	65%
CO ₂ / population (tCO ₂ per capita)	0.53	0.63	0.76	0.94	0.99	0.73	0.98	84%
Share of electricity output from fossil fuels	100%	100%	100%	100%	100%	100%	100%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	754	955	934	849	796	822	748	-1%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	150	212	299	356	277	380	280%
Population index	100	127	149	171	193	202	207	107%
GDP PPP per population index	100	106	117	125	132	109	111	11%
Energy intensity index - TPES / GDP PPP	100	101	109	123	122	108	143	43%
Carbon intensity index - CO ₂ / TPES	100	110	112	114	114	116	116	16%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	0.45	21.36	2.10	-	23.92	280%
Electricity and heat generation	-	4.61	1.75	-	6.36	407%
Other energy industry own use	-	0.96	0.36	-	1.32	285%
Manufacturing industries and construction	0.45	2.92	-	-	3.37	x
Transport	-	8.31	-	-	8.31	107%
<i>of which: road</i>	-	8.31	-	-	8.31	107%
Other	-	4.57	-	-	4.57	565%
<i>of which: residential</i>	-	3.05	-	-	3.05	345%
<i>of which: services</i>	-	0.55	-	-	0.55	x
<i>Memo: international marine bunkers</i>	-	0.29	-	-	0.29	-77%
<i>Memo: international aviation bunkers</i>	-	0.33	-	-	0.33	89%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Road - oil	8.31	107.0%	21.5	21.5
Main activity prod. elec. and heat - oil	4.47	381.2%	11.5	33.0
Residential - oil	3.05	344.9%	7.9	40.9
Manufacturing industries - oil	2.92	x	7.5	48.4
Main activity prod. elec. and heat - gas	1.75	x	4.5	52.9
Non-specified other - oil	1.51	x	3.9	56.8
Other energy industry own use - oil	0.96	180.6%	2.5	59.3
Manufacturing industries - coal	0.45	x	1.2	60.5
Other energy industry own use - gas	0.36	x	0.9	61.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>23.92</i>	<i>280.0%</i>	<i>61.8</i>	<i>61.8</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Zambia

Figure 1. CO₂ emissions by fuel

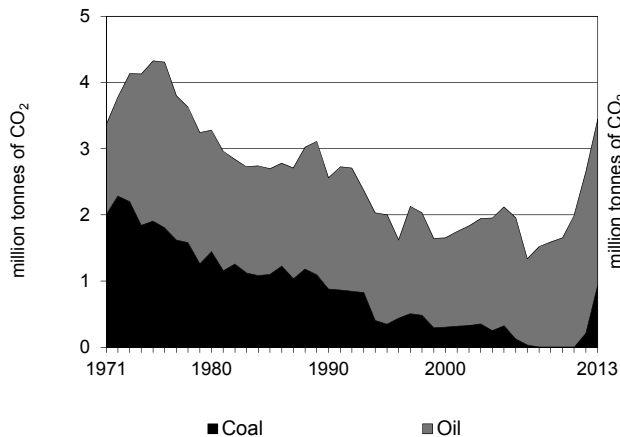


Figure 2. CO₂ emissions by sector

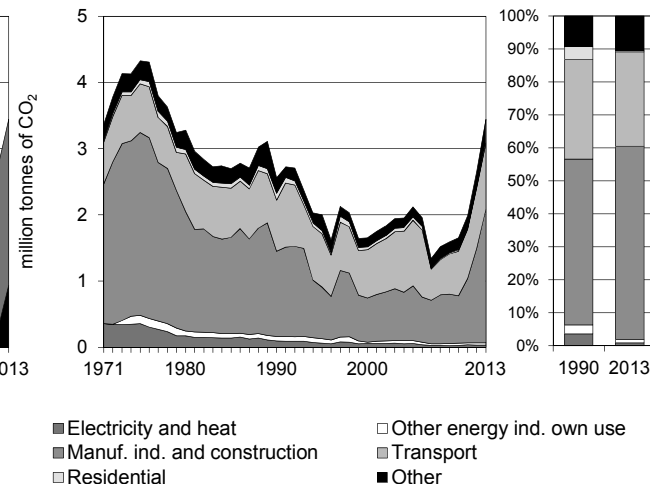


Figure 3. Electricity generation by fuel

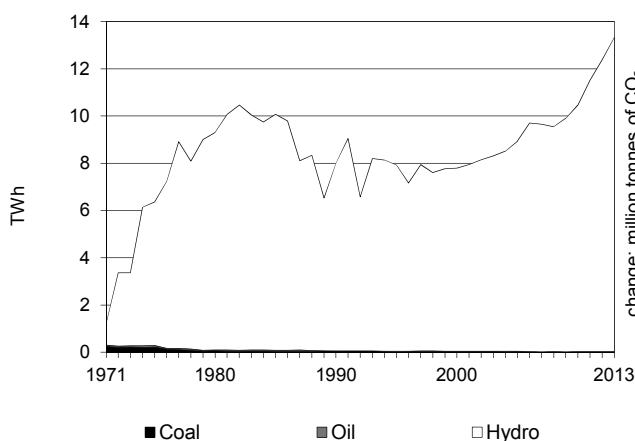


Figure 4. CO₂ from electricity generation: driving factors¹

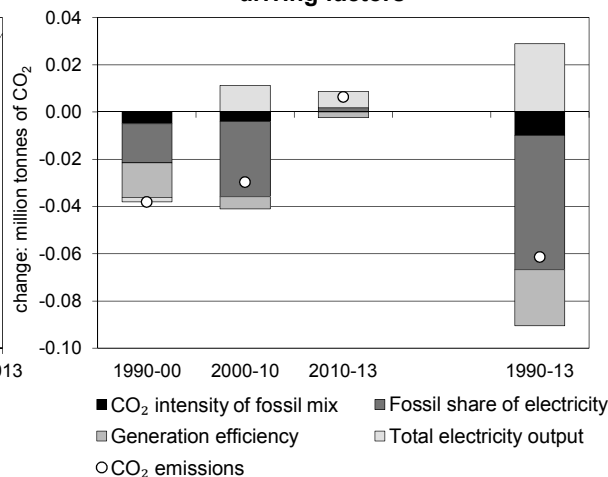


Figure 5. Changes in selected indicators

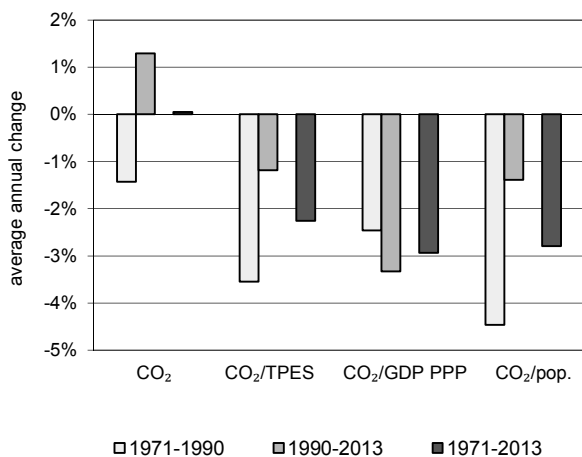
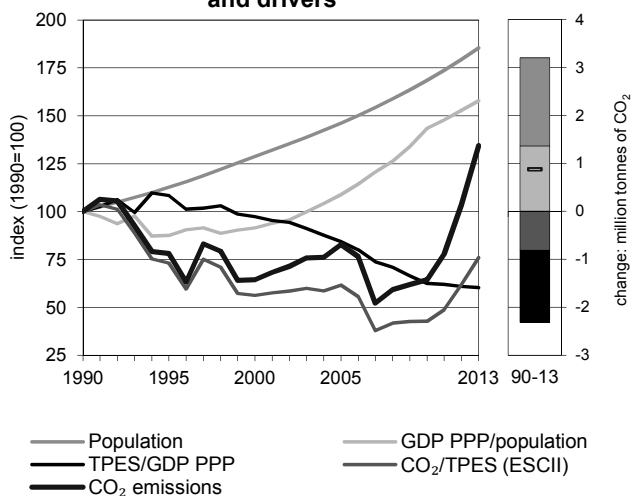


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Zambia

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	2.56	2.00	1.65	2.12	1.65	2.65	3.44	34%
Share of World CO ₂ from fuel combustion	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	
TPES (PJ)	228	244	262	307	344	382	403	77%
GDP (billion 2005 USD)	5.24	5.16	6.17	8.33	12.65	14.35	15.32	193%
GDP PPP (billion 2005 USD)	16.81	16.58	19.80	26.75	40.61	46.09	49.18	193%
Population (millions)	7.85	8.84	10.10	11.47	13.22	14.08	14.54	85%
CO ₂ / TPES (tCO ₂ per TJ)	11.2	8.2	6.3	6.9	4.8	6.9	8.5	-24%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	0.49	0.39	0.27	0.25	0.13	0.18	0.22	-54%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	0.15	0.12	0.08	0.08	0.04	0.06	0.07	-54%
CO ₂ / population (tCO ₂ per capita)	0.33	0.23	0.16	0.18	0.13	0.19	0.24	-27%
Share of electricity output from fossil fuels	1%	1%	1%	1%	0%	0%	0%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	12	7	7	6	2	3	2	-80%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	78	65	83	65	104	134	34%
Population index	100	113	129	146	168	179	185	85%
GDP PPP per population index	100	88	91	109	143	153	158	58%
Energy intensity index - TPES / GDP PPP	100	108	97	84	62	61	60	-40%
Carbon intensity index - CO ₂ / TPES	100	73	56	62	43	62	76	-24%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	0.93	2.51	-	-	3.44	34%
Electricity and heat generation	-	0.03	-	-	0.03	-66%
Other energy industry own use	-	0.04	-	-	0.04	-47%
Manufacturing industries and construction	0.93	1.08	-	-	2.01	56%
Transport	-	0.98	-	-	0.98	27%
<i>of which: road</i>	-	0.93	-	-	0.93	35%
Other	-	0.38	-	-	0.38	11%
<i>of which: residential</i>	-	0.02	-	-	0.02	-83%
<i>of which: services</i>	-	0.12	-	-	0.12	5%
<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 categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Manufacturing industries - oil	1.08	92.0%	5.5	5.5
Manufacturing industries - coal	0.93	28.6%	4.8	10.3
Road - oil	0.93	34.7%	4.7	15.0
Non-specified other - oil	0.36	134.1%	1.8	16.8
Other transport - oil	0.05	-34.8%	0.3	17.1
Other energy industry own use - oil	0.04	-46.8%	0.2	17.3
Main activity prod. elec. and heat - oil	0.03	42.9%	0.2	17.4
Residential - oil	0.02	-83.3%	0.1	17.5
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>3.44</i>	<i>34.4%</i>	<i>17.5</i>	<i>17.5</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

Zimbabwe

Figure 1. CO₂ emissions by fuel

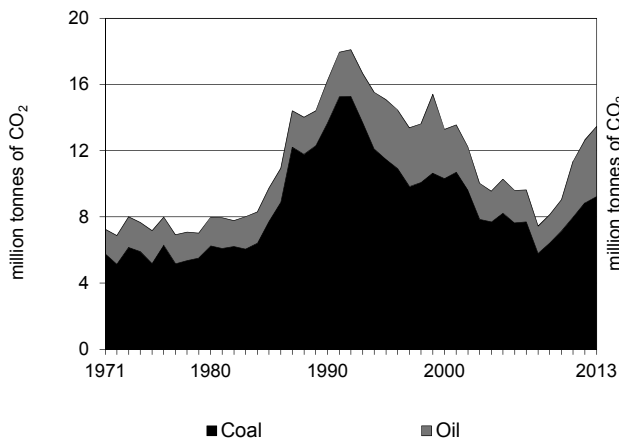


Figure 2. CO₂ emissions by sector

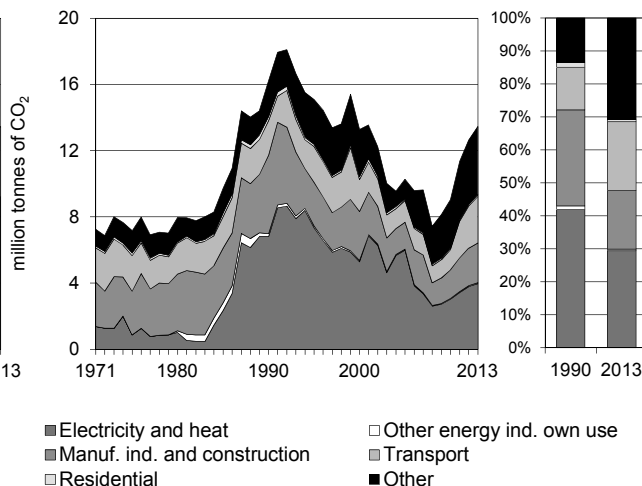


Figure 3. Electricity generation by fuel

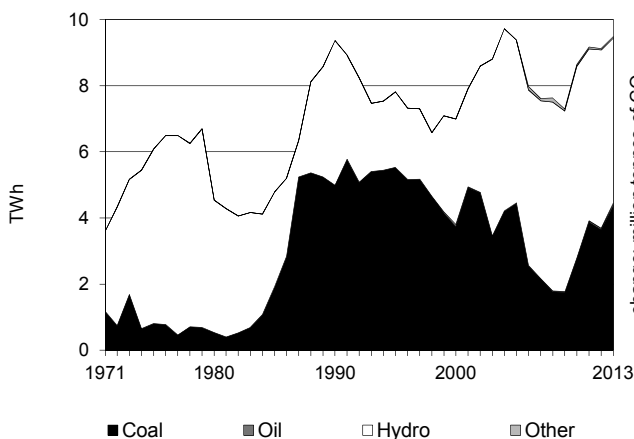


Figure 4. CO₂ from electricity generation: driving factors¹

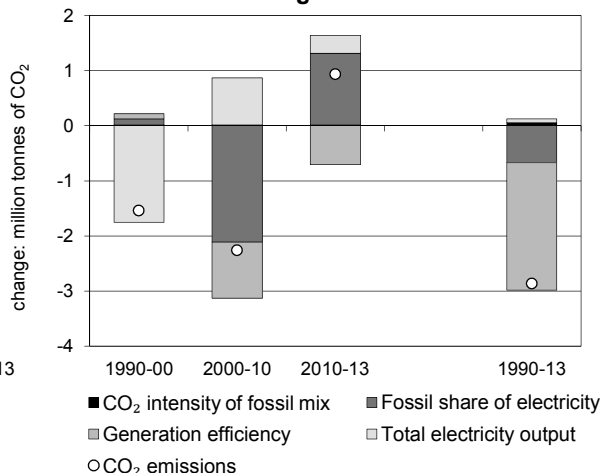


Figure 5. Changes in selected indicators

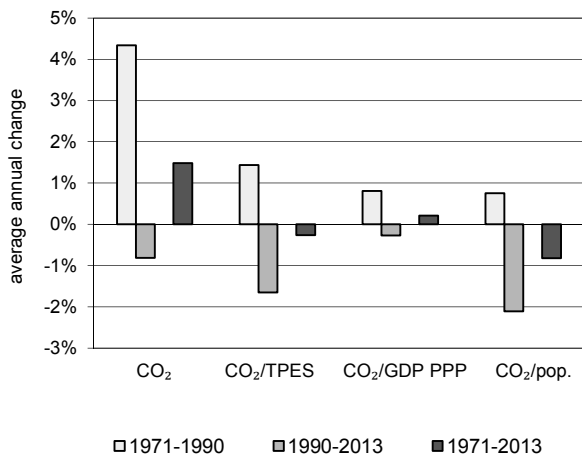
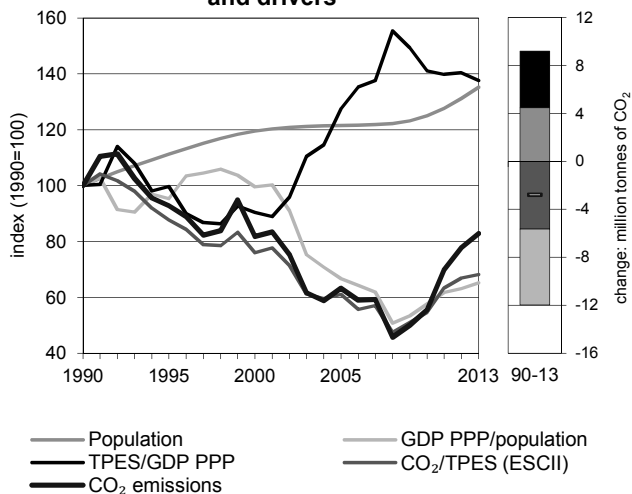


Figure 6. Total CO₂ emissions and drivers²



1. Electricity decomposition: CO₂ emissions = CO₂ intensity of fossil mix x fossil share of elec. x thermal efficiency x elec. output. See Part I, Chapter 2.
 2. Kaya decomposition: CO₂ emissions = CO₂/TPES x TPES/GDP x GDP/population x population. See Part I, Chapter 2.

Zimbabwe

Key indicators

	1990	1995	2000	2005	2010	2012	2013	% change 90-13
CO ₂ fuel combustion (MtCO ₂)	16.25	15.09	13.29	10.28	9.04	12.65	13.46	-17%
Share of World CO ₂ from fuel combustion	0.08%	0.07%	0.06%	0.04%	0.03%	0.04%	0.04%	
TPES (PJ)	389	412	419	403	396	453	473	21%
GDP (billion 2005 USD)	7.10	7.54	8.45	5.76	5.20	6.44	6.73	-5%
GDP PPP (billion 2005 USD)	4.80	5.10	5.71	3.89	3.46	3.98	4.23	-12%
Population (millions)	10.46	11.64	12.50	12.71	13.08	13.72	14.15	35%
CO ₂ / TPES (tCO ₂ per TJ)	41.7	36.6	31.7	25.5	22.8	27.9	28.5	-32%
CO ₂ / GDP (kgCO ₂ per 2005 USD)	2.29	2.00	1.57	1.79	1.74	1.96	2.00	-13%
CO ₂ / GDP PPP (kgCO ₂ per 2005 USD)	3.38	2.96	2.33	2.64	2.61	3.18	3.18	-6%
CO ₂ / population (tCO ₂ per capita)	1.55	1.30	1.06	0.81	0.69	0.92	0.95	-39%
Share of electricity output from fossil fuels	53%	71%	54%	48%	32%	40%	47%	
CO ₂ / kWh of electricity (gCO ₂ /kWh)	728	938	755	639	350	414	417	-43%
CO₂ emissions and drivers - Kaya decomposition (1990=100) ¹								
CO ₂ emissions index	100	93	82	63	56	78	83	-17%
Population index	100	111	120	121	125	131	135	35%
GDP PPP per population index	100	95	100	67	58	63	65	-35%
Energy intensity index - TPES / GDP PPP	100	100	90	128	141	140	138	38%
Carbon intensity index - CO ₂ / TPES	100	88	76	61	55	67	68	-32%

1. Please see Part I, Chapter 2 for methodological notes. Based on GDP in 2005 USD, using purchasing power parities.

2013 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal	Oil	Natural gas	Other ²	Total	% change 90-13
CO₂ fuel combustion	9.23	4.23	-	-	13.46	-17%
Electricity and heat generation	3.84	0.12	-	-	3.96	-42%
Other energy industry own use	0.07	-	-	-	0.07	-58%
Manufacturing industries and construction	1.97	0.43	-	-	2.39	-50%
Transport	0.07	2.74	-	-	2.81	34%
<i>of which: road</i>	-	2.60	-	-	2.60	95%
Other	3.28	0.95	-	-	4.23	74%
<i>of which: residential</i>	-	0.10	-	-	0.10	-58%
<i>of which: services</i>	1.05	-	-	-	1.05	45%
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.03	-	-	0.03	-87%

2. Other includes industrial waste and non-renewable municipal waste.

Key categories for CO₂ emissions from fuel combustion in 2013

IPCC source category	CO ₂ emissions (MtCO ₂)	% change 90-13	Level assessment (%) ³	Cumulative total (%)
Main activity prod. elec. and heat - coal	3.76	-44.8%	13.8	13.8
Non-specified other sectors - coal	3.28	105.4%	12.0	25.8
Road - oil	2.60	95.1%	9.5	35.3
Manufacturing industries - coal	1.97	-55.8%	7.2	42.5
Non-specified other - oil	0.84	44.4%	3.1	45.6
Manufacturing industries - oil	0.43	44.3%	1.6	47.2
Other transport - oil	0.14	-42.7%	0.5	47.7
Main activity prod. elec. and heat - oil	0.12	x	0.4	48.1
Residential - oil	0.10	-13.2%	0.4	48.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>13.46</i>	<i>-17.1%</i>	<i>49.3</i>	<i>49.3</i>

3. Percent calculated using the total GHG estimate excluding CO₂ emissions/removals from agriculture, forestry and other land use.

PART III:

TOTAL GREENHOUSE GAS EMISSIONS

1. TRENDS IN GHG EMISSIONS

CO₂ emissions from fuel combustion represent the majority of anthropogenic GHG emissions. However, comprehensive analysis of emission trends considers other sources of CO₂ as well as other gases, knowing that data on gases and sources other than CO₂ from fuel combustion are much more uncertain. Country-specific estimates of CO₂ from biomass burning and F-gas emissions are particularly difficult to ascertain.

To complement work regarding the emissions of CO₂ from fuel combustion, the IEA elected to include EDGAR data on other CO₂ sources and on five other greenhouse gases; methane (CH₄), nitrous oxide (N₂O) and the fluorinated gases (or “F-gases”) HFCs, PFCs and SF₆, all gases addressed by the Kyoto Protocol.

Main changes in this edition are: (a) CO₂ emissions from *fuel combustion* were calculated by the IEA using the default emission factors from the 2006 IPCC guidelines instead of the 1996 Guidelines, thereby increasing emissions by about 0.5% to 2%; (b) CO₂ emissions from carbon released in fossil fuel use, labelled in the sectoral energy balance as ‘non-energy use’ or ‘chemical feedstock’, are now reported in the Tables under *Industrial Processes and Others* and taken from the EDGAR4.3.0 dataset (mainly based on the production of specific chemicals, whereas previously estimated by IEA using consumption of specific fuels and default fractions stored by fuel type); (c) CO₂ emissions of fugitive nature (such as leakages, transformation losses, flaring) and of non-combustion emissions from industrial processes are also taken from the EDGAR4.3.0 dataset and reported in the Tables under *Fugitives* and *Industrial Processes*.

The information in Part III (with the exception of CO₂ emissions from fuel combustion) has been provided by Jos G.J. Olivier from the PBL Netherlands Environmental Assessment Agency and Greet Janssens-Maenhout from the Joint Research Centre (JRC) of the European Commission, using the EDGAR database (version 4.3.0 and 4.2FT2010) developed jointly by JRC and PBL. Please see Chapter 2 for further details on data sources and methodology.

Global and regional trends

Dominated by emissions related to fossil fuels, total emissions of all greenhouse gases - weighted by their GWP¹ - increased by more than 80% since 1970 (Figure 1). Significant increases were observed for all gases in the 1970-2010 period: CO₂, including large-scale biomass burning of forests and biomass decay (107%); CH₄ (47%), N₂O (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 CO₂ emissions from fuel combustion. Over the same period, although highly variable over time, CO₂ emissions from biomass burning and post-burn decay – based on satellite observations – are assumed to have decreased by about 10% with CO₂ from decay of drained peatland increasing by 18%. Increases in CO₂ emissions from cement production (120%), CH₄ emissions from fossil fuel production (44%) and from waste (21%), N₂O 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.

1. Global Warming Potential: see Box 1.

The picture varies significantly across regions and gases. In 2010, most **methane** (CH₄) emissions originated in non-Annex I regions such as China (21%), Asia excl. China (21%), and Latin America (12%). Emissions from Annex I countries contributed 26% of total emissions, with the largest contribution coming from the Annex I members of the Former Soviet Union (8%) and North America (8%).

CH₄ emissions from animals and their waste are dominant in Latin America and South Asia, while emissions from rice cultivation are common in South, East and Southeast Asia. Fugitive methane emissions are concentrated at coal production sites in East Asia (mainly China), North America, Europe and Eurasia, and at gas production and distribution systems in the Former Soviet Union countries and North America. Methane from waste stems mainly from landfills in Annex I countries and from wastewater disposal predominantly in non-Annex I countries.

Non-Annex I regions produced three-quarters of global **nitrous oxide** (N₂O) emissions in 2010: Africa (19%), Asia excl. China (18%), China (18%) and Latin America

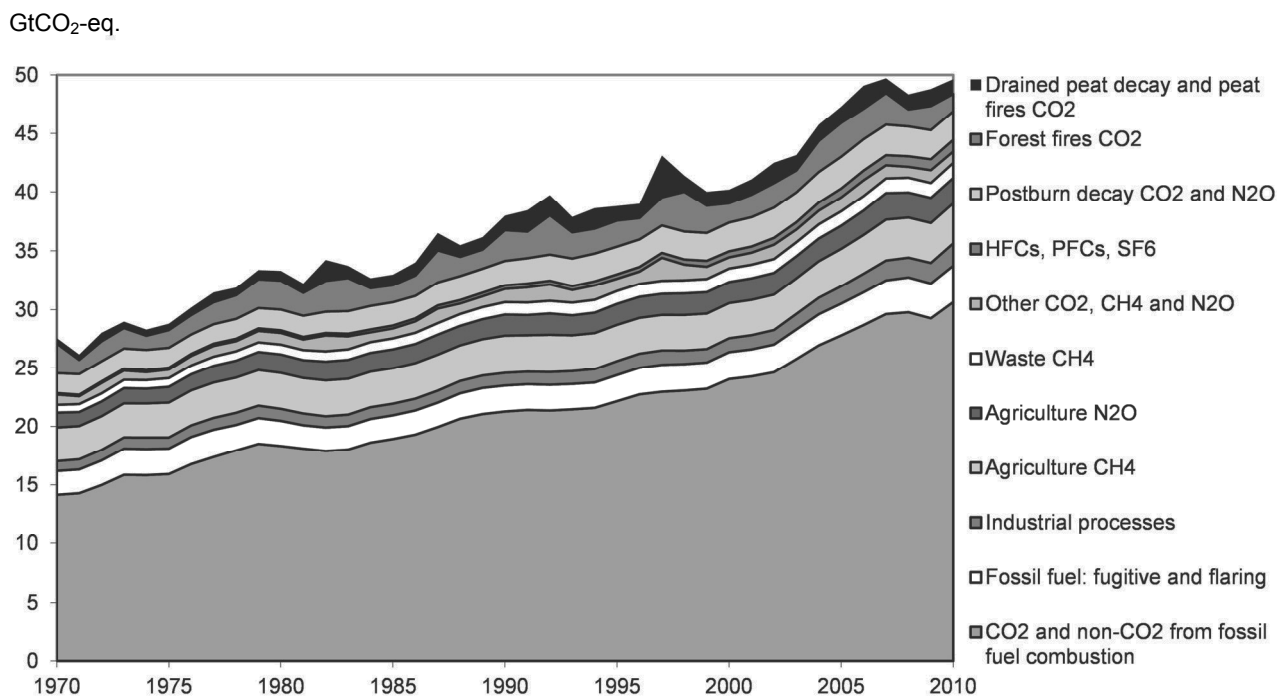
(14%). N₂O emissions from Annex I countries contributed 27% to the global total, with most emissions originating in North America (11%) and OECD Europe (9%).

N₂O emissions from animal waste are dominant in the non-Annex I regions of Latin America, Africa and South Asia; N₂O 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). N₂O emissions from crop production are largest in North America, Latin America, South Asia and East Asia. Industrial processes also emit significant volumes of N₂O.

The shares of Annex I countries in total CH₄ and total N₂O emissions (26% and 27% respectively) are relatively low compared to their share in global CO₂ emissions (38%).

In 2010, most **fluorinated gas** (F-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.

Figure 1. Global GHG emissions 1970-2010

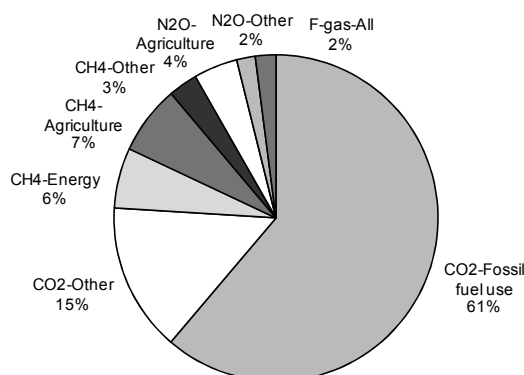


Sources: IEA for CO₂ from fuel combustion and JRC/PBL (2012, 2015) [EDGAR 4.2 FT2010 and 4.3.0] for all other sources.

Trends by gas

In 2010, CO₂ contributed 76% of global GHG emissions, CH₄ about 16%, N₂O about 6% and the combined F-gases about 2% (Figure 2). The largest sources of GHG emissions were the energy sector (67%, mainly CO₂ fossil fuel use), and agriculture (11%, mainly CH₄ and N₂O). Other sources of greenhouse gases were CO₂ from biomass burning (10%, mostly forest and peat fires and post-burn decay in non-Annex I countries), and CO₂ from processes in cement production (3%). 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



CO₂ emission trends

Energy increasingly dominates the trend in global CO₂ emissions, accounting for 82% of the global total in 2010, up from 72% in 1970. This share varies between 90-99% in most Annex I countries, whereas it varies more widely in non-Annex I countries (e.g. lower than 10% in some African, Latin American and Asian countries).

Over the 1990-2010 period, total fossil fuel combustion emissions of CO₂ increased about 45% worldwide (by about 147% in non-Annex I countries while decreasing 4% in Annex I countries). Emissions from electricity and heat production and from road transport dominated global trends. Between 1990 and 2010, CO₂ emissions from electricity and heat production increased on average by 18% for Annex II countries and by 105% in other countries. Over the same period, road transport emissions rose 23% in Annex II countries and 125% in other countries. By 2010, these two sectors together accounted for 59% of global total

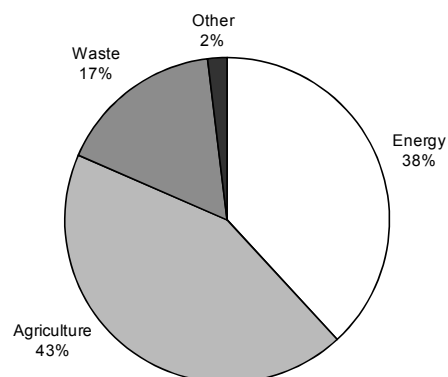
CO₂ emissions from fuel combustion. The introduction at the beginning of this publication provides a more complete discussion of CO₂ emissions in 2013 and the recent trends in energy-related CO₂ emissions.

In 2010, the highly variable emissions from deforestation (i.e. forest fires) and from decay of drained peatland accounted for about 7% of global CO₂ emissions (or about 13% including indirect CO₂ emissions from post-burn decay of remaining aboveground biomass). The share of deforestation in global emissions was about 18% until 2000. Since 2000, however, this share has decreased due to rapidly increasing emissions from fossil fuel combustion. In 2010, CO₂ emissions from processes in cement clinker production – i.e. excluding fossil fuel use – represented almost 4% of total CO₂ emissions worldwide. Between 1990 and 2010, CO₂ from cement production increased by more than 150%.

CH₄ emission trends

As seen in Figure 3, the major global sources of methane (CH₄) emissions in 2010 were (a) agriculture (43%), mainly from enteric fermentation by animals and animal waste, from rice cultivation and from savannah burning; (b) energy production and transmission/distribution (38%), mainly from coal production, and gas production, transmission and distribution; and (c) waste (17%), from landfills and wastewater.

Figure 3. Global CH₄ 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 the growth rates of emissions in Other Europe and Eurasia (from increased gas production and transmission) and in East Asia (where coal production shifted towards sur-

face mining, which releases less methane than underground mining). 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.

In the 1990s, an average decrease of 0.2% per year was observed. The economic decline of Former Soviet Union 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: for gas production in the Middle East and North America, for landfills in Latin America and wastewater in South Asia, for large-scale biomass burning in developing countries and for coal production in China.

Since 2000, emissions started increasing again, with an average growth rate of 1.9% per year, yielding a faster increase 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 in China (+50%) and increased cattle numbers in Brazil (+23%).

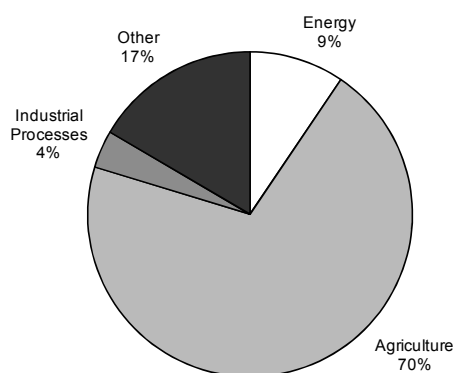
Between 1990 and 2010, country-specific trends of activity data and emission factors lead to an increase of global total methane emissions of about 17%. During this period, emissions in non-Annex I countries increased about 38%, with the largest absolute growth occurring in Asia and Africa. Emissions 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, with reduced coal production and increased methane recovery from coal mines (up to 50%). In North America and OECD Europe, methane from landfills also decreased by about 50% due to enhanced waste separation and methane recovery.

N₂O emission trends

For **nitrous oxide** (N₂O), agriculture contributed 70% of emissions in 2010, mainly from synthetic fertilisers, animal waste dropped on soils (either as animal manure or on pasture during grazing) and agricultural waste burning (Figure 3). Much smaller sources are fuel combustion (9%, mainly from coal, fuelwood and

road transport) and industrial processes (4%), mostly in Annex I countries. Between 1970 and 2010, global emissions of N₂O increased by about 43%. Increased use of synthetic fertilisers and manure from livestock since the 1970s 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.

Figure 3. Global N₂O emissions in 2010



In contrast, N₂O 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_x emissions while simultaneously reducing N₂O emissions. Since 1990 further reductions occurred due to emission abatement in adipic acid production.

During the 1970s, North America and Japan introduced catalytic converters in cars with gasoline engines to reduce emissions of precursors of tropospheric ozone, but with higher N₂O emissions as a side effect. Since the 1990s this technology was also introduced in Europe and Australia. Until about 2000 these catalytic converters contributed to an increase in N₂O emissions in these countries, however, in the late 1990s newer types were introduced with lower specific N₂O emissions.

In the period 1990-2010, global N₂O emissions are estimated to have increased by only about 10%, thanks to a 75% reduction in industrial emissions from adipic acid manufacturing. Over this period, emissions in non-Annex I countries increased by over

35%, mainly in the agricultural sectors of 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, N₂O decreased by almost 29% since 1990, mainly due to emissions abatement in the chemical industry, and to decreased use of nitrogen fertilisers.

Box 1: Global Warming Potential

The contribution of non-CO₂ gases to total emissions can be estimated by expressing the emissions of all the gases in CO₂-equivalent units. For a given gas, emissions expressed in mass are multiplied by its specific weighting factor, the Global Warming Potential (GWP). The GWP-100 is an estimate of the relative contribution of 1 kg of that gas to global radiative forcing, as compared to 1 kg of CO₂, integrated over a fixed period of 100 years.

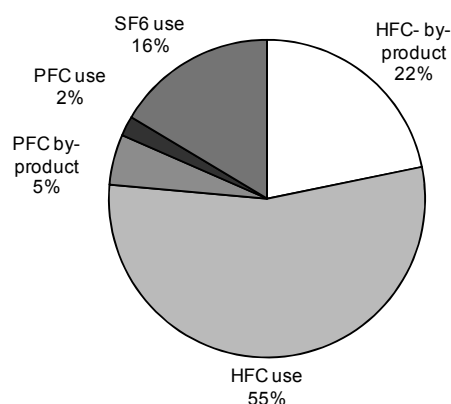
The data in this chapter follow the UN Framework Convention on Climate Change (UNFCCC), which used GWP values from the *Second* Assessment Report (SAR) of the Intergovernmental Panel on Climate Change (IPCC, 1997), for reporting total greenhouse gas emissions: GWP-100 values of 21 for CH₄, 310 for N₂O and 23 900 for SF₆. For the most common HFCs, GWP-100 vary between 140 and 3 000 (1,300 for HFC-134a, 11 700 for HFC-23). The GWP-100 for PFCs vary between 6 500 (CF₄) to 9,200 (C₂F₆). The GHG data in this chapter are all expressed in CO₂-equivalents using these GWP-100 values.

However, the Parties to the Climate Convention have decided to use the updated GWP-100 values from IPCC's *Fourth* Assessment Report (IPCC, 2006) for their emissions inventory reporting from 2015 onwards. These GWP-100 values give a 19% higher weighting to CH₄ (25), and a 4% lower weighting to N₂O (298). In addition, for the F-gases, most GWP-100 values have increased, e.g. by 10% for HFC-134a and by 26% for HFC-23. In particular the higher GWP-100 value for CH₄ impacts the total GHG emissions trend and the share of the sources. A GWP-100 value of 25 for CH₄ increases the share of total CH₄ in 2010 by 2.5% points (from 15.8% to 18.3%) while the share of CO₂ from fossil fuels decreases by 1.6% points (from 61.2% to 59.6%).

HFC, PFC and SF₆ emission trends

For the **fluorinated gases** ("F-gases") (Figure 4), emissions are split between "use" and "by-products" because of the different ways in which 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 of PFCs another 5%. SF₆ use represented 16%. Most F-gas emissions are emitted by Annex I countries.

Figure 4. 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 nine times higher than in 1990. During the same period, PFCs emissions decreased by about 35% while SF₆ 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 SF₆ emissions observed in the period 1996-2004 were mainly due to reductions in emissions from the manufacture and use of switchgear for the electricity sector. The large reduction in PFC emissions in recent 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.

2. SOURCES AND METHODS

The information in Part III (with the exception of CO₂ emissions from fossil fuel combustion) has been provided by Jos G.J. Olivier and Greet Janssens-Maenhout based on the EDGAR 4.2FT2010 dataset except most other sources of CO₂ for which data from EDGAR version 4.3.0 was used. JRC and PBL are responsible for these datasets.

General note on EDGAR

Version 4 of the *Emission Database for Global Atmospheric Research (EDGAR4)* has been developed jointly by the European Commission's Joint Research Centre (JRC) and the PBL Netherlands Environmental Assessment Agency and is hosted at edgar.jrc.ec.europa.eu. EDGAR4 is providing global anthropogenic emissions of greenhouse gases CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ and of precursor gases and air pollutants CO, NO_x, NMVOC, SO₂ and the aerosols PM₁₀, PM_{2.5}, BC, OC, per source category, both at country level as well as on a 0.1°x0.1° grid online to its large community of users. EDGAR data are used for policy applications and scientific studies such as atmospheric modelling and were used for the *Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC, 2014) (Working Group III)*.

Activity data were mostly taken from international statistics (checked for completeness and consistency and where required gap filled) and greenhouse gas emission factors were selected mostly from the *2006 IPCC Guidelines for National Greenhouse Gas Inventories (IPCC, 2006)* to ensure a consistent approach across countries and complete and consistent time series. 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 (see Box 2 for more details). However, this dataset provides a sound basis for comparability with national emissions reports and other studies since the methods used are either IPCC methodologies or comparable to them (see below), global totals are obtained in a transparent way and comply with budgets used in atmospheric studies, and the data were based on international information sources. The EDGAR 4.2 Fast Track 2010 (FT2010) dataset is built on the previous dataset 4.2 (with 1970-2008 time-series by adding emissions for 2009 and 2010. For the GHG update, reports of Annex I countries to the *UN Convention on Climate Change (UNFCCC)* and the recent and significant impact of *Clean Development Mechanism* projects in developing countries to reduce CH₄, N₂O and HFC-23 emissions were taken into account. This applies to sources such as coal mines and landfills (CH₄ recovery), nitric acid and adipic acid production (N₂O) and the production of HCFC-22 (HFC-23).

The EDGAR4.3.0 dataset covers 1970-2012 time-series for all sector-specific and country-specific totals of greenhouse gases. Thereto new activity data statistics (with updated and revised time series) were uploaded and emission factors revised where appropriate. 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. Note that estimates for other more recent years than 2010 are made publicly available through this website. Most recent trends for CO₂ emissions through 2014 are discussed in Olivier et al. (2015).

Box 2: Uncertainty in greenhouse gas emissions.

When considering comparative shares and trends in greenhouse-gas emissions, data on gases and sources other than CO₂ from fuel combustion are much more uncertain. Country-specific estimates of CO₂ from biomass burning and F-gas emissions are particularly difficult to ascertain. The uncertainty in these emissions 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). For a detailed evaluation of emission uncertainties using international statistics and IPCC and other emission factors we refer to the 2006 IPCC Guidelines (2006), and for comparisons between countries and datasets to Olivier *et al.* (2005, 2010, 2015).

For global total anthropogenic CO₂ emissions the calculated uncertainty in the total ranges from about -10% to +10%, including large-scale biomass burning. For global emissions of CH₄, N₂O and the F-gases uncertainty estimates of 25%, 30% and 20%, respectively, were assumed based on default uncertainty estimates for the 2006 IPCC methodologies (IPCC, 2006), which correspond with emissions estimates inferred from atmospheric concentration measurements (UNEP, 2012).

When considering emission shares and trends of countries one should note that:

CO₂: Fossil fuel combustion, which is often the largest source of CO₂ in a country, is estimated to have an uncertainty of about 5% (95% confidence interval) for OECD countries. However, for many non-OECD countries the uncertainty is estimated at about 10%. This is often regarded as the most accurate source of GHG emissions.

CH₄: Uncertainties are particularly large for methane emissions from fugitive sources (coal mining and from oil and gas production and transmission) and from landfills and wastewater.

N₂O: Uncertainties of most N₂O sources are very large, e.g. the uncertainty for agricultural sources may sometimes exceed 100%.

F-gases: 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.

Source definitions

The source definitions for *Fuel combustion* refer to the categories and codes used in the 2006 IPCC guidelines, Chapter 8 of Vol. 1: *General guidance and reporting* (IPCC, 2006). For other categories and codes the definitions refer to the Revised 1996 IPCC guidelines, Chapter 1 of Vol. 1: *Reporting instructions* (IPCC, 1996).

For carbon dioxide:

Fuel combustion refers to fossil fuel combustion only. Emissions have been estimated by the IEA using the methodology as described in Part I, Chapter 3: *IEA estimates: Changes under the 2006 IPCC Guidelines*. (2006 IPCC Source/Sink Category 1A)

Fugitive refers mainly to flaring of associated gas in oil and gas production (in some cases including indirect CO₂ from methane venting) (IPCC Source/Sink Category 1B).

Industrial Processes refer 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. Emissions exclude *Fuel combustion* emissions. (IPCC Source/Sink Category 2).

Other refers to direct emissions from forest fires and peat fires, emissions from decay (decomposition) of aboveground biomass that remains after logging & deforestation and emissions from the decay of drained peat soils (IPCC Source/Sink Category 5). CO₂ from solvent use (IPCC Source/Sink Category 3), from application of urea and agricultural lime (IPCC Source/Sink Category 4) and from fossil fuel fires (coal fires & 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 enteric fermentation, rice production, manure management, agricultural waste burning (non-energy, on-site) and savannah burning (IPCC Source/Sink Category 4).

Waste comprises landfills, wastewater treatment, wastewater disposal and waste incineration (non-energy) (IPCC Source/Sink Category 6).

Other includes industrial process emissions e.g. methanol production, and 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 bio-fuels (IPCC Source/Sink Categories 1A and 1B).

Agriculture comprises fertiliser use (synthetic and manure), animal waste (manure) management, agricultural waste burning (non-energy, on-site) and savannah burning (IPCC Source/Sink Category 4).

Industrial Processes comprise non-combustion emissions from manufacturing of adipic acid, nitric acid, caprolactam and glyoxal (IPCC Source/Sink Category 2).

Other includes N₂O usage, forest and peat fires (including post-burn decay emissions from remaining biomass) and other vegetation fires, human sewage discharge and waste incineration (non-energy) and indirect N₂O from atmospheric deposition of NO_x and NH₃ 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 CF₄ and C₂F₆ 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). *SF₆ emissions* stem from various sources of SF₆ use (mainly manufacturing of Gas Insulated Switchgear (GIS) used in the electricity distribution networks) (IPCC Source/Sink Categories 2C and 2F) and from SF₆ production (Category 2E).

Data sources and methodology for EDGAR 4.2FT2010 and 4.3.0

The **EDGAR 4.2FT2010** has been available online since October 2013². For greenhouse gases, the default emission factors from the *2006 IPCC Guidelines* (IPCC, 2006) were used, except for CH₄ and N₂O from road transport where technology-specific factors were used from the EMEP-EEA emission inventory guidebook (EEA, 2009).

To estimate the trend for the main sources of each greenhouse gas in 2009 and 2010, an emissions trend for each year was used as a proxy. These were taken either from the Common Reporting Format (CRF) files of the National Inventory Reports (NIR) reported to the UNFCCC or from statistics for an activity that was assumed to be a good proxy for that source, such as sectoral CO₂ emissions (IEA, 2012), fossil-fuel production (IEA, 2012), gas flaring of the U.S. National Oceanic and Atmospheric Administration (NOAA), production of steel, aluminium, cement, lime and ammonia of U.S. Geological Survey (USGS) or the World Steel Association (WSA), animal numbers, crop production and nitrogen fertiliser consumption of the Food and Agriculture Organisation (FAO), large-scale biomass burning of the GFED 3 dataset. The use of the NIR trends allowed to account for implemented control measures.

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.

The **EDGAR 4.3.0** dataset covers the entire period 1970-2012. CO₂ emissions data from this dataset were used for *Fugitives* and *Industrial Processes*. The methods, data sources and emission factors used for this new dataset are the same as for version 4.2, except that the activity data have been updated, and sometimes revised, through 2012.

Methods and data applied for all years (except 2009 and 2010 in FT2010) are summarised below. More details and full references on the EDGAR 4.2 FT2010 dataset can be found in Part III of last year's report³.

Energy / Fugitives / Biofuel

The data sources for **fugitive CO₂ emissions** and **CH₄ and N₂O 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. This dataset comprises 94 sectors and 64 fuel types. For the countries of the Former Soviet Union, Former Yugoslavia and former Czechoslovakia, 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, Czechoslovakia and Yugoslavia. For another 62 countries, the aggregated IEA data for the regions

2. See <http://edgar.jrc.ec.europa.eu/overview.php?v=42FT2010>.

3. For Part III of that report see: <http://www.pbl.nl/en/publications/co2-emissions-from-fuel-combustion-2014-edition>.

“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).

Please note that the figures of CO₂ from fuel combustion provided by the IEA in this report differ somewhat from the EDGAR 4.2FT2010 and EDGAR 4.3.0 dataset, for the following reasons:

- IEA energy statistics used for 1970-2008/2012 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),
- For EDGAR 4.3 (covering 1970-2012) the IEA release in 2014 was used (IEA, 2014).

To estimate CH₄ 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 and supplemental data from CIA. 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 reported by NOAA. For other years before 1994 and for other countries emissions or emissions trends were supplemented by CO₂ trends from CDIAC, EIA and UNFCCC.

Biofuel data were also taken from IEA. 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. Also, vegetal waste and dung used as fuel are based on other data sources. Charcoal production data were taken from IEA and supplemented or extrapolated using data from UN and FAO and include 49 more countries not included in the IEA dataset.

Methane emission factors for coal mining are based on average depths of coal production and include post mining emissions. Methane recovery from coal mining was included for twelve countries.

Emission factors for oil and gas production, transport and distribution from the *2006 IPCC guidelines* were

supplemented with data from UNFCCC. The CH₄ emission factor for venting and flaring has been derived from country-specific data reported to UNFCCC with the average value used as global default, applied to all other countries. The CO₂ emission factor excludes the indirect emissions through gas venting.

For N₂O 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).

Industrial processes

Production data for the CO₂ sources cement, iron and steel, non-ferrous metals and various chemicals were based on UN Industrial Commodity Statistics, often supplemented for recent years by data from the US Geological Survey (USGS). The same method applied to paper, wine, beer and bread production. Data for other CO₂ sources such as production of lime, soda ash, ammonia, ferroalloys and non-ferrous metals were from USGS, supplemented by data reported to the UNFCCC. Data from the International Fertiliser Industry Association (IFA) was used for urea production (where it is assumed that the fossil carbon in CO₂ from ammonia production is stored) and FAO 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 the World Steel Association (WSA).

For the N₂O sources nitric acid, adipic acid and caprolactam, production data are based on UNFCCC and on smoothed and averaged data from SRI Consulting. For other industrial production for which no international statistics were available, such as silicon carbide and glyoxal, UNFCCC 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.

Note that emissions of CO₂ from cement production are based on the Tier 1 emission factor for clinker production, whereas cement clinker production is calculated from cement production reported by the USGS and the implied clinker to cement ratio based on either clinker production data from UNFCCC reporting (Annex I countries) and the China Cement Almanac (for China) or ratios from the GNR database

from the Cement Sustainability Initiative (CSI) of the World Business Council for Sustainable Development (WBCSD). For adipic acid, abatement is only assumed from 1990 onwards if indicated in UNFCCC combined with activity data from SRI Consulting. 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.

Global annual total production of HCFC-22 was taken from AFEAS and others and included captive production, but was modified using UNFCCC and other data sources. Primary aluminium production statistics per country from UN were combined with smelter types characterised by technology according to Aluminium Verlag and others. 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 and UNEP Risø Centre for other countries. For aluminium production the CF₄ emission factors per technology were based on large-survey factors for 1990 to 2002 reported by the International Aluminium Institute (IAI), but with modifications for Söderberg technologies to comply with atmospheric concentration trends, and for C₂F₆ based on the ratio to CF₄ reported in the *2006 IPCC Guidelines* for default Tier 2 emission factors. The emission factors for the F-gases as by-product emissions were based *2006 IPCC guidelines*, but modified for HFC-23 to match global emissions to observations of atmospheric concentrations.

Global consumption of HFC-125, 134a (in three applications) and 143a was taken from AFEAS for HFC-152a, 227ea, 245fa, 32 and 365mfc from) and for HFC-23, 236fa and 43-10-mee from other sources. Global HFC consumption was distributed to countries according to their share in global CFC-12 or CFC-11 consumption and calibrated to reported regional totals). Global emission factors for HFC use were mostly derived from the emissions also reported by these data sources.

Global consumption data of PFCs (and SF₆) for semiconductor manufacture for Annex I countries in 1990 to 2005 were mainly based on UNFCCC and for other non-Annex I countries mainly based on their global

share in semiconductor manufacture. PFC consumption for other PFC uses was based on data for PFC use in fire extinguishing and air-conditioning.

Global consumption of SF₆ per application was taken from Knopman and Smythe (2007). For SF₆ 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 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 and the International Magnesium Association (IMA) and others for the number of diecasting companies per country.

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).

Solvent and other product use

For N₂O from the use of anaesthesia and from aerosol spray cans, an amount per capita in 2000 was used for EIT and Annex II countries based on the average values in reported to the UNFCCC.

Agriculture

In general, the IPCC (2006) methodology and default emission factors for CO₂, CH₄ and N₂O from the *2006 IPCC Guidelines* were used, except for the instances specified below. Please note that N₂O emissions from agriculture as reported in EDGAR 4.2 FT2010 are substantially lower than those previously 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 N₂O 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 N₂O 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. 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 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. Livestock fractions of the countries were calculated for 19 annual mean temperature zones for cattle, swine and buffalo and three climate zones for other animals (cold, temperate, warm). N₂O emissions from manure management were based on distribution of manure management systems from Annex I countries reporting to the UNFCCC, 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 which was split over different ecology types (rainfed, irrigated, deep water and upland) using data from the International Rice Research Institute (IRRI). 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. Methane emission factors were taken from IIASA (2007).

The same data as described above for manure management were used to estimate N₂O 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. N₂O emissions from fertilizer use and CO₂ from urea fertilization were estimated based on IFA and FAO statistics.

CO₂ emissions from liming of soils were estimated from Annex I country reports to the UNFCCC and on the use of ammonium fertilizers for other countries from FAO, 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 and the RIVM land use map. However, where available, areas reported by Annex I countries to the UNFCCC were used. Separate N₂O 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 National Inventory reports of 2008 for fractions burned in the field by Annex I countries.

Indirect N₂O 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 mainly on FAO. The fraction of nitrogen lost through leaching and runoff was based on a study of Van Drecht *et al.* (2003).

For savannah burning, estimates for areas burned are based on satellite measurements (see next section).

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 of the *Global Fire Emissions Database* (GFED version 2 of Van der Werf *et al.*, 2010) 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 (Schultz *et al.*, 2008). GFED data for agricultural areas were attributed to savannah and grassland fires. 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. For

2006-2008 only the trend in the activity data from the GFED v3 model was used, since the new dataset is not consistent with the previous version. The non-CO₂ emission factors for large scale biomass burning were not taken from IPCC (2006), but updated values were used from Andreae (2011), including the carbon content of 0.47 kg C/kg dry matter. For greenhouse gas accounting purposes, net CO₂ emissions from savannah and grassland fires have been assumed to be zero (organic carbon in a short cycle). Note that 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.

CO₂ 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 CO₂ emissions have been estimated from the same activity data as direct burning emissions by assuming that remaining aboveground biomass decays in the 15 years after the year the fire or deforestation occurred and a carbon content of 0.47 kg C/kg dry matter tropical forest from IPCC (2006).

For CO₂ emissions from drained peatlands the comprehensive dataset of Joosten (2009) was used, comprising of activity data and CO₂ emission factors per hectare of drained peatland.

In addition, enhanced N₂O emissions that occur after large-scale tropical biomass burning 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 estimated: (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. 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 reported to the UNFCCC. 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. 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 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, note that 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.

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. 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. 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 and for 23 non-Annex I countries from CDM projects reported by the UNEP Risø Centre.

For domestic wastewater, total organics in wastewater (BOD₅) was estimated using regional default or country-specific default values for BOD₅ generation per capita per day provided by the *2006 IPCC Guidelines*. For industrial wastewater, total organically degradable material in wastewater from industry was calculated per type of industry from wastewater generation per ton of product and COD (chemical oxygen demand) in values of wastewater, using defaults from the *2006 IPCC Guidelines*. Production statistics for industry

types that produce most organics in wastewater are available from UN. To estimate methane emissions from domestic wastewater, additional information is required on the wastewater 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 *2006 IPCC Guidelines*. 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 estimate N₂O 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.

Other waste sources are incineration, with activity data from UNFCCC and IPCC (2006) and extrapolations assuming a fixed ratio to landfilling, and composting (based on UNFCCC data and two other data sources).

Other sources

Indirect N₂O emissions from atmospheric deposition of nitrogen of NO_x and NH₃ emissions from non-agricultural sources, mainly fossil fuel combustion and large scale biomass burning, were estimated using nitrogen in NO_x and NH₃ emissions from these sources as activity data, based on EDGAR 4.2 FT2010 data for these gases. The same emission factor from the *2006 IPCC Guidelines* was used for indirect N₂O from atmospheric deposition of nitrogen from NH₃ and NO_x 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 estimates for more recent years we refer to the EDGAR version 4 website at edgar.jrc.ec.europa.eu. Here also the new dataset 4.3.0 covering 1970 to 2012 will be available and for CO₂ in Olivier *et al.* (2015).

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TOTAL GHG EMISSIONS

1990 Greenhouse-gas emissions

 million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
World ¹	20 623.0	452.1	1 246.4	5 987.4	28 308.9	74.4%	2 074.6	3 185.8	1 068.8	270.2	6 599.4	31.4%
<i>Annex I Parties</i>	13 724.5	203.5	727.9	850.5	15 506.4	89.8%	1 043.2	842.9	555.6	30.5	2 472.3	42.2%
<i>Annex II Parties</i>	9 660.0	87.1	457.9	379.1	10 584.0	92.1%	442.3	542.1	444.2	14.6	1 443.3	30.6%
<i>North America</i>	5 221.5	31.4	164.4	136.0	5 553.3	94.6%	282.0	191.6	229.3	8.2	711.2	39.7%
<i>Europe</i>	3 107.9	45.8	192.4	183.3	3 529.4	89.4%	127.9	210.8	182.5	2.2	523.4	24.4%
<i>Asia Oceania</i>	1 330.6	9.9	101.1	59.7	1 501.3	89.3%	32.4	139.7	32.4	4.2	208.7	15.5%
<i>Annex I EIT</i>	3 931.1	112.2	252.9	470.1	4 766.2	84.8%	593.0	276.0	99.7	15.9	984.5	60.2%
<i>Non-Annex I Parties</i>	6 268.3	248.6	518.5	5 136.8	12 172.2	53.5%	1 031.4	2 342.9	513.2	239.7	4 127.2	25.0%
<i>Annex I Kyoto Parties</i>	8 269.8	167.6	542.1	669.1	9 648.7	87.4%	752.1	612.3	311.3	22.2	1 697.9	44.3%
Int. marine bunkers	371.5	-	-	-	371.5	100.0%	-	-	-	-	-	0.0%
Int. aviation bunkers	258.8	-	-	-	258.8	100.0%	-	-	-	-	-	0.0%
Non-OECD Total	8 987.0	331.8	687.2	5 520.6	15 526.7	60.0%	1 496.8	2 501.1	568.7	253.4	4 820.0	31.1%
OECD Total	11 005.8	120.3	559.2	466.7	12 152.0	91.6%	577.8	684.7	500.1	16.8	1 779.4	32.5%
Canada	419.0	4.3	22.9	25.7	472.0	89.7%	32.2	18.9	22.1	2.9	76.1	42.4%
Chile	29.4	0.9	2.4	1.0	33.7	90.0%	3.0	5.8	3.0	0.2	12.0	25.1%
Mexico	259.5	2.6	24.2	39.1	325.4	80.6%	29.0	52.5	15.3	1.5	98.3	29.5%
United States	4 802.5	27.0	141.5	110.3	5 081.3	95.0%	249.8	172.7	207.2	5.4	635.1	39.3%
OECD Americas	5 510.4	34.8	191.0	176.1	5 912.3	93.8%	314.1	249.9	247.5	10.0	821.5	38.2%
Australia	259.6	5.9	9.9	25.9	301.2	88.1%	24.6	75.6	11.3	3.6	115.0	21.4%
Israel	32.8	-	2.2	0.3	35.3	92.9%	0.1	0.7	1.1	0.0	1.9	6.3%
Japan	1 049.3	4.1	89.9	28.7	1 171.9	89.9%	6.9	40.5	19.0	0.5	66.9	10.3%
Korea	231.7	13.8	21.6	0.4	267.6	91.8%	8.8	15.0	7.5	0.1	31.3	28.0%
New Zealand	21.7	0.0	1.4	5.1	28.2	77.1%	0.9	23.6	2.1	0.0	26.7	3.4%
OECD Asia Oceania	1 595.1	23.8	125.0	60.4	1 804.3	89.7%	41.2	155.4	41.0	4.3	241.9	17.0%
Austria	56.2	0.5	4.6	0.6	61.8	91.6%	2.0	5.0	3.0	0.1	10.0	20.3%
Belgium	106.2	1.3	7.0	0.8	115.3	93.2%	2.7	6.6	3.1	0.0	12.4	21.6%
Czech Republic	150.3	3.3	6.9	2.0	162.6	94.5%	6.4	8.9	2.7	0.2	18.2	35.3%
Denmark	51.0	0.2	1.0	3.7	55.9	91.6%	0.6	5.5	1.9	-	8.0	7.6%
Estonia	36.0	0.7	0.9	14.1	51.6	71.1%	1.2	1.7	0.5	-	3.4	35.0%
Finland	53.5	0.1	2.1	53.7	109.4	49.0%	0.8	2.6	6.7	0.0	10.1	7.6%
France	345.5	2.9	27.8	8.0	384.3	90.7%	20.3	40.7	14.6	0.1	75.7	26.8%
Germany	940.3	20.8	41.9	40.6	1 043.5	92.1%	36.8	41.8	36.6	0.2	115.4	31.8%
Greece	69.9	0.1	7.6	0.8	78.5	89.3%	1.6	3.7	2.3	0.1	7.7	20.6%
Hungary	65.7	0.4	4.2	1.1	71.4	92.6%	2.1	5.3	2.5	0.0	10.1	21.1%
Iceland	1.9	-	0.4	17.6	20.0	9.5%	0.0	0.2	0.1	0.0	0.3	2.0%
Ireland	30.1	0.1	1.6	10.9	42.7	70.8%	1.2	10.8	1.9	0.0	13.9	8.7%
Italy	389.3	3.8	28.2	3.1	424.4	92.6%	8.6	21.0	17.3	0.3	47.1	18.2%
Luxembourg	10.7	-	0.9	0.0	11.7	92.1%	0.1	0.8	0.1	0.0	1.0	10.1%
Netherlands	144.9	0.7	12.7	9.5	167.7	86.8%	6.3	11.6	12.2	0.1	30.1	20.8%
Norway	27.5	2.3	6.1	1.2	37.1	80.3%	6.1	2.2	5.8	0.1	14.1	43.0%
Poland	344.8	6.8	16.1	27.5	395.2	89.0%	74.8	22.8	9.9	0.1	107.6	69.5%
Portugal	37.9	0.2	4.6	0.3	43.0	88.5%	0.7	4.3	4.7	0.1	9.9	7.2%
Slovak Republic	54.8	0.4	4.8	0.4	60.5	91.3%	1.1	4.0	1.3	0.0	6.5	17.4%
Slovenia	13.5	0.0	1.4	0.4	15.3	88.4%	1.0	1.4	0.6	0.0	3.0	32.8%
Spain	202.6	2.4	19.6	2.0	226.6	90.5%	5.4	17.7	8.9	0.8	32.8	16.4%
Sweden	52.1	0.9	3.4	15.1	71.4	74.1%	1.1	3.4	7.0	0.0	11.5	9.6%
Switzerland	40.7	0.0	3.4	2.3	46.4	87.7%	1.1	3.7	1.0	0.1	5.9	18.8%
Turkey	127.1	4.2	16.6	1.4	149.3	88.0%	7.9	24.5	11.4	0.1	43.9	18.0%
United Kingdom	547.7	9.5	19.4	13.2	589.8	94.5%	32.7	29.1	55.4	0.1	117.3	27.8%
OECD Europe	3 900.2	61.7	243.3	230.2	4 435.4	89.3%	222.5	279.3	211.6	2.6	716.0	31.1%
<i>European Union - 28</i>	4 023.8	56.6	244.8	221.3	4 546.5	89.7%	231.6	280.0	208.5	2.6	722.8	32.0%
G7	8 493.6	72.4	371.5	229.7	9 167.2	93.4%	387.2	364.8	372.2	9.5	1 133.7	34.2%
G8	10 656.8	136.6	509.7	584.7	11 887.9	90.8%	809.7	497.3	426.5	24.6	1 758.2	46.1%
G20	16 899.0	262.5	1 022.7	1 869.6	20 053.9	85.6%	1 558.6	2 093.2	856.9	94.2	4 602.9	33.9%

1. Total World includes Non-OECD total, OECD total as well as international bunkers.

 Sources: IEA, CO₂ emissions from fuel combustion. EDGAR 4.3.0 and 4.2 FT2010 databases for other emissions. In general, estimates for emissions other than CO₂ from fuel combustion are subject to significantly larger uncertainties.

1990 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

Energy	N ₂ O					Share of energy	HFCs	PFCs	SF ₆	Total			
	Industrial processes	Agriculture	Other	Total	Industrial processes		Total	Share of energy	GHG / GDP PPP ¹				
235.4	239.9	1 805.6	526.9	2 807.7	8.4%	75.8	115.6	114.1	38 021.7	61.5%	0.95	World	
147.4	213.7	623.2	162.1	1 146.4	12.9%	61.5	86.7	83.9	19 357.3	78.1%	0.74	Annex I Parties	
115.3	166.3	408.3	108.9	798.8	14.4%	56.5	65.3	76.9	13 024.7	79.1%	0.59	Annex II Parties	
76.0	56.4	170.1	52.0	354.5	21.4%	29.6	29.4	46.2	6 724.2	83.4%	0.75	North America	
30.0	98.7	168.2	37.7	334.6	9.0%	17.1	26.4	15.8	4 446.7	74.5%	0.48	Europe	
9.3	11.2	70.0	19.3	109.7	8.4%	9.8	9.5	14.9	1 853.8	74.6%	0.49	Asia Oceania	
28.2	47.2	192.4	50.5	318.3	8.8%	5.0	20.9	5.0	6 100.1	76.5%	1.71	Annex I EIT	
88.0	26.2	1 182.3	364.8	1 661.3	5.3%	14.3	28.9	30.2	18 034.1	42.3%	1.30	Non-Annex I Parties	
66.5	155.0	418.1	106.6	746.3	8.9%	31.9	56.8	35.7	12 217.2	75.8%	0.74	Annex I Kyoto Parties	
-	-	-	-	-	0.0%	-	-	-	371.5	100.0%	..	Int. marine bunkers	
-	-	-	-	-	0.0%	-	-	-	258.8	100.0%	..	Int. aviation bunkers	
105.6	62.2	1 299.4	400.4	1 867.6	5.7%	15.9	46.5	29.8	22 306.4	49.0%	1.47	Non-OECD Total	
129.8	177.8	506.1	126.5	940.1	13.8%	60.0	69.1	84.4	15 085.0	78.4%	0.61	OECD Total	
7.0	11.8	17.0	6.8	42.6	16.4%	0.4	8.6	4.0	603.7	76.6%	0.78	Canada	
0.3	0.0	4.1	0.7	5.1	5.7%	-	0.0	0.0	50.8	66.2%	0.58	Chile	
2.2	1.0	31.0	5.8	40.1	5.6%	1.6	0.5	0.9	466.8	62.8%	0.54	Mexico	
69.0	44.6	153.1	45.1	311.9	22.1%	29.2	20.8	42.2	6 120.5	84.1%	0.74	United States	
78.5	57.5	205.2	58.5	399.7	19.7%	31.2	30.0	47.0	7 241.7	82.0%	0.73	OECD Americas	
2.7	0.8	50.4	9.2	63.1	4.2%	0.6	3.9	0.4	484.2	60.4%	1.13	Australia	
0.1	0.3	0.7	0.4	1.5	9.1%	0.0	0.0	1.0	39.8	83.2%	0.46	Israel	
6.3	10.3	9.7	9.8	36.2	17.5%	9.2	4.7	14.4	1 303.3	81.8%	0.40	Japan	
1.6	1.1	4.9	2.2	9.8	16.1%	1.9	0.8	3.5	314.9	81.3%	0.67	Korea	
0.3	-	9.9	0.3	10.5	2.4%	0.0	0.9	0.0	66.3	34.5%	1.02	New Zealand	
11.0	12.5	75.7	21.9	121.1	9.1%	11.7	10.3	19.3	2 208.5	75.7%	0.51	OECD Asia Oceania	
0.6	0.8	2.9	0.7	5.1	12.6%	0.0	1.0	0.4	78.4	75.7%	0.39	Austria	
0.7	3.9	3.3	1.1	9.0	8.1%	0.0	0.0	0.1	136.9	81.0%	0.54	Belgium	
1.9	1.3	5.2	1.3	9.7	19.8%	0.0	0.0	0.0	190.5	85.0%	1.07	Czech Republic	
0.5	1.1	5.8	0.6	8.0	6.0%	0.0	0.0	0.1	72.0	72.7%	0.54	Denmark	
0.5	-	1.2	0.2	1.9	24.9%	-	0.0	0.0	56.9	67.4%	3.48	Estonia	
1.4	1.5	3.8	0.7	7.4	19.0%	0.0	0.0	0.1	127.0	43.9%	1.07	Finland	
3.6	26.7	35.5	4.8	70.7	5.1%	4.7	1.6	3.2	540.2	68.9%	0.38	France	
11.1	20.5	33.6	8.0	73.2	15.2%	2.6	4.4	5.6	1 244.7	81.1%	0.59	Germany	
0.8	1.1	4.5	1.1	7.5	11.1%	0.5	1.7	0.1	96.0	75.5%	0.53	Greece	
0.7	3.2	5.4	0.8	10.1	6.7%	0.0	0.7	0.0	92.3	74.7%	0.67	Hungary	
0.0	0.0	0.3	0.0	0.4	6.1%	-	1.0	0.0	21.7	8.9%	3.23	Iceland	
0.2	0.9	6.6	0.3	8.2	3.0%	0.0	0.0	0.0	64.8	48.9%	0.97	Ireland	
2.4	7.2	15.6	5.2	30.3	7.8%	2.0	0.9	1.2	505.9	79.9%	0.36	Italy	
0.0	-	0.3	0.1	0.4	12.4%	0.0	0.0	-	13.0	83.5%	0.79	Luxembourg	
0.7	5.8	7.2	1.3	15.0	4.7%	2.8	3.1	0.3	219.0	69.6%	0.53	Netherlands	
0.4	2.1	1.9	0.5	4.9	8.1%	-	6.3	2.3	64.7	56.0%	0.46	Norway	
2.1	3.4	19.0	2.9	27.3	7.5%	0.0	0.4	0.1	530.7	80.7%	1.69	Poland	
0.5	0.5	2.9	0.9	4.8	11.2%	0.0	0.0	0.1	57.7	68.1%	0.35	Portugal	
1.1	1.0	2.9	0.4	5.5	20.2%	-	0.1	-	72.5	79.2%	1.13	Slovak Republic	
0.1	-	1.0	0.2	1.3	9.5%	-	0.8	0.0	20.4	71.7%	0.61	Slovenia	
1.9	3.0	15.5	4.5	24.9	7.6%	2.0	3.8	0.4	290.4	73.1%	0.37	Spain	
1.0	0.8	4.0	0.9	6.7	15.1%	0.0	0.7	0.2	90.5	60.8%	0.41	Sweden	
0.4	0.2	1.6	0.6	2.8	15.1%	0.0	0.3	0.6	56.1	75.4%	0.23	Switzerland	
3.9	0.2	22.3	2.6	29.0	13.6%	-	0.5	2.0	224.7	63.7%	0.52	Turkey	
3.5	22.6	22.8	6.4	55.3	6.3%	2.6	1.6	1.1	767.6	77.3%	0.54	United Kingdom	
40.3	107.8	225.2	46.1	419.4	9.6%	17.1	28.8	18.0	5 634.8	75.0%	0.54	OECD Europe	
37.9	113.3	227.0	45.6	423.8	8.9%	17.1	23.5	13.1	5 746.9	75.7%	0.57	European Union - 28	
103.0	143.7	287.3	86.1	620.0	16.6%	50.6	42.5	71.7	11 085.8	81.7%	0.59	G7	
117.9	158.9	372.2	121.9	771.0	15.3%	55.6	58.4	76.6	14 607.7	80.2%	0.71	G8	
196.8	214.9	1 181.2	303.0	1 895.9	10.4%	74.8	94.0	99.4	26 821.0	70.5%	0.82	G20	

1. GHG / GDP PPP ratio is expressed in kg of CO₂-equivalent per 2005 USD.

1990 Greenhouse-gas emissions

 million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Non-OECD Total	8 987.0	331.8	687.2	5 520.6	15 526.7	60.0%	1 496.8	2 501.1	568.7	253.4	4 820.0	31.1%
Albania	5.7	0.2	0.5	0.7	7.0	83.1%	0.8	1.6	0.2	0.0	2.5	31.0%
Armenia	19.8	-	0.7	0.4	20.9	95.1%	1.3	1.3	0.3	0.0	2.9	45.4%
Azerbaijan	53.5	0.0	0.8	0.3	54.6	98.0%	5.8	4.3	1.4	0.0	11.4	50.6%
Belarus	99.8	0.3	4.2	44.0	148.3	67.5%	1.1	14.3	3.3	0.0	18.7	6.1%
Bosnia-Herzegovina	24.0	-	0.4	0.4	24.8	96.7%	2.8	1.6	0.2	0.0	4.6	60.1%
Bulgaria	74.6	0.2	6.0	0.3	81.1	92.2%	1.3	5.5	8.8	0.1	15.7	8.4%
Croatia	20.7	0.2	3.8	0.1	24.7	84.4%	1.6	1.8	0.8	0.0	4.2	37.8%
Cyprus ¹	3.9	-	0.6	0.0	4.5	85.9%	0.0	0.2	0.2	-	0.4	3.3%
FYR of Macedonia	8.6	0.0	2.6	0.1	11.2	76.6%	0.3	1.1	0.2	0.1	1.7	18.7%
Georgia	33.5	0.0	0.8	0.4	34.7	96.5%	1.7	2.6	0.7	0.0	5.0	34.5%
Gibraltar	0.1	-	-	0.0	0.1	99.7%	0.0	-	0.0	-	0.0	12.0%
Kazakhstan	237.2	1.4	11.5	16.2	266.3	89.6%	33.7	25.6	3.2	6.8	69.2	48.6%
Kosovo ²	..	..	..	..	..	..	..	..	..	..	..	..
Kyrgyzstan	22.8	0.0	0.7	0.7	24.1	94.4%	0.7	4.3	0.6	0.2	5.8	12.2%
Latvia	18.8	0.0	1.0	5.2	25.0	75.3%	1.6	3.2	0.6	0.0	5.5	30.0%
Lithuania	32.2	0.0	2.5	6.1	40.8	79.0%	1.6	4.9	1.1	0.0	7.6	21.3%
Malta	2.3	-	0.0	0.0	2.3	99.7%	0.0	0.1	0.1	-	0.2	1.6%
Republic of Moldova	30.5	-	1.2	0.2	31.9	95.6%	1.4	2.2	0.5	0.0	4.1	34.8%
Montenegro ²	..	..	..	..	..	..	..	..	..	..	..	..
Romania	168.3	1.1	14.2	2.0	185.6	91.3%	18.1	15.7	3.6	0.0	37.4	48.3%
Russian Federation	2 163.2	64.2	138.2	355.0	2 720.7	81.9%	422.5	132.5	54.3	15.1	624.5	67.7%
Serbia ²	62.0	0.9	2.9	0.6	66.4	94.8%	4.5	6.2	1.2	0.0	11.9	37.9%
Tajikistan	11.0	0.0	1.1	0.1	12.2	90.6%	0.8	2.9	0.6	0.0	4.3	18.4%
Turkmenistan	44.6	0.0	0.6	0.6	45.8	97.4%	26.4	2.8	0.6	0.0	29.8	88.5%
Ukraine	688.4	34.5	48.6	12.0	783.5	92.3%	58.4	54.1	9.5	0.2	122.3	47.8%
Uzbekistan	114.9	0.0	6.2	1.7	122.8	93.6%	17.1	13.2	2.6	0.0	32.9	52.0%
Non-OECD Europe and Eurasia	3 940.4	103.1	249.1	446.7	4 739.3	85.3%	603.7	301.6	94.7	22.6	1 022.7	59.0%
Algeria	51.2	12.7	3.6	0.2	67.6	94.4%	24.4	3.7	3.1	0.0	31.2	78.2%
Angola	3.9	7.2	0.1	7.4	18.7	59.6%	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	-	0.0	0.4	3.2	87.1%	0.4	5.5	0.2	0.1	6.1	6.1%
Cameroon	2.6	1.7	0.4	63.4	68.1	6.3%	3.3	7.7	1.6	3.4	16.0	20.7%
Congo	0.6	1.7	0.0	49.8	52.1	4.4%	1.8	2.4	0.3	2.7	7.2	25.3%
Côte d'Ivoire	2.7	0.0	0.2	129.5	132.5	2.0%	1.6	2.1	1.5	6.9	12.1	13.5%
Dem. Rep. of Congo	3.0	0.0	0.3	1 188.1	1 191.4	0.3%	3.6	26.8	4.0	63.9	98.3	3.7%
Egypt	77.8	3.0	8.4	1.1	90.4	89.5%	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	-	0.1	0.4	2.7	79.6%	3.2	32.6	4.2	-	40.0	8.1%
Gabon	0.9	5.2	0.0	4.1	10.3	59.5%	3.0	0.1	0.2	0.2	3.5	86.2%
Ghana	2.5	-	0.6	12.7	15.8	16.0%	1.8	3.7	1.7	0.7	7.9	22.5%
Kenya	5.5	-	0.8	2.1	8.4	65.5%	4.9	13.4	2.1	-	20.3	23.9%
Libya	25.8	8.4	2.4	0.1	36.8	93.0%	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	-	4.6	0.3	24.5	80.0%	1.0	5.4	2.9	-	9.2	10.4%
Mozambique	1.1	-	0.0	17.4	18.5	5.9%	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%
Niger ³	..	-	0.0	..	..	..	..	..	..	..	..	..
Nigeria	28.1	43.8	1.9	9.4	83.2	86.4%	33.8	22.0	8.8	0.4	65.1	51.9%
Senegal	2.1	-	0.2	0.1	2.4	89.3%	1.0	3.7	1.0	-	5.6	17.4%
South Africa	243.8	14.4	9.6	2.6	270.5	95.5%	23.6	19.1	8.4	2.2	53.4	44.3%
South Sudan ⁴	..	..	..	..	..	..	..	..	..	..	..	..
Sudan ⁴	5.3	-	0.1	4.0	9.4	56.2%	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	7.1%	0.8	1.5	0.4	0.4	3.1	24.9%
Tunisia	12.2	0.0	2.4	0.1	14.7	83.2%	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	16.2	-	0.9	0.8	17.9	90.6%	1.2	8.1	0.9	0.0	10.3	11.4%
Other Africa ³	12.6	-	0.4	268.1	281.2	4.5%	14.9	104.9	11.0	13.2	144.1	10.4%
Africa	529.0	98.1	38.2	1 995.1	2 660.3	23.6%	169.7	382.6	69.8	107.0	729.1	23.3%

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

2. For 1990, Serbia includes Kosovo and Montenegro.

 3. For 1990, Other Africa includes all emissions for Niger, other than CO₂ from fugitive sources and CO₂ from industrial processes.

4. Prior to 2012, data for South Sudan are included in Sudan.

1990 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

N ₂ O						HFCs	PFCs	SF ₆	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP ¹	
105.6	62.2	1 299.4	400.4	1 867.6	5.7%	15.9	46.5	29.8	22 306.4	49.0%	1.47	Non-OECD Total
0.0	-	1.1	0.2	1.3	3.0%	-	-	-	10.9	61.5%	0.84	Albania
0.0	-	0.6	0.2	0.8	4.6%	-	-	-	24.6	86.3%	2.08	Armenia
0.1	-	2.1	0.4	2.7	3.3%	-	0.2	-	68.9	86.2%	1.27	Azerbaijan
0.9	2.1	12.5	0.9	16.4	5.2%	-	0.0	-	183.4	55.7%	2.50	Belarus
0.9	-	0.9	0.2	2.0	43.8%	-	0.6	-	32.0	86.2%	3.28	Bosnia-Herzegovina
0.6	2.3	5.7	0.8	9.4	6.6%	-	0.0	-	106.2	72.2%	1.62	Bulgaria
0.4	0.9	2.2	0.3	3.8	9.7%	-	0.9	-	33.5	68.0%	0.50	Croatia
0.0	-	0.2	0.0	0.2	6.6%	-	-	-	5.2	75.3%	0.50	Cyprus
0.1	-	0.6	0.1	0.9	14.6%	-	-	-	13.8	65.7%	0.85	FYR of Macedonia
0.1	0.8	1.6	0.3	2.8	3.4%	-	-	-	42.5	83.1%	1.24	Georgia
0.0	-	-	0.0	0.0	21.3%	-	-	-	0.2	94.4%	0.26	Gibraltar
3.6	-	18.3	11.6	33.5	10.7%	-	-	-	369.0	74.8%	1.99	Kazakhstan
..	..	..	..	..	..	..	..	..	..	..	..	Kosovo
0.8	-	2.2	0.6	3.6	21.4%	-	-	-	33.5	72.3%	2.47	Kyrgyzstan
0.2	-	2.5	0.3	3.0	7.3%	0.0	0.0	-	33.5	61.8%	1.24	Latvia
0.3	0.8	3.9	0.4	5.3	5.6%	0.0	0.0	-	53.7	63.6%	1.16	Lithuania
0.0	-	0.0	0.0	0.1	12.0%	-	-	-	2.6	90.2%	0.53	Malta
0.1	-	1.4	0.3	1.7	4.9%	-	-	-	37.7	84.9%	1.79	Republic of Moldova
..	..	..	..	..	..	..	..	..	..	..	..	Montenegro
0.9	4.1	13.4	1.5	19.8	4.3%	-	2.0	0.0	244.8	76.9%	1.35	Romania
15.0	15.2	84.9	35.9	150.9	9.9%	5.0	15.9	4.9	3 521.9	75.7%	1.88	Russian Federation
0.4	0.7	3.3	0.6	4.9	8.8%	0.0	0.8	-	84.0	80.8%	0.95	Serbia
0.0	-	1.2	0.2	1.4	2.3%	-	2.8	-	20.6	57.3%	1.20	Tajikistan
0.1	0.1	1.8	0.2	2.2	3.5%	-	-	-	77.9	91.3%	2.86	Turkmenistan
3.6	13.0	32.6	4.7	53.9	6.7%	0.0	0.2	-	959.9	81.8%	1.98	Ukraine
0.2	0.2	7.8	1.0	9.2	2.0%	-	-	-	164.9	80.2%	2.97	Uzbekistan
28.3	40.1	200.7	60.7	329.8	8.6%	5.0	23.4	4.9	6 125.1	76.3%	1.81	Non-OECD Europe and Eurasia
0.3	0.4	2.5	0.7	3.9	7.9%	-	-	0.3	103.0	86.0%	0.44	Algeria
0.1	-	15.7	2.0	17.7	0.7%	-	-	-	58.5	31.0%	1.50	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	21.8%	1.47	Botswana
0.2	-	7.0	3.3	10.5	1.5%	-	0.9	-	95.5	8.1%	3.21	Cameroon
0.0	-	2.1	2.3	4.4	0.9%	-	-	-	63.7	6.6%	5.70	Congo
0.2	-	1.7	5.8	7.6	2.3%	-	-	-	152.2	3.0%	4.36	Côte d'Ivoire
0.7	-	31.4	55.1	87.2	0.8%	-	-	-	1 376.9	0.5%	32.22	Dem. Rep. of Congo
0.5	1.4	8.4	1.6	11.9	4.2%	-	1.3	0.8	131.3	69.9%	0.43	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	8.9%	2.44	Ethiopia
0.0	-	0.1	0.2	0.3	8.7%	-	-	-	14.1	65.0%	0.87	Gabon
0.3	-	3.8	1.1	5.1	5.0%	-	0.6	-	29.5	15.5%	1.20	Ghana
0.4	-	8.5	0.4	9.3	4.5%	-	-	-	38.0	28.4%	0.77	Kenya
0.1	-	0.8	0.3	1.2	11.6%	-	-	0.3	55.0	89.4%	0.85	Libya
0.0	-	0.1	0.0	0.1	4.4%	-	-	-	1.5	77.5%	0.21	Mauritius
0.2	-	4.4	0.6	5.2	3.5%	-	-	-	38.9	53.4%	0.45	Morocco
0.3	-	8.5	1.8	10.6	2.4%	-	-	-	40.9	7.5%	7.34	Mozambique
0.1	-	2.4	0.1	2.5	2.1%	-	-	-	6.2	2.1%	..	Namibia
..	..	..	..	..	..	..	..	..	..	..	..	Niger
1.2	-	15.5	2.3	19.0	6.1%	-	-	0.2	167.6	63.8%	0.65	Nigeria
0.1	-	2.6	0.3	2.9	3.5%	-	-	-	11.0	29.3%	0.88	Senegal
2.0	1.0	13.5	5.1	21.5	9.2%	0.0	0.4	1.1	346.9	81.8%	1.07	South Africa
..	..	..	..	..	..	..	..	..	..	..	..	South Sudan
0.4	-	32.7	2.9	36.0	1.1%	-	-	-	92.5	11.7%	2.17	Sudan
0.4	-	17.3	3.5	21.1	1.7%	-	-	-	94.9	4.6%	2.95	United Rep. of Tanzania
0.1	-	1.6	0.5	2.2	3.8%	-	-	-	13.4	10.6%	2.94	Togo
0.1	0.4	1.2	0.2	2.0	7.0%	-	-	-	20.7	65.6%	0.52	Tunisia
0.2	0.5	25.8	8.6	35.0	0.5%	-	-	-	209.6	2.1%	12.47	Zambia
0.2	-	6.0	0.5	6.8	3.6%	-	-	-	34.9	50.5%	7.28	Zimbabwe
1.9	-	86.2	19.0	107.1	1.8%	-	-	-	532.3	5.5%	4.56	Other Africa
10.7	3.7	330.3	122.0	466.7	2.3%	0.0	3.2	2.7	3 862.0	20.9%	2.09	Africa

1. GHG / GDP PPP ratio is expressed in kg of CO₂-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 CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Bangladesh	11.4	0.0	0.6	10.4	22.4	50.9%	5.8	69.4	11.6	0.4	87.1	6.6%
Brunei Darussalam	3.3	0.0	0.0	10.7	14.1	23.4%	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%
DPR of Korea	116.8	2.9	9.7	694.2	823.6	14.5%	12.4	5.6	2.7	1.0	21.6	57.1%
India	534.1	6.9	34.3	0.8	576.1	93.9%	67.2	366.9	77.0	2.5	513.6	13.1%
Indonesia	133.9	11.2	10.7	52.0	207.9	69.8%	37.4	82.0	26.2	6.6	152.2	24.6%
Malaysia	49.2	1.7	3.7	3.1	57.6	88.3%	9.1	6.9	3.0	4.6	23.6	38.4%
Mongolia	12.9	-	0.3	106.7	119.8	10.7%	0.6	6.4	0.2	1.1	8.3	7.7%
Myanmar	3.9	0.0	0.3	30.5	34.8	11.3%	3.1	39.0	4.5	37.4	84.0	3.7%
Nepal	0.9	-	0.1	742.9	743.9	0.1%	1.3	17.3	1.7	0.0	20.3	6.4%
Pakistan	56.0	0.6	5.0	0.2	61.7	91.6%	15.4	64.6	10.8	0.0	90.8	16.9%
Philippines	38.0	0.0	3.3	0.4	41.7	91.1%	3.7	28.6	9.0	0.2	41.6	8.9%
Singapore	29.0	-	2.2	5.1	36.3	79.9%	0.4	0.1	0.5	0.0	1.0	41.2%
Sri Lanka	3.7	-	0.3	0.3	4.3	86.5%	0.6	8.6	2.3	0.0	11.5	5.1%
Chinese Taipei	111.1	0.8	12.1	1.0	125.1	89.5%	1.0	1.4	3.9	0.0	6.3	16.2%
Thailand	80.9	0.0	10.9	13.2	104.9	77.1%	14.5	61.3	8.6	0.5	85.0	17.1%
Viet Nam	17.4	0.0	2.0	6.1	25.5	68.1%	6.6	46.8	7.0	0.0	60.5	10.9%
Other Asia	10.3	0.0	0.2	40.3	50.9	20.4%	2.3	15.9	3.3	1.6	23.1	9.9%
Asia (excl. China)	1 212.7	24.2	95.8	1 718.0	3 050.6	40.5%	185.4	833.9	173.3	56.6	1 249.1	14.8%
People's Rep. of China	2 183.6	28.9	218.0	83.4	2 513.9	88.0%	353.5	523.3	135.7	4.4	1 016.9	34.8%
Hong Kong, China	33.3	1.0	0.9	0.1	35.3	97.3%	0.1	-	1.4	-	1.5	6.0%
China	2 216.9	29.9	218.9	83.5	2 549.2	88.1%	353.6	523.3	137.2	4.4	1 018.5	34.7%
Argentina	99.4	4.1	2.8	17.3	123.7	83.7%	13.6	78.2	7.1	3.0	102.0	13.4%
Bolivia	5.2	1.1	0.2	149.1	155.6	4.0%	2.8	11.4	0.9	7.3	22.4	12.4%
Brazil	184.3	5.1	24.9	905.2	1 119.4	16.9%	25.0	209.5	41.4	43.7	319.6	7.8%
Colombia	45.8	1.9	4.1	52.0	103.8	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	34.1	0.0	2.1	4.5	40.6	83.9%	1.3	8.2	2.6	0.1	12.1	10.4%
Curaçao	2.7	-	-	0.0	2.7	98.2%	0.1	0.0	0.0	-	0.1	56.6%
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	13.3	3.4	0.7	1.0	18.4	90.7%	2.4	7.3	1.3	0.0	11.0	22.0%
El Salvador	2.1	-	0.3	0.3	2.7	79.3%	0.3	1.6	0.7	-	2.7	12.2%
Guatemala	3.2	0.0	0.5	3.8	7.5	42.7%	0.8	2.9	1.0	0.2	4.8	16.1%
Haiti	0.9	-	0.2	0.0	1.1	82.0%	0.7	1.7	0.9	-	3.3	22.2%
Honduras	2.2	-	0.1	5.0	7.3	29.7%	0.3	2.9	0.5	0.2	4.0	8.8%
Jamaica	7.2	-	0.3	0.1	7.6	95.5%	0.2	0.6	0.4	-	1.2	18.8%
Nicaragua	1.8	-	0.1	0.4	2.3	79.6%	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	19.1	0.2	1.2	19.4	40.0	48.5%	1.7	7.9	3.0	0.9	13.6	12.4%
Trinidad and Tobago	7.9	0.6	3.3	0.0	11.9	71.7%	2.4	0.1	0.6	0.0	3.0	77.9%
Uruguay	3.6	0.0	0.2	0.4	4.3	85.0%	0.1	15.0	0.7	-	15.8	0.7%
Venezuela	93.6	2.1	5.5	39.8	141.0	67.9%	18.8	19.4	4.0	1.8	43.9	42.7%
Other Non-OECD Americas	12.4	0.0	1.0	22.1	35.5	34.8%	0.2	2.6	1.8	0.8	5.4	4.0%
Non-OECD Americas	553.2	18.6	48.5	1 259.0	1 879.3	30.4%	79.5	430.9	75.0	62.6	648.0	12.3%
Bahrain	10.7	0.0	0.9	0.1	11.7	91.6%	1.6	0.0	0.1	0.0	1.8	90.0%
Islamic Rep. of Iran	171.2	23.4	8.5	0.7	203.9	95.4%	31.1	17.7	7.9	0.0	56.7	54.8%
Iraq	51.4	9.4	6.9	3.1	70.7	85.8%	15.2	3.3	2.9	0.0	21.4	71.0%
Jordan	9.3	-	0.9	0.0	10.2	91.3%	0.1	0.3	0.4	-	0.9	13.7%
Kuwait	27.8	2.8	1.5	0.0	32.2	95.1%	4.7	0.1	0.6	0.0	5.3	88.4%
Lebanon	5.5	-	0.5	0.0	6.0	92.2%	0.1	0.2	0.4	-	0.7	11.7%
Oman	10.2	5.3	0.0	14.0	29.5	52.5%	5.6	0.3	0.2	-	6.2	91.0%
Qatar	12.4	2.6	1.5	0.0	16.6	90.8%	4.1	0.1	0.2	0.0	4.4	93.0%
Saudi Arabia	151.1	8.1	12.0	0.2	171.4	92.9%	24.7	1.8	3.0	0.1	29.7	83.3%
Syrian Arab Republic	27.2	3.7	1.6	0.1	32.5	95.0%	4.5	2.6	1.3	0.0	8.4	53.4%
United Arab Emirates	51.9	2.5	2.0	0.1	56.4	96.4%	12.7	0.3	0.4	-	13.4	95.0%
Yemen	6.3	0.0	0.5	0.0	6.9	92.0%	0.7	2.2	1.0	-	3.9	17.0%
Middle East	534.9	57.9	36.8	18.4	648.0	91.5%	105.0	28.8	18.7	0.1	152.6	68.8%

1990 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

N ₂ O						HFCs	PFCs	SF ₆	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP ¹	
1.3	-	12.2	1.7	15.2	8.4%	-	-	-	124.7	14.8%	1.05	Bangladesh
0.0	-	0.1	0.5	0.6	1.0%	-	-	-	18.2	34.5%	1.03	Brunei Darussalam
0.2	-	3.3	0.4	3.9	5.4%	-	-	-	19.0	6.6%	..	Cambodia
0.6	-	5.6	2.6	8.7	6.9%	0.0	-	-	854.0	15.5%	5.77	DPR of Korea
18.4	1.1	121.1	18.7	159.5	11.6%	1.7	2.1	5.8	1 258.7	49.8%	0.92	India
3.7	0.1	54.9	30.2	88.9	4.2%	-	0.7	1.1	450.8	41.3%	0.66	Indonesia
0.3	-	8.2	5.1	13.6	1.9%	0.0	0.0	0.6	95.4	63.1%	0.58	Malaysia
0.1	-	3.3	1.8	5.2	1.8%	-	-	-	133.3	10.2%	15.93	Mongolia
0.4	-	8.4	35.4	44.2	0.9%	-	-	-	163.0	4.6%	10.84	Myanmar
0.5	-	2.8	0.3	3.6	13.7%	-	-	-	767.7	0.3%	38.39	Nepal
2.1	0.6	13.7	2.0	18.4	11.6%	-	-	1.0	171.9	43.1%	0.59	Pakistan
1.0	-	7.1	1.6	9.7	9.9%	-	-	0.2	93.1	45.8%	0.42	Philippines
0.1	-	0.1	0.3	0.4	16.8%	0.0	0.1	0.4	38.1	77.2%	0.41	Singapore
0.2	-	1.2	0.3	1.8	14.0%	-	-	-	17.5	25.8%	0.35	Sri Lanka
0.4	0.5	2.4	0.7	4.0	10.3%	0.0	0.1	1.9	137.4	82.5%	0.49	Chinese Taipei
2.8	-	14.4	2.3	19.5	14.6%	-	-	1.4	210.8	46.6%	0.66	Thailand
0.9	-	9.5	1.2	11.6	7.4%	-	-	-	97.6	25.4%	1.11	Viet Nam
0.4	-	10.3	2.3	13.0	3.2%	-	-	-	87.0	15.0%	1.47	Other Asia
33.4	2.4	278.5	107.3	421.6	7.9%	1.7	3.0	12.3	4 738.4	30.7%	1.20	Asia (excl. China)
21.3	10.1	253.4	33.6	318.4	6.7%	6.0	4.7	1.7	3 861.6	67.0%	2.57	People's Rep. of China
0.1	-	-	0.2	0.4	37.2%	-	-	0.4	37.6	92.0%	0.27	Hong Kong, China
21.4	10.1	253.4	33.9	318.8	6.7%	6.0	4.7	2.1	3 899.2	67.2%	2.38	China
0.9	0.1	32.4	5.1	38.5	2.4%	0.2	1.9	0.1	266.5	44.3%	1.09	Argentina
0.1	-	7.5	7.0	14.6	0.6%	-	-	-	192.7	4.7%	8.52	Bolivia
4.1	4.1	102.5	45.0	155.8	2.7%	1.9	5.0	1.5	1 603.2	13.6%	1.20	Brazil
0.6	0.2	16.3	3.1	20.2	3.1%	-	0.0	0.0	174.3	31.7%	0.76	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%	-	-	-	62.3	58.0%	0.83	Cuba
0.0	-	0.0	0.1	0.1	9.9%	-	-	-	2.9	93.8%	1.90	Curaçao
0.1	-	1.7	0.3	2.1	4.8%	-	-	-	16.6	48.0%	0.49	Dominican Republic
0.2	-	2.7	0.3	3.2	4.9%	-	-	-	32.6	59.1%	0.48	Ecuador
0.1	-	1.1	0.2	1.3	6.1%	-	-	-	6.6	37.8%	0.31	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	32.2%	0.41	Haiti
0.1	-	2.0	0.4	2.4	3.6%	-	-	-	13.7	19.0%	0.98	Honduras
0.1	-	0.3	0.1	0.5	12.8%	-	-	-	9.3	81.0%	0.58	Jamaica
0.1	-	2.8	0.2	3.1	2.4%	-	-	-	10.2	21.5%	0.90	Nicaragua
0.0	-	0.9	0.1	1.0	3.5%	-	-	-	6.9	39.5%	0.42	Panama
0.1	-	6.6	2.3	9.0	1.6%	-	-	-	63.8	4.5%	2.82	Paraguay
0.2	0.2	3.9	1.2	5.6	4.1%	-	-	-	59.1	36.0%	0.58	Peru
0.0	-	0.1	0.1	0.2	10.9%	-	-	-	15.1	72.0%	1.03	Trinidad and Tobago
0.1	-	5.9	0.1	6.1	1.5%	-	-	-	26.1	14.7%	0.98	Uruguay
0.4	0.0	9.2	2.5	12.0	3.0%	1.0	1.9	0.3	200.2	57.3%	0.78	Venezuela
0.1	-	2.5	1.0	3.6	2.6%	-	0.3	0.0	44.8	28.3%	1.50	Other Non-OECD Americas
8.4	5.4	209.9	70.4	294.0	2.8%	3.1	9.1	2.0	2 835.5	23.3%	1.09	Non-OECD Americas
0.0	-	0.0	0.0	0.1	19.5%	-	2.5	-	16.1	76.7%	1.03	Bahrain
2.0	0.3	14.5	2.1	18.8	10.5%	-	0.2	2.4	281.9	80.7%	0.65	Islamic Rep. of Iran
0.2	-	3.0	0.5	3.8	6.4%	-	-	0.3	96.2	79.2%	0.32	Iraq
0.0	-	0.3	0.1	0.5	6.7%	-	-	-	11.5	82.1%	0.58	Jordan
0.1	-	0.0	0.2	0.3	25.3%	0.0	-	0.3	38.1	93.0%	0.41	Kuwait
0.0	-	0.2	0.1	0.4	8.8%	-	-	-	7.0	79.9%	0.38	Lebanon
0.0	-	0.2	0.1	0.3	14.6%	-	-	-	36.0	58.7%	0.64	Oman
0.0	-	0.0	0.1	0.1	20.9%	-	-	-	21.1	90.8%	0.68	Qatar
0.6	-	3.1	1.8	5.5	10.0%	0.0	-	2.4	209.0	88.2%	0.41	Saudi Arabia
0.2	0.2	3.2	0.5	4.1	5.1%	-	-	-	45.0	79.1%	1.23	Syrian Arab Republic
0.1	-	0.2	0.4	0.7	18.5%	-	0.4	0.5	71.4	94.2%	0.39	United Arab Emirates
0.1	-	1.8	0.2	2.1	2.8%	-	-	-	12.9	54.8%	0.36	Yemen
3.4	0.5	26.6	6.1	36.7	9.2%	0.0	3.1	5.8	846.2	82.9%	0.49	Middle East

1. GHG / GDP PPP ratio is expressed in kg of CO₂-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 CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
World ¹	23 321.6	528.8	1 515.9	5 300.8	30 667.1	77.8%	2 136.7	3 007.8	1 144.1	176.0	6 464.6	33.1%
<i>Annex I Parties</i>	13 559.6	210.4	669.2	836.6	15 275.7	90.1%	913.4	686.2	457.2	37.0	2 093.8	43.6%
<i>Annex II Parties</i>	10 836.5	60.7	491.5	351.5	11 740.1	92.8%	432.8	536.1	334.4	15.1	1 318.5	32.8%
<i>North America</i>	6 158.5	28.7	197.3	106.4	6 490.9	95.3%	279.1	208.5	160.0	6.5	654.1	42.7%
<i>Europe</i>	3 157.7	26.0	193.6	168.0	3 545.2	89.8%	116.8	193.7	150.3	1.8	462.6	25.2%
<i>Asia Oceania</i>	1 520.3	6.1	100.6	77.1	1 704.0	89.6%	36.9	133.9	24.1	6.8	201.8	18.3%
<i>Annex I EIT</i>	2 513.4	147.1	155.1	483.9	3 299.6	80.6%	471.2	127.3	97.8	21.9	718.2	65.6%
<i>Non-Annex I Parties</i>	8 908.3	318.4	846.7	4 464.3	14 537.7	63.5%	1 223.3	2 321.6	686.9	139.0	4 370.8	28.0%
<i>Annex I Kyoto Parties</i>	7 139.3	179.0	446.4	685.9	8 450.5	86.6%	624.0	446.6	268.2	30.5	1 369.2	45.6%
Int. marine bunkers	498.7	-	-	-	498.7	100.0%	-	-	-	-	-	0.0%
Int. aviation bunkers	355.0	-	-	-	355.0	100.0%	-	-	-	-	-	0.0%
Non-OECD Total	10 021.3	443.9	899.2	4 863.9	16 228.3	64.5%	1 595.4	2 349.8	728.8	159.3	4 833.2	33.0%
OECD Total	12 446.6	84.9	616.8	436.9	13 585.2	92.2%	541.3	658.0	415.3	16.7	1 631.4	33.2%
Canada	515.9	5.3	26.8	26.3	574.2	90.8%	46.8	23.3	28.3	2.0	100.4	46.6%
Chile	48.6	1.0	3.9	0.3	53.8	92.1%	4.3	6.9	5.6	0.1	16.9	25.1%
Mexico	344.0	6.6	24.3	42.7	417.6	83.9%	29.3	53.5	18.7	1.2	102.7	28.5%
United States	5 642.6	23.4	170.5	80.1	5 916.7	95.8%	232.4	185.2	131.7	4.4	553.7	42.0%
OECD Americas	6 551.1	36.2	225.6	149.5	6 962.3	94.6%	312.7	268.9	184.4	7.8	773.8	40.4%
Australia	334.7	3.5	12.2	42.5	392.8	86.1%	31.4	78.5	11.5	6.4	127.7	24.6%
Israel	54.8	-	4.1	0.2	59.2	92.6%	0.1	1.0	1.5	0.0	2.7	5.0%
Japan	1 156.6	2.5	85.3	29.7	1 274.1	91.0%	4.5	31.8	10.8	0.4	47.5	9.4%
Korea	431.7	4.5	41.4	0.5	478.1	91.2%	5.9	12.5	12.4	0.1	30.9	19.1%
New Zealand	29.0	0.1	3.1	4.9	37.1	78.3%	1.1	23.5	1.9	0.1	26.6	4.0%
OECD Asia Oceania	2 006.8	10.6	146.2	77.8	2 241.3	90.0%	43.0	147.5	38.0	6.9	235.4	18.3%
Austria	61.7	0.4	4.3	0.5	66.8	92.8%	1.9	4.4	2.6	0.0	9.0	21.7%
Belgium	114.1	0.0	9.4	0.6	124.2	91.9%	1.6	6.5	2.9	0.0	11.0	14.7%
Czech Republic	121.3	2.3	5.6	1.2	130.4	94.8%	5.7	4.3	2.9	0.1	12.9	43.8%
Denmark	50.7	0.5	1.6	3.3	56.1	91.3%	1.1	5.4	1.7	-	8.1	13.0%
Estonia	14.5	0.5	0.6	11.4	27.1	55.4%	0.8	0.6	0.7	-	2.1	38.3%
Finland	54.4	0.4	2.3	52.2	109.2	50.1%	0.8	2.1	7.4	0.0	10.3	7.4%
France	364.5	1.3	25.8	7.6	399.3	91.6%	34.2	38.3	13.0	0.1	85.6	39.9%
Germany	812.4	6.4	37.4	36.6	892.8	91.7%	21.2	31.8	23.0	0.2	76.1	27.8%
Greece	88.0	0.0	7.8	0.5	96.4	91.3%	1.9	3.7	2.5	0.1	8.1	23.3%
Hungary	53.3	0.5	3.5	1.0	58.3	92.3%	2.4	3.0	2.8	0.0	8.2	28.9%
Iceland	2.2	-	0.7	17.6	20.5	10.6%	0.0	0.2	0.1	0.0	0.3	1.7%
Ireland	40.8	0.1	2.3	9.5	52.8	77.5%	1.3	11.8	1.8	0.0	14.9	8.6%
Italy	420.3	4.0	27.2	2.4	453.9	93.5%	7.5	18.3	20.7	0.2	46.7	16.1%
Luxembourg	8.1	-	0.6	0.0	8.7	92.6%	0.1	0.8	0.1	0.0	1.0	10.2%
Netherlands	157.2	0.6	12.9	7.4	178.1	88.6%	4.9	10.1	9.1	0.1	24.3	20.2%
Norway	31.9	1.9	7.7	0.9	42.4	79.7%	11.6	2.2	3.3	0.1	17.2	67.4%
Poland	289.7	5.3	14.9	26.3	336.1	87.8%	48.7	14.7	9.3	0.1	72.8	66.9%
Portugal	57.8	0.2	5.4	0.3	63.8	91.0%	0.9	4.4	6.6	0.5	12.3	7.4%
Slovak Republic	36.9	1.0	4.0	0.4	42.3	89.5%	0.9	1.8	1.7	0.0	4.4	21.1%
Slovenia	14.1	0.0	1.0	0.3	15.3	92.1%	1.1	1.1	0.7	0.0	2.9	37.3%
Spain	278.5	2.3	23.5	1.6	305.9	91.8%	4.3	20.0	10.4	0.5	35.1	12.2%
Sweden	52.0	1.4	3.6	14.7	71.6	74.5%	1.2	3.3	6.9	0.0	11.5	10.6%
Switzerland	41.9	0.0	2.4	0.5	44.8	93.5%	0.9	3.2	1.0	0.0	5.1	17.8%
Turkey	201.2	2.5	21.9	1.2	226.9	89.8%	9.3	22.4	24.5	0.0	56.3	16.6%
United Kingdom	521.2	6.5	18.4	11.8	557.9	94.6%	21.5	27.2	37.2	0.1	85.9	25.0%
OECD Europe	3 888.6	38.1	245.1	209.7	4 381.5	89.6%	185.7	241.7	192.9	2.0	622.2	29.8%
<i>European Union - 28</i>	3 782.2	35.8	228.4	202.0	4 248.4	89.9%	182.5	228.6	181.4	2.4	594.9	30.7%
<i>G7</i>	9 433.5	49.4	391.5	194.6	10 069.0	94.2%	367.9	355.9	264.8	7.3	996.0	36.9%
<i>G8</i>	10 907.7	152.6	472.4	574.5	12 107.3	91.4%	705.2	413.9	314.0	28.3	1 461.5	48.3%
<i>G20</i>	19 279.9	278.2	1 277.6	2 472.4	23 308.0	83.9%	1 491.1	1 972.4	867.4	67.6	4 398.5	33.9%

1. Total World includes Non-OECD total, OECD total as well as international bunkers.

Sources: IEA, CO₂ emissions from fuel combustion. EDGAR 4.3.0 and 4.2 FT2010 databases for other emissions. In general, estimates for emissions other than CO₂ from fuel combustion are subject to significantly larger uncertainties.

2000 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

N ₂ O						HFCs	PFCs	SF ₆	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP ¹	
269.4	183.1	1 802.2	495.3	2 750.1	9.8%	293.1	100.7	117.1	40 392.7	65.0%	0.75	World
156.8	131.5	541.7	166.7	996.6	15.7%	227.8	73.8	84.6	18 752.3	79.1%	0.59	Annex I Parties
132.8	91.6	424.4	112.4	761.3	17.4%	207.4	46.2	74.2	14 147.7	81.0%	0.49	Annex II Parties
91.4	31.3	191.5	53.4	367.6	24.9%	118.9	21.8	50.9	7 704.2	85.1%	0.61	North America
27.9	54.2	156.8	35.7	274.7	10.2%	51.5	13.8	15.6	4 363.3	76.3%	0.37	Europe
13.6	6.2	76.0	23.3	119.1	11.4%	37.0	10.6	7.7	2 080.2	75.8%	0.48	Asia Oceania
20.0	35.6	95.5	50.9	201.9	9.9%	19.3	27.0	9.4	4 275.4	73.7%	1.55	Annex I EIT
112.5	51.7	1 260.6	328.7	1 753.4	6.4%	65.3	26.9	32.5	20 786.8	50.8%	0.96	Non-Annex I Parties
61.0	94.2	320.3	109.4	584.9	10.4%	107.7	51.3	32.7	10 596.4	75.5%	0.57	Annex I Kyoto Parties
-	-	-	-	-	0.0%	-	-	-	498.7	100.0%	..	Int. marine bunkers
-	-	-	-	-	0.0%	-	-	-	355.0	100.0%	..	Int. aviation bunkers
116.0	69.7	1 286.1	363.4	1 835.2	6.3%	70.6	50.0	35.8	23 053.1	52.8%	1.10	Non-OECD Total
153.3	113.4	516.2	132.0	914.9	16.8%	222.5	50.7	81.3	16 486.0	80.2%	0.51	OECD Total
8.3	3.8	22.5	6.3	40.9	20.3%	6.2	7.1	4.9	733.8	78.5%	0.72	Canada
0.8	0.7	5.3	0.8	7.6	10.1%	-	0.0	0.0	78.4	69.7%	0.47	Chile
2.8	1.2	32.5	6.7	43.2	6.5%	3.3	0.6	0.8	568.2	67.3%	0.47	Mexico
83.1	27.5	169.0	47.1	326.7	25.4%	112.7	14.7	45.9	6 970.5	85.8%	0.60	United States
94.9	33.3	229.3	60.9	418.4	22.7%	122.2	22.4	51.7	8 350.9	83.8%	0.60	OECD Americas
4.0	1.7	56.6	13.3	75.6	5.3%	2.5	1.2	0.5	600.3	62.2%	0.99	Australia
0.3	0.2	0.9	0.6	1.9	13.6%	0.7	0.1	1.0	65.6	84.2%	0.43	Israel
9.2	4.4	8.7	9.7	32.0	28.7%	34.1	9.0	7.2	1 403.9	83.5%	0.38	Japan
3.1	6.8	4.7	3.3	18.0	17.2%	8.4	2.2	4.1	541.6	82.2%	0.59	Korea
0.4	-	10.8	0.3	11.5	3.4%	0.3	0.4	0.1	75.9	40.2%	0.87	New Zealand
16.9	13.2	81.7	27.2	138.9	12.2%	46.1	12.8	12.7	2 687.4	77.3%	0.49	OECD Asia Oceania
0.6	0.8	2.5	0.8	4.8	13.3%	1.0	0.1	0.3	82.0	78.8%	0.31	Austria
0.8	4.8	3.1	1.1	9.8	8.0%	1.0	0.0	0.1	146.2	79.7%	0.46	Belgium
5.0	1.2	3.2	1.0	10.5	47.7%	0.4	0.0	0.0	154.3	87.1%	0.82	Czech Republic
0.6	1.0	4.9	0.6	7.1	8.1%	0.7	0.0	0.1	72.0	73.4%	0.42	Denmark
0.2	-	0.6	0.1	0.8	20.0%	0.0	0.0	0.0	30.1	53.2%	1.89	Estonia
1.6	1.3	3.2	0.6	6.7	24.6%	0.4	0.0	0.1	126.8	45.1%	0.86	Finland
4.0	10.0	33.6	4.6	52.1	7.6%	9.4	1.1	2.4	550.0	73.5%	0.31	France
6.5	9.6	30.5	5.8	52.5	12.4%	11.3	1.7	5.6	1 039.9	81.4%	0.40	Germany
1.0	0.8	3.7	1.1	6.6	14.6%	2.4	0.3	0.1	113.9	79.8%	0.49	Greece
0.3	1.8	4.0	0.7	6.9	5.0%	0.4	0.3	0.0	74.1	76.2%	0.52	Hungary
0.0	-	0.3	0.0	0.4	9.8%	0.0	0.1	0.0	21.3	10.3%	2.45	Iceland
0.3	0.7	7.0	0.4	8.4	3.9%	0.4	0.4	0.1	77.0	55.2%	0.58	Ireland
2.8	8.1	14.1	5.6	30.6	9.2%	7.1	0.4	1.3	540.0	80.5%	0.33	Italy
0.1	-	0.3	0.1	0.4	19.1%	0.1	0.0	-	10.2	80.8%	0.38	Luxembourg
0.9	5.7	6.2	1.3	14.2	6.2%	6.2	1.0	0.3	224.0	73.0%	0.39	Netherlands
0.4	1.8	1.8	0.7	4.8	7.7%	0.2	4.6	1.0	70.1	65.3%	0.35	Norway
3.5	4.4	17.0	2.5	27.4	12.8%	0.7	0.5	0.2	437.6	79.3%	0.97	Poland
0.8	0.5	2.8	1.7	5.8	14.0%	0.4	0.0	0.1	82.4	72.5%	0.37	Portugal
0.5	1.1	1.2	0.3	3.1	15.8%	0.1	0.1	-	50.0	78.5%	0.72	Slovak Republic
0.2	-	0.8	0.2	1.2	14.3%	0.1	0.2	0.0	19.6	78.0%	0.49	Slovenia
2.6	2.5	17.4	4.9	27.4	9.4%	3.3	2.3	2.5	376.5	76.4%	0.37	Spain
1.1	0.7	3.8	0.8	6.5	17.7%	0.6	0.7	0.2	91.1	61.2%	0.33	Sweden
0.5	0.2	1.4	0.5	2.6	18.9%	0.8	0.1	0.3	53.7	80.6%	0.20	Switzerland
3.9	4.3	21.6	3.3	33.0	11.9%	1.0	0.6	1.0	318.7	68.1%	0.51	Turkey
3.3	5.6	20.2	5.0	34.1	9.6%	6.3	0.9	1.2	686.3	80.5%	0.38	United Kingdom
41.5	67.0	205.2	43.9	357.5	11.6%	54.2	15.5	16.8	5 447.8	76.3%	0.41	OECD Europe
38.2	67.1	192.8	42.5	340.6	11.2%	52.9	10.9	14.6	5 262.1	76.7%	0.42	European Union - 28
117.1	69.1	298.5	84.1	568.8	20.6%	187.1	34.9	68.5	11 924.3	83.6%	0.50	G7
124.4	79.3	334.6	123.7	662.1	18.8%	203.9	59.8	77.5	14 572.1	81.6%	0.58	G8
226.9	153.8	1 232.9	311.5	1 925.1	11.8%	284.7	86.0	106.4	30 108.6	70.7%	0.68	G20

1. GHG / GDP PPP ratio is expressed in kg of CO₂-equivalent per 2005 USD.

2000 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Non-OECD Total	10 021.3	443.9	899.2	4 863.9	16 228.3	64.5%	1 595.4	2 349.8	728.8	159.3	4 833.2	33.0%
Albania	3.0	0.0	0.1	0.6	3.7	81.2%	0.4	1.8	0.2	0.2	2.6	14.7%
Armenia	3.4	-	0.1	0.3	3.8	89.0%	1.3	0.9	0.4	0.0	2.6	50.9%
Azerbaijan	27.3	0.3	0.2	0.2	28.1	98.4%	4.3	4.1	1.5	0.0	10.0	43.5%
Belarus	52.1	0.2	3.0	43.0	98.3	53.2%	0.9	8.4	4.0	0.0	13.3	7.0%
Bosnia-Herzegovina	13.7	-	0.5	0.4	14.6	94.2%	0.9	1.0	0.3	0.5	2.7	35.3%
Bulgaria	42.2	1.0	4.0	0.3	47.5	90.9%	1.3	2.4	9.8	0.3	13.8	9.3%
Croatia	16.9	0.0	2.1	0.0	19.0	88.9%	1.9	1.1	0.9	0.0	3.9	47.2%
Cyprus ¹	6.3	-	0.7	0.0	7.0	90.0%	0.0	0.3	0.3	-	0.6	3.8%
FYR of Macedonia	8.5	0.0	0.5	0.1	9.1	94.1%	0.5	0.7	0.3	0.0	1.5	30.5%
Georgia	4.6	0.0	0.4	0.3	5.4	86.1%	1.4	2.1	0.6	0.0	4.1	33.3%
Gibraltar	0.3	-	-	-	0.3	100.0%	-	-	-	-	-	0.0%
Kazakhstan	112.0	13.5	4.8	0.6	130.9	95.9%	23.3	9.4	3.8	2.1	38.6	60.3%
Kosovo ²	5.1	..	..	..	..	..	..	..	..	..	..	..
Kyrgyzstan	4.5	0.0	0.2	0.5	5.2	86.0%	0.3	2.5	0.7	0.0	3.5	7.3%
Latvia	6.8	0.0	0.4	4.6	11.9	57.7%	1.4	0.8	0.6	0.0	2.8	49.1%
Lithuania	10.2	0.0	1.1	6.0	17.3	59.0%	1.8	1.9	1.3	0.0	5.0	36.3%
Malta	2.1	-	0.0	0.0	2.1	99.7%	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 ²	..	..	..	..	..	..	..	..	..	..	..	..
Romania	86.2	1.1	7.8	1.5	96.6	90.4%	12.2	8.4	4.4	0.1	25.1	48.6%
Russian Federation	1 474.2	103.3	80.9	380.0	2 038.3	77.4%	337.3	58.1	49.2	21.0	465.5	72.5%
Serbia ²	43.0	0.6	1.7	0.7	46.0	94.8%	3.3	4.0	1.2	0.2	8.7	37.8%
Tajikistan	2.2	-	0.5	0.1	2.7	80.1%	0.5	2.1	0.7	0.0	3.3	13.7%
Turkmenistan	36.7	2.1	0.3	0.4	39.5	98.0%	16.3	4.2	0.8	0.0	21.2	76.6%
Ukraine	295.0	31.9	26.4	7.8	361.2	90.5%	54.8	20.8	9.5	0.2	85.2	64.3%
Uzbekistan	114.0	2.4	3.3	1.6	121.2	96.0%	22.8	11.0	3.2	0.0	37.1	61.6%
Non-OECD Europe and Eurasia	2 377.0	156.4	139.1	449.2	3 121.7	81.2%	488.4	147.1	94.2	24.8	754.6	64.7%
Algeria	61.5	17.5	4.9	0.2	84.0	94.0%	35.4	4.2	4.1	0.0	43.8	80.9%
Angola	4.6	11.8	0.1	6.2	22.8	72.0%	10.2	3.9	1.5	0.1	15.8	65.0%
Benin	1.4	-	0.1	25.2	26.8	5.3%	0.8	2.1	0.8	0.8	4.5	18.1%
Botswana	4.0	-	0.1	0.4	4.6	88.1%	0.5	3.2	0.2	0.0	3.9	11.5%
Cameroon	2.8	2.4	0.5	56.2	61.8	8.3%	2.5	8.6	2.2	2.6	15.8	15.6%
Congo	0.5	4.0	0.0	43.1	47.6	9.4%	3.9	1.6	0.5	2.1	8.0	48.7%
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%
Dem. Rep. of Congo	0.9	0.8	0.1	912.7	914.4	0.2%	5.4	14.5	5.3	38.5	63.7	8.5%
Egypt	99.7	4.1	15.4	1.1	120.4	86.3%	15.1	13.3	7.5	0.0	35.8	42.0%
Eritrea	0.6	-	0.0	0.0	0.7	91.5%	0.3	2.0	0.4	-	2.7	12.3%
Ethiopia	3.2	-	0.4	0.5	4.1	77.8%	7.1	33.3	5.8	-	46.2	15.4%
Gabon	1.5	5.0	0.1	2.2	8.8	73.5%	3.7	0.1	0.3	0.0	4.1	89.9%
Ghana	5.0	-	1.0	8.6	14.6	34.1%	2.8	4.0	2.5	0.3	9.6	28.9%
Kenya	7.8	-	0.6	3.2	11.6	66.9%	6.5	12.5	3.3	-	22.3	29.0%
Libya	37.0	9.0	3.1	0.1	49.2	93.4%	11.1	0.8	1.0	0.0	13.0	85.6%
Mauritius	2.4	0.0	0.0	0.0	2.4	99.6%	0.0	0.0	0.2	-	0.2	8.8%
Morocco	29.5	-	5.5	0.3	35.3	83.6%	0.4	5.4	3.8	-	9.6	4.2%
Mozambique	1.3	-	0.2	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	97.6%	0.1	4.3	0.2	-	4.6	2.3%
Niger ³	0.6	0.0	0.0	..	..	..	..	..	..	..	..	..
Nigeria	43.8	53.9	1.4	9.0	108.1	90.3%	44.8	24.9	12.5	0.4	82.6	54.3%
Senegal	3.5	-	0.4	0.1	4.0	87.2%	1.1	4.7	1.3	-	7.1	15.4%
South Africa	280.5	12.9	13.3	2.6	309.3	94.9%	27.2	18.9	11.1	2.2	59.4	45.8%
South Sudan ⁴	..	..	..	..	..	..	..	..	..	..	..	..
Sudan ⁴	5.5	0.3	0.1	4.1	9.9	57.9%	6.7	53.4	4.3	-	64.4	10.3%
United Rep. of Tanzania	2.6	-	0.3	47.6	50.5	5.2%	3.7	19.4	3.5	2.5	29.1	12.8%
Togo	0.9	-	0.3	6.1	7.3	13.0%	1.3	1.3	0.6	0.3	3.4	38.8%
Tunisia	17.6	0.5	2.8	0.1	21.1	86.2%	3.4	2.1	1.4	0.0	6.9	49.0%
Zambia	1.7	-	0.3	110.8	112.7	1.5%	2.2	10.5	1.0	4.4	18.1	12.1%
Zimbabwe	13.3	0.3	0.9	0.9	15.4	87.9%	1.2	7.1	1.3	0.0	9.7	12.8%
Other Africa ³	16.4	2.4	0.7	235.2	254.7	7.4%	20.2	99.1	14.9	9.3	143.5	14.1%
Africa	658.3	125.0	53.1	1 656.5	2 493.0	31.4%	222.3	363.4	95.7	73.6	755.1	29.4%

1. Please refer to Part I, Chapter 4, *Geographical Coverage*.2. For 2000, Serbia includes Montenegro for all greenhouse gases and Kosovo for all emissions other than CO₂ from fuel combustion.3. For 2000, Other Africa includes Niger for all emissions except CO₂ from fuel combustion, CO₂ from fugitive sources and CO₂ from industrial processes.

4. Prior to 2012, data for South Sudan are included in Sudan.

2000 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

N ₂ O						HFCs	PFCs	SF ₆	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP ¹	
116.0	69.7	1 286.1	363.4	1 835.2	6.3%	70.6	50.0	35.8	23 053.1	52.8%	1.10	Non-OECD Total
0.1	-	0.7	0.5	1.3	5.6%	0.0	-	-	7.6	45.6%	0.52	Albania
0.0	-	0.4	0.1	0.5	1.1%	0.0	-	-	6.9	68.4%	0.87	Armenia
0.1	-	1.6	0.4	2.0	3.9%	0.0	0.0	-	40.1	79.9%	1.26	Azerbaijan
0.5	1.7	8.1	0.6	10.8	4.2%	0.1	0.0	-	122.6	43.8%	1.88	Belarus
0.2	-	0.7	0.9	1.7	9.7%	0.1	0.3	-	19.4	76.5%	1.03	Bosnia-Herzegovina
0.3	1.0	2.2	0.9	4.4	6.8%	0.1	0.0	-	65.8	68.0%	1.10	Bulgaria
0.2	0.9	1.5	0.3	2.9	7.6%	0.0	0.1	-	25.9	73.2%	0.47	Croatia
0.0	-	0.2	0.1	0.3	9.7%	0.1	-	-	7.9	80.3%	0.50	Cyprus
0.1	-	0.4	0.2	0.7	8.5%	0.1	-	-	11.3	80.3%	0.76	FYR of Macedonia
0.1	0.6	1.1	0.2	2.0	3.4%	0.0	-	-	11.5	52.8%	0.90	Georgia
-	-	-	-	-	0.0%	-	-	-	0.3	100.0%	0.44	Gibraltar
1.9	-	9.8	4.2	16.0	12.0%	0.1	-	-	185.5	81.2%	1.44	Kazakhstan
..	..	..	..	..	..	..	..	..	..	..	..	Kosovo
0.1	-	1.2	0.3	1.6	8.0%	0.0	-	-	10.2	47.2%	1.13	Kyrgyzstan
0.1	-	0.9	0.2	1.2	11.5%	0.2	0.0	-	16.0	52.2%	0.79	Latvia
0.1	1.3	2.0	0.2	3.7	3.0%	0.2	0.0	-	26.2	46.4%	0.78	Lithuania
0.0	-	0.0	0.0	0.1	10.3%	0.1	-	-	2.5	86.1%	0.31	Malta
0.0	-	0.6	0.2	0.8	5.2%	0.0	-	-	10.8	76.1%	1.44	Republic of Moldova
..	..	..	..	..	..	..	..	..	..	..	..	Montenegro
0.7	3.2	6.0	1.5	11.3	6.5%	0.1	0.7	0.0	133.9	74.9%	0.88	Romania
7.3	10.2	36.1	39.6	93.2	7.8%	16.8	24.9	9.0	2 647.8	72.6%	2.10	Russian Federation
0.4	0.5	2.5	0.7	4.2	10.7%	1.7	0.3	-	60.8	77.8%	1.24	Serbia
0.0	-	0.9	0.2	1.1	1.0%	0.0	0.8	-	7.9	33.4%	1.21	Tajikistan
0.1	0.5	2.1	0.2	2.9	2.1%	0.0	-	-	63.6	86.5%	2.97	Turkmenistan
1.1	8.8	12.0	2.7	24.6	4.5%	0.1	0.2	0.2	471.5	81.2%	2.24	Ukraine
0.6	0.1	7.5	1.0	9.2	6.7%	0.2	-	-	167.8	83.3%	3.08	Uzbekistan
14.1	28.8	98.3	55.1	196.3	7.2%	19.8	27.4	9.2	4 129.0	73.5%	1.82	Non-OECD Europe and Eurasia
0.4	0.6	2.7	0.8	4.5	8.3%	0.1	-	0.3	132.7	86.5%	0.48	Algeria
0.2	-	2.5	0.3	3.0	6.1%	0.0	-	-	41.6	64.6%	0.99	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	41.3%	0.69	Botswana
0.2	-	7.5	3.0	10.7	2.1%	-	0.5	-	88.9	8.8%	2.61	Cameroon
0.1	-	1.4	1.9	3.4	1.8%	0.0	-	-	59.1	14.3%	4.59	Congo
0.2	-	2.0	6.2	8.5	2.5%	-	-	-	167.7	5.6%	3.83	Côte d'Ivoire
1.1	-	16.6	40.7	58.5	2.0%	-	-	-	1 036.7	0.8%	43.16	Dem. Rep. of Congo
0.6	3.3	12.2	2.1	18.2	3.4%	0.1	1.4	1.1	177.0	67.5%	0.38	Egypt
0.0	-	1.3	0.1	1.4	3.3%	-	-	-	4.7	21.0%	0.93	Eritrea
1.5	-	23.5	1.8	26.7	5.4%	0.0	-	-	77.0	15.3%	2.10	Ethiopia
0.0	-	0.1	0.1	0.3	18.0%	0.0	-	-	13.2	77.5%	0.69	Gabon
0.4	-	3.8	1.0	5.3	8.4%	0.0	0.1	-	29.7	27.7%	0.79	Ghana
0.6	-	8.1	0.6	9.2	6.0%	-	-	-	43.1	34.3%	0.72	Kenya
0.2	-	0.7	0.4	1.3	13.3%	-	-	0.2	63.7	89.9%	0.96	Libya
0.0	-	0.1	0.0	0.2	5.8%	-	-	-	2.9	85.4%	0.24	Mauritius
0.4	-	4.5	0.7	5.6	7.2%	-	-	-	50.5	60.1%	0.44	Morocco
0.3	-	6.6	2.7	9.6	3.2%	0.0	0.0	-	65.7	5.6%	6.93	Mozambique
0.1	-	3.2	0.2	3.5	2.4%	-	-	-	10.1	20.8%	0.97	Namibia
..	..	..	..	..	..	..	..	..	..	..	..	Niger
1.9	-	16.2	2.9	21.0	8.9%	0.1	-	0.2	211.9	68.1%	0.68	Nigeria
0.1	-	3.3	0.3	3.8	3.0%	-	-	-	14.9	31.7%	0.89	Senegal
2.6	1.5	13.7	5.4	23.2	11.1%	0.3	0.5	1.0	393.7	82.1%	1.01	South Africa
..	..	..	..	..	..	..	..	..	..	..	..	South Sudan
0.6	-	40.3	2.8	43.8	1.4%	-	-	-	118.1	11.0%	1.61	Sudan
0.5	-	14.9	3.2	18.6	2.7%	-	-	-	98.2	7.0%	2.26	United Rep. of Tanzania
0.1	-	1.3	0.4	1.8	5.9%	-	-	-	12.6	19.0%	2.22	Togo
0.2	0.4	1.5	0.3	2.4	8.4%	-	-	-	30.4	71.5%	0.48	Tunisia
0.2	0.5	15.2	5.8	21.7	1.0%	0.0	-	-	152.5	2.7%	7.70	Zambia
0.2	-	5.0	0.4	5.6	4.4%	-	-	-	30.7	49.1%	5.38	Zimbabwe
2.6	-	73.0	15.5	91.1	2.8%	0.0	-	-	489.3	8.5%	3.44	Other Africa
15.6	6.2	285.6	101.3	408.8	3.8%	0.5	2.5	2.8	3 662.7	27.9%	1.55	Africa

1. GHG / GDP PPP ratio is expressed in kg of CO₂-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 CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Bangladesh	20.9	0.0	2.7	7.5	31.2	67.1%	7.9	65.7	15.5	0.1	89.2	8.9%
Brunei Darussalam	4.4	0.4	0.1	7.5	12.4	38.7%	3.8	0.0	0.1	-	3.9	97.6%
Cambodia	2.0	-	0.0	3.2	5.2	38.0%	1.1	12.5	1.3	0.1	15.0	7.5%
DPR of Korea	70.0	-	3.2	2.7	75.9	92.2%	10.2	3.9	3.1	0.1	17.3	58.7%
India	892.0	6.7	62.7	57.3	1 018.7	88.2%	82.1	376.0	101.1	2.4	561.6	14.6%
Indonesia	258.3	9.6	19.5	890.7	1 178.1	22.7%	45.6	78.9	39.9	3.4	167.8	27.2%
Malaysia	114.1	2.8	8.9	90.0	215.8	54.2%	17.8	5.6	4.8	1.0	29.2	60.8%
Mongolia	9.0	-	0.1	38.6	47.7	18.8%	0.3	8.5	0.3	0.2	9.2	2.9%
Myanmar	9.3	0.1	0.3	455.3	465.0	2.0%	6.2	44.3	5.7	10.9	66.9	9.2%
Nepal	3.1	-	0.2	0.1	3.4	90.9%	1.4	17.6	2.2	-	21.2	6.6%
Pakistan	96.0	2.2	6.4	0.4	104.9	93.5%	24.6	76.9	15.4	0.1	117.1	21.0%
Philippines	68.1	0.0	6.0	2.9	76.9	88.5%	6.1	31.5	12.2	0.0	49.9	12.3%
Singapore	42.1	-	2.7	0.4	45.1	93.3%	0.9	0.0	0.8	0.0	1.7	52.9%
Sri Lanka	10.5	-	0.6	0.6	11.6	90.3%	0.6	6.2	2.8	-	9.6	6.7%
Chinese Taipei	214.3	1.0	14.6	0.8	230.8	93.3%	1.3	1.1	5.3	0.0	7.7	16.6%
Thailand	152.3	0.3	16.4	8.7	177.7	85.9%	16.4	54.5	12.5	0.1	83.4	19.6%
Viet Nam	44.2	1.4	7.9	6.8	60.3	75.7%	14.4	51.4	9.6	0.0	75.4	19.1%
Other Asia	11.4	0.6	0.4	51.8	64.1	18.6%	2.4	16.0	4.0	0.9	23.3	10.3%
Asia (excl. China)	2 021.9	25.0	152.7	1 625.3	3 824.9	53.5%	243.1	850.5	236.5	19.4	1 349.6	18.0%
People's Rep. of China	3 259.3	45.6	432.8	100.5	3 838.3	86.1%	377.3	485.7	176.8	3.5	1 043.4	36.2%
Hong Kong, China	40.3	1.3	0.7	0.1	42.4	98.3%	0.8	-	1.9	-	2.7	28.9%
China	3 299.7	47.0	433.5	100.5	3 880.7	86.2%	378.1	485.7	178.8	3.5	1 046.1	36.1%
Argentina	139.3	2.1	4.5	9.2	155.1	91.2%	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	292.3	5.1	33.2	606.8	937.4	31.7%	27.7	245.5	53.8	16.0	343.0	8.1%
Colombia	54.2	1.9	5.0	41.4	102.5	54.7%	10.7	36.7	5.9	1.8	55.1	19.5%
Costa Rica	4.5	-	0.5	0.1	5.1	88.6%	0.2	2.2	0.5	-	2.9	6.9%
Cuba	27.3	0.2	1.0	3.5	32.1	85.9%	1.1	7.0	2.5	-	10.6	10.3%
Curaçao	5.6	-	-	0.0	5.7	99.2%	0.1	0.0	0.0	-	0.1	55.6%
Dominican Republic	16.2	-	1.2	0.4	17.8	91.1%	1.0	3.7	1.5	-	6.2	16.5%
Ecuador	18.1	2.5	1.0	0.9	22.5	91.6%	2.9	8.4	1.6	0.0	12.8	22.3%
El Salvador	5.2	-	0.4	0.2	5.8	88.8%	0.4	1.4	1.0	-	2.8	14.1%
Guatemala	8.6	0.0	0.8	108.5	117.8	7.3%	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	4.5	-	0.4	3.3	8.3	54.4%	0.3	2.5	0.7	-	3.4	9.2%
Jamaica	9.8	-	0.4	0.1	10.3	95.1%	0.3	0.6	0.5	-	1.4	19.6%
Nicaragua	3.5	-	0.2	0.4	4.1	85.6%	0.4	4.2	1.0	-	5.6	6.5%
Panama	4.9	-	0.3	0.4	5.6	87.3%	0.2	2.1	0.5	-	2.8	5.8%
Paraguay	3.3	-	0.3	26.3	29.9	11.0%	0.7	12.4	1.0	1.1	15.2	4.8%
Peru	26.4	0.4	1.7	20.7	49.3	54.5%	1.5	10.1	3.7	1.0	16.3	9.3%
Trinidad and Tobago	10.1	0.2	7.4	0.0	17.7	58.2%	4.3	0.1	1.0	0.1	5.5	77.6%
Uruguay	5.1	0.0	0.3	0.4	5.8	87.9%	0.2	17.2	0.8	-	18.2	0.8%
Venezuela	116.2	7.5	7.5	38.6	169.7	72.9%	28.4	22.2	5.3	1.6	57.5	49.4%
Other Non-OECD Americas	15.1	0.0	0.9	16.8	32.8	46.1%	0.2	2.4	2.5	0.2	5.2	3.8%
Non-OECD Americas	778.8	20.7	67.6	1 009.3	1 876.3	42.6%	101.6	471.3	96.6	37.5	707.1	14.4%
Bahrain	15.8	0.0	1.3	0.1	17.3	91.8%	2.1	0.0	0.3	0.0	2.4	86.6%
Islamic Rep. of Iran	312.2	21.4	15.8	0.8	350.1	95.3%	48.6	19.8	11.3	0.0	79.7	61.0%
Iraq	70.8	14.1	1.0	3.3	89.3	95.2%	16.1	2.8	3.4	0.0	22.3	72.3%
Jordan	14.4	-	1.1	0.0	15.6	92.8%	0.2	0.4	0.8	-	1.4	16.5%
Kuwait	46.3	5.6	2.4	0.0	54.3	95.5%	9.4	0.1	0.7	0.0	10.2	91.9%
Lebanon	14.0	-	1.2	0.1	15.2	91.9%	0.1	0.2	0.6	-	0.9	12.1%
Oman	20.4	4.3	0.5	18.0	43.2	57.1%	9.4	0.5	0.4	-	10.3	90.9%
Qatar	21.3	6.6	3.0	0.0	30.9	90.0%	12.6	0.1	0.4	0.0	13.1	96.0%
Saudi Arabia	234.6	7.6	19.0	0.3	261.6	92.6%	34.8	1.9	4.9	0.2	41.8	83.2%
Syrian Arab Republic	37.0	6.1	2.1	0.2	45.4	94.9%	8.0	2.7	1.9	-	12.6	63.1%
United Arab Emirates	85.5	2.9	4.9	0.1	93.5	94.6%	18.6	0.5	0.8	-	19.9	93.5%
Yemen	13.3	1.4	0.7	0.0	15.5	95.3%	1.9	2.7	1.5	-	6.1	31.5%
Middle East	885.6	70.0	53.1	23.0	1 031.7	92.6%	161.7	31.7	27.0	0.3	220.7	73.3%

2000 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

Energy	N ₂ O					Share of energy	HFCs	PFCs	SF ₆	Total			GHG / GDP PPP ¹	
	Industrial processes	Agriculture	Other	Total	Industrial processes		Total	Share of energy						
1.5	-	16.2	1.9	19.6	7.4%	-	-	-	140.0	21.6%	0.74	Bangladesh		
0.0	-	0.1	0.3	0.4	2.6%	0.1	-	-	16.8	51.2%	0.76	Brunei Darussalam		
0.2	-	2.6	0.4	3.3	6.2%	-	-	-	23.4	14.0%	1.58	Cambodia		
0.4	-	2.0	0.8	3.3	12.9%	1.8	-	-	98.3	82.0%	0.95	DPR of Korea		
23.4	1.6	149.9	24.6	199.5	11.7%	8.1	2.0	3.4	1 793.3	56.0%	0.76	India		
4.2	0.2	59.9	26.3	90.7	4.7%	-	0.2	0.8	1 437.6	22.1%	1.39	Indonesia		
0.5	0.5	8.4	3.6	12.9	3.7%	0.0	0.1	0.4	258.5	52.3%	0.79	Malaysia		
0.1	-	4.6	0.4	5.1	2.7%	-	-	-	62.0	15.1%	7.43	Mongolia		
0.7	-	10.0	20.5	31.2	2.3%	-	-	-	563.1	2.9%	18.78	Myanmar		
0.6	-	3.2	0.4	4.2	13.4%	-	-	-	28.8	17.6%	0.89	Nepal		
3.1	0.7	17.8	3.2	24.8	12.4%	-	-	0.3	247.1	50.9%	0.57	Pakistan		
1.2	0.0	8.9	2.2	12.2	9.6%	-	-	0.2	139.3	54.2%	0.47	Philippines		
0.1	5.6	0.0	0.3	6.0	1.5%	0.7	0.4	0.3	54.2	79.5%	0.29	Singapore		
0.3	-	1.4	0.4	2.0	12.4%	-	-	-	23.3	49.0%	0.28	Sri Lanka		
0.9	0.5	2.1	1.2	4.7	19.9%	0.1	4.1	1.6	249.1	87.3%	0.49	Chinese Taipei		
3.7	0.4	13.5	2.5	20.1	18.7%	-	-	0.5	281.7	61.3%	0.57	Thailand		
1.2	-	16.6	1.8	19.6	6.1%	-	-	-	155.3	39.4%	0.85	Viet Nam		
0.5	-	8.3	2.1	10.8	4.5%	0.0	-	-	98.2	15.1%	1.38	Other Asia		
42.6	9.5	325.5	93.0	470.6	9.0%	10.8	6.8	7.6	5 670.3	41.1%	0.89	Asia (excl. China)		
29.3	15.6	303.6	44.0	392.4	7.5%	38.1	8.0	10.8	5 331.0	69.6%	1.31	People's Rep. of China		
0.2	-	-	0.3	0.5	32.9%	-	-	0.2	45.7	93.1%	0.23	Hong Kong, China		
29.5	15.6	303.6	44.3	392.9	7.5%	38.1	8.0	10.9	5 376.7	69.8%	1.26	China		
1.4	0.1	36.0	4.4	42.0	3.4%	0.1	0.1	0.2	296.6	53.6%	0.78	Argentina		
0.1	-	5.5	5.8	11.3	0.8%	-	-	-	170.5	6.5%	5.21	Bolivia		
5.1	7.7	122.7	32.1	167.6	3.0%	0.1	4.1	0.8	1 453.1	22.7%	0.85	Brazil		
0.6	0.3	17.1	2.9	20.9	3.1%	-	0.0	0.0	178.5	37.8%	0.60	Colombia		
0.1	0.1	1.3	0.2	1.7	5.0%	0.0	-	-	9.7	49.4%	0.29	Costa Rica		
0.4	0.6	5.7	0.6	7.3	5.5%	0.0	-	-	50.0	58.1%	0.77	Cuba		
0.0	-	0.0	0.1	0.1	15.5%	-	-	-	5.9	97.3%	2.79	Curaçao		
0.2	-	1.6	0.4	2.2	8.4%	-	-	-	26.3	66.4%	0.43	Dominican Republic		
0.2	-	3.5	0.4	4.1	3.8%	0.0	-	-	39.4	59.9%	0.47	Ecuador		
0.1	-	1.0	0.2	1.4	7.8%	0.0	-	-	10.0	56.6%	0.30	El Salvador		
0.3	-	8.2	6.0	14.4	1.8%	0.2	-	-	151.7	6.5%	2.41	Guatemala		
0.1	-	1.2	0.1	1.4	5.3%	-	-	-	7.1	30.6%	0.54	Haiti		
0.1	-	2.6	0.4	3.1	2.8%	-	-	-	14.8	32.9%	0.77	Honduras		
0.1	-	0.4	0.2	0.6	8.9%	0.0	-	-	12.3	82.1%	0.71	Jamaica		
0.1	-	2.9	0.3	3.3	2.7%	-	-	-	13.0	30.7%	0.82	Nicaragua		
0.0	-	0.9	0.1	1.0	4.7%	-	-	-	9.4	54.0%	0.35	Panama		
0.2	-	6.1	1.5	7.8	1.9%	-	-	-	52.9	7.9%	1.84	Paraguay		
0.2	0.0	5.9	1.6	7.7	3.1%	0.1	-	-	73.4	38.9%	0.49	Peru		
0.0	-	0.1	0.1	0.2	10.5%	-	-	-	23.5	62.3%	1.17	Trinidad and Tobago		
0.1	-	6.1	0.1	6.3	1.6%	0.0	-	-	30.4	17.7%	0.82	Uruguay		
0.5	0.0	10.1	2.6	13.2	3.7%	0.5	0.5	0.2	241.6	63.2%	0.77	Venezuela		
0.1	-	2.4	0.8	3.2	3.2%	0.0	0.0	0.0	41.3	37.4%	1.07	Other Non-OECD Americas		
9.9	8.9	241.2	61.0	320.9	3.1%	1.1	4.7	1.2	2 911.3	31.3%	0.84	Non-OECD Americas		
0.0	-	0.0	0.1	0.1	26.8%	-	0.2	-	20.0	89.8%	0.74	Bahrain		
2.1	0.5	18.4	3.1	24.1	8.8%	-	0.1	1.7	455.7	84.3%	0.73	Islamic Rep. of Iran		
0.3	-	3.3	0.8	4.5	7.4%	-	-	0.2	116.2	87.3%	0.47	Iraq		
0.1	-	0.3	0.2	0.6	8.5%	0.0	-	-	17.6	83.7%	0.54	Jordan		
0.1	-	0.1	0.3	0.5	27.9%	0.1	-	0.4	65.5	93.7%	0.52	Kuwait		
0.1	-	0.3	0.2	0.6	14.0%	-	-	-	16.7	84.8%	0.47	Lebanon		
0.1	-	0.3	0.1	0.5	14.8%	0.0	-	-	54.1	63.1%	0.61	Oman		
0.1	-	0.1	0.1	0.3	26.9%	-	-	-	44.3	91.4%	0.74	Qatar		
0.9	-	2.8	2.4	6.0	14.4%	0.1	-	1.3	310.7	89.4%	0.47	Saudi Arabia		
0.3	0.2	3.6	0.6	4.7	6.1%	-	-	-	62.7	81.9%	1.04	Syrian Arab Republic		
0.2	-	0.5	0.5	1.1	15.5%	-	0.2	0.7	115.4	93.0%	0.40	United Arab Emirates		
0.2	-	2.1	0.4	2.7	9.2%	-	-	-	24.3	69.6%	0.39	Yemen		
4.5	0.7	31.8	8.7	45.7	9.8%	0.3	0.6	4.1	1 303.1	86.1%	0.56	Middle East		

1. GHG / GDP PPP ratio is expressed in kg of CO₂-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 CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
World ¹	27 047.6	562.9	1 901.2	7 084.9	36 596.5	75.4%	2 532.6	3 170.3	1 225.4	283.9	7 212.2	35.1%
<i>Annex I Parties</i>	13 882.5	233.5	687.2	667.7	15 470.8	91.2%	912.3	663.5	446.7	20.9	2 043.3	44.6%
<i>Annex II Parties</i>	11 107.9	57.5	484.1	333.6	11 983.1	93.2%	404.7	526.0	306.1	11.4	1 248.2	32.4%
<i>North America</i>	6 237.9	23.6	186.3	111.9	6 559.7	95.5%	256.5	216.7	162.9	6.4	642.5	39.9%
<i>Europe</i>	3 268.7	17.0	198.6	163.3	3 647.7	90.1%	106.0	184.1	122.1	1.8	414.0	25.6%
<i>Asia Oceania</i>	1 601.3	17.0	99.1	58.4	1 775.7	91.1%	42.1	125.2	21.2	3.2	191.8	22.0%
<i>Annex I EIT</i>	2 548.6	173.7	176.5	332.7	3 231.5	84.2%	497.2	115.5	107.7	9.4	729.8	68.1%
<i>Non-Annex I Parties</i>	12 162.0	329.4	1 213.9	6 417.3	20 122.6	62.1%	1 620.3	2 506.8	778.7	263.0	5 168.9	31.3%
<i>Annex I Kyoto Parties</i>	7 363.6	205.5	470.6	511.7	8 551.5	88.5%	644.4	416.7	246.0	14.4	1 321.6	48.8%
Int. marine bunkers	580.3	-	-	-	580.3	100.0%	-	-	-	-	-	0.0%
Int. aviation bunkers	422.8	-	-	-	422.8	100.0%	-	-	-	-	-	0.0%
Non-OECD Total	13 228.9	479.8	1 285.0	6 658.6	21 652.4	63.3%	2 013.1	2 522.7	827.1	269.9	5 632.9	35.7%
OECD Total	12 815.5	83.0	616.2	426.3	13 941.0	92.5%	519.5	647.6	398.3	14.0	1 579.3	32.9%
Canada	535.6	3.8	28.8	42.8	611.0	88.3%	46.0	26.1	31.2	3.3	106.7	43.2%
Chile	54.4	0.5	4.4	0.3	59.7	92.1%	4.5	7.2	6.4	0.2	18.2	24.6%
Mexico	381.8	4.6	25.0	52.0	463.3	83.4%	36.5	54.3	20.4	2.1	113.3	32.2%
United States	5 702.3	19.8	157.5	69.1	5 948.6	96.2%	210.5	190.6	131.7	3.1	535.8	39.3%
OECD Americas	6 674.0	28.7	215.8	164.2	7 082.7	94.6%	297.5	278.2	189.6	8.7	774.0	38.4%
Australia	371.4	12.1	14.8	22.6	420.8	91.1%	37.7	70.1	11.4	2.8	122.0	30.9%
Israel	58.8	0.0	2.7	0.2	61.8	95.2%	0.7	1.1	1.7	0.0	3.5	19.6%
Japan	1 196.1	4.8	82.8	30.7	1 314.5	91.4%	3.5	30.2	8.3	0.3	42.2	8.2%
Korea	457.5	11.0	43.8	0.5	512.8	91.4%	6.4	12.3	13.2	0.1	32.0	20.0%
New Zealand	33.7	0.1	1.6	5.1	40.4	83.5%	1.0	24.9	1.6	0.0	27.5	3.6%
OECD Asia Oceania	2 117.6	28.0	145.6	59.1	2 350.3	91.3%	49.2	138.6	36.1	3.3	227.2	21.7%
Austria	75.1	0.5	4.8	0.5	80.8	93.5%	1.8	4.1	2.4	0.0	8.4	21.9%
Belgium	107.4	-	9.7	0.6	117.7	91.2%	1.2	5.7	2.7	0.0	9.6	12.7%
Czech Republic	118.5	1.8	5.6	1.0	126.7	94.9%	5.0	3.9	3.2	0.0	12.0	41.4%
Denmark	48.4	0.4	1.6	3.0	53.5	91.3%	1.3	5.2	1.5	-	8.0	16.4%
Estonia	16.8	0.7	0.7	10.3	28.5	61.6%	0.9	0.6	0.7	-	2.2	41.3%
Finland	54.6	0.4	2.5	51.3	108.8	50.6%	0.8	2.0	6.9	0.0	9.8	8.3%
France	370.2	2.3	24.9	7.6	405.1	92.0%	34.4	36.9	11.5	0.1	82.9	41.5%
Germany	786.8	2.6	35.3	35.4	860.2	91.8%	16.5	29.6	15.4	0.2	61.7	26.7%
Greece	95.2	0.1	8.4	0.4	104.2	91.5%	1.9	3.6	2.6	0.0	8.2	23.3%
Hungary	54.7	0.3	3.9	1.0	60.0	91.8%	2.3	2.6	2.9	0.0	7.9	29.4%
Iceland	2.2	-	0.9	17.6	20.8	10.8%	0.0	0.2	0.1	0.0	0.3	1.2%
Ireland	44.2	0.5	2.3	8.9	55.9	80.0%	1.8	11.8	1.4	0.0	15.0	12.1%
Italy	456.3	0.4	32.3	2.3	491.3	93.0%	6.1	16.2	17.7	0.1	40.1	15.2%
Luxembourg	11.5	-	0.6	0.0	12.0	95.3%	0.1	0.9	0.1	0.0	1.1	10.6%
Netherlands	163.2	0.6	12.2	6.5	182.6	89.8%	5.0	9.2	6.9	0.1	21.3	23.7%
Norway	34.6	1.4	7.2	0.7	43.9	81.9%	12.4	2.1	2.3	0.1	16.9	73.2%
Poland	296.3	3.4	13.7	25.4	338.8	88.5%	46.2	15.4	9.0	0.0	70.6	65.4%
Portugal	61.4	-	5.6	0.3	67.3	91.2%	1.6	4.3	6.9	0.8	13.6	11.8%
Slovak Republic	37.3	0.9	4.3	0.4	42.8	89.0%	0.8	1.5	1.7	0.0	4.1	20.4%
Slovenia	15.5	-	2.2	0.3	17.9	86.4%	1.1	1.1	0.7	0.0	3.0	37.4%
Spain	333.6	1.4	26.2	1.5	362.8	92.3%	4.0	20.6	11.3	0.4	36.3	11.0%
Sweden	49.1	0.8	4.2	14.6	68.7	72.6%	1.2	3.2	7.1	0.0	11.5	10.3%
Switzerland	43.9	0.0	2.6	0.4	46.9	93.6%	0.9	3.2	0.8	0.0	5.0	19.2%
Turkey	216.2	2.3	25.8	1.4	245.7	88.9%	10.4	21.6	32.3	0.1	64.4	16.2%
United Kingdom	531.2	5.5	17.4	11.4	565.4	94.9%	14.8	25.1	24.4	0.0	64.4	23.0%
OECD Europe	4 023.9	26.4	254.8	203.0	4 508.1	89.8%	172.8	230.8	172.6	2.0	578.1	29.9%
<i>European Union - 28</i>	3 915.9	23.9	236.9	195.3	4 372.1	90.1%	168.1	218.8	154.9	2.0	543.8	30.9%
G7	9 578.4	39.3	379.0	199.4	10 196.1	94.3%	331.8	354.7	240.1	7.1	933.8	35.5%
G8	11 060.0	181.0	472.1	432.5	12 145.6	92.6%	708.5	405.8	297.3	16.0	1 427.5	49.6%
G20	22 197.7	338.1	1 582.4	4 338.1	28 456.3	79.2%	1 774.7	2 062.6	913.9	186.4	4 937.6	35.9%

1. Total World includes Non-OECD total, OECD total as well as international bunkers.

Sources: IEA, CO₂ emissions from fuel combustion. EDGAR 4.3.0 and 4.2 FT2010 databases for other emissions. In general, estimates for emissions other than CO₂ from fuel combustion are subject to significantly larger uncertainties.

2005 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

N ₂ O						HFCs	PFCs	SF ₆	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP ¹	
284.0	163.7	1 953.7	566.9	2 968.3	9.6%	534.8	93.3	131.2	47 536.4	64.0%	0.74	World
144.6	123.0	537.4	141.5	946.6	15.3%	347.4	64.2	73.5	18 945.8	80.1%	0.52	Annex I Parties
122.5	78.1	420.7	103.6	724.8	16.9%	312.3	35.4	62.0	14 365.8	81.4%	0.45	Annex II Parties
80.4	27.5	202.6	50.3	360.8	22.3%	198.2	15.2	46.1	7 822.6	84.3%	0.55	North America
27.8	45.7	148.6	35.9	258.0	10.8%	67.4	11.5	10.9	4 409.4	77.6%	0.35	Europe
14.3	4.9	69.4	17.4	106.0	13.5%	46.6	8.7	5.0	2 133.8	78.5%	0.45	Asia Oceania
18.5	41.1	94.8	34.4	188.8	9.8%	32.0	28.2	9.8	4 220.1	76.7%	1.17	Annex I EIT
139.4	40.7	1 416.3	425.4	2 021.8	6.9%	187.4	29.1	57.7	27 587.5	51.7%	0.97	Non-Annex I Parties
60.0	89.5	304.3	87.1	540.9	11.1%	145.6	48.4	25.7	10 633.6	77.8%	0.51	Annex I Kyoto Parties
-	-	-	-	-	0.0%	-	-	-	580.3	100.0%	..	Int. marine bunkers
-	-	-	-	-	0.0%	-	-	-	422.8	100.0%	..	Int. aviation bunkers
142.6	68.2	1 440.1	442.8	2 093.7	6.8%	201.7	53.7	61.7	29 696.1	53.4%	1.05	Non-OECD Total
141.4	95.5	513.6	124.1	874.6	16.2%	333.2	39.6	69.5	16 837.2	80.5%	0.46	OECD Total
7.2	2.1	23.6	7.2	40.2	18.0%	11.9	6.2	4.2	780.3	76.0%	0.67	Canada
0.8	0.9	6.0	0.9	8.6	9.6%	-	0.0	0.0	86.5	69.7%	0.42	Chile
3.4	1.2	31.9	7.1	43.6	7.8%	7.1	-	0.4	627.7	67.9%	0.47	Mexico
73.1	25.4	179.0	43.1	320.6	22.8%	186.3	9.0	42.0	7 042.3	85.3%	0.54	United States
84.6	29.6	240.5	58.4	413.0	20.5%	205.3	15.2	46.5	8 536.8	83.0%	0.54	OECD Americas
4.7	1.8	48.9	7.7	63.0	7.4%	5.1	0.8	0.5	612.3	69.5%	0.85	Australia
0.3	0.2	0.9	0.6	2.0	14.0%	1.3	0.1	0.6	69.2	86.4%	0.41	Israel
9.2	3.1	8.3	9.4	30.0	30.6%	40.8	7.6	4.5	1 439.6	84.3%	0.37	Japan
3.3	2.2	4.9	3.6	14.0	23.3%	4.9	2.5	4.6	570.8	83.8%	0.49	Korea
0.5	-	12.2	0.3	13.0	3.5%	0.7	0.2	0.1	81.9	43.0%	0.77	New Zealand
17.9	7.4	75.2	21.6	122.0	14.6%	52.9	11.2	10.2	2 773.8	79.8%	0.46	OECD Asia Oceania
0.8	0.3	2.3	0.8	4.2	19.1%	1.9	0.2	0.2	95.7	81.7%	0.34	Austria
0.8	3.9	2.9	1.2	8.8	8.9%	1.9	0.0	0.1	138.1	79.2%	0.40	Belgium
2.4	1.1	3.3	0.9	7.6	31.2%	1.1	0.0	0.0	147.5	86.5%	0.65	Czech Republic
0.6	-	4.6	0.6	5.8	10.1%	1.2	0.0	0.0	68.5	74.0%	0.37	Denmark
0.2	-	0.6	0.2	1.0	23.3%	0.0	0.0	0.0	31.7	58.9%	1.41	Estonia
1.9	1.6	3.0	0.6	7.1	26.5%	0.8	0.0	0.1	126.4	45.6%	0.75	Finland
4.0	6.9	32.8	4.6	48.2	8.2%	12.7	0.7	1.6	551.2	74.6%	0.29	France
5.9	10.4	29.5	5.7	51.5	11.4%	14.7	1.4	5.4	994.9	81.6%	0.38	Germany
1.0	0.5	3.5	1.0	6.0	16.0%	1.9	0.1	0.1	120.5	81.5%	0.43	Greece
0.3	1.8	4.2	0.7	7.0	4.8%	1.2	0.3	0.0	76.3	75.6%	0.44	Hungary
0.0	0.0	0.3	0.0	0.4	10.2%	0.0	0.1	0.0	21.7	10.5%	2.03	Iceland
0.3	-	6.8	0.4	7.5	4.4%	0.9	0.2	0.1	79.5	58.9%	0.48	Ireland
3.3	7.5	12.5	5.3	28.7	11.6%	9.1	0.4	0.9	570.5	81.7%	0.33	Italy
0.1	-	0.3	0.1	0.5	20.0%	0.1	0.0	-	13.7	85.5%	0.44	Luxembourg
0.9	5.6	5.8	1.3	13.5	6.4%	3.1	0.4	0.1	220.9	76.9%	0.37	Netherlands
0.4	1.9	1.8	0.8	5.0	7.4%	0.3	4.6	0.3	71.0	68.5%	0.32	Norway
4.1	4.8	17.4	2.6	29.0	14.2%	1.7	0.6	0.2	440.9	79.4%	0.84	Poland
0.7	0.5	2.6	2.1	6.0	11.8%	0.6	0.0	0.1	87.7	72.6%	0.38	Portugal
0.4	1.2	1.3	0.3	3.3	13.4%	0.3	0.1	-	50.6	77.9%	0.57	Slovak Republic
0.2	-	0.8	0.2	1.1	13.3%	0.4	0.1	0.0	22.5	74.4%	0.47	Slovenia
3.0	1.7	16.6	5.0	26.3	11.4%	6.3	2.0	0.7	434.4	78.7%	0.36	Spain
1.1	0.5	3.5	0.8	5.9	19.0%	1.1	0.7	0.2	88.2	59.2%	0.28	Sweden
0.4	0.1	1.4	0.5	2.5	17.5%	1.6	0.1	0.3	56.3	80.3%	0.19	Switzerland
3.6	3.9	21.8	3.4	32.6	10.9%	2.9	0.5	1.6	347.7	66.9%	0.45	Turkey
2.7	4.1	18.4	5.0	30.2	9.0%	9.0	0.6	0.6	670.2	82.7%	0.32	United Kingdom
39.0	58.5	197.9	44.1	339.6	11.5%	75.0	13.1	12.7	5 526.6	77.1%	0.38	OECD Europe
36.2	59.2	185.9	42.1	323.3	11.2%	72.8	8.2	10.4	5 330.6	77.7%	0.39	European Union - 28
105.4	59.6	304.1	80.4	549.4	19.2%	284.6	25.9	59.1	12 048.9	83.5%	0.45	G7
112.7	73.1	337.9	103.8	627.5	18.0%	308.8	52.5	68.4	14 630.3	82.4%	0.52	G8
235.8	137.1	1 341.5	382.3	2 096.7	11.2%	515.3	79.6	117.1	36 202.5	67.8%	0.69	G20

1. GHG / GDP PPP ratio is expressed in kg of CO₂-equivalent per 2005 USD.

2005 Greenhouse-gas emissions

 million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Non-OECD Total	13 228.9	479.8	1 285.0	6 658.6	21 652.4	63.3%	2 013.1	2 522.7	827.1	269.9	5 632.9	35.7%
Albania	3.8	0.0	0.3	0.6	4.7	81.1%	0.6	1.7	0.2	0.0	2.5	22.2%
Armenia	4.1	-	0.3	0.3	4.7	87.4%	1.5	1.1	0.4	0.0	3.0	50.8%
Azerbaijan	29.0	0.4	0.9	0.3	30.5	96.3%	5.5	5.0	1.6	0.0	12.1	45.6%
Belarus	55.0	2.1	3.6	42.6	103.4	55.3%	1.0	8.1	4.9	0.0	14.0	6.8%
Bosnia-Herzegovina	15.9	0.2	0.6	0.4	17.1	94.3%	1.2	1.2	0.3	0.0	2.7	45.2%
Bulgaria	46.5	0.5	4.7	0.4	52.2	90.1%	1.4	2.1	9.2	0.1	12.8	11.3%
Croatia	20.0	0.0	2.3	0.0	22.4	89.5%	2.2	1.3	1.0	0.0	4.5	48.9%
Cyprus ¹	7.0	-	0.8	0.0	7.9	89.6%	0.0	0.3	0.3	-	0.6	2.2%
FYR of Macedonia	8.9	0.0	0.7	0.1	9.7	91.7%	0.5	0.7	0.3	0.0	1.4	32.7%
Georgia	4.1	0.0	0.6	0.3	5.0	82.1%	1.6	2.2	0.6	0.0	4.4	36.1%
Gibraltar	0.4	-	-	0.0	0.4	99.9%	0.0	-	0.0	-	0.0	6.7%
Kazakhstan	156.9	16.7	7.7	0.4	181.8	95.5%	35.1	11.9	4.7	2.2	53.9	65.2%
Kosovo ²	6.6	..	..	..	..	..	..	..	..	..	..	..
Kyrgyzstan	4.9	0.0	0.4	0.5	5.8	84.8%	0.2	2.6	0.7	0.0	3.6	6.8%
Latvia	7.6	-	0.4	4.3	12.3	61.7%	1.7	0.9	0.6	0.0	3.1	53.7%
Lithuania	12.3	0.0	1.2	6.1	19.5	62.9%	1.8	1.9	1.4	0.0	5.0	35.1%
Malta	2.7	-	0.0	0.0	2.7	99.8%	0.0	0.0	0.2	-	0.2	0.8%
Republic of Moldova	7.7	-	0.3	0.1	8.1	94.7%	1.7	1.0	0.8	0.0	3.5	47.8%
Montenegro ²	2.0	..	..	..	..	..	..	..	..	..	..	..
Romania	92.7	0.7	9.3	1.5	104.2	89.6%	11.9	8.8	5.2	0.0	26.0	46.0%
Russian Federation	1 481.7	141.7	93.0	233.1	1 949.4	83.3%	376.7	51.0	57.2	8.8	493.8	76.3%
Serbia ²	49.6	0.6	2.2	0.7	53.0	94.6%	3.0	3.4	1.1	0.0	7.6	39.8%
Tajikistan	2.3	0.0	0.8	0.0	3.2	74.3%	0.5	2.7	0.7	0.0	3.9	12.5%
Turkmenistan	48.4	4.1	0.4	0.5	53.4	98.3%	22.6	6.1	0.9	0.0	29.5	76.5%
Ukraine	293.9	21.5	31.6	6.2	353.3	89.3%	44.2	16.4	10.0	0.3	70.9	62.4%
Uzbekistan	107.1	3.6	4.0	1.5	116.3	95.2%	25.4	13.4	3.5	0.0	42.4	60.0%
Non-OECD Europe and Eurasia	2 471.2	192.2	166.2	300.1	3 129.7	85.1%	540.3	143.5	105.8	11.6	801.3	67.4%
Algeria	77.4	13.2	7.0	0.2	97.9	92.6%	36.5	4.5	4.7	0.0	45.6	80.0%
Angola	6.1	9.5	0.5	5.6	21.8	71.7%	10.6	3.9	1.9	0.0	16.4	64.6%
Benin	2.7	-	0.1	20.2	23.0	11.6%	0.9	2.0	1.0	0.5	4.4	20.5%
Botswana	4.3	-	0.2	0.4	4.9	87.9%	0.5	3.9	0.3	0.0	4.7	10.2%
Cameroon	2.9	1.9	0.6	35.6	41.0	11.9%	2.2	8.0	2.5	0.9	13.7	16.3%
Congo	0.8	3.5	0.0	37.6	42.0	10.4%	3.8	1.8	0.5	1.5	7.7	49.9%
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%
Dem. Rep. of Congo	1.3	0.8	0.2	833.8	836.2	0.3%	5.9	14.1	6.3	31.3	57.7	10.3%
Egypt	144.6	3.5	21.6	1.1	170.7	86.7%	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	4.5	-	0.7	0.6	5.8	77.8%	7.8	38.3	6.9	-	53.0	14.7%
Gabon	1.7	4.7	0.1	6.2	12.7	50.6%	3.5	0.1	0.3	0.4	4.3	81.5%
Ghana	6.4	0.0	0.8	9.6	16.8	38.3%	2.9	3.7	2.9	0.4	10.0	29.6%
Kenya	7.5	-	1.1	3.8	12.4	60.5%	7.2	14.5	3.9	-	25.6	28.2%
Libya	43.0	9.3	3.6	0.1	56.0	93.4%	14.3	0.8	1.1	0.0	16.3	87.7%
Mauritius	3.0	0.0	0.0	0.0	3.0	99.7%	0.0	0.0	0.2	-	0.3	10.5%
Morocco	39.5	-	6.3	0.3	46.1	85.7%	0.9	5.5	4.2	0.0	10.6	8.3%
Mozambique	1.5	0.0	1.1	34.9	37.5	4.0%	3.4	6.0	2.3	2.0	13.7	25.0%
Namibia	2.5	-	0.0	0.0	2.5	98.1%	0.1	4.9	0.2	0.0	5.3	2.3%
Niger ³	0.7	0.0	0.0	..	..	..	..	..	..	..	..	..
Nigeria	56.4	42.2	1.7	8.1	108.3	91.0%	43.3	26.1	14.5	0.2	84.1	51.5%
Senegal	4.6	-	1.1	0.1	5.8	79.6%	1.2	5.0	1.6	-	7.7	15.0%
South Africa	372.3	27.3	15.6	4.7	419.9	95.1%	30.5	20.0	12.5	2.4	65.3	46.6%
South Sudan ⁴	..	..	..	..	..	..	..	..	..	..	..	..
Sudan ⁴	9.9	0.6	0.1	4.1	14.6	71.3%	6.6	58.9	5.2	-	70.7	9.3%
United Rep. of Tanzania	5.1	0.0	0.6	65.1	70.8	7.1%	5.1	20.7	4.2	3.6	33.6	15.3%
Togo	1.0	-	0.3	7.4	8.7	11.1%	1.5	1.2	0.7	0.4	3.7	39.6%
Tunisia	19.5	0.6	3.1	0.2	23.3	86.0%	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	10.3	0.4	0.6	1.0	12.3	86.6%	1.1	7.1	1.5	0.0	9.7	11.4%
Other Africa ³	19.6	2.9	1.4	246.7	270.6	8.3%	26.0	105.6	17.1	9.6	158.4	16.4%
Africa	857.6	120.5	69.1	1 565.8	2 613.0	37.4%	250.3	389.7	110.2	63.4	813.6	30.8%

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

 2. For 2005, Serbia includes Kosovo and Montenegro for all emissions other than CO₂ from fuel combustion.

 3. For 2005, Other Africa includes Niger for all emissions except CO₂ from fuel combustion, CO₂ from fugitive sources and CO₂ from industrial processes.

4. Prior to 2012, data for South Sudan are included in Sudan.

2005 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

N ₂ O						HFCs	PFCs	SF ₆	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP ¹	
142.6	68.2	1 440.1	442.8	2 093.7	6.8%	201.7	53.7	61.7	29 696.1	53.4%	1.05	Non-OECD Total
0.1	-	0.8	0.2	1.0	7.2%	0.1	-	-	8.3	53.6%	0.43	Albania
0.0	-	0.5	0.1	0.6	1.0%	0.3	-	-	8.6	65.5%	0.61	Armenia
0.2	-	2.0	0.4	2.6	6.2%	0.1	0.2	-	45.5	77.1%	0.76	Azerbaijan
0.6	2.2	8.5	0.6	11.9	5.1%	0.4	0.0	-	129.8	45.2%	1.39	Belarus
0.1	-	0.7	0.2	1.0	12.7%	0.4	0.1	-	21.4	81.7%	0.89	Bosnia-Herzegovina
0.3	0.9	2.0	0.6	4.0	8.8%	0.4	0.0	-	69.3	70.4%	0.90	Bulgaria
0.2	0.8	1.5	0.3	2.8	8.5%	0.0	0.0	-	29.8	75.5%	0.43	Croatia
0.0	-	0.2	0.1	0.3	13.0%	0.2	-	-	9.0	79.2%	0.48	Cyprus
0.1	-	0.4	0.1	0.6	17.6%	0.1	-	-	11.9	79.9%	0.74	FYR of Macedonia
0.1	0.7	1.1	0.2	2.0	3.2%	0.0	-	-	11.4	50.2%	0.62	Georgia
0.0	-	-	0.0	0.0	34.4%	-	-	-	0.4	97.1%	0.47	Gibraltar
2.6	-	11.0	4.5	18.1	14.2%	0.3	-	-	254.1	83.2%	1.21	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	-	17.6	53.5%	0.59	Latvia
0.1	2.0	2.1	0.2	4.5	2.7%	0.6	0.0	-	29.7	47.8%	0.61	Lithuania
0.0	-	0.0	0.0	0.1	11.6%	0.1	-	-	3.2	86.4%	0.37	Malta
0.1	-	0.6	0.2	0.9	6.0%	0.0	-	-	12.6	75.2%	1.19	Republic of Moldova
..	..	..	..	..	..	..	..	..	..	..	..	Montenegro
0.7	2.9	6.5	1.3	11.4	6.0%	0.4	0.3	0.0	142.2	74.5%	0.70	Romania
7.3	13.5	33.7	23.5	78.1	9.4%	24.2	26.6	9.3	2 581.4	77.8%	1.52	Russian Federation
0.2	0.5	2.9	0.4	4.1	5.0%	4.3	0.1	-	69.1	77.2%	1.09	Serbia
0.0	-	1.2	0.2	1.4	1.1%	0.0	0.4	-	8.8	32.3%	0.85	Tajikistan
0.1	0.6	3.3	0.3	4.3	1.8%	0.1	-	-	87.3	86.1%	3.17	Turkmenistan
1.4	9.8	11.9	2.9	26.0	5.6%	0.2	0.2	0.3	450.9	80.1%	1.48	Ukraine
0.5	0.1	8.4	1.1	10.1	5.0%	0.6	-	-	169.4	80.7%	2.39	Uzbekistan
15.1	34.0	101.6	37.8	188.5	8.0%	33.9	28.0	9.6	4 190.9	76.8%	1.34	Non-OECD Europe and Eurasia
0.4	0.7	2.9	0.9	4.9	8.2%	0.2	-	0.3	148.9	85.7%	0.41	Algeria
0.2	-	2.6	0.3	3.1	6.6%	0.0	-	-	41.2	64.0%	0.60	Angola
0.1	-	1.8	1.0	2.9	4.2%	-	-	-	30.3	12.2%	2.63	Benin
0.1	-	2.8	0.2	3.1	2.9%	-	-	-	12.6	38.4%	0.66	Botswana
0.2	-	6.8	2.0	9.0	2.6%	-	0.4	-	64.1	11.4%	1.57	Cameroon
0.1	-	1.8	1.7	3.6	1.9%	0.0	-	-	53.3	15.5%	3.39	Congo
0.2	-	2.1	5.1	7.5	3.1%	-	-	-	140.4	6.7%	3.21	Côte d'Ivoire
1.3	-	16.3	37.1	54.7	2.3%	-	-	-	948.5	1.0%	32.76	Dem. Rep. of Congo
1.3	3.2	15.2	2.3	22.0	6.0%	0.3	1.7	1.1	243.7	71.4%	0.45	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	-	-	89.0	15.6%	1.78	Ethiopia
0.0	-	0.1	0.3	0.5	10.2%	0.0	-	-	17.5	57.1%	0.84	Gabon
0.4	-	3.4	1.0	4.8	9.3%	0.0	0.0	-	31.6	31.1%	0.66	Ghana
0.6	-	9.4	0.6	10.6	5.7%	-	-	-	48.6	31.5%	0.68	Kenya
0.2	-	0.7	0.5	1.3	11.9%	-	-	0.3	73.9	90.4%	0.91	Libya
0.0	-	0.1	0.4	0.5	2.6%	-	-	-	3.8	79.9%	0.27	Mauritius
0.5	-	4.8	0.8	6.1	8.0%	-	-	-	62.8	65.0%	0.43	Morocco
0.3	-	6.5	2.5	9.3	3.5%	0.1	0.2	-	60.8	8.7%	4.21	Mozambique
0.1	-	3.5	0.2	3.9	3.4%	-	-	-	11.7	23.6%	0.89	Namibia
..	..	..	..	..	..	..	..	..	..	..	..	Niger
2.0	-	16.6	3.0	21.6	9.4%	0.3	-	0.3	214.7	67.0%	0.42	Nigeria
0.1	-	3.6	0.4	4.0	3.0%	-	-	-	17.5	33.7%	0.83	Senegal
2.9	2.1	14.4	5.8	25.2	11.5%	0.5	0.5	1.5	513.0	84.4%	1.09	South Africa
..	..	..	..	..	..	..	..	..	..	..	..	South Sudan
0.6	-	44.8	3.3	48.7	1.3%	-	-	-	134.0	13.2%	1.34	Sudan
0.6	-	16.7	4.2	21.4	2.7%	-	-	-	125.8	8.6%	2.06	United Rep. of Tanzania
0.1	-	1.1	0.5	1.7	6.7%	-	-	-	14.2	18.0%	2.37	Togo
0.2	0.3	1.6	0.3	2.4	9.0%	-	-	-	33.0	72.5%	0.42	Tunisia
0.2	0.4	17.4	6.7	24.7	1.0%	0.0	-	-	172.5	2.7%	6.45	Zambia
0.2	-	5.1	0.4	5.7	3.9%	-	-	-	27.7	43.3%	7.12	Zimbabwe
3.0	-	77.3	16.2	96.5	3.1%	0.1	-	-	525.6	9.8%	2.65	Other Africa
17.9	6.8	306.9	99.7	431.3	4.1%	1.6	2.9	3.6	3 865.9	32.2%	1.25	Africa

1. GHG / GDP PPP ratio is expressed in kg of CO₂-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 CO₂ equivalent using GWP-100

	CO ₂					CH ₄						
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Bangladesh	32.0	0.0	4.0	7.6	43.5	73.4%	9.7	66.5	17.9	0.1	94.2	10.3%
Brunei Darussalam	4.8	0.2	0.1	12.1	17.3	29.2%	3.9	0.0	0.1	0.5	4.5	86.2%
Cambodia	2.6	-	0.0	31.1	33.7	7.8%	1.2	15.5	1.6	2.3	20.5	5.6%
DPR of Korea	75.3	-	3.8	2.7	81.8	92.1%	11.8	4.3	3.2	0.1	19.3	60.9%
India	1 086.5	18.4	83.2	48.7	1 236.7	89.3%	93.5	375.9	113.3	1.8	584.5	16.0%
Indonesia	321.6	6.4	25.3	2 054.9	2 408.2	13.6%	49.0	98.3	50.8	61.6	259.7	18.9%
Malaysia	154.6	4.9	14.2	113.2	286.9	55.6%	22.1	5.8	5.7	2.8	36.5	60.7%
Mongolia	11.0	0.0	0.1	42.8	53.9	20.4%	0.4	5.6	0.3	0.0	6.3	5.9%
Myanmar	10.6	0.0	0.3	387.8	398.8	2.7%	9.7	54.3	6.4	7.8	78.2	12.4%
Nepal	3.1	-	0.1	0.2	3.4	89.5%	1.4	18.4	2.5	0.0	22.3	6.4%
Pakistan	116.8	0.3	9.4	0.4	126.9	92.2%	34.1	87.0	17.6	0.1	138.7	24.6%
Philippines	71.5	0.0	8.2	2.2	81.9	87.3%	5.6	33.6	14.0	0.0	53.2	10.5%
Singapore	37.9	-	4.6	0.4	42.8	88.4%	1.4	0.0	0.9	0.0	2.3	60.7%
Sri Lanka	13.4	-	0.7	0.5	14.6	91.8%	0.6	6.7	3.0	-	10.3	6.1%
Chinese Taipei	253.6	0.7	15.3	0.9	270.5	94.0%	1.4	1.1	5.8	0.0	8.3	17.0%
Thailand	200.2	0.5	23.0	13.0	236.7	84.8%	19.1	56.1	13.7	0.5	89.4	21.3%
Viet Nam	79.1	1.2	16.6	9.9	106.9	75.2%	28.1	55.1	10.9	0.3	94.3	29.8%
Other Asia	15.5	0.8	0.5	68.7	85.5	19.1%	2.9	18.6	5.1	1.9	28.4	10.1%
Asia (excl. China)	2 490.0	33.4	209.6	2 797.0	5 530.1	45.6%	295.8	902.8	272.5	79.7	1 550.8	19.1%
People's Rep. of China	5 359.7	46.1	678.6	109.6	6 194.0	87.3%	606.0	516.9	201.6	3.3	1 327.8	45.6%
Hong Kong, China	41.3	1.5	0.5	0.1	43.4	98.7%	0.8	-	2.1	-	2.8	26.8%
China	5 401.0	47.6	679.1	109.7	6 237.4	87.4%	606.8	516.9	203.7	3.3	1 330.6	45.6%
Argentina	149.4	1.4	6.6	9.7	167.2	90.2%	17.9	71.9	8.7	1.5	100.0	17.9%
Bolivia	9.4	0.3	0.5	219.3	229.7	4.3%	7.2	10.4	1.3	10.9	29.8	24.1%
Brazil	310.5	4.9	33.7	1 462.7	1 811.8	17.4%	37.9	302.6	58.8	92.9	492.2	7.7%
Colombia	53.6	1.1	5.2	24.5	84.4	64.8%	11.1	39.6	6.5	0.5	57.7	19.3%
Costa Rica	5.4	-	0.8	0.1	6.3	86.2%	0.3	1.7	0.4	-	2.4	10.5%
Cuba	25.1	0.2	0.7	3.2	29.2	86.5%	0.9	5.9	2.5	-	9.3	9.4%
Curaçao	6.0	-	-	0.0	6.1	99.2%	0.1	0.0	0.1	-	0.1	55.6%
Dominican Republic	17.4	-	1.1	0.3	18.8	92.7%	1.1	3.9	1.7	-	6.7	16.2%
Ecuador	23.2	2.8	1.4	2.1	29.5	88.2%	3.4	9.9	1.8	0.1	15.1	22.2%
El Salvador	6.3	-	0.4	0.2	6.9	90.3%	0.4	1.7	1.1	-	3.2	13.0%
Guatemala	10.6	0.0	0.9	37.5	49.0	21.7%	1.1	4.1	1.5	1.7	8.4	12.6%
Haiti	2.0	-	0.2	0.0	2.2	89.2%	0.7	2.3	1.3	-	4.3	17.2%
Honduras	7.2	-	0.5	2.7	10.3	69.2%	0.4	4.1	0.7	-	5.2	7.5%
Jamaica	10.3	-	0.3	0.1	10.7	96.0%	0.2	0.7	0.5	-	1.3	11.7%
Nicaragua	4.0	-	0.2	0.4	4.7	86.0%	0.4	4.5	1.1	-	6.0	6.8%
Panama	6.7	-	0.4	0.4	7.5	89.2%	0.1	2.5	0.5	-	3.2	4.2%
Paraguay	3.5	-	0.3	20.5	24.2	14.3%	0.9	13.0	1.1	0.8	15.8	5.6%
Peru	28.6	0.2	2.4	11.4	42.6	67.7%	1.8	10.5	4.0	0.3	16.6	10.5%
Trinidad and Tobago	17.5	0.3	14.1	0.0	32.0	55.8%	9.4	0.1	1.3	0.2	11.1	85.3%
Uruguay	5.2	-	0.2	0.4	5.8	88.2%	0.5	18.4	0.8	0.0	19.8	2.5%
Venezuela	137.1	5.4	7.8	48.5	198.9	71.7%	25.2	24.6	5.6	2.1	57.5	43.9%
Other Non-OECD Americas	16.1	0.0	1.0	16.7	33.8	47.8%	0.2	2.5	2.7	0.2	5.7	3.6%
Non-OECD Americas	855.3	16.7	78.8	1 861.0	2 811.8	31.0%	121.0	534.9	104.1	111.4	871.4	13.9%
Bahrain	20.6	0.0	2.0	0.1	22.7	90.7%	2.5	0.0	0.3	0.0	2.8	88.7%
Islamic Rep. of Iran	417.6	24.4	23.3	0.7	466.1	94.8%	66.2	20.9	12.6	0.1	99.8	66.3%
Iraq	81.7	14.1	1.5	3.4	100.7	95.2%	14.0	3.0	3.7	0.0	20.6	67.9%
Jordan	18.1	-	1.8	0.0	19.9	91.0%	0.5	0.4	1.0	-	1.8	26.5%
Kuwait	64.7	6.4	3.5	0.1	74.7	95.2%	11.8	0.2	0.8	0.0	12.8	92.6%
Lebanon	14.5	-	2.0	0.0	16.5	87.6%	0.1	0.3	0.7	-	1.0	11.6%
Oman	24.7	5.1	2.5	20.0	52.2	56.9%	13.5	0.5	0.5	-	14.5	92.7%
Qatar	33.2	4.5	3.9	0.0	41.7	90.5%	18.0	0.1	0.5	0.0	18.6	96.8%
Saudi Arabia	298.0	8.2	30.3	0.3	336.8	90.9%	43.4	1.9	5.7	0.2	51.3	84.6%
Syrian Arab Republic	53.4	2.3	2.1	0.2	58.1	96.0%	6.2	3.5	2.3	0.0	11.9	51.7%
United Arab Emirates	108.7	2.1	8.5	0.1	119.4	92.8%	20.7	0.6	1.0	-	22.3	92.8%
Yemen	18.8	2.1	0.8	0.0	21.7	96.2%	2.2	3.7	1.9	-	7.8	28.6%
Middle East	1 153.9	69.3	82.1	25.1	1 330.5	91.9%	198.9	35.0	30.8	0.4	265.1	75.0%

2005 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

		N ₂ O				HFCs	PFCs	SF ₆	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP ¹	
1.6	-	17.8	2.1	21.5	7.4%	-	-	-	159.2	27.1%	0.65	Bangladesh
0.0	-	0.1	0.6	0.7	1.7%	0.3	-	-	22.7	39.5%	0.93	Brunei Darussalam
0.3	-	3.8	2.0	6.1	4.1%	-	-	-	60.3	6.7%	2.59	Cambodia
0.5	-	2.1	0.8	3.4	13.7%	2.8	-	-	107.3	81.6%	1.00	DPR of Korea
26.0	1.8	156.3	27.2	211.2	12.3%	9.8	1.1	4.6	2 048.0	59.8%	0.63	India
4.5	0.2	80.8	71.1	156.6	2.9%	-	0.1	0.9	2 825.5	13.5%	2.17	Indonesia
0.7	0.4	9.7	4.5	15.3	4.6%	0.0	0.3	0.6	339.8	53.7%	0.82	Malaysia
0.1	-	3.3	0.2	3.5	3.4%	-	-	-	63.7	18.0%	5.58	Mongolia
0.8	-	13.2	17.7	31.7	2.5%	-	-	-	508.7	4.2%	9.26	Myanmar
0.6	-	3.5	0.5	4.5	13.1%	-	-	-	30.3	16.9%	0.79	Nepal
3.3	0.7	19.9	3.2	27.1	12.2%	-	-	0.8	293.5	52.6%	0.53	Pakistan
0.8	0.0	9.5	2.1	12.4	6.2%	-	-	0.4	147.8	52.7%	0.40	Philippines
0.1	0.7	0.0	0.3	1.1	7.9%	1.4	0.8	0.3	48.7	80.7%	0.21	Singapore
0.3	-	1.3	0.5	2.1	13.0%	-	-	-	27.0	53.0%	0.26	Sri Lanka
1.3	0.7	1.7	1.4	5.1	25.9%	0.1	3.2	3.3	290.5	88.5%	0.48	Chinese Taipei
4.5	0.5	14.6	3.0	22.6	20.1%	-	-	1.1	349.7	64.1%	0.55	Thailand
1.4	-	19.1	2.3	22.8	6.1%	-	-	-	224.0	49.0%	0.88	Viet Nam
0.5	-	10.5	3.0	14.0	3.9%	0.1	-	-	127.9	15.4%	1.28	Other Asia
47.2	5.0	367.1	142.4	561.7	8.4%	14.5	5.6	12.0	7 674.6	37.3%	0.92	Asia (excl. China)
45.8	17.9	347.1	52.3	463.2	9.9%	146.7	10.6	29.0	8 171.3	74.1%	1.26	People's Rep. of China
0.2	-	-	0.3	0.4	39.7%	-	-	0.1	46.8	93.6%	0.19	Hong Kong, China
46.0	17.9	347.1	52.6	463.6	9.9%	146.7	10.6	29.1	8 218.0	74.2%	1.22	China
1.7	0.2	44.4	3.7	50.0	3.4%	0.2	0.1	0.3	317.8	53.6%	0.76	Argentina
0.1	-	5.5	9.7	15.3	0.7%	-	-	-	274.8	6.2%	7.21	Bolivia
5.9	2.5	157.5	72.4	238.2	2.5%	1.8	5.6	1.2	2 550.9	14.1%	1.30	Brazil
0.6	0.3	18.3	2.1	21.3	3.0%	-	0.0	0.1	163.5	40.6%	0.46	Colombia
0.1	0.0	1.1	0.2	1.4	5.0%	0.1	-	-	10.2	56.5%	0.25	Costa Rica
0.3	0.7	5.0	0.5	6.4	4.2%	0.1	-	-	45.1	58.6%	0.54	Cuba
0.0	-	0.0	0.0	0.1	17.7%	-	-	-	6.3	97.6%	2.79	Curaçao
0.2	-	1.7	0.4	2.3	8.6%	-	-	-	27.8	67.3%	0.38	Dominican Republic
0.2	-	3.9	0.5	4.6	3.8%	0.1	-	-	49.3	60.0%	0.47	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	-	-	63.3	18.9%	0.87	Guatemala
0.1	-	1.2	0.1	1.5	6.7%	-	-	-	7.9	35.4%	0.62	Haiti
0.1	-	2.5	0.5	3.1	3.4%	-	-	-	18.6	41.1%	0.77	Honduras
0.1	-	0.4	0.2	0.7	11.1%	0.1	-	-	12.7	82.6%	0.68	Jamaica
0.1	-	3.1	0.3	3.5	3.2%	-	-	-	14.2	32.1%	0.77	Nicaragua
0.1	-	1.0	0.1	1.2	4.9%	-	-	-	12.0	57.9%	0.36	Panama
0.2	-	7.4	1.5	9.0	1.8%	-	-	-	49.1	9.2%	1.55	Paraguay
0.2	-	6.2	1.3	7.7	2.8%	0.3	-	-	67.2	45.9%	0.36	Peru
0.0	-	0.1	0.1	0.3	11.7%	-	-	-	43.3	63.1%	1.47	Trinidad and Tobago
0.1	-	6.8	0.1	7.0	1.5%	0.1	-	-	32.7	17.6%	0.87	Uruguay
0.6	0.0	11.2	3.1	14.9	4.3%	0.7	0.3	0.2	272.6	61.8%	0.76	Venezuela
0.1	-	2.4	0.8	3.3	3.7%	0.0	0.0	0.0	42.8	38.5%	0.97	Other Non-OECD Americas
11.2	3.6	283.7	100.0	398.5	2.8%	4.0	6.0	1.9	4 093.6	24.5%	1.03	Non-OECD Americas
0.0	-	0.0	0.1	0.1	27.2%	-	0.3	-	25.8	89.2%	0.75	Bahrain
2.5	0.6	20.1	4.0	27.2	9.1%	-	0.1	2.4	595.5	85.8%	0.72	Islamic Rep. of Iran
0.4	-	2.2	0.9	3.5	10.8%	-	-	0.1	124.9	88.3%	0.49	Iraq
0.1	-	0.4	0.2	0.7	9.4%	0.1	-	-	22.5	83.0%	0.50	Jordan
0.2	-	0.1	0.4	0.7	27.6%	0.5	-	0.4	89.1	93.4%	0.47	Kuwait
0.1	-	0.4	0.2	0.6	12.9%	-	-	-	18.2	80.7%	0.42	Lebanon
0.1	-	0.4	0.1	0.6	16.5%	0.2	-	-	67.6	64.1%	0.73	Oman
0.1	-	0.0	0.1	0.3	29.2%	-	-	-	60.5	92.2%	0.68	Qatar
1.0	-	3.0	2.5	6.4	14.8%	0.2	-	2.0	396.7	88.3%	0.47	Saudi Arabia
0.3	0.3	4.3	0.7	5.5	4.8%	-	-	-	75.5	82.4%	0.99	Syrian Arab Republic
0.2	-	0.5	0.7	1.4	16.7%	-	0.3	0.8	144.1	91.4%	0.38	United Arab Emirates
0.4	-	2.4	0.5	3.3	12.3%	-	-	-	32.8	71.8%	0.43	Yemen
5.2	0.9	33.7	10.4	50.2	10.4%	1.0	0.7	5.6	1 653.1	86.3%	0.56	Middle East

1. GHG / GDP PPP ratio is expressed in kg of CO₂-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 CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
World ¹	29 838.2	508.3	2 407.1	5 210.8	37 964.3	79.9%	2 978.7	3 389.5	1 291.9	151.6	7 811.8	38.1%
<i>Annex I Parties</i>	13 226.5	171.2	656.6	440.0	14 494.3	92.4%	972.3	640.2	446.8	3.9	2 063.1	47.1%
<i>Annex II Parties</i>	10 400.4	53.1	450.5	208.8	11 112.8	94.1%	409.9	520.2	287.8	3.2	1 221.1	33.6%
<i>North America</i>	5 870.7	29.8	166.2	43.0	6 109.8	96.6%	254.2	222.6	150.6	1.7	629.2	40.4%
<i>Europe</i>	2 988.4	18.8	180.8	145.0	3 333.0	90.2%	106.8	177.7	115.9	0.6	401.0	26.6%
<i>Asia Oceania</i>	1 541.4	4.5	103.4	20.8	1 670.1	92.6%	48.9	119.9	21.3	0.9	190.9	25.6%
<i>Annex I EIT</i>	2 550.8	117.0	166.3	230.8	3 064.9	87.0%	547.3	96.5	119.5	0.6	763.8	71.6%
<i>Non-Annex I Parties</i>	15 484.8	337.1	1 750.5	4 770.8	22 343.1	70.8%	2 006.4	2 749.4	845.2	147.7	5 748.7	34.9%
<i>Annex I Kyoto Parties</i>	7 020.7	136.0	446.3	355.2	7 958.1	89.9%	701.9	385.6	249.8	2.2	1 339.3	52.4%
Int. marine bunkers	667.2	-	-	-	667.2	100.0%	-	-	-	-	-	0.0%
Int. aviation bunkers	459.8	-	-	-	459.8	100.0%	-	-	-	-	-	0.0%
Non-OECD Total	16 405.6	435.5	1 811.2	4 935.8	23 588.1	71.4%	2 448.3	2 744.7	910.0	147.2	6 250.2	39.2%
OECD Total	12 305.6	72.8	595.8	275.0	13 249.3	93.4%	530.4	644.8	382.0	4.4	1 561.6	34.0%
Canada	515.2	6.7	25.3	7.3	554.6	94.1%	43.2	27.0	33.7	0.5	104.5	41.3%
Chile	68.6	0.2	5.1	0.2	74.1	92.8%	4.3	7.9	5.6	0.2	18.0	24.0%
Mexico	414.0	7.3	24.6	31.3	477.2	88.3%	40.3	55.4	19.4	0.8	115.9	34.8%
United States	5 355.5	23.1	140.9	35.7	5 555.2	96.8%	211.1	195.6	116.9	1.1	524.7	40.2%
OECD Americas	6 353.3	37.3	195.9	74.6	6 661.0	95.9%	298.9	285.9	175.6	2.7	763.0	39.2%
Australia	385.1	3.3	15.6	12.2	416.2	93.3%	44.1	65.0	12.9	0.6	122.5	36.0%
Israel	68.4	0.1	3.2	0.1	71.8	95.4%	1.1	1.1	1.1	-	3.4	32.3%
Japan	1 126.1	1.0	85.8	4.5	1 217.4	92.6%	3.3	29.5	7.2	0.3	40.3	8.1%
Korea	550.8	4.0	43.9	0.0	598.7	92.7%	7.3	13.2	11.4	0.1	32.0	22.8%
New Zealand	30.2	0.2	2.0	4.1	36.4	83.4%	1.5	25.4	1.2	0.0	28.1	5.3%
OECD Asia Oceania	2 160.6	8.6	150.5	20.9	2 340.6	92.7%	57.2	134.2	33.8	1.0	226.3	25.3%
Austria	69.7	0.3	4.7	0.3	75.0	93.3%	2.1	4.0	2.2	0.0	8.4	25.6%
Belgium	101.9	0.5	10.1	0.3	112.8	90.8%	1.5	5.5	2.6	0.0	9.6	15.8%
Czech Republic	111.4	1.7	5.1	0.5	118.7	95.3%	5.2	3.4	3.4	0.0	12.0	43.4%
Denmark	47.4	0.2	0.9	2.7	51.2	92.9%	1.2	5.2	1.3	-	7.8	15.5%
Estonia	18.7	0.3	0.2	9.2	28.4	66.6%	1.0	0.6	0.7	-	2.3	42.8%
Finland	61.6	0.4	2.5	50.7	115.2	53.8%	0.9	1.9	6.0	0.0	8.9	10.4%
France	340.1	1.9	26.2	2.8	371.0	92.2%	36.1	35.2	12.3	0.1	83.8	43.1%
Germany	759.0	5.5	37.2	31.4	833.1	91.8%	14.8	28.6	13.7	0.2	57.2	25.9%
Greece	83.4	0.0	5.5	0.1	89.0	93.7%	1.7	3.6	3.1	0.0	8.4	19.8%
Hungary	47.5	0.4	3.1	0.7	51.7	92.6%	2.2	2.3	2.8	0.0	7.3	30.8%
Iceland	1.9	-	1.7	17.6	21.2	9.2%	0.0	0.2	0.2	0.0	0.4	0.8%
Ireland	39.3	1.0	1.3	8.0	49.6	81.3%	2.1	10.9	0.9	0.0	13.9	14.9%
Italy	392.0	1.3	25.9	0.4	419.6	93.7%	7.0	15.6	15.0	0.0	37.5	18.5%
Luxembourg	10.6	-	0.5	0.0	11.1	95.6%	0.1	1.0	0.1	0.0	1.2	11.4%
Netherlands	168.3	0.7	12.5	5.4	187.0	90.4%	5.7	9.7	4.9	0.0	20.3	27.9%
Norway	37.7	0.9	7.3	1.0	46.9	82.4%	13.1	2.1	1.9	0.1	17.1	76.3%
Poland	310.4	3.6	14.2	23.3	351.5	89.3%	41.7	15.1	8.6	0.0	65.5	63.8%
Portugal	47.5	-	4.8	0.1	52.4	90.7%	1.5	4.1	6.9	0.0	12.6	12.0%
Slovak Republic	34.6	1.1	4.9	0.2	40.8	87.3%	0.9	1.3	1.7	0.0	4.0	23.8%
Slovenia	15.4	-	1.8	0.2	17.4	88.7%	1.2	1.0	0.6	0.0	2.9	42.2%
Spain	262.0	0.2	19.1	0.1	281.4	93.2%	3.2	20.0	13.5	0.1	36.8	8.8%
Sweden	46.0	1.4	4.1	14.4	65.9	72.0%	1.3	3.1	6.4	0.0	10.8	12.0%
Switzerland	43.1	-	2.5	0.3	45.9	93.8%	1.2	3.1	0.7	0.0	5.0	23.0%
Turkey	265.4	1.2	39.2	0.3	306.0	87.1%	15.2	23.2	38.9	0.0	77.3	19.6%
United Kingdom	476.6	4.4	14.0	9.5	504.5	95.4%	13.3	23.7	24.2	0.0	61.2	21.7%
OECD Europe	3 791.7	27.0	249.4	179.5	4 247.6	89.9%	174.3	224.7	172.6	0.7	572.3	30.5%
<i>European Union - 28</i>	3 611.2	25.7	213.0	171.6	4 021.5	90.4%	164.8	210.5	148.8	0.7	524.8	31.4%
G7	8 964.5	44.0	355.3	91.5	9 455.4	95.3%	328.7	355.3	223.0	2.2	909.2	36.1%
G8	10 493.5	135.2	450.7	230.8	11 310.2	94.0%	754.7	395.8	289.6	2.6	1 442.7	52.3%
G20	24 241.3	315.4	2 014.7	2 222.5	28 793.9	85.3%	2 100.2	2 133.4	959.1	24.1	5 216.9	40.3%

1. Total World includes Non-OECD total, OECD total as well as international bunkers.

 Sources: IEA, CO₂ emissions from fuel combustion. EDGAR 4.3.0 and 4.2 FT2010 databases for other emissions. In general, estimates for emissions other than CO₂ from fuel combustion are subject to significantly larger uncertainties.

2010 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

N ₂ O						HFCs	PFCs	SF ₆	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP ¹	
282.7	115.1	2 166.5	510.9	3 075.3	9.2%	776.2	72.7	166.8	49 867.1	67.4%	0.64	World
126.5	82.8	515.5	113.4	838.2	15.1%	535.7	46.1	72.7	18 050.0	80.3%	0.47	Annex I Parties
106.8	47.5	396.6	88.3	639.1	16.7%	489.0	24.1	60.4	13 546.6	81.0%	0.41	Annex II Parties
69.9	25.3	199.2	42.7	337.1	20.7%	322.5	10.6	45.3	7 454.3	83.5%	0.50	North America
25.9	17.5	137.3	32.8	213.5	12.1%	97.0	6.1	10.8	4 061.4	77.3%	0.31	Europe
11.1	4.6	60.1	12.7	88.5	12.5%	69.5	7.5	4.3	2 030.9	79.1%	0.42	Asia Oceania
16.5	33.2	93.0	21.1	163.8	10.1%	41.5	21.4	10.3	4 065.8	79.5%	0.96	Annex I EIT
156.2	32.4	1 651.0	397.6	2 237.1	7.0%	240.5	26.7	94.1	30 690.1	58.6%	0.78	Non-Annex I Parties
52.7	52.5	281.0	66.1	452.3	11.7%	207.5	34.9	25.5	10 017.7	79.0%	0.45	Annex I Kyoto Parties
-	-	-	-	-	0.0%	-	-	-	667.2	100.0%	..	Int. marine bunkers
-	-	-	-	-	0.0%	-	-	-	459.8	100.0%	..	Int. aviation bunkers
157.9	60.3	1 668.0	403.0	2 289.2	6.9%	259.7	45.6	96.7	32 529.5	59.8%	0.83	Non-OECD Total
124.7	54.9	498.5	107.9	786.0	15.9%	516.5	27.1	70.1	16 210.6	80.4%	0.42	OECD Total
6.6	0.7	21.0	4.6	33.0	20.1%	21.6	4.2	4.1	721.9	79.2%	0.58	Canada
0.6	0.7	6.5	1.0	8.8	6.6%	-	-	0.0	100.9	73.0%	0.41	Chile
3.7	0.6	32.5	6.3	43.1	8.6%	8.5	0.0	0.5	645.2	72.1%	0.44	Mexico
63.2	24.6	178.2	38.1	304.1	20.8%	300.9	6.4	41.2	6 732.4	84.0%	0.50	United States
74.1	26.6	238.2	50.1	389.0	19.1%	331.0	10.6	45.8	8 200.4	82.5%	0.50	OECD Americas
3.7	2.0	41.9	3.9	51.5	7.2%	8.0	0.6	0.5	599.2	72.8%	0.73	Australia
0.3	0.0	0.9	0.6	1.7	16.6%	2.0	0.1	0.7	79.6	87.7%	0.37	Israel
7.1	2.6	7.5	8.5	25.7	27.5%	60.3	6.7	3.8	1 354.2	84.0%	0.34	Japan
3.8	1.1	6.6	3.2	14.7	25.6%	2.8	1.8	6.2	656.3	86.2%	0.46	Korea
0.3	-	10.8	0.3	11.3	2.5%	1.2	0.2	0.1	77.4	41.6%	0.69	New Zealand
15.1	5.8	67.6	16.4	104.9	14.4%	74.3	9.4	11.2	2 766.8	81.0%	0.42	OECD Asia Oceania
0.7	0.1	2.2	0.8	3.8	19.4%	2.8	0.2	0.2	90.4	80.6%	0.30	Austria
0.7	5.4	2.8	1.2	10.1	7.0%	2.7	0.0	0.1	135.4	77.3%	0.37	Belgium
1.5	0.5	4.5	0.8	7.3	20.0%	3.6	0.0	0.0	141.7	84.5%	0.55	Czech Republic
0.6	-	4.3	0.6	5.4	10.4%	1.7	0.0	0.0	66.2	74.6%	0.36	Denmark
0.1	-	0.6	0.2	0.9	15.0%	0.1	0.0	0.0	31.7	63.3%	1.44	Estonia
2.4	0.2	2.6	0.7	5.8	41.5%	1.2	0.0	0.1	131.2	49.8%	0.75	Finland
3.5	1.8	29.0	4.3	38.7	9.2%	18.9	0.4	1.4	514.2	74.2%	0.26	France
5.6	3.6	27.7	5.6	42.4	13.1%	19.8	0.9	5.3	958.8	81.9%	0.34	Germany
0.7	0.4	3.1	0.9	5.1	13.7%	1.2	0.1	0.1	104.0	82.5%	0.38	Greece
0.3	0.0	3.3	0.6	4.2	7.4%	1.7	0.0	0.0	65.0	77.6%	0.38	Hungary
0.0	0.0	0.3	0.0	0.4	3.8%	0.1	0.1	0.0	22.2	8.9%	1.95	Iceland
0.3	-	7.0	0.4	7.7	3.7%	1.2	0.0	0.1	72.5	58.8%	0.43	Ireland
3.1	0.9	10.6	5.0	19.6	15.9%	14.1	0.5	1.0	492.3	81.9%	0.29	Italy
0.1	-	0.3	0.1	0.5	17.1%	0.1	0.0	-	13.0	83.6%	0.37	Luxembourg
0.8	1.6	5.6	1.2	9.2	8.8%	4.6	0.3	0.2	221.5	79.2%	0.34	Netherlands
0.3	0.4	1.8	0.8	3.3	10.2%	0.5	1.2	0.2	69.2	75.3%	0.30	Norway
4.0	1.5	18.7	2.6	26.8	15.0%	2.0	0.3	0.3	446.3	80.6%	0.67	Poland
0.5	0.4	2.5	0.9	4.3	11.5%	1.1	0.0	0.2	70.5	70.2%	0.30	Portugal
0.4	0.9	1.7	0.3	3.4	12.2%	1.5	0.1	-	49.7	74.4%	0.45	Slovak Republic
0.1	-	0.9	0.2	1.2	11.5%	0.5	0.1	0.0	22.1	76.1%	0.42	Slovenia
2.4	0.7	15.1	4.3	22.6	10.8%	10.0	1.2	0.9	352.9	75.9%	0.28	Spain
1.2	0.5	3.1	0.8	5.6	22.0%	1.6	0.4	0.2	84.6	59.1%	0.25	Sweden
0.4	0.2	1.4	0.5	2.4	16.2%	2.3	0.1	0.4	56.1	79.5%	0.17	Switzerland
3.1	2.1	25.7	3.9	34.9	9.0%	4.7	0.5	2.0	425.5	66.9%	0.47	Turkey
2.4	1.4	17.9	4.8	26.5	9.2%	13.3	0.5	0.6	606.5	81.9%	0.28	United Kingdom
35.5	22.5	192.7	41.5	292.1	12.1%	111.2	7.1	13.1	5 243.4	76.8%	0.34	OECD Europe
32.9	22.8	179.3	38.6	273.7	12.0%	108.3	5.4	10.6	4 944.3	77.6%	0.34	European Union - 28
91.6	35.6	291.9	71.0	490.1	18.7%	448.8	19.5	57.3	11 380.3	82.9%	0.41	G7
98.4	52.6	320.7	82.1	553.8	17.8%	475.7	40.1	66.9	13 889.4	82.7%	0.47	G8
234.6	89.1	1 402.2	282.5	2 008.4	11.7%	744.3	62.9	148.9	36 975.3	72.7%	0.59	G20

1. GHG / GDP PPP ratio is expressed in kg of CO₂-equivalent per 2005 USD.

2010 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Non-OECD Total	16 405.6	435.5	1 811.2	4 935.8	23 588.1	71.4%	2 448.3	2 744.7	910.0	147.2	6 250.2	39.2%
Albania	3.9	0.0	0.6	0.6	5.0	77.8%	0.8	1.6	0.2	0.0	2.6	30.0%
Armenia	4.0	-	0.2	0.1	4.4	92.0%	2.0	1.1	0.3	-	3.3	59.5%
Azerbaijan	23.5	0.4	0.6	0.1	24.6	97.1%	10.9	5.7	1.8	0.0	18.4	59.5%
Belarus	59.9	4.3	4.2	41.5	109.9	58.4%	1.0	8.5	6.9	0.0	16.4	6.4%
Bosnia-Herzegovina	20.5	0.6	1.0	0.3	22.4	94.2%	1.4	1.3	0.3	-	3.1	47.2%
Bulgaria	44.4	0.4	3.7	0.2	48.7	92.0%	1.6	1.8	8.7	0.0	12.0	12.9%
Croatia	18.4	0.0	2.2	0.0	20.6	89.3%	2.4	1.3	1.3	0.0	5.0	47.4%
Cyprus ¹	7.3	-	0.7	-	7.9	91.5%	0.0	0.2	0.4	-	0.6	2.1%
FYR of Macedonia	8.3	0.0	0.8	0.0	9.2	90.8%	0.5	0.6	0.3	0.0	1.4	33.6%
Georgia	5.0	0.0	0.9	0.2	6.1	81.9%	2.0	2.4	0.5	0.0	4.9	40.8%
Gibraltar	0.5	-	-	-	0.5	100.0%	0.0	-	0.0	-	0.0	4.7%
Kazakhstan	221.1	11.9	9.0	0.1	242.1	96.2%	45.7	14.7	5.5	1.7	67.5	67.6%
Kosovo ²	8.7	..	..	..	..	..	..	..	..	..	..	..
Kyrgyzstan	6.0	0.0	0.3	0.4	6.8	89.2%	0.3	3.0	0.7	-	4.0	6.7%
Latvia	8.1	-	0.4	4.1	12.6	64.4%	1.8	0.8	0.6	0.0	3.2	57.2%
Lithuania	12.2	0.0	1.0	6.0	19.3	63.3%	1.8	1.8	1.4	0.0	5.1	35.0%
Malta	2.5	-	0.0	-	2.5	100.0%	0.0	0.0	0.2	-	0.2	0.3%
Republic of Moldova	7.9	-	0.4	0.0	8.3	95.0%	1.8	0.8	0.8	-	3.4	53.9%
Montenegro ²	2.5	..	..	..	..	..	..	..	..	..	..	..
Romania	74.8	0.4	6.2	1.0	82.4	91.2%	12.3	8.5	5.3	0.0	26.1	47.1%
Russian Federation	1 528.9	91.2	95.4	139.3	1 854.8	87.3%	426.0	40.6	66.6	0.4	533.5	79.8%
Serbia ²	45.9	0.4	1.8	0.6	48.7	95.1%	3.1	2.4	1.0	0.0	6.6	47.5%
Tajikistan	2.3	0.0	0.7	-	3.0	76.9%	0.5	3.6	0.8	-	4.9	10.9%
Turkmenistan	57.2	3.2	1.0	0.3	61.7	97.9%	19.5	6.1	1.0	-	26.5	73.4%
Ukraine	266.3	13.7	23.6	4.6	308.1	90.9%	48.0	9.5	10.8	0.1	68.4	70.2%
Uzbekistan	97.1	2.8	5.8	1.1	106.7	93.6%	25.6	17.4	3.8	-	46.9	54.6%
Non-OECD Europe and Eurasia	2 537.1	129.1	160.7	200.4	3 027.3	88.1%	609.0	133.6	119.3	2.3	864.2	70.5%
Algeria	95.8	11.4	8.7	0.0	115.9	92.4%	37.5	4.9	5.3	0.0	47.7	78.6%
Angola	15.1	8.3	0.5	7.4	31.3	74.7%	11.9	4.2	2.3	0.2	18.6	64.1%
Benin	4.6	-	0.5	30.8	35.8	12.7%	1.0	3.0	1.1	1.7	6.8	14.8%
Botswana	4.9	-	0.2	0.4	5.4	89.4%	0.5	3.5	0.3	0.0	4.4	11.1%
Cameroon	5.0	2.0	0.5	42.5	50.0	14.0%	2.6	11.6	2.2	1.8	18.2	14.4%
Congo	1.8	3.5	0.0	27.4	32.7	16.3%	3.9	1.6	0.6	0.8	7.0	55.4%
Côte d'Ivoire	6.2	0.2	0.1	133.3	139.8	4.6%	3.5	2.4	1.9	8.2	15.9	22.2%
Dem. Rep. of Congo	1.8	0.7	0.2	969.0	971.8	0.3%	6.6	18.4	6.5	42.3	73.9	8.9%
Egypt	176.4	3.3	24.6	0.0	204.3	88.0%	29.7	13.3	8.0	0.0	51.0	58.3%
Eritrea	0.5	-	0.0	-	0.5	96.1%	0.6	1.8	0.4	-	2.8	20.5%
Ethiopia	6.0	-	0.6	0.5	7.1	83.7%	10.7	44.6	7.9	-	63.2	16.9%
Gabon	2.4	3.3	0.1	11.3	17.0	33.3%	2.4	0.2	0.4	0.8	3.8	63.8%
Ghana	10.4	0.1	0.8	38.1	49.3	21.3%	3.1	11.8	2.9	2.9	20.7	15.1%
Kenya	11.2	-	1.6	4.2	17.1	65.8%	8.1	14.8	4.5	-	27.5	29.6%
Libya	48.0	7.8	4.9	0.0	60.7	91.9%	16.0	0.9	1.1	0.0	18.1	88.5%
Mauritius	3.7	0.0	0.0	-	3.7	99.8%	0.0	0.0	0.2	-	0.3	12.8%
Morocco	46.0	-	5.0	0.0	51.0	90.1%	1.6	5.8	4.3	0.0	11.8	13.9%
Mozambique	2.4	0.0	1.2	14.5	18.1	13.1%	4.9	2.1	2.8	0.0	9.8	50.5%
Namibia	3.1	-	0.0	0.0	3.1	98.5%	0.1	4.6	0.3	-	5.0	2.7%
Niger ³	1.4	0.0	0.0	..	..	..	..	..	..	..	..	..
Nigeria	55.8	29.8	4.7	23.8	114.0	75.1%	36.1	35.7	14.8	1.5	88.0	41.0%
Senegal	5.5	-	1.5	0.0	7.0	77.9%	1.8	6.2	1.7	-	9.7	19.0%
South Africa	408.9	27.2	16.0	0.6	452.6	96.3%	29.8	20.1	13.1	2.3	65.3	45.7%
South Sudan ⁴	..	..	..	..	..	..	..	..	..	..	..	..
Sudan ⁴	15.0	0.8	0.7	4.0	20.4	77.0%	7.2	81.2	6.3	-	94.6	7.6%
United Rep. of Tanzania	6.1	0.0	0.8	24.3	31.3	19.6%	7.0	15.7	4.6	0.1	27.4	25.4%
Togo	2.1	-	0.4	12.3	14.8	14.0%	1.7	2.0	0.8	0.8	5.2	32.6%
Tunisia	23.3	0.9	3.2	0.0	27.4	88.3%	4.5	2.2	0.8	0.0	7.5	60.0%
Zambia	1.7	-	0.5	59.4	61.6	2.7%	2.6	2.5	1.4	-	6.4	40.1%
Zimbabwe	9.0	0.2	0.5	1.0	10.8	85.4%	1.1	5.8	1.6	0.0	8.4	12.9%
Other Africa ³	25.3	2.4	2.0	570.2	599.9	4.6%	31.5	170.0	19.3	35.3	256.1	12.3%
Africa	999.0	101.7	79.9	1 975.3	3 155.8	34.9%	268.2	490.7	117.5	98.9	975.3	27.5%

1. Please refer to Part I, Chapter 4, *Geographical Coverage*.2. For 2010, Serbia includes Kosovo and Montenegro for all emissions other than CO₂ from fuel combustion.3. For 2010, Other Africa includes Niger for all emissions except CO₂ from fuel combustion, CO₂ from fugitive sources and CO₂ from industrial processes.

4. Prior to 2012, data for South Sudan are included in Sudan.

2010 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

Energy	N ₂ O					Share of energy	HFCs	PFCs	SF ₆	Total			GHG / GDP PPP ¹	
	Industrial processes	Agriculture	Other	Total	Industrial processes		Total	Share of energy						
157.9	60.3	1 668.0	403.0	2 289.2	6.9%	259.7	45.6	96.7	32 529.5	59.8%	0.83	Non-OECD Total		
0.1	-	0.9	0.1	1.1	6.1%	0.1	-	-	8.9	53.8%	0.36	Albania		
0.0	-	0.9	0.1	1.0	2.3%	0.6	-	-	9.3	65.2%	0.54	Armenia		
0.1	-	2.1	0.4	2.6	5.1%	0.1	0.2	-	45.9	76.1%	0.36	Azerbaijan		
0.7	2.8	9.3	0.6	13.4	5.3%	0.5	0.0	-	140.3	47.0%	1.06	Belarus		
0.1	-	0.8	0.2	1.1	11.7%	0.8	0.1	-	27.4	82.6%	0.98	Bosnia-Herzegovina		
0.3	0.5	3.2	0.5	4.5	6.4%	0.6	0.0	-	65.8	70.8%	0.74	Bulgaria		
0.2	0.9	1.6	0.3	2.9	6.5%	0.1	0.0	-	28.7	73.2%	0.41	Croatia		
0.0	-	0.2	0.1	0.3	11.5%	0.3	-	-	9.2	79.7%	0.44	Cyprus		
0.0	-	0.4	0.1	0.5	8.7%	0.2	-	-	11.3	78.6%	0.59	FYR of Macedonia		
0.1	0.8	1.2	0.2	2.3	3.0%	0.0	-	-	13.3	53.2%	0.56	Georgia		
0.0	-	-	0.0	0.0	37.5%	-	-	-	0.5	97.4%	0.54	Gibraltar		
1.4	-	12.3	3.8	17.5	7.8%	0.6	-	-	327.7	85.4%	1.15	Kazakhstan		
..	..	..	..	..	..	..	..	..	..	..	..	Kosovo
0.0	-	1.2	0.2	1.5	1.8%	0.0	-	-	12.2	51.7%	0.91	Kyrgyzstan		
0.2	-	1.0	0.2	1.4	12.0%	1.3	0.0	-	18.5	54.5%	0.64	Latvia		
0.1	0.5	3.8	0.2	4.6	2.5%	1.3	0.0	-	30.2	46.6%	0.59	Lithuania		
0.0	-	0.0	0.0	0.1	8.9%	0.2	-	-	3.0	84.6%	0.32	Malta		
0.1	-	0.5	0.1	0.6	8.7%	0.0	-	-	12.3	79.1%	0.99	Republic of Moldova		
..	..	..	..	..	..	..	..	..	..	..	..	Montenegro
0.5	1.1	6.0	1.1	8.8	6.0%	0.8	0.2	0.0	118.3	74.4%	0.51	Romania		
6.8	17.0	28.8	11.1	63.7	10.7%	26.9	20.6	9.6	2 509.1	81.8%	1.24	Russian Federation		
0.3	0.2	6.5	0.5	7.4	4.0%	7.2	0.1	-	70.0	71.0%	1.00	Serbia		
0.0	-	1.5	0.2	1.7	1.2%	0.0	0.3	-	10.0	28.6%	0.70	Tajikistan		
0.1	0.9	3.7	0.3	5.0	1.8%	0.1	-	-	93.3	85.7%	2.07	Turkmenistan		
1.2	7.5	9.5	2.4	20.7	5.9%	0.4	0.1	0.4	398.2	82.7%	1.24	Ukraine		
0.3	0.1	10.5	1.1	12.0	2.8%	1.0	-	-	166.5	75.5%	1.56	Uzbekistan		
12.7	32.3	105.9	23.8	174.7	7.3%	43.2	21.8	10.0	4 141.2	79.4%	1.09	Non-OECD Europe and Eurasia		
0.5	1.6	3.1	1.1	6.3	8.0%	0.3	-	0.4	170.5	85.1%	0.41	Algeria		
0.2	-	2.9	0.5	3.6	6.2%	0.0	-	-	53.5	66.4%	0.44	Angola		
0.1	-	2.9	1.7	4.8	2.9%	-	-	-	47.5	12.0%	3.42	Benin		
0.1	-	2.1	0.1	2.2	2.7%	-	-	-	12.0	45.1%	0.51	Botswana		
0.3	-	10.6	2.8	13.6	1.8%	-	0.4	-	82.1	12.0%	1.74	Cameroon		
0.1	-	1.6	1.3	2.9	2.9%	0.0	-	-	42.6	21.8%	2.10	Congo		
0.2	-	2.7	6.9	9.8	2.4%	-	-	-	165.6	6.1%	3.39	Côte d'Ivoire		
1.4	-	21.3	43.9	66.6	2.1%	-	-	-	1 112.3	1.0%	29.33	Dem. Rep. of Congo		
1.7	5.7	14.9	2.4	24.6	6.8%	0.5	1.9	1.5	283.7	74.4%	0.38	Egypt		
0.1	-	1.1	0.1	1.2	6.0%	-	-	-	4.6	24.8%	0.83	Eritrea		
1.8	-	34.2	3.1	39.1	4.6%	0.0	-	-	109.4	16.9%	1.31	Ethiopia		
0.0	-	0.2	0.6	0.8	5.3%	0.0	-	-	21.7	37.6%	0.94	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%	-	-	-	55.9	35.9%	0.61	Kenya		
0.2	-	0.7	0.6	1.4	12.3%	-	-	0.4	80.6	89.3%	0.80	Libya		
0.0	-	0.1	0.1	0.2	9.3%	-	-	-	4.1	89.7%	0.24	Mauritius		
0.7	-	4.1	1.1	5.9	11.4%	-	-	-	68.7	70.3%	0.37	Morocco		
0.4	-	1.1	0.7	2.2	16.0%	0.1	0.2	-	30.5	25.2%	1.53	Mozambique		
0.1	-	2.8	0.1	3.0	4.5%	-	-	-	11.1	30.1%	0.68	Namibia		
..	..	..	..	..	..	..	..	..	..	..	..	Niger
1.9	-	28.1	5.5	35.5	5.2%	0.6	0.0	0.4	238.5	51.8%	0.33	Nigeria		
0.1	-	5.7	0.6	6.4	2.3%	-	-	-	23.2	32.2%	0.92	Senegal		
2.2	0.0	14.1	5.6	21.9	10.2%	0.8	0.5	1.9	543.0	86.2%	0.99	South Africa		
..	..	..	..	..	..	..	..	..	..	..	..	South Sudan
0.7	-	72.1	10.5	83.3	0.8%	-	-	-	198.4	11.9%	1.47	Sudan		
0.7	-	10.7	1.6	12.9	5.2%	-	-	-	71.7	19.2%	0.87	United Rep. of Tanzania		
0.1	-	2.0	0.8	3.0	5.0%	-	-	-	23.0	17.1%	3.29	Togo		
0.2	0.3	2.1	0.3	2.9	7.0%	-	-	-	37.8	76.4%	0.39	Tunisia		
0.2	0.3	5.4	2.3	8.2	2.8%	0.0	-	-	76.3	5.8%	1.88	Zambia		
0.2	-	3.7	0.2	4.2	5.6%	-	-	-	23.4	45.0%	6.75	Zimbabwe		
3.5	-	149.5	41.5	194.5	1.8%	0.2	-	-	1 050.7	6.0%	4.12	Other Africa		
19.0	7.9	422.5	140.3	589.7	3.2%	2.6	3.0	4.6	4 730.9	29.3%	1.18	Africa		

1. GHG / GDP PPP ratio is expressed in kg of CO₂-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 CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Bangladesh	49.9	0.0	6.3	5.4	61.5	81.1%	12.4	70.4	20.3	0.0	103.1	12.0%
Brunei Darussalam	6.9	0.4	0.1	5.5	12.9	56.1%	4.3	0.0	0.1	-	4.5	97.3%
Cambodia	4.6	-	0.4	138.6	143.5	3.2%	1.4	21.4	1.9	10.5	35.2	4.0%
DPR of Korea	65.5	-	3.4	2.5	71.5	91.7%	10.9	4.4	3.4	0.0	18.6	58.5%
India	1 596.8	7.4	115.6	36.1	1 755.9	91.4%	116.1	377.6	125.3	2.5	621.5	18.7%
Indonesia	383.2	4.7	26.2	1 182.7	1 596.7	24.3%	68.2	94.3	56.2	0.3	218.9	31.1%
Malaysia	188.4	4.0	16.7	78.2	287.4	67.0%	21.6	5.5	5.9	0.5	33.6	64.4%
Mongolia	14.2	0.1	0.2	47.0	61.4	23.2%	1.0	4.8	0.3	0.0	6.1	16.4%
Myanmar	7.9	0.1	0.4	243.2	251.5	3.2%	10.7	59.3	7.2	1.9	79.1	13.5%
Nepal	4.1	-	0.6	0.2	4.9	83.3%	1.5	19.2	2.8	0.0	23.5	6.4%
Pakistan	131.4	0.2	15.1	0.1	146.7	89.7%	40.5	95.0	19.8	0.0	155.2	26.1%
Philippines	77.1	0.1	7.0	1.0	85.2	90.7%	6.1	34.7	15.2	0.0	56.0	10.9%
Singapore	44.2	-	6.2	0.1	50.5	87.6%	1.3	0.0	1.0	0.0	2.3	57.5%
Sri Lanka	12.4	-	1.2	0.2	13.8	89.9%	0.6	7.8	3.3	-	11.6	5.0%
Chinese Taipei	256.2	0.7	15.8	-	272.7	94.2%	1.4	1.2	6.3	0.0	8.9	16.0%
Thailand	223.4	0.4	23.7	36.7	284.3	78.7%	23.2	64.2	14.2	2.7	104.4	22.3%
Viet Nam	126.1	1.0	25.7	8.9	161.8	78.6%	40.9	58.0	12.1	0.2	111.3	36.8%
Other Asia	22.1	0.1	1.2	115.9	139.3	16.0%	3.3	20.4	6.0	6.1	35.8	9.3%
Asia (excl. China)	3 214.4	19.2	265.7	1 902.2	5 401.4	59.9%	365.5	938.2	301.3	24.8	1 629.8	22.4%
People's Rep. of China	7 095.3	101.1	1 069.2	73.7	8 339.3	86.3%	819.3	589.9	229.2	3.9	1 642.3	49.9%
Hong Kong, China	42.0	-	0.7	-	42.7	98.4%	0.8	-	2.3	-	3.1	24.6%
China	7 137.3	101.1	1 069.8	73.7	8 382.0	86.4%	820.1	589.9	231.5	3.9	1 645.3	49.8%
Argentina	173.5	1.2	8.9	3.4	187.0	93.4%	15.8	62.6	7.9	0.4	86.7	18.3%
Bolivia	14.1	0.2	0.9	97.2	112.4	12.7%	10.3	10.6	1.4	0.5	22.8	45.1%
Brazil	370.5	2.5	45.8	523.7	942.4	39.6%	43.3	327.2	62.8	10.0	443.3	9.8%
Colombia	60.2	1.9	3.8	22.9	88.8	70.0%	13.6	43.8	6.5	2.8	66.7	20.4%
Costa Rica	6.6	-	0.5	0.0	7.1	92.5%	0.3	1.5	0.5	-	2.3	11.4%
Cuba	29.8	0.1	0.8	3.1	33.8	88.6%	0.8	5.1	2.5	-	8.4	9.9%
Curaçao	4.4	-	-	-	4.4	100.0%	0.1	0.0	0.1	-	0.1	51.3%
Dominican Republic	19.1	-	1.5	0.1	20.7	92.0%	0.8	4.0	2.0	-	6.7	11.6%
Ecuador	33.2	3.5	1.9	0.7	39.4	93.2%	3.4	10.3	1.7	0.0	15.5	22.2%
El Salvador	5.9	-	0.5	0.1	6.4	91.2%	0.4	1.6	1.0	-	3.0	12.5%
Guatemala	10.3	0.0	1.1	20.0	31.4	32.9%	1.7	3.5	1.5	0.1	6.7	24.7%
Haiti	2.1	-	0.2	0.0	2.3	89.7%	0.9	2.2	1.4	-	4.5	19.2%
Honduras	7.3	-	0.6	2.4	10.3	71.0%	0.5	4.4	0.9	-	5.7	8.3%
Jamaica	6.9	-	0.5	0.1	7.5	92.0%	0.1	0.6	0.5	-	1.3	9.9%
Nicaragua	4.4	-	0.3	0.4	5.0	86.5%	0.4	4.7	1.3	-	6.4	6.6%
Panama	8.9	-	0.6	0.4	9.9	90.2%	0.1	2.7	0.5	-	3.3	3.7%
Paraguay	4.7	-	0.3	11.6	16.6	28.0%	1.4	13.2	1.3	0.1	15.9	8.7%
Peru	41.1	0.2	3.4	6.6	51.3	80.5%	3.9	11.5	3.5	0.0	18.9	20.6%
Trinidad and Tobago	22.3	0.1	15.9	0.0	38.4	58.5%	12.6	0.1	1.5	0.4	14.5	86.6%
Uruguay	6.0	-	0.3	0.4	6.7	89.3%	0.7	17.8	0.7	0.0	19.2	3.6%
Venezuela	171.6	6.7	8.6	48.7	235.7	75.7%	23.9	25.8	5.5	1.9	57.1	41.8%
Other Non-OECD Americas	19.0	0.0	0.6	16.7	36.3	52.3%	0.2	2.6	1.1	0.4	4.3	5.1%
Non-OECD Americas	1 021.9	16.4	97.1	758.7	1 894.1	54.8%	135.1	555.7	105.9	16.7	813.4	16.6%
Bahrain	25.8	0.0	2.3	-	28.2	91.7%	3.0	0.0	0.2	0.0	3.3	91.9%
Islamic Rep. of Iran	498.4	23.5	43.7	0.2	565.9	92.2%	79.4	21.6	14.0	0.3	115.3	68.9%
Iraq	103.5	18.1	3.6	3.3	128.5	94.6%	16.6	3.2	4.1	0.0	23.9	69.4%
Jordan	18.9	-	1.7	-	20.6	91.6%	0.8	0.4	0.9	-	2.1	38.9%
Kuwait	77.0	4.5	4.1	-	85.5	95.2%	11.4	0.2	0.9	0.0	12.4	91.6%
Lebanon	18.2	-	2.3	0.0	20.5	88.7%	0.1	0.3	0.7	-	1.1	10.5%
Oman	47.9	3.3	6.3	22.0	79.5	64.4%	15.4	0.6	0.6	-	16.5	92.9%
Qatar	57.1	3.8	7.1	-	68.1	89.5%	39.6	0.1	0.6	0.0	40.3	98.2%
Saudi Arabia	419.1	8.0	48.6	-	475.7	89.8%	51.7	1.8	6.5	0.2	60.3	85.8%
Syrian Arab Republic	55.9	1.9	2.8	0.0	60.7	95.4%	6.2	3.8	2.5	0.0	12.5	49.7%
United Arab Emirates	151.8	2.1	14.5	0.0	168.3	91.4%	23.8	0.6	1.2	-	25.6	92.8%
Yemen	22.4	2.7	0.9	0.0	26.1	96.4%	2.4	4.1	2.3	-	8.8	27.2%
Middle East	1 496.0	67.9	138.1	25.5	1 727.6	90.5%	250.4	36.7	34.5	0.6	322.2	77.7%

2010 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

N ₂ O						HFCs	PFCs	SF ₆	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP ¹	
1.8	-	22.0	2.4	26.2	6.9%	-	-	-	190.7	33.6%	0.58	Bangladesh
0.0	-	0.1	0.2	0.3	5.0%	0.4	-	-	18.1	64.0%	0.72	Brunei Darussalam
0.3	-	8.1	8.0	16.4	1.7%	-	-	-	195.1	3.2%	6.07	Cambodia
0.4	-	2.2	0.6	3.2	12.6%	4.2	-	-	97.6	78.8%	0.98	DPR of Korea
28.8	0.3	170.6	34.5	234.1	12.3%	13.4	1.7	5.8	2 632.5	66.4%	0.54	India
4.1	0.2	65.6	21.4	91.3	4.5%	-	0.1	1.1	1 908.2	24.1%	1.11	Indonesia
1.0	0.9	10.4	2.8	15.0	6.4%	0.0	0.4	0.8	337.2	63.8%	0.66	Malaysia
0.1	-	3.2	0.1	3.5	3.3%	-	-	-	71.0	21.6%	4.54	Mongolia
0.8	-	12.9	12.5	26.3	3.2%	-	-	-	356.9	5.5%	4.47	Myanmar
0.6	-	3.4	0.5	4.5	14.3%	-	-	-	33.0	19.1%	0.69	Nepal
3.7	0.0	23.0	3.3	30.1	12.3%	-	-	1.0	333.1	52.8%	0.51	Pakistan
0.8	0.0	9.4	2.3	12.5	6.1%	-	-	0.5	154.2	54.5%	0.33	Philippines
0.1	0.7	0.0	1.0	1.9	4.7%	2.2	0.7	0.4	58.0	78.7%	0.18	Singapore
0.3	-	1.3	0.5	2.1	13.7%	-	-	-	27.6	48.2%	0.20	Sri Lanka
1.4	0.7	1.7	1.2	5.0	27.2%	0.1	2.7	4.3	293.6	88.4%	0.40	Chinese Taipei
3.2	0.6	20.0	6.5	30.2	10.5%	-	-	1.4	420.3	59.5%	0.55	Thailand
1.7	-	28.6	3.5	33.8	5.2%	-	-	-	306.9	55.3%	0.88	Viet Nam
0.6	-	9.2	7.6	17.4	3.3%	0.1	-	-	192.6	13.6%	1.28	Other Asia
49.6	3.4	391.8	109.0	553.8	9.0%	20.6	5.6	15.2	7 626.4	47.8%	0.67	Asia (excl. China)
58.1	12.9	415.1	64.2	550.3	10.6%	183.9	8.4	57.1	10 781.2	74.9%	0.98	People's Rep. of China
0.2	-	-	0.3	0.5	41.0%	-	-	0.2	46.4	92.6%	0.15	Hong Kong, China
58.3	12.9	415.1	64.5	550.8	10.6%	183.9	8.4	57.2	10 827.6	75.0%	0.96	China
1.8	0.2	48.0	2.1	52.1	3.4%	0.5	0.1	0.4	326.9	58.8%	0.56	Argentina
0.2	-	5.2	4.2	9.5	1.8%	-	-	-	144.7	17.1%	3.03	Bolivia
7.4	1.9	165.0	33.2	207.6	3.6%	3.3	5.8	1.5	1 603.9	26.4%	0.66	Brazil
0.7	0.1	20.1	4.3	25.1	2.7%	-	-	0.1	180.7	42.3%	0.41	Colombia
0.1	0.0	1.3	0.2	1.5	5.2%	0.1	-	-	11.1	62.8%	0.22	Costa Rica
0.2	0.5	4.5	0.6	5.8	3.3%	0.2	-	-	48.2	64.2%	0.45	Cuba
0.0	-	0.0	0.1	0.1	18.4%	-	-	-	4.6	97.6%	1.92	Curaçao
0.2	-	1.5	0.4	2.1	10.2%	-	-	-	29.6	67.8%	0.30	Dominican Republic
0.2	-	4.6	0.5	5.3	3.6%	0.1	-	-	60.3	66.9%	0.49	Ecuador
0.1	-	1.0	0.2	1.4	7.2%	0.1	-	-	10.9	58.0%	0.27	El Salvador
0.4	-	2.9	1.2	4.5	8.5%	0.8	-	-	43.5	28.5%	0.50	Guatemala
0.1	-	1.2	0.2	1.5	7.2%	-	-	-	8.3	36.9%	0.62	Haiti
0.1	-	2.4	0.6	3.1	3.9%	-	-	-	19.2	41.3%	0.66	Honduras
0.1	-	0.4	0.2	0.6	10.8%	0.1	-	-	9.5	74.6%	0.52	Jamaica
0.1	-	3.0	0.3	3.4	3.4%	-	-	-	14.8	33.0%	0.71	Nicaragua
0.1	-	1.0	0.3	1.4	6.2%	-	-	-	14.6	62.6%	0.30	Panama
0.2	-	8.2	0.7	9.2	2.3%	-	-	-	41.8	15.0%	1.04	Paraguay
0.3	-	7.1	0.9	8.3	3.7%	0.5	-	-	79.1	57.5%	0.31	Peru
0.0	-	0.1	0.1	0.3	15.4%	-	-	-	53.2	66.0%	1.53	Trinidad and Tobago
0.1	-	7.7	0.1	7.9	1.7%	0.1	-	-	33.9	20.0%	0.68	Uruguay
0.8	0.0	11.7	3.3	15.8	5.1%	1.9	0.2	0.3	310.9	65.3%	0.73	Venezuela
0.1	-	2.2	0.9	3.3	4.4%	0.0	-	0.0	43.9	44.1%	0.94	Other Non-OECD Americas
13.4	2.6	299.2	54.8	370.0	3.6%	7.8	6.0	2.4	3 093.6	38.4%	0.62	Non-OECD Americas
0.0	-	0.0	0.1	0.1	25.0%	-	0.3	-	31.9	90.6%	0.71	Bahrain
1.9	0.9	18.6	2.5	23.9	8.0%	-	0.1	3.0	708.2	85.2%	0.68	Islamic Rep. of Iran
0.5	-	2.5	1.9	4.9	10.3%	-	-	0.1	157.4	88.1%	0.46	Iraq
0.1	-	0.3	0.2	0.6	10.5%	0.2	-	-	23.5	84.1%	0.39	Jordan
0.2	-	0.1	0.4	0.7	28.8%	0.9	-	0.5	100.1	92.9%	0.50	Kuwait
0.1	-	0.2	0.2	0.5	15.5%	-	-	-	22.1	83.2%	0.35	Lebanon
0.1	-	0.8	0.2	1.1	9.5%	0.3	0.0	-	97.5	68.3%	0.83	Oman
0.1	-	0.1	0.2	0.3	28.2%	-	-	-	108.7	92.5%	0.53	Qatar
1.1	-	2.2	2.9	6.2	17.5%	0.3	-	2.6	545.1	88.0%	0.49	Saudi Arabia
0.2	0.3	4.6	0.8	5.9	3.7%	-	-	-	79.1	81.3%	0.82	Syrian Arab Republic
0.2	-	1.4	0.7	2.4	8.2%	-	0.4	1.0	197.7	89.9%	0.46	United Arab Emirates
0.5	-	2.6	0.6	3.6	12.5%	-	-	-	38.5	72.8%	0.42	Yemen
4.9	1.2	33.5	10.7	50.3	9.8%	1.8	0.8	7.2	2 109.9	86.2%	0.55	Middle East

1. GHG / GDP PPP ratio is expressed in kg of CO₂-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 principauxEmissions de CO₂ provenant de la combustion d'énergie (MtCO₂)Part des émissions mondiales de CO₂ provenant de la combustion d'énergie

ATEP (PJ)

PIB (milliards de \$US 2005)

PIB PPA (milliards de \$US 2005)

Population (millions)

CO₂ / ATEP (tCO₂ par TJ)CO₂ / PIB (kgCO₂ par \$US 2005)CO₂ / PIB PPA (kgCO₂ par \$US 2005)CO₂ / Population (tCO₂ par habitant)

Part des énergies fossiles dans la production d'électricité

CO₂ / kWh d'électricité (gCO₂/kWh)**Emissions de CO₂ et facteurs -****Décomposition de Kaya**Emissions de CO₂

Population

PIB par habitant (PIB/hab)

Intensité énergétique (ATEP/PIB)

Intensité en carbone (CO₂/ATEP)

Methodologie détaillée dans la partie 1, chapitre 1

PIB, parité de pouvoir d'achat (\$ US constants 2005)

HauptkennzahlenCO₂-Ausstoß durch die Verbrennung fossiler Brennstoffe (MtCO₂)Anteil des CO₂-Ausstoßes fossiler Brennstoffe am weltweiten CO₂-Ausstoß

PEV (PJ)

BIP (Mrd. 2005 US\$)

BIP kaufkraftbereinigt (Mrd. 2005 US\$)

Bevölkerung (Mio.)

CO₂ / PEV (tCO₂ pro TJ)CO₂ / BIP (kgCO₂ pro 2005 US\$)CO₂ / BIP kaufkraftbereinigt (kgCO₂ pro 2005 US\$)tCO₂ pro Kopf

Anteil Elektrizitätserzeugung aus fossilen Brennstoffen

CO₂ Ausstoß pro Kilowattstunde erzeugter Elektrizität (gCO₂/kWh)**CO₂-Ausstoß und Emissionsquellen -****Kaya-Formel**CO₂-Ausstoß

Bevölkerung

Pro-Kopf-Einkommen

Energieintensität (PEV/BIP)

CO₂-Intensität (CO₂/PEV)

Siehe methodologische Anmerkungen in Part I, Chapter 1

Berechnungsgrundlage ist das BIP nach Kaufkraftparität auf der Basis US-Dollars im Jahr 2005

Emissions de CO₂ par secteur en 2012**CO₂-Emissionen nach Sektoren (2012)***millions de tonnes de CO₂**Mio. Tonnen CO₂*Combustion d'énergie (MtCO₂)

Production d'électricité et de chaleur

Autres industries de l'énergie

Industries manufacturières et de construction

Transport

dont: transport routier

Autres secteurs

*dont: résidentiel**dont: services**Pour mémoire : soutes maritimes internationales**Pour mémoire : soutes aériennes internationales*CO₂-Ausstoß durch die Verbrennung fossiler Brennstoffe

Elektrizitäts- und Wärmeerzeugung

Andere Energieindustrien

Verarbeitende Industrie und Baugewerbe

Verkehr

davon: Straßenverkehr

Andere Sektoren

*davon: Haushalte**davon: Dienstleistungssektor**Anmerkung: Tanklager für die internationale Seeschifffahrt**Anmerkung: Tanklager für die internationale zivile Luftfahrt*

La catégorie Autres inclut les déchets industriels et les déchets urbains non renouvelables.

La catégorie "Monde" inclut les soutes maritimes et aériens internationaux.

Die Kategorie "Andere" beinhaltet Industrieabfälle und nichterneuerbare städtische Abfälle.

Globaler CO₂-Ausstoß beinhaltet Tanklager für die internationale Seeschifffahrt und die internationale zivile Luftfahrt

italiano

Italian

日本語

Japanese

Principali indicatori**主要指標**

CO₂ emessa dalla combustione di carburanti (Mt di CO₂)
Quota di CO₂ emessa dalla combustione di carburanti nel mondo

化石燃料起源CO₂排出量 (CO₂百万トン)
世界の化石燃料起源CO₂排出量比率

ATEP (PJ)
PIL (miliardi di US\$ 2005)
PIL PPA (miliardi di US\$ 2005)
Popolazione (milioni)

一次エネルギー供給 (PJ)
GDP (10億 米ドル、2005年 価格)
GDP PPP (購買力平価ベースのGDP) (10億 米ドル、2005年 価格)
人口 (百万)

CO₂ / ATEP (t di CO₂ per TJ)
CO₂ / PIL (kg di CO₂ per US\$ 2005)
CO₂ / PIL PPA (kg di CO₂ per US\$ 2005)
CO₂ / Popolazione (t di CO₂ per abitante)

CO₂ 排出量 / 一次エネルギー供給 (CO₂ トン / PJ)
CO₂ 排出量 / GDP (CO₂ キログラム / 米ドル、2005年 価格)
CO₂ 排出量 / GDP PPP (CO₂ キログラム / 米ドル、2005年 価格)
一人当たり CO₂ 排出量 (二酸化炭素 トン / 人)

Quota di elettricità prodotta da combustibili fossili
CO₂ / kWh di elettricità (gCO₂/kWh)

化石燃料発電比率
1kWh当たりの CO₂排出量 (gCO₂/kWh)

Emissioni CO₂ e fattori - Identità di Kaya**CO₂排出量・変化要因 茅恒等式**

Emissioni CO₂
Popolazione
PIL / Popolazione (PIL per capita)
Intensità energetica (ATEP / PIL)
Intensità di carbonio (CO₂ / ATEP)

CO₂排出量
人口
一人当たり GDP (GDP/人)
エネルギー原単位 (TPES/GDP)
炭素集約度 (CO₂/TPES)

Fare riferimento alla Parte I, Capitolo 1 per le note metodologiche.
Basato sul PIL del 2005 espresso in US\$ e utilizzando le parità di potere d'acquisto.

計算方法についてはPart I, Chapter 1 参照

購買力平価ベースのGDP (2005年価格USドル) に基づく計算

Emissioni di CO₂ per settore in 2012**2012年の部門別二酸化炭素排出量**

milioni di tonnellate di CO₂

CO₂ 百万トン

CO₂ emessa dalla combustione di carburanti

化石燃料起源CO₂排出量

Produzione di elettricità e calore

発電および熱の製造

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

di cui: servizi

サービス部門

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

Основные показатели

Emisiones de CO ₂ procedentes de quema de combustible (MtCO ₂)	CO ₂ от сжигания топлива (MtCO ₂)
Porcentaje mundial de emisiones CO ₂ procedentes de quema de combustible	Доля мировой CO ₂ от сжигания топлива
TPES (PJ)	ОППТЭ (PJ)
PIB (billón de 2005 USD)	ВВП (миллиардов долларов США 2005 г.)
PIB PPP (billón de 2005 USD)	ВВП ППС (миллиардов долларов США 2005 г.)
Población (millones)	Население (миллионов человек)
CO ₂ / TPES (tCO ₂ por TJ)	CO ₂ /ОППТЭ (tCO ₂ на тнэ)
CO ₂ / PIB (kgCO ₂ por 2005 USD)	CO ₂ /ВВП (кгCO ₂ на доллар США 2005 г.)
CO ₂ / PIB PPA (kgCO ₂ por 2005 USD)	CO ₂ /ВВП ППС (кгCO ₂ на доллар США 2005 г.)
CO ₂ / Población (tCO ₂ per capita)	CO ₂ /Численность населения (тнэ на человека)
Porcentaje de electricidad generada a partir de combustibles fósiles	Доля производства электроэнергии из ископаемого топлива
CO ₂ / kWh de electricidad (gCO ₂ /kWh)	CO ₂ / кВт·ч электроэнергии (гCO ₂ / кВт · ч)
Emisiones de CO₂ y factores - Descomposición Kaya	Выбросы и источники CO₂ - уравнение Кая
Emisiones de CO ₂	Выбросы CO ₂
Población	Население
PIB por población (PIB per capita)	ВВП на население (ВВП на душу населения)
Intensidad energética (TPES/PIB)	Энергоемкость (ОППТЭ/ВВП)
Intensidad de carbono (CO ₂ /TPES)	Карбоноемкость (CO ₂ /ОППТЭ)

Para más información con respecto a la metodología, referase a la parte I, capítulo 1

Basado en PIB de 2005 utilizando paridad de poder adquisitivo

Emisiones de CO₂ por Sector en 2013

Выбросы CO₂ в 2013 г. по отраслям

<i>millón de toneladas de CO₂</i>	<i>миллионов тон CO₂</i>
Emisiones de CO₂ procedentes de quema de combustible	CO₂ от сжигания топлива
Generación de electricidad y calor	Производство электроэнергии и тепла
Otras Industrias de Energía	Прочие топливно-энергетические отрасли
Industrias Manufactureras y Construcción	Обрабатывающие отрасли промышленности и строительство
Transporte	Транспорт (включая международную морскую бункеровку)
<i>del cual: Carretera</i>	<i>в том числе : Автомобильный</i>
Otros sectores	Прочие отрасли
<i>del cual: Residencial</i>	<i>в том числе : Жилищно-коммунальное хозяйство</i>
<i>del cual: Servicios</i>	<i>из которых : услуги</i>
<i>Memo: Bunkers de Navegación Internacional</i>	<i>К сведению : Международная морская бункеровка</i>
<i>Memo: Bunkers de Aviación Internacional</i>	<i>К сведению : Международная воздушная бункеровка</i>
Otros incluye residuos industriales y residuos municipales no renovables.	Категория Другие включает промышленные отходы и ком.-быт. твердые отходы.
La categoría Mundial incluye búnkers de navegación Internacional y búnkers de Aviación Internacional	Категория Мир включает международную морскую бункеровку и международную воздушную бункеровку

中文

Chinese

关键指标

燃料燃烧所得二氧化碳排放量 (MtCO₂)

燃料燃烧所得二氧化碳排放量世界占有率

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 (tCO₂/TJ)

二氧化碳排放/ GDP (kgCO₂/ 2005年不变美元)

二氧化碳排放 /国内生产总值, 购买力平价(kgCO₂/2005年不变美元)

二氧化碳排放 / 人口 (人均吨CO₂排放)

化石燃料输出电力占有率

二氧化碳/千瓦时 (克二氧化碳/千瓦时)

二氧化碳排放及推动因素 - Kaya分解法

CO₂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 (CO₂/TPES)

请参见第一部分，第1章的方法说明。

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

燃料燃烧所得二氧化碳排放量

发电和发热

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

其中：商业和公共事业

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 initial role of the IEA 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, energy efficiency indicators, CO₂ emissions, and energy prices and taxes. The data managers are responsible for the production of data sets through receiving, reviewing and inputting data submissions from member countries and other sources. 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. The data managers/statisticians also design and implement computer macros used in the preparation of their energy statistics publication(s) alongside analysis of the data.

Principal qualifications

- University degree in a topic relevant to energy, or statistics. We currently have staff with degrees in Mathematics, Statistics, Information Technology, Economics, Engineering, Physics, Environmental Studies, etc.
- Experience in the basic use of databases and computer software. Experience in Visual Basic is an advantage.
- 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. Ability to understand, and communicate data.
- 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 3 229 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

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>

Ten Annual Publications

■ Energy Statistics of OECD Countries, 2015 edition

This volume contains data on energy supply and consumption in original units for coal, oil, natural gas, electricity, heat, renewables and waste. Complete data are available for 2012 and 2013 as well as provisional data for the most recent year (i.e. 2014). Historical tables summarise data on production, trade and final consumption by sector. The book also includes definitions of products and flows and explanatory notes on the individual country data.

Published July 2015 - Price €120

■ Energy Balances of OECD Countries, 2015 edition

This volume contains data on the supply and consumption of coal, oil, natural gas, electricity, heat, renewables and waste presented as comprehensive energy balances expressed in million tonnes of oil equivalent. Complete data are available for 2012 and 2013 as well as provisional data for the most recent year (i.e. 2014). Historical tables summarise data on production, trade and final consumption by sector as well as key energy and economic indicators. The book also includes definitions of products and flows, explanatory notes on the individual country data and conversion factors from original units to energy units.

Published July 2015 - Price €120

■ Energy Statistics of Non-OECD Countries, 2015 edition

This volume contains data for 2012 and 2013 on energy supply and consumption in original units for coal, oil, natural gas, electricity, heat, renewables and waste for over 100 non-OECD countries. Historical tables summarise data on production, trade, final consumption by sector and oil demand by product. These tables also include initial estimates for 2014 production (and trade when available) for natural gas, primary coal and oil. The book also includes definitions of products and flows and explanatory notes on the individual country data and sources.

Published August 2015 - Price €120

■ Energy Balances of Non-OECD Countries, 2015 edition

This volume contains data for 2012 and 2013 on the supply and consumption of coal, oil, natural gas, electricity, heat, renewables and waste presented as comprehensive energy balances. Data are expressed in thousand tonnes of oil equivalent for over 100 non-OECD countries. Historical tables summarise data on production, trade and final consumption by sector data as well as key energy and economic indicators. These tables also include initial estimates of 2014 production (and trade when available) for natural gas, primary coal and oil. This book includes definitions of products and flows, explanatory notes on the individual country data and conversion factors from original units to energy units.

Published August 2015 - Price €120

■ **Coal Information 2015**

Coal Information provides a comprehensive review of historical and current market trends in the world coal sector, including 2014 provisional data. It provides a review of the world coal market in 2014, alongside a statistical overview of developments, which covers world coal production and coal reserves, coal demand by type, coal trade and coal prices. A detailed and comprehensive statistical picture of historical and current coal developments in the 34 OECD member countries, by region and individually is presented in tables and charts. Complete coal balances and coal trade data for selected years are presented on 22 major non-OECD coal-producing and -consuming countries, with summary statistics on coal supply and end-use statistics for about 40 countries and regions worldwide.

Published August 2015 - Price €165

■ **Electricity Information 2015**

Electricity Information provides a comprehensive review of historical and current market trends in the OECD electricity sector, including 2014 provisional data. It provides an overview of the world electricity developments in 2013 covering world electricity and heat production, input fuel mix, supply and consumption, and electricity imports and exports. More detail is provided for the 34 OECD member countries with information covering production, installed capacity, input energy mix to electricity and heat production, consumption, electricity trades, input fuel prices and end-user electricity prices as well as monthly OECD production and trade electricity data for 2014. It provides comprehensive statistical details on overall energy consumption, economic indicators, electricity and heat production by energy form and plant type, electricity imports and exports, sectoral energy and electricity consumption, as well as prices for electricity and electricity input fuels for each country and regional aggregate.

Published August 2015 - Price €150

■ **Natural Gas Information 2015**

Natural Gas Information is a detailed reference work on gas supply and demand covering not only the OECD countries but also the rest of the world, this publication 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 supply and demand balance for each country and for the three OECD regions: Americas, Asia-Oceania and Europe, as well as a breakdown of gas consumption by end-use sector. Import and export data are reported by source and destination.

Published August 2015 - Price €165

■ **Oil Information 2015**

Oil Information is 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 the OECD regions. Trade data are reported extensively by origin and destination.

Published August 2015 - Price €165

■ Renewables Information 2015

Renewables Information provides a comprehensive review of historical and current market trends in OECD countries, including 2014 preliminary data. It provides an overview of the development of renewables and waste in the world over the 1990 to 2013 period. A greater focus is given to the OECD countries with a review of electricity generation and capacity from renewable and waste energy sources, including detailed tables. However, an overview of developments in the world and OECD renewable and waste market is also presented. The publication encompasses energy indicators, generating capacity, electricity and heat production from renewable and waste sources, as well as production and consumption of renewables and waste.

Published August 2015 - Price €110

■ CO₂ Emissions from Fuel Combustion, 2015 edition

In recognition of fundamental changes in the way governments approach energy related environmental issues, the IEA has prepared this publication on CO₂ 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, which will be meeting in Paris, France from 30 November to 11 December 2015. The data in this book are designed to assist in understanding the evolution of the emissions of CO₂ from 1971 to 2013 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 2006 *IPCC Guidelines for National Greenhouse Gas Inventories*.

Published November 2015 - Price €165

Two Quarterlies

■ 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

■ 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

- | | |
|---|------------------------------------|
| ■ Energy Statistics of OECD Countries, 1960-2014 | Price: €550 (single user) |
| ■ Energy Balances of OECD Countries, 1960-2014 | Price: €550 (single user) |
| ■ Energy Statistics of Non-OECD Countries, 1971-2013 | Price: €550 (single user) |
| ■ Energy Balances of Non-OECD Countries, 1971-2013 | Price: €550 (single user) |
| ■ <i>Combined subscription of the above four series</i> | <i>Price: €1 400 (single user)</i> |
| ■ Coal Information 2015 | Price: €550 (single user) |
| ■ Electricity Information 2015 | Price: €550 (single user) |
| ■ Natural Gas Information 2015 | Price: €550 (single user) |
| ■ Oil Information 2015 | Price: €550 (single user) |
| ■ Renewables Information 2015 | Price: €400 (single user) |
| ■ CO ₂ Emissions from Fuel Combustion 2015 | 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

■ 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

■ 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
Historical plus 12 monthly updates*

Price: €800 (single user)

For more information consult: 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 CO₂ 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 IEA Energy Atlas offers panoramas on every aspect of energy on a global basis and for over 140 individual countries, with interactive maps and customisable charts that detail and compare a host of data based on the Agency's authoritative statistics. The website also includes selected databases for demonstration.

The IEA statistics website can be accessed at www.iea.org/statistics/



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