IEA STATISTICS

2012
EDITION

CO_2 EMISSIONS FROM FUEL COMBUSTION

International Energy Agency

2012
EDITION

CO_2 EMISSIONS FROM FUEL COMBUSTION

In recognition of fundamental changes in the way governments approach energy-related environmental issues, the IEA has prepared this publication on CO_2 emissions from fuel combustion. This annual publication was first published in 1997 and has become an essential tool for analysts and policy makers in many international fora such as the Conference of the Parties.

The eighteenth session of the Conference of the Parties to the Climate Change Convention (COP 18), in conjunction with the eighth meeting of the Parties to the Kyoto Protocol (CMP 8), will be meeting in Doha, Qatar from 26 November to 7 December 2012.

The data in this book are designed to assist in understanding the evolution of the emissions of CO_2 from 1971 to 2010 for more than 140 countries and regions by sector and by fuel. Emissions were calculated using IEA energy databases and the default methods and emission factors from the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*.

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CO_2 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 28 member countries and beyond. The IEA carries out a comprehensive programme of energy co-operation among its member countries, each of which is obliged to hold oil stocks equivalent to 90 days of its net imports. The Agency's aims include the following objectives:

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

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FOREWORD

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

In recognition of the importance attached to the environmental aspects of energy, the IEA Secretariat has prepared this edition of its published statistics on CO_2 emissions from fossil-fuel combustion. These data are also available on CD-ROM and on the Internet.

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

It is our hope that this book will assist the reader in better understanding the evolution of CO_2 emissions from fuel combustion from 1971 to 2010 for more than 140 countries and regions, by sector and by fuel. This publication incorporates comments and suggestions received since the first edition in November 1997.

Most of the data presented in this publication are only for energy-related CO_2. Thus they may differ from countries' official submissions of emissions inventories to the UNFCCC Secretariat.

In addition, summary data for CO_2 from non-energy-related sources and gas flaring, and emissions of CH_4, N_2O, HFC, PFC and SF_6 are shown in Part III in cooperation with the PBL Netherlands Environmental Assessment Agency and the Joint Research Centre of the European Commission (JRC).

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

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

Maria Van der Hoeven
Executive Director

What's New?

Electricity-only emission factors

In previous editions of this publication, the IEA has published an indicator for CO_2 emissions per kWh for the electricity and heat generating industries. This 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, this indicator had a number of drawbacks and the IEA received many requests for electricity-only emission factors.

We are pleased to announce that starting with this edition, we have replaced the former indicator with an electricity-only factor expressed in grammes of CO_2 per kWh. For a complete description of the methodology used to estimate this indicator, please see Part I, Section 3.

Country/territory coverage

Starting with this edition, Kosovo and Montenegro are now available separately. Data for Kosovo are available starting in 2000. Between 1990 and 1999, data for Kosovo are included in Serbia. Prior to 1990, they are included in Former Yugoslavia. Data for Montenegro are available starting in 2005. Between 1990 and 2004, data for Montenegro are included in Serbia. Prior to 1990, they are included in Former Yugoslavia.

The IEA has also made some small changes in the terminology of countries and regions. The region Latin America and the region Other Latin America have been renamed Non-OECD Americas and Other Non-OECD Americas.

Subsequent to the release of the 2012 edition of the *CO_2 emissions from fuel combustion* publication an error was detected in the calculation used to produce the indicator on CO_2 emissions per kWh from electricity generation. This meant that for certain countries/regions an incorrect CO_2 emission amount was used in the calculation. These indicators were recalculated in March 2013 and a corrigendum was released.

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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
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
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
AIJ:	Activities Implemented Jointly under the United Nations Framework Convention on Climate Change
Annex I:	See Chapter 4, Geographical coverage
Annex II:	See Chapter 4, Geographical coverage
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, Geographical coverage)
IEA:	International Energy Agency
IPCC:	Intergovernmental Panel on Climate Change
OECD:	Organisation for Economic Co-operation and Development
SBI:	Subsidiary Body for Implementation
SBSTA:	Subsidiary Body for Scientific and Technological Advice
TCA:	Technology Co-operation Agreement
UN:	United Nations
UNECE:	United Nations Economic Commission for Europe
UNFCCC:	United Nations Framework Convention on Climate Change
e	estimated
..	not available
-	nil
x	not applicable
+	growth greater than 1 000%

Important cautionary notes

- The estimates of CO_2 emissions from fuel combustion presented in this publication are calculated using the IEA energy balances and the default methods and emission factors from the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*. There are many reasons why **the IEA Secretariat estimates may not be the same as the numbers that a country submits to the UNFCCC**, even if a country has accounted for all of its energy use and correctly applied the *IPCC Guidelines*.
- In this publication, the IEA Secretariat presents CO_2 emissions calculated using both the IPCC Reference Approach and the IPCC Tier 1 Sectoral Approach. In some of the OECD non-member countries, there can be **large differences between the two sets of calculations** due to various problems in some energy data. As a consequence, this can lead to different emission trends between 1990 and 2010 for certain countries. Please see Chapter 1, "IEA emissions estimates" for further details.
- Information on "key sources" from fuel combustion, as developed in the *IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*, are only given for combustion sources and will not include key sources from fugitive emissions, industrial processes, solvents, agriculture and waste. Please see Chapter 1, "IEA emissions estimates" and Chapter 5, "IPCC methodologies" for further information.

Energy data on OECD member and non-member countries[1] are collected by the Energy Data Centre (EDC) of the IEA Secretariat, headed by Jean-Yves Garnier. The IEA would like to thank and acknowledge the dedication and professionalism of the statisticians working on energy data in the countries. Karen Tréanton, with the assistance of Aidan Kennedy, is responsible for the estimates of CO_2 emissions from fuel combustion. Alex Blackburn developed the new indicator for CO_2 emissions per kWh. Desktop publishing support was provided by Sharon Burghgraeve.

CO_2 emission estimates from 1960 to 2010 for the Annex II countries and from 1971 to 2010 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*.

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E-mail: emissions@iea.org.

1. This document is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area. In this publication, "country" refers to a country or a territory, as the case may be.

2010 OVERVIEW

SNAPSHOT OF CO_2 EMISSIONS

Latest developments in 2010[1] (and beyond)

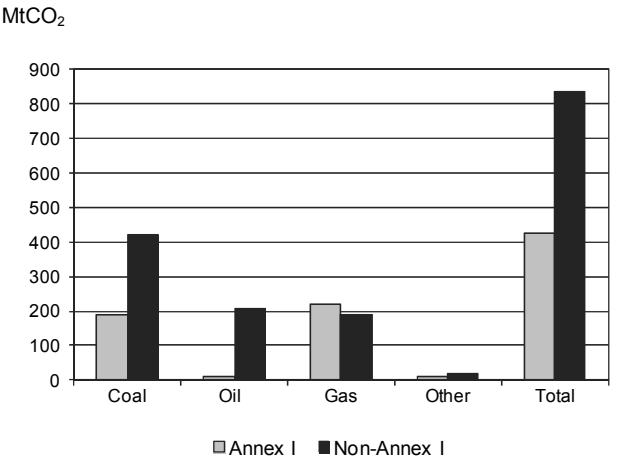
Global CO_2 emissions rose by 4.6% in 2010, after having declined in 2009 due to the impact of the financial crisis, in particular on Western economies. Emissions in Annex I[2] countries increased by 3.3% in 2010 after falling sharply in 2009, while emissions in non-Annex I countries continued to increase rapidly (5.6%). A more positive long-term assessment shows that, collectively, emissions in Annex I countries were 3.7% below their 1990 level, while emission levels for the group of countries participating in the Kyoto Protocol were 12.4% below their 1990 level.

In absolute terms, global CO_2 emissions increased by 1.3 $GtCO_2$ between 2009 and 2010. However, growth rates by region varied greatly: emissions in Latin America[3], Asia and China grew strongly (6.0% to 6.5%), while as mentioned above, emissions in Annex I countries grew at a more modest rate (3.3%). Africa was the only region where emissions did not increase in 2010 (-0.1%). Due to these differing growth rates, the share of total emissions (excluding bunkers) for non-Annex I countries increased slightly to just over 54% (their share surpassed that of Annex I countries for the first time in 2008).

The changes were not equal across fuels, regions and sectors. The 0.4-$GtCO_2$ increase in emissions for Annex I countries was primarily due to similar increases in gas and coal demand (demand for oil was almost static). By contrast, the 0.8-$GtCO_2$ increase in emissions for non-Annex I countries was more spread out: 50% from coal, 25% from oil and 23% from natural gas (Figure 1).

Early indications suggest that CO_2 emissions in developing countries in 2011 continued to increase at a faster rate than in the Annex I countries, mainly as a result of growing fossil fuel consumption in some of the larger countries.

Figure 1. Global change in CO_2 emissions (2009-10)



Key point: CO_2 emissions increased in both Annex I and non-Annex I countries in 2010; however, the source of the emissions growth varied.

1. Energy consumption in 2009 was affected by the global financial crisis and some of the CO_2 emission trends between 2009 and 2010 may be deceptive.

2. The Annex I Parties to the 1992 UN Framework Convention on Climate Change (UNFCCC) are: Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Croatia, the Czech Republic, Denmark, Estonia, European Economic Community, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Lichtenstein, 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 EIT and Annex II, see Geographical Coverage.

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

In the medium term, in its New Policies Scenario, the *World Energy Outlook (WEO 2012)*[4] projects that global CO_2 emissions from fuel combustion will continue to grow unabated, albeit at a lower rate, reaching 37.0 $GtCO_2$ by 2035, compared to 30.3 $GtCO_2$ in 2010. This is an improvement over the WEO Current Policies Scenario and in line with the worst-case scenario presented by the Intergovernmental Panel on Climate Change (IPCC)[5] in the *Fourth Assessment Report* (2007), which projects that emissions will stimulate a world average temperature increase of between 2.4°C and 6.4°C by 2100.

CO_2 emissions by fuel

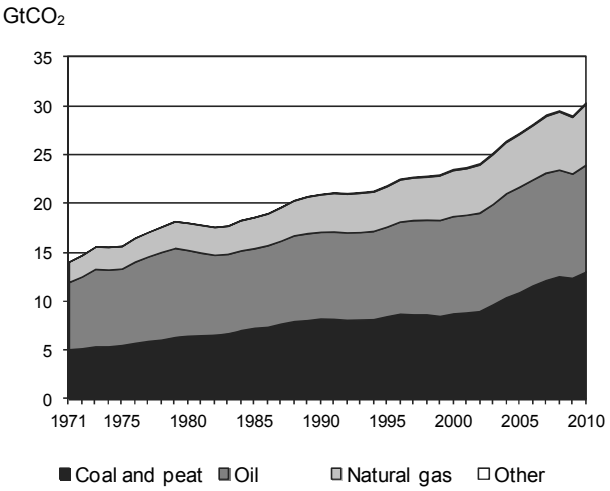
In 2010, 43% of CO_2 emissions from fuel combustion were produced from coal, 36% from oil and 20% from gas. Growth of these fuels in 2010 was quite different, reflecting varying trends that are expected to continue (Figure 2).

Between 2009 and 2010, CO_2 emissions from the combustion of coal increased by 4.9% and represented 13.1 $GtCO_2$. 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. Without additional abatement measures, the *WEO 2012* projects that emissions from coal will grow to 15.3 $GtCO_2$ in 2035. However, adopting a pathway towards limiting the long-term temperature increase to 2°C as in the *WEO 2012* 450 Scenario – through use of more efficient plants and end-use technologies as well as increased use of renewables, nuclear and carbon capture and storage (CCS) technologies – could see coal consumption drop and CO_2 emissions from coal reduced to 5.6 Gt by 2035. *Energy Technology Perspectives 2012 (ETP 2012)* also shows that intensified use of coal would substantially increase CO_2 emissions unless there was a very widespread deployment of CCS.

CO_2 emissions from oil represented 10.9 $GtCO_2$ in 2010, an increase of 2.7%. The decreasing share of oil in total primary energy supply (TPES), as a result of the growth of coal and the penetration of gas, limited the increase of CO_2 emissions from oil. *WEO 2012* projects, however, that emissions from oil will grow to 12.6 $GtCO_2$ in 2035, principally due to increased transport demand.

Emissions of CO_2 from gas in 2010 represented 6.2 $GtCO_2$, 7.1% higher than in the previous year. Again, the *WEO 2012* projects emissions from gas will continue to grow, rising to 9.2 $GtCO_2$ in 2035.

Figure 2. CO_2 emissions by fuel



Key point: Combustion of coal has driven the growth in global emissions in recent years. Although there was a decline in 2009 due to the financial crisis, this anomaly was short term and the trend has returned to its previous trajectory.

CO_2 emissions by region

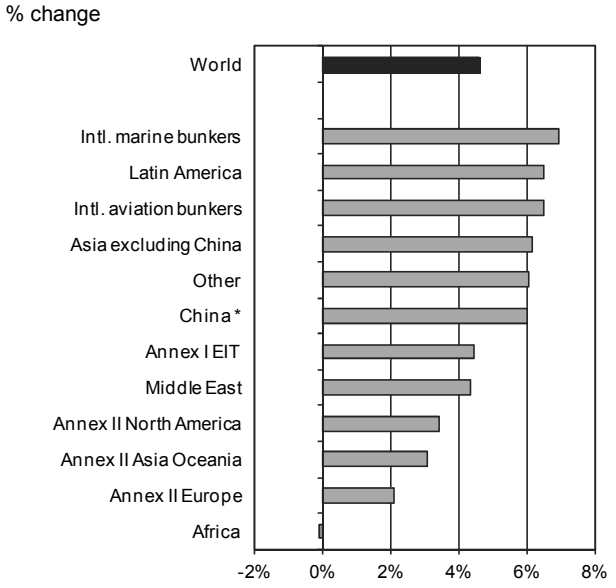
Between 2009 and 2010, CO_2 emissions increased in all regions except Africa, however, growth rates varied among regions. As mentioned earlier, CO_2 emissions from non-Annex I countries grew by 5.6%, while those of Annex I countries rose by a more modest 3.3%, having decreased in 2009. As a result, the gap between the aggregate emissions of non-Annex I countries and Annex I countries continued to grow.

At the regional level (Figure 3), between 2009 and 2010, CO_2 emissions increased significantly in Latin America (6.5%), Asia excluding China (6.1%) and China (6.0%). CO_2 emissions increased at a lower rate in Annex II regions, ranging from 2.1% in Annex II Europe to 3.4% in Annex II North America. Emissions in Africa remained stable.

4. Unless otherwise specified, projections from the *World Energy Outlook* refer to the New Policies Scenario from the 2012 edition. This scenario takes account of the broad policy commitments and plans that have been announced by countries around the world, including national pledges to reduce GHG emissions and plans to phase out fossil-energy subsidies – even where the measures to implement these commitments have yet to be identified or announced. These commitments are assumed to be implemented in a relatively cautious manner, reflecting their non-binding character and, in many cases, the uncertainty shrouding how they are to be put into effect.

5. The IPCC was created in 1988 by the World Meteorological Organisation and the United Nations Environment Programme to assess scientific, technical and socio-economic information relevant for the understanding of climate change, its potential impacts, and options for adaptation and mitigation.

Figure 3. Change in CO_2 emissions by region (2009-10)

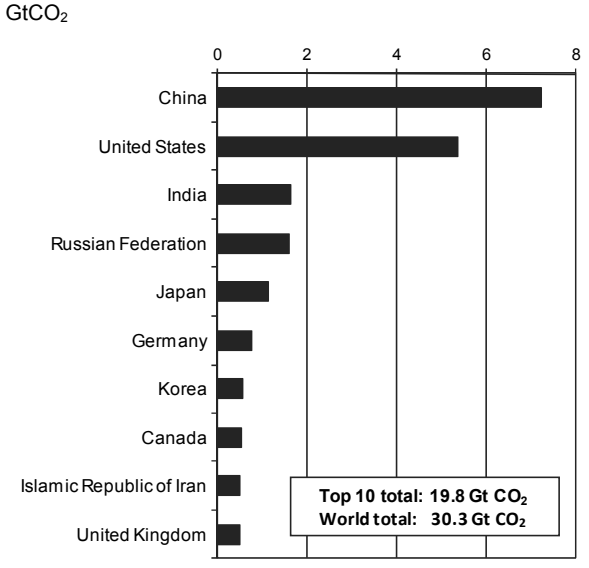


* China includes Hong Kong.

Key point: Between 2009 and 2010, CO_2 emissions grew in all regions with the exception of Africa.

Regional differences in contributions to global emissions conceal even larger differences among individual countries.

Figure 4. Top 10 emitting countries in 2010



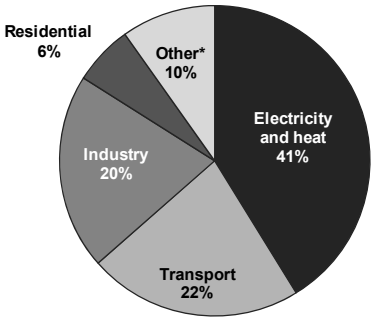
Key point: The top 10 emitting countries account for nearly two-thirds of the world CO_2 emissions.

Nearly two-thirds of global emissions for 2010 originated from just ten countries, with the shares of China (23.8%) and the United States (17.7%) far surpassing those of all others. Combined, these two countries alone produced 12.6 $GtCO_2$, 41.5% of world CO_2 emissions (Figure 4).

CO_2 emissions by sector

Two sectors produced nearly two-thirds of global CO_2 emissions in 2010: electricity and heat generation accounted for 41% while transport produced 22% (Figure 5).

Figure 5. World CO_2 emissions by sector in 2010



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

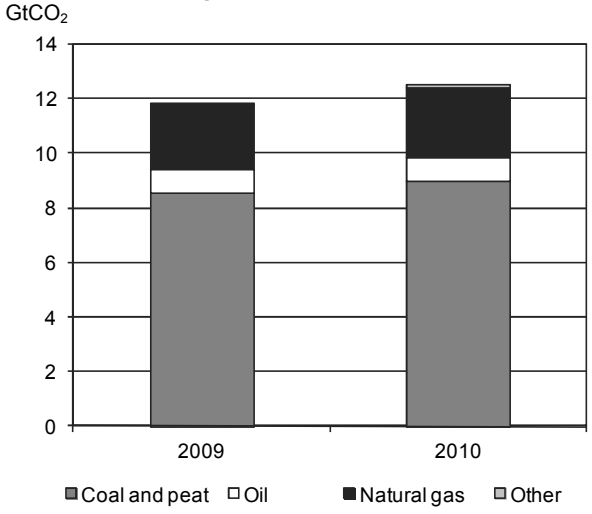
Key point: The combined share of electricity and heat generation and transport represented nearly two-thirds of global emissions in 2010.

Generation of electricity and heat was by far the largest producer of CO_2 emissions and was responsible for 41% of world CO_2 emissions in 2010. Worldwide, this sector relies heavily on coal, the most carbon-intensive of fossil fuels, amplifying its share in global emissions. Countries such as Australia, China, India, Poland and South Africa produce between 68% and 94% of their electricity and heat through the combustion of coal.

Between 2009 and 2010, total CO_2 emissions from the generation of electricity and heat increased by 5.6% (Figure 6), while the fuel mix remained unchanged. CO_2 emissions from oil increased the least, by 0.3%, while more substantial increases were seen for coal (4.7%) and gas (9.5%). Future development of the emissions intensity of this sector depends strongly on the fuels used to generate electricity and on the share of non-emitting sources, such as renewables and nuclear as well as fossil-fuel plants equipped with CCS.

By 2035, the *WEO 2012* projects that demand for electricity will be more than 70% higher than current demand. This demand will be driven by rapid growth in population and income in developing countries, by the continuing increase in the number of electrical devices used in homes and commercial buildings, and by the growth in electrically driven industrial processes. Meanwhile, renewables-based electricity generation is expected to continue growing over the next 25 years, benefiting from government support, declining investment costs and rising fossil-fuel prices. Under the three scenarios, the share of renewables in total electricity generation rises from 20% in 2010 to 24% (Current Policies), 31% (New Policies) and 48% (450 Scenario).

Figure 6. CO_2 emissions from electricity and heat generation* in 2009 and 2010



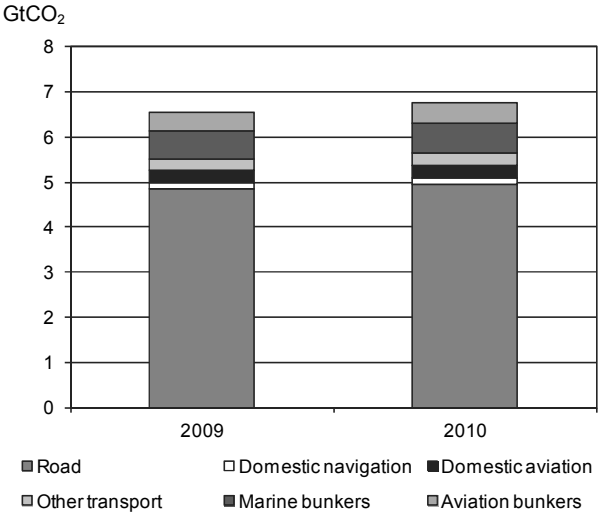
* Refers to main activity producers and autoproducers of electricity and heat.

Key point: CO_2 emissions from electricity and heat generation increased between 2009 and 2010, after having decreased slightly the previous year.

As mentioned above, transport, the second-largest sector in terms of emissions, represented 22% of global CO_2 emissions in 2010, reflecting an increase of 3.0% between 2009 and 2010 (Figure 7). Almost three-quarters of the emissions from transport were due to road.

The United States has the highest level of passenger travel per capita in the world (more than 25 000 km per person per year). Until recently, lower fuel prices in the United States contributed to the use of larger vehicles, while in Europe higher fuel prices encouraged improved fuel economy. As a result, there is more than a 50% variation in the average fuel consumption of new light-duty vehicles across OECD member countries. This is rapidly evolving as most OECD countries now have adopted fleet average fuel economy standards, leading to fast improvements of the average fuel economy (Table 13.1, p. 439, *ETP 2012*).

Figure 7. CO_2 emissions from transport in 2009 and 2010



Key point: CO_2 emissions from road make up the vast majority of emissions from transport.

Global demand for transport appears unlikely to decrease in the foreseeable future; the *WEO 2012* projects that transport fuel demand will grow by nearly 40% by 2035. To limit emissions from this sector, policy makers should implement measures to encourage or require improved vehicle efficiency, as the United States has recently done and the European Union is currently doing as a follow-up to the voluntary agreements. Policies that encourage a shift from cars to public transportation and to lower-emission modes of transportation can also help. Finally, policies can encourage a shift to new, preferably low-carbon fuels. These include electricity (*e.g.* electric and plug-in hybrid vehicles), hydrogen (*e.g.* through the introduction of fuel cell vehicles) and greater use of biofuels (*e.g.* as a blend in gasoline and diesel fuel). To avoid a rebound in transport fuel demand, these moves must also be backed up by emissions pricing or fuel excise policies.

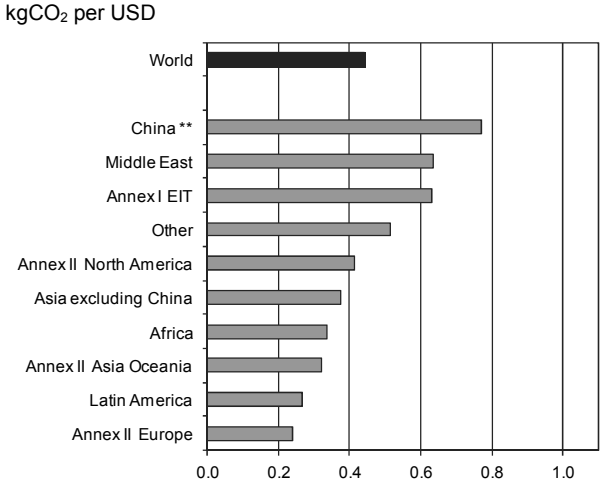
These policies would both reduce the environmental impact of transport and help to secure domestic fuel supplies, which are sometimes unsettled (e.g. by the threat of supply disruptions, whether from natural disasters, accidents or the geopolitics of oil trade). As these policies will ease demand growth, they are also likely to help keep oil prices below the increases projected in a business-as-usual scenario.

Although most of transport emissions are due to road travel, it is interesting to note that despite efforts of the international community to limit emissions from marine bunkers and aviation bunkers for international transport, these emissions grew significantly in 2010. CO_2 emissions from international marine bunkers were 7.0% above 2009 levels and those of aviation bunkers were 6.7% higher.

Coupling emissions with socio-economic indicators[6]

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.

Figure 8. CO_2 emissions per GDP* by major world regions in 2010



* GDP in 2005 USD, using purchasing power parities.

** China includes Hong Kong.

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

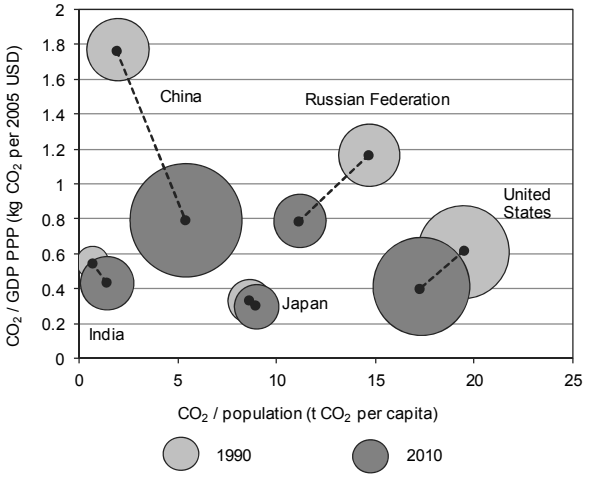
In 2010, the five largest emitters (China, the United States, India, the Russian Federation and Japan) comprised 45% of the total population and together produced 46% of the world gross domestic product[7] (GDP) and 56% of the global CO_2 emissions and. However, the relative shares of these five countries for all three variables were very diverse.

In the United States, the large share of global emissions is associated with a commensurate share of economic output (as measured by GDP), the largest in the world. Japan, with a GDP almost double that of the Russian Federation, emits 28% less than the Russian Federation.

Although climate and other variables also affect energy use, relatively high values of emissions per GDP indicate a potential for decoupling CO_2 emissions from economic growth. Possible improvements can derive from fuel switching away from carbon-intensive sources or from energy efficiency at all stages of the energy value chain (from raw material extraction to energy end-use).[8]

Among the five largest emitters of CO_2 in 2010, China, the Russian Federation and the United States have significantly reduced their CO_2 emissions per unit of GDP between 1990 and 2010 (Figure 9).

Figure 9. Trends in CO_2 emission intensities for the top five emitting countries*



* Size of circle represents total CO_2 emissions from the country in that year.

Key point: China, the Russian Federation and the United States have all made significant improvements in reducing the amount of CO_2 emitted per unit of GDP.

A note of caution is necessary concerning this indicator. CO_2 emissions per GDP can be very useful to measure efforts over time for one country – it is less useful when comparing countries. The ratio is very dependant on the base year used for the GDP purchasing

6. No single indicator can provide a complete picture of a country's CO_2 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 indication of the situation in a country.

7. Throughout this analysis, GDP refers to GDP in 2005 USD, using purchasing power parities.

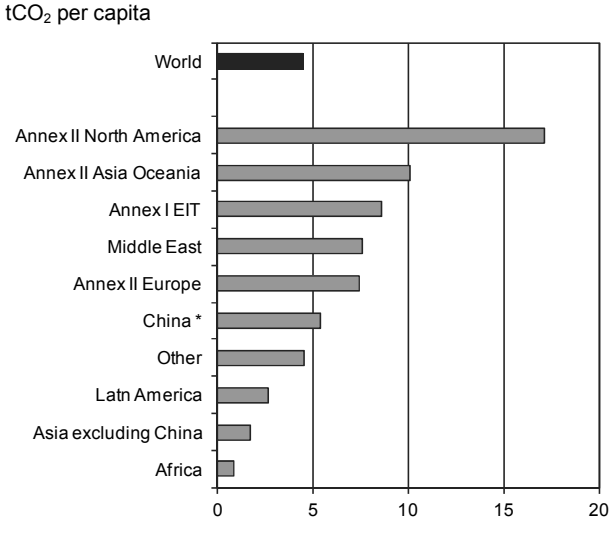
8. The IEA's Policies and Measures Databases offer access to information on energy-related policies and measures taken or planned to reduce GHG emissions, improve energy efficiency and support renewable energy development and deployment. The online databases can be consulted at: *www.iea.org/textbase/pm/index.html*.

power parity (PPP). In this edition, the GDP and GDP PPP series, and all associated ratios, have been rebased from 2000 USD to 2005 USD. As a result, the CO_2/GDP PPP ratio of China expressed in 2005 USD is twice as high as that of the United States; when the ratios were expressed in 2000 USD, China was only about 20% higher than the United States.

As compared to emissions per unit of GDP, the range of per-capita emission levels across the world is even larger, highlighting wide divergences in the way different countries and regions use energy.

In 2010, the United States alone generated almost 18% of world CO_2 emissions, despite having a population of less than 5% of the global total. Conversely, China contributed a comparable share of world emissions (24%) while accounting for 20% of the world population. India, with 17% of population, contributed more than 5% of CO_2 emissions. Among the five largest emitters, the levels of per-capita emissions were very diverse, ranging from 1 tCO_2 per capita for India and 5 tCO_2 for China to 17 tCO_2 for the United States.

Figure 10. CO_2 emissions per capita by major world regions in 2010



* China includes Hong Kong.

Key point: Emissions per capita vary even more widely across world regions than GDP per capita.

Industrialised countries emit far larger amounts of CO2 per capita than the world average (Figure 10). However, some rapidly expanding economies are significantly increasing their emissions per capita. For example, between 1990 and 2010, among the top five emitting countries, China increased its per-capita emissions by over 2.5 times and India doubled them. Clearly, these two countries contributed much to the 11% increase of global per-capita emissions over the period. Conversely, per-capita emissions were decreased significantly in both the Russian Federation (24%) and the United States (11%) over the same period.

Developing a low-carbon world

Traditionally, industrialised countries have emitted the large majority of anthropogenic greenhouse gases (GHGs). More recently, however, shares of developing country emissions have been rising very rapidly and are projected to continue to do so. To shift towards a low-carbon world, mitigation measures now taking shape within industrialised countries will need to be accelerated, and complemented by comprehensive efforts worldwide.

A breakthrough in this effort was the agreement at the United Nations Framework Convention on Climate Change (UNFCCC) 17th Conference of the Parties (COP17) talks in Durban (December 2011) to "launch a process to develop a protocol, another legal instrument or an agreed outcome with legal force under the Convention applicable to all Parties". The goal is to negotiate the new agreement by 2015, and for it to come into force from 2020. If agreement can be reached, this will be the first international climate agreement to extend mitigation obligations to all countries, both developed and developing.

This builds on decisions at the two previous UNFCCC meetings (in Copenhagen and Cancún), which invited developing countries to put forward voluntary mitigation pledges, which in turn built on the earlier Bali Roadmap (from 2005) that encouraged voluntary mitigation actions in developing countries. Developed and developing countries that have 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 previous climate agreement, the Kyoto Protocol of the UNFCCC.

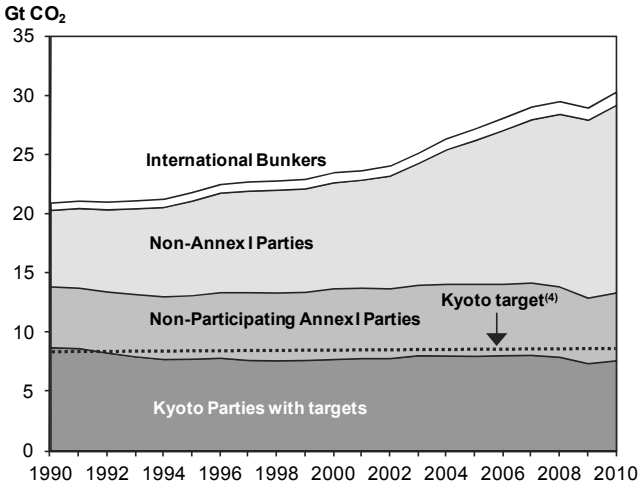
The Kyoto Protocol commits industrialised countries (as a group) to curb domestic emissions by about 5% relative to 1990 by the 2008-12 first commitment period. Alongside the agreement to negotiate a new climate agreement by 2015, certain countries have agreed to take commitments under a second commitment period of the Kyoto Protocol to begin in 2013. Details of these commitments will be finalised at COP 18 in Doha (December 2012).

Table 1. World CO_2 emissions from fuel combustion and Kyoto Protocol targets[1]

$MtCO_2$

	1990	2010	% change 90-10	Kyoto Target
KYOTO PARTIES WITH TARGETS	**8 784.3**	**7 695.8**	**-12.4%**	**-4.7% e**
North America	*432.9*	*536.6*	*24.0%*	
Canada	432.9	536.6	24.0%	-6%
Europe	*3 152.8*	*3 056.6*	*-3.1%*	
Austria	56.4	69.3	22.9%	-13%
Belgium	107.9	106.4	-1.4%	-7.5%
Denmark	50.4	47.0	-6.8%	-21%
Finland	54.4	62.9	15.7%	0%
France [2]	352.3	357.8	1.6%	0%
Germany	949.7	761.6	-19.8%	-21%
Greece	70.1	84.3	20.2%	+25%
Iceland	1.9	1.9	2.3%	+10%
Ireland	29.8	38.7	29.7%	+13%
Italy	397.4	398.5	0.3%	-6.5%
Luxembourg	10.4	10.6	1.6%	-28%
Netherlands	155.8	187.0	20.0%	-6%
Norway	28.3	39.2	38.5%	+1%
Portugal	39.3	48.2	22.6%	+27%
Spain	205.2	268.3	30.7%	+15%
Sweden	52.8	47.6	-9.8%	+4%
Switzerland	41.4	43.8	5.9%	-8%
United Kingdom	549.3	483.5	-12.0%	-12.5%
Asia Oceania	*1 347.8*	*1 557.4*	*15.6%*	
Australia	260.0	383.5	47.5%	+8%
Japan	1 064.4	1 143.1	7.4%	-6%
New Zealand	23.4	30.9	31.8%	0%
Economies in Transition	*3 850.8*	*2 545.1*	*-33.9%*	
Bulgaria	74.8	43.8	-41.4%	-8%
Croatia	21.6	19.0	-11.9%	-5%
Czech Republic	155.1	114.5	-26.2%	-8%
Estonia	36.1	18.5	-48.9%	-8%
Hungary	66.4	48.9	-26.3%	-6%
Latvia	18.7	8.1	-56.8%	-8%
Lithuania	33.1	13.4	-59.6%	-8%
Poland	342.1	305.1	-10.8%	-6%
Romania	167.0	75.6	-54.8%	-8%
Russian Federation	2 178.8	1 581.4	-27.4%	0%
Slovak Republic	56.7	35.0	-38.3%	-8%
Slovenia	12.5	15.3	22.5%	-8%
Ukraine	687.9	266.6	-61.2%	0%

	1990	2010	% change 90-10	Kyoto Target
OTHER COUNTRIES	**11 571.8**	**21 481.3**	**85.6%**	
Non-participating Annex I Parties	*5 122.4*	*5 702.3*	*11.3%*	
Belarus	124.5	65.3	-47.5%	none
Malta	2.3	2.5	8.3%	none
Turkey	126.9	265.9	109.5%	none
United States	4 868.7	5 368.6	10.3%	-7%
Other Regions	*6 338.5*	*15 609.9*	*146.3%*	none
Africa	544.4	929.7	70.8%	none
Middle East	557.1	1 546.3	177.6%	none
N-OECD Eur. & Eurasia [3]	641.8	499.4	-22.2%	none
Latin America [3]	843.0	1 482.3	75.8%	none
Asia (excl. China) [3]	1 508.1	3 893.7	158.2%	none
China	2 244.1	7 258.5	223.5%	none
INTL. MARINE BUNKERS	**362.5**	**643.7**	**77.6%**	
INTL. AVIATION BUNKERS	**255.3**	**455.3**	**78.3%**	
WORLD	**20 973.9**	**30 276.1**	**44.4%**	



(1) The targets apply to a basket of six greenhouse gases and allow sinks and international credits to be used for compliance with the target. The overall EU-15 target under the Protocol is 8%, but the member countries have agreed on a burden-sharing arrangement as listed. Because of lack of data and information on base years and gases, an overall "Kyoto target" cannot be precisely calculated for total Kyoto Parties: estimates applying the targets to IEA energy data suggest the target is equivalent to about 4.7% on an aggregate basis for CO_2 emissions from fuel combustion.

(2) Emissions from Monaco are included with France.

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

(4) The Kyoto target is calculated as percentage of the 1990 CO_2 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 climate targets under the Kyoto Protocol are not sufficiently comprehensive to lead to reductions in global CO_2 emissions from fuel combustion.

The Kyoto Protocol also creates "flexible mechanisms" by which industrialised countries can transfer emission allowances among themselves and earn emission credits from emissions reduction projects in participating developing countries and economies in transition (EITs). Despite its extensive coverage (192 countries), the Protocol is limited in its potential to address global emissions since not all major emitters are included in reduction commitments. The United States remains outside of the Protocol's jurisdiction and though most developing countries (*i.e.* non-Annex I countries) have signed, they do not face emissions targets. The Kyoto Protocol implies action on only one-quarter of global CO_2 emissions, as measured in 2010.

Through its flexibility mechanisms and provisions for international trading, the Kyoto Protocol has made CO_2 a tradable commodity, and has been a key driver for the development of emissions trading schemes as detailed below. In 2011 the total value of the global carbon market was USD 176 billion, with 10.3 billion allowances traded (World Bank, 2012).

Emissions trading systems

Emissions trading systems (ETS) are developing or being proposed in several regions and countries around the world. Some are operational or being launched (EU ETS, Australia, New Zealand, Norway, Tokyo, Switzerland, in California and through the Regional Greenhouse Gas Initiative in the United States, and in the Canadian provinces of Alberta and Quebec) while others are under development (Korea, China, Kazakhstan, Ukraine and Chile). The year 2012 saw significant developments in emissions trading, with final details being put in place to enable the start of the Australian scheme in July 2012, and the Quebec and California ETS schemes in January 2013.

The Australian ETS started in July 2012 with a fixed-price transitional phase, and will move to full trading in 2015. The Australian government and European Union have announced intentions to link their systems, starting with one-way trading of European allowances into the Australian market from 2015, followed by full two-way linking from 2018.

Rules for the California and Quebec schemes were developed co-operatively under the umbrella of the Western Climate Initiative, an agreement among US states and Canadian provinces to promote a common platform for emissions trading. The California and Quebec systems will both start trading in January 2013, and intend to formally link and hold joint auctions of allowances. The California system will play a critical role in reducing California's emissions to 1990 levels by 2020, as required under the Global Warming Solutions Act of 2006 (AB 32). The California ETS covers large stationary energy and industrial sources from 2013, and expands to cover natural gas and transport fuel suppliers from 2015.

The largest scheme in operation is the EU ETS, which began in 2005 and covers emitters in the energy, industry and aviation sectors, representing about 45% of the energy-related CO_2 emissions of the region. Norway's ETS is fully linked to the EU system. The lessons from its first two phases have helped to shape the scheme's post-2012 design (Ellerman *et al.*, 2010).

In December 2008, the European Council and the European Parliament endorsed an agreement on a climate change and energy package which implements a political commitment by the European Union to reduce its GHG emissions by 20% by 2020 compared to 1990 levels.[9] The package also includes a target for renewables in the European Union, set at 20% of final energy demand by 2020.

The EU ETS will play a key role in achieving this target. The 2020 emissions cap for ETS installations is 21% below the actual level of 2005 emissions,[10] with the option to lower the cap to 34% below 2005 levels if there is ambitious climate action internationally. These targets were set in 2008, before the scale of the global financial crisis was apparent. Due to the economic slow-down, European GHG emissions have decreased to the point where the 21% target is expected to be achieved without any abatement effort from industry. As a result, allowance prices in the EU ETS have dropped substantially. European governments are now considering whether and how to reform the EU ETS to improve its effectiveness.

In New Zealand, a comprehensive economy-wide emission trading scheme (NZ ETS) is being progressively introduced. It began with the forestry sector in January 2008; the energy, transport and industrial sectors have been included since July 2010. Waste and agricultural emissions will enter by 2015. A transition phase, from 2010 to 2015, is based on a capped price and partial obligations. The scheme is fully linked to the international Kyoto market, and allows unlimited

9. A 30% reduction target is proposed if other Parties were to take equally ambitious mitigation objectives.

10. Annual cap: 1 974 Mt in 2013, falling in linear fashion to 1 720 Mt by 2020; average annual cap over 2013-20: 1 846 Mt (compared to an annual cap of 2 083 Mt for the period 2008-12).

use of Kyoto Protocol project and forestry credits. No emissions cap is specified: linking to the international market is intended rather to ensure that an appropriate carbon price is set in the New Zealand economy.

Several other ETS schemes are operating, including in countries that are not Parties to the Kyoto Protocol. In the United States, the first regional scheme (the Regional Greenhouse Gas Initiative covering the electricity sector in the northeastern states) began on 1 January 2009. Small schemes are also in place in Tokyo (covering commercial sites) and Alberta (covering large emitters). Switzerland's ETS allows companies to manage their emissions through trading instead of facing the country's carbon tax. Switzerland is in negotiations to link its scheme to the EU ETS.

A number of other domestic trading schemes are also under development, in both Annex I and non-Annex I countries. The Korean government has passed legislation to establish an emissions trading scheme from 2015, to assist in delivering Korea's target of a 30% improvement on business-as-usual (BAU) emissions by 2020. As part of its 12th Five-Year Plan (2011-15), the Chinese government is introducing ETS pilots in seven provinces and cities. These pilots are to be developed by 2013, to inform the potential implementation of a nation-wide policy after 2015. Kazakhstan also intends to launch a trading scheme in 2013.

An important development in extending emissions trading to developing economies has been the World Bank's Partnership for Market Readiness, which provides funding and technical assistance to developing countries for capacity building toward the development and piloting of market-based instruments for GHG reduction. Chile, China, Columbia, Costa Rica, Indonesia, Mexico, Thailand and Turkey received grants in the first round of funding.

Steps for future action

After the unprecedented move at COP15 and COP/MOP5 in Copenhagen, where heads of states and high-level representatives failed to negotiate a comprehensive accord and settled for the Copenhagen Accord, COP16 and COP/MOP6 in Cancún were widely seen as having revitalized the international negotiating process. In Cancún, the key elements of the Copenhagen Accord were formally adopted into the UN process, including: the goal of limiting global temperature increase to less than 2°C above pre-industrial levels; commitments for the provision of financial resources; and sketching a framework for monitoring and reviewing mitigation actions and commitments. Annex I Parties submitted quantified economy-wide GHG targets to 2020 as part of the accord, and several non-Annex I countries also listed mitigation actions, or sectoral or economy-wide GHG targets. With the agreement at COP17 in Durban to launch negotiations on a new global agreement, the focus of the UNFCCC negotiations is now very much on the roadmap to 2015, coupled with decisions on extending the Kyoto Protocol to a second commitment period.

A key challenge in defining this new agreement is that while obligations are to start from 2020, global emissions need to peak before 2020 if temperature rise is to be limited to below 2°C. This points to the need for an ambitious start point in 2020, but also the importance of complementary initiatives outside the UNFCCC that can constrain emissions in the period up to 2020. In addition to defining a framework for mitigation actions across developed and developing countries, the Durban Platform will cover enhanced actions on adaptation, technology development and on the provision of financial resources. The concept of both mitigation actions and financial flows being "measurable, reportable and verifiable" is now central to the establishment of a post-2015 framework for climate action. The next step in the UNFCCC process is COP18 in Doha, where decisions on the Kyoto Protocol need to be finalised ahead of expiration of the First Commitment Period in December 2012, in addition to making progress toward the new 2015 agreement.

Alongside the UNFCCC process, progress toward a low-carbon future is being made in numerous other fora. The challenge of post-2012 discussions is the need to engage developing countries with approaches, possibly including the carbon market, that suit their capacity and their legitimate aspiration for economic and social development. The Asia Pacific Partnership for Clean Development and Climate (APP or AP7), the G8 2005 Gleneagles Plan of Action, and the Major Economies Forum on Energy and Climate (MEF) and Clean Energy Ministerial (CEM) processes have sought to involve developed and developing nations in common measures to address climate change. Other international fora gathering both developed and developing countries have emerged that can further mitigate efforts in specific areas, such as the International Renewable Energy Agency (IRENA), and the International Partnership for Energy Efficiency Co-operation (IPEEC).

The AP7, which groups Australia, Canada, China, India, Japan, Korea and the United States, focuses on

the emissions of specific sectors (iron and steel, cement, aluminium, mining, buildings and appliances) and methods of clean fossil energy use, renewable energy generation and more efficient power generation and transmission.

Canada, France, Germany, Italy, Japan, the Russian Federation, the United Kingdom and the United States launched the July 2005 G8 Gleneagles Plan of Action to, in part, promote clean energy and sustainable development while mitigating climate change. The IEA was tasked under the Plan of Action to develop concrete recommendations to help the G8 achieve its clean energy objectives. Additionally, the G8 sought to engage South Africa, India, Brazil, China and Mexico in an official dialogue to address climate change, clean energy and sustainable development worldwide. This commitment by the G8 was reiterated at all subsequent summits.

The G20 summits have also served as a forum to advance climate change and clean energy discussions, including a commitment to rationalising and phasing out inefficient fossil fuel subsidies over the medium term. In 2011, the G20 formed a new Clean Energy and Energy Efficiency (C3E) Working Group to advance its work in this area. The Clean Energy Ministerial process, launched in 2009, is a high-level global forum to accelerate deployment of clean energy, through sharing experience in policies and programmes. It is based on a series of concrete initiatives to advance key technologies. The IEA is involved in some of these initiatives and also prepares an annual tracking report on global clean energy deployment for the CEM meeting.

In all these efforts, timely and accurate CO_2 and other GHG statistics will prove central to ascertaining compliance with international agreements and to informing policy makers and carbon market participants. The ability of countries to monitor and review emissions from their sources is essential in their engagement towards national and global GHG mitigation.

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REGIONAL ASPECTS OF THE ENERGY-CLIMATE CHALLENGE

A growing body of evidence has established links between climate change and the carbon dioxide (CO_2) emissions that arise from energy production and consumption. This chapter provides background on the link between energy use and climate change, and then examines how growing demand in some rapidly expanding economies – all of which are in non-OECD regions – will dramatically change future emissions trends. It closes with a call for all countries (not just the industrialised countries) to address this increasingly urgent global issue.

Understanding energy and climate change

In its *Fourth Assessment Report,*[11] the IPCC concluded: "Most of the observed increase in global average temperatures since the mid-20th century is *very likely* due to the observed increase in anthropogenic greenhouse-gas concentrations." The language "very likely" has been upgraded from "likely," which was used six years earlier in the *Third Assessment Report*, thus confirming the broad acceptance by scientists of the link between greenhouse-gas (GHG) emissions and global climate change. Energy production and use have various environmental implications: since energy accounts for about 65% of global anthropogenic GHG emissions, reducing emissions must necessarily start with actions geared to reduce emissions from fuel combustion.

11. *IPCC Fourth Assessment Report – Climate Change 2007*, available at *www.ipcc.ch*. In the summary for policy makers, the following terms have been used to indicate the assessed likelihood, using expert judgement, of an outcome or a result: *virtually certain* > 99% probability of occurrence; *extremely likely* > 95%; *very likely* > 90%; *likely* > 66%; *more likely than not* > 50%; *unlikely* < 33%; *very unlikely* < 10%; and *extremely unlikely* < 5%.

Greenhouse gases and global warming

The increased concentrations of key greenhouse gases are a direct consequence of human activities. Since anthropogenic greenhouse gases accumulate in the atmosphere, they produce net warming by strengthening the natural "greenhouse effect".

Carbon dioxide (CO_2) concentrations in the atmosphere have been increasing over the past century compared to the rather steady level evident during the pre-industrial era (about 280 parts per million in volume, or ppmv). The 2005 concentration of CO_2 (379 ppmv) was about 35% higher than in the mid-1800s, with the fastest growth occurring in the last ten years (1.9 ppmv/year in the period 1995-2005). Significant increases have also occurred in levels of methane (CH_4) and nitrous oxide (N_2O).

Some impacts of the increased GHG concentrations may be slow to become apparent since stability is an inherent characteristic of the interacting climate, ecological and socio-economic systems. Even after stabilisation of the atmospheric concentration of CO_2, anthropogenic warming and sea level rise would continue for centuries due to the time scales associated with climate processes and feedbacks. Some changes in the climate system would be irreversible in the course of a human lifespan.

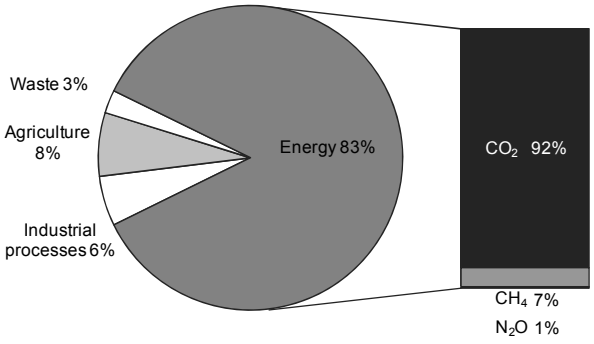
Given the long lifetime of CO_2 in the atmosphere, stabilising concentrations of greenhouse gases at any level would require large reductions of global CO_2 emissions from current levels. The lower the chosen level for stabilisation, the sooner the decline in global CO_2 emissions would need to begin, or the deeper the emission reduction would need to be over time.

The UNFCCC creates a structure for inter-governmental efforts to tackle the challenge posed by climate change. The Convention's ultimate objective is to stabilise GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. This would require significant reductions in global GHG emissions.

Energy use and greenhouse gases

Among the many human activities that produce greenhouse gases, the use of energy represents by far the largest source of emissions. Smaller shares correspond to agriculture, producing mainly CH_4 and N_2O from domestic livestock and rice cultivation, and to industrial processes not related to energy, producing mainly fluorinated gases and N_2O (Figure 11).

Figure 11. Shares of anthropogenic GHG emissions in Annex I countries, 2010*



* Based on Annex I data for 2010; without Land Use, Land-Use Change and Forestry, and with Solvent Use included in Industrial Processes and "other" included with waste.

Source: UNFCCC.

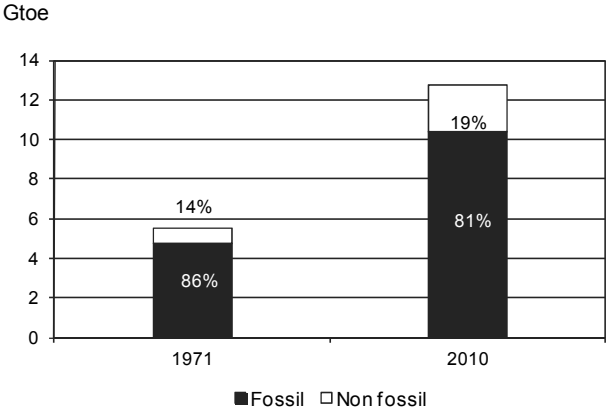
Key point: Accounting for the largest share of global GHG emissions, energy emissions are predominantly CO_2.

Direct combustion of fuels dominates the GHG emissions from the energy sector.[12] A by-product of fuel combustion, CO_2 results from the oxidation of carbon in fuels.

CO_2 from energy represents 83% of the anthropogenic GHG emissions for Annex I countries but only about 65% of global emissions. This percentage varies greatly by country, due to diverse national energy structures.

Worldwide economic growth and development require energy. Global total primary energy supply (TPES) more than doubled between 1971 and 2010, mainly relying on fossil fuels (Figure 12).

Figure 12. World primary energy supply*



* World primary energy supply includes international bunkers.

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

Despite the growth of non-fossil energy (such as nuclear and hydropower) considered as non-emitting,[13] the share of fossil fuels within the world energy supply is relatively unchanged over the past 39 years. In 2010, fossil sources accounted for 81% of the global TPES.

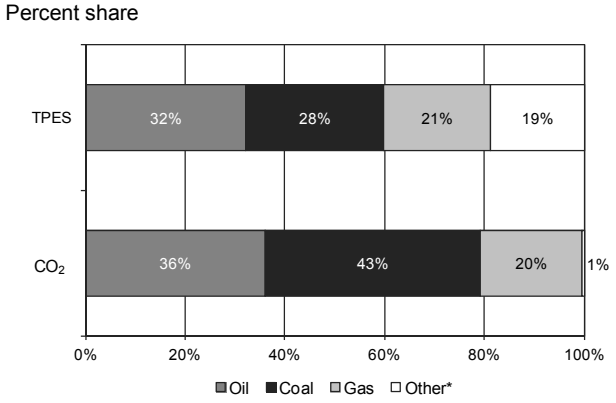
Though coal represented only 28% of the world TPES in 2010, it accounted for 43% of the global CO_2 emissions due to its heavy carbon content per unit of energy released (Figure 13). As compared to gas, coal is nearly twice as emission intensive on average.[14]

12. Energy includes emissions from "fuel combustion" (the large majority) and "fugitive emissions", which are intentional or unintentional releases of gases resulting from production, processes, transmission, storage and use of fuels (*e.g.* CH_4 emissions from coal mining or oil and gas systems).

13. Excluding the life cycle of all non-emitting sources and excluding combustion of biofuels (considered as non-emitting CO_2, based on the assumption that the released carbon will be reabsorbed by biomass re-growth, under balanced conditions).

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

Figure 13. World primary energy supply and CO_2 emissions: shares by fuel in 2010

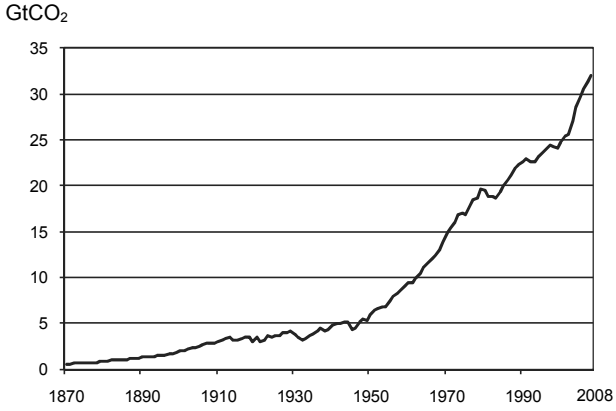


* Other includes nuclear, hydro, geothermal, solar, tide, wind, biofuels and waste.

Key point: Coal combustion generates about twice the CO_2 emissions of gas use, while having a comparable share in the world energy supply.

Growing world energy demand from fossil fuels plays a key role in the upward trend in CO_2 emissions (Figure 14). Since the Industrial Revolution, annual CO_2 emissions from fuel combustion dramatically increased from near zero to over 30 $GtCO_2$ in 2010.

Figure 14. Trend in CO_2 emissions from fossil fuel combustion



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

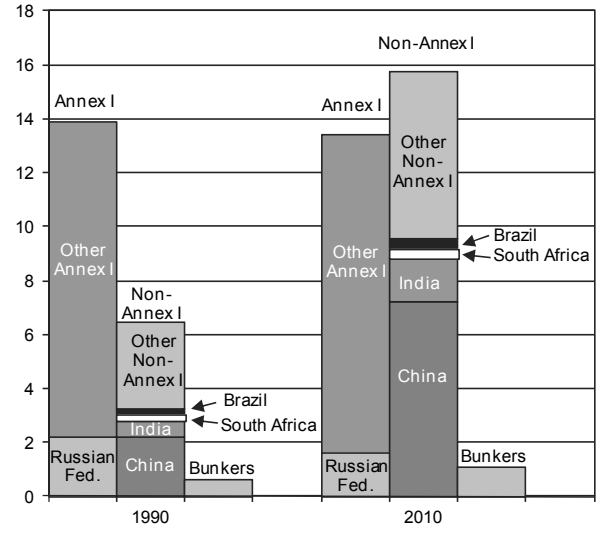
Key point: Since 1870, CO_2 emissions from fuel combustion have risen exponentially.

The link between climate change and energy is a part of the larger challenge of sustainable development. The socio-economic and technological characteristics of development paths will strongly affect emissions, the rate and magnitude of climate change, climate change impacts, the capability to adapt and the capacity to mitigate the emissions themselves.

BRICS countries altering the regional balance

One of the most important recent developments in the world economy is the increasing economic integration of large non-OECD countries, in particular Brazil, the Russian Federation, India, China and South Africa, the so-called BRICS countries. In 2010, the BRICS represented about one-quarter of world GDP,[15] up from 16% in 1990. Also in 2010, these five countries represented 33% of global energy use and 37% of CO_2 emissions from fuel combustion (Figure 15). These shares are likely to rise further in coming years if the strong economic performance currently occurring in most of these countries continues, as many commentators expect. In fact, China, the Russian Federation and India are already three of the four countries that emit the most CO_2 emissions in absolute terms.

Figure 15. The growing importance of GHG emissions in the BRICS countries



Key point: With the exception of the Russian Federation, the BRICS countries represent a growing share of CO_2 emissions in the world.

This brief discussion focuses on the BRICS countries, of which only the Russian Federation is a member of Annex I Parties to the UNFCCC. Each of these countries has very different endemic resources, energy

15. Throughout this analysis, GDP refers to GDP in 2005 USD, using purchasing power parities.

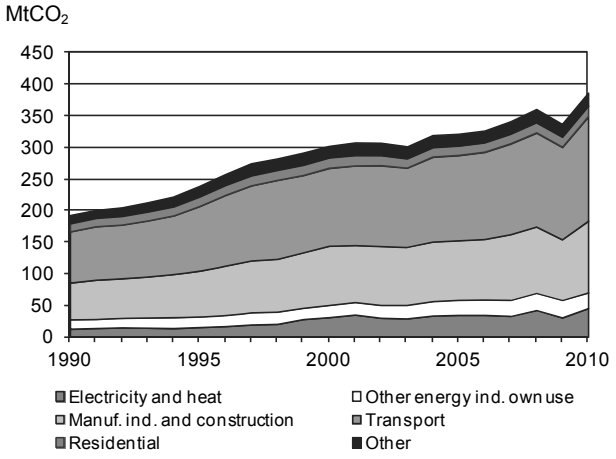
supply constraints and sectoral consumption patterns. Consequently, the issues relating to CO_2 emissions facing these five countries are quite different.

Brazil

Brazil is the third-largest emitter of total greenhouse gases in the world, with the particularity that the country's energy system has a relatively minor impact on GHG emissions (about 27%). The bulk of Brazilian GHG emissions comes from agriculture, land-use and forestry activities, mainly through the expansion of agricultural frontiers in the Amazon region.

Compared to the Russian Federation, China and India, CO_2 emissions from fuel combustion in Brazil are small, representing only 1.3% of global CO_2 emissions from fuel combustion. Brazil's energy matrix is one of the cleanest in the world with renewables accounting for 44% of TPES. Within the energy sector, the sub-sectors that contribute the most to total GHG emissions – transport (43% in 2010) and industry (29%) – are those likely to grow the most over the next years (Figure 16).

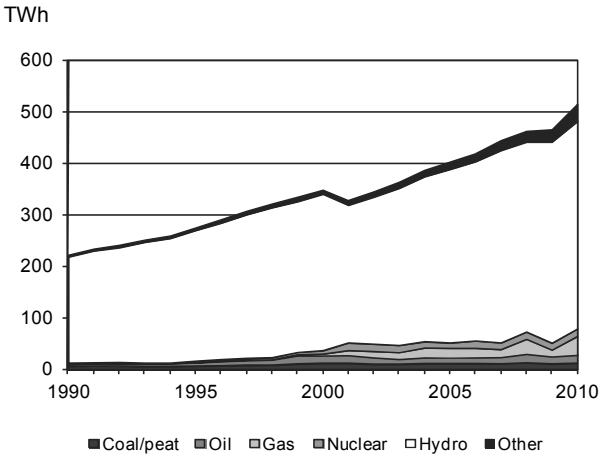
Figure 16. Brazil: CO_2 emissions by sector



Key point: The transport sector produces the largest share of CO_2 emissions from fuel combustion in Brazil.

Electricity generation in Brazil relies heavily on hydropower (Figure 17). Over the last three decades, the number of major dams has grown steadily and hydropower accounted for 78% of total electricity generation in 2010. Many of Brazil's hydropower generating facilities are located far away from the main demand centres, resulting in high transmission and distribution losses. Droughts in recent years have led to a wider diversification in the electricity production mix, increasing the use of natural gas. Electricity generation from natural gas rose to 7% in 2010, having fallen from 6% in 2008 to 3% in 2009 due to the global economic crisis.

Figure 17. Brazil: Electricity generation by fuel



Key point: Brazilian electricity generation draws heavily on hydropower.

In 2009, the Brazilian government announced plans to build two new large hydroelectric plants. As a result, there are currently 22 GW of hydropower capacity already contracted and under construction (including the 11.2 GW of the Belo Monte) plus 3.9 GW of small hydro plants. However, large hydro projects are frequently faced with opposition by environmental groups and indigenous communities, leading to protracted legal disputes, project delays and higher project costs.

In 2007, amid concerns about the risk of power-supply shortages beyond 2012 unless Brazil builds new capacity, the Brazilian government announced the development of five new nuclear power plants. The government's 2030 National Energy Plan anticipates 5.3 GW of additional installed generation capacity from new nuclear plants (Angra 3 and four other plants) by 2030. After the Fukushima accident, however, the Brazilian government decided not to include the latter four plants in its 10-year power expansion plan 2011-20. Moreover, electricity produced from co-generation plants (mainly from sugarcane bagasse) is planned to constitute 11.4% of the country's electricity supply by 2030.

Biofuels supply a comparatively significant share of the energy consumed for road transport in Brazil (Figure 18). As such, Brazilian transport has a relatively low CO_2 emissions intensity.[16] CO_2 emissions per unit of fuel consumed in road traffic are 20% lower than the world average (2.3 versus 2.8 tCO_2 per toe).

16. See box on "Using biofuels to reduce emissions" for a more complete discussion on the advantages and limitations of using biofuels to replace oil. Note: CO_2 emissions intensity considers the tank-to-wheel emissions and assumes that the CO_2 emissions derived from the combustion of biofuels are zero.

Using biofuels to reduce emissions

Compatible with most conventional automotive engines (in low-percentage blends), blendable with current transport fuels, and marketable using much of the current fuel distribution and retail infrastructure, biofuels have the potential to reduce GHG emissions and to contribute to energy security by diversifying supply sources for transport. However, the economic, environmental and social benefits of the current generation of biofuels vary.

In order to assess their efficacy in reducing GHG emissions, biofuels can be compared on the basis of their well-to-wheel (WTW)* performance with respect to conventional fossil fuels. When ethanol is derived from corn, the WTW greenhouse-gas reduction with respect to conventional gasoline is typically in the range of 10% to 50%. The reduction is typically much higher for sugarcane-based ethanol from Brazil, reaching an estimated 70% to 120%**. Similarly, oilseed-derived biodiesel typically leads to GHG reductions, on a WTW basis, of 30% to 60% when compared to conventional petroleum diesel.

However, these comparisons do not take into account the possibility that changes in land use caused by biofuel production can result in one-time releases of CO_2 that could be quite large; more research is needed on the impacts of both direct and indirect land-use change, and how to minimise adverse impacts.

New and emerging biofuel technologies, which can use as feedstock biomass residues and energy crops such as fast-growing trees and perennial grasses, have the potential to expand the scope for production of very low-carbon biofuels. However, these biofuel technologies are not yet commercially operational at full scale. The most mature of these technologies are still at the edge between demonstration and first commercial plants.

For both conventional and advanced biofuels, production cost is a main barrier to their larger penetration in the transport fuel mix. Ethanol from sugarcane produced in Brazil has been more or less the only biofuel competitive with petroleum fuels without direct subsidies, although this has changed recently as relatively high sugar prices pushed up production costs for ethanol beyond a level competitive with regulated gasoline prices.

Currently, more than 50 countries have mandated or promoted biofuel blending to displace oil in domestic transport supply. In Brazil, gasoline contains 20% to 25% ethanol, and around 95% of cars sold in Brazil in 2011 were flex-fuel vehicles that can run on either 100% ethanol or on a gasoline/ethanol blend. Depending on the oil price, most drivers are choosing to operate these vehicles mainly on ethanol. In 2007, the United States introduced the Renewable Fuels Standard 2, which sets out blending mandates for different types of biofuels. The total mandated volume stands at 15.2 billion gallons in 2012 and will increase to 36 billion gallons by 2022 (of which more than half will be required to be "advanced biofuels"*** and about one-third cellulosic ethanol****).

In the European Union, the Renewable Energy Directive sets out a mandatory share of 10% renewable energy in transport by 2020. The directive requires for all biofuels that are counted towards the target to meet mandatory sustainability criteria, including minimum GHG emission savings compared to fossil fuels. The use of biofuels produced from wastes, residues or lignocellulosic biomass is counted twice against the targets. Australia (New South Wales and Queensland) and Canada are also mandating the use of biofuels, as are a number of non-OECD countries.

In the future, it is crucial that policies foster innovation and support only sustainable biofuels that can provide considerable emission reductions compared to the use of fossil gasoline and diesel. Continuous monitoring of the environmental, social and economic impacts of biofuel production and use will be important. This includes analysis of suitable land for biofuel cultivation and the potential influence of biofuel production on global food prices taking account of global demand for food, fibre and energy for a steadily growing world population. Support measures should be phased out over time as the commercial viability of biofuels improves as technologies evolve and prices of conventional fossil fuels increase. If well-managed and co-ordinated with investments in infrastructures and agriculture, biofuels can provide an opportunity for increasing land productivity and creating economic development, particularly in rural areas of developing countries.

* Well-to-wheel life cycle analysis refers to the total emissions from the production stage to the consumption stage of the product.

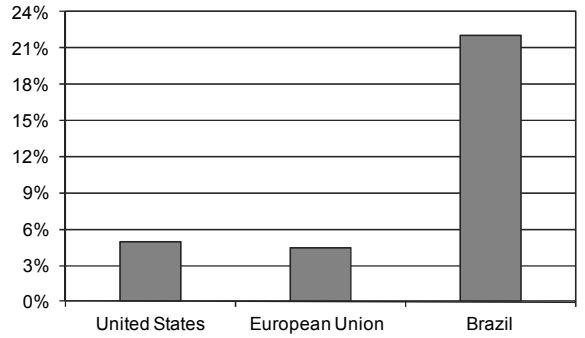
** GHG savings of more than 100% are possible through use of co-products.

*** Advanced biofuels in the US Renewable Fuels Standard refer to biofuels that provide more than 50% life-cycle CO_2 savings compared with gasoline.

**** Cellulose is an organic compound with the formula $C_6H_{10}O_5$ and is the structural component of the primary cell wall of green plants. Lignocellulosic biomass refers to plant biomass that is composed of cellulose, hemicellulose and lignin.

Brazil is the world's largest exporter and consumer of fuel ethanol from sugarcane.[17] In 2009, Brazil produced 450 000 bbl/d of ethanol, up from 410 000 bbl/d in 2008. Currently, cars that can run on either 100% ethanol or a gasoline-anhydrous ethanol blend represent 84% of the new cars purchased in Brazil (an estimated 2.2 million in 2009) and cost the same as cars that can only run on conventional fuel.

Figure 18: Share of biofuels energy in road transport, 2010



Key point: Brazil's relative consumption of biofuels far outstrips that of any other country.

Brazil's profile as an energy producer will be transformed in the medium term, following the discovery in November 2007 of major deepwater oil resources in the Santos Basin, which are now being developed with some fields already in production. However, no new concessions have been awarded since 2007, since future auctions are still subject to congressional approval of a new royalties law, which is expected for 2013. According to the National Petroleum Agency (ANP), Brazil's total proven oil and condensate reserves as of 31 December 2011 were 16.4 billion barrels.

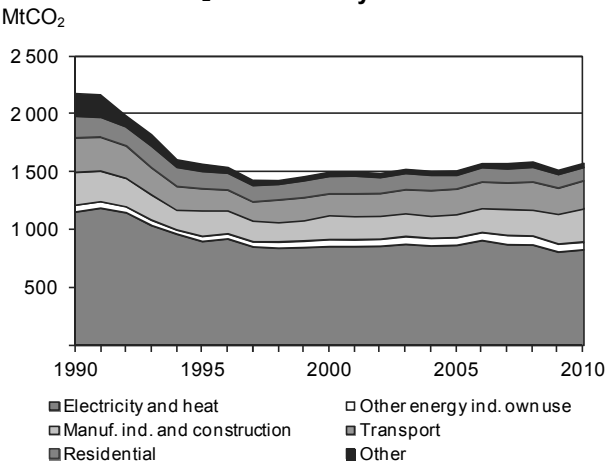
Russian Federation

The Russian Federation is the only BRICS country where CO_2 emissions fell between 1990 and 2010, with a 27% drop over the period (Figure 19). The economic downturn after the break-up of the Former Soviet Union caused emissions to fall by 34% between 1990 and 1998. Yet, CO_2 emissions grew in 1999 (2%) and 2000 (3%) due to the Russian Federation's strong economic recovery, stimulated by the increase in world energy prices. CO_2 emissions remained fairly constant for the next five years. After falling 5% in 2009, largely due to the global financial crisis, CO_2 emissions grew by 4% in 2010, their second-highest annual increase since 1990.

17. In 2005, the United States displaced Brazil as the largest ethanol producer, although mainly derived from corn rather than sugarcane.

The *WEO 2012* New Policies Scenario projects that the Russian Federation CO_2 emissions will continue to increase steadily, and will be 14% under 1990 levels in 2035.

Figure 19. Russian Federation: CO_2 emissions by sector



Key point: CO_2 emissions in the Russian Federation have remained fairly constant over the last ten years.

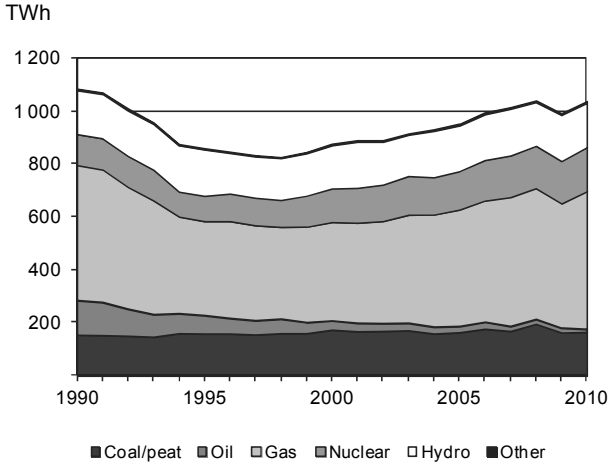
CO_2 emissions from fuel combustion in the Russian Federation have stabilised over the 2000s. However, other sources of greenhouse gases (in particular, CH_4 emissions from leaks in the oil and gas transmission/distribution system and CO_2 emissions from flaring of associated gas) represent an important share of the Russian GHG emissions. To effectively reduce GHG emissions from energy, these two problems would also need to be addressed (IEA, 2006a).

In early 2009, the Russian government passed the resolution "On the Measures Stimulating Reduction of Atmospheric Pollution by Products of Associated Gas Flaring." The document set a target for 2012 and beyond, limiting associated petroleum gas (APG) flaring levels to only 5% of the entire APG output. Starting 1 January 2012, producers are liable to pay increased fees for excessive flaring. The Russian Ministry of Natural Resources estimated that Russian oil companies would pay about USD 500 million in fines in 2012, a dramatic increase over 2011 and a major incentive to install at production facilities the tools to measure and log the actual volumes of APG production, utilisation and flaring. At the time of publication, little or no data were available to assess the impact on gas flaring in Russia.

In 2010, the electricity and heat generation sector represented 53% of Russian CO_2 emissions, compared to a global average of 41%. Within this sector, 50% of the electricity was generated by natural gas, 16% by coal and only 1% by oil (Figure 20).

The Russian government enacted a decree in January 2009 that sets targets to increase the share of electricity generated by renewable energy sources (excluding large hydro) from less than 1% to 4.5% by 2020. This decree could go a long way towards getting the Russian Federation more in line with the global average. However, to stimulate the utilisation of renewable energy sources including wind, biofuels, solar and recovered methane from coal mines (coalmine methane), a range of supporting regulations will be needed to amplify this important framework legislation.

Figure 20. Russian Federation: Electricity generation by fuel



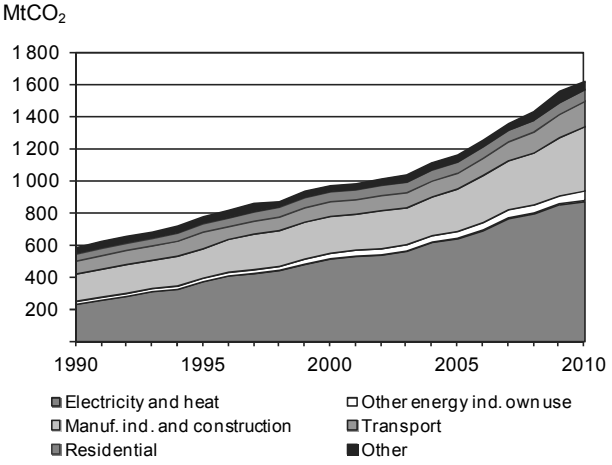
Key point: A large portion of the Russian Federation's electricity and heat generation comes from non-emitting (nuclear and hydro) or low-emitting (natural gas) sources.

Of the BRICS countries, in 2010, the Russian Federation had the highest CO_2 emissions per capita (11.2 tCO_2), which put it slightly above the average of OECD member countries (10.1 tCO_2). In terms of CO_2/GDP, the Russian Federation's economy remains CO_2 intensive with 0.8 $kgCO_2$ per unit of GDP, 2.3 times higher than the OECD average. Canada, whose geography and natural resources are comparable to those of the Russian Federation, has a carbon intensity of 0.4 $kgCO_2$ per unit of GDP – about half of the Russian Federation's level. However, IEA statistics show a reduction of the Russian Federation's energy intensity of GDP of about 5% per year between 1998 and 2008. It is not clear how much this can be attributed to energy efficiency improvements or changes in the sectoral composition of GDP and industrial product mix as opposed to the dramatic increase in GDP due to the country's much higher export earnings from oil and gas. In fact, the energy intensity actually increased by 3.5% in 2009 and remained static in 2010. This is counter-intuitive, as it was in 2009 that Russia adopted its first Federal Law on energy efficiency setting a target of 40% reduction of the Russian energy intensity by 2020 compared to 2007 levels.

India

India emits more than 5% of global CO_2 emissions and shows a clear trend of rapid increase: CO_2 emissions have almost tripled between 1990 and 2010. The *WEO 2012* New Policies Scenario projects that CO_2 emissions in India increase by 3.5% per year from 2010 to 2035, at which time India would account for 10% of global emissions. A large share of these emissions are produced by the electricity and heat sector, which represented 54% of CO_2 in 2010, up from 40% in 1990. CO_2 emissions in the transport sector accounted for only 10% of total emissions in 2010, but transport is one of the fastest-growing sectors (Figure 21).

Figure 21. India: CO_2 emissions by sector

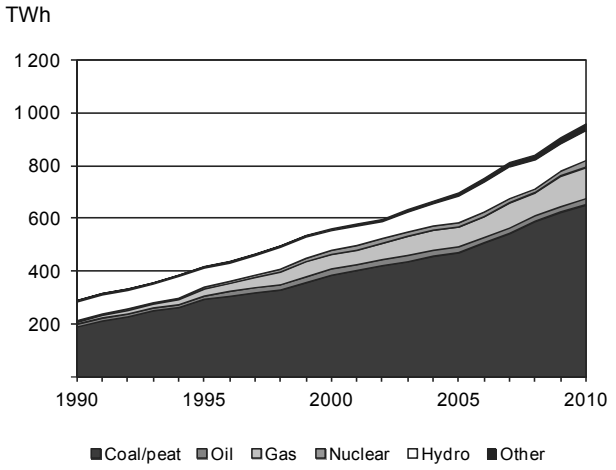


Key point: The bulk of CO_2 emissions in India comes from the electricity and heat generation sector, the share of which continues to grow.

In 2010, 68% of electricity in India came from coal, 12% from natural gas and 3% from oil (Figure 22). The share of fossil fuels in the generation mix grew from 73% in 1990 to 85% in 2002. Since 2002 the share of fossil fuels remained fairly steady, representing 83% in 2010. Although electricity produced from hydro has actually risen during this period, the share fell from 25% in 1990 to 12% in 2010, largely due to more rapid increases in coal-fired generation.

India's renewable power generation continues its strong growth reaching 23 GW in January 2012, equivalent to nearly 12% of total power capacity (MNRE, 2012; CEA, 2012). Wind comprises the largest capacity with 16 GW or 70% of total renewable capacity, followed by small hydro at 14% and bagasse co-generation at 9%. Currently, solar PV with 481 MW of capacity represents only 2% of total renewable installation, but is expected to grow strongly in the medium and long term. One notable encouraging aspect of renewable power in India is the high proportion of private ownership, accounting for 86% in March 2012.

Figure 22. India: electricity generation by fuel



Key point: About two-thirds of India's electricity comes from coal.

Of the BRICS countries, India has the lowest CO_2 emissions per capita (1.4 tCO_2 in 2010), about one-third that of the world average. Due to the recent large increases in emissions, however, the Indian ratio is more than two times that of its ratio in 1990 and will continue to grow. In 2035, India is projected to be the world's most populous nation with 1.5 billion people. Yet according to the *WEO 2012* New Policies Scenario, its carbon emissions of 2.5 tCO_2 per capita will still be substantially lower than the world average of 4.3 tCO_2 per capita in the same year.

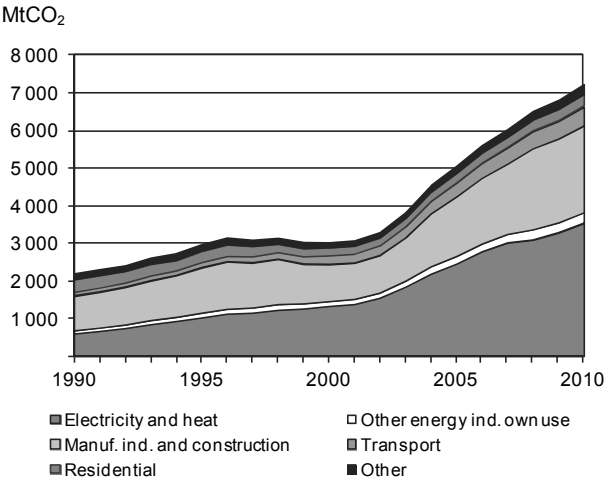
In terms of CO_2/GDP, India has continuously improved the efficiency of its economy and reduced the CO_2 emissions per unit of GDP by 22% between 1990 and 2010. India aims to further reduce emissions intensity of GDP by 20% to 25% by 2020 compared with the 2005 level.[18]

China

With over 7 billion tonnes of CO_2 in 2010, Chinese emissions far surpass those of the other BRICS countries and account for 24% of global emissions. In fact, China overtook the United States in 2007 as the world's largest annual emitter of energy-related CO_2, although in cumulative and per-capita terms the United States remains the larger. Chinese CO_2 emissions more than tripled between 1990 and 2010. The increases were especially large during the surge of economic growth and consequent higher energy demand in the middle of the last decade. Due to the global economic crisis, however, the rate of emissions growth slowed to 3% in 2008 before returning to higher levels in 2009 (5%) and 2010 (7%). The *WEO 2012* New Policies Scenario projects that the growth in Chinese emissions could slow down even further to 1.4% per year between 2010 and 2035. Even with this steady decline, emissions in 2035 would be more than 40% higher than current levels.

Since 1990, emissions in the electricity and heat generation sector grew the most, representing 50% of Chinese CO_2 emissions in 2010 (Figure 23). Emissions in the transport sector also grew rapidly, but from a much smaller base; they represented 7% of CO_2 emissions in 2010. The *WEO 2012* New Policies Scenario projects that emissions from the transport sector will continue to grow, potentially accounting for 13% of total emissions in 2035. A key challenge is that switching to low- or zero-carbon energy sources is much more difficult in transport than in other sectors.

Figure 23. China: CO_2 emissions by sector



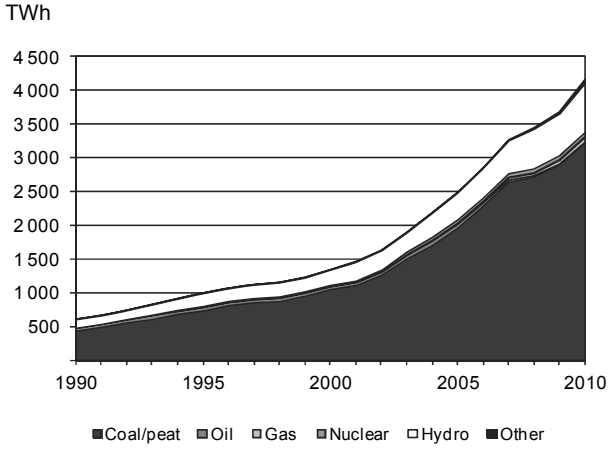
Key point: In recent years, and in line with vigorous economic expansion, China showed dramatic growth in CO_2 emissions from electricity and heat generation.

18. As per its stated goal in association with the Copenhagen Accord.

Chinese demand for electricity was the largest driver of the rise in emissions. The rate of capacity additions peaked in 2006, but in 2010 China's installed capacity rose by a net 92 GW (China Electricity Council, 2011), slightly less than the total installed capacity of the United Kingdom. At the same time, China closed nearly 17 GW of small, inefficient fossil fuel-fired plants, roughly equivalent to Finland's installed capacity.

Coal played a major role in supporting the growing demand for electricity generation (Figure 24). Nearly all of the 1990-2010 emissions growth from power generation derived from coal, although the emissions performance of coal-fired power generation continued to improve significantly (IEA, 2009), and China is promoting natural gas (electricity generated from natural gas doubled between 2008 and 2010).

Figure 24. China: electricity generation by fuel



Key point: Coal dominates China's electricity generation and is responsible for the very fast growth in CO_2 emissions.

In the past few decades, China experienced a rapid decoupling of energy consumption and CO_2 emissions from economic growth. During the 1980s, the central government in China reduced industrial energy intensity by establishing standards and quotas for the energy supplied to firms, and had the authority to shut off the power supply when enterprises exceeded their limits (Lin, 2005). However, as the Chinese economy has moved towards an open-market operation, state-directed investment in energy conservation as a percentage of total energy investment gradually declined (IEA, 2006b), though efficiency remains a policy priority.

The rapid expansion since 2003 of heavy industrial sectors to serve huge infrastructure investments and burgeoning demand for Chinese products from domestic and overseas consumers pushed up demand for fossil fuels. As a result, CO_2 emissions per unit of GDP actually rose from 2003 to 2005. Still, at 0.79 $kgCO_2$ per unit of GDP, the 2010 CO_2/GDP is 55% lower than in 1990 (1.77 $kgCO_2$ per unit of GDP), and a recent push by the government to reduce energy intensity has helped to resume the long-term intensity decline, albeit at a much slower rate than in the past. Despite having made some of the world's largest investments in renewables, China's increasing share of coal in power generation means that a small decline in energy intensity may still be paired with an increase in emissions intensity, as was the case from 2003 to 2005.

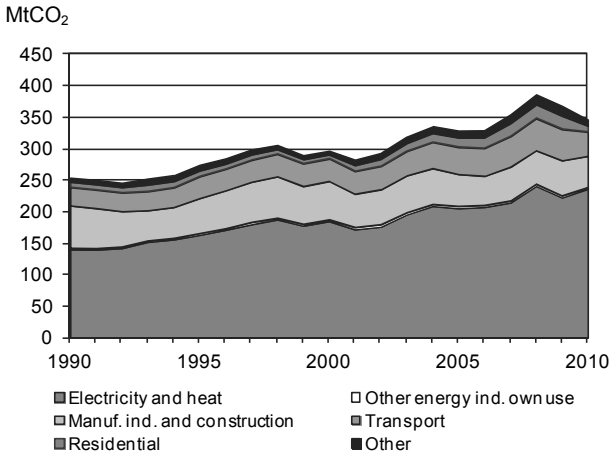
Although per-capita emissions in China in 2010 were only about one-half that of the OECD average, they have increased more than 2.5 times since 1990, with many of the largest increases occurring in the last eight years. The country is seeking ways to limit growth in CO_2 emissions, though, and is requiring all provincial and local governments to participate in implementing the 12th Five-Year Plan target of lowering CO_2 emissions per unit of GDP by 17% in 2015 compared to 2010. Regional pilot projects are underway to find practical ways of reaching this target, as well as the national pledge, announced in late 2009 under the Copenhagen Accord, to reduce CO_2 emissions per unit of GDP by 40% to 45% in 2020 compared to 2005.

South Africa

South Africa currently relies heavily on fossil fuels as a primary energy source (87% in 2010); with coal providing 74% of it. Although South Africa accounted for 37% of CO_2 emissions from fuel combustion across all of Africa in 2010, it represented only 1% of the global total. The electricity and heat sector produced 69% of South Africa's CO_2 emissions in 2010 (Figure 25).

Coal dominates the South African energy system, accounting for 74% of primary energy supply and 23% of final energy consumption. In 2010, South Africa generated 94% of its electricity using coal (Figure 26). In South Africa's Long-Term Mitigation Scenarios (LTMS), in the absence of radical energy-choice changes, emissions would quadruple between 2003 and 2050, dominated by energy-related emissions (notably from the electricity, industrial and transport sectors).

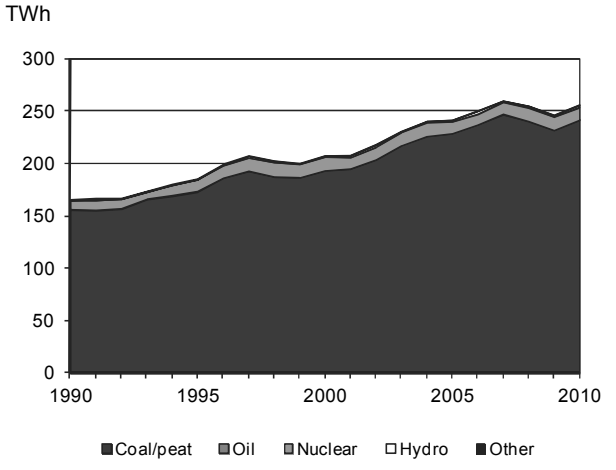
Figure 25. South Africa: CO_2 emissions by sector



Key point: The largest share of CO_2 emissions in South Africa comes from the electricity and heat sector, but growth remains moderate compared to some of the other BRICS countries.

One of the major climate change mitigation issues facing South Africa is the need to reduce GHG emissions from the power sector, primarily by reducing reliance on coal. South Africa is already taking steps to expand the use of both renewable and nuclear energy, to explore the use of carbon capture and storage (CCS) technologies, and to reduce energy demand through a nationwide energy efficiency programme. South Africa's public utility, Eskom, also has a target to reduce dependence on conventional coal to 70% by 2025 and reduce GHG emissions in absolute terms by 2050 (including increasing capacity from renewables). South Africa's current target is to reach 3 625 MW of generation capacity from renewables by 2013.

Figure 26. South Africa: electricity generation by fuel



Key point: South Africa relies almost solely on coal to produce its electricity.

The prices of commercial forms of energy in South Africa are, in general, quite low by international standards. Given the relatively lower rate of electrification (about 88% in urban areas and only 55% in rural areas in 2008), direct use of commercial forms of energy by households is limited. Traditional biofuels (especially wood) dominate energy use by rural households, causing health and safety problems, as well as concerns about the sustainability of wood supplies. Over the last 21 years, per-capita CO_2 emissions in South Africa have remained fairly constant while emissions per unit of GDP have decreased by 19%. South Africa aims to reduce GHG emissions to 34% below its business-as-usual (BAU) growth trajectory by 2020, increasing to 42% below the BAU trajectory by 2025.

Sustainable energy use requires global engagement

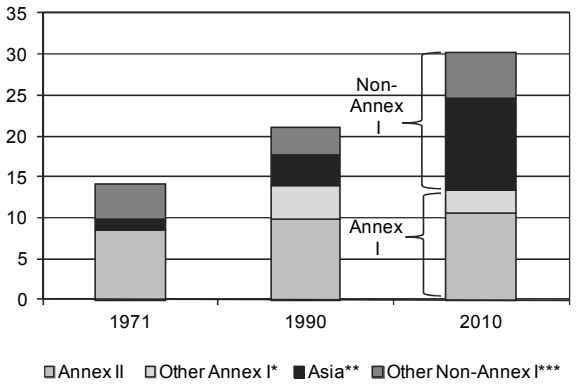
Trends in CO_2 emissions from fuel combustion illustrate the need for all countries to shape a more sustainable energy future. Special emphasis should first be on the industrialised nations that have the highest per-capita incomes and that are responsible for the bulk of cumulative emissions. However, with the rapidly growing energy demand of developing countries, it is important that they also strive to use energy in a sustainable way. *ETP 2012* shows that enhancing energy efficiency and reducing the carbon intensity of energy supply, which is largely reliant on fossil fuels, are both fundamental steps towards a global low-carbon energy system.

Between 1971 and 2010, global CO_2 emissions more than doubled, with a brief dip in 2009. However, two important turning points occurred in 2008: for the first time, emissions from non-Annex I countries surpassed those in Annex I and the emission levels of Annex I countries fell below 1990 levels due to economic contraction arising from the recession and high oil prices.

The share of Annex I countries in global CO_2 emissions progressively shrank (66% in 1990 and 44% in 2010), as emissions in developing countries (led by Asia) increased at a much faster rate. The growth in Asian emissions reflects a striking rate of economic development, particularly within China and India. Between 1990 and 2010, CO_2 emissions rose by 145% for non-Annex I countries as a whole and tripled for Asia. This is in contrast to the reduction in emissions below 1990 levels that occurred in the Annex I countries (emissions in 2010 were 3.7% lower than in 1990).

Figure 27. Trends in regional CO_2 emissions

$GtCO_2$



* Other Annex I includes Annex I EIT, Malta and Turkey.

** Asia includes Korea and excludes Japan (which is included in Annex II).

*** Other non-Annex I includes Africa, Latin America, Middle East, non-Annex I, non-OECD Europe and Eurasia, international bunkers, and, for 1971, Other Annex I.

Key point: In 2010, CO_2 emissions from Annex I countries were below 1990 levels, while emissions from non-Annex I countries continued to grow.

Emission trends within Annex I countries were very different. Emissions of CO_2 in Annex II countries in 2010 were 7% higher than in 1990. In Annex I EIT countries, emissions were 34% lower due to a rapid decline in industrial productivity that followed the collapse of their centrally planned economies in 1989.

Since the Industrial Revolution, the bulk of annual CO_2 emissions have originated from industrialised countries. Given the size of some developing economies and the rapid growth in their energy needs, this long period of dominance will soon end. Effective emissions mitigation will require all countries, regardless of energy demand and infrastructure, to use energy in a sustainable manner.

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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.
Achtung	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.

1. IEA EMISSIONS ESTIMATES

The estimates of CO_2 emissions from fuel combustion presented in this publication are calculated using the IEA energy data[1] and the default methods and emission factors from the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, IPCC/OECD/IEA, Paris, 1997 (*1996 IPCC Guidelines*).

Although the IPCC approved the *2006 Guidelines* at the 25th session of the IPCC in April 2006 in Mauritius, many countries (as well as the IEA Secretariat) are still calculating their inventories using the *1996 IPCC Guidelines* since this was the version used for the Kyoto Protocol. In December 2011 in Durban, the Parties adopted Decision 15/CP.17 to update their reporting tables so as to implement the *2006 Guidelines*. These tables are currently under development and there will be a trial period that runs until end May 2013. The new reporting tables will be mandatory from 15 April 2015.

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

Inventory quality

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

One way to assess inventory quality is to do comparisons among inventories, methodologies and input data. The *IPCC Guidelines* recommend that countries which have used a detailed Sectoral Approach for CO_2 emissions from energy combustion also use the Reference Approach for verification purposes. This will identify areas where a full accounting of emissions may not have been made (see Chapter 5, IPCC methodologies).

Reference Approach vs. Sectoral Approach

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

The Reference Approach provides estimates of CO_2 to compare with estimates derived using a Sectoral Approach. Theoretically, it indicates an upper bound to the Sectoral Approach "1A fuel combustion", because some of the carbon in the fuel is not combusted but will be emitted as fugitive emissions (as leakage or evaporation in the production and/or transformation stage).

Calculating CO_2 emissions inventories with the two approaches can lead to different results for some countries. In general the gap between the two approaches is relatively small (5 per cent or less) when compared to the total carbon flows involved. In cases where 1) fugitive emissions are proportional to the mass flows entering production and/or transformation processes, 2) stock changes at the level of the final consumer are not significant and 3) statistical differences in the energy data are limited, the Reference Approach and the Sectoral Approach should lead to similar evaluations of the CO_2 emissions trends.

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

1. Published in *Energy Statistics of OECD Countries, Energy Balances of OECD Countries, Energy Statistics of Non-OECD Countries* and *Energy Balances of Non-OECD Countries*, IEA, Paris, 2012.

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

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

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

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

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

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

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

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

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

Differences between IEA estimates and UNFCCC submissions

It is possible to use the IEA CO_2 estimates for comparison with the greenhouse-gas (GHG) inventories reported by countries to the UNFCCC Secretariat. In this way, problems in methods, input data or emission factors may become apparent. However, care should be used in interpreting the results of any comparison since the IEA estimates may differ from a country's official submission for many reasons.

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

Some countries have incorrectly defined bunkers as fuel used abroad by their own ships and planes. Still other countries have made calculation errors for carbon oxidation or have included international bunkers in their totals. Since all of the above will affect the national totals of CO_2 emissions from fuel combustion, a systematic comparison with the IEA estimates would allow countries to verify their calculations and produce more internationally comparable inventories.

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

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

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

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

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

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

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

Countries often have several "official" data sources such as a Ministry, a Central Bureau of Statistics, a nationalised electricity company, etc. Data can also be collected from the energy suppliers, the energy consumers or customs statistics. The IEA Secretariat tries to collect the most accurate data, but does not necessarily have access to the complete data set that may be available to national experts calculating emission inventories for the UNFCCC. In addition to different sources, the methodology used by the national bodies providing the data to the IEA and to the UNFCCC may differ. For example, general surveys, specific surveys, questionnaires, estimations, combined methods and classifications of data used in national statistics and in their subsequent reclassification according to international standards may result in different series.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- **The units may be different.**

The *1996 IPCC Guidelines* and the UNFCCC *Reporting Guidelines on Annual Inventories* both ask that CO_2 emissions be reported in Gg of CO_2. A million tonnes of CO_2 is equal to 1 000 Gg of CO_2, so to compare the numbers in this publication with national inventories expressed in Gg, the IEA emissions must be multiplied by 1 000.

Key sources

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

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

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

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

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

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

Clearly this level of aggregation is not particularly useful in identifying where additional work is needed in refining the inventory. It does not take into account the possibility of improving data collection methods, improving emission factors or using a higher tier calculation for certain key sectors within the energy from fuel combustion source category. For this reason the IEA has disaggregated the key source analysis to the same level of detail presented in the country tables of this publication. For each country, the 11 largest sources, split by coal, oil, gas and other, are shown in the key sources table.

To calculate the level assessment, the IEA has started with the CO_2 emissions from fuel combustion as calculated by the IEA. To supplement this, where possible, the IEA has used the emissions that were submitted by the Annex I Parties to the UNFCCC in the 2012 submission of the Common Reporting Format for CO_2 (only fugitive), CH_4, N_2O, HFCs, PFCs and SF_6, not taking into account CO_2 emissions/removals from land use, land use change and forestry.[2]

For the non-Annex I Parties, CO_2 emissions from fuel combustion were from the IEA and the rest of the 2010 emissions were estimated by PBL.

The cumulative contribution only includes the 11 largest key sources of CO_2 from fuel combustion. As a result, in most cases the cumulative contribution will not be 95% as recommended in the *Good Practice Guidance* and key sources from fugitive emissions, industrial processes, solvents, agriculture and waste will not be shown. The percentage of CO_2 emissions from fuel combustion in total GHG emissions has been included as a memo item at the bottom of the table.

Notes on tables and graphs

Table of CO_2 emissions by sector

Row 1: *Sectoral Approach* contains total CO_2 emissions from fuel combustion as calculated using the IPCC Tier 1 Sectoral Approach and corresponds to IPCC Source/Sink Category 1 A. Emissions calculated using a Sectoral Approach include emissions only when the fuel is actually combusted.

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

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

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

Row 5: *Manufacturing industries and construction* contains the emissions from combustion of fuels in industry. The IPCC Source/Sink Category 1 A 2 includes these emissions. However, in the *1996 IPCC Guidelines,* the IPCC category also includes emissions from industry autoproducers that generate electricity and/or heat. The IEA data are not collected in a way that allows the energy consumption to be split by specific end-use and therefore, this publication shows autoproducers as a separate item. See Row 3, *Unallocated autoproducers*. *Manufacturing industries and construction* also includes some emissions from coke inputs into blast furnaces, which may be reported either in transformation, energy industry own use, industry or the separate IPCC Source/Sink Category 2, industrial processes.

Row 6: *Transport* contains emissions from the combustion of fuel for all transport activity, regardless of the sector, except for international marine and aviation bunkers. This includes domestic aviation, domestic

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

navigation, road, rail and pipeline transport, and corresponds to IPCC Source/Sink Category 1 A 3. In addition, the IEA data are not collected in a way that allows the autoproducer consumption to be split by specific end-use and therefore, this publication shows autoproducers as a separate item. See Row 3, *Unallocated autoproducers*.

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

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

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

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

Row 10: *Reference Approach* contains total CO_2 emissions from fuel combustion as calculated using the IPCC Reference Approach. The Reference Approach is based on the supply of energy in a country and as a result, all inventories calculated using this method include fugitive emissions from energy transformation (e.g. from oil refineries) which are normally included in Category 1 B. For this reason, Reference Approach estimates are likely to overestimate national CO_2 emissions. In these tables, the difference between the Sectoral Approach and the Reference Approach includes statistical differences, product transfers, transformation losses and distribution losses.

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

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

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

Row 13: *International marine bunkers* contains emissions from fuels burned by ships of all flags that are engaged in international navigation. The international navigation may take place at sea, on inland lakes and waterways, and in coastal waters. Consumption by ships engaged in domestic navigation is excluded. The domestic/international split is determined on the basis of port of departure and port of arrival, and not by the flag or nationality of the ship. Consumption by fishing vessels and by military forces is also excluded. Emissions from international marine bunkers should be excluded from the national totals. This corresponds to IPCC Source/Sink Category 1 A 3 d i.

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

Figures 2 and 3: Emissions by sector

Other includes emissions from commercial/public services, agriculture/forestry and fishing. Emissions from unallocated autoproducers are included in *Electricity and heat*.

Figure 5: 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.

Country notes

People's Republic of China

In 2012, the National Bureau of Statistics (NBS) revised the format and detail of their energy balance. Data for new products and flows were added. However, for the purposes of this publication, the old time series format was kept and updated for 2010. Over the next year, the IEA Secretariat plans to work with NBS to incorporate the new format.

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.

Estonia

The data reported as lignite in the energy balance represent oil shale.

France

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

Italy

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

Japan

Between 2004 and 2007, the IEA received revisions from the Japanese Administration. The first set of revisions received in 2004 increased the 1990 supply by 5% for coal, 2% for natural gas and 0.7% for oil compared to the previous data. This led to an increase of 2.5% in 1990 CO_2 emissions calculated using the Reference Approach while the Sectoral Approach remained fairly constant. For the 2006 edition, the IEA received revisions to the coal and oil data which had a significant impact on both the energy data and the CO_2 emissions. The most significant revisions occurred for coke oven coke, naphtha, blast furnace gas and petroleum coke. These revisions affected consumption rather than supply in the years concerned. As a result, the sectoral approach CO_2 emissions increased for all the years, however at different rates. For example, the sectoral approach CO_2 emissions for 1990 were 4.6% higher than those calculated for the 2005 edition while the 2003 emissions were 1.1% higher than those of the previous edition. Due to the impact these successive revisions have had on the final energy balance as well as on CO_2 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.

Netherlands Antilles

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

Norway

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

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.

Ukraine

To provide a better Reference Approach estimate of CO_2 emissions in 2010, for the purposes of this publication, the IEA Secretariat has adjusted the stock change and statistical difference of natural gas to better match international definitions.

United Kingdom

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

Vietnam

A detailed sectoral breakdown is available starting in 1980.

2. UNITS AND CONVERSIONS

General conversion factors for energy

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

Conversion factors for mass

To:	kg	t	lt	st	lb
From:	multiply by:				
kilogramme (kg)	1	0.001	9.84×10^{-4}	1.102×10^{-3}	2.2046
tonne (t)	1000	1	0.984	1.1023	2204.6
long ton (lt)	1016	1.016	1	1.120	2240.0
short ton (st)	907.2	0.9072	0.893	1	2000.0
pound (lb)	0.454	4.54×10^{-4}	4.46×10^{-4}	5.0×10^{-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)	1	0.8327	0.02381	0.1337	3.785	0.0038
U.K. gallon (gal)	1.201	1	0.02859	0.1605	4.546	0.0045
barrel (bbl)	42.0	34.97	1	5.615	159.0	0.159
cubic foot (ft^3)	7.48	6.229	0.1781	1	28.3	0.0283
litre (l)	0.2642	0.220	0.0063	0.0353	1	0.001
cubic metre (m^3)	264.2	220.0	6.289	35.3147	1000.0	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 CO_2

The *1996 IPCC Guidelines* and the UNFCCC *Reporting Guidelines on Annual Inventories* both ask that CO_2 emissions be reported in Gg of CO_2. A million tonnes of CO_2 is equal to 1 000 Gg of CO_2, so to compare the numbers in this publication with national inventories expressed in Gg, multiply the IEA emissions by 1 000.

Other organisations may present CO_2 emissions in tonnes of carbon instead of tonnes of CO_2. To convert from tonnes of carbon, multiply by 44/12, which is the molecular weight ratio of CO_2 to C.

3. INDICATOR SOURCES AND METHODS

Population

The main source of the 1970 to 2010 population data for the OECD member countries is *National Accounts of OECD Countries, Volume 1*, OECD, Paris, 2012. Data for 1960 to 1969 have been estimated using the growth rates from the population series published in the *OECD Economic Outlook No. 76*. For the **Czech Republic**, **Hungary** and **Poland** (1960 to 1969) and **Mexico** (1960 to 1962), the data are estimated using the growth rates from the population series from the World Bank published in the *World Development Indicators CD-ROM*. For the **Slovak Republic**, population data for 1960 to 1989 are from the Demographic Research Centre, Infostat, Slovak Republic.

The main source of the population data for the OECD non-member countries is *World Development Indicators*, World Bank, Washington D.C., 2012. Population data for **Chinese Taipei**, **Gibraltar**, **Iraq** and a few countries within the regions **Other Africa**, **Other Non-OECD Americas** and **Other Asia** are based on the CHELEM-CEPII online database, 2012. Population data for 2010 for **Cyprus** were calculated using the population growth rate supplied by Eurostat, 2012.

GDP and GDP PPP

In this edition, the GDP and GDP PPP series have been rebased from 2000 USD to 2005 USD. As a result, those series and all associated ratios now refer to 2005 USD.

The main source of the 1970 to 2010 GDP series for the OECD member countries is *National Accounts of OECD Countries, Volume 1*, 2012. For the OECD member countries, the PPPs selected to convert the GDP from national currencies to US dollars come from the OECD Secretariat and were aggregated using the Geary-Khamis (GK) method and rebased on the United States. For a more detailed description of the methodology please see *Methodological Manual of Purchasing Power Parities*, Eurostat/OECD, 2006. The PPPs for the other countries come from the World Bank and CHELEM-CEPII. [3]

GDP data for **Australia**, **France**, **Greece** and **Sweden** for 1960 to 1969 and **Denmark** for 1966 to 1969 as well as for **Netherlands** for 1969 come directly from the most recent volume of *National Accounts*. GDP data for 1960 to 1969 for the other countries have been estimated using the growth rates from the series in the *OECD Economic Outlook No. 76* and data previously published by the OECD Secretariat. Data prior to 1986 for **Chile**, prior to 1990 for the **Czech Republic** and **Poland**, prior to 1991 for **Hungary**, and prior to 1992 for the **Slovak Republic** are IEA Secretariat estimates based on GDP growth rates from the World Bank.

The main source of the GDP series for the non-OECD member countries is *World Development Indicators*, World Bank, Washington D.C., 2012. 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 and purchasing power parities (PPPs).

3. 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.

Prior to 1980, GDP figures for all non-OECD countries are based on the CHELEM-CEPII online databases, 2012. In addition, the following countries have also been based on the CHELEM-CEPII databases for the specified time periods. **Angola** (1980-1984), **Bahrain** (2009-2010), **Bosnia and Herzegovina** (1990-1993), **Brunei Darussalam** (2010), **Chinese Taipei**, **Cuba**, **Ethiopia** (1980), **Gibraltar**, **Haiti** (1980-1990), **Islamic Republic of Iran** (2010), **Iraq** (1980-1996), **North Korea**, **Kuwait** (1990-1991 and 2008-2010), **Lebanon** (1980-1987), **Libya** (1980-1998 and 2010), **Netherlands Antilles**, **Oman** (2010), **Qatar** (1980-1999 and 2010), **Senegal** (1980), **Tanzania** (1980-1987)**, Vietnam** (1980-1983), **Yemen** (1980-1989 and 2010), **Zimbabwe**, **Former Soviet Union** (1980-1989), **Former Yugoslavia** (1980-1989) and a few countries within the regions[4] **Other Africa**, **Other Non-OECD Americas** and **Other Asia**.

The World Bank GDP figures for **Kosovo** are available starting in 2000. The GDP PPP figures have been estimated using the World Bank ratio of exchange rate to PPP in 2005 for Serbia since the ratio for Kosovo was not available.

Please note: the GDP and GDP PPP series contained in this publication have been slightly revised in October 2012 after the original publication of the paper copy of Energy Balances of Non-OECD Countries.

CO_2 emissions

The estimates of CO_2 emissions in this publication are based on the *1996 IPCC Guidelines* and represent the total emissions from fuel combustion. Emissions have been calculated using both the IPCC Reference Approach and the IPCC Sectoral Approach (which corresponds to IPCC Source/Sink Category 1 A). Reference Approach totals may include certain fugitive emissions from energy transformation which should normally be included in Category 1 B. National totals do not include emissions from international marine and aviation bunkers. See the Country Notes in Chapter 1 for further details.

Total primary energy supply

Total primary energy supply (TPES) is made up of production + imports - exports - international marine bunkers - ***international aviation bunkers*** ± stock changes.

Please note: the TPES series (and underlying energy data) contained in this publication have been slightly revised in October 2012 after the original publication of the paper copy of Energy Balances of Non-OECD Countries. Countries that were revised include Bosnia and Herzegovina, Côte d'Ivoire, People's Republic of China, Qatar, Singapore, Ukraine and Other Africa.

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**[5] **producer** and **autoproducer**[6] **plants** have been included where available.

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

CO_2 / TPES

This ratio is expressed in tonnes of CO_2 per terajoule. It has been calculated using the Sectoral Approach CO_2 emissions and total primary energy supply (including biofuels and other non-fossil forms of energy).

CO_2 / GDP

This ratio is expressed in kilogrammes of CO_2 per 2005 US dollar. It has been calculated using the Sectoral Approach CO_2 emissions and is shown with

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

5. 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.

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

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

CO_2 / population

This ratio is expressed in tonnes of CO_2 per capita. It has been calculated using the Sectoral Approach CO_2 emissions.

Per capita CO_2 emissions by sector

These ratios are expressed in kilogrammes of CO_2 per capita. They have been calculated in two different ways. In the first ratio, the emissions from electricity and heat production are shown separately. In the second ratio, the emissions from electricity and heat have been allocated to final consuming sectors in proportion to the electricity and heat consumed by those sectors.

CO_2 emissions per kWh

Coverage

In the first table on CO_2 emissions per kWh, the CO_2 emissions in the numerator include emissions from fossil fuels, industrial waste and non-renewable municipal waste that are consumed for electricity generation and electricity output in the denominator includes electricity generated from fossil fuels, nuclear, hydro (excluding pumped storage), geothermal, solar, biofuels, etc. As a result, the emissions per kWh can vary from year to year depending on the generation mix.

In the ratios of CO_2 emissions per kWh **by fuel**:

- Coal/peat includes primary and secondary coal, peat and coal gases.
- Oil includes oil products (and small amounts of 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.

Background on this indicator

In previous editions of this publication, the IEA has published an indicator for CO_2 emissions per kWh for the electricity and heat generating industries. The indicator is useful as an overall carbon intensity measure of a country's electricity and heat generating sectors, and it is easy to calculate. However, the indicator has 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) will see a higher efficiency (therefore lower CO_2 intensity) than warmer countries with less district heating. Further, the applications of an indicator for electricity and heat are limited; many users have been searching for an electricity-only carbon intensity indicator.

It is not possible to obtain such an indicator directly from IEA energy balance data. For combined heat and power (CHP) plants, outputs of both electricity and heat exist, but there is only one input amount. While various methods exist to allocate this input amount between electricity and heat, none has previously been used by the IEA for the purposes of calculating a carbon intensity 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. But this would not give a true comparison between countries; some countries get a majority of their electricity from CHP, while for others 100% of electricity comes from electricity-only plants. As non-thermal renewables are solely electricity-only plants, and over 99% of non-emitting global nuclear generation is from electricity-only plants, then calculating this electricity-only plants indicator would significantly understate the carbon intensity for many countries.

Allocation of emissions from CHP plants

After deciding that it was best to allocate the CHP inputs, a method had to be chosen. The simplest one would be to use the **proportionality approach** that is used by the IEA electricity questionnaire, which allocates inputs based upon the proportion of electricity and heat in the output. This is equivalent to fixing the efficiency of electricity and heat to be equal. This method has the advantage of simplicity and transparency. The disadvantage, however, is that the proportionality approach usually overstates electricity efficiency and understates heat efficiency. For CHP generation in OECD countries, total efficiency is around 60%. Applying this 60% to electricity generation is inaccurate, given that the OECD's total electricity-only plant efficiency is around 41% (and this includes 100% efficiency hydro and other renewables). Similarly, 60% is quite low for heat generation (given typical heat-only plant efficiencies of 80-95%), so a better allocation method was sought.

One way of avoiding the unrealistic efficiencies is to use a **fixed-heat-efficiency approach** which fixes the efficiency of the heat part of the generation, and calculates the electricity part of the input accordingly. As a typical heat boiler has an efficiency of 90%, it was decided to use this as the standard heat efficiency (except when the total CHP efficiency was greater than 90%, in which case the observed efficiency would be used). Of course in certain circumstances, this may be overstating the actual heat efficiency. Employing this method gave results that attributed more emissions to the electricity than when the proportionality approach is used, but that were much closer to those of electricity-only plants. Already the IEA has used the fixed-heat-efficiency approach for the last two editions of *World Energy Outlook*.

Fixed-heat-efficiency approach

$$CO2kWh = \frac{CO2_{ELE} + (CO2_{CHP} \text{ x } \% \text{ from elec.}) + OWNUSE_{ELE}}{ELoutput_{ELE} + ELoutput_{CHP}}$$

where:

$$\% \text{ from elec.} = \frac{CHPinputs - ((HEoutput_{CHP} \text{ x } 0.02388) \div EFF_{HEAT})}{CHPinputs}$$

and:

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

$CO2_{ELE}$ = CO_2 emissions from electricity only plants in $ktCO_2$
$CO2_{CHP}$ = CO_2 emissions from CHP plants in $ktCO_2$
OWNUSE = CO_2 emissions from own use in electricity, CHP and heat plants in $ktCO_2$

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} is assumed to be 0.9 (*i.e.* 90%) except when the efficiency of CHP generation is higher than 90%, in which case it is set at the higher value

Comparison with the previous ratio

Applying this new methodology, the new electricity indicator is not significantly different from the previous electricity and heat indicator for the majority of OECD countries; for the OECD total in 2010, the new indicator is 3.2% higher. In this year, 20 of the OECD's 34 countries saw a change of 5% or less. Of the 14 countries changing more than 5%, six countries had large amounts of non-emitting electricity generation, giving them a small ratio to begin with (thus more prone to change). In addition, non-emitting generation is generally electricity-only, and so when the heat-only and heat CHP emissions are removed from the calculation, greater weight is attached to the non-emitting generation, thus lowering the indicator.

The countries in the OECD that saw larger increases to their ratio with the new method were generally coal-intensive countries with large amounts of heat generation; as mentioned, in general, heat plants are more efficient than electricity-only (or indeed CHP) plants and so excluding heat plants from the calculation increases CO_2 intensity. The same is true if we allocate a high efficiency to the heat part of CHP generation; this decreases the efficiency of the electricity part and thus increases electricity's carbon intensity. Further, CHP and heat plants are more likely to be

powered by CO_2-light natural gas while electricity-only plants tend to be powered by CO_2-heavy coal, making the new ratio more CO_2 intensive for these countries.

Specific country examples

The country that increased its ratio the most within the OECD was **Estonia**; in 2010 the new electricity indicator was 38% higher than the previous electricity and heat indicator. This can be explained by the majority of electricity-only generation coming from oil shale, a fuel with a relatively high carbon emission factor, while heat plants (with a relatively large share of output) are largely fuelled by natural gas.

Another OECD country with a high ratio increase was **Denmark** (32% higher in 2010). 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 thus moves the new indicator upwards.

In many non-member countries, heat data are either zero or not available, which leads to changes of less than 1% in three-quarters of the non-member countries in 2010. 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 new ratio is 8% higher in 2010.

In the **Russian Federation**, a large amount (33% of total power output) comes from heat-only plants, whose relatively efficient generation is excluded from the new ratio. The large amount of heat output generated by CHP plants also explains why the new ratio is 108% higher in 2010.

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

Implied emission factors from electricity generation

Summary tables presenting CO_2 emissions per kWh from electricity generation by country are presented in Part II. However, these values will vary enormously depending on the fuel mix of individual countries. Average implied emission factors by individual product for this sector are presented below. These values represent the average grammes of CO_2 per kWh of electricity produced in the OECD member countries between 2008 and 2010. These figures will reflect any problems that may occur in net calorific values or in input/output efficiencies. Consequently, these values are given as an approximation and actual values may vary considerably.

Fuel	gCO_2 / kWh
Anthracite *	920
Coking coal *	780
Other bituminous coal	860
Sub-bituminous coal	920
Lignite	990
Coke oven coke *	770
Coal tar *	720
BKB/peat briquettes *	800-1500
Gas works gas *	420
Coke oven gas *	420
Blast furnace gas *	2200
Other recovered gases *	2000
Natural gas	400
Crude oil *	630
Natural gas liquids *	480
Refinery gas *	400
Liquefied petroleum gases *	500
Kerosene *	650
Gas/diesel oil *	690
Fuel oil	670
Petroleum coke *	1000
Peat *	750
Industrial waste *	400-2000
Municipal waste (non-renewable)*	450-3500

* These fuels represent less than 1% of electricity output in the OECD. Values will be less reliable and should be used with caution.

4. GEOGRAPHICAL COVERAGE

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

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

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

Non-OECD Europe and Eurasia includes Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus[7], Georgia, Gibraltar, Kazakhstan, Kosovo, Kyrgyzstan, Latvia, Lithuania, Former Yugoslav Republic of Macedonia (FYROM), Malta, Republic of Moldova, Montenegro, Romania, Russian Federation, Serbia[8], Tajikistan, Turkmenistan, Ukraine, Uzbekistan, Former Soviet Union[9] (prior to 1990) and Former Yugoslavia[9] (prior to 1990).

Non-OECD Americas includes Argentina, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Netherlands Antilles[10], Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, Uruguay, Venezuela and **Other Non-OECD Americas**.

Other Non-OECD Americas includes Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, British Virgin Islands, Cayman Islands, Dominica, Falkland Islands, French Guyana, Grenada, Guadeloupe, Guyana, Martinique, Montserrat, Puerto Rico[11] (for natural gas and electricity), St. Kitts and Nevis, Saint Lucia, Saint Pierre et Miquelon, St. Vincent and the Grenadines, Suriname and Turks/Caicos Islands.

China includes the People's Republic of China and Hong Kong (China).

Asia includes Bangladesh, Brunei Darussalam, Cambodia (from 1995), Chinese Taipei, India, Indonesia, DPR of Korea, Malaysia, Mongolia (from 1985),

7. 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 Commission: 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.

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

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

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

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

Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, Vietnam and **Other Asia**.

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

The **Organisation for Economic Co-Operation and Development (OECD)** includes Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia[12], Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel[13], Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia[12], Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States.

Within the **OECD**:

Australia excludes the overseas territories.

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

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

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

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

Italy includes San Marino and the Vatican.

Japan includes Okinawa.

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

Portugal includes the Azores and Madeira.

Spain includes the Canary Islands.

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

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

United States includes the 50 states and the District of Columbia. Oil statistics as well as coal trade statistics also include Puerto Rico[14], Guam, the Virgin Islands, American Samoa, Johnston Atoll, Midway Islands, Wake Island and the Northern Mariana Islands.

The **European Union - 27 (EU-27)** includes Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, the Slovak Republic, Slovenia, Spain, Sweden and the United Kingdom.

The **International Energy Agency (IEA)** includes Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, 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 Parties include Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Croatia, the Czech Republic[15], Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Liechtenstein (not available in this publication), Lithuania, Luxembourg, Malta, Monaco (included with France), the Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russian Federation, the Slovak Republic[15], 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

12. 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.

13. 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.

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

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

countries that were members of the OECD at the time of the signing of the Convention, the EEC, and fourteen countries in Central and Eastern Europe and the Former Soviet Union that were undergoing the process of transition to market economies. At its fifteenth session, the Conference of the Parties decided to amend Annex I to the Convention to include Malta (Decision 3/CP.15). The amendment entered into force on 26 October 2010.

Annex II Parties include 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.

Economies in Transition (EITs) are those countries in Annex I that were undergoing the process of transition to a market economy. This includes Belarus, Bulgaria, Croatia, the Czech Republic[16], Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russian Federation, the Slovak Republic[16], Slovenia and Ukraine.

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

Membership in the Kyoto Protocol is almost identical to that of Annex I, except for Malta, Turkey and Belarus which did not agree to a target under the Protocol, and the United States which has expressed the intention not to ratify the Protocol. Australia ratified the Protocol on 12 December 2007 and has been included in the Kyoto aggregate in this edition.

In accordance with article 27 (1) of the Kyoto Protocol to the UNFCC, the Government of Canada notified the Secretary-General of the United Nations that it has decided to withdraw from the Kyoto Protocol. The action will become effective for Canada on 15 December 2012 in accordance with article 27 (2). For the purposes of this edition, Canada is still included in the Annex I and Annex II Kyoto Parties.

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

Africa: Saint Helena.

Asia and Oceania: Christmas Island, Nauru and Niue.

Non-OECD Americas: Anguilla.

Non-OECD Europe and Eurasia: Liechtenstein[17] (except for oil data).

16. Czechoslovakia was in the original list of Annex I EIT countries.

17. Oil data for Liechtenstein are included under Switzerland.

5. IPCC METHODOLOGIES

General notes

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

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

As a response to the objectives of the UNFCCC, the IEA Secretariat, together with the IPCC, the OECD and numerous international experts, has helped to develop and refine an internationally-agreed methodology for the calculation and reporting of national GHG emissions from fuel combustion. This methodology was published in 1995 in the *IPCC Guidelines for National Greenhouse Gas Inventories*. After the initial dissemination of the methodology, revisions were added to several chapters, and published as the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* (*1996 IPCC Guidelines*). In April 2006, the IPCC approved the *2006 Guidelines* at the 25th session of the IPCC in Mauritius. For now, many countries (as well as the IEA Secretariat) are still calculating their inventories using the *1996 IPCC Guidelines* since this was the version used for the Kyoto Protocol.[18] In December 2011 in Durban, the Parties adopted Decision 15/CP.17 to update their reporting tables so as to implement the *2006 Guidelines*. These tables are currently under development and there will be a trial period that runs until end May 2013. The new reporting tables will be mandatory from 15 April 2015.

Since the IPCC methodology for fuel combustion is largely based on energy balances, the IEA estimates for CO_2 from fuel combustion published in this document have been calculated using the IEA energy balances and the default IPCC methodology. However, other possibly more detailed methodologies may be used by Parties to calculate their inventories. This may lead to different estimates of emissions. See Chapter 1, IEA emissions estimates, for further details.

The calculation of CO_2 emissions from fuel combustion may be done at three different levels referred to as Tiers 1, 2 and 3. The Tier 1 methods estimate the emissions from the carbon content of fuels supplied to the country as a whole (the Reference Approach) or to the main fuel combustion activities (Sectoral Approach). The following chapter summarises the IPCC Tier 1 methodology from the *1996 IPCC Guidelines*.

Reference Approach

Introduction

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

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

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

task, which some countries have not undertaken. Fortunately, it is possible to obtain a relatively accurate estimate of national CO_2 emissions by accounting for the carbon in fuels supplied to the economy. The supply of fuels is straightforward and the statistics are more likely to be available in many countries.

In accounting for fuels supplied[19] it is important to distinguish between *primary fuels* (*i.e.* fuels which are found in nature such as coal, crude oil, natural gas), and *secondary fuels* or fuel products, such as gasoline and lubricants, which are derived from primary fuels.

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

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

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

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

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

Three other important points influence the accounting methodology:

- **Stored carbon**

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

- **International bunker fuels**

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

- **Biofuels**

In the IPCC methodology, biofuels (fuels derived from biomass) are not included in the CO_2 emissions from fuel combustion and are only shown for informational purposes. This is because for the purpose of calculating CO_2 emissions, biomass consumption for fuel is assumed to equal its regrowth. Any departures from this hypothesis are counted within the land use, land use change and forestry module of the *1996 IPCC Guidelines*. For this reason, emissions from the burning of biomass for energy are not included in the CO_2 emissions from fuel combustion in this publication.

Methodology

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

Step 1: Estimate apparent fuel consumption in original units

Step 2: Convert to a common energy unit

Step 3: Multiply by emission factors to compute the carbon content

Step 4: Compute carbon stored

Step 5: Correct for carbon unoxidised

Step 6: Convert carbon oxidised to CO_2 emissions

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

Completing Worksheet 1

This section is from the Workbook of the *1996 IPCC Guidelines* and provides step-by-step instructions for calculating emissions at the detailed fuels and fuel products level. Worksheet 1 can be consulted at the end of this chapter.

NOTE: The main worksheet allows CO_2 emissions from biofuels to be calculated but it does not include them in the national total.

Step 1 Estimating apparent fuel consumption

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

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

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

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

These allow the overall calculation to account for all consumption.

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

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

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

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

Apparent consumption =

Production + Imports - Exports - International bunkers - Stock change

The results are entered in Column F.

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

Step 2 Converting to a common energy unit (TJ)

1 The conversion factor used for each fuel is entered in Column G.

2 The Apparent consumption is multiplied by the relevant conversion factor (NCV or scaling factor) to give apparent consumption in terajoules. The result is entered in Column H.

TABLE 1
CONVERSION FACTORS

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

TABLE 2
SELECTED NET CALORIFIC VALUES

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

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

Step 3 Multiplying by carbon emission factors

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

Table 3 shows the default values used in this publication.

TABLE 3
CARBON EMISSION FACTORS (CEF)

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

Notes to Table 3

(a) This value is a default value until a fuel specific CEF is determined. For biogases, the CEF is based on the assumption that 50% of the carbon in the biomass is converted to methane and 50% is emitted as CO_2. The CO_2 emissions from biogases should not be included in national inventories. If biogases are released and not combusted, 50% of the carbon content should be included as methane.

(b) For use in the sectoral calculations.

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

2 The apparent consumption in TJ (in Column H) is multiplied by the carbon emission factor (in Column I) to give the carbon content in tonnes of C. The result is entered in Column J.

3 The carbon content in tonnes C is divided by 10^3 to give gigagrammes of carbon. The result is entered in Column K.

Step 4 Calculating carbon stored

1 **Estimating fuel quantities**

Bitumen and lubricants

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

Coal oils and tars

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

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

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

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

2 **Converting to TJ**

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

3 **Calculating carbon content**

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

4 **Calculating actual carbon stored**

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

When Auxiliary Worksheet 1 is completed

5 The values for carbon stored for the relevant fuels/products are entered in Column L of the main Worksheet 1.

6 The values for carbon stored (Column L) are subtracted from carbon content (Column K) to give net carbon emissions. The results are entered in Column M.

Step 5 Correcting for carbon unoxidised

1 The values for fraction of carbon oxidised are entered in Column N of Worksheet 1. Table 4 provides information on typical values measured from various facilities and suggests global default values for solid, liquid and gaseous fuels.

2 Net carbon emissions (Column M) are multiplied by the fraction of carbon oxidised (Column N) and the results are entered in Column O, actual carbon emissions.

TABLE 4
FRACTION OF CARBON OXIDISED

Coal[1]	0.98
Oil and oil products	0.99
Natural gas	0.995
Peat for electricity generation[2]	0.99

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

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

Step 6 Converting to CO_2 emissions

1 Actual carbon emissions (Column O) are multiplied by 44/12 (which is the molecular weight ratio of CO_2 to C) to find total carbon dioxide (CO_2) emitted from fuel combustion. The results are entered in Column P.

2 The sum is total national emissions of carbon dioxide from fuel combustion. These are the numbers shown for total CO_2 emissions from fuel combustion in this publication.

Sectoral Approach

Introduction

A sectoral breakdown of national CO_2 emissions using the defined IPCC Source/Sink Categories is needed for monitoring and abatement policy discussions. The IPCC Reference Approach provides a rapid estimate of the total CO_2 emissions from fuels supplied to the country but it does not break down the emissions by sector.

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

Completing Worksheet 2

This section is from the Workbook of the *1996 IPCC Guidelines* and provides step-by-step instructions for calculating emissions by fuels for each of the main source categories using the IPCC Tier 1 Sectoral Approach. A sample sheet of Worksheet 2 can be consulted at the end of this chapter.

Step 1 Estimating sectoral fuel consumption

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

Energy industries and transformation

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

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

Transformation

1 Fuels transformed into secondary fuels by physical or chemical processes not involving combustion (e.g. crude oil to petroleum products in refineries, coal to coke and coke oven gas in coke ovens);

2 Fuels combusted to generate electricity and/or heat (excluding fuels used for autoproduction of electricity and heat, which are reported in the sector where they are used);

Energy industries

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

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

Step 2 Converting to a common energy unit (TJ)

1 The conversion factor (NCV or scaling factor) to convert to terajoules is entered in Column B.

2 The consumption is multiplied by the relevant conversion factor to give consumption in terajoules. The result is entered in Column C.

Step 3 Multiplying by carbon emission factors

1 The carbon emission factor used to convert consumption into carbon content is entered in Column D.

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

3 The carbon content in tonnes of carbon is divided by 10^3 to be expressed as gigagrammes of carbon. The result is entered in Column F.

Step 4 Calculating carbon stored

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

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

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

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

1 **Estimating fuel quantities**

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

2 **Converting to TJ**

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

3 **Calculating carbon content**

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

4 **Calculating actual carbon stored**

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

After completion of Auxiliary Worksheet 2

5 The amount of carbon stored for the relevant fuel/product is entered in Column H of Worksheet 2 for the industry source category.

6 The amount of carbon stored (Column H) is subtracted from the carbon content (Column F) to give net carbon emissions. The results are entered in Column I.

Lubricants:

It has been estimated that during the first use, recycling and final disappearance of lubricants, approximately half of the production is oxidised as CO_2.

1 For each sector where lubricants are used, the fraction of carbon stored for lubricants is entered in Column G. The default value of 0.5 is used for this publication.

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

3 The amount of carbon stored (Column H) is subtracted from the carbon content (Column F) to obtain the net carbon emissions. The result is entered in Column I.

Bitumen and coal tars:

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

Fuels for which no carbon is stored:

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

Step 5 Correcting for carbon unoxidised

1 Values for fraction of carbon oxidised are entered in Column J of Worksheet 2. Table 4 provides information on typical values measured from coal facilities and suggests global default values for solid, liquid and gaseous fuels.

2 Net carbon emissions (Column I) are multiplied by fraction of carbon oxidised (Column J) and the results are entered in Column K, actual carbon emissions.

Step 6 Converting to CO_2 emissions

1 Actual carbon emissions (Column K) are multiplied by 44/12 (which is the molecular weight ratio of CO_2 to C) to find actual carbon dioxide (CO_2) emissions. The results are entered in Column L and correspond to the sectoral emissions included in the present publication.

		MODULE	**ENERGY**					
		SUBMODULE	**CO_2 FROM ENERGY SOURCES (REFERENCE APPROACH)**					
		WORKSHEET	**1**					
		SHEET	**1 OF 5**					
			STEP 1					
			A Production	B Imports	C Exports	D International Bunkers	E Stock Change	F Apparent Consumption
FUEL TYPES								F=(A+B -C-D-E)
Liquid Fossil	Primary Fuels	Crude Oil						
		Orimulsion						
		Natural Gas Liquids						
	Secondary Fuels	Gasoline						
		Jet Kerosene						
		Other Kerosene						
		Shale Oil						
		Gas / Diesel Oil						
		Fuel Oil						
		LPG						
		Ethane						
		Naphtha						
		Bitumen						
		Lubricants						
		Petroleum Coke						
		Refinery Feedstocks						
		Other Oil						
Liquid Fossil Totals								
Solid Fossil	Primary Fuels	Anthracite[(a)]						
		Coking Coal						
		Other Bit. Coal						
		Sub-Bit. Coal						
		Lignite						
		Oil Shale						
		Peat						
	Secondary Fuels	BKB & Patent Fuel						
		Coke Oven/Gas Coke						
Solid Fossil Totals								
Gaseous Fossil		Natural Gas (Dry)						
Total								
Biofuels Total								
		Solid Biofuels						
		Liquid Biofuels						
		Biogases						

(a) If anthracite is not separately available, include with other bituminous coal.

MODULE			**ENERGY**				
SUBMODULE			**CO_2 FROM ENERGY SOURCES (REFERENCE APPROACH)**				
WORKSHEET			**1**				
SHEET			**2 OF 5**				
			STEP 2		**STEP 3**		
			G[a] Conversion Factor (TJ/Unit)	H Apparent Consumption (TJ)	I Carbon Emission Factor (tC/TJ)	J Carbon Content (tC)	K Carbon Content (GgC)
FUEL TYPES				H=(FxG)		J=(HxI)	K=(Jx10^{-3})
Liquid Fossil	Primary Fuels	Crude Oil					
		Orimulsion					
		Natural Gas Liquids					
	Secondary Fuels	Gasoline					
		Jet Kerosene					
		Other Kerosene					
		Shale Oil					
		Gas / Diesel Oil					
		Fuel Oil					
		LPG					
		Ethane					
		Naphtha					
		Bitumen					
		Lubricants					
		Petroleum Coke					
		Refinery Feedstocks					
		Other Oil					
Liquid Fossil Totals							
Solid Fossil	Primary Fuels	Anthracite[b]					
		Coking Coal					
		Other Bit. Coal					
		Sub-Bit. Coal					
		Lignite					
		Oil Shale					
		Peat					
	Secondary Fuels	BKB & Patent Fuel					
		Coke Oven/Gas Coke					
Solid Fossil Totals							
Gaseous Fossil		Natural Gas (Dry)					
Total							
Biofuels Total							
		Solid Biofuels					
		Liquid Biofuels					
		Biogases					

(a) Please specify units.
(b) If anthracite is not separately available, include with other bituminous coal.

		MODULE	**ENERGY**				
		SUBMODULE	**CO_2 FROM ENERGY SOURCES (REFERENCE APPROACH)**				
		WORKSHEET	**1**				
		SHEET	**3 OF 5**				
			STEP 4		**STEP 5**		**STEP 6**
			L Carbon Stored (GgC)	M Net Carbon Emissions (GgC)	N Fraction of Carbon Oxidised	O Actual Carbon Emissions (GgC)	P Actual CO_2 Emissions ($GgCO_2$)
FUEL TYPES				M=(K-L)		O=(MxN)	P=(Ox[44/12])
Liquid Fossil	Primary Fuels	Crude Oil					
		Orimulsion					
		Natural Gas Liquids					
	Secondary Fuels	Gasoline					
		Jet Kerosene					
		Other Kerosene					
		Shale Oil					
		Gas / Diesel Oil					
		Fuel Oil					
		LPG					
		Ethane					
		Naphtha					
		Bitumen					
		Lubricants					
		Petroleum Coke					
		Refinery Feedstocks					
		Other Oil					
Liquid Fossil Totals							
Solid Fossil	Primary Fuels	Anthracite(a)					
		Coking Coal					
		Other Bit. Coal					
		Sub-Bit. Coal					
		Lignite					
		Oil Shale					
		Peat					
	Secondary Fuels	BKB & Patent Fuel					
		Coke Oven/Gas Coke					
Solid Fossil Totals							
Gaseous Fossil		Natural Gas (Dry)					
Total							
Biofuels Total							
		Solid Biofuels					
		Liquid Biofuels					
		Biogases					

(a) If anthracite is not separately available, include with other bituminous coal.

MODULE	**ENERGY**
SUBMODULE	**CO_2 FROM ENERGY SOURCES (REFERENCE APPROACH)**
WORKSHEET	**1**
SHEET	**4 OF 5 EMISSIONS FROM INTERNATIONAL BUNKERS (INTERNATIONAL MARINE AND AIR TRANSPORT)**

		STEP 1	STEP 2		STEP 3		
		A Quantities Delivered[(a)]	B Conversion Factor (TJ/unit)	C Quantities Delivered (TJ)	D Carbon Emission Factor (tC/TJ)	E Carbon Content (tC)	F Carbon Content (GgC)
FUEL TYPES				C=(AxB)		E=(CxD)	F=(E x 10^{-3})
Solid Fossil	Other Bituminous Coal						
	Sub-Bituminous Coal						
Liquid Fossil	Gasoline						
	Jet Kerosene						
	Gas/Diesel Oil						
	Fuel Oil						
	Lubricants						
			Total				

(a) Enter the quantities from Worksheet 1, Sheet 1, Column D: "International Bunkers".

MODULE	**ENERGY**
SUBMODULE	**CO_2 FROM ENERGY SOURCES (REFERENCE APPROACH)**
WORKSHEET	**1**
SHEET	**5 OF 5 EMISSIONS FROM INTERNATIONAL BUNKERS (INTERNATIONAL MARINE AND AIR TRANSPORT)**

		STEP 4			STEP 5		STEP 6
		G Fraction of Carbon Stored	H Carbon Stored (GgC)	I Net Carbon Emissions (GgC)	J Fraction of Carbon Oxidised	K Actual Carbon Emissions (GgC)	L Actual CO_2 Emissions ($GgCO_2$)
FUEL TYPES			H=(FxG)	I=(F-H)		K=(IxJ)	L=(Kx44/12)
Solid Fossil	Other Bituminous Coal	0	0				
	Sub-Bituminous Coal	0	0				
Liquid Fossil	Gasoline	0	0				
	Jet Kerosene	0	0				
	Gas/Diesel Oil	0	0				
	Fuel Oil	0	0				
	Lubricants	0.5					
						Total[(a)]	

(a) The bunker emissions are not to be added to national totals.

MODULE	**ENERGY**
SUBMODULE	**CO_2 FROM ENERGY**
WORKSHEET	**AUXILIARY WORKSHEET 1: ESTIMATING CARBON STORED IN PRODUCTS**
SHEET	**1 OF 1**

	A Estimated Fuel Quantities	B Conversion Factor (TJ/Units)	C Estimated Fuel Quantities (TJ)	D Carbon Emission Factor (tC/TJ)	E Carbon Content (tC)	F Carbon Content (GgC)	G Fraction of Carbon Stored	H Carbon Stored (GgC)
FUEL TYPES			C=(AxB)		E=(CxD)	F=(Ex10^{-3})		H=(FxG)
Naphtha[a]							0.80	
Lubricants							0.50	
Bitumen							1.0	
Coal Oils and Tars (from Coking Coal)							0.75	
Natural Gas[a]							0.33	
Gas/Diesel Oil[a]							0.50	
LPG[a]							0.80	
Ethane[a]							0.80	
Other fuels[b]								

(a) Enter these fuels when they are used as feedstocks.
(b) Use the other fuels rows to enter any other products in which carbon may be stored.

MODULE	**ENERGY**
SUBMODULE	**CO_2 FROM FUEL COMBUSTION (TIER I SECTORAL APPROACH)**
WORKSHEET	**2 STEP BY STEP CALCULATIONS**
SHEET	***SAMPLE SHEET - FILLED OUT FOR EACH SECTOR***

Energy Industries	A Consumption	B Conversion Factor (TJ/unit)	C Consumption (TJ)	D Carbon Emission Factor (tC/TJ)	E Carbon Content (tC)	F Carbon Content (GgC)
specific fuels listed for each sector (a)			C=(AxB)		E=(CxD)	F=(E x 10^{-3})
		Total				
***Memo items**:*						
Wood/Wood Waste						
Charcoal						
Other Solid Biofuels						
Liquid Biofuels						
Biogases						
		Total Biomass				

(a) Certain sectors have specific calculations for some products. See the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* for further details.

MODULE	**ENERGY**
SUBMODULE	**CO_2 FROM FUEL COMBUSTION (TIER I SECTORAL APPROACH)**
WORKSHEET	**2 STEP BY STEP CALCULATIONS**
SHEET	***SAMPLE SHEET - FILLED OUT FOR EACH SECTOR***

Energy Industries	G Fraction of Carbon Stored	H Carbon Stored (GgC)	I Net Carbon Emissions (GgC)	J Fraction of Carbon Oxidised	K Actual Carbon Emissions (GgC)	L Actual CO_2 Emissions ($GgCO_2$)
specific fuels listed for each sector (a)		H=(FxG)	I=(F-H)		K=(IxJ)	L=(K x [44/12])
					Total	
Memo items:						
Wood/Wood Waste						
Charcoal						
Other Solid Biofuels						
Liquid Biofuels						
Biogases						
					Total Biomass	

(a) Certain sectors have specific calculations for some products. See the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* for further details.

MODULE	**ENERGY**
SUBMODULE	**CO_2 FROM FUEL COMBUSTION BY (TIER I SECTORAL APPROACH)**
WORKSHEET	**AUXILIARY WORKSHEET 2: ESTIMATING CARBON STORED IN PRODUCTS**
SHEET	**1**

	A Feedstock Use	B Conversion Factor (TJ/Units)	C Feedstock Use (TJ)	D Carbon Emission Factor (tC/TJ)	E Carbon Content (tC)	F Carbon Content (GgC)	G Fraction of Carbon Stored	H Carbon Stored[a] (GgC)
FUEL TYPES			C=(AxB)		E=(CxD)	F=(Ex10^{-3})		H=(FxG)
Gas/Diesel Oil							0.5	
LPG							0.8	
Ethane							0.8	
Naphtha							0.8	
Natural Gas							0.33	
Other Fuels[b]								

(a) Enter the result of this calculation in Worksheet 2 Step by Step Calculation, in the m*anufacturing industries and construction* sector.
(b) Please specify.

Key sources

In May 2000, the IPCC Plenary, at its 16th session held in Montreal, accepted the report on *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*,[20] The report provides good practice guidance to assist countries in producing inventories that are neither over nor underestimates so far as can be judged, and in which uncertainties are reduced as far as practicable. It supports the development of inventories that are transparent, documented, consistent over time, complete, comparable, assessed for uncertainties, subject to quality control and quality assurance, and efficient in the use of resources. The report does not revise or replace the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, but provides a reference that complements and is consistent with those guidelines.

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

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

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

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

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

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

- The analysis should be performed at the level of IPCC source categories (*i.e.* at the level at which the IPCC methods are described). The analysis should be performed using CO_2-equivalent emissions calculated using the global warming potentials (GWPs) specified for the preparation of national GHG inventories by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories (*UNFCCC Guidelines*).
- Each greenhouse gas emitted from a single source category should be considered separately, unless there are specific methodological reasons for treating gases collectively. For example, carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O) are

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

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

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

Quantitative approaches to identify key source categories

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

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

For CO_2 emissions from stationary combustion, the *Good Practice Guidance* suggests that the emissions be disaggregated to the level where emission factors are distinguished. In most inventories, this will be the main fuel types. If emission factors are determined independently for some sub-source categories, these should be distinguished in the analysis.

When using the Tier 1 approach, key source categories are identified using a pre-determined cumulative emissions threshold. The pre-determined threshold is based on an evaluation of several inventories, and is aimed at establishing a general level where 90% of inventory uncertainty will be covered by key source categories.

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

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

EQUATION 1

Source Category Level Assessment = Source Category Estimate / Total Estimate

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

Where:

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

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

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

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

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

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

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

PART II:

CO_2 EMISSIONS FROM FUEL COMBUSTION

SUMMARY TABLES

CO_2 emissions: Sectoral Approach

million tonnes of CO_2

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
World *	**14 064.8**	**15 668.5**	**18 042.2**	**18 623.5**	**20 973.9**	**21 843.8**	**23 509.1**	**27 187.4**	**29 483.0**	**28 946.7**	**30 276.1**	**44.4%**
Annex I Parties	*..*	*..*	*..*	*..*	*13 906.7*	*13 177.7*	*13 762.0*	*14 129.1*	*13 904.3*	*12 972.7*	*13 398.1*	*-3.7%*
Annex II Parties	*8 607.3*	*8 884.4*	*9 544.5*	*9 172.8*	*9 802.1*	*10 202.5*	*11 006.1*	*11 305.2*	*10 945.8*	*10 214.3*	*10 519.3*	*7.3%*
North America	*4 630.9*	*4 738.2*	*5 088.7*	*4 948.2*	*5 301.5*	*5 604.5*	*6 231.4*	*6 331.0*	*6 137.3*	*5 710.3*	*5 905.3*	*11.4%*
Europe	*3 059.8*	*3 092.8*	*3 350.7*	*3 105.9*	*3 152.8*	*3 138.3*	*3 220.9*	*3 350.4*	*3 234.5*	*2 993.2*	*3 056.6*	*-3.1%*
Asia Oceania	*916.7*	*1 053.4*	*1 105.1*	*1 118.7*	*1 347.8*	*1 459.7*	*1 553.7*	*1 623.8*	*1 574.0*	*1 510.8*	*1 557.4*	*15.6%*
Annex I EIT	*..*	*..*	*..*	*..*	*3 975.4*	*2 820.2*	*2 553.2*	*2 604.9*	*2 692.5*	*2 499.6*	*2 610.5*	*-34.3%*
Non-Annex I Parties	*..*	*..*	*..*	*..*	*6 449.4*	*7 959.8*	*8 908.3*	*12 078.7*	*14 511.3*	*14 944.6*	*15 779.0*	*144.7%*
Annex I Kyoto Parties	*..*	*..*	*..*	*..*	*8 784.3*	*7 822.6*	*7 802.5*	*8 076.4*	*7 987.0*	*7 466.8*	*7 695.8*	*-12.4%*
Intl. marine bunkers	**344.2**	**331.7**	**347.9**	**297.7**	**362.5**	**419.5**	**488.8**	**565.8**	**620.2**	**601.8**	**643.7**	**77.6%**
Intl. aviation bunkers	**167.3**	**171.8**	**199.7**	**222.0**	**255.3**	**286.8**	**350.1**	**413.8**	**447.1**	**427.6**	**455.3**	**78.3%**
Non-OECD Total **	**4 183.1**	**5 366.5**	**6 783.9**	**7 659.6**	**9 199.3**	**9 459.5**	**10 035.8**	**13 175.3**	**15 628.6**	**15 894.3**	**16 736.8**	**81.9%**
OECD Total ***	**9 370.1**	**9 798.5**	**10 710.6**	**10 444.1**	**11 156.8**	**11 678.0**	**12 634.4**	**13 032.5**	**12 787.0**	**12 023.0**	**12 440.3**	**11.5%**
Canada	339.6	377.4	427.1	402.5	432.9	465.8	533.3	559.4	550.5	525.5	536.6	24.0%
Chile	20.8	17.0	21.2	19.4	31.0	38.9	52.5	58.2	68.5	65.4	69.7	124.6%
Mexico	97.1	138.8	212.1	251.6	264.9	296.6	349.3	385.5	403.7	399.7	416.9	57.4%
United States	4 291.3	4 360.8	4 661.6	4 545.7	4 868.7	5 138.7	5 698.1	5 771.7	5 586.8	5 184.8	5 368.6	10.3%
OECD Americas	**4 748.8**	**4 894.0**	**5 322.0**	**5 219.2**	**5 597.4**	**5 940.0**	**6 633.3**	**6 774.7**	**6 609.5**	**6 175.4**	**6 391.9**	**14.2%**
Australia	144.1	180.0	208.0	221.0	260.0	285.4	338.8	369.2	385.8	384.0	383.5	47.5%
Israel	14.4	17.1	19.6	24.5	33.5	46.3	55.2	58.7	64.3	63.5	68.1	103.0%
Japan	758.8	856.3	880.7	878.1	1 064.4	1 147.9	1 184.0	1 220.7	1 154.3	1 095.7	1 143.1	7.4%
Korea	52.1	76.8	124.4	153.3	229.3	358.6	437.7	469.1	501.7	515.5	563.1	145.6%
New Zealand	13.7	17.1	16.4	19.6	23.4	26.3	30.9	33.9	34.0	31.1	30.9	31.8%
OECD Asia Oceania	**983.1**	**1 147.2**	**1 249.1**	**1 296.5**	**1 610.6**	**1 864.6**	**2 046.6**	**2 151.6**	**2 140.0**	**2 089.8**	**2 188.6**	**35.9%**
Austria	48.7	50.2	55.7	54.3	56.4	59.4	61.7	74.6	70.6	63.5	69.3	22.9%
Belgium	116.8	115.6	125.7	101.9	107.9	115.2	118.6	112.6	111.0	100.7	106.4	-1.4%
Czech Republic	151.0	152.6	165.8	173.1	155.1	123.7	121.9	119.6	117.3	110.1	114.5	-26.2%
Denmark	55.0	52.5	62.5	60.5	50.4	58.0	50.6	48.3	48.4	46.7	47.0	-6.8%
Estonia	..	..	..	..	36.1	16.1	14.6	16.9	17.7	14.7	18.5	-48.9%
Finland	39.8	44.4	55.2	48.6	54.4	56.0	55.1	55.2	57.0	55.0	62.9	15.7%
France	431.9	430.6	461.4	360.3	352.3	353.8	376.9	388.4	370.2	351.4	357.8	1.6%
Germany	978.6	975.5	1 055.6	1 014.6	949.7	867.8	825.0	809.0	800.1	747.1	761.6	-19.8%
Greece	25.2	34.5	45.3	54.6	70.1	75.8	87.4	95.0	94.3	90.2	84.3	20.2%
Hungary	60.3	70.7	83.7	80.8	66.4	57.3	54.2	56.4	53.0	48.2	48.9	-26.3%
Iceland	1.4	1.6	1.7	1.6	1.9	1.9	2.1	2.2	2.1	2.1	1.9	2.3%
Ireland	21.7	21.1	25.9	26.4	29.8	32.3	40.9	43.6	43.5	39.0	38.7	29.7%
Italy	292.9	319.6	359.8	347.5	397.4	409.4	426.0	460.8	435.1	389.4	398.5	0.3%
Luxembourg	15.4	12.1	11.9	9.9	10.4	8.1	8.1	11.4	10.6	10.0	10.6	1.6%
Netherlands	129.6	140.8	166.7	154.0	155.8	170.9	172.1	182.7	182.8	176.1	187.0	20.0%
Norway	23.5	24.1	28.0	27.2	28.3	32.8	33.5	36.3	37.5	37.0	39.2	38.5%
Poland	286.7	338.2	413.1	419.5	342.1	331.1	290.9	292.9	298.5	287.0	305.1	-10.8%
Portugal	14.4	18.1	23.8	24.6	39.3	48.3	59.4	62.8	53.2	53.1	48.2	22.6%
Slovak Republic	39.1	43.8	55.3	54.4	56.7	40.8	37.4	38.1	36.2	33.2	35.0	-38.3%
Slovenia	..	..	..	..	12.5	13.3	14.1	15.6	16.7	15.2	15.3	22.5%
Spain	119.9	156.5	187.7	175.2	205.2	232.7	283.9	339.4	317.1	282.4	268.3	30.7%
Sweden	82.4	79.4	73.4	58.8	52.8	57.5	52.8	50.3	44.4	41.4	47.6	-9.8%
Switzerland	38.9	36.7	39.2	41.4	41.4	41.6	42.5	44.6	43.8	42.4	43.8	5.9%
Turkey	41.4	59.2	70.9	94.6	126.9	152.7	200.6	216.4	263.5	256.3	265.9	109.5%
United Kingdom	623.5	579.5	571.1	544.5	549.3	516.6	524.3	533.0	512.8	465.5	483.5	-12.0%
OECD Europe ***	**3 638.2**	**3 757.3**	**4 139.5**	**3 928.4**	**3 948.7**	**3 873.3**	**3 954.6**	**4 106.2**	**4 037.6**	**3 757.8**	**3 859.8**	**-2.3%**
European Union - 27	*..*	*..*	*..*	*..*	*4 050.0*	*3 845.2*	*3 830.6*	*3 977.3*	*3 864.8*	*3 570.5*	*3 659.5*	*-9.6%*

* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.
** Includes Estonia and Slovenia prior to 1990.
*** Excludes Estonia and Slovenia prior to 1990.

CO_2 emissions: Sectoral Approach

million tonnes of CO_2

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Non-OECD Total *	**4 183.1**	**5 366.5**	**6 783.9**	**7 659.6**	**9 199.3**	**9 459.5**	**10 035.8**	**13 175.3**	**15 628.6**	**15 894.3**	**16 736.8**	**81.9%**
Albania	3.9	4.5	7.6	7.2	6.3	1.9	3.1	4.1	3.9	3.5	3.8	-39.9%
Armenia	..	..	..	..	20.5	3.4	3.4	4.1	5.3	4.3	4.0	-80.3%
Azerbaijan	..	..	..	..	65.0	32.2	29.8	32.8	29.5	24.7	24.7	-62.0%
Belarus	..	..	..	..	124.5	61.4	58.7	62.1	64.5	62.3	65.3	-47.5%
Bosnia and Herzegovina	..	..	..	..	23.7	3.2	13.5	15.6	19.9	19.4	19.9	-15.8%
Bulgaria	62.8	72.2	83.8	81.1	74.8	53.2	42.1	45.9	49.0	42.2	43.8	-41.4%
Croatia	..	..	..	..	21.6	15.8	17.7	20.8	21.0	19.8	19.0	-11.9%
Cyprus	1.8	1.7	2.6	2.8	3.8	5.2	6.3	7.0	7.6	7.5	7.2	88.1%
Georgia	..	..	..	..	33.2	8.1	4.6	4.3	4.8	5.4	4.9	-85.1%
Gibraltar	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.5	0.5	0.5	0.5	193.9%
Kazakhstan	..	..	..	..	236.4	167.5	113.0	157.1	227.9	197.8	232.1	-1.8%
Kosovo **	..	..	..	..	..	..	5.0	6.5	7.4	8.2	8.5	..
Kyrgyzstan	..	..	..	..	22.5	4.4	4.5	5.0	5.9	7.2	7.0	-68.9%
Latvia	..	..	..	..	18.7	8.9	6.8	7.6	7.9	7.2	8.1	-56.8%
Lithuania	..	..	..	..	33.1	14.2	11.2	13.6	14.3	12.5	13.4	-59.6%
FYR of Macedonia	..	..	..	..	8.5	8.2	8.4	8.8	9.0	8.4	8.2	-3.6%
Malta	0.6	0.6	1.0	1.1	2.3	2.4	2.1	2.7	2.6	2.5	2.5	8.3%
Republic of Moldova	..	..	..	..	30.2	10.9	5.7	6.8	6.4	5.7	6.1	-79.7%
Montenegro **	..	..	..	..	..	..	..	1.4	1.9	1.2	2.1	..
Romania	114.9	140.6	176.1	173.3	167.0	117.0	86.2	93.8	92.8	78.8	75.6	-54.8%
Russian Federation	..	..	..	..	2 178.8	1 574.5	1 505.5	1 516.2	1 593.4	1 520.4	1 581.4	-27.4%
Serbia **	..	..	..	..	61.4	44.0	42.5	49.1	49.9	46.4	46.0	-25.0%
Tajikistan	..	..	..	..	10.9	2.4	2.2	2.3	3.0	2.8	2.7	-74.9%
Turkmenistan	..	..	..	..	45.8	33.9	35.4	45.1	54.7	48.0	52.7	15.1%
Ukraine	..	..	..	..	687.9	392.8	292.0	305.6	310.0	248.3	266.6	-61.2%
Uzbekistan	..	..	..	..	119.8	101.6	117.6	107.8	114.8	103.6	100.2	-16.4%
Former Soviet Union ***	1 995.8	2 567.9	3 056.0	3 197.5	..	..	..	..	..	..	..	..
Former Yugoslavia ***	63.2	75.2	87.6	121.7	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	**2 243.2**	**2 862.7**	**3 414.9**	**3 584.8**	**3 996.8**	**2 667.6**	**2 417.5**	**2 526.4**	**2 707.8**	**2 488.3**	**2 606.3**	**-34.8%**
Algeria	8.9	14.0	28.4	43.2	52.7	56.8	63.5	79.6	89.7	99.1	98.6	87.0%
Angola	1.7	2.0	2.7	2.9	4.0	4.0	5.1	7.2	12.8	14.1	16.6	314.4%
Benin	0.3	0.5	0.4	0.5	0.3	0.2	1.4	2.7	3.8	4.2	4.5	+
Botswana	..	..	..	1.6	2.9	3.3	4.2	4.4	4.5	4.3	4.6	56.8%
Cameroon	0.7	1.0	1.7	2.4	2.7	2.5	2.8	2.9	4.3	4.8	5.0	88.2%
Congo	0.6	0.6	0.7	0.8	0.6	0.5	0.5	0.8	1.3	1.5	1.7	168.5%
Dem. Rep. of Congo	2.5	2.6	3.1	3.2	3.0	2.1	1.7	2.3	2.8	2.9	3.1	3.6%
Côte d'Ivoire	2.4	3.0	3.4	3.0	2.6	3.2	6.1	5.8	6.5	6.1	5.8	120.5%
Egypt	20.3	25.6	41.9	64.8	78.4	83.1	101.3	152.6	175.3	172.7	177.6	126.5%
Eritrea	..	..	..	..	..	0.8	0.6	0.6	0.5	0.5	0.5	..
Ethiopia	1.3	1.2	1.4	1.4	2.2	2.4	3.2	4.5	5.7	5.7	5.4	142.8%
Gabon	0.5	0.7	1.3	1.7	0.9	1.3	1.4	2.1	2.3	2.5	2.7	194.0%
Ghana	1.9	2.3	2.3	2.2	2.7	3.3	5.1	6.4	7.4	9.1	9.5	250.1%
Kenya	3.2	3.5	4.5	4.6	5.5	5.6	6.8	7.2	8.6	10.2	10.9	97.7%
Libya	3.7	9.2	18.6	22.5	27.4	35.1	39.7	42.5	47.0	49.8	51.6	88.7%
Morocco	6.8	9.9	14.0	16.5	19.6	26.0	29.4	40.1	43.5	42.7	46.0	134.0%
Mozambique	2.9	2.3	2.3	1.5	1.1	1.1	1.3	1.5	2.0	2.2	2.5	130.9%
Namibia	..	..	..	..	..	1.7	1.8	2.5	3.6	3.3	3.3	..
Nigeria	5.9	11.7	26.7	32.4	29.2	31.1	42.0	55.2	49.6	42.3	45.9	57.4%
Senegal	1.2	1.6	2.0	2.1	2.1	2.5	3.6	4.7	5.1	5.3	5.5	157.4%
South Africa	156.7	201.5	208.8	228.8	253.7	274.5	296.7	329.2	387.1	368.8	346.8	36.7%
Sudan	3.3	3.3	3.7	4.2	5.5	4.6	5.5	9.2	12.4	13.5	13.7	148.8%
United Rep. of Tanzania	1.5	1.5	1.6	1.5	1.7	2.5	2.6	5.1	5.8	5.6	6.0	250.5%
Togo	0.3	0.3	0.4	0.3	0.6	0.6	1.0	1.0	1.1	1.1	1.2	106.2%
Tunisia	3.7	4.8	7.8	9.6	12.1	14.2	18.0	20.2	21.5	21.3	21.9	81.7%
Zambia	3.4	4.4	3.4	2.8	2.6	2.0	1.7	2.1	1.6	1.7	1.9	-25.5%
Zimbabwe	7.2	7.2	8.0	9.6	16.0	14.8	12.7	10.4	7.9	8.4	9.1	-43.3%
Other Africa	7.6	9.2	13.1	11.7	14.4	16.7	19.2	23.3	27.0	27.0	27.9	93.5%
Africa	**248.7**	**324.2**	**401.9**	**475.6**	**544.4**	**596.6**	**678.8**	**826.0**	**940.7**	**930.6**	**929.7**	**70.8%**

* Includes Estonia and Slovenia prior to 1990.

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

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

CO_2 emissions: Sectoral Approach

million tonnes of CO_2

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Bangladesh	3.2	4.7	7.2	8.8	13.6	20.5	25.3	36.5	46.4	50.6	53.0	290.5%
Brunei Darussalam	0.4	1.4	2.6	2.9	3.4	4.7	4.6	5.1	7.5	8.1	8.2	144.2%
Cambodia	..	..	..	..	..	1.5	2.0	2.6	3.5	3.6	3.8	..
Chinese Taipei	31.0	42.5	72.9	71.4	114.4	158.2	218.4	262.5	262.9	250.5	270.2	136.3%
India	200.2	241.2	283.3	411.0	582.3	776.6	972.5	1 164.8	1 438.5	1 564.0	1 625.8	179.2%
Indonesia	25.1	38.0	68.9	88.0	146.1	214.4	272.9	335.7	364.5	381.4	410.9	181.4%
DPR of Korea	67.5	76.7	105.6	126.4	114.0	74.9	68.6	73.8	69.0	65.8	63.0	-44.7%
Malaysia	12.7	16.1	24.3	33.7	49.6	82.8	112.7	152.0	184.0	169.4	185.0	272.6%
Mongolia	..	..	..	11.6	12.7	10.1	8.8	9.5	11.2	11.7	11.9	-6.2%
Myanmar	4.6	4.0	5.2	5.9	4.1	6.9	9.4	10.6	7.5	7.0	8.0	97.6%
Nepal	0.2	0.3	0.5	0.5	0.9	1.7	3.1	3.0	2.8	3.4	3.7	313.1%
Pakistan	16.6	20.9	26.1	39.1	58.6	79.5	97.3	117.8	133.5	137.0	134.6	129.8%
Philippines	23.0	29.0	33.3	28.5	38.2	57.2	67.5	70.7	70.4	70.8	76.4	99.9%
Singapore	6.1	8.5	12.7	16.3	29.4	41.7	47.7	50.6	55.1	55.7	62.9	114.1%
Sri Lanka	2.8	2.7	3.7	3.6	3.7	5.5	10.6	13.4	12.2	12.0	13.3	256.4%
Thailand	16.2	21.2	33.6	41.9	80.5	140.5	158.1	216.6	230.4	228.5	248.5	208.7%
Vietnam	16.1	16.7	14.8	17.1	17.2	27.8	44.0	79.8	101.9	113.8	130.5	658.5%
Other Asia	8.4	10.2	16.5	10.1	10.2	9.3	11.2	15.4	17.4	19.6	20.9	104.2%
Asia	**434.1**	**534.0**	**711.1**	**916.9**	**1 278.8**	**1 713.7**	**2 134.8**	**2 620.6**	**3 018.7**	**3 153.0**	**3 330.6**	**160.4%**
People's Rep. of China	800.4	1 051.2	1 405.3	1 704.9	2 211.3	2 986.1	3 037.3	5 062.4	6 506.8	6 800.7	7 217.1	226.4%
Hong Kong, China	9.2	10.8	14.5	22.0	32.8	36.0	39.8	40.7	42.2	45.6	41.5	26.3%
China	**809.6**	**1 062.0**	**1 419.8**	**1 726.9**	**2 244.1**	**3 022.1**	**3 077.2**	**5 103.1**	**6 549.0**	**6 846.3**	**7 258.5**	**223.5%**
Argentina	82.8	85.5	95.6	88.2	99.9	118.0	139.0	151.0	171.7	165.8	170.2	70.5%
Bolivia	2.2	3.2	4.2	4.3	5.1	6.9	7.1	9.5	12.2	12.7	14.1	173.1%
Brazil	91.1	137.2	180.3	168.0	194.3	240.4	303.5	322.5	361.9	338.1	387.7	99.6%
Colombia	26.3	28.4	33.9	38.4	45.0	57.1	58.7	57.5	59.2	61.4	60.7	34.9%
Costa Rica	1.3	1.7	2.2	2.0	2.6	4.4	4.5	5.7	6.6	6.3	6.5	151.4%
Cuba	20.4	23.7	30.2	31.9	33.8	22.2	27.1	25.1	24.9	31.6	30.0	-11.1%
Dominican Republic	3.4	5.2	6.3	6.2	7.7	11.4	17.4	17.5	19.2	18.1	18.6	142.1%
Ecuador	3.7	6.2	10.6	12.1	13.2	16.3	18.2	24.2	26.5	29.2	30.1	128.1%
El Salvador	1.4	2.0	1.7	1.8	2.2	4.6	5.2	6.1	6.2	6.2	5.9	162.8%
Guatemala	2.3	3.0	4.2	3.2	3.2	5.8	8.5	10.5	10.2	11.1	10.3	221.2%
Haiti	0.4	0.4	0.6	0.8	0.9	0.9	1.4	2.0	2.3	2.4	2.1	125.1%
Honduras	1.1	1.3	1.7	1.7	2.2	3.5	4.4	6.9	7.8	7.3	7.3	238.3%
Jamaica	5.5	7.4	6.5	4.6	7.2	8.3	9.7	10.4	11.8	8.3	8.0	10.7%
Netherlands Antilles	14.4	10.2	8.7	4.6	2.7	2.8	4.1	4.2	4.3	5.0	3.8	39.1%
Nicaragua	1.5	1.8	1.8	1.8	1.8	2.5	3.5	4.0	4.1	4.1	4.5	143.6%
Panama	2.5	3.1	2.9	2.7	2.6	4.1	4.9	6.8	6.6	7.8	8.4	228.7%
Paraguay	0.6	0.7	1.4	1.4	1.9	3.4	3.3	3.4	3.8	4.1	4.7	145.2%
Peru	15.6	18.4	20.5	18.2	19.2	23.7	26.5	28.9	35.6	38.2	41.9	118.4%
Trinidad and Tobago	6.1	5.8	7.9	9.6	11.4	12.3	21.1	33.9	39.2	40.2	42.8	276.3%
Uruguay	5.2	5.5	5.6	3.1	3.7	4.5	5.3	5.3	7.7	7.7	6.4	71.9%
Venezuela	52.1	62.8	92.4	95.2	105.1	118.3	126.7	148.2	168.3	168.4	183.0	74.2%
Other Non-OECD Americas	7.8	10.8	10.2	9.2	12.4	13.4	15.1	16.7	17.7	18.0	18.4	48.1%
Non-OECD Americas	**347.7**	**424.5**	**529.5**	**508.9**	**578.1**	**685.1**	**815.3**	**900.2**	**1 008.0**	**992.2**	**1 065.4**	**84.3%**
Bahrain	3.0	5.3	7.4	10.4	11.7	11.6	14.1	18.1	22.3	22.8	23.6	101.8%
Islamic Republic of Iran	41.7	71.5	90.2	146.4	178.7	251.3	315.1	421.6	497.7	513.9	509.0	184.9%
Iraq	10.4	15.5	27.0	36.8	53.4	97.5	70.3	74.9	73.4	91.9	104.5	95.6%
Jordan	1.3	2.1	4.3	7.4	9.2	12.2	14.4	18.0	18.5	19.3	18.6	101.5%
Kuwait	14.0	15.1	26.6	37.1	28.7	36.1	49.1	70.1	73.9	80.7	87.4	204.3%
Lebanon	4.5	5.6	6.6	6.5	5.5	12.8	14.1	14.5	15.8	19.1	18.6	241.2%
Oman	0.3	0.7	2.2	5.7	10.2	14.7	20.2	28.2	36.5	40.0	40.3	293.4%
Qatar	2.2	4.9	7.7	12.1	14.1	18.7	23.7	37.6	49.8	56.4	64.9	361.7%
Saudi Arabia	12.7	22.5	99.1	122.6	159.1	207.8	252.8	333.8	387.1	411.4	446.0	180.3%
Syrian Arab Republic	6.0	9.0	13.1	21.1	28.2	32.8	39.8	54.9	62.7	57.2	57.8	105.1%
United Arab Emirates	2.4	4.9	19.1	35.6	51.9	69.6	85.6	108.4	145.6	149.4	154.0	196.8%
Yemen	1.2	1.7	3.4	4.8	6.4	9.3	13.2	18.8	21.1	21.6	21.7	236.7%
Middle East	**99.8**	**159.0**	**306.7**	**446.6**	**557.1**	**774.5**	**912.3**	**1 198.9**	**1 404.4**	**1 483.8**	**1 546.3**	**177.6%**

CO_2 emissions: Sectoral Approach - Coal/peat

million tonnes of CO_2

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
World *	**5 181.0**	**5 596.8**	**6 549.3**	**7 366.5**	**8 302.3**	**8 540.1**	**8 832.4**	**10 999.1**	**12 619.1**	**12 458.0**	**13 065.9**	**57.4%**
Annex I Parties	*..*	*..*	*..*	*..*	*5 110.7*	*4 596.9*	*4 713.3*	*4 744.2*	*4 697.3*	*4 219.2*	*4 407.5*	*-13.8%*
Annex II Parties	*2 646.0*	*2 605.0*	*2 962.9*	*3 318.4*	*3 486.5*	*3 402.0*	*3 658.6*	*3 729.5*	*3 614.8*	*3 215.9*	*3 375.8*	*-3.2%*
North America	*1 140.6*	*1 253.2*	*1 481.4*	*1 725.2*	*1 896.7*	*2 000.2*	*2 252.7*	*2 240.1*	*2 192.3*	*1 927.8*	*2 036.5*	*7.4%*
Europe	*1 233.9*	*1 058.9*	*1 182.7*	*1 223.8*	*1 154.8*	*925.1*	*843.1*	*849.8*	*795.9*	*685.2*	*709.4*	*-38.6%*
Asia Oceania	*271.5*	*292.9*	*298.7*	*369.4*	*434.9*	*476.7*	*562.8*	*639.6*	*626.6*	*602.9*	*629.9*	*44.8%*
Annex I EIT	*..*	*..*	*..*	*..*	*1 565.7*	*1 134.1*	*965.8*	*928.5*	*967.0*	*891.1*	*912.0*	*-41.7%*
Non-Annex I Parties	*..*	*..*	*..*	*..*	*3 191.6*	*3 943.2*	*4 119.1*	*6 254.9*	*7 921.8*	*8 238.8*	*8 658.4*	*171.3%*
Annex I Kyoto Parties	*..*	*..*	*..*	*..*	*3 245.6*	*2 634.5*	*2 495.7*	*2 532.0*	*2 494.2*	*2 273.0*	*2 345.0*	*-27.7%*
Intl. marine bunkers	**0.1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Intl. aviation bunkers	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Non-OECD Total **	**2 047.5**	**2 462.4**	**2 950.7**	**3 335.5**	**4 147.8**	**4 514.2**	**4 500.1**	**6 582.8**	**8 252.8**	**8 495.3**	**8 884.4**	**114.2%**
OECD Total ***	**3 133.5**	**3 134.4**	**3 598.7**	**4 031.1**	**4 154.6**	**4 025.9**	**4 332.3**	**4 416.3**	**4 366.4**	**3 962.7**	**4 181.5**	**0.6%**
Canada	61.9	56.9	80.8	99.7	99.3	103.8	127.5	116.4	106.6	95.6	95.8	-3.6%
Chile	5.0	3.5	4.7	4.8	9.8	9.0	11.8	10.0	16.5	14.9	17.2	75.3%
Mexico	5.2	6.6	7.2	11.6	14.2	25.4	26.6	37.8	27.1	33.7	38.5	170.8%
United States	1 078.7	1 196.4	1 400.7	1 625.5	1 797.4	1 896.4	2 125.1	2 123.7	2 085.7	1 832.1	1 940.7	8.0%
OECD Americas	**1 150.7**	**1 263.4**	**1 493.4**	**1 741.6**	**1 920.7**	**2 034.6**	**2 291.1**	**2 287.9**	**2 235.8**	**1 976.3**	**2 092.2**	**8.9%**
Australia	73.2	90.3	104.0	116.7	137.1	152.3	189.3	201.2	204.0	204.3	199.2	45.3%
Israel	0.0	0.0	0.0	7.2	9.3	16.1	25.0	28.9	29.6	28.6	28.8	210.6%
Japan	194.1	197.7	190.8	248.8	293.4	319.9	369.1	429.8	414.5	392.5	425.4	45.0%
Korea	21.2	30.6	48.1	80.2	86.3	101.6	173.6	195.0	236.5	252.5	276.3	220.0%
New Zealand	4.2	4.8	3.8	3.9	4.4	4.4	4.3	8.7	8.1	6.1	5.3	19.9%
OECD Asia Oceania	**292.7**	**323.5**	**346.9**	**456.7**	**530.6**	**594.4**	**761.4**	**863.5**	**892.8**	**884.0**	**935.0**	**76.2%**
Austria	15.9	13.5	13.7	16.9	16.1	13.8	14.4	15.9	16.0	11.6	14.5	-9.8%
Belgium	42.2	37.0	40.2	37.8	39.0	33.4	29.0	19.1	16.7	10.6	11.4	-70.7%
Czech Republic	129.2	121.7	129.5	136.1	120.7	88.5	83.9	76.2	75.2	70.3	73.4	-39.2%
Denmark	6.0	8.0	23.8	28.4	23.7	25.3	15.4	14.4	15.9	15.7	15.3	-35.6%
Estonia	..	..	..	..	24.1	11.3	10.5	12.0	12.9	10.6	14.2	-41.1%
Finland	8.4	9.3	19.6	19.8	21.1	23.2	20.9	20.0	22.1	21.5	27.7	31.2%
France	135.3	104.2	121.2	91.3	73.6	57.5	57.5	53.8	51.1	43.2	45.3	-38.5%
Germany	554.1	494.5	552.2	580.7	504.6	370.1	337.2	332.3	328.3	290.3	306.2	-39.3%
Greece	6.8	11.0	13.4	24.9	33.4	36.4	37.6	37.8	35.4	35.1	32.9	-1.3%
Hungary	34.9	32.9	36.3	34.5	23.8	17.0	15.2	12.2	11.6	9.9	10.4	-56.1%
Iceland	0.0	-	0.1	0.3	0.3	0.2	0.4	0.4	0.4	0.3	0.4	39.5%
Ireland	8.8	7.1	8.0	10.5	13.7	11.6	10.3	10.5	9.1	8.0	7.9	-42.6%
Italy	31.7	30.2	43.0	58.1	55.1	44.9	43.3	62.8	58.9	46.8	51.8	-5.9%
Luxembourg	11.3	7.5	7.9	6.3	5.0	2.1	0.5	0.3	0.3	0.3	0.3	-94.1%
Netherlands	14.4	11.5	13.8	23.1	31.8	33.1	29.1	30.3	29.8	27.6	28.2	-11.4%
Norway	3.7	3.9	3.9	4.4	3.4	4.1	4.2	3.0	3.0	2.2	2.8	-19.8%
Poland	252.5	289.7	350.9	359.8	285.6	268.1	216.8	206.6	205.4	193.9	207.2	-27.4%
Portugal	2.4	1.6	1.6	2.9	10.6	13.9	14.7	13.1	9.8	11.1	6.4	-39.6%
Slovak Republic	23.5	23.7	32.0	33.3	30.7	21.1	16.0	15.6	15.1	14.4	14.1	-54.0%
Slovenia	..	..	..	..	5.7	4.9	5.5	6.3	6.2	5.8	5.9	4.5%
Spain	36.8	37.4	47.7	69.1	73.5	71.3	81.5	80.0	52.9	40.2	31.4	-57.3%
Sweden	5.4	6.9	5.4	10.6	10.4	9.4	8.1	9.8	8.9	6.1	9.4	-10.0%
Switzerland	2.0	1.0	1.4	2.0	1.4	0.8	0.6	0.6	0.6	0.6	0.6	-57.0%
Turkey	16.0	20.7	26.8	45.1	57.9	60.7	88.9	86.3	115.4	112.3	119.7	106.9%
United Kingdom	348.4	274.2	266.1	236.8	238.2	174.1	138.6	145.5	136.7	114.0	117.0	-50.9%
OECD Europe ***	**1 690.0**	**1 547.5**	**1 758.4**	**1 832.7**	**1 703.3**	**1 396.8**	**1 279.9**	**1 264.9**	**1 237.8**	**1 102.4**	**1 154.4**	**-32.2%**
European Union - 27	*..*	*..*	*..*	*..*	*1 733.6*	*1 403.5*	*1 241.1*	*1 238.7*	*1 187.9*	*1 044.8*	*1 089.0*	*-37.2%*

* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.
** Includes Estonia and Slovenia prior to 1990.
*** Excludes Estonia and Slovenia prior to 1990.

CO_2 emissions: Sectoral Approach - Coal/peat

million tonnes of CO_2

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Non-OECD Total *	**2 047.5**	**2 462.4**	**2 950.7**	**3 335.5**	**4 147.8**	**4 514.2**	**4 500.1**	**6 582.8**	**8 252.8**	**8 495.3**	**8 884.4**	**114.2%**
Albania	1.2	1.6	2.5	3.7	2.4	0.1	0.1	0.1	0.1	0.2	0.2	-89.8%
Armenia	..	..	..	..	1.0	0.0	-	-	-	-	-	..
Azerbaijan	..	..	..	..	0.3	0.0	-	-	-	-	-	..
Belarus	..	..	..	..	9.2	5.2	3.5	2.3	1.9	1.9	2.0	-77.8%
Bosnia and Herzegovina	..	..	..	..	17.3	1.4	9.9	11.7	15.0	14.9	15.2	-12.4%
Bulgaria	33.2	35.0	37.8	42.2	36.8	29.6	25.4	27.7	30.8	26.1	27.9	-24.2%
Croatia	..	..	..	..	3.4	0.7	1.7	2.7	2.8	2.0	2.7	-21.1%
Cyprus	-	-	-	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	-69.9%
Georgia	..	..	..	..	3.4	0.1	0.0	0.0	0.3	0.5	0.1	-95.8%
Gibraltar	-	-	-	-	-	-	-	-	-	-	-	-
Kazakhstan	..	..	..	..	153.3	111.6	75.6	102.8	142.0	123.3	131.8	-14.0%
Kosovo **	..	..	..	..	..	..	4.0	5.1	5.8	6.6	6.9	..
Kyrgyzstan	..	..	..	..	10.0	1.3	1.9	2.2	2.2	2.4	2.4	-75.7%
Latvia	..	..	..	..	2.7	1.1	0.5	0.3	0.4	0.3	0.4	-84.7%
Lithuania	..	..	..	..	3.1	1.0	0.4	0.8	0.9	0.6	0.8	-74.5%
FYR of Macedonia	..	..	..	..	5.5	5.9	5.5	6.0	6.2	5.5	5.4	-2.1%
Malta	-	-	-	0.5	0.7	0.1	-	-	-	-	-	..
Republic of Moldova	..	..	..	..	7.8	2.3	0.4	0.3	0.3	0.3	0.3	-95.6%
Montenegro **	..	..	..	..	..	..	..	1.2	1.6	0.9	1.7	..
Romania	31.2	38.0	48.9	57.6	49.7	40.5	28.7	35.2	37.5	30.7	28.9	-41.9%
Russian Federation	..	..	..	..	687.1	483.9	441.4	407.3	421.7	404.9	396.7	-42.3%
Serbia **	..	..	..	..	41.3	36.2	35.0	33.3	34.6	32.7	31.7	-23.3%
Tajikistan	..	..	..	..	2.5	0.1	0.0	0.2	0.4	0.4	0.4	-85.2%
Turkmenistan	..	..	..	..	1.2	-	-	-	-	-	-	..
Ukraine	..	..	..	..	283.0	161.2	116.3	123.4	144.7	119.8	127.3	-55.0%
Uzbekistan	..	..	..	..	13.7	4.4	5.1	4.6	5.1	5.5	4.9	-64.0%
Former Soviet Union ***	875.2	1 028.9	1 141.8	982.9	..	..	..	..	..	..	..	..
Former Yugoslavia ***	35.8	40.5	42.6	72.4	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	**976.6**	**1 143.9**	**1 273.5**	**1 159.5**	**1 335.6**	**886.8**	**755.8**	**767.3**	**854.3**	**779.5**	**788.1**	**-41.0%**
Algeria	0.4	0.3	0.2	1.0	1.3	1.4	0.7	1.0	1.2	0.7	0.7	-46.9%
Angola	-	-	-	-	-	-	-	-	-	-	-	-
Benin	-	-	-	-	-	-	-	-	-	-	-	-
Botswana	..	..	..	1.1	1.9	2.2	2.5	2.4	1.9	1.8	1.9	-0.5%
Cameroon	-	-	-	-	-	-	-	-	-	-	-	-
Congo	-	-	-	-	-	-	-	-	-	-	-	-
Dem. Rep. of Congo	1.0	0.8	0.8	0.8	0.9	1.0	0.8	1.0	1.1	1.2	1.2	42.9%
Côte d'Ivoire	-	-	-	-	-	-	-	-	-	-	-	-
Egypt	1.3	2.2	2.1	2.7	2.7	3.0	3.0	3.2	3.0	2.9	2.8	5.0%
Eritrea	..	..	..	..	..	-	-	-	-	-	-	..
Ethiopia	-	-	-	-	-	-	-	-	-	-	-	-
Gabon	-	-	-	-	-	-	-	-	-	-	-	-
Ghana	-	-	-	-	-	-	-	-	-	-	-	-
Kenya	0.2	0.1	0.0	0.2	0.4	0.2	0.2	0.2	0.3	0.2	0.4	9.3%
Libya	-	-	-	-	-	-	-	-	-	-	-	-
Morocco	1.2	1.7	1.6	2.7	4.1	6.7	10.3	12.7	11.4	10.5	10.8	162.0%
Mozambique	1.5	1.2	0.7	0.2	0.1	0.1	-	-	0.0	0.0	0.0	-82.8%
Namibia	..	..	..	..	..	0.0	0.0	0.0	0.9	0.4	0.3	..
Nigeria	0.5	0.6	0.4	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	-89.5%
Senegal	-	-	-	-	-	-	-	0.4	0.5	0.6	0.6	x
South Africa	129.2	167.4	173.7	189.2	207.2	225.7	247.6	270.1	312.5	296.4	291.0	40.4%
Sudan	-	-	0.0	-	-	-	-	-	-	-	-	-
United Rep. of Tanzania	-	-	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.3	+
Togo	-	-	-	-	-	-	-	-	-	-	-	-
Tunisia	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-	-	-	-	..
Zambia	2.0	1.9	1.4	1.1	0.9	0.3	0.3	0.3	0.0	0.0	0.0	-99.5%
Zimbabwe	5.6	5.0	6.1	7.5	13.4	11.2	9.7	8.3	6.2	6.6	7.1	-46.6%
Other Africa	0.5	0.7	0.6	0.7	1.0	0.7	1.6	1.8	2.5	2.3	2.4	144.2%
Africa	**143.6**	**182.3**	**187.9**	**207.9**	**234.4**	**253.0**	**277.0**	**301.6**	**341.7**	**323.9**	**319.7**	**36.4%**

* Includes Estonia and Slovenia prior to 1990.

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

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

CO_2 emissions: Sectoral Approach - Coal/peat

million tonnes of CO_2

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Bangladesh	0.4	0.5	0.5	0.2	1.1	1.2	1.3	1.4	2.4	2.4	2.4	123.3%
Brunei Darussalam	-	-	-	-	-	-	-	-	-	-	-	-
Cambodia	..	..	..	..	..	-	-	-	-	0.0	0.0	..
Chinese Taipei	10.0	8.4	14.6	26.0	42.3	63.7	109.6	145.3	150.7	144.5	154.8	265.9%
India	142.6	176.1	195.4	283.7	395.9	517.3	623.6	786.5	985.0	1 073.9	1 096.8	177.0%
Indonesia	0.5	0.5	0.5	4.5	17.6	26.0	51.4	85.8	113.1	111.5	124.5	608.8%
DPR of Korea	64.9	72.5	97.5	119.0	106.1	70.9	65.4	71.0	66.3	63.8	61.0	-42.5%
Malaysia	0.0	0.0	0.2	1.4	5.1	6.5	9.6	26.7	38.0	41.0	58.0	+
Mongolia	..	..	..	9.4	10.2	9.0	7.5	7.8	8.7	9.4	9.4	-8.1%
Myanmar	0.6	0.6	0.6	0.6	0.3	0.1	1.3	1.3	1.5	1.4	1.6	511.4%
Nepal	0.0	0.1	0.2	0.0	0.2	0.3	1.0	1.0	0.7	0.7	0.8	381.4%
Pakistan	2.5	2.2	2.6	4.8	7.1	7.8	6.7	13.7	16.8	16.5	15.7	121.7%
Philippines	0.1	0.2	1.5	5.4	5.2	7.0	19.5	22.3	26.7	25.6	29.5	466.3%
Singapore	0.0	0.0	0.0	0.1	0.1	0.1	-	0.0	0.0	0.0	0.0	-65.4%
Sri Lanka	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.3	0.3	+
Thailand	0.5	0.6	1.9	6.5	16.1	29.4	31.4	46.9	60.4	58.6	64.2	299.5%
Vietnam	5.6	10.0	9.2	11.3	9.0	13.4	17.6	33.3	47.3	50.8	59.0	558.5%
Other Asia	4.1	4.3	7.7	0.9	0.8	0.6	1.3	1.6	2.9	3.0	3.2	284.3%
Asia	**231.8**	**276.1**	**332.4**	**473.9**	**617.0**	**753.3**	**947.3**	**1 244.9**	**1 520.7**	**1 603.4**	**1 681.2**	**172.5%**
People's Rep. of China	677.9	837.9	1 125.0	1 435.4	1 889.3	2 538.9	2 433.1	4 169.6	5 431.9	5 689.1	5 988.0	216.9%
Hong Kong, China	0.1	0.1	0.2	12.8	24.4	24.4	17.7	27.2	28.5	30.8	26.1	6.8%
China	**678.0**	**838.1**	**1 125.2**	**1 448.1**	**1 913.7**	**2 563.2**	**2 450.9**	**4 196.8**	**5 460.4**	**5 720.0**	**6 014.0**	**214.3%**
Argentina	3.2	3.3	3.0	3.4	3.4	4.7	4.5	4.8	4.8	4.8	5.2	53.1%
Bolivia	-	-	-	0.2	-	-	-	-	-	-	-	-
Brazil	6.8	8.3	17.3	29.4	28.5	36.4	45.1	44.4	47.3	38.5	51.9	81.8%
Colombia	5.6	6.6	7.5	8.8	10.7	12.4	11.4	9.7	9.7	11.3	8.5	-20.3%
Costa Rica	0.0	0.0	0.0	0.0	-	-	0.0	0.1	0.3	0.3	0.3	x
Cuba	0.2	0.1	0.4	0.5	0.6	0.3	0.1	0.1	0.1	0.1	0.1	-89.0%
Dominican Republic	-	-	-	0.5	0.0	0.2	0.2	1.1	2.2	2.2	2.1	+
Ecuador	-	-	-	-	-	-	-	-	-	-	-	-
El Salvador	-	-	0.0	-	-	0.0	0.0	0.0	-	-	-	-
Guatemala	-	-	0.1	-	-	-	0.5	1.0	1.1	0.7	1.2	x
Haiti	-	-	-	0.1	0.0	-	-	-	-	-	-	..
Honduras	-	-	-	-	0.0	0.0	0.3	0.4	0.5	0.5	0.5	+
Jamaica	-	-	-	-	0.1	0.1	0.1	0.1	0.1	0.1	0.1	3.8%
Netherlands Antilles	-	-	-	-	-	-	-	-	-	-	-	-
Nicaragua	-	-	-	-	-	-	-	-	-	-	-	-
Panama	0.0	0.0	-	0.1	0.1	0.1	0.1	1.0	0.1	0.2	0.3	317.9%
Paraguay	-	-	-	-	-	-	-	-	-	-	-	-
Peru	0.5	0.6	0.6	0.7	0.6	1.4	2.4	3.5	3.7	3.3	3.6	533.1%
Trinidad and Tobago	-	-	-	-	-	-	-	-	-	-	-	-
Uruguay	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-60.7%
Venezuela	0.6	1.0	0.6	0.7	1.8	0.0	0.5	0.1	0.5	0.9	0.8	-57.2%
Other Non-OECD Americas	0.1	0.1	0.1	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	299.9%
Non-OECD Americas	**17.0**	**20.0**	**29.6**	**44.5**	**45.9**	**55.6**	**65.4**	**66.5**	**70.3**	**62.9**	**74.6**	**62.6%**
Bahrain	-	-	-	-	-	-	-	-	-	-	-	-
Islamic Republic of Iran	0.4	2.1	1.9	1.6	1.2	1.8	3.2	4.5	3.4	3.2	3.2	173.5%
Iraq	-	-	-	-	-	-	-	-	-	-	-	-
Jordan	-	-	-	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-	-	-	-
Lebanon	0.0	0.0	0.0	-	-	0.5	0.5	0.5	0.5	0.3	0.9	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	1.3	2.1	2.8	x
Yemen	-	-	-	-	-	-	-	-	-	-	-	-
Middle East	**0.4**	**2.1**	**2.0**	**1.6**	**1.2**	**2.3**	**3.7**	**5.6**	**5.3**	**5.6**	**6.9**	**483.5%**

CO_2 emissions: Sectoral Approach - Oil

million tonnes of CO_2

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
World *	**6 824.1**	**7 785.9**	**8 719.7**	**8 085.6**	**8 824.5**	**9 122.4**	**9 893.8**	**10 725.0**	**10 843.8**	**10 606.6**	**10 890.5**	**23.4%**
Annex I Parties	*..*	*..*	*..*	*..*	*5 686.4*	*5 332.7*	*5 489.0*	*5 654.7*	*5 304.9*	*5 018.0*	*5 026.0*	*-11.6%*
Annex II Parties	*4 522.9*	*4 773.7*	*4 914.7*	*4 232.8*	*4 485.3*	*4 624.8*	*4 852.1*	*5 022.4*	*4 635.5*	*4 376.6*	*4 397.1*	*-2.0%*
North America	*2 232.9*	*2 341.6*	*2 427.9*	*2 164.8*	*2 251.2*	*2 265.8*	*2 517.9*	*2 705.0*	*2 478.9*	*2 344.4*	*2 378.2*	*5.6%*
Europe	*1 657.7*	*1 700.3*	*1 750.2*	*1 431.1*	*1 477.4*	*1 560.7*	*1 566.6*	*1 573.7*	*1 489.3*	*1 404.5*	*1 386.8*	*-6.1%*
Asia Oceania	*632.3*	*731.8*	*736.6*	*636.9*	*756.7*	*798.4*	*767.7*	*743.7*	*667.3*	*627.6*	*632.1*	*-16.5%*
Annex I EIT	*..*	*..*	*..*	*..*	*1 137.0*	*626.8*	*552.0*	*552.5*	*589.0*	*562.5*	*553.6*	*-51.3%*
Non-Annex I Parties	*..*	*..*	*..*	*..*	*2 520.3*	*3 083.3*	*3 565.9*	*4 090.7*	*4 471.6*	*4 559.2*	*4 765.5*	*89.1%*
Annex I Kyoto Parties	*..*	*..*	*..*	*..*	*3 492.7*	*3 167.4*	*3 101.1*	*3 121.2*	*2 987.6*	*2 822.1*	*2 813.1*	*-19.5%*
Intl. marine bunkers	**344.2**	**331.7**	**347.9**	**297.7**	**362.5**	**419.5**	**488.8**	**565.8**	**620.2**	**601.8**	**643.7**	**77.6%**
Intl. aviation bunkers	**167.3**	**171.8**	**199.7**	**222.0**	**255.3**	**286.8**	**350.1**	**413.8**	**447.1**	**427.6**	**455.3**	**78.3%**
Non-OECD Total **	**1 560.0**	**2 184.3**	**2 819.6**	**2 885.4**	**3 172.7**	**3 106.5**	**3 478.6**	**4 002.9**	**4 415.7**	**4 492.7**	**4 683.2**	**47.6%**
OECD Total ***	**4 752.7**	**5 098.0**	**5 352.4**	**4 680.4**	**5 034.0**	**5 309.5**	**5 576.3**	**5 742.5**	**5 360.8**	**5 084.5**	**5 108.2**	**1.5%**
Canada	209.8	233.2	246.7	188.8	209.4	212.2	237.1	272.2	263.3	253.6	261.5	24.9%
Chile	14.5	12.4	15.1	13.0	19.1	27.8	30.4	34.1	47.3	44.8	42.7	123.1%
Mexico	71.7	106.5	161.6	186.5	198.6	215.3	256.1	259.3	264.2	254.3	254.6	28.2%
United States	2 023.0	2 108.4	2 181.2	1 976.0	2 041.8	2 053.5	2 280.8	2 432.8	2 215.6	2 090.8	2 116.7	3.7%
OECD Americas	**2 319.1**	**2 460.5**	**2 604.6**	**2 364.3**	**2 468.9**	**2 508.9**	**2 804.4**	**2 998.5**	**2 790.4**	**2 643.4**	**2 675.5**	**8.4%**
Australia	66.8	80.8	87.3	79.9	89.3	94.6	104.7	112.8	118.4	115.5	117.2	31.2%
Israel	14.2	17.0	19.4	17.3	24.2	30.1	30.1	26.6	27.8	26.5	29.1	20.3%
Japan	556.2	639.4	638.6	547.4	655.4	689.5	647.1	613.0	530.4	494.5	497.4	-24.1%
Korea	30.9	46.2	76.2	73.1	135.3	234.1	219.6	203.8	181.1	182.1	186.6	37.9%
New Zealand	9.3	11.6	10.7	9.6	12.0	14.3	15.8	17.9	18.4	17.5	17.6	46.6%
OECD Asia Oceania	**677.4**	**795.0**	**832.3**	**727.2**	**916.3**	**1 062.5**	**1 017.4**	**974.1**	**876.1**	**836.2**	**847.9**	**-7.5%**
Austria	27.2	29.2	33.0	26.9	27.7	29.9	31.2	37.9	34.2	32.2	33.0	19.3%
Belgium	63.3	60.4	65.0	46.7	48.7	55.4	56.9	57.9	57.0	52.2	52.8	8.3%
Czech Republic	19.9	27.9	30.6	27.9	23.0	20.5	20.2	24.9	24.9	23.8	22.8	-0.6%
Denmark	49.0	44.2	38.5	30.2	22.0	24.4	23.5	21.7	21.1	20.1	19.7	-10.7%
Estonia	..	..	..	..	9.3	3.5	2.7	3.1	3.1	2.8	3.0	-68.0%
Finland	31.4	33.6	33.9	26.9	28.2	26.2	25.9	26.4	25.6	24.9	25.8	-8.4%
France	277.3	293.5	292.8	214.5	220.1	227.3	234.0	237.0	223.8	216.3	211.4	-3.9%
Germany	385.7	392.4	385.9	326.6	322.3	344.2	321.9	292.9	279.3	267.7	266.1	-17.5%
Greece	18.4	23.5	32.0	29.6	36.5	39.1	45.7	51.7	50.7	48.5	44.0	20.5%
Hungary	18.6	27.2	29.8	27.0	22.7	19.8	17.3	16.8	17.2	17.2	15.9	-29.9%
Iceland	1.4	1.6	1.7	1.4	1.6	1.7	1.7	1.8	1.7	1.7	1.6	-3.7%
Ireland	12.9	14.0	16.2	11.4	12.1	15.7	22.9	24.9	24.3	21.1	19.9	64.2%
Italy	237.3	248.6	267.5	229.6	252.3	261.1	248.0	231.8	211.6	191.2	184.9	-26.7%
Luxembourg	4.1	3.8	3.0	2.9	4.4	4.7	5.9	8.2	7.5	7.0	7.4	66.0%
Netherlands	68.1	56.8	83.5	55.6	52.7	57.8	60.7	68.5	69.9	64.7	65.4	24.1%
Norway	19.8	19.8	22.0	19.8	20.0	20.4	21.0	22.8	22.9	23.0	24.0	19.9%
Poland	21.9	33.5	42.8	39.2	34.5	40.9	51.5	57.9	63.8	63.8	66.6	93.1%
Portugal	12.0	16.5	22.2	21.8	28.7	34.4	39.8	40.4	33.3	31.8	30.6	6.9%
Slovak Republic	12.6	15.2	18.1	14.3	14.4	7.1	6.8	9.1	9.7	8.8	9.6	-33.2%
Slovenia	..	..	..	..	5.0	6.7	6.7	7.2	8.5	7.4	7.3	45.6%
Spain	82.4	117.3	136.9	101.6	120.9	143.1	166.8	191.4	181.8	168.5	163.7	35.4%
Sweden	77.1	72.5	67.6	47.3	40.1	45.4	41.5	36.6	31.9	31.0	32.8	-18.3%
Switzerland	36.9	34.8	36.0	35.8	34.2	33.5	33.2	34.2	33.1	32.1	32.7	-4.3%
Turkey	25.4	38.5	44.1	49.4	62.5	78.9	82.7	77.1	77.8	76.5	72.8	16.4%
United Kingdom	253.5	238.0	212.7	202.5	204.7	196.4	185.8	187.6	179.7	170.6	171.1	-16.4%
OECD Europe ***	**1 756.2**	**1 842.6**	**1 915.6**	**1 588.9**	**1 648.8**	**1 738.1**	**1 754.5**	**1 769.9**	**1 694.3**	**1 604.9**	**1 584.9**	**-3.9%**
European Union - 27	*..*	*..*	*..*	*..*	*1 641.6*	*1 670.8*	*1 671.1*	*1 695.1*	*1 620.4*	*1 528.5*	*1 508.3*	*-8.1%*

* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.
** Includes Estonia and Slovenia prior to 1990.
*** Excludes Estonia and Slovenia prior to 1990.

CO_2 emissions: Sectoral Approach - Oil

million tonnes of CO_2

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Non-OECD Total *	**1 560.0**	**2 184.3**	**2 819.6**	**2 885.4**	**3 172.7**	**3 106.5**	**3 478.6**	**4 002.9**	**4 415.7**	**4 492.7**	**4 683.2**	**47.6%**
Albania	2.5	2.3	4.4	2.8	3.4	1.7	3.0	4.0	3.8	3.3	3.5	2.4%
Armenia	..	..	..	..	11.2	0.7	0.8	1.0	1.0	1.0	1.0	-90.8%
Azerbaijan	..	..	..	..	33.1	19.5	19.0	15.2	10.0	8.0	8.6	-74.1%
Belarus	..	..	..	..	87.8	30.6	22.3	20.9	21.3	26.1	20.9	-76.2%
Bosnia and Herzegovina	..	..	..	..	5.4	1.5	3.2	3.2	4.1	4.0	4.3	-20.9%
Bulgaria	29.1	34.9	38.6	28.0	26.0	13.7	10.3	12.0	11.7	11.3	10.8	-58.3%
Croatia	..	..	..	..	13.5	11.0	11.3	12.9	12.6	12.5	10.6	-21.1%
Cyprus	1.8	1.7	2.6	2.6	3.6	5.0	6.1	6.8	7.4	7.4	7.1	97.3%
Georgia	..	..	..	..	19.2	5.8	2.3	2.1	2.2	2.5	2.6	-86.4%
Gibraltar	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.5	0.5	0.5	0.5	193.9%
Kazakhstan	..	..	..	..	58.3	32.5	22.1	25.8	38.2	28.3	46.7	-19.9%
Kosovo **	..	..	..	..	..	..	1.0	1.3	1.6	1.6	1.5	..
Kyrgyzstan	..	..	..	..	8.9	1.4	1.2	1.4	2.2	3.5	3.6	-59.0%
Latvia	..	..	..	..	10.4	5.5	3.8	4.1	4.4	4.0	4.1	-60.3%
Lithuania	..	..	..	..	19.7	8.9	6.5	7.5	8.1	7.2	7.2	-63.6%
FYR of Macedonia	..	..	..	..	3.0	2.3	2.7	2.6	2.6	2.7	2.6	-13.7%
Malta	0.6	0.6	1.0	0.7	1.6	2.2	2.1	2.7	2.6	2.5	2.5	57.8%
Republic of Moldova	..	..	..	..	14.8	3.1	1.2	1.9	2.2	2.0	2.2	-84.9%
Montenegro **	..	..	..	..	..	..	..	0.2	0.3	0.4	0.4	..
Romania	31.5	40.0	51.6	41.1	49.9	31.9	26.5	28.0	27.2	24.7	22.7	-54.5%
Russian Federation	..	..	..	..	625.4	351.2	332.4	309.9	336.2	314.9	314.8	-49.7%
Serbia **	..	..	..	..	14.1	4.8	4.1	11.5	10.8	10.5	10.2	-27.7%
Tajikistan	..	..	..	..	5.2	1.2	0.7	0.9	1.6	1.6	1.7	-67.7%
Turkmenistan	..	..	..	..	16.0	7.7	9.9	11.8	13.8	12.8	12.2	-23.9%
Ukraine	..	..	..	..	195.5	75.4	33.7	38.2	40.2	38.0	37.2	-81.0%
Uzbekistan	..	..	..	..	30.6	19.8	19.1	13.7	11.8	11.9	10.3	-66.4%
Former Soviet Union ***	688.9	1 018.6	1 210.0	1 193.3	..	..	..	..	..	..	..	..
Former Yugoslavia ***	25.5	31.8	39.2	38.3	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	**780.0**	**1 130.0**	**1 347.5**	**1 307.0**	**1 256.6**	**637.9**	**545.9**	**540.1**	**578.5**	**543.0**	**549.8**	**-56.2%**
Algeria	6.2	9.1	14.8	20.5	24.0	23.0	25.3	31.7	37.8	43.2	44.0	83.2%
Angola	1.6	1.9	2.5	2.7	3.0	2.9	4.0	6.0	11.5	12.8	15.2	411.0%
Benin	0.3	0.5	0.4	0.5	0.3	0.2	1.4	2.7	3.8	4.2	4.5	+
Botswana	..	..	..	0.5	1.0	1.2	1.7	2.0	2.6	2.5	2.7	170.0%
Cameroon	0.7	1.0	1.7	2.4	2.7	2.5	2.8	2.9	3.7	4.3	4.5	70.0%
Congo	0.6	0.6	0.7	0.8	0.6	0.5	0.5	0.8	1.3	1.4	1.6	157.6%
Dem. Rep. of Congo	1.5	1.8	2.3	2.4	2.1	1.1	0.8	1.3	1.7	1.7	1.8	-13.5%
Côte d'Ivoire	2.4	3.0	3.4	3.0	2.6	3.1	3.2	2.9	3.4	3.2	2.7	2.1%
Egypt	18.8	23.4	36.4	54.1	60.8	57.2	65.9	81.9	90.8	90.1	89.5	47.3%
Eritrea	..	..	..	..	..	0.8	0.6	0.6	0.5	0.5	0.5	..
Ethiopia	1.3	1.2	1.4	1.4	2.2	2.4	3.2	4.5	5.7	5.7	5.4	142.8%
Gabon	0.5	0.7	1.3	1.6	0.7	1.1	1.1	1.9	2.0	2.1	2.3	228.8%
Ghana	1.9	2.3	2.3	2.2	2.7	3.3	5.1	6.4	7.4	9.1	9.5	250.1%
Kenya	3.0	3.4	4.4	4.4	5.1	5.4	6.6	7.0	8.3	10.0	10.5	103.9%
Libya	1.6	6.7	13.1	15.5	18.3	26.6	30.9	32.1	35.2	38.0	39.3	114.2%
Morocco	5.6	8.1	12.3	13.6	15.4	19.2	19.0	26.6	31.0	31.0	33.8	119.3%
Mozambique	1.4	1.1	1.6	1.2	0.9	1.0	1.3	1.5	1.8	2.0	2.2	129.6%
Namibia	..	..	..	..	..	1.7	1.8	2.4	2.7	2.9	3.0	..
Nigeria	5.0	10.1	23.4	25.2	22.1	21.9	30.0	38.5	31.5	29.8	30.0	35.7%
Senegal	1.2	1.6	2.0	2.1	2.1	2.4	3.6	4.3	4.5	4.6	4.8	127.3%
South Africa	27.5	34.1	35.1	39.6	46.4	48.8	49.1	59.0	74.6	72.3	55.8	20.3%
Sudan	3.3	3.3	3.7	4.2	5.5	4.6	5.5	9.2	12.4	13.5	13.7	148.8%
United Rep. of Tanzania	1.5	1.5	1.6	1.5	1.7	2.4	2.4	4.2	4.5	4.1	4.2	149.5%
Togo	0.3	0.3	0.4	0.3	0.6	0.6	1.0	1.0	1.1	1.1	1.2	106.2%
Tunisia	3.4	4.0	6.7	7.1	9.0	9.4	11.3	12.5	12.4	12.0	11.9	33.0%
Zambia	1.5	2.5	1.9	1.7	1.7	1.7	1.4	1.8	1.6	1.7	1.9	10.9%
Zimbabwe	1.6	2.1	1.8	2.0	2.6	3.6	3.0	2.1	1.7	1.8	1.9	-26.4%
Other Africa	7.1	8.5	12.4	10.9	13.4	16.0	17.6	21.4	24.4	24.6	25.5	89.3%
Africa	**99.9**	**132.9**	**187.7**	**221.5**	**247.7**	**264.4**	**300.3**	**368.9**	**419.6**	**430.2**	**423.9**	**71.2%**

* Includes Estonia and Slovenia prior to 1990.

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

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

CO_2 emissions: Sectoral Approach - Oil

million tonnes of CO_2

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Bangladesh	2.2	3.3	4.6	4.6	5.2	8.4	9.5	12.9	13.4	14.3	15.4	197.9%
Brunei Darussalam	0.2	0.2	0.5	0.6	0.9	1.3	1.4	1.6	2.0	2.0	2.0	136.0%
Cambodia	..	..	..	..	..	1.5	2.0	2.6	3.5	3.6	3.7	..
Chinese Taipei	19.0	31.3	54.9	43.5	68.8	86.6	95.0	94.3	84.7	79.8	82.6	20.1%
India	56.3	63.3	85.3	119.3	165.8	223.9	301.8	309.9	377.3	385.4	415.8	150.7%
Indonesia	24.4	36.4	61.0	70.0	97.9	134.3	166.4	189.2	190.4	194.9	209.5	113.9%
DPR of Korea	2.6	4.2	8.0	7.4	7.9	3.9	3.1	2.8	2.7	2.0	1.9	-75.3%
Malaysia	12.6	16.0	23.9	27.9	37.6	53.2	57.5	64.8	69.8	67.7	67.2	78.9%
Mongolia	..	..	..	2.2	2.4	1.0	1.3	1.7	2.5	2.3	2.5	2.1%
Myanmar	3.9	3.0	3.9	3.5	2.1	4.0	5.4	6.2	3.2	3.3	3.3	58.5%
Nepal	0.2	0.2	0.3	0.5	0.7	1.5	2.1	2.1	2.1	2.7	2.9	297.7%
Pakistan	8.8	11.0	13.2	20.9	30.6	43.7	56.1	47.2	57.5	61.2	61.8	101.7%
Philippines	23.0	28.9	31.8	23.0	33.0	50.1	48.0	41.8	36.5	37.7	39.8	20.5%
Singapore	6.1	8.4	12.6	16.1	29.0	38.1	44.5	35.9	37.6	39.1	45.2	55.6%
Sri Lanka	2.8	2.7	3.7	3.6	3.7	5.5	10.6	13.2	12.0	11.8	13.1	251.3%
Thailand	15.8	20.6	31.8	28.5	52.7	90.8	86.1	109.2	97.7	103.2	108.2	105.1%
Vietnam	10.6	6.7	5.6	5.8	8.2	13.9	23.8	35.5	39.7	46.4	52.5	537.4%
Other Asia	3.8	5.4	8.6	8.0	8.8	8.2	9.4	13.3	13.8	15.9	17.0	91.9%
Asia	**192.1**	**241.6**	**349.9**	**385.3**	**555.5**	**770.1**	**923.9**	**984.0**	**1 046.5**	**1 073.3**	**1 144.3**	**106.0%**
People's Rep. of China	115.2	195.9	252.4	247.6	296.1	415.5	560.7	809.9	926.5	947.9	1 017.2	243.5%
Hong Kong, China	9.0	10.7	14.3	9.2	8.4	11.6	16.4	8.4	8.3	9.7	8.9	5.3%
China	**124.2**	**206.6**	**266.8**	**256.9**	**304.6**	**427.1**	**577.1**	**818.3**	**934.9**	**957.6**	**1 026.1**	**236.9%**
Argentina	67.3	65.1	70.9	54.4	53.1	62.1	66.0	67.7	78.7	73.8	79.5	49.8%
Bolivia	2.0	2.9	3.6	3.3	3.7	4.6	4.7	5.7	7.2	7.4	8.0	116.6%
Brazil	83.9	127.8	160.9	133.6	158.8	195.3	241.1	240.0	265.6	260.6	284.0	78.9%
Colombia	18.1	18.6	20.7	22.3	26.8	36.4	34.6	33.5	34.4	32.7	34.0	27.0%
Costa Rica	1.3	1.7	2.2	2.0	2.6	4.4	4.5	5.6	6.3	6.0	6.3	141.3%
Cuba	20.1	23.4	29.7	31.2	33.1	21.8	25.9	23.6	22.6	29.4	27.9	-15.5%
Dominican Republic	3.4	5.2	6.3	5.6	7.6	11.2	17.2	15.9	16.1	14.9	14.8	94.6%
Ecuador	3.5	5.9	10.5	11.7	12.7	15.6	17.5	23.3	25.6	28.2	29.0	128.6%
El Salvador	1.4	2.0	1.7	1.8	2.2	4.6	5.2	6.1	6.2	6.2	5.9	162.8%
Guatemala	2.3	3.0	4.2	3.2	3.2	5.8	7.9	9.5	9.1	10.4	9.1	184.6%
Haiti	0.4	0.4	0.6	0.6	0.9	0.9	1.4	2.0	2.3	2.4	2.1	132.2%
Honduras	1.1	1.3	1.7	1.7	2.2	3.5	4.1	6.5	7.3	6.9	6.8	216.8%
Jamaica	5.5	7.4	6.5	4.6	7.1	8.2	9.6	10.3	11.7	8.1	7.8	10.9%
Netherlands Antilles	14.4	10.2	8.7	4.6	2.7	2.8	4.1	4.2	4.3	5.0	3.8	39.1%
Nicaragua	1.5	1.8	1.8	1.8	1.8	2.5	3.5	4.0	4.1	4.1	4.5	143.6%
Panama	2.5	3.1	2.9	2.6	2.5	4.0	4.8	5.8	6.5	7.6	8.1	225.9%
Paraguay	0.6	0.7	1.4	1.4	1.9	3.4	3.3	3.4	3.8	4.1	4.7	145.2%
Peru	14.4	17.0	18.9	16.2	17.6	21.8	23.0	21.5	24.4	25.4	25.5	44.7%
Trinidad and Tobago	2.7	3.0	2.8	2.5	2.1	2.2	2.6	4.0	4.2	4.3	4.7	126.4%
Uruguay	5.1	5.4	5.5	3.1	3.7	4.5	5.2	5.1	7.5	7.6	6.3	68.8%
Venezuela	30.7	37.5	59.1	56.0	57.0	59.9	64.6	84.1	95.5	99.2	109.7	92.7%
Other Non-OECD Americas	7.7	10.7	10.1	9.1	12.4	13.4	14.4	15.3	16.1	16.5	16.9	36.2%
Non-OECD Americas	**290.1**	**354.3**	**430.8**	**373.4**	**415.6**	**489.1**	**565.0**	**597.1**	**659.6**	**660.7**	**699.5**	**68.3%**
Bahrain	1.2	1.2	1.7	1.8	2.1	2.4	2.5	3.6	4.1	4.4	4.7	126.9%
Islamic Republic of Iran	35.8	61.4	79.7	128.0	140.5	169.5	190.7	223.6	241.1	245.2	226.1	60.9%
Iraq	8.6	12.4	24.5	35.2	49.6	91.4	64.3	71.4	67.0	82.9	94.7	90.8%
Jordan	1.3	2.1	4.3	7.4	9.0	11.7	13.9	14.8	12.1	12.1	13.3	47.4%
Kuwait	4.1	5.2	13.4	27.4	17.2	18.4	30.8	46.7	49.6	57.1	59.4	245.0%
Lebanon	4.5	5.6	6.6	6.5	5.5	12.4	13.6	14.0	15.3	18.7	17.3	216.1%
Oman	0.3	0.7	1.5	3.6	5.3	8.0	8.8	12.2	17.4	19.1	19.0	256.6%
Qatar	0.3	0.7	1.4	1.6	1.9	2.4	2.8	7.8	9.9	11.5	11.6	510.1%
Saudi Arabia	10.0	17.1	77.9	88.5	111.5	143.4	175.1	209.5	254.9	278.4	300.2	169.3%
Syrian Arab Republic	6.0	9.0	13.0	20.8	25.0	28.0	29.4	44.1	52.0	44.3	40.3	61.4%
United Arab Emirates	0.4	1.6	9.5	15.8	18.8	21.1	21.4	28.1	32.0	32.6	33.2	77.0%
Yemen	1.2	1.7	3.4	4.8	6.4	9.3	13.2	18.8	21.1	21.4	19.9	210.1%
Middle East	**73.8**	**118.9**	**237.0**	**341.4**	**392.8**	**518.0**	**566.4**	**694.6**	**776.6**	**827.8**	**839.6**	**113.8%**

CO_2 emissions: Sectoral Approach - Natural gas

million tonnes of CO_2

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
World *	**2 058.7**	**2 281.8**	**2 768.0**	**3 163.5**	**3 806.3**	**4 107.5**	**4 688.6**	**5 370.3**	**5 914.7**	**5 768.4**	**6 179.1**	**62.3%**
Annex I Parties	*..*	*..*	*..*	*..*	*3 070.2*	*3 178.2*	*3 471.3*	*3 646.7*	*3 809.2*	*3 633.8*	*3 854.5*	*25.5%*
Annex II Parties	*1 438.5*	*1 503.1*	*1 663.5*	*1 616.2*	*1 794.6*	*2 123.1*	*2 426.3*	*2 490.4*	*2 622.4*	*2 542.2*	*2 661.1*	*48.3%*
North America	*1 257.4*	*1 143.4*	*1 179.4*	*1 058.1*	*1 135.1*	*1 309.4*	*1 423.0*	*1 359.9*	*1 439.8*	*1 410.1*	*1 460.7*	*28.7%*
Europe	*168.1*	*331.0*	*414.3*	*446.1*	*505.1*	*631.3*	*783.8*	*894.7*	*907.4*	*856.8*	*910.8*	*80.3%*
Asia Oceania	*12.9*	*28.7*	*69.8*	*112.0*	*154.4*	*182.4*	*219.5*	*235.8*	*275.2*	*275.3*	*289.5*	*87.5%*
Annex I EIT	*..*	*..*	*..*	*..*	*1 269.1*	*1 042.1*	*1 016.2*	*1 103.5*	*1 116.6*	*1 024.1*	*1 120.2*	*-11.7%*
Non-Annex I Parties	*..*	*..*	*..*	*..*	*736.1*	*929.3*	*1 217.2*	*1 723.6*	*2 105.4*	*2 134.6*	*2 324.6*	*215.8%*
Annex I Kyoto Parties	*..*	*..*	*..*	*..*	*2 024.8*	*1 979.4*	*2 155.3*	*2 365.9*	*2 439.1*	*2 298.7*	*2 458.0*	*21.4%*
Intl. marine bunkers	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Intl. aviation bunkers	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Non-OECD Total **	**575.6**	**719.7**	**1 013.7**	**1 438.8**	**1 878.7**	**1 826.2**	**2 041.0**	**2 569.7**	**2 941.2**	**2 885.9**	**3 128.9**	**66.5%**
OECD Total ***	**1 483.1**	**1 562.1**	**1 754.3**	**1 724.7**	**1 927.6**	**2 281.4**	**2 647.6**	**2 800.6**	**2 973.5**	**2 882.4**	**3 050.2**	**58.2%**
Canada	67.9	87.3	99.7	113.9	123.8	149.1	168.1	170.2	180.0	175.6	178.5	44.2%
Chile	1.3	1.1	1.4	1.6	2.1	2.1	10.3	14.0	4.7	5.8	9.8	368.2%
Mexico	20.2	25.6	43.2	53.6	52.1	55.9	66.6	88.3	112.5	111.7	123.8	137.8%
United States	1 189.5	1 056.1	1 079.7	944.2	1 011.3	1 160.2	1 254.9	1 189.7	1 259.8	1 234.5	1 282.2	26.8%
OECD Americas	**1 278.9**	**1 170.1**	**1 224.0**	**1 113.3**	**1 189.3**	**1 367.4**	**1 499.9**	**1 462.2**	**1 556.9**	**1 527.6**	**1 594.4**	**34.1%**
Australia	4.1	8.9	16.7	24.4	32.8	37.7	43.9	54.8	62.8	63.7	66.5	102.8%
Israel	0.2	0.1	0.2	0.1	0.0	0.0	0.0	3.1	6.9	8.4	10.1	+
Japan	8.5	19.2	51.2	81.5	114.6	137.1	164.8	173.7	204.9	204.2	215.0	87.6%
Korea	-	-	-	-	6.4	19.4	39.9	63.8	74.9	72.0	90.2	+
New Zealand	0.2	0.6	1.8	6.1	7.0	7.6	10.8	7.3	7.5	7.5	8.0	14.0%
OECD Asia Oceania	**13.1**	**28.8**	**70.0**	**112.0**	**160.8**	**201.8**	**259.4**	**302.8**	**357.0**	**355.8**	**389.9**	**142.5%**
Austria	5.6	7.5	9.0	10.1	11.8	14.7	15.0	18.8	17.6	17.2	18.9	59.9%
Belgium	11.3	18.2	20.5	16.9	18.9	24.5	30.7	33.3	34.3	34.6	38.8	105.4%
Czech Republic	1.9	3.1	5.6	9.1	11.5	14.5	17.0	17.8	16.3	15.2	17.4	51.8%
Denmark	-	0.0	0.0	1.5	4.2	7.3	10.3	10.4	9.6	9.2	10.4	150.1%
Estonia	..	..	..	..	2.7	1.3	1.5	1.8	1.7	1.2	1.3	-51.6%
Finland	-	1.5	1.7	1.9	5.1	6.6	7.9	8.4	8.8	7.9	8.7	72.3%
France	19.2	33.0	47.4	54.5	56.1	65.8	81.1	92.5	90.4	86.8	95.6	70.5%
Germany	38.8	86.4	114.9	105.3	118.1	147.0	158.4	179.9	181.0	173.0	171.8	45.4%
Greece	-	-	-	0.1	0.2	0.1	3.9	5.4	8.1	6.6	7.2	+
Hungary	6.8	10.7	17.6	19.2	19.8	20.3	21.6	27.0	23.9	20.7	22.2	11.9%
Iceland	-	-	-	-	-	-	-	-	-	-	-	-
Ireland	-	-	1.7	4.5	4.0	5.0	7.7	8.2	10.2	9.9	10.8	172.9%
Italy	23.9	40.8	49.3	59.8	89.2	102.8	134.0	163.2	161.1	148.0	157.4	76.4%
Luxembourg	0.0	0.8	1.0	0.7	1.0	1.3	1.6	2.7	2.6	2.6	2.8	178.6%
Netherlands	47.0	72.5	69.4	75.3	70.2	78.6	79.7	80.7	79.7	80.5	90.1	28.2%
Norway	-	0.4	2.0	2.8	4.6	8.1	8.0	10.0	11.1	11.3	11.8	155.3%
Poland	11.4	13.5	17.6	18.2	18.5	18.3	20.6	26.2	26.8	26.1	27.9	51.2%
Portugal	-	-	-	-	-	-	4.6	8.6	9.5	9.6	10.5	x
Slovak Republic	2.9	4.9	5.1	6.7	11.7	11.7	13.1	13.2	11.2	9.8	11.2	-4.4%
Slovenia	..	..	..	..	1.8	1.7	1.8	2.1	2.0	1.9	2.0	9.1%
Spain	0.7	1.8	3.1	4.5	10.5	17.4	34.7	67.2	80.9	72.3	72.2	585.4%
Sweden	-	-	-	0.2	1.2	1.6	1.6	1.7	1.6	2.3	3.1	147.8%
Switzerland	0.0	1.0	1.9	2.9	3.8	5.1	5.6	6.5	6.5	6.3	7.0	85.7%
Turkey	-	-	-	0.1	6.5	13.0	28.9	52.8	70.2	67.4	73.2	+
United Kingdom	21.6	67.2	92.3	105.2	106.0	145.4	199.0	197.2	194.3	178.8	193.6	82.6%
OECD Europe ***	**191.1**	**363.2**	**460.3**	**499.4**	**577.5**	**712.2**	**888.3**	**1 035.6**	**1 059.5**	**999.1**	**1 065.9**	**84.6%**
European Union - 27	*..*	*..*	*..*	*..*	*657.9*	*745.6*	*889.4*	*1 010.9*	*1 014.1*	*949.7*	*1 011.6*	*53.8%*

* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.
** Includes Estonia and Slovenia prior to 1990.
*** Excludes Estonia and Slovenia prior to 1990.

CO_2 emissions: Sectoral Approach - Natural gas

million tonnes of CO_2

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Non-OECD Total *	**575.6**	**719.7**	**1 013.7**	**1 438.8**	**1 878.7**	**1 826.2**	**2 041.0**	**2 569.7**	**2 941.2**	**2 885.9**	**3 128.9**	**66.5%**
Albania	0.2	0.6	0.8	0.8	0.5	0.1	0.0	0.0	0.0	0.0	0.0	-94.3%
Armenia	..	..	..	..	8.3	2.7	2.6	3.1	4.2	3.3	3.0	-63.8%
Azerbaijan	..	..	..	..	31.5	12.7	10.8	17.7	19.6	16.7	16.1	-48.9%
Belarus	..	..	..	..	27.5	25.6	32.2	38.3	40.2	33.1	41.2	49.7%
Bosnia and Herzegovina	..	..	..	..	0.9	0.3	0.5	0.7	0.8	0.4	0.5	-49.9%
Bulgaria	0.6	2.3	7.4	10.8	12.0	10.0	6.2	5.9	6.1	4.7	5.0	-58.2%
Croatia	..	..	..	..	4.7	4.1	4.7	5.1	5.6	5.2	5.7	20.2%
Cyprus	-	-	-	-	-	-	-	-	-	-	-	-
Georgia	..	..	..	..	10.6	2.2	2.2	2.2	2.3	2.3	2.2	-79.4%
Gibraltar	-	-	-	-	-	-	-	-	-	-	-	-
Kazakhstan	..	..	..	..	24.8	23.5	15.2	28.5	47.7	46.2	53.5	115.8%
Kosovo **	..	..	..	..	..	..	-	-	-	-	-	..
Kyrgyzstan	..	..	..	..	3.6	1.7	1.3	1.4	1.4	1.3	0.9	-74.5%
Latvia	..	..	..	..	5.6	2.3	2.5	3.2	3.1	2.8	3.4	-38.8%
Lithuania	..	..	..	..	10.3	4.3	4.3	5.3	5.3	4.6	5.4	-47.7%
FYR of Macedonia	..	..	..	..	-	-	0.1	0.1	0.2	0.1	0.2	x
Malta	-	-	-	-	-	-	-	-	-	-	-	-
Republic of Moldova	..	..	..	..	7.6	5.5	4.0	4.6	3.8	3.4	3.5	-54.3%
Montenegro **	..	..	..	..	..	..	..	-	-	-	-	..
Romania	52.1	62.6	75.7	74.6	67.4	43.1	30.6	30.2	27.9	23.4	23.8	-64.6%
Russian Federation	..	..	..	..	866.3	728.8	718.1	783.4	821.5	784.8	851.7	-1.7%
Serbia **	..	..	..	..	6.0	3.0	3.4	4.3	4.5	3.2	4.1	-31.8%
Tajikistan	..	..	..	..	3.2	1.2	1.5	1.3	1.0	0.8	0.7	-78.6%
Turkmenistan	..	..	..	..	28.6	26.2	25.5	33.3	40.9	35.2	40.5	41.5%
Ukraine	..	..	..	..	209.4	156.1	141.9	144.0	125.1	90.5	102.1	-51.3%
Uzbekistan	..	..	..	..	75.5	77.4	93.4	89.4	97.9	86.2	85.0	12.5%
Former Soviet Union ***	431.8	520.4	704.2	1 021.2	..	..	..	..	..	..	..	..
Former Yugoslavia ***	1.9	2.9	5.8	11.0	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	**486.6**	**588.8**	**793.9**	**1 118.3**	**1 404.5**	**1 130.7**	**1 101.1**	**1 202.1**	**1 259.1**	**1 148.5**	**1 248.6**	**-11.1%**
Algeria	2.4	4.6	13.4	21.7	27.4	32.4	37.6	46.9	50.8	55.2	53.9	96.4%
Angola	0.1	0.1	0.2	0.2	1.0	1.1	1.1	1.2	1.3	1.3	1.4	35.2%
Benin	-	-	-	-	-	-	-	-	-	-	-	-
Botswana	..	..	..	-	-	-	-	-	-	-	-	-
Cameroon	-	-	-	-	-	-	-	-	0.6	0.5	0.5	x
Congo	0.0	0.0	-	0.0	-	-	-	0.0	0.0	0.1	0.1	x
Dem. Rep. of Congo	-	-	-	-	-	-	-	-	0.0	0.0	0.0	x
Côte d'Ivoire	-	-	-	-	-	0.1	3.0	2.9	3.1	2.8	3.1	x
Egypt	0.2	0.1	3.4	7.9	14.9	22.9	32.4	67.6	81.5	79.7	85.3	471.1%
Eritrea	..	..	..	..	..	-	-	-	-	-	-	..
Ethiopia	-	-	-	-	-	-	-	-	-	-	-	-
Gabon	-	-	0.0	0.1	0.2	0.3	0.2	0.3	0.4	0.3	0.4	77.7%
Ghana	-	-	-	-	-	-	-	-	-	-	-	-
Kenya	-	-	-	-	-	-	-	-	-	-	-	-
Libya	2.1	2.5	5.5	7.0	9.0	8.5	8.8	10.4	11.8	11.8	12.3	36.7%
Morocco	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.9	1.1	1.2	1.3	+
Mozambique	-	-	-	-	-	0.0	0.0	0.0	0.2	0.2	0.3	x
Namibia	..	..	..	..	..	-	-	-	-	-	-	..
Nigeria	0.4	1.0	2.9	6.9	6.9	9.2	12.0	16.7	18.2	12.5	15.9	131.2%
Senegal	-	-	-	-	0.0	0.1	0.0	0.0	0.0	0.0	0.0	172.2%
South Africa	-	-	-	-	-	-	-	-	-	-	-	-
Sudan	-	-	-	-	-	-	-	-	-	-	-	-
United Rep. of Tanzania	-	-	-	-	-	-	-	0.8	1.1	1.3	1.5	x
Togo	-	-	-	-	-	-	-	-	-	-	-	-
Tunisia	0.0	0.5	0.8	2.2	2.8	4.6	6.4	7.7	9.2	9.3	10.0	258.2%
Zambia	-	-	-	-	-	-	-	-	-	-	-	-
Zimbabwe	-	-	-	-	-	-	-	-	-	-	-	-
Other Africa	-	-	-	-	-	-	0.0	0.1	0.1	0.1	0.1	x
Africa	**5.2**	**9.0**	**26.3**	**46.2**	**62.4**	**79.2**	**101.5**	**155.5**	**179.3**	**176.5**	**186.1**	**198.2%**

* Includes Estonia and Slovenia prior to 1990.

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

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

CO_2 emissions: Sectoral Approach - Natural gas

million tonnes of CO_2

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Bangladesh	0.6	0.9	2.1	4.0	7.3	10.9	14.6	22.2	30.6	33.9	35.1	381.3%
Brunei Darussalam	0.2	1.2	2.1	2.3	2.5	3.4	3.2	3.5	5.5	6.1	6.2	147.0%
Cambodia	..	..	..	..	..	-	-	-	-	-	-	..
Chinese Taipei	1.9	2.7	3.3	1.9	3.3	7.8	12.9	20.7	25.1	24.0	30.4	828.9%
India	1.3	1.9	2.5	8.0	20.6	35.3	47.1	68.5	76.3	104.7	113.2	449.0%
Indonesia	0.3	1.0	7.3	13.6	30.6	54.1	55.0	60.7	61.1	75.0	77.0	151.8%
DPR of Korea	-	-	-	-	-	-	-	-	-	-	-	-
Malaysia	0.0	0.1	0.1	4.4	6.9	23.1	45.5	60.6	76.2	60.7	59.8	764.2%
Mongolia	..	..	..	-	-	-	-	-	-	-	-	-
Myanmar	0.1	0.3	0.6	1.8	1.7	2.8	2.7	3.0	2.8	2.3	3.1	81.6%
Nepal	-	-	-	-	-	-	-	-	-	-	-	-
Pakistan	5.3	7.7	10.3	13.4	20.9	28.0	34.5	56.9	59.1	59.3	57.2	173.6%
Philippines	-	-	-	-	-	0.0	0.0	6.7	7.2	7.5	7.1	x
Singapore	0.0	0.1	0.1	0.1	0.1	3.1	2.9	14.0	16.7	15.7	16.8	+
Sri Lanka	-	-	-	-	-	-	-	-	-	-	-	-
Thailand	-	-	-	6.8	11.7	20.4	40.6	60.6	72.3	66.7	76.1	552.1%
Vietnam	-	-	-	0.1	0.0	0.4	2.6	11.0	14.9	16.6	19.0	+
Other Asia	0.5	0.5	0.2	1.2	0.6	0.5	0.5	0.5	0.7	0.7	0.8	35.1%
Asia	**10.2**	**16.3**	**28.8**	**57.7**	**106.2**	**189.9**	**262.1**	**388.7**	**448.5**	**473.2**	**501.8**	**372.5%**
People's Rep. of China	7.3	17.3	27.8	21.9	25.8	31.7	43.4	82.9	148.3	163.7	194.7	654.5%
Hong Kong, China	-	-	-	-	-	0.1	5.7	5.1	5.4	5.1	6.5	x
China	**7.3**	**17.3**	**27.8**	**21.9**	**25.8**	**31.8**	**49.2**	**88.0**	**153.8**	**168.8**	**201.3**	**679.8%**
Argentina	12.3	17.1	21.7	30.5	43.4	51.2	68.5	78.4	88.2	87.1	85.5	97.2%
Bolivia	0.1	0.3	0.6	0.8	1.4	2.3	2.4	3.7	4.9	5.4	6.0	318.0%
Brazil	0.5	1.1	2.2	5.0	7.0	8.8	17.4	38.0	49.0	39.1	51.8	642.6%
Colombia	2.6	3.2	5.7	7.3	7.5	8.3	12.8	14.3	15.2	17.4	18.2	141.7%
Costa Rica	-	-	-	-	-	-	-	-	-	-	-	-
Cuba	0.1	0.2	0.1	0.1	0.1	0.2	1.1	1.5	2.2	2.2	2.0	+
Dominican Republic	-	-	-	-	-	-	-	0.5	0.9	1.0	1.6	x
Ecuador	0.1	0.3	0.1	0.4	0.5	0.6	0.7	0.9	1.0	1.0	1.1	116.3%
El Salvador	-	-	-	-	-	-	-	-	-	-	-	-
Guatemala	-	-	-	-	-	-	-	-	-	-	-	-
Haiti	-	-	-	-	-	-	-	-	-	-	-	-
Honduras	-	-	-	-	-	-	-	-	-	-	-	-
Jamaica	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands Antilles	-	-	-	-	-	-	-	-	-	-	-	-
Nicaragua	-	-	-	-	-	-	-	-	-	-	-	-
Panama	-	-	-	-	-	-	-	-	-	-	-	-
Paraguay	-	-	-	-	-	-	-	-	-	-	-	-
Peru	0.6	0.8	1.0	1.3	1.0	0.6	1.1	3.9	7.6	9.6	12.8	+
Trinidad and Tobago	3.4	2.8	5.1	7.1	9.3	10.0	18.4	29.9	35.0	35.9	38.0	310.3%
Uruguay	-	-	-	-	-	-	0.1	0.2	0.2	0.1	0.1	x
Venezuela	20.8	24.3	32.6	38.5	46.3	58.4	61.7	64.0	72.2	68.3	72.5	56.6%
Other Non-OECD Americas	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.4	1.6	1.5	1.5	+
Non-OECD Americas	**40.7**	**50.2**	**69.2**	**91.0**	**116.6**	**140.4**	**184.9**	**236.6**	**278.0**	**268.6**	**291.4**	**149.8%**
Bahrain	1.8	4.1	5.7	8.6	9.6	9.3	11.6	14.6	18.2	18.4	18.9	96.4%
Islamic Republic of Iran	5.5	8.1	8.5	16.8	37.0	80.0	121.1	193.5	253.1	265.5	279.7	656.1%
Iraq	1.8	3.1	2.4	1.6	3.8	6.0	6.0	3.5	6.3	9.0	9.8	159.0%
Jordan	-	-	-	-	0.2	0.5	0.5	3.2	6.4	7.2	5.3	+
Kuwait	9.9	9.9	13.2	9.7	11.5	17.7	18.3	23.5	24.2	23.6	28.0	143.5%
Lebanon	-	-	-	-	-	-	-	-	-	0.1	0.5	x
Oman	-	-	0.7	2.1	4.9	6.7	11.4	16.0	19.1	20.8	21.3	333.3%
Qatar	1.9	4.2	6.3	10.5	12.2	16.2	20.9	29.7	39.9	44.9	53.3	338.5%
Saudi Arabia	2.7	5.4	21.2	34.1	47.6	64.4	77.7	124.3	132.3	133.0	145.7	206.1%
Syrian Arab Republic	-	-	0.1	0.3	3.2	4.8	10.4	10.8	10.7	13.0	17.5	446.1%
United Arab Emirates	2.0	3.3	9.6	19.8	33.1	48.5	64.2	79.7	112.3	114.7	118.0	256.3%
Yemen	-	-	-	-	-	-	-	-	-	0.2	1.7	x
Middle East	**25.6**	**38.0**	**67.7**	**103.6**	**163.1**	**254.2**	**342.1**	**498.7**	**622.5**	**650.4**	**699.8**	**328.9%**

CO_2 emissions: Reference Approach

million tonnes of CO_2

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
World *	**14 612.0**	**16 155.0**	**18 630.4**	**19 282.4**	**21 532.3**	**22 124.5**	**23 728.9**	**27 688.1**	**29 937.2**	**29 627.8**	**31 102.3**	**44.4%**
Annex I Parties	*..*	*..*	*..*	*..*	*14 167.6*	*13 311.2*	*13 864.4*	*14 320.5*	*14 123.4*	*13 120.9*	*13 594.0*	*-4.0%*
Annex II Parties	*8 638.2*	*8 951.2*	*9 721.9*	*9 303.2*	*9 843.2*	*10 213.3*	*11 019.1*	*11 380.2*	*11 055.9*	*10 329.1*	*10 581.8*	*7.5%*
North America	*4 612.3*	*4 775.0*	*5 191.6*	*5 009.8*	*5 283.9*	*5 571.2*	*6 194.9*	*6 389.2*	*6 193.1*	*5 786.2*	*5 902.6*	*11.7%*
Europe	*3 098.9*	*3 118.8*	*3 387.8*	*3 151.9*	*3 200.9*	*3 170.6*	*3 254.0*	*3 374.5*	*3 254.8*	*3 035.3*	*3 100.1*	*-3.1%*
Asia Oceania	*927.0*	*1 057.4*	*1 142.4*	*1 141.5*	*1 358.5*	*1 471.5*	*1 570.2*	*1 616.5*	*1 608.0*	*1 507.6*	*1 579.0*	*16.2%*
Annex I EIT	*..*	*..*	*..*	*..*	*4 184.0*	*2 938.4*	*2 639.7*	*2 718.0*	*2 802.0*	*2 533.1*	*2 735.8*	*-34.6%*
Non-Annex I Parties	*..*	*..*	*..*	*..*	*6 746.8*	*8 106.9*	*9 025.6*	*12 388.0*	*14 746.4*	*15 477.5*	*16 409.3*	*143.2%*
Annex I Kyoto Parties	*..*	*..*	*..*	*..*	*9 039.4*	*7 970.2*	*7 922.7*	*8 190.4*	*8 123.1*	*7 500.4*	*7 837.8*	*-13.3%*
Intl. marine bunkers	**344.2**	**331.7**	**347.9**	**297.7**	**362.5**	**419.5**	**488.8**	**565.8**	**620.2**	**601.8**	**643.7**	**77.6%**
Intl. aviation bunkers	**167.3**	**171.8**	**199.7**	**222.0**	**255.3**	**286.8**	**350.1**	**413.8**	**447.1**	**427.6**	**455.3**	**78.3%**
Non-OECD Total **	**4 639.0**	**5 727.6**	**7 112.9**	**8 135.2**	**9 640.0**	**9 705.1**	**10 230.5**	**13 557.4**	**15 907.3**	**16 424.5**	**17 443.8**	**81.0%**
OECD Total ***	**9 461.5**	**9 923.9**	**10 969.9**	**10 627.5**	**11 274.5**	**11 713.1**	**12 659.5**	**13 151.2**	**12 962.6**	**12 173.9**	**12 559.5**	**11.4%**
Canada	337.2	392.3	428.7	400.0	423.5	452.7	518.8	545.3	524.5	488.4	487.7	15.2%
Chile	21.5	17.5	21.7	19.8	31.2	39.3	53.7	59.8	70.5	65.7	72.7	132.8%
Mexico	100.8	145.1	242.2	265.7	289.8	298.8	344.4	414.5	435.8	422.5	432.5	49.2%
United States	4 275.1	4 382.7	4 763.0	4 609.9	4 860.4	5 118.5	5 676.2	5 843.9	5 668.6	5 297.8	5 415.0	11.4%
OECD Americas	**4 734.6**	**4 937.7**	**5 455.5**	**5 295.3**	**5 604.8**	**5 909.4**	**6 593.0**	**6 863.5**	**6 699.5**	**6 274.5**	**6 407.8**	**14.3%**
Australia	156.9	182.7	212.1	220.0	260.9	278.6	330.4	353.9	378.4	383.6	379.9	45.6%
Israel	17.2	21.0	23.1	23.5	34.9	48.1	55.3	56.2	67.3	63.2	66.5	90.6%
Japan	755.6	857.1	913.0	899.8	1 074.1	1 165.5	1 208.4	1 229.3	1 196.1	1 092.6	1 168.5	8.8%
Korea	54.8	77.9	125.7	157.7	238.6	355.3	441.0	464.6	512.8	518.1	579.7	143.0%
New Zealand	14.4	17.7	17.3	21.7	23.4	27.4	31.3	33.3	33.4	31.4	30.7	31.0%
OECD Asia Oceania	**999.0**	**1 156.3**	**1 291.2**	**1 322.6**	**1 631.9**	**1 874.9**	**2 066.4**	**2 137.4**	**2 188.1**	**2 088.9**	**2 225.2**	**36.4%**
Austria	51.2	52.3	58.3	55.9	57.2	60.2	62.6	75.3	70.1	63.6	69.3	21.2%
Belgium	120.0	119.5	129.8	103.9	109.4	116.3	121.4	114.8	111.3	108.0	115.0	5.0%
Czech Republic	168.5	158.9	170.1	174.5	160.7	126.8	125.3	124.9	121.2	111.5	116.1	-27.8%
Denmark	56.2	52.6	61.0	61.0	50.8	58.0	51.2	48.4	48.7	46.4	47.0	-7.4%
Estonia	..	..	..	..	38.5	18.3	16.3	17.8	18.6	15.8	20.0	-48.1%
Finland	39.9	45.5	57.4	50.5	52.1	54.0	54.0	56.7	58.0	55.3	63.6	22.3%
France	434.6	431.8	473.0	374.3	367.3	348.7	360.6	389.9	369.3	355.2	360.9	-1.8%
Germany	993.1	976.5	1 076.4	1 022.5	970.9	875.8	841.8	818.8	800.6	751.3	770.0	-20.7%
Greece	25.3	35.4	45.4	55.9	69.2	72.6	85.3	93.1	91.2	88.2	81.1	17.2%
Hungary	58.2	67.4	80.7	78.8	68.1	59.4	55.0	57.3	53.5	48.0	49.3	-27.6%
Iceland	1.4	1.6	1.8	1.6	2.0	1.9	2.1	2.2	2.1	2.0	1.9	-2.3%
Ireland	22.5	21.8	26.3	27.2	31.4	32.7	40.7	41.9	42.1	40.4	39.6	26.2%
Italy	280.3	311.2	349.0	339.6	384.0	413.0	433.6	458.8	432.5	391.0	396.6	3.3%
Luxembourg	15.2	13.1	12.0	10.0	10.4	8.3	8.1	11.5	10.6	10.0	10.6	1.8%
Netherlands	130.4	138.0	155.7	147.2	158.5	172.3	174.5	182.6	182.9	178.9	190.7	20.3%
Norway	23.4	24.0	28.6	27.1	28.5	31.8	37.0	37.6	44.8	42.1	51.7	81.4%
Poland	310.3	367.5	450.4	445.3	363.3	340.0	294.6	301.6	310.1	294.8	316.0	-13.0%
Portugal	14.9	18.9	24.6	25.5	38.5	49.4	59.9	63.4	54.0	53.7	48.7	26.4%
Slovak Republic	48.3	55.0	60.9	59.4	54.5	42.3	37.4	38.9	36.9	33.7	36.0	-33.9%
Slovenia	..	..	..	..	13.5	14.2	13.9	15.7	16.8	15.2	15.3	13.0%
Spain	121.5	162.0	192.0	187.5	212.1	239.0	286.8	342.2	322.4	285.2	267.5	26.1%
Sweden	84.5	80.9	72.0	61.8	51.8	54.7	49.5	51.3	48.4	43.0	51.6	-0.3%
Switzerland	39.7	37.4	39.8	39.5	42.7	40.1	40.9	43.6	42.9	43.8	41.0	-4.0%
Turkey	43.7	62.4	73.3	99.7	138.2	157.3	203.5	219.7	262.9	256.2	273.8	98.1%
United Kingdom	644.9	596.3	584.7	560.8	564.0	541.7	544.2	542.5	522.9	477.2	493.2	-12.6%
OECD Europe ***	**3 727.9**	**3 830.0**	**4 223.1**	**4 009.6**	**4 037.7**	**3 928.8**	**4 000.0**	**4 150.2**	**4 074.9**	**3 810.5**	**3 926.5**	**-2.8%**
European Union - 27	*..*	*..*	*..*	*..*	*4 132.8*	*3 914.4*	*3 873.4*	*4 018.3*	*3 896.5*	*3 616.4*	*3 710.2*	*-10.2%*

* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.
** Includes Estonia and Slovenia prior to 1990.
*** Excludes Estonia and Slovenia prior to 1990.

CO_2 emissions: Reference Approach

million tonnes of CO_2

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Non-OECD Total *	**4 639.0**	**5 727.6**	**7 112.9**	**8 135.2**	**9 640.0**	**9 705.1**	**10 230.5**	**13 557.4**	**15 907.3**	**16 424.5**	**17 443.8**	**81.0%**
Albania	4.1	4.8	8.0	7.5	6.5	1.9	3.1	4.3	3.8	3.4	3.7	-43.0%
Armenia	..	..	..	..	20.5	3.4	3.4	4.1	5.3	4.3	4.0	-80.3%
Azerbaijan	..	..	..	..	67.8	33.9	30.5	34.5	30.8	26.8	26.9	-60.3%
Belarus	..	..	..	..	127.4	63.0	60.0	63.9	66.2	64.0	64.8	-49.1%
Bosnia and Herzegovina	..	..	..	..	24.0	3.4	13.7	15.8	19.4	19.8	20.5	-14.4%
Bulgaria	63.8	73.0	84.2	85.1	76.1	57.7	43.4	47.9	49.9	43.0	45.1	-40.8%
Croatia	..	..	..	..	21.6	15.9	17.9	21.0	21.3	20.0	19.3	-10.4%
Cyprus	1.8	1.7	2.6	2.8	4.1	5.2	6.3	6.6	7.7	7.5	7.1	72.8%
Georgia	..	..	..	..	30.3	7.2	4.4	4.4	5.0	5.5	5.1	-83.1%
Gibraltar	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.5	0.5	0.5	0.5	193.9%
Kazakhstan	..	..	..	..	240.9	171.2	116.3	166.0	223.4	202.0	237.0	-1.6%
Kosovo **	..	..	..	..	..	..	4.8	6.2	7.0	8.0	8.3	..
Kyrgyzstan	..	..	..	..	22.5	4.4	4.5	5.0	5.4	6.5	6.4	-71.7%
Latvia	..	..	..	..	18.8	9.1	6.4	6.9	7.6	6.6	7.3	-60.9%
Lithuania	..	..	..	..	33.5	14.5	10.8	13.9	14.5	12.5	13.5	-59.8%
FYR of Macedonia	..	..	..	..	8.6	8.2	8.5	9.1	9.2	8.6	8.4	-2.2%
Malta	0.6	0.6	1.0	1.1	2.3	2.2	2.1	2.7	2.6	2.5	2.6	13.6%
Republic of Moldova	..	..	..	..	30.2	11.4	5.7	6.9	6.4	5.8	6.2	-79.5%
Montenegro **	..	..	..	..	..	..	..	1.4	1.9	1.2	2.1	..
Romania	111.6	138.9	177.8	178.9	171.7	128.0	87.8	93.0	92.0	77.8	76.5	-55.4%
Russian Federation	..	..	..	..	2 337.2	1 620.4	1 545.2	1 579.8	1 669.5	1 528.6	1 676.4	-28.3%
Serbia **	..	..	..	..	61.6	44.4	41.9	50.8	52.8	47.3	47.0	-23.6%
Tajikistan	..	..	..	..	11.2	2.4	2.2	2.3	3.0	2.8	2.7	-75.5%
Turkmenistan	..	..	..	..	46.2	34.2	35.5	45.2	54.8	48.2	52.8	14.5%
Ukraine	..	..	..	..	699.1	428.8	325.7	335.4	323.8	261.5	280.3	-59.9%
Uzbekistan	..	..	..	..	120.6	103.8	122.4	112.8	120.2	107.7	104.2	-13.6%
Former Soviet Union ***	2 368.9	2 842.6	3 242.5	3 448.3	..	..	..	..	..	..	..	..
Former Yugoslavia ***	65.5	77.1	101.5	127.2	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	**2 616.4**	**3 138.8**	**3 617.7**	**3 851.1**	**4 182.8**	**2 775.1**	**2 502.9**	**2 640.5**	**2 804.0**	**2 522.3**	**2 728.9**	**-34.8%**
Algeria	9.8	15.0	29.0	46.4	54.7	59.8	66.0	80.1	93.0	100.9	99.5	81.9%
Angola	1.7	2.1	2.7	2.9	4.1	3.9	5.1	7.2	12.5	14.0	16.5	299.3%
Benin	0.3	0.5	0.4	0.5	0.2	0.2	1.5	2.3	3.8	4.1	4.5	+
Botswana	..	..	..	1.6	2.9	3.3	4.2	4.4	4.8	4.3	5.0	72.2%
Cameroon	0.7	1.0	1.7	2.5	2.7	2.6	3.0	3.2	5.1	6.2	6.8	148.3%
Congo	0.6	0.6	0.7	0.9	0.7	0.6	0.5	1.0	1.3	1.7	1.8	151.7%
Dem. Rep. of Congo	2.7	2.9	2.9	3.4	4.1	3.0	1.7	2.3	2.8	2.7	3.1	-25.8%
Côte d'Ivoire	2.4	3.1	3.4	2.5	2.9	3.7	6.6	6.5	6.7	5.7	5.7	99.7%
Egypt	20.1	25.6	38.5	67.1	83.5	87.5	98.5	152.0	173.0	171.4	175.9	110.6%
Eritrea	..	..	..	..	..	0.8	0.6	0.8	0.4	0.5	0.5	..
Ethiopia	1.4	1.2	1.4	1.4	2.4	2.6	3.2	4.4	5.7	5.7	5.4	122.9%
Gabon	1.7	2.1	2.2	1.9	1.1	1.2	1.3	2.1	2.3	2.5	2.7	151.1%
Ghana	1.9	2.5	2.2	2.5	2.8	3.6	5.4	6.3	7.8	7.0	8.5	198.2%
Kenya	3.2	3.4	4.3	4.6	5.7	5.5	6.7	7.1	8.8	10.5	11.1	95.5%
Libya	3.8	9.9	17.2	24.7	28.0	40.6	42.6	45.1	49.8	58.0	49.0	75.2%
Morocco	6.8	9.9	13.9	16.4	20.2	25.2	30.0	39.5	43.8	42.9	47.6	135.9%
Mozambique	3.0	2.4	2.4	1.5	1.0	1.1	1.5	1.5	2.0	2.2	2.5	149.4%
Namibia	..	..	..	..	..	1.7	1.8	2.5	3.6	3.3	3.3	..
Nigeria	5.9	11.8	26.9	33.2	38.2	34.1	43.5	59.9	54.3	44.2	47.5	24.3%
Senegal	1.2	1.6	2.0	1.9	2.2	2.5	3.7	4.7	5.1	5.3	5.5	152.6%
South Africa	149.7	176.2	215.3	288.5	291.6	334.1	345.9	410.7	477.7	465.4	441.3	51.3%
Sudan	4.1	3.9	3.9	4.3	5.6	4.7	7.1	11.1	13.2	14.5	14.4	158.7%
United Rep. of Tanzania	2.1	1.9	2.2	2.0	2.0	3.0	2.3	5.1	5.8	5.6	6.0	193.2%
Togo	0.3	0.3	0.4	0.3	0.6	0.6	1.0	1.0	1.1	1.1	1.2	106.2%
Tunisia	3.7	5.0	8.0	10.1	12.3	14.0	17.4	19.6	22.0	21.1	22.2	80.0%
Zambia	3.4	3.3	3.4	2.9	2.7	2.1	1.7	2.2	1.7	1.8	2.1	-24.6%
Zimbabwe	7.9	7.7	8.0	9.6	15.4	15.3	12.8	10.6	8.0	8.5	9.2	-40.6%
Other Africa	7.3	8.7	11.3	12.1	14.6	17.2	19.5	23.8	28.4	29.6	30.7	110.2%
Africa	**245.9**	**302.9**	**404.4**	**545.6**	**602.5**	**674.7**	**734.8**	**917.0**	**1 044.6**	**1 040.8**	**1 029.4**	**70.9%**

* Includes Estonia and Slovenia prior to 1990.

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

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

CO_2 emissions: Reference Approach

million tonnes of CO_2

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Bangladesh	3.4	4.7	7.2	9.3	14.1	21.3	26.7	38.1	47.4	51.2	55.3	290.7%
Brunei Darussalam	0.4	1.7	3.2	4.3	4.1	5.5	6.0	5.6	8.9	7.7	8.1	95.8%
Cambodia	..	..	..	..	..	1.5	2.1	2.9	3.7	3.8	3.9	..
Chinese Taipei	31.2	43.2	75.1	74.8	118.5	162.7	229.1	269.0	269.2	253.3	273.0	130.3%
India	198.5	238.4	283.5	419.2	590.8	791.0	973.6	1 200.4	1 467.9	1 620.8	1 665.4	181.9%
Indonesia	25.5	39.3	71.8	88.1	145.4	220.1	277.2	345.5	352.4	381.2	400.9	175.8%
DPR of Korea	69.4	79.6	108.6	129.8	117.6	75.8	68.7	73.9	69.1	65.9	63.1	-46.4%
Malaysia	13.8	16.9	28.9	37.5	53.6	85.4	117.4	166.8	188.6	177.1	191.7	257.8%
Mongolia	..	..	..	11.6	12.7	10.1	8.8	9.5	11.2	11.8	11.9	-5.9%
Myanmar	4.7	4.2	5.3	6.1	4.2	6.8	10.0	12.0	11.6	9.2	8.5	104.2%
Nepal	0.2	0.3	0.5	0.5	0.9	1.8	3.1	3.0	2.9	3.4	3.7	300.2%
Pakistan	17.1	21.2	26.8	40.0	60.7	82.5	102.0	121.2	137.7	141.9	140.9	132.0%
Philippines	23.5	28.7	33.3	26.2	38.5	57.7	67.4	70.4	72.9	67.2	77.9	102.2%
Singapore	7.0	9.7	14.1	16.2	29.4	50.7	50.7	45.4	47.1	58.7	68.9	134.3%
Sri Lanka	2.9	2.9	3.9	3.7	4.0	5.8	10.6	12.4	11.9	12.1	13.1	230.5%
Thailand	17.3	21.8	34.3	40.7	81.3	141.2	158.9	221.8	234.8	231.4	249.9	207.5%
Vietnam	16.1	16.7	14.8	17.1	17.2	27.8	44.0	79.7	101.8	113.8	130.6	659.0%
Other Asia	8.3	10.1	16.4	10.0	10.1	9.3	11.2	14.8	16.5	18.8	20.2	98.9%
Asia	**439.4**	**539.6**	**727.9**	**935.5**	**1 303.0**	**1 757.0**	**2 167.7**	**2 692.4**	**3 055.5**	**3 229.3**	**3 386.8**	**159.9%**
People's Rep. of China	867.6	1 133.9	1 489.2	1 794.7	2 371.1	2 957.8	3 052.2	5 125.0	6 558.4	7 150.1	7 669.4	223.4%
Hong Kong, China	9.1	11.1	14.3	22.8	30.9	34.9	39.2	40.1	44.3	47.1	42.0	36.0%
China	**876.7**	**1 145.0**	**1 503.5**	**1 817.5**	**2 402.0**	**2 992.7**	**3 091.4**	**5 165.1**	**6 602.7**	**7 197.2**	**7 711.4**	**221.0%**
Argentina	86.0	89.8	101.2	92.7	106.8	118.0	134.1	147.7	173.7	166.5	166.8	56.2%
Bolivia	2.2	3.4	4.6	4.3	4.8	7.6	7.7	11.3	12.5	13.1	14.2	197.5%
Brazil	93.9	143.9	189.8	180.5	205.0	253.4	309.9	330.0	368.3	345.6	398.2	94.2%
Colombia	27.2	32.0	35.0	39.1	48.9	57.9	57.6	60.1	63.1	69.1	73.4	50.2%
Costa Rica	1.4	1.8	2.3	2.0	2.9	4.0	5.1	5.3	6.7	6.4	6.6	123.5%
Cuba	20.1	23.7	31.1	32.2	32.3	23.0	27.2	25.8	26.8	29.9	28.6	-11.3%
Dominican Republic	3.4	5.6	6.5	7.1	9.3	13.5	19.3	18.1	19.0	18.6	19.2	105.6%
Ecuador	3.4	6.5	10.9	12.3	13.1	16.9	19.0	27.9	26.5	27.9	30.0	129.3%
El Salvador	1.5	2.1	1.8	1.9	2.3	4.8	5.3	6.0	6.0	5.9	5.7	144.1%
Guatemala	2.4	2.6	4.3	3.3	3.6	5.8	9.0	10.6	10.2	11.1	10.3	186.6%
Haiti	0.4	0.4	0.6	0.8	0.9	0.9	1.4	2.0	2.4	2.2	2.0	116.6%
Honduras	1.1	1.3	1.7	1.6	2.2	3.5	4.5	6.9	7.9	7.1	7.3	237.7%
Jamaica	5.2	7.4	6.4	4.5	7.1	8.4	10.0	10.4	11.6	8.2	7.8	10.7%
Netherlands Antilles	13.6	9.6	10.0	4.9	4.0	3.3	3.9	3.7	3.9	5.2	4.0	-0.8%
Nicaragua	1.5	1.9	1.9	1.9	1.7	2.6	3.4	4.1	4.1	4.2	4.2	142.9%
Panama	3.8	3.8	2.6	2.8	2.6	4.1	5.4	6.7	6.7	7.9	8.9	247.2%
Paraguay	0.6	0.7	1.4	1.4	1.9	3.5	3.2	3.4	3.8	4.1	4.7	141.5%
Peru	16.1	19.4	21.8	18.4	18.2	22.8	26.1	29.3	33.4	33.0	40.7	123.3%
Trinidad and Tobago	5.0	4.8	8.3	11.0	12.7	12.8	21.4	33.1	38.9	40.6	42.9	237.3%
Uruguay	5.8	5.9	6.0	3.4	4.0	4.7	6.1	5.6	8.2	7.8	6.5	61.3%
Venezuela	43.6	60.3	88.8	99.2	104.9	116.6	125.7	152.5	160.2	160.1	182.1	73.5%
Other Non-OECD Americas	11.6	15.5	15.1	9.3	12.5	13.5	14.4	15.9	17.1	17.7	18.4	47.0%
Non-OECD Americas	**350.0**	**442.4**	**552.0**	**534.6**	**601.8**	**701.7**	**819.6**	**916.7**	**1 011.0**	**992.5**	**1 082.5**	**79.9%**
Bahrain	3.1	4.8	6.3	9.8	10.2	11.6	13.8	17.7	22.0	22.4	23.2	127.6%
Islamic Republic of Iran	43.5	70.1	105.2	150.6	186.9	266.6	322.7	442.3	506.5	527.6	512.0	174.0%
Iraq	11.2	16.4	27.1	39.9	56.2	99.7	74.1	75.4	79.7	91.2	106.9	90.1%
Jordan	1.4	2.2	4.4	7.6	9.4	12.4	14.1	18.4	18.7	19.5	19.0	102.0%
Kuwait	14.0	15.1	26.0	37.5	24.1	38.3	50.6	72.4	76.6	83.9	91.8	281.7%
Lebanon	5.0	6.0	6.9	6.6	5.5	12.8	14.1	14.5	15.8	19.1	18.6	238.0%
Oman	0.7	0.7	3.1	5.5	10.8	15.7	20.0	26.0	39.2	36.4	50.1	365.6%
Qatar	2.2	5.1	7.7	12.3	13.9	17.7	23.6	38.4	49.2	54.0	64.9	366.8%
Saudi Arabia	17.8	22.8	86.3	119.6	143.7	217.6	246.4	344.8	359.6	366.8	394.8	174.8%
Syrian Arab Republic	7.2	9.0	12.3	21.9	29.6	33.8	40.6	55.8	63.5	58.0	57.2	93.0%
United Arab Emirates	2.4	4.9	18.9	34.8	50.5	67.6	80.3	100.6	137.9	142.0	145.9	188.9%
Yemen	1.9	1.8	3.4	4.8	7.1	9.9	13.9	19.3	20.9	21.4	20.4	185.6%
Middle East	**110.5**	**158.9**	**307.5**	**451.0**	**547.9**	**803.9**	**914.2**	**1 225.7**	**1 389.5**	**1 442.4**	**1 504.8**	**174.7%**

CO_2 emissions from international marine bunkers

million tonnes of CO_2

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
World	**344.25**	**331.73**	**347.90**	**297.73**	**362.49**	**419.49**	**488.78**	**565.76**	**620.23**	**601.85**	**643.72**	**77.6%**
Annex I Parties	*..*	*..*	*..*	*..*	*233.65*	*231.01*	*250.90*	*271.97*	*277.24*	*252.71*	*264.38*	*13.2%*
Annex II Parties	*202.63*	*216.81*	*234.71*	*171.25*	*223.39*	*227.72*	*245.78*	*263.43*	*268.83*	*244.72*	*250.76*	*12.3%*
North America	*26.41*	*36.12*	*93.91*	*56.43*	*93.55*	*93.68*	*92.24*	*83.63*	*83.62*	*78.67*	*84.81*	*-9.3%*
Europe	*120.20*	*110.37*	*97.05*	*87.88*	*109.00*	*112.20*	*132.89*	*156.28*	*164.11*	*147.08*	*147.83*	*35.6%*
Asia Oceania	*56.02*	*70.31*	*43.75*	*26.94*	*20.84*	*21.84*	*20.65*	*23.52*	*21.10*	*18.97*	*18.12*	*-13.1%*
Annex I EIT	*..*	*..*	*..*	*..*	*9.80*	*2.58*	*1.79*	*3.14*	*3.46*	*3.57*	*7.83*	*-20.1%*
Non-Annex I Parties	*..*	*..*	*..*	*..*	*128.84*	*188.48*	*237.88*	*293.79*	*342.99*	*349.14*	*379.34*	*194.4%*
Annex I Kyoto Parties	*..*	*..*	*..*	*..*	*142.50*	*139.79*	*158.67*	*184.82*	*190.35*	*171.74*	*175.96*	*23.5%*
Non-OECD Total *	**137.33**	**111.51**	**109.39**	**121.14**	**130.70**	**164.82**	**203.70**	**257.51**	**310.33**	**321.77**	**356.78**	**173.0%**
OECD Total **	**206.91**	**220.22**	**238.51**	**176.59**	**231.79**	**254.68**	**285.08**	**308.24**	**309.90**	**280.08**	**286.94**	**23.8%**
Canada	3.07	2.58	4.71	1.18	2.87	3.17	3.34	1.88	1.67	2.13	2.18	-24.0%
Chile	0.60	0.37	0.27	0.09	0.57	1.12	1.94	3.30	3.64	2.61	1.28	124.3%
Mexico	0.26	0.38	1.00	1.33	..	2.55	3.83	2.70	3.18	2.39	2.50	..
United States	23.34	33.54	89.20	55.26	90.68	90.51	88.90	81.76	81.94	76.54	82.63	-8.9%
OECD Americas	**27.27**	**36.88**	**95.18**	**57.85**	**94.12**	**97.35**	**98.02**	**89.63**	**90.44**	**83.67**	**88.60**	**-5.9%**
Australia	5.10	5.03	3.68	2.28	2.14	2.79	2.96	2.73	3.02	2.80	2.25	5.4%
Israel	..	..	..	0.35	0.38	0.65	0.58	0.81	1.16	1.10	1.06	179.1%
Japan	49.88	64.20	38.90	23.92	17.66	17.92	16.93	19.80	16.97	15.08	14.80	-16.2%
Korea	1.53	0.17	0.31	1.69	5.27	21.35	30.46	33.24	29.16	26.81	28.75	445.6%
New Zealand	1.04	1.08	1.18	0.74	1.04	1.13	0.76	0.99	1.11	1.09	1.07	2.5%
OECD Asia Oceania	**57.55**	**70.48**	**44.06**	**28.98**	**26.49**	**43.84**	**51.69**	**57.57**	**51.43**	**46.88**	**47.93**	**80.9%**
Austria	-	-	-	-	-	-	-	-	-	-	-	-
Belgium	8.06	8.64	7.52	7.30	12.91	12.31	17.02	24.40	30.49	22.34	24.29	88.2%
Czech Republic	-	-	-	-	-	-	-	-	-	-	-	-
Denmark	2.09	1.67	1.32	1.34	3.02	4.96	4.03	2.41	2.87	1.60	2.16	-28.4%
Estonia	..	..	..	..	0.57	0.28	0.33	0.38	0.79	0.71	0.69	21.9%
Finland	0.24	0.30	1.84	1.45	1.78	1.04	2.10	1.59	1.26	0.78	0.66	-62.8%
France	12.71	14.53	12.52	7.52	7.96	7.94	9.42	8.65	8.04	8.02	7.79	-2.2%
Germany	12.93	10.52	11.00	10.85	7.79	6.43	6.85	7.83	9.36	8.57	8.72	11.9%
Greece	1.78	2.70	2.63	3.51	7.97	11.17	11.28	9.02	9.72	8.25	8.60	7.9%
Hungary	-	-	-	-	-	-	-	-	-	-	-	-
Iceland	..	..	..	0.02	0.10	0.14	0.21	0.20	0.23	0.16	0.18	85.4%
Ireland	0.24	0.20	0.23	0.09	0.06	0.36	0.47	0.32	0.27	0.35	0.26	359.8%
Italy	22.80	17.97	13.08	10.75	8.37	7.59	5.16	7.06	7.98	7.43	9.43	12.7%
Luxembourg	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	28.26	32.86	29.39	27.45	34.29	35.59	41.98	53.31	48.58	44.61	43.72	27.5%
Norway	1.90	1.49	0.87	1.03	1.39	2.19	2.56	2.16	1.49	1.54	1.21	-12.9%
Poland	1.63	2.21	2.22	1.63	1.24	0.44	0.90	1.01	0.87	0.78	0.68	-45.1%
Portugal	2.32	2.00	1.34	1.48	1.91	1.52	2.08	1.82	1.68	1.51	1.46	-23.5%
Slovak Republic	-	-	-	-	-	-	-	-	-	-	-	-
Slovenia	..	..	..	..	..	..	..	0.07	0.21	0.10	0.06	..
Spain	5.94	3.44	5.07	6.76	11.46	10.00	18.97	25.00	27.69	27.52	26.53	131.5%
Sweden	3.58	3.45	2.66	1.76	2.09	3.30	4.28	6.12	6.43	6.70	6.19	195.7%
Switzerland	..	..	..	..	0.06	0.05	0.03	0.04	0.03	0.02	0.03	-44.4%
Turkey	0.26	0.29	..	0.25	0.37	0.58	1.25	3.31	2.06	0.85	1.15	209.3%
United Kingdom	17.37	10.60	7.57	6.56	7.84	7.62	6.44	6.34	7.99	7.67	6.60	-15.8%
OECD Europe **	**122.10**	**112.87**	**99.26**	**89.76**	**111.18**	**113.49**	**135.37**	**161.04**	**168.03**	**149.52**	**150.41**	**35.3%**
European Union - 27	*..*	*..*	*..*	*..*	*111.51*	*112.64*	*134.49*	*159.93*	*169.42*	*153.15*	*154.64*	*38.7%*

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

CO_2 emissions from international marine bunkers

million tonnes of CO_2

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Non-OECD Total *	**137.33**	**111.51**	**109.39**	**121.14**	**130.70**	**164.82**	**203.70**	**257.51**	**310.33**	**321.77**	**356.78**	**173.0%**
Albania	..	..	..	..	..	..	..	..	..	..	..	..
Armenia	..	..	..	..	-	-	-	-	-	-	-	-
Azerbaijan	..	..	..	..	..	..	..	..	..	..	..	..
Belarus	..	..	..	..	-	-	-	-	-	-	-	-
Bosnia and Herzegovina	..	..	..	..	..	..	..	..	..	..	..	..
Bulgaria	..	..	..	0.71	0.18	0.84	0.20	0.34	0.38	0.64	0.30	67.2%
Croatia	..	..	..	..	0.15	0.10	0.06	0.08	0.07	0.02	0.02	-85.2%
Cyprus	0.01	0.06	0.05	0.11	0.18	0.21	0.60	0.90	0.78	0.68	0.58	221.6%
Georgia	..	..	..	..	..	0.16	..	..	..	..	..	..
Gibraltar	0.55	0.58	0.41	0.88	1.38	2.69	3.22	4.82	6.09	7.60	7.76	463.7%
Kazakhstan	..	..	..	..	..	..	..	..	..	..	..	..
Kosovo **	..	..	..	..	..	..	..	..	..	..	..	..
Kyrgyzstan	..	..	..	..	-	-	-	-	-	-	-	-
Latvia	..	..	..	..	1.50	0.48	0.02	0.82	0.65	0.87	0.80	-46.8%
Lithuania	..	..	..	..	0.30	0.44	0.29	0.45	0.28	0.40	0.44	49.4%
FYR of Macedonia	-	-	-	-	-	-	-	-	-	-	-	-
Malta	0.19	0.08	0.09	0.06	0.09	0.14	2.07	2.09	2.89	3.57	4.64	+
Republic of Moldova	..	..	..	..	..	..	..	..	..	..	..	..
Montenegro **	..	..	..	..	..	..	..	..	..	..	..	..
Romania	..	..	..	..	..	..	..	..	0.22	0.05	0.05	..
Russian Federation	..	..	..	..	5.87	..	..	..	..	..	4.79	-18.4%
Serbia **	..	..	..	..	..	..	..	..	..	..	..	..
Tajikistan	..	..	..	..	-	-	-	-	-	-	-	-
Turkmenistan	..	..	..	..	..	..	..	..	..	..	..	..
Ukraine	..	..	..	..	..	..	..	..	..	..	..	..
Uzbekistan	..	..	..	..	-	-	-	-	-	-	-	-
Former Soviet Union ***	13.17	14.09	14.09	13.79	..	..	..	..	..	..	..	..
Former Yugoslavia ***	..	..	..	..	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	**13.92**	**14.81**	**14.64**	**15.53**	**9.63**	**5.06**	**6.45**	**9.50**	**11.35**	**13.83**	**19.37**	**101.0%**
Algeria	0.61	0.77	1.29	1.16	1.36	1.17	0.77	1.17	1.01	0.91	1.01	-26.0%
Angola	0.77	0.48	0.83	0.10	0.02	0.03	..	0.34	0.04	0.59	0.56	+
Benin	..	..	..	..	..	..	..	..	..	..	..	..
Botswana	..	..	..	..	..	..	..	..	..	..	..	..
Cameroon	..	..	0.12	0.03	0.04	0.09	0.06	0.04	0.16	0.16	0.14	229.8%
Congo	..	..	..	..	..	..	..	..	0.13	..	..	..
Dem. Rep. of Congo	0.40	0.22	0.08	0.09	0.10	0.01	..	..	..	..	..	..
Côte d'Ivoire	0.06	0.01	1.35	0.73	0.12	0.27	0.29	0.35	0.21	0.05	0.05	-61.7%
Egypt	0.06	1.08	3.19	4.71	5.25	7.73	8.58	4.51	1.51	0.96	1.36	-74.1%
Eritrea	..	..	..	..	..	0.42	..	..	..	..	..	..
Ethiopia	0.07	0.01	0.01	0.03	0.04	0.52	..	..	..	..	..	..
Gabon	0.20	0.14	0.19	0.22	0.08	0.44	0.60	0.71	0.79	0.81	0.93	+
Ghana	0.16	0.14	0.10	..	..	..	0.16	0.12	0.18	0.23	0.30	..
Kenya	1.47	1.05	0.56	0.45	0.55	0.17	0.21	0.00	0.00	0.02	0.02	-96.6%
Libya	0.01	0.01	0.02	0.04	0.25	0.28	0.28	0.28	0.28	0.28	0.28	12.5%
Morocco	0.24	0.18	0.21	0.04	0.06	0.04	0.05	0.05	0.04	0.03	0.05	-24.9%
Mozambique	0.76	0.35	0.27	0.10	0.09	0.01	0.00	0.01	..	..	..	..
Namibia	..	..	..	..	..	..	..	..	..	..	..	..
Nigeria	0.02	0.11	0.25	0.34	0.58	1.42	1.15	1.55	1.86	1.99	2.14	269.0%
Senegal	2.99	2.09	0.84	0.33	0.11	0.09	0.30	0.36	0.23	0.19	0.20	78.2%
South Africa	10.81	7.15	5.25	3.41	5.95	10.30	8.51	8.52	8.60	8.46	8.70	46.1%
Sudan	..	0.01	0.02	0.02	0.02	0.03	0.03	0.04	0.06	0.06	0.06	171.4%
United Rep. of Tanzania	0.05	0.05	0.12	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07	-15.5%
Togo	..	..	..	..	..	..	0.01	0.01	0.01	0.01	0.01	..
Tunisia	0.06	0.02	0.02	0.01	0.07	0.06	0.06	0.05	0.12	0.08	0.04	-34.9%
Zambia	-	-	-	-	-	-	-	-	-	-	-	-
Zimbabwe	..	..	..	..	..	..	..	..	..	..	..	..
Other Africa	3.02	2.08	1.77	1.82	1.71	1.42	1.71	1.43	1.52	1.58	1.64	-4.3%
Africa	**21.76**	**15.95**	**16.48**	**13.70**	**16.49**	**24.55**	**22.83**	**19.61**	**16.81**	**16.47**	**17.55**	**6.4%**

* Includes Estonia and Slovenia prior to 1990.

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

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

CO_2 emissions from international marine bunkers

million tonnes of CO_2

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Bangladesh	0.06	0.05	0.19	0.07	0.06	0.11	0.11	0.11	0.11	0.11	0.11	78.6%
Brunei Darussalam	..	..	..	..	..	..	..	..	..	..	..	..
Cambodia	..	..	..	..	..	..	..	..	..	..	..	..
Chinese Taipei	0.39	0.33	0.66	1.62	4.86	7.57	11.02	7.50	5.71	5.05	5.45	12.3%
India	0.71	0.57	0.72	0.34	0.47	0.39	0.27	0.08	0.45	0.46	0.53	12.7%
Indonesia	0.70	1.09	0.79	0.68	1.68	1.28	0.36	0.42	0.50	0.52	0.72	-57.2%
DPR of Korea	..	..	..	..	..	..	..	..	..	..	..	..
Malaysia	0.11	0.22	0.18	0.31	0.29	0.53	0.69	0.19	0.21	0.15	0.19	-35.6%
Mongolia	..	..	..	..	..	..	..	..	..	..	..	..
Myanmar	0.01	0.00	-	-	-	0.01	0.01	0.01	0.01	0.01	0.01	x
Nepal	-	-	-	-	-	-	-	-	-	-	-	-
Pakistan	0.29	0.21	0.47	0.08	0.11	0.05	0.08	0.25	0.54	0.73	0.55	419.0%
Philippines	1.29	0.45	0.59	0.49	0.21	0.35	0.67	0.38	0.84	0.63	0.58	181.1%
Singapore	8.89	10.43	14.96	15.14	33.87	35.28	57.58	78.60	107.72	112.19	125.94	271.9%
Sri Lanka	1.19	1.29	1.10	1.01	1.21	1.09	0.50	0.53	0.63	0.57	0.61	-49.8%
Thailand	0.21	0.25	0.50	0.65	1.70	3.02	2.46	5.18	5.18	4.75	4.42	159.9%
Vietnam	..	..	..	0.07	0.09	0.22	0.46	0.79	0.89	0.92	1.02	+
Other Asia	0.57	0.53	0.46	0.20	0.21	0.33	0.33	0.44	0.41	0.35	0.38	80.9%
Asia	**14.42**	**15.43**	**20.62**	**20.66**	**44.75**	**50.23**	**74.54**	**94.49**	**123.18**	**126.45**	**140.51**	**214.0%**
People's Rep. of China	0.30	0.69	1.87	2.47	4.59	6.62	13.02	26.51	26.22	30.88	31.84	593.5%
Hong Kong, China	1.96	1.69	2.83	3.11	4.52	7.16	10.61	17.79	21.49	32.35	38.59	753.3%
China	**2.26**	**2.37**	**4.70**	**5.58**	**9.11**	**13.78**	**23.63**	**44.30**	**47.71**	**63.22**	**70.43**	**672.8%**
Argentina	0.66	0.28	1.32	2.00	2.22	1.71	1.48	2.19	3.02	2.99	3.75	68.7%
Bolivia	-	-	-	-	-	-	-	-	-	-	-	-
Brazil	1.00	1.17	1.42	1.71	1.72	3.64	9.16	10.92	14.17	11.75	12.61	634.9%
Colombia	0.95	0.49	0.31	0.22	0.33	0.58	0.74	1.13	1.50	1.54	1.97	498.2%
Costa Rica	..	..	..	..	..	..	..	..	..	..	..	..
Cuba	..	..	..	0.12	0.05	0.05	0.06	0.09	0.09	0.09	0.09	75.7%
Dominican Republic	..	..	..	..	..	..	..	..	..	..	..	..
Ecuador	0.28	..	0.34	0.11	0.49	0.99	0.87	0.69	3.26	3.95	3.13	532.9%
El Salvador	..	..	..	..	..	..	..	..	..	..	..	..
Guatemala	0.18	0.27	0.40	0.38	0.43	0.53	0.64	0.74	0.86	0.86	0.89	109.0%
Haiti	..	..	..	..	..	..	..	..	..	..	..	..
Honduras	..	..	..	..	..	..	..	..	..	0.00	0.00	..
Jamaica	0.16	0.26	0.10	0.04	0.10	0.12	0.12	0.13	0.13	0.13	0.13	25.0%
Netherlands Antilles	7.71	7.34	7.27	6.13	5.18	5.32	5.20	5.46	5.88	5.66	5.76	11.2%
Nicaragua	..	..	..	..	..	..	..	..	..	..	..	..
Panama	1.71	3.41	3.10	4.02	4.95	6.43	8.06	7.29	7.04	8.21	8.63	74.3%
Paraguay	-	-	-	-	-	-	-	-	-	-	-	-
Peru	0.10	0.12	0.47	0.62	0.12	0.53	0.31	1.00	0.80	0.55	0.76	544.6%
Trinidad and Tobago	5.12	3.54	1.42	0.31	0.11	0.16	1.19	1.47	1.37	1.38	1.06	874.2%
Uruguay	0.27	0.20	0.24	0.33	0.37	1.21	0.92	1.12	1.41	1.60	1.41	284.1%
Venezuela	9.13	4.82	1.99	1.76	2.50	2.30	2.06	2.33	2.88	2.81	2.72	8.7%
Other Non-OECD Americas	3.08	2.04	2.79	1.87	0.86	0.71	0.79	0.91	0.93	0.96	0.98	13.3%
Non-OECD Americas	**30.34**	**23.94**	**21.19**	**19.63**	**19.42**	**24.24**	**31.58**	**35.47**	**43.36**	**42.48**	**43.88**	**125.9%**
Bahrain	0.56	0.55	0.60	0.47	0.25	0.25	0.25	0.24	0.22	0.22	0.23	-6.3%
Islamic Republic of Iran	1.02	1.23	1.22	0.90	1.23	1.84	2.25	2.95	4.85	6.31	7.31	494.8%
Iraq	0.26	0.29	0.37	0.46	0.40	0.02	0.48	0.32	0.42	0.45	0.44	10.8%
Jordan	..	..	..	..	..	0.03	0.13	0.25	0.10	0.12	0.05	..
Kuwait	6.29	6.32	5.60	2.38	0.55	1.82	1.43	2.15	3.13	1.20	1.25	126.3%
Lebanon	0.71	0.03	..	..	..	0.04	0.05	0.06	0.07	0.07	0.08	..
Oman	3.85	2.54	0.71	0.35	0.06	0.08	0.19	0.12	0.41	0.38	0.57	830.0%
Qatar	..	..	..	..	..	..	..	..	..	..	..	..
Saudi Arabia	40.05	25.86	13.62	28.01	5.74	5.96	6.60	7.09	8.85	8.00	10.29	79.4%
Syrian Arab Republic	0.77	1.26	1.97	2.53	2.82	3.43	3.68	3.17	3.19	3.40	3.16	11.9%
United Arab Emirates	..	..	5.53	9.69	18.99	33.16	29.30	37.44	46.37	38.88	41.36	117.7%
Yemen	1.13	0.91	2.13	1.24	1.24	0.31	0.30	0.36	0.31	0.30	0.30	-75.7%
Middle East	**54.64**	**39.00**	**31.76**	**46.04**	**31.28**	**46.95**	**44.66**	**54.14**	**67.91**	**59.32**	**65.05**	**108.0%**

CO_2 emissions from international aviation bunkers

million tonnes of CO_2

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
World	**167.33**	**171.81**	**199.72**	**222.02**	**255.34**	**286.84**	**350.10**	**413.78**	**447.08**	**427.57**	**455.32**	**78.3%**
Annex I Parties	*..*	*..*	*..*	*..*	*168.67*	*179.33*	*223.55*	*254.02*	*267.39*	*248.40*	*251.90*	*49.3%*
Annex II Parties	*58.57*	*61.75*	*70.77*	*81.47*	*131.19*	*159.76*	*204.47*	*229.79*	*239.51*	*220.94*	*223.60*	*70.4%*
North America	*16.61*	*17.53*	*21.18*	*21.83*	*41.50*	*48.54*	*60.20*	*70.76*	*72.19*	*65.49*	*67.82*	*63.4%*
Europe	*35.96*	*37.67*	*42.70*	*48.59*	*70.77*	*87.26*	*115.76*	*127.38*	*138.43*	*128.60*	*127.02*	*79.5%*
Asia Oceania	*6.01*	*6.55*	*6.90*	*11.05*	*18.92*	*23.96*	*28.52*	*31.65*	*28.88*	*26.85*	*28.76*	*52.0%*
Annex I EIT	*..*	*..*	*..*	*..*	*36.73*	*18.58*	*17.17*	*20.76*	*23.64*	*22.97*	*24.40*	*-33.6%*
Non-Annex I Parties	*..*	*..*	*..*	*..*	*86.66*	*107.51*	*126.55*	*159.76*	*179.69*	*179.17*	*203.42*	*134.7%*
Annex I Kyoto Parties	*..*	*..*	*..*	*..*	*129.13*	*132.38*	*164.53*	*182.34*	*192.57*	*180.76*	*183.35*	*42.0%*
Non-OECD Total *	**103.69**	**103.63**	**119.14**	**129.91**	**113.41**	**112.62**	**128.74**	**157.79**	**175.13**	**176.40**	**200.81**	**77.1%**
OECD Total **	**63.64**	**68.18**	**80.58**	**92.11**	**141.93**	**174.22**	**221.36**	**256.00**	**271.95**	**251.17**	**254.51**	**79.3%**
Canada	1.25	1.93	1.35	1.22	2.71	2.58	3.08	2.55	1.61	2.33	3.17	17.2%
Chile	0.43	0.35	0.54	0.49	0.57	0.64	1.04	1.05	1.59	1.30	1.52	169.3%
Mexico	1.39	2.40	4.23	4.53	5.23	6.75	8.05	8.52	9.42	7.96	8.08	54.5%
United States	15.35	15.60	19.83	20.61	38.79	45.96	57.11	68.21	70.58	63.16	64.65	66.7%
OECD Americas	**18.43**	**20.27**	**25.95**	**26.85**	**47.29**	**55.93**	**69.29**	**80.33**	**83.20**	**74.75**	**77.42**	**63.7%**
Australia	1.57	1.89	2.40	2.76	4.29	5.75	7.15	8.08	9.05	9.24	10.09	135.1%
Israel	1.79	1.88	2.21	1.99	1.56	2.10	2.35	3.16	2.46	2.37	2.37	51.6%
Japan	3.80	4.32	3.92	7.63	13.31	16.61	19.57	21.37	17.55	15.43	16.36	22.9%
Korea	-	0.36	0.83	1.69	0.84	2.05	1.70	7.25	11.28	10.93	11.89	+
New Zealand	0.64	0.34	0.57	0.66	1.32	1.60	1.79	2.20	2.29	2.18	2.31	74.7%
OECD Asia Oceania	**7.80**	**8.79**	**9.93**	**14.74**	**21.33**	**28.10**	**32.56**	**42.06**	**42.63**	**40.16**	**43.02**	**101.7%**
Austria	0.28	0.24	0.38	0.65	0.86	1.28	1.63	1.89	2.11	1.83	1.98	131.3%
Belgium	1.21	1.05	1.22	1.62	2.82	2.61	4.37	3.80	6.05	5.72	4.56	61.9%
Czech Republic	0.69	0.58	0.85	0.63	0.65	0.56	0.48	0.94	1.05	1.00	0.92	41.8%
Denmark	1.92	1.56	1.59	1.56	1.70	1.84	2.32	2.55	2.62	2.29	2.39	40.4%
Estonia	..	..	..	..	0.10	0.05	0.06	0.14	0.08	0.10	0.11	5.9%
Finland	0.18	0.40	0.46	0.48	0.97	0.86	1.02	1.24	1.72	1.51	1.59	63.1%
France	4.57	5.71	5.62	6.43	9.32	11.44	15.07	16.10	17.58	16.01	16.32	75.1%
Germany	7.57	8.16	8.22	9.46	13.34	15.76	19.50	22.56	24.99	24.39	24.05	80.2%
Greece	1.29	1.31	2.23	2.33	2.34	2.52	2.41	2.30	2.94	2.53	2.02	-13.7%
Hungary	0.15	0.20	0.36	0.44	0.49	0.54	0.69	0.79	0.82	0.70	0.70	43.1%
Iceland	0.22	0.13	0.09	0.18	0.22	0.20	0.39	0.40	0.41	0.33	0.37	69.0%
Ireland	0.96	0.73	0.60	0.57	1.03	1.11	1.73	2.35	2.69	1.64	2.14	107.4%
Italy	3.47	2.44	4.15	4.33	4.50	5.80	8.38	8.88	9.76	8.88	9.39	108.8%
Luxembourg	0.11	0.15	0.19	0.22	0.39	0.56	0.95	1.28	1.30	1.24	1.28	227.3%
Netherlands	2.01	2.26	2.72	3.47	4.29	7.38	9.65	10.67	11.02	10.25	10.00	133.0%
Norway	0.70	0.51	0.67	0.92	1.24	1.09	1.05	1.04	1.13	1.06	1.28	2.4%
Poland	0.52	0.53	0.67	0.67	0.68	0.82	0.82	0.96	1.59	1.44	1.52	123.8%
Portugal	0.70	0.80	0.88	1.27	1.49	1.49	1.69	2.13	2.59	2.43	2.63	76.9%
Slovak Republic	-	-	-	-	-	0.12	0.08	0.12	0.19	0.13	0.12	x
Slovenia	..	..	..	..	0.08	0.06	0.07	0.07	0.10	0.08	0.08	-3.8%
Spain	1.74	2.77	2.58	2.67	3.32	6.01	8.03	9.18	10.11	9.40	9.02	171.7%
Sweden	0.33	0.33	0.49	0.51	1.07	1.76	2.06	1.87	2.32	2.11	2.04	90.1%
Switzerland	1.63	1.80	2.02	2.41	3.00	3.63	4.57	3.48	4.14	3.98	4.16	38.6%
Turkey	0.09	0.14	0.12	0.18	0.53	0.78	1.54	3.21	3.86	4.22	3.60	576.6%
United Kingdom	7.08	7.32	8.59	9.53	18.86	21.92	30.93	35.65	34.95	33.00	31.80	68.7%
OECD Europe **	**37.41**	**39.12**	**44.70**	**50.51**	**73.30**	**90.19**	**119.51**	**133.60**	**146.12**	**136.27**	**134.07**	**82.9%**
European Union - 27	*..*	*..*	*..*	*..*	*71.34*	*87.30*	*113.95*	*127.86*	*139.36*	*129.06*	*127.27*	*78.4%*

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

CO_2 emissions from international aviation bunkers

million tonnes of CO_2

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Non-OECD Total *	**103.69**	**103.63**	**119.14**	**129.91**	**113.41**	**112.62**	**128.74**	**157.79**	**175.13**	**176.40**	**200.81**	**77.1%**
Albania	-	-	-	-	-	-	0.13	0.18	0.08	0.05	0.05	x
Armenia	..	..	..	..	0.59	0.10	0.19	0.13	0.17	0.09	0.13	-77.8%
Azerbaijan	..	..	..	..	0.94	0.24	0.36	1.42	1.31	0.92	1.19	27.3%
Belarus	..	..	..	..	-	-	-	-	-	-	-	-
Bosnia and Herzegovina	..	..	..	..	0.08	0.11	0.03	0.02	0.02	0.02	0.02	-80.0%
Bulgaria	0.61	0.61	0.91	1.11	0.71	0.98	0.24	0.56	0.63	0.45	0.50	-29.7%
Croatia	..	..	..	..	0.15	0.18	0.10	0.12	0.16	0.13	0.16	10.4%
Cyprus	0.15	0.02	0.23	0.44	0.72	0.79	0.82	0.89	0.87	0.81	0.82	14.4%
Georgia	..	..	..	..	0.60	0.01	0.05	0.11	0.12	0.12	0.12	-79.7%
Gibraltar	0.02	0.02	0.01	0.01	0.02	0.01	0.01	0.02	0.02	0.02	0.02	-28.6%
Kazakhstan	..	..	..	..	2.68	0.78	0.23	0.49	0.10	0.07	0.25	-90.7%
Kosovo **	-	-	-	-	..	..	-	-	-	-	0.00	..
Kyrgyzstan	..	..	..	..	0.26	0.19	0.12	0.38	1.20	1.24	1.22	366.3%
Latvia	..	..	..	..	0.22	0.08	0.08	0.17	0.29	0.30	0.35	60.6%
Lithuania	..	..	..	..	0.40	0.12	0.08	0.14	0.23	0.11	0.14	-64.0%
FYR of Macedonia	..	..	..	..	0.02	0.09	0.09	0.02	0.02	0.01	0.02	39.2%
Malta	0.17	0.18	0.23	0.14	0.21	0.22	0.37	0.26	0.38	0.27	0.30	41.4%
Republic of Moldova	..	..	..	..	0.22	0.03	0.06	0.04	0.04	0.04	0.04	-81.9%
Montenegro **	..	..	..	..	..	..	..	0.04	0.04	0.01	0.01	..
Romania	0.06	0.05	-	-	0.78	0.62	0.42	0.37	0.40	0.45	0.49	-37.2%
Russian Federation	..	..	..	..	26.37	13.99	13.27	15.27	17.34	17.36	18.49	-29.9%
Serbia **	..	..	..	..	0.43	0.11	0.09	0.15	0.15	0.13	0.13	-69.7%
Tajikistan	..	..	..	..	0.05	0.02	0.01	0.04	0.08	0.08	0.08	80.0%
Turkmenistan	..	..	..	..	0.61	0.49	0.79	0.93	1.10	1.03	0.98	61.0%
Ukraine	..	..	..	..	6.11	0.47	0.78	1.11	0.78	0.72	0.82	-86.6%
Uzbekistan	..	..	..	..	-	-	-	-	-	-	-	-
Former Soviet Union ***	66.66	62.09	70.62	76.70	..	..	..	..	..	..	..	..
Former Yugoslavia ***	0.64	0.88	1.00	0.99	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	**68.31**	**63.86**	**73.00**	**79.40**	**42.14**	**19.64**	**18.29**	**22.85**	**25.51**	**24.41**	**26.34**	**-37.5%**
Algeria	0.29	0.66	0.93	1.31	1.09	0.96	1.17	1.16	1.25	1.40	1.47	35.4%
Angola	0.23	0.31	0.25	0.99	1.03	1.17	1.42	0.56	0.42	0.61	0.62	-39.6%
Benin	0.02	0.01	0.03	0.06	0.05	0.07	0.07	0.03	0.13	0.27	0.47	831.3%
Botswana	..	..	..	0.01	0.03	0.02	0.02	0.03	0.05	0.05	0.05	45.5%
Cameroon	0.17	0.10	0.15	0.15	0.15	0.17	0.18	0.20	0.21	0.21	0.21	35.4%
Congo	-	0.05	0.11	0.09	0.08	0.05	0.10	0.14	0.18	0.19	0.19	150.0%
Dem. Rep. of Congo	0.28	0.24	0.37	0.40	0.32	0.35	0.24	0.50	0.05	0.05	0.46	44.5%
Côte d'Ivoire	0.13	0.21	0.26	0.28	0.27	0.26	0.37	0.28	0.17	0.17	0.13	-52.4%
Egypt	0.21	0.27	0.51	0.12	0.44	0.79	1.71	2.23	2.75	3.00	2.55	477.1%
Eritrea	..	..	..	..	..	0.02	0.03	0.03	0.01	0.00	0.00	..
Ethiopia	0.14	0.16	0.20	0.34	0.53	0.20	0.24	0.46	0.68	0.78	1.01	90.6%
Gabon	0.03	0.04	0.07	0.08	0.20	0.19	0.23	0.21	0.17	0.17	0.18	-8.4%
Ghana	0.13	0.15	0.12	0.10	0.14	0.18	0.32	0.39	0.39	0.41	0.36	157.1%
Kenya	0.57	0.89	1.10	0.82	0.83	1.37	1.36	1.76	1.76	1.80	1.70	105.3%
Libya	0.27	0.53	0.89	1.05	0.63	0.91	1.33	0.58	0.59	0.73	0.81	27.5%
Morocco	0.35	0.44	0.78	0.70	0.79	0.73	0.90	1.16	1.53	1.54	1.77	124.9%
Mozambique	0.12	0.05	0.08	0.09	0.13	0.06	0.13	0.14	0.18	0.21	0.20	56.1%
Namibia	..	..	..	..	..	0.10	0.12	0.04	0.11	0.11	0.12	..
Nigeria	0.24	0.70	1.14	1.33	0.95	1.25	0.58	0.70	2.63	2.00	0.51	-46.0%
Senegal	0.30	0.37	0.58	0.43	0.45	0.45	0.75	0.74	1.00	0.63	0.65	43.1%
South Africa	0.53	0.73	0.87	0.93	1.09	1.58	2.79	2.21	2.60	2.47	2.55	133.3%
Sudan	0.34	0.14	0.20	0.21	0.09	0.10	0.33	0.82	1.28	0.69	0.75	688.1%
United Rep. of Tanzania	0.08	0.20	0.17	0.13	0.22	0.19	0.18	0.26	0.32	0.31	0.32	44.6%
Togo	-	-	-	-	0.10	0.12	0.03	0.15	0.19	0.19	0.20	90.9%
Tunisia	0.39	0.38	0.56	0.30	0.57	0.74	0.85	0.65	0.70	0.60	0.75	31.7%
Zambia	0.04	0.14	0.23	0.12	0.19	0.10	0.13	0.16	0.12	0.09	0.09	-54.0%
Zimbabwe	0.07	0.17	0.19	0.32	0.23	0.33	0.35	0.02	0.02	0.02	0.02	-90.3%
Other Africa	-	-	0.90	0.90	0.83	0.95	1.49	1.69	1.80	1.74	1.80	118.5%
Africa	**4.91**	**6.93**	**10.70**	**11.28**	**11.44**	**13.39**	**17.41**	**17.32**	**21.28**	**20.44**	**19.94**	**74.4%**

* Includes Estonia and Slovenia prior to 1990.

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

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

CO_2 emissions from international aviation bunkers

million tonnes of CO_2

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Bangladesh	0.06	0.08	0.15	0.22	0.27	0.30	0.38	0.87	0.65	0.57	0.50	83.7%
Brunei Darussalam	0.00	0.06	0.07	0.05	0.11	0.21	0.21	0.25	0.28	0.27	0.33	188.9%
Cambodia	..	..	..	..	..	0.03	0.04	0.05	0.06	0.07	0.08	..
Chinese Taipei	1.48	1.62	1.66	0.92	1.79	4.09	5.38	6.46	5.86	5.54	6.25	248.6%
India	1.68	1.98	2.49	3.21	3.71	4.60	4.97	7.28	9.85	10.23	11.22	202.8%
Indonesia	0.16	0.32	0.73	0.65	0.96	1.17	1.21	1.52	1.82	1.90	2.01	109.2%
DPR of Korea	-	-	-	-	-	-	-	-	-	-	-	-
Malaysia	0.42	0.74	0.77	0.86	1.88	3.44	4.67	5.96	6.27	6.30	7.07	277.0%
Mongolia	..	..	..	-	0.01	0.06	0.06	0.06	0.10	0.05	0.05	300.0%
Myanmar	0.03	0.02	0.03	0.03	0.02	0.02	0.05	0.03	0.05	0.05	0.06	200.0%
Nepal	0.01	0.02	0.04	0.06	0.05	0.11	0.17	0.19	0.18	0.21	0.26	426.7%
Pakistan	1.13	1.08	1.69	1.41	1.39	1.70	2.28	2.84	2.38	2.54	2.63	88.8%
Philippines	0.70	0.82	0.66	1.02	1.01	1.16	1.42	2.12	2.82	2.89	2.93	191.2%
Singapore	0.70	1.32	2.71	3.19	5.63	7.81	11.89	13.45	15.46	15.09	17.02	202.1%
Sri Lanka	-	0.00	0.00	-	-	-	0.32	0.93	0.30	0.28	0.35	x
Thailand	1.26	2.17	2.39	3.12	5.58	7.51	8.27	10.17	10.97	10.49	11.15	99.7%
Vietnam	6.88	2.60	-	-	-	0.12	0.30	0.94	1.31	1.51	2.01	x
Other Asia	0.66	0.52	0.33	0.47	0.51	0.33	0.61	0.82	0.85	0.69	0.73	42.8%
Asia	**15.16**	**13.36**	**13.71**	**15.20**	**22.93**	**32.67**	**42.20**	**53.94**	**59.22**	**58.66**	**64.65**	**181.9%**
People's Rep. of China	-	-	-	0.22	0.50	0.99	2.13	6.19	6.04	8.00	16.35	+
Hong Kong, China	1.41	1.83	2.24	2.55	5.62	9.22	8.31	14.71	14.15	14.06	16.20	188.0%
China	**1.41**	**1.83**	**2.24**	**2.77**	**6.12**	**10.20**	**10.43**	**20.90**	**20.19**	**22.07**	**32.55**	**431.9%**
Argentina	-	-	-	-	-	1.58	2.83	2.14	1.35	1.40	1.95	x
Bolivia	-	-	-	-	-	-	0.14	0.15	0.13	0.13	0.14	x
Brazil	-	-	0.61	0.74	1.41	2.06	2.00	3.30	4.72	4.90	5.78	308.7%
Colombia	0.59	0.92	1.31	1.31	1.56	2.14	1.89	1.83	1.72	1.79	2.08	33.1%
Costa Rica	-	-	-	-	0.01	0.31	0.36	0.57	0.55	0.48	0.49	+
Cuba	0.27	0.43	0.65	0.89	0.98	0.53	0.64	0.53	0.45	0.43	0.43	-56.0%
Dominican Republic	0.08	0.10	0.17	0.16	0.11	0.17	0.22	0.30	0.29	0.29	0.30	161.1%
Ecuador	0.27	0.14	0.45	0.45	0.39	0.55	0.66	0.96	1.05	1.03	1.03	164.2%
El Salvador	0.03	0.05	0.06	0.11	0.11	0.16	0.22	0.24	0.35	0.35	0.34	200.0%
Guatemala	0.15	0.11	0.13	0.12	0.13	0.14	0.15	0.23	0.08	0.07	0.12	-4.8%
Haiti	0.02	0.03	0.05	0.04	0.07	0.07	0.09	0.07	0.07	0.05	0.06	-13.0%
Honduras	0.02	0.03	0.06	0.12	0.09	0.07	0.11	0.07	0.14	0.15	0.15	58.6%
Jamaica	0.42	0.33	0.30	0.39	0.46	0.52	0.53	0.60	0.98	0.52	0.76	63.3%
Netherlands Antilles	0.15	0.13	0.16	0.13	0.12	0.20	0.20	0.21	0.22	0.21	0.22	86.5%
Nicaragua	0.05	0.06	0.06	0.04	0.08	0.06	0.08	0.05	0.08	0.06	0.05	-30.7%
Panama	0.43	1.11	0.41	0.26	0.20	0.31	0.54	0.57	0.94	0.94	1.07	428.1%
Paraguay	0.03	0.04	0.06	0.06	0.03	0.03	0.04	0.05	0.06	0.06	0.07	144.8%
Peru	0.51	0.74	0.92	0.71	0.64	1.10	1.06	0.96	1.78	1.74	1.94	200.5%
Trinidad and Tobago	0.21	0.12	0.17	0.22	0.20	0.17	0.39	0.38	0.19	0.20	0.20	3.2%
Uruguay	-	-	-	-	-	-	0.12	0.12	0.21	0.21	0.24	x
Venezuela	0.29	0.37	0.73	0.81	1.02	1.00	0.94	2.03	0.45	0.48	1.88	83.5%
Other Non-OECD Americas	1.10	0.63	0.90	0.86	1.02	1.06	1.73	1.31	1.42	1.47	1.50	48.1%
Non-OECD Americas	**4.63**	**5.34**	**7.20**	**7.42**	**8.64**	**12.25**	**14.94**	**16.67**	**17.23**	**16.99**	**20.79**	**140.5%**
Bahrain	0.43	0.84	1.53	1.21	1.43	1.15	1.12	1.72	2.12	2.10	1.97	37.7%
Islamic Republic of Iran	7.02	7.01	2.15	1.64	1.48	1.97	2.71	2.69	3.23	3.70	3.80	156.4%
Iraq	0.24	0.81	1.05	0.58	0.98	1.26	1.63	1.98	2.14	2.19	2.22	126.5%
Jordan	0.12	0.18	0.57	0.61	0.66	0.75	0.75	0.96	0.91	0.98	1.08	62.3%
Kuwait	0.34	0.34	1.04	0.97	0.51	1.12	1.15	1.82	2.15	2.41	2.40	369.8%
Lebanon	0.28	0.23	0.15	0.32	0.16	0.66	0.40	0.46	0.53	0.55	0.70	342.0%
Oman	0.01	0.15	0.38	0.57	0.93	0.46	0.65	1.24	0.96	0.98	1.24	33.1%
Qatar	-	0.16	0.23	0.24	0.34	0.43	0.57	1.43	2.71	2.76	3.84	+
Saudi Arabia	0.47	1.40	3.45	4.57	4.79	5.69	5.85	5.44	6.18	6.11	6.46	34.7%
Syrian Arab Republic	0.24	0.65	0.72	0.87	0.87	0.62	0.41	0.33	0.15	0.14	0.09	-89.1%
United Arab Emirates	0.02	0.34	0.80	1.80	9.79	10.08	9.87	7.67	10.29	11.48	12.35	26.1%
Yemen	0.09	0.18	0.21	0.46	0.17	0.28	0.38	0.36	0.36	0.43	0.39	121.9%
Middle East	**9.26**	**12.31**	**12.30**	**13.84**	**22.13**	**24.47**	**25.47**	**26.11**	**31.70**	**33.82**	**36.55**	**65.1%**

CO_2 emissions by sector in 2010 *

million tonnes of CO_2

	Total CO_2 emissions from fuel combustion	Electricity and heat production	Other energy industry own use **	Manufacturing industries and construction	Transport	*of which: road*	Other sectors	*of which: residential*
World * **	**30 276.1**	**12 480.6**	**1 570.8**	**6 186.4**	**6 755.8**	**4 972.1**	**3 282.6**	**1 880.4**
Annex I Parties	*13 398.1*	*5 526.6*	*674.8*	*1 980.5*	*3 369.4*	*2 908.3*	*1 846.9*	*1 090.5*
Annex II Parties	*10 519.3*	*4 104.1*	*562.5*	*1 460.3*	*2 921.2*	*2 582.9*	*1 471.2*	*824.5*
North America	*5 905.3*	*2 424.2*	*325.1*	*687.9*	*1 791.4*	*1 540.1*	*676.8*	*360.6*
Europe	*3 056.6*	*1 006.6*	*160.7*	*467.9*	*811.4*	*760.4*	*610.1*	*394.6*
Asia Oceania	*1 557.4*	*673.3*	*76.8*	*304.5*	*318.5*	*282.3*	*184.3*	*69.3*
Annex I EIT	*2 610.5*	*1 320.4*	*101.3*	*469.2*	*403.6*	*285.9*	*316.0*	*225.0*
Non-Annex I Parties	*15 779.0*	*6 954.0*	*896.0*	*4 205.9*	*2 287.4*	*2 063.8*	*1 435.7*	*789.9*
Annex I Kyoto Parties	*7 695.8*	*3 081.9*	*397.6*	*1 332.2*	*1 695.7*	*1 462.1*	*1 188.4*	*719.8*
Non-OECD Total	**16 736.8**	**7 542.6**	**883.6**	**4 432.3**	**2 331.0**	**2 004.5**	**1 547.3**	**898.5**
OECD Total	**12 440.3**	**4 937.9**	**687.2**	**1 754.1**	**3 325.8**	**2 967.6**	**1 735.3**	**982.0**
Canada	536.6	114.5	63.1	100.8	169.7	139.6	88.6	38.9
Chile	69.7	24.8	2.4	15.4	21.2	18.7	5.9	3.4
Mexico	416.9	123.2	55.5	54.8	151.4	147.3	32.0	18.9
United States	5 368.6	2 309.7	262.0	587.1	1 621.7	1 400.5	588.2	321.7
OECD Americas	**6 391.9**	**2 572.2**	**383.0**	**758.1**	**1 964.0**	**1 706.2**	**714.7**	**382.9**
Australia	383.5	203.1	31.2	48.6	82.2	69.1	18.4	8.0
Israel	68.1	40.3	3.1	3.5	11.9	11.9	9.2	2.6
Japan	1 143.1	463.5	44.0	249.8	222.7	201.1	163.1	60.8
Korea	563.1	279.2	36.2	98.6	86.8	81.8	62.3	32.9
New Zealand	30.9	6.7	1.6	6.1	13.6	12.2	2.8	0.5
OECD Asia Oceania	**2 188.6**	**992.9**	**116.2**	**406.5**	**417.2**	**376.0**	**255.8**	**104.9**
Austria	69.3	16.5	7.4	12.8	21.9	21.2	10.7	7.6
Belgium	106.4	22.8	5.6	24.6	24.8	24.2	28.7	18.6
Czech Republic	114.5	62.8	2.4	19.8	16.7	15.9	12.8	7.9
Denmark	47.0	22.0	2.2	4.0	12.9	11.9	5.9	3.2
Estonia	18.5	14.7	0.1	0.8	2.2	2.0	0.6	0.2
Finland	62.9	31.2	3.6	10.1	12.5	11.5	5.5	1.9
France	357.8	55.0	16.3	62.6	123.6	118.3	100.2	57.0
Germany	761.6	326.9	26.3	116.0	145.5	141.0	146.9	101.0
Greece	84.3	41.4	3.4	8.2	21.8	18.7	9.5	6.6
Hungary	48.9	16.0	1.6	5.9	11.6	11.4	13.8	8.6
Iceland	1.9	0.0	-	0.5	0.8	0.8	0.6	0.0
Ireland	38.7	13.0	0.4	3.5	11.5	11.2	10.3	7.2
Italy	398.5	135.0	18.2	53.4	108.1	101.9	83.8	53.3
Luxembourg	10.6	1.3	-	1.2	6.5	6.5	1.7	1.0
Netherlands	187.0	59.4	10.4	42.3	33.3	32.5	41.6	20.5
Norway	39.2	2.8	11.2	7.5	14.0	10.4	3.5	0.6
Poland	305.1	157.7	7.6	34.1	46.8	45.7	58.9	37.3
Portugal	48.2	15.1	2.4	7.3	18.4	17.4	5.0	2.2
Slovak Republic	35.0	8.7	4.8	7.8	6.9	5.9	6.8	3.4
Slovenia	15.3	6.1	0.0	2.0	5.1	5.1	2.1	1.2
Spain	268.3	71.4	17.7	47.9	97.7	85.1	33.7	19.6
Sweden	47.6	11.2	2.4	9.1	21.5	20.4	3.2	0.4
Switzerland	43.8	2.8	1.0	5.8	17.0	16.7	17.2	11.4
Turkey	265.9	100.3	10.9	51.0	44.0	39.0	59.7	40.9
United Kingdom	483.5	178.7	32.3	51.1	119.3	110.7	102.1	82.4
OECD Europe	**3 859.8**	**1 372.9**	**188.1**	**589.4**	**944.6**	**885.4**	**764.8**	**494.1**
European Union - 27	*3 659.5*	*1 340.9*	*173.3*	*546.9*	*900.4*	*848.2*	*698.1*	*449.4*

* This table shows CO_2 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.28-II.30.

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

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

CO_2 emissions by sector in 2010

million tonnes of CO_2

	Total CO_2 emissions from fuel combustion	Electricity and heat production	Other energy industry own use	Manufacturing industries and construction	Transport	*of which: road*	Other sectors	*of which: residential*
Non-OECD Total	**16 736.8**	**7 542.6**	**883.6**	**4 432.3**	**2 331.0**	**2 004.5**	**1 547.3**	**898.5**
Albania	3.8	0.0	0.1	0.8	2.3	2.2	0.6	0.2
Armenia	4.0	0.6	-	0.5	1.3	1.3	1.6	0.9
Azerbaijan	24.7	9.1	2.4	1.0	5.1	4.5	7.0	5.9
Belarus	65.3	32.9	4.3	10.2	7.4	6.1	10.6	7.9
Bosnia and Herzegovina	19.9	13.1	0.4	1.6	3.2	3.2	1.6	0.6
Bulgaria	43.8	29.3	1.0	4.3	7.7	7.2	1.6	0.8
Croatia	19.0	4.2	1.9	3.5	6.0	5.6	3.5	2.1
Cyprus	7.2	3.8	-	0.7	2.2	2.2	0.6	0.3
Georgia	4.9	0.8	0.2	0.7	2.1	2.0	1.2	0.8
Gibraltar	0.5	0.1	-	0.1	0.3	0.3	-	-
Kazakhstan	232.1	74.9	47.2	52.4	12.9	11.8	44.8	9.6
Kosovo	8.5	6.7	-	0.5	1.0	1.0	0.4	0.2
Kyrgyzstan	7.0	1.3	-	1.9	2.6	2.6	1.2	-
Latvia	8.1	2.4	-	1.2	3.2	2.9	1.4	0.5
Lithuania	13.4	3.7	1.8	2.2	4.3	4.0	1.3	0.7
FYR of Macedonia	8.2	5.4	0.0	1.1	1.3	1.3	0.4	0.1
Malta	2.5	1.8	-	0.0	0.5	0.5	0.1	0.1
Republic of Moldova	6.1	2.7	0.0	0.2	1.0	1.0	2.2	1.8
Montenegro	2.1	1.7	-	0.2	0.2	-	0.0	0.0
Romania	75.6	33.0	5.6	13.8	13.8	12.8	9.4	5.8
Russian Federation	1 581.4	832.6	63.2	294.3	242.0	139.9	149.3	113.5
Serbia	46.0	30.4	0.5	5.5	6.5	5.5	3.1	1.5
Tajikistan	2.7	0.5	-	-	0.3	0.3	2.0	-
Turkmenistan	52.7	16.4	8.0	3.1	4.3	2.4	21.0	-
Ukraine	266.6	116.3	7.2	69.1	30.0	21.3	44.0	34.9
Uzbekistan	100.2	36.0	3.3	17.1	7.9	4.7	36.0	27.3
Non-OECD Europe and Eurasia	**2 606.3**	**1 259.7**	**146.8**	**486.0**	**369.2**	**246.8**	**344.6**	**215.6**
Algeria	98.6	25.0	11.1	12.7	33.3	29.7	16.4	13.1
Angola	16.6	2.3	0.3	2.7	7.5	6.8	3.9	1.3
Benin	4.5	0.1	-	0.1	3.1	3.1	1.1	1.1
Botswana	4.6	1.2	-	1.2	2.0	2.0	0.2	0.1
Cameroon	5.0	1.2	0.4	0.4	2.7	2.5	0.4	0.4
Congo	1.7	0.1	-	0.1	1.4	1.4	0.1	0.1
Dem. Rep. of Congo	3.1	0.0	-	1.1	0.7	0.7	1.2	0.3
Côte d'Ivoire	5.8	2.7	0.2	0.5	1.3	1.0	1.2	0.4
Egypt	177.6	66.0	14.8	33.4	38.4	35.4	24.9	15.2
Eritrea	0.5	0.2	-	0.0	0.1	0.1	0.1	0.0
Ethiopia	5.4	0.0	-	1.3	2.7	2.7	1.3	0.7
Gabon	2.7	0.7	0.0	1.0	0.6	0.6	0.3	0.1
Ghana	9.5	2.2	0.1	1.4	4.9	4.5	0.9	0.5
Kenya	10.9	2.1	0.2	2.3	4.7	4.5	1.6	1.0
Libya	51.6	28.0	3.1	6.3	12.1	12.1	2.2	2.2
Morocco	46.0	16.0	0.8	7.6	10.6	10.6	11.0	4.2
Mozambique	2.5	0.0	0.0	0.4	1.7	1.5	0.4	0.1
Namibia	3.3	0.3	-	0.3	1.8	1.7	1.0	-
Nigeria	45.9	10.6	5.8	3.8	19.0	15.5	6.7	1.7
Senegal	5.5	1.9	0.0	1.0	2.0	1.9	0.6	0.4
South Africa	346.8	237.8	2.3	49.5	38.2	35.5	19.1	9.0
Sudan	13.7	2.7	0.5	2.3	6.8	6.7	1.4	0.8
United Rep. of Tanzania	6.0	1.5	-	0.9	3.0	3.0	0.6	0.5
Togo	1.2	0.0	-	0.1	0.9	0.9	0.1	0.1
Tunisia	21.9	7.4	0.1	5.1	6.0	6.0	3.3	1.6
Zambia	1.9	0.0	0.1	0.8	0.6	0.4	0.4	-
Zimbabwe	9.1	5.3	0.1	1.1	1.2	1.1	1.4	0.1
Other Africa	27.9	8.1	-	3.4	12.4	10.9	4.0	2.4
Africa	**929.7**	**423.4**	**39.8**	**140.9**	**219.7**	**203.0**	**105.9**	**57.6**

CO_2 emissions by sector in 2010

million tonnes of CO_2

	Total CO_2 emissions from fuel combustion	Electricity and heat production	Other energy industry own use	Manufacturing industries and construction	Transport	*of which: road*	Other sectors	*of which: residential*
Bangladesh	53.0	25.1	0.2	9.2	8.4	6.4	10.1	5.7
Brunei Darussalam	8.2	2.8	1.8	2.3	1.2	1.2	0.1	0.1
Cambodia	3.8	0.8	-	0.7	1.9	1.5	0.4	0.4
Chinese Taipei	270.2	152.2	13.3	59.7	35.5	34.3	9.6	4.5
India	1 625.8	875.8	61.1	400.9	161.5	144.7	126.5	74.8
Indonesia	410.9	120.4	29.2	124.9	105.8	92.8	30.5	16.8
DPR of Korea	63.0	10.1	0.0	39.7	0.9	0.9	12.2	0.1
Malaysia	185.0	91.1	10.5	32.2	42.4	42.2	8.7	1.9
Mongolia	11.9	8.1	0.0	1.3	1.4	1.0	1.0	0.9
Myanmar	8.0	2.0	0.7	2.5	2.3	1.8	0.6	0.0
Nepal	3.7	0.0	-	0.8	1.9	1.9	1.0	0.4
Pakistan	134.6	40.1	1.4	42.5	32.7	31.6	18.0	13.1
Philippines	76.4	32.6	1.7	12.7	23.5	20.6	6.0	2.5
Singapore	62.9	22.7	6.0	25.9	8.0	8.0	0.3	0.2
Sri Lanka	13.3	4.1	0.0	1.2	6.9	6.5	1.0	0.4
Thailand	248.5	81.8	15.5	77.7	55.4	54.9	18.1	4.4
Vietnam	130.5	41.0	3.1	44.0	30.2	29.5	12.2	7.2
Other Asia	20.9	6.6	-	3.7	8.0	6.8	2.6	0.8
Asia	**3 330.6**	**1 517.1**	**144.7**	**882.0**	**527.8**	**486.4**	**258.9**	**133.9**
People's Rep. of China	7 217.1	3 549.2	275.5	2 327.6	508.0	395.3	556.8	302.4
Hong Kong, China	41.5	27.7	-	5.7	5.6	5.6	2.4	0.8
China	**7 258.5**	**3 576.9**	**275.5**	**2 333.4**	**513.6**	**400.9**	**559.2**	**303.1**
Argentina	170.2	46.0	17.1	30.1	41.3	38.0	35.8	21.5
Bolivia	14.1	2.9	1.2	1.6	6.8	6.5	1.6	1.2
Brazil	387.7	44.7	25.1	114.0	166.0	148.2	37.7	17.0
Colombia	60.7	10.0	6.7	14.8	21.6	20.6	7.6	3.7
Costa Rica	6.5	0.5	0.1	1.0	4.5	4.5	0.4	0.1
Cuba	30.0	17.6	0.4	8.8	1.4	1.3	1.8	0.6
Dominican Republic	18.6	9.4	0.0	1.6	5.2	4.2	2.3	2.1
Ecuador	30.1	6.9	1.1	4.1	14.6	12.3	3.3	2.8
El Salvador	5.9	1.3	0.0	1.3	2.5	2.5	0.6	0.6
Guatemala	10.3	2.5	0.1	1.4	5.6	5.6	0.7	0.7
Haiti	2.1	0.3	-	0.5	1.1	0.4	0.2	0.2
Honduras	7.3	2.2	-	1.3	3.0	3.0	0.8	0.2
Jamaica	8.0	3.0	0.2	0.2	2.8	1.4	1.7	0.1
Netherlands Antilles	3.8	0.9	0.8	0.7	1.2	1.2	0.2	0.2
Nicaragua	4.5	1.7	0.1	0.6	1.7	1.6	0.4	0.1
Panama	8.4	2.2	-	1.9	3.5	3.5	0.7	0.5
Paraguay	4.7	-	-	0.2	4.3	4.2	0.3	0.2
Peru	41.9	10.4	3.9	8.6	16.3	15.4	2.8	1.7
Trinidad and Tobago	42.8	5.9	8.7	24.6	3.1	3.1	0.4	0.4
Uruguay	6.4	0.9	0.6	0.8	3.0	2.9	1.2	0.5
Venezuela	183.0	31.3	49.7	47.7	48.2	48.2	6.2	5.3
Other Non-OECD Americas	18.4	9.4	0.0	1.5	5.2	4.6	2.3	1.1
Non-OECD Americas	**1 065.4**	**210.1**	**115.9**	**267.4**	**362.9**	**333.3**	**109.1**	**60.8**
Bahrain	23.6	8.5	4.5	6.8	3.6	3.6	0.2	0.2
Islamic Rep. of Iran	509.0	131.5	30.2	95.9	118.7	117.4	132.7	100.4
Iraq	104.5	50.3	4.0	8.2	29.7	29.7	12.2	12.2
Jordan	18.6	8.4	0.6	2.3	5.2	5.1	2.2	1.3
Kuwait	87.4	48.0	12.2	15.0	11.7	11.7	0.5	0.5
Lebanon	18.6	11.1	-	1.3	5.0	5.0	1.2	1.2
Oman	40.3	15.7	7.9	8.5	6.3	6.3	1.9	0.5
Qatar	64.9	13.9	20.3	21.2	9.2	9.2	0.3	0.3
Saudi Arabia	446.0	176.9	74.4	86.3	104.4	102.3	4.0	4.0
Syrian Arab Republic	57.8	27.6	1.5	8.8	12.2	12.0	7.7	4.4
United Arab Emirates	154.0	58.4	2.1	67.2	25.7	25.7	0.6	0.6
Yemen	21.7	5.1	3.3	0.9	6.2	6.2	6.2	1.9
Middle East	**1 546.3**	**555.4**	**160.9**	**322.6**	**337.8**	**334.1**	**169.6**	**127.4**

CO_2 emissions with electricity and heat allocated to consuming sectors * in 2010

million tonnes of CO_2

	Total CO_2 emissions from fuel combustion	Other energy industry own use **	Manufacturing industries and construction	Transport	*of which: road*	Other sectors	*of which: residential*
World * **	**30 276.1**	**2 175.7**	**11 166.7**	**6 912.9**	**4 972.1**	**10 020.8**	**5 376.3**
Annex I Parties	*13 398.1*	*956.1*	*3 653.4*	*3 445.5*	*2 908.3*	*5 343.1*	*2 907.1*
Annex II Parties	*10 519.3*	*686.3*	*2 632.0*	*2 957.9*	*2 582.9*	*4 243.1*	*2 183.1*
North America	*5 905.3*	*394.8*	*1 271.4*	*1 796.7*	*1 540.1*	*2 442.4*	*1 231.3*
Europe	*3 056.6*	*198.5*	*830.5*	*830.3*	*760.4*	*1 197.3*	*683.9*
Asia Oceania	*1 557.4*	*92.9*	*530.1*	*330.9*	*282.3*	*603.4*	*267.9*
Annex I EIT	*2 610.5*	*257.7*	*920.6*	*442.7*	*285.9*	*989.4*	*660.1*
Non-Annex I Parties	*15 779.0*	*1 219.6*	*7 513.2*	*2 368.4*	*2 063.8*	*4 677.7*	*2 469.3*
Annex I Kyoto Parties	*7 695.8*	*611.8*	*2 399.8*	*1 766.5*	*1 462.1*	*2 917.7*	*1 665.4*
Non-OECD Total	**16 736.8**	**1 284.1**	**8 205.7**	**2 425.5**	**2 004.5**	**4 821.6**	**2 659.6**
OECD Total	**12 440.3**	**845.3**	**3 281.9**	**3 369.2**	**2 967.6**	**4 943.8**	**2 548.2**
Canada	536.6	69.4	139.7	170.5	139.6	157.0	72.4
Chile	69.7	2.6	31.5	21.4	18.7	14.2	7.6
Mexico	416.9	59.8	120.7	152.1	147.3	84.4	47.2
United States	5 368.6	325.4	1 131.6	1 626.1	1 400.5	2 285.4	1 158.9
OECD Americas	**6 391.9**	**457.2**	**1 423.6**	**1 970.2**	**1 706.2**	**2 541.0**	**1 286.1**
Australia	383.5	40.5	120.7	85.9	69.1	136.3	65.9
Israel	68.1	3.4	13.7	11.9	11.9	39.0	15.2
Japan	1 143.1	50.6	400.9	231.4	201.1	460.1	199.2
Korea	563.1	41.8	238.4	88.0	81.8	195.0	77.7
New Zealand	30.9	1.7	8.5	13.6	12.2	7.0	2.8
OECD Asia Oceania	**2 188.6**	**138.1**	**782.2**	**430.8**	**376.0**	**837.4**	**360.8**
Austria	69.3	7.7	18.7	22.6	21.2	20.4	13.0
Belgium	106.4	6.7	35.1	25.3	24.2	39.4	23.5
Czech Republic	114.5	6.9	40.8	18.2	15.9	48.5	28.2
Denmark	47.0	2.6	7.4	13.0	11.9	24.0	13.7
Estonia	18.5	0.8	3.6	2.3	2.0	11.8	6.8
Finland	62.9	3.9	24.0	12.7	11.5	22.3	11.6
France	357.8	19.3	75.1	125.0	118.3	138.4	74.4
Germany	761.6	33.9	244.5	153.6	141.0	329.5	194.9
Greece	84.3	5.0	18.7	21.9	18.7	38.7	20.5
Hungary	48.9	2.5	10.2	12.0	11.4	24.2	14.3
Iceland	1.9	0.0	0.5	0.8	0.8	0.6	0.0
Ireland	38.7	0.5	7.0	11.5	11.2	19.6	11.6
Italy	398.5	28.8	113.8	112.0	101.9	143.8	79.4
Luxembourg	10.6	-	1.8	6.5	6.5	2.3	1.2
Netherlands	187.0	15.1	63.9	34.1	32.5	73.9	32.3
Norway	39.2	11.3	8.6	14.1	10.4	5.2	1.5
Poland	305.1	23.9	75.4	49.0	45.7	156.8	96.0
Portugal	48.2	3.1	13.0	18.5	17.4	13.6	6.1
Slovak Republic	35.0	5.2	10.8	7.0	5.9	12.1	5.8
Slovenia	15.3	0.1	4.6	5.2	5.1	5.4	3.1
Spain	268.3	19.7	70.1	98.6	85.1	79.9	40.3
Sweden	47.6	2.7	12.6	21.7	20.4	10.6	4.9
Switzerland	43.8	1.0	6.7	17.2	16.7	19.0	12.3
Turkey	265.9	12.1	100.2	44.3	39.0	109.3	63.2
United Kingdom	483.5	37.2	109.0	121.3	110.7	216.1	142.8
OECD Europe	**3 859.8**	**250.0**	**1 076.1**	**968.3**	**885.4**	**1 565.4**	**901.3**
European Union - 27	*3 659.5*	*239.2*	*1 005.9*	*924.6*	*848.2*	*1 489.9*	*859.8*

* CO_2 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.25-II.27.

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

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

CO_2 emissions with electricity and heat allocated to consuming sectors in 2010

million tonnes of CO_2

	Total CO_2 emissions from fuel combustion	Other energy industry own use	Manufacturing industries and construction	Transport	*of which: road*	Other sectors	*of which: residential*
Non-OECD Total	**16 736.8**	**1 284.1**	**8 205.7**	**2 425.5**	**2 004.5**	**4 821.6**	**2 659.6**
Albania	3.8	0.1	0.8	2.3	2.2	0.6	0.2
Armenia	4.0	-	0.7	1.3	1.3	2.1	1.1
Azerbaijan	24.7	3.4	3.3	5.4	4.5	12.6	9.0
Belarus	65.3	6.8	21.3	8.0	6.1	29.3	19.0
Bosnia and Herzegovina	19.9	0.8	5.7	3.4	3.2	10.0	6.7
Bulgaria	43.8	3.2	13.8	8.0	7.2	18.9	11.2
Croatia	19.0	1.9	4.4	6.0	5.6	6.6	4.0
Cyprus	7.2	0.0	1.1	2.2	2.2	3.9	1.6
Georgia	4.9	0.2	0.9	2.1	2.0	1.6	1.2
Gibraltar	0.5	-	0.1	0.3	0.3	0.1	-
Kazakhstan	232.1	53.8	91.0	14.5	11.8	72.8	28.3
Kosovo	8.5	0.0	2.3	1.0	1.0	5.2	3.8
Kyrgyzstan	7.0	0.0	2.4	2.6	2.6	1.9	0.2
Latvia	8.1	-	1.5	3.2	2.9	3.4	1.8
Lithuania	13.4	2.0	3.1	4.3	4.0	4.0	2.3
FYR of Macedonia	8.2	0.3	2.7	1.3	1.3	3.9	2.5
Malta	2.5	-	0.6	0.5	0.5	1.4	0.6
Republic of Moldova	6.1	0.1	0.8	1.0	1.0	4.1	3.1
Montenegro	2.1	0.1	1.0	0.2	-	0.8	0.7
Romania	75.6	8.4	25.6	14.5	12.8	27.1	18.0
Russian Federation	1 581.4	175.8	589.5	271.8	139.9	544.3	372.8
Serbia	46.0	1.1	14.8	6.7	5.5	23.4	16.7
Tajikistan	2.7	0.0	0.2	0.3	0.3	2.2	0.1
Turkmenistan	52.7	10.1	7.2	4.6	2.4	30.8	2.4
Ukraine	266.6	20.2	116.1	33.3	21.3	97.0	76.9
Uzbekistan	100.2	4.0	25.4	8.6	4.7	62.2	31.2
Non-OECD Europe and Eurasia	**2 606.3**	**292.4**	**936.4**	**407.3**	**246.8**	**970.3**	**615.4**
Algeria	98.6	11.6	22.0	33.8	29.7	31.2	21.7
Angola	16.6	0.3	3.4	7.5	6.8	5.5	2.9
Benin	4.5	-	0.2	3.1	3.1	1.2	1.2
Botswana	4.6	-	1.7	2.0	2.0	0.9	0.4
Cameroon	5.0	0.4	1.1	2.7	2.5	0.9	0.6
Congo	1.7	-	0.1	1.4	1.4	0.1	0.1
Dem. Rep. of Congo	3.1	-	1.1	0.7	0.7	1.2	0.3
Côte d'Ivoire	5.8	0.2	1.1	1.3	1.0	3.2	1.6
Egypt	177.6	14.8	54.9	38.4	35.4	69.4	42.3
Eritrea	0.5	-	0.1	0.1	0.1	0.3	0.1
Ethiopia	5.4	-	1.3	2.7	2.7	1.3	0.8
Gabon	2.7	0.0	1.2	0.6	0.6	0.8	0.5
Ghana	9.5	0.1	2.4	4.9	4.5	2.1	1.4
Kenya	10.9	0.2	3.5	4.7	4.5	2.4	1.5
Libya	51.6	3.1	10.9	12.1	12.1	25.6	9.8
Morocco	46.0	1.3	13.5	10.7	10.6	20.5	9.3
Mozambique	2.5	0.0	0.5	1.7	1.5	0.4	0.1
Namibia	3.3	-	0.3	1.8	1.7	1.2	-
Nigeria	45.9	5.8	5.5	19.0	15.5	15.6	7.8
Senegal	5.5	0.0	1.4	2.0	1.9	2.0	1.1
South Africa	346.8	14.4	173.6	42.0	35.5	116.8	53.2
Sudan	13.7	0.5	2.6	6.8	6.7	3.8	2.2
United Rep. of Tanzania	6.0	0.1	1.6	3.0	3.0	1.3	1.2
Togo	1.2	-	0.1	0.9	0.9	0.2	0.2
Tunisia	21.9	0.1	7.9	6.1	6.0	7.9	3.6
Zambia	1.9	0.1	0.8	0.7	0.4	0.4	0.0
Zimbabwe	9.1	0.1	3.5	1.2	1.1	4.3	1.7
Other Africa	27.9	0.2	5.4	12.4	10.9	10.0	5.3
Africa	**929.7**	**53.2**	**321.8**	**224.4**	**203.0**	**330.4**	**170.8**

CO_2 emissions with electricity and heat allocated to consuming sectors in 2010

million tonnes of CO_2

	Total CO_2 emissions from fuel combustion	Other energy industry own use	Manufacturing industries and construction	Transport	*of which: road*	Other sectors	*of which: residential*
Bangladesh	53.0	0.2	23.1	8.4	6.4	21.2	13.8
Brunei Darussalam	8.2	1.8	2.8	1.2	1.2	2.4	1.1
Cambodia	3.8	-	0.8	1.9	1.5	1.0	0.8
Chinese Taipei	270.2	15.9	144.7	36.3	34.3	73.3	34.3
India	1 625.8	61.1	797.1	178.0	144.7	589.7	263.5
Indonesia	410.9	29.2	166.6	105.8	92.8	109.3	65.7
DPR of Korea	63.0	0.0	44.8	0.9	0.9	17.3	0.1
Malaysia	185.0	10.5	75.5	42.6	42.2	56.3	20.4
Mongolia	11.9	0.0	4.2	1.5	1.0	6.1	4.0
Myanmar	8.0	0.7	3.2	2.3	1.8	1.8	0.9
Nepal	3.7	-	0.8	1.9	1.9	1.0	0.4
Pakistan	134.6	1.4	53.5	32.7	31.6	47.1	31.7
Philippines	76.4	1.7	23.6	23.6	20.6	27.5	13.6
Singapore	62.9	6.0	33.6	9.0	8.0	14.4	4.0
Sri Lanka	13.3	0.0	2.6	6.9	6.5	3.7	2.0
Thailand	248.5	15.5	112.6	55.4	54.9	65.0	22.6
Vietnam	130.5	3.1	65.9	30.2	29.5	31.3	22.0
Other Asia	20.9	0.5	6.0	8.0	6.8	6.5	2.2
Asia	**3 330.6**	**147.8**	**1 561.5**	**546.4**	**486.4**	**1 074.8**	**502.9**
People's Rep. of China	7 217.1	489.3	4 607.4	540.0	395.3	1 580.4	865.3
Hong Kong, China	41.5	-	7.8	5.6	5.6	28.1	8.0
China	**7 258.5**	**489.3**	**4 615.2**	**545.6**	**400.9**	**1 608.5**	**873.3**
Argentina	170.2	17.1	49.8	41.6	38.0	61.8	35.5
Bolivia	14.1	1.2	2.4	6.8	6.5	3.7	2.2
Brazil	387.7	27.2	133.8	166.2	148.2	60.4	27.6
Colombia	60.7	6.7	17.9	21.6	20.6	14.5	7.8
Costa Rica	6.5	0.1	1.1	4.5	4.5	0.8	0.3
Cuba	30.0	0.4	13.7	1.7	1.3	14.3	9.1
Dominican Republic	18.6	0.0	5.4	5.2	4.2	7.9	5.2
Ecuador	30.1	1.1	6.3	14.6	12.3	8.0	5.3
El Salvador	5.9	0.0	1.9	2.5	2.5	1.4	1.0
Guatemala	10.3	0.1	2.4	5.6	5.6	2.2	1.5
Haiti	2.1	-	0.6	1.1	0.4	0.4	0.3
Honduras	7.3	-	1.9	3.0	3.0	2.5	1.1
Jamaica	8.0	0.2	0.9	2.8	1.4	4.0	1.2
Netherlands Antilles	3.8	0.8	1.2	1.2	1.2	0.6	0.2
Nicaragua	4.5	0.1	1.1	1.7	1.6	1.6	0.7
Panama	8.4	-	2.2	3.5	3.5	2.7	1.2
Paraguay	4.7	-	0.2	4.3	4.2	0.3	0.2
Peru	41.9	3.9	14.1	16.3	15.4	7.6	4.2
Trinidad and Tobago	42.8	8.7	28.2	3.1	3.1	2.8	2.1
Uruguay	6.4	0.6	1.1	3.0	2.9	1.8	0.8
Venezuela	183.0	50.4	61.3	48.3	48.2	23.0	14.1
Other Non-OECD Americas	18.4	0.0	3.7	5.2	4.6	9.5	4.2
Non-OECD Americas	**1 065.4**	**118.7**	**351.0**	**363.7**	**333.3**	**231.9**	**125.9**
Bahrain	23.6	4.5	7.8	3.6	3.6	7.7	4.4
Islamic Rep. of Iran	509.0	31.5	140.1	118.9	117.4	218.6	143.0
Iraq	104.5	4.0	16.6	29.7	29.7	54.2	34.2
Jordan	18.6	0.7	4.4	5.2	5.1	8.4	4.7
Kuwait	87.4	18.9	15.0	11.7	11.7	41.8	27.4
Lebanon	18.6	-	4.2	5.0	5.0	9.4	5.4
Oman	40.3	7.9	10.0	6.3	6.3	16.1	8.7
Qatar	64.9	20.3	25.6	9.2	9.2	9.8	3.4
Saudi Arabia	446.0	88.2	104.2	104.4	102.3	149.1	94.5
Syrian Arab Republic	57.8	1.5	18.1	12.2	12.0	26.0	17.0
United Arab Emirates	154.0	2.1	72.8	25.7	25.7	53.4	23.3
Yemen	21.7	3.3	0.9	6.2	6.2	11.2	5.3
Middle East	**1 546.3**	**182.8**	**419.8**	**338.0**	**334.1**	**605.7**	**371.3**

Total primary energy supply

petajoules

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
World *	**231 428**	**259 118**	**302 052**	**324 001**	**367 298**	**386 656**	**419 055**	**479 455**	**513 426**	**509 603**	**534 434**	**45.5%**
Annex I Parties	*..*	*..*	*..*	*..*	*233 722*	*229 465*	*241 484*	*250 834*	*249 028*	*235 948*	*245 230*	*4.9%*
Annex II Parties	*130 359*	*138 423*	*153 297*	*154 085*	*167 903*	*180 342*	*194 917*	*201 276*	*197 316*	*187 892*	*193 303*	*15.1%*
North America	*72 382*	*76 179*	*83 622*	*82 358*	*88 908*	*96 212*	*105 707*	*108 482*	*106 419*	*101 141*	*103 337*	*16.2%*
Europe	*44 325*	*46 578*	*51 959*	*53 014*	*56 452*	*58 854*	*62 241*	*65 512*	*64 226*	*60 980*	*63 180*	*11.9%*
Asia Oceania	*13 651*	*15 666*	*17 715*	*18 712*	*22 543*	*25 276*	*26 969*	*27 281*	*26 670*	*25 771*	*26 786*	*18.8%*
Annex I EIT	*..*	*..*	*..*	*..*	*63 581*	*46 516*	*43 343*	*45 988*	*47 553*	*43 933*	*47 491*	*-25.3%*
Non-Annex I Parties	*..*	*..*	*..*	*..*	*125 186*	*147 609*	*166 185*	*215 334*	*249 937*	*259 706*	*274 312*	*119.1%*
Annex I Kyoto Parties	*..*	*..*	*..*	*..*	*149 400*	*139 272*	*142 046*	*149 053*	*148 356*	*140 062*	*146 839*	*-1.7%*
Intl. marine bunkers	**4 525**	**4 362**	**4 577**	**3 920**	**4 783**	**5 529**	**6 439**	**7 441**	**8 144**	**7 908**	**8 459**	**76.9%**
Intl. aviation bunkers	**2 366**	**2 428**	**2 822**	**3 137**	**3 608**	**4 053**	**4 946**	**5 846**	**6 316**	**6 041**	**6 433**	**78.3%**
Non-OECD Total **	**83 346**	**100 867**	**124 322**	**144 310**	**169 560**	**173 048**	**186 081**	**235 260**	**269 812**	**276 697**	**293 209**	**72.9%**
OECD Total ***	**141 192**	**151 462**	**170 330**	**172 634**	**189 348**	**204 026**	**221 588**	**230 908**	**229 154**	**218 957**	**226 333**	**19.5%**
Canada	5 918	6 948	8 064	8 080	8 731	9 662	10 527	11 396	11 084	10 498	10 544	20.8%
Chile	364	320	397	401	587	768	1 054	1 187	1 269	1 234	1 295	120.7%
Mexico	1 800	2 477	3 982	4 547	5 129	5 435	6 076	7 124	7 582	7 312	7 457	45.4%
United States	66 464	69 231	75 558	74 278	80 177	86 550	95 180	97 086	95 335	90 643	92 793	15.7%
OECD Americas	**74 546**	**78 975**	**88 002**	**87 307**	**94 623**	**102 415**	**112 837**	**116 793**	**115 270**	**109 688**	**112 089**	**18.5%**
Australia	2 161	2 528	2 914	3 049	3 610	3 875	4 526	4 782	5 202	5 274	5 222	44.7%
Israel	240	294	328	317	480	650	764	774	958	901	959	99.7%
Japan	11 201	12 772	14 424	15 194	18 394	20 777	21 728	21 794	20 739	19 766	20 802	13.1%
Korea	711	1 024	1 725	2 241	3 897	6 061	7 878	8 800	9 502	9 595	10 467	168.6%
New Zealand	289	366	376	469	539	623	714	705	729	731	762	41.4%
OECD Asia Oceania	**14 602**	**16 984**	**19 768**	**21 270**	**26 920**	**31 986**	**35 611**	**36 855**	**37 130**	**36 268**	**38 213**	**41.9%**
Austria	788	842	969	967	1 040	1 121	1 196	1 414	1 405	1 330	1 417	36.2%
Belgium	1 660	1 772	1 958	1 846	2 022	2 251	2 450	2 457	2 453	2 391	2 548	26.0%
Czech Republic	1 900	1 828	1 966	2 061	2 075	1 737	1 716	1 882	1 879	1 761	1 847	-11.0%
Denmark	775	732	801	808	727	812	780	791	804	768	806	10.9%
Estonia	..	..	..	..	415	211	197	216	228	199	233	-43.8%
Finland	761	825	1 030	1 082	1 188	1 211	1 349	1 434	1 477	1 392	1 524	28.3%
France	6 639	6 907	8 029	8 533	9 374	9 909	10 545	11 331	11 086	10 613	10 981	17.2%
Germany	12 772	13 126	14 954	14 956	14 702	14 089	14 092	14 162	13 988	13 277	13 707	-6.8%
Greece	364	492	627	735	898	949	1 134	1 266	1 274	1 232	1 156	28.8%
Hungary	797	959	1 187	1 246	1 204	1 083	1 047	1 155	1 108	1 041	1 075	-10.7%
Iceland	38	46	63	74	87	94	130	146	224	225	225	157.1%
Ireland	281	278	345	361	418	445	575	606	626	603	603	44.1%
Italy	4 413	4 889	5 478	5 414	6 136	6 662	7 181	7 698	7 369	6 902	7 128	16.2%
Luxembourg	170	158	149	128	143	132	139	184	176	165	177	24.0%
Netherlands	2 130	2 471	2 695	2 539	2 750	2 962	3 066	3 300	3 331	3 273	3 493	27.0%
Norway	557	611	767	836	879	981	1 092	1 120	1 248	1 179	1 359	54.5%
Poland	3 606	4 314	5 301	5 221	4 317	4 165	3 731	3 868	4 099	3 935	4 248	-1.6%
Portugal	263	322	418	459	701	846	1 033	1 108	1 023	1 011	986	40.6%
Slovak Republic	597	702	831	868	893	744	743	788	766	700	746	-16.5%
Slovenia	..	..	..	..	239	254	269	305	324	297	302	26.3%
Spain	1 784	2 407	2 834	2 969	3 772	4 220	5 107	5 940	5 821	5 336	5 348	41.8%
Sweden	1 509	1 634	1 695	1 977	1 976	2 107	1 991	2 159	2 077	1 901	2 147	8.7%
Switzerland	686	719	839	924	1 018	1 007	1 047	1 086	1 121	1 129	1 097	7.8%
Turkey	818	1 120	1 317	1 646	2 209	2 577	3 197	3 533	4 124	4 089	4 402	99.3%
United Kingdom	8 737	8 347	8 308	8 406	8 621	9 055	9 334	9 310	8 725	8 251	8 479	-1.7%
OECD Europe ***	**52 044**	**55 502**	**62 561**	**64 057**	**67 804**	**69 625**	**73 140**	**77 259**	**76 754**	**73 002**	**76 031**	**12.1%**
European Union - 27	*..*	*..*	*..*	*..*	*68 500*	*68 546*	*70 544*	*74 512*	*73 247*	*69 247*	*71 774*	*4.8%*

* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.
** Includes Estonia and Slovenia prior to 1990.
*** Excludes Estonia and Slovenia prior to 1990.

Total primary energy supply

petajoules

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Non-OECD Total *	**83 346**	**100 867**	**124 322**	**144 310**	**169 560**	**173 048**	**186 081**	**235 260**	**269 812**	**276 697**	**293 209**	**72.9%**
Albania	72	83	129	114	112	56	75	92	87	87	87	-22.3%
Armenia	..	..	..	..	322	68	84	105	125	109	102	-68.2%
Azerbaijan	..	..	..	..	1 095	534	479	580	556	489	496	-54.7%
Belarus	..	..	..	..	1 907	1 036	1 033	1 125	1 178	1 121	1 161	-39.1%
Bosnia and Herzegovina	..	..	..	..	294	63	182	211	249	253	268	-8.7%
Bulgaria	797	973	1 189	1 283	1 196	969	782	835	829	732	748	-37.5%
Croatia	..	..	..	..	377	294	325	372	379	364	357	-5.1%
Cyprus	25	24	36	39	57	73	89	93	108	106	102	79.7%
Georgia	..	..	..	..	520	156	120	119	126	130	131	-74.9%
Gibraltar	1	1	2	2	2	4	5	6	7	7	7	192.0%
Kazakhstan	..	..	..	..	3 075	2 187	1 494	2 127	2 939	2 651	3 140	2.1%
Kosovo **	..	..	..	..	..	..	62	78	88	99	102	..
Kyrgyzstan	..	..	..	..	313	100	101	111	114	126	122	-61.0%
Latvia	..	..	..	..	330	193	156	185	188	177	185	-44.0%
Lithuania	..	..	..	..	673	366	298	370	395	362	290	-56.9%
FYR of Macedonia	..	..	..	..	104	105	112	121	126	118	121	16.6%
Malta	9	9	13	14	29	30	28	37	35	34	35	20.5%
Republic of Moldova	..	..	..	..	413	184	105	129	119	103	109	-73.6%
Montenegro **	..	..	..	..	..	..	..	30	35	27	34	..
Romania	1 764	2 169	2 731	2 719	2 605	1 950	1 516	1 618	1 656	1 457	1 465	-43.8%
Russian Federation	..	..	..	..	36 810	26 655	25 927	27 286	28 825	27 085	29 371	-20.2%
Serbia **	..	..	..	..	810	569	557	672	706	638	654	-19.3%
Tajikistan	..	..	..	..	222	93	90	98	103	98	97	-56.5%
Turkmenistan	..	..	..	..	735	575	596	762	925	807	892	21.3%
Ukraine	..	..	..	..	10 541	6 859	5 602	5 982	5 700	4 703	5 464	-48.2%
Uzbekistan	..	..	..	..	1 941	1 782	2 124	1 967	2 114	1 881	1 833	-5.6%
Former Soviet Union ***	32 169	39 351	46 453	52 248	..	..	..	..	..	..	..	..
Former Yugoslavia ***	918	1 068	1 411	1 722	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	**35 753**	**43 678**	**51 963**	**58 140**	**64 483**	**44 900**	**41 943**	**45 112**	**47 716**	**43 762**	**47 374**	**-26.5%**
Algeria	145	231	469	743	929	1 009	1 131	1 355	1 568	1 706	1 690	81.9%
Angola	161	173	191	209	246	268	314	393	497	528	572	132.4%
Benin	46	52	57	65	70	77	83	105	137	144	153	119.9%
Botswana	..	..	..	37	53	63	77	81	90	85	95	79.5%
Cameroon	113	127	153	187	209	230	264	292	268	289	298	42.7%
Congo	21	23	26	32	32	32	34	45	53	59	62	89.4%
Dem. Rep. of Congo	280	313	354	417	494	548	698	836	931	960	995	101.4%
Côte d'Ivoire	103	124	150	155	181	213	282	403	430	396	401	121.4%
Egypt	326	411	635	1 077	1 354	1 477	1 702	2 626	3 009	2 989	3 067	126.6%
Eritrea	..	..	..	..	..	42	30	32	28	30	31	..
Ethiopia	360	395	454	518	622	687	780	893	1 317	1 354	1 390	123.3%
Gabon	45	54	58	57	49	57	61	78	83	86	89	80.6%
Ghana	125	153	168	182	222	271	324	345	375	368	390	76.2%
Kenya	221	253	308	363	447	505	575	672	742	786	819	83.2%
Libya	66	153	288	418	474	661	694	735	805	919	802	69.0%
Morocco	102	143	204	234	291	360	429	547	628	632	691	137.8%
Mozambique	289	280	281	267	248	263	300	355	393	409	427	72.2%
Namibia	..	..	..	..	..	37	41	54	68	66	67	..
Nigeria	1 510	1 747	2 196	2 572	2 955	3 246	3 793	4 459	4 656	4 574	4 733	60.2%
Senegal	52	58	65	65	71	78	100	117	129	137	142	100.5%
South Africa	1 902	2 260	2 737	3 617	3 808	4 337	4 575	5 367	6 185	6 041	5 730	50.5%
Sudan	294	313	350	396	445	502	559	633	632	664	676	52.0%
United Rep. of Tanzania	317	321	336	367	407	461	561	719	794	812	841	106.3%
Togo	30	33	37	41	53	66	88	99	107	110	113	112.9%
Tunisia	69	91	137	174	207	243	306	348	395	379	403	94.7%
Zambia	147	163	188	206	226	244	261	302	320	329	340	50.3%
Zimbabwe	228	248	272	310	389	412	414	406	388	394	402	3.3%
Other Africa	1 102	1 201	1 373	1 535	1 751	1 968	2 279	2 655	2 948	3 038	3 128	78.7%
Africa	**8 055**	**9 321**	**11 488**	**14 243**	**16 233**	**18 356**	**20 756**	**24 953**	**27 976**	**28 284**	**28 547**	**75.9%**

* Includes Estonia and Slovenia prior to 1990.

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

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

Total primary energy supply

petajoules

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Bangladesh	238	282	352	417	533	666	779	998	1 164	1 232	1 300	143.8%
Brunei Darussalam	7	31	57	75	74	97	103	96	152	131	139	88.1%
Cambodia	..	..	..	..	..	119	143	144	147	205	210	..
Chinese Taipei	419	599	1 170	1 392	2 020	2 670	3 573	4 278	4 424	4 287	4 575	126.5%
India	6 551	7 441	8 589	10 667	13 261	16 089	19 143	22 578	26 213	28 269	29 002	118.7%
Indonesia	1 468	1 722	2 333	2 756	4 129	5 477	6 495	7 558	7 826	8 311	8 702	110.8%
DPR of Korea	813	932	1 271	1 507	1 391	920	826	893	844	803	776	-44.2%
Malaysia	255	308	498	649	902	1 419	1 972	2 659	3 057	2 925	3 042	237.1%
Mongolia	..	..	..	131	143	113	100	110	132	136	137	-4.1%
Myanmar	331	351	394	460	447	494	538	620	629	596	586	31.1%
Nepal	153	169	191	213	242	281	339	382	402	417	428	76.5%
Pakistan	713	851	1 039	1 351	1 786	2 248	2 658	3 162	3 417	3 520	3 542	98.3%
Philippines	641	764	938	995	1 198	1 404	1 669	1 623	1 675	1 595	1 695	41.4%
Singapore	114	155	215	283	482	788	784	940	998	1 150	1 372	184.6%
Sri Lanka	159	172	190	209	231	249	349	377	374	381	413	78.9%
Thailand	573	726	921	1 036	1 756	2 593	3 026	4 152	4 507	4 492	4 917	180.0%
Vietnam	554	582	603	668	748	916	1 203	1 736	2 051	2 238	2 480	231.5%
Other Asia	151	181	315	263	289	288	344	398	438	471	497	72.4%
Asia	**13 141**	**15 266**	**19 076**	**23 073**	**29 634**	**36 831**	**44 044**	**52 704**	**58 449**	**61 160**	**63 812**	**115.3%**
People's Rep. of China	16 400	20 266	25 057	28 973	36 130	43 846	45 840	71 024	88 655	95 711	102 814	184.6%
Hong Kong, China	126	152	194	275	362	446	561	530	592	625	577	59.3%
China	**16 526**	**20 418**	**25 251**	**29 248**	**36 493**	**44 292**	**46 401**	**71 555**	**89 247**	**96 336**	**103 391**	**183.3%**
Argentina	1 409	1 505	1 751	1 731	1 929	2 262	2 552	2 804	3 209	3 121	3 125	62.0%
Bolivia	43	62	102	106	109	156	156	217	249	260	307	180.5%
Brazil	2 921	3 815	4 767	5 416	5 871	6 746	7 846	9 012	10 398	10 059	11 121	89.4%
Colombia	580	646	741	837	1 014	1 156	1 081	1 134	1 223	1 290	1 350	33.1%
Costa Rica	47	55	64	70	85	98	124	162	192	191	195	129.3%
Cuba	450	503	627	654	741	463	538	450	440	489	460	-37.9%
Dominican Republic	98	129	144	153	172	247	327	321	343	339	349	103.4%
Ecuador	96	137	211	242	252	300	336	460	462	480	506	100.9%
El Salvador	73	95	105	110	103	141	166	189	188	177	176	69.8%
Guatemala	114	140	159	158	185	223	295	329	342	390	429	132.2%
Haiti	63	72	87	79	65	71	84	108	116	109	96	46.6%
Honduras	58	64	78	84	100	118	125	167	195	186	191	91.9%
Jamaica	84	112	95	72	117	134	160	157	179	136	128	9.6%
Netherlands Antilles	229	161	164	75	61	55	83	81	87	89	70	15.2%
Nicaragua	52	62	64	81	88	98	114	139	128	128	131	49.9%
Panama	70	71	59	65	62	83	108	120	130	144	158	153.0%
Paraguay	57	62	87	95	129	164	161	166	182	187	200	55.9%
Peru	382	434	471	443	408	459	512	571	630	663	812	99.3%
Trinidad and Tobago	110	97	160	213	251	257	447	702	810	849	894	256.5%
Uruguay	101	102	111	84	94	108	129	124	174	176	174	85.0%
Venezuela	824	1 053	1 490	1 661	1 833	2 171	2 377	2 802	2 938	2 935	3 222	75.8%
Other Non-OECD Americas	198	251	251	163	204	219	242	271	289	295	301	47.9%
Non-OECD Americas	**8 061**	**9 628**	**11 790**	**12 590**	**13 872**	**15 729**	**17 964**	**20 488**	**22 901**	**22 692**	**24 395**	**75.9%**
Bahrain	59	89	117	174	182	206	246	314	387	396	410	124.9%
Islamic Republic of Iran	695	1 115	1 594	2 252	2 903	4 238	5 149	7 205	8 533	8 913	8 724	200.5%
Iraq	173	255	404	578	825	1 446	1 086	1 125	1 191	1 360	1 583	91.8%
Jordan	21	32	64	110	137	180	204	280	296	312	302	120.0%
Kuwait	256	271	438	587	381	623	787	1 105	1 167	1 263	1 398	266.6%
Lebanon	77	91	104	98	82	185	205	210	227	276	270	230.2%
Oman	9	10	48	88	177	255	338	451	665	624	837	374.1%
Qatar	39	87	140	227	258	331	436	709	900	983	1 266	389.9%
Saudi Arabia	308	367	1 302	1 926	2 502	3 665	4 242	6 093	6 451	6 609	7 088	183.3%
Syrian Arab Republic	100	128	187	328	438	507	660	871	965	889	910	107.7%
United Arab Emirates	42	81	303	574	855	1 159	1 421	1 810	2 442	2 527	2 601	204.2%
Yemen	31	29	53	73	105	143	198	276	299	308	300	185.1%
Middle East	**1 810**	**2 556**	**4 753**	**7 015**	**8 846**	**12 939**	**14 974**	**20 449**	**23 523**	**24 462**	**25 689**	**190.4%**

Total primary energy supply

million tonnes of oil equivalent

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
World *	**5 527.6**	**6 188.9**	**7 214.4**	**7 738.6**	**8 772.8**	**9 235.1**	**10 008.9**	**11 451.6**	**12 263.0**	**12 171.7**	**12 764.7**	**45.5%**
Annex I Parties	*..*	*..*	*..*	*..*	*5 582.3*	*5 480.7*	*5 767.8*	*5 991.1*	*5 947.9*	*5 635.5*	*5 857.2*	*4.9%*
Annex II Parties	*3 113.6*	*3 306.2*	*3 661.4*	*3 680.2*	*4 010.3*	*4 307.4*	*4 655.5*	*4 807.4*	*4 712.8*	*4 487.7*	*4 617.0*	*15.1%*
North America	*1 728.8*	*1 819.5*	*1 997.3*	*1 967.1*	*2 123.5*	*2 298.0*	*2 524.8*	*2 591.1*	*2 541.8*	*2 415.7*	*2 468.2*	*16.2%*
Europe	*1 058.7*	*1 112.5*	*1 241.0*	*1 266.2*	*1 348.3*	*1 405.7*	*1 486.6*	*1 564.7*	*1 534.0*	*1 456.5*	*1 509.0*	*11.9%*
Asia Oceania	*326.1*	*374.2*	*423.1*	*446.9*	*538.4*	*603.7*	*644.1*	*651.6*	*637.0*	*615.5*	*639.8*	*18.8%*
Annex I EIT	*..*	*..*	*..*	*..*	*1 518.6*	*1 111.0*	*1 035.2*	*1 098.4*	*1 135.8*	*1 049.3*	*1 134.3*	*-25.3%*
Non-Annex I Parties	*..*	*..*	*..*	*..*	*2 990.0*	*3 525.6*	*3 969.3*	*5 143.2*	*5 969.6*	*6 203.0*	*6 551.8*	*119.1%*
Annex I Kyoto Parties	*..*	*..*	*..*	*..*	*3 568.3*	*3 326.5*	*3 392.7*	*3 560.1*	*3 543.4*	*3 345.3*	*3 507.2*	*-1.7%*
Intl. marine bunkers	**108.1**	**104.2**	**109.3**	**93.6**	**114.2**	**132.1**	**153.8**	**177.7**	**194.5**	**188.9**	**202.0**	**76.9%**
Intl. aviation bunkers	**56.5**	**58.0**	**67.4**	**74.9**	**86.2**	**96.8**	**118.1**	**139.6**	**150.9**	**144.3**	**153.6**	**78.3%**
Non-OECD Total **	**1 990.7**	**2 409.2**	**2 969.4**	**3 446.8**	**4 049.9**	**4 133.2**	**4 444.5**	**5 619.1**	**6 444.3**	**6 608.8**	**7 003.2**	**72.9%**
OECD Total ***	**3 372.3**	**3 617.6**	**4 068.3**	**4 123.3**	**4 522.5**	**4 873.1**	**5 292.5**	**5 515.1**	**5 473.2**	**5 229.7**	**5 405.9**	**19.5%**
Canada	141.4	165.9	192.6	193.0	208.5	230.8	251.4	272.2	264.7	250.7	251.8	20.8%
Chile	8.7	7.6	9.5	9.6	14.0	18.3	25.2	28.4	30.3	29.5	30.9	120.7%
Mexico	43.0	59.2	95.1	108.6	122.5	129.8	145.1	170.2	181.1	174.6	178.1	45.4%
United States	1 587.5	1 653.5	1 804.7	1 774.1	1 915.0	2 067.2	2 273.3	2 318.9	2 277.0	2 165.0	2 216.3	15.7%
OECD Americas	**1 780.5**	**1 886.3**	**2 101.9**	**2 085.3**	**2 260.0**	**2 446.1**	**2 695.1**	**2 789.6**	**2 753.2**	**2 619.8**	**2 677.2**	**18.5%**
Australia	51.6	60.4	69.6	72.8	86.2	92.6	108.1	114.2	124.2	126.0	124.7	44.7%
Israel	5.7	7.0	7.8	7.6	11.5	15.5	18.2	18.5	22.9	21.5	22.9	99.7%
Japan	267.5	305.1	344.5	362.9	439.3	496.3	519.0	520.5	495.4	472.1	496.8	13.1%
Korea	17.0	24.5	41.2	53.5	93.1	144.8	188.2	210.2	226.9	229.2	250.0	168.6%
New Zealand	6.9	8.8	9.0	11.2	12.9	14.9	17.1	16.8	17.4	17.5	18.2	41.4%
OECD Asia Oceania	**348.8**	**405.7**	**472.1**	**508.0**	**643.0**	**764.0**	**850.5**	**880.3**	**886.8**	**866.2**	**912.7**	**41.9%**
Austria	18.8	20.1	23.2	23.1	24.8	26.8	28.6	33.8	33.5	31.8	33.8	36.2%
Belgium	39.7	42.3	46.8	44.1	48.3	53.8	58.5	58.7	58.6	57.1	60.9	26.0%
Czech Republic	45.4	43.7	46.9	49.2	49.6	41.5	41.0	44.9	44.9	42.1	44.1	-11.0%
Denmark	18.5	17.5	19.1	19.3	17.4	19.4	18.6	18.9	19.2	18.4	19.3	10.9%
Estonia	..	..	..	..	9.9	5.0	4.7	5.2	5.4	4.7	5.6	-43.8%
Finland	18.2	19.7	24.6	25.8	28.4	28.9	32.2	34.3	35.3	33.2	36.4	28.3%
France	158.6	165.0	191.8	203.8	223.9	236.7	251.9	270.6	264.8	253.5	262.3	17.2%
Germany	305.0	313.5	357.2	357.2	351.1	336.5	336.6	338.3	334.1	317.1	327.4	-6.8%
Greece	8.7	11.7	15.0	17.6	21.4	22.7	27.1	30.2	30.4	29.4	27.6	28.8%
Hungary	19.0	22.9	28.4	29.8	28.8	25.9	25.0	27.6	26.5	24.9	25.7	-10.7%
Iceland	0.9	1.1	1.5	1.8	2.1	2.3	3.1	3.5	5.4	5.4	5.4	157.1%
Ireland	6.7	6.6	8.2	8.6	10.0	10.6	13.7	14.5	15.0	14.4	14.4	44.1%
Italy	105.4	116.8	130.8	129.3	146.6	159.1	171.5	183.9	176.0	164.9	170.2	16.2%
Luxembourg	4.1	3.8	3.6	3.1	3.4	3.2	3.3	4.4	4.2	4.0	4.2	24.0%
Netherlands	50.9	59.0	64.4	60.6	65.7	70.7	73.2	78.8	79.6	78.2	83.4	27.0%
Norway	13.3	14.6	18.3	20.0	21.0	23.4	26.1	26.8	29.8	28.2	32.5	54.5%
Poland	86.1	103.0	126.6	124.7	103.1	99.5	89.1	92.4	97.9	94.0	101.5	-1.6%
Portugal	6.3	7.7	10.0	11.0	16.7	20.2	24.7	26.5	24.4	24.2	23.5	40.6%
Slovak Republic	14.3	16.8	19.8	20.7	21.3	17.8	17.7	18.8	18.3	16.7	17.8	-16.5%
Slovenia	..	..	..	..	5.7	6.1	6.4	7.3	7.7	7.1	7.2	26.3%
Spain	42.6	57.5	67.7	70.9	90.1	100.8	122.0	141.9	139.0	127.5	127.7	41.8%
Sweden	36.0	39.0	40.5	47.2	47.2	50.3	47.6	51.6	49.6	45.4	51.3	8.7%
Switzerland	16.4	17.2	20.0	22.1	24.3	24.1	25.0	25.9	26.8	27.0	26.2	7.8%
Turkey	19.5	26.8	31.4	39.3	52.8	61.5	76.3	84.4	98.5	97.7	105.1	99.3%
United Kingdom	208.7	199.4	198.4	200.8	205.9	216.3	222.9	222.4	208.4	197.1	202.5	-1.7%
OECD Europe ***	**1 243.0**	**1 325.7**	**1 494.2**	**1 530.0**	**1 619.5**	**1 663.0**	**1 746.9**	**1 845.3**	**1 833.2**	**1 743.6**	**1 816.0**	**12.1%**
European Union - 27	*..*	*..*	*..*	*..*	*1 636.1*	*1 637.2*	*1 684.9*	*1 779.7*	*1 749.5*	*1 653.9*	*1 714.3*	*4.8%*

* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.
** Includes Estonia and Slovenia prior to 1990.
*** Excludes Estonia and Slovenia prior to 1990.

Total primary energy supply

million tonnes of oil equivalent

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Non-OECD Total *	**1 990.7**	**2 409.2**	**2 969.4**	**3 446.8**	**4 049.9**	**4 133.2**	**4 444.5**	**5 619.1**	**6 444.3**	**6 608.8**	**7 003.2**	**72.9%**
Albania	1.7	2.0	3.1	2.7	2.7	1.3	1.8	2.2	2.1	2.1	2.1	-22.3%
Armenia	..	..	..	..	7.7	1.6	2.0	2.5	3.0	2.6	2.4	-68.2%
Azerbaijan	..	..	..	..	26.1	12.8	11.4	13.8	13.3	11.7	11.8	-54.7%
Belarus	..	..	..	..	45.5	24.7	24.7	26.9	28.1	26.8	27.7	-39.1%
Bosnia and Herzegovina	..	..	..	..	7.0	1.5	4.3	5.0	6.0	6.0	6.4	-8.7%
Bulgaria	19.0	23.2	28.4	30.6	28.6	23.1	18.7	19.9	19.8	17.5	17.9	-37.5%
Croatia	..	..	..	..	9.0	7.0	7.8	8.9	9.1	8.7	8.5	-5.1%
Cyprus	0.6	0.6	0.9	0.9	1.4	1.7	2.1	2.2	2.6	2.5	2.4	79.7%
Georgia	..	..	..	..	12.4	3.7	2.9	2.8	3.0	3.1	3.1	-74.9%
Gibraltar	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	192.0%
Kazakhstan	..	..	..	..	73.4	52.2	35.7	50.8	70.2	63.3	75.0	2.1%
Kosovo **	..	..	..	..	..	..	1.5	1.9	2.1	2.4	2.4	..
Kyrgyzstan	..	..	..	..	7.5	2.4	2.4	2.7	2.7	3.0	2.9	-61.0%
Latvia	..	..	..	..	7.9	4.6	3.7	4.4	4.5	4.2	4.4	-44.0%
Lithuania	..	..	..	..	16.1	8.7	7.1	8.8	9.4	8.6	6.9	-56.9%
FYR of Macedonia	..	..	..	..	2.5	2.5	2.7	2.9	3.0	2.8	2.9	16.6%
Malta	0.2	0.2	0.3	0.3	0.7	0.7	0.7	0.9	0.8	0.8	0.8	20.5%
Republic of Moldova	..	..	..	..	9.9	4.4	2.5	3.1	2.9	2.4	2.6	-73.6%
Montenegro **	..	..	..	..	..	..	..	0.7	0.8	0.7	0.8	..
Romania	42.1	51.8	65.2	64.9	62.2	46.6	36.2	38.7	39.6	34.8	35.0	-43.8%
Russian Federation	..	..	..	..	879.2	636.6	619.3	651.7	688.5	646.9	701.5	-20.2%
Serbia **	..	..	..	..	19.3	13.6	13.3	16.1	16.9	15.2	15.6	-19.3%
Tajikistan	..	..	..	..	5.3	2.2	2.1	2.3	2.5	2.3	2.3	-56.5%
Turkmenistan	..	..	..	..	17.6	13.7	14.2	18.2	22.1	19.3	21.3	21.3%
Ukraine	..	..	..	..	251.8	163.8	133.8	142.9	136.1	112.3	130.5	-48.2%
Uzbekistan	..	..	..	..	46.4	42.6	50.7	47.0	50.5	44.9	43.8	-5.6%
Former Soviet Union ***	768.3	939.9	1 109.5	1 247.9	..	..	..	..	..	..	..	..
Former Yugoslavia ***	21.9	25.5	33.7	41.1	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	**853.9**	**1 043.2**	**1 241.1**	**1 388.7**	**1 540.2**	**1 072.4**	**1 001.8**	**1 077.5**	**1 139.7**	**1 045.2**	**1 131.5**	**-26.5%**
Algeria	3.5	5.5	11.2	17.7	22.2	24.1	27.0	32.4	37.4	40.7	40.4	81.9%
Angola	3.9	4.1	4.6	5.0	5.9	6.4	7.5	9.4	11.9	12.6	13.7	132.4%
Benin	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.5	3.3	3.4	3.7	119.9%
Botswana	..	..	..	0.9	1.3	1.5	1.8	1.9	2.2	2.0	2.3	79.5%
Cameroon	2.7	3.0	3.7	4.5	5.0	5.5	6.3	7.0	6.4	6.9	7.1	42.7%
Congo	0.5	0.6	0.6	0.8	0.8	0.8	0.8	1.1	1.3	1.4	1.5	89.4%
Dem. Rep. of Congo	6.7	7.5	8.5	10.0	11.8	13.1	16.7	20.0	22.2	22.9	23.8	101.4%
Côte d'Ivoire	2.5	3.0	3.6	3.7	4.3	5.1	6.7	9.6	10.3	9.5	9.6	121.4%
Egypt	7.8	9.8	15.2	25.7	32.3	35.3	40.7	62.7	71.9	71.4	73.3	126.6%
Eritrea	..	..	..	..	..	1.0	0.7	0.8	0.7	0.7	0.7	..
Ethiopia	8.6	9.4	10.8	12.4	14.9	16.4	18.6	21.3	31.5	32.3	33.2	123.3%
Gabon	1.1	1.3	1.4	1.4	1.2	1.4	1.5	1.9	2.0	2.1	2.1	80.6%
Ghana	3.0	3.7	4.0	4.4	5.3	6.5	7.7	8.2	9.0	8.8	9.3	76.2%
Kenya	5.3	6.0	7.4	8.7	10.7	12.1	13.7	16.0	17.7	18.8	19.6	83.2%
Libya	1.6	3.7	6.9	10.0	11.3	15.8	16.6	17.6	19.2	21.9	19.1	69.0%
Morocco	2.4	3.4	4.9	5.6	6.9	8.6	10.2	13.1	15.0	15.1	16.5	137.8%
Mozambique	6.9	6.7	6.7	6.4	5.9	6.3	7.2	8.5	9.4	9.8	10.2	72.2%
Namibia	..	..	..	..	..	0.9	1.0	1.3	1.6	1.6	1.6	..
Nigeria	36.1	41.7	52.5	61.4	70.6	77.5	90.6	106.5	111.2	109.2	113.1	60.2%
Senegal	1.2	1.4	1.6	1.6	1.7	1.9	2.4	2.8	3.1	3.3	3.4	100.5%
South Africa	45.4	54.0	65.4	86.4	91.0	103.6	109.3	128.2	147.7	144.3	136.9	50.5%
Sudan	7.0	7.5	8.4	9.5	10.6	12.0	13.3	15.1	15.1	15.9	16.2	52.0%
United Rep. of Tanzania	7.6	7.7	8.0	8.8	9.7	11.0	13.4	17.2	19.0	19.4	20.1	106.3%
Togo	0.7	0.8	0.9	1.0	1.3	1.6	2.1	2.4	2.6	2.6	2.7	112.9%
Tunisia	1.7	2.2	3.3	4.2	4.9	5.8	7.3	8.3	9.4	9.0	9.6	94.7%
Zambia	3.5	3.9	4.5	4.9	5.4	5.8	6.2	7.2	7.6	7.9	8.1	50.3%
Zimbabwe	5.4	5.9	6.5	7.4	9.3	9.8	9.9	9.7	9.3	9.4	9.6	3.3%
Other Africa	26.3	28.7	32.8	36.7	41.8	47.0	54.4	63.4	70.4	72.6	74.7	78.7%
Africa	**192.4**	**222.6**	**274.4**	**340.2**	**387.7**	**438.4**	**495.7**	**596.0**	**668.2**	**675.5**	**681.8**	**75.9%**

* Includes Estonia and Slovenia prior to 1990.

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

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

Total primary energy supply

million tonnes of oil equivalent

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Bangladesh	5.7	6.7	8.4	9.9	12.7	15.9	18.6	23.8	27.8	29.4	31.1	143.8%
Brunei Darussalam	0.2	0.7	1.4	1.8	1.8	2.3	2.5	2.3	3.6	3.1	3.3	88.1%
Cambodia	..	..	..	..	..	2.8	3.4	3.4	3.5	4.9	5.0	..
Chinese Taipei	10.0	14.3	27.9	33.2	48.3	63.8	85.3	102.2	105.7	102.4	109.3	126.5%
India	156.5	177.7	205.2	254.8	316.7	384.3	457.2	539.3	626.1	675.2	692.7	118.7%
Indonesia	35.1	41.1	55.7	65.8	98.6	130.8	155.1	180.5	186.9	198.5	207.8	110.8%
DPR of Korea	19.4	22.3	30.4	36.0	33.2	22.0	19.7	21.3	20.2	19.2	18.5	-44.2%
Malaysia	6.1	7.3	11.9	15.5	21.5	33.9	47.1	63.5	73.0	69.9	72.6	237.1%
Mongolia	..	..	..	3.1	3.4	2.7	2.4	2.6	3.2	3.3	3.3	-4.1%
Myanmar	7.9	8.4	9.4	11.0	10.7	11.8	12.8	14.8	15.0	14.2	14.0	31.1%
Nepal	3.7	4.0	4.6	5.1	5.8	6.7	8.1	9.1	9.6	10.0	10.2	76.5%
Pakistan	17.0	20.3	24.8	32.3	42.7	53.7	63.5	75.5	81.6	84.1	84.6	98.3%
Philippines	15.3	18.2	22.4	23.8	28.6	33.5	39.9	38.8	40.0	38.1	40.5	41.4%
Singapore	2.7	3.7	5.1	6.8	11.5	18.8	18.7	22.5	23.8	27.5	32.8	184.6%
Sri Lanka	3.8	4.1	4.5	5.0	5.5	5.9	8.3	9.0	8.9	9.1	9.9	78.9%
Thailand	13.7	17.3	22.0	24.7	41.9	61.9	72.3	99.2	107.7	107.3	117.4	180.0%
Vietnam	13.2	13.9	14.4	16.0	17.9	21.9	28.7	41.5	49.0	53.4	59.2	231.5%
Other Asia	3.6	4.3	7.5	6.3	6.9	6.9	8.2	9.5	10.5	11.2	11.9	72.4%
Asia	**313.9**	**364.6**	**455.6**	**551.1**	**707.8**	**879.7**	**1 052.0**	**1 258.8**	**1 396.0**	**1 460.8**	**1 524.1**	**115.3%**
People's Rep. of China	391.7	484.0	598.5	692.0	863.0	1 047.2	1 094.9	1 696.4	2 117.5	2 286.0	2 455.7	184.6%
Hong Kong, China	3.0	3.6	4.6	6.6	8.7	10.6	13.4	12.7	14.1	14.9	13.8	59.3%
China	**394.7**	**487.7**	**603.1**	**698.6**	**871.6**	**1 057.9**	**1 108.3**	**1 709.1**	**2 131.6**	**2 300.9**	**2 469.5**	**183.3%**
Argentina	33.7	35.9	41.8	41.3	46.1	54.0	61.0	67.0	76.7	74.5	74.6	62.0%
Bolivia	1.0	1.5	2.4	2.5	2.6	3.7	3.7	5.2	5.9	6.2	7.3	180.5%
Brazil	69.8	91.1	113.9	129.4	140.2	161.1	187.4	215.2	248.3	240.3	265.6	89.4%
Colombia	13.9	15.4	17.7	20.0	24.2	27.6	25.8	27.1	29.2	30.8	32.2	33.1%
Costa Rica	1.1	1.3	1.5	1.7	2.0	2.3	3.0	3.9	4.6	4.6	4.6	129.3%
Cuba	10.7	12.0	15.0	15.6	17.7	11.1	12.9	10.8	10.5	11.7	11.0	-37.9%
Dominican Republic	2.3	3.1	3.4	3.6	4.1	5.9	7.8	7.7	8.2	8.1	8.3	103.4%
Ecuador	2.3	3.3	5.0	5.8	6.0	7.2	8.0	11.0	11.0	11.5	12.1	100.9%
El Salvador	1.8	2.3	2.5	2.6	2.5	3.4	4.0	4.5	4.5	4.2	4.2	69.8%
Guatemala	2.7	3.3	3.8	3.8	4.4	5.3	7.0	7.9	8.2	9.3	10.3	132.2%
Haiti	1.5	1.7	2.1	1.9	1.6	1.7	2.0	2.6	2.8	2.6	2.3	46.6%
Honduras	1.4	1.5	1.9	2.0	2.4	2.8	3.0	4.0	4.6	4.5	4.6	91.9%
Jamaica	2.0	2.7	2.3	1.7	2.8	3.2	3.8	3.8	4.3	3.3	3.1	9.6%
Netherlands Antilles	5.5	3.8	3.9	1.8	1.5	1.3	2.0	1.9	2.1	2.1	1.7	15.2%
Nicaragua	1.2	1.5	1.5	1.9	2.1	2.3	2.7	3.3	3.0	3.0	3.1	49.9%
Panama	1.7	1.7	1.4	1.6	1.5	2.0	2.6	2.9	3.1	3.4	3.8	153.0%
Paraguay	1.4	1.5	2.1	2.3	3.1	3.9	3.9	4.0	4.3	4.5	4.8	55.9%
Peru	9.1	10.4	11.3	10.6	9.7	11.0	12.2	13.6	15.0	15.8	19.4	99.3%
Trinidad and Tobago	2.6	2.3	3.8	5.1	6.0	6.1	10.7	16.8	19.3	20.3	21.3	256.5%
Uruguay	2.4	2.4	2.6	2.0	2.3	2.6	3.1	3.0	4.2	4.2	4.2	85.0%
Venezuela	19.7	25.1	35.6	39.7	43.8	51.9	56.8	66.9	70.2	70.1	76.9	75.8%
Other Non-OECD Americas	4.7	6.0	6.0	3.9	4.9	5.2	5.8	6.5	6.9	7.0	7.2	47.9%
Non-OECD Americas	**192.5**	**230.0**	**281.6**	**300.7**	**331.3**	**375.7**	**429.1**	**489.3**	**547.0**	**542.0**	**582.7**	**75.9%**
Bahrain	1.4	2.1	2.8	4.2	4.4	4.9	5.9	7.5	9.2	9.5	9.8	124.9%
Islamic Republic of Iran	16.6	26.6	38.1	53.8	69.3	101.2	123.0	172.1	203.8	212.9	208.4	200.5%
Iraq	4.1	6.1	9.6	13.8	19.7	34.5	25.9	26.9	28.5	32.5	37.8	91.8%
Jordan	0.5	0.8	1.5	2.6	3.3	4.3	4.9	6.7	7.1	7.5	7.2	120.0%
Kuwait	6.1	6.5	10.5	14.0	9.1	14.9	18.8	26.4	27.9	30.2	33.4	266.6%
Lebanon	1.8	2.2	2.5	2.3	2.0	4.4	4.9	5.0	5.4	6.6	6.5	230.2%
Oman	0.2	0.2	1.1	2.1	4.2	6.1	8.1	10.8	15.9	14.9	20.0	374.1%
Qatar	0.9	2.1	3.3	5.4	6.2	7.9	10.4	16.9	21.5	23.5	30.2	389.9%
Saudi Arabia	7.4	8.8	31.1	46.0	59.8	87.5	101.3	145.5	154.1	157.9	169.3	183.3%
Syrian Arab Republic	2.4	3.1	4.5	7.8	10.5	12.1	15.8	20.8	23.1	21.2	21.7	107.7%
United Arab Emirates	1.0	1.9	7.2	13.7	20.4	27.7	33.9	43.2	58.3	60.4	62.1	204.2%
Yemen	0.7	0.7	1.3	1.7	2.5	3.4	4.7	6.6	7.1	7.4	7.2	185.1%
Middle East	**43.2**	**61.0**	**113.5**	**167.6**	**211.3**	**309.0**	**357.6**	**488.4**	**561.8**	**584.3**	**613.6**	**190.4%**

GDP using exchange rates

billion 2005 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
World	**16 059.5**	**18 628.4**	**22 495.4**	**25 502.6**	**30 153.2**	**33 419.1**	**39 638.9**	**45 617.3**	**50 115.6**	**48 950.1**	**50 942.5**	**68.9%**
Annex I Parties	*..*	*..*	*..*	*..*	*24 881.0*	*26 806.0*	*31 375.1*	*34 964.7*	*37 064.3*	*35 522.4*	*36 536.1*	*46.8%*
Annex II Parties	*12 656.1*	*14 316.0*	*16 980.6*	*19 343.5*	*22 969.1*	*25 287.1*	*29 638.3*	*32 738.9*	*34 420.0*	*33 034.6*	*33 935.8*	*47.7%*
North America	*4 756.8*	*5 310.5*	*6 364.7*	*7 446.3*	*8 712.5*	*9 836.6*	*12 158.0*	*13 698.1*	*14 296.8*	*13 801.6*	*14 220.9*	*63.2%*
Europe	*5 957.9*	*6 712.4*	*7 813.2*	*8 469.9*	*9 941.3*	*10 769.6*	*12 474.8*	*13 610.9*	*14 471.9*	*13 857.3*	*14 140.6*	*42.2%*
Asia Oceania	*1 941.3*	*2 293.2*	*2 802.8*	*3 427.3*	*4 315.3*	*4 680.9*	*5 005.4*	*5 430.0*	*5 651.3*	*5 375.7*	*5 574.3*	*29.2%*
Annex I EIT	*..*	*..*	*..*	*..*	*1 638.8*	*1 198.6*	*1 344.7*	*1 736.8*	*2 093.7*	*1 963.6*	*2 029.3*	*23.8%*
Non-Annex I Parties	*..*	*..*	*..*	*..*	*5 272.2*	*6 613.1*	*8 263.8*	*10 652.6*	*13 051.2*	*13 427.8*	*14 406.4*	*173.3%*
Annex I Kyoto Parties	*..*	*..*	*..*	*..*	*16 621.6*	*17 450.3*	*19 803.8*	*21 881.2*	*23 376.7*	*22 323.2*	*22 905.2*	*37.8%*
Non-OECD Total *	**2 627.5**	**3 327.1**	**4 289.5**	**4 742.1**	**5 446.7**	**6 086.8**	**7 413.0**	**9 810.4**	**12 228.5**	**12 548.8**	**13 448.4**	**146.9%**
OECD Total **	**13 431.9**	**15 301.3**	**18 205.8**	**20 760.5**	**24 706.5**	**27 332.2**	**32 225.9**	**35 806.9**	**37 887.0**	**36 401.3**	**37 494.1**	**51.8%**
Canada	397.7	473.6	568.3	650.7	749.9	816.7	999.9	1 133.8	1 199.6	1 166.4	1 203.9	60.5%
Chile	29.4	25.2	35.8	37.4	51.8	78.5	96.2	118.3	134.1	131.9	138.7	167.9%
Mexico	251.8	331.8	458.0	504.1	547.8	591.0	770.7	846.1	930.0	871.5	920.0	67.9%
United States	4 359.1	4 836.9	5 796.4	6 795.6	7 962.6	9 019.9	11 158.1	12 564.3	13 097.2	12 635.2	13 017.0	63.5%
OECD Americas	**5 038.0**	**5 667.5**	**6 858.4**	**7 987.8**	**9 312.1**	**10 506.1**	**13 025.0**	**14 662.4**	**15 360.9**	**14 805.0**	**15 279.6**	**64.1%**
Australia	259.8	288.3	333.9	387.1	451.4	531.4	644.7	764.8	834.3	853.3	874.5	93.7%
Israel	31.3	40.7	47.1	54.9	68.1	94.3	120.9	134.0	155.3	156.6	164.1	140.9%
Japan	1 631.8	1 946.1	2 411.7	2 973.4	3 794.1	4 068.4	4 266.9	4 552.2	4 699.4	4 403.9	4 578.6	20.7%
Korea	66.7	95.7	142.5	219.5	360.3	526.7	678.3	844.9	955.5	958.5	1 017.6	182.4%
New Zealand	49.8	58.8	57.1	66.8	69.8	81.1	93.8	113.1	117.6	118.5	121.3	73.9%
OECD Asia Oceania	**2 039.3**	**2 429.6**	**2 992.3**	**3 701.7**	**4 743.7**	**5 301.9**	**5 804.6**	**6 408.9**	**6 762.0**	**6 490.8**	**6 756.0**	**42.4%**
Austria	127.3	146.8	172.8	185.7	215.3	240.3	280.6	305.0	332.5	319.8	327.2	52.0%
Belgium	170.8	196.2	229.3	240.4	279.8	302.9	348.6	377.3	402.5	391.1	399.9	42.9%
Czech Republic	70.7	80.6	89.8	94.3	102.0	97.2	106.4	130.1	151.7	144.6	148.6	45.7%
Denmark	125.9	133.3	152.6	174.4	187.4	210.3	242.1	257.7	268.5	252.9	256.1	36.7%
Estonia	..	..	..	..	10.1	7.1	9.8	13.9	15.9	13.6	13.9	37.2%
Finland	73.3	88.8	103.7	118.8	140.2	136.0	171.9	195.8	216.0	197.9	205.3	46.4%
France	942.1	1 086.9	1 283.6	1 385.9	1 623.8	1 725.6	1 973.0	2 136.6	2 237.5	2 176.4	2 208.6	36.0%
Germany	1 365.1	1 492.0	1 760.6	1 884.1	2 216.3	2 448.7	2 685.2	2 766.3	2 994.5	2 840.9	2 945.8	32.9%
Greece	100.4	119.0	145.9	146.9	156.3	166.2	197.0	240.1	260.6	252.1	243.2	55.7%
Hungary	51.3	65.7	78.3	85.4	87.7	77.8	90.0	110.3	115.8	107.9	109.3	24.6%
Iceland	4.8	5.8	7.8	8.8	10.3	10.4	13.2	16.3	18.3	17.1	16.4	59.6%
Ireland	37.6	46.2	57.8	65.5	82.4	103.4	159.8	203.3	218.5	203.2	202.3	145.5%
Italy	802.3	920.5	1 144.3	1 244.0	1 451.6	1 547.7	1 701.0	1 786.3	1 834.8	1 734.0	1 765.3	21.6%
Luxembourg	9.5	10.7	11.9	13.5	19.3	23.4	31.6	37.7	42.5	40.2	41.3	113.8%
Netherlands	269.5	305.1	351.2	371.3	437.8	490.4	598.0	638.5	698.4	673.7	685.1	56.5%
Norway	98.8	118.5	147.8	174.2	189.5	227.6	272.7	304.1	319.9	314.6	316.7	67.1%
Poland	136.0	173.9	181.4	183.0	180.1	200.6	261.1	303.9	362.4	368.2	382.8	112.5%
Portugal	67.0	77.8	99.8	104.3	137.4	149.6	184.1	191.8	199.2	193.4	196.1	42.7%
Slovak Republic	23.8	27.1	30.2	32.6	34.9	31.9	37.7	47.9	60.6	57.6	60.1	71.9%
Slovenia	..	..	..	..	24.9	24.2	29.9	35.7	41.9	38.5	39.0	56.8%
Spain	401.2	496.6	547.3	586.6	730.9	787.6	963.1	1 130.8	1 228.7	1 182.7	1 181.9	61.7%
Sweden	176.6	198.7	212.4	232.6	263.9	273.0	324.5	370.6	396.9	376.9	400.0	51.6%
Switzerland	231.7	231.8	252.0	271.6	313.9	315.5	349.0	372.5	408.4	400.8	411.7	31.1%
Turkey	115.0	144.4	162.3	205.8	269.7	315.9	386.6	483.0	543.9	517.7	564.3	109.3%
United Kingdom	954.2	1 037.8	1 132.2	1 261.3	1 485.1	1 611.1	1 979.3	2 280.5	2 394.4	2 289.7	2 337.6	57.4%
OECD Europe **	**6 354.6**	**7 204.1**	**8 355.1**	**9 071.0**	**10 650.8**	**11 524.3**	**13 396.3**	**14 735.7**	**15 764.1**	**15 105.5**	**15 458.5**	**45.1%**
European Union - 27	*..*	*..*	*..*	*..*	*10 033.5*	*10 795.8*	*12 520.7*	*13 752.6*	*14 708.7*	*14 069.6*	*14 365.4*	*43.2%*

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

GDP using exchange rates

billion 2005 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Non-OECD Total *	**2 627.5**	**3 327.1**	**4 289.5**	**4 742.1**	**5 446.7**	**6 086.8**	**7 413.0**	**9 810.4**	**12 228.5**	**12 548.8**	**13 448.4**	**146.9%**
Albania	3.0	3.8	5.0	5.5	5.6	4.9	6.4	8.4	10.0	10.4	10.7	90.8%
Armenia	..	..	..	..	4.1	2.1	2.8	4.9	6.7	5.8	5.9	45.5%
Azerbaijan	..	..	..	..	11.9	5.0	7.0	13.2	24.7	27.0	28.3	137.1%
Belarus	..	..	..	..	23.7	15.5	21.0	30.2	39.8	39.9	42.9	80.9%
Bosnia and Herzegovina	..	..	..	..	2.3	2.5	8.5	10.8	12.9	12.5	12.6	446.6%
Bulgaria	10.7	14.6	19.7	23.2	25.0	21.9	22.1	28.9	34.8	32.9	32.9	31.9%
Croatia	..	..	..	..	42.1	30.5	36.0	44.8	50.5	47.5	46.9	11.4%
Cyprus	2.3	2.8	5.3	6.9	9.7	12.0	14.5	17.0	19.3	19.0	19.2	98.7%
Georgia	..	..	..	..	12.0	3.4	4.5	6.4	8.1	7.8	8.3	-31.3%
Gibraltar	0.5	0.5	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.0	1.1	47.7%
Kazakhstan	..	..	..	..	50.2	30.9	34.9	57.1	71.1	72.0	77.2	53.7%
Kosovo **	..	..	..	..	..	..	2.6	3.7	4.5	4.6	4.8	..
Kyrgyzstan	..	..	..	..	3.1	1.6	2.0	2.5	3.0	3.1	3.0	-1.2%
Latvia	..	..	..	..	14.4	8.2	10.8	16.0	19.0	15.6	15.5	7.7%
Lithuania	..	..	..	..	24.8	14.4	17.8	26.0	31.7	27.0	27.3	10.5%
FYR of Macedonia	..	..	..	..	6.1	4.8	5.5	6.0	7.0	6.9	7.1	16.4%
Malta	0.9	1.4	2.3	2.5	3.4	4.5	5.6	6.0	6.7	6.5	6.7	95.0%
Republic of Moldova	..	..	..	..	6.0	2.4	2.1	3.0	3.5	3.3	3.5	-41.3%
Montenegro **	..	..	..	..	..	..	..	2.3	2.9	2.7	2.8	..
Romania	38.0	57.5	82.8	97.4	89.0	79.9	75.0	98.9	123.8	113.3	114.3	28.5%
Russian Federation	..	..	..	..	843.0	523.7	567.4	764.0	943.9	870.1	905.2	7.4%
Serbia **	..	..	..	..	41.6	21.6	21.4	25.3	28.6	27.6	27.9	-33.0%
Tajikistan	..	..	..	..	3.8	1.4	1.4	2.3	2.8	3.1	3.2	-15.0%
Turkmenistan	..	..	..	..	4.9	3.1	3.7	8.1	11.6	12.3	13.4	172.1%
Ukraine	..	..	..	..	137.0	65.8	59.5	86.1	102.0	86.9	90.6	-33.9%
Uzbekistan	..	..	..	..	11.2	9.1	11.0	14.3	18.3	19.8	21.5	91.5%
Former Soviet Union ***	645.8	807.4	985.2	1 094.9	..	..	..	..	..	..	..	..
Former Yugoslavia ***	64.8	79.6	107.1	109.1	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	**766.0**	**967.4**	**1 207.9**	**1 340.1**	**1 375.6**	**869.8**	**944.8**	**1 287.2**	**1 588.3**	**1 478.4**	**1 532.9**	**11.4%**
Algeria	25.8	38.5	51.9	65.7	68.2	69.1	80.6	102.3	110.1	112.4	115.8	69.7%
Angola	13.4	13.5	13.5	14.8	17.4	13.7	18.7	30.6	50.7	51.0	54.0	211.3%
Benin	1.3	1.4	1.7	2.1	2.2	2.7	3.5	4.3	4.9	5.1	5.2	136.3%
Botswana	..	..	..	2.6	4.6	5.5	7.9	10.3	11.6	11.1	11.8	160.3%
Cameroon	4.8	6.4	8.7	13.6	12.1	11.0	13.8	16.6	18.2	18.6	19.2	59.1%
Congo	1.6	2.1	2.7	4.4	4.3	4.4	5.0	6.1	6.7	7.2	7.8	81.3%
Dem. Rep. of Congo	9.7	10.3	9.5	10.4	10.4	7.1	5.8	7.1	8.4	8.7	9.3	-10.6%
Côte d'Ivoire	7.9	9.9	12.1	12.3	13.0	14.0	16.4	16.4	17.1	17.8	18.3	40.6%
Egypt	15.9	18.2	29.1	40.3	49.5	58.5	75.4	89.7	110.0	115.1	121.0	144.4%
Eritrea	..	..	..	..	..	0.9	1.0	1.1	1.0	1.0	1.1	..
Ethiopia	5.4	5.5	5.7	5.3	6.9	7.2	9.0	12.3	16.8	18.3	20.1	194.0%
Gabon	3.0	6.1	5.6	6.4	6.7	7.8	8.0	8.7	9.5	9.3	9.9	46.4%
Ghana	4.5	4.2	4.4	4.4	5.5	6.8	8.4	10.7	13.2	13.7	14.8	168.0%
Kenya	4.9	6.4	8.7	9.9	13.0	14.1	15.7	18.7	21.6	22.2	23.5	80.1%
Libya	43.0	34.7	54.8	39.1	35.3	34.0	35.9	44.0	51.3	52.3	54.5	54.2%
Morocco	16.1	19.4	25.3	29.8	37.0	38.7	46.7	59.5	69.6	72.9	75.5	104.4%
Mozambique	2.9	2.5	2.5	2.0	2.6	3.0	4.4	6.6	8.2	8.7	9.4	264.8%
Namibia	..	..	..	..	..	4.8	5.7	7.3	8.5	8.5	8.9	..
Nigeria	41.0	47.1	57.0	48.9	63.4	71.7	83.4	112.2	134.5	143.9	155.2	144.7%
Senegal	3.3	3.8	4.0	4.6	5.1	5.7	6.9	8.7	9.7	9.9	10.3	101.7%
South Africa	110.1	126.3	147.1	157.4	170.9	178.4	204.7	247.1	285.3	280.5	288.5	68.8%
Sudan	6.8	8.4	9.4	9.8	12.1	15.5	21.1	27.4	35.9	37.3	39.0	223.1%
United Rep. of Tanzania	3.9	4.7	5.4	5.7	7.5	8.1	10.1	14.1	17.4	18.4	19.7	164.4%
Togo	0.9	1.1	1.4	1.4	1.5	1.5	1.9	2.1	2.3	2.4	2.5	60.6%
Tunisia	5.6	7.6	11.6	14.2	16.4	19.9	26.1	32.3	37.9	39.1	40.5	146.5%
Zambia	4.2	4.7	4.8	4.9	5.3	4.9	5.7	7.2	8.6	9.1	9.8	84.6%
Zimbabwe	3.7	4.3	4.7	5.7	7.2	7.6	8.3	5.6	4.3	4.5	5.0	-30.9%
Other Africa	33.1	35.0	39.4	40.5	46.3	45.6	59.0	80.7	96.2	97.6	101.2	118.8%
Africa	**372.9**	**422.2**	**521.2**	**555.9**	**624.4**	**662.6**	**789.1**	**989.6**	**1 169.5**	**1 196.7**	**1 251.8**	**100.5%**

* Includes Estonia and Slovenia prior to 1990.

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

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

GDP using exchange rates

billion 2005 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Bangladesh	17.5	16.4	20.1	24.1	29.0	35.9	46.3	60.3	72.6	76.8	81.5	181.4%
Brunei Darussalam	4.2	5.1	8.3	6.9	6.9	8.1	8.6	9.5	9.8	9.6	10.0	44.9%
Cambodia	..	..	..	..	..	2.8	4.0	6.3	8.2	8.2	8.7	..
Chinese Taipei	30.6	46.5	80.1	109.3	167.0	236.8	305.8	364.9	410.7	402.8	446.4	167.2%
India	154.1	174.9	203.9	262.2	350.0	448.5	595.5	834.0	1 050.2	1 145.8	1 246.7	256.2%
Indonesia	40.6	55.2	80.9	106.4	150.1	219.2	226.9	285.9	340.0	355.6	377.3	151.4%
DPR of Korea	7.9	12.4	21.4	34.3	40.9	32.1	28.5	29.7	29.2	30.3	27.6	-32.6%
Malaysia	15.3	20.5	30.8	39.5	55.1	86.6	109.4	138.0	163.0	160.3	171.8	211.9%
Mongolia	..	..	..	1.5	1.8	1.6	1.8	2.5	3.3	3.2	3.5	86.9%
Myanmar	1.9	2.1	2.9	3.7	3.3	4.4	6.6	12.0	16.8	18.6	20.5	522.4%
Nepal	2.1	2.4	2.7	3.4	4.2	5.4	6.9	8.1	9.2	9.6	10.1	138.1%
Pakistan	20.2	23.5	31.7	44.0	58.4	73.2	85.9	109.6	124.9	129.4	134.8	131.0%
Philippines	31.2	39.1	52.5	49.3	62.1	69.1	82.4	103.1	120.4	121.8	131.1	111.2%
Singapore	10.9	15.0	23.2	32.3	48.9	73.7	97.8	123.5	148.2	147.1	168.3	244.3%
Sri Lanka	5.3	6.2	8.0	10.2	12.1	15.7	20.1	24.4	29.7	30.8	33.3	175.2%
Thailand	22.6	28.5	41.8	54.5	88.9	134.5	137.5	176.4	199.5	194.9	210.1	136.3%
Vietnam	9.5	9.6	10.2	14.1	17.8	26.3	36.9	52.9	66.1	69.6	74.3	318.4%
Other Asia	15.1	17.0	19.7	21.8	24.0	30.0	32.3	42.5	54.6	56.8	60.8	153.5%
Asia	**389.1**	**474.6**	**638.3**	**817.4**	**1 120.5**	**1 504.0**	**1 833.1**	**2 383.6**	**2 856.5**	**2 971.2**	**3 216.6**	**187.1%**
People's Rep. of China	126.9	158.0	216.3	360.0	525.6	937.3	1 417.0	2 256.9	3 183.3	3 476.2	3 837.7	630.1%
Hong Kong, China	22.2	29.7	51.6	68.1	98.9	127.5	145.2	177.8	207.1	201.6	215.6	118.1%
China	**149.1**	**187.7**	**267.9**	**428.1**	**624.5**	**1 064.8**	**1 562.2**	**2 434.7**	**3 390.4**	**3 677.8**	**4 053.3**	**549.0%**
Argentina	97.9	107.9	123.9	109.0	106.4	146.2	166.0	183.2	230.5	232.4	253.7	138.4%
Bolivia	4.0	5.1	5.6	5.1	5.7	6.9	8.2	9.5	11.1	11.5	12.0	111.0%
Brazil	253.7	371.7	513.3	541.8	598.5	696.1	769.0	882.2	1 023.2	1 016.6	1 092.7	82.6%
Colombia	41.1	51.1	66.4	74.2	94.4	115.5	122.7	146.6	173.1	175.6	183.2	94.1%
Costa Rica	4.7	5.9	7.7	7.7	9.8	12.8	16.3	20.0	24.1	23.8	24.8	152.4%
Cuba	18.3	22.0	25.8	38.9	38.5	26.7	33.4	42.6	53.5	52.8	55.0	42.7%
Dominican Republic	7.0	9.7	12.6	13.8	15.9	20.5	28.6	34.0	43.0	44.5	47.9	201.9%
Ecuador	10.4	14.8	19.2	20.5	23.5	26.8	28.1	36.9	42.3	42.5	44.0	87.5%
El Salvador	8.4	10.1	10.1	8.8	9.7	13.1	15.2	17.1	18.7	18.1	18.4	89.2%
Guatemala	8.7	10.9	14.4	13.6	15.7	19.3	23.4	27.2	31.5	31.7	32.5	107.8%
Haiti	3.2	3.4	4.5	4.3	4.3	3.8	4.3	4.2	4.4	4.6	4.3	0.6%
Honduras	2.7	3.1	4.4	4.8	5.6	6.7	7.8	9.8	11.5	11.3	11.6	105.8%
Jamaica	7.2	7.7	6.5	6.7	8.5	10.3	10.1	11.2	11.6	11.2	11.1	31.2%
Netherlands Antilles	1.1	1.2	1.4	1.5	1.7	1.9	2.3	2.5	2.7	2.6	2.7	56.1%
Nicaragua	3.4	4.2	3.4	3.5	3.0	3.3	4.2	4.9	5.6	5.4	5.8	94.7%
Panama	4.9	5.6	6.7	7.9	7.6	10.0	12.5	15.5	20.8	21.3	22.4	192.6%
Paraguay	1.9	2.5	4.2	4.6	5.5	6.6	6.6	7.5	8.8	8.5	9.7	76.5%
Peru	34.6	42.4	47.4	48.2	43.8	57.2	64.7	79.4	102.3	103.1	112.2	156.2%
Trinidad and Tobago	6.0	6.8	10.0	8.9	8.0	8.5	10.9	16.0	19.4	18.7	18.8	135.4%
Uruguay	9.2	9.9	12.3	10.2	12.3	14.9	17.2	17.4	21.1	21.7	23.5	90.8%
Venezuela	74.8	85.2	96.2	91.8	104.3	123.6	128.3	145.5	183.1	177.2	174.6	67.3%
Other Non-OECD Americas	12.6	13.1	17.6	18.4	24.1	25.6	31.0	34.5	38.8	35.8	36.6	52.3%
Non-OECD Americas	**615.7**	**794.3**	**1 013.4**	**1 044.0**	**1 146.7**	**1 356.4**	**1 510.8**	**1 747.5**	**2 081.0**	**2 070.8**	**2 197.4**	**91.6%**
Bahrain	1.7	3.1	5.0	4.7	5.8	8.1	10.0	13.5	16.5	17.0	17.7	203.5%
Islamic Republic of Iran	67.3	95.5	82.7	100.2	101.5	120.0	146.3	192.0	224.3	228.3	230.7	127.2%
Iraq	83.0	105.5	158.6	101.5	54.2	20.7	42.6	31.3	37.0	38.5	38.8	-28.3%
Jordan	2.3	2.2	4.6	5.9	5.6	7.9	9.2	12.6	15.9	16.2	16.7	198.8%
Kuwait	54.8	45.3	40.3	31.8	36.6	49.6	54.5	80.8	93.1	88.3	90.0	146.1%
Lebanon	14.3	14.1	11.9	16.7	9.5	16.9	18.2	21.9	25.8	28.0	30.0	215.4%
Oman	4.1	5.4	7.0	14.2	16.6	22.0	26.0	30.9	39.3	39.7	41.4	150.2%
Qatar	15.1	15.3	17.8	15.0	14.8	16.4	28.9	43.0	81.2	88.2	102.6	594.0%
Saudi Arabia	73.5	153.0	213.8	169.3	200.4	230.8	262.0	315.6	346.2	346.7	359.7	79.5%
Syrian Arab Republic	4.7	8.1	11.1	12.8	13.8	20.3	22.7	28.9	33.5	35.5	36.6	165.0%
United Arab Emirates	12.0	30.9	83.2	77.6	88.3	106.2	139.1	180.6	211.6	208.2	211.2	139.3%
Yemen	1.9	2.7	4.7	6.7	7.9	10.4	13.6	16.7	18.5	19.2	20.7	161.1%
Middle East	**334.7**	**481.0**	**640.8**	**556.5**	**555.0**	**629.3**	**773.1**	**967.8**	**1 142.8**	**1 153.9**	**1 196.3**	**115.6%**

GDP using purchasing power parities

billion 2005 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
World	**18 889.7**	**22 270.0**	**27 167.8**	**30 797.1**	**36 208.9**	**40 251.1**	**48 313.0**	**57 729.2**	**65 647.3**	**65 162.6**	**68 431.1**	**89.0%**
Annex I Parties	*..*	*..*	*..*	*..*	*25 294.7*	*26 536.4*	*31 058.5*	*34 978.4*	*37 396.4*	*35 788.3*	*36 842.2*	*45.7%*
Annex II Parties	*11 782.0*	*13 328.7*	*15 818.1*	*18 016.6*	*21 380.9*	*23 570.7*	*27 711.6*	*30 648.7*	*32 221.0*	*30 939.1*	*31 778.3*	*48.6%*
North America	*4 756.2*	*5 309.8*	*6 363.8*	*7 445.3*	*8 711.3*	*9 835.3*	*12 156.5*	*13 696.3*	*14 295.0*	*13 799.8*	*14 219.0*	*63.2%*
Europe	*5 346.5*	*6 037.0*	*7 034.8*	*7 614.7*	*8 951.4*	*9 698.0*	*11 230.1*	*12 253.6*	*13 032.3*	*12 478.2*	*12 727.0*	*42.2%*
Asia Oceania	*1 679.3*	*1 982.0*	*2 419.6*	*2 956.6*	*3 718.2*	*4 037.5*	*4 325.0*	*4 698.8*	*4 893.8*	*4 661.1*	*4 832.3*	*30.0%*
Annex I EIT	*..*	*..*	*..*	*..*	*3 472.7*	*2 448.4*	*2 713.6*	*3 540.0*	*4 286.1*	*4 002.5*	*4 141.6*	*19.3%*
Non-Annex I Parties	*..*	*..*	*..*	*..*	*10 914.2*	*13 714.7*	*17 254.5*	*22 750.9*	*28 250.8*	*29 374.3*	*31 589.0*	*189.4%*
Annex I Kyoto Parties	*..*	*..*	*..*	*..*	*16 825.4*	*16 956.4*	*19 208.9*	*21 540.9*	*23 299.9*	*22 196.3*	*22 784.3*	*35.4%*
Non-OECD Total *	**5 886.5**	**7 397.3**	**9 444.4**	**10 596.4**	**12 186.2**	**13 604.6**	**16 716.2**	**22 477.4**	**28 220.0**	**29 174.7**	**31 317.8**	**157.0%**
OECD Total **	**13 003.2**	**14 872.7**	**17 723.4**	**20 200.7**	**24 022.7**	**26 646.5**	**31 596.7**	**35 251.9**	**37 427.3**	**35 987.9**	**37 113.4**	**54.5%**
Canada	397.1	472.9	567.4	649.7	748.7	815.4	998.4	1 132.0	1 197.8	1 164.6	1 202.0	60.5%
Chile	49.4	42.3	60.0	62.7	86.9	131.7	161.4	198.4	225.0	221.2	232.7	167.9%
Mexico	385.0	507.4	700.3	770.9	837.7	903.7	1 178.6	1 293.8	1 422.1	1 332.7	1 406.8	67.9%
United States	4 359.1	4 836.9	5 796.4	6 795.6	7 962.6	9 019.9	11 158.1	12 564.3	13 097.2	12 635.2	13 017.0	63.5%
OECD Americas	**5 190.5**	**5 859.5**	**7 124.1**	**8 278.9**	**9 635.8**	**10 870.7**	**13 496.5**	**15 188.5**	**15 942.0**	**15 353.7**	**15 858.5**	**64.6%**
Australia	245.0	271.9	315.0	365.1	425.8	501.2	608.1	721.3	786.9	804.8	824.8	93.7%
Israel	37.8	49.2	56.8	66.3	82.2	113.9	146.0	161.7	187.4	189.0	198.2	141.0%
Japan	1 388.3	1 655.7	2 051.8	2 529.7	3 227.9	3 461.2	3 630.1	3 872.8	3 998.1	3 746.7	3 895.3	20.7%
Korea	86.6	124.3	184.9	284.9	467.7	683.8	880.5	1 096.7	1 240.3	1 244.3	1 320.9	182.4%
New Zealand	46.1	54.4	52.8	61.8	64.5	75.0	86.8	104.6	108.8	109.7	112.2	73.9%
OECD Asia Oceania	**1 803.7**	**2 155.4**	**2 661.4**	**3 307.8**	**4 268.1**	**4 835.1**	**5 351.4**	**5 957.3**	**6 321.5**	**6 094.4**	**6 351.4**	**48.8%**
Austria	115.5	133.2	156.8	168.5	195.3	218.0	254.6	276.7	301.6	290.1	296.8	52.0%
Belgium	152.7	175.4	205.0	214.9	250.1	270.7	311.6	337.2	359.8	349.6	357.5	42.9%
Czech Republic	118.3	134.9	150.2	157.8	170.7	162.6	178.1	217.7	253.9	242.0	248.6	45.7%
Denmark	87.9	93.0	106.5	121.8	130.8	146.8	169.0	179.9	187.5	176.5	178.8	36.7%
Estonia	..	..	..	..	16.2	11.4	15.8	22.3	25.4	21.8	22.3	37.2%
Finland	60.3	73.0	85.4	97.8	115.4	111.9	141.5	161.1	177.7	162.9	168.9	46.4%
France	820.5	946.5	1 117.9	1 207.0	1 414.2	1 502.8	1 718.3	1 860.7	1 948.6	1 895.4	1 923.5	36.0%
Germany	1 266.2	1 384.0	1 633.2	1 747.7	2 055.8	2 271.4	2 490.8	2 566.0	2 777.7	2 635.3	2 732.5	32.9%
Greece	113.1	134.0	164.3	165.5	176.0	187.2	221.8	270.4	293.4	283.9	273.9	55.7%
Hungary	79.6	102.0	121.5	132.6	136.1	120.8	139.6	171.2	179.7	167.5	169.6	24.6%
Iceland	3.0	3.7	5.0	5.6	6.5	6.6	8.4	10.4	11.6	10.9	10.4	59.6%
Ireland	29.9	36.8	46.0	52.1	65.6	82.3	127.2	161.8	173.9	161.7	161.0	145.5%
Italy	744.4	854.1	1 061.8	1 154.2	1 346.9	1 436.0	1 578.3	1 657.4	1 702.4	1 608.9	1 637.9	21.6%
Luxembourg	8.0	9.0	10.1	11.4	16.3	19.8	26.6	31.8	35.8	33.9	34.9	113.8%
Netherlands	241.8	273.7	315.1	333.2	392.9	440.0	536.5	572.9	626.7	604.5	614.7	56.5%
Norway	71.5	85.8	107.1	126.1	137.3	164.8	197.5	220.2	231.7	227.8	229.3	67.1%
Poland	235.4	301.1	314.0	316.7	311.8	347.2	452.0	526.1	627.4	637.4	662.6	112.5%
Portugal	78.7	91.5	117.3	122.6	161.5	175.7	216.3	225.4	234.1	227.3	230.5	42.7%
Slovak Republic	43.2	49.3	54.9	59.3	63.6	58.0	68.6	87.1	110.3	104.9	109.3	71.9%
Slovenia	..	..	..	..	32.7	31.8	39.3	47.0	55.0	50.6	51.3	56.8%
Spain	421.7	522.0	575.4	616.6	768.3	828.0	1 012.5	1 188.8	1 291.6	1 243.3	1 242.5	61.7%
Sweden	140.7	158.4	169.2	185.4	210.3	217.5	258.6	295.3	316.2	300.3	318.8	51.6%
Switzerland	165.6	165.6	180.1	194.0	224.3	225.4	249.4	266.1	291.8	286.4	294.1	31.1%
Turkey	186.0	233.6	262.5	332.9	436.2	510.9	625.3	781.2	879.8	837.4	912.8	109.3%
United Kingdom	825.0	897.2	978.8	1 090.4	1 284.0	1 392.8	1 711.2	1 971.6	2 070.1	1 979.5	2 020.9	57.4%
OECD Europe **	**6 008.9**	**6 857.8**	**7 937.9**	**8 614.0**	**10 118.7**	**10 940.7**	**12 748.8**	**14 106.2**	**15 163.8**	**14 539.8**	**14 903.4**	**47.3%**
European Union - 27	*..*	*..*	*..*	*..*	*9 651.1*	*10 315.9*	*11 957.5*	*13 212.5*	*14 219.2*	*13 605.4*	*13 888.2*	*43.9%*

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

GDP using purchasing power parities

billion 2005 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Non-OECD Total *	**5 886.5**	**7 397.3**	**9 444.4**	**10 596.4**	**12 186.2**	**13 604.6**	**16 716.2**	**22 477.4**	**28 220.0**	**29 174.7**	**31 317.8**	**157.0%**
Albania	6.9	8.6	11.3	12.5	12.9	11.3	14.8	19.2	23.0	23.7	24.6	90.8%
Armenia	..	..	..	..	10.4	5.5	7.1	12.6	17.3	14.8	15.2	45.5%
Azerbaijan	..	..	..	..	34.0	14.2	20.0	37.7	70.3	76.9	80.7	137.1%
Belarus	..	..	..	..	65.6	42.8	58.1	83.5	110.0	110.2	118.6	80.9%
Bosnia and Herzegovina	..	..	..	..	5.1	5.5	18.5	23.6	28.2	27.4	27.6	446.6%
Bulgaria	28.1	38.4	51.7	61.0	65.7	57.5	58.2	76.0	91.5	86.5	86.6	31.9%
Croatia	..	..	..	..	64.1	46.4	54.8	68.2	76.8	72.2	71.3	11.4%
Cyprus	2.5	3.0	5.7	7.5	10.5	13.1	15.8	18.5	21.0	20.7	20.9	98.7%
Georgia	..	..	..	..	29.5	8.3	11.1	15.7	19.8	19.1	20.3	-31.3%
Gibraltar	0.4	0.4	0.5	0.5	0.6	0.7	0.8	0.9	0.9	0.9	0.9	47.6%
Kazakhstan	..	..	..	..	115.9	71.2	80.5	131.8	164.1	166.1	178.2	53.7%
Kosovo **	..	..	..	..	..	..	6.6	9.4	11.3	11.7	12.1	..
Kyrgyzstan	..	..	..	..	11.1	5.6	7.4	8.9	10.8	11.1	10.9	-1.3%
Latvia	..	..	..	..	26.9	15.4	20.3	30.0	35.5	29.1	29.0	7.7%
Lithuania	..	..	..	..	46.3	26.8	33.3	48.5	59.2	50.4	51.1	10.5%
FYR of Macedonia	..	..	..	..	16.3	12.8	14.9	16.1	18.8	18.6	19.0	16.4%
Malta	1.3	1.9	3.3	3.6	4.9	6.3	8.0	8.5	9.5	9.2	9.5	95.1%
Republic of Moldova	..	..	..	..	16.9	6.8	6.0	8.5	9.9	9.3	9.9	-41.3%
Montenegro **	..	..	..	..	..	..	..	5.2	6.6	6.3	6.4	..
Romania	77.8	117.8	169.7	199.7	182.4	163.8	153.6	202.7	253.7	232.1	234.3	28.5%
Russian Federation	..	..	..	..	1 872.3	1 163.0	1 260.1	1 696.7	2 096.2	1 932.4	2 010.4	7.4%
Serbia **	..	..	..	..	104.2	53.7	53.4	63.4	71.9	69.4	70.0	-32.8%
Tajikistan	..	..	..	..	15.7	6.0	6.0	9.7	11.9	12.9	13.3	-15.0%
Turkmenistan	..	..	..	..	13.8	8.6	10.5	22.6	32.3	34.3	37.4	172.1%
Ukraine	..	..	..	..	418.4	200.8	181.8	263.0	311.5	265.4	276.5	-33.9%
Uzbekistan	..	..	..	..	41.1	33.3	40.2	52.4	67.1	72.5	78.6	91.5%
Former Soviet Union ***	1 522.1	1 902.8	2 321.9	2 580.5	..	..	..	..	..	..	..	..
Former Yugoslavia ***	116.5	143.0	192.4	195.9	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	**1 755.5**	**2 215.9**	**2 756.6**	**3 061.2**	**3 184.3**	**1 979.5**	**2 141.7**	**2 933.2**	**3 629.1**	**3 383.0**	**3 513.5**	**10.3%**
Algeria	59.3	88.6	119.6	151.3	157.1	159.2	185.7	235.8	253.6	259.0	266.7	69.8%
Angola	26.2	26.5	26.5	29.0	34.0	26.9	36.7	60.0	99.4	100.0	105.9	211.3%
Benin	3.1	3.4	4.1	5.1	5.3	6.6	8.5	10.3	11.8	12.2	12.6	136.3%
Botswana	..	..	..	5.5	9.6	11.7	16.8	21.6	24.5	23.3	25.0	160.4%
Cameroon	10.1	13.4	18.3	28.6	25.4	23.0	29.1	34.9	38.3	39.1	40.3	59.1%
Congo	3.1	4.2	5.3	8.6	8.5	8.7	9.8	11.9	13.2	14.2	15.4	81.3%
Dem. Rep. of Congo	21.4	22.7	21.0	23.1	23.0	15.8	12.9	15.7	18.6	19.2	20.5	-10.6%
Côte d'Ivoire	14.6	18.2	22.3	22.6	23.9	25.7	30.0	30.0	31.5	32.6	33.6	40.6%
Egypt	59.0	67.7	108.1	149.7	184.0	217.5	280.2	333.2	408.5	427.7	449.7	144.4%
Eritrea	..	..	..	..	..	2.3	2.4	2.7	2.4	2.5	2.6	..
Ethiopia	20.8	21.3	21.8	20.5	26.4	27.7	34.6	47.2	64.6	70.3	77.5	193.9%
Gabon	6.1	12.5	11.6	13.1	13.9	16.2	16.4	17.8	19.5	19.2	20.3	46.4%
Ghana	11.0	10.3	10.8	10.6	13.4	16.5	20.4	26.1	32.1	33.4	36.0	168.0%
Kenya	12.7	16.5	22.4	25.3	33.3	36.1	40.1	48.0	55.4	56.9	60.0	80.1%
Libya	79.0	63.8	100.7	71.8	65.0	62.6	66.0	80.9	94.2	96.2	100.2	54.2%
Morocco	29.3	35.3	46.0	54.1	67.2	70.3	84.8	108.2	126.4	132.4	137.3	104.4%
Mozambique	6.2	5.2	5.3	4.2	5.4	6.4	9.2	13.9	17.3	18.4	19.8	264.8%
Namibia	..	..	..	..	..	7.2	8.5	10.8	12.7	12.7	13.3	..
Nigeria	89.4	102.6	124.3	106.5	138.2	156.3	181.7	244.6	293.2	313.7	338.3	144.7%
Senegal	7.0	7.9	8.3	9.5	10.7	11.9	14.5	18.2	20.3	20.7	21.6	101.7%
South Africa	180.9	207.5	241.6	258.5	280.7	293.0	336.2	405.8	468.5	460.6	473.8	68.8%
Sudan	15.4	19.0	21.3	22.1	27.3	35.0	47.8	62.0	81.2	84.4	88.1	223.1%
United Rep. of Tanzania	11.2	13.3	15.4	16.1	21.3	23.2	28.7	40.4	49.6	52.6	56.2	164.4%
Togo	2.0	2.4	3.0	3.0	3.4	3.4	4.2	4.6	5.1	5.2	5.4	60.6%
Tunisia	12.5	17.0	25.8	31.7	36.7	44.3	58.1	72.0	84.5	87.1	90.4	146.5%
Zambia	7.7	8.7	8.8	9.1	9.8	9.1	10.5	13.3	15.8	16.8	18.1	84.6%
Zimbabwe	2.5	2.9	3.2	3.9	4.9	5.1	5.6	3.8	2.9	3.1	3.3	-30.9%
Other Africa	76.5	80.9	90.6	93.9	107.5	108.4	138.0	187.6	223.2	227.3	237.3	120.7%
Africa	**766.8**	**871.6**	**1 086.2**	**1 177.3**	**1 335.8**	**1 430.0**	**1 717.4**	**2 161.3**	**2 568.4**	**2 640.8**	**2 769.2**	**107.3%**

* Includes Estonia and Slovenia prior to 1990.

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

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

GDP using purchasing power parities

billion 2005 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Bangladesh	47.6	44.5	54.6	65.5	78.6	97.5	125.7	163.7	197.3	208.6	221.3	181.4%
Brunei Darussalam	7.7	9.4	15.3	12.7	12.7	14.8	15.9	17.6	18.0	17.7	18.4	44.9%
Cambodia	..	..	..	..	..	9.1	12.9	20.1	26.2	26.3	27.8	..
Chinese Taipei	50.9	77.3	133.2	181.7	277.8	393.8	508.5	606.8	683.0	669.8	742.3	167.2%
India	465.2	527.9	615.5	791.3	1 056.5	1 353.7	1 797.4	2 517.3	3 169.7	3 458.3	3 762.9	256.2%
Indonesia	100.1	136.3	199.5	262.4	370.2	540.6	559.7	705.2	838.7	877.1	930.7	151.4%
DPR of Korea	29.8	46.7	80.5	128.8	153.5	120.5	107.0	111.5	109.6	113.7	103.5	-32.6%
Malaysia	33.5	44.7	67.3	86.4	120.3	189.2	239.0	301.3	355.9	350.1	375.3	211.9%
Mongolia	..	..	..	4.5	5.3	4.7	5.3	7.3	9.5	9.4	10.0	86.9%
Myanmar	78.4	87.2	118.6	150.0	134.7	178.8	268.7	492.1	687.2	759.9	839.1	523.1%
Nepal	6.9	7.6	8.5	10.8	13.5	17.4	22.0	26.0	29.5	30.8	32.2	138.1%
Pakistan	62.6	72.9	98.5	136.7	181.2	227.2	266.7	340.3	387.9	401.9	418.5	131.0%
Philippines	78.9	99.1	133.0	124.8	157.3	175.0	208.5	261.0	305.0	308.5	332.1	111.2%
Singapore	17.1	23.6	36.4	50.7	76.6	115.5	153.2	193.6	232.3	230.5	263.8	244.3%
Sri Lanka	15.1	17.7	22.9	29.2	34.5	44.9	57.4	69.7	85.0	88.0	95.0	175.2%
Thailand	57.0	71.8	105.4	137.5	224.5	339.5	347.2	445.2	503.7	491.9	530.4	136.3%
Vietnam	32.1	32.5	34.3	47.3	59.7	88.6	124.0	178.1	222.2	234.0	249.9	318.4%
Other Asia	34.6	36.3	38.4	44.7	43.2	55.3	58.8	80.3	99.1	106.7	119.0	175.2%
Asia	**1 117.4**	**1 335.5**	**1 761.9**	**2 264.8**	**3 000.3**	**3 966.1**	**4 877.8**	**6 537.0**	**7 959.9**	**8 383.2**	**9 072.1**	**202.4%**
People's Rep. of China	301.7	375.4	514.1	855.6	1 249.5	2 228.0	3 368.1	5 364.3	7 566.8	8 262.9	9 122.2	630.1%
Hong Kong, China	30.4	40.7	70.6	93.2	135.2	174.3	198.5	243.1	283.1	275.6	294.8	118.1%
China	**332.0**	**416.1**	**584.7**	**948.8**	**1 384.6**	**2 402.3**	**3 566.6**	**5 607.3**	**7 849.9**	**8 538.5**	**9 417.1**	**580.1%**
Argentina	223.8	246.8	283.4	249.3	243.5	334.4	379.7	419.0	527.2	531.7	580.4	138.4%
Bolivia	14.5	18.3	20.2	18.3	20.5	25.0	29.6	34.5	40.1	41.5	43.2	111.0%
Brazil	455.1	666.8	920.9	972.0	1 073.7	1 248.9	1 379.5	1 582.6	1 835.6	1 823.8	1 960.4	82.6%
Colombia	88.2	109.6	142.4	159.1	202.4	247.9	263.2	314.4	371.3	376.7	392.9	94.1%
Costa Rica	9.2	11.6	14.9	14.9	19.2	25.1	31.9	39.0	47.0	46.4	48.3	152.4%
Cuba	20.8	24.9	29.3	44.1	43.7	30.3	37.8	48.3	60.6	59.8	62.3	42.7%
Dominican Republic	12.2	16.9	21.8	24.0	27.6	35.6	49.7	59.1	74.7	77.3	83.3	201.9%
Ecuador	24.6	35.1	45.3	48.5	55.6	63.4	66.4	87.4	100.2	100.6	104.2	87.5%
El Salvador	16.9	20.4	20.4	17.7	19.6	26.4	30.7	34.5	37.7	36.5	37.0	89.2%
Guatemala	16.6	20.6	27.3	25.8	29.7	36.7	44.5	51.7	59.8	60.1	61.8	107.8%
Haiti	7.3	7.8	10.3	10.0	9.9	8.7	9.8	9.6	10.2	10.5	10.0	0.6%
Honduras	6.3	7.2	10.2	11.1	13.0	15.5	18.0	22.5	26.6	26.0	26.7	105.8%
Jamaica	12.1	12.9	10.9	11.1	14.2	17.2	16.9	18.6	19.3	18.7	18.6	31.2%
Netherlands Antilles	0.9	1.1	1.2	1.3	1.5	1.7	2.1	2.2	2.5	2.4	2.4	56.1%
Nicaragua	8.9	11.0	8.9	9.2	7.8	8.5	10.8	12.7	14.5	14.1	15.1	94.6%
Panama	9.4	10.7	12.8	15.2	14.7	19.2	24.0	29.7	40.0	41.0	42.9	192.6%
Paraguay	5.8	7.6	12.9	14.0	17.0	20.5	20.3	23.0	27.1	26.1	30.0	76.5%
Peru	76.7	93.9	105.2	106.9	97.1	126.8	143.4	176.0	226.8	228.7	248.8	156.2%
Trinidad and Tobago	10.0	11.3	16.5	14.7	13.2	14.1	18.0	26.4	32.1	30.9	31.0	135.4%
Uruguay	16.9	18.2	22.8	18.8	22.7	27.5	31.7	32.0	38.9	39.9	43.3	90.8%
Venezuela	135.6	154.5	174.3	166.4	189.1	224.0	232.5	263.8	331.8	321.2	316.4	67.3%
Other Non-OECD Americas	14.9	15.1	20.1	21.1	26.8	28.7	34.8	39.0	42.8	40.3	41.2	53.8%
Non-OECD Americas	**1 186.6**	**1 522.3**	**1 932.1**	**1 973.5**	**2 162.2**	**2 585.9**	**2 875.5**	**3 326.1**	**3 966.7**	**3 954.0**	**4 200.2**	**94.3%**
Bahrain	2.5	4.6	7.6	7.0	8.8	12.3	15.1	20.3	25.0	25.7	26.8	203.5%
Islamic Republic of Iran	225.4	320.0	277.3	335.9	340.2	402.1	490.2	643.5	751.7	765.2	773.1	127.2%
Iraq	218.6	277.9	418.0	267.5	142.7	54.6	112.2	82.5	97.4	101.5	102.3	-28.3%
Jordan	4.2	4.1	8.6	11.1	10.4	14.7	17.2	23.5	29.6	30.2	31.2	198.8%
Kuwait	74.9	62.0	55.1	43.5	50.0	67.8	74.4	110.4	127.3	120.7	123.1	146.1%
Lebanon	25.5	25.0	21.2	29.7	16.9	30.1	32.3	38.9	46.0	49.9	53.3	215.4%
Oman	6.8	8.9	11.6	23.5	27.4	36.4	43.0	51.1	65.0	65.7	68.5	150.2%
Qatar	20.0	20.3	23.6	19.9	19.6	21.7	38.3	57.1	107.6	117.0	136.0	594.0%
Saudi Arabia	114.3	237.8	332.3	263.2	311.6	358.8	407.3	490.6	538.1	539.0	559.2	79.5%
Syrian Arab Republic	12.6	21.3	29.5	34.0	36.6	53.6	60.0	76.4	88.6	93.9	96.9	165.0%
United Arab Emirates	18.1	46.5	125.3	116.8	132.9	160.0	209.5	272.1	318.8	313.7	318.1	139.3%
Yemen	5.2	7.4	13.0	18.5	21.9	28.7	37.5	46.1	51.0	52.9	57.1	161.1%
Middle East	**728.2**	**1 035.9**	**1 322.9**	**1 170.7**	**1 119.0**	**1 240.8**	**1 537.3**	**1 912.5**	**2 245.9**	**2 275.2**	**2 345.7**	**109.6%**

Population

millions

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
World	**3 758.9**	**4 058.5**	**4 431.4**	**4 833.2**	**5 266.2**	**5 675.7**	**6 070.7**	**6 447.3**	**6 673.0**	**6 748.7**	**6 825.4**	**29.6%**
Annex I Parties	*..*	*..*	*..*	*..*	*1 175.9*	*1 207.4*	*1 231.5*	*1 257.8*	*1 275.9*	*1 281.4*	*1 286.8*	*9.4%*
Annex II Parties	*705.3*	*729.4*	*755.0*	*775.9*	*799.3*	*827.8*	*853.1*	*882.0*	*900.0*	*905.2*	*910.0*	*13.8%*
North America	*229.7*	*239.1*	*252.2*	*264.3*	*277.9*	*295.9*	*313.1*	*328.5*	*338.1*	*341.2*	*344.2*	*23.9%*
Europe	*354.6*	*361.4*	*367.8*	*371.3*	*377.3*	*384.4*	*389.9*	*401.1*	*408.2*	*410.0*	*411.4*	*9.0%*
Asia Oceania	*121.0*	*128.8*	*135.0*	*140.2*	*144.2*	*147.5*	*150.1*	*152.5*	*153.7*	*154.0*	*154.3*	*7.1%*
Annex I EIT	*..*	*..*	*..*	*..*	*321.1*	*319.5*	*313.8*	*306.8*	*304.4*	*304.0*	*303.6*	*-5.4%*
Non-Annex I Parties	*..*	*..*	*..*	*..*	*4 090.3*	*4 468.3*	*4 839.1*	*5 189.5*	*5 397.1*	*5 467.2*	*5 538.6*	*35.4%*
Annex I Kyoto Parties	*..*	*..*	*..*	*..*	*860.0*	*870.5*	*874.5*	*882.8*	*890.0*	*892.1*	*894.0*	*3.9%*
Non-OECD Total *	**2 864.2**	**3 123.8**	**3 451.5**	**3 813.1**	**4 202.2**	**4 564.2**	**4 918.8**	**5 254.3**	**5 455.2**	**5 523.5**	**5 593.2**	**33.1%**
OECD Total **	**894.7**	**934.7**	**980.0**	**1 020.2**	**1 064.1**	**1 111.5**	**1 151.9**	**1 193.0**	**1 217.8**	**1 225.1**	**1 232.2**	**15.8%**
Canada	22.0	23.1	24.5	25.8	27.7	29.3	30.7	32.2	33.3	33.7	34.1	23.2%
Chile	9.8	10.4	11.2	12.1	13.2	14.4	15.4	16.3	16.8	16.9	17.1	29.7%
Mexico	49.9	56.7	65.7	73.5	81.3	91.2	98.3	103.8	106.6	107.4	108.3	33.3%
United States	207.7	216.0	227.7	238.5	250.2	266.6	282.4	296.2	304.8	307.5	310.1	24.0%
OECD Americas	**289.3**	**306.3**	**329.1**	**350.0**	**372.3**	**401.5**	**426.8**	**448.6**	**461.5**	**465.6**	**469.6**	**26.1%**
Australia	13.2	14.0	14.8	15.9	17.2	18.2	19.3	20.5	21.7	22.2	22.6	31.4%
Israel	3.1	3.5	3.9	4.3	4.7	5.5	6.3	7.0	7.3	7.5	7.6	63.0%
Japan	105.0	111.8	117.1	121.0	123.6	125.6	126.9	127.8	127.7	127.5	127.4	3.1%
Korea	32.9	35.3	38.1	40.8	42.9	45.1	47.0	48.1	48.6	48.7	48.9	14.0%
New Zealand	2.9	3.1	3.1	3.3	3.4	3.7	3.9	4.1	4.3	4.3	4.4	30.0%
OECD Asia Oceania	**157.0**	**167.6**	**177.0**	**185.3**	**191.7**	**198.1**	**203.4**	**207.6**	**209.7**	**210.2**	**210.8**	**10.0%**
Austria	7.5	7.6	7.5	7.6	7.7	7.9	8.0	8.2	8.3	8.4	8.4	9.2%
Belgium	9.7	9.8	9.9	9.9	10.0	10.1	10.2	10.5	10.7	10.8	10.9	9.2%
Czech Republic	9.8	10.1	10.3	10.3	10.4	10.3	10.3	10.2	10.4	10.5	10.5	1.5%
Denmark	5.0	5.1	5.1	5.1	5.1	5.2	5.3	5.4	5.5	5.5	5.5	7.9%
Estonia	..	..	..	..	1.6	1.4	1.4	1.3	1.3	1.3	1.3	-15.6%
Finland	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.2	5.3	5.3	5.4	7.6%
France	52.4	53.9	55.1	56.6	58.2	59.4	60.7	63.0	64.1	64.5	64.8	11.5%
Germany	78.3	78.7	78.3	77.7	79.4	81.7	82.2	82.5	82.1	81.9	81.8	3.0%
Greece	9.0	9.2	9.8	10.1	10.3	10.6	10.9	11.1	11.2	11.3	11.3	9.4%
Hungary	10.4	10.5	10.7	10.6	10.4	10.3	10.2	10.1	10.0	10.0	10.0	-3.5%
Iceland	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	24.7%
Ireland	3.0	3.2	3.4	3.5	3.5	3.6	3.8	4.2	4.4	4.5	4.5	27.7%
Italy	54.1	55.4	56.4	56.6	56.7	56.8	56.9	58.6	59.8	60.2	60.5	6.6%
Luxembourg	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	32.5%
Netherlands	13.2	13.7	14.1	14.5	14.9	15.5	15.9	16.3	16.4	16.5	16.6	11.1%
Norway	3.9	4.0	4.1	4.2	4.2	4.4	4.5	4.6	4.8	4.8	4.9	15.3%
Poland	32.8	34.0	35.6	37.2	38.0	38.3	38.3	38.2	38.1	38.2	38.2	0.4%
Portugal	8.7	9.2	9.9	10.1	10.0	10.0	10.2	10.5	10.6	10.6	10.6	6.4%
Slovak Republic	4.6	4.7	5.0	5.2	5.3	5.4	5.4	5.4	5.4	5.4	5.4	2.5%
Slovenia	..	..	..	..	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.6%
Spain	34.3	35.7	37.7	38.6	39.0	39.4	40.3	43.4	45.6	45.9	46.1	18.1%
Sweden	8.1	8.2	8.3	8.4	8.6	8.8	8.9	9.0	9.2	9.3	9.4	9.6%
Switzerland	6.3	6.4	6.4	6.5	6.8	7.1	7.2	7.5	7.7	7.8	7.8	14.6%
Turkey	36.2	40.1	44.4	50.3	55.1	59.8	64.3	68.6	71.1	71.9	72.8	32.2%
United Kingdom	55.9	56.2	56.3	56.6	57.2	58.0	58.9	60.2	61.4	61.8	62.2	8.6%
OECD Europe **	**448.4**	**460.9**	**473.8**	**484.9**	**500.1**	**511.9**	**521.7**	**536.9**	**546.6**	**549.3**	**551.8**	**10.3%**
European Union - 27	*..*	*..*	*..*	*..*	*472.9*	*478.7*	*482.9*	*492.1*	*498.7*	*500.3*	*501.7*	*6.1%*

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

Population

millions

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Non-OECD Total *	**2 864.2**	**3 123.8**	**3 451.5**	**3 813.1**	**4 202.2**	**4 564.2**	**4 918.8**	**5 254.3**	**5 455.2**	**5 523.5**	**5 593.2**	**33.1%**
Albania	2.2	2.4	2.7	3.0	3.3	3.1	3.1	3.1	3.2	3.2	3.2	-2.6%
Armenia	..	..	..	..	3.5	3.2	3.1	3.1	3.1	3.1	3.1	-12.8%
Azerbaijan	..	..	..	..	7.2	7.7	8.0	8.4	8.8	8.9	9.0	26.4%
Belarus	..	..	..	..	10.2	10.2	10.0	9.8	9.6	9.5	9.5	-6.9%
Bosnia and Herzegovina	..	..	..	..	4.3	3.3	3.7	3.8	3.8	3.8	3.8	-12.7%
Bulgaria	8.5	8.7	8.9	8.9	8.7	8.4	8.1	7.7	7.6	7.6	7.5	-13.5%
Croatia	..	..	..	..	4.8	4.7	4.4	4.4	4.4	4.4	4.4	-7.4%
Cyprus	0.6	0.5	0.5	0.5	0.6	0.7	0.7	0.7	0.8	0.8	0.8	38.4%
Georgia	..	..	..	..	4.8	4.7	4.4	4.4	4.4	4.4	4.5	-7.3%
Gibraltar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.7%
Kazakhstan	..	..	..	..	16.3	15.8	14.9	15.1	15.7	15.9	16.3	-0.2%
Kosovo **	..	..	..	..	..	..	1.7	1.8	1.8	1.8	1.8	..
Kyrgyzstan	..	..	..	..	4.4	4.6	4.9	5.1	5.3	5.3	5.4	21.3%
Latvia	..	..	..	..	2.7	2.5	2.4	2.3	2.3	2.3	2.2	-16.0%
Lithuania	..	..	..	..	3.7	3.6	3.5	3.4	3.4	3.3	3.3	-10.2%
FYR of Macedonia	..	..	..	..	1.9	2.0	2.0	2.0	2.1	2.1	2.1	8.0%
Malta	0.3	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	14.7%
Republic of Moldova	..	..	..	..	3.7	3.7	3.6	3.6	3.6	3.6	3.6	-3.6%
Montenegro **	..	..	..	..	..	..	..	0.6	0.6	0.6	0.6	..
Romania	20.5	21.2	22.2	22.7	23.2	22.7	22.4	21.6	21.5	21.5	21.4	-7.6%
Russian Federation	..	..	..	..	148.3	148.1	146.3	143.2	142.0	141.9	141.8	-4.4%
Serbia **	..	..	..	..	10.1	10.4	8.1	7.4	7.4	7.3	7.3	-27.5%
Tajikistan	..	..	..	..	5.3	5.8	6.2	6.5	6.7	6.8	6.9	29.7%
Turkmenistan	..	..	..	..	3.7	4.2	4.5	4.7	4.9	5.0	5.0	37.5%
Ukraine	..	..	..	..	51.9	51.5	49.2	47.1	46.3	46.1	45.9	-11.6%
Uzbekistan	..	..	..	..	20.5	22.8	24.7	26.2	27.3	27.8	28.2	37.3%
Former Soviet Union ***	245.2	254.4	265.8	277.7	..	..	..	..	..	..	..	..
Former Yugoslavia ***	20.3	20.9	21.7	22.4	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	**297.6**	**308.5**	**322.1**	**335.6**	**343.4**	**344.1**	**340.3**	**336.6**	**336.7**	**337.3**	**338.0**	**-1.6%**
Algeria	14.2	16.0	18.8	22.1	25.3	28.3	30.5	32.9	34.4	35.0	35.5	40.2%
Angola	6.0	6.6	7.6	9.1	10.3	12.1	13.9	16.5	18.0	18.6	19.1	84.6%
Benin	2.9	3.2	3.6	4.1	4.8	5.7	6.5	7.6	8.4	8.6	8.9	85.4%
Botswana	..	..	..	1.2	1.4	1.6	1.8	1.9	2.0	2.0	2.0	45.2%
Cameroon	7.0	7.8	9.1	10.5	12.2	13.9	15.7	17.6	18.8	19.2	19.6	60.9%
Congo	1.4	1.6	1.8	2.1	2.4	2.7	3.1	3.5	3.8	3.9	4.0	69.2%
Dem. Rep. of Congo	20.8	23.3	27.0	31.0	36.4	44.1	49.6	57.4	62.5	64.2	66.0	81.2%
Côte d'Ivoire	5.7	6.8	8.5	10.5	12.5	14.7	16.6	18.0	19.0	19.4	19.7	57.7%
Egypt	36.8	40.1	45.0	50.7	56.8	62.1	67.6	74.2	78.3	79.7	81.1	42.7%
Eritrea	..	..	..	..	..	3.2	3.7	4.5	4.9	5.1	5.3	..
Ethiopia	31.7	35.1	37.9	43.9	51.5	57.0	65.6	74.3	79.4	81.2	83.0	61.1%
Gabon	0.5	0.6	0.7	0.8	0.9	1.1	1.2	1.4	1.5	1.5	1.5	62.0%
Ghana	8.9	9.9	10.9	12.9	14.8	17.0	19.2	21.6	23.3	23.8	24.4	64.9%
Kenya	11.7	13.5	16.3	19.7	23.4	27.4	31.3	35.6	38.5	39.5	40.5	72.8%
Libya	2.1	2.5	3.1	3.9	4.3	4.8	5.2	5.8	6.2	6.3	6.4	46.6%
Morocco	15.7	17.3	19.6	22.3	24.8	26.9	28.8	30.4	31.3	31.6	32.0	28.9%
Mozambique	9.7	10.6	12.1	13.3	13.5	15.9	18.2	20.8	22.3	22.9	23.4	72.7%
Namibia	..	..	..	..	..	1.7	1.9	2.1	2.2	2.2	2.3	..
Nigeria	58.7	65.1	75.5	85.8	97.6	110.0	123.7	139.8	150.7	154.5	158.4	62.4%
Senegal	4.2	4.8	5.4	6.2	7.2	8.4	9.5	10.9	11.8	12.1	12.4	71.7%
South Africa	22.6	24.7	27.6	31.3	35.2	39.1	44.0	47.2	48.8	49.3	50.0	42.0%
Sudan	15.2	17.1	20.1	23.5	26.5	30.1	34.2	38.4	41.4	42.5	43.6	64.4%
United Rep. of Tanzania	14.0	16.0	18.7	21.8	25.5	29.9	34.0	38.8	42.3	43.5	44.8	76.0%
Togo	2.2	2.4	2.7	3.2	3.7	4.1	4.8	5.4	5.8	5.9	6.0	64.4%
Tunisia	5.2	5.6	6.4	7.3	8.2	9.0	9.6	10.0	10.3	10.4	10.5	29.4%
Zambia	4.3	4.9	5.8	6.8	7.9	8.9	10.2	11.5	12.4	12.7	12.9	64.5%
Zimbabwe	5.4	6.2	7.3	8.9	10.5	11.7	12.5	12.6	12.5	12.5	12.6	20.1%
Other Africa	70.5	77.5	89.8	100.6	115.9	127.1	147.4	169.8	185.0	190.3	195.8	68.9%
Africa	**377.3**	**419.2**	**481.2**	**553.4**	**633.5**	**718.5**	**810.3**	**910.4**	**975.6**	**998.3**	**1 021.6**	**61.3%**

* Includes Estonia and Slovenia prior to 1990.

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

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

Population

millions

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Bangladesh	67.8	70.6	80.6	92.3	105.3	117.5	129.6	140.6	145.5	147.0	148.7	41.3%
Brunei Darussalam	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	58.3%
Cambodia	..	..	..	..	..	11.2	12.4	13.4	13.8	14.0	14.1	..
Chinese Taipei	14.9	16.1	17.8	19.3	20.3	21.3	22.2	22.7	22.9	23.0	23.2	14.3%
India	560.3	613.5	687.3	765.1	849.5	932.2	1 015.9	1 094.6	1 140.0	1 155.3	1 170.9	37.8%
Indonesia	121.4	134.1	150.8	168.1	184.3	199.4	213.4	227.3	235.0	237.4	239.9	30.1%
DPR of Korea	14.6	16.1	17.2	18.7	20.1	21.8	22.9	23.7	24.1	24.2	24.3	20.9%
Malaysia	11.2	12.3	13.8	15.8	18.2	20.7	23.4	26.1	27.5	27.9	28.4	56.0%
Mongolia	..	..	..	1.9	2.2	2.3	2.4	2.5	2.7	2.7	2.8	25.7%
Myanmar	26.8	29.5	32.9	36.1	39.3	42.1	45.0	46.3	47.3	47.6	48.0	22.1%
Nepal	12.2	13.4	15.0	16.9	19.1	21.6	24.4	27.3	28.9	29.4	30.0	57.0%
Pakistan	61.0	68.5	80.5	95.5	111.8	127.3	144.5	158.6	167.4	170.5	173.6	55.2%
Philippines	36.5	40.9	47.1	54.1	61.6	69.3	77.3	85.5	90.2	91.7	93.3	51.3%
Singapore	2.1	2.3	2.4	2.7	3.0	3.5	4.0	4.3	4.8	5.0	5.1	66.6%
Sri Lanka	12.8	13.8	15.1	16.2	17.3	18.2	18.7	19.8	20.5	20.7	20.9	20.3%
Thailand	38.0	42.4	47.5	52.3	57.1	59.7	63.2	66.7	68.3	68.7	69.1	21.1%
Vietnam	43.7	48.0	53.7	58.9	66.0	72.0	77.6	82.4	85.1	86.0	86.9	31.7%
Other Asia	28.4	30.6	32.7	35.5	40.2	34.4	38.7	43.5	46.7	47.8	49.1	22.0%
Asia	**1 051.9**	**1 152.2**	**1 294.7**	**1 449.7**	**1 615.7**	**1 774.7**	**1 936.0**	**2 085.8**	**2 171.0**	**2 199.5**	**2 228.6**	**37.9%**
People's Rep. of China	841.1	916.4	981.2	1 051.0	1 135.2	1 204.9	1 262.6	1 303.7	1 324.7	1 331.4	1 338.3	17.9%
Hong Kong, China	4.0	4.5	5.1	5.5	5.7	6.2	6.7	6.8	7.0	7.0	7.1	23.9%
China	**845.2**	**920.9**	**986.3**	**1 056.5**	**1 140.9**	**1 211.0**	**1 269.3**	**1 310.5**	**1 331.6**	**1 338.4**	**1 345.4**	**17.9%**
Argentina	24.4	26.1	28.1	30.4	32.6	34.9	36.9	38.7	39.7	40.1	40.4	23.8%
Bolivia	4.3	4.8	5.4	6.0	6.7	7.5	8.3	9.1	9.6	9.8	9.9	49.1%
Brazil	98.4	108.2	121.7	136.2	149.7	161.8	174.4	186.0	191.5	193.2	194.9	30.3%
Colombia	21.9	24.0	26.9	30.0	33.2	36.5	39.8	43.0	45.0	45.7	46.3	39.4%
Costa Rica	1.9	2.0	2.3	2.7	3.1	3.5	3.9	4.3	4.5	4.6	4.7	51.8%
Cuba	8.9	9.4	9.8	10.1	10.6	10.9	11.1	11.3	11.3	11.3	11.3	6.5%
Dominican Republic	4.6	5.1	5.8	6.5	7.2	7.9	8.6	9.3	9.7	9.8	9.9	38.0%
Ecuador	6.2	6.9	8.0	9.1	10.3	11.4	12.3	13.4	14.1	14.3	14.5	41.0%
El Salvador	3.8	4.2	4.7	5.0	5.3	5.7	5.9	6.1	6.1	6.2	6.2	16.1%
Guatemala	5.6	6.2	7.0	8.0	8.9	10.0	11.2	12.7	13.7	14.0	14.4	61.3%
Haiti	4.8	5.1	5.7	6.4	7.1	7.9	8.6	9.3	9.7	9.9	10.0	40.3%
Honduras	2.8	3.1	3.6	4.2	4.9	5.6	6.2	6.9	7.3	7.5	7.6	55.5%
Jamaica	1.9	2.0	2.1	2.3	2.4	2.5	2.6	2.7	2.7	2.7	2.7	13.1%
Netherlands Antilles	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	5.2%
Nicaragua	2.5	2.8	3.2	3.7	4.1	4.6	5.1	5.4	5.6	5.7	5.8	40.5%
Panama	1.6	1.7	2.0	2.2	2.4	2.7	3.0	3.2	3.4	3.5	3.5	45.6%
Paraguay	2.5	2.8	3.2	3.7	4.2	4.8	5.3	5.9	6.2	6.3	6.5	52.1%
Peru	13.6	15.1	17.3	19.5	21.7	23.8	25.9	27.6	28.5	28.8	29.1	34.1%
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	10.4%
Uruguay	2.8	2.8	2.9	3.0	3.1	3.2	3.3	3.3	3.3	3.3	3.4	8.0%
Venezuela	11.0	12.7	15.0	17.5	19.8	22.0	24.3	26.6	27.9	28.4	28.8	46.0%
Other Non-OECD Americas	2.6	2.7	2.8	2.9	3.0	3.2	3.3	3.6	3.7	3.7	3.7	24.8%
Non-OECD Americas	**227.1**	**249.1**	**278.8**	**310.5**	**341.6**	**371.8**	**401.7**	**429.8**	**445.1**	**450.1**	**455.1**	**33.2%**
Bahrain	0.2	0.3	0.4	0.4	0.5	0.6	0.6	0.7	1.1	1.2	1.3	156.0%
Islamic Republic of Iran	29.4	32.8	38.6	46.5	54.9	59.8	65.3	69.7	72.3	73.1	74.0	34.8%
Iraq	10.6	12.0	14.1	16.3	18.9	21.6	25.1	28.5	30.7	31.5	32.3	71.0%
Jordan	1.6	1.8	2.2	2.6	3.2	4.2	4.8	5.4	5.8	5.9	6.0	90.8%
Kuwait	0.8	1.1	1.4	1.7	2.1	1.6	1.9	2.3	2.5	2.6	2.7	31.1%
Lebanon	2.5	2.8	2.8	2.9	2.9	3.5	3.7	4.1	4.2	4.2	4.2	43.4%
Oman	0.8	0.9	1.2	1.5	1.9	2.2	2.3	2.4	2.6	2.7	2.8	48.9%
Qatar	0.1	0.2	0.2	0.4	0.5	0.5	0.6	0.8	1.4	1.6	1.8	271.1%
Saudi Arabia	6.0	7.3	9.8	13.2	16.1	18.5	20.0	24.0	26.2	26.8	27.4	70.1%
Syrian Arab Republic	6.6	7.5	8.9	10.6	12.3	14.2	16.0	18.5	19.6	20.0	20.4	65.9%
United Arab Emirates	0.3	0.5	1.0	1.3	1.8	2.3	3.0	4.1	6.2	6.9	7.5	315.3%
Yemen	6.2	6.7	7.9	9.8	11.9	15.1	17.7	20.6	22.6	23.3	24.1	101.3%
Middle East	**65.1**	**73.9**	**88.4**	**107.3**	**127.0**	**144.1**	**161.2**	**181.2**	**195.2**	**200.0**	**204.6**	**61.0%**

CO_2 emissions / TPES

tonnes CO_2 / terajoule

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
World *	**60.8**	**60.5**	**59.7**	**57.5**	**57.1**	**56.5**	**56.1**	**56.7**	**57.4**	**56.8**	**56.7**	**-0.8%**
Annex I Parties	*..*	*..*	*..*	*..*	*59.5*	*57.4*	*57.0*	*56.3*	*55.8*	*55.0*	*54.6*	*-8.2%*
Annex II Parties	*66.0*	*64.2*	*62.3*	*59.5*	*58.4*	*56.6*	*56.5*	*56.2*	*55.5*	*54.4*	*54.4*	*-6.8%*
North America	*64.0*	*62.2*	*60.9*	*60.1*	*59.6*	*58.3*	*59.0*	*58.4*	*57.7*	*56.5*	*57.1*	*-4.2%*
Europe	*69.0*	*66.4*	*64.5*	*58.6*	*55.8*	*53.3*	*51.7*	*51.1*	*50.4*	*49.1*	*48.4*	*-13.4%*
Asia Oceania	*67.1*	*67.2*	*62.4*	*59.8*	*59.8*	*57.7*	*57.6*	*59.5*	*59.0*	*58.6*	*58.1*	*-2.8%*
Annex I EIT	*..*	*..*	*..*	*..*	*62.5*	*60.6*	*58.9*	*56.6*	*56.6*	*56.9*	*55.0*	*-12.1%*
Non-Annex I Parties	*..*	*..*	*..*	*..*	*51.5*	*53.9*	*53.6*	*56.1*	*58.1*	*57.5*	*57.5*	*11.7%*
Annex I Kyoto Parties	*..*	*..*	*..*	*..*	*58.8*	*56.2*	*54.9*	*54.2*	*53.8*	*53.3*	*52.4*	*-10.9%*
Non-OECD Total **	**50.2**	**53.2**	**54.6**	**53.1**	**54.3**	**54.7**	**53.9**	**56.0**	**57.9**	**57.4**	**57.1**	**5.2%**
OECD Total ***	**66.4**	**64.7**	**62.9**	**60.5**	**58.9**	**57.2**	**57.0**	**56.4**	**55.8**	**54.9**	**55.0**	**-6.7%**
Canada	57.4	54.3	53.0	49.8	49.6	48.2	50.7	49.1	49.7	50.1	50.9	2.7%
Chile	57.2	53.1	53.5	48.5	52.9	50.7	49.8	49.0	54.0	53.0	53.8	1.8%
Mexico	53.9	56.0	53.3	55.3	51.6	54.6	57.5	54.1	53.2	54.7	55.9	8.3%
United States	64.6	63.0	61.7	61.2	60.7	59.4	59.9	59.4	58.6	57.2	57.9	-4.7%
OECD Americas	**63.7**	**62.0**	**60.5**	**59.8**	**59.2**	**58.0**	**58.8**	**58.0**	**57.3**	**56.3**	**57.0**	**-3.6%**
Australia	66.7	71.2	71.4	72.5	72.0	73.7	74.8	77.2	74.2	72.8	73.4	2.0%
Israel	60.0	58.0	59.9	77.3	69.8	71.2	72.2	75.8	67.1	70.5	71.0	1.6%
Japan	67.7	67.0	61.1	57.8	57.9	55.2	54.5	56.0	55.7	55.4	55.0	-5.0%
Korea	73.3	75.0	72.1	68.4	58.8	59.2	55.6	53.3	52.8	53.7	53.8	-8.6%
New Zealand	47.5	46.5	43.7	41.9	43.5	42.3	43.3	48.0	46.6	42.5	40.5	-6.8%
OECD Asia Oceania	**67.3**	**67.5**	**63.2**	**61.0**	**59.8**	**58.3**	**57.5**	**58.4**	**57.6**	**57.6**	**57.3**	**-4.3%**
Austria	61.8	59.5	57.4	56.2	54.3	53.0	51.6	52.8	50.3	47.8	48.9	-9.8%
Belgium	70.4	65.2	64.2	55.2	53.4	51.2	48.4	45.8	45.2	42.1	41.8	-21.8%
Czech Republic	79.4	83.5	84.3	84.0	74.8	71.2	71.0	63.6	62.4	62.5	62.0	-17.1%
Denmark	71.0	71.7	78.1	74.9	69.4	71.4	64.9	61.0	60.3	60.8	58.3	-15.9%
Estonia	..	..	..	..	87.0	76.3	74.1	78.0	77.8	73.7	79.3	-9.0%
Finland	52.3	53.8	53.6	44.9	45.8	46.3	40.8	38.5	38.6	39.5	41.3	-9.8%
France	65.1	62.3	57.5	42.2	37.6	35.7	35.7	34.3	33.4	33.1	32.6	-13.3%
Germany	76.6	74.3	70.6	67.8	64.6	61.6	58.5	57.1	57.2	56.3	55.6	-14.0%
Greece	69.2	70.3	72.3	74.3	78.1	79.9	77.1	75.0	74.0	73.2	72.9	-6.7%
Hungary	75.7	73.7	70.5	64.8	55.1	52.9	51.8	48.8	47.9	46.3	45.5	-17.4%
Iceland	37.0	34.7	27.7	21.8	21.5	20.7	16.5	15.0	9.3	9.1	8.5	-60.2%
Ireland	77.2	75.8	75.1	73.0	71.3	72.5	71.1	72.0	69.5	64.7	64.1	-10.0%
Italy	66.4	65.4	65.7	64.2	64.8	61.4	59.3	59.9	59.0	56.4	55.9	-13.7%
Luxembourg	90.7	76.6	80.0	77.4	73.1	61.7	57.9	62.1	60.0	60.5	59.9	-18.0%
Netherlands	60.8	57.0	61.9	60.7	56.7	57.7	56.1	55.3	54.9	53.8	53.5	-5.5%
Norway	42.2	39.4	36.5	32.5	32.2	33.4	30.7	32.4	30.1	31.4	28.8	-10.4%
Poland	79.5	78.4	77.9	80.3	79.3	79.5	78.0	75.7	72.8	72.9	71.8	-9.4%
Portugal	55.0	56.3	56.9	53.7	56.0	57.0	57.5	56.7	52.1	52.6	48.9	-12.8%
Slovak Republic	65.4	62.4	66.6	62.7	63.5	54.9	50.3	48.3	47.3	47.4	46.9	-26.1%
Slovenia	..	..	..	..	52.3	52.4	52.5	51.1	51.7	51.1	50.8	-3.0%
Spain	67.2	65.0	66.2	59.0	54.4	55.1	55.6	57.1	54.5	52.9	50.2	-7.8%
Sweden	54.6	48.6	43.3	29.7	26.7	27.3	26.5	23.3	21.4	21.8	22.2	-17.0%
Switzerland	56.8	51.0	46.8	44.8	40.6	41.3	40.5	41.0	39.1	37.5	39.9	-1.7%
Turkey	50.6	52.9	53.9	57.5	57.5	59.2	62.7	61.2	63.9	62.7	60.4	5.1%
United Kingdom	71.4	69.4	68.7	64.8	63.7	57.1	56.2	57.3	58.8	56.4	57.0	-10.5%
OECD Europe ***	**69.9**	**67.7**	**66.2**	**61.3**	**58.2**	**55.6**	**54.1**	**53.1**	**52.6**	**51.5**	**50.8**	**-12.8%**
European Union - 27	*..*	*..*	*..*	*..*	*59.1*	*56.1*	*54.3*	*53.4*	*52.8*	*51.6*	*51.0*	*-13.8%*

* The ratio for the world has been calculated to include international marine bunkers and international aviation bunkers.
** Includes Estonia and Slovenia prior to 1990.
*** Excludes Estonia and Slovenia prior to 1990.

CO_2 emissions / TPES

tonnes CO_2 / terajoule

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Non-OECD Total *	**50.2**	**53.2**	**54.6**	**53.1**	**54.3**	**54.7**	**53.9**	**56.0**	**57.9**	**57.4**	**57.1**	**5.2%**
Albania	54.3	53.7	59.3	63.4	55.9	33.5	41.9	44.6	44.9	40.5	43.3	-22.6%
Armenia	..	..	..	..	63.5	50.0	40.6	39.3	41.9	39.1	39.5	-37.9%
Azerbaijan	..	..	..	..	59.4	60.4	62.2	56.7	53.1	50.5	49.8	-16.1%
Belarus	..	..	..	..	65.3	59.3	56.8	55.2	54.7	55.6	56.3	-13.8%
Bosnia and Herzegovina	..	..	..	..	80.5	51.7	74.2	74.0	79.9	76.6	74.2	-7.8%
Bulgaria	78.9	74.2	70.5	63.2	62.5	54.9	53.8	55.0	59.1	57.6	58.6	-6.3%
Croatia	..	..	..	..	57.4	53.8	54.4	55.8	55.3	54.4	53.2	-7.2%
Cyprus	72.2	70.8	71.9	72.3	67.4	71.5	70.1	75.3	69.9	70.3	70.6	4.7%
Georgia	..	..	..	..	64.0	51.8	38.3	36.4	37.9	41.3	37.8	-40.8%
Gibraltar	72.1	72.4	73.6	72.8	72.6	72.9	72.9	73.0	73.1	73.0	73.1	0.6%
Kazakhstan	..	..	..	..	76.9	76.6	75.6	73.8	77.5	74.6	73.9	-3.9%
Kosovo **	..	..	..	..	..	..	80.4	82.9	83.1	83.0	83.0	..
Kyrgyzstan	..	..	..	..	71.6	44.3	44.3	45.3	51.9	57.1	57.1	-20.2%
Latvia	..	..	..	..	56.7	46.0	43.9	40.9	42.1	40.5	43.7	-22.9%
Lithuania	..	..	..	..	49.2	38.7	37.6	36.6	36.3	34.5	46.1	-6.4%
FYR of Macedonia	..	..	..	..	82.1	78.1	75.2	72.3	71.7	71.5	67.9	-17.3%
Malta	73.5	73.6	73.9	79.6	78.6	79.2	74.5	73.4	73.3	72.3	70.6	-10.2%
Republic of Moldova	..	..	..	..	73.1	59.4	54.2	52.7	53.4	56.0	56.1	-23.2%
Montenegro **	..	..	..	..	..	..	..	47.2	55.6	45.2	60.6	..
Romania	65.1	64.8	64.5	63.7	64.1	60.0	56.9	58.0	56.0	54.1	51.6	-19.5%
Russian Federation	..	..	..	..	59.2	59.1	58.1	55.6	55.3	56.1	53.8	-9.0%
Serbia **	..	..	..	..	75.8	77.4	76.3	73.1	70.6	72.6	70.5	-7.1%
Tajikistan	..	..	..	..	49.0	26.2	24.1	23.9	28.7	28.8	28.3	-42.4%
Turkmenistan	..	..	..	..	62.2	59.0	59.4	59.2	59.1	59.5	59.1	-5.1%
Ukraine	..	..	..	..	65.3	57.3	52.1	51.1	54.4	52.8	48.8	-25.2%
Uzbekistan	..	..	..	..	61.7	57.0	55.3	54.8	54.3	55.1	54.7	-11.4%
Former Soviet Union ***	62.0	65.3	65.8	61.2	..	..	..	..	..	..	..	..
Former Yugoslavia ***	68.9	70.4	62.1	70.7	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	**62.7**	**65.5**	**65.7**	**61.7**	**62.0**	**59.4**	**57.6**	**56.0**	**56.7**	**56.9**	**55.0**	**-11.2%**
Algeria	61.4	60.7	60.6	58.1	56.7	56.2	56.2	58.7	57.2	58.1	58.3	2.8%
Angola	10.3	11.6	14.0	13.8	16.3	14.8	16.2	18.5	25.8	26.8	29.0	78.3%
Benin	6.5	8.8	6.9	7.2	3.6	2.8	17.0	25.3	27.6	28.8	29.5	707.3%
Botswana	..	..	..	42.5	55.6	53.2	54.5	54.9	50.1	50.9	48.6	-12.6%
Cameroon	6.4	8.2	10.8	13.0	12.8	10.8	10.5	10.0	15.9	16.6	16.9	31.8%
Congo	27.1	26.3	26.8	23.7	19.1	14.5	14.5	18.2	25.2	25.6	27.0	41.7%
Dem. Rep. of Congo	9.0	8.2	8.8	7.7	6.0	3.8	2.4	2.7	3.0	3.0	3.1	-48.6%
Côte d'Ivoire	23.2	24.3	22.5	19.6	14.6	15.1	21.7	14.5	15.0	15.3	14.5	-0.4%
Egypt	62.3	62.4	66.0	60.1	57.9	56.3	59.5	58.1	58.3	57.8	57.9	-0.0%
Eritrea	..	..	..	..	..	18.5	20.4	18.8	16.0	15.5	15.8	..
Ethiopia	3.7	3.0	3.1	2.7	3.6	3.5	4.1	5.0	4.3	4.2	3.9	8.7%
Gabon	10.5	13.8	22.2	29.7	18.2	23.4	22.5	27.7	27.9	28.7	29.7	62.7%
Ghana	15.4	15.3	13.5	11.9	12.2	12.2	15.8	18.7	19.6	24.7	24.3	98.7%
Kenya	14.6	13.8	14.5	12.8	12.3	11.1	11.8	10.7	11.6	13.0	13.3	7.9%
Libya	56.8	59.8	64.3	53.9	57.7	53.1	57.2	57.8	58.4	54.2	64.4	11.7%
Morocco	67.2	69.4	68.4	70.5	67.6	72.2	68.6	73.3	69.3	67.6	66.5	-1.6%
Mozambique	10.0	8.4	8.2	5.6	4.4	4.3	4.4	4.3	5.1	5.5	5.9	34.1%
Namibia	..	..	..	..	..	47.1	43.1	45.6	52.2	49.9	49.6	..
Nigeria	3.9	6.7	12.2	12.6	9.9	9.6	11.1	12.4	10.7	9.3	9.7	-1.7%
Senegal	23.3	27.6	31.2	32.3	30.1	31.7	35.9	39.8	39.5	38.6	38.7	28.4%
South Africa	82.4	89.2	76.3	63.2	66.6	63.3	64.8	61.3	62.6	61.0	60.5	-9.1%
Sudan	11.1	10.5	10.6	10.6	12.4	9.1	9.9	14.4	19.6	20.3	20.2	63.7%
United Rep. of Tanzania	4.8	4.7	4.7	4.2	4.2	5.5	4.6	7.2	7.3	6.9	7.1	69.9%
Togo	11.2	9.6	9.8	7.1	10.8	8.8	10.8	9.8	10.3	10.3	10.4	-3.1%
Tunisia	53.1	52.7	57.3	55.0	58.3	58.5	58.9	58.0	54.5	56.1	54.4	-6.7%
Zambia	23.4	26.9	17.8	13.6	11.5	8.4	6.5	6.9	5.0	5.3	5.7	-50.5%
Zimbabwe	31.8	29.0	29.3	30.9	41.1	36.0	30.7	25.5	20.4	21.2	22.6	-45.1%
Other Africa	6.9	7.7	9.5	7.6	8.2	8.5	8.4	8.8	9.2	8.9	8.9	8.3%
Africa	**30.9**	**34.8**	**35.0**	**33.4**	**33.5**	**32.5**	**32.7**	**33.1**	**33.6**	**32.9**	**32.6**	**-2.9%**

* Includes Estonia and Slovenia prior to 1990.

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

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

CO_2 emissions / TPES

tonnes CO_2 / terajoule

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Bangladesh	13.4	16.5	20.5	21.2	25.4	30.8	32.5	36.6	39.9	41.1	40.8	60.2%
Brunei Darussalam	53.7	45.4	46.5	39.3	45.6	48.6	45.3	52.8	49.3	62.1	59.2	29.9%
Cambodia	..	..	..	..	..	12.3	13.7	18.3	24.0	17.7	17.9	..
Chinese Taipei	74.0	70.9	62.3	51.3	56.6	59.2	61.1	61.4	59.4	58.4	59.1	4.3%
India	30.6	32.4	33.0	38.5	43.9	48.3	50.8	51.6	54.9	55.3	56.1	27.7%
Indonesia	17.1	22.0	29.5	31.9	35.4	39.1	42.0	44.4	46.6	45.9	47.2	33.5%
DPR of Korea	83.1	82.3	83.0	83.8	82.0	81.3	83.1	82.7	81.7	82.0	81.2	-0.9%
Malaysia	49.8	52.3	48.7	51.9	55.0	58.4	57.1	57.2	60.2	57.9	60.8	10.5%
Mongolia	..	..	..	88.5	88.5	88.8	87.8	86.3	84.8	86.1	86.6	-2.2%
Myanmar	13.8	11.4	13.1	12.7	9.1	13.9	17.4	17.0	11.9	11.7	13.7	50.8%
Nepal	1.2	1.9	2.7	2.6	3.6	6.2	9.0	7.9	7.1	8.2	8.5	134.1%
Pakistan	23.3	24.6	25.1	29.0	32.8	35.4	36.6	37.3	39.1	38.9	38.0	15.9%
Philippines	35.9	38.0	35.5	28.6	31.9	40.7	40.4	43.6	42.0	44.4	45.1	41.3%
Singapore	53.7	54.5	59.1	57.6	61.0	53.0	60.9	53.9	55.3	48.4	45.9	-24.8%
Sri Lanka	17.4	15.7	19.6	17.1	16.2	22.2	30.5	35.6	32.6	31.7	32.3	99.2%
Thailand	28.3	29.2	36.5	40.4	45.8	54.2	52.3	52.2	51.1	50.9	50.5	10.3%
Vietnam	29.2	28.7	24.5	25.6	23.0	30.3	36.6	46.0	49.7	50.8	52.6	128.8%
Other Asia	55.3	56.5	52.4	38.5	35.5	32.3	32.7	38.7	39.7	41.6	42.1	18.5%
Asia	**33.0**	**35.0**	**37.3**	**39.7**	**43.2**	**46.5**	**48.5**	**49.7**	**51.6**	**51.6**	**52.2**	**20.9%**
People's Rep. of China	48.8	51.9	56.1	58.8	61.2	68.1	66.3	71.3	73.4	71.1	70.2	14.7%
Hong Kong, China	72.9	71.1	75.0	79.9	90.6	80.7	71.1	76.9	71.4	72.9	71.8	-20.7%
China	**49.0**	**52.0**	**56.2**	**59.0**	**61.5**	**68.2**	**66.3**	**71.3**	**73.4**	**71.1**	**70.2**	**14.2%**
Argentina	58.7	56.8	54.6	51.0	51.8	52.1	54.5	53.8	53.5	53.1	54.5	5.2%
Bolivia	50.9	51.9	41.0	40.6	47.1	44.2	45.6	43.6	48.9	49.0	45.9	-2.6%
Brazil	31.2	36.0	37.8	31.0	33.1	35.6	38.7	35.8	34.8	33.6	34.9	5.4%
Colombia	45.4	44.0	45.7	45.9	44.3	49.4	54.3	50.7	48.4	47.6	45.0	1.4%
Costa Rica	26.5	31.7	34.1	28.6	30.6	44.7	36.3	35.2	34.3	32.9	33.6	9.6%
Cuba	45.4	47.2	48.1	48.7	45.6	48.0	50.3	55.8	56.6	64.6	65.3	43.2%
Dominican Republic	35.2	39.9	43.5	40.4	44.6	46.3	53.3	54.4	55.9	53.3	53.1	19.1%
Ecuador	38.2	45.4	50.4	50.1	52.3	54.3	54.0	52.6	57.4	60.9	59.4	13.5%
El Salvador	19.4	21.3	16.6	16.0	21.6	32.9	31.4	32.3	33.0	35.2	33.4	54.8%
Guatemala	20.0	21.8	26.6	20.3	17.4	26.0	28.7	31.9	29.7	28.5	24.0	38.3%
Haiti	5.9	5.7	7.0	10.0	14.5	12.8	16.7	18.3	20.1	21.8	22.2	53.5%
Honduras	19.2	20.4	21.5	19.8	21.6	29.9	35.5	41.5	40.1	39.3	38.2	76.2%
Jamaica	65.5	66.0	68.2	64.3	61.6	62.2	60.6	66.3	66.3	60.7	62.2	1.1%
Netherlands Antilles	63.0	63.1	53.2	60.9	44.9	51.3	48.9	51.6	49.8	56.2	54.3	20.7%
Nicaragua	28.4	29.4	27.9	22.2	20.9	25.5	30.9	28.9	32.5	32.4	34.0	62.5%
Panama	36.0	44.0	49.6	41.1	40.9	49.3	45.7	56.6	50.6	54.1	53.2	29.9%
Paraguay	9.9	11.2	15.5	15.0	14.9	21.0	20.2	20.8	20.6	22.0	23.4	57.3%
Peru	40.7	42.5	43.6	41.2	47.1	51.6	51.8	50.5	56.6	57.7	51.6	9.6%
Trinidad and Tobago	55.7	60.0	49.5	45.1	45.4	47.7	47.2	48.3	48.4	47.3	47.9	5.6%
Uruguay	51.6	53.3	50.2	37.3	39.8	42.0	40.7	42.8	44.3	43.9	37.0	-7.1%
Venezuela	63.2	59.7	62.0	57.3	57.3	54.5	53.3	52.9	57.3	57.4	56.8	-0.9%
Other Non-OECD Americas	39.5	43.1	40.8	56.4	61.0	61.4	62.5	61.5	61.5	61.2	61.1	0.2%
Non-OECD Americas	**43.1**	**44.1**	**44.9**	**40.4**	**41.7**	**43.6**	**45.4**	**43.9**	**44.0**	**43.7**	**43.7**	**4.8%**
Bahrain	51.1	59.5	63.0	59.7	64.2	56.3	57.5	57.8	57.7	57.6	57.7	-10.3%
Islamic Republic of Iran	59.9	64.1	56.6	65.0	61.6	59.3	61.2	58.5	58.3	57.7	58.3	-5.2%
Iraq	59.9	60.8	66.8	63.7	64.7	67.4	64.7	66.6	61.6	67.6	66.0	2.0%
Jordan	64.9	67.5	67.1	67.7	67.4	67.7	70.5	64.5	62.5	61.7	61.7	-8.4%
Kuwait	54.8	55.6	60.7	63.2	75.3	58.0	62.4	63.4	63.3	63.9	62.5	-17.0%
Lebanon	58.6	62.3	63.6	67.1	66.7	69.6	68.7	68.9	69.7	69.2	68.9	3.3%
Oman	26.7	71.5	46.3	64.3	58.0	57.8	59.6	62.5	54.9	64.0	48.1	-17.0%
Qatar	57.5	56.1	55.1	53.3	54.4	56.3	54.3	53.0	55.3	57.4	51.3	-5.8%
Saudi Arabia	41.3	61.3	76.1	63.7	63.6	56.7	59.6	54.8	60.0	62.2	62.9	-1.1%
Syrian Arab Republic	60.5	70.6	70.3	64.3	64.3	64.7	60.3	63.1	65.0	64.4	63.5	-1.2%
United Arab Emirates	57.8	60.2	63.1	62.0	60.7	60.1	60.2	59.9	59.6	59.1	59.2	-2.4%
Yemen	38.7	60.0	64.6	66.1	61.1	65.3	66.6	68.3	70.6	70.0	72.2	18.1%
Middle East	**55.1**	**62.2**	**64.5**	**63.7**	**63.0**	**59.9**	**60.9**	**58.6**	**59.7**	**60.7**	**60.2**	**-4.4%**

CO_2 emissions / GDP using exchange rates

kilogrammes CO_2 / US dollar using 2005 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
World *	**0.88**	**0.84**	**0.80**	**0.73**	**0.70**	**0.65**	**0.59**	**0.60**	**0.59**	**0.59**	**0.59**	**-14.6%**
Annex I Parties	*..*	*..*	*..*	*..*	*0.56*	*0.49*	*0.44*	*0.40*	*0.38*	*0.37*	*0.37*	*-34.4%*
Annex II Parties	*0.68*	*0.62*	*0.56*	*0.47*	*0.43*	*0.40*	*0.37*	*0.35*	*0.32*	*0.31*	*0.31*	*-27.4%*
North America	*0.97*	*0.89*	*0.80*	*0.66*	*0.61*	*0.57*	*0.51*	*0.46*	*0.43*	*0.41*	*0.42*	*-31.8%*
Europe	*0.51*	*0.46*	*0.43*	*0.37*	*0.32*	*0.29*	*0.26*	*0.25*	*0.22*	*0.22*	*0.22*	*-31.8%*
Asia Oceania	*0.47*	*0.46*	*0.39*	*0.33*	*0.31*	*0.31*	*0.31*	*0.30*	*0.28*	*0.28*	*0.28*	*-10.5%*
Annex I EIT	*..*	*..*	*..*	*..*	*2.43*	*2.35*	*1.90*	*1.50*	*1.29*	*1.27*	*1.29*	*-47.0%*
Non-Annex I Parties	*..*	*..*	*..*	*..*	*1.22*	*1.20*	*1.08*	*1.13*	*1.11*	*1.11*	*1.10*	*-10.5%*
Annex I Kyoto Parties	*..*	*..*	*..*	*..*	*0.53*	*0.45*	*0.39*	*0.37*	*0.34*	*0.33*	*0.34*	*-36.4%*
Non-OECD Total **	**1.59**	**1.61**	**1.58**	**1.62**	**1.69**	**1.55**	**1.35**	**1.34**	**1.28**	**1.27**	**1.24**	**-26.3%**
OECD Total ***	**0.70**	**0.64**	**0.59**	**0.50**	**0.45**	**0.43**	**0.39**	**0.36**	**0.34**	**0.33**	**0.33**	**-26.5%**
Canada	0.85	0.80	0.75	0.62	0.58	0.57	0.53	0.49	0.46	0.45	0.45	-22.8%
Chile	0.71	0.67	0.59	0.52	0.60	0.50	0.55	0.49	0.51	0.50	0.50	-16.2%
Mexico	0.39	0.42	0.46	0.50	0.48	0.50	0.45	0.46	0.43	0.46	0.45	-6.3%
United States	0.98	0.90	0.80	0.67	0.61	0.57	0.51	0.46	0.43	0.41	0.41	-32.5%
OECD Americas	**0.94**	**0.86**	**0.78**	**0.65**	**0.60**	**0.57**	**0.51**	**0.46**	**0.43**	**0.42**	**0.42**	**-30.4%**
Australia	0.55	0.62	0.62	0.57	0.58	0.54	0.53	0.48	0.46	0.45	0.44	-23.9%
Israel	0.46	0.42	0.42	0.45	0.49	0.49	0.46	0.44	0.41	0.41	0.41	-15.8%
Japan	0.47	0.44	0.37	0.30	0.28	0.28	0.28	0.27	0.25	0.25	0.25	-11.0%
Korea	0.78	0.80	0.87	0.70	0.64	0.68	0.65	0.56	0.53	0.54	0.55	-13.0%
New Zealand	0.28	0.29	0.29	0.29	0.34	0.32	0.33	0.30	0.29	0.26	0.25	-24.2%
OECD Asia Oceania	**0.48**	**0.47**	**0.42**	**0.35**	**0.34**	**0.35**	**0.35**	**0.34**	**0.32**	**0.32**	**0.32**	**-4.6%**
Austria	0.38	0.34	0.32	0.29	0.26	0.25	0.22	0.24	0.21	0.20	0.21	-19.2%
Belgium	0.68	0.59	0.55	0.42	0.39	0.38	0.34	0.30	0.28	0.26	0.27	-31.0%
Czech Republic	2.14	1.89	1.85	1.84	1.52	1.27	1.15	0.92	0.77	0.76	0.77	-49.4%
Denmark	0.44	0.39	0.41	0.35	0.27	0.28	0.21	0.19	0.18	0.18	0.18	-31.8%
Estonia	..	..	..	..	3.57	2.26	1.49	1.21	1.12	1.08	1.33	-62.7%
Finland	0.54	0.50	0.53	0.41	0.39	0.41	0.32	0.28	0.26	0.28	0.31	-21.0%
France	0.46	0.40	0.36	0.26	0.22	0.21	0.19	0.18	0.17	0.16	0.16	-25.3%
Germany	0.72	0.65	0.60	0.54	0.43	0.35	0.31	0.29	0.27	0.26	0.26	-39.7%
Greece	0.25	0.29	0.31	0.37	0.45	0.46	0.44	0.40	0.36	0.36	0.35	-22.8%
Hungary	1.18	1.08	1.07	0.95	0.76	0.74	0.60	0.51	0.46	0.45	0.45	-40.8%
Iceland	0.29	0.28	0.22	0.18	0.18	0.19	0.16	0.13	0.11	0.12	0.12	-35.9%
Ireland	0.58	0.46	0.45	0.40	0.36	0.31	0.26	0.21	0.20	0.19	0.19	-47.2%
Italy	0.37	0.35	0.31	0.28	0.27	0.26	0.25	0.26	0.24	0.22	0.23	-17.5%
Luxembourg	1.63	1.14	1.00	0.74	0.54	0.35	0.26	0.30	0.25	0.25	0.26	-52.5%
Netherlands	0.48	0.46	0.47	0.41	0.36	0.35	0.29	0.29	0.26	0.26	0.27	-23.3%
Norway	0.24	0.20	0.19	0.16	0.15	0.14	0.12	0.12	0.12	0.12	0.12	-17.1%
Poland	2.11	1.94	2.28	2.29	1.90	1.65	1.11	0.96	0.82	0.78	0.80	-58.0%
Portugal	0.22	0.23	0.24	0.24	0.29	0.32	0.32	0.33	0.27	0.27	0.25	-14.1%
Slovak Republic	1.64	1.62	1.83	1.67	1.62	1.28	0.99	0.80	0.60	0.58	0.58	-64.1%
Slovenia	..	..	..	..	0.50	0.55	0.47	0.44	0.40	0.39	0.39	-21.8%
Spain	0.30	0.32	0.34	0.30	0.28	0.30	0.29	0.30	0.26	0.24	0.23	-19.2%
Sweden	0.47	0.40	0.35	0.25	0.20	0.21	0.16	0.14	0.11	0.11	0.12	-40.5%
Switzerland	0.17	0.16	0.16	0.15	0.13	0.13	0.12	0.12	0.11	0.11	0.11	-19.2%
Turkey	0.36	0.41	0.44	0.46	0.47	0.48	0.52	0.45	0.48	0.50	0.47	0.1%
United Kingdom	0.65	0.56	0.50	0.43	0.37	0.32	0.26	0.23	0.21	0.20	0.21	-44.1%
OECD Europe ***	**0.57**	**0.52**	**0.50**	**0.43**	**0.37**	**0.34**	**0.30**	**0.28**	**0.26**	**0.25**	**0.25**	**-32.7%**
European Union - 27	*..*	*..*	*..*	*..*	*0.40*	*0.36*	*0.31*	*0.29*	*0.26*	*0.25*	*0.25*	*-36.9%*

* The ratio for the world has been calculated to include international marine bunkers and international aviation bunkers.
** Includes Estonia and Slovenia prior to 1990.
*** Excludes Estonia and Slovenia prior to 1990.

CO_2 emissions / GDP using exchange rates

kilogrammes CO_2 / US dollar using 2005 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Non-OECD Total *	**1.59**	**1.61**	**1.58**	**1.62**	**1.69**	**1.55**	**1.35**	**1.34**	**1.28**	**1.27**	**1.24**	**-26.3%**
Albania	1.30	1.19	1.54	1.32	1.11	0.38	0.48	0.49	0.39	0.34	0.35	-68.5%
Armenia	..	..	..	..	5.04	1.59	1.24	0.84	0.78	0.74	0.68	-86.4%
Azerbaijan	..	..	..	..	5.44	6.45	4.23	2.48	1.20	0.92	0.87	-84.0%
Belarus	..	..	..	..	5.25	3.97	2.79	2.05	1.62	1.56	1.52	-71.0%
Bosnia and Herzegovina	..	..	..	..	10.26	1.30	1.60	1.45	1.55	1.55	1.58	-84.6%
Bulgaria	5.87	4.95	4.26	3.50	2.99	2.43	1.90	1.59	1.41	1.28	1.33	-55.6%
Croatia	..	..	..	..	0.51	0.52	0.49	0.46	0.42	0.42	0.41	-20.9%
Cyprus	0.76	0.61	0.49	0.40	0.40	0.43	0.43	0.41	0.39	0.39	0.38	-5.4%
Georgia	..	..	..	..	2.77	2.38	1.02	0.68	0.59	0.69	0.60	-78.4%
Gibraltar	0.22	0.20	0.21	0.19	0.25	0.42	0.43	0.44	0.44	0.48	0.50	99.0%
Kazakhstan	..	..	..	..	4.71	5.43	3.24	2.75	3.20	2.75	3.01	-36.1%
Kosovo **	..	..	..	..	..	..	1.88	1.72	1.63	1.77	1.75	..
Kyrgyzstan	..	..	..	..	7.32	2.85	2.18	2.05	1.99	2.34	2.31	-68.5%
Latvia	..	..	..	..	1.30	1.08	0.63	0.47	0.42	0.46	0.52	-59.9%
Lithuania	..	..	..	..	1.34	0.99	0.63	0.52	0.45	0.46	0.49	-63.5%
FYR of Macedonia	..	..	..	..	1.40	1.71	1.52	1.47	1.29	1.21	1.16	-17.1%
Malta	0.73	0.48	0.42	0.45	0.67	0.53	0.37	0.45	0.38	0.38	0.37	-44.5%
Republic of Moldova	..	..	..	..	5.06	4.57	2.68	2.27	1.83	1.76	1.75	-65.5%
Montenegro **	..	..	..	..	..	..	..	0.62	0.66	0.45	0.75	..
Romania	3.02	2.45	2.13	1.78	1.88	1.46	1.15	0.95	0.75	0.70	0.66	-64.8%
Russian Federation	..	..	..	..	2.58	3.01	2.65	1.98	1.69	1.75	1.75	-32.4%
Serbia **	..	..	..	..	1.48	2.04	1.98	1.94	1.74	1.68	1.65	11.9%
Tajikistan	..	..	..	..	2.91	1.71	1.52	1.01	1.04	0.92	0.86	-70.5%
Turkmenistan	..	..	..	..	9.29	11.04	9.45	5.56	4.72	3.91	3.93	-57.7%
Ukraine	..	..	..	..	5.02	5.97	4.90	3.55	3.04	2.86	2.94	-41.4%
Uzbekistan	..	..	..	..	10.68	11.16	10.69	7.53	6.27	5.23	4.66	-56.3%
Former Soviet Union ***	3.09	3.18	3.10	2.92	..	..	..	..	..	..	..	..
Former Yugoslavia ***	0.98	0.94	0.82	1.12	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	**2.93**	**2.96**	**2.83**	**2.68**	**2.91**	**3.07**	**2.56**	**1.96**	**1.70**	**1.68**	**1.70**	**-41.5%**
Algeria	0.35	0.36	0.55	0.66	0.77	0.82	0.79	0.78	0.82	0.88	0.85	10.2%
Angola	0.12	0.15	0.20	0.19	0.23	0.29	0.27	0.24	0.25	0.28	0.31	33.1%
Benin	0.23	0.33	0.23	0.22	0.11	0.08	0.40	0.62	0.77	0.82	0.86	651.3%
Botswana	..	..	..	0.60	0.65	0.60	0.53	0.43	0.39	0.39	0.39	-39.8%
Cameroon	0.15	0.16	0.19	0.18	0.22	0.23	0.20	0.18	0.23	0.26	0.26	18.3%
Congo	0.37	0.28	0.26	0.17	0.14	0.11	0.10	0.14	0.20	0.21	0.21	48.0%
Dem. Rep. of Congo	0.26	0.25	0.33	0.31	0.29	0.29	0.29	0.32	0.33	0.33	0.33	15.9%
Côte d'Ivoire	0.30	0.30	0.28	0.25	0.20	0.23	0.37	0.36	0.38	0.34	0.32	56.8%
Egypt	1.28	1.41	1.44	1.61	1.58	1.42	1.34	1.70	1.59	1.50	1.47	-7.3%
Eritrea	..	..	..	..	..	0.83	0.63	0.55	0.46	0.45	0.47	..
Ethiopia	0.25	0.22	0.25	0.27	0.32	0.33	0.36	0.36	0.34	0.31	0.27	-17.4%
Gabon	0.16	0.12	0.23	0.27	0.13	0.17	0.17	0.25	0.25	0.27	0.27	100.8%
Ghana	0.43	0.55	0.51	0.50	0.49	0.49	0.61	0.60	0.56	0.66	0.64	30.6%
Kenya	0.65	0.54	0.51	0.47	0.42	0.40	0.43	0.38	0.40	0.46	0.46	9.8%
Libya	0.09	0.26	0.34	0.58	0.77	1.03	1.10	0.97	0.92	0.95	0.95	22.3%
Morocco	0.42	0.51	0.55	0.55	0.53	0.67	0.63	0.67	0.63	0.59	0.61	14.5%
Mozambique	0.99	0.95	0.92	0.76	0.42	0.38	0.30	0.23	0.25	0.26	0.27	-36.7%
Namibia	..	..	..	..	..	0.36	0.31	0.34	0.42	0.39	0.37	..
Nigeria	0.14	0.25	0.47	0.66	0.46	0.43	0.50	0.49	0.37	0.29	0.30	-35.7%
Senegal	0.36	0.43	0.51	0.46	0.42	0.44	0.52	0.53	0.52	0.53	0.53	27.6%
South Africa	1.42	1.59	1.42	1.45	1.48	1.54	1.45	1.33	1.36	1.31	1.20	-19.0%
Sudan	0.48	0.39	0.39	0.43	0.46	0.29	0.26	0.33	0.34	0.36	0.35	-23.0%
United Rep. of Tanzania	0.39	0.32	0.29	0.27	0.23	0.31	0.26	0.36	0.33	0.30	0.30	32.5%
Togo	0.37	0.29	0.26	0.22	0.37	0.37	0.50	0.46	0.48	0.48	0.48	28.4%
Tunisia	0.66	0.63	0.68	0.67	0.74	0.72	0.69	0.63	0.57	0.54	0.54	-26.3%
Zambia	0.82	0.94	0.70	0.57	0.49	0.41	0.30	0.29	0.19	0.19	0.20	-59.7%
Zimbabwe	1.94	1.66	1.71	1.67	2.23	1.95	1.53	1.86	1.84	1.84	1.83	-17.9%
Other Africa	0.23	0.26	0.33	0.29	0.31	0.37	0.33	0.29	0.28	0.28	0.28	-11.6%
Africa	**0.67**	**0.77**	**0.77**	**0.86**	**0.87**	**0.90**	**0.86**	**0.83**	**0.80**	**0.78**	**0.74**	**-14.8%**

* Includes Estonia and Slovenia prior to 1990.

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

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

CO_2 emissions / GDP using exchange rates

kilogrammes CO_2 / US dollar using 2005 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Bangladesh	0.18	0.28	0.36	0.37	0.47	0.57	0.55	0.61	0.64	0.66	0.65	38.8%
Brunei Darussalam	0.10	0.28	0.32	0.43	0.49	0.58	0.54	0.53	0.77	0.85	0.82	68.5%
Cambodia	..	..	..	..	..	0.52	0.49	0.42	0.43	0.44	0.43	..
Chinese Taipei	1.01	0.91	0.91	0.65	0.68	0.67	0.71	0.72	0.64	0.62	0.61	-11.6%
India	1.30	1.38	1.39	1.57	1.66	1.73	1.63	1.40	1.37	1.36	1.30	-21.6%
Indonesia	0.62	0.69	0.85	0.83	0.97	0.98	1.20	1.17	1.07	1.07	1.09	11.9%
DPR of Korea	8.51	6.17	4.92	3.68	2.79	2.33	2.41	2.49	2.36	2.17	2.29	-18.0%
Malaysia	0.83	0.79	0.79	0.85	0.90	0.96	1.03	1.10	1.13	1.06	1.08	19.5%
Mongolia	..	..	..	7.53	6.85	6.24	4.78	3.76	3.41	3.61	3.44	-49.8%
Myanmar	2.38	1.87	1.78	1.60	1.23	1.57	1.43	0.88	0.45	0.38	0.39	-68.3%
Nepal	0.09	0.13	0.19	0.16	0.21	0.32	0.44	0.37	0.31	0.35	0.36	73.6%
Pakistan	0.82	0.89	0.82	0.89	1.00	1.09	1.13	1.07	1.07	1.06	1.00	-0.5%
Philippines	0.74	0.74	0.63	0.58	0.62	0.83	0.82	0.69	0.58	0.58	0.58	-5.3%
Singapore	0.56	0.56	0.55	0.50	0.60	0.57	0.49	0.41	0.37	0.38	0.37	-37.8%
Sri Lanka	0.52	0.43	0.46	0.35	0.31	0.35	0.53	0.55	0.41	0.39	0.40	29.5%
Thailand	0.72	0.74	0.81	0.77	0.91	1.04	1.15	1.23	1.15	1.17	1.18	30.7%
Vietnam	1.69	1.73	1.45	1.22	0.97	1.06	1.19	1.51	1.54	1.64	1.76	81.3%
Other Asia	0.56	0.60	0.84	0.47	0.43	0.31	0.35	0.36	0.32	0.34	0.34	-19.4%
Asia	**1.12**	**1.13**	**1.11**	**1.12**	**1.14**	**1.14**	**1.16**	**1.10**	**1.06**	**1.06**	**1.04**	**-9.3%**
People's Rep. of China	6.31	6.66	6.50	4.74	4.21	3.19	2.14	2.24	2.04	1.96	1.88	-55.3%
Hong Kong, China	0.41	0.36	0.28	0.32	0.33	0.28	0.27	0.23	0.20	0.23	0.19	-42.1%
China	**5.43**	**5.66**	**5.30**	**4.03**	**3.59**	**2.84**	**1.97**	**2.10**	**1.93**	**1.86**	**1.79**	**-50.2%**
Argentina	0.85	0.79	0.77	0.81	0.94	0.81	0.84	0.82	0.75	0.71	0.67	-28.5%
Bolivia	0.54	0.64	0.75	0.84	0.91	0.99	0.87	0.99	1.09	1.11	1.18	29.4%
Brazil	0.36	0.37	0.35	0.31	0.32	0.35	0.39	0.37	0.35	0.33	0.35	9.3%
Colombia	0.64	0.56	0.51	0.52	0.48	0.49	0.48	0.39	0.34	0.35	0.33	-30.5%
Costa Rica	0.27	0.29	0.28	0.26	0.26	0.34	0.27	0.29	0.27	0.26	0.26	-0.4%
Cuba	1.11	1.08	1.17	0.82	0.88	0.83	0.81	0.59	0.47	0.60	0.55	-37.7%
Dominican Republic	0.49	0.53	0.50	0.45	0.48	0.56	0.61	0.51	0.45	0.41	0.39	-19.8%
Ecuador	0.35	0.42	0.55	0.59	0.56	0.61	0.65	0.66	0.63	0.69	0.68	21.7%
El Salvador	0.17	0.20	0.17	0.20	0.23	0.35	0.34	0.36	0.33	0.34	0.32	38.9%
Guatemala	0.26	0.28	0.29	0.24	0.20	0.30	0.36	0.39	0.32	0.35	0.32	54.6%
Haiti	0.12	0.12	0.14	0.18	0.22	0.24	0.33	0.48	0.53	0.52	0.49	123.7%
Honduras	0.41	0.42	0.38	0.34	0.38	0.53	0.57	0.71	0.68	0.65	0.63	64.4%
Jamaica	0.76	0.96	1.00	0.70	0.85	0.81	0.96	0.94	1.02	0.74	0.71	-15.6%
Netherlands Antilles	13.67	8.49	6.36	3.13	1.60	1.47	1.73	1.68	1.58	1.91	1.43	-10.9%
Nicaragua	0.43	0.43	0.52	0.51	0.61	0.77	0.84	0.83	0.74	0.76	0.77	25.1%
Panama	0.52	0.56	0.44	0.34	0.33	0.41	0.39	0.44	0.32	0.36	0.38	12.3%
Paraguay	0.30	0.28	0.32	0.31	0.35	0.52	0.49	0.46	0.43	0.49	0.48	38.9%
Peru	0.45	0.44	0.43	0.38	0.44	0.41	0.41	0.36	0.35	0.37	0.37	-14.8%
Trinidad and Tobago	1.02	0.85	0.79	1.08	1.43	1.44	1.94	2.12	2.02	2.14	2.28	59.9%
Uruguay	0.57	0.55	0.45	0.31	0.30	0.30	0.31	0.31	0.36	0.36	0.27	-9.9%
Venezuela	0.70	0.74	0.96	1.04	1.01	0.96	0.99	1.02	0.92	0.95	1.05	4.1%
Other Non-OECD Americas	0.62	0.82	0.58	0.50	0.52	0.53	0.49	0.48	0.46	0.50	0.50	-2.7%
Non-OECD Americas	**0.56**	**0.53**	**0.52**	**0.49**	**0.50**	**0.51**	**0.54**	**0.52**	**0.48**	**0.48**	**0.48**	**-3.8%**
Bahrain	1.82	1.73	1.48	2.23	2.00	1.43	1.41	1.35	1.35	1.34	1.33	-33.5%
Islamic Republic of Iran	0.62	0.75	1.09	1.46	1.76	2.09	2.15	2.20	2.22	2.25	2.21	25.4%
Iraq	0.12	0.15	0.17	0.36	0.99	4.70	1.65	2.39	1.98	2.39	2.69	172.8%
Jordan	0.59	0.96	0.93	1.25	1.65	1.54	1.55	1.43	1.17	1.19	1.11	-32.6%
Kuwait	0.26	0.33	0.66	1.17	0.79	0.73	0.90	0.87	0.79	0.91	0.97	23.7%
Lebanon	0.32	0.40	0.55	0.39	0.57	0.76	0.78	0.66	0.61	0.68	0.62	8.2%
Oman	0.06	0.13	0.32	0.40	0.62	0.67	0.78	0.91	0.93	1.01	0.97	57.3%
Qatar	0.15	0.32	0.43	0.81	0.95	1.14	0.82	0.87	0.61	0.64	0.63	-33.5%
Saudi Arabia	0.17	0.15	0.46	0.72	0.79	0.90	0.96	1.06	1.12	1.19	1.24	56.1%
Syrian Arab Republic	1.27	1.12	1.18	1.64	2.04	1.62	1.75	1.90	1.87	1.61	1.58	-22.6%
United Arab Emirates	0.20	0.16	0.23	0.46	0.59	0.66	0.62	0.60	0.69	0.72	0.73	24.0%
Yemen	0.63	0.65	0.73	0.71	0.81	0.90	0.97	1.13	1.14	1.12	1.04	29.0%
Middle East	**0.30**	**0.33**	**0.48**	**0.80**	**1.00**	**1.23**	**1.18**	**1.24**	**1.23**	**1.29**	**1.29**	**28.8%**

CO_2 emissions / GDP using purchasing power parities

kilogrammes CO_2 / US dollar using 2005 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
World *	**0.74**	**0.70**	**0.66**	**0.60**	**0.58**	**0.54**	**0.49**	**0.47**	**0.45**	**0.44**	**0.44**	**-23.6%**
Annex I Parties	*..*	*..*	*..*	*..*	*0.55*	*0.50*	*0.44*	*0.40*	*0.37*	*0.36*	*0.36*	*-33.8%*
Annex II Parties	*0.73*	*0.67*	*0.60*	*0.51*	*0.46*	*0.43*	*0.40*	*0.37*	*0.34*	*0.33*	*0.33*	*-27.8%*
North America	*0.97*	*0.89*	*0.80*	*0.66*	*0.61*	*0.57*	*0.51*	*0.46*	*0.43*	*0.41*	*0.42*	*-31.8%*
Europe	*0.57*	*0.51*	*0.48*	*0.41*	*0.35*	*0.32*	*0.29*	*0.27*	*0.25*	*0.24*	*0.24*	*-31.8%*
Asia Oceania	*0.55*	*0.53*	*0.46*	*0.38*	*0.36*	*0.36*	*0.36*	*0.35*	*0.32*	*0.32*	*0.32*	*-11.1%*
Annex I EIT	*..*	*..*	*..*	*..*	*1.14*	*1.15*	*0.94*	*0.74*	*0.63*	*0.62*	*0.63*	*-44.9%*
Non-Annex I Parties	*..*	*..*	*..*	*..*	*0.59*	*0.58*	*0.52*	*0.53*	*0.51*	*0.51*	*0.50*	*-15.5%*
Annex I Kyoto Parties	*..*	*..*	*..*	*..*	*0.52*	*0.46*	*0.41*	*0.37*	*0.34*	*0.34*	*0.34*	*-35.3%*
Non-OECD Total **	**0.71**	**0.73**	**0.72**	**0.72**	**0.75**	**0.70**	**0.60**	**0.59**	**0.55**	**0.54**	**0.53**	**-29.2%**
OECD Total ***	**0.72**	**0.66**	**0.60**	**0.52**	**0.46**	**0.44**	**0.40**	**0.37**	**0.34**	**0.33**	**0.34**	**-27.8%**
Canada	0.86	0.80	0.75	0.62	0.58	0.57	0.53	0.49	0.46	0.45	0.45	-22.8%
Chile	0.42	0.40	0.35	0.31	0.36	0.30	0.33	0.29	0.30	0.30	0.30	-16.2%
Mexico	0.25	0.27	0.30	0.33	0.32	0.33	0.30	0.30	0.28	0.30	0.30	-6.3%
United States	0.98	0.90	0.80	0.67	0.61	0.57	0.51	0.46	0.43	0.41	0.41	-32.5%
OECD Americas	**0.91**	**0.84**	**0.75**	**0.63**	**0.58**	**0.55**	**0.49**	**0.45**	**0.41**	**0.40**	**0.40**	**-30.6%**
Australia	0.59	0.66	0.66	0.61	0.61	0.57	0.56	0.51	0.49	0.48	0.46	-23.9%
Israel	0.38	0.35	0.34	0.37	0.41	0.41	0.38	0.36	0.34	0.34	0.34	-15.8%
Japan	0.55	0.52	0.43	0.35	0.33	0.33	0.33	0.32	0.29	0.29	0.29	-11.0%
Korea	0.60	0.62	0.67	0.54	0.49	0.52	0.50	0.43	0.40	0.41	0.43	-13.1%
New Zealand	0.30	0.31	0.31	0.32	0.36	0.35	0.36	0.32	0.31	0.28	0.28	-24.2%
OECD Asia Oceania	**0.55**	**0.53**	**0.47**	**0.39**	**0.38**	**0.39**	**0.38**	**0.36**	**0.34**	**0.34**	**0.34**	**-8.7%**
Austria	0.42	0.38	0.36	0.32	0.29	0.27	0.24	0.27	0.23	0.22	0.23	-19.2%
Belgium	0.77	0.66	0.61	0.47	0.43	0.43	0.38	0.33	0.31	0.29	0.30	-31.0%
Czech Republic	1.28	1.13	1.10	1.10	0.91	0.76	0.68	0.55	0.46	0.46	0.46	-49.4%
Denmark	0.63	0.56	0.59	0.50	0.39	0.40	0.30	0.27	0.26	0.26	0.26	-31.8%
Estonia	..	..	..	..	2.23	1.41	0.93	0.76	0.70	0.67	0.83	-62.7%
Finland	0.66	0.61	0.65	0.50	0.47	0.50	0.39	0.34	0.32	0.34	0.37	-21.0%
France	0.53	0.45	0.41	0.30	0.25	0.24	0.22	0.21	0.19	0.19	0.19	-25.3%
Germany	0.77	0.70	0.65	0.58	0.46	0.38	0.33	0.32	0.29	0.28	0.28	-39.7%
Greece	0.22	0.26	0.28	0.33	0.40	0.41	0.39	0.35	0.32	0.32	0.31	-22.8%
Hungary	0.76	0.69	0.69	0.61	0.49	0.47	0.39	0.33	0.30	0.29	0.29	-40.8%
Iceland	0.46	0.44	0.35	0.29	0.29	0.29	0.25	0.21	0.18	0.19	0.18	-35.9%
Ireland	0.73	0.57	0.56	0.51	0.45	0.39	0.32	0.27	0.25	0.24	0.24	-47.2%
Italy	0.39	0.37	0.34	0.30	0.30	0.29	0.27	0.28	0.26	0.24	0.24	-17.5%
Luxembourg	1.93	1.35	1.19	0.87	0.64	0.41	0.30	0.36	0.29	0.30	0.30	-52.5%
Netherlands	0.54	0.51	0.53	0.46	0.40	0.39	0.32	0.32	0.29	0.29	0.30	-23.3%
Norway	0.33	0.28	0.26	0.22	0.21	0.20	0.17	0.17	0.16	0.16	0.17	-17.1%
Poland	1.22	1.12	1.32	1.32	1.10	0.95	0.64	0.56	0.48	0.45	0.46	-58.0%
Portugal	0.18	0.20	0.20	0.20	0.24	0.27	0.27	0.28	0.23	0.23	0.21	-14.1%
Slovak Republic	0.90	0.89	1.01	0.92	0.89	0.70	0.55	0.44	0.33	0.32	0.32	-64.1%
Slovenia	..	..	..	..	0.38	0.42	0.36	0.33	0.30	0.30	0.30	-21.8%
Spain	0.28	0.30	0.33	0.28	0.27	0.28	0.28	0.29	0.25	0.23	0.22	-19.1%
Sweden	0.59	0.50	0.43	0.32	0.25	0.26	0.20	0.17	0.14	0.14	0.15	-40.5%
Switzerland	0.24	0.22	0.22	0.21	0.18	0.18	0.17	0.17	0.15	0.15	0.15	-19.2%
Turkey	0.22	0.25	0.27	0.28	0.29	0.30	0.32	0.28	0.30	0.31	0.29	0.1%
United Kingdom	0.76	0.65	0.58	0.50	0.43	0.37	0.31	0.27	0.25	0.24	0.24	-44.1%
OECD Europe ***	**0.61**	**0.55**	**0.52**	**0.46**	**0.39**	**0.35**	**0.31**	**0.29**	**0.27**	**0.26**	**0.26**	**-33.6%**
European Union - 27	*..*	*..*	*..*	*..*	*0.42*	*0.37*	*0.32*	*0.30*	*0.27*	*0.26*	*0.26*	*-37.2%*

* The ratio for the world has been calculated to include international marine bunkers and international aviation bunkers.
** Includes Estonia and Slovenia prior to 1990.
*** Excludes Estonia and Slovenia prior to 1990.

CO_2 emissions / GDP using purchasing power parities

kilogrammes CO_2 / US dollar using 2005 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Non-OECD Total *	**0.71**	**0.73**	**0.72**	**0.72**	**0.75**	**0.70**	**0.60**	**0.59**	**0.55**	**0.54**	**0.53**	**-29.2%**
Albania	0.57	0.52	0.67	0.57	0.49	0.17	0.21	0.21	0.17	0.15	0.15	-68.5%
Armenia	..	..	..	..	1.96	0.62	0.48	0.33	0.30	0.29	0.27	-86.4%
Azerbaijan	..	..	..	..	1.91	2.26	1.48	0.87	0.42	0.32	0.31	-84.0%
Belarus	..	..	..	..	1.90	1.44	1.01	0.74	0.59	0.57	0.55	-71.0%
Bosnia and Herzegovina	..	..	..	..	4.68	0.59	0.73	0.66	0.71	0.71	0.72	-84.6%
Bulgaria	2.23	1.88	1.62	1.33	1.14	0.92	0.72	0.60	0.54	0.49	0.51	-55.6%
Croatia	..	..	..	..	0.34	0.34	0.32	0.30	0.27	0.27	0.27	-20.9%
Cyprus	0.70	0.56	0.45	0.37	0.37	0.40	0.40	0.38	0.36	0.36	0.35	-5.4%
Georgia	..	..	..	..	1.13	0.97	0.42	0.28	0.24	0.28	0.24	-78.4%
Gibraltar	0.25	0.23	0.25	0.22	0.29	0.48	0.49	0.51	0.51	0.55	0.58	99.0%
Kazakhstan	..	..	..	..	2.04	2.35	1.40	1.19	1.39	1.19	1.30	-36.1%
Kosovo **	..	..	..	..	..	..	0.75	0.69	0.65	0.71	0.70	..
Kyrgyzstan	..	..	..	..	2.03	0.79	0.60	0.57	0.55	0.65	0.64	-68.5%
Latvia	..	..	..	..	0.69	0.58	0.34	0.25	0.22	0.25	0.28	-59.9%
Lithuania	..	..	..	..	0.72	0.53	0.34	0.28	0.24	0.25	0.26	-63.5%
FYR of Macedonia	..	..	..	..	0.52	0.64	0.56	0.55	0.48	0.45	0.43	-17.2%
Malta	0.52	0.34	0.30	0.32	0.47	0.37	0.26	0.32	0.27	0.27	0.26	-44.5%
Republic of Moldova	..	..	..	..	1.78	1.61	0.94	0.80	0.64	0.62	0.62	-65.5%
Montenegro **	..	..	..	..	..	..	..	0.27	0.29	0.20	0.33	..
Romania	1.48	1.19	1.04	0.87	0.92	0.71	0.56	0.46	0.37	0.34	0.32	-64.8%
Russian Federation	..	..	..	..	1.16	1.35	1.19	0.89	0.76	0.79	0.79	-32.4%
Serbia **	..	..	..	..	0.59	0.82	0.80	0.77	0.69	0.67	0.66	11.5%
Tajikistan	..	..	..	..	0.69	0.41	0.36	0.24	0.25	0.22	0.20	-70.5%
Turkmenistan	..	..	..	..	3.33	3.96	3.39	1.99	1.69	1.40	1.41	-57.7%
Ukraine	..	..	..	..	1.64	1.96	1.61	1.16	1.00	0.94	0.96	-41.4%
Uzbekistan	..	..	..	..	2.92	3.05	2.92	2.06	1.71	1.43	1.27	-56.3%
Former Soviet Union ***	1.31	1.35	1.32	1.24	..	..	..	..	..	..	..	..
Former Yugoslavia ***	0.54	0.53	0.46	0.62	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	**1.28**	**1.29**	**1.24**	**1.17**	**1.26**	**1.35**	**1.13**	**0.86**	**0.75**	**0.74**	**0.74**	**-40.9%**
Algeria	0.15	0.16	0.24	0.29	0.34	0.36	0.34	0.34	0.35	0.38	0.37	10.1%
Angola	0.06	0.08	0.10	0.10	0.12	0.15	0.14	0.12	0.13	0.14	0.16	33.1%
Benin	0.10	0.14	0.10	0.09	0.05	0.03	0.17	0.26	0.32	0.34	0.36	651.1%
Botswana	..	..	..	0.29	0.31	0.28	0.25	0.20	0.18	0.18	0.18	-39.8%
Cameroon	0.07	0.08	0.09	0.09	0.11	0.11	0.10	0.08	0.11	0.12	0.12	18.3%
Congo	0.19	0.15	0.13	0.09	0.07	0.05	0.05	0.07	0.10	0.11	0.11	48.2%
Dem. Rep. of Congo	0.12	0.11	0.15	0.14	0.13	0.13	0.13	0.14	0.15	0.15	0.15	15.9%
Côte d'Ivoire	0.16	0.17	0.15	0.13	0.11	0.12	0.20	0.19	0.21	0.19	0.17	56.9%
Egypt	0.34	0.38	0.39	0.43	0.43	0.38	0.36	0.46	0.43	0.40	0.39	-7.3%
Eritrea	..	..	..	..	..	0.34	0.26	0.22	0.19	0.19	0.19	..
Ethiopia	0.06	0.06	0.06	0.07	0.08	0.09	0.09	0.09	0.09	0.08	0.07	-17.4%
Gabon	0.08	0.06	0.11	0.13	0.06	0.08	0.08	0.12	0.12	0.13	0.13	100.9%
Ghana	0.18	0.23	0.21	0.20	0.20	0.20	0.25	0.25	0.23	0.27	0.26	30.7%
Kenya	0.25	0.21	0.20	0.18	0.17	0.16	0.17	0.15	0.16	0.18	0.18	9.7%
Libya	0.05	0.14	0.18	0.31	0.42	0.56	0.60	0.53	0.50	0.52	0.52	22.4%
Morocco	0.23	0.28	0.30	0.30	0.29	0.37	0.35	0.37	0.34	0.32	0.33	14.5%
Mozambique	0.47	0.45	0.43	0.36	0.20	0.18	0.14	0.11	0.12	0.12	0.13	-36.7%
Namibia	..	..	..	..	..	0.24	0.21	0.23	0.28	0.26	0.25	..
Nigeria	0.07	0.11	0.22	0.30	0.21	0.20	0.23	0.23	0.17	0.13	0.14	-35.7%
Senegal	0.17	0.20	0.25	0.22	0.20	0.21	0.25	0.26	0.25	0.25	0.25	27.7%
South Africa	0.87	0.97	0.86	0.89	0.90	0.94	0.88	0.81	0.83	0.80	0.73	-19.0%
Sudan	0.21	0.17	0.17	0.19	0.20	0.13	0.12	0.15	0.15	0.16	0.16	-23.0%
United Rep. of Tanzania	0.14	0.11	0.10	0.09	0.08	0.11	0.09	0.13	0.12	0.11	0.11	32.5%
Togo	0.17	0.13	0.12	0.10	0.17	0.17	0.23	0.21	0.22	0.22	0.22	28.4%
Tunisia	0.29	0.28	0.30	0.30	0.33	0.32	0.31	0.28	0.25	0.24	0.24	-26.3%
Zambia	0.44	0.51	0.38	0.31	0.27	0.22	0.16	0.16	0.10	0.10	0.11	-59.6%
Zimbabwe	2.87	2.45	2.53	2.47	3.30	2.88	2.26	2.74	2.72	2.72	2.71	-17.9%
Other Africa	0.10	0.11	0.14	0.12	0.13	0.15	0.14	0.12	0.12	0.12	0.12	-12.3%
Africa	**0.32**	**0.37**	**0.37**	**0.40**	**0.41**	**0.42**	**0.40**	**0.38**	**0.37**	**0.35**	**0.34**	**-17.6%**

* Includes Estonia and Slovenia prior to 1990.

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

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

CO_2 emissions / GDP using purchasing power parities

kilogrammes CO_2 / US dollar using 2005 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Bangladesh	0.07	0.10	0.13	0.13	0.17	0.21	0.20	0.22	0.24	0.24	0.24	38.8%
Brunei Darussalam	0.05	0.15	0.17	0.23	0.26	0.32	0.29	0.29	0.42	0.46	0.45	68.5%
Cambodia	..	..	..	..	..	0.16	0.15	0.13	0.13	0.14	0.14	..
Chinese Taipei	0.61	0.55	0.55	0.39	0.41	0.40	0.43	0.43	0.38	0.37	0.36	-11.6%
India	0.43	0.46	0.46	0.52	0.55	0.57	0.54	0.46	0.45	0.45	0.43	-21.6%
Indonesia	0.25	0.28	0.35	0.34	0.39	0.40	0.49	0.48	0.43	0.43	0.44	11.9%
DPR of Korea	2.27	1.64	1.31	0.98	0.74	0.62	0.64	0.66	0.63	0.58	0.61	-18.0%
Malaysia	0.38	0.36	0.36	0.39	0.41	0.44	0.47	0.50	0.52	0.48	0.49	19.5%
Mongolia	..	..	..	2.61	2.37	2.16	1.66	1.30	1.18	1.25	1.19	-49.8%
Myanmar	0.06	0.05	0.04	0.04	0.03	0.04	0.03	0.02	0.01	0.01	0.01	-68.4%
Nepal	0.03	0.04	0.06	0.05	0.07	0.10	0.14	0.12	0.10	0.11	0.11	73.7%
Pakistan	0.26	0.29	0.26	0.29	0.32	0.35	0.37	0.35	0.34	0.34	0.32	-0.5%
Philippines	0.29	0.29	0.25	0.23	0.24	0.33	0.32	0.27	0.23	0.23	0.23	-5.3%
Singapore	0.36	0.36	0.35	0.32	0.38	0.36	0.31	0.26	0.24	0.24	0.24	-37.8%
Sri Lanka	0.18	0.15	0.16	0.12	0.11	0.12	0.19	0.19	0.14	0.14	0.14	29.5%
Thailand	0.29	0.29	0.32	0.30	0.36	0.41	0.46	0.49	0.46	0.46	0.47	30.7%
Vietnam	0.50	0.51	0.43	0.36	0.29	0.31	0.36	0.45	0.46	0.49	0.52	81.3%
Other Asia	0.24	0.28	0.43	0.23	0.24	0.17	0.19	0.19	0.18	0.18	0.18	-25.8%
Asia	**0.39**	**0.40**	**0.40**	**0.40**	**0.43**	**0.43**	**0.44**	**0.40**	**0.38**	**0.38**	**0.37**	**-13.9%**
People's Rep. of China	2.65	2.80	2.73	1.99	1.77	1.34	0.90	0.94	0.86	0.82	0.79	-55.3%
Hong Kong, China	0.30	0.27	0.21	0.24	0.24	0.21	0.20	0.17	0.15	0.17	0.14	-42.1%
China	**2.44**	**2.55**	**2.43**	**1.82**	**1.62**	**1.26**	**0.86**	**0.91**	**0.83**	**0.80**	**0.77**	**-52.4%**
Argentina	0.37	0.35	0.34	0.35	0.41	0.35	0.37	0.36	0.33	0.31	0.29	-28.5%
Bolivia	0.15	0.18	0.21	0.23	0.25	0.28	0.24	0.27	0.30	0.31	0.33	29.4%
Brazil	0.20	0.21	0.20	0.17	0.18	0.19	0.22	0.20	0.20	0.19	0.20	9.3%
Colombia	0.30	0.26	0.24	0.24	0.22	0.23	0.22	0.18	0.16	0.16	0.15	-30.5%
Costa Rica	0.14	0.15	0.15	0.13	0.14	0.18	0.14	0.15	0.14	0.14	0.14	-0.4%
Cuba	0.98	0.95	1.03	0.72	0.77	0.73	0.72	0.52	0.41	0.53	0.48	-37.7%
Dominican Republic	0.28	0.31	0.29	0.26	0.28	0.32	0.35	0.30	0.26	0.23	0.22	-19.8%
Ecuador	0.15	0.18	0.23	0.25	0.24	0.26	0.27	0.28	0.26	0.29	0.29	21.7%
El Salvador	0.08	0.10	0.09	0.10	0.11	0.18	0.17	0.18	0.16	0.17	0.16	38.9%
Guatemala	0.14	0.15	0.15	0.12	0.11	0.16	0.19	0.20	0.17	0.19	0.17	54.5%
Haiti	0.05	0.05	0.06	0.08	0.10	0.10	0.14	0.21	0.23	0.23	0.21	123.7%
Honduras	0.18	0.18	0.16	0.15	0.17	0.23	0.25	0.31	0.29	0.28	0.27	64.4%
Jamaica	0.46	0.58	0.60	0.42	0.51	0.49	0.57	0.56	0.61	0.44	0.43	-15.6%
Netherlands Antilles	15.22	9.47	7.09	3.49	1.78	1.64	1.93	1.87	1.76	2.13	1.59	-10.9%
Nicaragua	0.17	0.17	0.20	0.20	0.24	0.29	0.32	0.32	0.29	0.29	0.29	25.1%
Panama	0.27	0.29	0.23	0.18	0.17	0.21	0.21	0.23	0.17	0.19	0.20	12.3%
Paraguay	0.10	0.09	0.10	0.10	0.11	0.17	0.16	0.15	0.14	0.16	0.16	38.9%
Peru	0.20	0.20	0.20	0.17	0.20	0.19	0.18	0.16	0.16	0.17	0.17	-14.8%
Trinidad and Tobago	0.62	0.52	0.48	0.65	0.86	0.87	1.17	1.28	1.22	1.30	1.38	59.9%
Uruguay	0.31	0.30	0.24	0.17	0.17	0.16	0.17	0.17	0.20	0.19	0.15	-9.9%
Venezuela	0.38	0.41	0.53	0.57	0.56	0.53	0.55	0.56	0.51	0.52	0.58	4.1%
Other Non-OECD Americas	0.53	0.72	0.51	0.44	0.46	0.47	0.43	0.43	0.41	0.45	0.45	-3.7%
Non-OECD Americas	**0.29**	**0.28**	**0.27**	**0.26**	**0.27**	**0.26**	**0.28**	**0.27**	**0.25**	**0.25**	**0.25**	**-5.1%**
Bahrain	1.20	1.15	0.98	1.47	1.33	0.95	0.93	0.89	0.89	0.89	0.88	-33.5%
Islamic Republic of Iran	0.18	0.22	0.33	0.44	0.53	0.62	0.64	0.66	0.66	0.67	0.66	25.4%
Iraq	0.05	0.06	0.06	0.14	0.37	1.78	0.63	0.91	0.75	0.91	1.02	172.8%
Jordan	0.32	0.52	0.50	0.67	0.89	0.83	0.83	0.77	0.63	0.64	0.60	-32.6%
Kuwait	0.19	0.24	0.48	0.85	0.57	0.53	0.66	0.63	0.58	0.67	0.71	23.6%
Lebanon	0.18	0.23	0.31	0.22	0.32	0.43	0.44	0.37	0.34	0.38	0.35	8.1%
Oman	0.04	0.08	0.19	0.24	0.37	0.40	0.47	0.55	0.56	0.61	0.59	57.3%
Qatar	0.11	0.24	0.33	0.61	0.72	0.86	0.62	0.66	0.46	0.48	0.48	-33.5%
Saudi Arabia	0.11	0.09	0.30	0.47	0.51	0.58	0.62	0.68	0.72	0.76	0.80	56.1%
Syrian Arab Republic	0.48	0.42	0.45	0.62	0.77	0.61	0.66	0.72	0.71	0.61	0.60	-22.6%
United Arab Emirates	0.14	0.11	0.15	0.30	0.39	0.44	0.41	0.40	0.46	0.48	0.48	24.0%
Yemen	0.23	0.23	0.27	0.26	0.29	0.33	0.35	0.41	0.41	0.41	0.38	29.0%
Middle East	**0.14**	**0.15**	**0.23**	**0.38**	**0.50**	**0.62**	**0.59**	**0.63**	**0.63**	**0.65**	**0.66**	**32.4%**

CO_2 emissions / population

tonnes CO_2 / capita

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
World *	**3.74**	**3.86**	**4.07**	**3.85**	**3.98**	**3.85**	**3.87**	**4.22**	**4.42**	**4.29**	**4.44**	**11.4%**
Annex I Parties	*..*	*..*	*..*	*..*	*11.83*	*10.91*	*11.17*	*11.23*	*10.90*	*10.12*	*10.41*	*-12.0%*
Annex II Parties	*12.20*	*12.18*	*12.64*	*11.82*	*12.26*	*12.33*	*12.90*	*12.82*	*12.16*	*11.28*	*11.56*	*-5.7%*
North America	*20.16*	*19.82*	*20.17*	*18.72*	*19.08*	*18.94*	*19.90*	*19.27*	*18.15*	*16.74*	*17.16*	*-10.1%*
Europe	*8.63*	*8.56*	*9.11*	*8.36*	*8.36*	*8.16*	*8.26*	*8.35*	*7.92*	*7.30*	*7.43*	*-11.1%*
Asia Oceania	*7.57*	*8.18*	*8.19*	*7.98*	*9.35*	*9.90*	*10.35*	*10.65*	*10.24*	*9.81*	*10.09*	*7.9%*
Annex I EIT	*..*	*..*	*..*	*..*	*12.38*	*8.83*	*8.14*	*8.49*	*8.85*	*8.22*	*8.60*	*-30.6%*
Non-Annex I Parties	*..*	*..*	*..*	*..*	*1.58*	*1.78*	*1.84*	*2.33*	*2.69*	*2.73*	*2.85*	*80.7%*
Annex I Kyoto Parties	*..*	*..*	*..*	*..*	*10.21*	*8.99*	*8.92*	*9.15*	*8.97*	*8.37*	*8.61*	*-15.7%*
Non-OECD Total **	**1.46**	**1.72**	**1.97**	**2.01**	**2.19**	**2.07**	**2.04**	**2.51**	**2.86**	**2.88**	**2.99**	**36.7%**
OECD Total ***	**10.47**	**10.48**	**10.93**	**10.24**	**10.49**	**10.51**	**10.97**	**10.92**	**10.50**	**9.81**	**10.10**	**-3.7%**
Canada	15.46	16.31	17.42	15.57	15.63	15.90	17.38	17.35	16.52	15.58	15.73	0.6%
Chile	2.13	1.63	1.90	1.60	2.36	2.70	3.41	3.58	4.09	3.86	4.08	73.2%
Mexico	1.95	2.45	3.23	3.42	3.26	3.25	3.55	3.71	3.79	3.72	3.85	18.1%
United States	20.66	20.19	20.47	19.06	19.46	19.28	20.18	19.48	18.33	16.86	17.31	-11.0%
OECD Americas	**16.41**	**15.98**	**16.17**	**14.91**	**15.03**	**14.80**	**15.54**	**15.10**	**14.32**	**13.26**	**13.61**	**-9.5%**
Australia	10.92	12.89	14.05	13.90	15.14	15.69	17.58	17.97	17.75	17.33	17.00	12.3%
Israel	4.66	4.90	5.03	5.77	7.17	8.34	8.76	8.44	8.76	8.49	8.93	24.5%
Japan	7.23	7.66	7.52	7.25	8.61	9.14	9.33	9.55	9.04	8.59	8.97	4.2%
Korea	1.58	2.18	3.26	3.76	5.35	7.95	9.31	9.75	10.32	10.57	11.52	115.4%
New Zealand	4.80	5.52	5.23	6.00	6.94	7.14	7.99	8.17	7.94	7.18	7.04	1.4%
OECD Asia Oceania	**6.26**	**6.85**	**7.06**	**7.00**	**8.40**	**9.41**	**10.06**	**10.37**	**10.21**	**9.94**	**10.38**	**23.6%**
Austria	6.49	6.62	7.37	7.18	7.35	7.47	7.70	9.08	8.47	7.60	8.27	12.5%
Belgium	12.09	11.82	12.75	10.34	10.83	11.37	11.58	10.75	10.36	9.33	9.78	-9.7%
Czech Republic	15.35	15.17	16.06	16.75	14.97	11.97	11.86	11.69	11.25	10.50	10.89	-27.3%
Denmark	11.09	10.37	12.21	11.83	9.81	11.09	9.49	8.91	8.82	8.46	8.48	-13.6%
Estonia	..	..	..	..	22.75	11.11	10.66	12.52	13.21	10.94	13.79	-39.4%
Finland	8.62	9.42	11.54	9.91	10.91	10.97	10.64	10.53	10.73	10.30	11.73	7.5%
France	8.24	7.99	8.37	6.37	6.06	5.96	6.21	6.17	5.77	5.45	5.52	-8.9%
Germany	12.49	12.40	13.48	13.06	11.97	10.63	10.04	9.81	9.74	9.12	9.32	-22.2%
Greece	2.80	3.75	4.62	5.41	6.78	7.13	8.01	8.56	8.39	8.00	7.45	9.9%
Hungary	5.82	6.72	7.82	7.64	6.41	5.55	5.31	5.59	5.28	4.81	4.89	-23.6%
Iceland	6.79	7.37	7.62	6.71	7.37	7.30	7.60	7.36	6.57	6.44	6.04	-17.9%
Ireland	7.29	6.64	7.62	7.45	8.50	8.97	10.74	10.49	9.80	8.73	8.64	1.6%
Italy	5.42	5.76	6.38	6.14	7.01	7.20	7.48	7.86	7.27	6.47	6.59	-6.0%
Luxembourg	45.11	33.69	32.75	27.03	27.34	19.92	18.49	24.54	21.64	20.15	20.98	-23.3%
Netherlands	9.82	10.31	11.78	10.63	10.43	11.06	10.81	11.19	11.12	10.66	11.26	8.0%
Norway	6.02	6.01	6.85	6.54	6.67	7.53	7.47	7.86	7.87	7.67	8.01	20.1%
Poland	8.74	9.94	11.61	11.28	9.00	8.65	7.60	7.68	7.83	7.52	7.99	-11.2%
Portugal	1.66	1.97	2.41	2.44	3.93	4.81	5.81	5.95	5.01	5.00	4.53	15.2%
Slovak Republic	8.57	9.25	11.10	10.54	10.71	7.61	6.92	7.07	6.70	6.12	6.45	-39.8%
Slovenia	..	..	..	..	6.26	6.69	7.08	7.79	8.28	7.43	7.48	19.4%
Spain	3.49	4.39	4.98	4.54	5.26	5.91	7.05	7.82	6.96	6.15	5.82	10.7%
Sweden	10.18	9.69	8.84	7.04	6.16	6.52	5.95	5.58	4.82	4.45	5.07	-17.7%
Switzerland	6.14	5.73	6.14	6.34	6.09	5.88	5.89	5.95	5.68	5.43	5.63	-7.5%
Turkey	1.14	1.48	1.60	1.88	2.30	2.55	3.12	3.15	3.71	3.57	3.65	58.5%
United Kingdom	11.15	10.31	10.14	9.63	9.60	8.90	8.90	8.85	8.35	7.53	7.78	-19.0%
OECD Europe ***	**8.11**	**8.15**	**8.74**	**8.10**	**7.90**	**7.57**	**7.58**	**7.65**	**7.39**	**6.84**	**6.99**	**-11.4%**
European Union - 27	*..*	*..*	*..*	*..*	*8.56*	*8.03*	*7.93*	*8.08*	*7.75*	*7.14*	*7.29*	*-14.8%*

* The ratio for the world has been calculated to include international marine bunkers and international aviation bunkers.
** Includes Estonia and Slovenia prior to 1990.
*** Excludes Estonia and Slovenia prior to 1990.

CO_2 emissions / population

tonnes CO_2 / capita

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Non-OECD Total *	**1.46**	**1.72**	**1.97**	**2.01**	**2.19**	**2.07**	**2.04**	**2.51**	**2.86**	**2.88**	**2.99**	**36.7%**
Albania	1.78	1.86	2.85	2.44	1.90	0.59	1.02	1.31	1.23	1.11	1.18	-38.3%
Armenia	..	..	..	..	5.77	1.06	1.11	1.34	1.71	1.38	1.31	-77.4%
Azerbaijan	..	..	..	..	9.08	4.19	3.70	3.91	3.37	2.76	2.73	-70.0%
Belarus	..	..	..	..	12.22	6.03	5.86	6.35	6.72	6.56	6.88	-43.7%
Bosnia and Herzegovina	..	..	..	..	5.49	0.97	3.66	4.13	5.28	5.14	5.29	-3.6%
Bulgaria	7.36	8.28	9.46	9.07	8.58	6.34	5.22	5.94	6.43	5.56	5.81	-32.3%
Croatia	..	..	..	..	4.52	3.39	4.00	4.67	4.73	4.47	4.30	-4.8%
Cyprus	2.86	3.39	5.07	5.13	6.62	8.03	9.09	9.34	9.59	9.37	8.99	35.9%
Georgia	..	..	..	..	6.92	1.71	1.04	0.99	1.09	1.21	1.11	-84.0%
Gibraltar	3.78	3.76	4.14	4.17	6.35	11.14	13.46	14.57	15.56	15.95	16.86	165.4%
Kazakhstan	..	..	..	..	14.46	10.59	7.59	10.37	14.54	12.42	14.23	-1.6%
Kosovo **	..	..	..	..	..	..	2.93	3.65	4.10	4.56	4.66	..
Kyrgyzstan	..	..	..	..	5.08	0.96	0.91	0.98	1.12	1.35	1.30	-74.4%
Latvia	..	..	..	..	7.00	3.53	2.88	3.29	3.49	3.18	3.60	-48.6%
Lithuania	..	..	..	..	8.95	3.90	3.20	3.97	4.26	3.73	4.02	-55.1%
FYR of Macedonia	..	..	..	..	4.46	4.17	4.18	4.31	4.40	4.09	3.99	-10.7%
Malta	2.00	1.97	2.71	3.34	6.35	6.22	5.40	6.70	6.23	5.94	5.99	-5.6%
Republic of Moldova	..	..	..	..	8.17	2.97	1.56	1.89	1.78	1.61	1.72	-79.0%
Montenegro **	..	..	..	..	..	..	..	2.23	3.05	1.97	3.31	..
Romania	5.61	6.62	7.93	7.63	7.20	5.16	3.84	4.34	4.31	3.67	3.52	-51.0%
Russian Federation	..	..	..	..	14.69	10.63	10.29	10.59	11.22	10.72	11.16	-24.1%
Serbia **	..	..	..	..	6.11	4.23	5.22	6.60	6.79	6.33	6.31	3.4%
Tajikistan	..	..	..	..	2.06	0.42	0.35	0.36	0.44	0.41	0.40	-80.7%
Turkmenistan	..	..	..	..	12.48	8.10	7.86	9.50	11.12	9.64	10.45	-16.3%
Ukraine	..	..	..	..	13.26	7.63	5.94	6.49	6.70	5.39	5.81	-56.2%
Uzbekistan	..	..	..	..	5.84	4.46	4.77	4.12	4.20	3.73	3.56	-39.1%
Former Soviet Union ***	8.14	10.09	11.50	11.51	..	..	..	..	..	..	..	..
Former Yugoslavia ***	3.12	3.60	4.04	5.43	..	..	..	..	..	..	..	..
Non-OECD Europe and Eurasia *	**7.54**	**9.28**	**10.60**	**10.68**	**11.64**	**7.75**	**7.10**	**7.51**	**8.04**	**7.38**	**7.71**	**-33.7%**
Algeria	0.63	0.88	1.51	1.96	2.08	2.01	2.08	2.42	2.61	2.84	2.78	33.4%
Angola	0.27	0.30	0.35	0.32	0.39	0.33	0.36	0.44	0.71	0.76	0.87	124.5%
Benin	0.10	0.14	0.11	0.11	0.05	0.04	0.22	0.35	0.45	0.48	0.51	856.8%
Botswana	..	..	..	1.33	2.12	2.10	2.38	2.36	2.31	2.17	2.29	8.0%
Cameroon	0.10	0.13	0.18	0.23	0.22	0.18	0.18	0.17	0.23	0.25	0.26	16.9%
Congo	0.42	0.39	0.39	0.36	0.26	0.17	0.16	0.23	0.35	0.39	0.41	58.6%
Dem. Rep. of Congo	0.12	0.11	0.12	0.10	0.08	0.05	0.03	0.04	0.05	0.04	0.05	-42.8%
Côte d'Ivoire	0.42	0.45	0.40	0.29	0.21	0.22	0.37	0.32	0.34	0.31	0.29	39.9%
Egypt	0.55	0.64	0.93	1.28	1.38	1.34	1.50	2.06	2.24	2.17	2.19	58.7%
Eritrea	..	..	..	..	..	0.24	0.17	0.13	0.09	0.09	0.09	..
Ethiopia	0.04	0.03	0.04	0.03	0.04	0.04	0.05	0.06	0.07	0.07	0.06	50.8%
Gabon	0.87	1.26	1.87	2.13	0.97	1.22	1.12	1.57	1.61	1.68	1.76	81.5%
Ghana	0.22	0.24	0.21	0.17	0.18	0.19	0.27	0.30	0.32	0.38	0.39	112.3%
Kenya	0.28	0.26	0.27	0.24	0.23	0.20	0.22	0.20	0.22	0.26	0.27	14.4%
Libya	1.79	3.72	6.06	5.84	6.31	7.35	7.59	7.36	7.64	7.96	8.12	28.7%
Morocco	0.44	0.57	0.71	0.74	0.79	0.97	1.02	1.32	1.39	1.35	1.44	81.5%
Mozambique	0.30	0.22	0.19	0.11	0.08	0.07	0.07	0.07	0.09	0.10	0.11	33.8%
Namibia	..	..	..	..	..	1.06	0.93	1.19	1.61	1.47	1.46	..
Nigeria	0.10	0.18	0.35	0.38	0.30	0.28	0.34	0.40	0.33	0.27	0.29	-3.1%
Senegal	0.29	0.34	0.38	0.34	0.29	0.30	0.38	0.43	0.43	0.44	0.44	49.9%
South Africa	6.93	8.15	7.57	7.31	7.21	7.02	6.74	6.97	7.93	7.48	6.94	-3.7%
Sudan	0.22	0.19	0.18	0.18	0.21	0.15	0.16	0.24	0.30	0.32	0.31	51.4%
United Rep. of Tanzania	0.11	0.09	0.09	0.07	0.07	0.08	0.08	0.13	0.14	0.13	0.13	99.0%
Togo	0.16	0.13	0.14	0.09	0.16	0.14	0.20	0.18	0.19	0.19	0.19	25.4%
Tunisia	0.71	0.85	1.23	1.32	1.48	1.59	1.88	2.01	2.08	2.04	2.08	40.4%
Zambia	0.80	0.90	0.58	0.41	0.33	0.23	0.17	0.18	0.13	0.14	0.15	-54.7%
Zimbabwe	1.34	1.17	1.09	1.08	1.53	1.27	1.02	0.82	0.64	0.67	0.72	-52.8%
Other Africa	0.11	0.12	0.15	0.12	0.12	0.13	0.13	0.14	0.15	0.14	0.14	14.6%
Africa	**0.66**	**0.77**	**0.84**	**0.86**	**0.86**	**0.83**	**0.84**	**0.91**	**0.96**	**0.93**	**0.91**	**5.9%**

* Includes Estonia and Slovenia prior to 1990.

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

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

CO_2 emissions / population

tonnes CO_2 / capita

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
Bangladesh	0.05	0.07	0.09	0.10	0.13	0.17	0.20	0.26	0.32	0.34	0.36	176.4%
Brunei Darussalam	3.04	8.97	13.93	13.40	13.34	16.21	14.22	14.03	19.46	20.72	20.58	54.2%
Cambodia	..	..	..	..	..	0.13	0.16	0.20	0.26	0.26	0.27	..
Chinese Taipei	2.08	2.63	4.08	3.69	5.64	7.43	9.85	11.57	11.47	10.91	11.66	106.7%
India	0.36	0.39	0.41	0.54	0.69	0.83	0.96	1.06	1.26	1.35	1.39	102.5%
Indonesia	0.21	0.28	0.46	0.52	0.79	1.08	1.28	1.48	1.55	1.61	1.71	116.2%
DPR of Korea	4.61	4.77	6.12	6.75	5.66	3.44	3.00	3.11	2.86	2.72	2.59	-54.3%
Malaysia	1.14	1.31	1.76	2.14	2.73	3.99	4.81	5.83	6.69	6.06	6.51	138.9%
Mongolia	..	..	..	6.02	5.77	4.36	3.66	3.72	4.20	4.32	4.31	-25.3%
Myanmar	0.17	0.14	0.16	0.16	0.10	0.16	0.21	0.23	0.16	0.15	0.17	61.7%
Nepal	0.02	0.02	0.03	0.03	0.05	0.08	0.13	0.11	0.10	0.12	0.12	163.3%
Pakistan	0.27	0.31	0.32	0.41	0.52	0.62	0.67	0.74	0.80	0.80	0.78	48.0%
Philippines	0.63	0.71	0.71	0.53	0.62	0.83	0.87	0.83	0.78	0.77	0.82	32.1%
Singapore	2.91	3.74	5.26	5.96	9.65	11.84	11.85	11.87	11.40	11.16	12.39	28.5%
Sri Lanka	0.22	0.20	0.25	0.22	0.22	0.30	0.57	0.68	0.60	0.58	0.64	196.3%
Thailand	0.43	0.50	0.71	0.80	1.41	2.36	2.50	3.25	3.37	3.33	3.59	154.9%
Vietnam	0.37	0.35	0.28	0.29	0.26	0.39	0.57	0.97	1.20	1.32	1.50	476.0%
Other Asia	0.30	0.33	0.51	0.29	0.25	0.27	0.29	0.35	0.37	0.41	0.43	67.4%
Asia	**0.41**	**0.46**	**0.55**	**0.63**	**0.79**	**0.97**	**1.10**	**1.26**	**1.39**	**1.43**	**1.49**	**88.8%**
People's Rep. of China	0.95	1.15	1.43	1.62	1.95	2.48	2.41	3.88	4.91	5.11	5.39	176.8%
Hong Kong, China	2.27	2.42	2.87	4.03	5.75	5.84	5.98	5.98	6.05	6.51	5.87	2.0%
China	**0.96**	**1.15**	**1.44**	**1.63**	**1.97**	**2.50**	**2.42**	**3.89**	**4.92**	**5.12**	**5.40**	**174.3%**
Argentina	3.40	3.28	3.40	2.91	3.06	3.38	3.76	3.90	4.32	4.14	4.21	37.7%
Bolivia	0.50	0.68	0.78	0.72	0.77	0.92	0.86	1.03	1.26	1.30	1.42	83.1%
Brazil	0.93	1.27	1.48	1.23	1.30	1.49	1.74	1.73	1.89	1.75	1.99	53.2%
Colombia	1.21	1.19	1.26	1.28	1.35	1.57	1.48	1.34	1.32	1.35	1.31	-3.2%
Costa Rica	0.68	0.85	0.93	0.74	0.85	1.27	1.15	1.32	1.46	1.37	1.40	65.7%
Cuba	2.31	2.52	3.08	3.16	3.20	2.04	2.44	2.23	2.21	2.81	2.67	-16.6%
Dominican Republic	0.74	1.00	1.08	0.95	1.07	1.44	2.03	1.89	1.98	1.84	1.87	75.5%
Ecuador	0.60	0.90	1.34	1.33	1.29	1.43	1.47	1.80	1.89	2.05	2.08	61.8%
El Salvador	0.37	0.48	0.38	0.35	0.42	0.81	0.88	1.01	1.01	1.01	0.95	126.3%
Guatemala	0.41	0.49	0.60	0.40	0.36	0.58	0.75	0.83	0.74	0.79	0.72	99.1%
Haiti	0.08	0.08	0.11	0.12	0.13	0.11	0.16	0.21	0.24	0.24	0.21	60.5%
Honduras	0.40	0.42	0.46	0.39	0.44	0.63	0.71	1.01	1.07	0.98	0.96	117.6%
Jamaica	2.91	3.68	3.05	2.01	3.01	3.37	3.75	3.94	4.40	3.06	2.94	-2.1%
Netherlands Antilles	89.64	61.14	50.26	25.01	14.37	14.77	22.38	22.60	22.14	25.33	18.99	32.2%
Nicaragua	0.60	0.66	0.55	0.49	0.44	0.54	0.69	0.74	0.74	0.72	0.77	73.4%
Panama	1.63	1.81	1.50	1.23	1.06	1.54	1.67	2.11	1.94	2.25	2.39	125.8%
Paraguay	0.22	0.25	0.42	0.38	0.45	0.72	0.61	0.58	0.60	0.65	0.73	61.2%
Peru	1.15	1.22	1.19	0.94	0.89	1.00	1.02	1.05	1.25	1.33	1.44	62.9%
Trinidad and Tobago	6.29	5.78	7.36	8.19	9.36	9.73	16.31	25.78	29.46	30.07	31.91	241.0%
Uruguay	1.85	1.93	1.91	1.04	1.21	1.40	1.59	1.60	2.31	2.31	1.92	59.2%
Venezuela	4.71	4.95	6.15	5.45	5.32	5.37	5.21	5.57	6.03	5.93	6.35	19.3%
Other Non-OECD Americas	2.99	4.05	3.69	3.21	4.18	4.26	4.55	4.66	4.85	4.90	4.96	18.7%
Non-OECD Americas	**1.53**	**1.70**	**1.90**	**1.64**	**1.69**	**1.84**	**2.03**	**2.09**	**2.26**	**2.20**	**2.34**	**38.4%**
Bahrain	13.69	20.04	20.65	24.92	23.73	20.80	22.14	25.03	21.24	19.51	18.71	-21.2%
Islamic Republic of Iran	1.42	2.18	2.34	3.15	3.26	4.20	4.82	6.05	6.88	7.03	6.88	111.3%
Iraq	0.98	1.29	1.92	2.26	2.83	4.51	2.80	2.63	2.39	2.92	3.23	14.4%
Jordan	0.85	1.18	1.96	2.81	2.92	2.91	2.99	3.33	3.20	3.26	3.08	5.6%
Kuwait	17.31	14.30	19.30	21.29	13.75	22.18	25.31	30.97	28.99	30.51	31.93	132.2%
Lebanon	1.79	2.04	2.36	2.27	1.85	3.71	3.77	3.57	3.80	4.55	4.40	137.9%
Oman	0.33	0.80	1.89	3.69	5.48	6.61	8.90	11.59	13.85	14.73	14.47	164.2%
Qatar	18.87	30.05	34.67	32.90	29.66	37.25	40.05	45.74	35.65	35.32	36.90	24.4%
Saudi Arabia	2.11	3.06	10.11	9.27	9.86	11.24	12.61	13.88	14.80	15.35	16.25	64.8%
Syrian Arab Republic	0.91	1.20	1.48	1.99	2.28	2.31	2.49	2.97	3.19	2.86	2.82	23.6%
United Arab Emirates	8.97	9.15	18.81	26.38	28.68	29.65	28.22	26.64	23.46	21.54	20.50	-28.5%
Yemen	0.19	0.26	0.43	0.49	0.54	0.62	0.75	0.91	0.93	0.92	0.90	67.3%
Middle East	**1.53**	**2.15**	**3.47**	**4.16**	**4.39**	**5.38**	**5.66**	**6.62**	**7.19**	**7.42**	**7.56**	**72.4%**

Per capita emissions by sector in 2010 *

kg CO_2 / capita

	Total CO_2 emissions from fuel combustion	Electricity and heat production	Other energy industry own use **	Manufacturing industries and construction	Transport	*of which: road*	Other sectors	*of which: residential*
World * **	**4 436**	**1 829**	**230**	**906**	**990**	**728**	**481**	**276**
Annex I Parties	*10 412*	*4 295*	*524*	*1 539*	*2 618*	*2 260*	*1 435*	*847*
Annex II Parties	*11 560*	*4 510*	*618*	*1 605*	*3 210*	*2 838*	*1 617*	*906*
North America	*17 156*	*7 043*	*944*	*1 998*	*5 204*	*4 474*	*1 966*	*1 048*
Europe	*7 429*	*2 446*	*391*	*1 137*	*1 972*	*1 848*	*1 483*	*959*
Asia Oceania	*10 092*	*4 363*	*498*	*1 973*	*2 064*	*1 829*	*1 194*	*449*
Annex I EIT	*8 598*	*4 349*	*334*	*1 545*	*1 329*	*942*	*1 041*	*741*
Non-Annex I Parties	*2 849*	*1 256*	*162*	*759*	*413*	*373*	*259*	*143*
Annex I Kyoto Parties	*8 608*	*3 447*	*445*	*1 490*	*1 897*	*1 636*	*1 329*	*805*
Non-OECD Total	**2 992**	**1 349**	**158**	**792**	**417**	**358**	**277**	**161**
OECD Total	**10 096**	**4 007**	**558**	**1 423**	**2 699**	**2 408**	**1 408**	**797**
Canada	15 733	3 357	1 850	2 955	4 975	4 093	2 597	1 139
Chile	4 078	1 448	138	903	1 241	1 092	347	198
Mexico	3 850	1 138	513	506	1 398	1 361	295	175
United States	17 312	7 448	845	1 893	5 229	4 516	1 897	1 038
OECD Americas	**13 611**	**5 477**	**816**	**1 614**	**4 182**	**3 633**	**1 522**	**815**
Australia	17 003	9 005	1 381	2 155	3 646	3 063	816	354
Israel	8 930	5 294	408	453	1 562	1 562	1 213	344
Japan	8 974	3 639	346	1 961	1 748	1 579	1 280	477
Korea	11 521	5 712	742	2 017	1 775	1 673	1 275	674
New Zealand	7 040	1 536	373	1 393	3 098	2 772	639	121
OECD Asia Oceania	**10 381**	**4 710**	**551**	**1 928**	**1 979**	**1 784**	**1 214**	**498**
Austria	8 266	1 970	887	1 523	2 607	2 530	1 280	903
Belgium	9 780	2 092	511	2 257	2 283	2 227	2 637	1 711
Czech Republic	10 886	5 971	226	1 886	1 584	1 511	1 218	756
Denmark	8 478	3 961	405	725	2 320	2 142	1 067	576
Estonia	13 787	11 006	75	613	1 663	1 524	430	139
Finland	11 732	5 819	663	1 889	2 339	2 135	1 023	353
France	5 518	849	252	965	1 907	1 824	1 546	880
Germany	9 315	3 998	321	1 418	1 780	1 724	1 797	1 236
Greece	7 453	3 663	298	724	1 929	1 657	839	586
Hungary	4 895	1 599	164	595	1 162	1 136	1 376	855
Iceland	6 044	16	-	1 494	2 630	2 456	1 903	29
Ireland	8 638	2 910	90	782	2 564	2 492	2 293	1 606
Italy	6 588	2 232	301	883	1 787	1 685	1 386	881
Luxembourg	20 977	2 618	-	2 276	12 804	12 780	3 278	2 058
Netherlands	11 257	3 575	624	2 548	2 007	1 957	2 502	1 235
Norway	8 011	581	2 290	1 541	2 873	2 121	726	122
Poland	7 990	4 129	198	894	1 226	1 198	1 543	978
Portugal	4 527	1 417	222	689	1 729	1 639	469	205
Slovak Republic	6 446	1 603	888	1 434	1 262	1 090	1 260	619
Slovenia	7 478	2 973	7	997	2 487	2 468	1 015	583
Spain	5 824	1 549	383	1 040	2 121	1 848	731	426
Sweden	5 073	1 199	260	975	2 298	2 176	341	44
Switzerland	5 630	361	131	744	2 185	2 148	2 209	1 464
Turkey	3 650	1 377	150	700	604	536	819	562
United Kingdom	7 776	2 873	519	822	1 919	1 781	1 643	1 325
OECD Europe	**6 995**	**2 488**	**341**	**1 068**	**1 712**	**1 605**	**1 386**	**896**
European Union - 27	*7 294*	*2 672*	*345*	*1 090*	*1 795*	*1 691*	*1 391*	*896*

* 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.61-II.63.

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

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

Per capita emissions by sector in 2010

kg CO_2 / capita

	Total CO_2 emissions from fuel combustion	Electricity and heat production	Other energy industry own use	Manufacturing industries and construction	Transport	*of which: road*	Other sectors	*of which: residential*
Non-OECD Total	**2 992**	**1 349**	**158**	**792**	**417**	**358**	**277**	**161**
Albania	1 175	5	27	258	703	691	182	71
Armenia	1 306	204	-	171	405	405	526	288
Azerbaijan	2 726	1 009	262	113	563	502	779	647
Belarus	6 884	3 465	450	1 073	780	645	1 116	838
Bosnia and Herzegovina	5 294	3 495	110	416	858	858	415	150
Bulgaria	5 811	3 879	127	569	1 018	961	218	112
Croatia	4 301	945	419	800	1 348	1 259	789	476
Cyprus	8 995	4 670	-	849	2 750	2 746	726	326
Georgia	1 109	183	39	158	467	453	261	190
Gibraltar	16 858	4 349	-	2 017	10 492	10 492	-	-
Kazakhstan	14 226	4 591	2 890	3 209	790	725	2 745	591
Kosovo	4 665	3 678	-	265	527	526	194	91
Kyrgyzstan	1 301	247	-	351	486	486	217	-
Latvia	3 600	1 053	-	528	1 410	1 299	610	242
Lithuania	4 021	1 127	540	658	1 304	1 215	392	213
FYR of Macedonia	3 985	2 597	2	529	645	634	212	68
Malta	5 990	4 463	-	98	1 282	1 282	146	146
Republic of Moldova	1 716	750	5	70	285	270	605	502
Montenegro	3 311	2 678	-	342	275	-	15	13
Romania	3 524	1 539	259	645	643	595	438	271
Russian Federation	11 156	5 874	446	2 076	1 707	987	1 053	801
Serbia	6 314	4 168	74	758	888	755	426	209
Tajikistan	397	67	-	-	42	42	289	-
Turkmenistan	10 449	3 250	1 584	613	844	475	4 157	-
Ukraine	5 812	2 536	157	1 507	653	465	958	761
Uzbekistan	3 559	1 279	116	606	281	168	1 277	968
Non-OECD Europe and Eurasia	**7 711**	**3 727**	**434**	**1 438**	**1 092**	**730**	**1 019**	**638**
Algeria	2 779	704	314	359	940	836	463	370
Angola	871	121	14	139	393	355	203	67
Benin	509	12	-	16	354	354	126	126
Botswana	2 293	573	-	617	1 001	980	102	39
Cameroon	257	62	22	18	136	129	18	18
Congo	411	20	-	13	351	340	27	27
Dem. Rep. of Congo	46	-	-	16	11	11	19	5
Côte d'Ivoire	294	135	10	25	65	53	59	20
Egypt	2 189	814	183	412	474	437	307	188
Eritrea	94	38	-	4	26	26	25	9
Ethiopia	65	-	-	16	32	32	16	9
Gabon	1 761	470	22	681	397	397	192	92
Ghana	389	89	4	57	201	185	37	22
Kenya	269	51	6	58	116	110	38	24
Libya	8 121	4 405	480	985	1 902	1 901	349	349
Morocco	1 438	501	24	238	331	331	344	130
Mozambique	107	-	-	19	72	66	15	5
Namibia	1 458	128	-	120	772	726	437	-
Nigeria	290	67	37	24	120	98	43	11
Senegal	440	152	3	78	162	154	45	31
South Africa	6 938	4 757	45	990	764	710	382	181
Sudan	314	62	11	53	155	154	33	18
United Rep. of Tanzania	133	33	-	20	68	68	13	12
Togo	195	4	-	14	152	152	24	24
Tunisia	2 081	706	5	488	565	565	316	154
Zambia	150	2	4	60	50	34	33	-
Zimbabwe	722	425	4	91	94	87	108	7
Other Africa	143	41	-	17	63	56	21	12
Africa	**910**	**414**	**39**	**138**	**215**	**199**	**104**	**56**

Per capita emissions by sector in 2010

kg CO_2 / capita

	Total CO_2 emissions from fuel combustion	Electricity and heat production	Other energy industry own use	Manufacturing industries and construction	Transport	*of which: road*	Other sectors	*of which: residential*
Bangladesh	356	169	2	62	56	43	68	38
Brunei Darussalam	20 580	6 938	4 596	5 877	2 920	2 916	248	248
Cambodia	266	57	-	47	136	109	26	26
Chinese Taipei	11 656	6 564	573	2 575	1 529	1 479	415	196
India	1 388	748	52	342	138	124	108	64
Indonesia	1 713	502	122	521	441	387	127	70
DPR of Korea	2 587	414	1	1 633	36	36	503	3
Malaysia	6 514	3 209	370	1 134	1 494	1 484	307	66
Mongolia	4 308	2 938	11	487	500	347	371	317
Myanmar	167	41	15	51	48	37	12	-
Nepal	122	-	-	27	63	63	32	13
Pakistan	776	231	8	245	188	182	104	75
Philippines	820	349	19	136	252	221	64	27
Singapore	12 395	4 463	1 188	5 097	1 580	1 574	66	34
Sri Lanka	640	196	2	60	333	313	50	17
Thailand	3 594	1 184	224	1 125	801	794	261	63
Vietnam	1 501	471	35	506	348	339	141	83
Other Asia	426	134	-	76	163	138	53	17
Asia	**1 494**	**681**	**65**	**396**	**237**	**218**	**116**	**60**
People's Rep. of China	5 393	2 652	206	1 739	380	295	416	226
Hong Kong, China	5 867	3 920	-	813	791	791	344	113
China	**5 395**	**2 659**	**205**	**1 734**	**382**	**298**	**416**	**225**
Argentina	4 213	1 137	422	744	1 023	941	887	533
Bolivia	1 416	293	123	156	683	656	160	119
Brazil	1 989	230	129	585	852	760	194	87
Colombia	1 310	216	145	320	466	446	164	80
Costa Rica	1 403	115	15	214	969	964	90	29
Cuba	2 667	1 563	32	784	125	112	162	53
Dominican Republic	1 869	945	4	163	523	420	235	215
Ecuador	2 081	475	79	287	1 010	849	230	193
El Salvador	948	215	7	217	410	410	99	91
Guatemala	716	175	5	98	391	390	47	46
Haiti	213	32	-	54	107	38	21	21
Honduras	960	294	-	172	389	389	105	23
Jamaica	2 944	1 103	88	87	1 037	523	629	50
Netherlands Antilles	18 995	4 534	4 005	3 466	6 107	6 107	882	882
Nicaragua	771	291	13	104	296	282	68	15
Panama	2 388	634	-	551	991	989	211	139
Paraguay	727	-	-	25	661	654	41	29
Peru	1 442	357	135	296	560	531	95	59
Trinidad and Tobago	31 909	4 428	6 479	18 339	2 327	2 322	335	319
Uruguay	1 920	261	181	242	880	876	356	137
Venezuela	6 348	1 084	1 722	1 654	1 672	1 671	215	183
Other Non-OECD Americas	4 959	2 541	1	395	1 403	1 241	619	307
Non-OECD Americas	**2 341**	**462**	**255**	**588**	**797**	**733**	**240**	**134**
Bahrain	18 713	6 708	3 550	5 384	2 874	2 841	198	198
Islamic Rep. of Iran	6 881	1 778	408	1 297	1 604	1 587	1 794	1 357
Iraq	3 233	1 557	124	255	920	920	378	378
Jordan	3 080	1 382	97	384	853	846	364	213
Kuwait	31 931	17 546	4 455	5 477	4 263	4 263	191	191
Lebanon	4 404	2 634	-	312	1 181	1 181	276	276
Oman	14 474	5 654	2 827	3 065	2 257	2 257	671	169
Qatar	36 900	7 904	11 557	12 062	5 224	5 224	153	153
Saudi Arabia	16 247	6 444	2 710	3 143	3 804	3 726	145	145
Syrian Arab Republic	2 825	1 349	73	431	596	585	376	213
United Arab Emirates	20 500	7 777	274	8 951	3 424	3 424	74	74
Yemen	900	211	137	39	257	257	256	80
Middle East	**7 559**	**2 715**	**786**	**1 577**	**1 651**	**1 633**	**829**	**623**

Per capita emissions with electricity and heat allocated to consuming sectors * in 2010

kg CO_2 / capita

	Total CO_2 emissions from fuel combustion	Other energy industry own use **	Manufacturing industries and construction	Transport	*of which: road*	Other sectors	*of which: residential*
World * **	**4 436**	**319**	**1 636**	**1 013**	**728**	**1 468**	**788**
Annex I Parties	*10 412*	*763*	*2 880*	*2 688*	*2 260*	*4 082*	*2 238*
Annex II Parties	*11 560*	*762*	*2 936*	*3 259*	*2 838*	*4 603*	*2 372*
North America	*17 156*	*1 159*	*3 741*	*5 222*	*4 474*	*7 033*	*3 546*
Europe	*7 429*	*485*	*1 986*	*2 019*	*1 848*	*2 940*	*1 680*
Asia Oceania	*10 092*	*583*	*3 421*	*2 143*	*1 829*	*3 945*	*1 748*
Annex I EIT	*8 598*	*861*	*3 056*	*1 465*	*942*	*3 216*	*2 158*
Non-Annex I Parties	*2 849*	*211*	*1 405*	*423*	*373*	*810*	*422*
Annex I Kyoto Parties	*8 608*	*685*	*2 678*	*1 977*	*1 636*	*3 269*	*1 864*
Non-OECD Total	**2 992**	**242**	**1 433**	**436**	**358**	**881**	**498**
OECD Total	**10 096**	**689**	**2 686**	**2 741**	**2 408**	**3 981**	**2 053**
Canada	15 733	2 034	4 096	5 000	4 093	4 603	2 123
Chile	4 078	153	1 842	1 253	1 092	831	443
Mexico	3 850	552	1 115	1 404	1 361	779	436
United States	17 312	1 049	3 649	5 244	4 516	7 370	3 737
OECD Americas	**13 611**	**982**	**3 066**	**4 197**	**3 633**	**5 365**	**2 715**
Australia	17 003	1 798	5 353	3 808	3 063	6 044	2 922
Israel	8 930	449	1 799	1 562	1 562	5 119	1 993
Japan	8 974	398	3 147	1 817	1 579	3 612	1 564
Korea	11 521	855	4 877	1 800	1 673	3 989	1 590
New Zealand	7 040	393	1 941	3 102	2 772	1 603	636
OECD Asia Oceania	**10 381**	**642**	**3 703**	**2 044**	**1 784**	**3 993**	**1 721**
Austria	8 266	920	2 226	2 689	2 530	2 432	1 548
Belgium	9 780	612	3 230	2 321	2 227	3 617	2 158
Czech Republic	10 886	659	3 881	1 730	1 511	4 616	2 679
Denmark	8 478	475	1 327	2 344	2 142	4 331	2 465
Estonia	13 787	602	2 696	1 708	1 524	8 781	5 087
Finland	11 732	732	4 480	2 370	2 135	4 150	2 163
France	5 518	297	1 159	1 927	1 824	2 134	1 148
Germany	9 315	415	2 991	1 879	1 724	4 031	2 384
Greece	7 453	440	1 652	1 941	1 657	3 421	1 811
Hungary	4 895	250	1 023	1 197	1 136	2 424	1 431
Iceland	6 044	-	1 506	2 630	2 456	1 907	31
Ireland	8 638	112	1 570	2 569	2 492	4 387	2 582
Italy	6 588	476	1 882	1 852	1 685	2 378	1 313
Luxembourg	20 977	-	3 622	12 850	12 780	4 505	2 408
Netherlands	11 257	911	3 849	2 051	1 957	4 446	1 947
Norway	8 011	2 318	1 749	2 877	2 121	1 067	306
Poland	7 990	625	1 974	1 284	1 198	4 106	2 514
Portugal	4 527	289	1 220	1 741	1 639	1 277	572
Slovak Republic	6 446	959	1 981	1 286	1 090	2 220	1 073
Slovenia	7 478	36	2 263	2 523	2 468	2 656	1 494
Spain	5 824	428	1 522	2 139	1 848	1 734	874
Sweden	5 073	284	1 342	2 312	2 176	1 135	524
Switzerland	5 630	131	862	2 203	2 148	2 435	1 579
Turkey	3 650	166	1 375	609	536	1 500	868
United Kingdom	7 776	598	1 752	1 950	1 781	3 475	2 296
OECD Europe	**6 995**	**445**	**1 932**	**1 757**	**1 605**	**2 861**	**1 636**
European Union - 27	*7 294*	*466*	*1 988*	*1 845*	*1 691*	*2 995*	*1 711*

* 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.58-II.60.

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

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

Per capita emissions with electricity and heat allocated to consuming sectors in 2010

kg CO_2 / capita

	Total CO_2 emissions from fuel combustion	Other energy industry own use	Manufacturing industries and construction	Transport	*of which: road*	Other sectors	*of which: residential*
Non-OECD Total	**2 992**	**242**	**1 433**	**436**	**358**	**881**	**498**
Albania	1 175	27	259	703	691	186	73
Armenia	1 306	-	219	410	405	677	365
Azerbaijan	2 726	374	361	594	502	1 397	992
Belarus	6 884	714	2 241	838	645	3 090	1 999
Bosnia and Herzegovina	5 294	218	1 511	897	858	2 668	1 769
Bulgaria	5 811	427	1 826	1 056	961	2 502	1 484
Croatia	4 301	437	1 005	1 361	1 259	1 498	894
Cyprus	8 995	7	1 402	2 750	2 746	4 836	1 986
Georgia	1 109	48	212	481	453	369	278
Gibraltar	16 858	-	2 017	10 492	10 492	4 349	-
Kazakhstan	14 226	3 298	5 577	890	725	4 462	1 736
Kosovo	4 665	7	1 281	527	526	2 849	2 102
Kyrgyzstan	1 301	6	450	488	486	357	38
Latvia	3 600	-	666	1 420	1 299	1 514	784
Lithuania	4 021	595	926	1 308	1 215	1 191	703
FYR of Macedonia	3 985	125	1 317	653	634	1 890	1 214
Malta	5 990	-	1 396	1 282	1 282	3 311	1 466
Republic of Moldova	1 716	30	238	291	270	1 157	867
Montenegro	3 311	116	1 603	293	-	1 298	1 034
Romania	3 524	391	1 195	675	595	1 263	841
Russian Federation	11 156	1 240	4 158	1 918	987	3 840	2 630
Serbia	6 314	157	2 034	912	755	3 211	2 288
Tajikistan	397	-	28	42	42	327	14
Turkmenistan	10 449	1 998	1 436	904	475	6 111	480
Ukraine	5 812	441	2 530	726	465	2 115	1 677
Uzbekistan	3 559	143	902	306	168	2 208	1 108
Non-OECD Europe and Eurasia	**7 711**	**878**	**2 771**	**1 210**	**730**	**2 852**	**1 819**
Algeria	2 779	326	621	953	836	878	613
Angola	871	14	177	393	355	287	151
Benin	509	-	18	354	354	136	131
Botswana	2 293	-	867	1 001	980	425	191
Cameroon	257	22	54	136	129	45	31
Congo	411	-	23	351	340	37	37
Dem. Rep. of Congo	46	-	16	11	11	19	5
Côte d'Ivoire	294	10	56	65	53	163	79
Egypt	2 189	183	676	474	437	856	522
Eritrea	94	-	13	26	26	54	26
Ethiopia	65	-	16	32	32	16	9
Gabon	1 761	32	805	399	397	525	331
Ghana	389	4	98	201	185	85	57
Kenya	269	6	87	116	110	60	38
Libya	8 121	480	1 714	1 902	1 901	4 024	1 548
Morocco	1 438	40	422	336	331	641	290
Mozambique	107	-	20	72	66	15	5
Namibia	1 458	-	146	772	726	540	-
Nigeria	290	37	35	120	98	98	49
Senegal	440	3	116	162	154	160	88
South Africa	6 938	289	3 472	841	710	2 336	1 063
Sudan	314	11	61	155	154	87	49
United Rep. of Tanzania	133	1	35	68	68	30	26
Togo	195	-	15	152	152	27	27
Tunisia	2 081	5	751	581	565	744	345
Zambia	150	4	61	50	34	34	1
Zimbabwe	722	4	279	94	87	345	133
Other Africa	143	1	28	63	56	51	27
Africa	**910**	**49**	**310**	**219**	**199**	**332**	**180**

Per capita emissions with electricity and heat allocated to consuming sectors in 2010

kg CO_2 / capita

	Total CO_2 emissions from fuel combustion	Other energy industry own use	Manufacturing industries and construction	Transport	*of which: road*	Other sectors	*of which: residential*
Bangladesh	356	2	156	56	43	143	93
Brunei Darussalam	20 580	4 596	7 114	2 920	2 916	5 950	2 711
Cambodia	266	-	57	136	109	72	55
Chinese Taipei	11 656	688	6 242	1 564	1 479	3 162	1 478
India	1 388	52	681	152	124	504	225
Indonesia	1 713	122	695	441	387	456	274
DPR of Korea	2 587	1	1 840	36	36	710	3
Malaysia	6 514	370	2 660	1 500	1 484	1 984	718
Mongolia	4 308	11	1 537	533	347	2 227	1 453
Myanmar	167	15	66	48	37	38	18
Nepal	122	-	27	63	63	32	13
Pakistan	776	8	308	188	182	271	183
Philippines	820	19	253	253	221	295	146
Singapore	12 395	1 188	6 615	1 766	1 574	2 827	779
Sri Lanka	640	2	127	333	313	179	96
Thailand	3 594	224	1 629	801	794	940	327
Vietnam	1 501	35	758	348	339	360	253
Other Asia	426	9	122	163	138	132	44
Asia	**1 494**	**67**	**699**	**244**	**218**	**485**	**234**
People's Rep. of China	5 393	366	3 443	403	295	1 181	647
Hong Kong, China	5 867	-	1 101	791	791	3 975	1 136
China	**5 395**	**363**	**3 428**	**405**	**298**	**1 198**	**650**
Argentina	4 213	422	1 231	1 029	941	1 530	878
Bolivia	1 416	123	238	683	656	371	221
Brazil	1 989	140	687	852	760	310	142
Colombia	1 310	145	387	466	446	313	169
Costa Rica	1 403	15	239	969	964	180	74
Cuba	2 667	32	1 215	154	112	1 266	813
Dominican Republic	1 869	4	548	523	420	795	527
Ecuador	2 081	79	436	1 010	849	556	365
El Salvador	948	7	311	410	410	220	161
Guatemala	716	5	170	391	390	151	103
Haiti	213	-	64	107	38	42	32
Honduras	960	-	245	389	389	326	148
Jamaica	2 944	88	327	1 037	523	1 493	429
Netherlands Antilles	18 995	4 005	5 960	6 107	6 107	2 922	882
Nicaragua	771	13	183	296	282	279	115
Panama	2 388	-	617	991	989	780	342
Paraguay	727	-	25	661	654	41	29
Peru	1 442	135	485	560	531	262	145
Trinidad and Tobago	31 909	6 479	21 008	2 327	2 322	2 094	1 587
Uruguay	1 920	181	315	880	876	544	238
Venezuela	6 348	1 749	2 125	1 676	1 671	799	487
Other Non-OECD Americas	4 959	1	994	1 403	1 241	2 561	1 139
Non-OECD Americas	**2 341**	**267**	**778**	**799**	**733**	**497**	**262**
Bahrain	18 713	3 550	6 162	2 874	2 841	6 128	3 494
Islamic Rep. of Iran	6 881	426	1 894	1 607	1 587	2 955	1 934
Iraq	3 233	124	513	920	920	1 676	1 058
Jordan	3 080	110	731	853	846	1 385	770
Kuwait	31 931	6 912	5 477	4 263	4 263	15 280	10 021
Lebanon	4 404	-	1 004	1 181	1 181	2 219	1 280
Oman	14 474	2 827	3 605	2 257	2 257	5 786	3 112
Qatar	36 900	11 557	14 558	5 224	5 224	5 561	1 944
Saudi Arabia	16 247	3 212	3 797	3 804	3 726	5 434	3 443
Syrian Arab Republic	2 825	73	884	596	585	1 271	831
United Arab Emirates	20 500	274	9 695	3 424	3 424	7 107	3 103
Yemen	900	137	39	257	257	467	221
Middle East	**7 559**	**884**	**2 087**	**1 652**	**1 633**	**2 935**	**1 784**

Electricity output *

terawatt hours

	1990	1995	2000	2003	2004	2005	2006	2007	2008	2009	2010	% change 90-10
World	**11 819.0**	**13 229.7**	**15 410.5**	**16 704.7**	**17 494.8**	**18 247.5**	**18 944.3**	**19 798.7**	**20 178.1**	**20 087.3**	**21 396.9**	**81.0%**
Annex I Parties	*8 940.9*	*9 360.4*	*10 348.6*	*10 588.4*	*10 835.2*	*11 072.7*	*11 174.6*	*11 363.2*	*11 382.2*	*10 893.6*	*11 361.3*	*27.1%*
Annex II Parties	*7 030.8*	*7 787.6*	*8 725.2*	*8 869.6*	*9 078.5*	*9 275.7*	*9 303.3*	*9 451.4*	*9 441.5*	*9 049.7*	*9 420.0*	*34.0%*
North America	*3 684.9*	*4 118.4*	*4 631.5*	*4 644.2*	*4 747.9*	*4 894.9*	*4 888.4*	*4 962.8*	*4 983.9*	*4 779.3*	*4 962.2*	*34.7%*
Europe	*2 323.9*	*2 500.1*	*2 795.7*	*2 920.0*	*2 983.4*	*3 019.6*	*3 044.1*	*3 076.5*	*3 095.2*	*2 939.2*	*3 060.7*	*31.7%*
Asia Oceania	*1 022.1*	*1 169.2*	*1 298.1*	*1 305.4*	*1 347.1*	*1 361.2*	*1 370.9*	*1 412.2*	*1 362.4*	*1 331.2*	*1 397.1*	*36.7%*
Annex I EIT	*1 851.5*	*1 484.9*	*1 496.5*	*1 576.0*	*1 603.8*	*1 632.8*	*1 692.8*	*1 717.9*	*1 739.9*	*1 646.9*	*1 727.9*	*-6.7%*
Non-Annex I Parties	*2 878.1*	*3 869.3*	*5 061.9*	*6 116.3*	*6 659.7*	*7 174.8*	*7 769.6*	*8 435.5*	*8 796.0*	*9 193.7*	*10 035.6*	*248.7%*
Annex I Kyoto Parties	*5 639.9*	*5 689.3*	*6 169.7*	*6 364.3*	*6 503.0*	*6 608.7*	*6 689.2*	*6 813.6*	*6 803.4*	*6 500.9*	*6 758.7*	*19.8%*
Non-OECD Total	**4 189.7**	**4 684.2**	**5 680.7**	**6 721.7**	**7 241.9**	**7 747.4**	**8 370.6**	**9 018.6**	**9 382.1**	**9 694.5**	**10 542.5**	**151.6%**
OECD Total	**7 629.3**	**8 545.5**	**9 729.8**	**9 982.9**	**10 253.0**	**10 500.2**	**10 573.6**	**10 780.0**	**10 796.1**	**10 392.8**	**10 854.4**	**42.3%**
Canada	482.0	560.0	605.6	589.5	599.9	626.0	613.4	638.9	640.9	613.9	607.8	26.1%
Chile	18.4	28.0	40.1	46.8	51.2	52.5	55.3	58.5	59.7	60.7	60.4	228.9%
Mexico	115.8	152.2	204.2	213.7	232.6	243.8	249.5	257.2	261.9	261.0	271.0	133.9%
United States	3 202.8	3 558.4	4 025.9	4 054.6	4 148.1	4 268.9	4 275.0	4 323.9	4 343.0	4 165.4	4 354.4	36.0%
OECD Americas	**3 819.1**	**4 298.7**	**4 875.7**	**4 904.7**	**5 031.8**	**5 191.2**	**5 193.2**	**5 278.6**	**5 305.5**	**5 101.1**	**5 293.6**	**38.6%**
Australia	154.3	172.8	209.9	226.2	236.3	228.3	232.5	242.9	243.1	244.4	241.5	56.5%
Israel	20.9	30.4	42.7	47.0	47.3	48.6	50.6	53.8	57.0	55.0	58.6	180.2%
Japan	835.5	960.3	1 049.0	1 038.4	1 068.3	1 089.9	1 094.8	1 125.5	1 075.5	1 043.4	1 110.8	32.9%
Korea	105.4	181.1	288.5	343.2	366.6	387.9	402.3	425.9	443.9	451.7	496.7	371.4%
New Zealand	32.3	36.1	39.2	40.8	42.5	43.0	43.6	43.8	43.8	43.5	44.8	38.9%
OECD Asia Oceania	**1 148.3**	**1 380.7**	**1 629.3**	**1 695.7**	**1 761.0**	**1 797.7**	**1 823.7**	**1 891.9**	**1 863.3**	**1 837.9**	**1 952.4**	**70.0%**
Austria	49.3	55.2	59.9	58.1	61.9	64.1	62.1	62.6	64.5	66.3	67.9	37.8%
Belgium	70.3	73.5	82.8	83.6	84.4	85.7	84.3	87.5	83.6	89.8	93.8	33.4%
Czech Republic	62.3	60.6	72.9	82.8	83.8	81.9	83.7	87.8	83.2	81.7	85.3	37.0%
Denmark	26.0	36.8	36.1	46.2	40.4	36.2	45.6	39.3	36.6	36.4	38.8	49.3%
Estonia	17.4	8.8	8.5	10.2	10.3	10.2	9.7	12.2	10.6	8.8	13.0	-25.5%
Finland	54.4	64.0	70.0	84.3	85.8	70.6	82.3	81.2	77.4	72.1	80.7	48.3%
France	417.2	491.1	536.1	561.8	569.1	571.5	569.3	564.1	569.3	530.9	564.3	35.3%
Germany	547.7	532.8	572.3	601.5	608.5	613.4	629.4	629.5	631.2	584.3	622.1	13.6%
Greece	34.8	41.3	53.4	57.9	58.8	59.4	60.2	62.7	62.9	61.1	57.4	65.0%
Hungary	28.4	34.0	35.2	34.1	33.7	35.8	35.9	40.0	40.0	35.9	37.4	31.4%
Iceland	4.5	5.0	7.7	8.5	8.6	8.7	9.9	12.0	16.5	16.8	17.1	278.2%
Ireland	14.2	17.6	23.7	24.9	25.2	25.6	27.1	27.8	29.9	28.0	28.4	99.8%
Italy	213.1	237.4	269.9	286.3	295.8	296.8	307.7	308.2	313.5	288.3	298.8	40.2%
Luxembourg	0.6	0.5	0.4	2.8	3.4	3.3	3.5	3.2	2.7	3.2	3.2	417.9%
Netherlands	71.9	80.9	89.6	96.8	102.4	100.2	98.4	105.2	107.6	113.5	118.1	64.2%
Norway	121.6	122.2	142.5	106.7	110.1	137.2	121.2	136.1	141.2	131.0	124.1	2.0%
Poland	134.4	137.0	143.2	150.0	152.6	155.4	160.8	158.8	154.7	151.1	157.1	16.9%
Portugal	28.4	33.2	43.4	46.5	44.8	46.2	48.6	46.9	45.5	49.5	53.7	89.4%
Slovak Republic	25.5	26.4	30.8	31.0	30.5	31.4	31.3	27.9	28.8	25.9	27.5	7.7%
Slovenia	12.4	12.9	13.6	13.8	15.3	15.1	15.1	15.0	16.4	16.4	16.2	30.6%
Spain	151.2	165.6	222.2	257.9	277.2	288.9	295.5	301.8	311.1	291.8	299.9	98.4%
Sweden	146.0	148.3	145.2	135.4	151.7	158.4	143.3	148.8	149.9	136.6	148.5	1.7%
Switzerland	55.0	62.2	66.1	65.4	63.9	57.8	62.1	66.4	67.0	66.7	66.1	20.1%
Turkey	57.5	86.2	124.9	140.6	150.7	162.0	176.3	191.6	198.4	194.8	211.2	267.0%
United Kingdom	317.8	332.5	374.4	395.5	391.3	395.4	393.4	392.9	384.6	373.1	378.0	19.0%
OECD Europe	**2 661.9**	**2 866.1**	**3 224.8**	**3 382.5**	**3 460.2**	**3 511.3**	**3 556.7**	**3 609.6**	**3 627.2**	**3 453.8**	**3 608.4**	**35.6%**
European Union - 27	*2 567.8*	*2 713.1*	*2 996.7*	*3 187.9*	*3 254.7*	*3 274.9*	*3 319.2*	*3 333.6*	*3 339.6*	*3 172.3*	*3 315.4*	*29.1%*

* 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	2003	2004	2005	2006	2007	2008	2009	2010	% change 90-10
Non-OECD Total	**4 189.7**	**4 684.2**	**5 680.7**	**6 721.7**	**7 241.9**	**7 747.4**	**8 370.6**	**9 018.6**	**9 382.1**	**9 694.5**	**10 542.5**	**151.6%**
Albania	3.2	4.4	4.7	5.0	5.6	5.4	5.5	2.9	3.8	5.2	7.6	137.0%
Armenia	10.4	5.6	6.0	5.5	6.0	6.3	5.9	5.9	5.8	5.7	6.5	-37.4%
Azerbaijan	23.2	17.0	18.7	21.3	21.6	21.2	23.6	21.8	21.6	18.9	18.7	-19.4%
Belarus	39.5	24.9	26.1	26.6	31.2	31.0	31.8	31.8	35.0	30.4	34.9	-11.7%
Bosnia and Herzegovina	14.6	4.4	10.4	11.3	12.7	12.6	13.3	11.8	14.8	15.7	17.1	17.0%
Bulgaria	42.1	41.8	40.6	42.3	41.4	44.0	45.5	42.9	44.6	42.4	46.0	9.2%
Croatia	9.2	8.9	10.6	12.6	13.2	12.4	12.3	12.1	12.2	12.7	14.0	52.0%
Cyprus	2.0	2.5	3.4	4.1	4.2	4.4	4.7	4.9	5.1	5.2	5.4	172.5%
Georgia	13.7	8.2	7.4	7.2	6.9	7.3	7.3	8.3	8.5	8.6	10.1	-26.2%
Gibraltar	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	124.1%
Kazakhstan	87.4	66.7	51.3	63.9	66.9	67.8	71.7	76.6	80.3	78.7	82.6	-5.4%
Kosovo *	..	..	3.0	3.6	4.1	4.5	4.4	4.8	5.2	5.0	5.2	..
Kyrgyzstan	15.7	14.3	16.0	15.6	16.3	16.4	17.1	16.2	11.9	11.1	11.4	-27.9%
Latvia	6.6	4.0	4.1	4.0	4.7	4.9	4.9	4.8	5.3	5.6	6.6	-0.3%
Lithuania	28.4	13.5	11.1	18.8	18.8	14.4	12.1	13.5	13.3	14.6	5.0	-82.4%
FYR of Macedonia	5.8	6.1	6.8	6.7	6.7	6.9	7.0	6.5	6.3	6.8	7.3	26.1%
Malta	1.1	1.6	1.9	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.1	92.1%
Republic of Moldova	16.2	6.1	3.4	3.4	3.6	3.8	3.8	3.8	3.6	3.5	3.6	-78.1%
Montenegro *	..	..	..	..	..	3.2	3.3	2.8	3.3	2.9	4.2	..
Romania	64.3	59.3	51.9	55.1	56.5	59.4	62.7	61.7	65.0	57.7	60.3	-6.3%
Russian Federation	1 082.2	859.0	876.5	914.3	929.9	951.2	993.9	1 013.4	1 038.4	990.0	1 036.1	-4.3%
Serbia *	40.9	34.5	34.1	35.4	37.7	36.5	36.5	36.6	36.8	37.7	37.4	-8.6%
Tajikistan	18.1	14.8	14.2	16.5	16.5	17.1	16.9	17.5	16.1	16.1	16.4	-9.6%
Turkmenistan	14.6	9.8	9.8	10.8	11.9	12.8	13.7	14.9	15.0	16.0	16.7	14.0%
Ukraine	298.6	193.8	171.3	180.2	182.0	185.9	193.2	196.1	192.5	173.6	188.6	-36.8%
Uzbekistan	56.3	47.5	46.9	49.4	50.0	49.2	50.9	49.0	49.4	50.0	51.7	-8.2%
Non-OECD Europe and Eurasia	**1 894.4**	**1 448.7**	**1 430.5**	**1 515.9**	**1 550.9**	**1 581.0**	**1 644.4**	**1 663.0**	**1 696.3**	**1 616.4**	**1 695.5**	**-10.5%**
Algeria	16.1	19.7	25.4	29.6	31.3	33.9	35.2	37.2	40.2	38.2	45.6	182.9%
Angola	0.8	1.0	1.4	2.0	2.2	2.8	3.3	3.2	4.2	4.7	5.3	525.0%
Benin	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	614.3%
Botswana	0.9	1.0	0.9	0.7	0.8	0.9	0.9	0.7	0.6	0.6	0.5	-49.6%
Cameroon	2.7	2.8	3.5	3.7	4.1	4.0	5.1	5.2	5.7	5.8	5.9	118.7%
Congo	0.5	0.4	0.3	0.4	0.4	0.4	0.5	0.4	0.5	0.5	0.6	13.4%
Dem. Rep. of Congo	5.7	6.2	6.0	6.2	7.1	7.4	7.5	7.9	7.5	7.8	7.9	39.5%
Côte d'Ivoire	2.0	2.9	4.8	5.1	5.5	5.7	5.7	5.6	5.8	5.9	6.0	202.2%
Egypt	42.3	52.0	78.1	95.2	101.3	108.7	115.4	125.1	131.0	139.0	146.8	247.4%
Eritrea	..	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	..
Ethiopia	1.2	1.5	1.7	2.3	2.5	2.8	3.3	3.5	3.8	4.0	5.0	314.3%
Gabon	1.0	1.1	1.3	1.5	1.5	1.6	1.7	1.7	1.8	1.9	1.8	88.9%
Ghana	5.7	6.1	7.2	5.9	6.0	6.8	8.4	7.0	8.3	8.9	8.4	46.2%
Kenya	3.2	4.1	4.2	5.2	5.6	6.0	6.5	6.7	6.8	6.9	7.5	131.9%
Libya	10.2	11.4	15.5	18.9	20.2	22.3	24.0	25.7	28.7	30.4	31.6	210.9%
Morocco	9.6	12.1	12.9	17.4	18.5	19.9	20.4	20.5	20.8	21.4	22.3	131.7%
Mozambique	0.5	0.4	9.7	10.9	11.7	13.3	14.7	16.1	15.1	17.0	16.7	+
Namibia	..	1.2	1.3	1.6	1.6	1.6	1.5	1.7	2.1	1.7	1.5	..
Nigeria	13.5	15.9	14.7	20.2	24.3	23.5	23.1	23.0	21.1	19.8	26.1	94.0%
Senegal	0.9	1.1	1.6	2.1	2.3	2.5	2.4	2.7	2.4	2.9	3.0	215.0%
South Africa	165.4	185.4	207.8	231.2	240.9	242.1	250.9	260.5	255.5	246.8	256.6	55.2%
Sudan	1.5	1.9	2.6	3.4	3.5	3.8	4.5	5.0	5.5	7.2	7.8	417.6%
United Rep. of Tanzania	1.6	1.9	2.5	2.7	2.9	3.6	3.5	4.2	4.4	4.2	4.4	172.7%
Togo	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	-17.7%
Tunisia	5.8	7.7	10.6	11.3	11.9	12.7	13.1	13.7	14.4	15.3	16.1	177.0%
Zambia	8.0	7.9	7.8	8.3	8.5	8.9	9.9	9.8	9.7	10.4	11.3	41.1%
Zimbabwe	9.4	7.8	7.0	8.8	9.7	10.3	8.5	8.5	7.0	7.4	8.1	-13.6%
Other Africa	7.4	8.9	11.9	13.3	14.0	14.3	14.3	15.3	16.0	16.3	16.9	129.4%
Africa	**316.0**	**362.9**	**441.2**	**508.3**	**538.8**	**560.4**	**584.9**	**611.8**	**619.6**	**625.5**	**664.2**	**110.2%**

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

Electricity output

terawatt hours

	1990	1995	2000	2003	2004	2005	2006	2007	2008	2009	2010	% change 90-10
Bangladesh	7.7	10.8	15.8	19.7	24.7	26.5	29.9	31.3	35.0	37.9	42.3	447.7%
Brunei Darussalam	1.2	2.0	2.5	3.2	3.3	3.3	3.3	3.4	3.4	3.6	3.9	229.5%
Cambodia	..	0.2	0.4	0.8	0.8	1.0	1.2	1.5	1.5	1.3	1.0	..
Chinese Taipei	88.4	129.1	180.6	205.2	215.1	223.5	231.6	239.2	234.8	226.4	243.9	176.0%
India	289.4	417.6	561.2	634.0	666.6	698.2	753.3	813.9	841.7	906.8	959.9	231.6%
Indonesia	32.7	59.2	93.3	114.5	120.2	127.4	133.1	142.2	149.4	156.8	169.8	419.7%
DPR of Korea	27.7	23.0	19.4	21.0	22.0	22.9	22.4	21.5	23.2	21.1	21.7	-21.8%
Malaysia	23.0	45.5	69.3	78.5	82.3	82.7	89.8	97.5	97.8	116.4	125.3	444.4%
Mongolia	3.5	2.7	3.0	3.2	3.4	3.5	3.6	3.8	4.1	4.2	4.5	29.1%
Myanmar	2.5	4.1	5.1	5.4	5.6	6.0	6.2	6.4	6.6	7.0	7.5	204.4%
Nepal	0.9	1.2	1.7	2.3	2.4	2.5	2.7	2.8	2.8	3.1	3.2	265.3%
Pakistan	37.7	57.0	68.1	80.8	85.7	93.8	98.4	95.7	91.6	95.4	94.5	150.7%
Philippines	26.3	33.6	45.3	52.9	56.0	56.6	56.8	59.6	60.8	61.9	67.7	157.3%
Singapore	15.7	22.2	31.7	35.3	36.8	38.2	39.4	41.1	41.7	41.8	45.4	188.7%
Sri Lanka	3.2	4.8	7.0	7.7	8.2	9.3	9.5	9.9	9.2	9.9	10.8	241.7%
Thailand	44.2	80.1	96.0	117.0	125.7	132.2	138.7	143.4	147.4	148.4	159.5	261.1%
Vietnam	8.7	14.6	26.6	40.9	46.2	53.7	60.5	67.0	73.4	83.2	94.9	993.2%
Other Asia	8.4	9.0	13.8	16.0	16.3	16.7	18.4	20.3	20.6	20.8	22.2	164.1%
Asia	**621.1**	**916.5**	**1 240.7**	**1 438.5**	**1 521.2**	**1 598.0**	**1 698.8**	**1 800.6**	**1 845.2**	**1 945.9**	**2 078.0**	**234.6%**
People's Rep. of China	621.2	1 007.8	1 356.2	1 908.5	2 201.0	2 499.7	2 864.3	3 276.3	3 458.8	3 695.9	4 173.7	571.9%
Hong Kong, China	28.9	27.9	31.3	35.5	37.1	38.5	38.6	39.0	38.0	38.7	38.3	32.3%
China	**650.1**	**1 035.7**	**1 387.6**	**1 944.0**	**2 238.1**	**2 538.1**	**2 902.9**	**3 315.2**	**3 496.7**	**3 734.7**	**4 212.0**	**547.9%**
Argentina	50.7	67.0	88.9	92.0	100.2	105.5	97.5	103.6	121.6	121.9	125.3	146.9%
Bolivia	2.3	3.0	3.9	4.3	4.5	4.9	5.3	5.7	5.8	6.1	6.9	197.9%
Brazil	222.8	275.6	348.9	364.3	387.5	403.0	419.3	445.1	462.9	466.0	515.7	131.5%
Colombia	36.4	42.7	43.1	46.5	49.7	50.3	53.8	55.2	56.0	57.2	56.8	56.2%
Costa Rica	3.5	4.9	6.9	7.5	8.2	8.3	8.7	9.1	9.5	9.3	9.6	176.4%
Cuba	15.0	12.5	15.0	15.8	15.6	15.3	16.5	17.6	17.7	17.7	17.4	15.8%
Dominican Republic	3.7	5.5	8.5	13.3	11.8	12.6	13.8	14.4	15.2	15.0	15.9	330.3%
Ecuador	6.3	8.4	10.6	11.5	13.5	12.6	14.9	17.1	19.0	18.0	17.7	178.6%
El Salvador	2.2	3.3	3.4	4.4	4.5	4.8	5.7	5.8	6.0	5.8	6.0	169.6%
Guatemala	2.2	3.5	6.0	7.1	7.5	7.8	8.2	8.8	8.7	9.0	8.8	304.0%
Haiti	0.6	0.5	0.5	0.5	0.5	0.6	0.6	0.5	0.5	0.7	0.6	-1.7%
Honduras	2.3	2.7	3.7	4.5	4.9	5.6	6.0	6.3	6.5	6.6	6.7	190.4%
Jamaica	2.5	5.8	6.6	7.1	7.2	7.4	7.5	7.8	6.0	5.5	4.2	70.6%
Netherlands Antilles	0.8	1.0	1.1	1.2	1.2	1.2	1.2	1.3	1.2	1.3	1.3	63.2%
Nicaragua	1.5	1.9	2.4	2.8	2.9	3.1	3.1	3.2	3.4	3.5	3.7	151.1%
Panama	2.7	3.5	4.9	5.6	5.8	5.8	6.0	6.5	6.5	7.0	7.5	181.5%
Paraguay	27.2	42.2	53.5	51.8	51.9	51.2	53.8	53.7	55.5	55.0	54.1	98.9%
Peru	13.8	16.1	19.9	22.9	24.3	25.5	27.4	29.9	32.4	32.9	35.9	159.9%
Trinidad and Tobago	3.6	4.3	5.5	6.4	6.4	7.1	6.9	7.7	7.7	7.7	8.5	137.3%
Uruguay	7.4	6.3	7.6	8.6	5.9	7.7	5.6	9.4	8.8	8.9	10.8	45.2%
Venezuela	59.3	73.4	85.3	91.8	98.6	105.5	112.4	114.6	119.3	119.6	118.3	99.4%
Other Non-OECD Americas	22.2	27.8	32.4	35.7	36.4	37.3	37.8	37.8	36.5	36.6	37.4	68.4%
Non-OECD Americas	**489.0**	**612.1**	**758.7**	**805.7**	**849.0**	**883.1**	**911.8**	**961.2**	**1 006.5**	**1 011.4**	**1 069.0**	**118.6%**
Bahrain	3.5	4.6	6.3	7.8	8.4	8.9	9.7	10.9	11.9	12.1	13.2	280.0%
Islamic Republic of Iran	59.1	85.0	121.4	153.9	166.9	178.1	192.7	204.0	214.5	221.4	233.0	294.2%
Iraq	24.0	29.7	31.9	28.3	32.3	30.4	33.8	33.2	36.8	45.6	50.2	109.0%
Jordan	3.6	5.6	7.4	8.0	9.0	9.7	11.1	13.0	13.8	14.3	14.8	306.2%
Kuwait	18.5	23.7	32.3	39.8	41.3	43.7	47.6	48.8	51.7	53.2	57.0	208.6%
Lebanon	1.5	5.3	9.8	12.7	12.5	12.4	11.6	12.1	13.4	13.8	15.7	947.5%
Oman	4.5	6.5	9.1	10.7	11.5	12.6	13.3	14.2	15.8	17.8	19.8	340.3%
Qatar	4.8	6.0	9.1	12.0	13.2	14.4	17.1	19.5	21.6	24.8	28.1	484.1%
Saudi Arabia	69.2	97.8	126.2	153.0	159.9	176.1	181.4	190.5	204.2	217.1	240.1	246.9%
Syrian Arab Republic	11.6	16.6	25.2	29.5	32.1	34.9	37.3	38.6	41.0	43.3	46.4	299.7%
United Arab Emirates	17.1	25.0	39.9	49.5	52.4	60.7	66.8	76.1	86.3	90.6	97.7	472.2%
Yemen	1.7	2.4	3.4	4.1	4.4	4.8	5.4	6.0	6.5	6.7	7.8	366.4%
Middle East	**219.1**	**308.3**	**422.0**	**509.3**	**543.8**	**586.7**	**627.8**	**666.9**	**717.7**	**760.6**	**823.8**	**276.0%**

CO_2 emissions per kWh from electricity generation *

grammes CO_2 / kilowatt hour

	1990	1995	2000	2003	2004	2005	2006	2007	2008	2009	2010	Average 08-10
World	**525**	**526**	**526**	**537**	**539**	**541**	**544**	**547**	**540**	**534**	**529**	**534**
Annex I Parties	*494*	*472*	*466*	*470*	*461*	*460*	*454*	*460*	*446*	*424*	*422*	*431*
Annex II Parties	*484*	*469*	*466*	*470*	*463*	*458*	*449*	*455*	*439*	*419*	*419*	*426*
North America	*533*	*535*	*545*	*535*	*531*	*526*	*508*	*513*	*499*	*473*	*481*	*484*
Europe	*408*	*365*	*334*	*343*	*335*	*330*	*335*	*334*	*314*	*298*	*290*	*301*
Asia Oceania	*482*	*461*	*468*	*521*	*504*	*497*	*489*	*514*	*505*	*488*	*481*	*491*
Annex I EIT	*527*	*484*	*465*	*476*	*454*	*474*	*484*	*480*	*474*	*446*	*434*	*451*
Non-Annex I Parties	*630*	*658*	*649*	*654*	*668*	*666*	*673*	*665*	*662*	*664*	*651*	*659*
Annex I Kyoto Parties	*442*	*398*	*382*	*401*	*387*	*387*	*391*	*395*	*380*	*362*	*356*	*366*
Non-OECD Total	**577**	**604**	**606**	**623**	**635**	**641**	**652**	**644**	**643**	**642**	**628**	**638**
OECD Total	**497**	**482**	**478**	**479**	**471**	**466**	**458**	**465**	**449**	**433**	**433**	**439**
Canada	205	184	222	228	214	200	202	198	187	176	186	183
Chile	457	267	349	295	322	318	304	408	411	373	410	398
Mexico	549	539	559	571	495	509	482	479	430	455	455	447
United States	582	590	593	579	577	574	552	560	545	517	522	528
OECD Americas	**533**	**533**	**544**	**534**	**528**	**523**	**505**	**510**	**494**	**471**	**479**	**482**
Australia	817	810	853	918	899	859	859	850	847	852	841	847
Israel	827	820	765	805	809	776	774	770	712	694	689	699
Japan	435	412	402	446	429	431	420	454	440	416	416	424
Korea	520	554	529	476	503	487	491	481	487	525	533	515
New Zealand	109	89	165	213	196	237	231	196	215	167	150	177
OECD Asia Oceania	**492**	**481**	**487**	**520**	**512**	**502**	**497**	**514**	**507**	**503**	**501**	**504**
Austria	238	206	170	236	224	218	217	204	187	158	188	177
Belgium	347	361	291	278	285	275	263	254	254	218	220	230
Czech Republic	744	794	728	618	617	614	606	636	621	588	589	599
Denmark	668	587	449	474	403	369	459	425	398	398	360	385
Estonia	932	1 062	1 063	1 011	1 029	1 048	965	1 048	1 084	1 078	1 014	1 059
Finland	188	223	173	303	258	164	265	238	177	190	229	199
France	105	73	75	70	67	79	72	76	72	78	79	77
Germany	607	581	522	512	503	486	483	504	476	467	461	468
Greece	990	946	820	781	780	779	731	752	748	725	718	730
Hungary	496	512	469	502	448	372	373	368	351	313	317	327
Iceland	1	1	0	0	0	0	0	1	1	0	0	0
Ireland	740	727	642	600	575	584	537	510	471	452	458	460
Italy	575	545	498	511	497	486	509	475	452	411	406	423
Luxembourg	2 552	1 738	528	403	393	389	387	381	385	376	410	390
Netherlands	607	546	477	484	467	454	452	455	442	420	415	425
Norway	1	2	1	3	3	2	3	4	3	11	17	10
Poland	988	905	866	849	833	818	821	820	815	799	781	798
Portugal	519	576	486	422	465	521	431	396	394	379	255	343
Slovak Republic	389	364	245	256	233	221	214	220	207	210	197	205
Slovenia	362	326	343	376	345	349	362	375	332	318	325	325
Spain	427	453	430	378	382	397	369	387	327	297	238	287
Sweden	12	22	22	37	23	19	23	17	18	19	30	22
Switzerland	24	23	25	27	28	32	33	30	29	26	27	27
Turkey	568	512	529	451	426	438	452	494	511	496	460	489
United Kingdom	672	529	472	489	491	491	515	506	499	453	457	470
OECD Europe	**447**	**405**	**375**	**379**	**369**	**364**	**370**	**373**	**355**	**340**	**331**	**342**
European Union - 27	*493*	*442*	*401*	*403*	*391*	*387*	*391*	*395*	*374*	*357*	*347*	*359*

* CO_2 emissions from fossil fuels consumed for electricity generation, in both electricity-only and combined heat and power plants, divided by output of electricity generated from fossil fuels, nuclear, hydro (excl. pumped storage), geothermal, solar, wind, tide, wave, ocean and biofuels. Both main activity producers and autoproducers have been included in the calculation.

CO_2 emissions per kWh from electricity generation

grammes CO_2 / kilowatt hour

	1990	1995	2000	2003	2004	2005	2006	2007	2008	2009	2010	Average 08-10
Non-OECD Total	**577**	**604**	**606**	**623**	**635**	**641**	**652**	**644**	**643**	**642**	**628**	**638**
Albania	163	38	43	33	30	26	26	31	-	1	2	2
Armenia	495	211	238	143	114	131	130	157	159	102	92	118
Azerbaijan	1 147	822	833	653	677	650	671	570	534	499	439	491
Belarus	548	500	472	443	463	459	461	452	465	466	449	460
Bosnia and Herzegovina	713	176	824	883	772	797	852	1 007	830	806	723	786
Bulgaria	761	582	478	532	537	502	490	592	565	537	535	546
Croatia	408	353	337	434	314	331	337	422	367	291	236	298
Cyprus	838	822	838	833	772	788	758	761	759	743	697	733
Georgia	574	510	225	62	89	101	147	161	79	123	69	90
Gibraltar	776	766	760	755	766	761	751	751	757	757	762	758
Kazakhstan	611	560	692	634	584	570	839	658	541	433	403	459
Kosovo *	..	..	1 316	1 424	1 297	1 121	1 127	1 089	1 088	1 286	1 287	1 220
Kyrgyzstan	165	99	72	72	68	58	56	61	57	57	59	58
Latvia	117	137	136	130	97	89	113	107	114	96	120	110
Lithuania	158	65	99	63	68	101	100	88	83	84	337	168
FYR of Macedonia	917	879	797	809	797	791	783	871	905	799	685	797
Malta	1 587	957	819	946	913	1 034	954	1 012	849	850	872	857
Republic of Moldova	723	748	829	753	526	529	506	530	510	526	517	518
Montenegro *	..	..	..	..	..	341	386	352	456	274	405	379
Romania	855	741	579	643	528	493	521	542	512	472	413	466
Russian Federation	406	363	394	412	402	436	445	428	426	402	384	404
Serbia *	892	1 001	885	920	883	764	817	750	772	766	718	752
Tajikistan	68	25	26	17	22	21	21	20	20	17	14	17
Turkmenistan	686	931	872	872	872	872	872	872	927	865	954	915
Ukraine	654	566	400	435	360	397	430	440	447	390	392	410
Uzbekistan	624	572	629	607	588	588	583	609	543	566	550	553
Non-OECD Europe and Eurasia	**507**	**449**	**440**	**455**	**431**	**451**	**476**	**462**	**454**	**424**	**407**	**428**
Algeria	631	633	620	632	632	606	621	597	596	643	548	596
Angola	343	177	499	510	290	273	260	300	330	465	440	412
Benin	1 200	951	601	752	740	709	698	662	679	719	720	706
Botswana	1 791	1 800	1 876	2 029	2 190	2 073	1 927	1 587	1 789	1 953	2 517	2 086
Cameroon	13	10	10	31	28	40	83	162	161	196	207	188
Congo	6	9	-	82	97	103	102	102	108	245	142	165
Dem. Rep. of Congo	4	4	1	1	1	1	2	3	4	3	3	3
Côte d'Ivoire	205	275	379	384	356	457	385	409	449	389	445	428
Egypt	521	443	343	397	489	474	473	450	460	466	450	458
Eritrea	..	1 463	698	694	711	666	679	655	669	672	646	662
Ethiopia	136	42	11	6	6	3	3	44	119	122	7	82
Gabon	270	255	326	315	328	383	348	424	350	357	383	364
Ghana	-	3	66	278	85	147	276	360	215	187	259	221
Kenya	51	73	454	141	217	247	258	248	322	396	274	331
Libya	779	1 131	1 022	978	888	907	879	846	885	872	885	881
Morocco	783	928	831	804	822	804	794	777	775	690	718	728
Mozambique	241	64	5	3	3	1	1	1	0	1	1	1
Namibia	..	37	5	13	1	29	95	100	424	237	197	286
Nigeria	420	371	338	330	362	359	385	385	386	416	405	402
Senegal	889	881	940	626	674	741	751	635	590	645	637	624
South Africa	849	884	893	849	871	851	831	827	948	906	927	927
Sudan	325	465	508	603	607	549	530	503	488	369	344	400
United Rep. of Tanzania	152	284	192	51	121	361	431	248	243	306	329	293
Togo	422	185	561	216	442	352	459	404	206	202	195	201
Tunisia	651	588	574	489	477	469	492	506	494	472	463	476
Zambia	11	7	7	7	6	6	5	3	3	3	3	3
Zimbabwe	714	920	740	515	572	572	658	660	660	660	660	660
Other Africa	374	322	366	438	442	451	496	475	484	477	477	479
Africa	**670**	**690**	**649**	**628**	**649**	**634**	**627**	**616**	**667**	**641**	**637**	**648**

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

CO_2 emissions per kWh from electricity generation

grammes CO_2 / kilowatt hour

	1990	1995	2000	2003	2004	2005	2006	2007	2008	2009	2010	Average 08-10
Bangladesh	554	601	556	574	546	553	574	567	574	585	593	584
Brunei Darussalam	924	880	795	780	782	762	802	703	755	755	717	742
Cambodia	..	805	834	787	806	793	797	805	820	816	804	813
Chinese Taipei	463	533	625	649	644	649	657	653	648	635	624	636
India	812	901	920	892	931	923	922	946	950	945	912	936
Indonesia	679	592	654	716	708	719	736	768	747	745	709	734
DPR of Korea	566	481	584	542	528	522	533	469	481	499	465	482
Malaysia	677	543	495	539	561	618	598	611	653	600	727	660
Mongolia	724	1 293	1 105	968	878	889	843	957	854	859	949	887
Myanmar	510	508	457	484	436	395	374	357	308	199	262	256
Nepal	-	26	12	1	6	7	5	4	4	4	1	3
Pakistan	408	405	479	371	397	380	413	433	451	458	425	445
Philippines	341	463	493	449	448	491	429	443	483	475	481	480
Singapore	908	933	762	592	561	539	528	524	515	485	499	500
Sri Lanka	2	51	448	488	513	476	335	394	420	432	379	410
Thailand	626	605	567	536	543	535	511	546	529	513	513	518
Vietnam	552	301	427	381	438	447	435	426	406	384	432	407
Other Asia	310	256	252	341	379	370	319	300	284	296	296	292
Asia	**663**	**704**	**729**	**707**	**725**	**724**	**723**	**743**	**746**	**740**	**728**	**738**
People's Rep. of China	897	907	869	859	879	864	861	822	803	800	766	790
Hong Kong, China	828	855	712	795	749	755	754	775	757	763	723	748
China	**894**	**906**	**865**	**858**	**877**	**863**	**859**	**822**	**803**	**800**	**766**	**790**
Argentina	394	273	338	275	308	313	366	391	365	363	367	365
Bolivia	307	400	314	318	295	329	326	334	375	393	423	397
Brazil	55	55	88	78	85	84	81	73	90	64	87	81
Colombia	208	205	160	152	117	131	127	127	107	176	176	153
Costa Rica	20	155	8	20	8	28	55	72	63	40	56	53
Cuba	765	858	690	815	820	832	767	750	733	1 063	1 012	936
Dominican Republic	845	876	759	700	704	649	668	675	634	591	589	604
Ecuador	187	314	215	256	291	378	423	328	256	313	389	319
El Salvador	67	391	324	335	312	301	310	315	273	276	223	258
Guatemala	74	296	392	435	323	299	345	369	343	349	286	326
Haiti	408	327	346	320	301	307	305	513	480	547	538	522
Honduras	10	327	281	352	451	411	267	420	409	346	332	362
Jamaica	757	888	824	822	618	572	400	400	491	544	711	582
Netherlands Antilles	717	714	714	714	713	711	710	708	707	707	707	707
Nicaragua	345	473	591	543	536	481	522	533	480	506	460	482
Panama	170	317	231	356	266	275	310	314	271	300	298	289
Paraguay	0	2	-	-	-	-	-	-	-	-	-	-
Peru	184	186	154	152	212	209	183	199	240	253	289	261
Trinidad and Tobago	708	711	685	753	751	759	753	753	704	719	700	707
Uruguay	43	53	57	2	151	103	296	104	307	253	81	214
Venezuela	323	219	191	265	222	208	222	208	203	205	264	224
Other Non-OECD Americas	223	216	215	238	236	229	228	238	253	252	252	252
Non-OECD Americas	**184**	**167**	**174**	**180**	**179**	**179**	**182**	**179**	**185**	**183**	**197**	**188**
Bahrain	1 061	815	868	883	881	873	824	837	651	665	640	652
Islamic Republic of Iran	603	606	574	529	542	541	549	546	582	578	565	575
Iraq	569	1 678	641	1 000	579	573	387	423	672	932	1 003	869
Jordan	815	834	708	680	682	660	626	587	589	581	566	578
Kuwait	887	578	780	721	727	799	786	782	778	870	842	830
Lebanon	1 835	678	737	674	599	591	706	662	715	717	709	714
Oman	762	830	795	853	885	861	885	874	853	842	794	830
Qatar	1 077	1 131	771	779	649	618	617	565	534	494	494	507
Saudi Arabia	831	813	805	737	754	739	749	726	736	757	737	743
Syrian Arab Republic	553	586	567	620	571	607	612	623	627	629	594	617
United Arab Emirates	743	737	728	805	913	844	820	720	729	631	598	653
Yemen	746	946	930	884	874	841	781	679	636	630	655	640
Middle East	**737**	**809**	**701**	**692**	**679**	**676**	**668**	**650**	**673**	**688**	**674**	**679**

CO_2 emissions per kWh from electricity generation using coal/peat *

grammes CO_2 / kilowatt hour

	1990	1995	2000	2003	2004	2005	2006	2007	2008	2009	2010	Average 08-10
World	**984**	**997**	**974**	**974**	**996**	**989**	**992**	**981**	**976**	**977**	**958**	**971**
Annex I Parties	*955*	*947*	*921*	*928*	*933*	*928*	*932*	*938*	*920*	*920*	*909*	*916*
Annex II Parties	*928*	*944*	*922*	*923*	*930*	*917*	*919*	*926*	*911*	*915*	*911*	*912*
North America	*915*	*950*	*923*	*922*	*927*	*916*	*910*	*923*	*903*	*908*	*908*	*906*
Europe	*927*	*916*	*897*	*888*	*909*	*900*	*925*	*921*	*914*	*909*	*901*	*908*
Asia Oceania	*1 021*	*973*	*964*	*985*	*973*	*945*	*950*	*949*	*942*	*947*	*940*	*943*
Annex I EIT	*1 086*	*958*	*901*	*956*	*948*	*1 009*	*1 010*	*1 001*	*961*	*941*	*875*	*926*
Non-Annex I Parties	*1 076*	*1 108*	*1 070*	*1 040*	*1 077*	*1 063*	*1 057*	*1 022*	*1 028*	*1 022*	*996*	*1 015*
Annex I Kyoto Parties	*996*	*944*	*917*	*932*	*939*	*941*	*955*	*947*	*930*	*931*	*906*	*923*
Non-OECD Total	**1 085**	**1 084**	**1 052**	**1 040**	**1 075**	**1 072**	**1 065**	**1 032**	**1 032**	**1 024**	**990**	**1 015**
OECD Total	**940**	**950**	**927**	**925**	**932**	**918**	**922**	**926**	**914**	**918**	**917**	**916**
Canada	1 010	992	934	915	958	898	921	851	812	928	923	888
Chile	1 033	890	1 005	1 167	850	923	866	875	958	873	887	906
Mexico	921	1 110	1 046	1 011	992	974	963	957	1 001	970	952	974
United States	911	948	922	922	926	917	909	927	908	907	907	907
OECD Americas	**916**	**951**	**924**	**923**	**928**	**917**	**910**	**923**	**904**	**909**	**908**	**907**
Australia	946	933	964	1 070	1 046	997	999	999	997	1 002	1 000	1 000
Israel	882	847	851	838	830	797	834	836	837	832	840	836
Japan	1 100	1 007	961	930	925	911	917	916	906	909	902	906
Korea	2 017	1 250	1 010	958	1 007	990	999	913	908	940	960	936
New Zealand	901	793	1 319	1 113	1 094	1 045	1 076	1 154	1 054	1 118	1 284	1 152
OECD Asia Oceania	**1 081**	**1 003**	**967**	**972**	**974**	**948**	**957**	**935**	**929**	**941**	**942**	**938**
Austria	951	1 061	894	907	982	997	1 010	1 066	1 011	1 050	1 059	1 040
Belgium	1 002	1 038	992	1 092	1 136	1 180	1 259	1 301	1 438	1 131	1 230	1 266
Czech Republic	960	1 061	941	945	957	944	953	973	987	975	994	985
Denmark	705	658	614	693	656	637	693	688	668	657	647	658
Estonia	1 013	1 079	1 128	1 055	1 071	1 105	1 021	1 081	1 141	1 162	1 124	1 143
Finland	636	666	707	768	774	721	761	741	736	685	722	714
France	1 053	1 111	1 020	956	976	966	1 003	1 012	1 036	1 048	949	1 011
Germany	932	936	879	870	900	867	904	907	896	906	889	897
Greece	1 137	1 126	992	998	1 015	1 009	1 019	991	1 009	1 000	1 025	1 012
Hungary	1 168	1 066	1 037	1 114	1 154	1 099	1 046	1 049	1 060	1 075	1 101	1 078
Iceland	-	-	-	-	-	-	-	-	-	-	-	-
Ireland	917	923	898	908	881	874	844	857	812	833	869	838
Italy	963	987	974	967	975	998	1 173	1 008	1 019	963	968	983
Luxembourg	3 170	3 701	-	-	-	-	-	-	-	-	-	-
Netherlands	884	864	842	850	861	857	821	839	842	810	830	827
Norway	1 411	864	1 041	935	1 025	1 060	1 057	1 065	1 118	1 156	2 146	1 473
Poland	1 005	916	882	869	858	858	863	866	873	870	865	869
Portugal	886	854	865	838	843	857	859	849	848	853	873	858
Slovak Republic	954	1 031	947	1 065	974	982	1 000	1 010	990	1 012	1 001	1 001
Slovenia	1 036	836	985	981	986	971	978	993	984	964	953	967
Spain	936	911	917	910	891	886	901	943	901	926	937	921
Sweden	637	525	866	747	820	988	906	827	690	780	796	755
Switzerland	665	..	-	-	-	-	-	-	-	-	-	-
Turkey	1 199	1 132	1 085	1 068	1 045	918	1 017	1 039	1 038	1 023	1 059	1 040
United Kingdom	910	880	927	916	936	941	933	938	931	933	924	929
OECD Europe	**949**	**933**	**911**	**900**	**915**	**903**	**925**	**927**	**925**	**920**	**917**	**921**
European Union - 27	*952*	*938*	*908*	*902*	*917*	*910*	*928*	*928*	*926*	*920*	*915*	*920*

* CO_2 emissions from coal and peat consumed for electricity generation, in both electricity-only and combined heat and power (CHP) plants, divided by output of electricity generated from coal. Both main activity producers and autoproducers have been included in the calculation. This indicator is not available when electricity output is very small or where inputs to electricity generation do not match electricity output.

CO_2 emissions per kWh from electricity generation using coal/peat

grammes CO_2 / kilowatt hour

	1990	1995	2000	2003	2004	2005	2006	2007	2008	2009	2010	Average 08-10
Non-OECD Total	**1 085**	**1 084**	**1 052**	**1 040**	**1 075**	**1 072**	**1 065**	**1 032**	**1 032**	**1 024**	**990**	**1 015**
Albania	-	-	-	-	-	-	-	-	-	-	-	-
Armenia	-	-	-	-	-	-	-	-	-	-	-	-
Azerbaijan	-	-	-	-	-	-	-	-	-	-	-	-
Belarus	-	-	-	1 432	1 433	1 484	1 732	1 260	1 886	1 386	1 014	1 429
Bosnia and Herzegovina	896	977	1 615	1 479	1 463	1 532	1 532	1 535	1 235	1 346	1 368	1 316
Bulgaria	1 237	1 138	1 033	1 082	1 110	1 133	1 112	1 070	1 041	1 040	1 055	1 045
Croatia	1 086	1 037	894	859	913	896	863	862	858	882	866	868
Cyprus	-	-	-	-	-	-	-	-	-	-	-	-
Georgia	-	-	-	-	-	-	-	-	-	-	-	-
Gibraltar	-	-	-	-	-	-	-	-	-	-	-	-
Kazakhstan	632	610	773	716	666	611	1 008	731	584	446	429	486
Kosovo *	..	..	1 341	1 448	1 336	1 151	1 154	1 112	1 106	1 319	1 330	1 252
Kyrgyzstan	576	678	814	1 029	866	593	593	586	897	634	1 122	884
Latvia	855	1 241	1 504	1 053	-	-	-	..	..	..	..	..
Lithuania	-	-	-	-	-	-	945	1 013	1 113	-	-	1 113
FYR of Macedonia	964	1 010	970	1 016	1 023	1 007	1 036	1 053	1 050	989	1 033	1 024
Malta	1 167	1 382	-	-	-	-	-	-	-	-	-	-
Republic of Moldova	878	816	1 178	1 163	-	-	-	-	-	-	-	-
Montenegro *	..	..	..	..	..	1 102	1 052	1 135	1 162	1 160	1 328	1 217
Romania	1 045	1 242	1 032	1 042	1 068	1 066	1 053	1 097	1 089	1 089	1 060	1 079
Russian Federation	1 115	761	792	914	908	1 068	1 088	1 045	914	919	720	851
Serbia *	1 213	1 573	1 386	1 295	1 273	1 176	1 189	1 049	1 053	1 061	1 051	1 055
Tajikistan	-	-	-	-	-	-	-	-	-	-	-	-
Turkmenistan	-	-	-	-	-	-	-	-	-	-	-	-
Ukraine	1 183	1 257	1 070	1 149	1 119	1 203	1 115	1 121	1 124	952	975	1 017
Uzbekistan	1 817	1 582	1 566	1 565	1 565	1 567	1 565	1 566	1 565	1 565	1 565	1 565
Non-OECD Europe and Eurasia	**1 065**	**945**	**921**	**986**	**968**	**1 037**	**1 094**	**1 026**	**939**	**897**	**809**	**882**
Algeria	-	-	-	-	-	-	-	-	-	-	-	-
Angola	-	-	-	-	-	-	-	-	-	-	-	-
Benin	-	-	-	-	-	-	-	-	-	-	-	-
Botswana	1 885	1 815	1 900	2 068	2 268	2 081	1 933	1 591	1 789	1 953	2 517	2 086
Cameroon	-	-	-	-	-	-	-	-	-	-	-	-
Congo	-	-	-	-	-	-	-	-	-	-	-	-
Dem. Rep. of Congo	-	-	-	-	-	-	-	-	-	-	-	-
Côte d'Ivoire	-	-	-	-	-	-	-	-	-	-	-	-
Egypt	-	-	-	-	-	-	-	-	-	-	-	-
Eritrea	..	-	-	-	-	-	-	-	-	-	-	-
Ethiopia	-	-	-	-	-	-	-	-	-	-	-	-
Gabon	-	-	-	-	-	-	-	-	-	-	-	-
Ghana	-	-	-	-	-	-	-	-	-	-	-	-
Kenya	-	-	-	-	-	-	-	-	-	-	-	-
Libya	-	-	-	-	-	-	-	-	-	-	-	-
Morocco	1 242	1 020	938	914	910	920	929	940	964	928	968	953
Mozambique	883	-	-	-	-	-	-	-	-	-	-	-
Namibia	..	1 346	1 262	1 403	..	1 503	1 388	1 339	1 333	1 336	1 331	1 333
Nigeria	1 656	-	-	-	-	-	-	-	-	-	-	-
Senegal	-	-	-	-	-	-	-	-	-	-	-	-
South Africa	900	944	960	902	928	900	878	870	1 005	963	982	983
Sudan	-	-	-	-	-	-	-	-	-	-	-	-
United Rep. of Tanzania	-	1 116	1 107	1 114	1 113	1 111	1 106	1 112	1 127	1 140	1 143	1 137
Togo	-	-	-	-	-	-	-	-	-	-	-	-
Tunisia	-	-	-	-	-	-	-	-	-	-	-	-
Zambia	1 703	1 718	1 636	1 575	1 527	1 575	1 636	2 290	2 290	2 290	2 290	2 290
Zimbabwe	1 338	1 287	1 383	1 311	1 321	1 321	1 321	1 321	1 321	1 322	1 322	1 322
Other Africa	956	956	955	955	955	956	955	956	956	956	955	955
Africa	**923**	**962**	**970**	**913**	**938**	**913**	**892**	**883**	**1 010**	**969**	**990**	**990**

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

CO_2 emissions per kWh from electricity generation using coal/peat

grammes CO_2 / kilowatt hour

	1990	1995	2000	2003	2004	2005	2006	2007	2008	2009	2010	Average 08-10
Bangladesh	-	-	-	-	-	1 405	1 391	1 390	1 390	1 390	1 390	1 390
Brunei Darussalam	-	-	-	-	-	-	-	-	-	-	-	-
Cambodia	..	-	-	-	-	-	-	-	-	1 070	1 027	1 048
Chinese Taipei	983	853	941	921	919	925	934	931	945	928	926	933
India	1 125	1 177	1 206	1 167	1 230	1 250	1 253	1 299	1 247	1 237	1 195	1 226
Indonesia	938	941	974	1 025	983	1 023	998	1 051	1 078	1 069	1 084	1 077
DPR of Korea	1 294	1 253	1 217	1 208	1 208	1 208	1 208	1 208	1 208	1 208	1 208	1 208
Malaysia	1 077	1 077	754	1 076	1 076	1 076	1 076	1 076	1 196	1 077	1 182	1 152
Mongolia	683	1 294	1 103	962	869	883	835	951	844	851	943	879
Myanmar	1 196	-	-	1 034	1 034	1 036	1 035	1 035	1 032	1 032	1 034	1 033
Nepal	-	-	-	-	-	-	-	-	-	-	-	-
Pakistan	1 836	1 581	1 491	1 920	2 053	2 316	2 616	2 636	2 137	2 363	2 392	2 298
Philippines	1 020	1 436	960	933	897	1 138	1 021	989	1 221	1 138	920	1 093
Singapore	-	-	-	-	-	-	-	-	-	-	-	-
Sri Lanka	-	-	-	-	-	-	-	-	-	-	-	-
Thailand	957	984	965	990	989	974	800	975	938	923	932	931
Vietnam	1 790	1 415	1 479	958	1 402	988	988	988	987	987	988	987
Other Asia	-	-	980	980	981	983	981	982	981	980	980	980
Asia	**1 101**	**1 123**	**1 131**	**1 100**	**1 141**	**1 157**	**1 151**	**1 189**	**1 173**	**1 160**	**1 132**	**1 155**
People's Rep. of China	1 164	1 165	1 067	1 046	1 091	1 066	1 049	997	1 002	1 001	967	990
Hong Kong, China	832	856	869	890	881	881	888	891	898	888	885	890
China	**1 144**	**1 154**	**1 063**	**1 043**	**1 087**	**1 064**	**1 047**	**996**	**1 001**	**999**	**967**	**989**
Argentina	3 655	2 026	1 246	1 709	1 420	1 372	1 229	1 155	1 146	1 139	1 111	1 132
Bolivia	-	-	-	-	-	-	-	-	-	-	-	-
Brazil	1 691	1 565	1 507	1 637	1 450	1 505	1 617	1 571	1 413	1 456	1 563	1 477
Colombia	1 170	1 155	1 101	1 208	1 137	1 150	1 068	952	1 055	1 109	1 105	1 089
Costa Rica	-	-	-	-	-	-	-	-	-	-	-	-
Cuba	-	-	-	-	-	-	-	-	-	-	-	-
Dominican Republic	946	952	955	954	954	954	953	954	953	954	953	953
Ecuador	-	-	-	-	-	-	-	-	-	-	-	-
El Salvador	-	-	-	-	-	-	-	-	-	-	-	-
Guatemala	-	-	954	954	954	953	953	953	954	954	953	954
Haiti	-	-	-	-	-	-	-	-	-	-	-	-
Honduras	-	-	-	-	-	-	-	-	-	-	-	-
Jamaica	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands Antilles	-	-	-	-	-	-	-	-	-	-	-	-
Nicaragua	-	-	-	-	-	-	-	-	-	-	-	-
Panama	-	-	-	-	-	-	-	-	-	-	-	-
Paraguay	-	-	-	-	-	-	-	-	-	-	-	-
Peru	-	-	1 112	1 112	1 112	1 112	1 112	1 113	1 112	1 279	1 252	1 214
Trinidad and Tobago	-	-	-	-	-	-	-	-	-	-	-	-
Uruguay	-	-	-	-	-	-	-	-	-	-	-	-
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-
Other Non-OECD Americas	-	-	-	-	-	-	-	-	-	-	-	-
Non-OECD Americas	**1 617**	**1 480**	**1 388**	**1 404**	**1 313**	**1 358**	**1 371**	**1 300**	**1 252**	**1 267**	**1 323**	**1 280**
Bahrain	-	-	-	-	-	-	-	-	-	-	-	-
Islamic Republic of Iran	601	605	..	..	..	..	..	..	..	..	..	..
Iraq	-	-	-	-	-	-	-	-	-	-	-	-
Jordan	-	-	-	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-	-	-	-
Lebanon	-	-	-	-	-	-	-	-	-	-	-	-
Oman	-	-	-	-	-	-	-	-	-	-	-	-
Qatar	-	-	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	-	-	-	-	-	-	-	-	-	-	-	-
Syrian Arab Republic	-	-	-	-	-	-	-	-	-	-	-	-
United Arab Emirates	-	-	-	-	-	-	-	-	-	-	-	-
Yemen	-	-	-	-	-	-	-	-	-	-	-	-
Middle East	**601**	**605**	**..**	**..**	**..**	**..**	**..**	**..**	**..**	**..**	**..**	**..**

CO_2 emissions per kWh from electricity generation using oil *

grammes CO_2 / kilowatt hour

	1990	1995	2000	2003	2004	2005	2006	2007	2008	2009	2010	Average 08-10
World	**731**	**732**	**737**	**748**	**745**	**760**	**754**	**743**	**755**	**787**	**796**	**779**
Annex I Parties	*675*	*629*	*694*	*682*	*694*	*707*	*688*	*686*	*679*	*666*	*654*	*666*
Annex II Parties	*658*	*636*	*688*	*676*	*687*	*701*	*683*	*680*	*671*	*656*	*643*	*657*
North America	*678*	*570*	*797*	*756*	*773*	*761*	*809*	*769*	*757*	*711*	*727*	*732*
Europe	*674*	*656*	*644*	*643*	*655*	*720*	*671*	*721*	*722*	*708*	*704*	*711*
Asia Oceania	*634*	*655*	*636*	*618*	*612*	*619*	*602*	*607*	*596*	*574*	*554*	*575*
Annex I EIT	*716*	*586*	*709*	*724*	*732*	*715*	*686*	*698*	*707*	*695*	*719*	*707*
Non-Annex I Parties	*819*	*838*	*768*	*799*	*779*	*795*	*788*	*772*	*790*	*833*	*844*	*822*
Annex I Kyoto Parties	*673*	*640*	*650*	*648*	*651*	*677*	*657*	*667*	*668*	*655*	*636*	*653*
Non-OECD Total	**792**	**811**	**777**	**798**	**796**	**808**	**798**	**787**	**809**	**848**	**859**	**839**
OECD Total	**674**	**662**	**696**	**693**	**686**	**705**	**687**	**679**	**665**	**661**	**657**	**661**
Canada	721	641	627	723	685	705	998	965	1 006	770	833	870
Chile	849	1 550	938	1 142	1 110	1 088	1 073	686	618	651	672	647
Mexico	781	770	780	991	744	780	754	761	731	758	755	748
United States	671	559	819	762	787	767	786	744	719	698	711	709
OECD Americas	**710**	**657**	**791**	**819**	**768**	**771**	**793**	**758**	**730**	**723**	**734**	**729**
Australia	832	898	912	749	929	886	880	891	897	912	881	896
Israel	772	777	578	695	888	848	866	844	704	797	857	786
Japan	631	652	632	616	608	614	595	602	587	560	543	563
Korea	765	714	560	495	529	589	610	570	544	569	575	563
New Zealand	..	857	-	781	911	781	679	-	734	625	-	679
OECD Asia Oceania	**648**	**669**	**618**	**600**	**607**	**623**	**613**	**608**	**594**	**576**	**562**	**578**
Austria	749	586	510	552	555	530	534	569	600	589	529	573
Belgium	458	439	741	825	828	752	742	720	575	669	537	594
Czech Republic	848	573	1 044	912	744	719	710	965	1 134	1 191	975	1 100
Denmark	610	665	694	508	504	492	494	518	501	509	667	559
Estonia	371	..	588	776	762	832	748	886	904	763	818	828
Finland	459	425	493	600	563	568	602	562	460	478	430	456
France	603	506	547	551	627	869	788	809	805	950	766	841
Germany	817	522	641	690	453	954	555	670	641	648	583	624
Greece	746	737	731	749	721	714	695	731	753	763	769	762
Hungary	734	751	688	741	910	913	977	935	861	701	860	807
Iceland	520	694	624	520	781	624	781	..	..	..	..	..
Ireland	756	736	696	792	766	741	758	653	655	727	703	695
Italy	672	663	704	690	723	710	745	778	782	718	823	774
Luxembourg	1 021	1 226	-	..	..	-	-	-	..	-	-	..
Netherlands	695	729	646	493	498	488	527	505	504	461	513	493
Norway	..	-	406	322	370	356	359	485	431	397	331	386
Poland	820	650	608	586	605	519	523	506	503	488	463	484
Portugal	707	737	635	660	648	648	623	615	632	607	559	600
Slovak Republic	380	519	477	440	395	408	422	407	435	614	674	574
Slovenia	480	1 375	689	621	612	634	607	811	811	687	1 049	849
Spain	805	795	630	645	660	696	603	723	718	671	674	688
Sweden	308	321	359	350	404	392	393	395	382	672	385	480
Switzerland	718	714	365	352	346	398	405	412	387	389	430	402
Turkey	899	951	870	688	711	681	758	686	723	796	779	766
United Kingdom	660	672	468	745	696	682	623	694	726	813	738	759
OECD Europe	**675**	**666**	**658**	**646**	**657**	**713**	**670**	**713**	**715**	**706**	**698**	**706**
European Union - 27	*704*	*661*	*652*	*654*	*662*	*722*	*676*	*722*	*719*	*706*	*701*	*709*

* CO_2 emissions from oil consumed for electricity generation, in both electricity-only and combined heat and power plants, divided by output of electricity generated from oil. Both main activity producers and autoproducers have been included in the calculation. This indicator is not available when electricity output is very small or where inputs to electricity generation do not match electricity output.

CO_2 emissions per kWh from electricity generation using oil

grammes CO_2 / kilowatt hour

	1990	1995	2000	2003	2004	2005	2006	2007	2008	2009	2010	Average 08-10
Non-OECD Total	**792**	**811**	**777**	**798**	**796**	**808**	**798**	**787**	**809**	**848**	**859**	**839**
Albania	884	622	1 361	1 439	1 187	2 023	1 523	1 240	-	..	..	..
Armenia	578	306	-	-	-	-	-	-	-	-	-	-
Azerbaijan	722	828	885	885	1 058	1 006	1 080	882	858	860	575	764
Belarus	687	696	653	560	638	584	582	610	638	586	611	612
Bosnia and Herzegovina	947	1 977	1 085	1 051	1 044	1 043	1 041	1 041	1 021	864	809	898
Bulgaria	469	622	707	786	663	742	711	749	770	699	806	758
Croatia	760	647	752	732	716	684	680	693	669	650	548	622
Cyprus	838	822	838	833	772	789	758	761	761	750	714	742
Georgia	..	..	..	..	..	..	..	..	..	..	..	..
Gibraltar	776	766	760	755	766	761	751	751	757	757	762	758
Kazakhstan	1 217	1 033	919	919	918	916	890	889	913	919	919	917
Kosovo *	..	..	1 143	1 074	1 074	1 034	963	901	846	824	844	838
Kyrgyzstan	-	-	-	-	-	-	-	-	-	-	-	-
Latvia	527	521	734	515	550	436	948	693	515	696	969	727
Lithuania	511	593	544	778	776	783	814	603	525	521	518	522
FYR of Macedonia	1 189	912	780	994	1 277	1 312	782	802	873	834	977	895
Malta	2 119	932	819	946	913	1 034	954	1 012	849	850	872	857
Republic of Moldova	926	1 990	2 918	2 791	717	763	765	-	697	682	687	689
Montenegro *	..	..	..	..	..	-	-	-	-	-	-	-
Romania	1 272	647	603	611	619	595	580	627	670	638	582	630
Russian Federation	634	515	733	759	770	761	715	729	753	755	837	781
Serbia *	902	914	914	915	917	780	1 080	703	823	1 028	767	873
Tajikistan	-	-	-	-	-	-	-	-	-	-	-	-
Turkmenistan	-	-	-	-	-	-	-	-	-	-	-	-
Ukraine	856	805	630	739	810	966	989	965	966	946	587	833
Uzbekistan	3 012	795	777	777	777	778	778	778	778	780	783	780
Non-OECD Europe and Eurasia	**778**	**656**	**777**	**786**	**810**	**816**	**797**	**796**	**777**	**745**	**784**	**769**
Algeria	1 050	1 178	863	864	869	948	961	916	914	936	998	949
Angola	..	..	1 353	1 349	1 341	1 339	1 341	1 342	1 342	1 343	1 344	1 343
Benin	1 200	951	616	771	749	716	716	671	688	725	724	712
Botswana	1 091	1 054	1 051	1 085	1 055	1 026	1 026	1 026	-	-	-	-
Cameroon	852	893	919	733	600	698	739	705	739	711	858	769
Congo	1 058	1 587	-	-	-	-	-	-	-	1 092	1 050	1 071
Dem. Rep. of Congo	1 012	1 219	1 058	907	794	907	1 058	907	747	1 058	1 058	954
Côte d'Ivoire	616	692	970	1 042	718	933	968	1 037	1 047	857	857	920
Egypt	952	808	280	325	966	810	743	621	632	606	529	589
Eritrea	..	1 463	702	696	713	668	684	659	674	676	650	667
Ethiopia	1 164	641	828	794	882	794	953	960	959	1 094	1 127	1 060
Gabon	895	803	777	677	681	699	709	689	659	660	659	659
Ghana	-	836	772	823	745	860	827	772	842	812	1 583	1 079
Kenya	712	715	896	896	898	898	897	899	899	899	899	899
Libya	779	1 290	1 144	1 067	943	1 003	1 078	1 077	1 087	1 087	1 087	1 087
Morocco	773	932	741	797	915	872	832	740	768	732	820	773
Mozambique	504	907	1 058	840	814	907	794	1 058	-	-	-	-
Namibia	..	833	-	..	-	666	740	740	666	740	740	716
Nigeria	772	729	725	727	726	725	725	725	724	725	726	725
Senegal	941	980	1 045	845	876	917	871	709	678	733	723	711
South Africa	-	819	-	-	-	-	-	753	748	771	751	757
Sudan	884	972	942	922	891	819	760	708	665	665	673	668
United Rep. of Tanzania	3 135	1 495	1 488	1 459	1 499	924	919	891	924	1 001	1 078	1 001
Togo	1 058	1 058	1 309	732	799	589	798	842	847	847	819	837
Tunisia	831	921	907	817	764	781	741	731	718	727	..	722
Zambia	1 091	917	922	896	896	847	690	859	967	803	850	873
Zimbabwe	-	-	1 539	2 963	1 965	2 117	2 117	2 117	2 117	2 117	2 117	2 117
Other Africa	673	574	621	740	764	763	760	738	753	724	724	734
Africa	**850**	**935**	**664**	**758**	**902**	**875**	**853**	**780**	**799**	**785**	**774**	**786**

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

CO_2 emissions per kWh from electricity generation using oil

grammes CO_2 / kilowatt hour

	1990	1995	2000	2003	2004	2005	2006	2007	2008	2009	2010	Average 08-10
Bangladesh	1 101	1 004	1 078	1 079	1 013	1 091	1 091	1 117	1 117	1 118	1 118	1 118
Brunei Darussalam	866	847	690	762	766	766	819	770	770	772	752	765
Cambodia	..	805	836	842	848	845	843	842	856	851	839	849
Chinese Taipei	692	696	688	749	790	804	782	829	825	918	879	874
India	1 129	1 105	1 176	1 070	1 128	1 068	1 221	1 232	1 355	1 464	1 312	1 377
Indonesia	817	889	786	787	727	740	714	792	739	749	764	751
DPR of Korea	1 308	1 379	1 379	1 379	1 379	1 379	1 378	1 380	1 380	1 379	1 380	1 380
Malaysia	861	831	846	840	838	817	813	829	981	776	625	794
Mongolia	820	765	893	936	957	1 013	1 023	1 004	1 012	1 027	1 032	1 024
Myanmar	741	894	868	819	770	840	794	840	794	847	770	803
Nepal	-	827	755	850	971	1 062	1 042	1 129	1 129	1 042	1 129	1 100
Pakistan	890	757	755	675	795	692	749	719	731	762	766	753
Philippines	563	656	685	730	721	751	723	664	722	695	662	693
Singapore	909	1 151	834	835	835	830	833	844	836	837	836	837
Sri Lanka	1 231	696	826	855	803	758	657	657	763	716	798	759
Thailand	786	740	748	724	714	728	738	763	728	761	715	734
Vietnam	924	900	914	894	1 374	1 044	1 015	998	1 241	1 008	920	1 056
Other Asia	686	563	624	723	781	797	774	837	863	868	868	866
Asia	**812**	**808**	**826**	**837**	**842**	**818**	**825**	**855**	**874**	**901**	**887**	**887**
People's Rep. of China	817	817	863	866	831	826	828	834	858	836	1 043	913
Hong Kong, China	619	825	788	769	742	798	805	829	836	983	1 055	958
China	**815**	**818**	**863**	**866**	**830**	**826**	**828**	**834**	**858**	**838**	**1 044**	**913**
Argentina	1 093	632	1 013	1 132	922	808	767	764	750	746	733	743
Bolivia	941	948	953	947	947	943	938	943	940	946	945	944
Brazil	827	825	805	739	714	762	722	714	692	677	719	696
Colombia	890	891	864	874	877	877	874	871	871	893	894	886
Costa Rica	807	916	965	928	959	852	900	896	888	820	833	847
Cuba	853	915	766	905	922	913	838	819	809	1 204	1 130	1 048
Dominican Republic	940	995	834	751	806	768	766	794	684	643	685	671
Ecuador	873	810	761	739	729	978	1 165	920	751	744	926	807
El Salvador	984	927	773	784	688	719	727	719	719	633	639	664
Guatemala	888	881	780	824	830	849	816	803	806	797	797	800
Haiti	1 980	669	716	611	573	587	582	764	766	767	770	768
Honduras	556	845	737	578	646	619	423	670	661	627	616	634
Jamaica	819	923	852	839	635	591	415	413	511	569	759	613
Netherlands Antilles	717	714	714	714	713	711	710	708	707	707	707	707
Nicaragua	892	868	751	745	742	736	746	751	745	732	730	736
Panama	1 157	1 027	781	727	782	769	796	735	721	693	692	702
Paraguay	898	926	-	-	-	-	-	-	-	-	-	-
Peru	802	965	881	841	812	1 142	934	1 425	1 131	1 000	981	1 037
Trinidad and Tobago	..	..	..	..	..	..	..	..	..	..	661	661
Uruguay	844	826	860	1 435	820	824	843	807	786	811	751	783
Venezuela	895	1 200	890	915	936	907	998	930	886	872	947	902
Other Non-OECD Americas	240	229	211	229	229	222	221	232	247	249	249	248
Non-OECD Americas	**681**	**665**	**634**	**651**	**638**	**645**	**636**	**634**	**637**	**672**	**695**	**668**
Bahrain	-	-	-	-	-	-	1 312	1 314	1 231	-	-	1 231
Islamic Republic of Iran	907	910	912	907	906	908	904	906	906	906	904	905
Iraq	550	1 607	558	962	558	980	619	672	1 237	2 065	2 380	1 894
Jordan	855	860	717	686	753	730	699	675	683	659	559	634
Kuwait	1 197	665	917	820	845	917	942	939	977	1 008	949	978
Lebanon	2 753	784	773	756	658	645	751	696	736	756	772	755
Oman	1 056	1 056	1 056	1 055	1 055	1 056	1 055	1 056	1 055	1 055	1 015	1 042
Qatar	-	-	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	834	831	876	803	872	840	828	776	795	832	823	817
Syrian Arab Republic	789	777	730	849	759	802	789	758	740	762	750	751
United Arab Emirates	971	968	953	1 052	1 194	1 194	1 194	1 194	1 195	1 053	1 195	1 147
Yemen	746	946	930	884	874	841	781	679	636	630	692	653
Middle East	**845**	**991**	**813**	**844**	**802**	**861**	**842**	**813**	**857**	**934**	**939**	**910**

CO_2 emissions per kWh from electricity generation using natural gas *

grammes CO_2 / kilowatt hour

	1990	1995	2000	2003	2004	2005	2006	2007	2008	2009	2010	Average 08-10
World	**490**	**503**	**480**	**466**	**463**	**464**	**458**	**453**	**451**	**449**	**451**	**450**
Annex I Parties	*448*	*472*	*449*	*434*	*430*	*430*	*418*	*419*	*416*	*413*	*415*	*415*
Annex II Parties	*509*	*488*	*442*	*422*	*419*	*415*	*400*	*402*	*397*	*396*	*399*	*398*
North America	*546*	*536*	*483*	*451*	*452*	*449*	*414*	*419*	*412*	*406*	*410*	*409*
Europe	*454*	*397*	*379*	*367*	*358*	*356*	*360*	*356*	*357*	*360*	*365*	*361*
Asia Oceania	*475*	*467*	*446*	*452*	*452*	*448*	*449*	*452*	*450*	*446*	*441*	*446*
Annex I EIT	*378*	*435*	*481*	*480*	*474*	*485*	*487*	*485*	*490*	*484*	*479*	*484*
Non-Annex I Parties	*649*	*585*	*551*	*525*	*522*	*524*	*528*	*514*	*509*	*505*	*504*	*506*
Annex I Kyoto Parties	*408*	*432*	*434*	*430*	*421*	*421*	*424*	*422*	*422*	*420*	*423*	*422*
Non-OECD Total	**475**	**520**	**533**	**524**	**520**	**526**	**531**	**519**	**518**	**514**	**511**	**514**
OECD Total	**510**	**488**	**439**	**417**	**415**	**412**	**399**	**401**	**396**	**395**	**398**	**396**
Canada	403	405	455	484	439	446	436	449	489	460	499	483
Chile	777	574	370	361	407	465	414	463	501	450	383	445
Mexico	555	513	489	415	419	420	428	420	417	400	419	412
United States	549	541	484	449	452	449	413	417	408	403	405	405
OECD Americas	**546**	**535**	**481**	**445**	**447**	**446**	**415**	**419**	**412**	**405**	**411**	**409**
Australia	565	558	584	606	572	528	528	528	528	519	542	529
Israel	-	516	541	673	526	559	481	499	440	433	442	438
Japan	466	459	436	435	438	441	443	445	442	438	430	437
Korea	496	436	379	354	372	369	370	372	367	364	370	367
New Zealand	507	510	463	435	433	428	415	415	397	401	414	404
OECD Asia Oceania	**476**	**465**	**439**	**440**	**440**	**435**	**434**	**437**	**433**	**431**	**426**	**430**
Austria	437	493	395	337	328	329	333	335	328	319	305	317
Belgium	513	436	385	369	368	372	335	331	332	339	332	334
Czech Republic	251	414	465	417	501	459	434	347	422	449	405	426
Denmark	292	271	286	289	290	282	288	278	276	281	260	272
Estonia	253	252	252	254	253	245	238	245	239	237	273	249
Finland	270	331	242	278	258	239	267	243	243	236	236	238
France	337	335	288	264	247	264	314	318	322	463	520	435
Germany	464	446	370	325	306	309	298	299	315	311	346	324
Greece	459	435	505	434	416	459	416	416	423	385	490	432
Hungary	561	544	457	446	402	396	399	405	393	360	365	373
Iceland	-	-	-	-	-	-	-	-	-	-	-	-
Ireland	499	480	460	421	407	412	409	413	392	395	398	395
Italy	475	466	431	420	401	393	382	380	376	374	374	374
Luxembourg	662	633	642	397	393	393	394	391	399	387	417	401
Netherlands	444	353	310	324	322	321	337	329	333	331	330	331
Norway	-	302	302	301	301	302	301	341	312	302	343	319
Poland	527	444	507	506	507	346	360	354	346	339	320	335
Portugal	-	-	372	375	359	357	353	352	355	361	359	358
Slovak Republic	813	837	490	320	329	316	295	305	310	339	385	345
Slovenia	..	345	273	370	307	291	268	332	345	395	378	373
Spain	423	469	311	316	324	319	356	339	349	353	358	353
Sweden	217	218	249	223	217	218	219	215	216	209	209	211
Switzerland	269	242	240	248	245	248	260	257	261	261	253	258
Turkey	488	419	356	354	365	374	356	362	364	371	376	371
United Kingdom	521	426	396	394	392	393	400	388	387	390	384	387
OECD Europe	**461**	**405**	**379**	**368**	**361**	**359**	**360**	**357**	**358**	**361**	**366**	**362**
European Union - 27	*487*	*416*	*385*	*374*	*362*	*359*	*361*	*358*	*359*	*360*	*365*	*361*

* CO_2 emissions from natural gas consumed for electricity generation, in both electricity-only and combined heat and power plants, divided by output of electricity generated from natural gas. Both main activity producers and autoproducers have been included in the calculation. This indicator is not available when electricity output is very small or where inputs to electricity generation do not match electricity output.

CO_2 emissions per kWh from electricity generation using natural gas

grammes CO_2 / kilowatt hour

	1990	1995	2000	2003	2004	2005	2006	2007	2008	2009	2010	Average 08-10
Non-OECD Total	**475**	**520**	**533**	**524**	**520**	**526**	**531**	**519**	**518**	**514**	**511**	**514**
Albania	-	-	-	-	-	-	-	-	-	-	-	-
Armenia	600	359	526	516	375	454	525	620	609	504	416	510
Azerbaijan	-	490	682	583	599	599	599	578	570	560	538	556
Belarus	421	424	460	438	454	455	455	451	460	439	445	448
Bosnia and Herzegovina	-	-	-	-	-	-	-	-	-	630	632	631
Bulgaria	645	638	571	429	297	270	288	391	322	299	238	286
Croatia	461	562	491	414	417	403	422	460	416	417	367	400
Cyprus	-	-	-	-	-	-	-	-	-	-	-	-
Georgia	521	854	887	566	565	520	508	847	476	766	727	656
Gibraltar	-	-	-	-	-	-	-	-	-	-	-	-
Kazakhstan	381	559	1 009	780	602	778	574	574	574	574	574	574
Kosovo *	..	..	-	-	-	-	-	-	-	-	-	-
Kyrgyzstan	383	383	383	384	383	384	383	385	498	498	498	498
Latvia	306	372	314	290	286	280	254	250	281	254	258	264
Lithuania	350	..	461	370	367	376	379	386	402	401	424	409
FYR of Macedonia	-	-	..	..	..	..	..	-	-	613	487	550
Malta	-	-	-	-	-	-	-	-	-	-	-	-
Republic of Moldova	515	562	791	727	534	537	516	535	521	532	520	524
Montenegro *	..	..	..	..	..	-	-	-	-	-	-	-
Romania	704	514	506	606	489	471	428	428	462	369	332	388
Russian Federation	357	429	487	487	487	503	503	499	505	499	494	499
Serbia *	402	579	580	567	567	307	438	490	463	..	..	463
Tajikistan	..	..	..	..	..	..	..	..	..	..	415	415
Turkmenistan	720	931	872	872	872	872	872	872	928	866	954	916
Ukraine	383	400	422	442	386	393	417	411	397	364	375	379
Uzbekistan	467	565	644	644	644	644	644	643	644	642	642	643
Non-OECD Europe and Eurasia	**406**	**455**	**511**	**507**	**499**	**513**	**513**	**511**	**516**	**512**	**506**	**512**
Algeria	613	621	614	632	631	609	618	594	594	643	540	593
Angola	-	-	-	-	-	-	-	-	-	-	-	-
Benin	-	-	-	-	-	-	-	-	-	-	-	-
Botswana	-	-	-	-	-	-	-	-	-	-	-	-
Cameroon	-	-	-	-	-	-	-	538	538	538	538	538
Congo	-	-	-	573	576	573	572	575	576	574	572	574
Dem. Rep. of Congo	-	-	-	-	-	-	574	573	573	573	573	573
Côte d'Ivoire	-	736	598	600	536	627	539	617	687	625	625	646
Egypt	490	490	490	490	490	490	490	490	490	490	490	490
Eritrea	..	-	-	-	-	-	-	-	-	-	-	-
Ethiopia	-	-	-	-	-	-	-	-	-	-	-	-
Gabon	1 038	876	929	926	964	1 013	1 007	1 043	719	720	720	720
Ghana	-	-	-	-	-	-	-	-	-	-	-	-
Kenya	-	-	-	-	-	-	-	-	-	-	-	-
Libya	-	591	591	632	662	662	591	562	595	562	595	584
Morocco	-	-	-	-	-	397	394	409	350	403	570	441
Mozambique	-	652	778	1 674	775	724	684	573	502	711	600	605
Namibia	..	-	-	-	-	-	-	-	-	-	-	-
Nigeria	584	502	543	502	502	502	502	502	502	502	502	502
Senegal	591	604	628	512	517	519	516	513	513	680	681	625
South Africa	-	-	-	-	-	-	-	-	-	-	-	-
Sudan	-	-	-	-	-	-	-	-	-	-	-	-
United Rep. of Tanzania	-	-	-	-	484	569	602	579	563	798	748	703
Togo	-	-	-	-	-	-	-	-	-	-	-	-
Tunisia	559	533	536	495	481	470	477	483	485	469	468	474
Zambia	-	-	-	-	-	-	-	-	-	-	-	-
Zimbabwe	-	-	-	-	-	-	-	-	-	-	-	-
Other Africa	-	-	-	451	452	451	453	453	453	453	453	453
Africa	**554**	**539**	**542**	**532**	**528**	**526**	**525**	**521**	**524**	**530**	**514**	**523**

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

CO_2 emissions per kWh from electricity generation using natural gas

grammes CO_2 / kilowatt hour

	1990	1995	2000	2003	2004	2005	2006	2007	2008	2009	2010	Average 08-10
Bangladesh	602	586	555	573	545	546	561	555	554	568	578	567
Brunei Darussalam	924	881	796	780	782	762	802	702	754	755	716	742
Cambodia	..	-	-	-	-	-	-	-	-	-	-	-
Chinese Taipei	504	508	464	434	426	429	429	424	429	422	423	425
India	812	539	386	387	393	391	377	364	359	432	517	436
Indonesia	670	509	519	500	587	503	606	546	542	572	504	540
DPR of Korea	-	-	-	-	-	-	-	-	-	-	-	-
Malaysia	574	503	499	429	427	502	484	463	494	437	536	489
Mongolia	-	-	-	-	-	-	-	-	-	-	-	-
Myanmar	1 041	843	686	725	725	725	725	725	725	725	725	725
Nepal	-	-	-	-	-	-	-	-	-	-	-	-
Pakistan	662	594	550	536	526	537	536	573	586	562	557	568
Philippines	-	854	..	349	356	345	330	338	341	349	329	339
Singapore	-	447	446	446	446	446	446	446	446	410	410	422
Sri Lanka	-	-	-	-	-	-	-	-	-	-	-	-
Thailand	503	468	483	479	470	465	465	459	450	446	444	447
Vietnam	..	514	591	522	404	434	444	431	428	418	409	418
Other Asia	-	502	502	502	502	502	502	502	502	502	502	502
Asia	**632**	**524**	**483**	**461**	**458**	**463**	**463**	**451**	**455**	**457**	**480**	**464**
People's Rep. of China	539	545	519	520	520	519	519	518	518	518	518	518
Hong Kong, China	-	859	468	457	451	454	454	454	454	454	454	454
China	**539**	**552**	**485**	**482**	**479**	**488**	**490**	**502**	**500**	**506**	**507**	**504**
Argentina	614	437	514	474	450	460	693	588	476	506	483	488
Bolivia	581	696	642	593	566	552	550	560	624	632	632	629
Brazil	513	740	488	437	472	473	451	450	440	438	424	434
Colombia	646	646	534	502	492	496	485	544	462	464	464	464
Costa Rica	-	-	-	-	-	-	-	-	-	-	-	-
Cuba	502	502	502	502	502	502	502	502	502	502	502	502
Dominican Republic	-	-	-	502	502	502	502	502	502	502	452	485
Ecuador	-	-	-	452	452	452	452	452	452	452	452	452
El Salvador	-	-	-	-	-	-	-	-	-	-	-	-
Guatemala	-	-	-	-	-	-	-	-	-	-	-	-
Haiti	-	-	-	-	-	-	-	-	-	-	-	-
Honduras	-	-	-	-	-	-	-	-	-	-	-	-
Jamaica	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands Antilles	-	-	-	-	-	-	-	-	-	-	-	-
Nicaragua	-	-	-	-	-	-	-	-	-	-	-	-
Panama	-	-	-	-	-	-	-	-	-	-	-	-
Paraguay	-	-	-	-	-	-	-	-	-	-	-	-
Peru	671	670	670	648	610	548	534	462	472	550	597	540
Trinidad and Tobago	714	716	688	725	754	708	742	735	705	715	700	707
Uruguay	-	-	-	-	578	469	536	578	466	505	499	490
Venezuela	841	675	644	652	638	658	654	631	625	607	606	613
Other Non-OECD Americas	448	448	452	452	452	452	452	452	452	452	452	452
Non-OECD Americas	**702**	**568**	**551**	**520**	**506**	**510**	**603**	**565**	**501**	**526**	**508**	**512**
Bahrain	1 061	815	868	883	881	873	797	826	650	665	640	652
Islamic Republic of Iran	505	525	492	499	502	520	514	505	513	510	502	508
Iraq	-	-	-	-	-	331	331	331	331	331	331	331
Jordan	548	681	671	666	622	610	600	566	571	574	573	573
Kuwait	502	502	502	418	419	446	446	446	418	529	529	492
Lebanon	-	-	-	-	-	-	-	-	-	451	452	452
Oman	696	776	741	809	847	819	848	834	809	796	745	783
Qatar	1 077	1 131	771	779	649	618	617	565	534	494	494	507
Saudi Arabia	827	792	723	683	665	661	679	676	673	665	636	658
Syrian Arab Republic	543	543	543	543	543	543	543	543	543	543	543	543
United Arab Emirates	735	730	721	798	906	836	812	711	721	624	589	645
Yemen	-	-	-	-	-	-	-	-	-	-	551	551
Middle East	**718**	**695**	**633**	**631**	**638**	**626**	**620**	**599**	**590**	**568**	**552**	**570**

GLOBAL AND REGIONAL TOTALS

World

Figure 1. CO_2 emissions by fuel

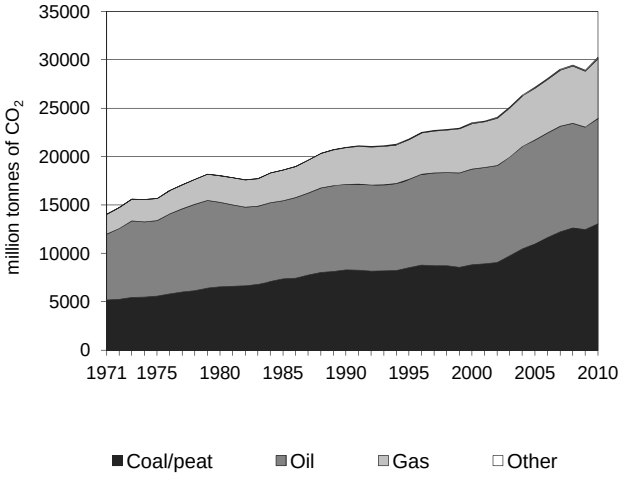


Figure 2. CO_2 emissions by sector

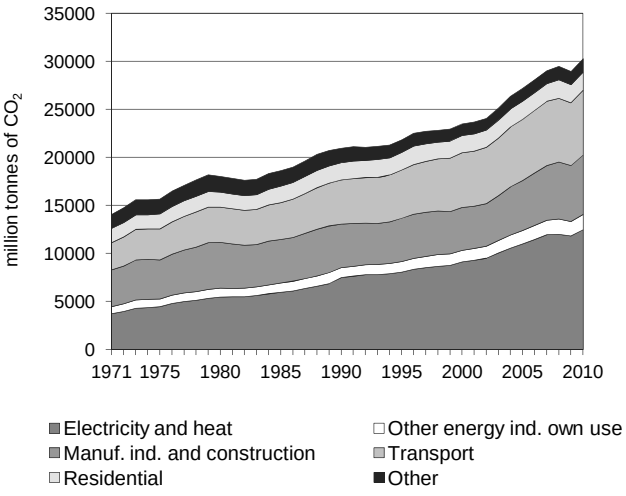


Figure 3. CO_2 emissions by sector

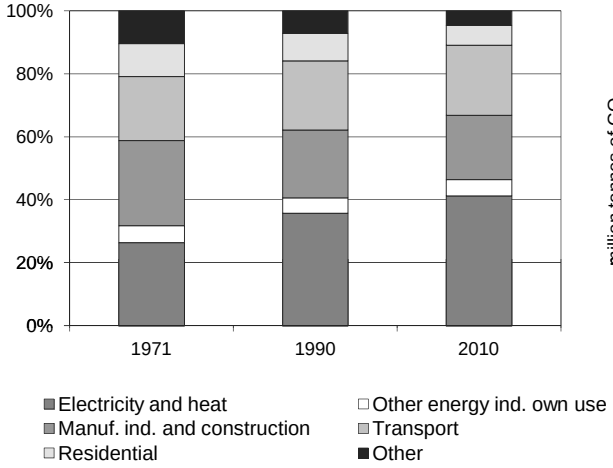


Figure 4. Reference vs Sectoral Approach

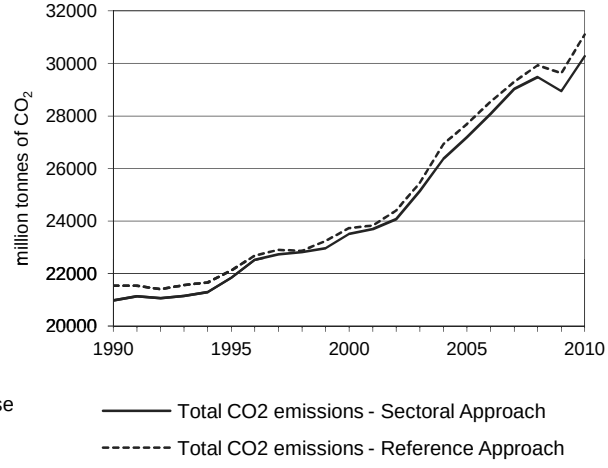


Figure 5. Electricity generation by fuel

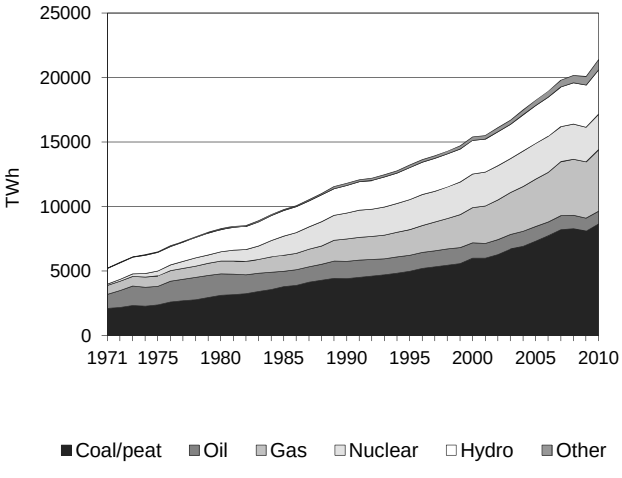
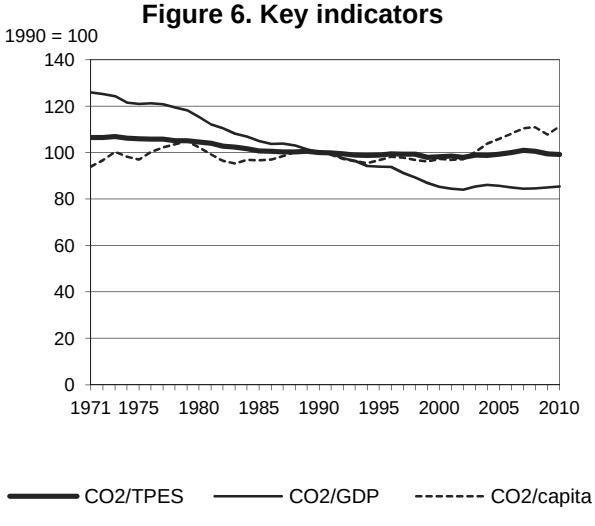


Figure 6. Key indicators



World

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	20 973.9	21 843.8	23 509.1	27 187.4	29 483.0	28 946.7	30 276.1	44.4%
CO_2 Reference Approach ($MtCO_2$)	21 532.3	22 124.5	23 728.9	27 688.1	29 937.2	29 627.8	31 102.3	44.4%
TPES (PJ)	367 298	386 656	419 055	479 455	513 426	509 603	534 434	45.5%
TPES (Mtoe)	8 772.8	9 235.1	10 008.9	11 451.6	12 263.0	12 171.7	12 764.7	45.5%
GDP (billion 2005 USD)	30 153.2	33 419.1	39 638.9	45 617.3	50 115.6	48 950.1	50 942.5	68.9%
GDP PPP (billion 2005 USD)	36 208.9	40 251.1	48 313.0	57 729.2	65 647.3	65 162.6	68 431.1	89.0%
Population (millions)	5 266.2	5 675.7	6 070.7	6 447.3	6 673.0	6 748.7	6 825.4	29.6%
CO_2 / TPES (tCO_2 per TJ)	57.1	56.5	56.1	56.7	57.4	56.8	56.7	-0.8%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.70	0.65	0.59	0.60	0.59	0.59	0.59	-14.6%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.58	0.54	0.49	0.47	0.45	0.44	0.44	-23.6%
CO_2 / population (tCO_2 per capita)	3.98	3.85	3.87	4.22	4.42	4.29	4.44	11.4%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach **	**13 065.9**	**10 890.5**	**6 179.1**	**140.6**	**30 276.1**	**44.4%**
Main activity producer elec. and heat	8 449.2	702.2	2 169.2	40.9	11 361.4	71.5%
Unallocated autoproducers	489.4	156.9	411.3	61.5	1 119.1	26.3%
Other energy industry own use	291.3	650.4	628.2	0.9	1 570.8	55.4%
Manufacturing industries and construction	3 299.0	1 524.9	1 330.0	32.5	6 186.4	36.6%
Transport **	13.1	6 550.7	192.1	-	6 755.8	47.0%
of which: road	-	*4 921.6*	*50.6*	-	*4 972.1*	51.1%
Other	524.0	1 305.4	1 448.3	4.9	3 282.6	-1.3%
of which: residential	*301.0*	*595.3*	*984.1*	*0.0*	*1 880.4*	3.2%
Reference Approach **	**13 700.9**	**11 007.0**	**6 253.8**	**140.6**	**31 102.3**	**44.4%**
Diff. due to losses and/or transformation	308.2	99.0	81.3	0.0	488.6	
Statistical differences	326.8	17.4	- 6.6	- 0.0	337.6	
Memo: international marine bunkers	-	*643.7*	-	-	*643.7*	*77.6%*
Memo: international aviation bunkers	-	*455.3*	-	-	*455.3*	*78.3%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	8 449.2	85.5%	19.1	19.1
Road - oil	4 921.6	49.8%	11.1	30.2
Manufacturing industries - coal/peat	3 299.0	50.4%	7.4	37.6
Main activity prod. elec. and heat - gas	2 169.2	110.4%	4.9	42.5
Other transport - oil	1 629.1	44.3%	3.7	46.2
Manufacturing industries - oil	1 524.9	12.9%	3.4	49.7
Manufacturing industries - gas	1 330.0	35.9%	3.0	52.7
Residential - gas	984.1	53.6%	2.2	54.9
Non-specified other - oil	710.0	-2.0%	1.6	56.5
Main activity prod. elec. and heat - oil	702.2	-32.2%	1.6	58.1
Other energy industry own use - oil	650.4	16.8%	1.5	59.5
Memo: total CO_2 from fuel combustion	*30 276.1*	*44.4%*	*68.4*	*68.4*

*** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Annex I Parties

Figure 1. CO_2 emissions by fuel

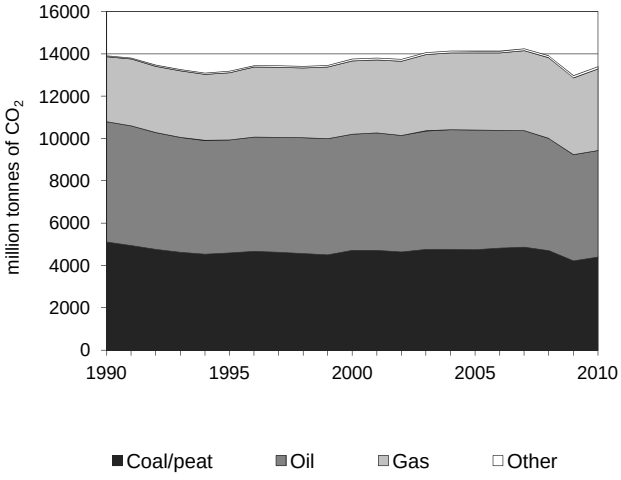


Figure 2. CO_2 emissions by sector

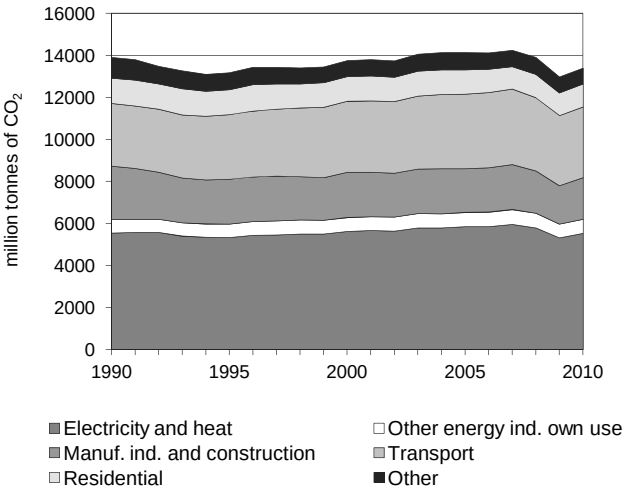


Figure 3. CO_2 emissions by sector

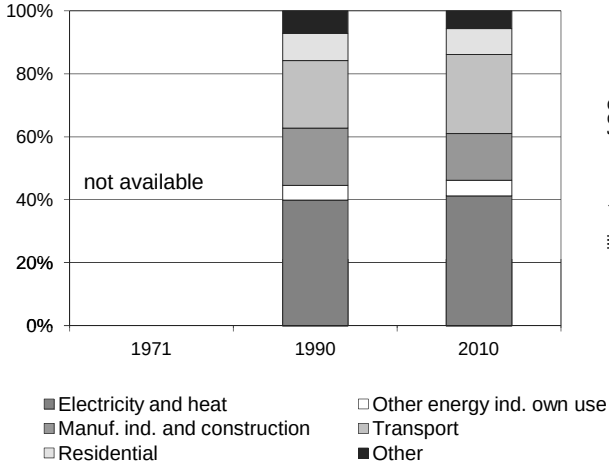


Figure 4. Reference vs Sectoral Approach

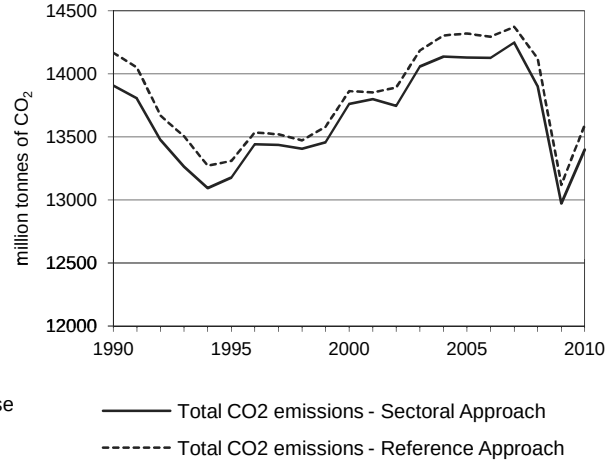


Figure 5. Electricity generation by fuel

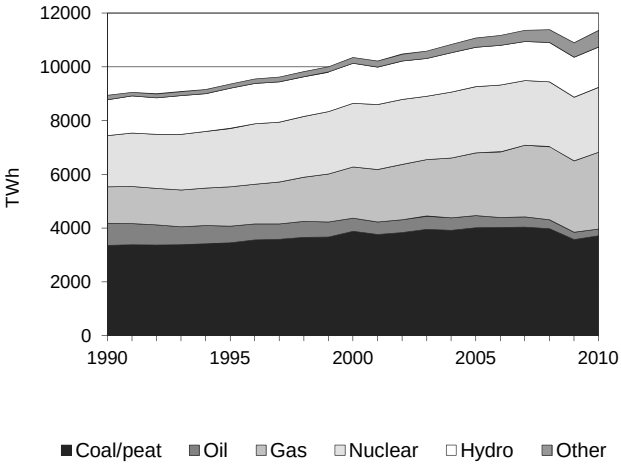
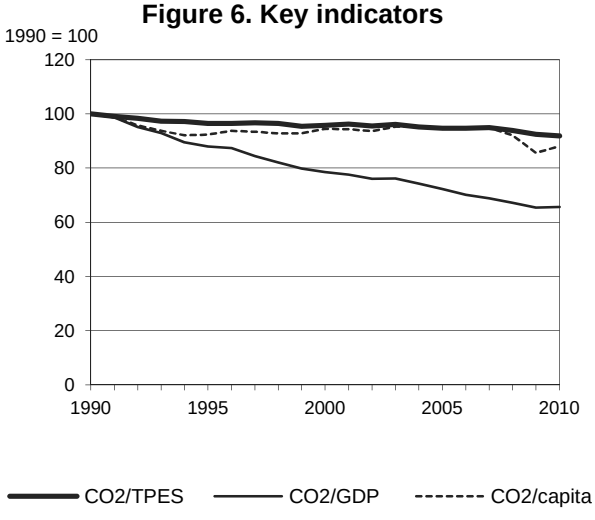


Figure 6. Key indicators



Annex I Parties

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	13 906.7	13 177.7	13 762.0	14 129.1	13 904.3	12 972.7	13 398.1	-3.7%
CO_2 Reference Approach ($MtCO_2$)	14 167.6	13 311.2	13 864.4	14 320.5	14 123.4	13 120.9	13 594.0	-4.0%
TPES (PJ)	233 722	229 465	241 484	250 834	249 028	235 948	245 230	4.9%
TPES (Mtoe)	5 582.3	5 480.7	5 767.8	5 991.1	5 947.9	5 635.5	5 857.2	4.9%
GDP (billion 2005 USD)	24 881.0	26 806.0	31 375.1	34 964.7	37 064.3	35 522.4	36 536.1	46.8%
GDP PPP (billion 2005 USD)	25 294.7	26 536.4	31 058.5	34 978.4	37 396.4	35 788.3	36 842.2	45.7%
Population (millions)	1 175.9	1 207.4	1 231.5	1 257.8	1 275.9	1 281.4	1 286.8	9.4%
CO_2 / TPES (tCO_2 per TJ)	59.5	57.4	57.0	56.3	55.8	55.0	54.6	-8.2%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.56	0.49	0.44	0.40	0.38	0.37	0.37	-34.4%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.55	0.50	0.44	0.40	0.37	0.36	0.36	-33.8%
CO_2 / population (tCO_2 per capita)	11.83	10.91	11.17	11.23	10.90	10.12	10.41	-12.0%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**4 407.5**	**5 026.0**	**3 854.5**	**110.1**	**13 398.1**	**-3.7%**
Main activity producer elec. and heat	3 396.4	134.8	1 284.8	39.9	4 855.9	1.5%
Unallocated autoproducers	241.2	77.9	311.1	40.6	670.7	-12.5%
Other energy industry own use	74.5	367.1	232.3	0.8	674.8	3.7%
Manufacturing industries and construction	583.9	602.6	768.5	25.4	1 980.5	-21.7%
Transport	0.7	3 232.4	136.3	-	3 369.4	12.7%
of which: road	-	*2 902.6*	*5.7*	-	*2 908.3*	19.4%
Other	110.9	611.1	1 121.5	3.4	1 846.9	-15.6%
of which: residential	*77.8*	*269.0*	*743.7*	*0.0*	*1 090.5*	-9.1%
Reference Approach	**4 545.4**	**5 057.1**	**3 881.3**	**110.1**	**13 594.0**	**-4.0%**
Diff. due to losses and/or transformation	82.3	- 2.0	30.3	0.0	110.6	
Statistical differences	55.6	33.2	- 3.5	- 0.0	85.3	
Memo: international marine bunkers	-	*264.4*	-	-	*264.4*	*13.2%*
Memo: international aviation bunkers	-	*251.9*	-	-	*251.9*	*49.3%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	3 396.4	1.7%	19.5	19.5
Road - oil	2 902.6	19.4%	16.7	36.1
Main activity prod. elec. and heat - gas	1 284.8	58.7%	7.4	43.5
Manufacturing industries - gas	768.5	0.1%	4.4	47.9
Residential - gas	743.7	24.0%	4.3	52.2
Manufacturing industries - oil	602.6	-26.0%	3.5	55.6
Manufacturing industries - coal/peat	583.9	-38.0%	3.3	59.0
Non-specified other - gas	377.8	31.0%	2.2	61.2
Other energy industry own use - oil	367.1	-7.8%	2.1	63.3
Non-specified other - oil	342.1	-28.5%	2.0	65.2
Other transport - oil	329.7	-23.7%	1.9	67.1
Memo: total CO_2 from fuel combustion	*13 398.1*	*-3.7%*	*76.9*	*76.9*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Annex II Parties

Figure 1. CO_2 emissions by fuel

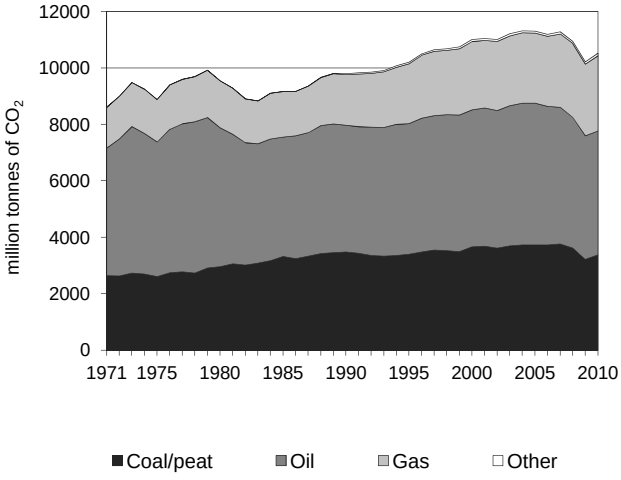


Figure 2. CO_2 emissions by sector

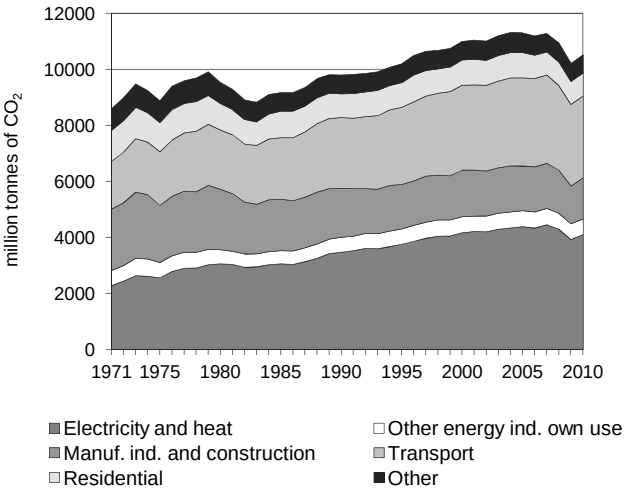


Figure 3. CO_2 emissions by sector

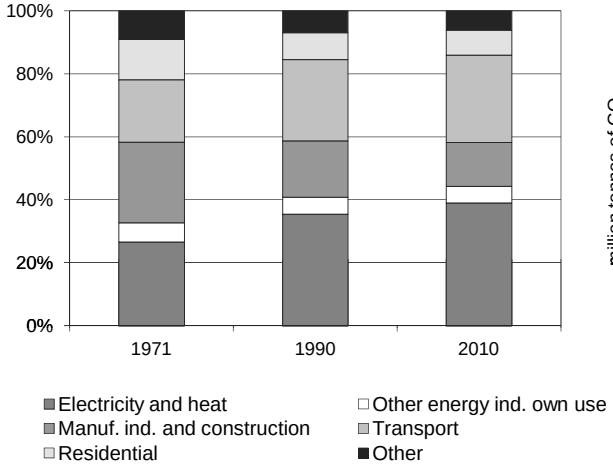


Figure 4. Reference vs Sectoral Approach

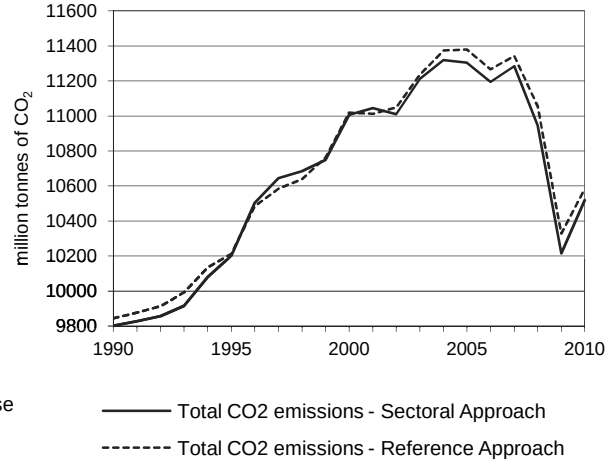


Figure 5. Electricity generation by fuel

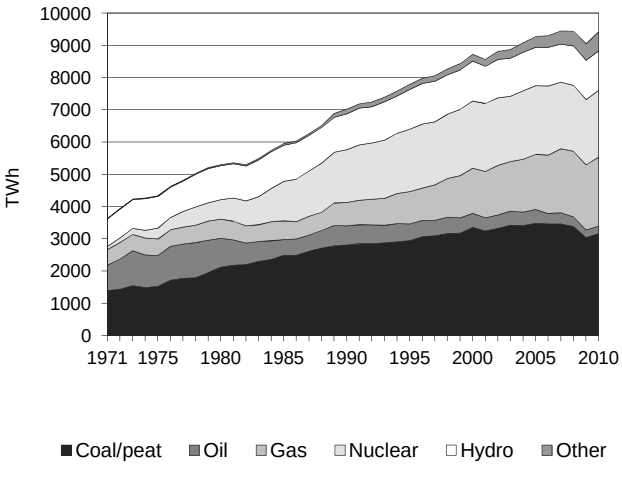
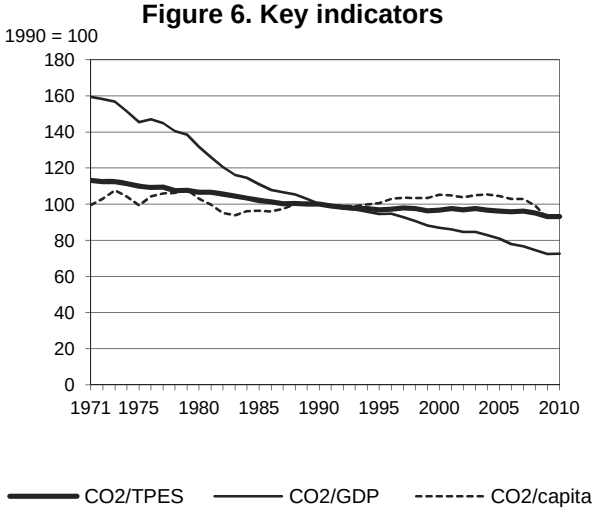


Figure 6. Key indicators



Annex II Parties

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	9 802.1	10 202.5	11 006.1	11 305.2	10 945.8	10 214.3	10 519.3	7.3%
CO_2 Reference Approach ($MtCO_2$)	9 843.2	10 213.3	11 019.1	11 380.2	11 055.9	10 329.1	10 581.8	7.5%
TPES (PJ)	167 903	180 342	194 917	201 276	197 316	187 892	193 303	15.1%
TPES (Mtoe)	4 010.3	4 307.4	4 655.5	4 807.4	4 712.8	4 487.7	4 617.0	15.1%
GDP (billion 2005 USD)	22 969.1	25 287.1	29 638.3	32 738.9	34 420.0	33 034.6	33 935.8	47.7%
GDP PPP (billion 2005 USD)	21 380.9	23 570.7	27 711.6	30 648.7	32 221.0	30 939.1	31 778.3	48.6%
Population (millions)	799.3	827.8	853.1	882.0	900.0	905.2	910.0	13.8%
CO_2 / TPES (tCO_2 per TJ)	58.4	56.6	56.5	56.2	55.5	54.4	54.4	-6.8%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.43	0.40	0.37	0.35	0.32	0.31	0.31	-27.4%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.46	0.43	0.40	0.37	0.34	0.33	0.33	-27.8%
CO_2 / population (tCO_2 per capita)	12.26	12.33	12.90	12.82	12.16	11.28	11.56	-5.7%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**3 375.8**	**4 397.1**	**2 661.1**	**85.3**	**10 519.3**	**7.3%**
Main activity producer elec. and heat	2 829.9	119.2	830.3	39.1	3 818.6	20.0%
Unallocated autoproducers	113.1	44.5	103.9	23.9	285.5	-2.4%
Other energy industry own use	53.1	308.2	201.2	-	562.5	6.2%
Manufacturing industries and construction	357.2	521.6	561.9	19.6	1 460.3	-16.7%
Transport	0.5	2 872.3	48.4	-	2 921.2	15.7%
of which: road	-	*2 577.9*	*5.0*	-	*2 582.9*	21.1%
Other	21.9	531.3	915.4	2.7	1 471.2	-3.2%
of which: residential	*11.6*	*243.6*	*569.4*	*0.0*	*824.5*	-2.1%
Reference Approach	**3 429.3**	**4 401.5**	**2 665.7**	**85.3**	**10 581.8**	**7.5%**
Diff. due to losses and/or transformation	30.3	- 28.4	8.7	0.0	10.7	
Statistical differences	23.2	32.7	- 4.1	0.0	51.8	
Memo: international marine bunkers	-	*250.8*	-	-	*250.8*	*12.3%*
Memo: international aviation bunkers	-	*223.6*	-	-	*223.6*	*70.4%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	2 829.9	12.1%	21.4	21.4
Road - oil	2 577.9	20.9%	19.5	40.9
Main activity prod. elec. and heat - gas	830.3	174.6%	6.3	47.2
Residential - gas	569.4	27.8%	4.3	51.5
Manufacturing industries - gas	561.9	7.3%	4.3	55.8
Manufacturing industries - oil	521.6	-13.4%	3.9	59.7
Manufacturing industries - coal/peat	357.2	-42.7%	2.7	62.4
Non-specified other - gas	346.0	39.3%	2.6	65.1
Other energy industry own use - oil	308.2	-6.6%	2.3	67.4
Other transport - oil	294.4	-15.3%	2.2	69.6
Non-specified other - oil	287.7	-19.9%	2.2	71.8
Memo: total CO_2 from fuel combustion	*10 519.3*	*7.3%*	*79.6*	*79.6*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Annex II: North America

Figure 1. CO_2 emissions by fuel

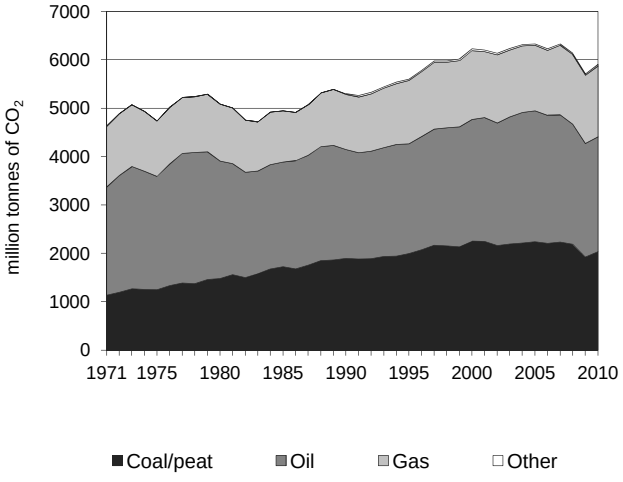


Figure 2. CO_2 emissions by sector

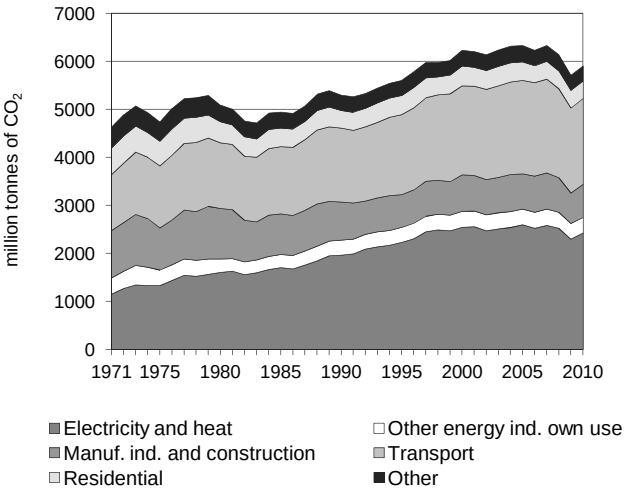


Figure 3. CO_2 emissions by sector

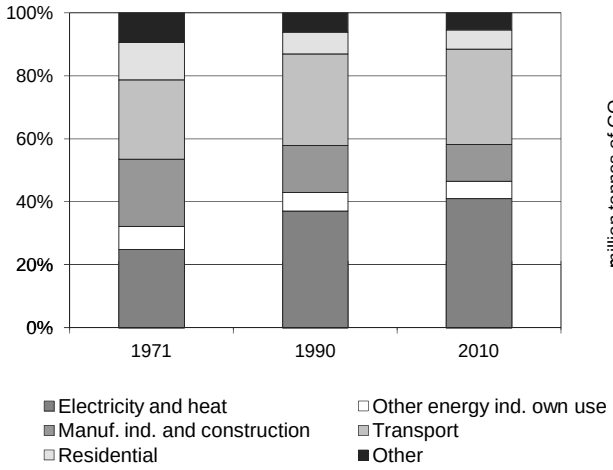


Figure 4. Reference vs Sectoral Approach

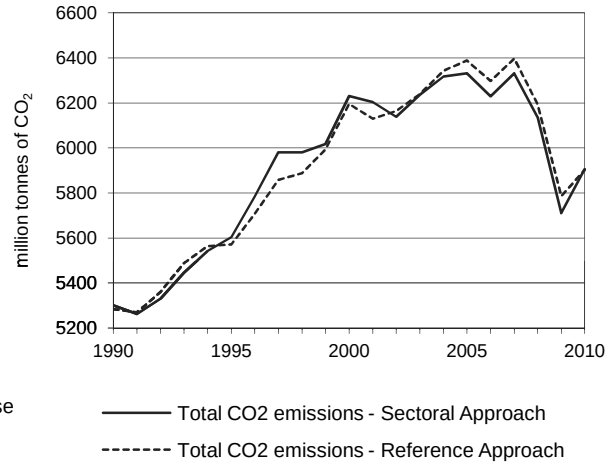


Figure 5. Electricity generation by fuel

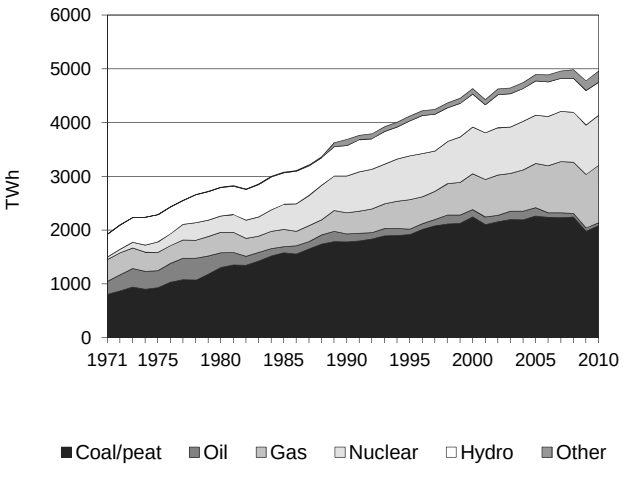
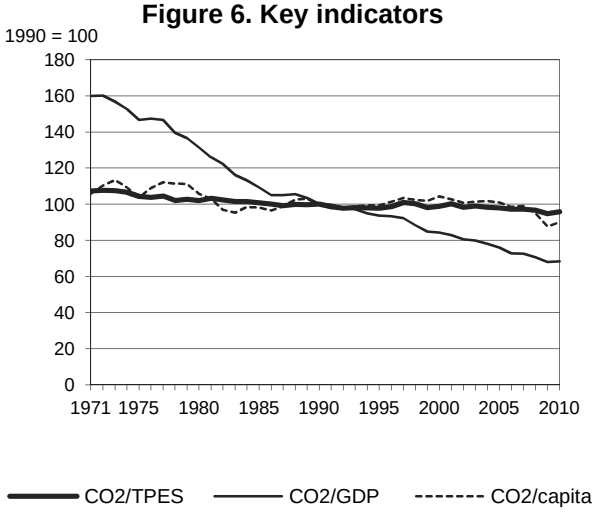


Figure 6. Key indicators



Annex II: North America

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	5 301.5	5 604.5	6 231.4	6 331.0	6 137.3	5 710.3	5 905.3	11.4%
CO_2 Reference Approach ($MtCO_2$)	5 283.9	5 571.2	6 194.9	6 389.2	6 193.1	5 786.2	5 902.6	11.7%
TPES (PJ)	88 908	96 212	105 707	108 482	106 419	101 141	103 337	16.2%
TPES (Mtoe)	2 123.5	2 298.0	2 524.8	2 591.1	2 541.8	2 415.7	2 468.2	16.2%
GDP (billion 2005 USD)	8 712.5	9 836.6	12 158.0	13 698.1	14 296.8	13 801.6	14 220.9	63.2%
GDP PPP (billion 2005 USD)	8 711.3	9 835.3	12 156.5	13 696.3	14 295.0	13 799.8	14 219.0	63.2%
Population (millions)	277.9	295.9	313.1	328.5	338.1	341.2	344.2	23.9%
CO_2 / TPES (tCO_2 per TJ)	59.6	58.3	59.0	58.4	57.7	56.5	57.1	-4.2%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.61	0.57	0.51	0.46	0.43	0.41	0.42	-31.8%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.61	0.57	0.51	0.46	0.43	0.41	0.42	-31.8%
CO_2 / population (tCO_2 per capita)	19.08	18.94	19.90	19.27	18.15	16.74	17.16	-10.1%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**2 036.5**	**2 378.2**	**1 460.7**	**29.8**	**5 905.3**	**11.4%**
Main activity producer elec. and heat	1 879.8	36.3	419.4	13.5	2 349.0	25.6%
Unallocated autoproducers	21.2	7.2	39.9	6.8	75.2	-21.1%
Other energy industry own use	8.6	173.4	143.1	-	325.1	3.1%
Manufacturing industries and construction	121.0	225.5	332.8	8.6	687.9	-12.8%
Transport	-	1 747.7	43.7	-	1 791.4	16.0%
of which: road	-	*1 538.4*	*1.8*	-	*1 540.1*	24.9%
Other	5.9	188.2	481.8	0.9	676.8	-1.6%
of which: residential	*0.0*	*70.2*	*290.4*	-	*360.6*	-1.1%
Reference Approach	**2 055.8**	**2 341.5**	**1 475.5**	**29.8**	**5 902.6**	**11.7%**
Diff. due to losses and/or transformation	17.1	- 43.1	3.6	-	- 22.5	
Statistical differences	2.2	6.5	11.2	0.0	19.9	
Memo: international marine bunkers	-	*84.8*	-	-	*84.8*	*-9.3%*
Memo: international aviation bunkers	-	*67.8*	-	-	*67.8*	*63.4%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	1 879.8	16.3%	25.5	25.5
Road - oil	1 538.4	24.7%	20.8	46.3
Main activity prod. elec. and heat - gas	419.4	169.5%	5.7	52.0
Manufacturing industries - gas	332.8	3.0%	4.5	56.5
Residential - gas	290.4	9.1%	3.9	60.4
Manufacturing industries - oil	225.5	-7.0%	3.1	63.4
Other transport - oil	209.3	-21.8%	2.8	66.3
Non-specified other - gas	191.4	16.9%	2.6	68.9
Other energy industry own use - oil	173.4	-7.5%	2.3	71.2
Other energy industry own use - gas	143.1	14.4%	1.9	73.2
Manufacturing industries - coal/peat	121.0	-45.7%	1.6	74.8
Memo: total CO_2 from fuel combustion	*5 905.3*	*11.4%*	*80.0*	*80.0*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Annex II: Europe

Figure 1. CO_2 emissions by fuel

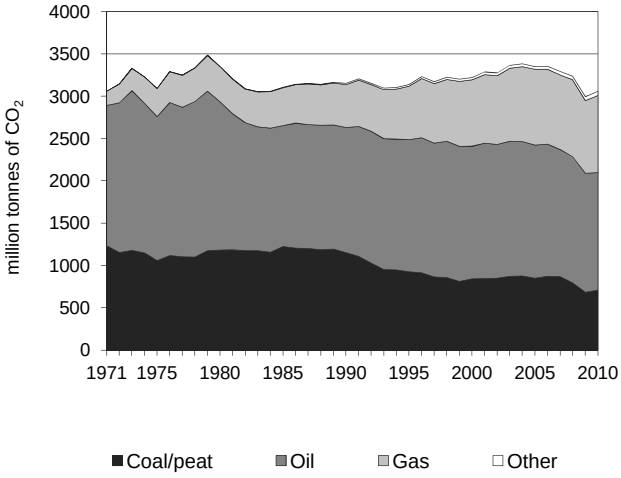


Figure 2. CO_2 emissions by sector

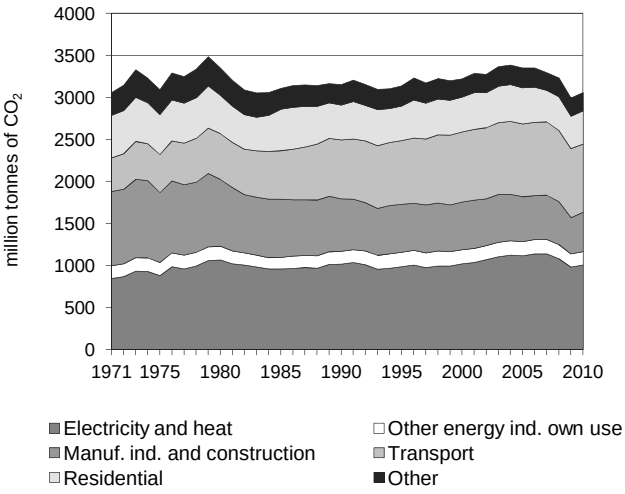


Figure 3. CO_2 emissions by sector

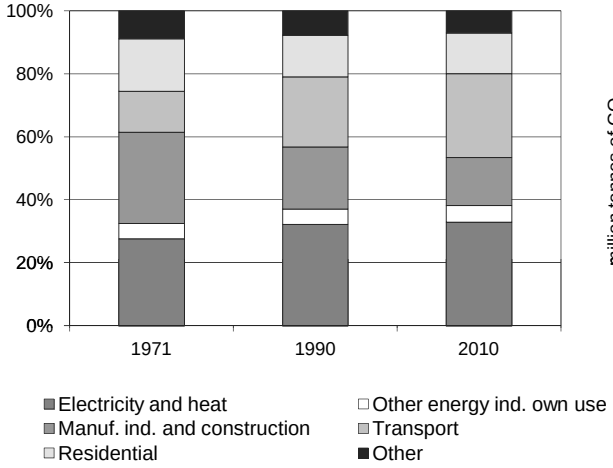


Figure 4. Reference vs Sectoral Approach

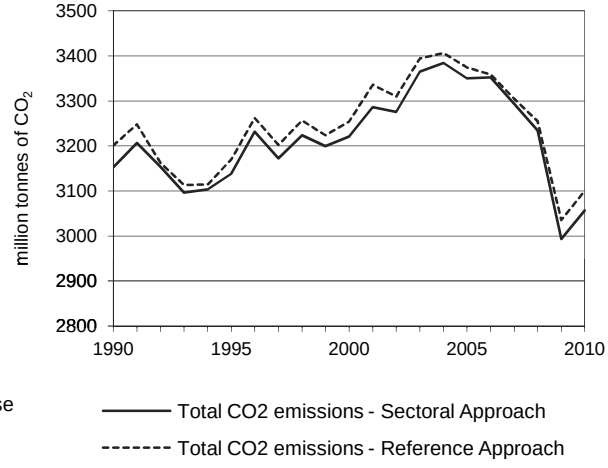


Figure 5. Electricity generation by fuel

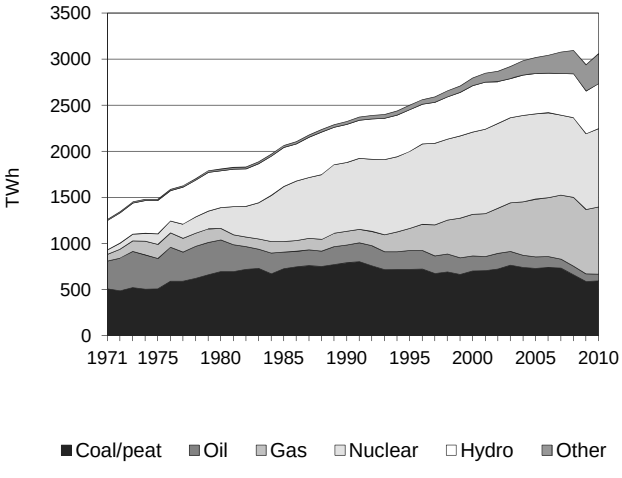
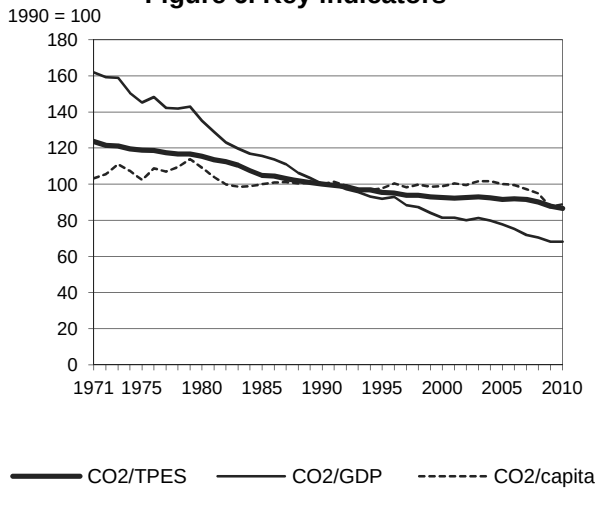


Figure 6. Key indicators



Annex II: Europe

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	3 152.8	3 138.3	3 220.9	3 350.4	3 234.5	2 993.2	3 056.6	-3.1%
CO_2 Reference Approach ($MtCO_2$)	3 200.9	3 170.6	3 254.0	3 374.5	3 254.8	3 035.3	3 100.1	-3.1%
TPES (PJ)	56 452	58 854	62 241	65 512	64 226	60 980	63 180	11.9%
TPES (Mtoe)	1 348.3	1 405.7	1 486.6	1 564.7	1 534.0	1 456.5	1 509.0	11.9%
GDP (billion 2005 USD)	9 941.3	10 769.6	12 474.8	13 610.9	14 471.9	13 857.3	14 140.6	42.2%
GDP PPP (billion 2005 USD)	8 951.4	9 698.0	11 230.1	12 253.6	13 032.3	12 478.2	12 727.0	42.2%
Population (millions)	377.3	384.4	389.9	401.1	408.2	410.0	411.4	9.0%
CO_2 / TPES (tCO_2 per TJ)	55.9	53.3	51.7	51.1	50.4	49.1	48.4	-13.4%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.32	0.29	0.26	0.25	0.22	0.22	0.22	-31.8%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.35	0.32	0.29	0.27	0.25	0.24	0.24	-31.8%
CO_2 / population (tCO_2 per capita)	8.36	8.16	8.26	8.35	7.92	7.30	7.43	-11.1%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**709.4**	**1 386.8**	**910.8**	**49.6**	**3 056.6**	**-3.1%**
Main activity producer elec. and heat	541.0	42.9	263.6	24.2	871.7	-1.0%
Unallocated autoproducers	42.9	21.6	55.7	14.6	134.9	-0.7%
Other energy industry own use	21.5	101.3	37.9	-	160.7	4.5%
Manufacturing industries and construction	90.4	180.4	188.1	9.0	467.9	-24.8%
Transport	0.0	807.6	3.7	-	811.4	15.7%
of which: road	-	*757.3*	*3.1*	-	*760.4*	16.7%
Other	13.5	233.1	361.7	1.8	610.1	-7.4%
of which: residential	*11.5*	*133.1*	*250.0*	*0.0*	*394.6*	-5.1%
Reference Approach	**717.7**	**1 412.9**	**920.0**	**49.6**	**3 100.1**	**-3.1%**
Diff. due to losses and/or transformation	10.4	16.4	7.7	-	34.5	
Statistical differences	- 2.1	9.7	1.4	0.0	9.0	
Memo: international marine bunkers	-	*147.8*	-	-	*147.8*	*35.6%*
Memo: international aviation bunkers	-	*127.0*	-	-	*127.0*	*79.5%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	757.3	16.3%	19.3	19.3
Main activity prod. elec. and heat - coal/peat	541.0	-22.4%	13.8	33.0
Main activity prod. elec. and heat - gas	263.6	343.1%	6.7	39.7
Residential - gas	250.0	58.9%	6.4	46.1
Manufacturing industries - gas	188.1	8.0%	4.8	50.8
Manufacturing industries - oil	180.4	-15.2%	4.6	55.4
Residential - oil	133.1	-27.7%	3.4	58.8
Non-specified other - gas	111.7	51.8%	2.8	61.6
Other energy industry own use - oil	101.3	-4.6%	2.6	64.2
Non-specified other - oil	100.0	-26.4%	2.5	66.8
Manufacturing industries - coal/peat	90.4	-61.3%	2.3	69.1
Memo: total CO_2 from fuel combustion	*3 056.6*	*-3.1%*	*77.7*	*77.7*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Annex II: Asia Oceania

Figure 1. CO_2 emissions by fuel

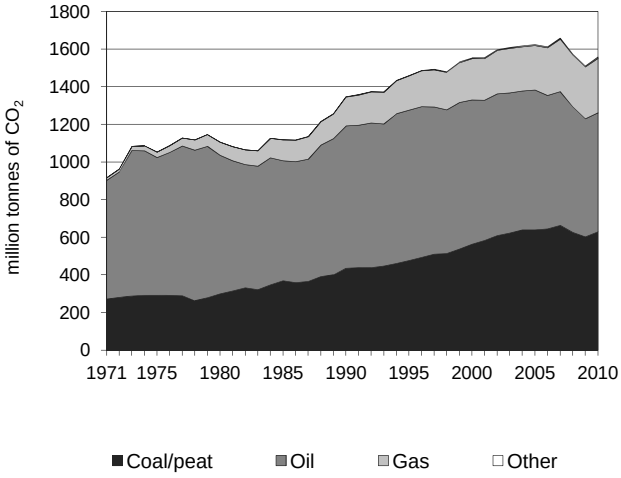


Figure 2. CO_2 emissions by sector

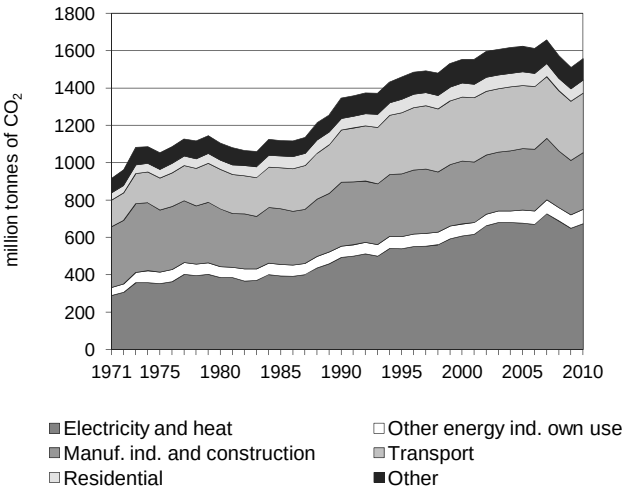


Figure 3. CO_2 emissions by sector

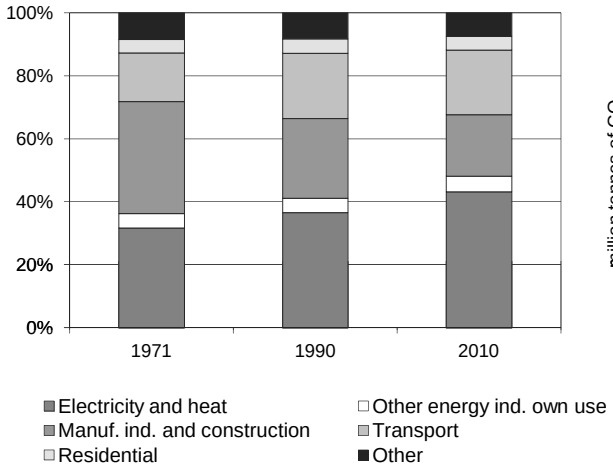


Figure 4. Reference vs Sectoral Approach

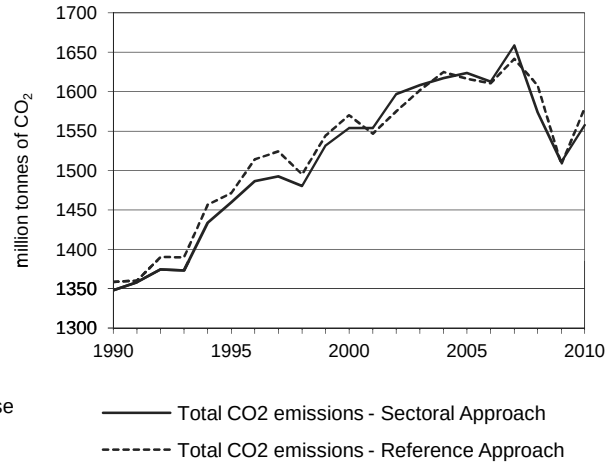


Figure 5. Electricity generation by fuel

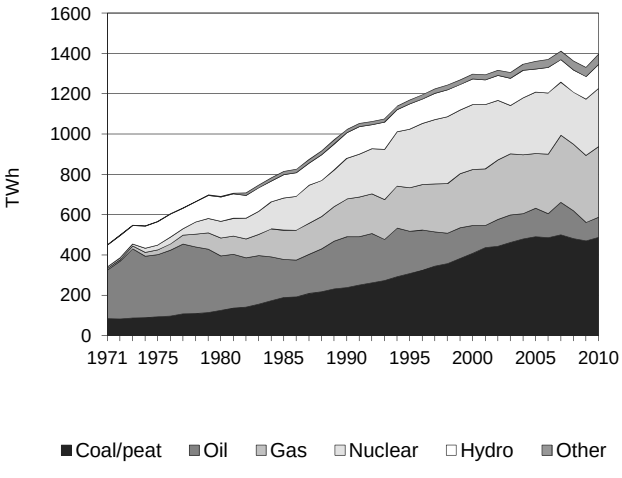
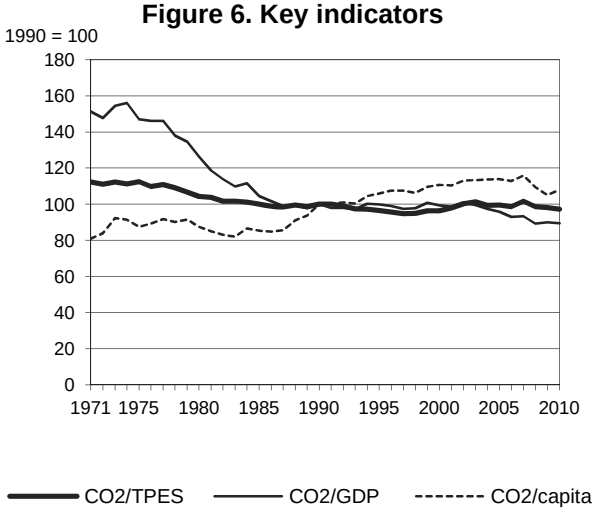


Figure 6. Key indicators



Annex II: Asia Oceania

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	1 347.8	1 459.7	1 553.7	1 623.8	1 574.0	1 510.8	1 557.4	15.6%
CO_2 Reference Approach ($MtCO_2$)	1 358.5	1 471.5	1 570.2	1 616.5	1 608.0	1 507.6	1 579.0	16.2%
TPES (PJ)	22 543	25 276	26 969	27 281	26 670	25 771	26 786	18.8%
TPES (Mtoe)	538.4	603.7	644.1	651.6	637.0	615.5	639.8	18.8%
GDP (billion 2005 USD)	4 315.3	4 680.9	5 005.4	5 430.0	5 651.3	5 375.7	5 574.3	29.2%
GDP PPP (billion 2005 USD)	3 718.2	4 037.5	4 325.0	4 698.8	4 893.8	4 661.1	4 832.3	30.0%
Population (millions)	144.2	147.5	150.1	152.5	153.7	154.0	154.3	7.1%
CO_2 / TPES (tCO_2 per TJ)	59.8	57.7	57.6	59.5	59.0	58.6	58.1	-2.8%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.31	0.31	0.31	0.30	0.28	0.28	0.28	-10.5%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.36	0.36	0.36	0.35	0.32	0.32	0.32	-11.1%
CO_2 / population (tCO_2 per capita)	9.35	9.90	10.35	10.65	10.24	9.81	10.09	7.9%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**629.9**	**632.1**	**289.5**	**5.9**	**1 557.4**	**15.6%**
Main activity producer elec. and heat	409.1	40.1	147.3	1.4	598.0	38.3%
Unallocated autoproducers	48.9	15.7	8.3	2.4	75.4	22.6%
Other energy industry own use	23.1	33.6	20.2	-	76.8	27.1%
Manufacturing industries and construction	145.8	115.8	40.9	2.0	304.5	-10.8%
Transport	0.5	317.0	1.0	-	318.5	13.9%
of which: road	-	*282.2*	*0.1*	-	*282.3*	13.5%
Other	2.5	109.9	71.9	-	184.3	6.8%
of which: residential	*0.1*	*40.3*	*29.0*	-	*69.3*	11.8%
Reference Approach	**655.8**	**647.1**	**270.3**	**5.9**	**1 579.0**	**16.2%**
Diff. due to losses and/or transformation	2.8	- 1.6	- 2.5	0.0	- 1.3	
Statistical differences	23.1	16.6	- 16.7	- 0.0	22.9	
Memo: international marine bunkers	-	*18.1*	-	-	*18.1*	*-13.1%*
Memo: international aviation bunkers	-	*28.8*	-	-	*28.8*	*52.0%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	409.1	93.5%	21.6	21.6
Road - oil	282.2	13.5%	14.9	36.5
Main activity prod. elec. and heat - gas	147.3	68.9%	7.8	44.3
Manufacturing industries - coal/peat	145.8	-12.9%	7.7	52.0
Manufacturing industries - oil	115.8	-21.3%	6.1	58.2
Non-specified other - oil	69.6	-26.7%	3.7	61.8
Unallocated autoproducers - coal/peat	48.9	49.1%	2.6	64.4
Non-specified other - gas	42.9	285.8%	2.3	66.7
Manufacturing industries - gas	40.9	56.3%	2.2	68.9
Residential - oil	40.3	2.1%	2.1	71.0
Main activity prod. elec. and heat - oil	40.1	-70.0%	2.1	73.1
Memo: total CO_2 from fuel combustion	*1 557.4*	*15.6%*	*82.3*	*82.3*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Economies in Transition

Figure 1. CO_2 emissions by fuel

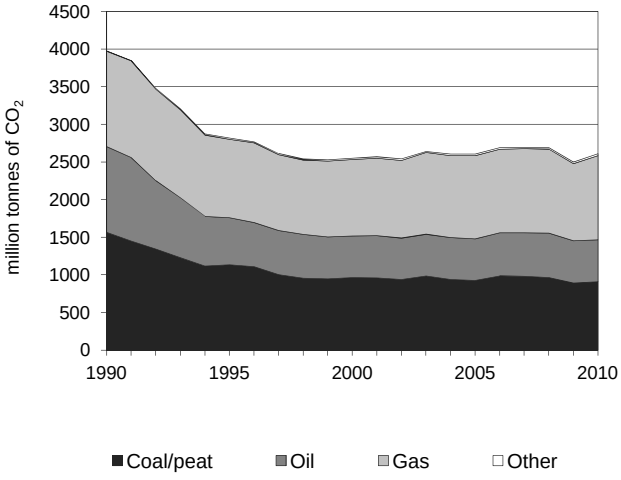


Figure 2. CO_2 emissions by sector

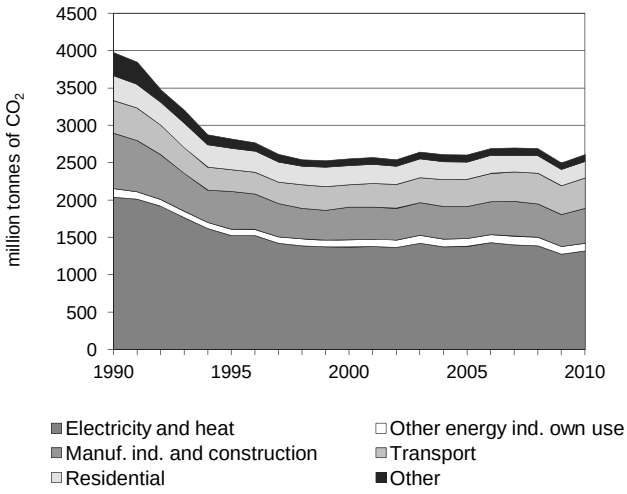


Figure 3. CO_2 emissions by sector

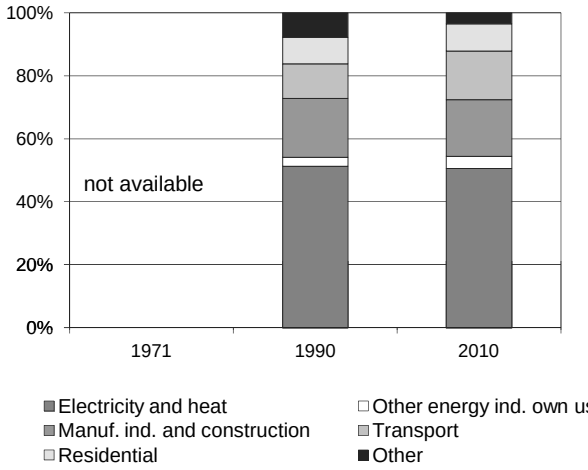


Figure 4. Reference vs Sectoral Approach

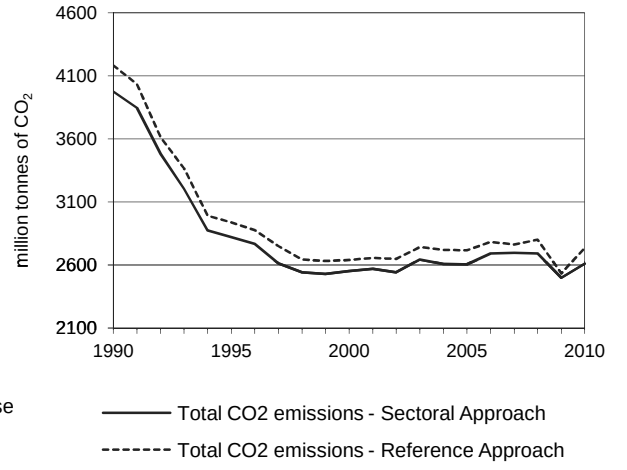


Figure 5. Electricity generation by fuel

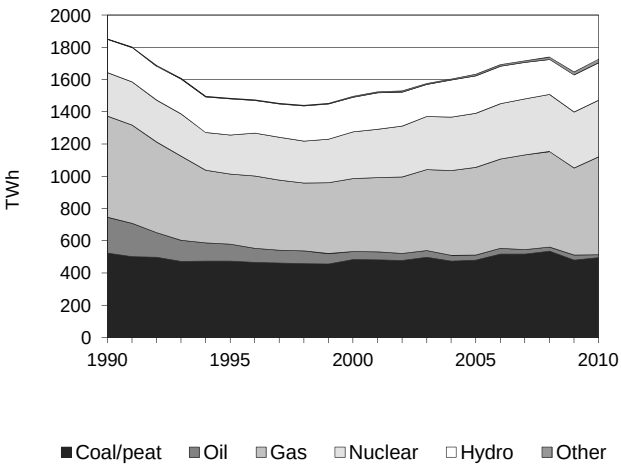
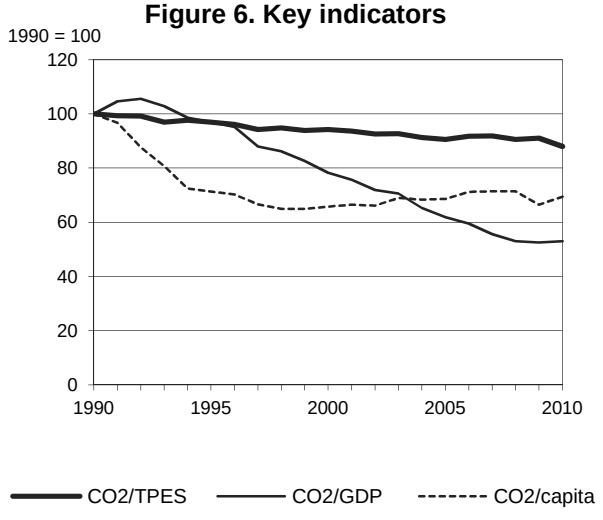


Figure 6. Key indicators



Economies in Transition

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	3 975.4	2 820.2	2 553.2	2 604.9	2 692.5	2 499.6	2 610.5	-34.3%
CO_2 Reference Approach ($MtCO_2$)	4 184.0	2 938.4	2 639.7	2 718.0	2 802.0	2 533.1	2 735.8	-34.6%
TPES (PJ)	63 581	46 516	43 343	45 988	47 553	43 933	47 491	-25.3%
TPES (Mtoe)	1 518.6	1 111.0	1 035.2	1 098.4	1 135.8	1 049.3	1 134.3	-25.3%
GDP (billion 2005 USD)	1 638.8	1 198.6	1 344.7	1 736.8	2 093.7	1 963.6	2 029.3	23.8%
GDP PPP (billion 2005 USD)	3 472.7	2 448.4	2 713.6	3 540.0	4 286.1	4 002.5	4 141.6	19.3%
Population (millions)	321.1	319.5	313.8	306.8	304.4	304.0	303.6	-5.4%
CO_2 / TPES (tCO_2 per TJ)	62.5	60.6	58.9	56.6	56.6	56.9	55.0	-12.1%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	2.43	2.35	1.90	1.50	1.29	1.27	1.29	-47.0%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	1.14	1.15	0.94	0.74	0.63	0.62	0.63	-44.9%
CO_2 / population (tCO_2 per capita)	12.38	8.83	8.14	8.49	8.85	8.22	8.60	-30.6%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**912.0**	**553.6**	**1 120.2**	**24.6**	**2 610.5**	**-34.3%**
Main activity producer elec. and heat	514.5	12.8	418.2	0.8	946.3	-39.7%
Unallocated autoproducers	121.6	32.5	203.4	16.5	374.0	-20.1%
Other energy industry own use	16.6	55.4	28.4	0.8	101.3	-12.5%
Manufacturing industries and construction	197.3	74.5	191.6	5.8	469.2	-36.9%
Transport	0.1	316.0	87.4	-	403.6	-7.4%
of which: road	-	*285.3*	*0.6*	-	*285.9*	3.8%
Other	61.9	62.2	191.2	0.7	316.0	-50.8%
of which: residential	*40.5*	*21.5*	*163.0*	-	*225.0*	-33.1%
Reference Approach	**988.4**	**580.4**	**1 142.4**	**24.6**	**2 735.8**	**-34.6%**
Diff. due to losses and/or transformation	50.9	26.9	21.5	0.0	99.4	
Statistical differences	25.4	- 0.1	0.6	- 0.0	26.0	
Memo: international marine bunkers	-	*7.8*	-	-	*7.8*	*-20.1%*
Memo: international aviation bunkers	-	*24.4*	-	-	*24.4*	*-33.6%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	514.5	-35.1%	13.4	13.4
Main activity prod. elec. and heat - gas	418.2	-16.7%	10.9	24.4
Road - oil	285.3	4.6%	7.5	31.8
Unallocated autoproducers - gas	203.4	-7.9%	5.3	37.1
Manufacturing industries - coal/peat	197.3	-33.8%	5.2	42.3
Manufacturing industries - gas	191.6	-21.1%	5.0	47.3
Residential - gas	163.0	5.7%	4.3	51.5
Unallocated autoproducers - coal/peat	121.6	-25.4%	3.2	54.7
Other transport - gas	86.8	12.4%	2.3	57.0
Manufacturing industries - oil	74.5	-62.7%	1.9	58.9
Other energy industry own use - oil	55.4	-14.0%	1.4	60.4
Memo: total CO_2 from fuel combustion	*2 610.5*	*-34.3%*	*68.2*	*68.2*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Non-Annex I Parties

Figure 1. CO_2 emissions by fuel

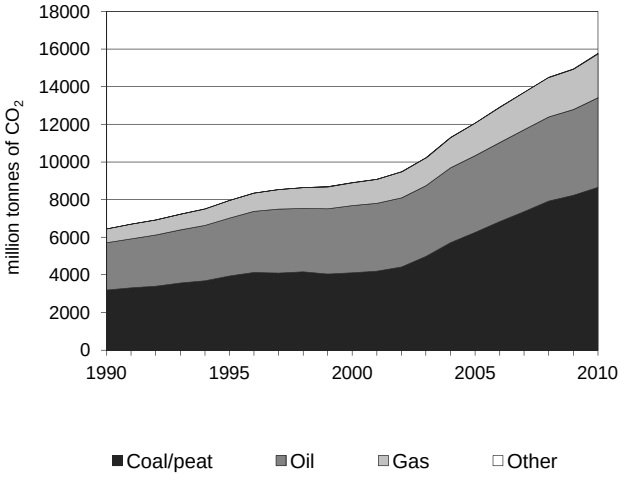


Figure 2. CO_2 emissions by sector

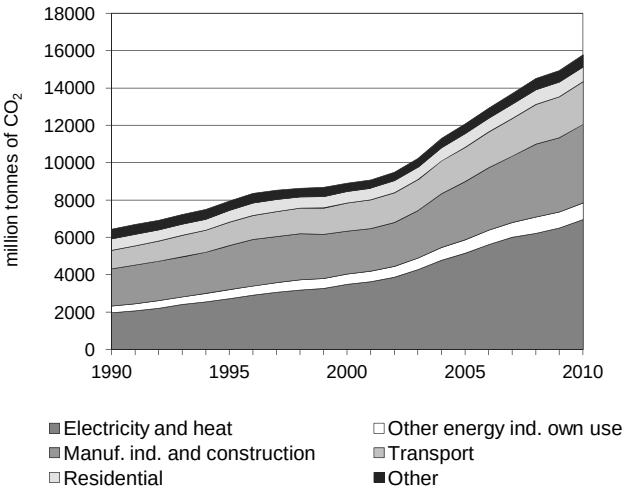


Figure 3. CO_2 emissions by sector

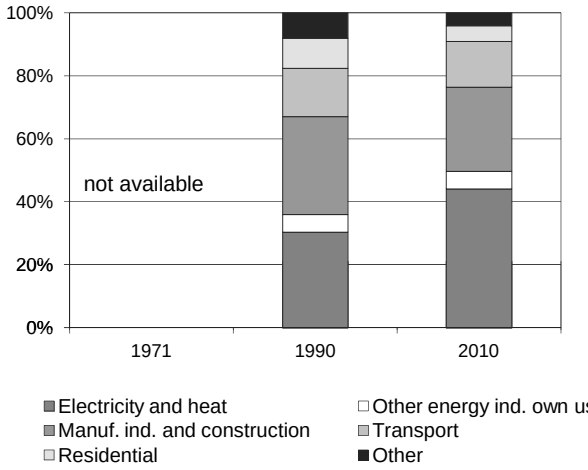


Figure 4. Reference vs Sectoral Approach

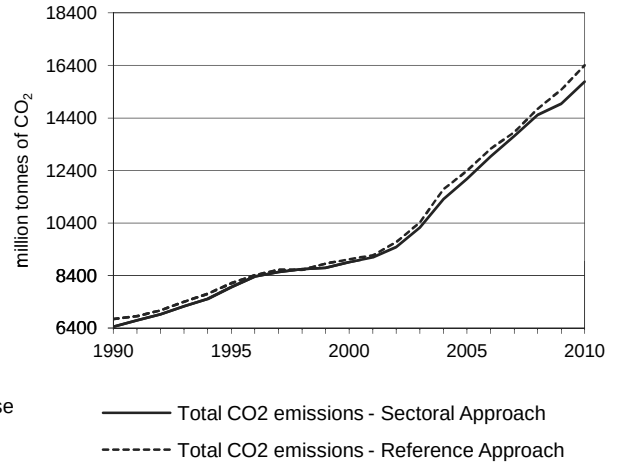


Figure 5. Electricity generation by fuel

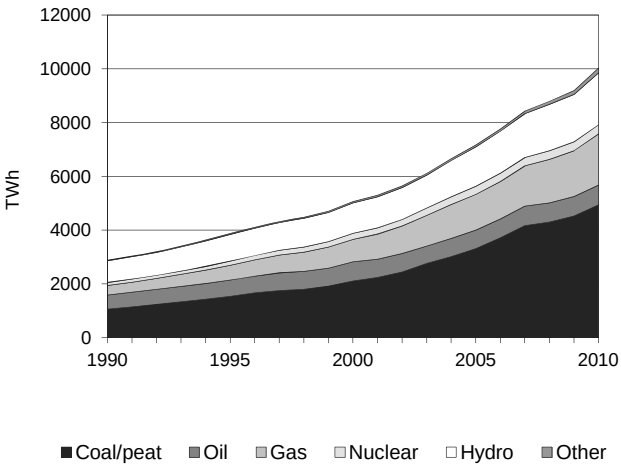
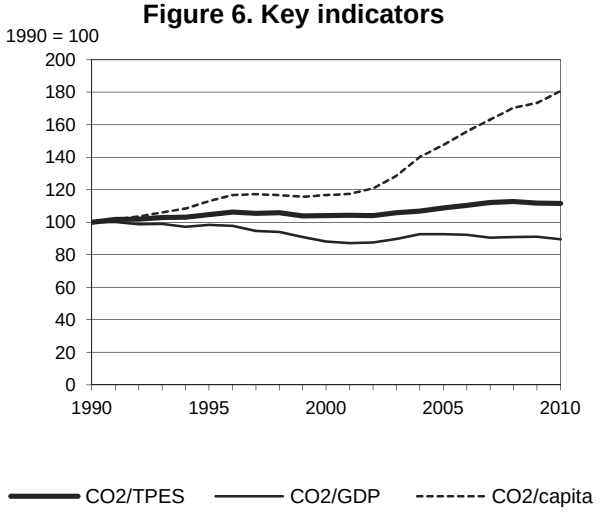


Figure 6. Key indicators



Non-Annex I Parties

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	6 449.4	7 959.8	8 908.3	12 078.7	14 511.3	14 944.6	15 779.0	144.7%
CO_2 Reference Approach ($MtCO_2$)	6 746.8	8 106.9	9 025.6	12 388.0	14 746.4	15 477.5	16 409.3	143.2%
TPES (PJ)	125 187	147 609	166 185	215 334	249 937	259 706	274 312	119.1%
TPES (Mtoe)	2 990.0	3 525.6	3 969.3	5 143.2	5 969.6	6 203.0	6 551.8	119.1%
GDP (billion 2005 USD)	5 272.2	6 613.1	8 263.8	10 652.6	13 051.2	13 427.8	14 406.4	173.3%
GDP PPP (billion 2005 USD)	10 914.2	13 714.7	17 254.5	22 750.9	28 250.8	29 374.3	31 589.0	189.4%
Population (millions)	4 090.3	4 468.3	4 839.1	5 189.5	5 397.1	5 467.2	5 538.6	35.4%
CO_2 / TPES (tCO_2 per TJ)	51.5	53.9	53.6	56.1	58.1	57.5	57.5	11.7%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	1.22	1.20	1.08	1.13	1.11	1.11	1.10	-10.5%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.59	0.58	0.52	0.53	0.51	0.51	0.50	-15.5%
CO_2 / population (tCO_2 per capita)	1.58	1.78	1.84	2.33	2.69	2.73	2.85	80.7%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**8 658.4**	**4 765.5**	**2 324.6**	**30.5**	**15 779.0**	**144.7%**
Main activity producer elec. and heat	5 052.8	567.4	884.4	1.0	6 505.6	252.7%
Unallocated autoproducers	248.2	79.0	100.3	20.9	448.4	276.0%
Other energy industry own use	216.7	283.3	395.9	0.1	896.0	149.2%
Manufacturing industries and construction	2 715.1	922.3	561.5	7.1	4 205.9	110.3%
Transport	12.4	2 219.3	55.7	-	2 287.4	131.1%
of which: road	-	*2 018.9*	*44.9*	-	*2 063.8*	141.4%
Other	413.2	694.2	326.8	1.5	1 435.7	26.3%
of which: residential	*223.2*	*326.3*	*240.3*	-	*789.9*	27.1%
Reference Approach	**9 155.5**	**4 850.8**	**2 372.5**	**30.5**	**16 409.3**	**143.2%**
Diff. due to losses and/or transformation	226.0	101.0	51.0	-	378.0	
Statistical differences	271.2	- 15.8	- 3.1	- 0.0	252.3	
Memo: international marine bunkers	-	*379.3*	-	-	*379.3*	*194.4%*
Memo: international aviation bunkers	-	*203.4*	-	-	*203.4*	*134.7%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	5 052.8	315.5%	19.6	19.6
Manufacturing industries - coal/peat	2 715.1	116.9%	10.5	30.2
Road - oil	2 018.9	136.3%	7.8	38.0
Manufacturing industries - oil	922.3	72.1%	3.6	41.6
Main activity prod. elec. and heat - gas	884.4	299.4%	3.4	45.0
Main activity prod. elec. and heat - oil	567.4	39.5%	2.2	47.2
Manufacturing industries - gas	561.5	166.5%	2.2	49.4
Other energy industry own use - gas	395.9	197.3%	1.5	50.9
Non-specified other - oil	367.9	49.8%	1.4	52.4
Residential - oil	326.3	57.6%	1.3	53.6
Other energy industry own use - oil	283.3	78.7%	1.1	54.7
Memo: total CO_2 from fuel combustion	*15 779.0*	*144.7%*	*61.3*	*61.3*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Annex I Kyoto Parties

Figure 1. CO_2 emissions by fuel

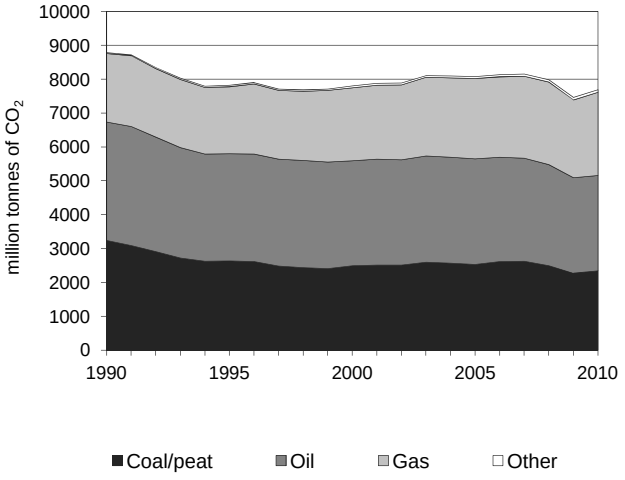


Figure 2. CO_2 emissions by sector

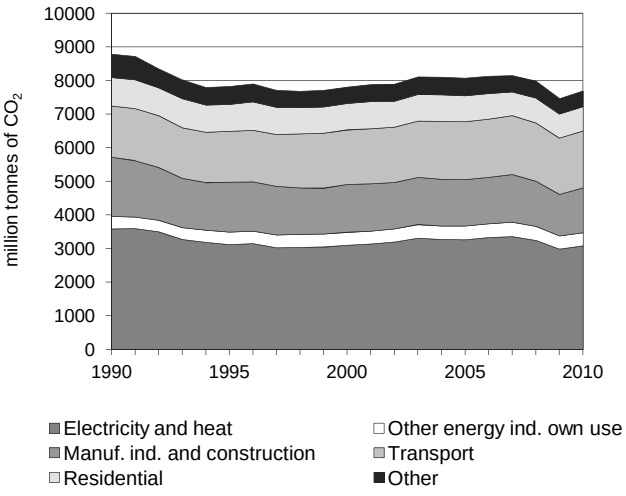


Figure 3. CO_2 emissions by sector

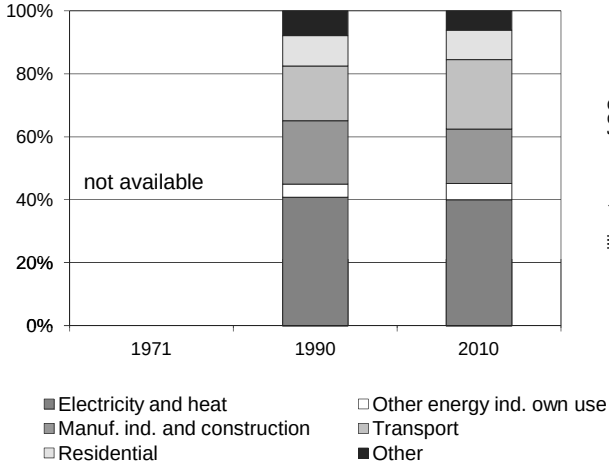


Figure 4. Reference vs Sectoral Approach

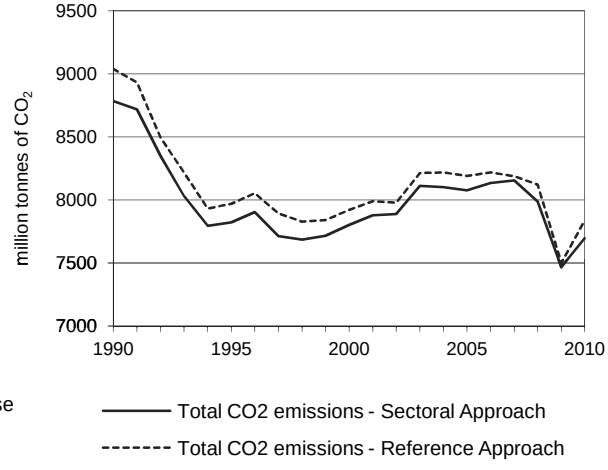


Figure 5. Electricity generation by fuel

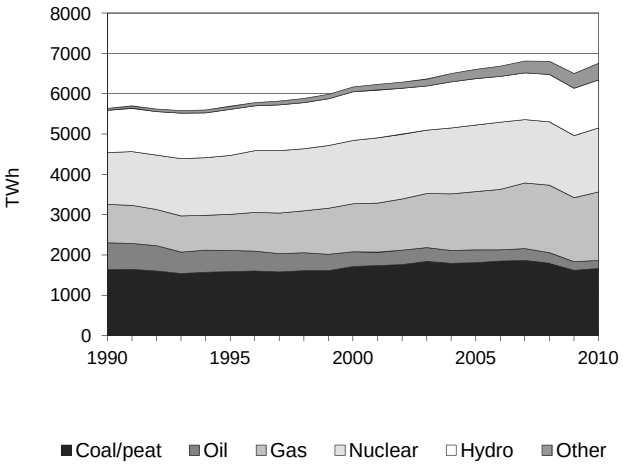
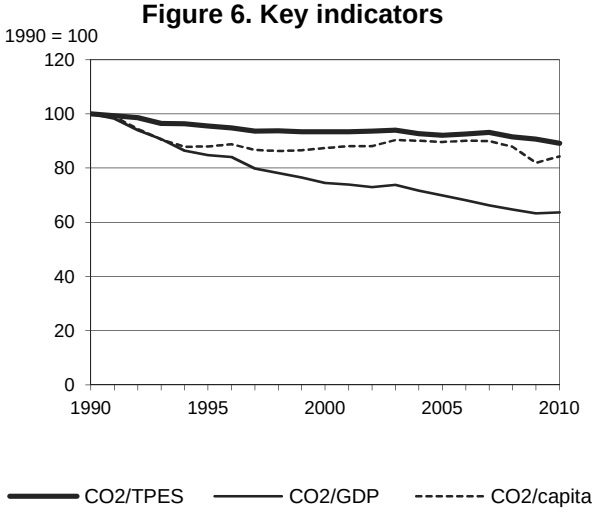


Figure 6. Key indicators



Annex I Kyoto Parties

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	8 784.3	7 822.6	7 802.5	8 076.4	7 987.0	7 466.8	7 695.8	-12.4%
CO_2 Reference Approach ($MtCO_2$)	9 039.4	7 970.2	7 922.7	8 190.4	8 123.1	7 500.4	7 837.8	-13.3%
TPES (PJ)	149 400	139 272	142 046	149 053	148 356	140 062	146 839	-1.7%
TPES (Mtoe)	3 568.3	3 326.5	3 392.7	3 560.1	3 543.4	3 345.3	3 507.2	-1.7%
GDP (billion 2005 USD)	16 621.6	17 450.3	19 803.8	21 881.2	23 376.7	22 323.2	22 905.2	37.8%
GDP PPP (billion 2005 USD)	16 825.4	16 956.4	19 208.9	21 540.9	23 299.9	22 196.3	22 784.3	35.4%
Population (millions)	860.0	870.5	874.5	882.8	890.0	892.1	894.0	3.9%
CO_2 / TPES (tCO_2 per TJ)	58.8	56.2	54.9	54.2	53.8	53.3	52.4	-10.9%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.53	0.45	0.39	0.37	0.34	0.33	0.34	-36.4%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.52	0.46	0.41	0.37	0.34	0.34	0.34	-35.3%
CO_2 / population (tCO_2 per capita)	10.21	8.99	8.92	9.15	8.97	8.37	8.61	-15.7%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**2 345.0**	**2 813.1**	**2 458.0**	**79.7**	**7 695.8**	**-12.4%**
Main activity producer elec. and heat	1 545.5	99.6	822.9	26.4	2 494.4	-15.1%
Unallocated autoproducers	213.2	71.0	269.9	33.4	587.4	-10.1%
Other energy industry own use	61.2	217.2	118.6	0.6	397.6	8.3%
Manufacturing industries and construction	447.7	395.7	472.1	16.7	1 332.2	-24.3%
Transport	0.6	1 597.9	97.2	-	1 695.7	10.8%
of which: road	-	*1 458.3*	*3.9*	-	*1 462.1*	15.8%
Other	76.8	431.7	677.3	2.5	1 188.4	-22.6%
of which: residential	*51.2*	*199.1*	*469.5*	*0.0*	*719.8*	-15.0%
Reference Approach	**2 447.4**	**2 838.2**	**2 472.6**	**79.7**	**7 837.8**	**-13.3%**
Diff. due to losses and/or transformation	64.8	9.9	32.8	0.0	107.5	
Statistical differences	37.6	15.2	- 18.2	- 0.0	34.5	
Memo: international marine bunkers	-	*176.0*	-	-	*176.0*	*23.5%*
Memo: international aviation bunkers	-	*183.3*	-	-	*183.3*	*42.0%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	1 545.5	-13.4%	15.0	15.0
Road - oil	1 458.3	15.8%	14.2	29.2
Main activity prod. elec. and heat - gas	822.9	29.5%	8.0	37.2
Manufacturing industries - gas	472.1	-2.2%	4.6	41.8
Residential - gas	469.5	31.1%	4.6	46.3
Manufacturing industries - coal/peat	447.7	-37.3%	4.3	50.7
Manufacturing industries - oil	395.7	-28.9%	3.8	54.5
Unallocated autoproducers - gas	269.9	12.3%	2.6	57.1
Non-specified other - oil	232.6	-34.9%	2.3	59.4
Other energy industry own use - oil	217.2	-2.8%	2.1	61.5
Unallocated autoproducers - coal/peat	213.2	-24.9%	2.1	63.6
Memo: total CO_2 from fuel combustion	*7 695.8*	*-12.4%*	*74.8*	*74.8*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

OECD Total *

Figure 1. CO_2 emissions by fuel

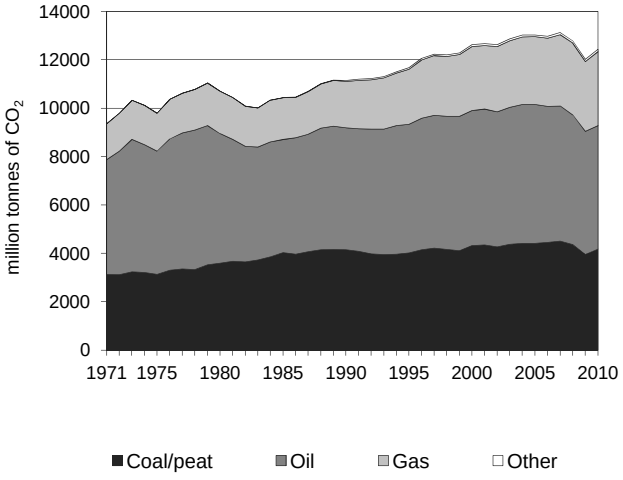


Figure 2. CO_2 emissions by sector

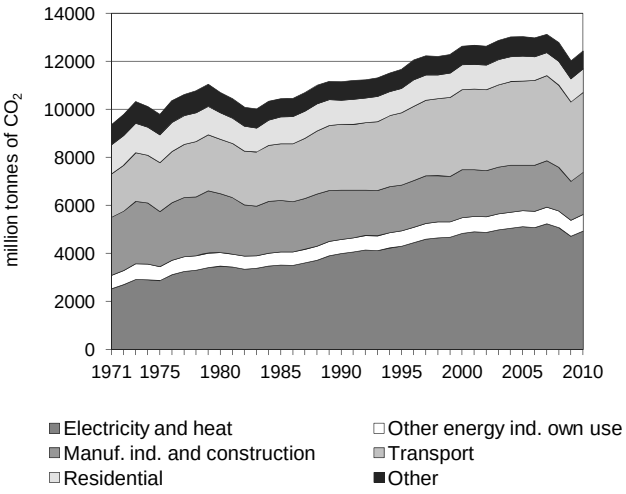


Figure 3. CO_2 emissions by sector

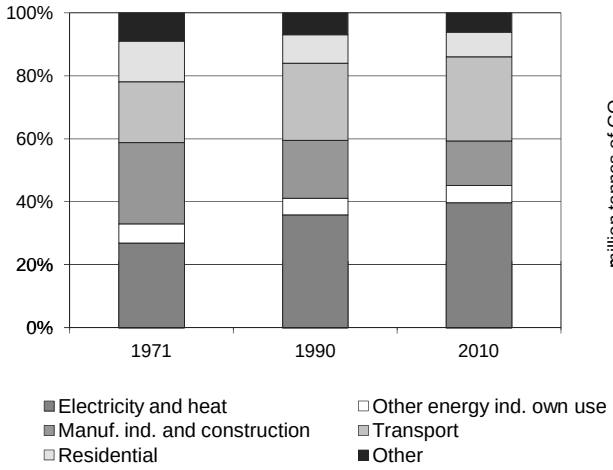


Figure 4. Reference vs Sectoral Approach

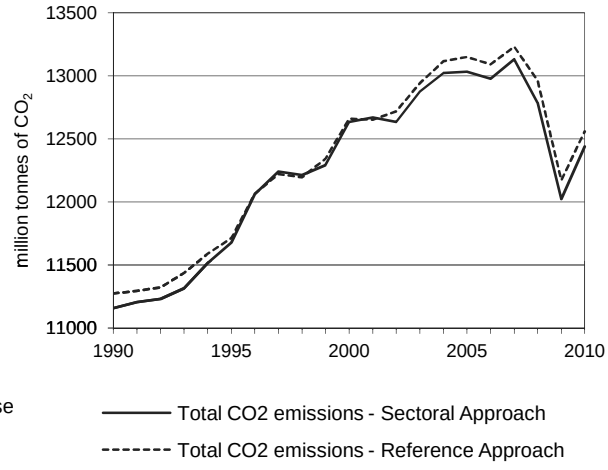


Figure 5. Electricity generation by fuel

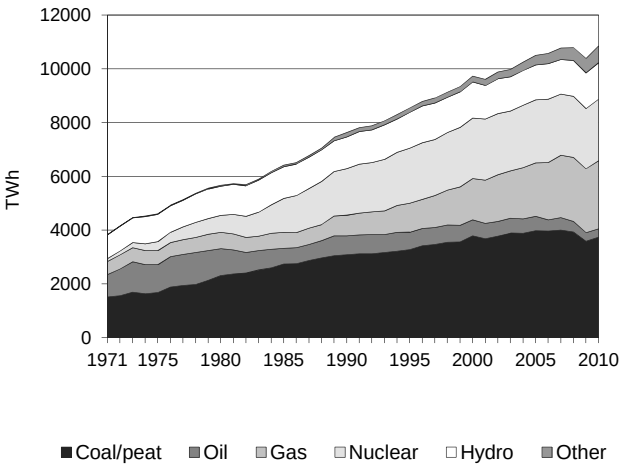
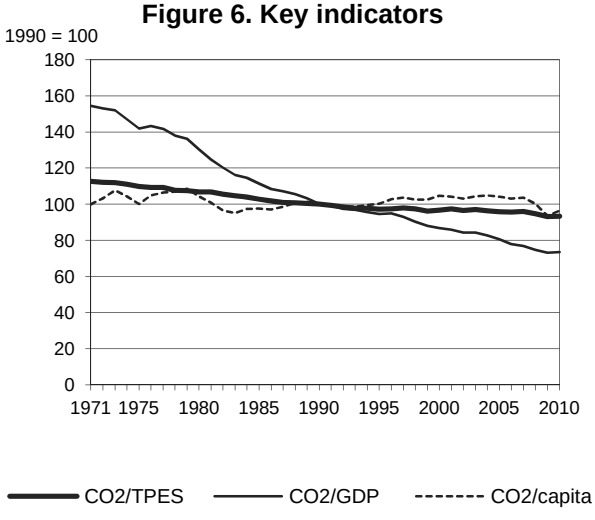


Figure 6. Key indicators



* Excludes Estonia and Slovenia prior to 1990.

OECD Total

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	11 156.8	11 678.0	12 634.4	13 032.5	12 787.0	12 023.0	12 440.3	11.5%
CO_2 Reference Approach ($MtCO_2$)	11 274.5	11 713.1	12 659.5	13 151.2	12 962.6	12 173.9	12 559.5	11.4%
TPES (PJ)	189 348	204 026	221 588	230 908	229 154	218 957	226 333	19.5%
TPES (Mtoe)	4 522.5	4 873.1	5 292.5	5 515.1	5 473.2	5 229.7	5 405.9	19.5%
GDP (billion 2005 USD)	24 706.5	27 332.2	32 225.9	35 806.9	37 887.0	36 401.3	37 494.1	51.8%
GDP PPP (billion 2005 USD)	24 022.7	26 646.5	31 596.7	35 251.9	37 427.3	35 987.9	37 113.4	54.5%
Population (millions)	1 064.1	1 111.5	1 151.9	1 193.0	1 217.8	1 225.1	1 232.2	15.8%
CO_2 / TPES (tCO_2 per TJ)	58.9	57.2	57.0	56.4	55.8	54.9	55.0	-6.7%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.45	0.43	0.39	0.36	0.34	0.33	0.33	-26.5%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.46	0.44	0.40	0.37	0.34	0.33	0.34	-27.8%
CO_2 / population (tCO_2 per capita)	10.49	10.51	10.97	10.92	10.50	9.81	10.10	-3.7%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**4 181.5**	**5 108.2**	**3 050.2**	**100.3**	**12 440.3**	**11.5%**
Main activity producer elec. and heat	3 374.3	167.5	988.1	39.9	4 569.8	26.9%
Unallocated autoproducers	167.0	58.5	116.9	25.8	368.1	-7.3%
Other energy industry own use	84.5	357.5	245.2	0.1	687.2	15.8%
Manufacturing industries and construction	462.2	617.4	644.3	30.2	1 754.1	-14.4%
Transport	0.5	3 272.2	53.0	-	3 325.8	21.4%
of which: road	-	*2 960.0*	*7.6*	-	*2 967.6*	27.6%
Other	93.1	635.2	1 002.7	4.3	1 735.3	-2.4%
of which: residential	*71.3*	*281.4*	*629.2*	*0.0*	*982.0*	-2.3%
Reference Approach	**4 261.7**	**5 141.9**	**3 055.5**	**100.3**	**12 559.5**	**11.4%**
Diff. due to losses and/or transformation	48.6	- 2.7	8.7	0.0	54.6	
Statistical differences	31.5	36.4	- 3.3	- 0.0	64.6	
Memo: international marine bunkers	-	*286.9*	-	-	*286.9*	*23.8%*
Memo: international aviation bunkers	-	*254.5*	-	-	*254.5*	*79.3%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	3 374.3	19.0%	21.4	21.4
Road - oil	2 960.0	27.3%	18.8	40.2
Main activity prod. elec. and heat - gas	988.1	200.1%	6.3	46.5
Manufacturing industries - gas	644.3	10.4%	4.1	50.6
Residential - gas	629.2	35.5%	4.0	54.6
Manufacturing industries - oil	617.4	-13.9%	3.9	58.5
Manufacturing industries - coal/peat	462.2	-37.7%	2.9	61.5
Non-specified other - gas	373.5	45.1%	2.4	63.9
Other energy industry own use - oil	357.5	-1.3%	2.3	66.1
Non-specified other - oil	353.7	-15.0%	2.2	68.4
Other transport - oil	312.2	-15.5%	2.0	70.4
Memo: total CO_2 from fuel combustion	*12 440.3*	*11.5%*	*79.0*	*79.0*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

OECD Americas

Figure 1. CO_2 emissions by fuel

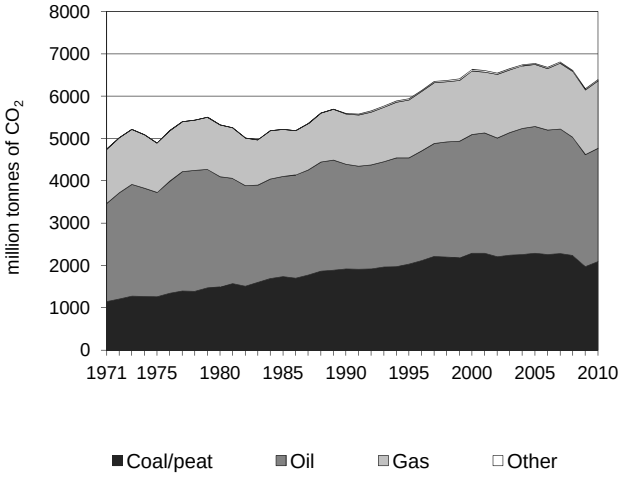


Figure 2. CO_2 emissions by sector

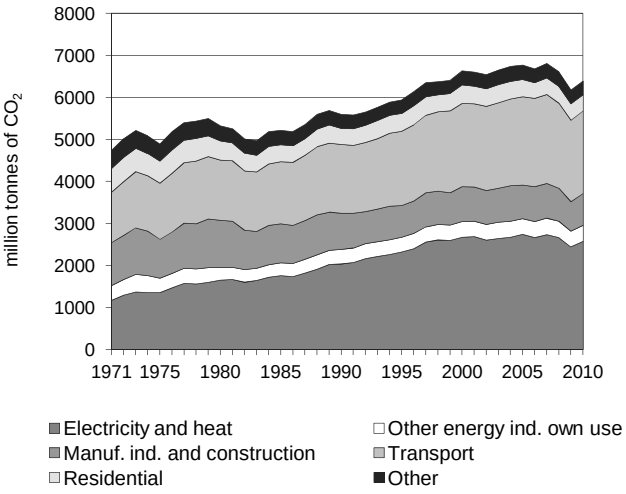


Figure 3. CO_2 emissions by sector

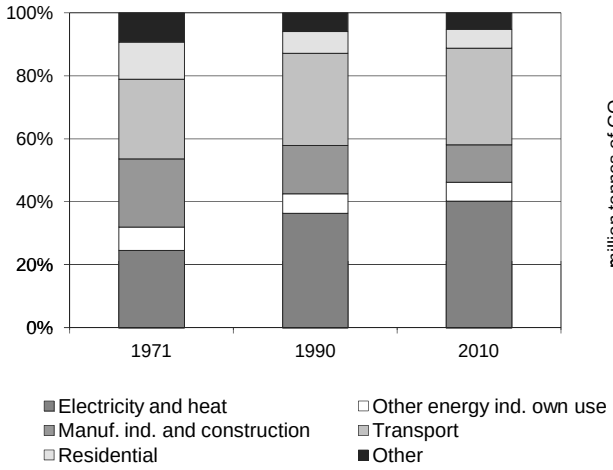


Figure 4. Reference vs Sectoral Approach

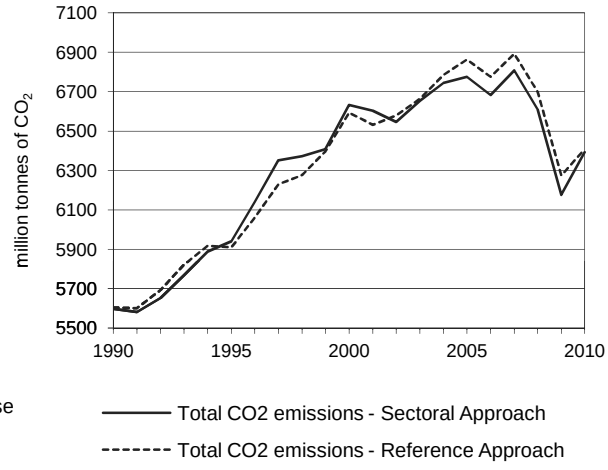


Figure 5. Electricity generation by fuel

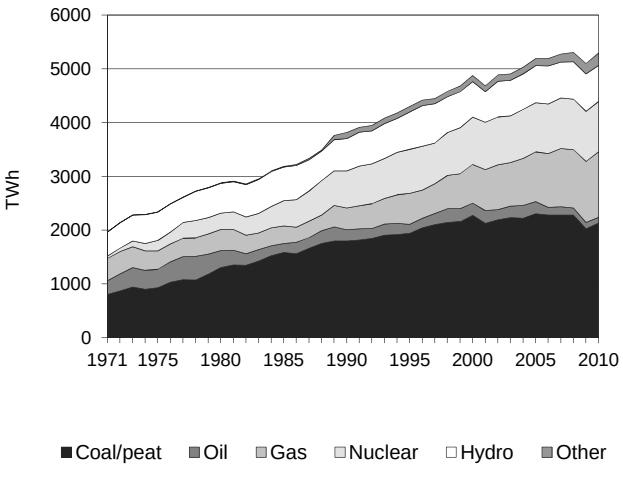
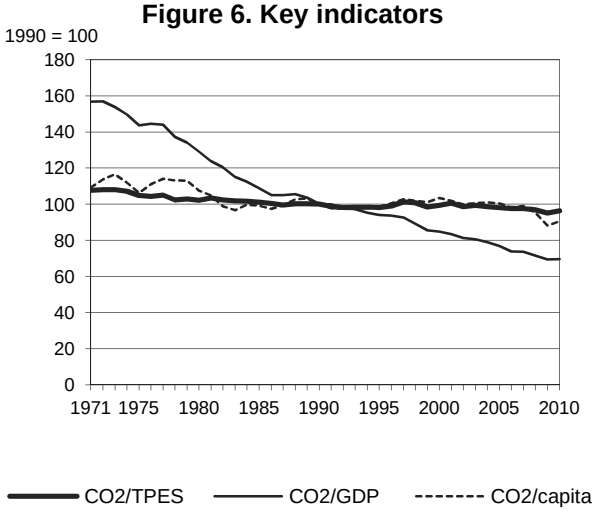


Figure 6. Key indicators



OECD Americas

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	5 597.4	5 940.0	6 633.3	6 774.7	6 609.5	6 175.4	6 391.9	14.2%
CO_2 Reference Approach ($MtCO_2$)	5 604.8	5 909.4	6 593.0	6 863.5	6 699.5	6 274.5	6 407.8	14.3%
TPES (PJ)	94 623	102 415	112 837	116 793	115 270	109 688	112 089	18.5%
TPES (Mtoe)	2 260.0	2 446.1	2 695.1	2 789.6	2 753.2	2 619.8	2 677.2	18.5%
GDP (billion 2005 USD)	9 312.1	10 506.1	13 025.0	14 662.4	15 360.9	14 805.0	15 279.6	64.1%
GDP PPP (billion 2005 USD)	9 635.8	10 870.7	13 496.5	15 188.5	15 942.0	15 353.7	15 858.5	64.6%
Population (millions)	372.3	401.5	426.8	448.6	461.5	465.6	469.6	26.1%
CO_2 / TPES (tCO_2 per TJ)	59.2	58.0	58.8	58.0	57.3	56.3	57.0	-3.6%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.60	0.57	0.51	0.46	0.43	0.42	0.42	-30.4%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.58	0.55	0.49	0.45	0.41	0.40	0.40	-30.6%
CO_2 / population (tCO_2 per capita)	15.03	14.80	15.54	15.10	14.32	13.26	13.61	-9.5%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**2 092.2**	**2 675.5**	**1 594.4**	**29.8**	**6 391.9**	**14.2%**
Main activity producer elec. and heat	1 924.6	69.5	476.0	13.5	2 483.5	28.1%
Unallocated autoproducers	22.4	12.8	46.6	6.8	88.7	-9.7%
Other energy industry own use	9.6	192.5	180.9	-	383.0	10.5%
Manufacturing industries and construction	129.7	257.9	361.9	8.6	758.1	-11.9%
Transport	-	1 920.2	43.7	-	1 964.0	20.0%
of which: road	-	*1 704.3*	*1.8*	-	*1 706.2*	29.1%
Other	5.9	222.6	485.2	0.9	714.7	-0.3%
of which: residential	*0.0*	*89.9*	*293.0*	-	*382.9*	-0.9%
Reference Approach	**2 107.4**	**2 662.9**	**1 607.7**	**29.8**	**6 407.8**	**14.3%**
Diff. due to losses and/or transformation	16.9	- 22.5	2.1	-	- 3.5	
Statistical differences	- 1.8	9.9	11.2	0.0	19.4	
Memo: international marine bunkers	-	*88.6*	-	-	*88.6*	*-5.9%*
Memo: international aviation bunkers	-	*77.4*	-	-	*77.4*	*63.7%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	1 924.6	18.2%	23.8	23.8
Road - oil	1 704.3	29.0%	21.1	44.8
Main activity prod. elec. and heat - gas	476.0	190.7%	5.9	50.7
Manufacturing industries - gas	361.9	2.3%	4.5	55.2
Residential - gas	293.0	9.2%	3.6	58.8
Manufacturing industries - oil	257.9	-6.0%	3.2	62.0
Other transport - oil	215.9	-20.7%	2.7	64.7
Other energy industry own use - oil	192.5	-5.9%	2.4	67.0
Non-specified other - gas	192.2	17.3%	2.4	69.4
Other energy industry own use - gas	180.9	30.7%	2.2	71.6
Non-specified other - oil	132.7	-1.7%	1.6	73.3
Memo: total CO_2 from fuel combustion	*6 391.9*	*14.2%*	*79.0*	*79.0*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

OECD Asia Oceania

Figure 1. CO_2 emissions by fuel

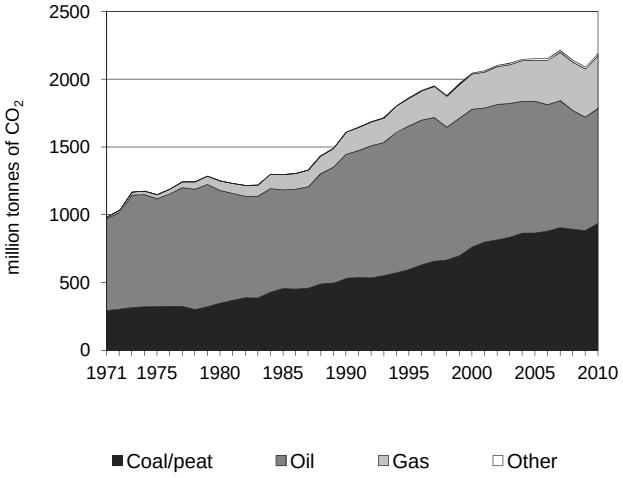


Figure 2. CO_2 emissions by sector

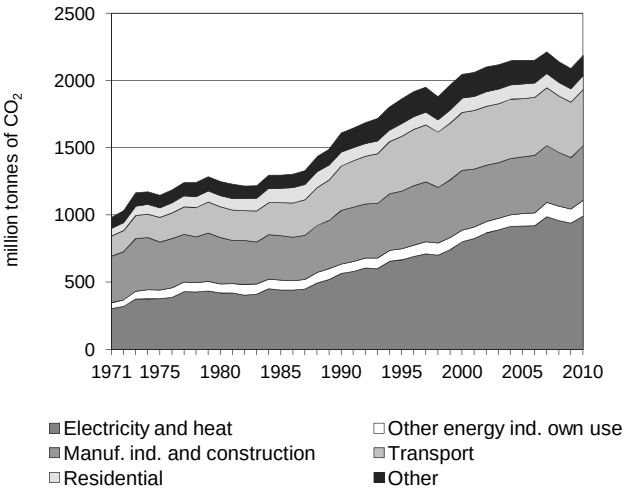


Figure 3. CO_2 emissions by sector

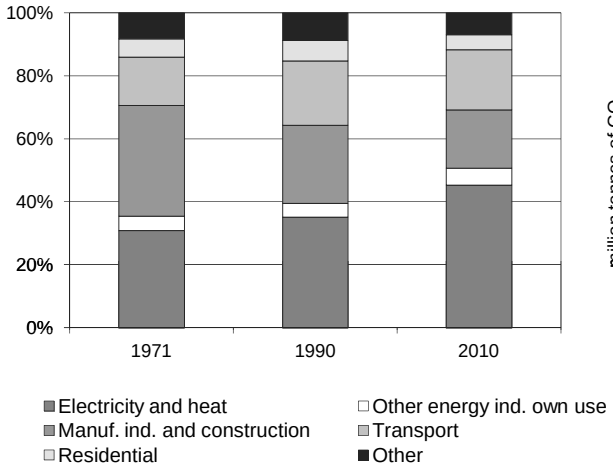


Figure 4. Reference vs Sectoral Approach

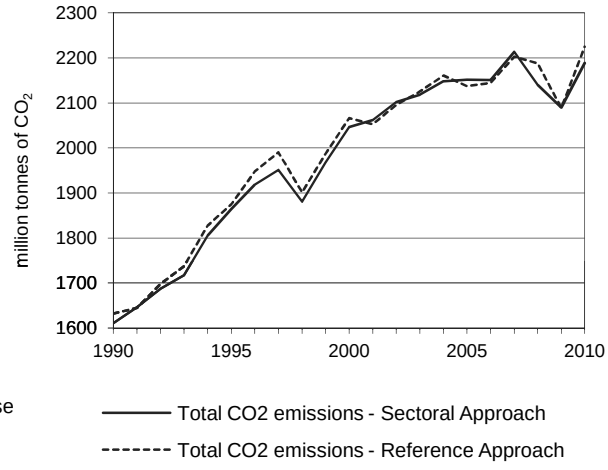


Figure 5. Electricity generation by fuel

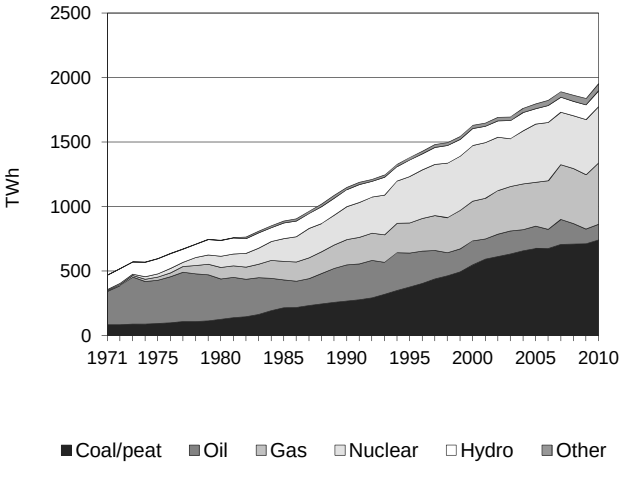
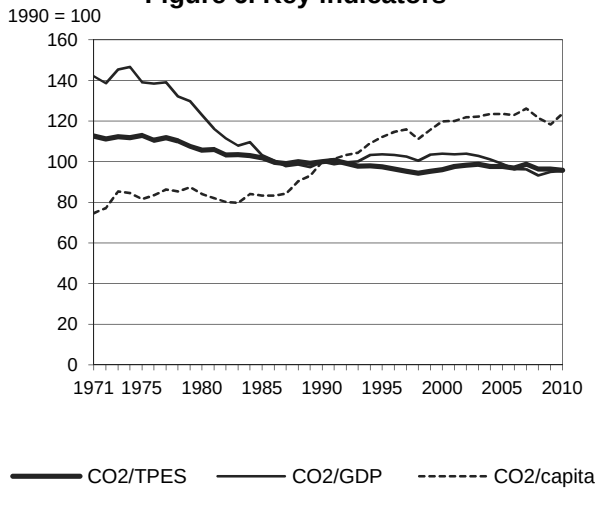


Figure 6. Key indicators



OECD Asia Oceania

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	1 610.6	1 864.6	2 046.6	2 151.6	2 140.0	2 089.8	2 188.6	35.9%
CO_2 Reference Approach ($MtCO_2$)	1 631.9	1 874.9	2 066.4	2 137.4	2 188.1	2 088.9	2 225.2	36.4%
TPES (PJ)	26 920	31 986	35 611	36 855	37 130	36 268	38 213	41.9%
TPES (Mtoe)	643.0	764.0	850.5	880.3	886.8	866.2	912.7	41.9%
GDP (billion 2005 USD)	4 743.7	5 301.9	5 804.6	6 408.9	6 762.0	6 490.8	6 756.0	42.4%
GDP PPP (billion 2005 USD)	4 268.1	4 835.1	5 351.4	5 957.3	6 321.5	6 094.4	6 351.4	48.8%
Population (millions)	191.7	198.1	203.4	207.6	209.7	210.2	210.8	10.0%
CO_2 / TPES (tCO_2 per TJ)	59.8	58.3	57.5	58.4	57.6	57.6	57.3	-4.3%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.34	0.35	0.35	0.34	0.32	0.32	0.32	-4.6%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.38	0.39	0.38	0.36	0.34	0.34	0.34	-8.7%
CO_2 / population (tCO_2 per capita)	8.40	9.41	10.06	10.37	10.21	9.94	10.38	23.6%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**935.0**	**847.9**	**389.9**	**15.8**	**2 188.6**	**35.9%**
Main activity producer elec. and heat	622.5	51.8	197.8	1.4	873.5	80.6%
Unallocated autoproducers	84.2	21.8	9.6	3.7	119.4	45.0%
Other energy industry own use	42.0	53.1	21.0	0.1	116.2	64.5%
Manufacturing industries and construction	179.9	160.4	57.1	9.1	406.5	1.8%
Transport	0.5	413.3	3.4	-	417.2	26.7%
of which: road	-	*373.5*	*2.5*	-	*376.0*	31.2%
Other	5.8	147.5	101.0	1.5	255.8	4.2%
of which: residential	*3.4*	*51.7*	*49.9*	-	*104.9*	0.7%
Reference Approach	**969.5**	**868.9**	**371.0**	**15.8**	**2 225.2**	**36.4%**
Diff. due to losses and/or transformation	9.3	4.4	- 3.4	0.0	10.3	
Statistical differences	25.2	16.7	- 15.6	- 0.0	26.3	
Memo: international marine bunkers	-	*47.9*	-	-	*47.9*	*80.9%*
Memo: international aviation bunkers	-	*43.0*	-	-	*43.0*	*101.7%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	622.5	163.9%	23.8	23.8
Road - oil	373.5	30.3%	14.3	38.1
Main activity prod. elec. and heat - gas	197.8	114.9%	7.6	45.6
Manufacturing industries - coal/peat	179.9	-0.9%	6.9	52.5
Manufacturing industries - oil	160.4	-15.3%	6.1	58.6
Non-specified other - oil	95.9	-23.5%	3.7	62.3
Unallocated autoproducers - coal/peat	84.2	58.3%	3.2	65.5
Manufacturing industries - gas	57.1	116.4%	2.2	67.7
Other energy industry own use - oil	53.1	21.1%	2.0	69.7
Main activity prod. elec. and heat - oil	51.8	-66.7%	2.0	71.7
Residential - oil	51.7	10.0%	2.0	73.7
Memo: total CO_2 from fuel combustion	*2 188.6*	*35.9%*	*83.6*	*83.6*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

OECD Europe *

Figure 1. CO_2 emissions by fuel

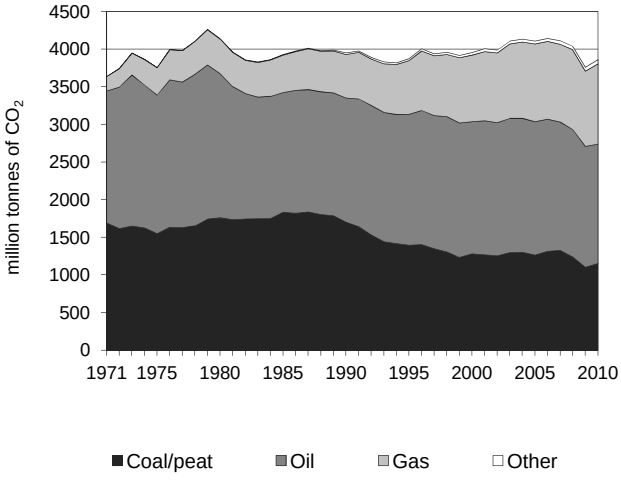


Figure 2. CO_2 emissions by sector

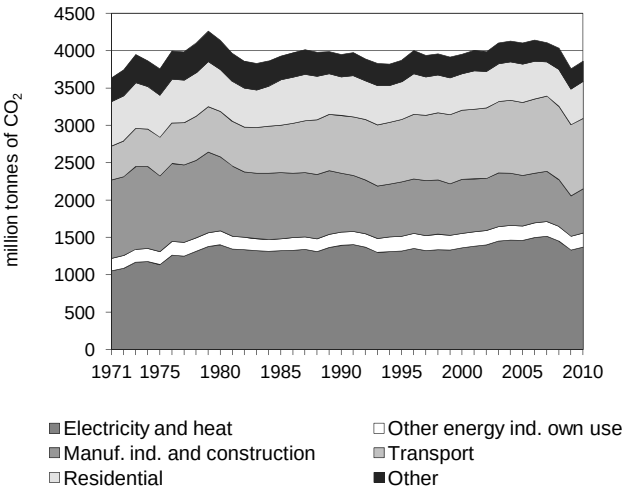


Figure 3. CO_2 emissions by sector

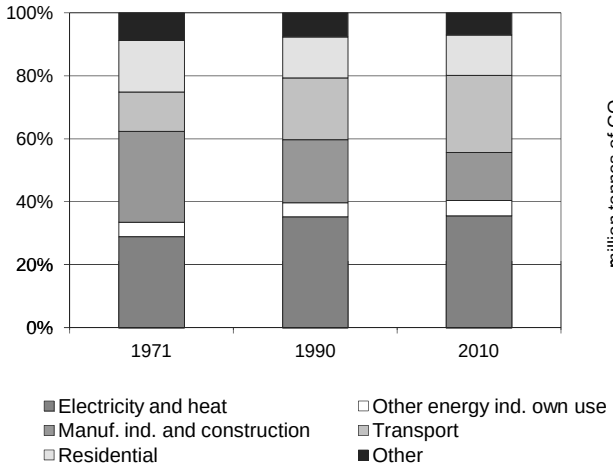


Figure 4. Reference vs Sectoral Approach

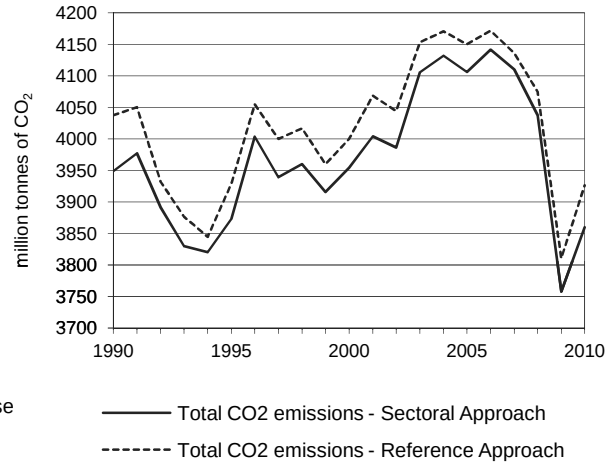


Figure 5. Electricity generation by fuel

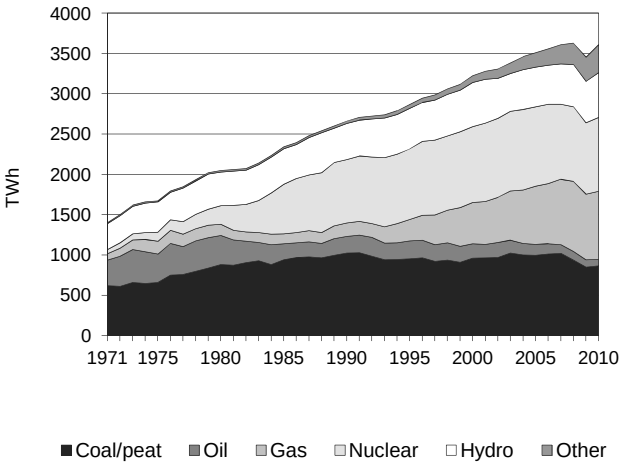
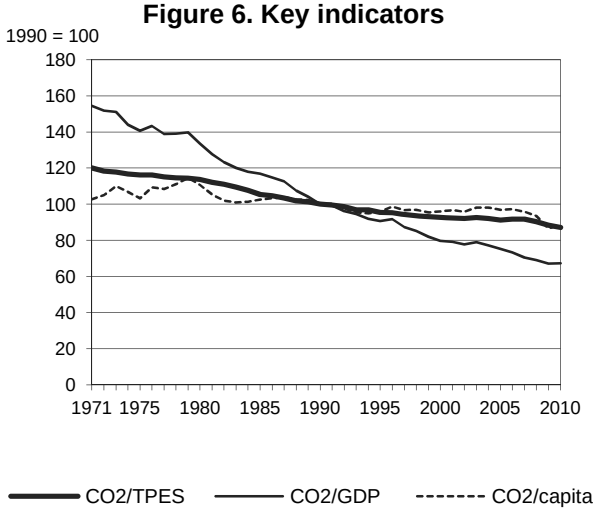


Figure 6. Key indicators



* Excludes Estonia and Slovenia prior to 1990.

OECD Europe

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	3 948.7	3 873.3	3 954.6	4 106.2	4 037.6	3 757.8	3 859.8	-2.3%
CO_2 Reference Approach ($MtCO_2$)	4 037.7	3 928.8	4 000.0	4 150.2	4 074.9	3 810.5	3 926.5	-2.8%
TPES (PJ)	67 804	69 625	73 140	77 259	76 754	73 002	76 031	12.1%
TPES (Mtoe)	1 619.5	1 663.0	1 746.9	1 845.3	1 833.2	1 743.6	1 816.0	12.1%
GDP (billion 2005 USD)	10 650.8	11 524.3	13 396.3	14 735.7	15 764.1	15 105.5	15 458.5	45.1%
GDP PPP (billion 2005 USD)	10 118.7	10 940.7	12 748.8	14 106.2	15 163.8	14 539.8	14 903.4	47.3%
Population (millions)	500.1	511.9	521.7	536.9	546.6	549.3	551.8	10.3%
CO_2 / TPES (tCO_2 per TJ)	58.2	55.6	54.1	53.1	52.6	51.5	50.8	-12.8%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.37	0.34	0.30	0.28	0.26	0.25	0.25	-32.7%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.39	0.35	0.31	0.29	0.27	0.26	0.26	-33.6%
CO_2 / population (tCO_2 per capita)	7.90	7.57	7.58	7.65	7.39	6.84	6.99	-11.4%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**1 154.4**	**1 584.9**	**1 065.9**	**54.6**	**3 859.8**	**-2.3%**
Main activity producer elec. and heat	827.2	46.2	314.3	25.0	1 212.8	3.0%
Unallocated autoproducers	60.4	23.9	60.6	15.2	160.1	-26.1%
Other energy industry own use	32.9	111.9	43.3	0.0	188.1	6.6%
Manufacturing industries and construction	152.5	199.1	225.3	12.5	589.4	-25.3%
Transport	0.0	938.7	5.8	-	944.6	22.1%
of which: road	-	*882.2*	*3.3*	-	*885.4*	23.4%
Other	81.3	265.1	416.5	1.9	764.8	-6.1%
of which: residential	*67.9*	*139.9*	*286.3*	*0.0*	*494.1*	-4.0%
Reference Approach	**1 184.8**	**1 610.1**	**1 076.9**	**54.6**	**3 926.5**	**-2.8%**
Diff. due to losses and/or transformation	22.4	15.4	10.0	0.0	47.7	
Statistical differences	8.0	9.9	1.0	0.0	18.9	
Memo: international marine bunkers	-	*150.4*	-	-	*150.4*	*35.3%*
Memo: international aviation bunkers	-	*134.1*	-	-	*134.1*	*82.9%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	882.2	23.0%	17.5	17.5
Main activity prod. elec. and heat - coal/peat	827.2	-14.8%	16.5	34.0
Main activity prod. elec. and heat - gas	314.3	327.3%	6.3	40.3
Residential - gas	286.3	65.5%	5.7	46.0
Manufacturing industries - gas	225.3	10.6%	4.5	50.4
Manufacturing industries - oil	199.1	-21.4%	4.0	54.4
Manufacturing industries - coal/peat	152.5	-53.5%	3.0	57.4
Residential - oil	139.9	-29.4%	2.8	60.2
Non-specified other - gas	130.2	58.5%	2.6	62.8
Non-specified other - oil	125.1	-19.7%	2.5	65.3
Other energy industry own use - oil	111.9	-1.8%	2.2	67.5
Memo: total CO_2 from fuel combustion	*3 859.8*	*-2.3%*	*76.8*	*76.8*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

European Union - 27

Figure 1. CO_2 emissions by fuel

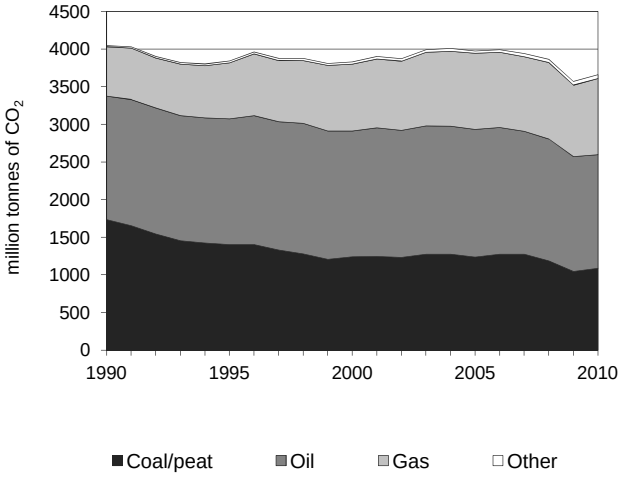


Figure 2. CO_2 emissions by sector

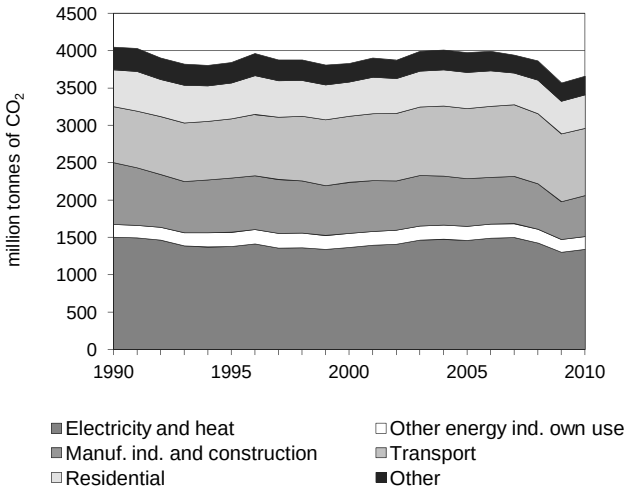


Figure 3. CO_2 emissions by sector

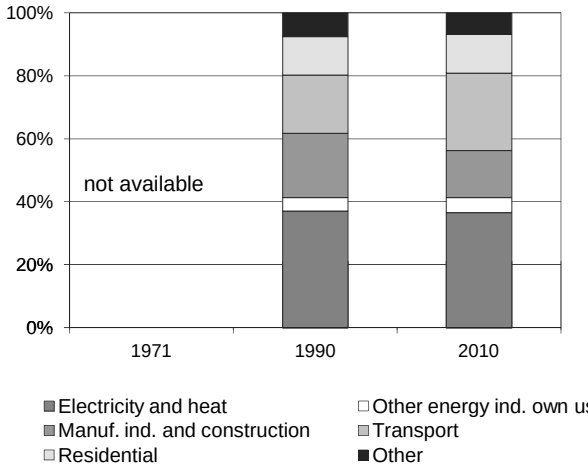


Figure 4. Reference vs Sectoral Approach

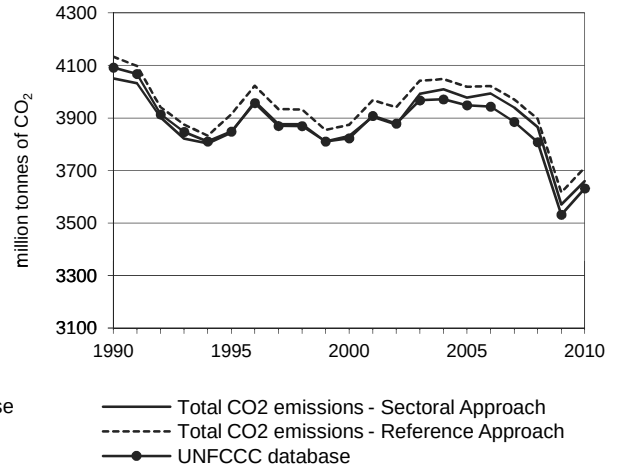


Figure 5. Electricity generation by fuel

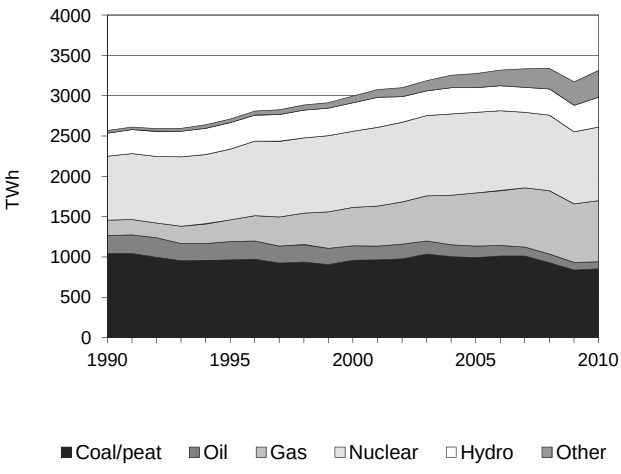
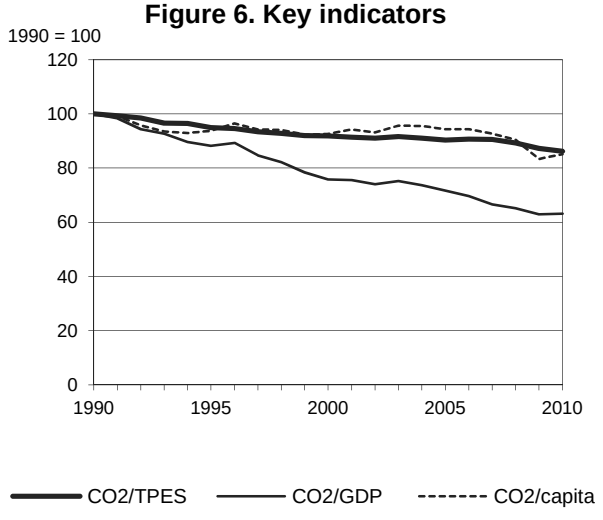


Figure 6. Key indicators



European Union - 27

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	4 050.0	3 845.2	3 830.6	3 977.3	3 864.8	3 570.5	3 659.5	-9.6%
CO_2 Reference Approach ($MtCO_2$)	4 132.8	3 914.4	3 873.4	4 018.3	3 896.5	3 616.4	3 710.2	-10.2%
TPES (PJ)	68 500	68 546	70 544	74 512	73 247	69 247	71 774	4.8%
TPES (Mtoe)	1 636.1	1 637.2	1 684.9	1 779.7	1 749.5	1 653.9	1 714.3	4.8%
GDP (billion 2005 USD)	10 033.5	10 795.8	12 520.7	13 752.6	14 708.7	14 069.6	14 365.4	43.2%
GDP PPP (billion 2005 USD)	9 651.1	10 315.9	11 957.5	13 212.5	14 219.2	13 605.4	13 888.2	43.9%
Population (millions)	472.9	478.7	482.9	492.1	498.7	500.3	501.7	6.1%
CO_2 / TPES (tCO_2 per TJ)	59.1	56.1	54.3	53.4	52.8	51.6	51.0	-13.8%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.40	0.36	0.31	0.29	0.26	0.25	0.25	-36.9%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.42	0.37	0.32	0.30	0.27	0.26	0.26	-37.2%
CO_2 / population (tCO_2 per capita)	8.56	8.03	7.93	8.08	7.75	7.14	7.29	-14.8%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**1 089.0**	**1 508.3**	**1 011.6**	**50.7**	**3 659.5**	**-9.6%**
Main activity producer elec. and heat	824.2	52.9	291.5	24.4	1 193.0	-6.4%
Unallocated autoproducers	56.0	23.4	55.8	12.8	147.9	-35.7%
Other energy industry own use	28.1	111.3	33.9	0.0	173.3	0.7%
Manufacturing industries and construction	125.2	191.1	218.7	11.9	546.9	-33.8%
Transport	0.0	894.7	5.7	-	900.4	20.2%
of which: road	-	*845.0*	*3.2*	-	*848.2*	21.9%
Other	55.5	234.9	406.1	1.6	698.1	-12.6%
of which: residential	*43.2*	*128.1*	*278.2*	*0.0*	*449.4*	-9.3%
Reference Approach	**1 111.3**	**1 527.2**	**1 021.0**	**50.7**	**3 710.2**	**-10.2%**
Diff. due to losses and/or transformation	21.9	16.5	10.8	0.0	49.3	
Statistical differences	0.4	2.4	- 1.4	- 0.0	1.4	
Memo: international marine bunkers	-	*154.6*	-	-	*154.6*	*38.7%*
Memo: international aviation bunkers	-	*127.3*	-	-	*127.3*	*78.4%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	845.0	21.5%	17.8	17.8
Main activity prod. elec. and heat - coal/peat	824.2	-18.0%	17.4	35.1
Main activity prod. elec. and heat - gas	291.5	180.6%	6.1	41.3
Residential - gas	278.2	56.7%	5.9	47.1
Manufacturing industries - gas	218.7	-12.4%	4.6	51.8
Manufacturing industries - oil	191.1	-23.7%	4.0	55.8
Residential - oil	128.1	-28.8%	2.7	58.5
Non-specified other - gas	127.9	51.1%	2.7	61.2
Manufacturing industries - coal/peat	125.2	-61.2%	2.6	63.8
Other energy industry own use - oil	111.3	-4.0%	2.3	66.1
Non-specified other - oil	106.9	-30.3%	2.3	68.4
Memo: total CO_2 from fuel combustion	*3 659.5*	*-9.6%*	*77.1*	*77.1*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Africa

Figure 1. CO_2 emissions by fuel

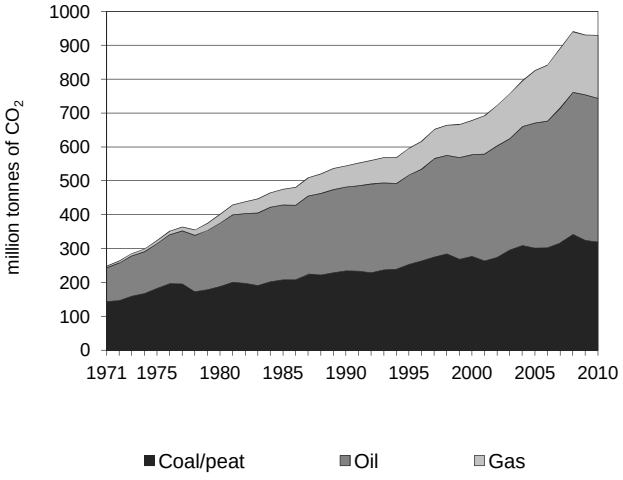


Figure 2. CO_2 emissions by sector

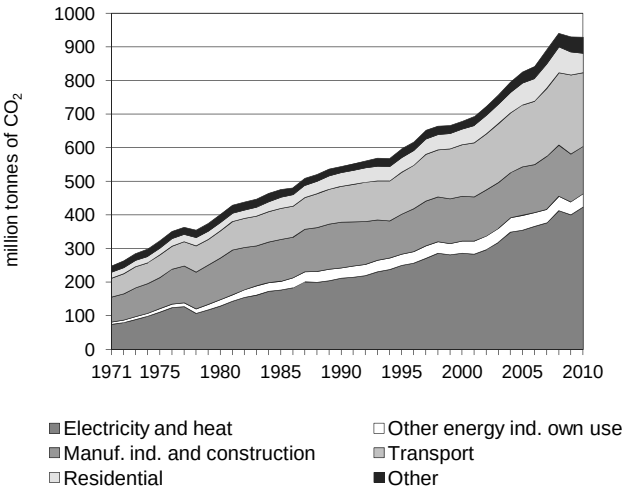
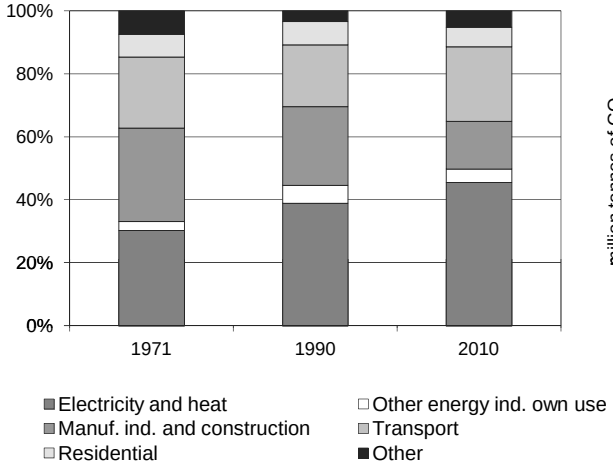


Figure 3. CO_2 emissions by sector



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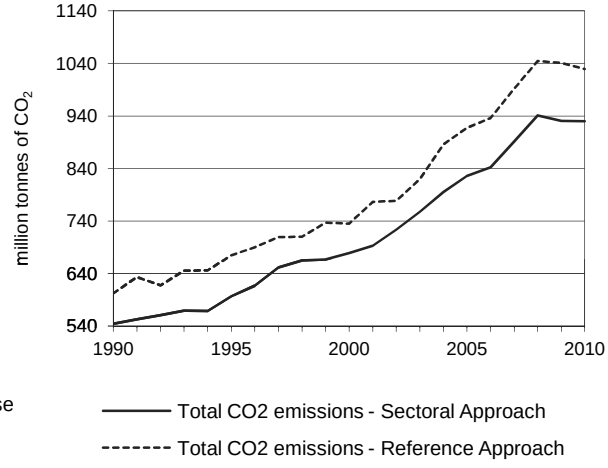

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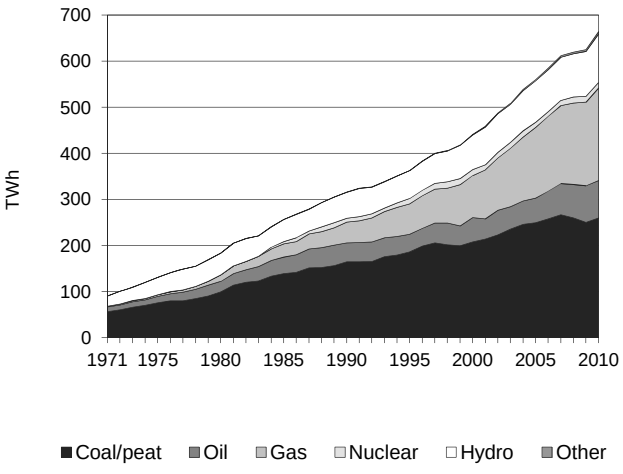
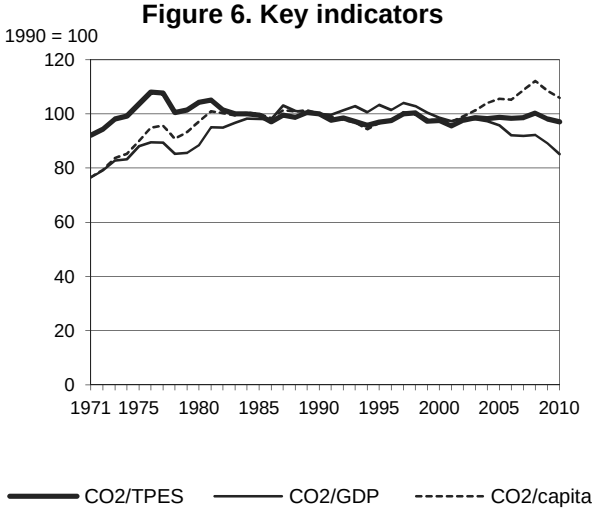


Figure 6. Key indicators



Africa

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	544.4	596.6	678.8	826.0	940.7	930.6	929.7	70.8%
CO_2 Reference Approach ($MtCO_2$)	602.5	674.7	734.8	917.0	1 044.6	1 040.8	1 029.4	70.9%
TPES (PJ)	16 233	18 356	20 756	24 953	27 976	28 284	28 547	75.9%
TPES (Mtoe)	387.7	438.4	495.7	596.0	668.2	675.5	681.8	75.9%
GDP (billion 2005 USD)	624.4	662.6	789.1	989.6	1 169.5	1 196.7	1 251.8	100.5%
GDP PPP (billion 2005 USD)	1 335.8	1 430.0	1 717.4	2 161.3	2 568.4	2 640.8	2 769.2	107.3%
Population (millions)	633.5	718.5	810.3	910.4	975.6	998.3	1 021.6	61.3%
CO_2 / TPES (tCO_2 per TJ)	33.5	32.5	32.7	33.1	33.6	32.9	32.6	-2.9%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.87	0.90	0.86	0.83	0.80	0.78	0.74	-14.8%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.41	0.42	0.40	0.38	0.37	0.35	0.34	-17.6%
CO_2 / population (tCO_2 per capita)	0.86	0.83	0.84	0.91	0.96	0.93	0.91	5.9%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**319.7**	**423.9**	**186.1**	**-**	**929.7**	**70.8%**
Main activity producer elec. and heat	247.8	57.5	101.5	-	406.8	103.8%
Unallocated autoproducers	9.5	5.5	1.7	-	16.6	33.8%
Other energy industry own use	0.1	13.3	26.5	-	39.8	27.8%
Manufacturing industries and construction	47.9	52.8	40.2	-	140.9	3.8%
Transport	0.0	216.5	3.2	-	219.7	105.9%
of which: road	-	*202.1*	*0.9*	-	*203.0*	99.9%
Other	14.4	78.3	13.2	-	105.9	80.2%
of which: residential	*7.9*	*38.7*	*11.0*	-	*57.6*	42.4%
Reference Approach	**420.5**	**412.1**	**196.7**	**-**	**1 029.4**	**70.9%**
Diff. due to losses and/or transformation	86.6	- 9.0	11.2	-	88.8	
Statistical differences	14.3	- 2.8	- 0.6	-	10.9	
Memo: international marine bunkers	-	*17.5*	-	-	*17.5*	*6.4%*
Memo: international aviation bunkers	-	*19.9*	-	-	*19.9*	*74.4%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	247.8	72.8%	9.4	9.4
Road - oil	202.1	99.0%	7.7	17.0
Main activity prod. elec. and heat - gas	101.5	306.6%	3.8	20.9
Main activity prod. elec. and heat - oil	57.5	84.3%	2.2	23.1
Manufacturing industries - oil	52.8	2.4%	2.0	25.1
Manufacturing industries - coal/peat	47.9	-31.1%	1.8	26.9
Manufacturing industries - gas	40.2	173.2%	1.5	28.4
Non-specified other - oil	39.6	207.0%	1.5	29.9
Residential - oil	38.7	22.5%	1.5	31.4
Other energy industry own use - gas	26.5	37.2%	1.0	32.4
Other transport - oil	14.4	285.2%	0.5	32.9
Memo: total CO_2 from fuel combustion	*929.7*	*70.8%*	*35.2*	*35.2*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Middle East

Figure 1. CO_2 emissions by fuel

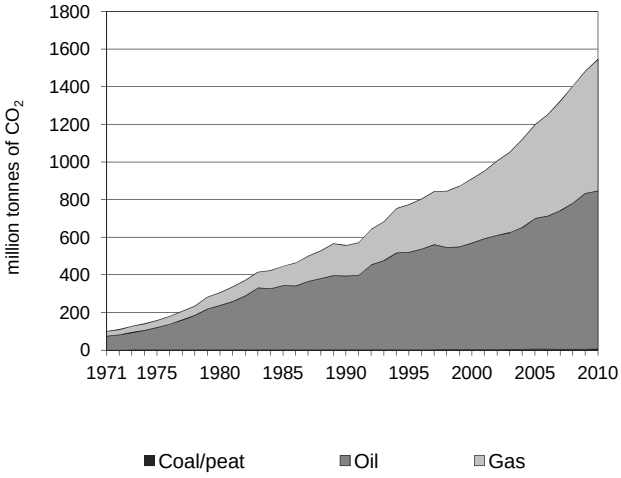


Figure 2. CO_2 emissions by sector

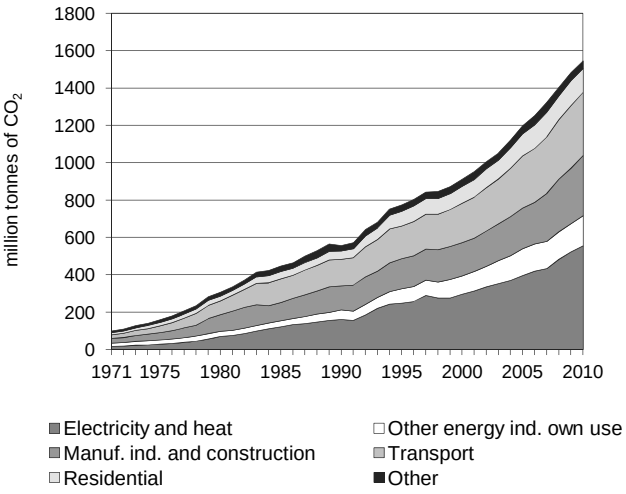


Figure 3. CO_2 emissions by sector

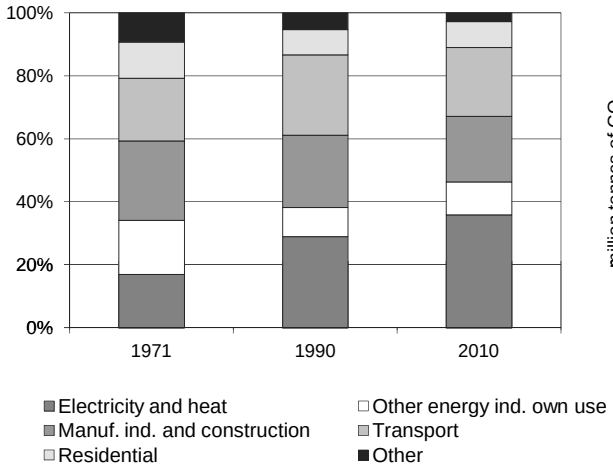


Figure 4. Reference vs Sectoral Approach

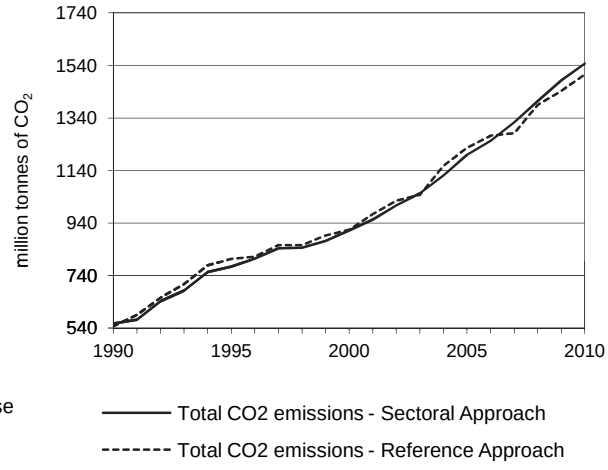


Figure 5. Electricity generation by fuel

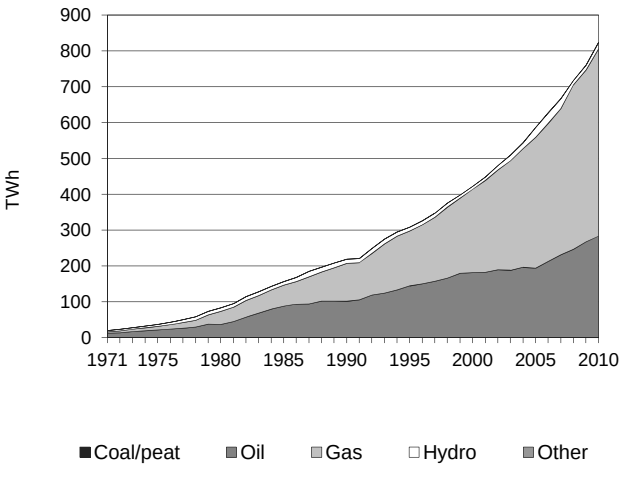
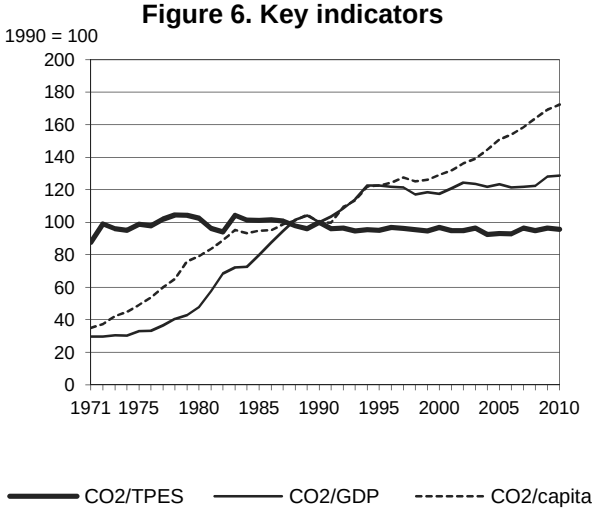


Figure 6. Key indicators



Middle East

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	557.1	774.5	912.3	1 198.9	1 404.4	1 483.8	1 546.3	177.6%
CO_2 Reference Approach ($MtCO_2$)	547.9	803.9	914.2	1 225.7	1 389.5	1 442.4	1 504.8	174.7%
TPES (PJ)	8 846	12 939	14 974	20 449	23 523	24 462	25 689	190.4%
TPES (Mtoe)	211.3	309.0	357.6	488.4	561.8	584.3	613.6	190.4%
GDP (billion 2005 USD)	555.0	629.3	773.1	967.8	1 142.8	1 153.9	1 196.3	115.6%
GDP PPP (billion 2005 USD)	1 119.0	1 240.8	1 537.3	1 912.5	2 245.9	2 275.2	2 345.7	109.6%
Population (millions)	127.0	144.1	161.2	181.2	195.2	200.0	204.6	61.0%
CO_2 / TPES (tCO_2 per TJ)	63.0	59.9	60.9	58.6	59.7	60.7	60.2	-4.4%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	1.00	1.23	1.18	1.24	1.23	1.29	1.29	28.8%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.50	0.62	0.59	0.63	0.63	0.65	0.66	32.4%
CO_2 / population (tCO_2 per capita)	4.39	5.38	5.66	6.62	7.19	7.42	7.56	72.4%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**6.9**	**839.6**	**699.8**	**-**	**1 546.3**	**177.6%**
Main activity producer elec. and heat	-	257.5	241.0	-	498.5	268.1%
Unallocated autoproducers	1.2	8.5	47.2	-	56.9	117.9%
Other energy industry own use	1.0	41.8	118.1	-	160.9	213.0%
Manufacturing industries and construction	4.7	130.5	187.4	-	322.6	152.7%
Transport	-	325.9	11.9	-	337.8	137.4%
of which: road	-	*323.2*	*11.0*	-	*334.1*	137.5%
Other	0.0	75.4	94.2	-	169.6	128.5%
of which: residential	*0.0*	*46.6*	*80.8*	-	*127.4*	185.3%
Reference Approach	**9.6**	**778.8**	**716.4**	**-**	**1 504.8**	**174.7%**
Diff. due to losses and/or transformation	0.2	- 18.2	9.4	-	- 8.6	
Statistical differences	2.5	- 42.5	7.2	-	- 32.8	
Memo: international marine bunkers	-	*65.0*	-	-	*65.0*	*108.0%*
Memo: international aviation bunkers	-	*36.5*	-	-	*36.5*	*65.1%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	323.2	129.7%	15.8	15.8
Main activity prod. elec. and heat - oil	257.5	217.4%	12.6	28.3
Main activity prod. elec. and heat - gas	241.0	343.9%	11.8	40.1
Manufacturing industries - gas	187.4	249.3%	9.1	49.2
Manufacturing industries - oil	130.5	78.0%	6.4	55.6
Other energy industry own use - gas	118.1	362.3%	5.8	61.4
Residential - gas	80.8	+	3.9	65.3
Unallocated autoproducers - gas	47.2	118.2%	2.3	67.6
Residential - oil	46.6	20.9%	2.3	69.9
Other energy industry own use - oil	41.8	64.9%	2.0	71.9
Non-specified other - oil	28.8	4.2%	1.4	73.3
Memo: total CO_2 from fuel combustion	*1 546.3*	*177.6%*	*75.5*	*75.5*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Non-OECD Europe and Eurasia *

Figure 1. CO_2 emissions by fuel

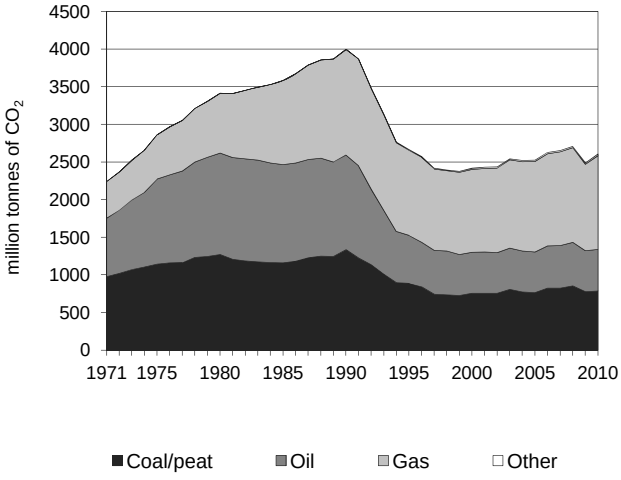


Figure 2. CO_2 emissions by sector

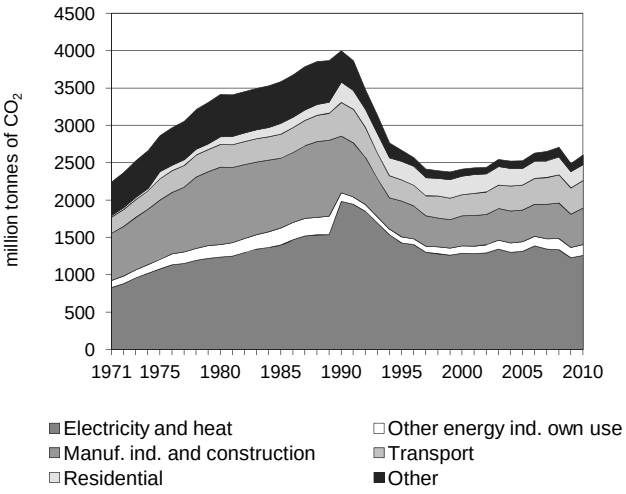


Figure 3. CO_2 emissions by sector

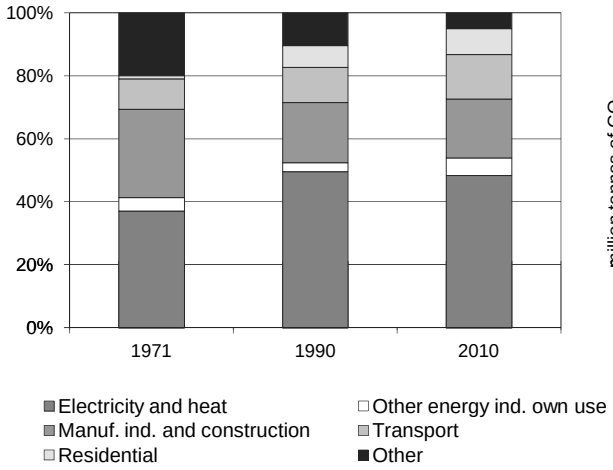


Figure 4. Reference vs Sectoral Approach

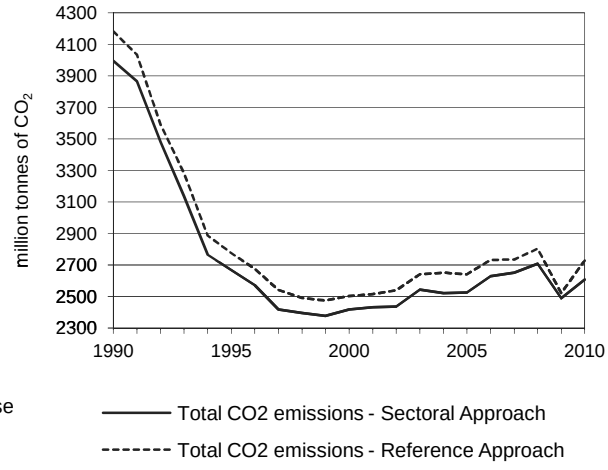


Figure 5. Electricity generation by fuel

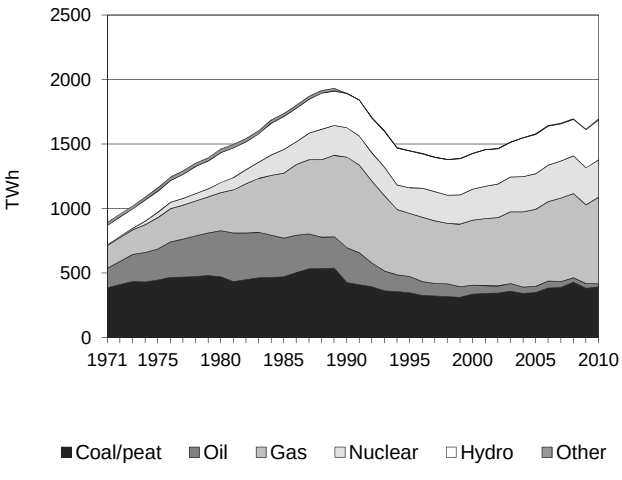
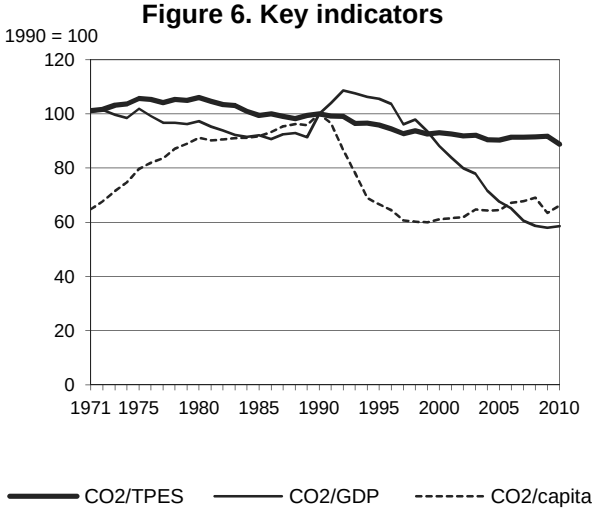


Figure 6. Key indicators



* Includes Estonia and Slovenia prior to 1990.

Non-OECD Europe and Eurasia

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	3 996.8	2 667.6	2 417.5	2 526.4	2 707.8	2 488.3	2 606.3	-34.8%
CO_2 Reference Approach ($MtCO_2$)	4 182.8	2 775.1	2 502.9	2 640.5	2 804.0	2 522.3	2 728.9	-34.8%
TPES (PJ)	64 483	44 900	41 943	45 112	47 716	43 762	47 374	-26.5%
TPES (Mtoe)	1 540.2	1 072.4	1 001.8	1 077.5	1 139.7	1 045.2	1 131.5	-26.5%
GDP (billion 2005 USD)	1 375.6	869.8	944.8	1 287.2	1 588.3	1 478.4	1 532.9	11.4%
GDP PPP (billion 2005 USD)	3 184.3	1 979.5	2 141.7	2 933.2	3 629.1	3 383.0	3 513.5	10.3%
Population (millions)	343.4	344.1	340.3	336.6	336.7	337.3	338.0	-1.6%
CO_2 / TPES (tCO_2 per TJ)	62.0	59.4	57.6	56.0	56.7	56.9	55.0	-11.2%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	2.91	3.07	2.56	1.96	1.70	1.68	1.70	-41.5%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	1.26	1.35	1.13	0.86	0.75	0.74	0.74	-40.9%
CO_2 / population (tCO_2 per capita)	11.64	7.75	7.10	7.51	8.04	7.38	7.71	-33.7%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**788.1**	**549.8**	**1 248.6**	**19.9**	**2 606.3**	**-34.8%**
Main activity producer elec. and heat	406.3	18.7	470.0	0.0	895.0	-43.6%
Unallocated autoproducers	112.8	32.0	203.7	16.1	364.7	-7.6%
Other energy industry own use	12.8	57.0	76.1	0.8	146.8	27.8%
Manufacturing industries and construction	214.8	75.5	193.6	2.2	486.0	-36.1%
Transport	0.2	277.9	91.1	-	369.2	-17.6%
of which: road	-	*245.3*	*1.5*	-	*246.8*	-12.7%
Other	41.2	88.7	214.1	0.6	344.6	-50.1%
of which: residential	*16.1*	*22.9*	*176.6*	-	*215.6*	-21.6%
Reference Approach	**852.9**	**582.5**	**1 273.6**	**19.9**	**2 728.9**	**-34.8%**
Diff. due to losses and/or transformation	48.5	32.7	27.1	-	108.3	
Statistical differences	16.3	0.0	- 2.1	- 0.0	14.2	
Memo: international marine bunkers	-	*19.4*	-	-	*19.4*	*101.0%*
Memo: international aviation bunkers	-	*26.3*	-	-	*26.3*	*-37.5%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	470.0	-16.1%	11.9	11.9
Main activity prod. elec. and heat - coal/peat	406.3	-42.1%	10.3	22.2
Road - oil	245.3	-12.3%	6.2	28.5
Manufacturing industries - coal/peat	214.8	-28.4%	5.4	33.9
Unallocated autoproducers - gas	203.7	-6.5%	5.2	39.1
Manufacturing industries - gas	193.6	-19.1%	4.9	44.0
Residential - gas	176.6	18.4%	4.5	48.5
Unallocated autoproducers - coal/peat	112.8	15.3%	2.9	51.3
Other transport - gas	89.6	7.6%	2.3	53.6
Other energy industry own use - gas	76.1	113.1%	1.9	55.5
Manufacturing industries - oil	75.5	-66.0%	1.9	57.4
Memo: total CO_2 from fuel combustion	*2 606.3*	*-34.8%*	*66.1*	*66.1*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Non-OECD Americas

Figure 1. CO_2 emissions by fuel

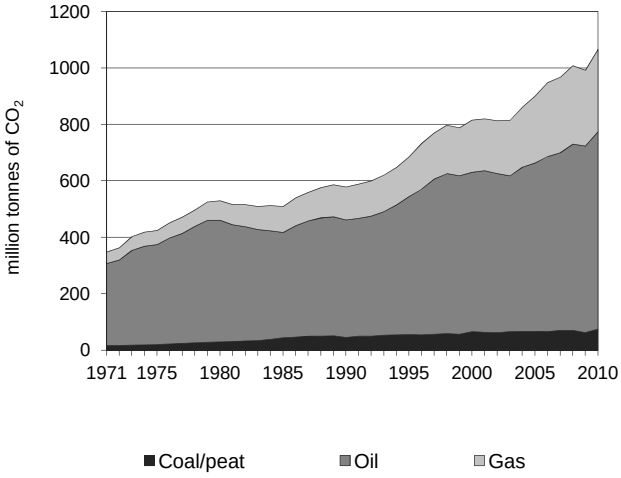


Figure 2. CO_2 emissions by sector

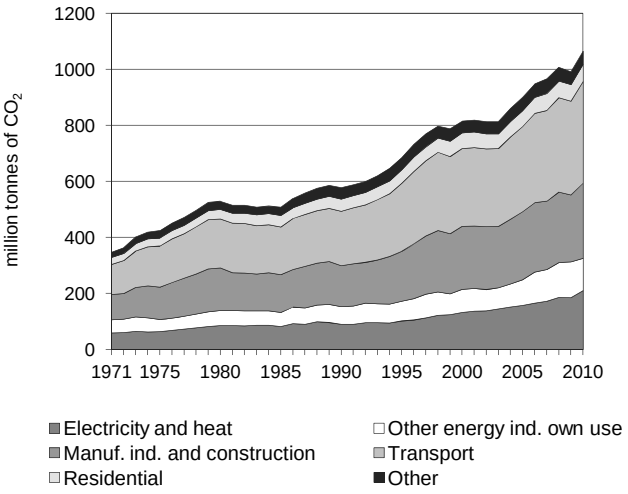


Figure 3. CO_2 emissions by sector

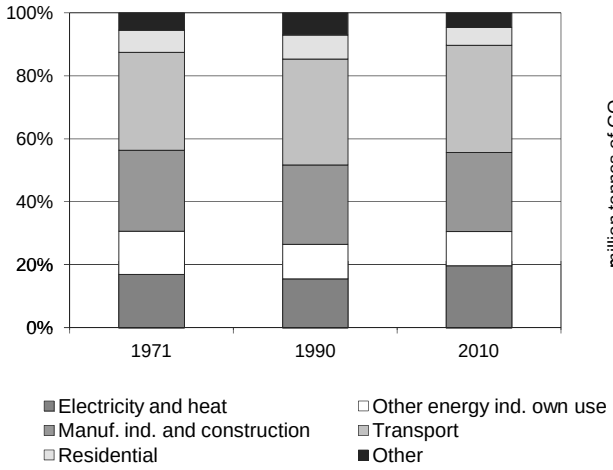


Figure 4. Reference vs Sectoral Approach

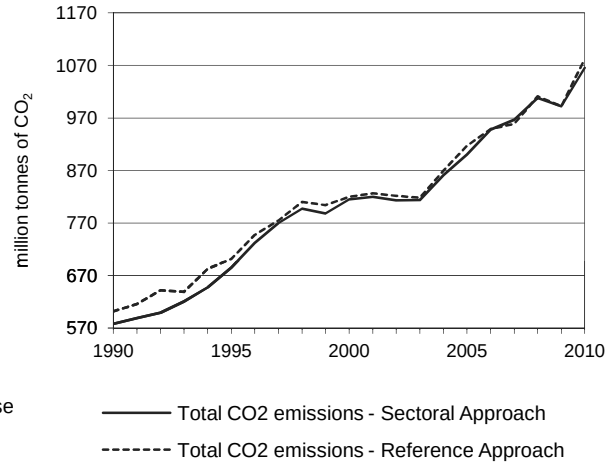


Figure 5. Electricity generation by fuel

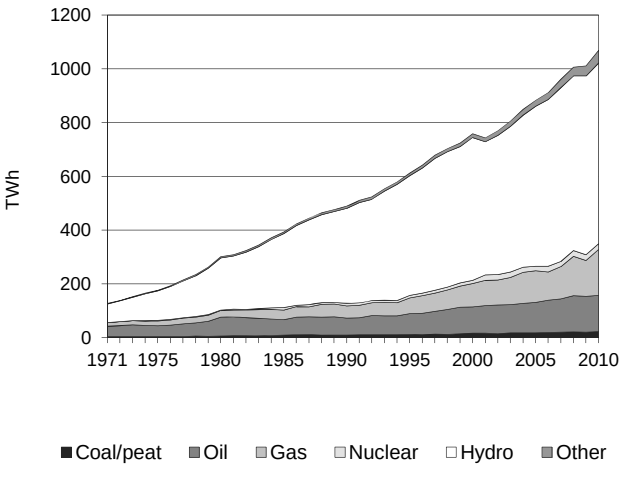
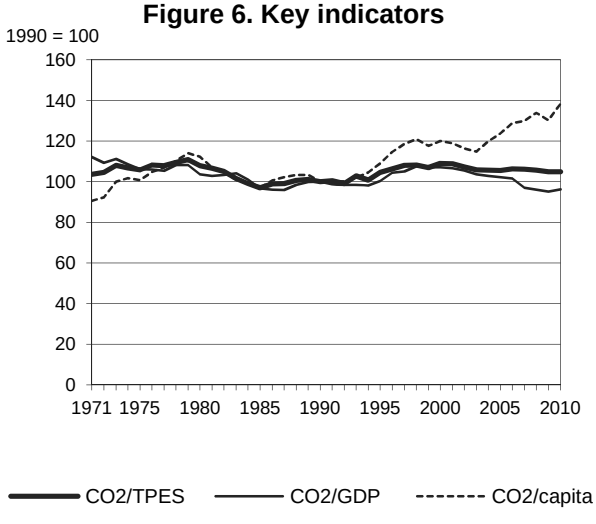


Figure 6. Key indicators



Non-OECD Americas

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	578.1	685.1	815.3	900.2	1 008.0	992.2	1 065.4	84.3%
CO_2 Reference Approach ($MtCO_2$)	601.8	701.7	819.6	916.7	1 011.0	992.5	1 082.5	79.9%
TPES (PJ)	13 872	15 729	17 964	20 488	22 901	22 692	24 395	75.9%
TPES (Mtoe)	331.3	375.7	429.1	489.3	547.0	542.0	582.7	75.9%
GDP (billion 2005 USD)	1 146.7	1 356.4	1 510.8	1 747.5	2 081.0	2 070.8	2 197.4	91.6%
GDP PPP (billion 2005 USD)	2 162.2	2 585.9	2 875.5	3 326.1	3 966.7	3 954.0	4 200.2	94.3%
Population (millions)	341.6	371.8	401.7	429.8	445.1	450.1	455.1	33.2%
CO_2 / TPES (tCO_2 per TJ)	41.7	43.6	45.4	43.9	44.0	43.7	43.7	4.8%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.50	0.51	0.54	0.52	0.48	0.48	0.48	-3.8%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.27	0.26	0.28	0.27	0.25	0.25	0.25	-5.1%
CO_2 / population (tCO_2 per capita)	1.69	1.84	2.03	2.09	2.26	2.20	2.34	38.4%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**74.6**	**699.5**	**291.4**	**-**	**1 065.4**	**84.3%**
Main activity producer elec. and heat	16.6	82.6	72.7	-	171.9	151.2%
Unallocated autoproducers	12.9	11.4	13.9	-	38.2	77.8%
Other energy industry own use	3.2	36.1	76.5	-	115.9	81.9%
Manufacturing industries and construction	41.4	140.3	85.7	-	267.4	83.6%
Transport	0.0	348.7	14.2	-	362.9	86.6%
of which: road	-	*322.0*	*11.3*	-	*333.3*	89.3%
Other	0.4	80.3	28.4	-	109.1	29.3%
of which: residential	*0.2*	*36.9*	*23.7*	-	*60.8*	38.7%
Reference Approach	**80.5**	**720.2**	**281.9**	**-**	**1 082.5**	**79.9%**
Diff. due to losses and/or transformation	4.4	13.2	1.4	-	18.9	
Statistical differences	1.5	7.6	- 10.9	-	- 1.8	
Memo: international marine bunkers	-	*43.9*	-	-	*43.9*	*125.9%*
Memo: international aviation bunkers	-	*20.8*	-	-	*20.8*	*140.5%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	322.0	83.3%	13.8	13.8
Manufacturing industries - oil	140.3	78.8%	6.0	19.8
Manufacturing industries - gas	85.7	115.7%	3.7	23.5
Main activity prod. elec. and heat - oil	82.6	132.5%	3.5	27.0
Other energy industry own use - gas	76.5	150.0%	3.3	30.3
Main activity prod. elec. and heat - gas	72.7	181.0%	3.1	33.4
Non-specified other - oil	43.4	21.2%	1.9	35.2
Manufacturing industries - coal/peat	41.4	51.0%	1.8	37.0
Residential - oil	36.9	9.5%	1.6	38.6
Other energy industry own use - oil	36.1	20.1%	1.5	40.1
Other transport - oil	26.7	45.6%	1.1	41.3
Memo: total CO_2 from fuel combustion	*1 065.4*	*84.3%*	*45.6*	*45.6*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Asia (excluding China)

Figure 1. CO_2 emissions by fuel

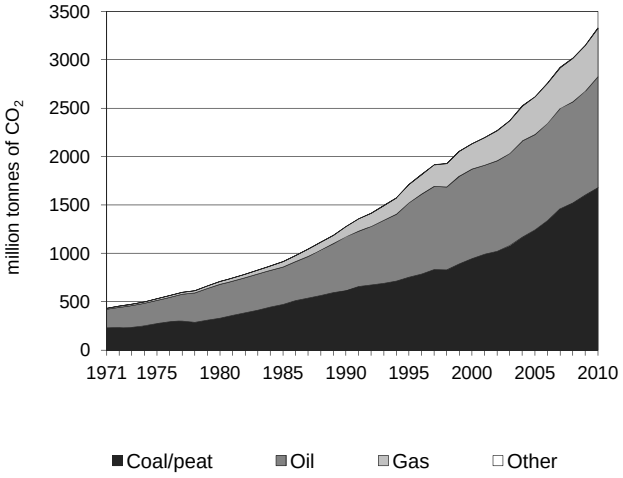


Figure 2. CO_2 emissions by sector

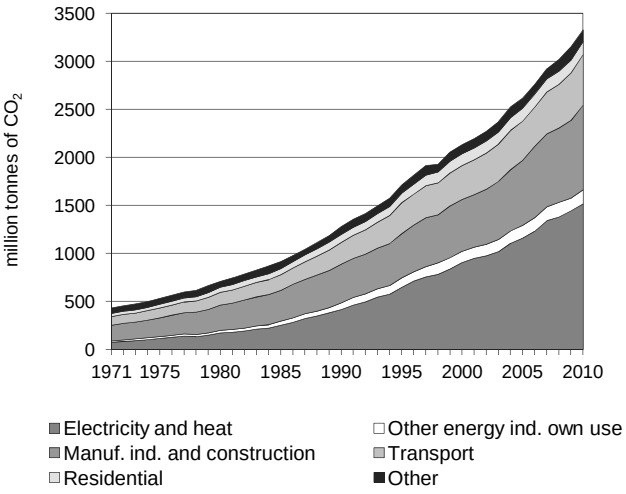


Figure 3. CO_2 emissions by sector

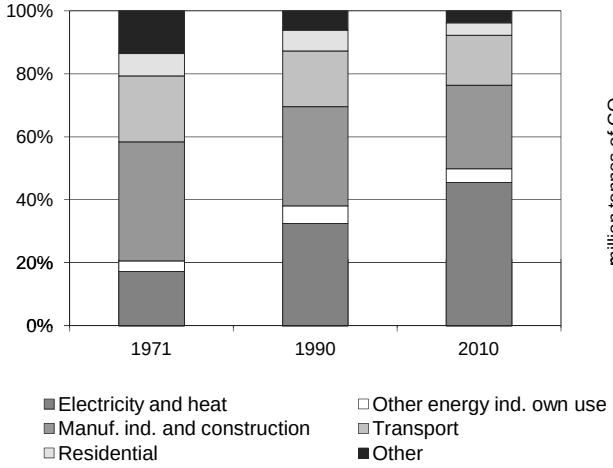


Figure 4. Reference vs Sectoral Approach

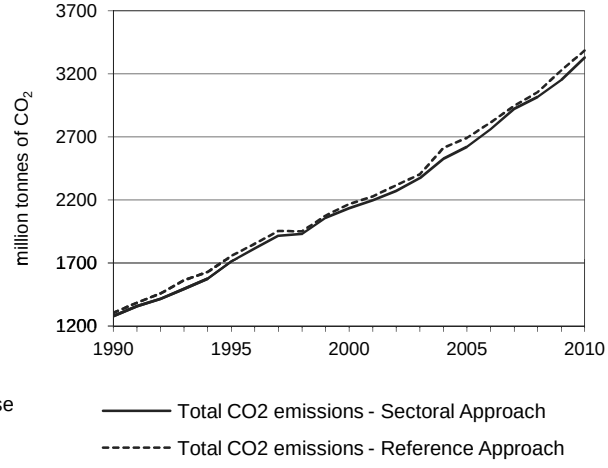


Figure 5. Electricity generation by fuel

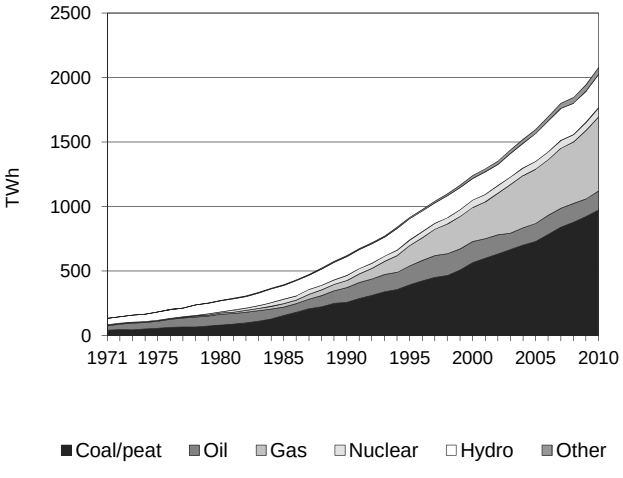
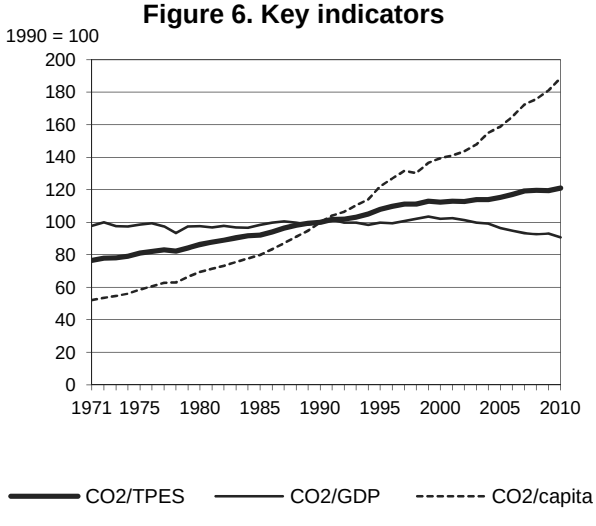


Figure 6. Key indicators



Asia (excluding China)

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	1 278.8	1 713.7	2 134.8	2 620.6	3 018.7	3 153.0	3 330.6	160.4%
CO_2 Reference Approach ($MtCO_2$)	1 303.0	1 757.0	2 167.7	2 692.4	3 055.5	3 229.3	3 386.8	159.9%
TPES (PJ)	29 634	36 831	44 044	52 704	58 449	61 160	63 812	115.3%
TPES (Mtoe)	707.8	879.7	1 052.0	1 258.8	1 396.0	1 460.8	1 524.1	115.3%
GDP (billion 2005 USD)	1 120.5	1 504.0	1 833.1	2 383.6	2 856.5	2 971.2	3 216.6	187.1%
GDP PPP (billion 2005 USD)	3 000.3	3 966.1	4 877.8	6 537.0	7 959.9	8 383.2	9 072.1	202.4%
Population (millions)	1 615.7	1 774.7	1 936.0	2 085.8	2 171.0	2 199.5	2 228.6	37.9%
CO_2 / TPES (tCO_2 per TJ)	43.2	46.5	48.5	49.7	51.6	51.6	52.2	20.9%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	1.14	1.14	1.16	1.10	1.06	1.06	1.04	-9.3%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.43	0.43	0.44	0.40	0.38	0.38	0.37	-13.9%
CO_2 / population (tCO_2 per capita)	0.79	0.97	1.10	1.26	1.39	1.43	1.49	88.8%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**1 681.2**	**1 144.3**	**501.8**	**3.3**	**3 330.6**	**160.4%**
Main activity producer elec. and heat	972.8	106.2	248.0	0.9	1 327.9	237.4%
Unallocated autoproducers	136.5	22.3	28.0	2.4	189.2	743.2%
Other energy industry own use	8.8	76.8	59.1	-	144.7	102.7%
Manufacturing industries and construction	490.1	266.1	125.8	-	882.0	119.0%
Transport	0.1	510.0	17.8	-	527.8	132.9%
of which: road	-	*468.7*	*17.8*	-	*486.4*	146.1%
Other	73.0	162.9	23.1	-	258.9	59.8%
of which: residential	*17.1*	*98.3*	*18.5*	-	*133.9*	59.8%
Reference Approach	**1 704.5**	**1 156.5**	**522.6**	**3.3**	**3 386.8**	**159.9%**
Diff. due to losses and/or transformation	5.5	9.3	18.3	-	33.2	
Statistical differences	17.8	2.8	2.4	-	23.1	
Memo: international marine bunkers	-	*140.5*	-	-	*140.5*	*214.0%*
Memo: international aviation bunkers	-	*64.6*	-	-	*64.6*	*181.9%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	972.8	257.4%	16.7	16.7
Manufacturing industries - coal/peat	490.1	97.1%	8.4	25.1
Road - oil	468.7	137.1%	8.1	33.2
Manufacturing industries - oil	266.1	121.9%	4.6	37.8
Main activity prod. elec. and heat - gas	248.0	623.2%	4.3	42.0
Unallocated autoproducers - coal/peat	136.5	728.6%	2.3	44.4
Manufacturing industries - gas	125.8	268.9%	2.2	46.5
Main activity prod. elec. and heat - oil	106.2	22.1%	1.8	48.3
Residential - oil	98.3	50.6%	1.7	50.0
Other energy industry own use - oil	76.8	138.2%	1.3	51.4
Non-specified other - oil	64.6	121.3%	1.1	52.5
Memo: total CO_2 from fuel combustion	*3 330.6*	*160.4%*	*57.2*	*57.2*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

China (incl. Hong Kong)

Figure 1. CO_2 emissions by fuel

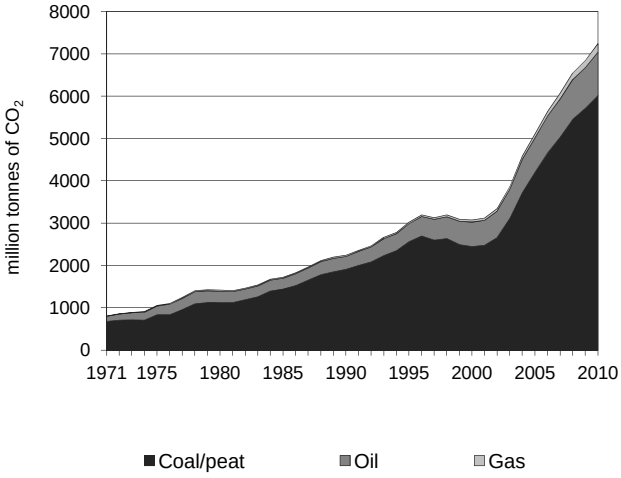


Figure 2. CO_2 emissions by sector

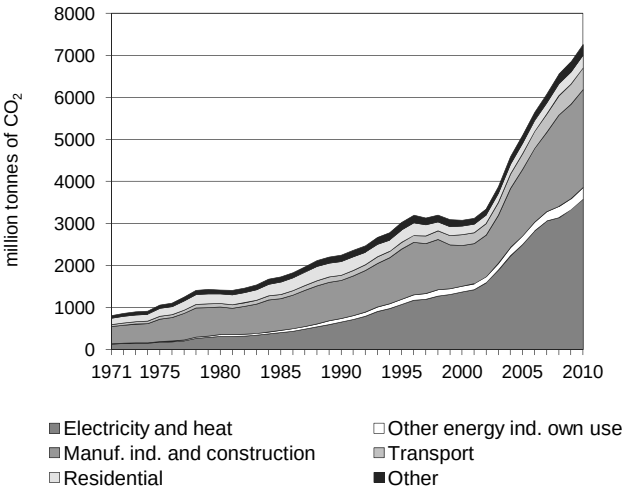


Figure 3. CO_2 emissions by sector

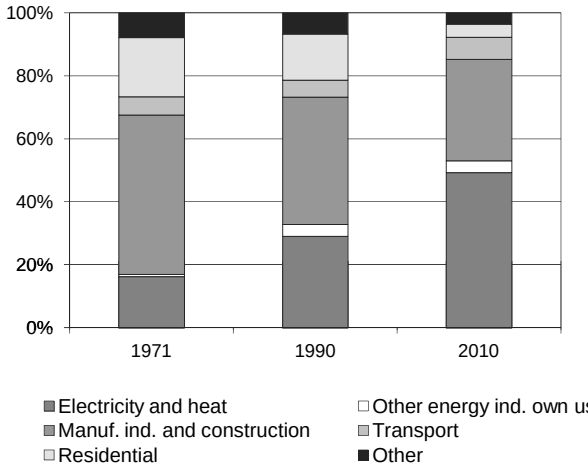


Figure 4. Reference vs Sectoral Approach

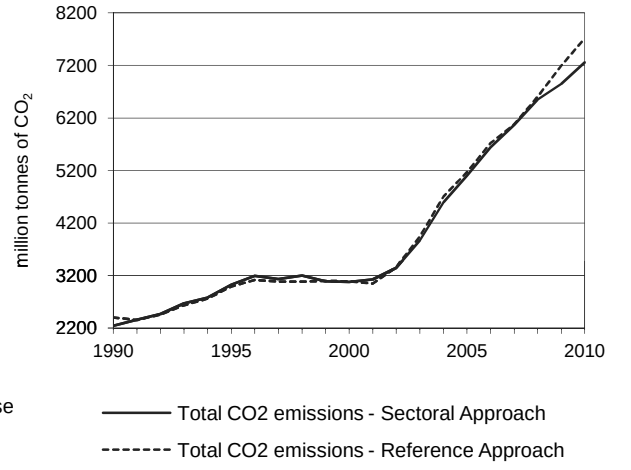


Figure 5. Electricity generation by fuel

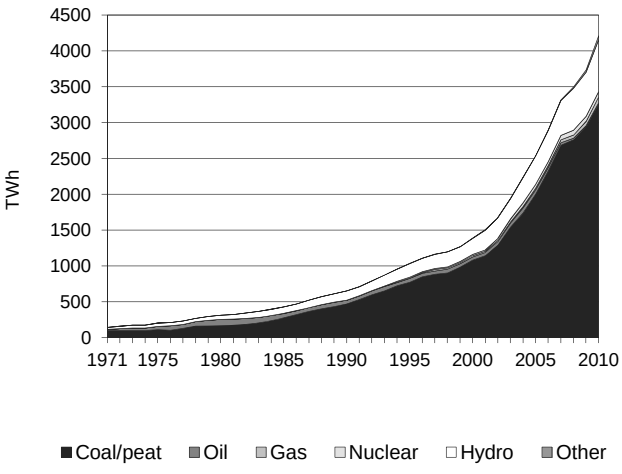
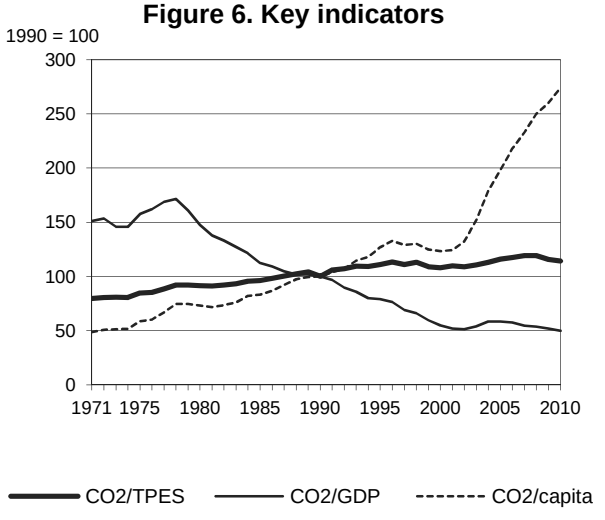


Figure 6. Key indicators



China (incl. Hong Kong)

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	2 244.1	3 022.1	3 077.2	5 103.1	6 549.0	6 846.3	7 258.5	223.5%
CO_2 Reference Approach ($MtCO_2$)	2 402.0	2 992.7	3 091.4	5 165.1	6 602.7	7 197.2	7 711.4	221.0%
TPES (PJ)	36 493	44 292	46 401	71 555	89 247	96 336	103 391	183.3%
TPES (Mtoe)	871.6	1 057.9	1 108.3	1 709.1	2 131.6	2 300.9	2 469.5	183.3%
GDP (billion 2005 USD)	624.5	1 064.8	1 562.2	2 434.7	3 390.4	3 677.8	4 053.3	549.0%
GDP PPP (billion 2005 USD)	1 384.6	2 402.3	3 566.6	5 607.3	7 849.9	8 538.5	9 417.1	580.1%
Population (millions)	1 140.9	1 211.0	1 269.3	1 310.5	1 331.6	1 338.4	1 345.4	17.9%
CO_2 / TPES (tCO_2 per TJ)	61.5	68.2	66.3	71.3	73.4	71.1	70.2	14.2%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	3.59	2.84	1.97	2.10	1.93	1.86	1.79	-50.2%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	1.62	1.26	0.86	0.91	0.83	0.80	0.77	-52.4%
CO_2 / population (tCO_2 per capita)	1.97	2.50	2.42	3.89	4.92	5.12	5.40	174.3%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**6 014.0**	**1 026.1**	**201.3**	**17.2**	**7 258.5**	**223.5%**
Main activity producer elec. and heat	3 431.3	12.3	48.0	-	3 491.6	445.0%
Unallocated autoproducers	49.5	18.7	-	17.2	85.4	629.1%
Other energy industry own use	180.9	67.9	26.7	-	275.5	226.6%
Manufacturing industries and construction	2 038.1	242.2	53.0	-	2 333.4	157.1%
Transport	12.2	500.4	1.0	-	513.6	324.2%
of which: road	-	*400.2*	*0.7*	-	*400.9*	511.8%
Other	302.0	184.6	72.6	-	559.2	16.8%
of which: residential	*188.3*	*70.5*	*44.4*	-	*303.1*	-7.7%
Reference Approach	**6 371.2**	**1 115.8**	**207.2**	**17.2**	**7 711.4**	**221.0%**
Diff. due to losses and/or transformation	114.3	73.9	5.2	-	193.4	
Statistical differences	242.9	15.9	0.7	- 0.0	259.4	
Memo: international marine bunkers	-	*70.4*	-	-	*70.4*	*672.8%*
Memo: international aviation bunkers	-	*32.5*	-	-	*32.5*	*431.9%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	3 431.3	475.9%	32.2	32.2
Manufacturing industries - coal/peat	2 038.1	153.1%	19.1	51.3
Road - oil	400.2	510.8%	3.8	55.0
Manufacturing industries - oil	242.2	172.2%	2.3	57.3
Residential - coal/peat	188.3	-40.6%	1.8	59.1
Other energy industry - coal/peat	180.9	254.7%	1.7	60.8
Non-specified other - oil	114.1	148.5%	1.1	61.8
Non-specified other sectors - coal/peat	113.7	9.2%	1.1	62.9
Other transport - oil	100.1	487.2%	0.9	63.8
Residential - oil	70.5	798.4%	0.7	64.5
Other energy industry own use - oil	67.9	150.9%	0.6	65.1
Memo: total CO_2 from fuel combustion	*7 258.5*	*223.5%*	*68.0*	*68.0*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

COUNTRY TABLES

Albania

Figure 1. CO_2 emissions by fuel

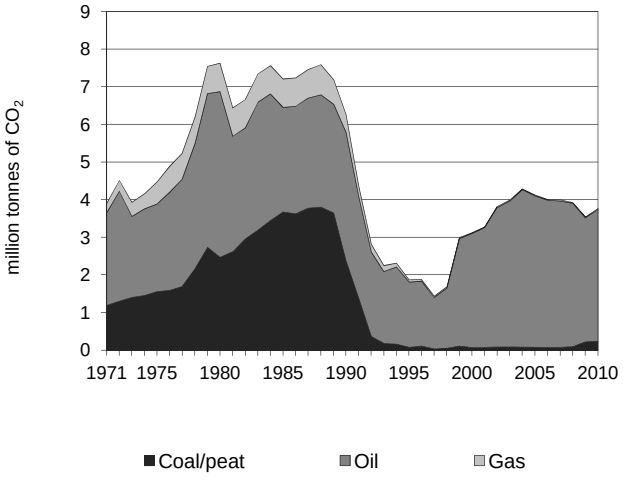


Figure 2. CO_2 emissions by sector

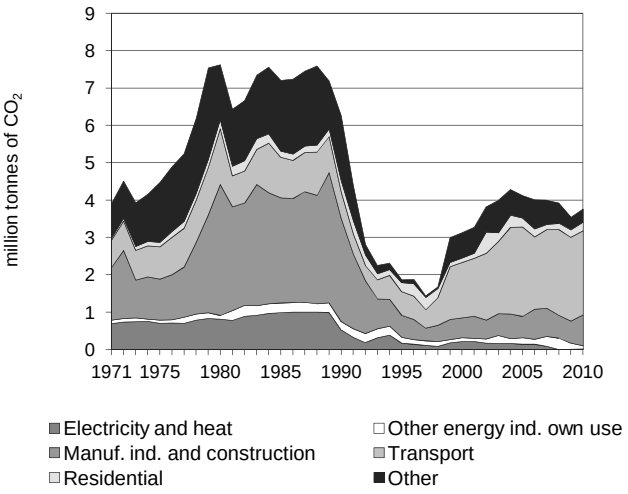


Figure 3. CO_2 emissions by sector

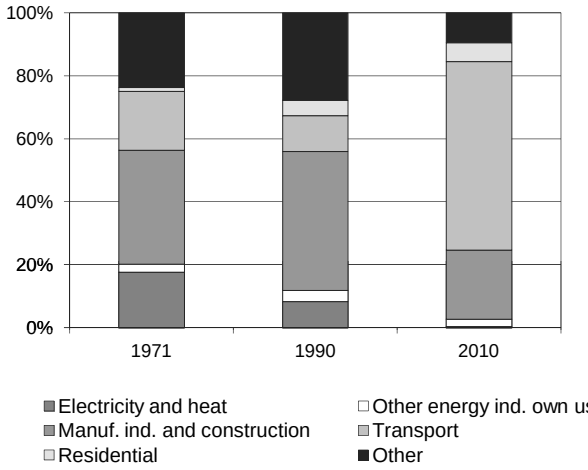


Figure 4. Reference vs Sectoral Approach

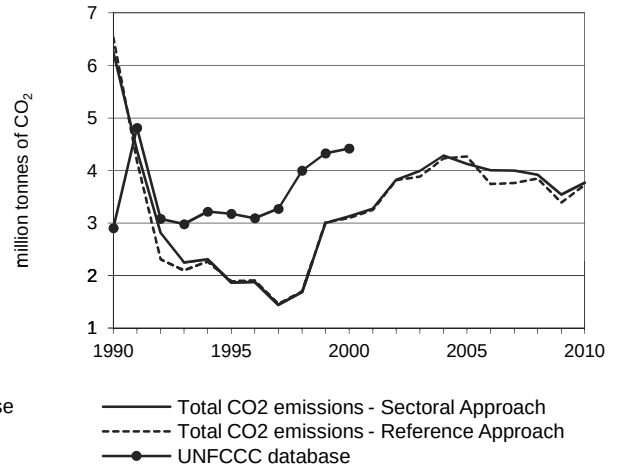


Figure 5. Electricity generation by fuel

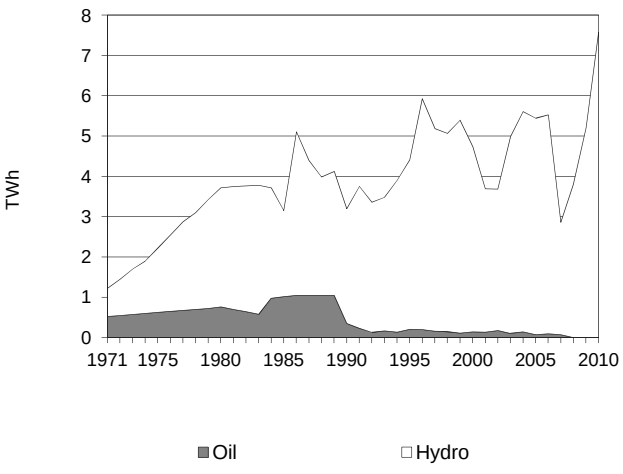
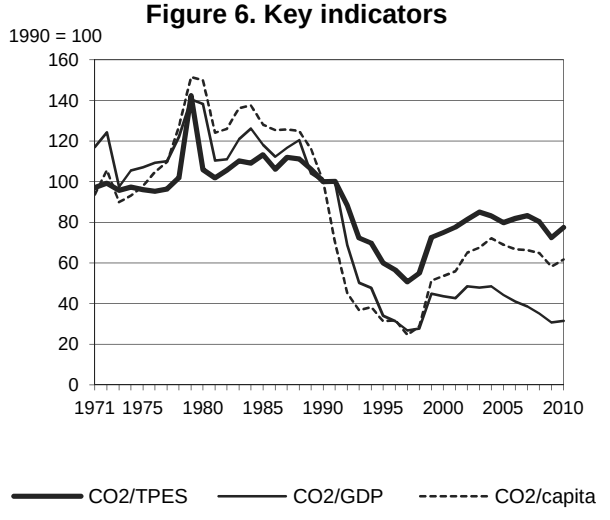


Figure 6. Key indicators



Albania

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	6.26	1.87	3.12	4.12	3.92	3.54	3.76	-39.9%
CO_2 Reference Approach ($MtCO_2$)	6.54	1.89	3.10	4.26	3.85	3.39	3.73	-43.0%
TPES (PJ)	112	56	75	92	87	87	87	-22.3%
TPES (Mtoe)	2.67	1.33	1.78	2.21	2.09	2.09	2.08	-22.3%
GDP (billion 2005 USD)	5.62	4.94	6.44	8.38	10.03	10.36	10.73	90.8%
GDP PPP (billion 2005 USD)	12.88	11.31	14.76	19.19	22.98	23.74	24.57	90.8%
Population (millions)	3.29	3.14	3.07	3.14	3.18	3.19	3.20	-2.6%
CO_2 / TPES (tCO_2 per TJ)	56.0	33.5	41.9	44.6	44.9	40.5	43.3	-22.6%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	1.11	0.38	0.48	0.49	0.39	0.34	0.35	-68.5%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.49	0.17	0.21	0.21	0.17	0.15	0.15	-68.5%
CO_2 / population (tCO_2 per capita)	1.90	0.59	1.02	1.31	1.23	1.11	1.18	-38.3%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.24**	**3.50**	**0.03**	**-**	**3.76**	**-39.9%**
Main activity producer elec. and heat	-	0.02	-	-	0.02	-96.9%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.06	0.03	-	0.09	-61.5%
Manufacturing industries and construction	0.23	0.60	0.00	-	0.83	-70.1%
Transport	-	2.25	-	-	2.25	216.6%
of which: road	-	*2.21*	-	-	*2.21*	211.1%
Other	0.01	0.57	-	-	0.58	-71.4%
of which: residential	*0.00*	*0.22*	-	-	*0.23*	-25.1%
Reference Approach	**0.24**	**3.46**	**0.03**	**-**	**3.73**	**-43.0%**
Diff. due to losses and/or transformation	-	- 0.04	-	-	- 0.04	
Statistical differences	-	0.00	0.00	-	0.00	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.05*	-	-	*0.05*	*x*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	2.21	211.1%	27.7	27.7
Manufacturing industries - oil	0.60	-64.4%	7.5	35.2
Non-specified other - oil	0.35	x	4.3	39.6
Manufacturing industries - coal/peat	0.23	-67.6%	2.9	42.4
Residential - oil	0.22	-20.9%	2.8	45.2
Other energy industry own use - oil	0.06	-72.7%	0.8	46.0
Other transport - oil	0.04	x	0.5	46.5
Other energy industry own use - gas	0.03	x	0.3	46.8
Main activity prod. elec. and heat - oil	0.02	-96.9%	0.2	47.0
Non-specified other sectors - coal/peat	0.01	-99.4%	0.1	47.1
Residential - coal/peat	0.00	x	0.0	47.2
Memo: total CO_2 from fuel combustion	*3.76*	*-39.9%*	*47.2*	*47.2*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Algeria

Figure 1. CO_2 emissions by fuel

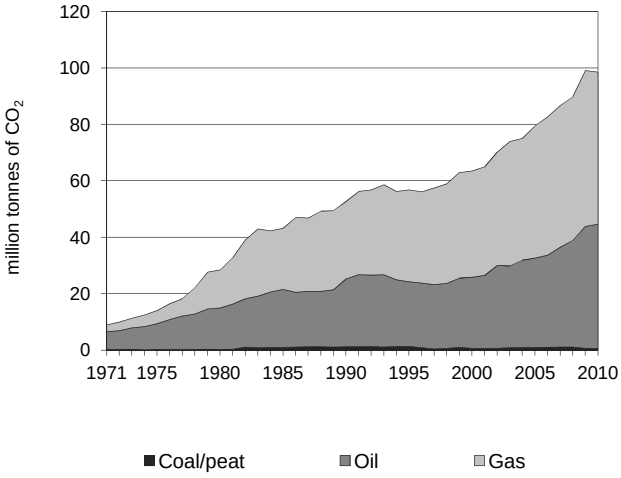


Figure 2. CO_2 emissions by sector

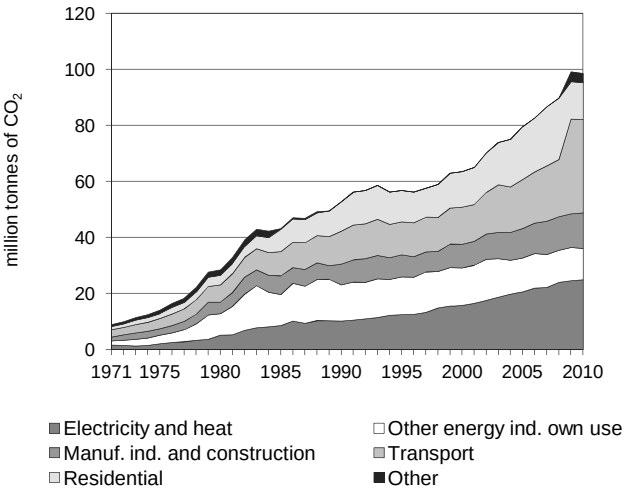


Figure 3. CO_2 emissions by sector

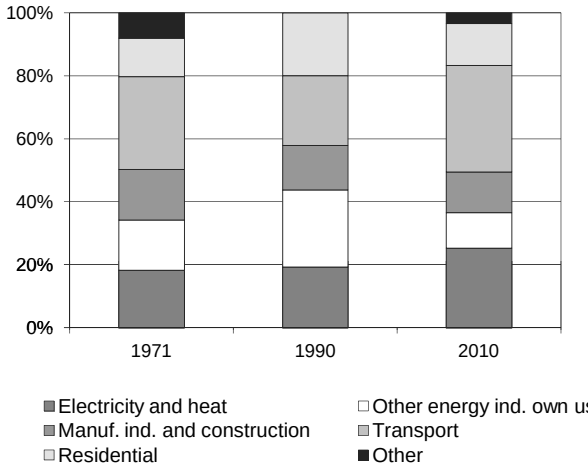


Figure 4. Reference vs Sectoral Approach

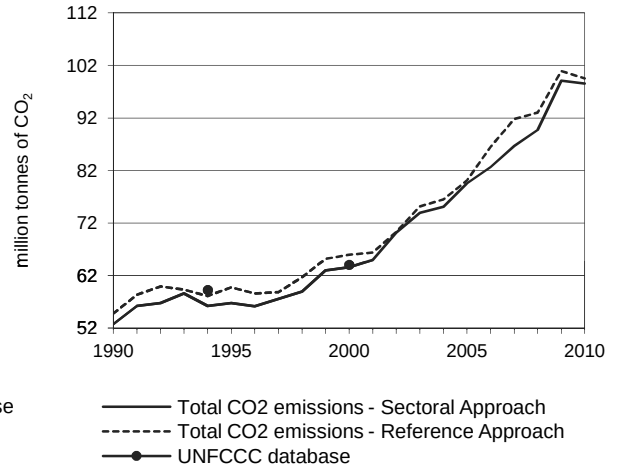


Figure 5. Electricity generation by fuel

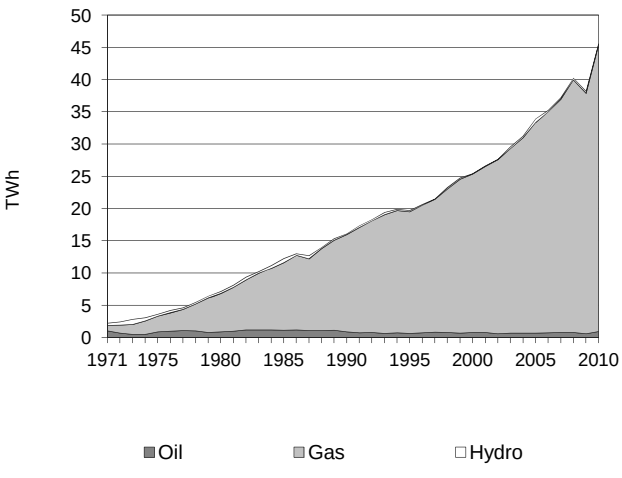
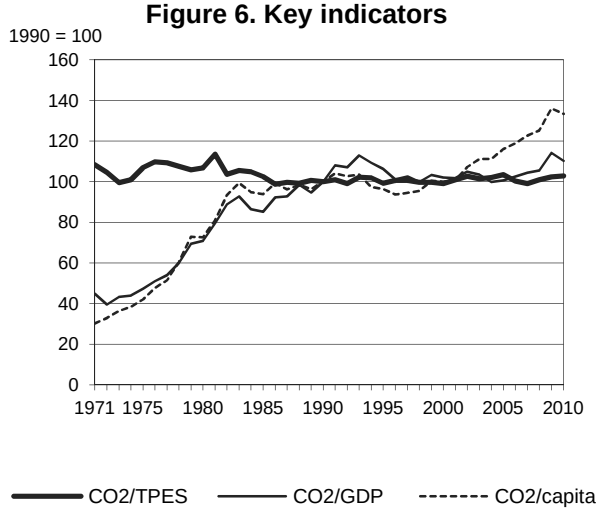


Figure 6. Key indicators



Algeria

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	52.72	56.77	63.55	79.55	89.74	99.11	98.57	87.0%
CO_2 Reference Approach ($MtCO_2$)	54.73	59.77	65.96	80.10	93.02	100.94	99.55	81.9%
TPES (PJ)	929	1 009	1 131	1 355	1 568	1 706	1 690	81.9%
TPES (Mtoe)	22.19	24.11	27.02	32.37	37.44	40.75	40.37	81.9%
GDP (billion 2005 USD)	68.21	69.09	80.60	102.34	110.10	112.41	115.79	69.7%
GDP PPP (billion 2005 USD)	157.14	159.17	185.69	235.76	253.64	258.96	266.75	69.8%
Population (millions)	25.30	28.29	30.53	32.89	34.43	34.95	35.47	40.2%
CO_2 / TPES (tCO_2 per TJ)	56.7	56.2	56.2	58.7	57.2	58.1	58.3	2.8%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.77	0.82	0.79	0.78	0.82	0.88	0.85	10.2%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.34	0.36	0.34	0.34	0.35	0.38	0.37	10.1%
CO_2 / population (tCO_2 per capita)	2.08	2.01	2.08	2.42	2.61	2.84	2.78	33.4%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.67**	**44.03**	**53.87**	**-**	**98.57**	**87.0%**
Main activity producer elec. and heat	-	0.46	24.00	-	24.46	159.0%
Unallocated autoproducers	-	0.50	-	-	0.50	-31.1%
Other energy industry own use	-	2.41	8.72	-	11.13	-13.8%
Manufacturing industries and construction	0.67	3.07	9.00	-	12.73	71.0%
Transport	-	31.04	2.29	-	33.34	184.9%
of which: road	-	*29.66*	-	-	*29.66*	169.3%
Other	-	6.54	9.86	-	16.40	56.4%
of which: residential	-	*4.54*	*8.59*	-	*13.13*	25.2%
Reference Approach	**1.52**	**44.52**	**53.51**	**-**	**99.55**	**81.9%**
Diff. due to losses and/or transformation	0.86	0.92	0.40	-	2.17	
Statistical differences	- 0.00	- 0.43	- 0.76	-	- 1.19	
Memo: international marine bunkers	-	*1.01*	-	-	*1.01*	*-26.0%*
Memo: international aviation bunkers	-	*1.47*	-	-	*1.47*	*35.4%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	29.66	169.3%	17.3	17.3
Main activity prod. elec. and heat - gas	24.00	159.4%	14.0	31.3
Manufacturing industries - gas	9.00	122.3%	5.2	36.5
Other energy industry own use - gas	8.72	-20.7%	5.1	41.6
Residential - gas	8.59	251.8%	5.0	46.6
Residential - oil	4.54	-43.5%	2.6	49.3
Manufacturing industries - oil	3.07	43.0%	1.8	51.1
Other energy industry own use - oil	2.41	25.9%	1.4	52.5
Other transport - gas	2.29	233.9%	1.3	53.8
Non-specified other - oil	2.00	x	1.2	55.0
Other transport - oil	1.38	x	0.8	55.8
Memo: total CO_2 from fuel combustion	*98.57*	*87.0%*	*57.5*	*57.5*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Angola

Figure 1. CO_2 emissions by fuel

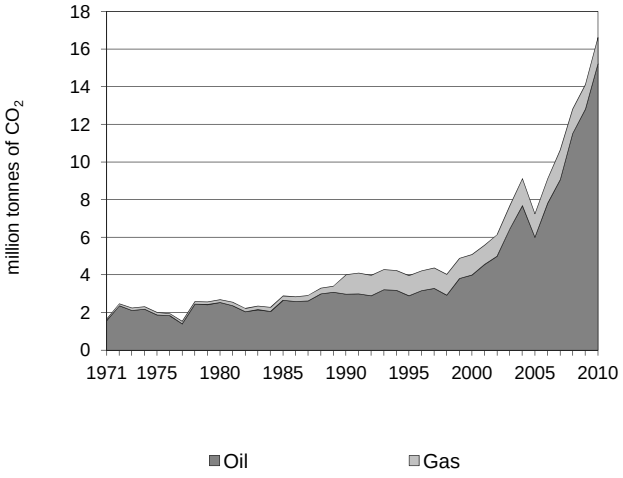


Figure 2. CO_2 emissions by sector

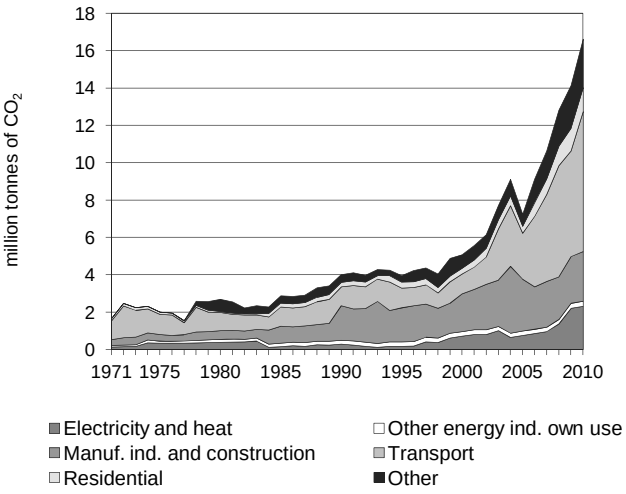


Figure 3. CO_2 emissions by sector

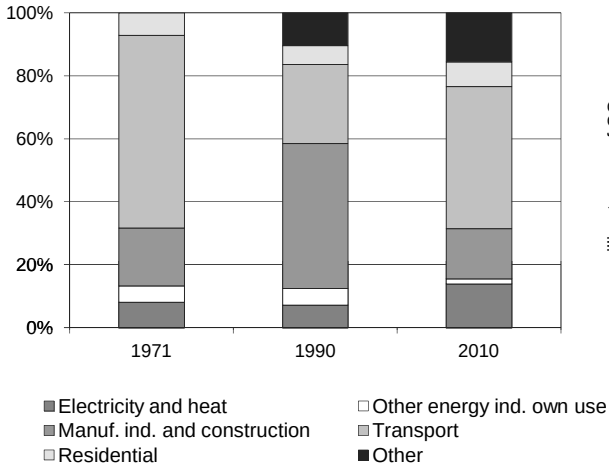


Figure 4. Reference vs Sectoral Approach

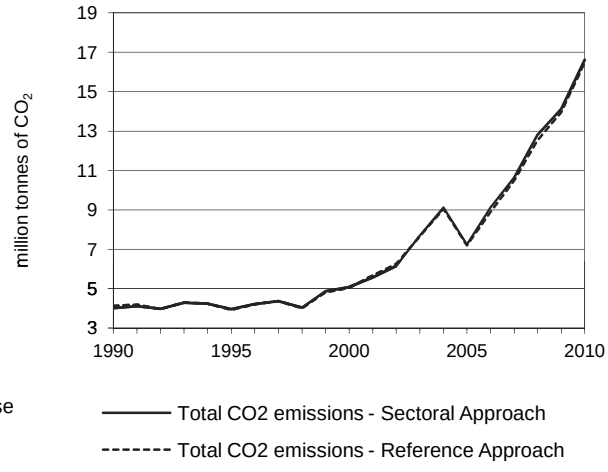


Figure 5. Electricity generation by fuel

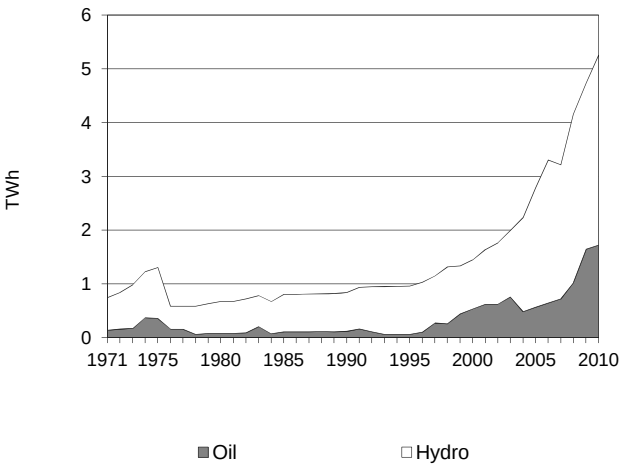
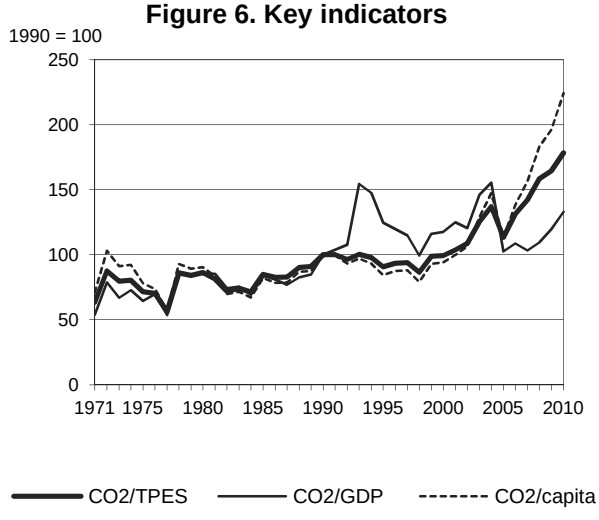


Figure 6. Key indicators



Angola

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	4.01	3.96	5.08	7.25	12.81	14.13	16.62	314.4%
CO_2 Reference Approach ($MtCO_2$)	4.12	3.93	5.05	7.20	12.54	13.96	16.47	299.3%
TPES (PJ)	246	268	314	393	497	528	572	132.4%
TPES (Mtoe)	5.88	6.40	7.50	9.38	11.86	12.60	13.67	132.4%
GDP (billion 2005 USD)	17.36	13.74	18.72	30.63	50.71	51.05	54.05	211.3%
GDP PPP (billion 2005 USD)	34.01	26.92	36.68	60.01	99.36	100.01	105.89	211.3%
Population (millions)	10.34	12.11	13.93	16.49	18.04	18.56	19.08	84.6%
CO_2 / TPES (tCO_2 per TJ)	16.3	14.8	16.2	18.5	25.8	26.8	29.0	78.3%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.23	0.29	0.27	0.24	0.25	0.28	0.31	33.1%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.12	0.15	0.14	0.12	0.13	0.14	0.16	33.1%
CO_2 / population (tCO_2 per capita)	0.39	0.33	0.36	0.44	0.71	0.76	0.87	124.5%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**15.23**	**1.39**	**-**	**16.62**	**314.4%**
Main activity producer elec. and heat	-	1.53	-	-	1.53	607.8%
Unallocated autoproducers	-	0.79	-	-	0.79	978.3%
Other energy industry own use	-	0.28	-	-	0.28	29.9%
Manufacturing industries and construction	-	1.26	1.39	-	2.66	43.8%
Transport	-	7.50	-	-	7.50	645.2%
of which: road	-	*6.77*	-	-	*6.77*	572.5%
Other	-	3.88	-	-	3.88	490.7%
of which: residential	-	*1.28*	-	-	*1.28*	436.2%
Reference Approach	**-**	**15.08**	**1.39**	**-**	**16.47**	**299.3%**
Diff. due to losses and/or transformation	-	- 0.15	-	-	- 0.15	
Statistical differences	-	-	-	-	-	
Memo: international marine bunkers	-	*0.56*	-	-	*0.56*	+
Memo: international aviation bunkers	-	*0.62*	-	-	*0.62*	*-39.6%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	6.77	572.5%	14.5	14.5
Non-specified other - oil	2.59	522.1%	5.6	20.1
Main activity prod. elec. and heat - oil	1.53	607.8%	3.3	23.4
Manufacturing industries - gas	1.39	35.2%	3.0	26.4
Residential - oil	1.28	436.2%	2.8	29.1
Manufacturing industries - oil	1.26	54.8%	2.7	31.8
Unallocated autoproducers - oil	0.79	978.3%	1.7	33.5
Other transport - oil	0.73	x	1.6	35.1
Other energy industry own use - oil	0.28	29.9%	0.6	35.7
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*16.62*	*314.4%*	*35.7*	*35.7*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Argentina

Figure 1. CO_2 emissions by fuel

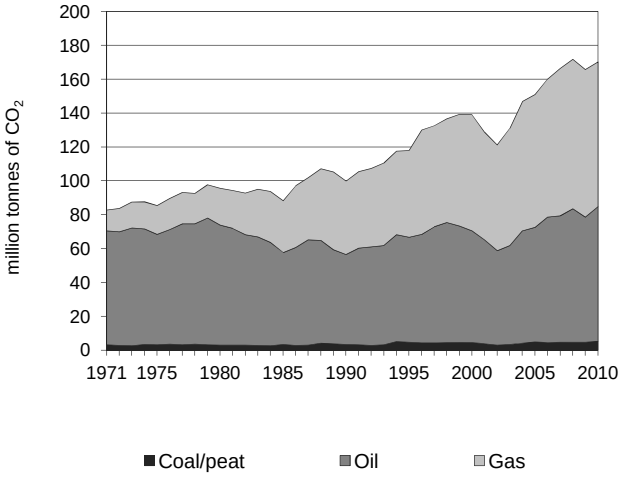


Figure 2. CO_2 emissions by sector

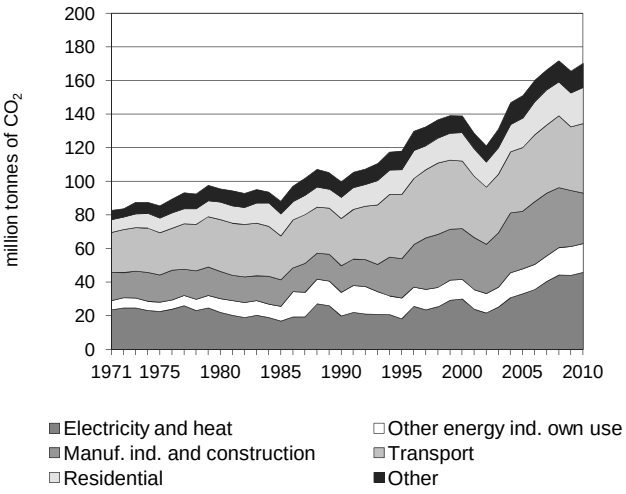


Figure 3. CO_2 emissions by sector

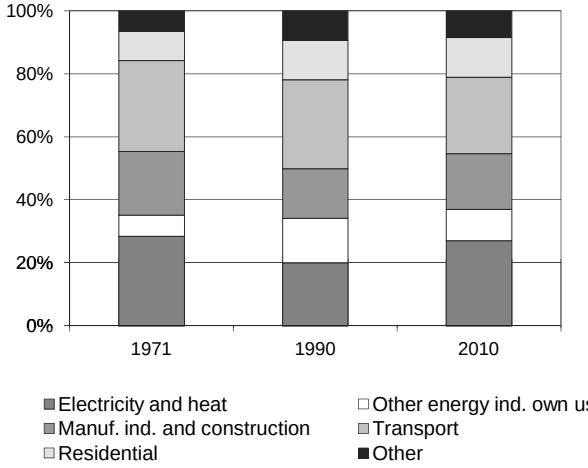


Figure 4. Reference vs Sectoral Approach

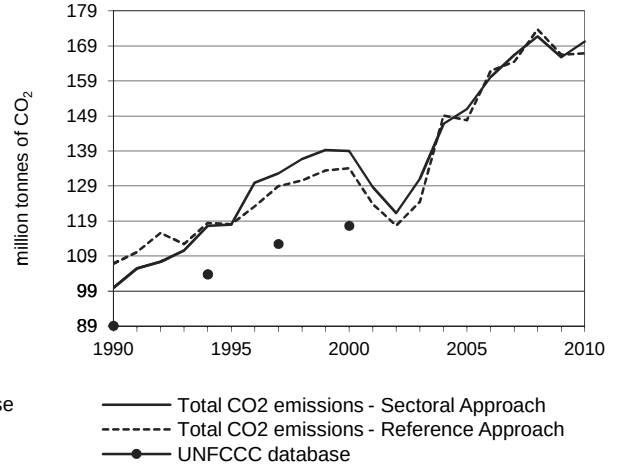


Figure 5. Electricity generation by fuel

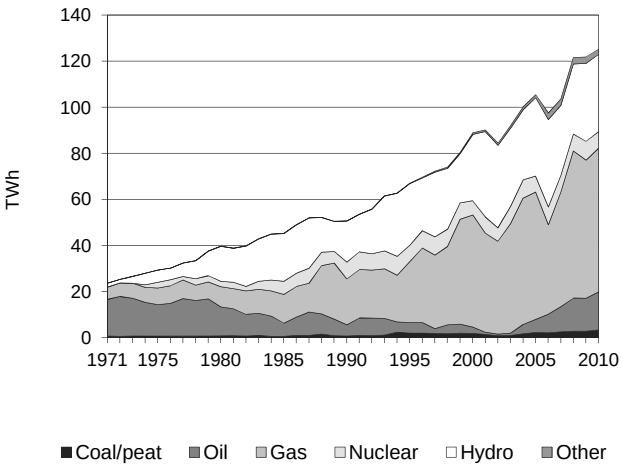
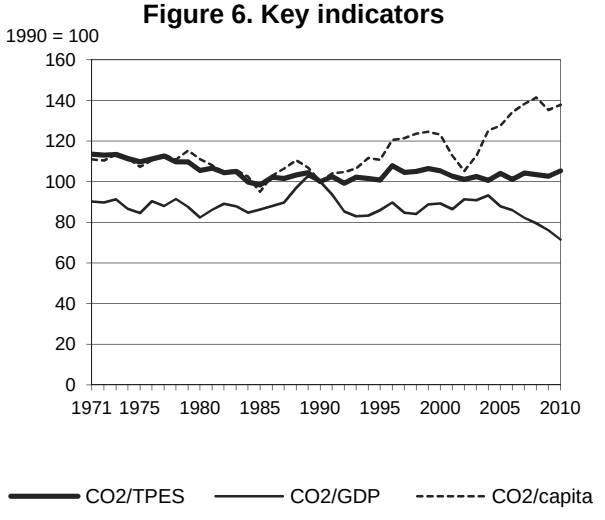


Figure 6. Key indicators



Argentina

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	99.86	117.97	139.03	150.97	171.75	165.76	170.24	70.5%
CO_2 Reference Approach ($MtCO_2$)	106.81	118.05	134.07	147.74	173.75	166.54	166.85	56.2%
TPES (PJ)	1 929	2 262	2 552	2 804	3 209	3 121	3 125	62.0%
TPES (Mtoe)	46.07	54.04	60.95	66.97	76.66	74.53	74.63	62.0%
GDP (billion 2005 USD)	106.43	146.18	166.01	183.19	230.49	232.45	253.74	138.4%
GDP PPP (billion 2005 USD)	243.46	334.38	379.74	419.05	527.23	531.72	580.43	138.4%
Population (millions)	32.64	34.86	36.93	38.68	39.71	40.06	40.41	23.8%
CO_2 / TPES (tCO_2 per TJ)	51.8	52.1	54.5	53.8	53.5	53.1	54.5	5.2%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.94	0.81	0.84	0.82	0.75	0.71	0.67	-28.5%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.41	0.35	0.37	0.36	0.33	0.31	0.29	-28.5%
CO_2 / population (tCO_2 per capita)	3.06	3.38	3.76	3.90	4.32	4.14	4.21	37.7%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**5.22**	**79.52**	**85.50**	**-**	**170.24**	**70.5%**
Main activity producer elec. and heat	1.80	11.59	23.02	-	36.41	137.7%
Unallocated autoproducers	1.87	0.58	7.12	-	9.56	103.6%
Other energy industry own use	0.00	2.98	14.06	-	17.05	21.1%
Manufacturing industries and construction	1.55	13.75	14.76	-	30.06	90.6%
Transport	-	35.18	6.14	-	41.32	46.8%
of which: road	-	*32.83*	*5.21*	-	*38.04*	45.8%
Other	-	15.44	20.40	-	35.84	64.0%
of which: residential	-	*3.58*	*17.96*	-	*21.54*	72.1%
Reference Approach	**3.62**	**75.70**	**87.53**	**-**	**166.85**	**56.2%**
Diff. due to losses and/or transformation	- 1.71	0.98	0.41	-	- 0.32	
Statistical differences	0.11	- 4.80	1.62	-	- 3.07	
Memo: international marine bunkers	-	*3.75*	-	-	*3.75*	*68.7%*
Memo: international aviation bunkers	-	*1.95*	-	-	*1.95*	*x*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	32.83	27.9%	10.4	10.4
Main activity prod. elec. and heat - gas	23.02	121.1%	7.3	17.6
Residential - gas	17.96	113.0%	5.7	23.3
Manufacturing industries - gas	14.76	48.4%	4.7	28.0
Other energy industry own use - gas	14.06	58.2%	4.4	32.4
Manufacturing industries - oil	13.75	182.2%	4.3	36.8
Non-specified other - oil	11.86	101.7%	3.7	40.5
Main activity prod. elec. and heat - oil	11.59	154.5%	3.7	44.2
Unallocated autoproducers - gas	7.12	295.2%	2.2	46.4
Road - gas	5.21	+	1.6	48.1
Residential - oil	3.58	-12.2%	1.1	49.2
Memo: total CO_2 from fuel combustion	*170.24*	*70.5%*	*53.8*	*53.8*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Armenia

Figure 1. CO_2 emissions by fuel

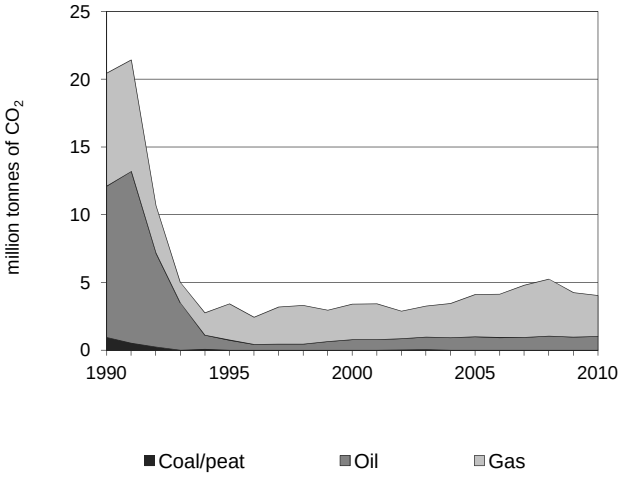


Figure 2. CO_2 emissions by sector

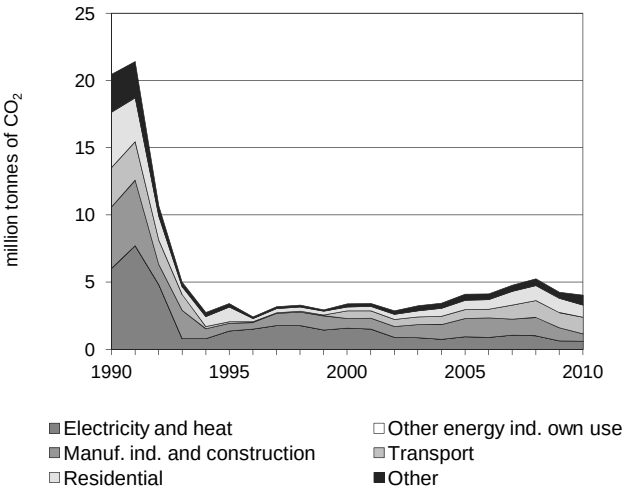


Figure 3. CO_2 emissions by sector

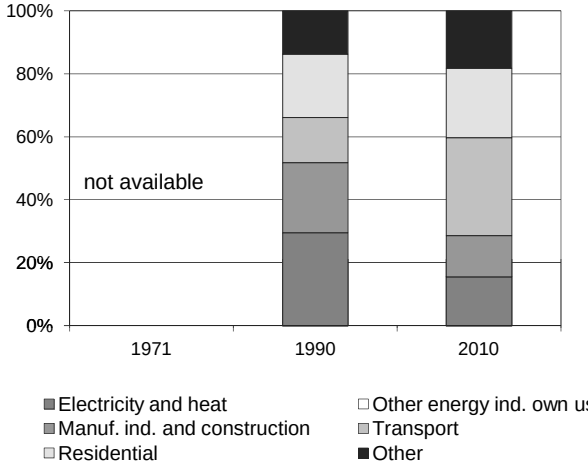


Figure 4. Reference vs Sectoral Approach

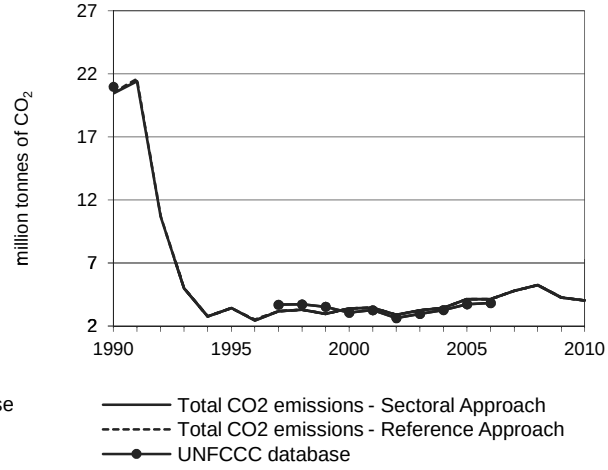


Figure 5. Electricity generation by fuel

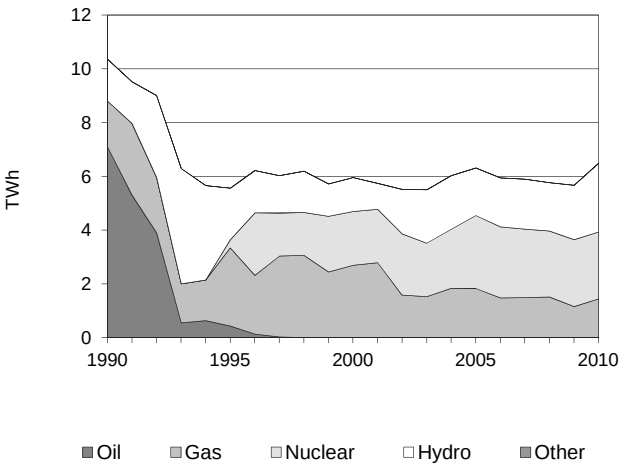
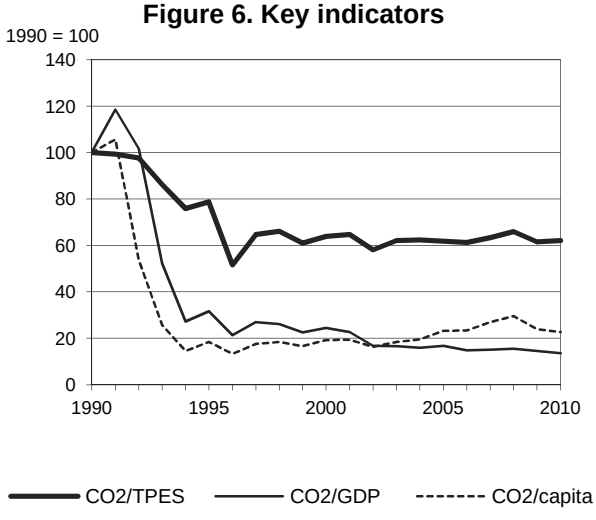


Figure 6. Key indicators



Armenia

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	20.46	3.42	3.40	4.12	5.26	4.26	4.04	-80.3%
CO_2 Reference Approach ($MtCO_2$)	20.52	3.42	3.40	4.12	5.26	4.26	4.04	-80.3%
TPES (PJ)	322	68	84	105	125	109	102	-68.2%
TPES (Mtoe)	7.70	1.63	2.00	2.51	3.00	2.60	2.45	-68.2%
GDP (billion 2005 USD)	4.06	2.15	2.76	4.90	6.75	5.79	5.91	45.5%
GDP PPP (billion 2005 USD)	10.41	5.50	7.06	12.56	17.29	14.84	15.15	45.5%
Population (millions)	3.55	3.22	3.08	3.07	3.08	3.09	3.09	-12.8%
CO_2 / TPES (tCO_2 per TJ)	63.5	50.0	40.6	39.3	41.9	39.1	39.5	-37.9%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	5.04	1.59	1.24	0.84	0.78	0.74	0.68	-86.4%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	1.96	0.62	0.48	0.33	0.30	0.29	0.27	-86.4%
CO_2 / population (tCO_2 per capita)	5.77	1.06	1.11	1.34	1.71	1.38	1.31	-77.4%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**1.02**	**3.02**	**-**	**4.04**	**-80.3%**
Main activity producer elec. and heat	-	-	0.63	-	0.63	-89.6%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.02	0.51	-	0.53	-88.4%
Transport	-	0.57	0.68	-	1.25	-57.2%
of which: road	-	*0.57*	*0.68*	-	*1.25*	-57.2%
Other	-	0.44	1.19	-	1.63	-76.5%
of which: residential	-	-	*0.89*	-	*0.89*	-78.3%
Reference Approach	**-**	**1.02**	**3.02**	**-**	**4.04**	**-80.3%**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	-	-	0.00	-	0.00	
Memo: international marine bunkers	-	-	-	-	-	-
Memo: international aviation bunkers	-	*0.13*	-	-	*0.13*	*-77.8%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Residential - gas	0.89	-66.2%	9.6	9.6
Road - gas	0.68	x	7.4	17.0
Main activity prod. elec. and heat - gas	0.63	-67.2%	6.8	23.7
Road - oil	0.57	-80.5%	6.1	29.9
Manufacturing industries - gas	0.51	-77.4%	5.5	35.4
Non-specified other - oil	0.44	-66.2%	4.7	40.1
Non-specified other - gas	0.30	-80.2%	3.2	43.3
Manufacturing industries - oil	0.02	-99.3%	0.2	43.5
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*4.04*	*-80.3%*	*43.5*	*43.5*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Australia

Figure 1. CO_2 emissions by fuel

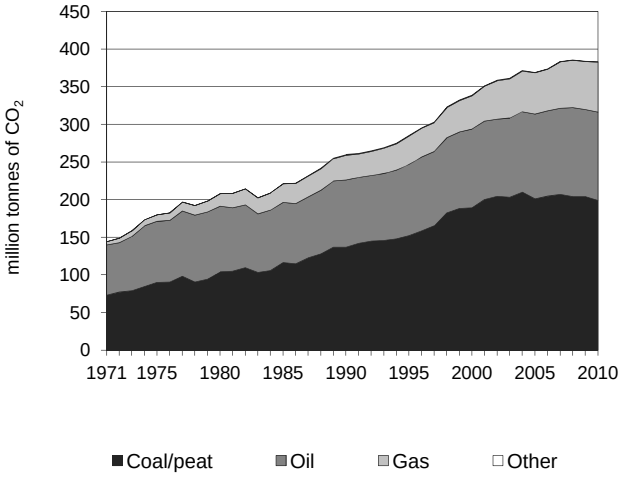


Figure 2. CO_2 emissions by sector

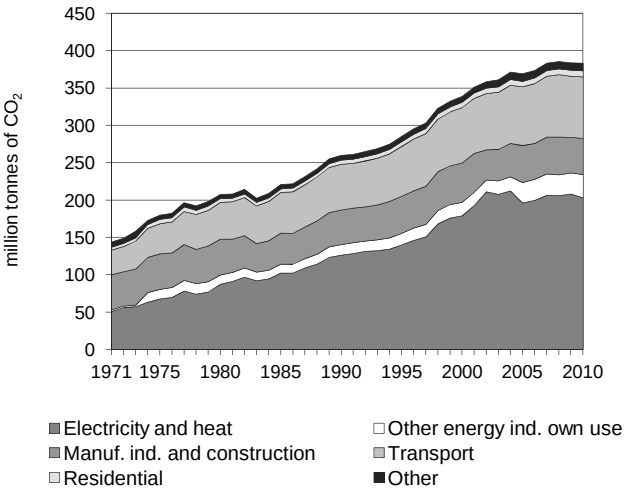


Figure 3. CO_2 emissions by sector

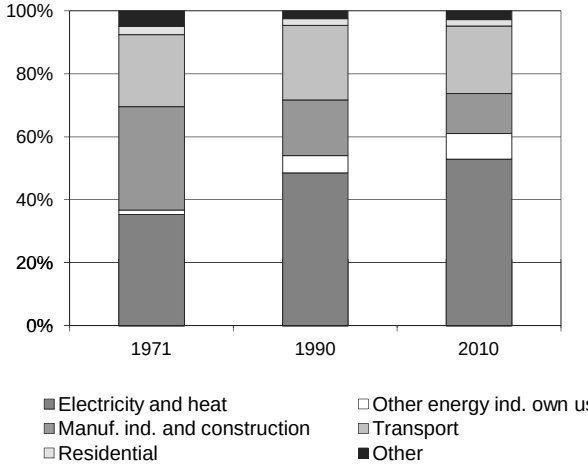


Figure 4. Reference vs Sectoral Approach

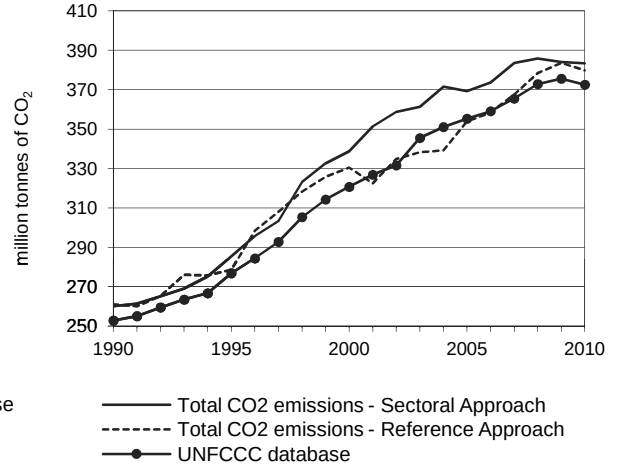


Figure 5. Electricity generation by fuel

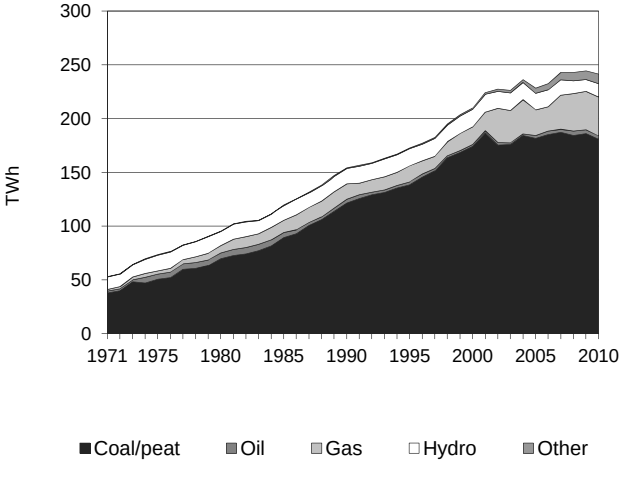
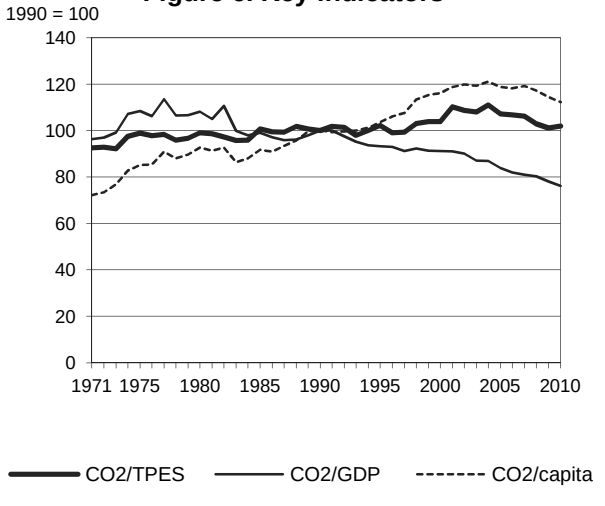


Figure 6. Key indicators



Australia

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	260.02	285.43	338.77	369.24	385.77	384.05	383.48	47.5%
CO_2 Reference Approach ($MtCO_2$)	260.93	278.56	330.39	353.89	378.42	383.61	379.86	45.6%
TPES (PJ)	3 610	3 875	4 526	4 782	5 202	5 274	5 222	44.7%
TPES (Mtoe)	86.23	92.56	108.11	114.22	124.24	125.98	124.73	44.7%
GDP (billion 2005 USD)	451.43	531.39	644.74	764.77	834.29	853.27	874.48	93.7%
GDP PPP (billion 2005 USD)	425.78	501.19	608.11	721.31	786.88	804.79	824.79	93.7%
Population (millions)	17.17	18.19	19.27	20.54	21.73	22.16	22.55	31.4%
CO_2 / TPES (tCO_2 per TJ)	72.0	73.7	74.8	77.2	74.2	72.8	73.4	2.0%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.58	0.54	0.53	0.48	0.46	0.45	0.44	-23.9%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.61	0.57	0.56	0.51	0.49	0.48	0.46	-23.9%
CO_2 / population (tCO_2 per capita)	15.14	15.69	17.58	17.97	17.75	17.33	17.00	12.3%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**199.18**	**117.15**	**66.53**	**0.62**	**383.48**	**47.5%**
Main activity producer elec. and heat	180.39	1.08	16.65	-	198.11	63.6%
Unallocated autoproducers	0.32	1.71	2.97	-	5.00	-3.8%
Other energy industry own use	5.31	8.99	16.84	-	31.15	116.6%
Manufacturing industries and construction	12.54	16.07	19.37	0.62	48.60	5.7%
Transport	0.49	80.74	1.01	-	82.23	33.9%
of which: road	-	*68.96*	*0.12*	-	*69.08*	26.7%
Other	0.14	8.57	9.69	-	18.39	53.6%
of which: residential	*0.01*	*0.74*	*7.24*	-	*7.99*	42.0%
Reference Approach	**204.61**	**113.38**	**61.24**	**0.62**	**379.86**	**45.6%**
Diff. due to losses and/or transformation	2.00	- 6.07	0.79	-	- 3.28	
Statistical differences	3.43	2.30	- 6.07	- 0.00	- 0.34	
Memo: international marine bunkers	-	*2.25*	-	-	*2.25*	*5.4%*
Memo: international aviation bunkers	-	*10.09*	-	-	*10.09*	*135.1%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	180.39	60.2%	32.6	32.6
Road - oil	68.96	26.5%	12.5	45.0
Manufacturing industries - gas	19.37	41.2%	3.5	48.5
Other energy industry own use - gas	16.84	249.5%	3.0	51.6
Main activity prod. elec. and heat - gas	16.65	135.3%	3.0	54.6
Manufacturing industries - oil	16.07	24.7%	2.9	57.5
Manufacturing industries - coal/peat	12.54	-32.3%	2.3	59.8
Other transport - oil	11.77	78.9%	2.1	61.9
Other energy industry own use - oil	8.99	24.8%	1.6	63.5
Non-specified other - oil	7.83	90.7%	1.4	64.9
Residential - gas	7.24	64.0%	1.3	66.2
Memo: total CO_2 from fuel combustion	*383.48*	*47.5%*	*69.3*	*69.3*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Austria

Figure 1. CO_2 emissions by fuel

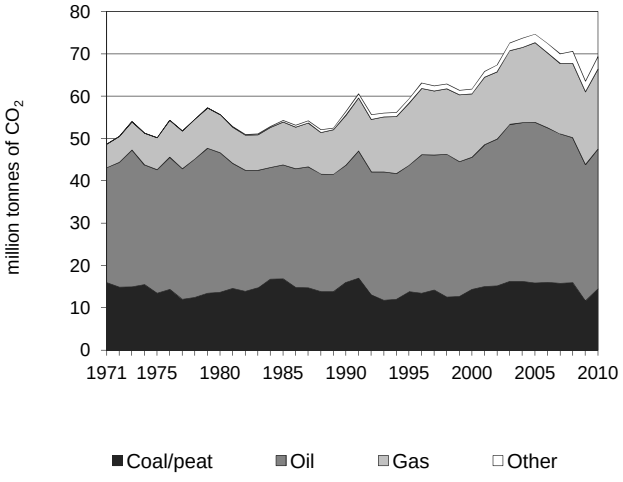


Figure 2. CO_2 emissions by sector

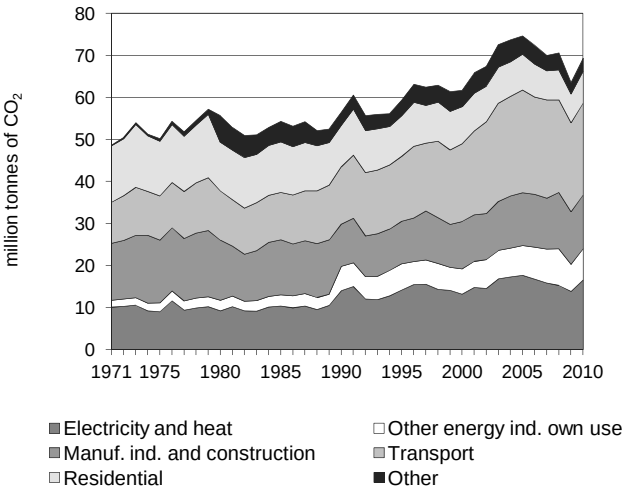


Figure 3. CO_2 emissions by sector

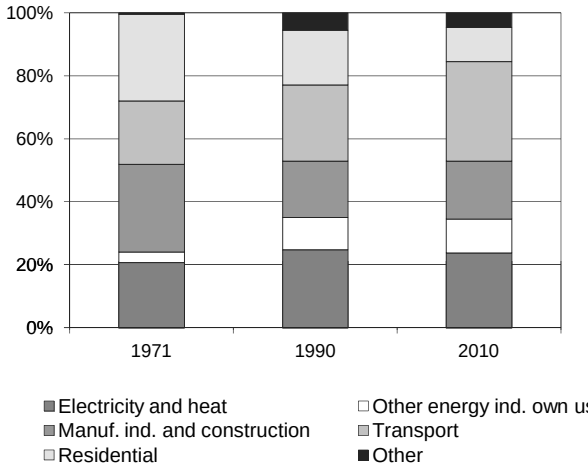


Figure 4. Reference vs Sectoral Approach

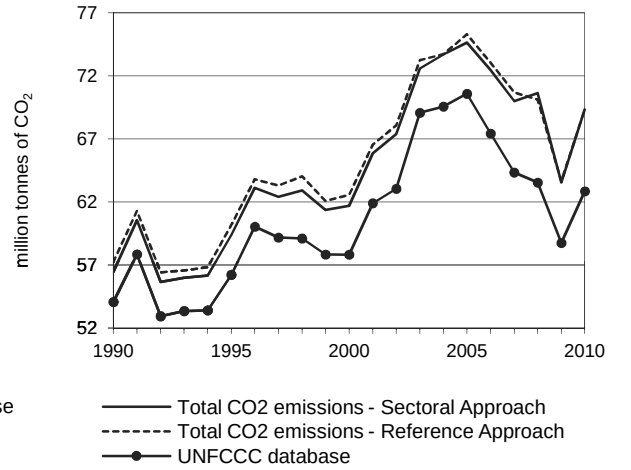


Figure 5. Electricity generation by fuel

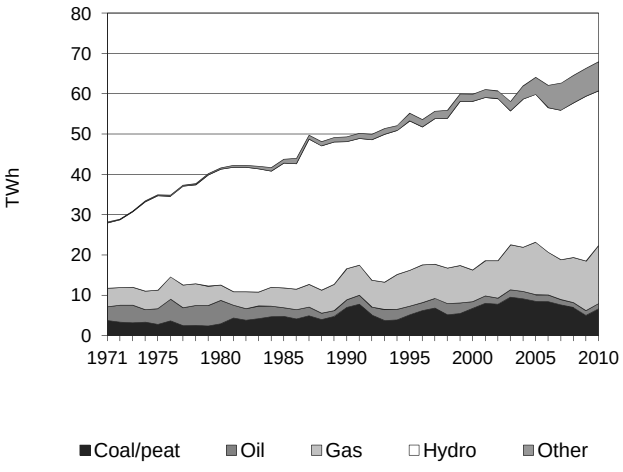
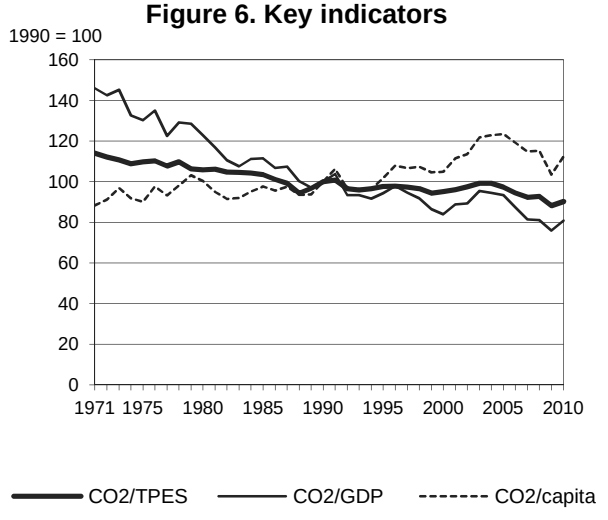


Figure 6. Key indicators



Austria

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	56.44	59.38	61.70	74.65	70.63	63.55	69.34	22.9%
CO_2 Reference Approach ($MtCO_2$)	57.23	60.17	62.55	75.30	70.12	63.64	69.35	21.2%
TPES (PJ)	1 040	1 121	1 196	1 414	1 405	1 330	1 417	36.2%
TPES (Mtoe)	24.84	26.77	28.56	33.76	33.55	31.76	33.84	36.2%
GDP (billion 2005 USD)	215.29	240.29	280.62	304.98	332.47	319.80	327.21	52.0%
GDP PPP (billion 2005 USD)	195.31	217.99	254.57	276.67	301.61	290.12	296.83	52.0%
Population (millions)	7.68	7.95	8.01	8.23	8.34	8.36	8.39	9.2%
CO_2 / TPES (tCO_2 per TJ)	54.3	53.0	51.6	52.8	50.3	47.8	48.9	-9.8%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.26	0.25	0.22	0.24	0.21	0.20	0.21	-19.2%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.29	0.27	0.24	0.27	0.23	0.22	0.23	-19.2%
CO_2 / population (tCO_2 per capita)	7.35	7.47	7.70	9.08	8.47	7.60	8.27	12.5%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**14.49**	**33.03**	**18.90**	**2.93**	**69.34**	**22.9%**
Main activity producer elec. and heat	3.86	0.70	5.54	0.56	10.66	2.0%
Unallocated autoproducers	3.63	0.62	1.12	0.50	5.87	65.9%
Other energy industry own use	4.78	1.61	1.05	-	7.44	28.4%
Manufacturing industries and construction	1.96	2.70	6.23	1.87	12.77	26.7%
Transport	-	21.54	0.33	-	21.87	60.2%
of which: road	-	*21.21*	*0.01*	-	*21.22*	62.5%
Other	0.25	5.86	4.62	0.00	10.74	-17.0%
of which: residential	*0.23*	*4.22*	*3.13*	-	*7.58*	-22.9%
Reference Approach	**13.69**	**33.83**	**18.90**	**2.93**	**69.35**	**21.2%**
Diff. due to losses and/or transformation	- 0.90	0.80	-	-	- 0.10	
Statistical differences	0.10	0.00	0.00	- 0.00	0.11	
Memo: international marine bunkers	-	-	-	-	-	-
Memo: international aviation bunkers	-	*1.98*	-	-	*1.98*	*131.3%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	21.21	62.4%	23.3	23.3
Manufacturing industries - gas	6.23	42.8%	6.8	30.1
Main activity prod. elec. and heat - gas	5.54	68.7%	6.1	36.2
Other energy industry - coal/peat	4.78	58.5%	5.3	41.5
Residential - oil	4.22	-20.2%	4.6	46.1
Main activity prod. elec. and heat - coal/peat	3.86	-33.9%	4.2	50.3
Unallocated autoproducers - coal/peat	3.63	147.3%	4.0	54.3
Residential - gas	3.13	75.4%	3.4	57.8
Manufacturing industries - oil	2.70	4.4%	3.0	60.7
Manufacturing industries - coal/peat	1.96	-30.0%	2.2	62.9
Manufacturing industries -other	1.87	489.4%	2.1	64.9
Memo: total CO_2 from fuel combustion	*69.34*	*22.9%*	*76.1*	*76.1*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Azerbaijan

Figure 1. CO_2 emissions by fuel

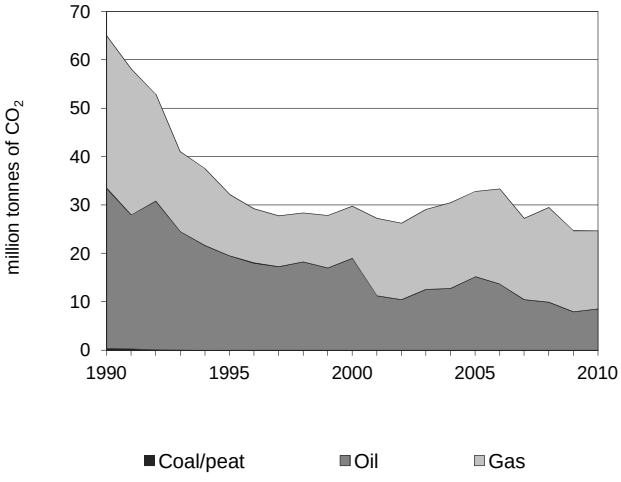


Figure 2. CO_2 emissions by sector

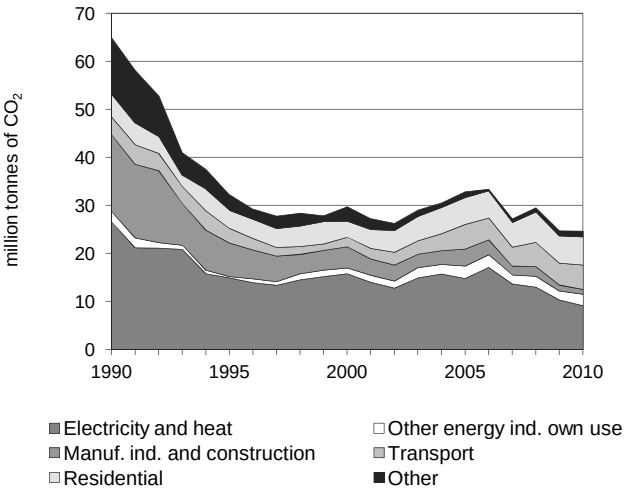


Figure 3. CO_2 emissions by sector

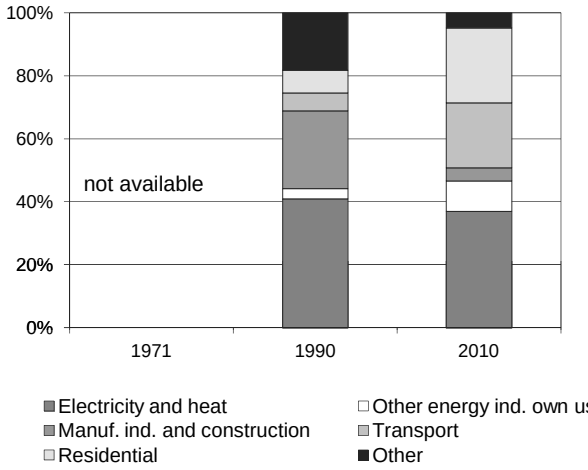


Figure 4. Reference vs Sectoral Approach

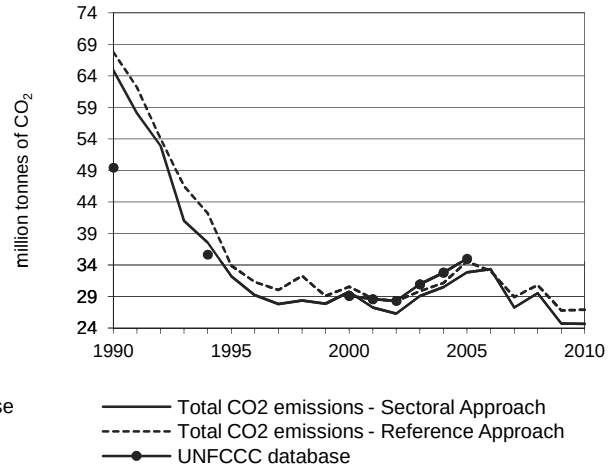


Figure 5. Electricity generation by fuel

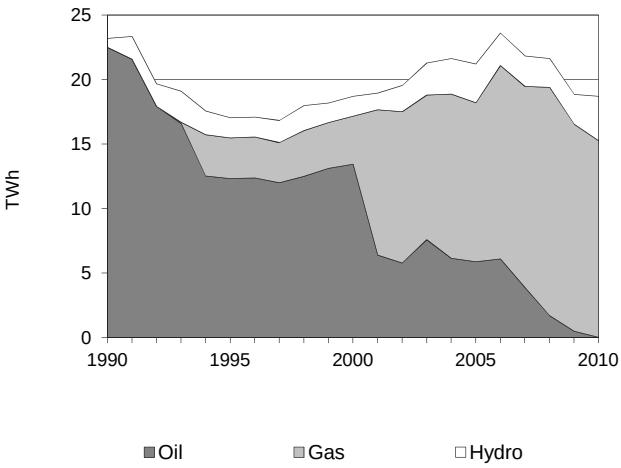
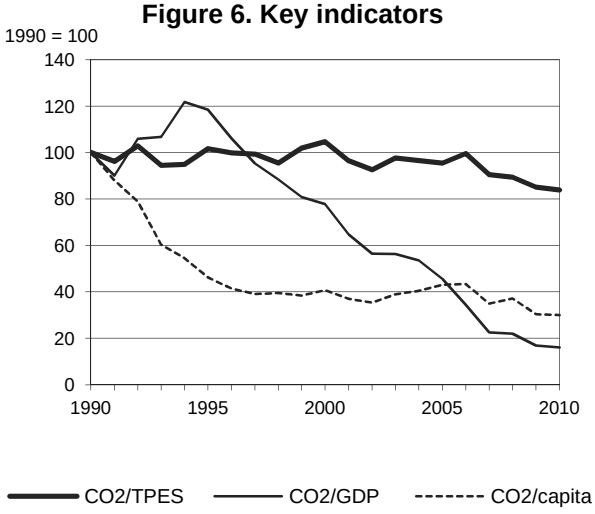


Figure 6. Key indicators



Azerbaijan

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	64.98	32.23	29.76	32.84	29.52	24.71	24.67	-62.0%
CO_2 Reference Approach ($MtCO_2$)	67.82	33.92	30.53	34.55	30.82	26.82	26.92	-60.3%
TPES (PJ)	1 095	534	479	580	556	489	496	-54.7%
TPES (Mtoe)	26.15	12.75	11.43	13.85	13.28	11.68	11.84	-54.7%
GDP (billion 2005 USD)	11.95	5.00	7.04	13.25	24.68	26.98	28.33	137.1%
GDP PPP (billion 2005 USD)	34.03	14.25	20.04	37.73	70.31	76.85	80.70	137.1%
Population (millions)	7.16	7.69	8.05	8.39	8.76	8.95	9.05	26.4%
CO_2 / TPES (tCO_2 per TJ)	59.4	60.4	62.2	56.7	53.1	50.5	49.8	-16.1%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	5.44	6.45	4.23	2.48	1.20	0.92	0.87	-84.0%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	1.91	2.26	1.48	0.87	0.42	0.32	0.31	-84.0%
CO_2 / population (tCO_2 per capita)	9.08	4.19	3.70	3.91	3.37	2.76	2.73	-70.0%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**8.57**	**16.10**	**-**	**24.67**	**-62.0%**
Main activity producer elec. and heat	-	0.02	8.18	-	8.19	-69.2%
Unallocated autoproducers	-	0.05	0.89	-	0.94	x
Other energy industry own use	-	1.73	0.63	-	2.37	10.5%
Manufacturing industries and construction	-	0.39	0.63	-	1.02	-93.6%
Transport	-	5.10	-	-	5.10	38.1%
of which: road	-	*4.54*	-	-	*4.54*	41.5%
Other	-	1.28	5.77	-	7.05	-57.3%
of which: residential	-	*0.21*	*5.65*	-	*5.86*	24.9%
Reference Approach	**-**	**8.67**	**18.24**	**-**	**26.92**	**-60.3%**
Diff. due to losses and/or transformation	-	- 0.54	2.19	-	1.65	
Statistical differences	-	0.65	- 0.05	-	0.60	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*1.19*	-	-	*1.19*	*27.3%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	8.18	-21.1%	17.4	17.4
Residential - gas	5.65	23.4%	12.0	29.4
Road - oil	4.54	47.0%	9.6	39.0
Other energy industry own use - oil	1.73	-19.1%	3.7	42.7
Non-specified other - oil	1.07	-88.6%	2.3	44.9
Unallocated autoproducers - gas	0.89	x	1.9	46.8
Other energy industry own use - gas	0.63	x	1.3	48.2
Manufacturing industries - gas	0.63	-95.5%	1.3	49.5
Other transport - oil	0.56	184.2%	1.2	50.7
Manufacturing industries - oil	0.39	-79.8%	0.8	51.5
Residential - oil	0.21	87.6%	0.4	52.0
Memo: total CO_2 from fuel combustion	*24.67*	*-62.0%*	*52.4*	*52.4*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Bahrain

Figure 1. CO_2 emissions by fuel

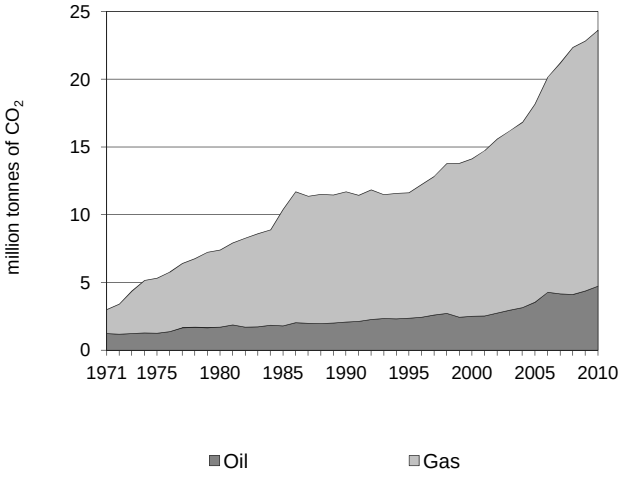


Figure 2. CO_2 emissions by sector

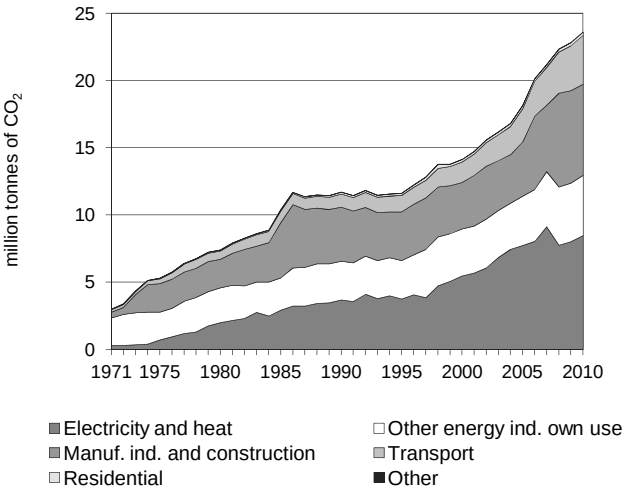


Figure 3. CO_2 emissions by sector

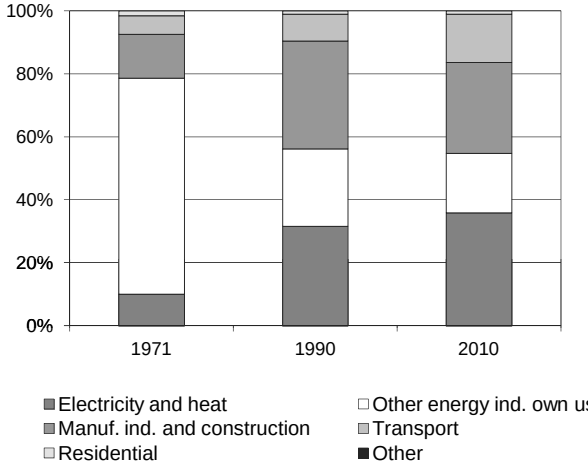


Figure 4. Reference vs Sectoral Approach

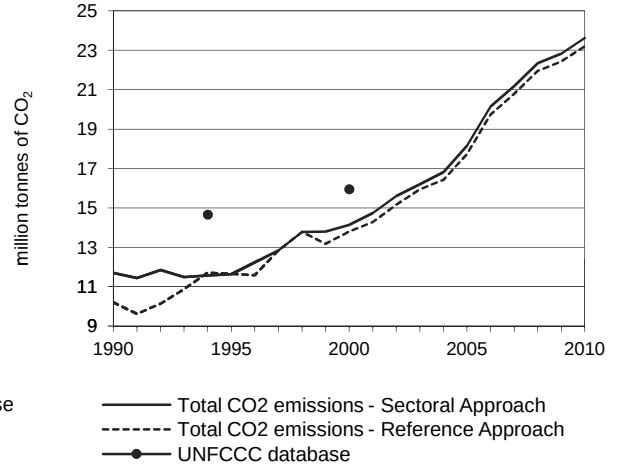


Figure 5. Electricity generation by fuel

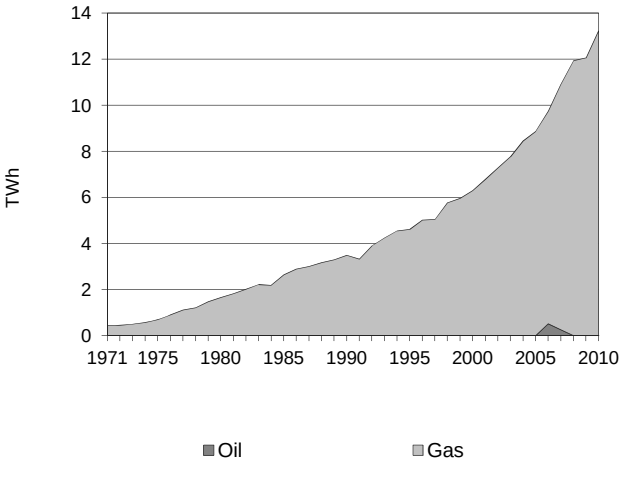
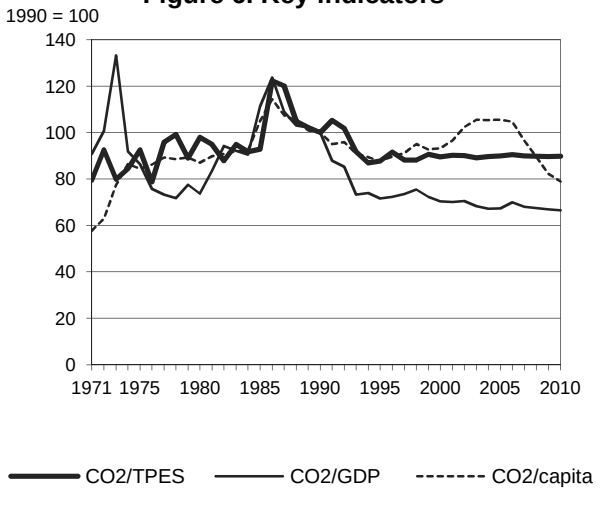


Figure 6. Key indicators



Bahrain

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	11.70	11.63	14.13	18.15	22.35	22.82	23.62	101.8%
CO_2 Reference Approach ($MtCO_2$)	10.20	11.65	13.79	17.73	21.95	22.43	23.21	127.6%
TPES (PJ)	182	206	246	314	387	396	410	124.9%
TPES (Mtoe)	4.35	4.93	5.86	7.50	9.24	9.47	9.78	124.9%
GDP (billion 2005 USD)	5.84	8.11	10.02	13.46	16.54	17.03	17.73	203.5%
GDP PPP (billion 2005 USD)	8.83	12.26	15.14	20.34	25.00	25.74	26.79	203.5%
Population (millions)	0.49	0.56	0.64	0.73	1.05	1.17	1.26	156.0%
CO_2 / TPES (tCO_2 per TJ)	64.2	56.3	57.5	57.8	57.7	57.6	57.7	-10.3%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	2.00	1.43	1.41	1.35	1.35	1.34	1.33	-33.5%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	1.33	0.95	0.93	0.89	0.89	0.89	0.88	-33.5%
CO_2 / population (tCO_2 per capita)	23.73	20.80	22.14	25.03	21.24	19.51	18.71	-21.2%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**4.72**	**18.89**	**-**	**23.62**	**101.8%**
Main activity producer elec. and heat	-	-	8.47	-	8.47	129.2%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.85	3.63	-	4.48	55.2%
Manufacturing industries and construction	-	-	6.79	-	6.79	69.6%
Transport	-	3.63	-	-	3.63	266.3%
of which: road	-	*3.59*	-	-	*3.59*	262.1%
Other	-	0.25	-	-	0.25	100.7%
of which: residential	-	*0.25*	-	-	*0.25*	100.7%
Reference Approach	**-**	**4.31**	**18.89**	**-**	**23.21**	**127.6%**
Diff. due to losses and/or transformation	-	- 0.41	-	-	- 0.41	
Statistical differences	-	- 0.00	- 0.00	-	- 0.00	
Memo: international marine bunkers	-	*0.23*	-	-	*0.23*	*-6.3%*
Memo: international aviation bunkers	-	*1.97*	-	-	*1.97*	*37.7%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	8.47	129.2%	30.7	30.7
Manufacturing industries - gas	6.79	69.6%	24.7	55.4
Other energy industry own use - gas	3.63	89.3%	13.2	68.6
Road - oil	3.59	262.1%	13.0	81.6
Other energy industry own use - oil	0.85	-12.5%	3.1	84.7
Residential - oil	0.25	100.7%	0.9	85.6
Other transport - oil	0.04	x	0.1	85.7
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*23.62*	*101.8%*	*85.7*	*85.7*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Bangladesh

Figure 1. CO_2 emissions by fuel

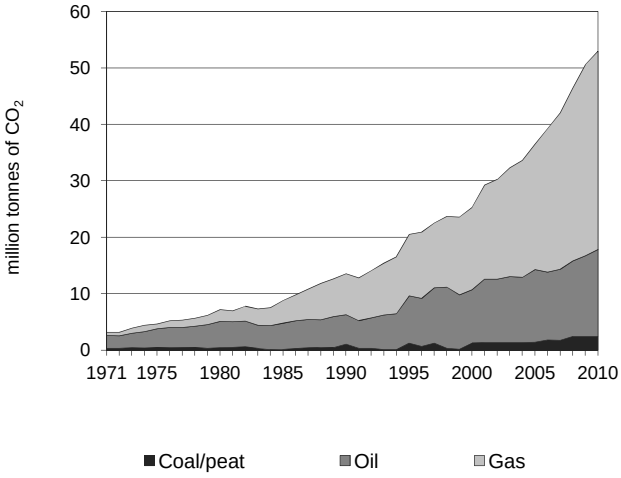


Figure 2. CO_2 emissions by sector

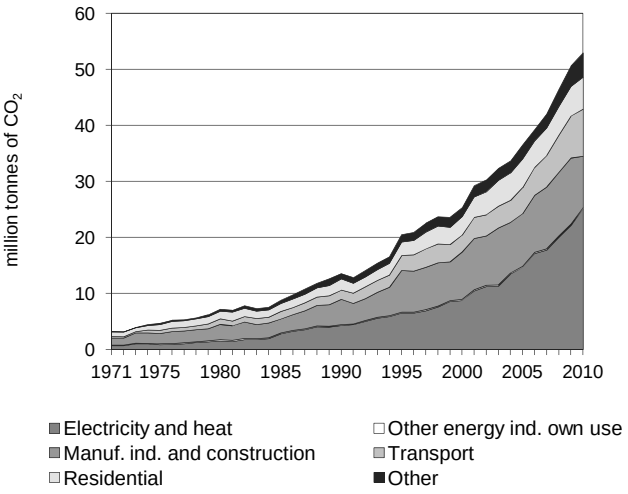


Figure 3. CO_2 emissions by sector

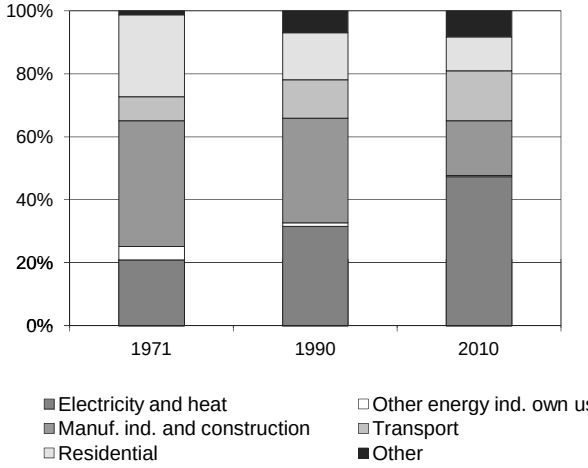


Figure 4. Reference vs Sectoral Approach

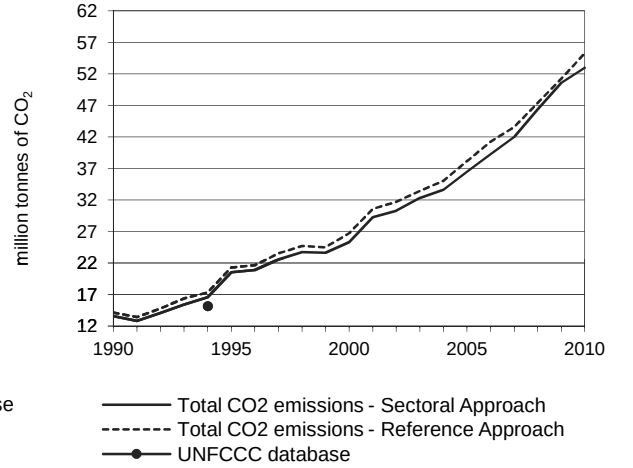


Figure 5. Electricity generation by fuel

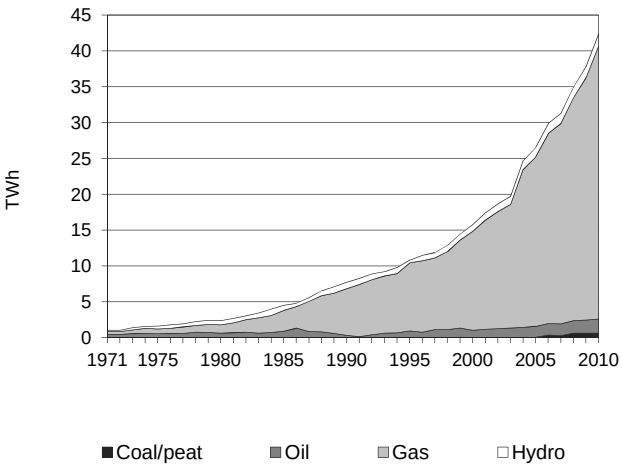
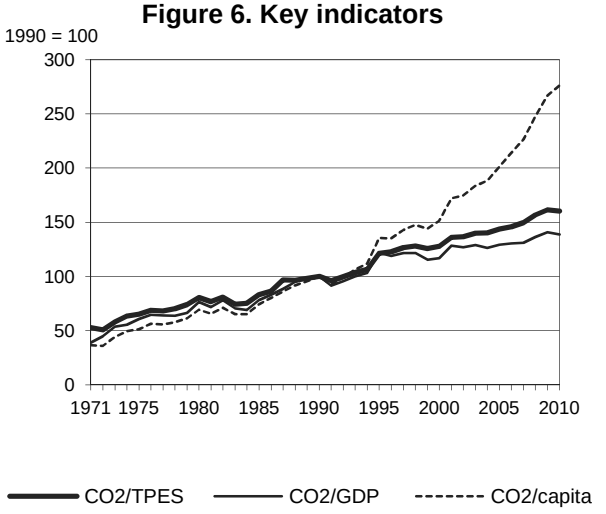


Figure 6. Key indicators



Bangladesh

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	13.57	20.51	25.30	36.50	46.40	50.61	52.98	290.5%
CO_2 Reference Approach ($MtCO_2$)	14.14	21.27	26.75	38.13	47.38	51.25	55.26	290.7%
TPES (PJ)	533	666	779	998	1 164	1 232	1 300	143.8%
TPES (Mtoe)	12.74	15.90	18.61	23.84	27.79	29.42	31.05	143.8%
GDP (billion 2005 USD)	28.95	35.89	46.27	60.28	72.64	76.81	81.47	181.4%
GDP PPP (billion 2005 USD)	78.65	97.50	125.68	163.73	197.31	208.63	221.30	181.4%
Population (millions)	105.26	117.49	129.59	140.59	145.48	147.03	148.69	41.3%
CO_2 / TPES (tCO_2 per TJ)	25.4	30.8	32.5	36.6	39.9	41.1	40.8	60.2%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.47	0.57	0.55	0.61	0.64	0.66	0.65	38.8%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.17	0.21	0.20	0.22	0.24	0.24	0.24	38.8%
CO_2 / population (tCO_2 per capita)	0.13	0.17	0.20	0.26	0.32	0.34	0.36	176.4%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**2.44**	**15.44**	**35.11**	**-**	**52.98**	**290.5%**
Main activity producer elec. and heat	0.03	2.19	15.51	-	17.74	313.7%
Unallocated autoproducers	0.85	-	6.51	-	7.36	x
Other energy industry own use	-	0.24	-	-	0.24	58.6%
Manufacturing industries and construction	1.55	1.72	5.92	-	9.19	103.8%
Transport	-	6.24	2.15	-	8.39	408.6%
of which: road	-	*4.29*	*2.15*	-	*6.45*	441.5%
Other	-	5.04	5.02	-	10.06	238.9%
of which: residential	-	*1.14*	*4.53*	-	*5.67*	178.6%
Reference Approach	**2.44**	**15.45**	**37.37**	**-**	**55.26**	**290.7%**
Diff. due to losses and/or transformation	-	0.02	2.26	-	2.28	
Statistical differences	-	- 0.00	-	-	- 0.00	
Memo: international marine bunkers	-	*0.11*	-	-	*0.11*	*78.6%*
Memo: international aviation bunkers	-	*0.50*	-	-	*0.50*	*83.7%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	15.51	295.6%	8.4	8.4
Unallocated autoproducers - gas	6.51	x	3.5	11.9
Manufacturing industries - gas	5.92	120.6%	3.2	15.1
Residential - gas	4.53	756.2%	2.5	17.6
Road - oil	4.29	260.5%	2.3	19.9
Non-specified other - oil	3.90	405.4%	2.1	22.0
Main activity prod. elec. and heat - oil	2.19	498.2%	1.2	23.2
Road - gas	2.15	x	1.2	24.3
Other transport - oil	1.95	323.4%	1.1	25.4
Manufacturing industries - oil	1.72	134.3%	0.9	26.3
Manufacturing industries - coal/peat	1.55	42.1%	0.8	27.2
Memo: total CO_2 from fuel combustion	*52.98*	*290.5%*	*28.7*	*28.7*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Belarus

Figure 1. CO_2 emissions by fuel

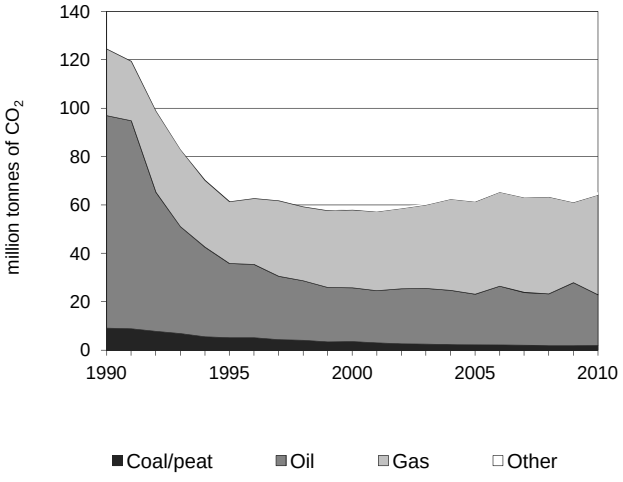


Figure 2. CO_2 emissions by sector

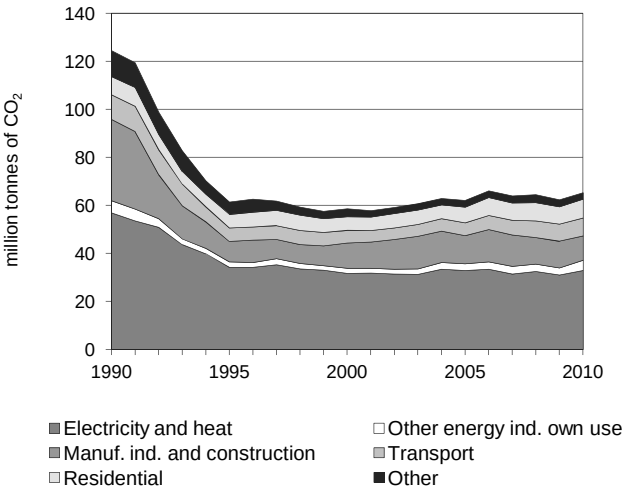


Figure 3. CO_2 emissions by sector

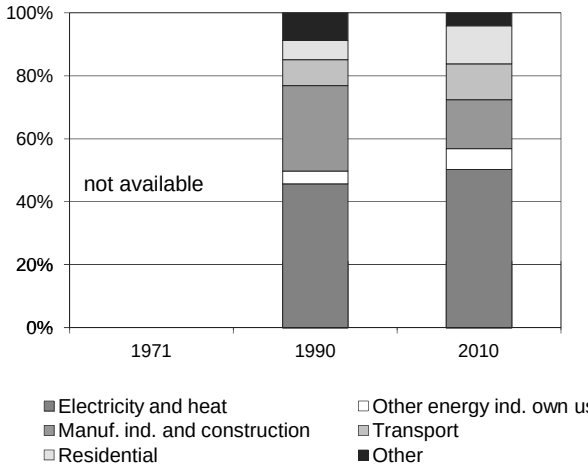


Figure 4. Reference vs Sectoral Approach

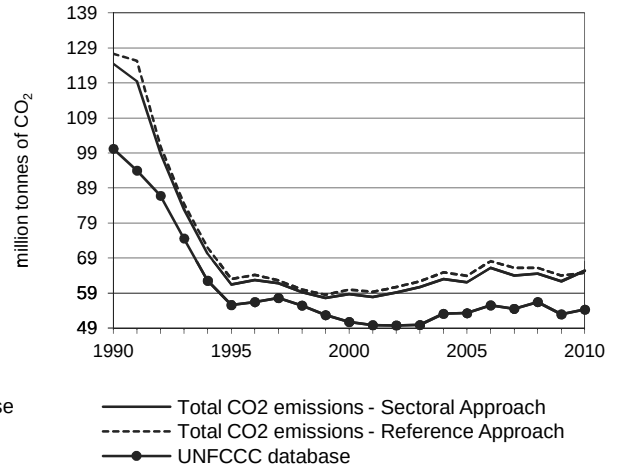


Figure 5. Electricity generation by fuel

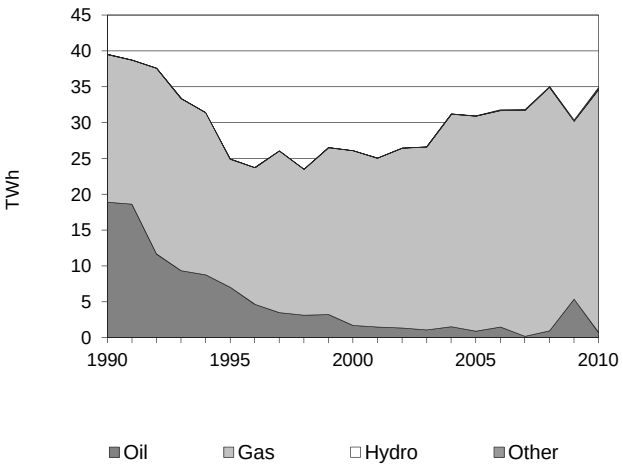
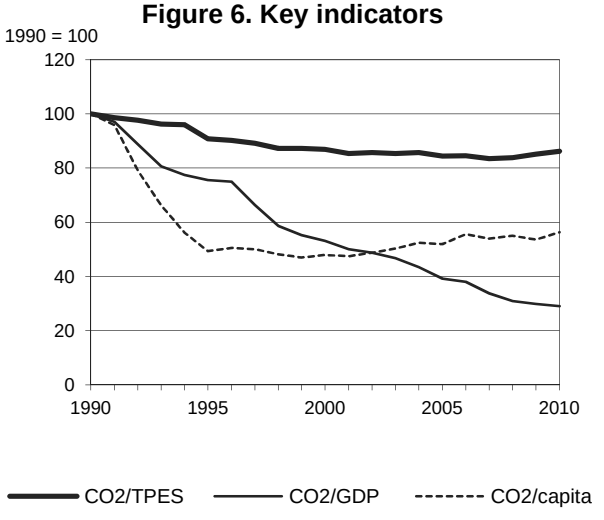


Figure 6. Key indicators



Belarus

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	124.54	61.42	58.66	62.07	64.50	62.33	65.33	-47.5%
CO_2 Reference Approach ($MtCO_2$)	127.35	63.02	59.96	63.93	66.22	63.98	64.84	-49.1%
TPES (PJ)	1 907	1 036	1 033	1 125	1 178	1 121	1 161	-39.1%
TPES (Mtoe)	45.55	24.75	24.68	26.87	28.15	26.76	27.73	-39.1%
GDP (billion 2005 USD)	23.72	15.49	21.03	30.21	39.80	39.87	42.90	80.9%
GDP PPP (billion 2005 USD)	65.56	42.80	58.13	83.49	110.01	110.19	118.57	80.9%
Population (millions)	10.19	10.19	10.01	9.78	9.60	9.51	9.49	-6.9%
CO_2 / TPES (tCO_2 per TJ)	65.3	59.3	56.8	55.2	54.7	55.6	56.3	-13.8%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	5.25	3.97	2.79	2.05	1.62	1.56	1.52	-71.0%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	1.90	1.44	1.01	0.74	0.59	0.57	0.55	-71.0%
CO_2 / population (tCO_2 per capita)	12.22	6.03	5.86	6.35	6.72	6.56	6.88	-43.7%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**2.04**	**20.90**	**41.19**	**1.20**	**65.33**	**-47.5%**
Main activity producer elec. and heat	0.21	0.71	25.60	-	26.52	-36.0%
Unallocated autoproducers	0.37	0.60	5.06	0.34	6.37	-58.9%
Other energy industry own use	0.06	3.46	0.54	0.22	4.27	-16.5%
Manufacturing industries and construction	0.32	3.63	5.60	0.64	10.18	-69.9%
Transport	0.04	6.65	0.72	-	7.40	-27.8%
of which: road	-	*6.09*	*0.03*	-	*6.12*	-26.2%
Other	1.05	5.86	3.68	-	10.59	-42.6%
of which: residential	*0.81*	*3.75*	*3.39*	-	*7.95*	5.1%
Reference Approach	**2.53**	**19.66**	**41.45**	**1.20**	**64.84**	**-49.1%**
Diff. due to losses and/or transformation	0.49	0.58	0.26	-	1.33	
Statistical differences	0.00	- 1.82	- 0.00	- 0.00	- 1.82	
Memo: international marine bunkers	-	-	-	-	-	-
Memo: international aviation bunkers	-	-	-	-	-	-

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	25.60	55.9%	25.5	25.5
Road - oil	6.09	-25.2%	6.1	31.5
Manufacturing industries - gas	5.60	4.2%	5.6	37.1
Unallocated autoproducers - gas	5.06	130.9%	5.0	42.1
Residential - oil	3.75	94.5%	3.7	45.9
Manufacturing industries - oil	3.63	-87.1%	3.6	49.5
Other energy industry own use - oil	3.46	-27.4%	3.4	52.9
Residential - gas	3.39	97.0%	3.4	56.3
Non-specified other - oil	2.11	-71.4%	2.1	58.4
Residential - coal/peat	0.81	-79.3%	0.8	59.2
Main activity prod. elec. and heat - oil	0.71	-97.1%	0.7	59.9
Memo: total CO_2 from fuel combustion	*65.33*	*-47.5%*	*65.0*	*65.0*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Belgium

Figure 1. CO_2 emissions by fuel

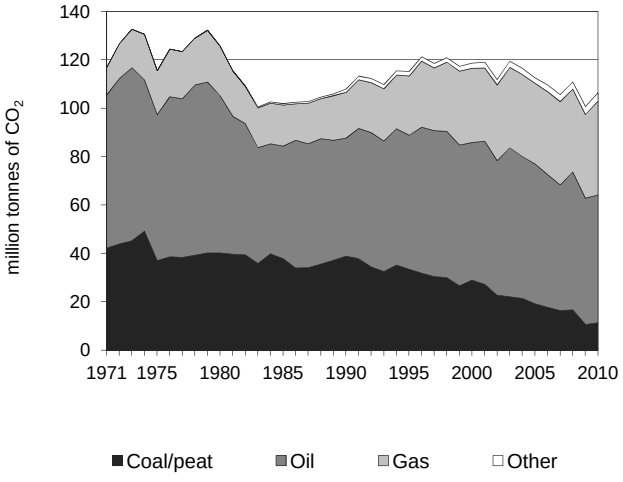


Figure 2. CO_2 emissions by sector

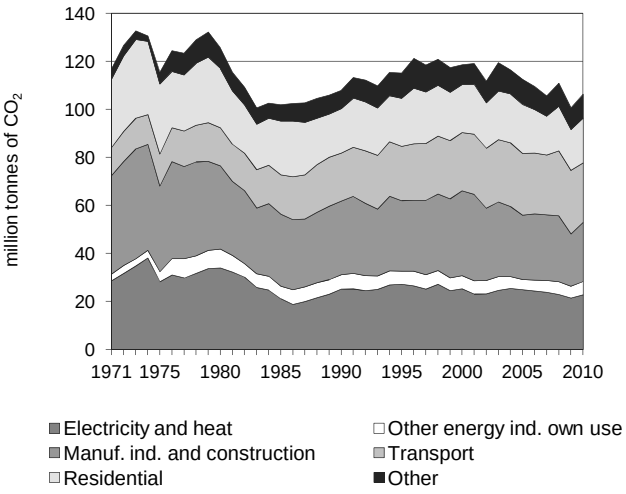


Figure 3. CO_2 emissions by sector

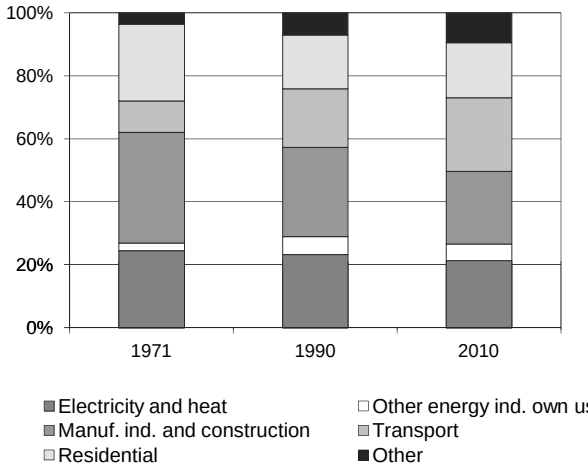


Figure 4. Reference vs Sectoral Approach

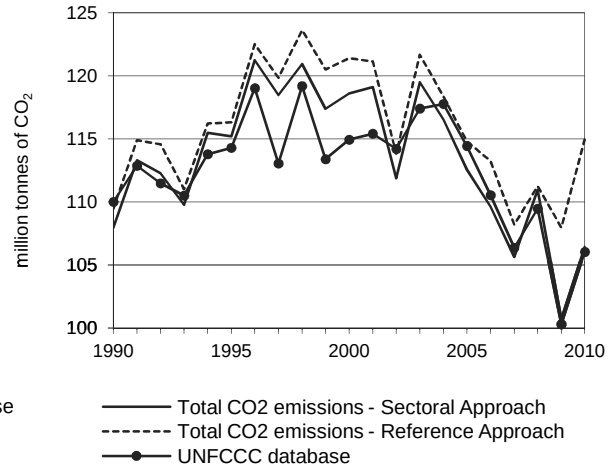


Figure 5. Electricity generation by fuel

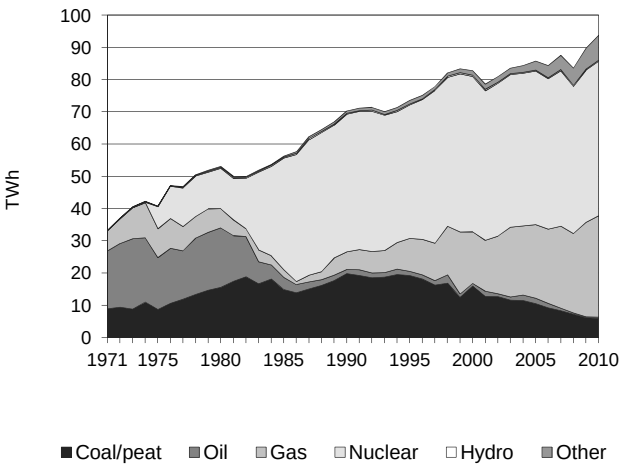
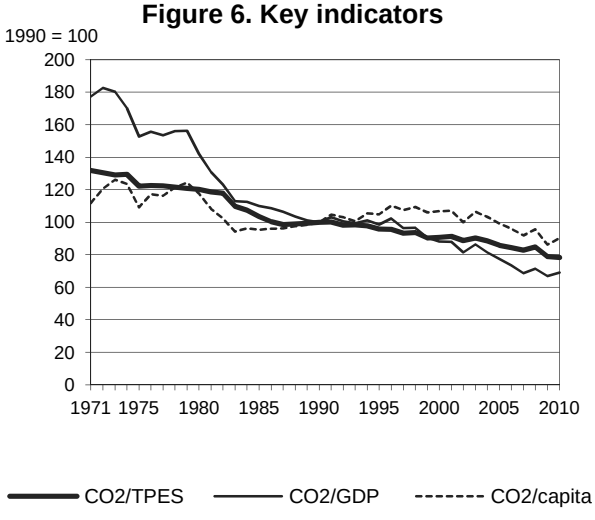


Figure 6. Key indicators



Belgium

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	107.95	115.21	118.60	112.57	110.96	100.70	106.43	-1.4%
CO_2 Reference Approach ($MtCO_2$)	109.45	116.31	121.40	114.80	111.26	107.96	114.96	5.0%
TPES (PJ)	2 022	2 251	2 450	2 457	2 453	2 391	2 548	26.0%
TPES (Mtoe)	48.28	53.77	58.51	58.68	58.58	57.10	60.86	26.0%
GDP (billion 2005 USD)	279.84	302.85	348.62	377.25	402.50	391.06	399.92	42.9%
GDP PPP (billion 2005 USD)	250.14	270.71	311.62	337.21	359.78	349.56	357.48	42.9%
Population (millions)	9.97	10.14	10.25	10.47	10.71	10.79	10.88	9.2%
CO_2 / TPES (tCO_2 per TJ)	53.4	51.2	48.4	45.8	45.2	42.1	41.8	-21.8%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.39	0.38	0.34	0.30	0.28	0.26	0.27	-31.0%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.43	0.43	0.38	0.33	0.31	0.29	0.30	-31.0%
CO_2 / population (tCO_2 per capita)	10.83	11.37	11.58	10.75	10.36	9.33	9.78	-9.7%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**11.40**	**52.76**	**38.83**	**3.45**	**106.43**	**-1.4%**
Main activity producer elec. and heat	6.88	0.18	11.74	2.83	21.62	-1.6%
Unallocated autoproducers	0.44	0.08	0.63	-	1.15	-63.9%
Other energy industry own use	0.29	5.24	0.02	-	5.56	-8.6%
Manufacturing industries and construction	3.27	8.52	12.15	0.62	24.56	-19.9%
Transport	-	24.85	-	-	24.85	24.2%
of which: road	-	*24.23*	-	-	*24.23*	25.8%
Other	0.52	13.88	14.29	-	28.70	10.1%
of which: residential	*0.47*	*9.22*	*8.94*	-	*18.63*	0.9%
Reference Approach	**12.02**	**60.54**	**38.96**	**3.45**	**114.96**	**5.0%**
Diff. due to losses and/or transformation	0.52	5.46	-	-	5.98	
Statistical differences	0.09	2.32	0.13	- 0.00	2.55	
Memo: international marine bunkers	-	*24.29*	-	-	*24.29*	*88.2%*
Memo: international aviation bunkers	-	*4.56*	-	-	*4.56*	*61.9%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	24.23	25.8%	18.2	18.2
Manufacturing industries - gas	12.15	64.4%	9.1	27.4
Main activity prod. elec. and heat - gas	11.74	334.1%	8.8	36.2
Residential - oil	9.22	-13.2%	6.9	43.2
Residential - gas	8.94	54.1%	6.7	49.9
Manufacturing industries - oil	8.52	8.3%	6.4	56.3
Main activity prod. elec. and heat - coal/peat	6.88	-61.5%	5.2	61.5
Non-specified other - gas	5.35	121.4%	4.0	65.5
Other energy industry own use - oil	5.24	24.4%	3.9	69.5
Non-specified other - oil	4.66	-9.9%	3.5	73.0
Manufacturing industries - coal/peat	3.27	-78.5%	2.5	75.4
Memo: total CO_2 from fuel combustion	*106.43*	*-1.4%*	*80.1*	*80.1*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Benin

Figure 1. CO_2 emissions by fuel

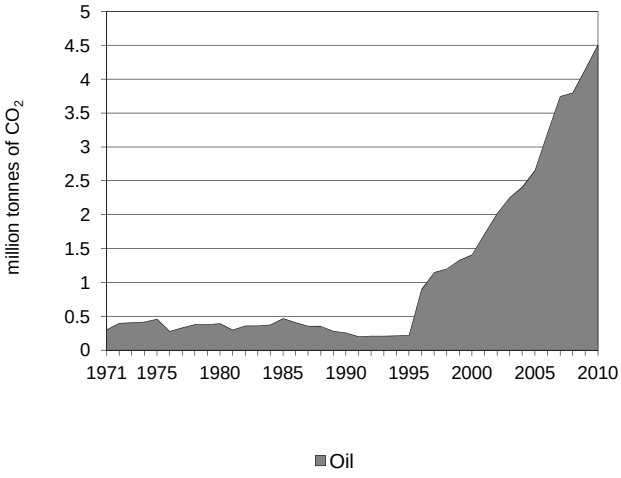


Figure 2. CO_2 emissions by sector

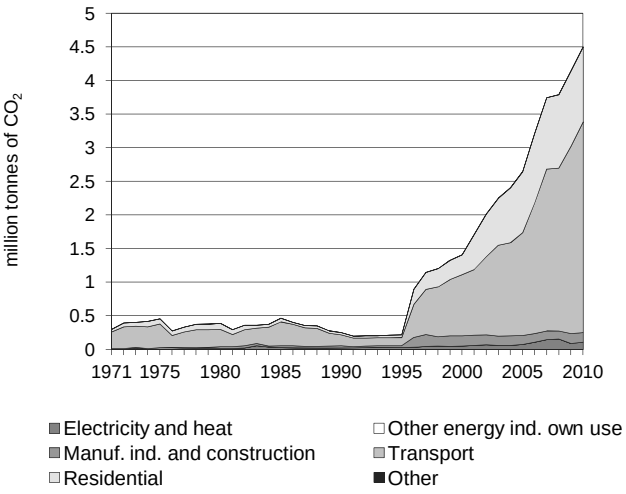


Figure 3. CO_2 emissions by sector

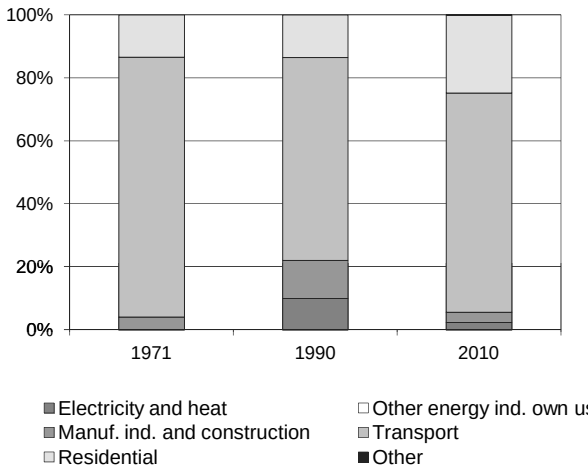


Figure 4. Reference vs Sectoral Approach

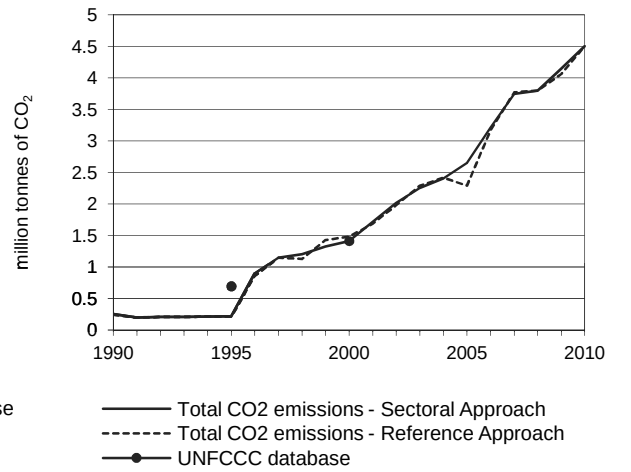


Figure 5. Electricity generation by fuel

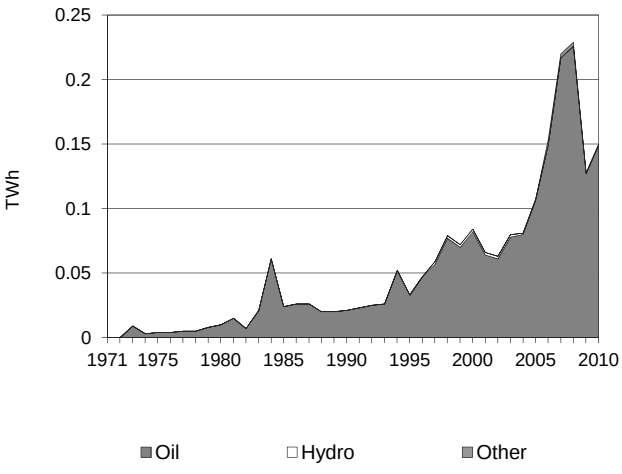
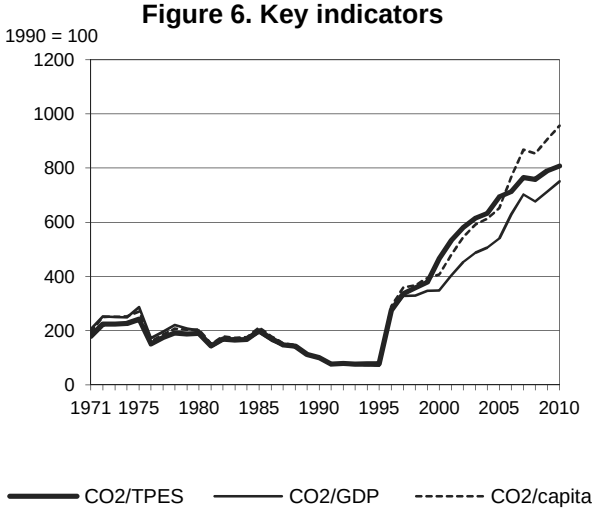


Figure 6. Key indicators



Benin

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	0.25	0.22	1.41	2.65	3.80	4.15	4.50	+
CO_2 Reference Approach ($MtCO_2$)	0.24	0.21	1.48	2.29	3.80	4.06	4.50	+
TPES (PJ)	70	77	83	105	137	144	153	119.9%
TPES (Mtoe)	1.66	1.85	1.98	2.50	3.28	3.44	3.65	119.9%
GDP (billion 2005 USD)	2.22	2.73	3.55	4.29	4.91	5.09	5.25	136.3%
GDP PPP (billion 2005 USD)	5.33	6.56	8.52	10.30	11.79	12.23	12.60	136.3%
Population (millions)	4.77	5.65	6.52	7.63	8.36	8.60	8.85	85.4%
CO_2 / TPES (tCO_2 per TJ)	3.7	2.8	17.0	25.3	27.6	28.8	29.5	707.3%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.11	0.08	0.40	0.62	0.77	0.82	0.86	651.3%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.05	0.03	0.17	0.26	0.32	0.34	0.36	651.1%
CO_2 / population (tCO_2 per capita)	0.05	0.04	0.22	0.35	0.45	0.48	0.51	856.8%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**4.50**	**-**	**-**	**4.50**	**+**
Main activity producer elec. and heat	-	0.09	-	-	0.09	252.7%
Unallocated autoproducers	-	0.02	-	-	0.02	x
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.14	-	-	0.14	370.6%
Transport	-	3.13	-	-	3.13	+
of which: road	-	*3.13*	-	-	*3.13*	+
Other	-	1.12	-	-	1.12	+
of which: residential	-	*1.11*	-	-	*1.11*	+
Reference Approach	**-**	**4.50**	**-**	**-**	**4.50**	**+**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	-	0.00	-	-	0.00	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.47*	-	-	*0.47*	*831.3%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	3.13	+	18.6	18.6
Residential - oil	1.11	+	6.6	25.2
Manufacturing industries - oil	0.14	370.6%	0.9	26.1
Main activity prod. elec. and heat - oil	0.09	252.7%	0.5	26.6
Unallocated autoproducers - oil	0.02	x	0.1	26.7
Non-specified other - oil	0.01	x	0.0	26.8
Other transport - oil	0.00	x	0.0	26.8
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*4.50*	*+*	*26.8*	*26.8*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Bolivia

Figure 1. CO_2 emissions by fuel

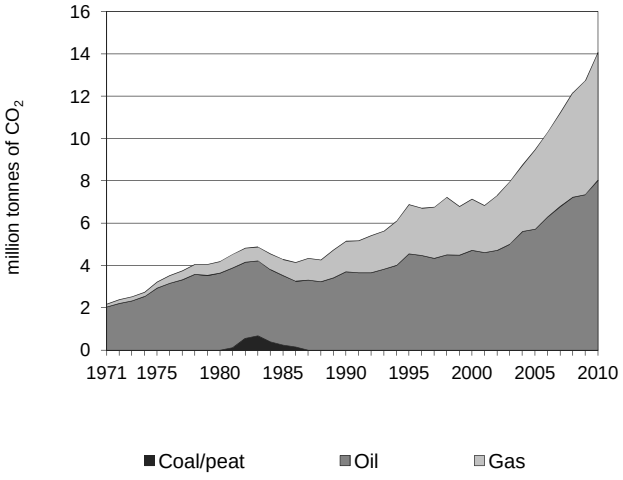


Figure 2. CO_2 emissions by sector

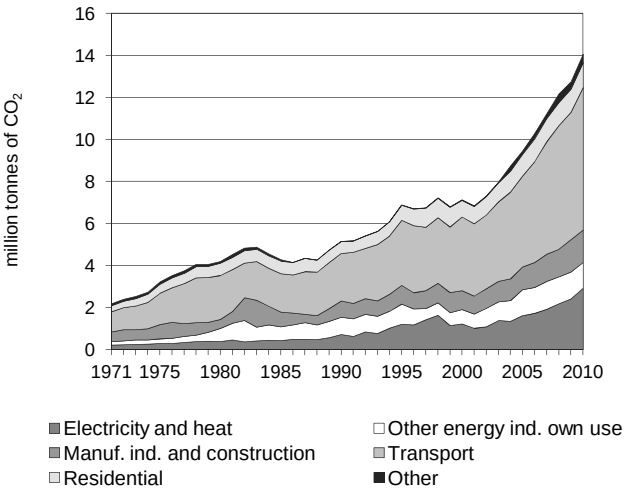


Figure 3. CO_2 emissions by sector

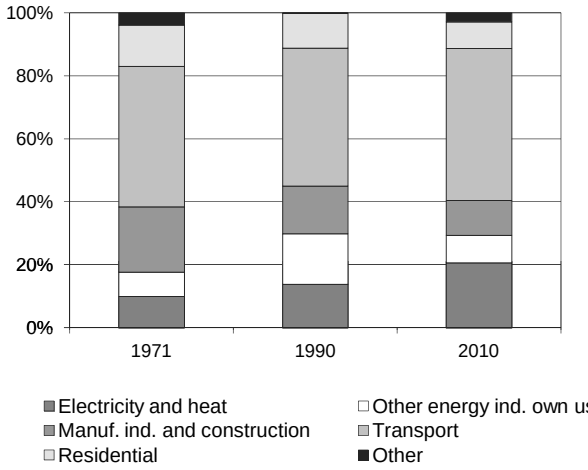


Figure 4. Reference vs Sectoral Approach

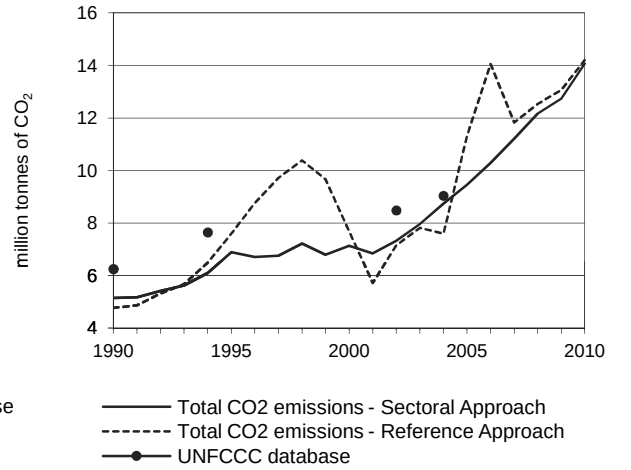


Figure 5. Electricity generation by fuel

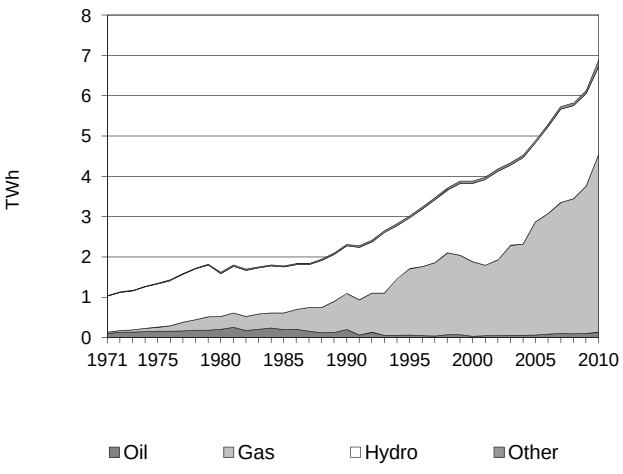
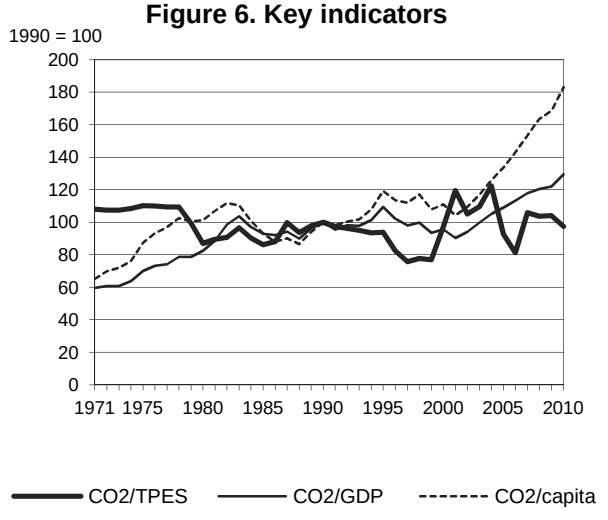


Figure 6. Key indicators



Bolivia

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	5.15	6.89	7.13	9.45	12.16	12.74	14.06	173.1%
CO_2 Reference Approach ($MtCO_2$)	4.77	7.60	7.68	11.30	12.54	13.07	14.20	197.5%
TPES (PJ)	109	156	156	217	249	260	307	180.5%
TPES (Mtoe)	2.61	3.72	3.74	5.17	5.94	6.20	7.32	180.5%
GDP (billion 2005 USD)	5.67	6.93	8.20	9.55	11.11	11.48	11.95	111.0%
GDP PPP (billion 2005 USD)	20.47	25.02	29.63	34.50	40.13	41.48	43.19	111.0%
Population (millions)	6.66	7.47	8.31	9.15	9.62	9.77	9.93	49.1%
CO_2 / TPES (tCO_2 per TJ)	47.1	44.2	45.6	43.6	48.9	49.0	45.9	-2.6%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.91	0.99	0.87	0.99	1.09	1.11	1.18	29.4%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.25	0.28	0.24	0.27	0.30	0.31	0.33	29.4%
CO_2 / population (tCO_2 per capita)	0.77	0.92	0.86	1.03	1.26	1.30	1.42	83.1%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**8.03**	**6.03**	**-**	**14.06**	**173.1%**
Main activity producer elec. and heat	-	0.12	2.79	-	2.91	354.1%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industry own use	-	0.29	0.94	-	1.23	47.7%
Manufacturing industries and construction	-	0.29	1.26	-	1.55	99.4%
Transport	-	5.90	0.89	-	6.79	200.7%
of which: road	-	*5.63*	*0.89*	-	*6.51*	241.1%
Other	-	1.43	0.16	-	1.59	176.8%
of which: residential	-	*1.08*	*0.10*	-	*1.18*	108.2%
Reference Approach	**-**	**8.10**	**6.09**	**-**	**14.20**	**197.5%**
Diff. due to losses and/or transformation	-	0.40	0.02	-	0.43	
Statistical differences	-	- 0.33	0.04	-	- 0.29	
Memo: international marine bunkers	-	-	-	-	-	-
Memo: international aviation bunkers	-	*0.14*	-	-	*0.14*	*x*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	5.63	194.6%	11.9	11.9
Main activity prod. elec. and heat - gas	2.79	432.4%	5.9	17.8
Manufacturing industries - gas	1.26	226.8%	2.7	20.5
Residential - oil	1.08	91.0%	2.3	22.8
Other energy industry own use - gas	0.94	75.8%	2.0	24.8
Road - gas	0.89	x	1.9	26.6
Non-specified other - oil	0.34	+	0.7	27.4
Manufacturing industries - oil	0.29	-25.8%	0.6	28.0
Other energy industry own use - oil	0.29	-3.3%	0.6	28.6
Other transport - oil	0.27	-21.9%	0.6	29.2
Main activity prod. elec. and heat - oil	0.12	5.4%	0.3	29.4
Memo: total CO_2 from fuel combustion	*14.06*	*173.1%*	*29.8*	*29.8*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Bosnia and Herzegovina

Figure 1. CO_2 emissions by fuel

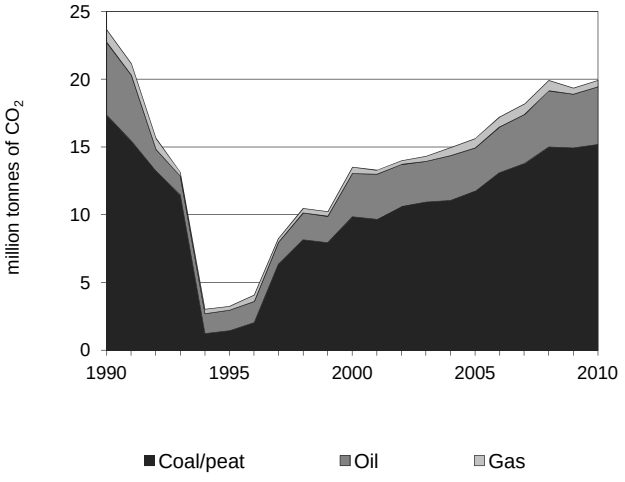


Figure 2. CO_2 emissions by sector

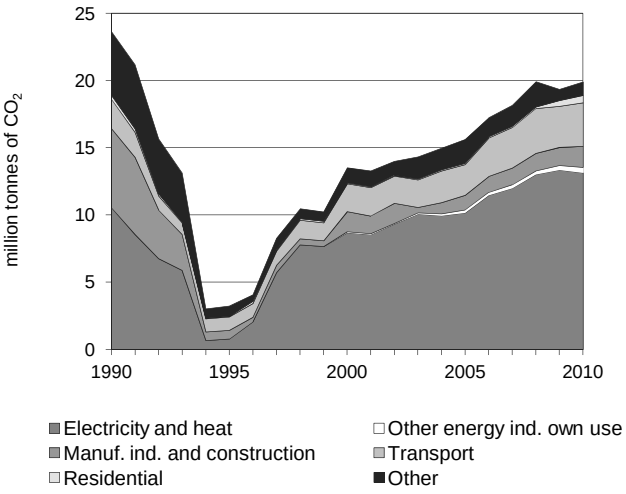


Figure 3. CO_2 emissions by sector

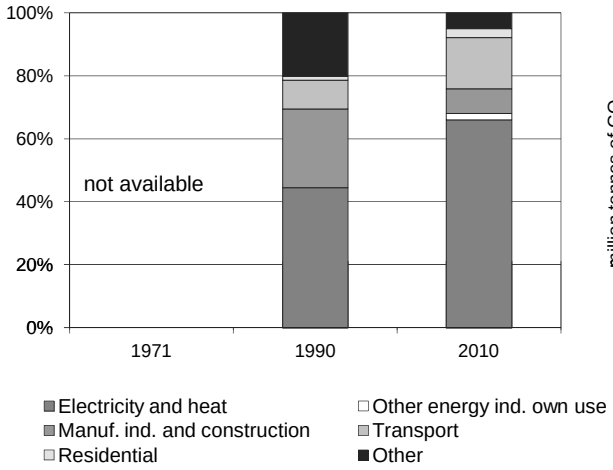


Figure 4. Reference vs Sectoral Approach

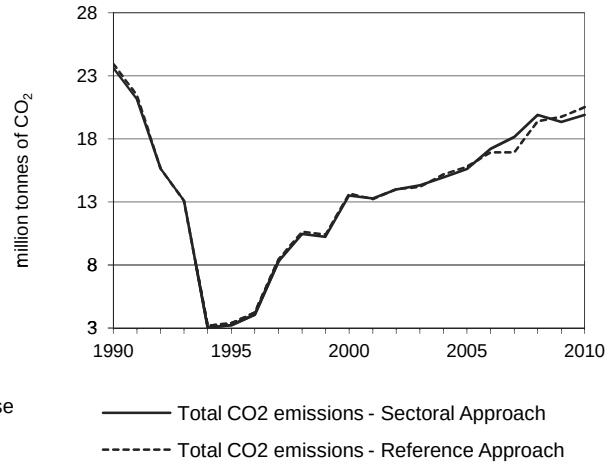


Figure 5. Electricity generation by fuel

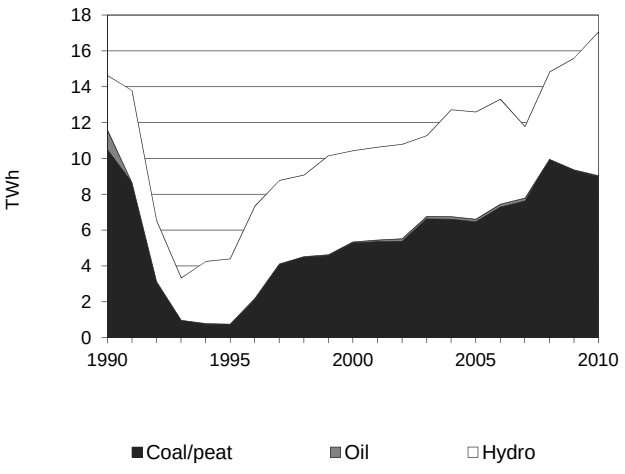
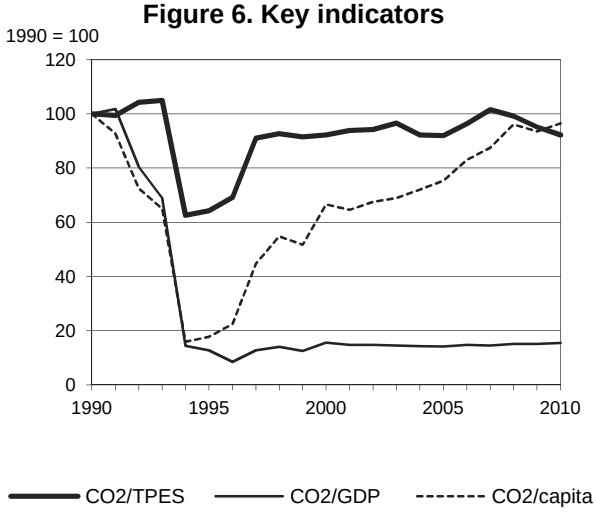


Figure 6. Key indicators



Bosnia and Herzegovina

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	23.65	3.24	13.51	15.63	19.91	19.35	19.91	-15.8%
CO_2 Reference Approach ($MtCO_2$)	23.96	3.39	13.66	15.78	19.40	19.76	20.52	-14.4%
TPES (PJ)	294	63	182	211	249	253	268	-8.7%
TPES (Mtoe)	7.02	1.49	4.35	5.04	5.95	6.03	6.40	-8.7%
GDP (billion 2005 USD)	2.31	2.49	8.45	10.76	12.87	12.50	12.60	446.6%
GDP PPP (billion 2005 USD)	5.05	5.46	18.52	23.59	28.22	27.40	27.62	446.6%
Population (millions)	4.31	3.33	3.69	3.78	3.77	3.77	3.76	-12.7%
CO_2 / TPES (tCO_2 per TJ)	80.5	51.7	74.2	74.0	79.9	76.6	74.2	-7.8%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	10.26	1.30	1.60	1.45	1.55	1.55	1.58	-84.6%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	4.68	0.59	0.73	0.66	0.71	0.71	0.72	-84.6%
CO_2 / population (tCO_2 per capita)	5.49	0.97	3.66	4.13	5.28	5.14	5.29	-3.6%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**15.19**	**4.25**	**0.46**	**-**	**19.91**	**-15.8%**
Main activity producer elec. and heat	12.03	0.14	0.10	-	12.27	28.8%
Unallocated autoproducers	0.83	0.01	0.03	-	0.87	-14.1%
Other energy industry own use	0.33	0.09	-	-	0.41	x
Manufacturing industries and construction	1.33	0.06	0.17	-	1.57	-73.4%
Transport	-	3.23	-	-	3.23	48.8%
of which: road	-	*3.23*	-	-	*3.23*	48.8%
Other	0.68	0.72	0.16	-	1.56	-69.1%
of which: residential	*0.46*	-	*0.10*	-	*0.56*	93.5%
Reference Approach	**15.74**	**4.31**	**0.47**	**-**	**20.52**	**-14.4%**
Diff. due to losses and/or transformation	0.51	0.16	0.00	-	0.67	
Statistical differences	0.04	- 0.10	- 0.00	-	- 0.06	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.02*	-	-	*0.02*	*-80.0%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	12.03	27.8%	46.4	46.4
Road - oil	3.23	48.8%	12.5	58.9
Manufacturing industries - coal/peat	1.33	-58.0%	5.1	64.0
Unallocated autoproducers - coal/peat	0.83	x	3.2	67.2
Non-specified other - oil	0.72	x	2.8	70.0
Residential - coal/peat	0.46	x	1.8	71.8
Other energy industry - coal/peat	0.33	x	1.3	73.0
Non-specified other sectors - coal/peat	0.22	-95.5%	0.8	73.9
Manufacturing industries - gas	0.17	-77.3%	0.6	74.5
Main activity prod. elec. and heat - oil	0.14	x	0.5	75.1
Main activity prod. elec. and heat - gas	0.10	-6.9%	0.4	75.5
Memo: total CO_2 from fuel combustion	*19.91*	*-15.8%*	*76.8*	*76.8*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Botswana

Figure 1. CO_2 emissions by fuel

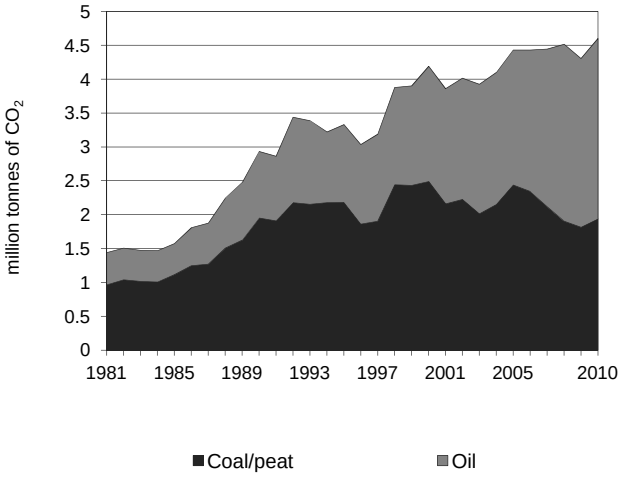


Figure 2. CO_2 emissions by sector

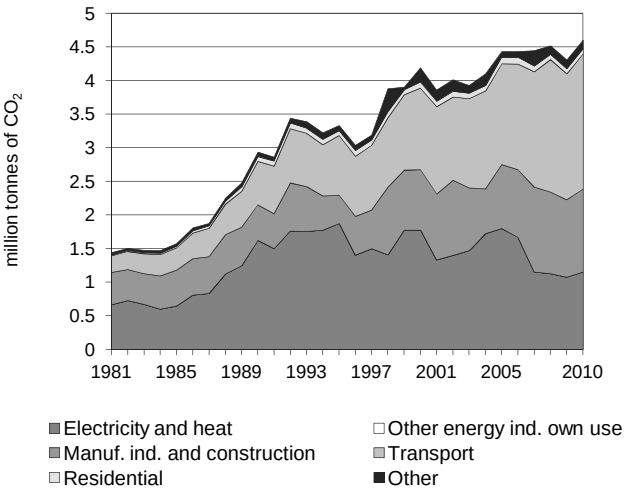


Figure 3. CO_2 emissions by sector

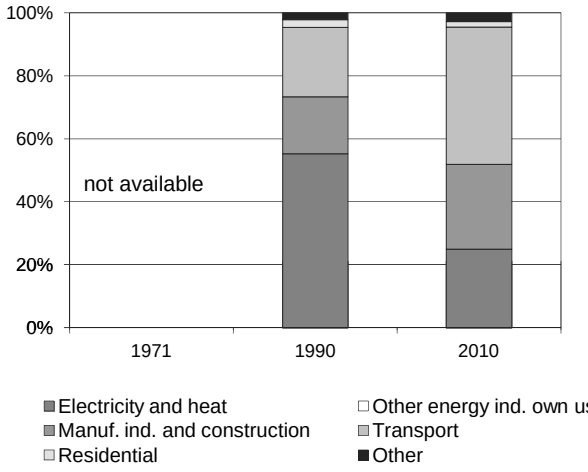


Figure 4. Reference vs Sectoral Approach

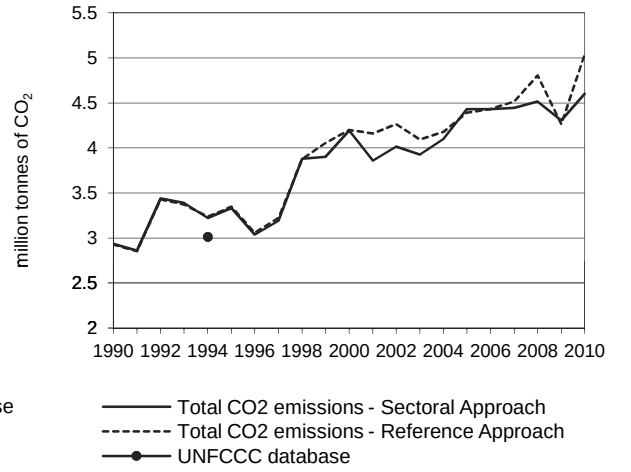


Figure 5. Electricity generation by fuel

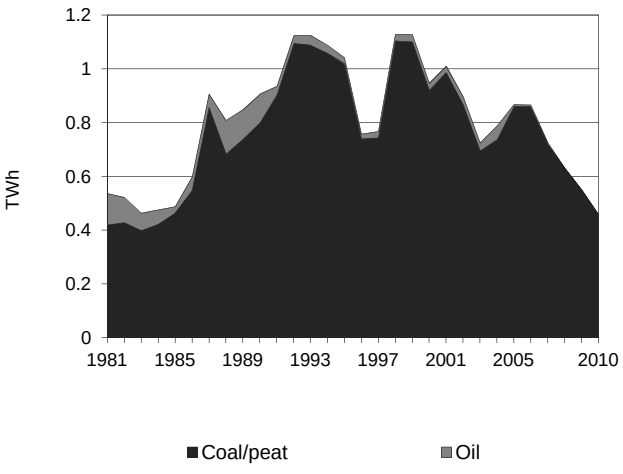
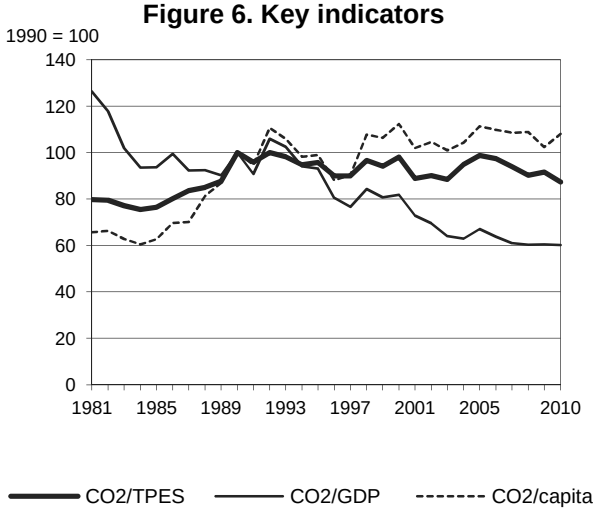


Figure 6. Key indicators



Botswana

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	2.93	3.33	4.19	4.43	4.52	4.31	4.60	56.8%
CO_2 Reference Approach ($MtCO_2$)	2.93	3.35	4.20	4.39	4.80	4.26	5.04	72.2%
TPES (PJ)	53	63	77	81	90	85	95	79.5%
TPES (Mtoe)	1.26	1.50	1.84	1.93	2.15	2.02	2.26	79.5%
GDP (billion 2005 USD)	4.55	5.55	7.94	10.26	11.62	11.05	11.85	160.3%
GDP PPP (billion 2005 USD)	9.61	11.71	16.76	21.65	24.54	23.33	25.01	160.4%
Population (millions)	1.38	1.59	1.76	1.88	1.96	1.98	2.01	45.2%
CO_2 / TPES (tCO_2 per TJ)	55.6	53.2	54.5	54.9	50.1	50.9	48.6	-12.6%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.65	0.60	0.53	0.43	0.39	0.39	0.39	-39.8%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.31	0.28	0.25	0.20	0.18	0.18	0.18	-39.8%
CO_2 / population (tCO_2 per capita)	2.12	2.10	2.38	2.36	2.31	2.17	2.29	8.0%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**1.94**	**2.66**	**-**	**-**	**4.60**	**56.8%**
Main activity producer elec. and heat	1.15	-	-	-	1.15	-10.3%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	0.75	0.48	-	-	1.24	133.4%
Transport	-	2.01	-	-	2.01	210.3%
of which: road	-	*1.97*	-	-	*1.97*	227.6%
Other	0.04	0.17	-	-	0.20	51.3%
of which: residential	-	*0.08*	-	-	*0.08*	6.2%
Reference Approach	**2.37**	**2.67**	**-**	**-**	**5.04**	**72.2%**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	0.43	0.01	-	-	0.44	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.05*	-	-	*0.05*	*45.5%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	1.97	227.6%	17.5	17.5
Main activity prod. elec. and heat - coal/peat	1.15	-1.2%	10.2	27.7
Manufacturing industries - coal/peat	0.75	75.0%	6.7	34.4
Manufacturing industries - oil	0.48	386.4%	4.3	38.7
Non-specified other - oil	0.09	59.0%	0.8	39.5
Residential - oil	0.08	22.2%	0.7	40.2
Other transport - oil	0.04	-10.2%	0.4	40.5
Non-specified other sectors - coal/peat	0.04	650.3%	0.3	40.9
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*4.60*	*56.8%*	*40.9*	*40.9*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Brazil

Figure 1. CO_2 emissions by fuel

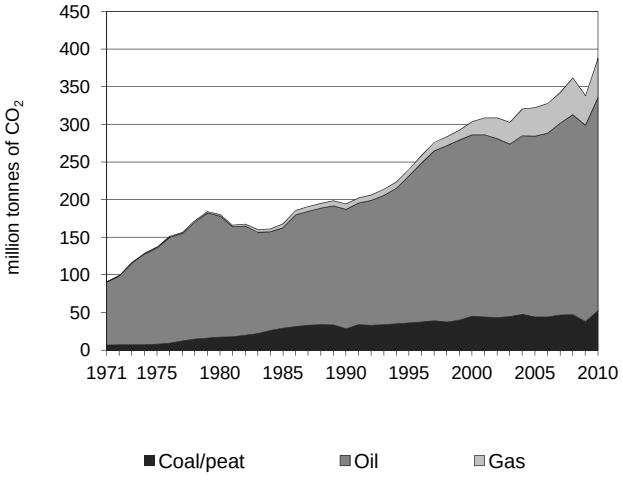


Figure 2. CO_2 emissions by sector

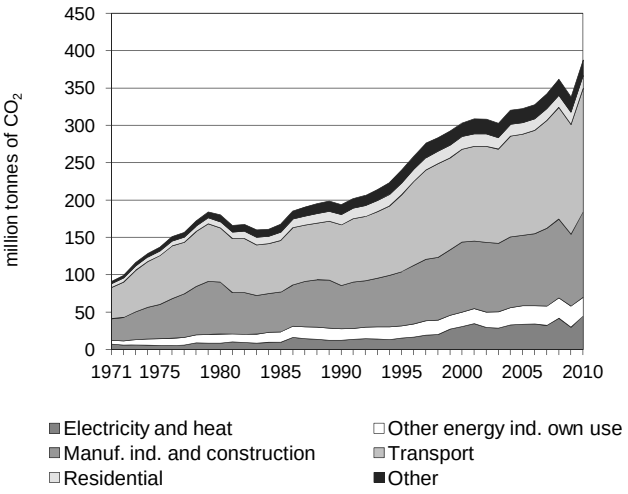


Figure 3. CO_2 emissions by sector

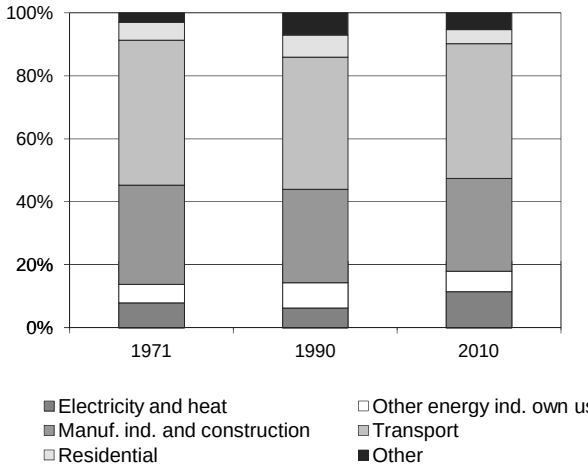


Figure 4. Reference vs Sectoral Approach

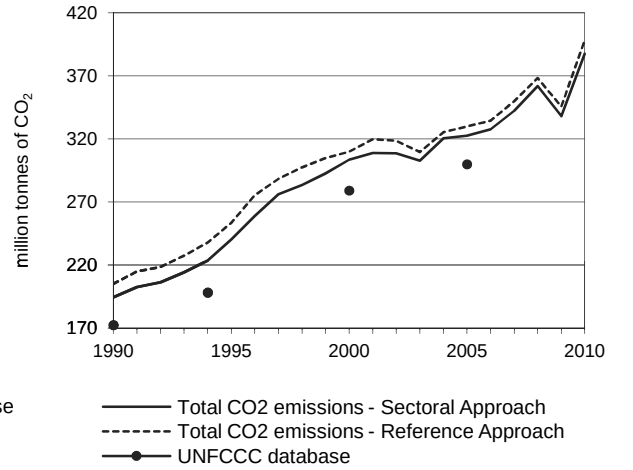


Figure 5. Electricity generation by fuel

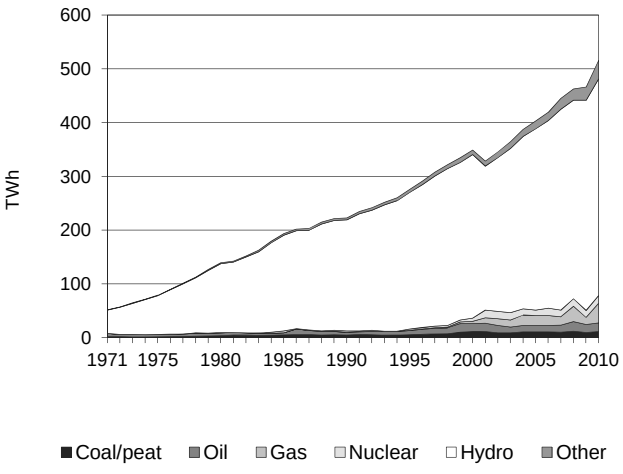
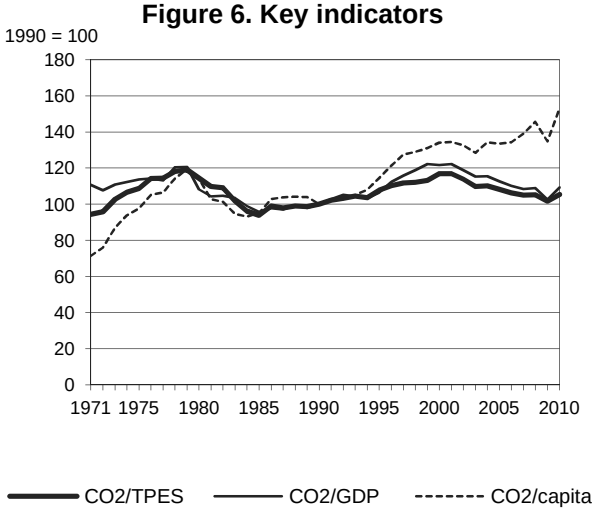


Figure 6. Key indicators



Brazil

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	194.26	240.43	303.54	322.47	361.87	338.11	387.66	99.6%
CO_2 Reference Approach ($MtCO_2$)	204.99	253.44	309.87	330.03	368.30	345.61	398.19	94.2%
TPES (PJ)	5 871	6 746	7 846	9 012	10 398	10 059	11 121	89.4%
TPES (Mtoe)	140.23	161.12	187.40	215.24	248.34	240.27	265.62	89.4%
GDP (billion 2005 USD)	598.50	696.13	768.98	882.19	1 023.19	1 016.59	1 092.73	82.6%
GDP PPP (billion 2005 USD)	1 073.70	1 248.86	1 379.55	1 582.64	1 835.60	1 823.77	1 960.36	82.6%
Population (millions)	149.65	161.85	174.43	185.99	191.54	193.25	194.95	30.3%
CO_2 / TPES (tCO_2 per TJ)	33.1	35.6	38.7	35.8	34.8	33.6	34.9	5.4%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.32	0.35	0.39	0.37	0.35	0.33	0.35	9.3%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.18	0.19	0.22	0.20	0.20	0.19	0.20	9.3%
CO_2 / population (tCO_2 per capita)	1.30	1.49	1.74	1.73	1.89	1.75	1.99	53.2%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**51.88**	**284.01**	**51.77**	**-**	**387.66**	**99.6%**
Main activity producer elec. and heat	6.96	8.44	10.66	-	26.05	308.0%
Unallocated autoproducers	10.77	3.12	4.82	-	18.70	216.8%
Other energy industry own use	3.18	14.44	7.53	-	25.15	62.4%
Manufacturing industries and construction	30.86	60.50	22.66	-	114.02	97.2%
Transport	-	161.06	4.95	-	166.01	104.1%
of which: road	-	*144.27*	*3.91*	-	*148.18*	110.4%
Other	0.12	36.46	1.15	-	37.73	38.0%
of which: residential	-	*16.46*	*0.56*	-	*17.03*	23.8%
Reference Approach	**56.60**	**288.85**	**52.74**	**-**	**398.19**	**94.2%**
Diff. due to losses and/or transformation	4.93	1.60	0.96	-	7.49	
Statistical differences	- 0.21	3.25	0.01	-	3.05	
Memo: international marine bunkers	-	*12.61*	-	-	*12.61*	*634.9%*
Memo: international aviation bunkers	-	*5.78*	-	-	*5.78*	*308.7%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	144.27	104.9%	13.4	13.4
Manufacturing industries - oil	60.50	69.2%	5.6	19.0
Manufacturing industries - coal/peat	30.86	76.1%	2.9	21.8
Manufacturing industries - gas	22.66	400.2%	2.1	23.9
Non-specified other - oil	20.00	49.7%	1.9	25.8
Other transport - oil	16.78	54.3%	1.6	27.3
Residential - oil	16.46	22.6%	1.5	28.9
Other energy industry own use - oil	14.44	33.5%	1.3	30.2
Unallocated autoproducers - coal/peat	10.77	170.4%	1.0	31.2
Main activity prod. elec. and heat - gas	10.66	+	1.0	32.2
Main activity prod. elec. and heat - oil	8.44	264.5%	0.8	33.0
Memo: total CO_2 from fuel combustion	*387.66*	*99.6%*	*35.9*	*35.9*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Brunei Darussalam

Figure 1. CO_2 emissions by fuel

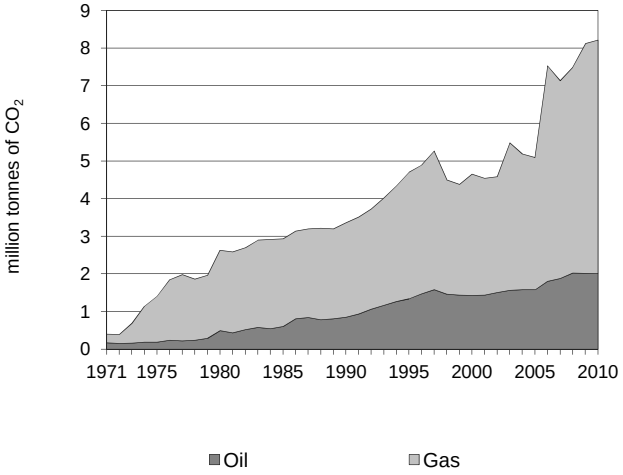


Figure 2. CO_2 emissions by sector

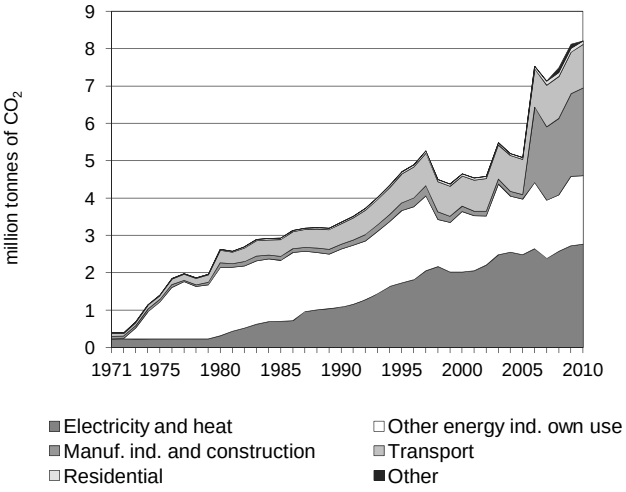


Figure 3. CO_2 emissions by sector

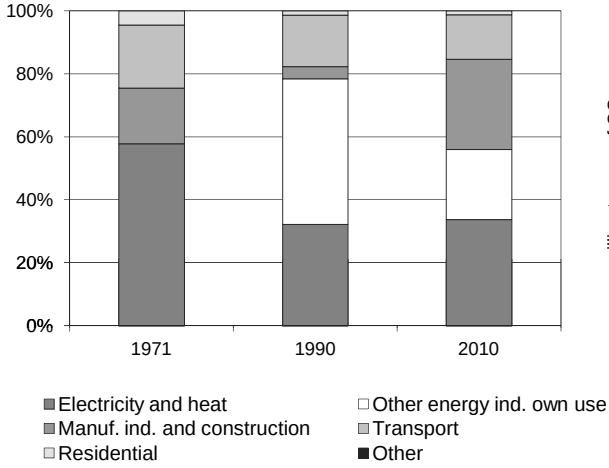


Figure 4. Reference vs Sectoral Approach

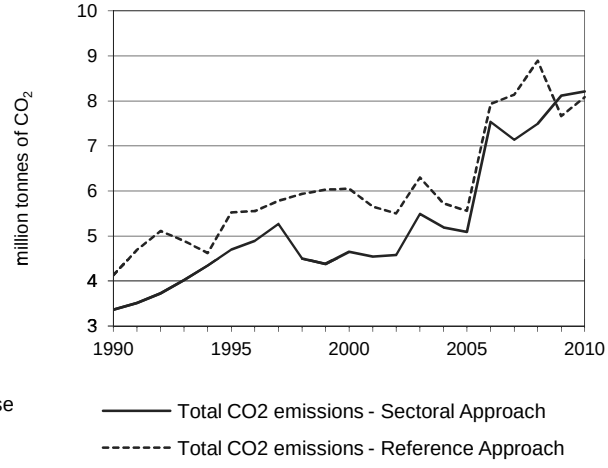


Figure 5. Electricity generation by fuel

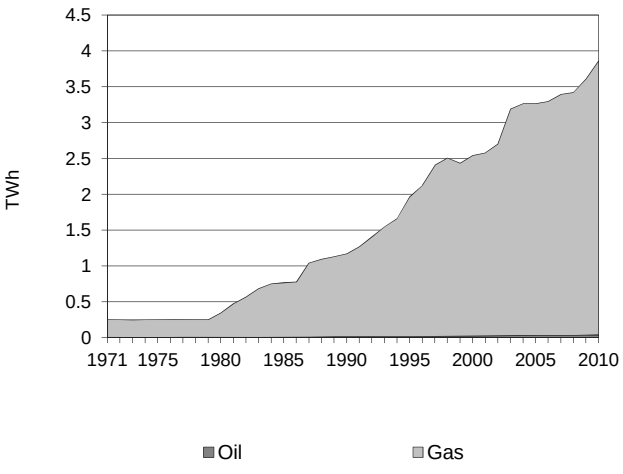
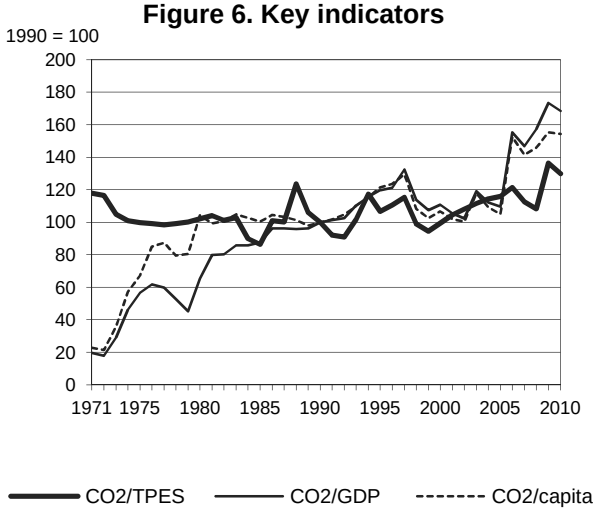


Figure 6. Key indicators



Brunei Darussalam

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	3.36	4.70	4.65	5.09	7.49	8.12	8.21	144.2%
CO_2 Reference Approach ($MtCO_2$)	4.13	5.52	6.05	5.56	8.89	7.66	8.09	95.8%
TPES (PJ)	74	97	103	96	152	131	139	88.1%
TPES (Mtoe)	1.76	2.31	2.45	2.30	3.63	3.12	3.31	88.1%
GDP (billion 2005 USD)	6.89	8.05	8.60	9.53	9.77	9.60	9.99	44.9%
GDP PPP (billion 2005 USD)	12.71	14.84	15.85	17.57	18.01	17.69	18.41	44.9%
Population (millions)	0.25	0.29	0.33	0.36	0.39	0.39	0.40	58.3%
CO_2 / TPES (tCO_2 per TJ)	45.6	48.6	45.3	52.8	49.3	62.1	59.2	29.9%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.49	0.58	0.54	0.53	0.77	0.85	0.82	68.5%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.26	0.32	0.29	0.29	0.42	0.46	0.45	68.5%
CO_2 / population (tCO_2 per capita)	13.34	16.21	14.22	14.03	19.46	20.72	20.58	54.2%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**2.01**	**6.20**	**-**	**8.21**	**144.2%**
Main activity producer elec. and heat	-	0.03	2.42	-	2.45	126.6%
Unallocated autoproducers	-	-	0.32	-	0.32	x
Other energy industry own use	-	0.33	1.51	-	1.83	18.0%
Manufacturing industries and construction	-	0.45	1.90	-	2.35	+
Transport	-	1.17	-	-	1.17	112.7%
of which: road	-	*1.16*	-	-	*1.16*	112.4%
Other	-	0.04	0.06	-	0.10	118.5%
of which: residential	-	*0.04*	*0.06*	-	*0.10*	118.5%
Reference Approach	**-**	**1.83**	**6.25**	**-**	**8.09**	**95.8%**
Diff. due to losses and/or transformation	-	0.03	0.05	-	0.08	
Statistical differences	-	- 0.21	0.00	-	- 0.21	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.33*	-	-	*0.33*	*188.9%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	2.42	126.0%	17.6	17.6
Manufacturing industries - gas	1.90	x	13.8	31.3
Other energy industry own use - gas	1.51	4.8%	10.9	42.2
Road - oil	1.16	112.4%	8.4	50.7
Manufacturing industries - oil	0.45	238.3%	3.2	53.9
Other energy industry own use - oil	0.33	180.0%	2.4	56.3
Unallocated autoproducers - gas	0.32	x	2.3	58.6
Residential - gas	0.06	x	0.4	59.0
Residential - oil	0.04	-8.7%	0.3	59.3
Main activity prod. elec. and heat - oil	0.03	200.0%	0.2	59.5
Other transport - oil	0.00	x	0.0	59.5
Memo: total CO_2 from fuel combustion	*8.21*	*144.2%*	*59.5*	*59.5*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Bulgaria

Figure 1. CO_2 emissions by fuel

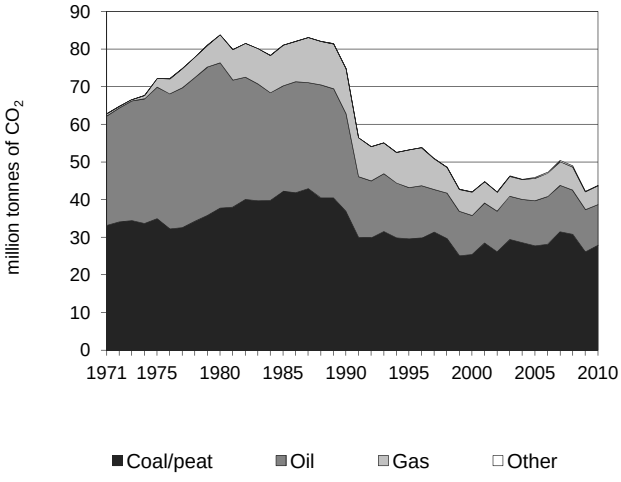


Figure 2. CO_2 emissions by sector

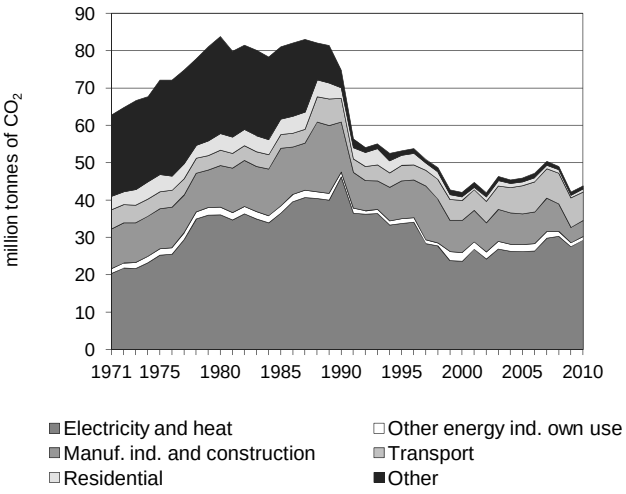


Figure 3. CO_2 emissions by sector

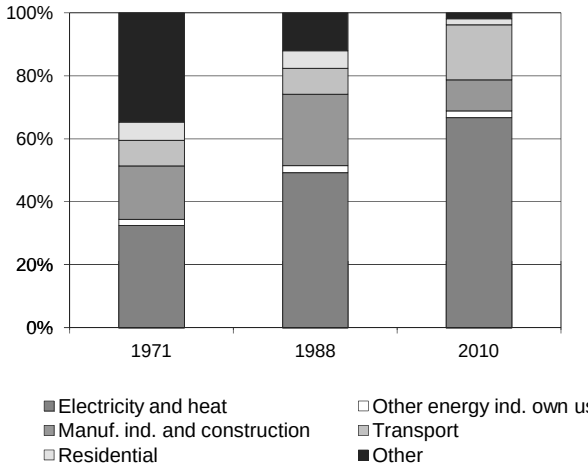


Figure 4. Reference vs Sectoral Approach

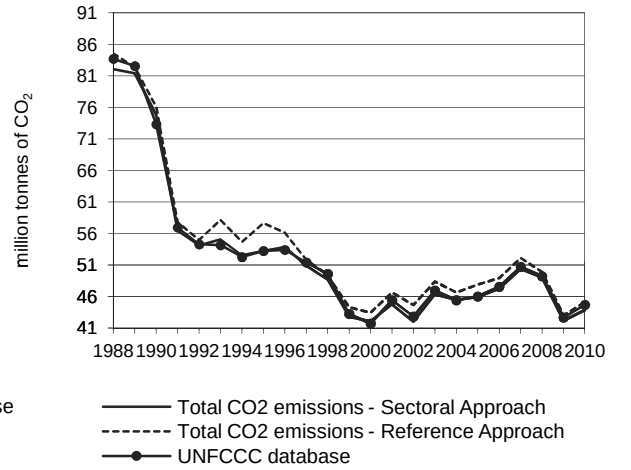


Figure 5. Electricity generation by fuel

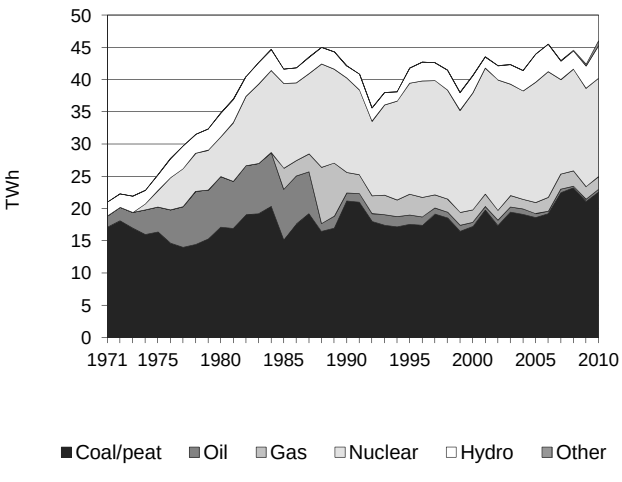
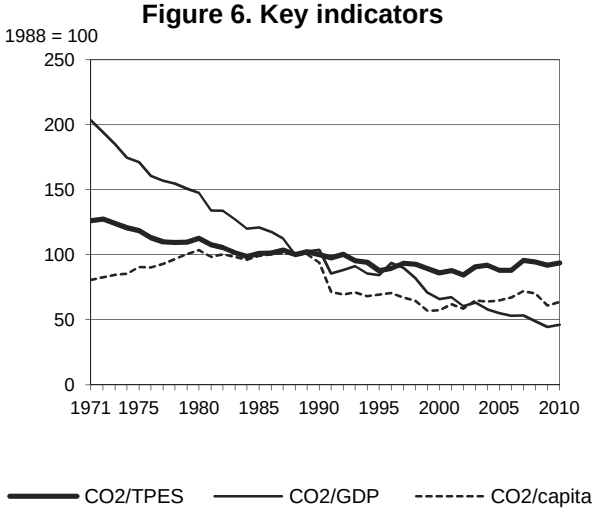


Figure 6. Key indicators



Bulgaria *

Key indicators

	1988	1990	1995	2005	2008	2009	2010	% change 88-10
CO_2 Sectoral Approach ($MtCO_2$)	82.07	74.79	53.22	45.94	49.00	42.16	43.83	-46.6%
CO_2 Reference Approach ($MtCO_2$)	84.56	76.14	57.66	47.90	49.91	43.04	45.06	-46.7%
TPES (PJ)	1 312	1 196	969	835	829	732	748	-43.0%
TPES (Mtoe)	31.33	28.56	23.14	19.95	19.79	17.49	17.86	-43.0%
GDP (billion 2005 USD)	28.42	24.98	21.88	28.90	34.79	32.88	32.95	15.9%
GDP PPP (billion 2005 USD)	74.75	65.70	57.55	76.00	91.51	86.48	86.65	15.9%
Population (millions)	8.98	8.72	8.40	7.74	7.62	7.59	7.54	-16.0%
CO_2 / TPES (tCO_2 per TJ)	62.6	62.5	54.9	55.0	59.1	57.6	58.6	-6.3%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	2.89	2.99	2.43	1.59	1.41	1.28	1.33	-53.9%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	1.10	1.14	0.92	0.60	0.54	0.49	0.51	-53.9%
CO_2 / population (tCO_2 per capita)	9.14	8.58	6.34	5.94	6.43	5.56	5.81	-36.4%

Ratios are based on the Sectoral Approach.

* According to the provisions of Article 4.6 of the Convention and Decisions 9/CP.2 and 11/CP.4, Bulgaria is allowed to use 1988 as the base year.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other **	Total	% change 88-10
Sectoral Approach	**27.91**	**10.82**	**5.01**	**0.08**	**43.83**	**-46.6%**
Main activity producer elec. and heat	26.14	0.88	2.18	-	29.20	-24.4%
Unallocated autoproducers	-	0.00	0.06	-	0.06	-96.5%
Other energy industry own use	0.00	0.89	0.06	-	0.96	-47.9%
Manufacturing industries and construction	1.07	1.27	1.87	0.08	4.29	-77.0%
Transport	-	7.20	0.48	-	7.68	13.3%
of which: road	-	*7.09*	*0.15*	-	*7.25*	6.8%
Other	0.70	0.58	0.36	-	1.64	-88.6%
of which: residential	*0.67*	*0.06*	*0.12*	-	*0.85*	-81.2%
Reference Approach	**28.35**	**11.47**	**5.17**	**0.08**	**45.06**	**-46.7%**
Diff. due to losses and/or transformation	0.27	0.55	0.11	-	0.93	
Statistical differences	0.17	0.10	0.04	-	0.30	
Memo: international marine bunkers	-	*0.30*	-	-	*0.30*	*-67.8%*
Memo: international aviation bunkers	-	*0.50*	-	-	*0.50*	*-60.8%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 88-10	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	26.14	9.3%	43.2	43.2
Road - oil	7.09	4.5%	11.7	54.9
Main activity prod. elec. and heat - gas	2.18	-66.9%	3.6	58.5
Manufacturing industries - gas	1.87	x	3.1	61.5
Manufacturing industries - oil	1.27	-83.3%	2.1	63.6
Manufacturing industries - coal/peat	1.07	-90.3%	1.8	65.4
Other energy industry own use - oil	0.89	-51.6%	1.5	66.9
Main activity prod. elec. and heat - oil	0.88	-89.2%	1.5	68.3
Residential - coal/peat	0.67	-80.0%	1.1	69.4
Non-specified other - oil	0.52	-88.3%	0.9	70.3
Other transport - gas	0.33	x	0.5	70.8
Memo: total CO_2 from fuel combustion	*43.83*	*-46.6%*	*72.4*	*72.4*

*** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Cambodia

Figure 1. CO_2 emissions by fuel

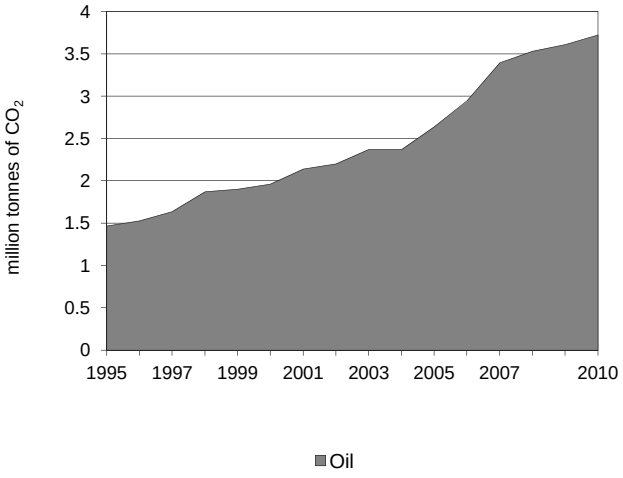


Figure 2. CO_2 emissions by sector

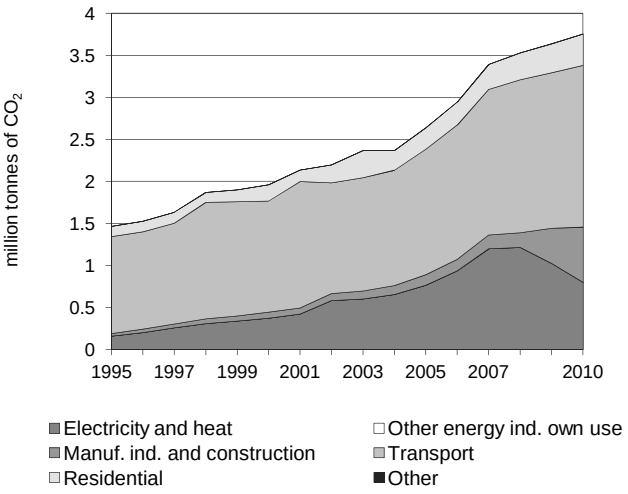


Figure 3. CO_2 emissions by sector

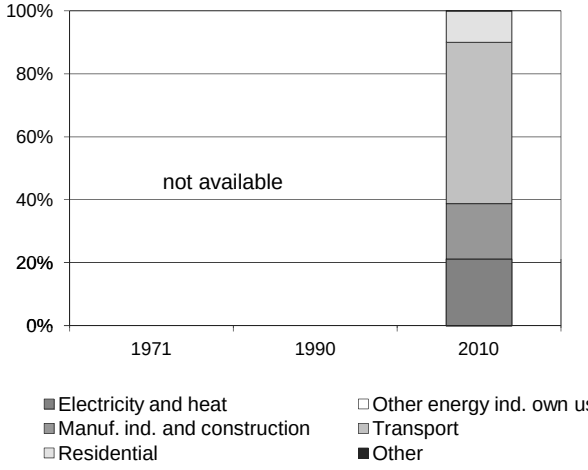


Figure 4. Reference vs Sectoral Approach

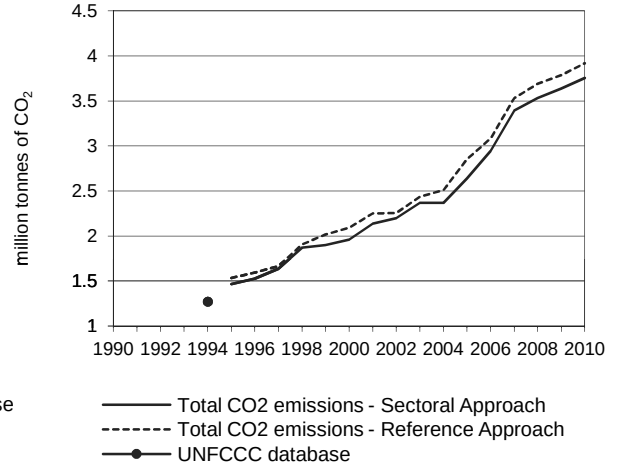


Figure 5. Electricity generation by fuel

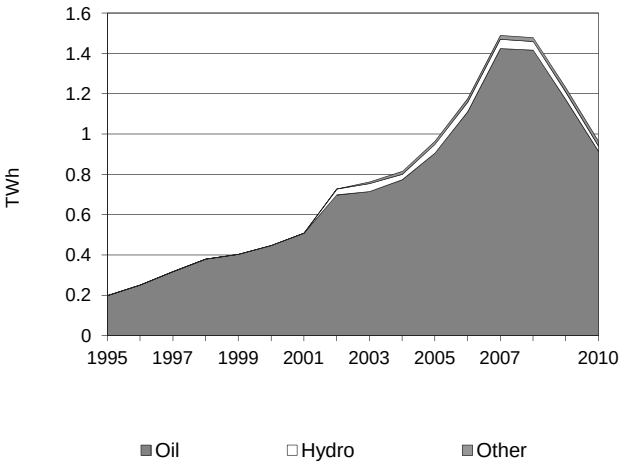
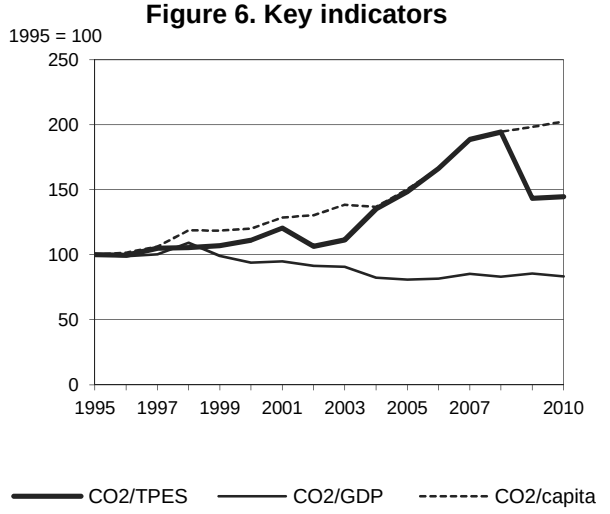


Figure 6. Key indicators



Cambodia *

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	..	1.47	1.96	2.64	3.53	3.64	3.76	..
CO_2 Reference Approach ($MtCO_2$)	..	1.53	2.09	2.85	3.69	3.79	3.92	..
TPES (PJ)	..	119	143	144	147	205	210	..
TPES (Mtoe)	..	2.84	3.41	3.44	3.51	4.91	5.02	..
GDP (billion 2005 USD)	..	2.83	4.03	6.29	8.20	8.20	8.69	..
GDP PPP (billion 2005 USD)	..	9.06	12.89	20.14	26.24	26.26	27.83	..
Population (millions)	..	11.17	12.45	13.36	13.82	13.98	14.14	..
CO_2 / TPES (tCO_2 per TJ)	..	12.3	13.7	18.3	24.0	17.7	17.9	..
CO_2 / GDP ($kgCO_2$ per 2005 USD)	..	0.52	0.49	0.42	0.43	0.44	0.43	..
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	..	0.16	0.15	0.13	0.13	0.14	0.14	..
CO_2 / population (tCO_2 per capita)	..	0.13	0.16	0.20	0.26	0.26	0.27	..

Ratios are based on the Sectoral Approach.

* Prior to 1995, data for Cambodia were included in Other Asia.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other **	Total	% change 90-10
Sectoral Approach	**0.03**	**3.72**	**-**	**-**	**3.76**	**..**
Main activity producer elec. and heat	0.03	0.77	-	-	0.80	..
Unallocated autoproducers	-	-	-	-	-	..
Other energy industry own use	-	-	-	-	-	..
Manufacturing industries and construction	-	0.66	-	-	0.66	..
Transport	-	1.93	-	-	1.93	..
of which: road	-	*1.54*	-	-	*1.54*	..
Other	-	0.37	-	-	0.37	..
of which: residential	-	*0.37*	-	-	*0.37*	..
Reference Approach	**0.03**	**3.88**	**-**	**-**	**3.92**	**..**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	0.00	0.16	-	-	0.16	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.08*	-	-	*0.08*	*..*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) ***	Cumulative total (%)
Road - oil	1.54	..	2.8	2.8
Main activity prod. elec. and heat - oil	0.77	..	1.4	4.2
Manufacturing industries - oil	0.66	..	1.2	5.4
Other transport - oil	0.38	..	0.7	6.1
Residential - oil	0.37	..	0.7	6.7
Main activity prod. elec. and heat - coal/peat	0.03	..	0.1	6.8
Non-specified other - oil	0.00	..	0.0	6.8
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
Memo: total CO_2 from fuel combustion	*3.76*	*..*	*6.8*	*6.8*

*** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Cameroon

Figure 1. CO_2 emissions by fuel

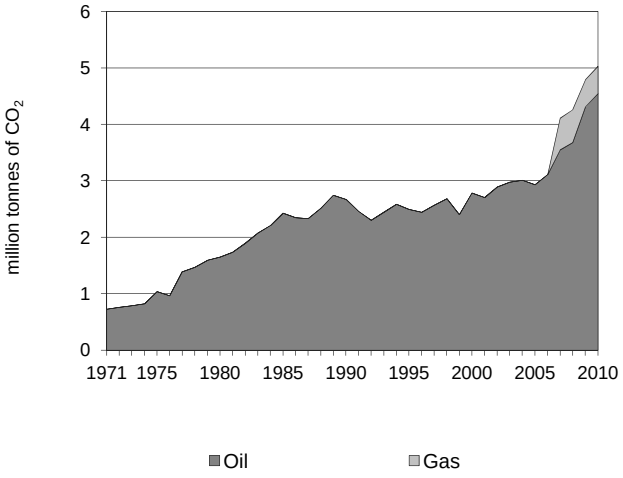


Figure 2. CO_2 emissions by sector

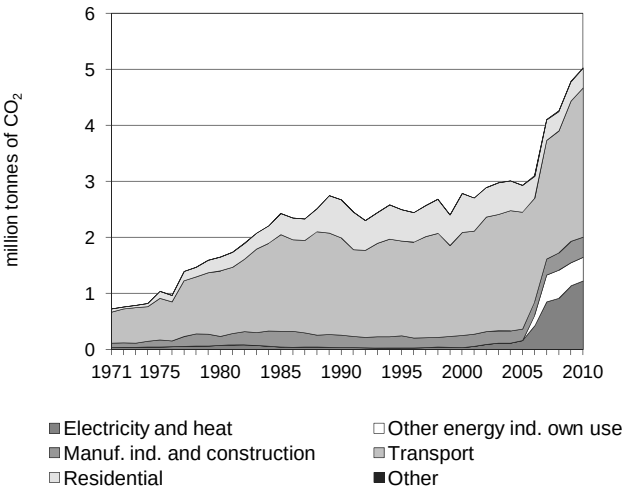


Figure 3. CO_2 emissions by sector

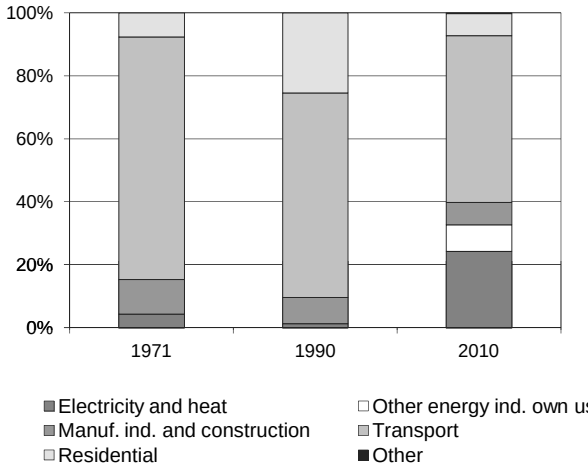


Figure 4. Reference vs Sectoral Approach

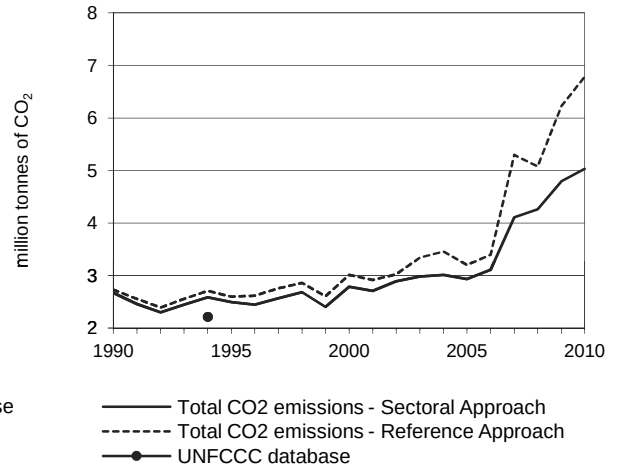


Figure 5. Electricity generation by fuel

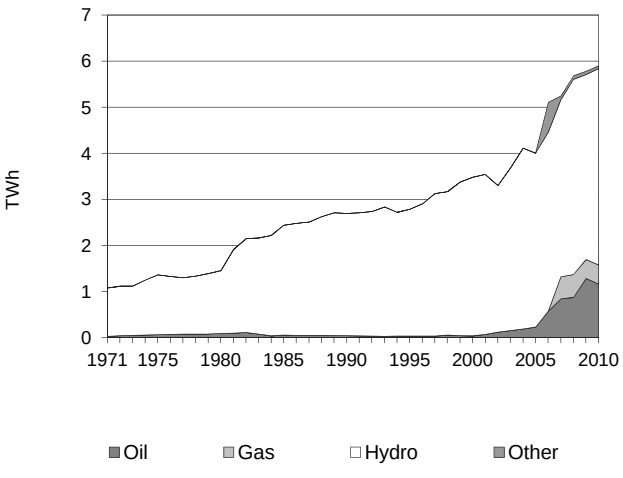
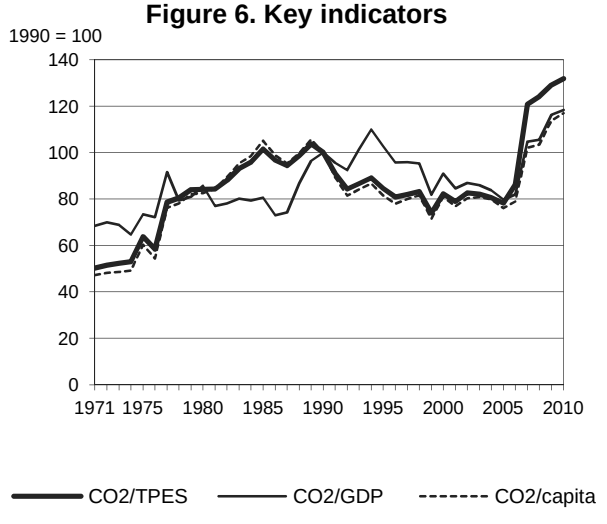


Figure 6. Key indicators



Cameroon

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	2.67	2.50	2.79	2.93	4.26	4.79	5.03	88.2%
CO_2 Reference Approach ($MtCO_2$)	2.73	2.60	3.01	3.20	5.07	6.22	6.78	148.3%
TPES (PJ)	209	230	264	292	268	289	298	42.7%
TPES (Mtoe)	4.98	5.50	6.31	6.98	6.40	6.91	7.11	42.7%
GDP (billion 2005 USD)	12.07	10.97	13.83	16.59	18.24	18.60	19.20	59.1%
GDP PPP (billion 2005 USD)	25.36	23.04	29.06	34.86	38.32	39.09	40.34	59.1%
Population (millions)	12.18	13.94	15.68	17.55	18.76	19.18	19.60	60.9%
CO_2 / TPES (tCO_2 per TJ)	12.8	10.8	10.5	10.0	15.9	16.6	16.9	31.8%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.22	0.23	0.20	0.18	0.23	0.26	0.26	18.3%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.11	0.11	0.10	0.08	0.11	0.12	0.12	18.3%
CO_2 / population (tCO_2 per capita)	0.22	0.18	0.18	0.17	0.23	0.25	0.26	16.9%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**4.54**	**0.48**	**-**	**5.03**	**88.2%**
Main activity producer elec. and heat	-	0.25	-	-	0.25	620.7%
Unallocated autoproducers	-	0.75	0.22	-	0.97	x
Other energy industry own use	-	0.16	0.26	-	0.42	x
Manufacturing industries and construction	-	0.36	-	-	0.36	61.7%
Transport	-	2.66	-	-	2.66	53.2%
of which: road	-	*2.54*	-	-	*2.54*	46.1%
Other	-	0.36	-	-	0.36	-46.7%
of which: residential	-	*0.35*	-	-	*0.35*	-48.4%
Reference Approach	**-**	**6.17**	**0.61**	**-**	**6.78**	**148.3%**
Diff. due to losses and/or transformation	-	0.08	0.12	-	0.20	
Statistical differences	-	1.55	-	-	1.55	
Memo: international marine bunkers	-	*0.14*	-	-	*0.14*	*229.8%*
Memo: international aviation bunkers	-	*0.21*	-	-	*0.21*	*35.4%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	2.54	46.1%	6.5	6.5
Unallocated autoproducers - oil	0.75	x	1.9	8.4
Manufacturing industries - oil	0.36	61.7%	0.9	9.3
Residential - oil	0.35	-48.4%	0.9	10.2
Other energy industry own use - gas	0.26	x	0.7	10.8
Main activity prod. elec. and heat - oil	0.25	620.7%	0.6	11.5
Unallocated autoproducers - gas	0.22	x	0.6	12.1
Other energy industry own use - oil	0.16	x	0.4	12.5
Other transport - oil	0.12	x	0.3	12.8
Non-specified other - oil	0.01	x	0.0	12.8
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*5.03*	*88.2%*	*12.8*	*12.8*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Canada

Figure 1. CO_2 emissions by fuel

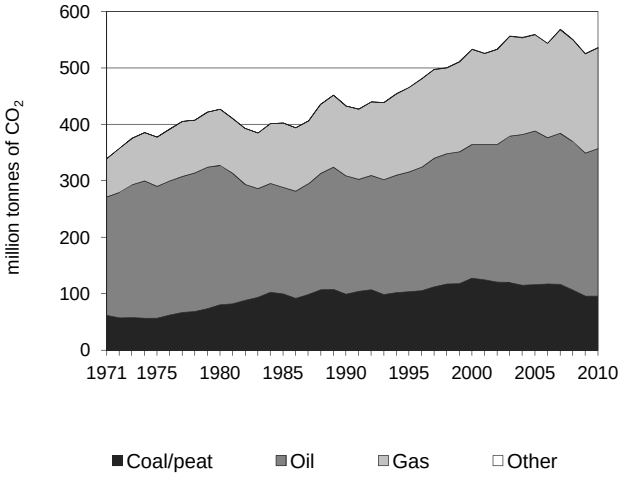


Figure 2. CO_2 emissions by sector

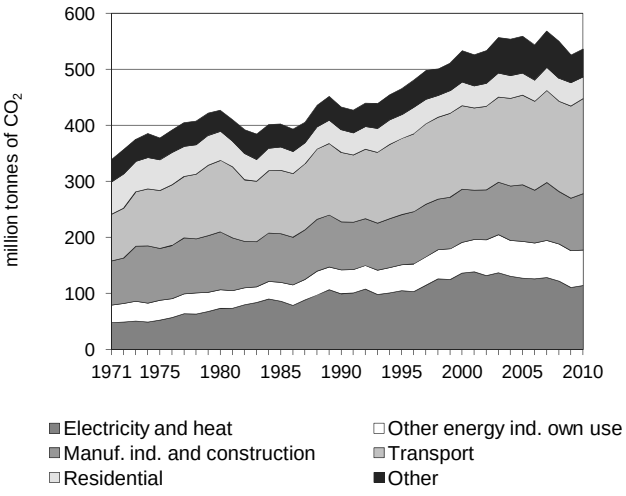


Figure 3. CO_2 emissions by sector

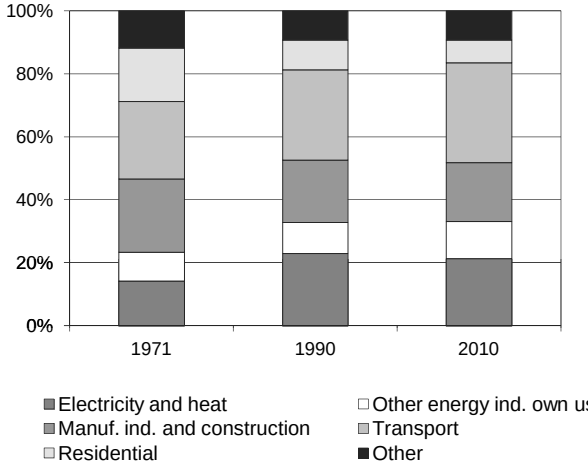


Figure 4. Reference vs Sectoral Approach

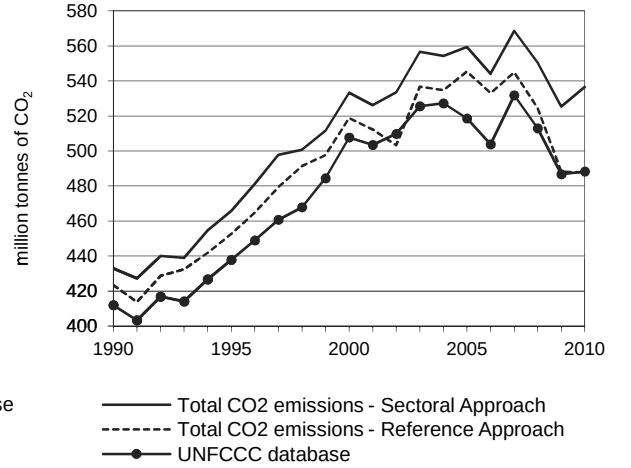


Figure 5. Electricity generation by fuel

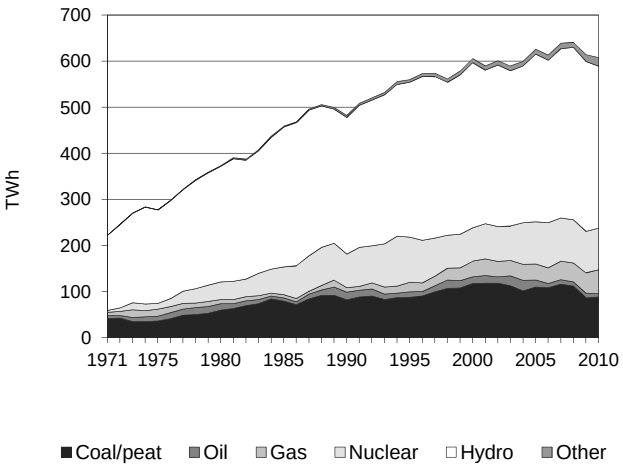
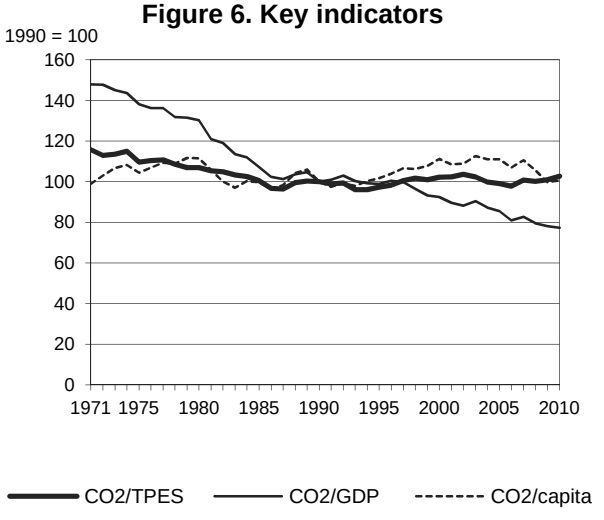


Figure 6. Key indicators



Canada

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	432.86	465.77	533.29	559.35	550.51	525.48	536.63	24.0%
CO_2 Reference Approach ($MtCO_2$)	423.46	452.72	518.76	545.34	524.51	488.36	487.65	15.2%
TPES (PJ)	8 731	9 662	10 527	11 396	11 084	10 498	10 544	20.8%
TPES (Mtoe)	208.54	230.77	251.44	272.20	264.75	250.75	251.84	20.8%
GDP (billion 2005 USD)	749.89	816.66	999.93	1 133.76	1 199.62	1 166.39	1 203.89	60.5%
GDP PPP (billion 2005 USD)	748.72	815.40	998.38	1 132.00	1 197.76	1 164.58	1 202.02	60.5%
Population (millions)	27.69	29.30	30.69	32.25	33.32	33.72	34.11	23.2%
CO_2 / TPES (tCO_2 per TJ)	49.6	48.2	50.7	49.1	49.7	50.1	50.9	2.7%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.58	0.57	0.53	0.49	0.46	0.45	0.45	-22.8%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.58	0.57	0.53	0.49	0.46	0.45	0.45	-22.8%
CO_2 / population (tCO_2 per capita)	15.63	15.90	17.38	17.35	16.52	15.58	15.73	0.6%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**95.80**	**261.52**	**178.54**	**0.77**	**536.63**	**24.0%**
Main activity producer elec. and heat	81.14	4.54	19.32	-	105.00	8.8%
Unallocated autoproducers	0.01	1.71	7.58	0.20	9.50	199.8%
Other energy industry own use	0.10	30.39	32.60	-	63.10	49.0%
Manufacturing industries and construction	14.53	28.67	57.01	0.57	100.78	17.3%
Transport	-	163.92	5.76	-	169.68	37.0%
of which: road	-	*139.53*	*0.10*	-	*139.62*	46.0%
Other	0.01	32.29	56.26	-	88.57	9.3%
of which: residential	*0.01*	*7.95*	*30.88*	-	*38.85*	-4.8%
Reference Approach	**88.04**	**217.47**	**181.37**	**0.77**	**487.65**	**15.2%**
Diff. due to losses and/or transformation	1.05	- 31.19	6.39	-	- 23.76	
Statistical differences	- 8.81	- 12.86	- 3.55	-	- 25.22	
Memo: international marine bunkers	-	*2.18*	-	-	*2.18*	*-24.0%*
Memo: international aviation bunkers	-	*3.17*	-	-	*3.17*	*17.2%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	139.53	46.0%	18.9	18.9
Main activity prod. elec. and heat - coal/peat	81.14	-2.2%	11.0	29.8
Manufacturing industries - gas	57.01	27.6%	7.7	37.5
Other energy industry own use - gas	32.60	56.6%	4.4	41.9
Residential - gas	30.88	16.4%	4.2	46.1
Other energy industry own use - oil	30.39	43.6%	4.1	50.2
Manufacturing industries - oil	28.67	13.1%	3.9	54.1
Non-specified other - gas	25.38	23.2%	3.4	57.5
Other transport - oil	24.40	13.5%	3.3	60.8
Non-specified other - oil	24.33	23.8%	3.3	64.1
Main activity prod. elec. and heat - gas	19.32	555.4%	2.6	66.7
Memo: total CO_2 from fuel combustion	*536.63*	*24.0%*	*72.5*	*72.5*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Chile

Figure 1. CO_2 emissions by fuel

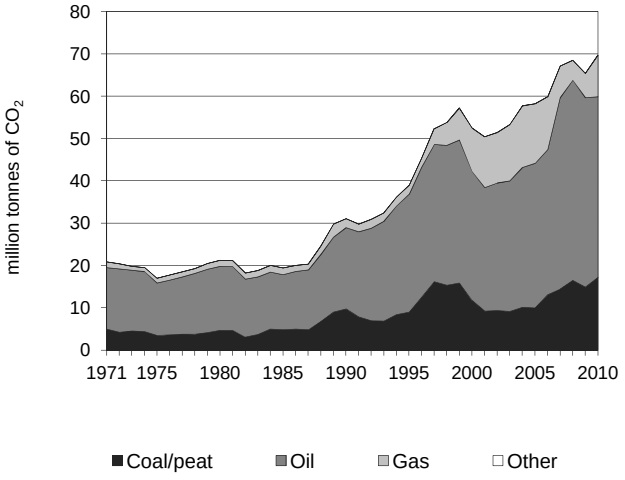


Figure 2. CO_2 emissions by sector

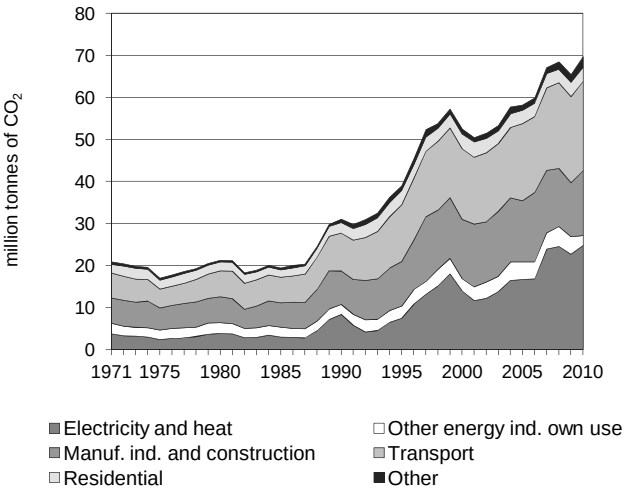


Figure 3. CO_2 emissions by sector

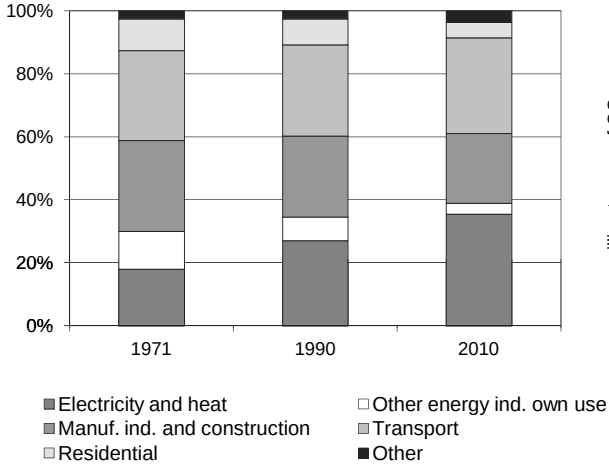


Figure 4. Reference vs Sectoral Approach

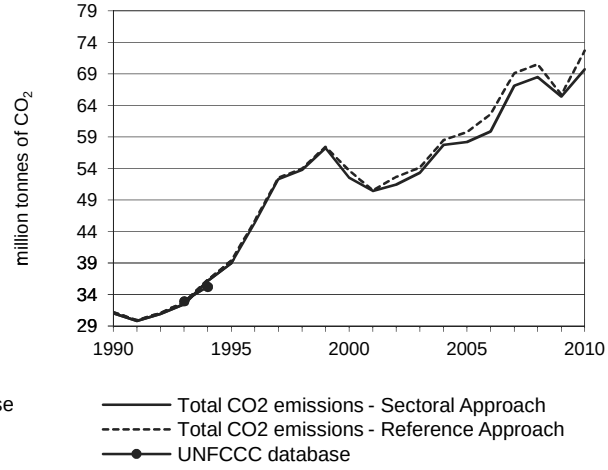


Figure 5. Electricity generation by fuel

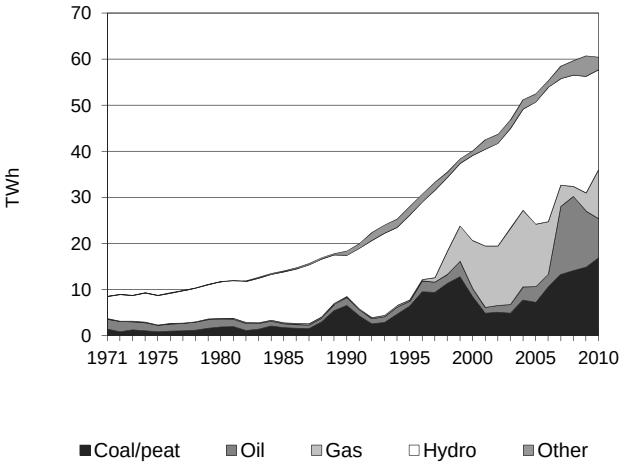
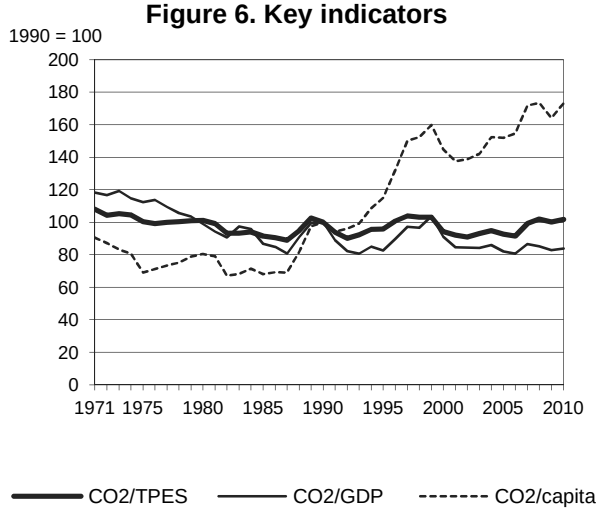


Figure 6. Key indicators



Chile

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	31.04	38.94	52.52	58.19	68.48	65.42	69.71	124.6%
CO_2 Reference Approach ($MtCO_2$)	31.21	39.34	53.70	59.75	70.55	65.72	72.66	132.8%
TPES (PJ)	587	768	1 054	1 187	1 269	1 234	1 295	120.7%
TPES (Mtoe)	14.01	18.34	25.17	28.35	30.31	29.48	30.92	120.7%
GDP (billion 2005 USD)	51.78	78.53	96.24	118.25	134.11	131.85	138.70	167.9%
GDP PPP (billion 2005 USD)	86.86	131.74	161.45	198.37	224.96	221.18	232.68	167.9%
Population (millions)	13.18	14.40	15.40	16.27	16.76	16.93	17.09	29.7%
CO_2 / TPES (tCO_2 per TJ)	52.9	50.7	49.8	49.0	54.0	53.0	53.8	1.8%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.60	0.50	0.55	0.49	0.51	0.50	0.50	-16.2%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.36	0.30	0.33	0.29	0.30	0.30	0.30	-16.2%
CO_2 / population (tCO_2 per capita)	2.36	2.70	3.41	3.58	4.09	3.86	4.08	73.2%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**17.17**	**42.72**	**9.81**	**0.01**	**69.71**	**124.6%**
Main activity producer elec. and heat	14.97	5.18	4.01	-	24.16	338.5%
Unallocated autoproducers	-	0.52	0.08	-	0.60	-79.2%
Other energy industry own use	0.59	0.99	0.78	-	2.36	1.0%
Manufacturing industries and construction	1.55	10.17	3.71	0.01	15.44	93.6%
Transport	-	21.18	0.04	-	21.22	136.0%
of which: road	-	*18.63*	*0.04*	-	*18.67*	140.8%
Other	0.06	4.68	1.20	-	5.93	77.4%
of which: residential	*0.02*	*2.46*	*0.91*	-	*3.39*	33.4%
Reference Approach	**17.63**	**45.14**	**9.88**	**0.01**	**72.66**	**132.8%**
Diff. due to losses and/or transformation	0.21	2.87	0.02	-	3.10	
Statistical differences	0.26	- 0.45	0.05	-	- 0.15	
Memo: international marine bunkers	-	*1.28*	-	-	*1.28*	*124.3%*
Memo: international aviation bunkers	-	*1.52*	-	-	*1.52*	*169.3%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	18.63	140.6%	18.8	18.8
Main activity prod. elec. and heat - coal/peat	14.97	225.4%	15.1	33.8
Manufacturing industries - oil	10.17	116.2%	10.2	44.1
Main activity prod. elec. and heat - oil	5.18	533.4%	5.2	49.3
Main activity prod. elec. and heat - gas	4.01	+	4.0	53.3
Manufacturing industries - gas	3.71	217.1%	3.7	57.1
Other transport - oil	2.55	106.1%	2.6	59.6
Residential - oil	2.46	18.2%	2.5	62.1
Non-specified other - oil	2.23	284.3%	2.2	64.4
Manufacturing industries - coal/peat	1.55	-26.2%	1.6	65.9
Other energy industry own use - oil	0.99	-24.1%	1.0	66.9
Memo: total CO_2 from fuel combustion	*69.71*	*124.6%*	*70.2*	*70.2*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

People's Republic of China

Figure 1. CO_2 emissions by fuel

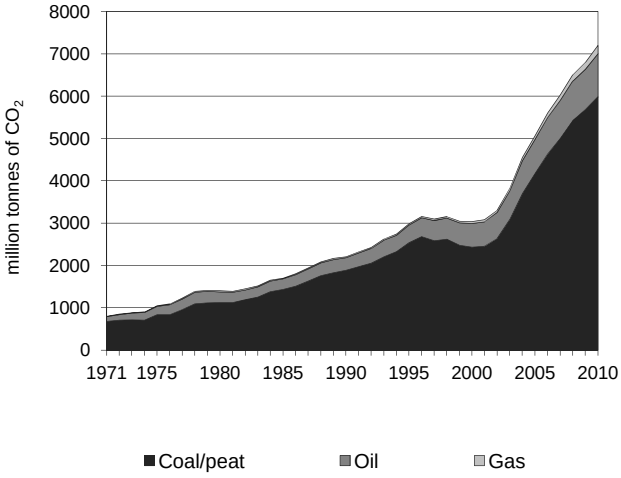


Figure 2. CO_2 emissions by sector

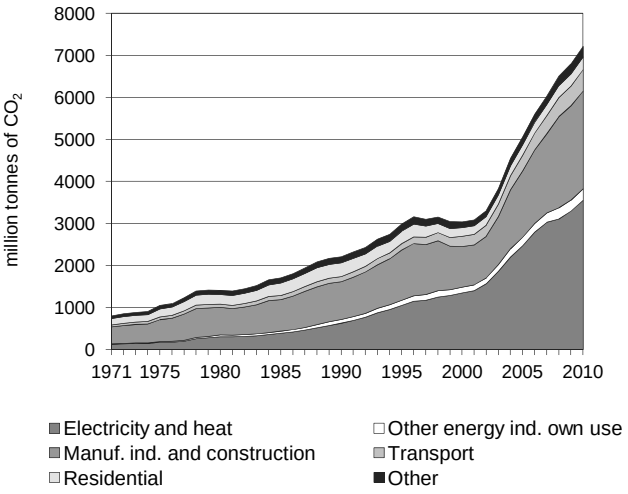


Figure 3. CO_2 emissions by sector

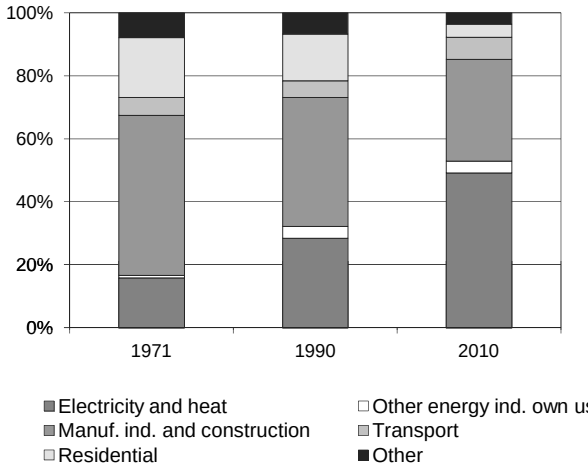


Figure 4. Reference vs Sectoral Approach

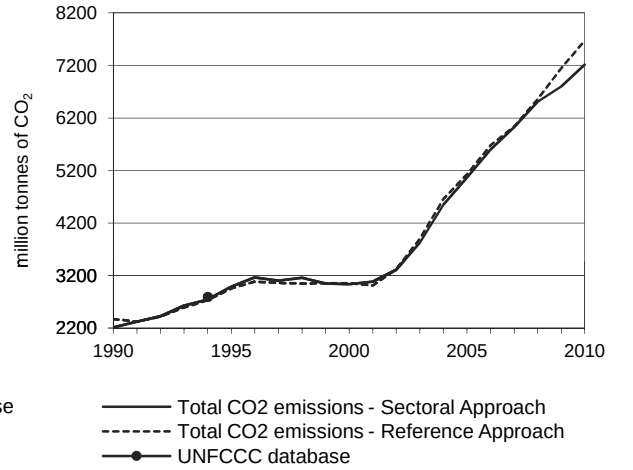


Figure 5. Electricity generation by fuel

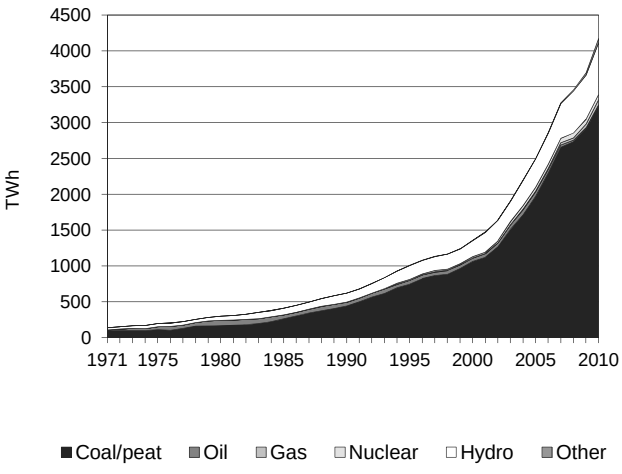
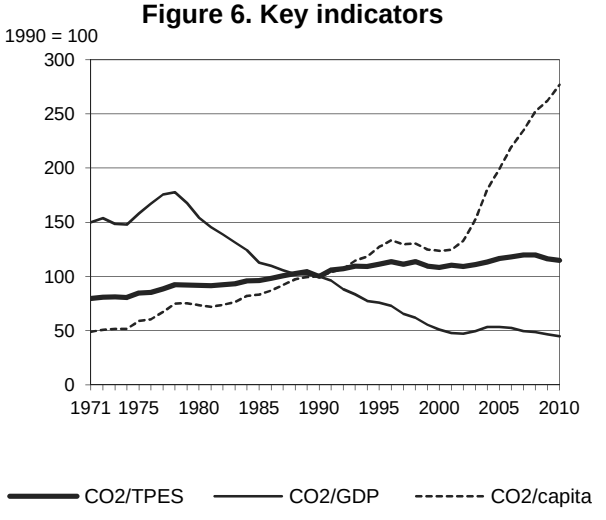


Figure 6. Key indicators



People's Republic of China

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	2 211.3	2 986.1	3 037.3	5 062.4	6 506.8	6 800.7	7 217.1	226.4%
CO_2 Reference Approach ($MtCO_2$)	2 371.1	2 957.8	3 052.2	5 125.0	6 558.4	7 150.1	7 669.4	223.4%
TPES (PJ)	36 130	43 846	45 840	71 024	88 655	95 711	102 814	184.6%
TPES (Mtoe)	863.0	1 047.2	1 094.9	1 696.4	2 117.5	2 286.0	2 455.7	184.6%
GDP (billion 2005 USD)	525.7	937.3	1 417.0	2 256.9	3 183.3	3 476.2	3 837.7	630.1%
GDP PPP (billion 2005 USD)	1 249.5	2 228.0	3 368.1	5 364.3	7 566.8	8 262.9	9 122.2	630.1%
Population (millions)	1 135.2	1 204.9	1 262.6	1 303.7	1 324.7	1 331.4	1 338.3	17.9%
CO_2 / TPES (tCO_2 per TJ)	61.2	68.1	66.3	71.3	73.4	71.1	70.2	14.7%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	4.21	3.19	2.14	2.24	2.04	1.96	1.88	-55.3%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	1.77	1.34	0.90	0.94	0.86	0.82	0.79	-55.3%
CO_2 / population (tCO_2 per capita)	1.95	2.48	2.41	3.88	4.91	5.11	5.39	176.8%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**5 988.0**	**1 017.2**	**194.7**	**17.2**	**7 217.1**	**226.4%**
Main activity producer elec. and heat	3 410.2	12.1	41.5	-	3 463.9	461.6%
Unallocated autoproducers	49.5	18.7	-	17.2	85.4	629.1%
Other energy industry own use	180.9	67.9	26.7	-	275.5	226.6%
Manufacturing industries and construction	2 034.4	240.2	53.0	-	2 327.6	157.3%
Transport	12.2	494.8	1.0	-	508.0	335.8%
of which: road	-	*394.7*	*0.7*	-	*395.3*	547.6%
Other	300.7	183.5	72.6	-	556.8	16.6%
of which: residential	*187.6*	*70.4*	*44.4*	-	*302.4*	-7.8%
Reference Approach	**6 346.5**	**1 105.8**	**199.8**	**17.2**	**7 669.4**	**223.4%**
Diff. due to losses and/or transformation	115.7	72.3	4.5	-	192.4	
Statistical differences	242.9	16.3	0.7	- 0.0	259.9	
Memo: international marine bunkers	-	*31.8*	-	-	*31.8*	*593.5%*
Memo: international aviation bunkers	-	*16.3*	-	-	*16.3*	+

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	3 410.2	496.0%	32.1	32.1
Manufacturing industries - coal/peat	2 034.4	152.7%	19.2	51.3
Road - oil	394.7	546.5%	3.7	55.0
Manufacturing industries - oil	240.2	179.5%	2.3	57.2
Residential - coal/peat	187.6	-40.7%	1.8	59.0
Other energy industry - coal/peat	180.9	254.7%	1.7	60.7
Non-specified other sectors - coal/peat	113.2	9.0%	1.1	61.8
Non-specified other - oil	113.1	149.1%	1.1	62.8
Other transport - oil	100.1	487.4%	0.9	63.8
Residential - oil	70.4	797.9%	0.7	64.5
Other energy industry own use - oil	67.9	150.9%	0.6	65.1
Memo: total CO_2 from fuel combustion	*7 217.1*	*226.4%*	*68.0*	*68.0*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Chinese Taipei

Figure 1. CO_2 emissions by fuel

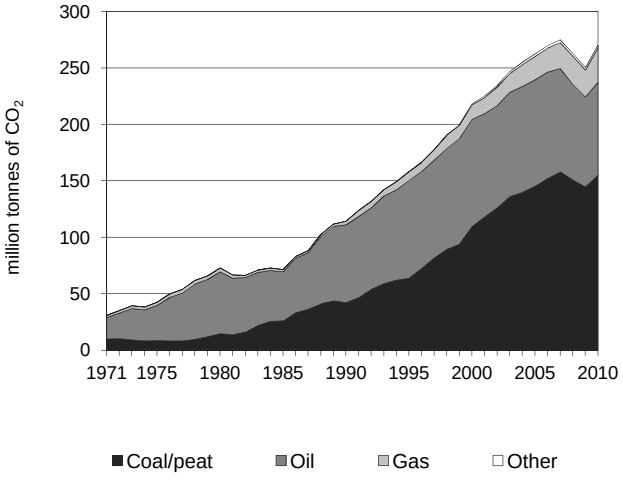


Figure 2. CO_2 emissions by sector

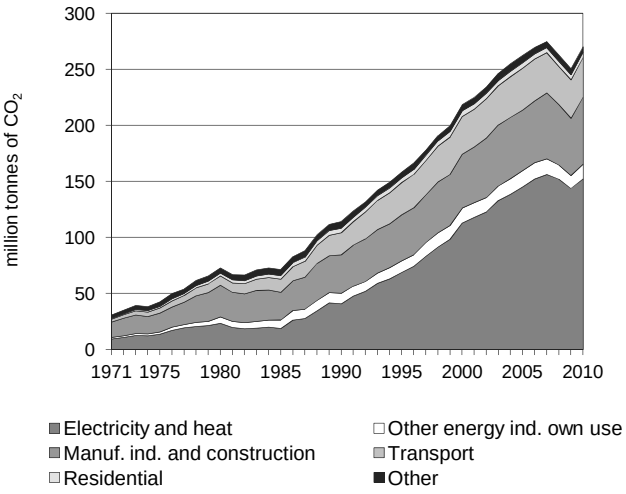


Figure 3. CO_2 emissions by sector

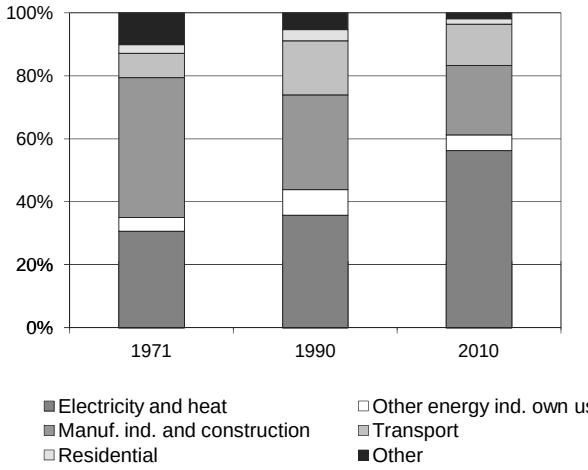


Figure 4. Reference vs Sectoral Approach

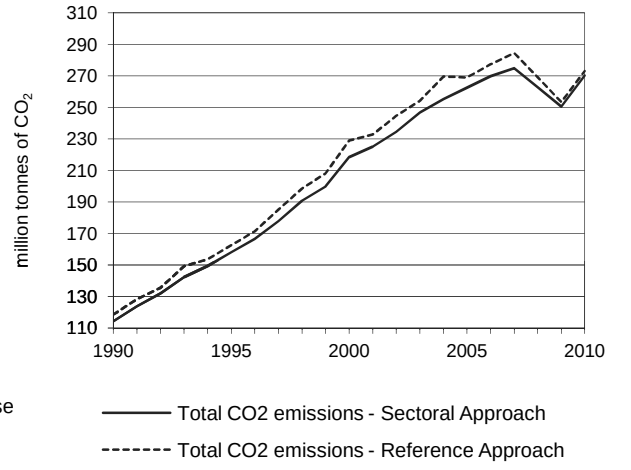


Figure 5. Electricity generation by fuel

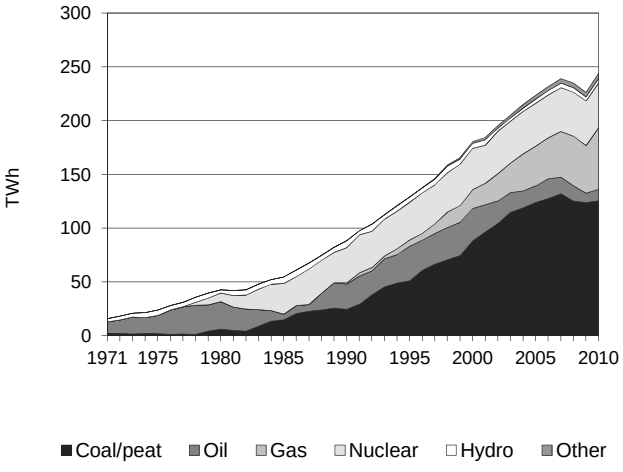
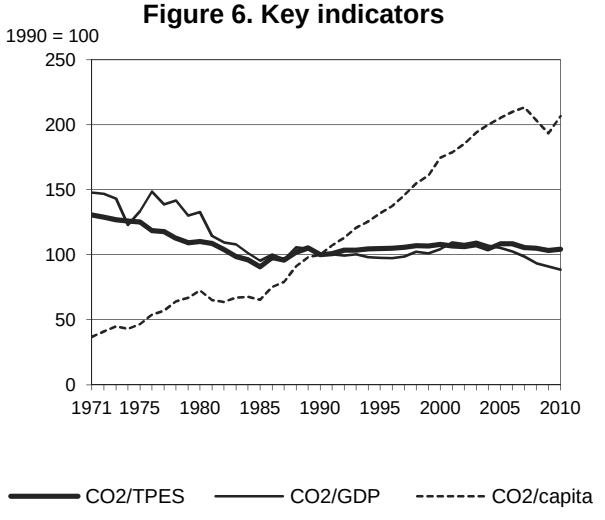


Figure 6. Key indicators



Chinese Taipei

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	114.36	158.19	218.42	262.54	262.86	250.55	270.22	136.3%
CO_2 Reference Approach ($MtCO_2$)	118.53	162.68	229.10	268.96	269.16	253.32	273.00	130.3%
TPES (PJ)	2 020	2 670	3 573	4 278	4 424	4 287	4 575	126.5%
TPES (Mtoe)	48.25	63.78	85.34	102.18	105.66	102.40	109.28	126.5%
GDP (billion 2005 USD)	167.05	236.79	305.75	364.85	410.68	402.77	446.36	167.2%
GDP PPP (billion 2005 USD)	277.82	393.80	508.50	606.78	683.00	669.85	742.34	167.2%
Population (millions)	20.28	21.29	22.18	22.70	22.92	22.97	23.18	14.3%
CO_2 / TPES (tCO_2 per TJ)	56.6	59.2	61.1	61.4	59.4	58.4	59.1	4.3%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.68	0.67	0.71	0.72	0.64	0.62	0.61	-11.6%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.41	0.40	0.43	0.43	0.38	0.37	0.36	-11.6%
CO_2 / population (tCO_2 per capita)	5.64	7.43	9.85	11.57	11.47	10.91	11.66	106.7%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**154.77**	**82.64**	**30.43**	**2.38**	**270.22**	**136.3%**
Main activity producer elec. and heat	87.41	6.03	23.99	-	117.43	227.9%
Unallocated autoproducers	28.60	3.50	0.26	2.38	34.74	583.3%
Other energy industry own use	6.94	5.11	1.24	-	13.29	42.6%
Manufacturing industries and construction	31.82	25.52	2.35	-	59.69	73.4%
Transport	-	35.46	-	-	35.46	80.5%
of which: road	-	*34.29*	-	-	*34.29*	84.9%
Other	-	7.03	2.59	-	9.62	-4.6%
of which: residential	-	*2.91*	*1.63*	-	*4.54*	11.5%
Reference Approach	**160.74**	**79.60**	**30.28**	**2.38**	**273.00**	**130.3%**
Diff. due to losses and/or transformation	1.45	- 2.74	-	-	- 1.29	
Statistical differences	4.51	- 0.29	- 0.15	-	4.07	
Memo: international marine bunkers	-	*5.45*	-	-	*5.45*	*12.3%*
Memo: international aviation bunkers	-	*6.25*	-	-	*6.25*	*248.6%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	87.41	341.8%	29.0	29.0
Road - oil	34.29	84.9%	11.4	40.4
Manufacturing industries - coal/peat	31.82	121.2%	10.6	51.0
Unallocated autoproducers - coal/peat	28.60	566.9%	9.5	60.5
Manufacturing industries - oil	25.52	31.8%	8.5	69.0
Main activity prod. elec. and heat - gas	23.99	+	8.0	76.9
Other energy industry - coal/peat	6.94	81.9%	2.3	79.3
Main activity prod. elec. and heat - oil	6.03	-61.0%	2.0	81.3
Other energy industry own use - oil	5.11	6.9%	1.7	83.0
Non-specified other - oil	4.11	-28.8%	1.4	84.3
Unallocated autoproducers - oil	3.50	379.6%	1.2	85.5
Memo: total CO_2 from fuel combustion	*270.22*	*136.3%*	*89.8*	*89.8*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Colombia

Figure 1. CO_2 emissions by fuel

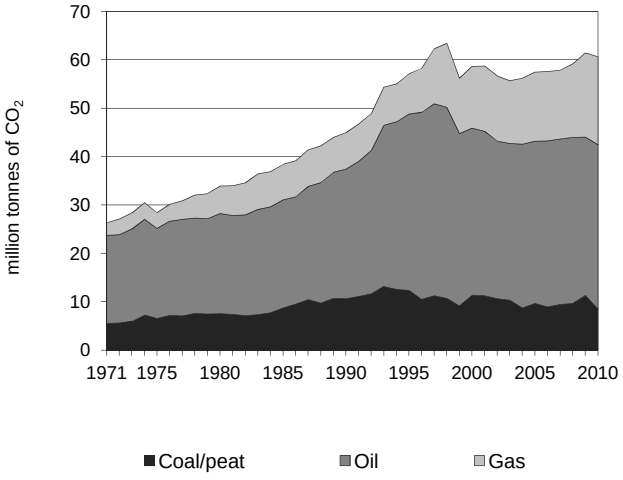


Figure 2. CO_2 emissions by sector

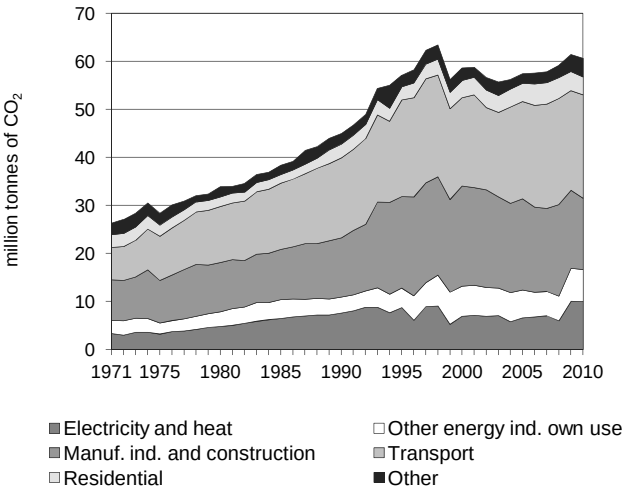


Figure 3. CO_2 emissions by sector

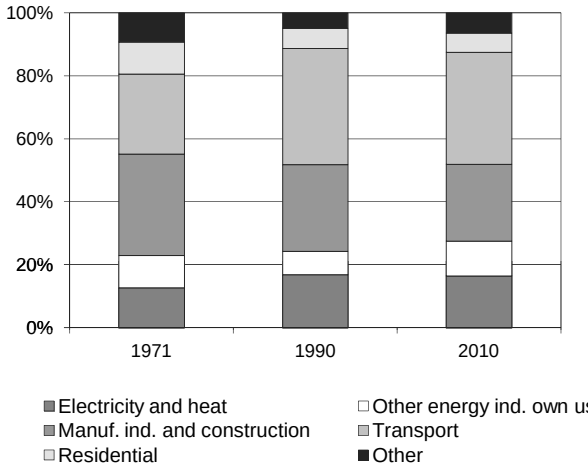


Figure 4. Reference vs Sectoral Approach

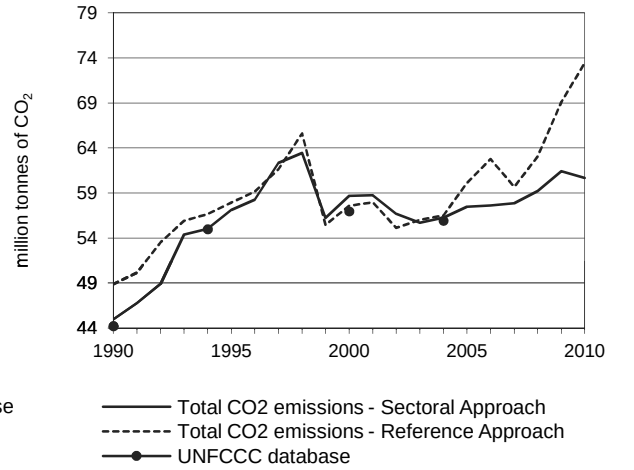


Figure 5. Electricity generation by fuel

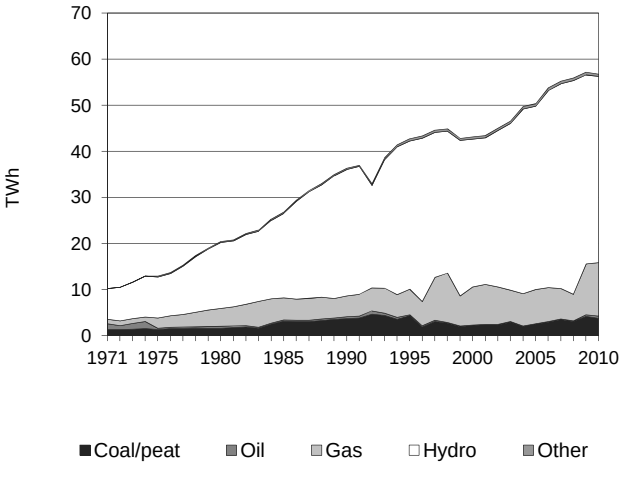
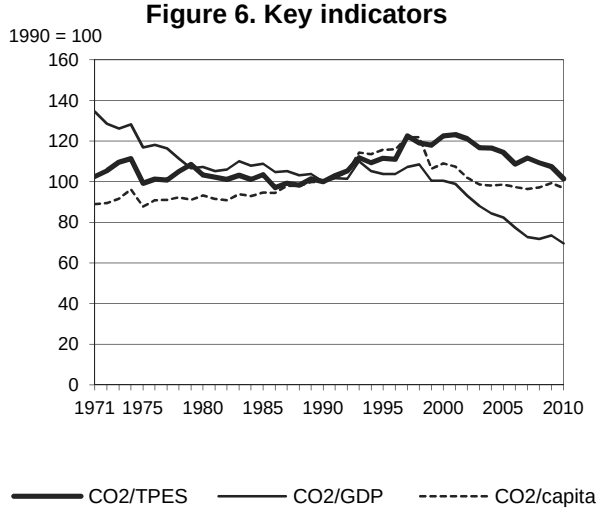


Figure 6. Key indicators



Colombia

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	44.96	57.13	58.67	57.48	59.22	61.43	60.67	34.9%
CO_2 Reference Approach ($MtCO_2$)	48.87	57.93	57.58	60.09	63.07	69.11	73.42	50.2%
TPES (PJ)	1 014	1 156	1 081	1 134	1 223	1 290	1 350	33.1%
TPES (Mtoe)	24.22	27.60	25.81	27.08	29.21	30.82	32.24	33.1%
GDP (billion 2005 USD)	94.37	115.55	122.70	146.57	173.11	175.62	183.19	94.1%
GDP PPP (billion 2005 USD)	202.43	247.85	263.19	314.39	371.32	376.71	392.93	94.1%
Population (millions)	33.20	36.45	39.76	43.04	45.01	45.65	46.30	39.4%
CO_2 / TPES (tCO_2 per TJ)	44.3	49.4	54.3	50.7	48.4	47.6	45.0	1.4%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.48	0.49	0.48	0.39	0.34	0.35	0.33	-30.5%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.22	0.23	0.22	0.18	0.16	0.16	0.15	-30.5%
CO_2 / population (tCO_2 per capita)	1.35	1.57	1.48	1.34	1.32	1.35	1.31	-3.2%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**8.51**	**33.98**	**18.17**	**-**	**60.67**	**34.9%**
Main activity producer elec. and heat	3.85	0.45	5.38	-	9.68	66.3%
Unallocated autoproducers	0.30	-	-	-	0.30	-83.1%
Other energy industry own use	0.01	2.28	4.42	-	6.71	99.6%
Manufacturing industries and construction	4.15	6.16	4.52	-	14.83	20.2%
Transport	0.00	20.26	1.29	-	21.56	29.7%
of which: road	-	*19.35*	*1.29*	-	*20.64*	31.8%
Other	0.20	4.83	2.55	-	7.59	49.9%
of which: residential	*0.20*	*1.55*	*1.95*	-	*3.70*	29.4%
Reference Approach	**11.81**	**42.38**	**19.23**	**-**	**73.42**	**50.2%**
Diff. due to losses and/or transformation	1.16	3.79	-	-	4.94	
Statistical differences	2.15	4.61	1.05	-	7.81	
Memo: international marine bunkers	-	*1.97*	-	-	*1.97*	*498.2%*
Memo: international aviation bunkers	-	*2.08*	-	-	*2.08*	*33.1%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	19.35	23.6%	12.2	12.2
Manufacturing industries - oil	6.16	31.0%	3.9	16.0
Main activity prod. elec. and heat - gas	5.38	85.4%	3.4	19.4
Manufacturing industries - gas	4.52	143.6%	2.8	22.3
Other energy industry own use - gas	4.42	78.5%	2.8	25.0
Manufacturing industries - coal/peat	4.15	-28.3%	2.6	27.7
Main activity prod. elec. and heat - coal/peat	3.85	47.9%	2.4	30.1
Non-specified other - oil	3.28	51.5%	2.1	32.1
Other energy industry own use - oil	2.28	180.8%	1.4	33.6
Residential - gas	1.95	816.5%	1.2	34.8
Residential - oil	1.55	-28.6%	1.0	35.8
Memo: total CO_2 from fuel combustion	*60.67*	*34.9%*	*38.2*	*38.2*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Congo

Figure 1. CO_2 emissions by fuel

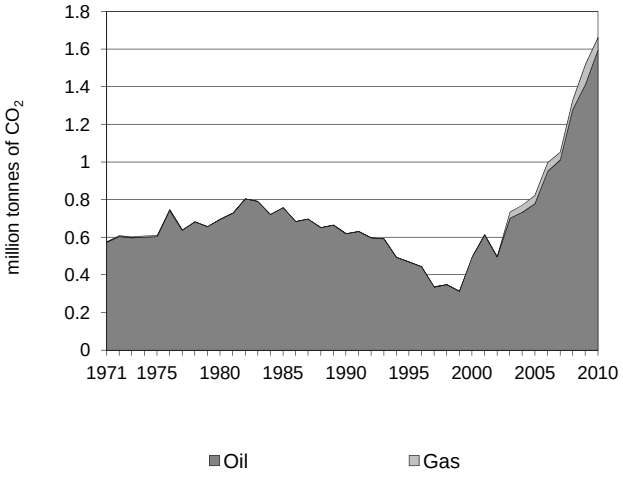


Figure 2. CO_2 emissions by sector

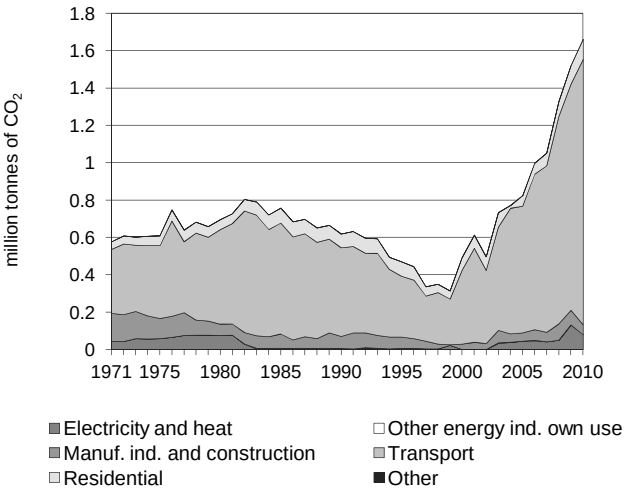


Figure 3. CO_2 emissions by sector

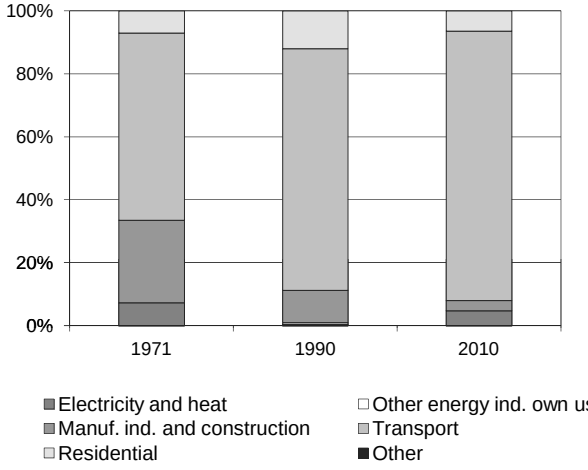


Figure 4. Reference vs Sectoral Approach

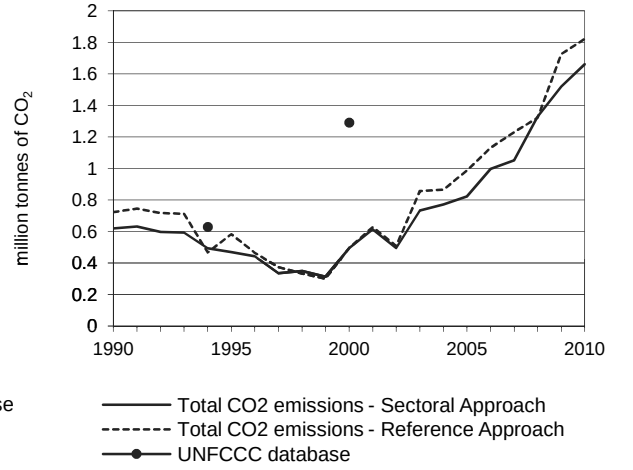


Figure 5. Electricity generation by fuel

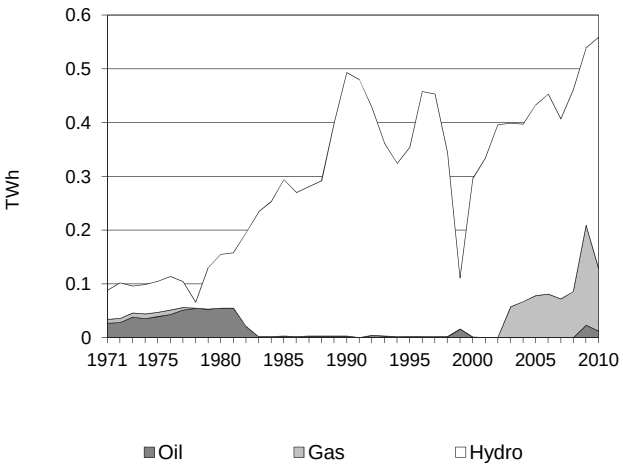
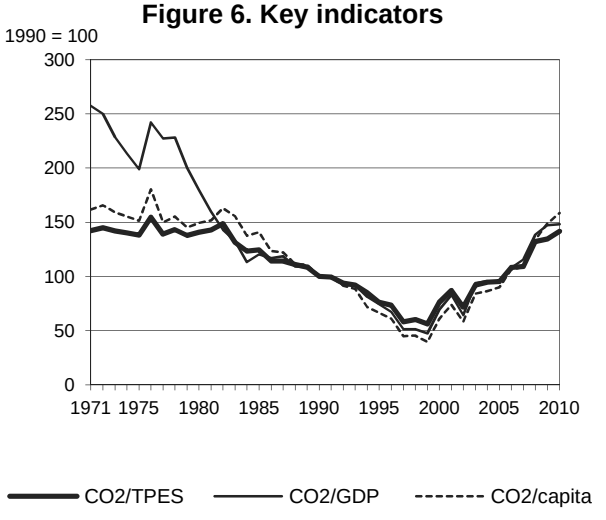


Figure 6. Key indicators



Congo

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	0.62	0.47	0.49	0.82	1.33	1.52	1.66	168.5%
CO_2 Reference Approach ($MtCO_2$)	0.72	0.58	0.50	0.99	1.32	1.73	1.82	151.7%
TPES (PJ)	32	32	34	45	53	59	62	89.4%
TPES (Mtoe)	0.78	0.78	0.81	1.08	1.26	1.42	1.47	89.4%
GDP (billion 2005 USD)	4.33	4.42	4.99	6.09	6.71	7.21	7.85	81.3%
GDP PPP (billion 2005 USD)	8.49	8.68	9.78	11.95	13.17	14.16	15.40	81.3%
Population (millions)	2.39	2.73	3.14	3.53	3.84	3.94	4.04	69.2%
CO_2 / TPES (tCO_2 per TJ)	19.1	14.5	14.5	18.2	25.2	25.6	27.0	41.7%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.14	0.11	0.10	0.14	0.20	0.21	0.21	48.0%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.07	0.05	0.05	0.07	0.10	0.11	0.11	48.2%
CO_2 / population (tCO_2 per capita)	0.26	0.17	0.16	0.23	0.35	0.39	0.41	58.6%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**1.59**	**0.07**	**-**	**1.66**	**168.5%**
Main activity producer elec. and heat	-	0.01	0.07	-	0.08	+
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	-	0.05	-	-	0.05	-15.3%
Transport	-	1.42	-	-	1.42	199.3%
of which: road	-	*1.37*	-	-	*1.37*	203.4%
Other	-	0.11	-	-	0.11	44.7%
of which: residential	-	*0.11*	-	-	*0.11*	44.7%
Reference Approach	**-**	**1.75**	**0.07**	**-**	**1.82**	**151.7%**
Diff. due to losses and/or transformation	-	0.07	-	-	0.07	
Statistical differences	-	0.10	-	-	0.10	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.19*	-	-	*0.19*	*150.0%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	1.37	203.4%	9.2	9.2
Residential - oil	0.11	44.7%	0.7	9.9
Main activity prod. elec. and heat - gas	0.07	x	0.4	10.4
Manufacturing industries - oil	0.05	-15.3%	0.4	10.8
Other transport - oil	0.05	115.1%	0.3	11.1
Main activity prod. elec. and heat - oil	0.01	297.1%	0.1	11.2
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*1.66*	*168.5%*	*11.2*	*11.2*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Democratic Republic of Congo

Figure 1. CO_2 emissions by fuel

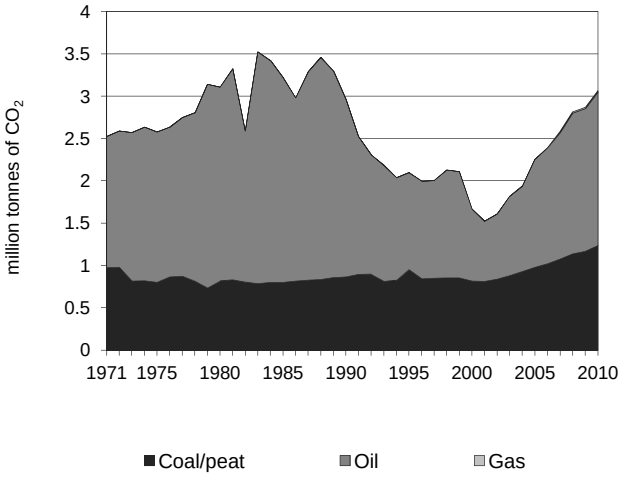


Figure 2. CO_2 emissions by sector

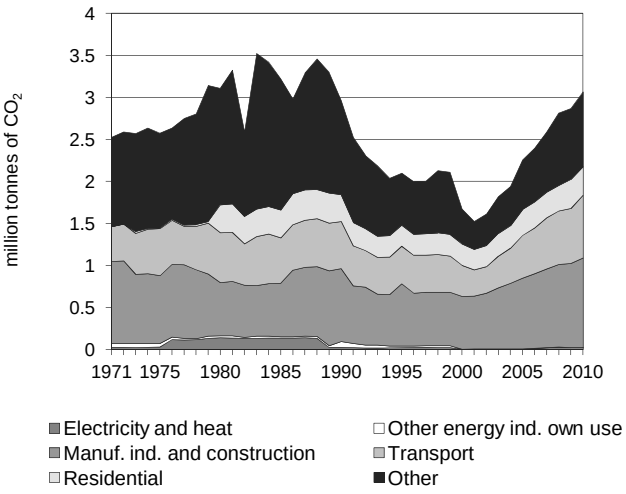


Figure 3. CO_2 emissions by sector

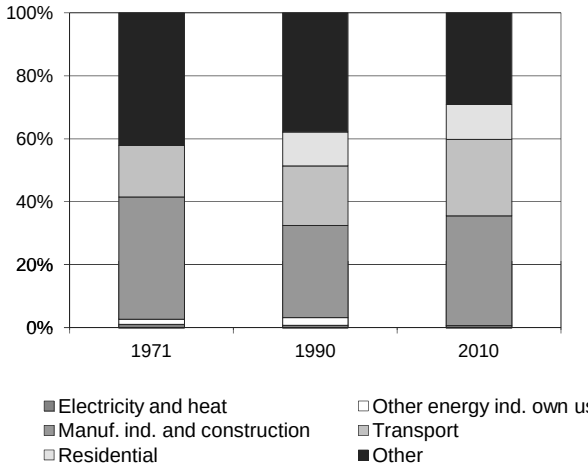


Figure 4. Reference vs Sectoral Approach

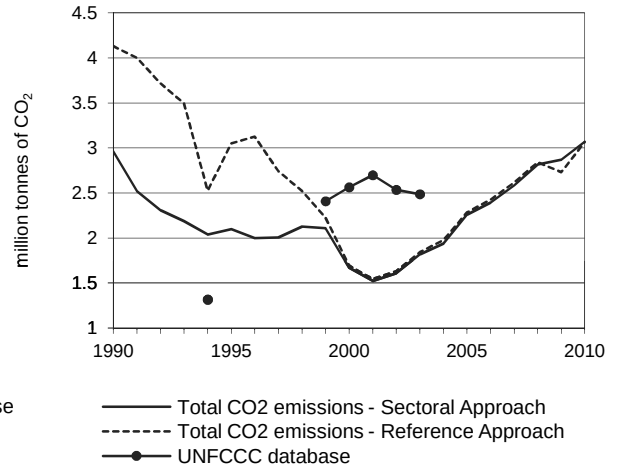


Figure 5. Electricity generation by fuel

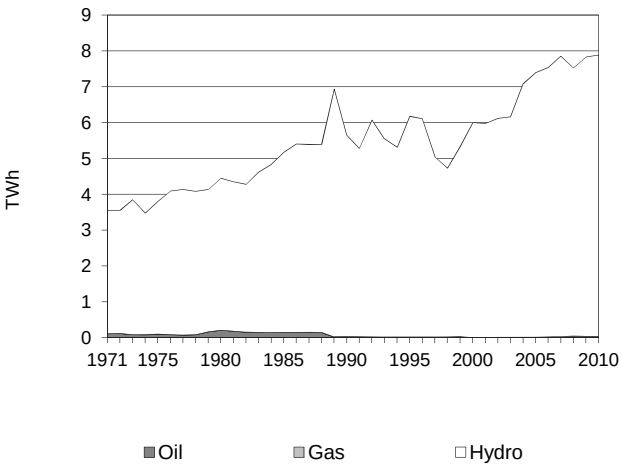
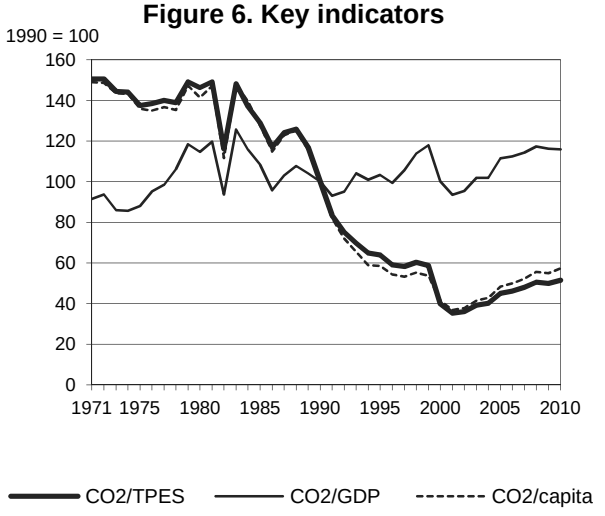


Figure 6. Key indicators



Democratic Republic of Congo

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	2.96	2.10	1.67	2.26	2.82	2.87	3.07	3.6%
CO_2 Reference Approach ($MtCO_2$)	4.13	3.05	1.69	2.28	2.84	2.73	3.06	-25.8%
TPES (PJ)	494	548	698	836	931	960	995	101.4%
TPES (Mtoe)	11.80	13.08	16.68	19.97	22.24	22.92	23.76	101.4%
GDP (billion 2005 USD)	10.39	7.13	5.84	7.10	8.42	8.66	9.28	-10.6%
GDP PPP (billion 2005 USD)	22.97	15.77	12.91	15.71	18.63	19.15	20.53	-10.6%
Population (millions)	36.41	44.07	49.63	57.42	62.48	64.20	65.97	81.2%
CO_2 / TPES (tCO_2 per TJ)	6.0	3.8	2.4	2.7	3.0	3.0	3.1	-48.6%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.29	0.29	0.29	0.32	0.33	0.33	0.33	15.9%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.13	0.13	0.13	0.14	0.15	0.15	0.15	15.9%
CO_2 / population (tCO_2 per capita)	0.08	0.05	0.03	0.04	0.05	0.04	0.05	-42.8%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**1.24**	**1.81**	**0.02**	**-**	**3.07**	**3.6%**
Main activity producer elec. and heat	-	0.01	-	-	0.01	-74.9%
Unallocated autoproducers	-	-	0.02	-	0.02	x
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.92	0.14	-	-	1.07	23.1%
Transport	-	0.75	-	-	0.75	32.8%
of which: road	-	*0.75*	-	-	*0.75*	32.8%
Other	0.31	0.92	-	-	1.23	-14.3%
of which: residential	*0.31*	*0.02*	-	-	*0.34*	6.8%
Reference Approach	**1.28**	**1.77**	**0.02**	**-**	**3.06**	**-25.8%**
Diff. due to losses and/or transformation	0.05	-	-	-	0.05	
Statistical differences	- 0.01	- 0.04	-	-	- 0.05	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.46*	-	-	*0.46*	*44.5%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Manufacturing industries - coal/peat	0.92	40.6%	0.6	0.6
Non-specified other - oil	0.89	-20.3%	0.6	1.3
Road - oil	0.75	32.8%	0.5	1.8
Residential - coal/peat	0.31	50.0%	0.2	2.0
Manufacturing industries - oil	0.14	-31.6%	0.1	2.1
Residential - oil	0.02	-77.0%	0.0	2.1
Unallocated autoproducers - gas	0.02	x	0.0	2.1
Main activity prod. elec. and heat - oil	0.01	-74.9%	0.0	2.1
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*3.07*	*3.6%*	*2.1*	*2.1*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Costa Rica

Figure 1. CO_2 emissions by fuel

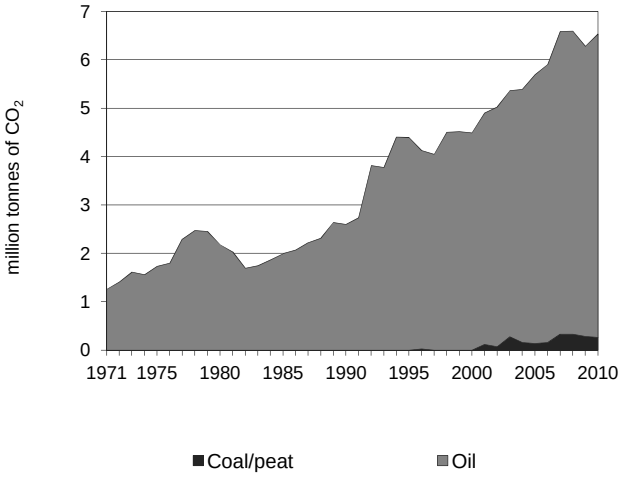


Figure 2. CO_2 emissions by sector

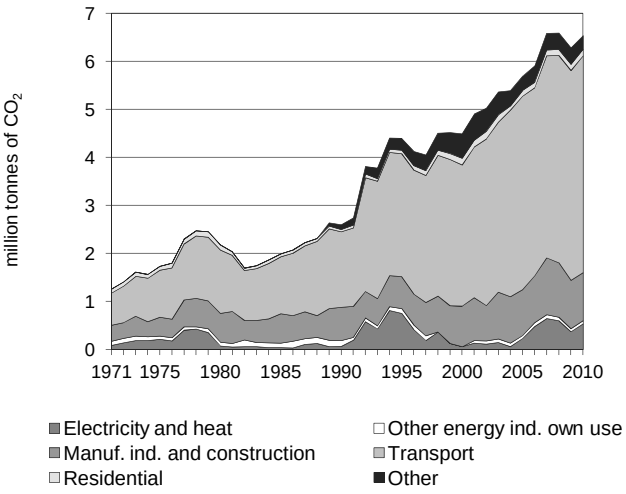


Figure 3. CO_2 emissions by sector

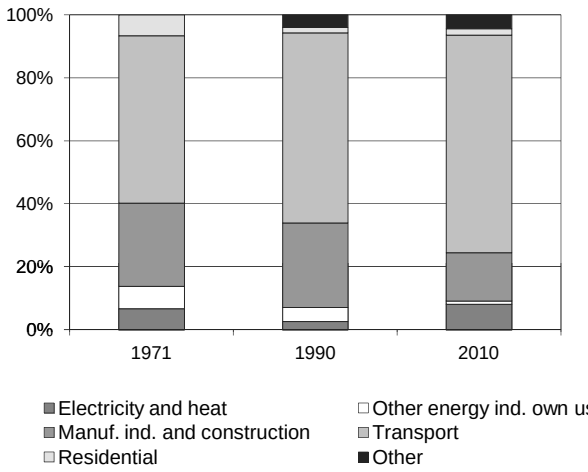


Figure 4. Reference vs Sectoral Approach

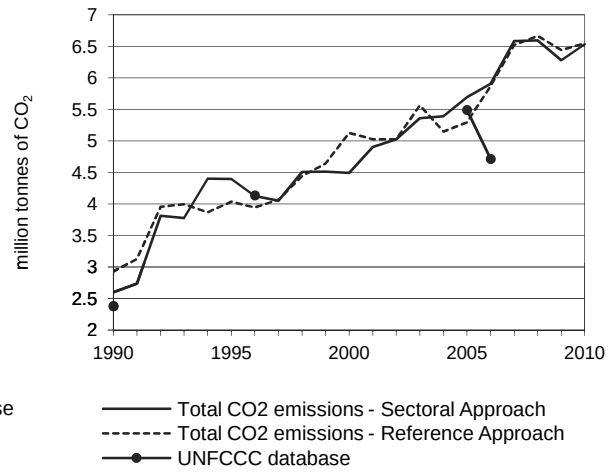


Figure 5. Electricity generation by fuel

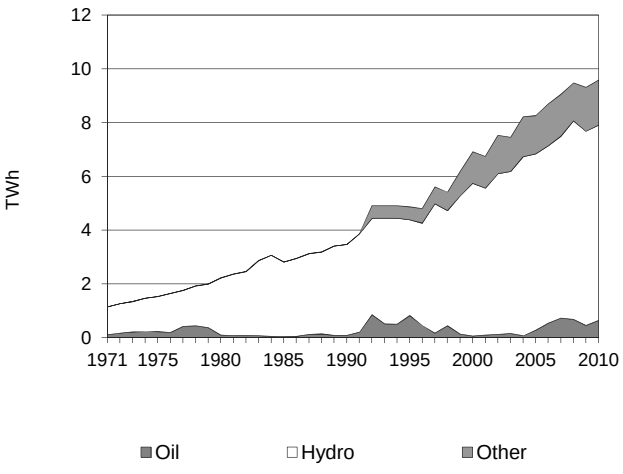
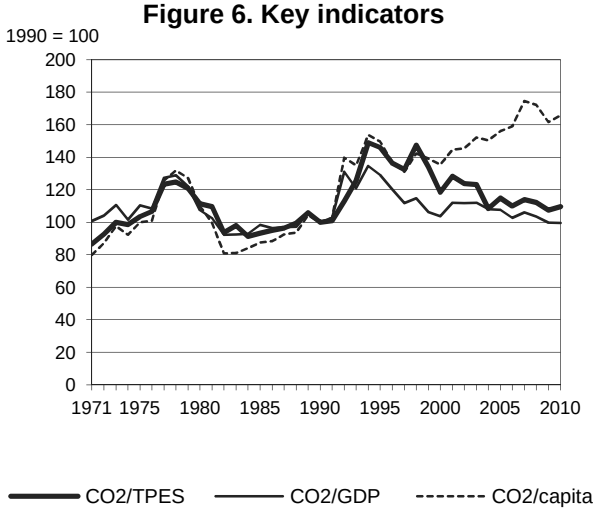


Figure 6. Key indicators



Costa Rica

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	2.60	4.40	4.49	5.69	6.59	6.28	6.54	151.4%
CO_2 Reference Approach ($MtCO_2$)	2.93	4.04	5.13	5.30	6.67	6.44	6.55	123.5%
TPES (PJ)	85	98	124	162	192	191	195	129.3%
TPES (Mtoe)	2.03	2.35	2.96	3.87	4.59	4.56	4.65	129.3%
GDP (billion 2005 USD)	9.82	12.85	16.34	19.97	24.08	23.77	24.77	152.4%
GDP PPP (billion 2005 USD)	19.16	25.07	31.89	38.96	46.99	46.39	48.35	152.4%
Population (millions)	3.07	3.47	3.92	4.31	4.52	4.59	4.66	51.8%
CO_2 / TPES (tCO_2 per TJ)	30.6	44.7	36.3	35.2	34.3	32.9	33.6	9.6%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.26	0.34	0.27	0.29	0.27	0.26	0.26	-0.4%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.14	0.18	0.14	0.15	0.14	0.14	0.14	-0.4%
CO_2 / population (tCO_2 per capita)	0.85	1.27	1.15	1.32	1.46	1.37	1.40	65.7%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.26**	**6.27**	**-**	**-**	**6.54**	**151.4%**
Main activity producer elec. and heat	-	0.53	-	-	0.53	+
Unallocated autoproducers	..	..	..	..	..	..
Other energy industry own use	-	0.07	-	-	0.07	-42.2%
Manufacturing industries and construction	0.26	0.74	-	-	1.00	43.7%
Transport	-	4.52	-	-	4.52	187.4%
of which: road	-	*4.49*	-	-	*4.49*	657.5%
Other	-	0.42	-	-	0.42	185.2%
of which: residential	-	*0.14*	-	-	*0.14*	205.9%
Reference Approach	**0.29**	**6.27**	**-**	**-**	**6.55**	**123.5%**
Diff. due to losses and/or transformation	0.02	- 0.00	-	-	0.02	
Statistical differences	0.00	- 0.01	-	-	- 0.01	
Memo: international marine bunkers	-	..	-	-	..	..
Memo: international aviation bunkers	-	*0.49*	-	-	*0.49*	+

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	4.49	657.5%	40.7	40.7
Manufacturing industries - oil	0.74	6.0%	6.7	47.4
Main activity prod. elec. and heat - oil	0.53	+	4.8	52.2
Non-specified other - oil	0.28	176.3%	2.6	54.8
Manufacturing industries - coal/peat	0.26	x	2.4	57.2
Residential - oil	0.14	205.9%	1.2	58.4
Other energy industry own use - oil	0.07	-42.2%	0.6	59.0
Other transport - oil	0.02	-97.7%	0.2	59.2
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*6.54*	*151.4%*	*59.2*	*59.2*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Côte d'Ivoire

Figure 1. CO_2 emissions by fuel

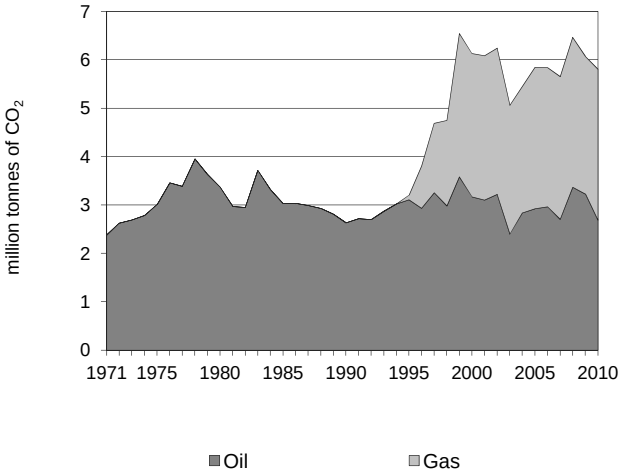


Figure 2. CO_2 emissions by sector

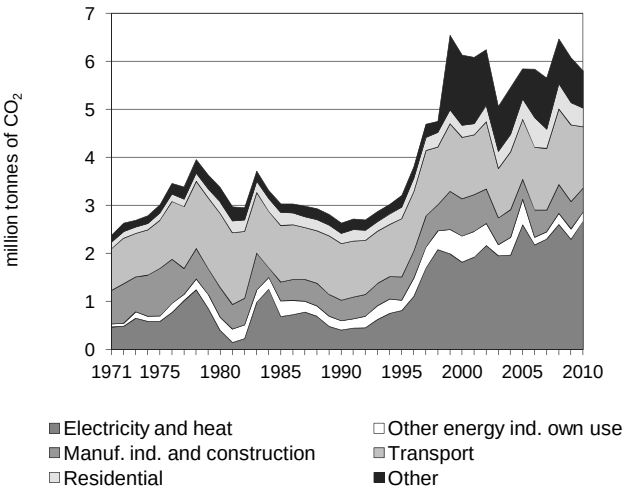


Figure 3. CO_2 emissions by sector

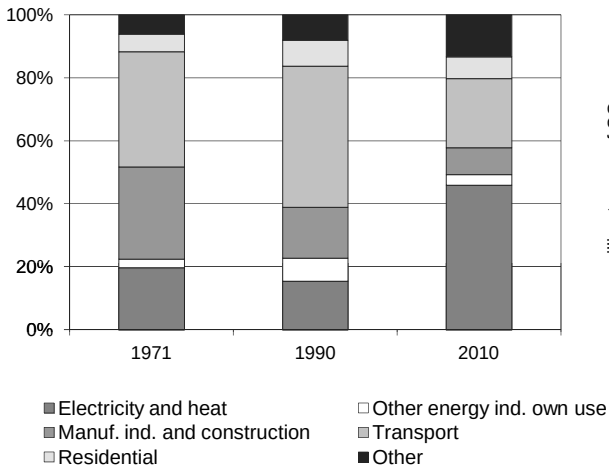


Figure 4. Reference vs Sectoral Approach

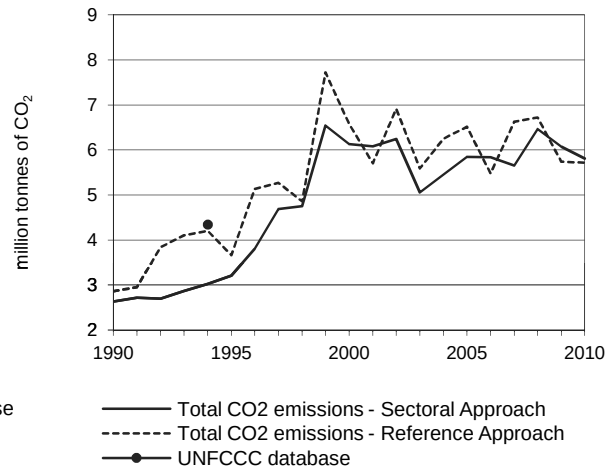


Figure 5. Electricity generation by fuel

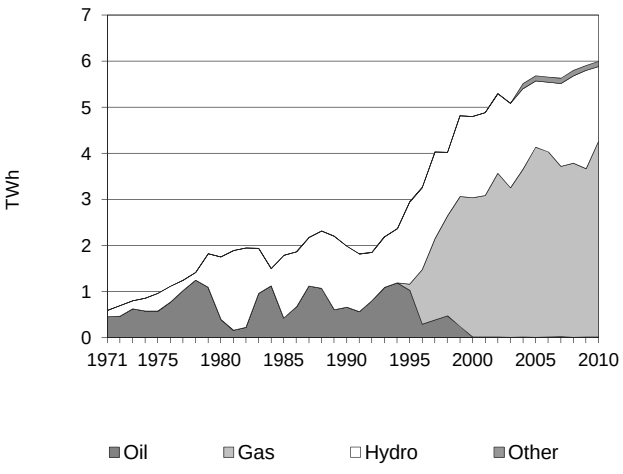
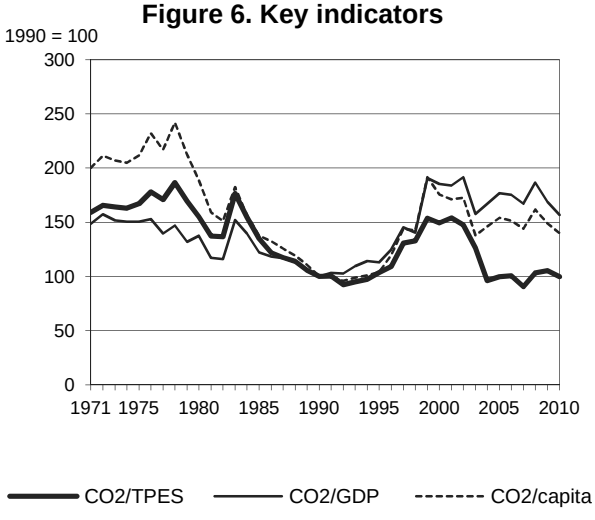


Figure 6. Key indicators



Côte d'Ivoire

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	2.63	3.21	6.13	5.85	6.47	6.07	5.81	120.5%
CO_2 Reference Approach ($MtCO_2$)	2.86	3.67	6.58	6.51	6.72	5.74	5.72	99.7%
TPES (PJ)	181	213	282	403	430	396	401	121.4%
TPES (Mtoe)	4.32	5.08	6.73	9.63	10.28	9.45	9.57	121.4%
GDP (billion 2005 USD)	13.04	14.02	16.36	16.36	17.15	17.79	18.33	40.6%
GDP PPP (billion 2005 USD)	23.92	25.73	30.02	30.02	31.46	32.64	33.63	40.6%
Population (millions)	12.52	14.68	16.58	18.02	18.99	19.35	19.74	57.7%
CO_2 / TPES (tCO_2 per TJ)	14.6	15.1	21.7	14.5	15.0	15.3	14.5	-0.4%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.20	0.23	0.37	0.36	0.38	0.34	0.32	56.8%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.11	0.12	0.20	0.19	0.21	0.19	0.17	56.9%
CO_2 / population (tCO_2 per capita)	0.21	0.22	0.37	0.32	0.34	0.31	0.29	39.9%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**2.69**	**3.12**	**-**	**5.81**	**120.5%**
Main activity producer elec. and heat	-	0.01	2.66	-	2.67	565.5%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industry own use	-	0.17	0.03	-	0.19	1.0%
Manufacturing industries and construction	-	0.50	-	-	0.50	16.1%
Transport	-	1.28	-	-	1.28	8.3%
of which: road	-	*1.05*	-	-	*1.05*	2.2%
Other	-	0.74	0.43	-	1.17	173.8%
of which: residential	-	*0.40*	-	-	*0.40*	84.4%
Reference Approach	**-**	**2.60**	**3.12**	**-**	**5.72**	**99.7%**
Diff. due to losses and/or transformation	-	0.02	-	-	0.02	
Statistical differences	-	- 0.12	- 0.00	-	- 0.12	
Memo: international marine bunkers	-	*0.05*	-	-	*0.05*	*-61.7%*
Memo: international aviation bunkers	-	*0.13*	-	-	*0.13*	*-52.4%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	2.66	x	8.3	8.3
Road - oil	1.05	2.2%	3.3	11.6
Manufacturing industries - oil	0.50	16.1%	1.5	13.1
Non-specified other - gas	0.43	x	1.3	14.5
Residential - oil	0.40	84.4%	1.2	15.7
Non-specified other - oil	0.34	61.6%	1.1	16.8
Other transport - oil	0.23	48.6%	0.7	17.5
Other energy industry own use - oil	0.17	-13.8%	0.5	18.0
Other energy industry own use - gas	0.03	x	0.1	18.1
Main activity prod. elec. and heat - oil	0.01	-97.6%	0.0	18.1
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*5.81*	*120.5%*	*18.1*	*18.1*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Croatia

Figure 1. CO_2 emissions by fuel

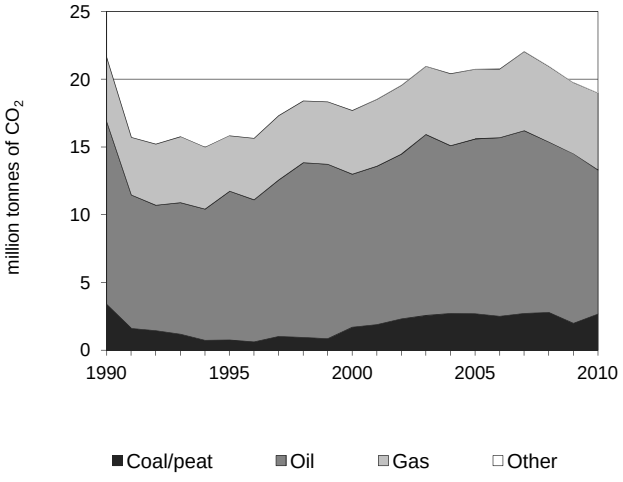


Figure 2. CO_2 emissions by sector

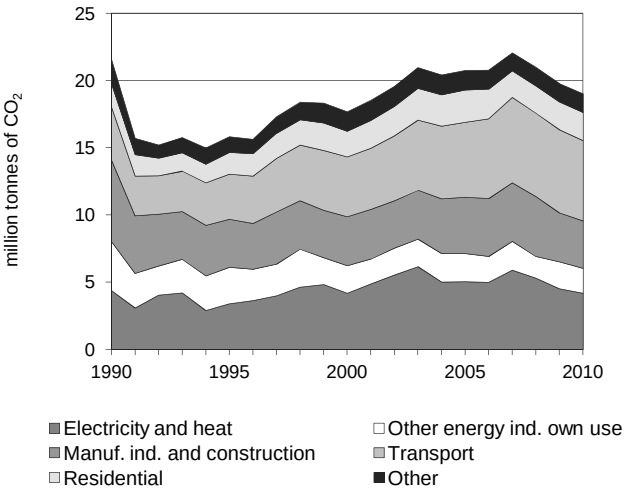


Figure 3. CO_2 emissions by sector

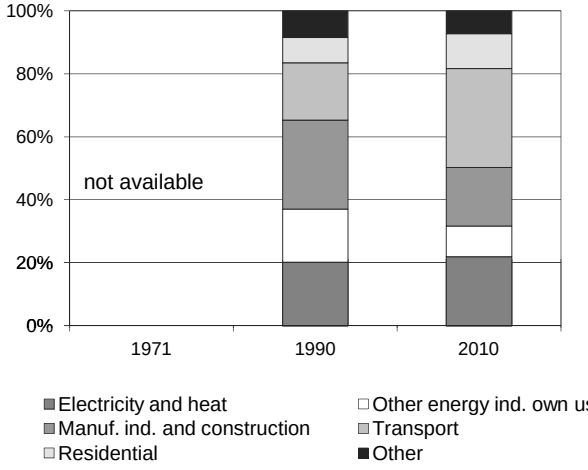


Figure 4. Reference vs Sectoral Approach

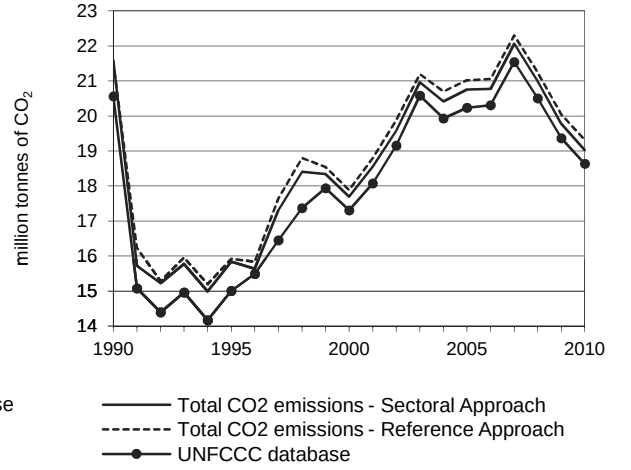


Figure 5. Electricity generation by fuel

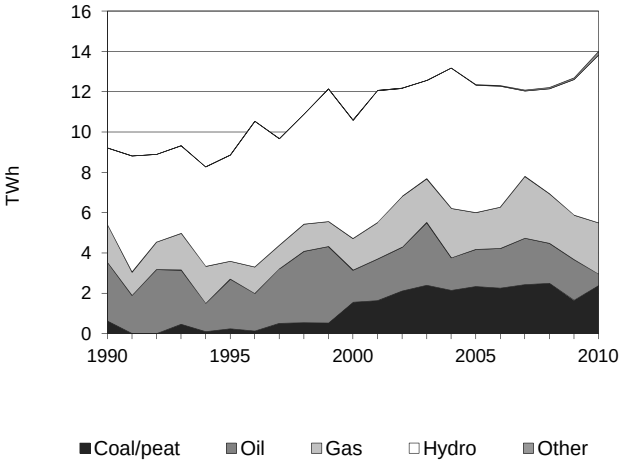
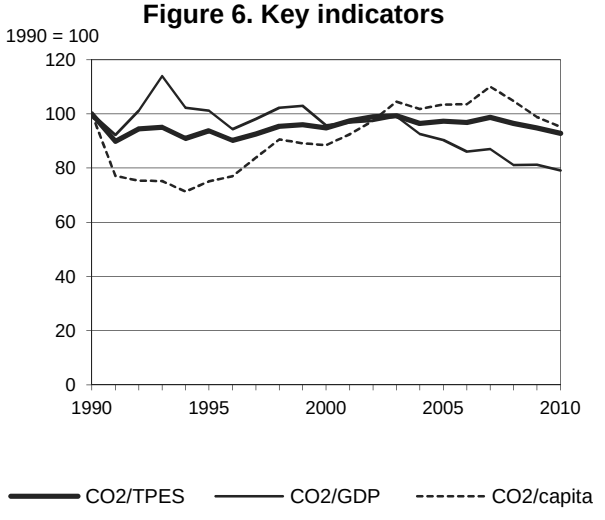


Figure 6. Key indicators



Croatia

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	21.60	15.84	17.69	20.76	20.99	19.78	19.03	-11.9%
CO_2 Reference Approach ($MtCO_2$)	21.56	15.92	17.89	21.02	21.25	20.04	19.32	-10.4%
TPES (PJ)	377	294	325	372	379	364	357	-5.1%
TPES (Mtoe)	8.99	7.03	7.77	8.89	9.06	8.69	8.54	-5.1%
GDP (billion 2005 USD)	42.11	30.50	36.03	44.82	50.49	47.46	46.90	11.4%
GDP PPP (billion 2005 USD)	64.05	46.38	54.80	68.17	76.78	72.18	71.32	11.4%
Population (millions)	4.78	4.67	4.43	4.44	4.43	4.43	4.42	-7.4%
CO_2 / TPES (tCO_2 per TJ)	57.4	53.8	54.4	55.8	55.3	54.4	53.2	-7.2%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.51	0.52	0.49	0.46	0.42	0.42	0.41	-20.9%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.34	0.34	0.32	0.30	0.27	0.27	0.27	-20.9%
CO_2 / population (tCO_2 per capita)	4.52	3.39	4.00	4.67	4.73	4.47	4.30	-4.8%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**2.68**	**10.63**	**5.69**	**0.03**	**19.03**	**-11.9%**
Main activity producer elec. and heat	2.05	0.47	1.44	-	3.96	0.0%
Unallocated autoproducers	0.02	0.07	0.13	-	0.22	-47.4%
Other energy industry own use	-	1.38	0.48	-	1.85	-49.1%
Manufacturing industries and construction	0.57	1.10	1.84	0.03	3.54	-41.8%
Transport	-	5.96	0.00	-	5.96	51.2%
of which: road	-	*5.57*	*0.00*	-	*5.57*	75.3%
Other	0.04	1.65	1.80	-	3.49	-1.7%
of which: residential	*0.03*	*0.68*	*1.39*	-	*2.11*	21.8%
Reference Approach	**2.67**	**10.78**	**5.83**	**0.03**	**19.32**	**-10.4%**
Diff. due to losses and/or transformation	- 0.01	0.17	0.15	-	0.30	
Statistical differences	0.00	- 0.01	0.00	-	- 0.01	
Memo: international marine bunkers	-	*0.02*	-	-	*0.02*	*-85.2%*
Memo: international aviation bunkers	-	*0.16*	-	-	*0.16*	*10.4%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	5.57	75.1%	19.2	19.2
Main activity prod. elec. and heat - coal/peat	2.05	221.5%	7.1	26.3
Manufacturing industries - gas	1.84	-9.8%	6.3	32.6
Main activity prod. elec. and heat - gas	1.44	34.7%	5.0	37.6
Residential - gas	1.39	264.3%	4.8	42.4
Other energy industry own use - oil	1.38	-43.9%	4.7	47.1
Manufacturing industries - oil	1.10	-50.1%	3.8	50.9
Non-specified other - oil	0.97	-36.9%	3.3	54.3
Residential - oil	0.68	-22.2%	2.4	56.6
Manufacturing industries - coal/peat	0.57	-69.1%	2.0	58.6
Other energy industry own use - gas	0.48	-47.4%	1.7	60.2
Memo: total CO_2 from fuel combustion	*19.03*	*-11.9%*	*65.6*	*65.6*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Cuba

Figure 1. CO_2 emissions by fuel

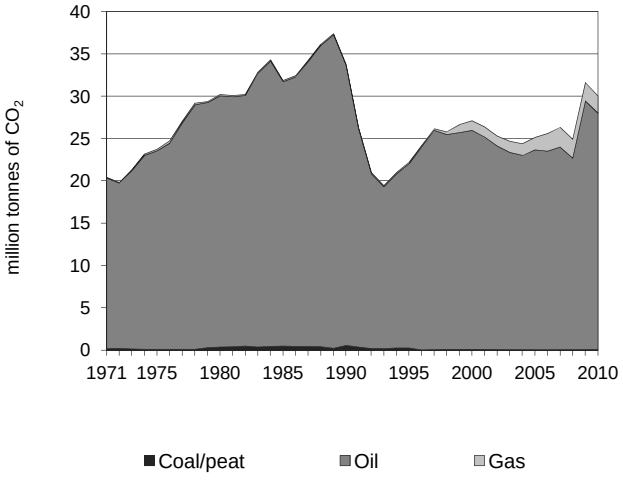


Figure 2. CO_2 emissions by sector

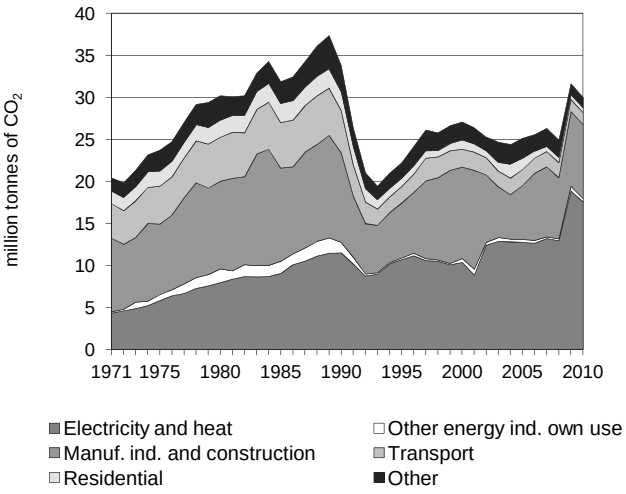


Figure 3. CO_2 emissions by sector

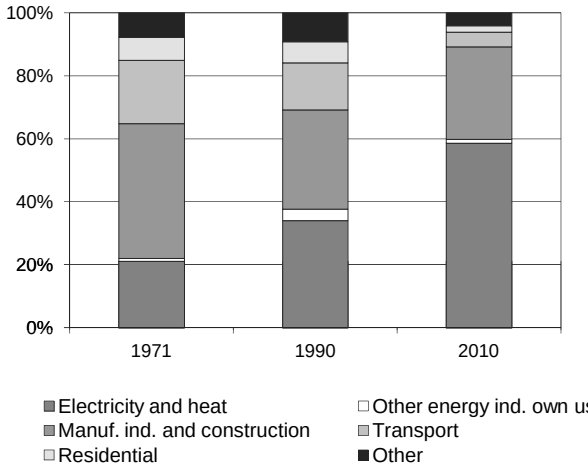


Figure 4. Reference vs Sectoral Approach

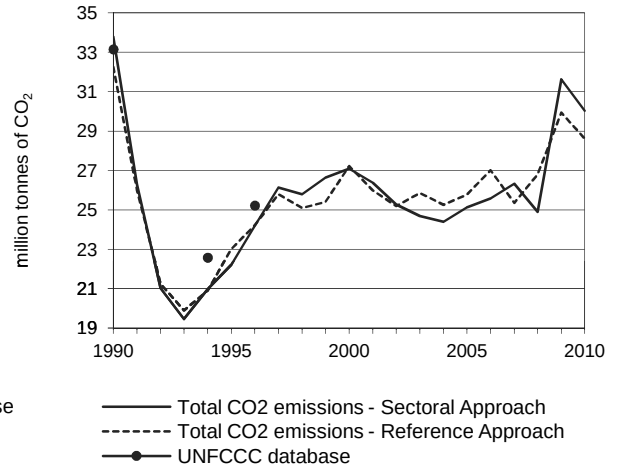


Figure 5. Electricity generation by fuel

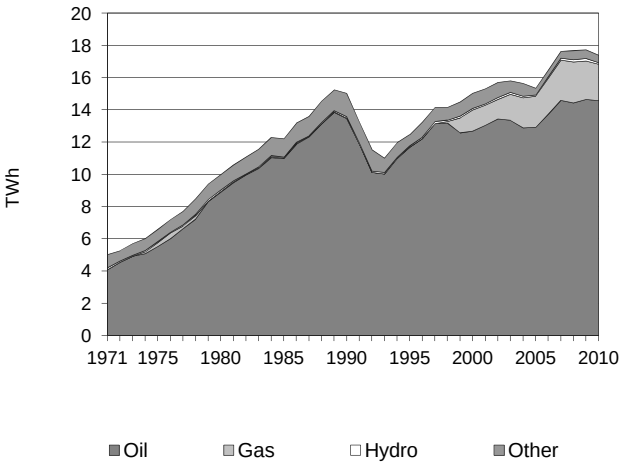
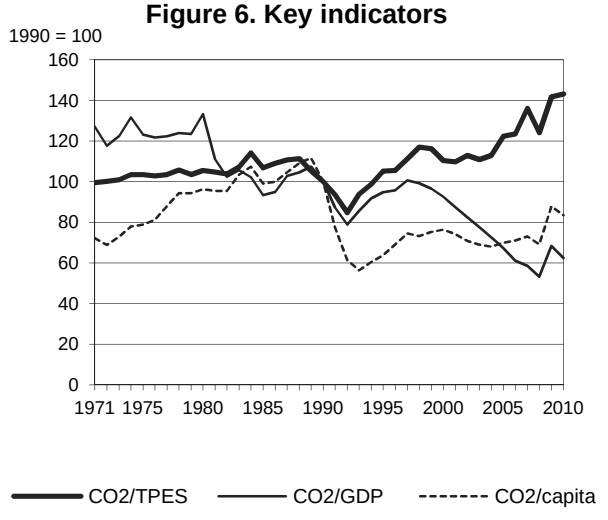


Figure 6. Key indicators



Cuba

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	33.79	22.21	27.09	25.13	24.90	31.63	30.03	-11.1%
CO_2 Reference Approach ($MtCO_2$)	32.26	23.01	27.22	25.77	26.80	29.94	28.63	-11.3%
TPES (PJ)	741	463	538	450	440	489	460	-37.9%
TPES (Mtoe)	17.69	11.05	12.86	10.76	10.51	11.69	10.98	-37.9%
GDP (billion 2005 USD)	38.54	26.73	33.38	42.64	53.47	52.78	54.98	42.7%
GDP PPP (billion 2005 USD)	43.68	30.30	37.83	48.33	60.59	59.81	62.31	42.7%
Population (millions)	10.57	10.90	11.10	11.25	11.27	11.26	11.26	6.5%
CO_2 / TPES (tCO_2 per TJ)	45.6	48.0	50.3	55.8	56.6	64.6	65.3	43.2%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.88	0.83	0.81	0.59	0.47	0.60	0.55	-37.7%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.77	0.73	0.72	0.52	0.41	0.53	0.48	-37.7%
CO_2 / population (tCO_2 per capita)	3.20	2.04	2.44	2.23	2.21	2.81	2.67	-16.6%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.06**	**27.94**	**2.03**	**-**	**30.03**	**-11.1%**
Main activity producer elec. and heat	-	15.65	1.14	-	16.79	58.9%
Unallocated autoproducers	-	0.81	-	-	0.81	-12.9%
Other energy industry own use	-	0.37	-	-	0.37	-70.8%
Manufacturing industries and construction	0.06	8.00	0.76	-	8.83	-17.1%
Transport	-	1.41	-	-	1.41	-71.9%
of which: road	-	*1.27*	-	-	*1.27*	-70.8%
Other	-	1.70	0.13	-	1.83	-66.0%
of which: residential	-	*0.48*	*0.12*	-	*0.60*	-73.8%
Reference Approach	**0.07**	**26.57**	**1.99**	**-**	**28.63**	**-11.3%**
Diff. due to losses and/or transformation	0.00	0.39	- 0.04	-	0.36	
Statistical differences	-	- 1.76	-	-	- 1.76	
Memo: international marine bunkers	-	*0.09*	-	-	*0.09*	*75.7%*
Memo: international aviation bunkers	-	*0.43*	-	-	*0.43*	*-56.0%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	15.65	48.3%	33.5	33.5
Manufacturing industries - oil	8.00	-20.6%	17.1	50.6
Road - oil	1.27	-70.8%	2.7	53.4
Non-specified other - oil	1.22	-60.2%	2.6	56.0
Main activity prod. elec. and heat - gas	1.14	+	2.4	58.4
Unallocated autoproducers - oil	0.81	-12.9%	1.7	60.1
Manufacturing industries - gas	0.76	+	1.6	61.8
Residential - oil	0.48	-77.9%	1.0	62.8
Other energy industry own use - oil	0.37	-70.8%	0.8	63.6
Other transport - oil	0.14	-79.3%	0.3	63.9
Residential - gas	0.12	17.1%	0.3	64.1
Memo: total CO_2 from fuel combustion	*30.03*	*-11.1%*	*64.3*	*64.3*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Cyprus

Figure 1. CO_2 emissions by fuel

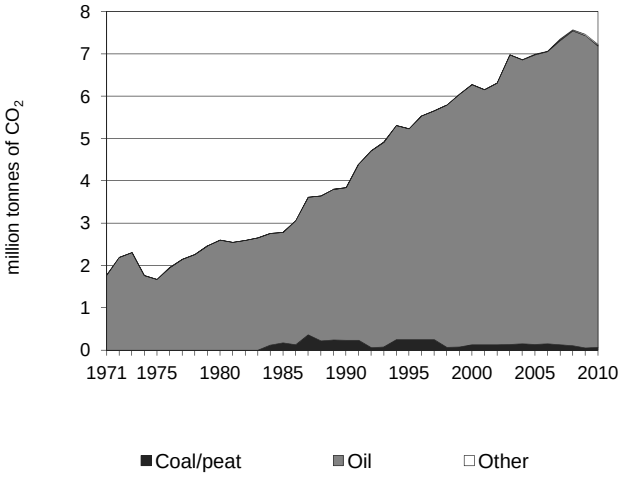


Figure 2. CO_2 emissions by sector

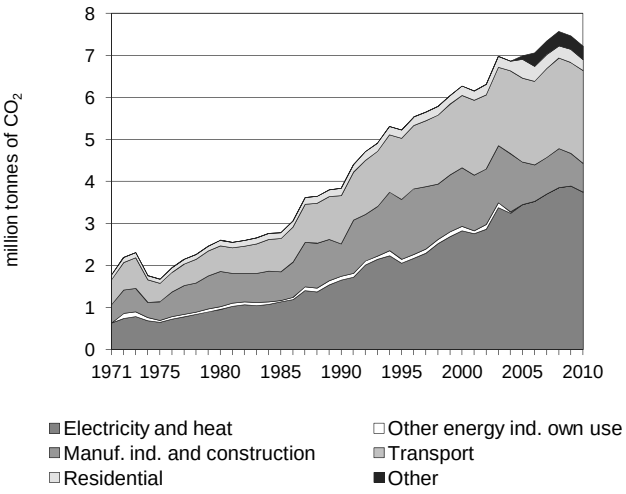


Figure 3. CO_2 emissions by sector

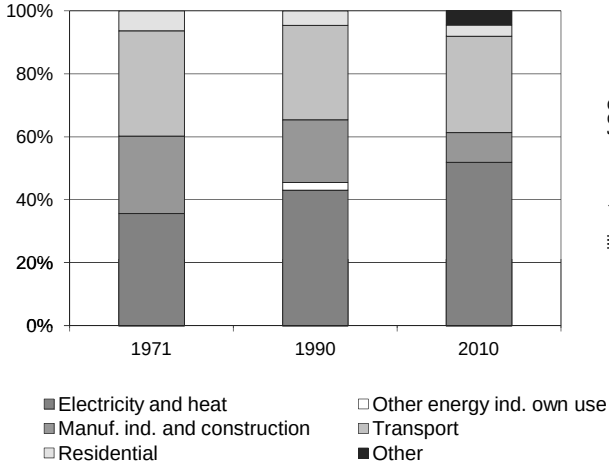


Figure 4. Reference vs Sectoral Approach

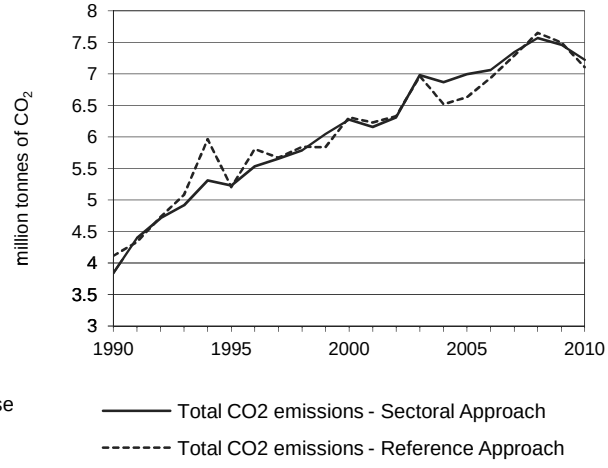


Figure 5. Electricity generation by fuel

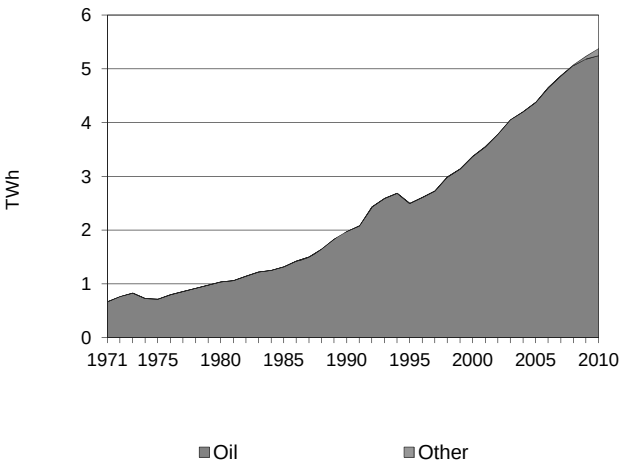
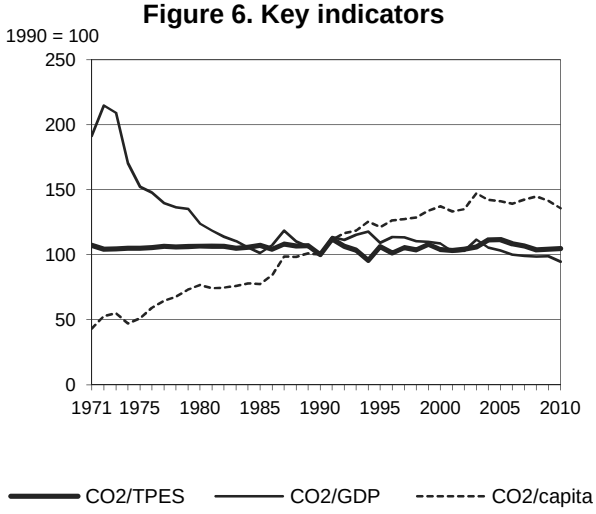


Figure 6. Key indicators



Cyprus

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	3.84	5.23	6.27	6.99	7.57	7.46	7.22	88.1%
CO_2 Reference Approach ($MtCO_2$)	4.11	5.20	6.31	6.63	7.65	7.50	7.11	72.8%
TPES (PJ)	57	73	89	93	108	106	102	79.7%
TPES (Mtoe)	1.36	1.75	2.14	2.22	2.59	2.54	2.44	79.7%
GDP (billion 2005 USD)	9.65	12.03	14.51	17.01	19.30	18.98	19.18	98.7%
GDP PPP (billion 2005 USD)	10.50	13.10	15.79	18.51	21.00	20.65	20.87	98.7%
Population (millions)	0.58	0.65	0.69	0.75	0.79	0.80	0.80	38.4%
CO_2 / TPES (tCO_2 per TJ)	67.4	71.5	70.1	75.3	69.9	70.3	70.6	4.7%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.40	0.43	0.43	0.41	0.39	0.39	0.38	-5.4%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.37	0.40	0.40	0.38	0.36	0.36	0.35	-5.4%
CO_2 / population (tCO_2 per capita)	6.62	8.03	9.09	9.34	9.59	9.37	8.99	35.9%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.07**	**7.12**	**-**	**0.03**	**7.22**	**88.1%**
Main activity producer elec. and heat	-	3.72	-	-	3.72	124.8%
Unallocated autoproducers	-	0.03	-	-	0.03	x
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.07	0.58	-	0.03	0.68	-11.2%
Transport	-	2.21	-	-	2.21	92.3%
of which: road	-	*2.20*	-	-	*2.20*	92.1%
Other	0.00	0.58	-	-	0.58	228.4%
of which: residential	-	*0.26*	-	-	*0.26*	47.4%
Reference Approach	**0.06**	**7.01**	**-**	**0.03**	**7.11**	**72.8%**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	- 0.01	- 0.11	-	-	- 0.12	
Memo: international marine bunkers	-	*0.58*	-	-	*0.58*	*221.6%*
Memo: international aviation bunkers	-	*0.82*	-	-	*0.82*	*14.4%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	3.72	124.8%	40.0	40.0
Road - oil	2.20	92.1%	23.7	63.7
Manufacturing industries - oil	0.58	8.2%	6.2	70.0
Non-specified other - oil	0.32	x	3.4	73.4
Residential - oil	0.26	47.4%	2.8	76.2
Manufacturing industries - coal/peat	0.07	-70.1%	0.7	77.0
Manufacturing industries -other	0.03	x	0.3	77.3
Unallocated autoproducers - oil	0.03	x	0.3	77.6
Other transport - oil	0.00	x	0.0	77.7
Non-specified other sectors - coal/peat	0.00	x	0.0	77.7
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*7.22*	*88.1%*	*77.7*	*77.7*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Czech Republic

Figure 1. CO_2 emissions by fuel

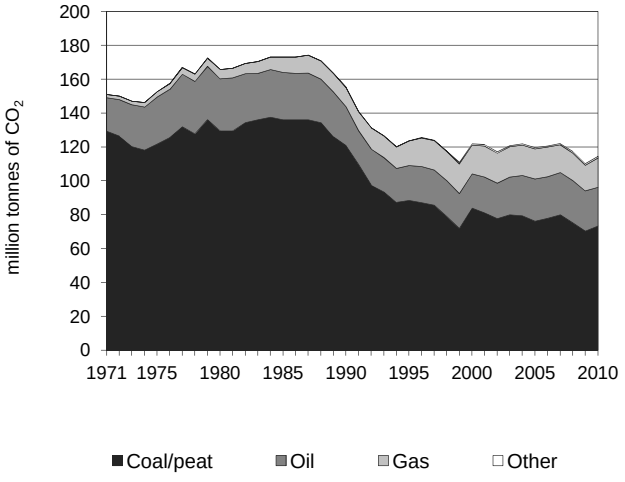


Figure 2. CO_2 emissions by sector

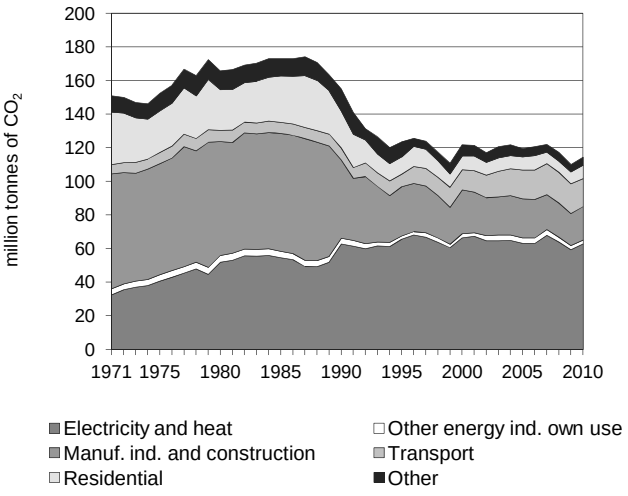


Figure 3. CO_2 emissions by sector

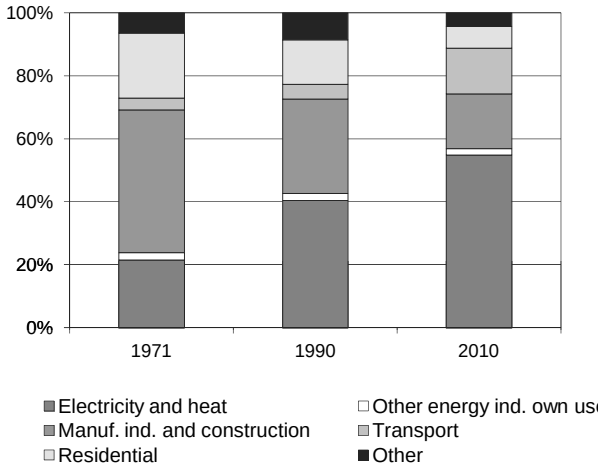


Figure 4. Reference vs Sectoral Approach

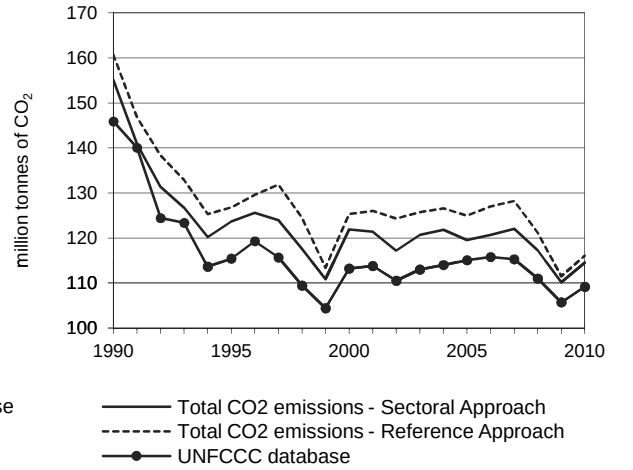


Figure 5. Electricity generation by fuel

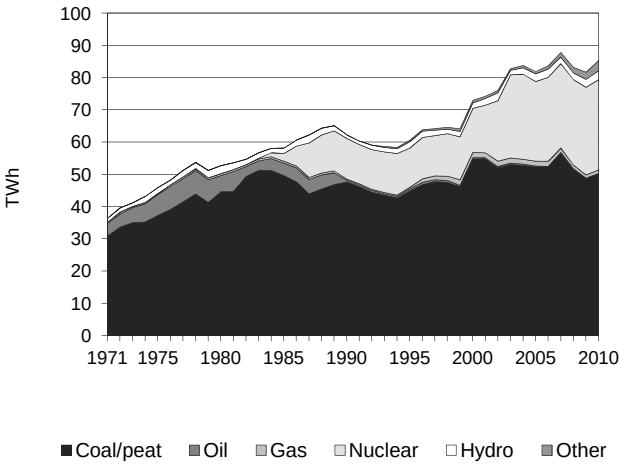
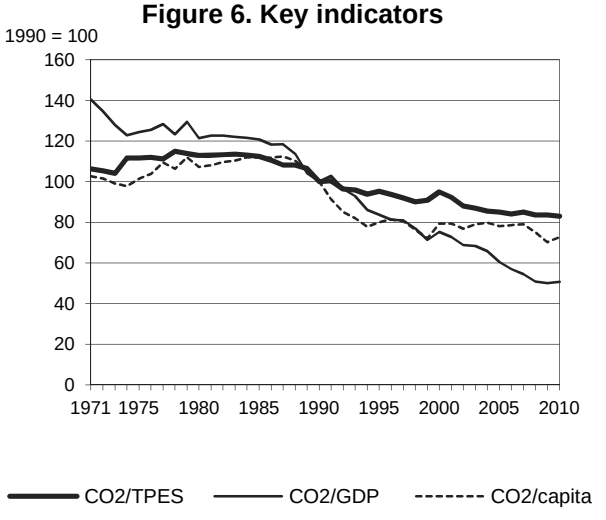


Figure 6. Key indicators



Czech Republic

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	155.14	123.68	121.88	119.59	117.30	110.14	114.48	-26.2%
CO_2 Reference Approach ($MtCO_2$)	160.74	126.84	125.29	124.92	121.20	111.49	116.07	-27.8%
TPES (PJ)	2 075	1 737	1 716	1 882	1 879	1 761	1 847	-11.0%
TPES (Mtoe)	49.57	41.49	40.99	44.94	44.87	42.07	44.11	-11.0%
GDP (billion 2005 USD)	101.98	97.17	106.45	130.07	151.74	144.62	148.58	45.7%
GDP PPP (billion 2005 USD)	170.66	162.62	178.13	217.66	253.93	242.01	248.64	45.7%
Population (millions)	10.36	10.33	10.27	10.23	10.43	10.49	10.52	1.5%
CO_2 / TPES (tCO_2 per TJ)	74.8	71.2	71.0	63.6	62.4	62.5	62.0	-17.1%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	1.52	1.27	1.15	0.92	0.77	0.76	0.77	-49.4%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.91	0.76	0.68	0.55	0.46	0.46	0.46	-49.4%
CO_2 / population (tCO_2 per capita)	14.97	11.97	11.86	11.69	11.25	10.50	10.89	-27.3%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**73.36**	**22.82**	**17.39**	**0.92**	**114.48**	**-26.2%**
Main activity producer elec. and heat	53.92	0.19	1.99	0.04	56.14	6.4%
Unallocated autoproducers	5.93	0.13	0.41	0.19	6.66	-33.3%
Other energy industry own use	1.34	0.81	0.23	-	2.38	-31.7%
Manufacturing industries and construction	9.62	4.10	5.51	0.60	19.83	-57.4%
Transport	0.00	16.49	0.17	-	16.66	132.0%
of which: road	-	*15.87*	*0.02*	-	*15.89*	131.0%
Other	2.55	1.10	9.08	0.08	12.81	-63.6%
of which: residential	*2.37*	*0.01*	*5.57*	-	*7.95*	-63.7%
Reference Approach	**74.62**	**22.89**	**17.64**	**0.92**	**116.07**	**-27.8%**
Diff. due to losses and/or transformation	1.91	0.17	0.31	-	2.39	
Statistical differences	- 0.65	- 0.09	- 0.06	0.00	- 0.80	
Memo: international marine bunkers	-	-	-	-	-	-
Memo: international aviation bunkers	-	*0.92*	-	-	*0.92*	*41.8%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	53.92	6.7%	37.3	37.3
Road - oil	15.87	130.7%	11.0	48.3
Manufacturing industries - coal/peat	9.62	-69.0%	6.7	55.0
Unallocated autoproducers - coal/peat	5.93	-34.5%	4.1	59.1
Residential - gas	5.57	159.4%	3.9	62.9
Manufacturing industries - gas	5.51	-2.4%	3.8	66.7
Manufacturing industries - oil	4.10	-58.4%	2.8	69.6
Non-specified other - gas	3.51	65.4%	2.4	72.0
Residential - coal/peat	2.37	-87.9%	1.6	73.7
Main activity prod. elec. and heat - gas	1.99	90.9%	1.4	75.0
Other energy industry - coal/peat	1.34	-56.8%	0.9	76.0
Memo: total CO_2 from fuel combustion	*114.48*	*-26.2%*	*79.2*	*79.2*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Denmark

Figure 1. CO_2 emissions by fuel

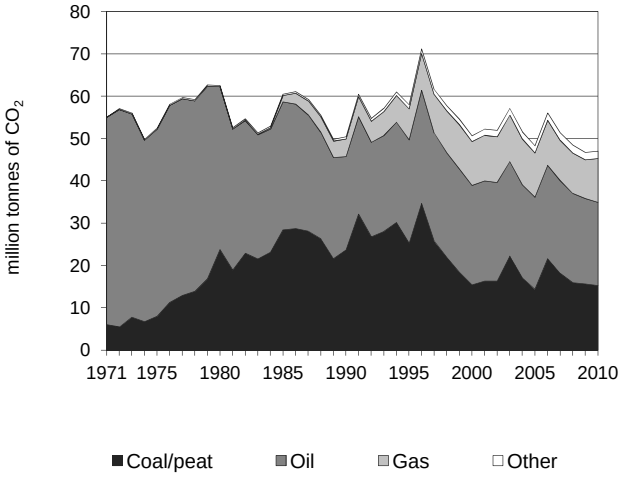


Figure 2. CO_2 emissions by sector

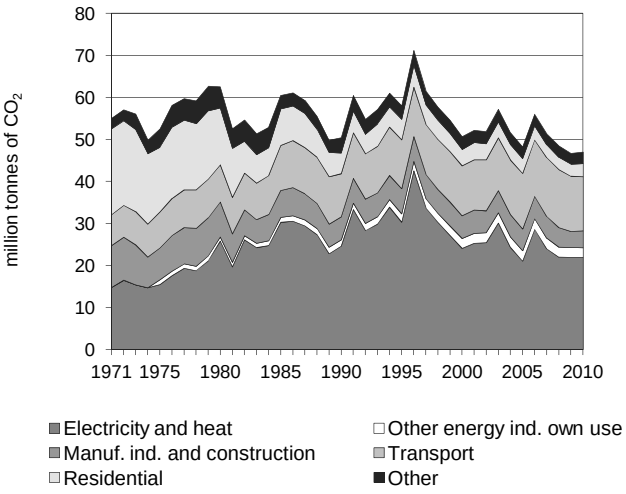


Figure 3. CO_2 emissions by sector

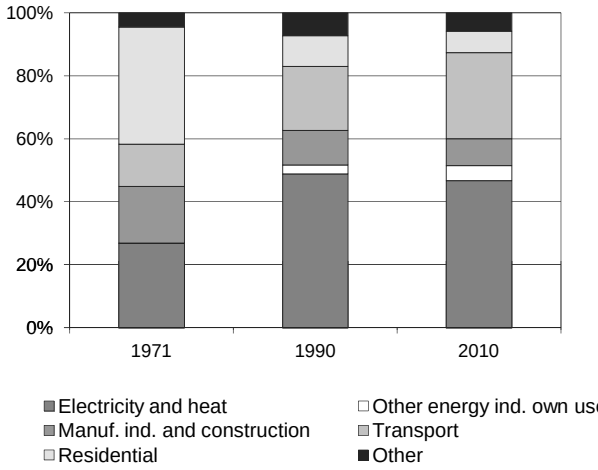


Figure 4. Reference vs Sectoral Approach

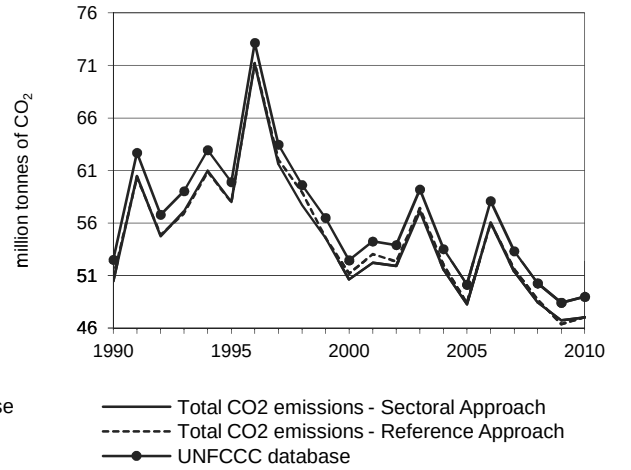


Figure 5. Electricity generation by fuel

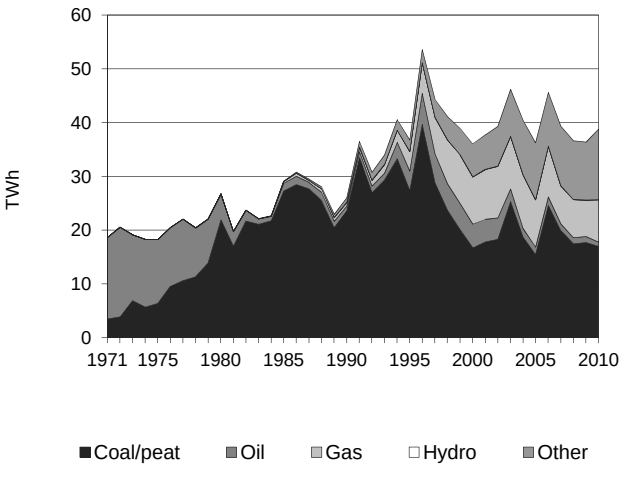
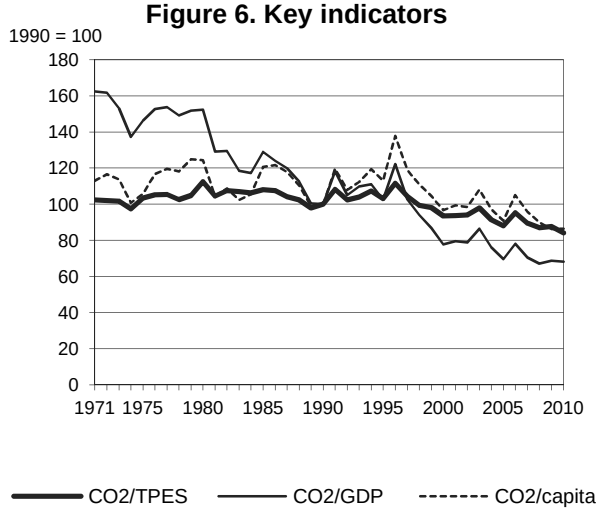


Figure 6. Key indicators



Denmark

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	50.44	58.01	50.64	48.26	48.44	46.72	47.02	-6.8%
CO_2 Reference Approach ($MtCO_2$)	50.78	57.99	51.20	48.37	48.72	46.36	47.03	-7.4%
TPES (PJ)	727	812	780	791	804	768	806	10.9%
TPES (Mtoe)	17.36	19.39	18.63	18.89	19.20	18.35	19.25	10.9%
GDP (billion 2005 USD)	187.36	210.31	242.10	257.68	268.52	252.86	256.13	36.7%
GDP PPP (billion 2005 USD)	130.80	146.82	169.01	179.89	187.46	176.52	178.81	36.7%
Population (millions)	5.14	5.23	5.34	5.42	5.49	5.52	5.55	7.9%
CO_2 / TPES (tCO_2 per TJ)	69.4	71.4	64.9	61.0	60.3	60.8	58.3	-15.9%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.27	0.28	0.21	0.19	0.18	0.18	0.18	-31.8%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.39	0.40	0.30	0.27	0.26	0.26	0.26	-31.8%
CO_2 / population (tCO_2 per capita)	9.81	11.09	9.49	8.91	8.82	8.46	8.48	-13.6%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**15.27**	**19.66**	**10.38**	**1.70**	**47.02**	**-6.8%**
Main activity producer elec. and heat	14.68	0.73	4.40	0.46	20.28	-15.1%
Unallocated autoproducers	0.02	0.15	0.38	1.14	1.69	120.5%
Other energy industry own use	-	0.79	1.45	-	2.24	54.0%
Manufacturing industries and construction	0.42	1.86	1.66	0.08	4.02	-27.0%
Transport	-	12.87	-	-	12.87	25.5%
of which: road	-	*11.88*	-	-	*11.88*	30.4%
Other	0.15	3.25	2.50	0.02	5.92	-31.0%
of which: residential	*0.03*	*1.44*	*1.73*	-	*3.19*	-35.2%
Reference Approach	**14.79**	**20.20**	**10.33**	**1.70**	**47.03**	**-7.4%**
Diff. due to losses and/or transformation	- 0.03	1.09	0.04	-	1.11	
Statistical differences	- 0.45	- 0.56	- 0.09	0.00	- 1.09	
Memo: international marine bunkers	-	*2.16*	-	-	*2.16*	*-28.4%*
Memo: international aviation bunkers	-	*2.39*	-	-	*2.39*	*40.4%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	14.68	-33.0%	24.2	24.2
Road - oil	11.88	30.4%	19.6	43.8
Main activity prod. elec. and heat - gas	4.40	348.2%	7.2	51.0
Manufacturing industries - oil	1.86	-37.6%	3.1	54.1
Non-specified other - oil	1.82	-37.6%	3.0	57.1
Residential - gas	1.73	92.7%	2.9	59.9
Manufacturing industries - gas	1.66	33.1%	2.7	62.7
Other energy industry own use - gas	1.45	185.0%	2.4	65.1
Residential - oil	1.44	-63.1%	2.4	67.5
Unallocated autoproducers - other	1.14	156.6%	1.9	69.3
Other transport - oil	0.99	-13.3%	1.6	71.0
Memo: total CO_2 from fuel combustion	*47.02*	*-6.8%*	*77.5*	*77.5*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Dominican Republic

Figure 1. CO_2 emissions by fuel

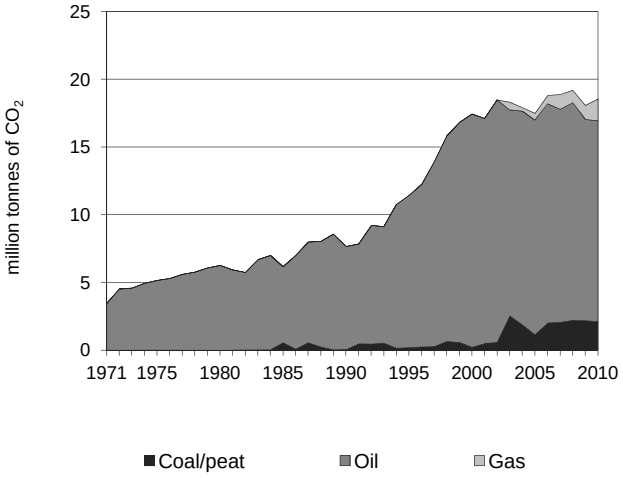


Figure 2. CO_2 emissions by sector

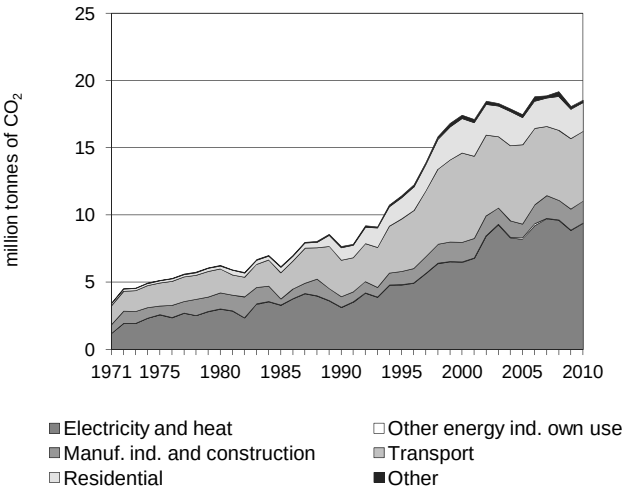


Figure 3. CO_2 emissions by sector

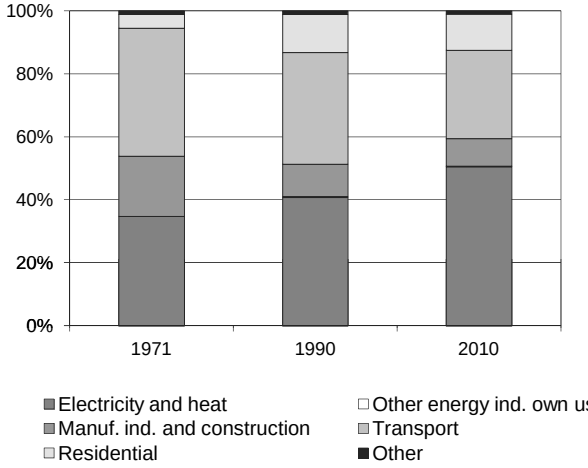


Figure 4. Reference vs Sectoral Approach

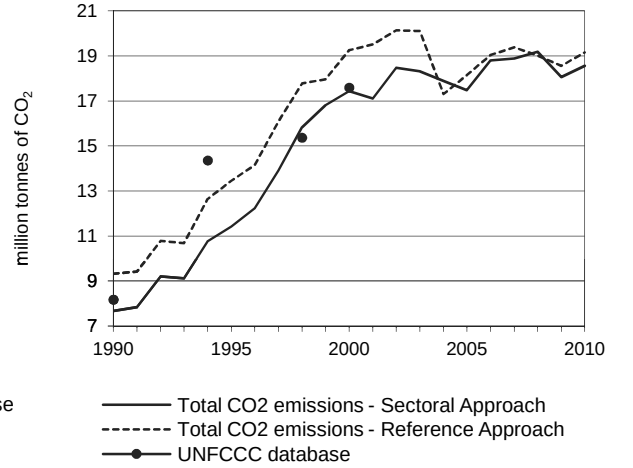


Figure 5. Electricity generation by fuel

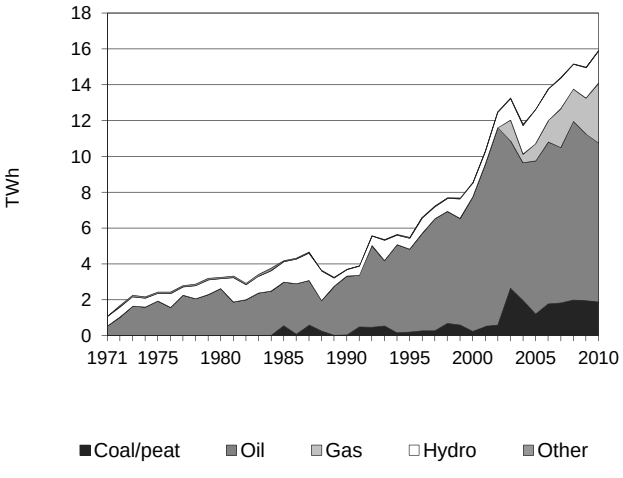
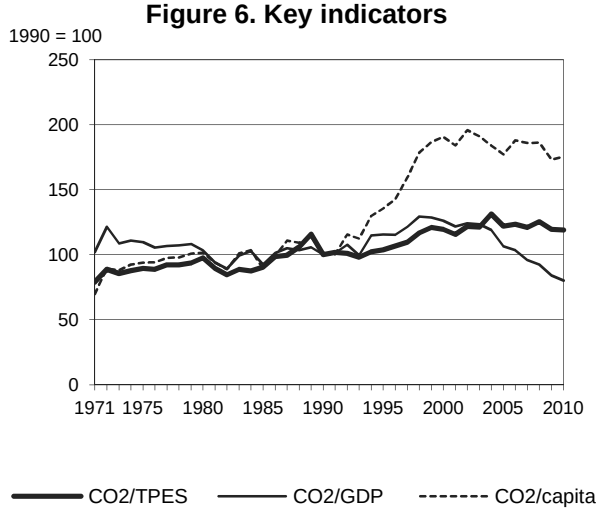


Figure 6. Key indicators



Dominican Republic

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	7.66	11.42	17.44	17.47	19.18	18.07	18.55	142.1%
CO_2 Reference Approach ($MtCO_2$)	9.31	13.46	19.25	18.14	19.01	18.57	19.15	105.6%
TPES (PJ)	172	247	327	321	343	339	349	103.4%
TPES (Mtoe)	4.10	5.89	7.81	7.67	8.19	8.09	8.34	103.4%
GDP (billion 2005 USD)	15.87	20.48	28.59	34.00	42.97	44.45	47.90	201.9%
GDP PPP (billion 2005 USD)	27.58	35.60	49.71	59.11	74.69	77.27	83.26	201.9%
Population (millions)	7.20	7.92	8.59	9.26	9.67	9.80	9.93	38.0%
CO_2 / TPES (tCO_2 per TJ)	44.6	46.3	53.3	54.4	55.9	53.3	53.1	19.1%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.48	0.56	0.61	0.51	0.45	0.41	0.39	-19.8%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.28	0.32	0.35	0.30	0.26	0.23	0.22	-19.8%
CO_2 / population (tCO_2 per capita)	1.07	1.44	2.03	1.89	1.98	1.84	1.87	75.5%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**2.10**	**14.83**	**1.62**	**-**	**18.55**	**142.1%**
Main activity producer elec. and heat	1.79	4.08	1.51	-	7.38	315.4%
Unallocated autoproducers	-	2.00	-	-	2.00	48.4%
Other energy industry own use	-	0.03	-	-	0.03	57.1%
Manufacturing industries and construction	0.32	1.20	0.10	-	1.62	105.3%
Transport	-	5.19	-	-	5.19	91.1%
of which: road	-	*4.17*	-	-	*4.17*	58.1%
Other	-	2.33	-	-	2.33	130.6%
of which: residential	-	*2.14*	-	-	*2.14*	130.6%
Reference Approach	**2.01**	**15.52**	**1.62**	**-**	**19.15**	**105.6%**
Diff. due to losses and/or transformation	-	0.18	-	-	0.18	
Statistical differences	- 0.09	0.51	-	-	0.42	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.30*	-	-	*0.30*	*161.1%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	4.17	58.1%	14.3	14.3
Main activity prod. elec. and heat - oil	4.08	135.0%	14.0	28.3
Residential - oil	2.14	130.6%	7.4	35.7
Unallocated autoproducers - oil	2.00	48.4%	6.9	42.6
Main activity prod. elec. and heat - coal/peat	1.79	+	6.1	48.7
Main activity prod. elec. and heat - gas	1.51	x	5.2	53.9
Manufacturing industries - oil	1.20	51.9%	4.1	58.0
Other transport - oil	1.03	+	3.5	61.6
Manufacturing industries - coal/peat	0.32	x	1.1	62.6
Non-specified other - oil	0.19	130.5%	0.7	63.3
Manufacturing industries - gas	0.10	x	0.4	63.7
Memo: total CO_2 from fuel combustion	*18.55*	*142.1%*	*63.8*	*63.8*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Ecuador

Figure 1. CO_2 emissions by fuel

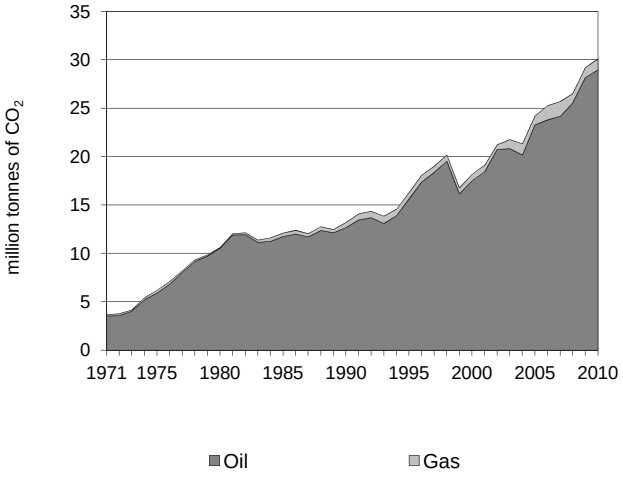


Figure 2. CO_2 emissions by sector

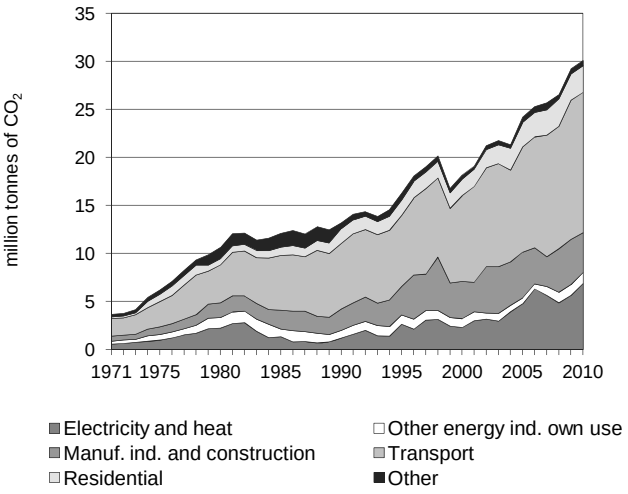


Figure 3. CO_2 emissions by sector

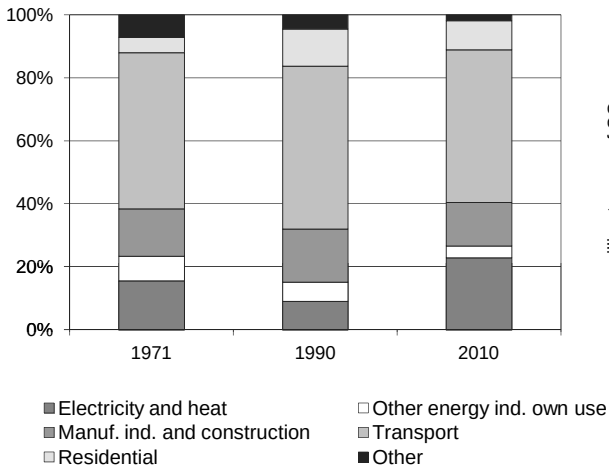


Figure 4. Reference vs Sectoral Approach

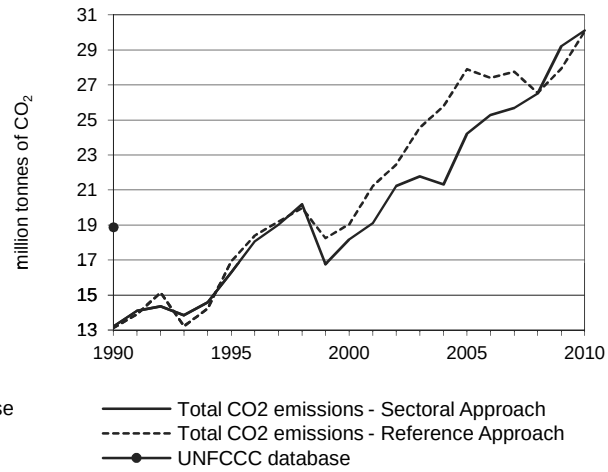


Figure 5. Electricity generation by fuel

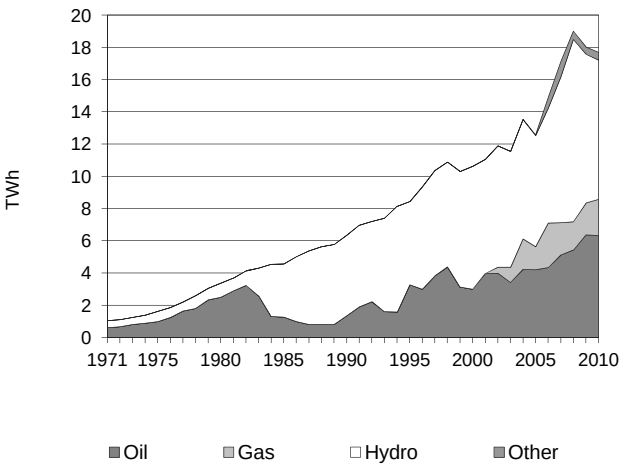
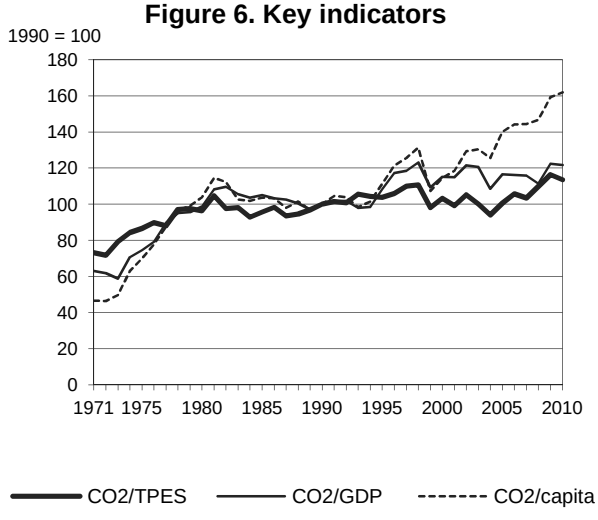


Figure 6. Key indicators



Ecuador

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	13.19	16.29	18.17	24.20	26.52	29.21	30.10	128.1%
CO_2 Reference Approach ($MtCO_2$)	13.10	16.93	19.03	27.90	26.55	27.93	30.05	129.3%
TPES (PJ)	252	300	336	460	462	480	506	100.9%
TPES (Mtoe)	6.02	7.16	8.03	10.99	11.03	11.46	12.10	100.9%
GDP (billion 2005 USD)	23.48	26.79	28.08	36.94	42.35	42.50	44.02	87.5%
GDP PPP (billion 2005 USD)	55.55	63.38	66.43	87.41	100.20	100.56	104.16	87.5%
Population (millions)	10.26	11.39	12.35	13.43	14.06	14.26	14.47	41.0%
CO_2 / TPES (tCO_2 per TJ)	52.3	54.3	54.0	52.6	57.4	60.9	59.4	13.5%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.56	0.61	0.65	0.66	0.63	0.69	0.68	21.7%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.24	0.26	0.27	0.28	0.26	0.29	0.29	21.7%
CO_2 / population (tCO_2 per capita)	1.29	1.43	1.47	1.80	1.89	2.05	2.08	61.8%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**28.97**	**1.14**	**-**	**30.10**	**128.1%**
Main activity producer elec. and heat	-	4.43	0.61	-	5.05	324.4%
Unallocated autoproducers	-	1.43	0.40	-	1.83	x
Other energy industry own use	-	1.02	0.13	-	1.15	41.4%
Manufacturing industries and construction	-	4.15	-	-	4.15	86.4%
Transport	-	14.60	-	-	14.60	114.3%
of which: road	-	*12.28*	-	-	*12.28*	110.6%
Other	-	3.33	-	-	3.33	54.5%
of which: residential	-	*2.79*	-	-	*2.79*	78.6%
Reference Approach	**-**	**28.91**	**1.14**	**-**	**30.05**	**129.3%**
Diff. due to losses and/or transformation	-	- 0.08	-	-	- 0.08	
Statistical differences	-	0.03	-	-	0.03	
Memo: international marine bunkers	-	*3.13*	-	-	*3.13*	*532.9%*
Memo: international aviation bunkers	-	*1.03*	-	-	*1.03*	*164.2%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	12.28	110.6%	22.0	22.0
Main activity prod. elec. and heat - oil	4.43	272.8%	7.9	30.0
Manufacturing industries - oil	4.15	86.4%	7.4	37.4
Residential - oil	2.79	78.6%	5.0	42.4
Other transport - oil	2.32	136.5%	4.2	46.6
Unallocated autoproducers - oil	1.43	x	2.6	49.1
Other energy industry own use - oil	1.02	256.5%	1.8	51.0
Main activity prod. elec. and heat - gas	0.61	x	1.1	52.1
Non-specified other - oil	0.54	-9.0%	1.0	53.0
Unallocated autoproducers - gas	0.40	x	0.7	53.7
Other energy industry own use - gas	0.13	-76.1%	0.2	54.0
Memo: total CO_2 from fuel combustion	*30.10*	*128.1%*	*54.0*	*54.0*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Egypt

Figure 1. CO_2 emissions by fuel

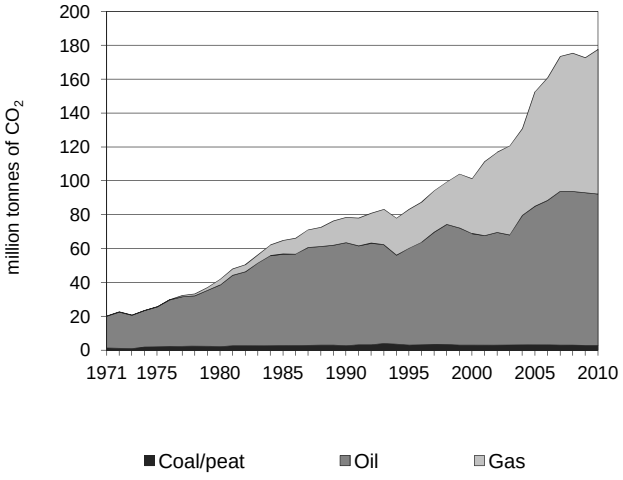


Figure 2. CO_2 emissions by sector

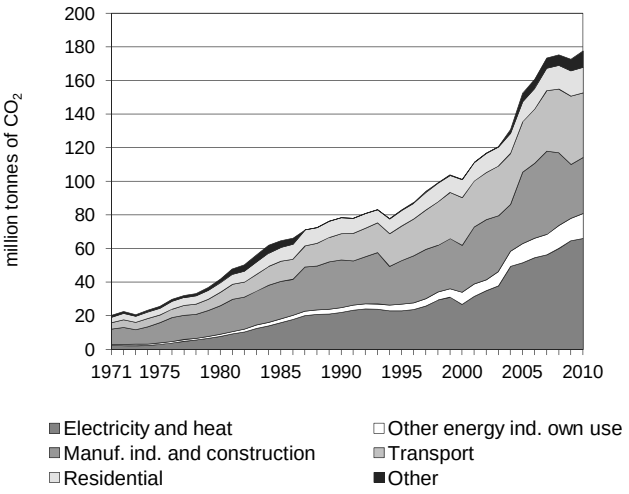


Figure 3. CO_2 emissions by sector

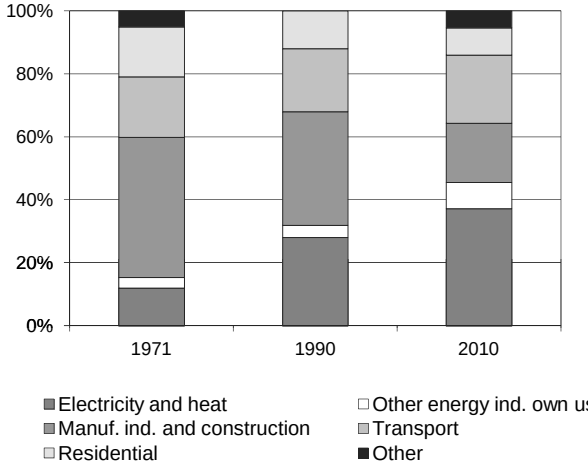


Figure 4. Reference vs Sectoral Approach

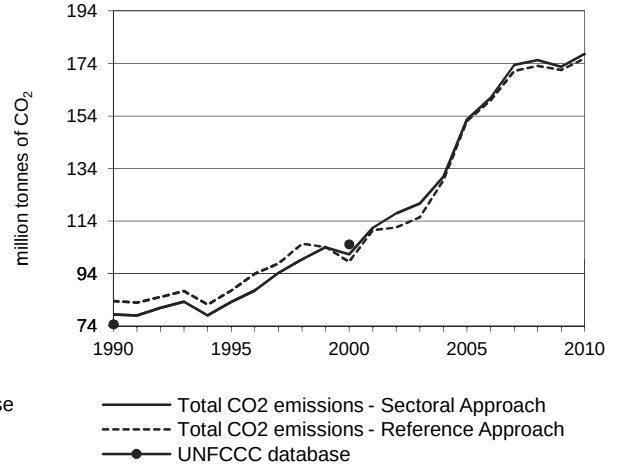


Figure 5. Electricity generation by fuel

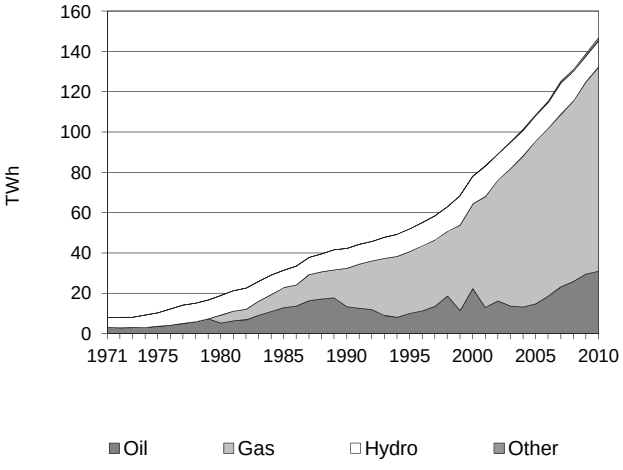
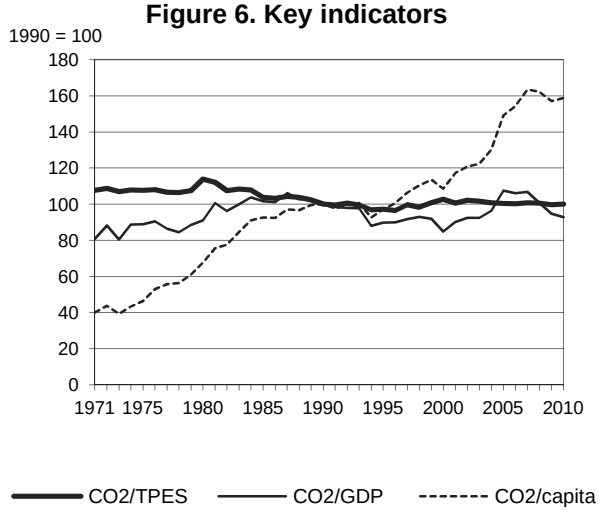


Figure 6. Key indicators



Egypt

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	78.40	83.13	101.27	152.61	175.30	172.68	177.60	126.5%
CO_2 Reference Approach ($MtCO_2$)	83.51	87.52	98.55	151.97	173.04	171.45	175.86	110.6%
TPES (PJ)	1 354	1 477	1 702	2 626	3 009	2 989	3 067	126.6%
TPES (Mtoe)	32.33	35.27	40.66	62.73	71.86	71.39	73.26	126.6%
GDP (billion 2005 USD)	49.53	58.53	75.40	89.69	109.96	115.11	121.04	144.4%
GDP PPP (billion 2005 USD)	184.02	217.47	280.15	333.22	408.54	427.69	449.70	144.4%
Population (millions)	56.84	62.06	67.65	74.20	78.32	79.72	81.12	42.7%
CO_2 / TPES (tCO_2 per TJ)	57.9	56.3	59.5	58.1	58.3	57.8	57.9	0.0%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	1.58	1.42	1.34	1.70	1.59	1.50	1.47	-7.3%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.43	0.38	0.36	0.46	0.43	0.40	0.39	-7.3%
CO_2 / population (tCO_2 per capita)	1.38	1.34	1.50	2.06	2.24	2.17	2.19	58.7%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**2.82**	**89.49**	**85.29**	**-**	**177.60**	**126.5%**
Main activity producer elec. and heat	-	16.39	49.65	-	66.04	199.7%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	2.47	12.36	-	14.84	400.8%
Manufacturing industries and construction	2.80	10.19	20.41	-	33.40	18.0%
Transport	-	37.58	0.87	-	38.45	144.7%
of which: road	-	*34.57*	*0.87*	-	*35.45*	135.1%
Other	0.02	22.86	2.00	-	24.87	164.8%
of which: residential	*0.02*	*13.20*	*2.00*	-	*15.21*	62.0%
Reference Approach	**2.77**	**87.80**	**85.29**	**-**	**175.86**	**110.6%**
Diff. due to losses and/or transformation	0.14	- 1.69	-	-	- 1.55	
Statistical differences	- 0.20	0.00	-	-	- 0.20	
Memo: international marine bunkers	-	*1.36*	-	-	*1.36*	*-74.1%*
Memo: international aviation bunkers	-	*2.55*	-	-	*2.55*	*477.1%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	49.65	435.0%	17.8	17.8
Road - oil	34.57	129.3%	12.4	30.2
Manufacturing industries - gas	20.41	334.2%	7.3	37.5
Main activity prod. elec. and heat - oil	16.39	28.5%	5.9	43.3
Residential - oil	13.20	43.0%	4.7	48.1
Other energy industry own use - gas	12.36	+	4.4	52.5
Manufacturing industries - oil	10.19	-51.3%	3.6	56.1
Non-specified other - oil	9.66	x	3.5	59.6
Other transport - oil	3.00	373.1%	1.1	60.7
Manufacturing industries - coal/peat	2.80	5.0%	1.0	61.7
Other energy industry own use - oil	2.47	14.6%	0.9	62.5
Memo: total CO_2 from fuel combustion	*177.60*	*126.5%*	*63.6*	*63.6*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

El Salvador

Figure 1. CO_2 emissions by fuel

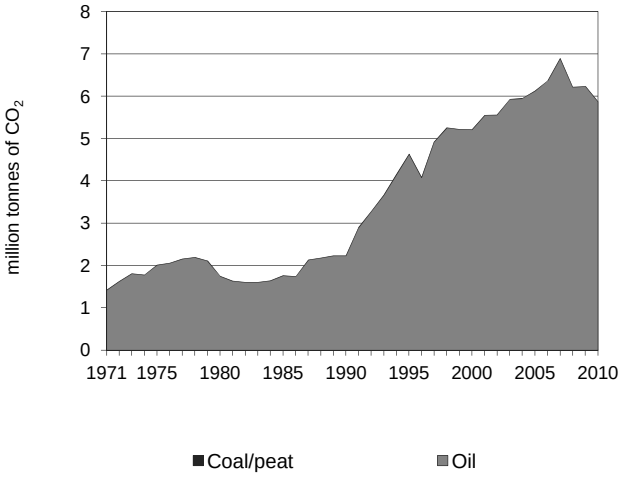


Figure 2. CO_2 emissions by sector

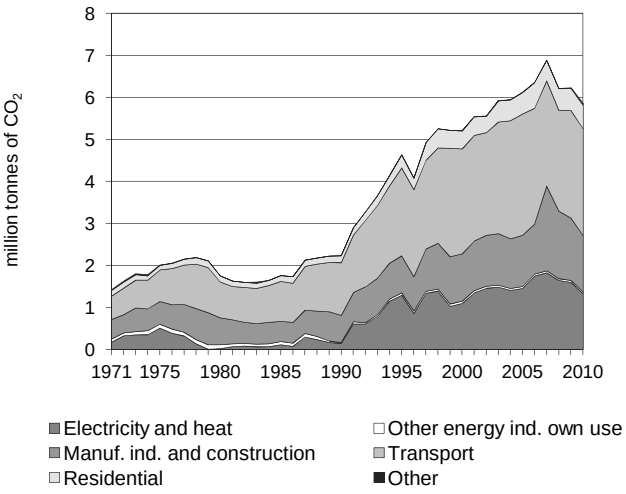


Figure 3. CO_2 emissions by sector

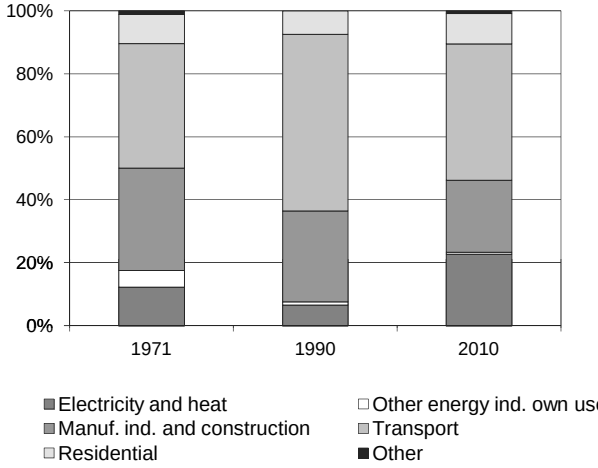


Figure 4. Reference vs Sectoral Approach

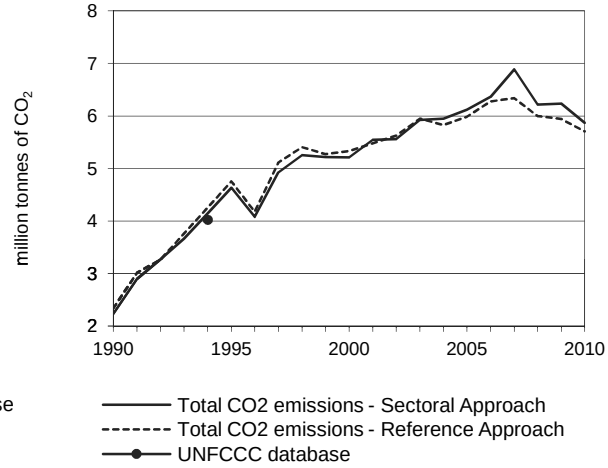


Figure 5. Electricity generation by fuel

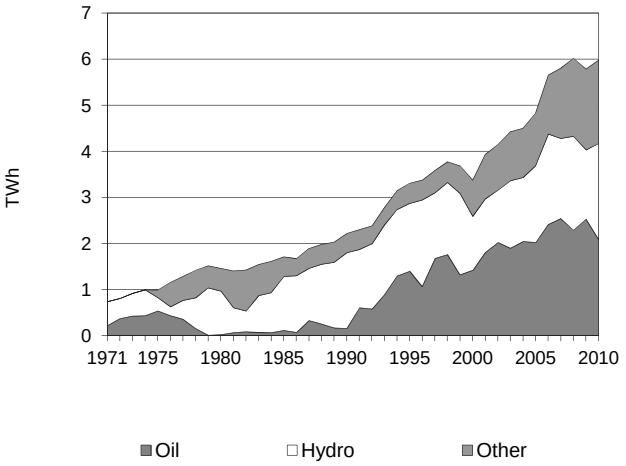
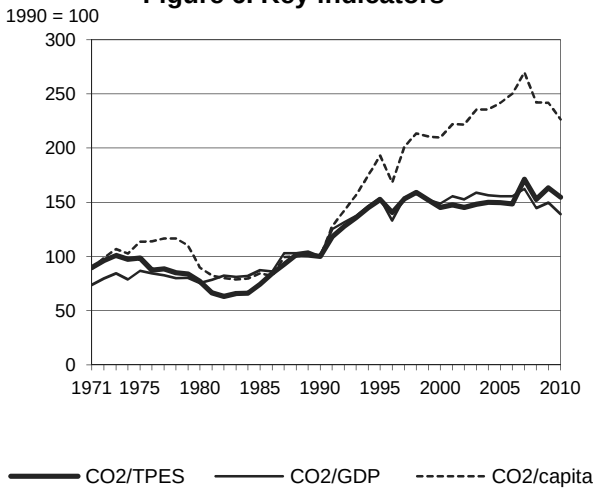


Figure 6. Key indicators



El Salvador

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	2.23	4.63	5.21	6.12	6.21	6.23	5.87	162.8%
CO_2 Reference Approach ($MtCO_2$)	2.34	4.76	5.33	5.98	6.00	5.95	5.70	144.1%
TPES (PJ)	103	141	166	189	188	177	176	69.8%
TPES (Mtoe)	2.47	3.36	3.97	4.53	4.50	4.22	4.19	69.8%
GDP (billion 2005 USD)	9.70	13.09	15.22	17.09	18.68	18.09	18.35	89.2%
GDP PPP (billion 2005 USD)	19.58	26.43	30.72	34.50	37.70	36.52	37.04	89.2%
Population (millions)	5.33	5.73	5.94	6.05	6.13	6.16	6.19	16.1%
CO_2 / TPES (tCO_2 per TJ)	21.6	32.9	31.4	32.3	33.0	35.2	33.4	54.8%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.23	0.35	0.34	0.36	0.33	0.34	0.32	38.9%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.11	0.18	0.17	0.18	0.16	0.17	0.16	38.9%
CO_2 / population (tCO_2 per capita)	0.42	0.81	0.88	1.01	1.01	1.01	0.95	126.3%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**5.87**	**-**	**-**	**5.87**	**162.8%**
Main activity producer elec. and heat	-	1.08	-	-	1.08	623.8%
Unallocated autoproducers	-	0.26	-	-	0.26	x
Other energy industry own use	-	0.04	-	-	0.04	85.7%
Manufacturing industries and construction	-	1.34	-	-	1.34	108.2%
Transport	-	2.54	-	-	2.54	102.7%
of which: road	-	*2.54*	-	-	*2.54*	102.7%
Other	-	0.61	-	-	0.61	271.0%
of which: residential	-	*0.56*	-	-	*0.56*	240.3%
Reference Approach	**-**	**5.70**	**-**	**-**	**5.70**	**144.1%**
Diff. due to losses and/or transformation	-	0.06	-	-	0.06	
Statistical differences	-	- 0.22	-	-	- 0.22	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.34*	-	-	*0.34*	*200.0%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	2.54	102.7%	23.3	23.3
Manufacturing industries - oil	1.34	108.2%	12.3	35.6
Main activity prod. elec. and heat - oil	1.08	623.8%	9.9	45.5
Residential - oil	0.56	240.3%	5.1	50.6
Unallocated autoproducers - oil	0.26	x	2.4	53.0
Non-specified other - oil	0.05	x	0.5	53.5
Other energy industry own use - oil	0.04	85.7%	0.4	53.8
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*5.87*	*162.8%*	*53.8*	*53.8*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Eritrea

Figure 1. CO_2 emissions by fuel

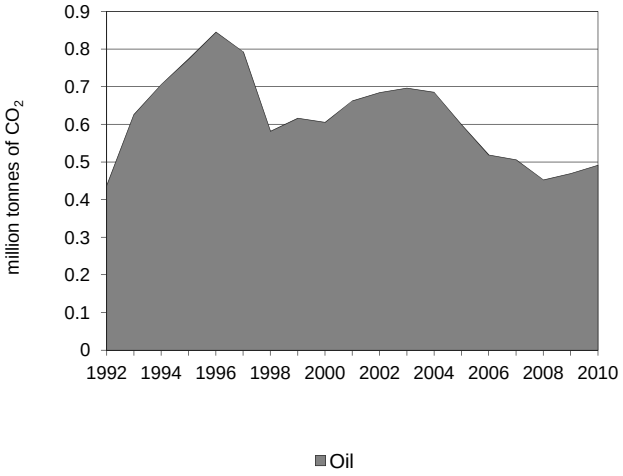


Figure 2. CO_2 emissions by sector

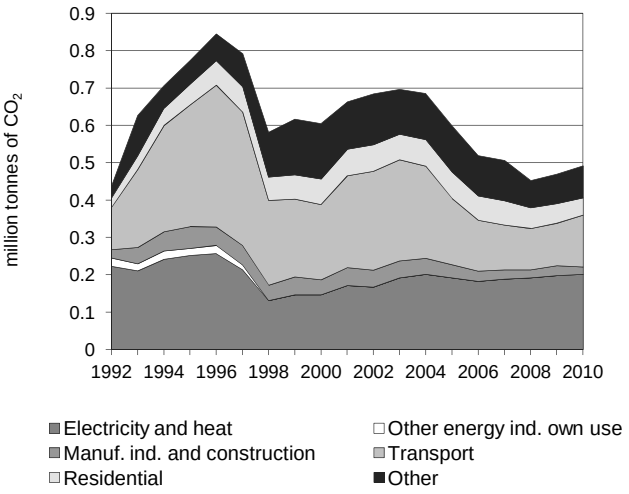


Figure 3. CO_2 emissions by sector

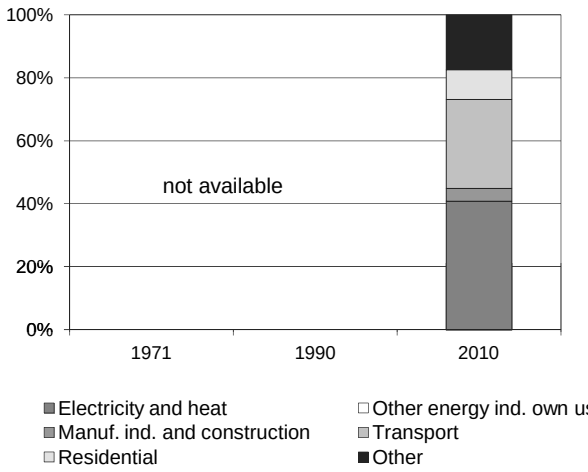


Figure 4. Reference vs Sectoral Approach

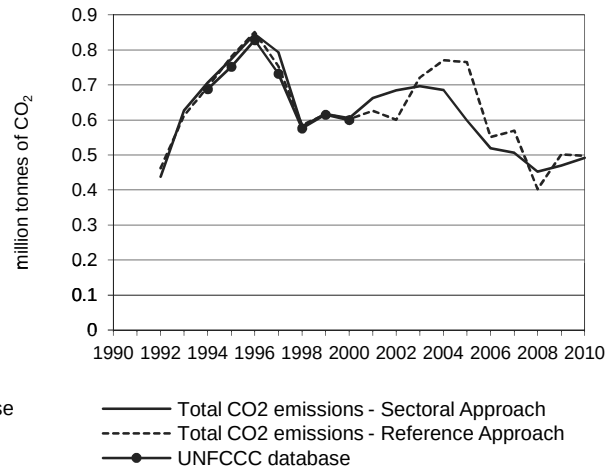


Figure 5. Electricity generation by fuel

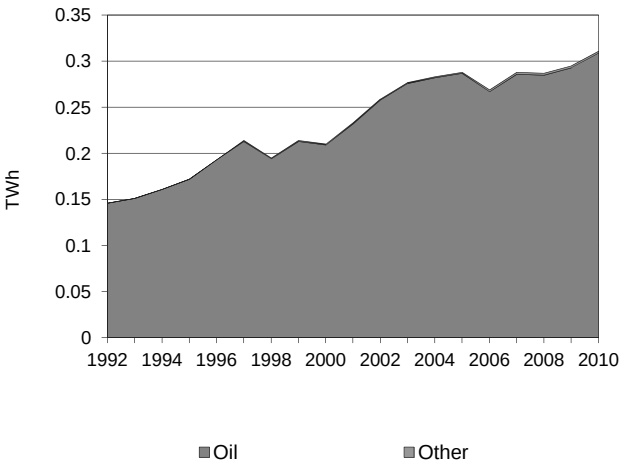
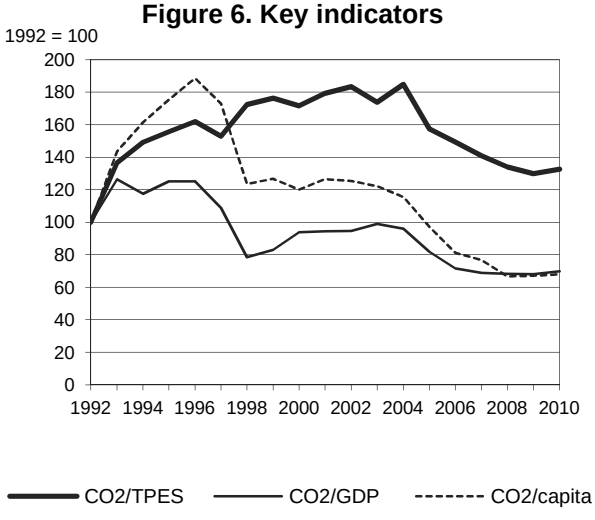


Figure 6. Key indicators



Eritrea *

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	..	0.77	0.61	0.60	0.45	0.47	0.49	..
CO_2 Reference Approach ($MtCO_2$)	..	0.78	0.60	0.77	0.40	0.50	0.50	..
TPES (PJ)	..	42	30	32	28	30	31	..
TPES (Mtoe)	..	1.00	0.71	0.76	0.68	0.73	0.74	..
GDP (billion 2005 USD)	..	0.93	0.97	1.10	1.00	1.03	1.06	..
GDP PPP (billion 2005 USD)	..	2.26	2.35	2.67	2.42	2.52	2.57	..
Population (millions)	..	3.21	3.67	4.49	4.95	5.10	5.25	..
CO_2 / TPES (tCO_2 per TJ)	..	18.5	20.4	18.8	16.0	15.5	15.8	..
CO_2 / GDP ($kgCO_2$ per 2005 USD)	..	0.83	0.63	0.55	0.46	0.45	0.47	..
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	..	0.34	0.26	0.22	0.19	0.19	0.19	..
CO_2 / population (tCO_2 per capita)	..	0.24	0.17	0.13	0.09	0.09	0.09	..

Ratios are based on the Sectoral Approach.

* Prior to 1992, data for Eritrea were included in Ethiopia.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other **	Total	% change 90-10
Sectoral Approach	**-**	**0.49**	**-**	**-**	**0.49**	**..**
Main activity producer elec. and heat	-	0.19	-	-	0.19	..
Unallocated autoproducers	-	0.01	-	-	0.01	..
Other energy industry own use	-	-	-	-	-	..
Manufacturing industries and construction	-	0.02	-	-	0.02	..
Transport	-	0.14	-	-	0.14	..
of which: road	-	*0.14*	-	-	*0.14*	..
Other	-	0.13	-	-	0.13	..
of which: residential	-	*0.05*	-	-	*0.05*	..
Reference Approach	**-**	**0.50**	**-**	**-**	**0.50**	**..**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	-	0.00	-	-	0.00	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.00*	-	-	*0.00*	*..*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - oil	0.19	..	4.2	4.2
Road - oil	0.14	..	3.0	7.2
Non-specified other - oil	0.09	..	1.9	9.1
Residential - oil	0.05	..	1.0	10.1
Manufacturing industries - oil	0.02	..	0.4	10.5
Unallocated autoproducers - oil	0.01	..	0.2	10.7
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
Memo: total CO_2 from fuel combustion	*0.49*	*..*	*10.7*	*10.7*

*** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Estonia

Figure 1. CO_2 emissions by fuel

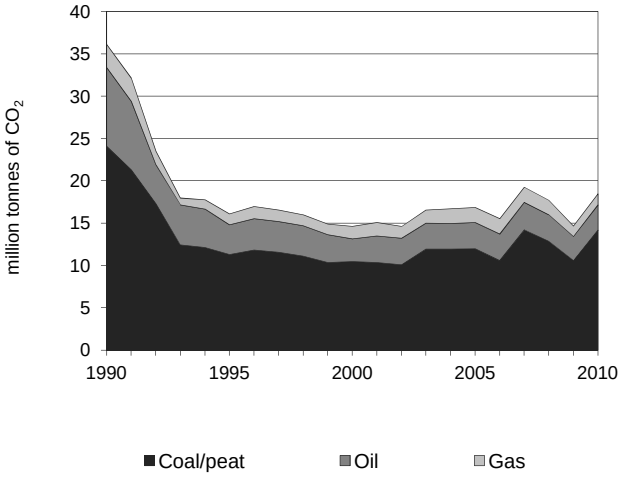


Figure 2. CO_2 emissions by sector

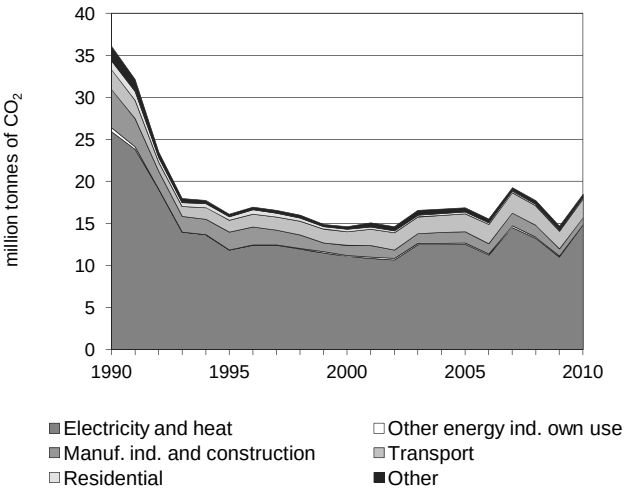


Figure 3. CO_2 emissions by sector

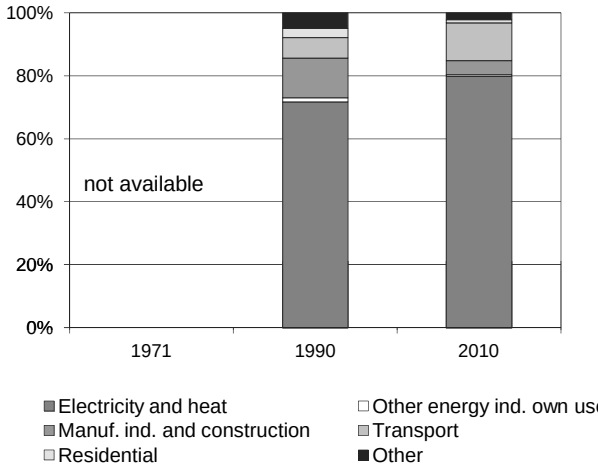


Figure 4. Reference vs Sectoral Approach

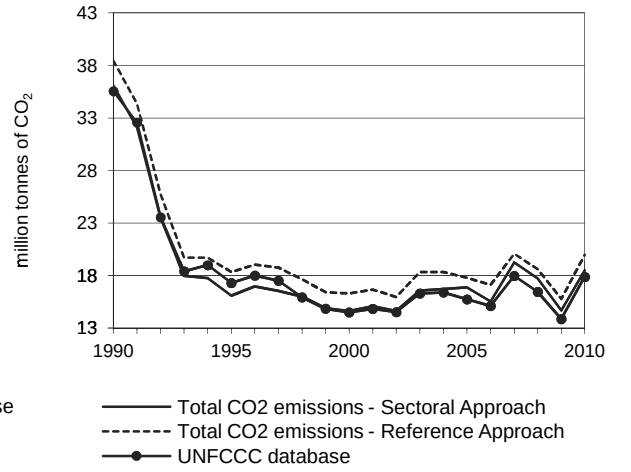


Figure 5. Electricity generation by fuel

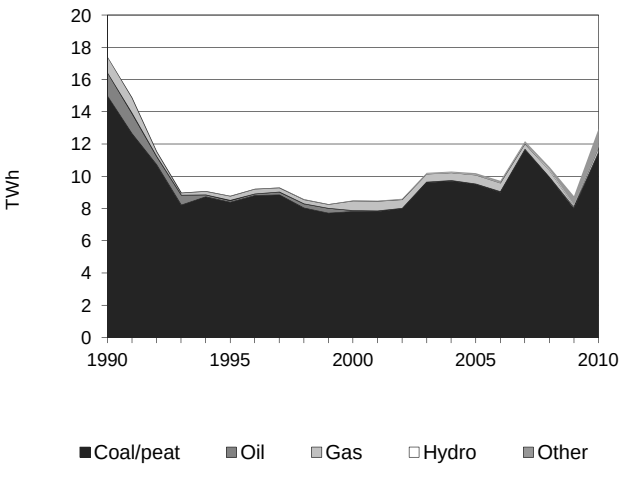
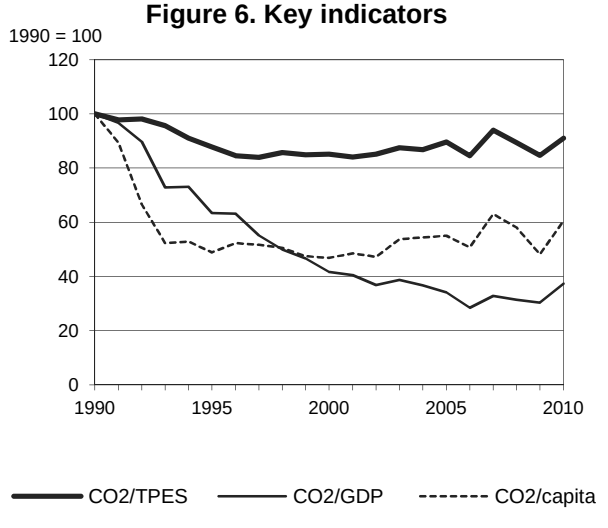


Figure 6. Key indicators



Estonia

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	36.12	16.09	14.62	16.87	17.71	14.66	18.47	-48.9%
CO_2 Reference Approach ($MtCO_2$)	38.47	18.34	16.30	17.78	18.61	15.76	19.96	-48.1%
TPES (PJ)	415	211	197	216	228	199	233	-43.8%
TPES (Mtoe)	9.91	5.03	4.71	5.16	5.44	4.75	5.57	-43.8%
GDP (billion 2005 USD)	10.13	7.12	9.84	13.90	15.85	13.59	13.90	37.2%
GDP PPP (billion 2005 USD)	16.23	11.40	15.77	22.28	25.39	21.77	22.27	37.2%
Population (millions)	1.59	1.45	1.37	1.35	1.34	1.34	1.34	-15.6%
CO_2 / TPES (tCO_2 per TJ)	87.1	76.3	74.1	78.0	77.8	73.7	79.3	-9.0%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	3.57	2.26	1.49	1.21	1.12	1.08	1.33	-62.7%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	2.23	1.41	0.93	0.76	0.70	0.67	0.83	-62.7%
CO_2 / population (tCO_2 per capita)	22.75	11.11	10.66	12.52	13.21	10.94	13.79	-39.4%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**14.18**	**2.98**	**1.31**	**-**	**18.47**	**-48.9%**
Main activity producer elec. and heat	13.69	0.18	0.72	-	14.59	-42.6%
Unallocated autoproducers	0.06	0.02	0.09	-	0.16	-68.8%
Other energy industry own use	0.02	0.05	0.03	-	0.10	-78.3%
Manufacturing industries and construction	0.36	0.19	0.27	-	0.82	-81.9%
Transport	-	2.23	-	-	2.23	-5.6%
of which: road	-	*2.04*	-	-	*2.04*	-4.8%
Other	0.04	0.32	0.22	-	0.58	-79.6%
of which: residential	*0.03*	*0.02*	*0.13*	-	*0.19*	-82.4%
Reference Approach	**17.16**	**1.48**	**1.31**	**-**	**19.96**	**-48.1%**
Diff. due to losses and/or transformation	4.35	- 1.54	-	-	2.81	
Statistical differences	- 1.36	0.03	0.00	-	- 1.33	
Memo: international marine bunkers	-	*0.69*	-	-	*0.69*	*21.9%*
Memo: international aviation bunkers	-	*0.11*	-	-	*0.11*	*5.9%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	13.69	-33.7%	64.8	64.8
Road - oil	2.04	-4.8%	9.7	74.4
Main activity prod. elec. and heat - gas	0.72	-59.7%	3.4	77.8
Manufacturing industries - coal/peat	0.36	-77.2%	1.7	79.6
Non-specified other - oil	0.29	-73.3%	1.4	81.0
Manufacturing industries - gas	0.27	-63.5%	1.3	82.2
Manufacturing industries - oil	0.19	-91.4%	0.9	83.1
Other transport - oil	0.19	-4.6%	0.9	84.0
Main activity prod. elec. and heat - oil	0.18	-93.9%	0.9	84.9
Residential - gas	0.13	-3.5%	0.6	85.5
Non-specified other - gas	0.09	293.1%	0.4	85.9
Memo: total CO_2 from fuel combustion	*18.47*	*-48.9%*	*87.5*	*87.5*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Ethiopia

Figure 1. CO_2 emissions by fuel

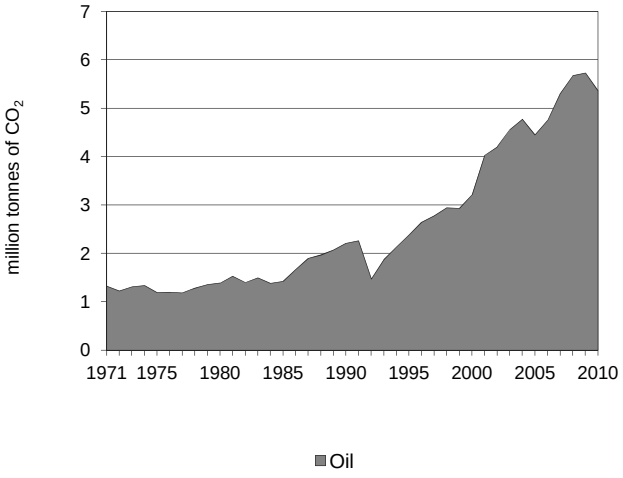


Figure 2. CO_2 emissions by sector

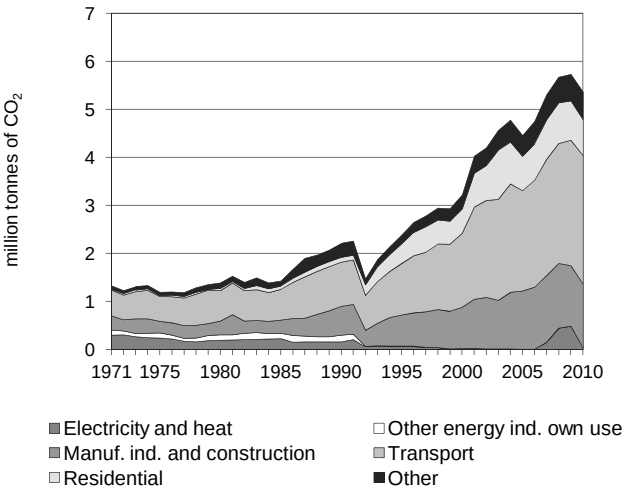


Figure 3. CO_2 emissions by sector

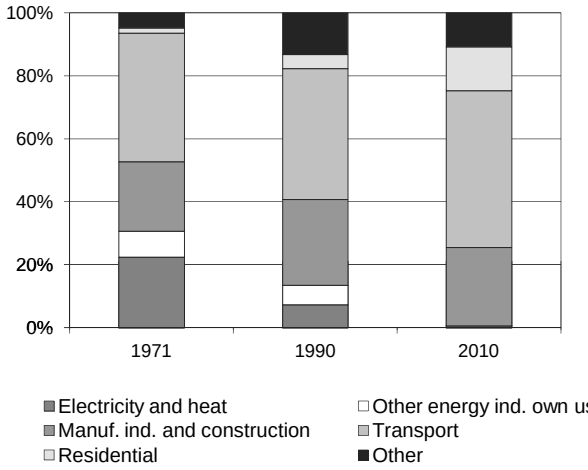


Figure 4. Reference vs Sectoral Approach

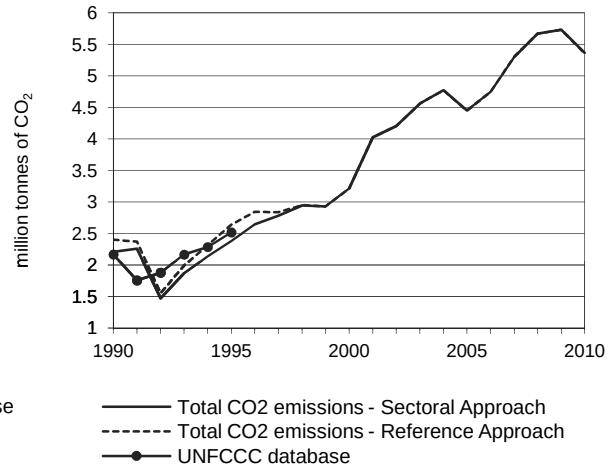


Figure 5. Electricity generation by fuel

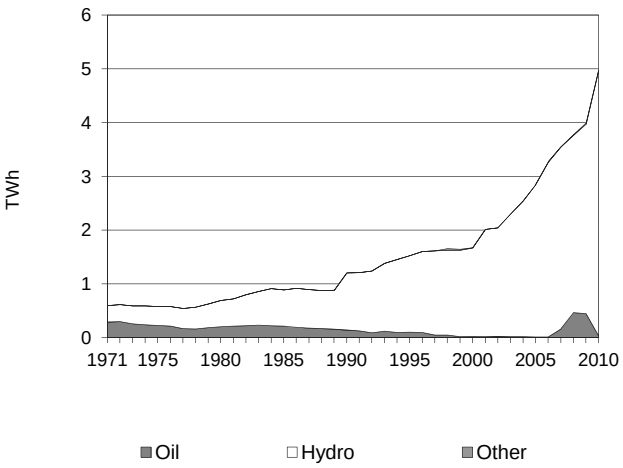
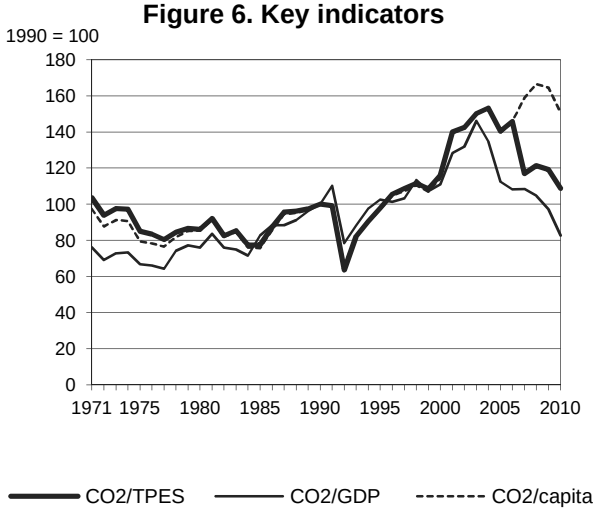


Figure 6. Key indicators



Ethiopia *

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	2.21	2.38	3.21	4.45	5.67	5.73	5.37	142.8%
CO_2 Reference Approach ($MtCO_2$)	2.40	2.64	3.21	4.45	5.67	5.73	5.36	122.9%
TPES (PJ)	622	687	780	893	1 317	1 354	1 390	123.3%
TPES (Mtoe)	14.87	16.40	18.64	21.32	31.45	32.34	33.20	123.3%
GDP (billion 2005 USD)	6.85	7.20	8.99	12.29	16.81	18.29	20.15	194.0%
GDP PPP (billion 2005 USD)	26.35	27.69	34.58	47.24	64.65	70.33	77.46	193.9%
Population (millions)	51.49	57.04	65.58	74.26	79.45	81.19	82.95	61.1%
CO_2 / TPES (tCO_2 per TJ)	3.6	3.5	4.1	5.0	4.3	4.2	3.9	8.7%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.32	0.33	0.36	0.36	0.34	0.31	0.27	-17.4%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.08	0.09	0.09	0.09	0.09	0.08	0.07	-17.4%
CO_2 / population (tCO_2 per capita)	0.04	0.04	0.05	0.06	0.07	0.07	0.06	50.8%

Ratios are based on the Sectoral Approach.

* Data for Ethiopia include Eritrea until 1991.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other **	Total	% change 90-10
Sectoral Approach	**-**	**5.37**	**-**	**-**	**5.37**	**142.8%**
Main activity producer elec. and heat	-	0.03	-	-	0.03	-61.2%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	-	1.34	-	-	1.34	122.0%
Transport	-	2.67	-	-	2.67	190.9%
of which: road	-	*2.67*	-	-	*2.67*	190.9%
Other	-	1.32	-	-	1.32	238.8%
of which: residential	-	*0.74*	-	-	*0.74*	657.9%
Reference Approach	**-**	**5.36**	**-**	**-**	**5.36**	**122.9%**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	-	- 0.01	-	-	- 0.01	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*1.01*	-	-	*1.01*	*90.6%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) ***	Cumulative total (%)
Road - oil	2.67	190.9%	2.5	2.5
Manufacturing industries - oil	1.34	122.0%	1.2	3.7
Residential - oil	0.74	657.9%	0.7	4.4
Non-specified other - oil	0.58	97.8%	0.5	4.9
Main activity prod. elec. and heat - oil	0.03	-61.2%	0.0	4.9
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*5.37*	*142.8%*	*4.9*	*4.9*

*** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Finland

Figure 1. CO_2 emissions by fuel

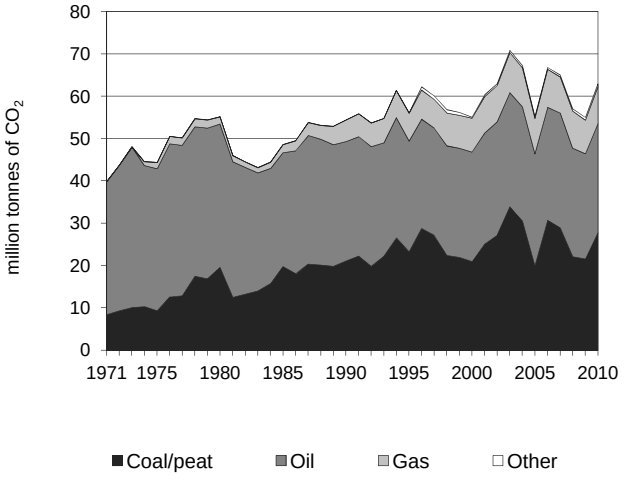


Figure 2. CO_2 emissions by sector

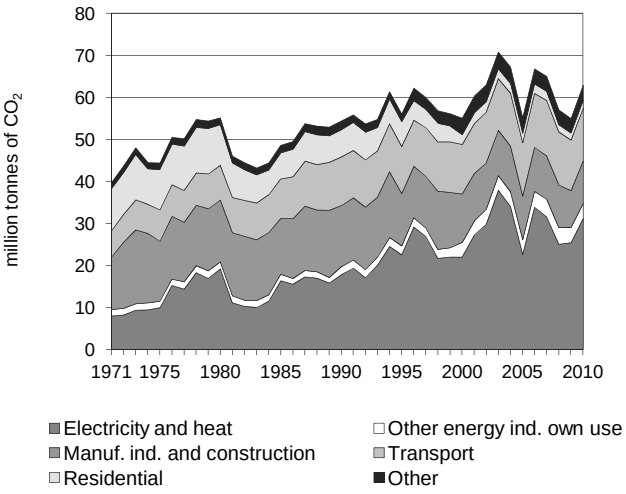


Figure 3. CO_2 emissions by sector

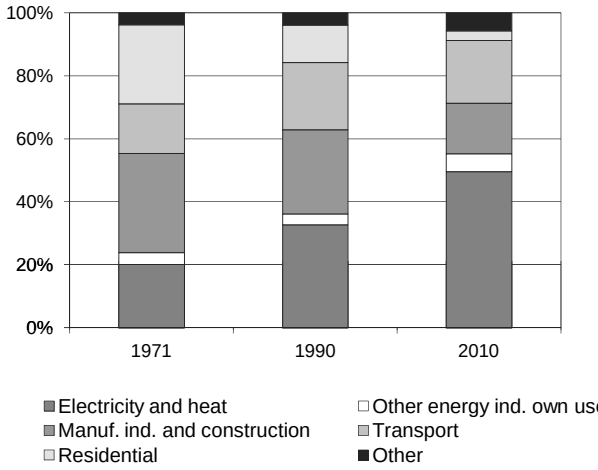


Figure 4. Reference vs Sectoral Approach

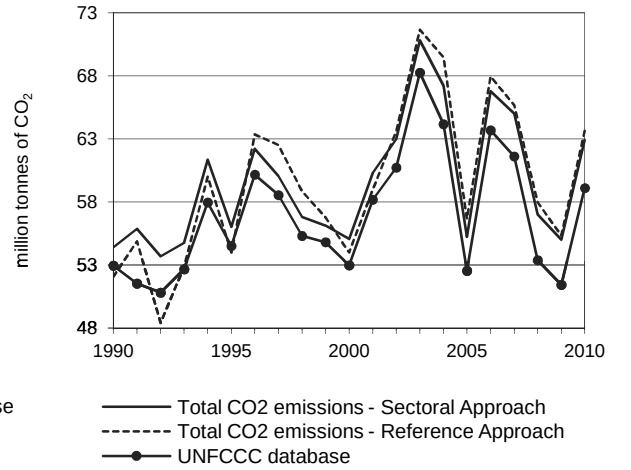


Figure 5. Electricity generation by fuel

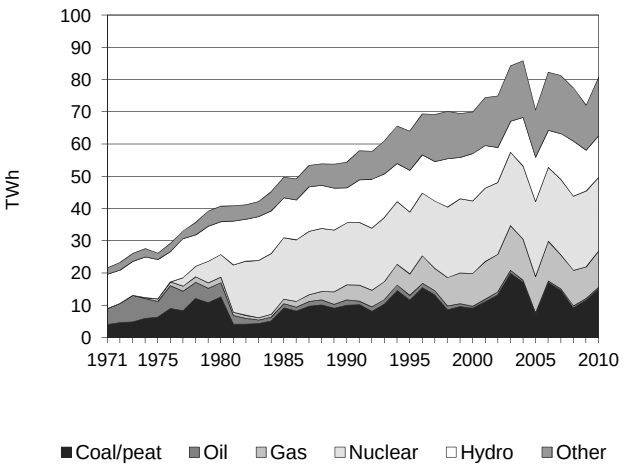
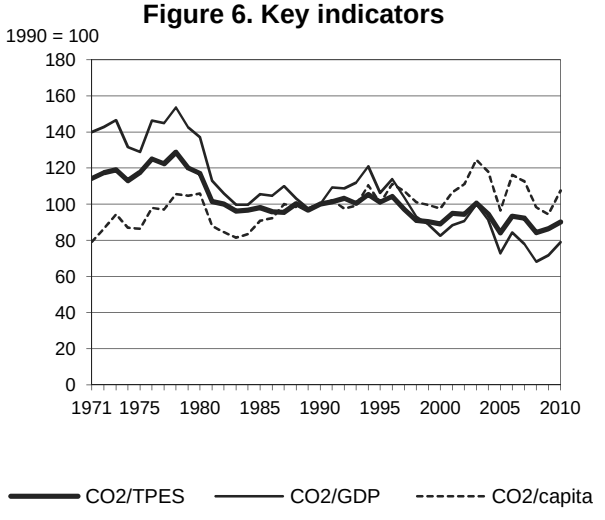


Figure 6. Key indicators



Finland

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	54.40	56.02	55.07	55.24	57.01	55.00	62.92	15.7%
CO_2 Reference Approach ($MtCO_2$)	52.06	53.98	53.99	56.65	57.99	55.33	63.65	22.3%
TPES (PJ)	1 188	1 211	1 349	1 434	1 477	1 392	1 524	28.3%
TPES (Mtoe)	28.38	28.92	32.23	34.25	35.27	33.25	36.40	28.3%
GDP (billion 2005 USD)	140.23	135.99	171.94	195.78	215.95	197.91	205.30	46.4%
GDP PPP (billion 2005 USD)	115.39	111.90	141.48	161.10	177.70	162.85	168.93	46.4%
Population (millions)	4.99	5.11	5.18	5.25	5.31	5.34	5.36	7.6%
CO_2 / TPES (tCO_2 per TJ)	45.8	46.3	40.8	38.5	38.6	39.5	41.3	-9.8%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.39	0.41	0.32	0.28	0.26	0.28	0.31	-21.0%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.47	0.50	0.39	0.34	0.32	0.34	0.37	-21.0%
CO_2 / population (tCO_2 per capita)	10.91	10.97	10.64	10.53	10.73	10.30	11.73	7.5%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**27.73**	**25.79**	**8.74**	**0.66**	**62.92**	**15.7%**
Main activity producer elec. and heat	21.35	1.19	5.05	0.30	27.89	77.9%
Unallocated autoproducers	2.15	0.21	0.76	0.20	3.32	54.5%
Other energy industry own use	1.08	1.79	0.68	-	3.56	88.9%
Manufacturing industries and construction	2.99	4.98	2.01	0.15	10.13	-30.3%
Transport	-	12.51	0.03	-	12.54	8.2%
of which: road	-	*11.44*	*0.01*	-	*11.45*	7.5%
Other	0.16	5.11	0.20	0.01	5.48	-35.9%
of which: residential	*0.06*	*1.72*	*0.11*	-	*1.89*	-70.7%
Reference Approach	**27.91**	**26.33**	**8.75**	**0.66**	**63.65**	**22.3%**
Diff. due to losses and/or transformation	0.07	0.19	-	-	0.26	
Statistical differences	0.11	0.35	0.01	-	0.47	
Memo: international marine bunkers	-	*0.66*	-	-	*0.66*	*-62.8%*
Memo: international aviation bunkers	-	*1.59*	-	-	*1.59*	*63.1%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	21.35	71.8%	27.2	27.2
Road - oil	11.44	7.4%	14.6	41.8
Main activity prod. elec. and heat - gas	5.05	159.2%	6.4	48.3
Manufacturing industries - oil	4.98	-2.4%	6.4	54.6
Non-specified other - oil	3.39	64.4%	4.3	59.0
Manufacturing industries - coal/peat	2.99	-58.8%	3.8	62.8
Unallocated autoproducers - coal/peat	2.15	60.2%	2.7	65.5
Manufacturing industries - gas	2.01	-7.7%	2.6	68.1
Other energy industry own use - oil	1.79	32.3%	2.3	70.4
Residential - oil	1.72	-72.6%	2.2	72.6
Main activity prod. elec. and heat - oil	1.19	-6.0%	1.5	74.1
Memo: total CO_2 from fuel combustion	*62.92*	*15.7%*	*80.3*	*80.3*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

France

Figure 1. CO_2 emissions by fuel

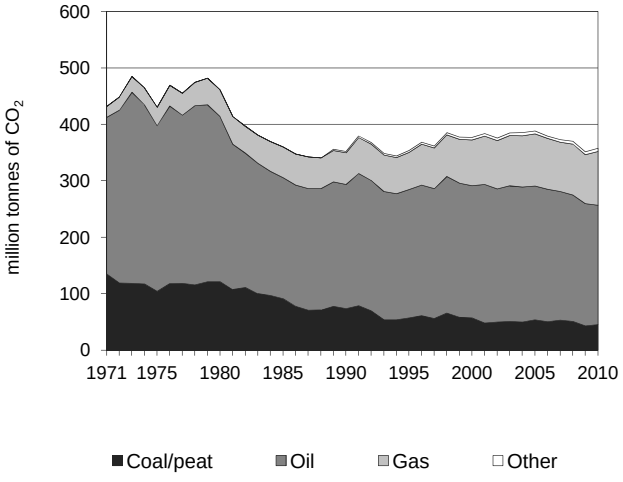


Figure 2. CO_2 emissions by sector

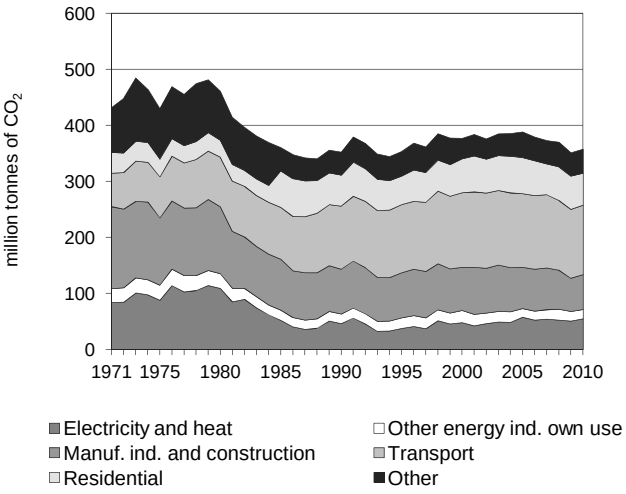


Figure 3. CO_2 emissions by sector

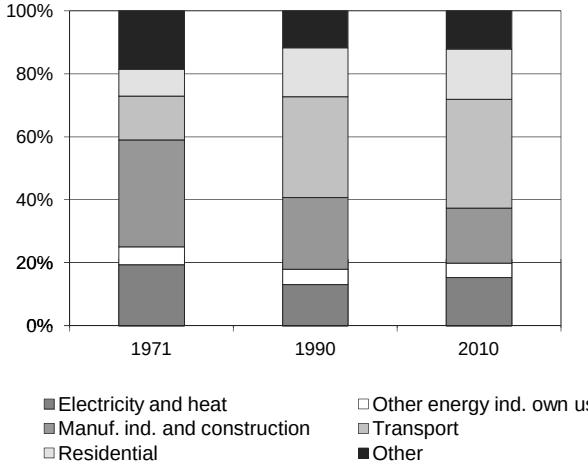


Figure 4. Reference vs Sectoral Approach

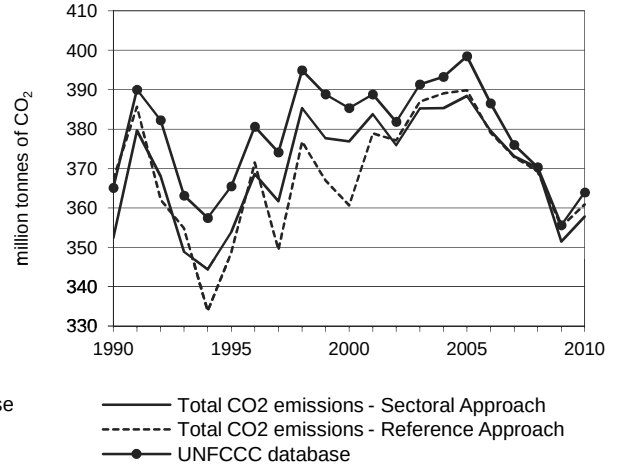


Figure 5. Electricity generation by fuel

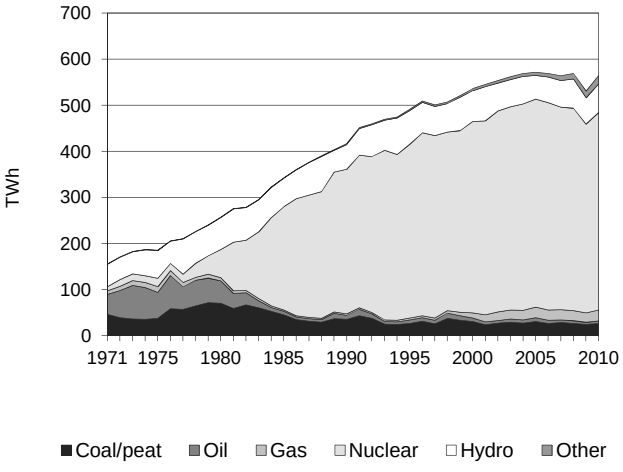
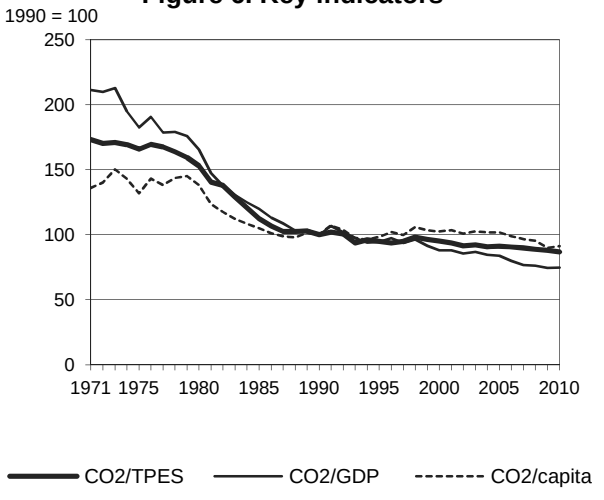


Figure 6. Key indicators



France

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	352.32	353.85	376.87	388.43	370.16	351.44	357.81	1.6%
CO_2 Reference Approach ($MtCO_2$)	367.32	348.67	360.60	389.91	369.28	355.20	360.89	-1.8%
TPES (PJ)	9 374	9 909	10 545	11 331	11 086	10 613	10 981	17.2%
TPES (Mtoe)	223.89	236.66	251.87	270.63	264.80	253.49	262.29	17.2%
GDP (billion 2005 USD)	1 623.84	1 725.64	1 973.04	2 136.56	2 237.48	2 176.41	2 208.62	36.0%
GDP PPP (billion 2005 USD)	1 414.18	1 502.84	1 718.30	1 860.70	1 948.60	1 895.41	1 923.46	36.0%
Population (millions)	58.17	59.42	60.73	62.96	64.14	64.50	64.85	11.5%
CO_2 / TPES (tCO_2 per TJ)	37.6	35.7	35.7	34.3	33.4	33.1	32.6	-13.3%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.22	0.21	0.19	0.18	0.17	0.16	0.16	-25.3%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.25	0.24	0.22	0.21	0.19	0.19	0.19	-25.3%
CO_2 / population (tCO_2 per capita)	6.06	5.96	6.21	6.17	5.77	5.45	5.52	-8.9%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**45.26**	**211.43**	**95.60**	**5.52**	**357.81**	**1.6%**
Main activity producer elec. and heat	22.91	4.02	15.66	0.50	43.09	74.8%
Unallocated autoproducers	3.44	2.89	1.91	3.70	11.94	-44.5%
Other energy industry own use	2.72	11.64	1.96	-	16.32	-6.5%
Manufacturing industries and construction	14.60	24.65	23.33	-	62.58	-21.8%
Transport	-	122.99	0.65	-	123.64	9.9%
of which: road	-	*117.71*	*0.58*	-	*118.28*	9.8%
Other	1.60	45.23	52.09	1.32	100.23	4.3%
of which: residential	*1.41*	*23.23*	*32.41*	-	*57.05*	3.9%
Reference Approach	**46.99**	**210.03**	**98.36**	**5.52**	**360.89**	**-1.8%**
Diff. due to losses and/or transformation	2.47	- 2.08	2.79	-	3.19	
Statistical differences	- 0.75	0.67	- 0.04	-	- 0.11	
Memo: international marine bunkers	-	*7.79*	-	-	*7.79*	*-2.2%*
Memo: international aviation bunkers	-	*16.32*	-	-	*16.32*	*75.1%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	117.71	9.3%	22.5	22.5
Residential - gas ***	32.41	110.5%	6.2	28.8
Manufacturing industries - oil	24.65	-11.2%	4.7	33.5
Manufacturing industries - gas	23.33	-4.6%	4.5	37.9
Residential - oil	23.23	-29.6%	4.5	42.4
Main activity prod. elec. and heat - coal/peat	22.91	9.6%	4.4	46.8
Non-specified other - oil	21.99	-16.8%	4.2	51.0
Non-specified other - gas	19.68	35.0%	3.8	54.8
Main activity prod. elec. and heat - gas ***	15.66	+	3.0	57.8
Manufacturing industries - coal/peat	14.60	-47.6%	2.8	60.6
Other energy industry own use - oil	11.64	-23.3%	2.2	62.8
Memo: total CO_2 from fuel combustion	*357.81*	*1.6%*	*68.5*	*68.5*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

*** The high growth in gas is due to changes in methodology in 2000.

Gabon

Figure 1. CO_2 emissions by fuel

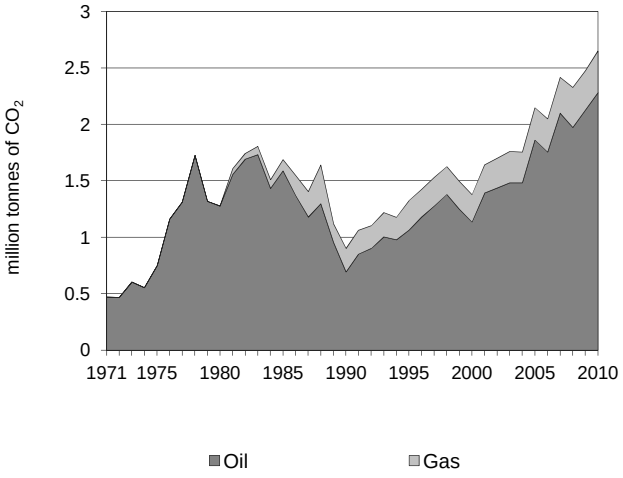


Figure 2. CO_2 emissions by sector

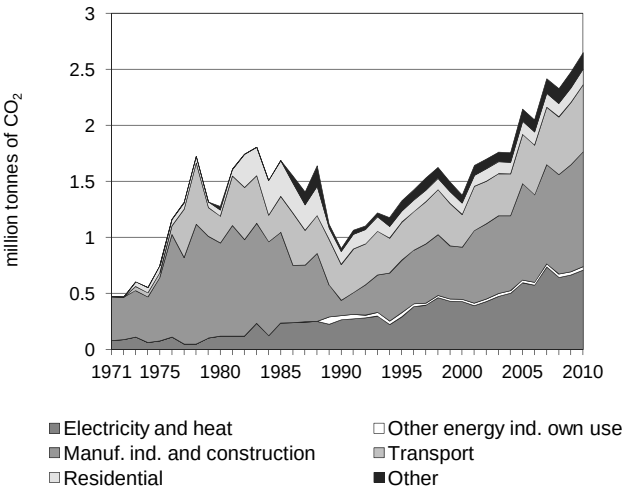


Figure 3. CO_2 emissions by sector

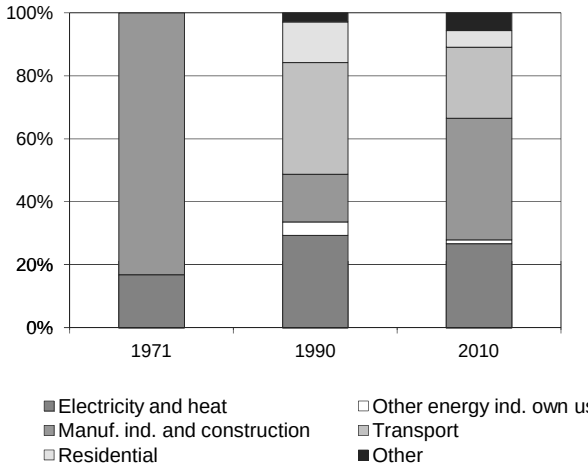


Figure 4. Reference vs Sectoral Approach

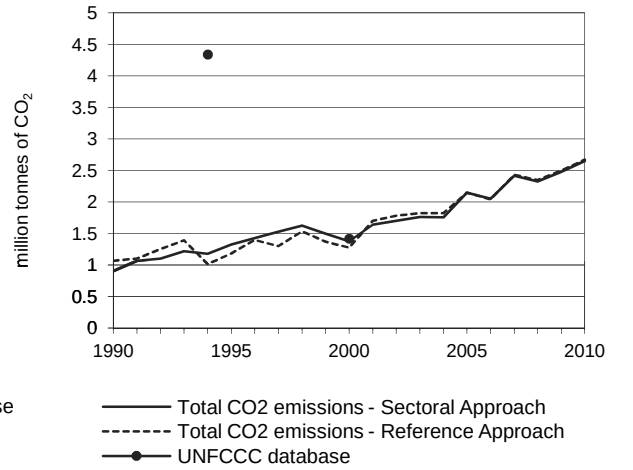


Figure 5. Electricity generation by fuel

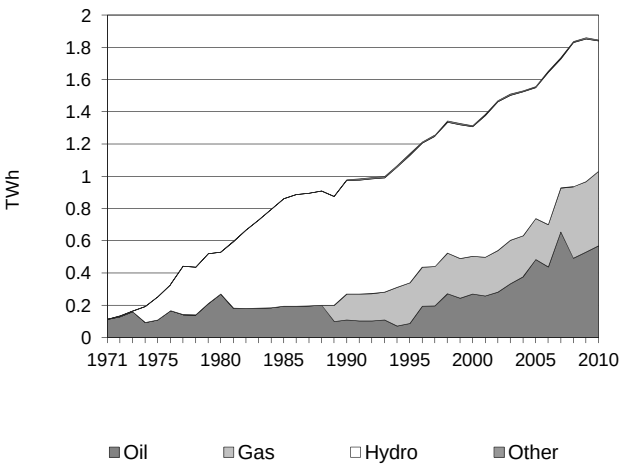
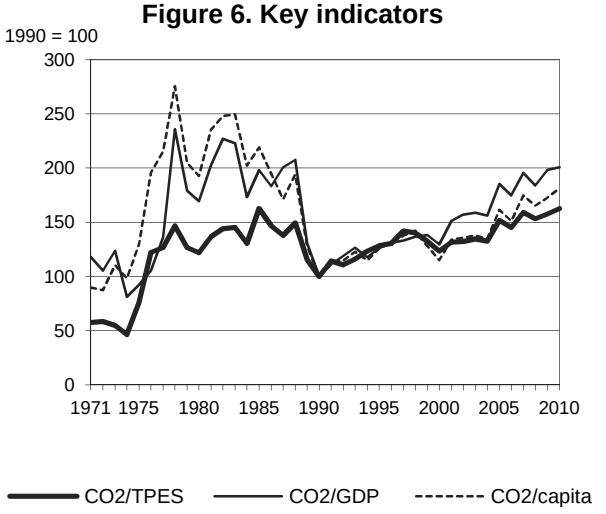


Figure 6. Key indicators



Gabon

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	0.90	1.33	1.38	2.15	2.33	2.48	2.65	194.0%
CO_2 Reference Approach ($MtCO_2$)	1.06	1.18	1.28	2.15	2.35	2.50	2.67	151.1%
TPES (PJ)	49	57	61	78	83	86	89	80.6%
TPES (Mtoe)	1.18	1.35	1.46	1.85	1.99	2.06	2.13	80.6%
GDP (billion 2005 USD)	6.75	7.85	7.95	8.67	9.47	9.34	9.87	46.4%
GDP PPP (billion 2005 USD)	13.88	16.16	16.37	17.84	19.50	19.22	20.32	46.4%
Population (millions)	0.93	1.09	1.24	1.37	1.45	1.48	1.51	62.0%
CO_2 / TPES (tCO_2 per TJ)	18.2	23.4	22.5	27.7	27.9	28.7	29.7	62.7%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.13	0.17	0.17	0.25	0.25	0.27	0.27	100.8%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.06	0.08	0.08	0.12	0.12	0.13	0.13	100.9%
CO_2 / population (tCO_2 per capita)	0.97	1.22	1.12	1.57	1.61	1.68	1.76	81.5%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**2.28**	**0.37**	**-**	**2.65**	**194.0%**
Main activity producer elec. and heat	-	0.27	0.25	-	0.53	155.7%
Unallocated autoproducers	-	0.10	0.08	-	0.18	209.6%
Other energy industry own use	-	-	0.03	-	0.03	-16.4%
Manufacturing industries and construction	-	1.02	0.00	-	1.02	651.9%
Transport	-	0.60	-	-	0.60	86.8%
of which: road	-	*0.60*	-	-	*0.60*	86.8%
Other	-	0.29	-	-	0.29	102.8%
of which: residential	-	*0.14*	-	-	*0.14*	19.1%
Reference Approach	**-**	**2.30**	**0.37**	**-**	**2.67**	**151.1%**
Diff. due to losses and/or transformation	-	0.02	-	-	0.02	
Statistical differences	-	- 0.00	-	-	- 0.00	
Memo: international marine bunkers	-	*0.93*	-	-	*0.93*	+
Memo: international aviation bunkers	-	*0.18*	-	-	*0.18*	*-8.4%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Manufacturing industries - oil	1.02	665.2%	9.8	9.8
Road - oil	0.60	86.8%	5.8	15.6
Main activity prod. elec. and heat - oil	0.27	231.0%	2.6	18.3
Main activity prod. elec. and heat - gas	0.25	105.4%	2.5	20.7
Non-specified other - oil	0.15	487.5%	1.4	22.1
Residential - oil	0.14	19.1%	1.3	23.5
Unallocated autoproducers - oil	0.10	540.0%	1.0	24.5
Unallocated autoproducers - gas	0.08	85.2%	0.8	25.2
Other energy industry own use - gas	0.03	-16.4%	0.3	25.5
Manufacturing industries - gas	0.00	46.6%	0.0	25.6
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*2.65*	*194.0%*	*25.6*	*25.6*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Georgia

Figure 1. CO_2 emissions by fuel

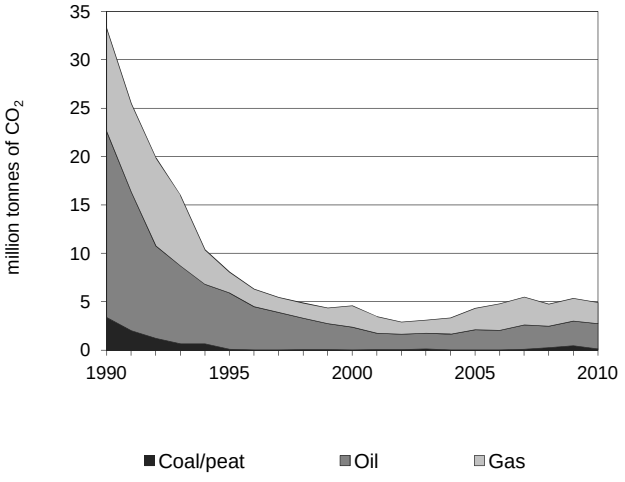


Figure 2. CO_2 emissions by sector

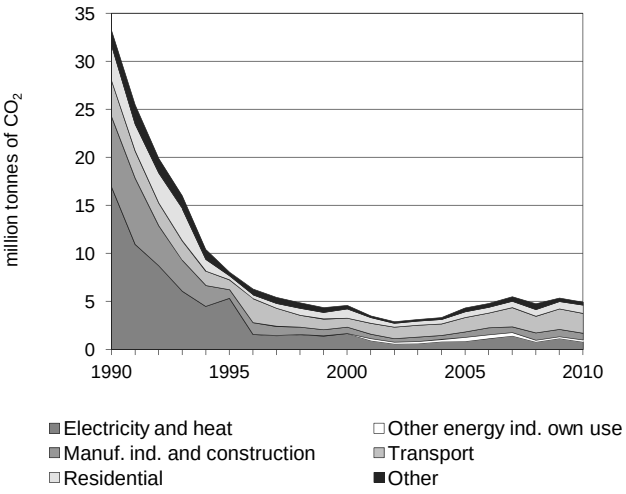


Figure 3. CO_2 emissions by sector

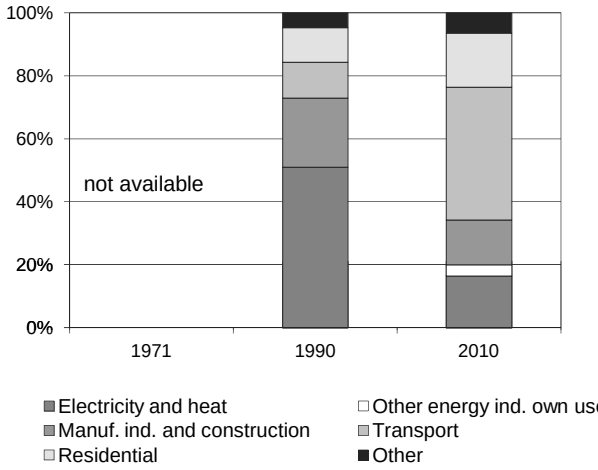


Figure 4. Reference vs Sectoral Approach

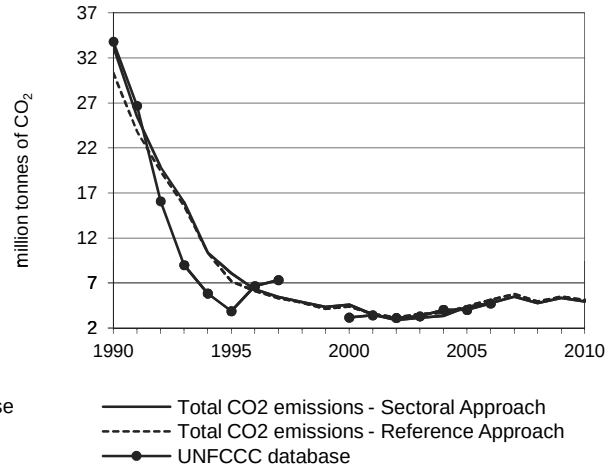


Figure 5. Electricity generation by fuel

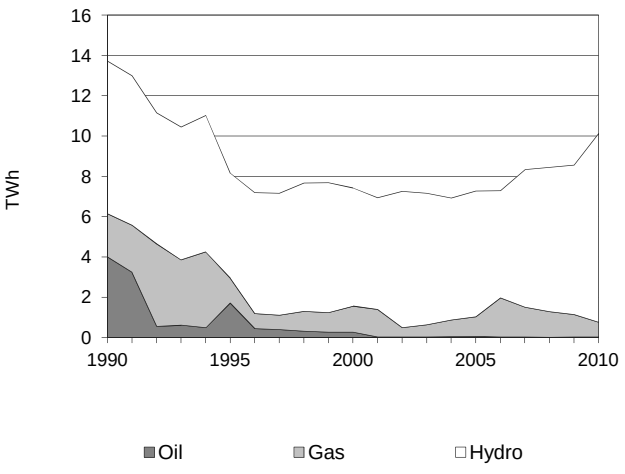
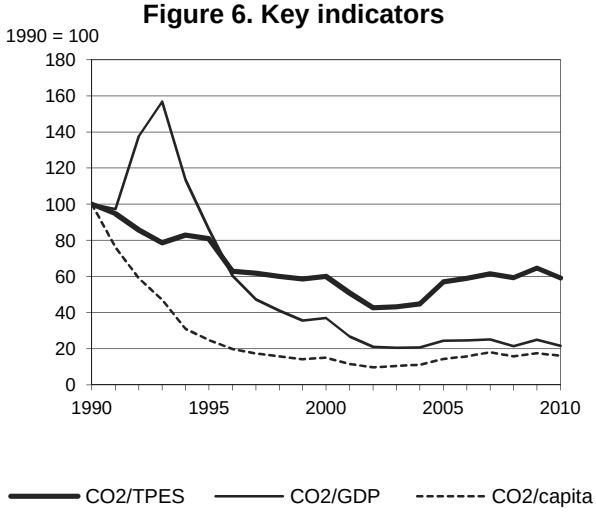


Figure 6. Key indicators



Georgia

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	33.25	8.08	4.61	4.33	4.76	5.35	4.94	-85.1%
CO_2 Reference Approach ($MtCO_2$)	30.33	7.19	4.40	4.42	4.97	5.49	5.12	-83.1%
TPES (PJ)	520	156	120	119	126	130	131	-74.9%
TPES (Mtoe)	12.42	3.73	2.87	2.84	3.00	3.10	3.12	-74.9%
GDP (billion 2005 USD)	12.00	3.39	4.50	6.41	8.06	7.76	8.25	-31.3%
GDP PPP (billion 2005 USD)	29.48	8.33	11.06	15.75	19.80	19.05	20.26	-31.3%
Population (millions)	4.80	4.73	4.42	4.36	4.38	4.41	4.45	-7.3%
CO_2 / TPES (tCO_2 per TJ)	64.0	51.8	38.3	36.4	37.9	41.3	37.8	-40.8%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	2.77	2.38	1.02	0.68	0.59	0.69	0.60	-78.4%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	1.13	0.97	0.42	0.28	0.24	0.28	0.24	-78.4%
CO_2 / population (tCO_2 per capita)	6.92	1.71	1.04	0.99	1.09	1.21	1.11	-84.0%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.14**	**2.61**	**2.19**	**-**	**4.94**	**-85.1%**
Main activity producer elec. and heat	-	0.17	0.65	-	0.82	-95.2%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	0.18	-	0.18	x
Manufacturing industries and construction	0.05	0.09	0.57	-	0.70	-90.4%
Transport	0.05	1.99	0.04	-	2.08	-44.7%
of which: road	-	*1.99*	*0.03*	-	*2.02*	-41.6%
Other	0.05	0.36	0.76	-	1.16	-77.7%
of which: residential	-	*0.23*	*0.61*	-	*0.85*	-76.9%
Reference Approach	**0.19**	**2.61**	**2.31**	**-**	**5.12**	**-83.1%**
Diff. due to losses and/or transformation	-	-	0.13	-	0.13	
Statistical differences	0.05	-	-	-	0.05	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.12*	-	-	*0.12*	*-79.7%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	1.99	-42.4%	16.2	16.2
Main activity prod. elec. and heat - gas	0.65	-85.9%	5.2	21.4
Residential - gas	0.61	-76.5%	5.0	26.4
Manufacturing industries - gas	0.57	-81.6%	4.6	31.0
Residential - oil	0.23	-76.2%	1.9	32.9
Other energy industry own use - gas	0.18	x	1.4	34.3
Main activity prod. elec. and heat - oil	0.17	-98.5%	1.4	35.7
Non-specified other - gas	0.15	-51.1%	1.2	36.9
Non-specified other - oil	0.12	-89.0%	1.0	37.9
Manufacturing industries - oil	0.09	-95.6%	0.7	38.6
Non-specified other sectors - coal/peat	0.05	-65.3%	0.4	39.0
Memo: total CO_2 from fuel combustion	*4.94*	*-85.1%*	*40.1*	*40.1*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Germany

Figure 1. CO_2 emissions by fuel

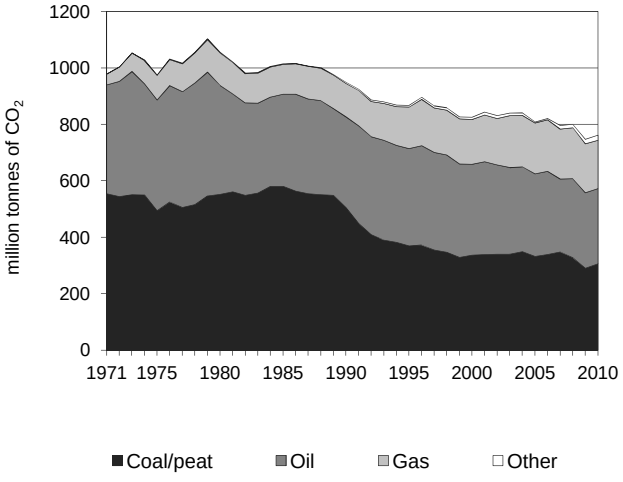


Figure 2. CO_2 emissions by sector

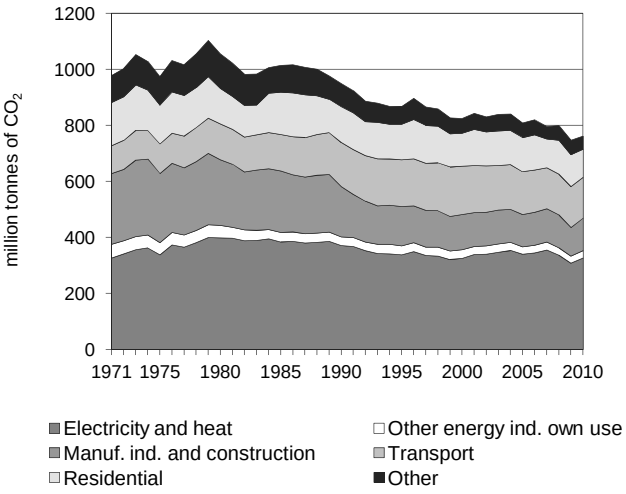


Figure 3. CO_2 emissions by sector

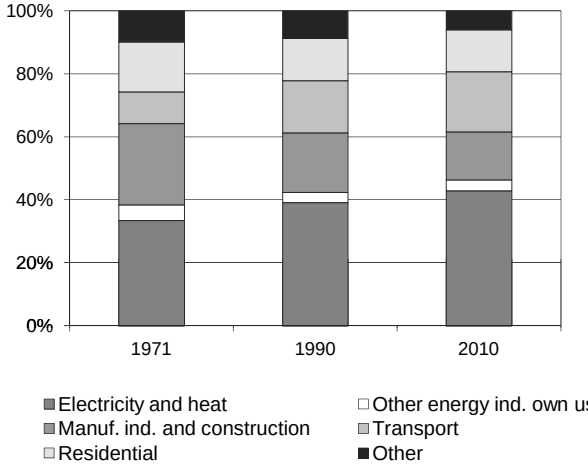


Figure 4. Reference vs Sectoral Approach

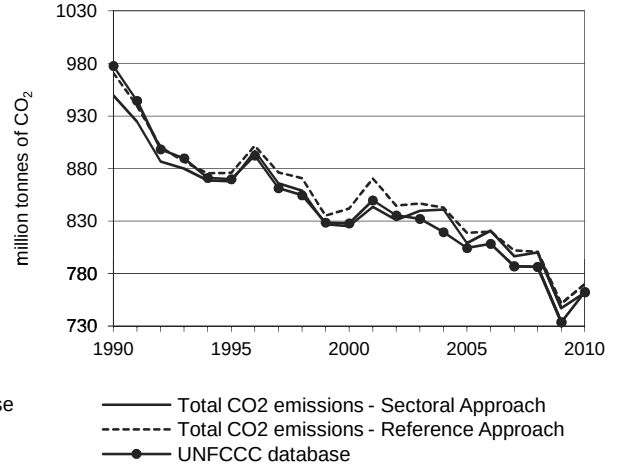


Figure 5. Electricity generation by fuel

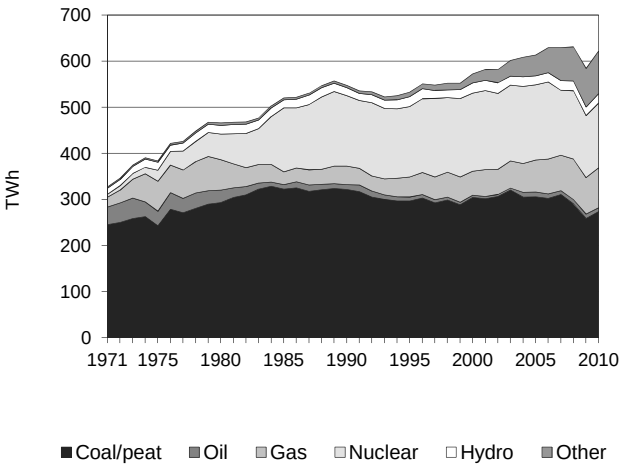
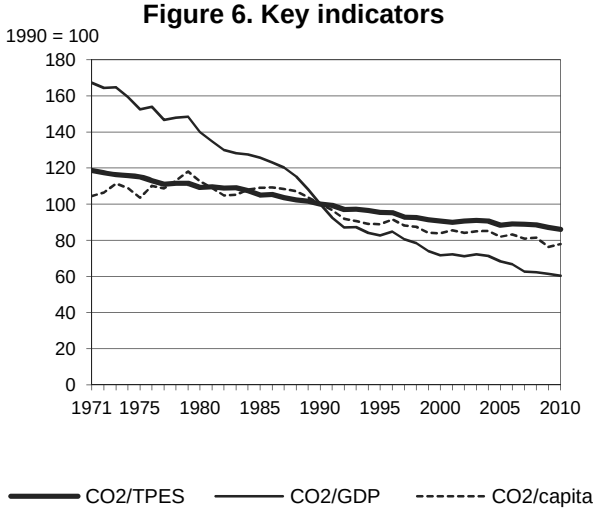


Figure 6. Key indicators



Germany

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	949.66	867.81	825.04	809.02	800.11	747.05	761.58	-19.8%
CO_2 Reference Approach ($MtCO_2$)	970.93	875.84	841.78	818.82	800.61	751.34	769.98	-20.7%
TPES (PJ)	14 702	14 089	14 092	14 162	13 988	13 277	13 707	-6.8%
TPES (Mtoe)	351.15	336.50	336.58	338.26	334.10	317.10	327.37	-6.8%
GDP (billion 2005 USD)	2 216.25	2 448.69	2 685.20	2 766.25	2 994.47	2 840.94	2 945.78	32.9%
GDP PPP (billion 2005 USD)	2 055.81	2 271.42	2 490.81	2 566.00	2 777.69	2 635.28	2 732.53	32.9%
Population (millions)	79.36	81.66	82.19	82.46	82.12	81.88	81.76	3.0%
CO_2 / TPES (tCO_2 per TJ)	64.6	61.6	58.5	57.1	57.2	56.3	55.6	-14.0%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.43	0.35	0.31	0.29	0.27	0.26	0.26	-39.7%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.46	0.38	0.33	0.32	0.29	0.28	0.28	-39.7%
CO_2 / population (tCO_2 per capita)	11.97	10.63	10.04	9.81	9.74	9.12	9.32	-22.2%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**306.24**	**266.05**	**171.81**	**17.48**	**761.58**	**-19.8%**
Main activity producer elec. and heat	239.49	2.73	38.28	12.83	293.33	-5.1%
Unallocated autoproducers	22.37	2.87	7.92	0.42	33.57	-46.1%
Other energy industry own use	5.67	18.47	2.12	-	26.26	-15.7%
Manufacturing industries and construction	33.70	29.18	48.85	4.24	115.96	-35.3%
Transport	-	144.99	0.54	-	145.53	-7.7%
of which: road	-	*140.43*	*0.54*	-	*140.97*	-5.2%
Other	5.00	67.82	74.10	-	146.93	-30.1%
of which: residential	*4.31*	*43.05*	*53.68*	-	*101.03*	-20.6%
Reference Approach	**309.30**	**273.23**	**169.98**	**17.48**	**769.98**	**-20.7%**
Diff. due to losses and/or transformation	1.54	8.67	-	-	10.21	
Statistical differences	1.52	- 1.50	- 1.83	- 0.00	- 1.81	
Memo: international marine bunkers	-	*8.72*	-	-	*8.72*	*11.9%*
Memo: international aviation bunkers	-	*24.05*	-	-	*24.05*	*80.2%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	239.49	-14.6%	25.6	25.6
Road - oil	140.43	-5.5%	15.0	40.6
Residential - gas	53.68	71.3%	5.7	46.3
Manufacturing industries - gas	48.85	12.7%	5.2	51.6
Residential - oil	43.05	-22.1%	4.6	56.2
Main activity prod. elec. and heat - gas	38.28	107.4%	4.1	60.2
Manufacturing industries - coal/peat	33.70	-64.1%	3.6	63.8
Manufacturing industries - oil	29.18	-30.6%	3.1	67.0
Non-specified other - oil	24.78	-37.4%	2.6	69.6
Unallocated autoproducers - coal/peat	22.37	-56.5%	2.4	72.0
Non-specified other - gas	20.42	37.6%	2.2	74.2
Memo: total CO_2 from fuel combustion	*761.58*	*-19.8%*	*81.4*	*81.4*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Ghana

Figure 1. CO_2 emissions by fuel

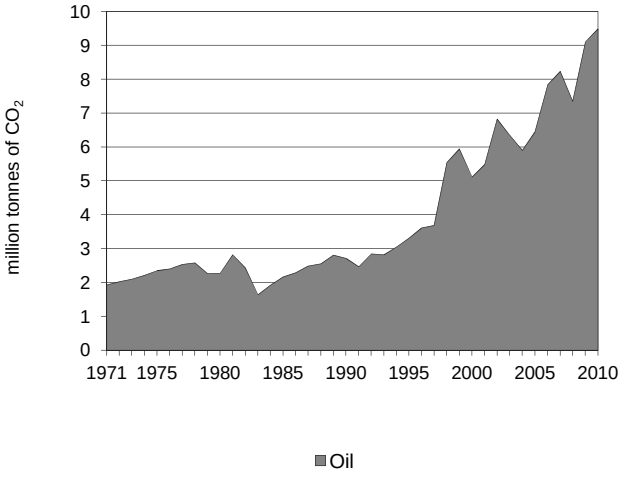


Figure 2. CO_2 emissions by sector

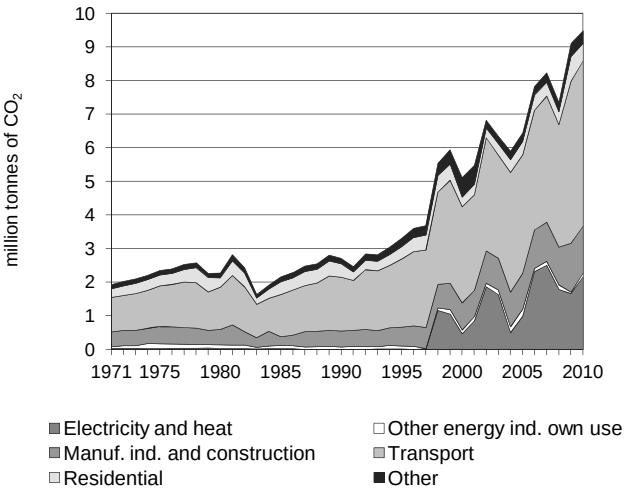


Figure 3. CO_2 emissions by sector

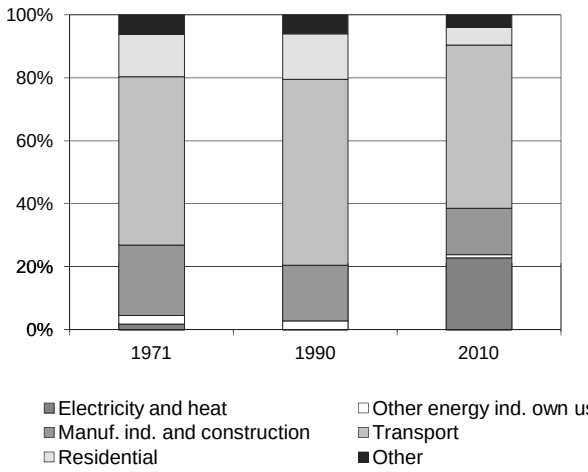


Figure 4. Reference vs Sectoral Approach

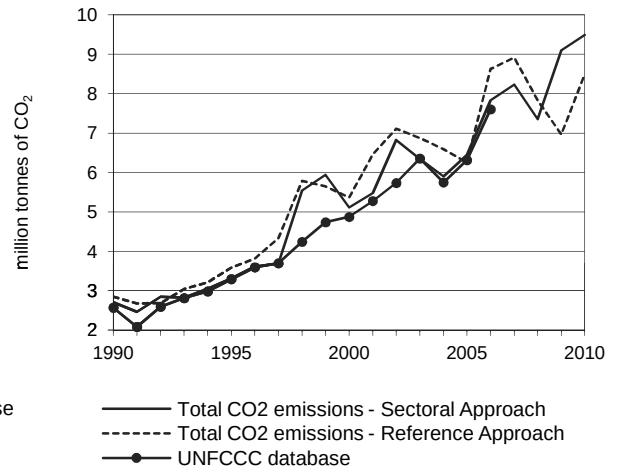


Figure 5. Electricity generation by fuel

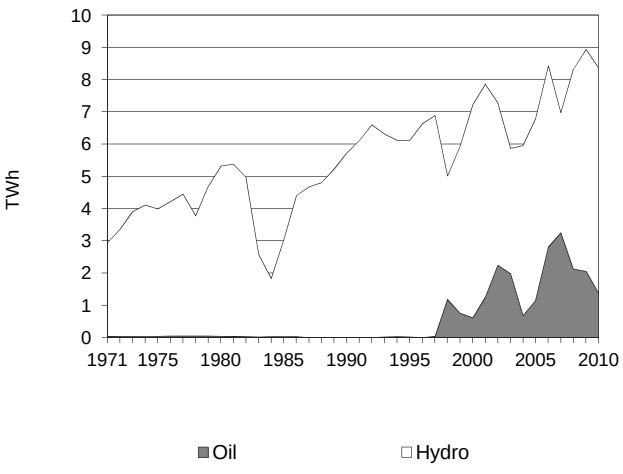
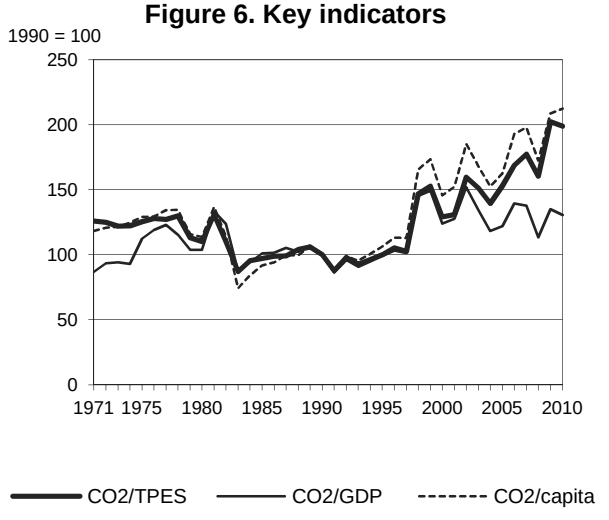


Figure 6. Key indicators



Ghana

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	2.71	3.31	5.11	6.44	7.35	9.10	9.49	250.1%
CO_2 Reference Approach ($MtCO_2$)	2.85	3.59	5.36	6.25	7.84	6.96	8.50	198.2%
TPES (PJ)	222	271	324	345	375	368	390	76.2%
TPES (Mtoe)	5.29	6.47	7.74	8.23	8.96	8.79	9.32	76.2%
GDP (billion 2005 USD)	5.50	6.79	8.39	10.72	13.17	13.69	14.75	168.0%
GDP PPP (billion 2005 USD)	13.42	16.55	20.45	26.14	32.11	33.39	35.97	168.0%
Population (millions)	14.79	17.00	19.17	21.64	23.26	23.82	24.39	64.9%
CO_2 / TPES (tCO_2 per TJ)	12.2	12.2	15.8	18.7	19.6	24.7	24.3	98.7%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.49	0.49	0.61	0.60	0.56	0.66	0.64	30.6%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.20	0.20	0.25	0.25	0.23	0.27	0.26	30.7%
CO_2 / population (tCO_2 per capita)	0.18	0.19	0.27	0.30	0.32	0.38	0.39	112.3%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**9.49**	**-**	**-**	**9.49**	**250.1%**
Main activity producer elec. and heat	-	2.17	-	-	2.17	x
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.10	-	-	0.10	33.3%
Manufacturing industries and construction	-	1.40	-	-	1.40	190.8%
Transport	-	4.91	-	-	4.91	207.2%
of which: road	-	*4.52*	-	-	*4.52*	197.9%
Other	-	0.91	-	-	0.91	63.8%
of which: residential	-	*0.53*	-	-	*0.53*	36.0%
Reference Approach	**-**	**8.50**	**-**	**-**	**8.50**	**198.2%**
Diff. due to losses and/or transformation	-	0.28	-	-	0.28	
Statistical differences	-	- 1.27	-	-	- 1.27	
Memo: international marine bunkers	-	*0.30*	-	-	*0.30*	*..*
Memo: international aviation bunkers	-	*0.36*	-	-	*0.36*	*157.1%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	4.52	197.9%	9.4	9.4
Main activity prod. elec. and heat - oil	2.17	x	4.5	13.9
Manufacturing industries - oil	1.40	190.8%	2.9	16.8
Residential - oil	0.53	36.0%	1.1	17.9
Other transport - oil	0.39	376.9%	0.8	18.7
Non-specified other - oil	0.37	131.0%	0.8	19.5
Other energy industry own use - oil	0.10	33.3%	0.2	19.7
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*9.49*	*250.1%*	*19.7*	*19.7*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Gibraltar

Figure 1. CO_2 emissions by fuel

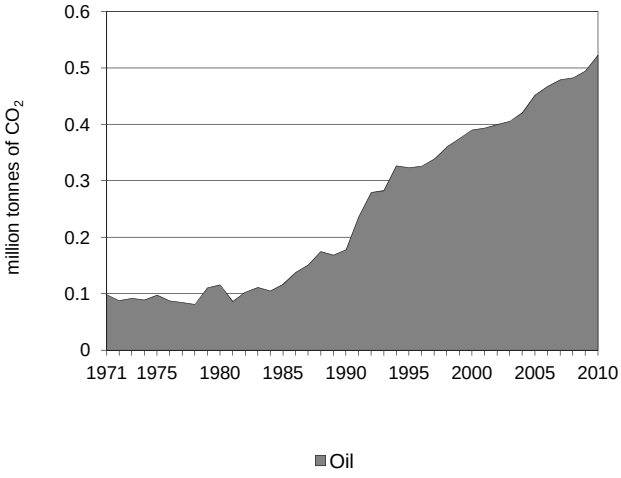


Figure 2. CO_2 emissions by sector

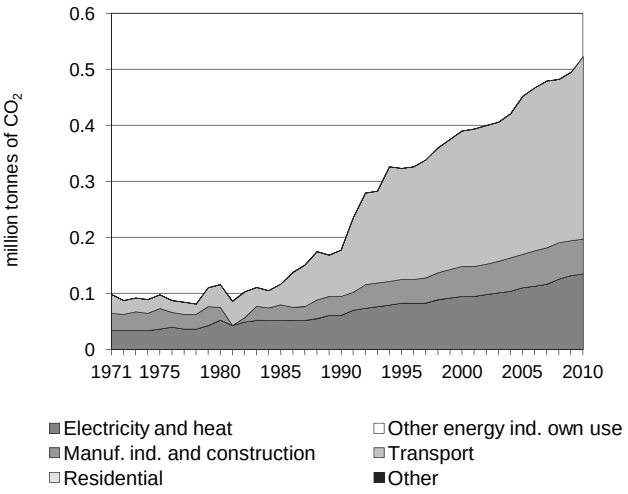


Figure 3. CO_2 emissions by sector

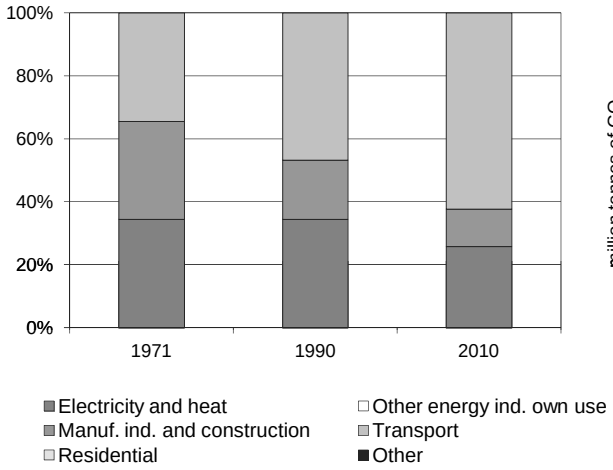


Figure 4. Reference vs Sectoral Approach

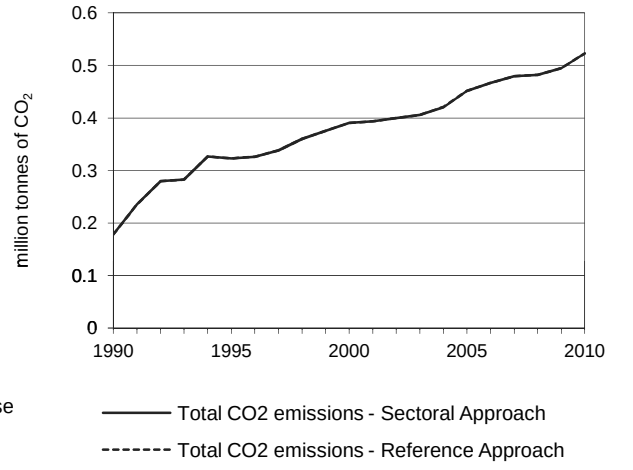


Figure 5. Electricity generation by fuel

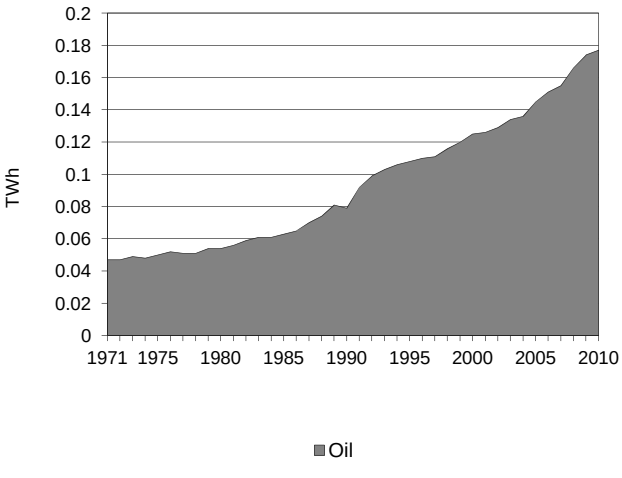
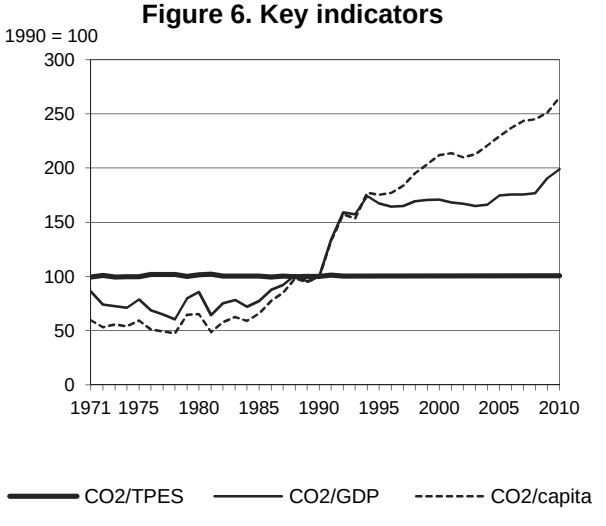


Figure 6. Key indicators



Gibraltar

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	0.18	0.32	0.39	0.45	0.48	0.49	0.52	193.9%
CO_2 Reference Approach ($MtCO_2$)	0.18	0.32	0.39	0.45	0.48	0.49	0.52	193.9%
TPES (PJ)	2	4	5	6	7	7	7	192.0%
TPES (Mtoe)	0.06	0.11	0.13	0.15	0.16	0.16	0.17	192.0%
GDP (billion 2005 USD)	0.71	0.77	0.91	1.03	1.09	1.04	1.05	47.7%
GDP PPP (billion 2005 USD)	0.62	0.67	0.79	0.89	0.94	0.90	0.91	47.6%
Population (millions)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	10.7%
CO_2 / TPES (tCO_2 per TJ)	72.6	72.9	72.9	73.0	73.1	73.0	73.1	0.6%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.25	0.42	0.43	0.44	0.44	0.48	0.50	99.0%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.29	0.48	0.49	0.51	0.51	0.55	0.58	99.0%
CO_2 / population (tCO_2 per capita)	6.35	11.14	13.46	14.57	15.56	15.95	16.86	165.4%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**0.52**	**-**	**-**	**0.52**	**193.9%**
Main activity producer elec. and heat	-	0.13	-	-	0.13	120.0%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.06	-	-	0.06	86.7%
Transport	-	0.33	-	-	0.33	291.5%
of which: road	-	*0.33*	-	-	*0.33*	291.5%
Other	-	-	-	-	-	-
of which: residential	-	-	-	-	-	-
Reference Approach	**-**	**0.52**	**-**	**-**	**0.52**	**193.9%**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	-	-	-	-	-	
Memo: international marine bunkers	-	*7.76*	-	-	*7.76*	*463.7%*
Memo: international aviation bunkers	-	*0.02*	-	-	*0.02*	*-28.6%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	0.33	291.5%	60.2	60.2
Main activity prod. elec. and heat - oil	0.13	120.0%	24.9	85.1
Manufacturing industries - oil	0.06	86.7%	11.6	96.7
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*0.52*	*193.9%*	*96.7*	*96.7*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Greece

Figure 1. CO_2 emissions by fuel

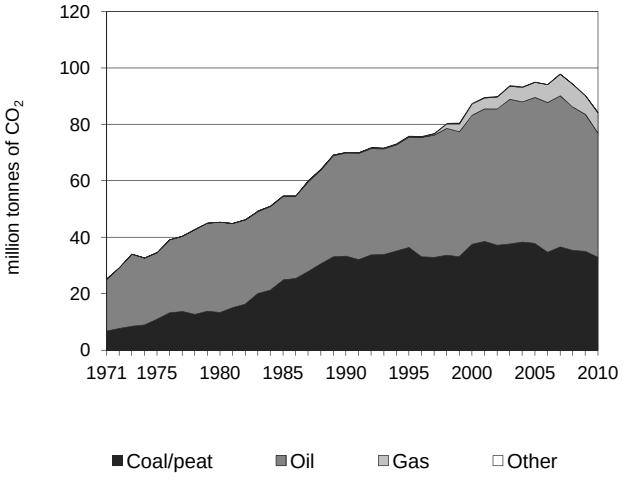


Figure 2. CO_2 emissions by sector

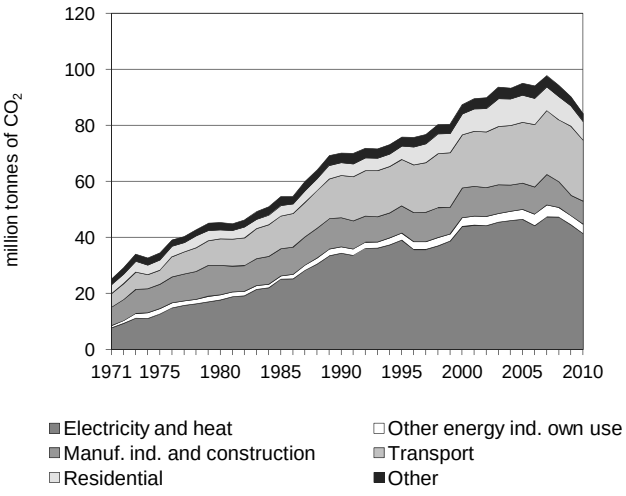


Figure 3. CO_2 emissions by sector

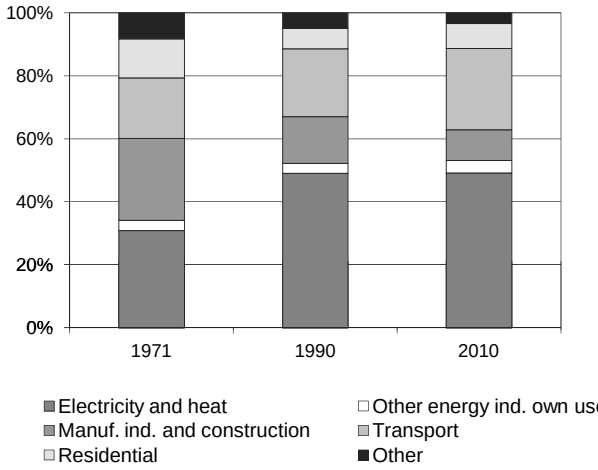


Figure 4. Reference vs Sectoral Approach

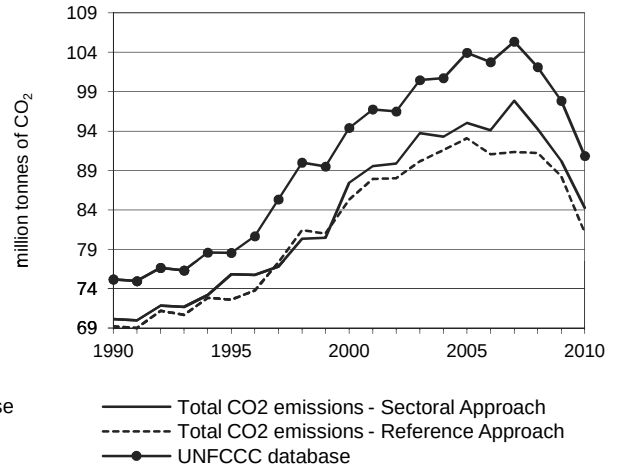


Figure 5. Electricity generation by fuel

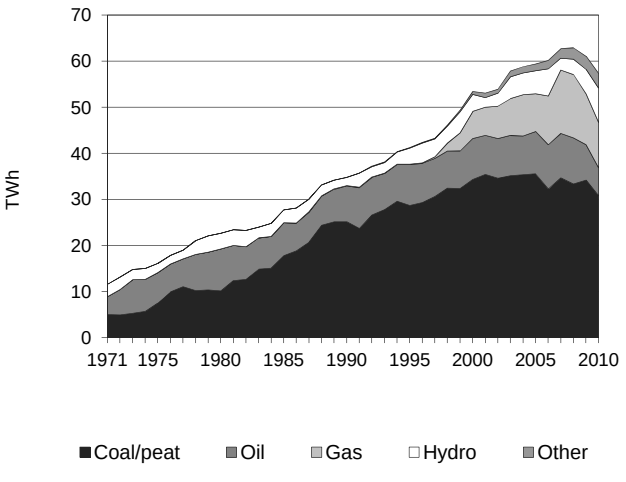
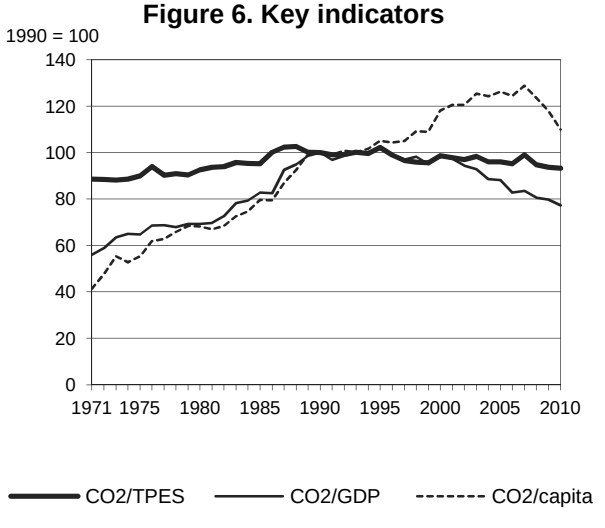


Figure 6. Key indicators



Greece

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	70.13	75.82	87.43	95.04	94.26	90.22	84.28	20.2%
CO_2 Reference Approach ($MtCO_2$)	69.23	72.62	85.28	93.10	91.22	88.24	81.11	17.2%
TPES (PJ)	898	949	1 134	1 266	1 274	1 232	1 156	28.8%
TPES (Mtoe)	21.44	22.68	27.09	30.25	30.42	29.44	27.62	28.8%
GDP (billion 2005 USD)	156.25	166.24	196.96	240.08	260.57	252.10	243.23	55.7%
GDP PPP (billion 2005 USD)	175.97	187.22	221.81	270.36	293.44	283.90	273.92	55.7%
Population (millions)	10.34	10.63	10.92	11.10	11.24	11.28	11.31	9.4%
CO_2 / TPES (tCO_2 per TJ)	78.1	79.9	77.1	75.0	74.0	73.2	72.9	-6.7%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.45	0.46	0.44	0.40	0.36	0.36	0.35	-22.8%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.40	0.41	0.39	0.35	0.32	0.32	0.31	-22.8%
CO_2 / population (tCO_2 per capita)	6.78	7.13	8.01	8.56	8.39	8.00	7.45	9.9%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**32.95**	**43.95**	**7.24**	**0.15**	**84.28**	**20.2%**
Main activity producer elec. and heat	31.77	4.02	4.43	-	40.23	18.5%
Unallocated autoproducers	-	0.66	0.38	0.15	1.19	145.4%
Other energy industry own use	-	3.33	0.04	-	3.37	51.2%
Manufacturing industries and construction	1.16	5.60	1.43	-	8.19	-21.2%
Transport	-	21.78	0.03	-	21.81	44.6%
of which: road	-	*18.70*	*0.03*	-	*18.73*	62.9%
Other	0.01	8.56	0.92	-	9.49	18.7%
of which: residential	*0.01*	*6.01*	*0.59*	-	*6.62*	44.3%
Reference Approach	**32.54**	**41.14**	**7.28**	**0.15**	**81.11**	**17.2%**
Diff. due to losses and/or transformation	-	- 1.66	0.04	-	- 1.62	
Statistical differences	- 0.40	- 1.15	0.01	-	- 1.55	
Memo: international marine bunkers	-	*8.60*	-	-	*8.60*	*7.9%*
Memo: international aviation bunkers	-	*2.02*	-	-	*2.02*	*-13.7%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	31.77	11.1%	28.4	28.4
Road - oil	18.70	62.6%	16.7	45.2
Residential - oil	6.01	33.5%	5.4	50.6
Manufacturing industries - oil	5.60	0.5%	5.0	55.6
Main activity prod. elec. and heat - gas	4.43	x	4.0	59.5
Main activity prod. elec. and heat - oil	4.02	-24.7%	3.6	63.1
Other energy industry own use - oil	3.33	53.0%	3.0	66.1
Other transport - oil	3.08	-14.1%	2.8	68.9
Non-specified other - oil	2.54	-24.5%	2.3	71.2
Manufacturing industries - gas	1.43	843.0%	1.3	72.4
Manufacturing industries - coal/peat	1.16	-75.1%	1.0	73.5
Memo: total CO_2 from fuel combustion	*84.28*	*20.2%*	*75.4*	*75.4*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Guatemala

Figure 1. CO_2 emissions by fuel

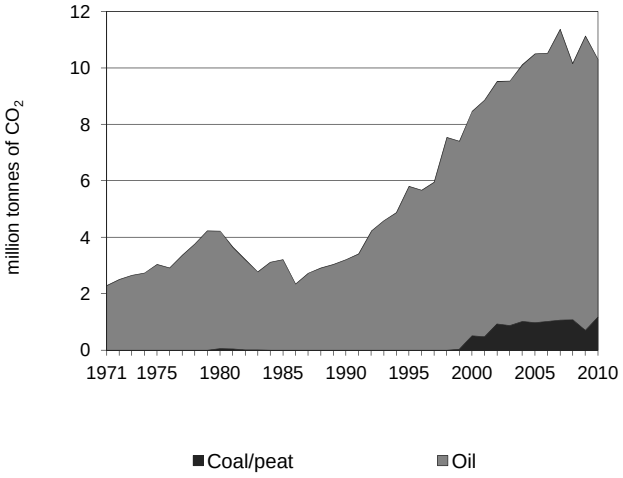


Figure 2. CO_2 emissions by sector

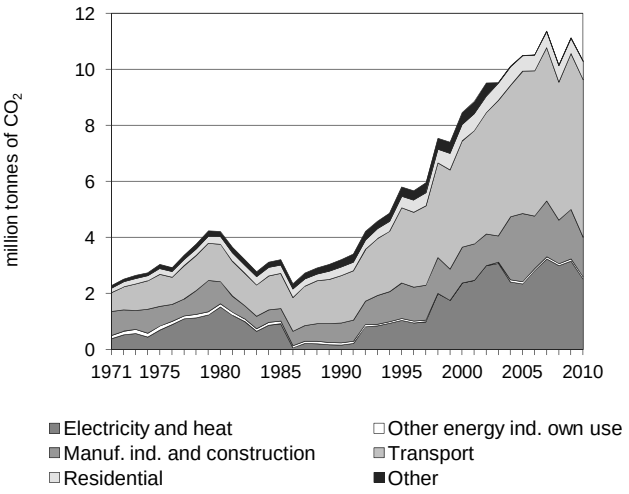


Figure 3. CO_2 emissions by sector

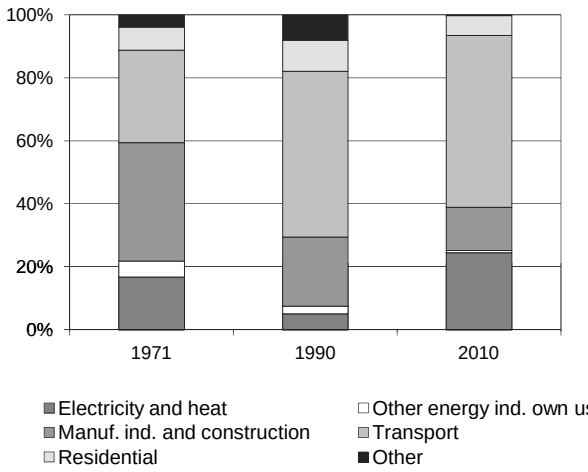


Figure 4. Reference vs Sectoral Approach

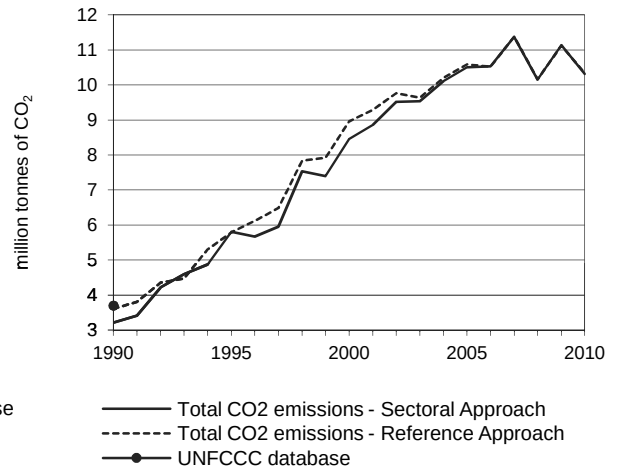


Figure 5. Electricity generation by fuel

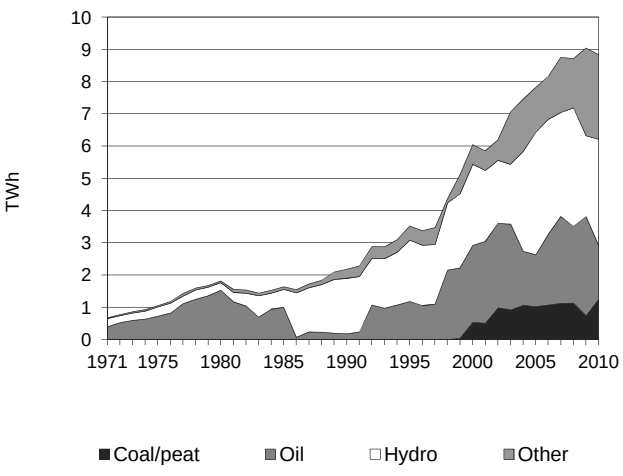
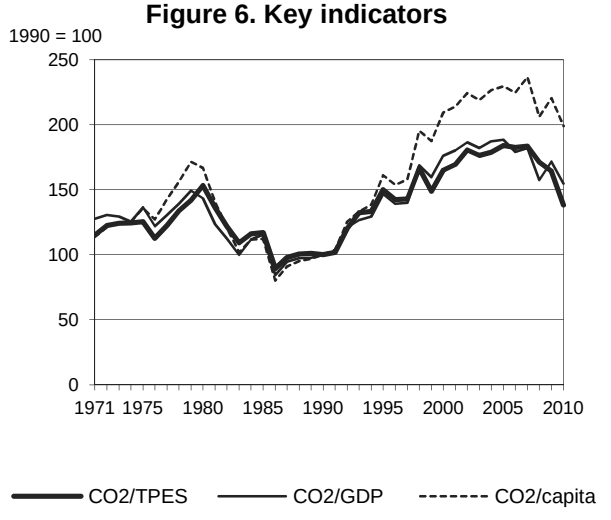


Figure 6. Key indicators



Guatemala

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	3.21	5.81	8.46	10.50	10.15	11.13	10.31	221.2%
CO_2 Reference Approach ($MtCO_2$)	3.61	5.79	8.96	10.58	10.16	11.13	10.34	186.6%
TPES (PJ)	185	223	295	329	342	390	429	132.2%
TPES (Mtoe)	4.42	5.33	7.05	7.86	8.16	9.32	10.26	132.2%
GDP (billion 2005 USD)	15.66	19.31	23.44	27.21	31.48	31.66	32.54	107.8%
GDP PPP (billion 2005 USD)	29.73	36.66	44.50	51.65	59.76	60.09	61.76	107.8%
Population (millions)	8.92	10.02	11.24	12.72	13.69	14.03	14.39	61.3%
CO_2 / TPES (tCO_2 per TJ)	17.4	26.0	28.7	31.9	29.7	28.5	24.0	38.3%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.20	0.30	0.36	0.39	0.32	0.35	0.32	54.6%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.11	0.16	0.19	0.20	0.17	0.19	0.17	54.5%
CO_2 / population (tCO_2 per capita)	0.36	0.58	0.75	0.83	0.74	0.79	0.72	99.1%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**1.17**	**9.13**	**-**	**-**	**10.31**	**221.2%**
Main activity producer elec. and heat	1.17	1.29	-	-	2.46	+
Unallocated autoproducers	-	0.06	-	-	0.06	x
Other energy industry own use	-	0.07	-	-	0.07	-9.4%
Manufacturing industries and construction	-	1.41	-	-	1.41	100.8%
Transport	-	5.62	-	-	5.62	232.8%
of which: road	-	*5.62*	-	-	*5.62*	232.5%
Other	-	0.68	-	-	0.68	17.9%
of which: residential	-	*0.66*	-	-	*0.66*	107.7%
Reference Approach	**1.18**	**9.16**	**-**	**-**	**10.34**	**186.6%**
Diff. due to losses and/or transformation	-	0.02	-	-	0.02	
Statistical differences	0.00	0.01	-	-	0.01	
Memo: international marine bunkers	-	*0.89*	-	-	*0.89*	*109.0%*
Memo: international aviation bunkers	-	*0.12*	-	-	*0.12*	*-4.8%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	5.62	232.5%	23.8	23.8
Manufacturing industries - oil	1.41	100.8%	6.0	29.7
Main activity prod. elec. and heat - oil	1.29	692.3%	5.4	35.2
Main activity prod. elec. and heat - coal/peat	1.17	x	5.0	40.2
Residential - oil	0.66	107.7%	2.8	42.9
Other energy industry own use - oil	0.07	-9.4%	0.3	43.2
Unallocated autoproducers - oil	0.06	x	0.3	43.5
Non-specified other - oil	0.02	-91.9%	0.1	43.6
Other transport - oil	0.01	x	0.0	43.6
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*10.31*	*221.2%*	*43.6*	*43.6*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Haiti

Figure 1. CO_2 emissions by fuel

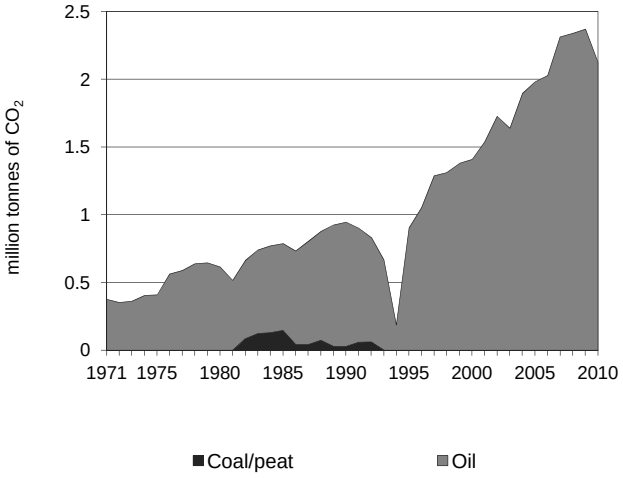


Figure 2. CO_2 emissions by sector

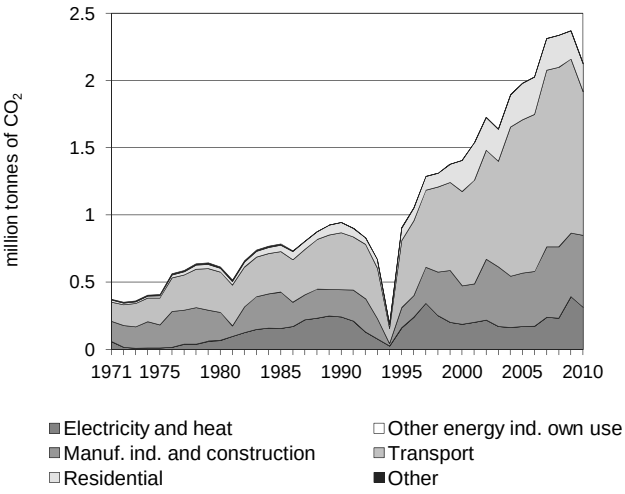


Figure 3. CO_2 emissions by sector

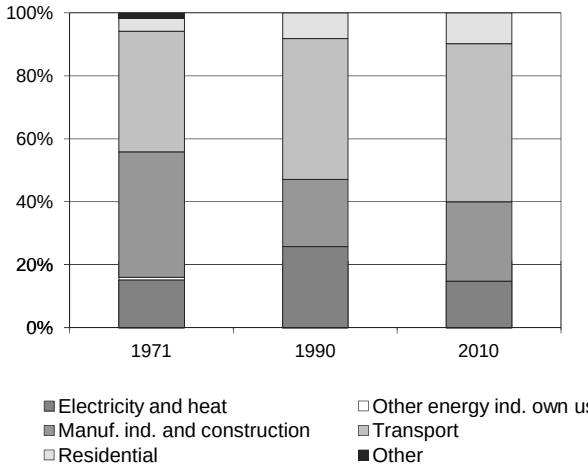


Figure 4. Reference vs Sectoral Approach

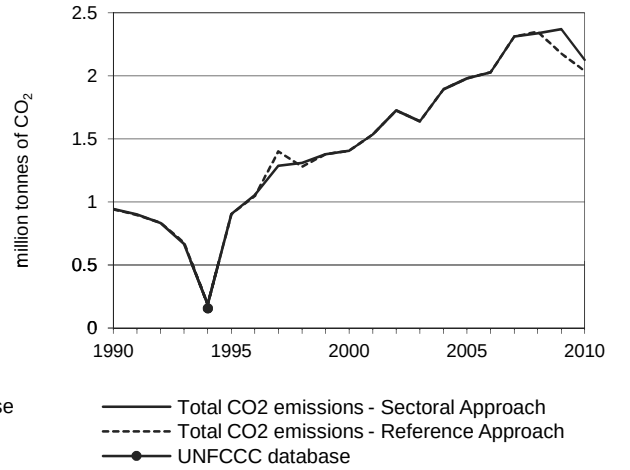


Figure 5. Electricity generation by fuel

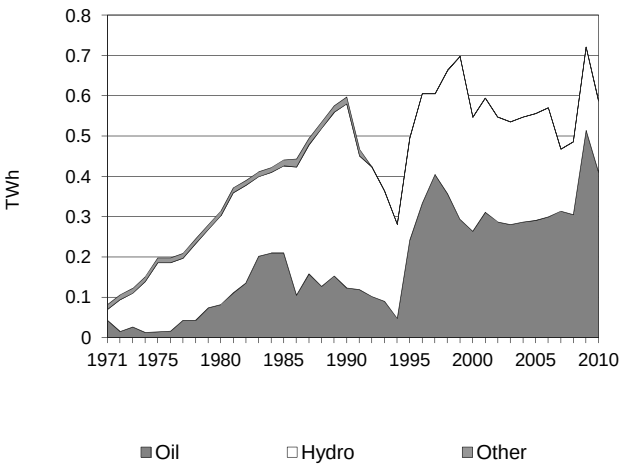
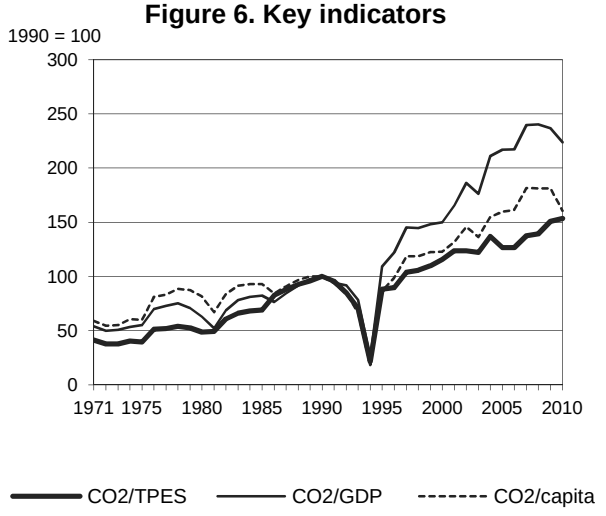


Figure 6. Key indicators



Haiti

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	0.94	0.90	1.41	1.98	2.34	2.37	2.13	125.1%
CO_2 Reference Approach ($MtCO_2$)	0.94	0.90	1.41	1.98	2.35	2.18	2.04	116.6%
TPES (PJ)	65	71	84	108	116	109	96	46.6%
TPES (Mtoe)	1.56	1.69	2.01	2.58	2.77	2.60	2.29	46.6%
GDP (billion 2005 USD)	4.30	3.77	4.27	4.15	4.43	4.55	4.32	0.6%
GDP PPP (billion 2005 USD)	9.89	8.68	9.83	9.56	10.19	10.49	9.96	0.6%
Population (millions)	7.13	7.88	8.65	9.35	9.74	9.86	9.99	40.3%
CO_2 / TPES (tCO_2 per TJ)	14.5	12.8	16.7	18.3	20.1	21.8	22.2	53.5%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.22	0.24	0.33	0.48	0.53	0.52	0.49	123.7%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.10	0.10	0.14	0.21	0.23	0.23	0.21	123.7%
CO_2 / population (tCO_2 per capita)	0.13	0.11	0.16	0.21	0.24	0.24	0.21	60.5%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**2.13**	**-**	**-**	**2.13**	**125.1%**
Main activity producer elec. and heat	-	0.32	-	-	0.32	42.5%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.54	-	-	0.54	165.2%
Transport	-	1.07	-	-	1.07	152.6%
of which: road	-	*0.37*	-	-	*0.37*	103.3%
Other	-	0.21	-	-	0.21	171.9%
of which: residential	-	*0.21*	-	-	*0.21*	171.9%
Reference Approach	**-**	**2.04**	**-**	**-**	**2.04**	**116.6%**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	-	- 0.09	-	-	- 0.09	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.06*	-	-	*0.06*	*-13.0%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Other transport - oil	0.69	190.7%	8.3	8.3
Manufacturing industries - oil	0.54	209.1%	6.4	14.8
Road - oil	0.37	103.3%	4.5	19.3
Main activity prod. elec. and heat - oil	0.32	42.5%	3.8	23.1
Residential - oil	0.21	171.9%	2.5	25.6
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*2.13*	*125.1%*	*25.6*	*25.6*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Honduras

Figure 1. CO_2 emissions by fuel

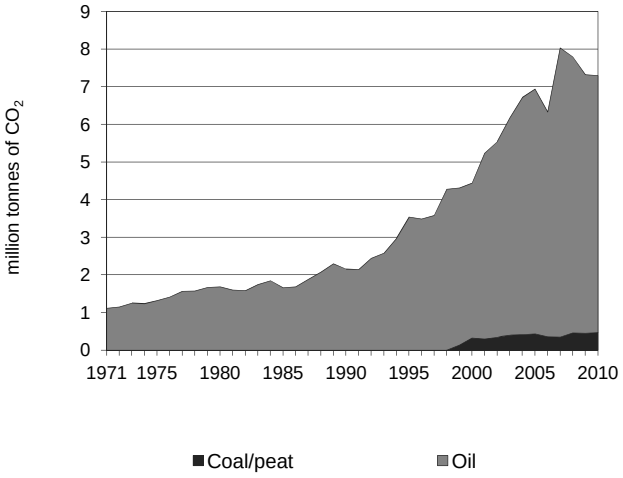


Figure 2. CO_2 emissions by sector

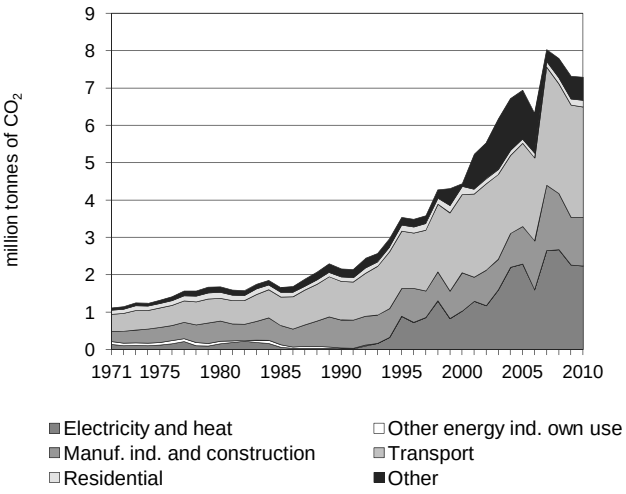


Figure 3. CO_2 emissions by sector

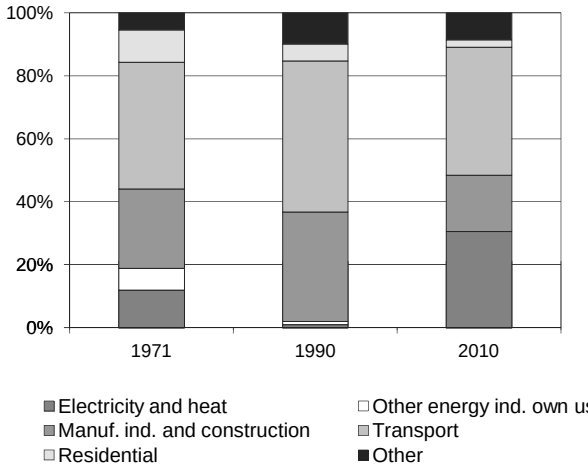


Figure 4. Reference vs Sectoral Approach

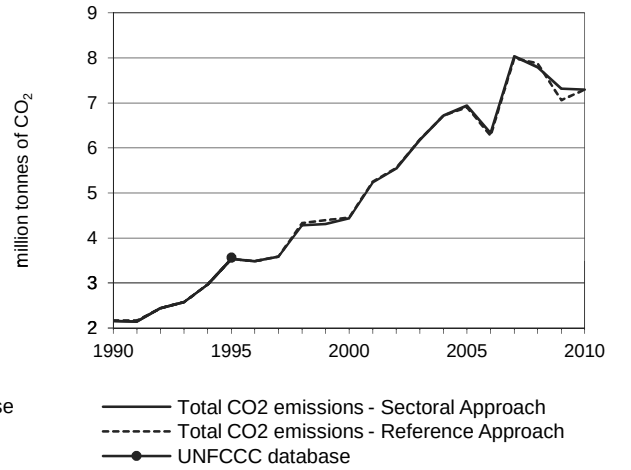


Figure 5. Electricity generation by fuel

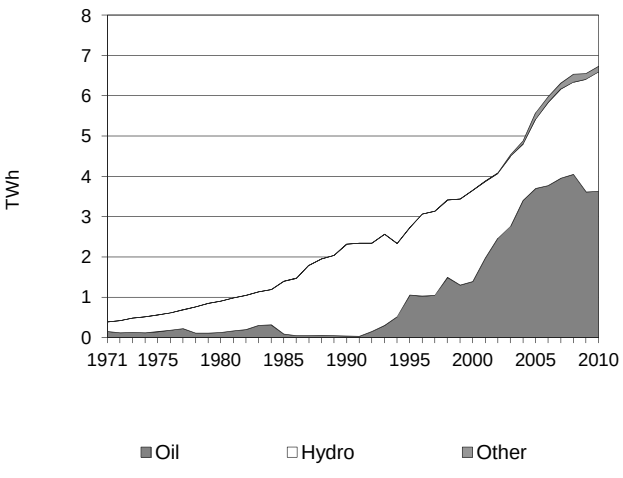
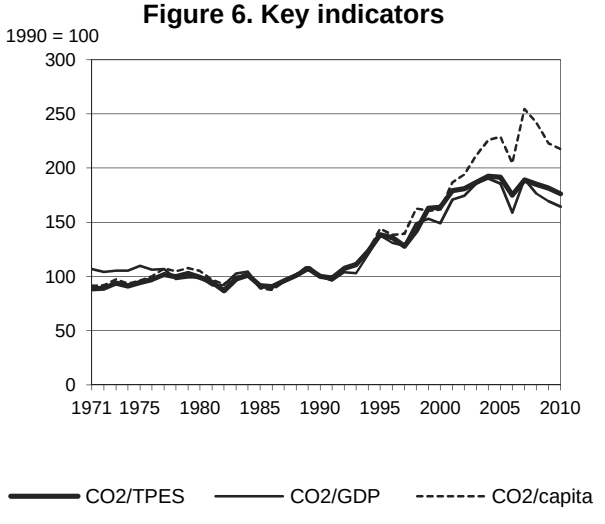


Figure 6. Key indicators



Honduras

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	2.16	3.54	4.44	6.94	7.79	7.32	7.30	238.3%
CO_2 Reference Approach ($MtCO_2$)	2.16	3.54	4.46	6.91	7.88	7.06	7.30	237.7%
TPES (PJ)	100	118	125	167	195	186	191	91.9%
TPES (Mtoe)	2.38	2.82	2.99	4.00	4.65	4.45	4.57	91.9%
GDP (billion 2005 USD)	5.63	6.69	7.77	9.76	11.51	11.26	11.58	105.8%
GDP PPP (billion 2005 USD)	13.00	15.46	17.96	22.54	26.59	26.02	26.74	105.8%
Population (millions)	4.89	5.58	6.22	6.88	7.30	7.45	7.60	55.5%
CO_2 / TPES (tCO_2 per TJ)	21.7	29.9	35.5	41.5	40.1	39.3	38.2	76.2%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.38	0.53	0.57	0.71	0.68	0.65	0.63	64.4%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.17	0.23	0.25	0.31	0.29	0.28	0.27	64.4%
CO_2 / population (tCO_2 per capita)	0.44	0.63	0.71	1.01	1.07	0.98	0.96	117.6%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.47**	**6.82**	**-**	**-**	**7.30**	**238.3%**
Main activity producer elec. and heat	-	2.23	-	-	2.23	+
Unallocated autoproducers	..	..	..	..	..	..
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.47	0.83	-	-	1.31	74.5%
Transport	-	2.96	-	-	2.96	186.0%
of which: road	-	*2.96*	-	-	*2.96*	186.0%
Other	-	0.80	-	-	0.80	141.7%
of which: residential	-	*0.18*	-	-	*0.18*	51.1%
Reference Approach	**0.47**	**6.83**	**-**	**-**	**7.30**	**237.7%**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	-	0.00	-	-	0.00	
Memo: international marine bunkers	-	*0.00*	-	-	*0.00*	..
Memo: international aviation bunkers	-	*0.15*	-	-	*0.15*	*58.6%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	2.96	186.0%	17.5	17.5
Main activity prod. elec. and heat - oil	2.23	+	13.2	30.7
Manufacturing industries - oil	0.83	12.0%	4.9	35.6
Non-specified other - oil	0.62	191.3%	3.7	39.3
Manufacturing industries - coal/peat	0.47	+	2.8	42.1
Residential - oil	0.18	51.1%	1.0	43.1
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*7.30*	*238.3%*	*43.1*	*43.1*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Hong Kong, China

Figure 1. CO_2 emissions by fuel

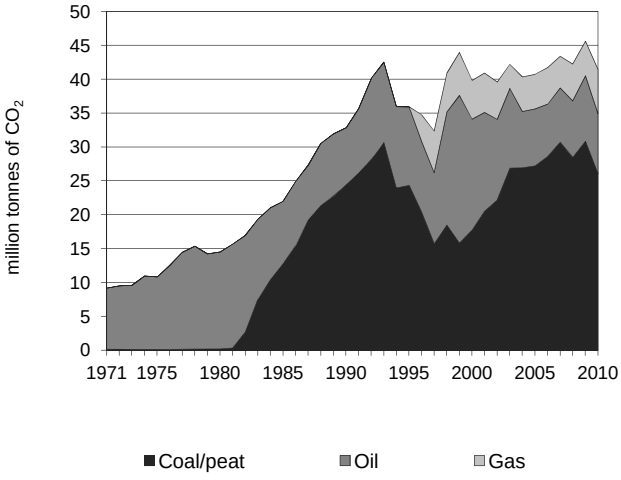


Figure 2. CO_2 emissions by sector

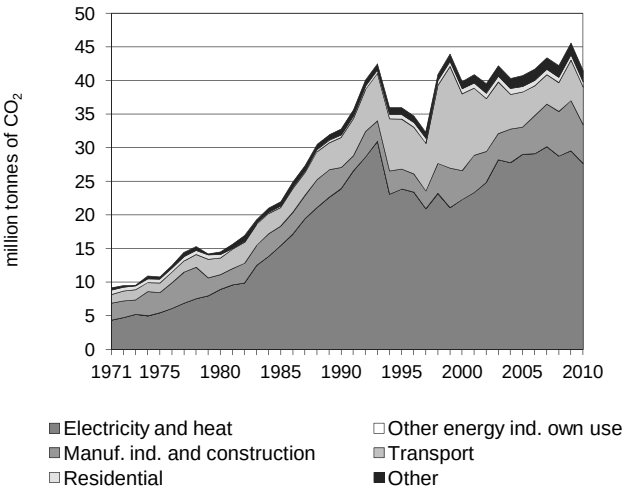


Figure 3. CO_2 emissions by sector

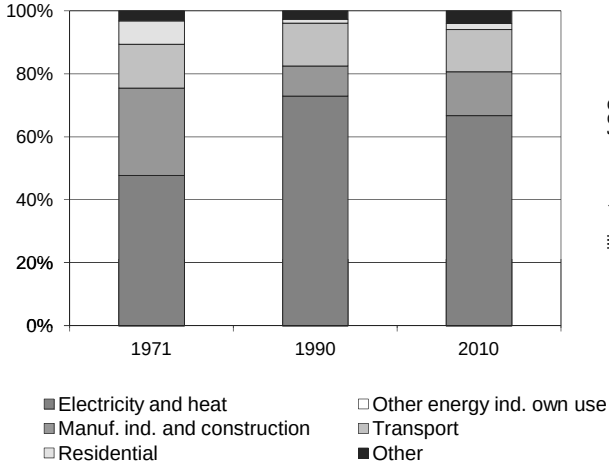


Figure 4. Reference vs Sectoral Approach

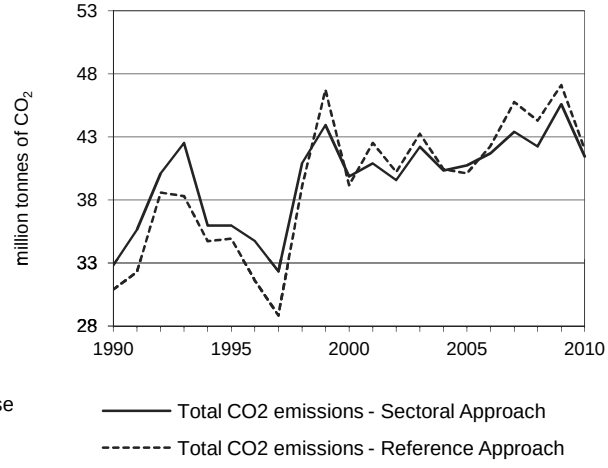


Figure 5. Electricity generation by fuel

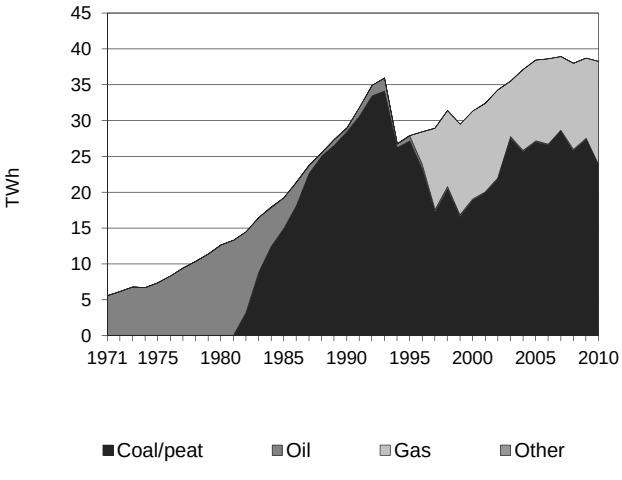
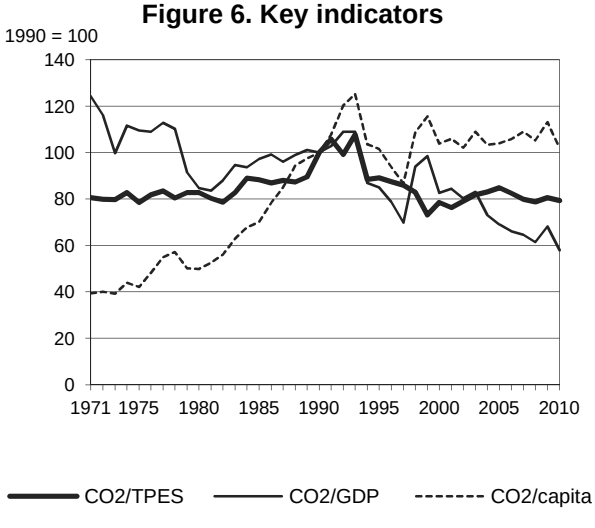


Figure 6. Key indicators



Hong Kong, China

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	32.82	35.97	39.85	40.75	42.25	45.60	41.47	26.3%
CO_2 Reference Approach ($MtCO_2$)	30.91	34.94	39.18	40.12	44.29	47.12	42.02	36.0%
TPES (PJ)	362	446	561	530	592	625	577	59.3%
TPES (Mtoe)	8.66	10.65	13.39	12.66	14.14	14.93	13.79	59.3%
GDP (billion 2005 USD)	98.86	127.48	145.18	177.77	207.08	201.57	215.62	118.1%
GDP PPP (billion 2005 USD)	135.18	174.32	198.52	243.08	283.15	275.62	294.83	118.1%
Population (millions)	5.71	6.16	6.67	6.81	6.98	7.00	7.07	23.9%
CO_2 / TPES (tCO_2 per TJ)	90.6	80.7	71.1	76.9	71.4	72.9	71.8	-20.7%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.33	0.28	0.27	0.23	0.20	0.23	0.19	-42.1%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.24	0.21	0.20	0.17	0.15	0.17	0.14	-42.1%
CO_2 / population (tCO_2 per capita)	5.75	5.84	5.98	5.98	6.05	6.51	5.87	2.0%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**26.06**	**8.88**	**6.53**	**-**	**41.47**	**26.3%**
Main activity producer elec. and heat	21.05	0.12	6.53	-	27.70	15.6%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	3.69	2.06	-	-	5.74	84.7%
Transport	-	5.59	-	-	5.59	24.4%
of which: road	-	*5.59*	-	-	*5.59*	24.5%
Other	1.32	1.11	-	-	2.43	93.3%
of which: residential	*0.76*	*0.04*	-	-	*0.80*	111.8%
Reference Approach	**24.69**	**10.01**	**7.32**	**-**	**42.02**	**36.0%**
Diff. due to losses and/or transformation	- 1.36	1.57	0.78	-	0.99	
Statistical differences	- 0.00	- 0.44	0.00	-	- 0.44	
Memo: international marine bunkers	-	*38.59*	-	-	*38.59*	*753.3%*
Memo: international aviation bunkers	-	*16.20*	-	-	*16.20*	*188.0%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	21.05	-10.9%	44.8	44.8
Main activity prod. elec. and heat - gas	6.53	x	13.9	58.7
Road - oil	5.59	24.5%	11.9	70.6
Manufacturing industries - coal/peat	3.69	+	7.8	78.5
Manufacturing industries - oil	2.06	-33.1%	4.4	82.9
Non-specified other - oil	1.07	97.8%	2.3	85.1
Residential - coal/peat	0.76	101.1%	1.6	86.7
Non-specified other sectors - coal/peat	0.56	65.6%	1.2	87.9
Main activity prod. elec. and heat - oil	0.12	-63.2%	0.3	88.2
Residential - oil	0.04	x	0.1	88.3
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*41.47*	*26.3%*	*88.3*	*88.3*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Hungary

Figure 1. CO_2 emissions by fuel

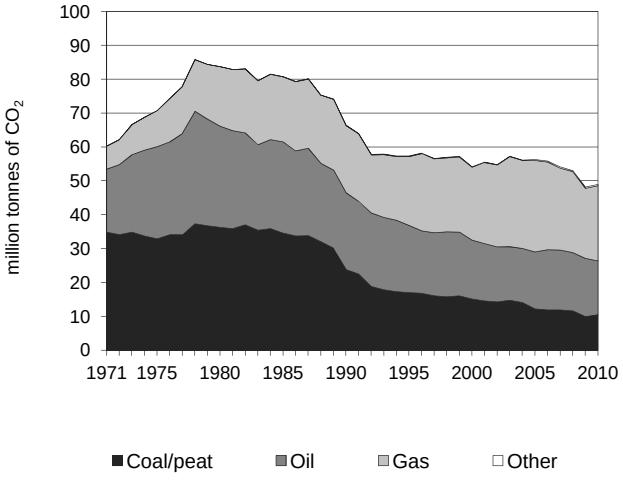


Figure 2. CO_2 emissions by sector

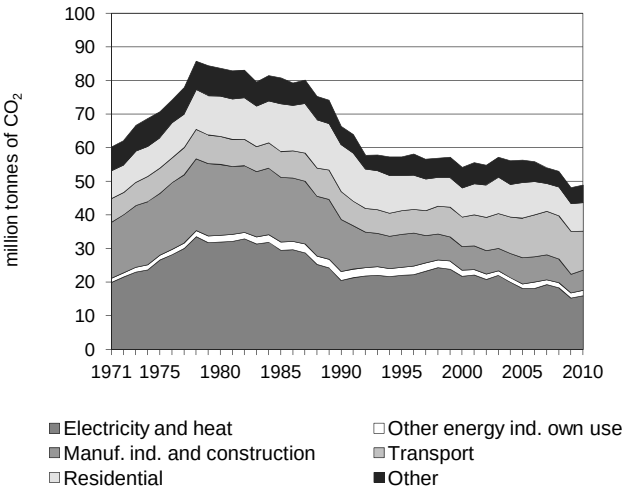


Figure 3. CO_2 emissions by sector

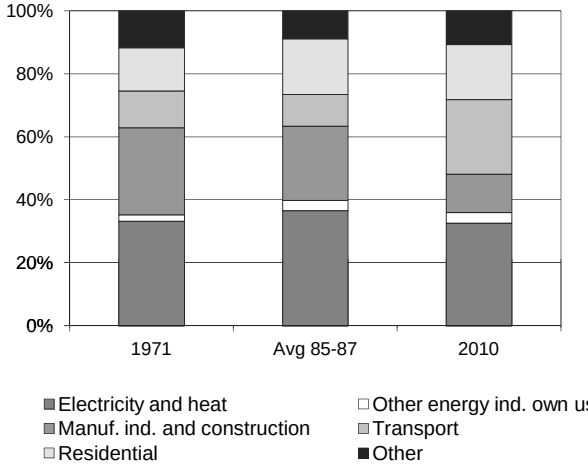


Figure 4. Reference vs Sectoral Approach

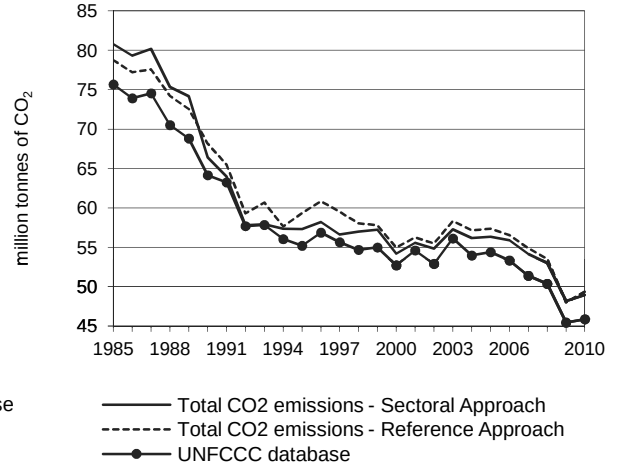


Figure 5. Electricity generation by fuel

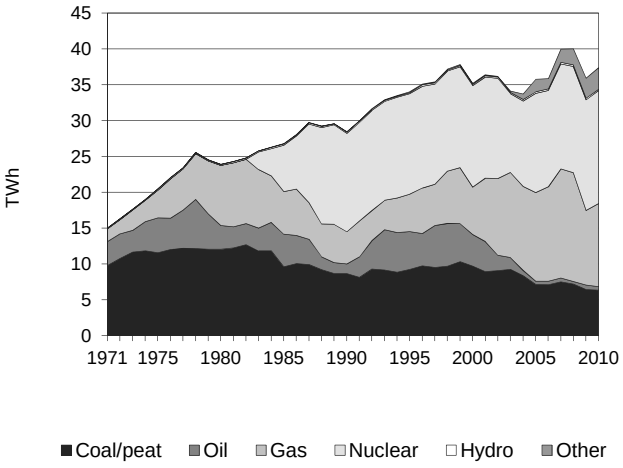
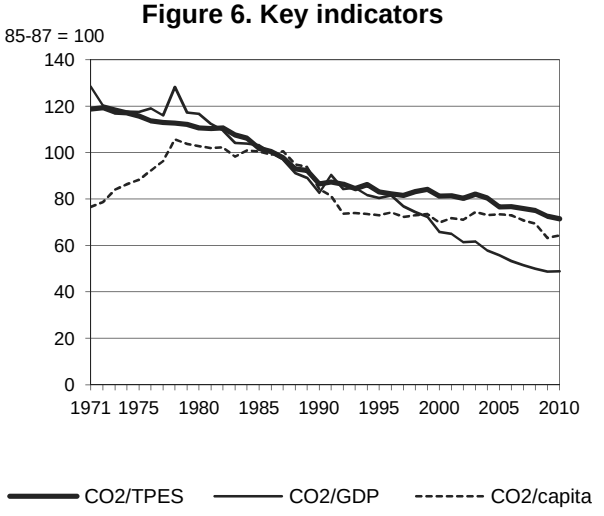


Figure 6. Key indicators



Hungary *

Key indicators

	Avg 85-87	1990	1995	2005	2008	2009	2010	% change base-10
CO_2 Sectoral Approach ($MtCO_2$)	80.10	66.40	57.31	56.35	53.01	48.16	48.95	-38.9%
CO_2 Reference Approach ($MtCO_2$)	77.85	68.14	59.35	57.33	53.54	48.01	49.33	-36.6%
TPES (PJ)	1 258	1 204	1 083	1 155	1 108	1 041	1 075	-14.5%
TPES (Mtoe)	30.04	28.76	25.88	27.58	26.46	24.86	25.67	-14.5%
GDP (billion 2005 USD)	87.49	87.69	77.80	110.32	115.78	107.91	109.27	24.9%
GDP PPP (billion 2005 USD)	135.78	136.10	120.75	171.22	179.69	167.48	169.58	24.9%
Population (millions)	10.53	10.37	10.33	10.09	10.04	10.02	10.00	-5.1%
CO_2 / TPES (tCO_2 per TJ)	63.7	55.2	52.9	48.8	47.9	46.3	45.5	-28.5%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.92	0.76	0.74	0.51	0.46	0.45	0.45	-51.1%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.59	0.49	0.47	0.33	0.30	0.29	0.29	-51.1%
CO_2 / population (tCO_2 per capita)	7.60	6.41	5.55	5.59	5.28	4.81	4.89	-35.6%

Ratios are based on the Sectoral Approach.

* According to the provisions of Article 4.6 of the Convention and Decisions 9/CP.2 and 11/CP.4, Hungary is allowed to use average 85-87 as the base year.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other **	Total	% change base-10
Sectoral Approach	**10.45**	**15.93**	**22.17**	**0.40**	**48.95**	**-38.9%**
Main activity producer elec. and heat	8.38	0.44	6.72	0.24	15.79	-38.2%
Unallocated autoproducers	0.00	0.01	0.18	0.01	0.20	-94.6%
Other energy industry own use	0.17	0.94	0.53	-	1.64	-36.1%
Manufacturing industries and construction	1.28	1.69	2.83	0.14	5.95	-68.6%
Transport	-	11.61	0.00	-	11.62	44.6%
of which: road	-	*11.35*	*0.00*	-	*11.36*	63.5%
Other	0.61	1.24	11.91	-	13.76	-35.4%
of which: residential	*0.59*	*0.34*	*7.62*	-	*8.55*	-39.7%
Reference Approach	**10.66**	**15.62**	**22.65**	**0.40**	**49.33**	**-36.6%**
Diff. due to losses and/or transformation	0.16	- 0.33	0.48	-	0.31	
Statistical differences	0.05	0.03	-	-	0.07	
Memo: international marine bunkers	-	-	-	-	-	-
Memo: international aviation bunkers	-	*0.70*	-	-	*0.70*	*58.3%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change base-10	Level assessment (%) ***	Cumulative total (%)
Road - oil	11.35	63.4%	16.0	16.0
Main activity prod. elec. and heat - coal/peat	8.38	-49.8%	11.8	27.9
Residential - gas	7.62	206.3%	10.8	38.7
Main activity prod. elec. and heat - gas	6.72	41.6%	9.5	48.2
Non-specified other - gas	4.30	148.7%	6.1	54.2
Manufacturing industries - gas	2.83	-68.2%	4.0	58.2
Manufacturing industries - oil	1.69	-60.6%	2.4	60.6
Manufacturing industries - coal/peat	1.28	-77.6%	1.8	62.4
Other energy industry own use - oil	0.94	-50.5%	1.3	63.7
Non-specified other - oil	0.90	-78.4%	1.3	65.0
Residential - coal/peat	0.59	-93.4%	0.8	65.9
Memo: total CO_2 from fuel combustion	*48.95*	*-38.9%*	*69.2*	*69.2*

*** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Iceland

Figure 1. CO_2 emissions by fuel

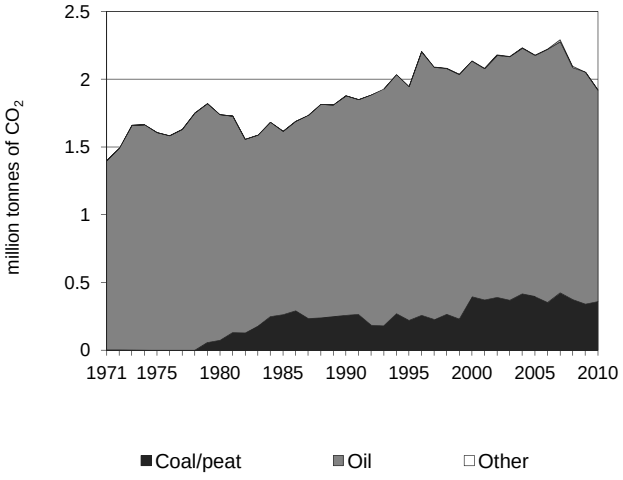


Figure 2. CO_2 emissions by sector

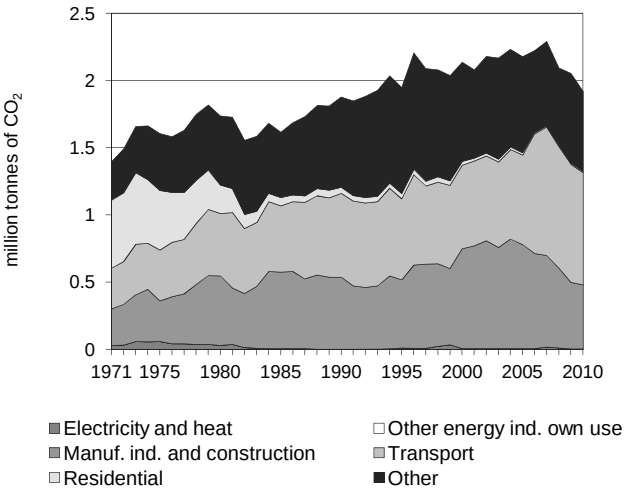


Figure 3. CO_2 emissions by sector

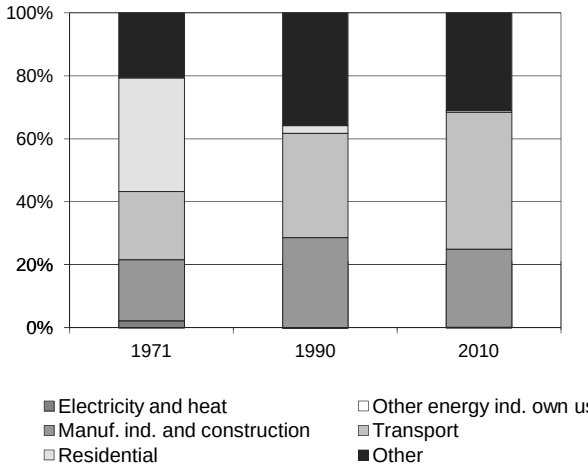


Figure 4. Reference vs Sectoral Approach

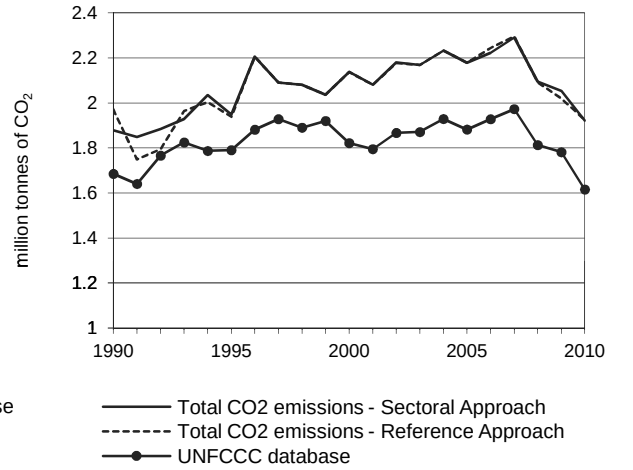


Figure 5. Electricity generation by fuel

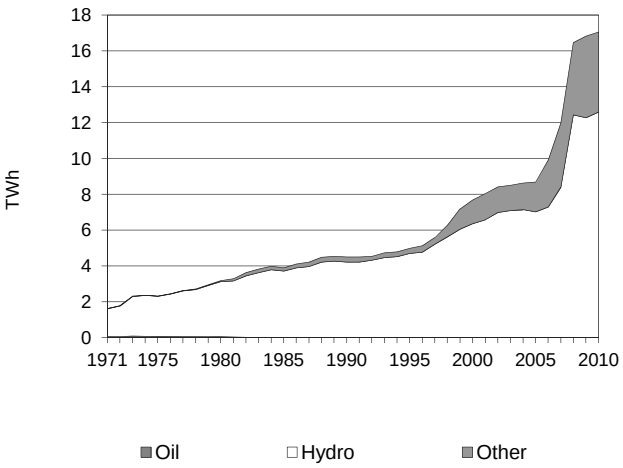
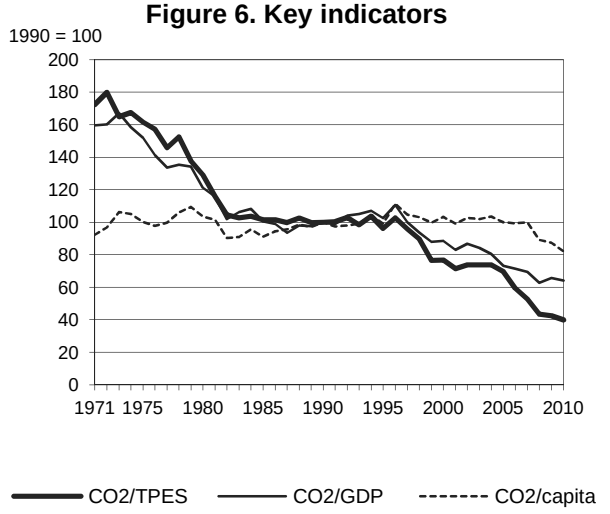


Figure 6. Key indicators



Iceland

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	1.88	1.95	2.14	2.18	2.09	2.05	1.92	2.3%
CO_2 Reference Approach ($MtCO_2$)	1.97	1.94	2.14	2.18	2.09	2.02	1.92	-2.3%
TPES (PJ)	87	94	130	146	224	225	225	157.1%
TPES (Mtoe)	2.09	2.25	3.10	3.48	5.35	5.38	5.37	157.1%
GDP (billion 2005 USD)	10.27	10.41	13.21	16.29	18.30	17.08	16.40	59.6%
GDP PPP (billion 2005 USD)	6.53	6.62	8.40	10.35	11.64	10.86	10.42	59.6%
Population (millions)	0.26	0.27	0.28	0.30	0.32	0.32	0.32	24.7%
CO_2 / TPES (tCO_2 per TJ)	21.5	20.7	16.5	15.0	9.3	9.1	8.5	-60.2%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.18	0.19	0.16	0.13	0.11	0.12	0.12	-35.9%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.29	0.29	0.25	0.21	0.18	0.19	0.18	-35.9%
CO_2 / population (tCO_2 per capita)	7.37	7.30	7.60	7.36	6.57	6.44	6.04	-17.9%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.36**	**1.56**	**-**	**0.00**	**1.92**	**2.3%**
Main activity producer elec. and heat	-	0.00	-	-	0.00	-
Unallocated autoproducers	-	-	-	0.00	0.00	x
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	0.36	0.12	-	-	0.48	-11.3%
Transport	-	0.84	-	-	0.84	34.5%
of which: road	-	*0.78*	-	-	*0.78*	47.5%
Other	-	0.61	-	-	0.61	-15.6%
of which: residential	-	*0.01*	-	-	*0.01*	-80.4%
Reference Approach	**0.36**	**1.56**	**-**	**0.00**	**1.92**	**-2.3%**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	-	0.00	-	-	0.00	
Memo: international marine bunkers	-	*0.18*	-	-	*0.18*	*85.4%*
Memo: international aviation bunkers	-	*0.37*	-	-	*0.37*	*69.0%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	0.78	47.5%	16.1	16.1
Non-specified other - oil	0.60	-11.2%	12.3	28.4
Manufacturing industries - coal/peat	0.36	39.5%	7.4	35.8
Manufacturing industries - oil	0.12	-58.5%	2.4	38.2
Other transport - oil	0.06	-40.0%	1.1	39.3
Residential - oil	0.01	-80.4%	0.2	39.5
Main activity prod. elec. and heat - oil	0.00	-	0.1	39.6
Unallocated autoproducers - other	0.00	x	0.0	39.6
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*1.92*	*2.3%*	*39.6*	*39.6*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

India

Figure 1. CO_2 emissions by fuel

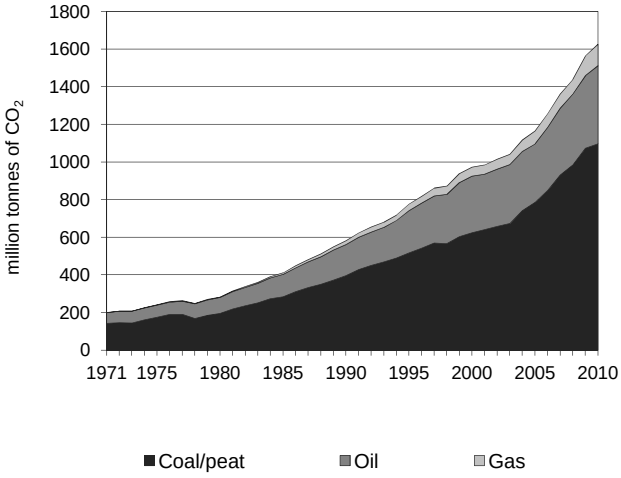


Figure 2. CO_2 emissions by sector

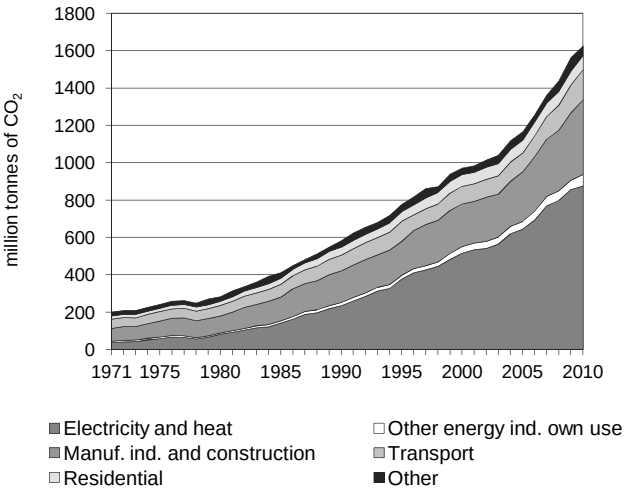


Figure 3. CO_2 emissions by sector

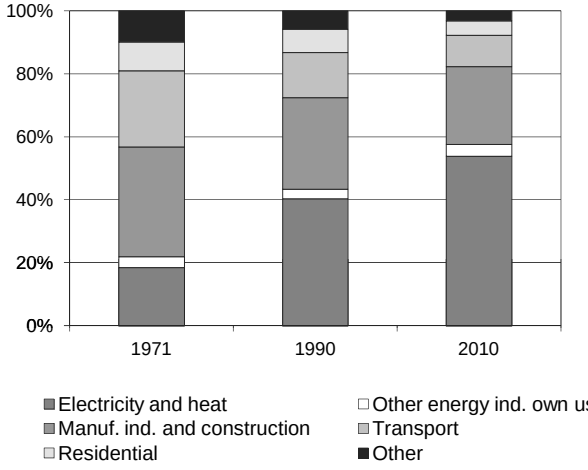


Figure 4. Reference vs Sectoral Approach

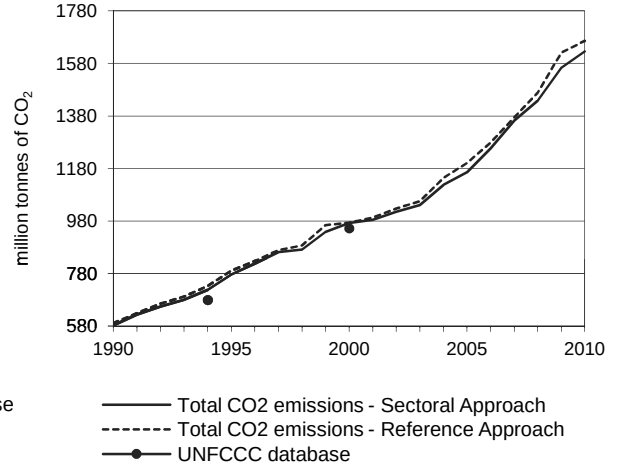


Figure 5. Electricity generation by fuel

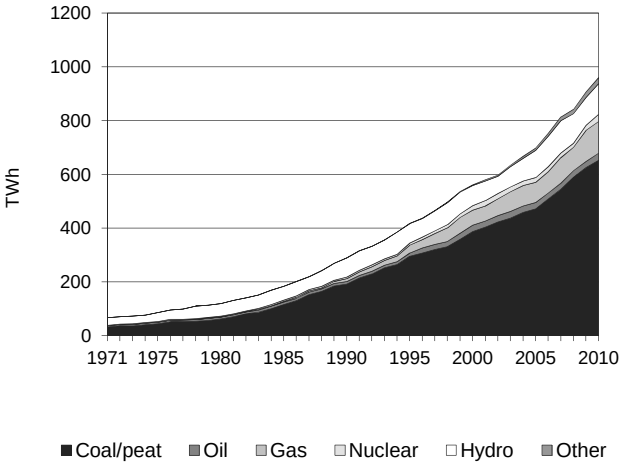
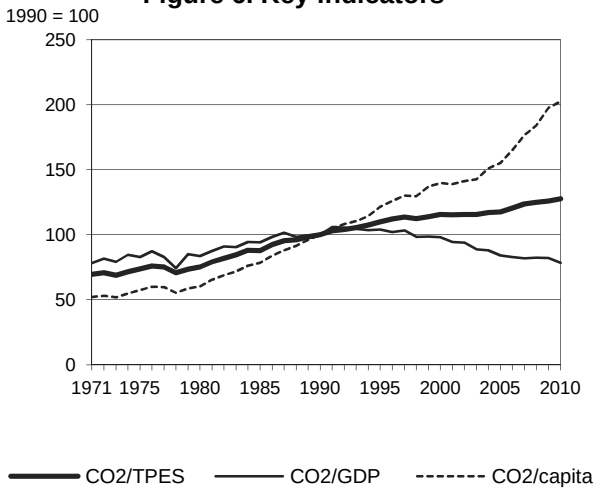


Figure 6. Key indicators



India

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	582.34	776.57	972.47	1 164.85	1 438.53	1 563.96	1 625.79	179.2%
CO_2 Reference Approach ($MtCO_2$)	590.75	791.01	973.60	1 200.43	1 467.86	1 620.84	1 665.38	181.9%
TPES (PJ)	13 261	16 089	19 143	22 578	26 213	28 269	29 002	118.7%
TPES (Mtoe)	316.74	384.28	457.21	539.28	626.08	675.19	692.69	118.7%
GDP (billion 2005 USD)	350.04	448.52	595.51	834.04	1 050.20	1 145.82	1 246.73	256.2%
GDP PPP (billion 2005 USD)	1 056.50	1 353.71	1 797.38	2 517.28	3 169.71	3 458.31	3 762.86	256.2%
Population (millions)	849.52	932.18	1 015.92	1 094.58	1 139.97	1 155.35	1 170.94	37.8%
CO_2 / TPES (tCO_2 per TJ)	43.9	48.3	50.8	51.6	54.9	55.3	56.1	27.7%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	1.66	1.73	1.63	1.40	1.37	1.36	1.30	-21.6%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.55	0.57	0.54	0.46	0.45	0.45	0.43	-21.6%
CO_2 / population (tCO_2 per capita)	0.69	0.83	0.96	1.06	1.26	1.35	1.39	102.5%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**1 096.78**	**415.82**	**113.19**	**-**	**1 625.79**	**179.2%**
Main activity producer elec. and heat	700.42	20.83	53.04	-	774.29	253.8%
Unallocated autoproducers	79.84	13.86	7.83	-	101.53	531.6%
Other energy industry own use	1.86	50.43	8.79	-	61.08	243.1%
Manufacturing industries and construction	261.23	101.99	37.72	-	400.94	137.1%
Transport	-	156.11	5.38	-	161.49	93.8%
of which: road	-	*139.28*	*5.38*	-	*144.65*	119.9%
Other	53.43	72.60	0.43	-	126.46	63.8%
of which: residential	*11.35*	*63.35*	*0.06*	-	*74.75*	71.7%
Reference Approach	**1 117.58**	**434.61**	**113.19**	**-**	**1 665.38**	**181.9%**
Diff. due to losses and/or transformation	4.30	- 0.09	-	-	4.21	
Statistical differences	16.50	18.87	0.00	-	35.38	
Memo: international marine bunkers	-	*0.53*	-	-	*0.53*	*12.7%*
Memo: international aviation bunkers	-	*11.22*	-	-	*11.22*	*202.8%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	700.42	244.5%	26.4	26.4
Manufacturing industries - coal/peat	261.23	110.9%	9.8	36.2
Road - oil	139.28	111.7%	5.2	41.4
Manufacturing industries - oil	101.99	180.1%	3.8	45.3
Unallocated autoproducers - coal/peat	79.84	555.2%	3.0	48.3
Residential - oil	63.35	99.0%	2.4	50.6
Main activity prod. elec. and heat - gas	53.04	654.4%	2.0	52.6
Other energy industry own use - oil	50.43	485.6%	1.9	54.5
Non-specified other sectors - coal/peat	42.08	41.5%	1.6	56.1
Manufacturing industries - gas	37.72	327.5%	1.4	57.5
Main activity prod. elec. and heat - oil	20.83	144.8%	0.8	58.3
Memo: total CO_2 from fuel combustion	*1625.79*	*179.2%*	*61.2*	*61.2*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Indonesia

Figure 1. CO_2 emissions by fuel

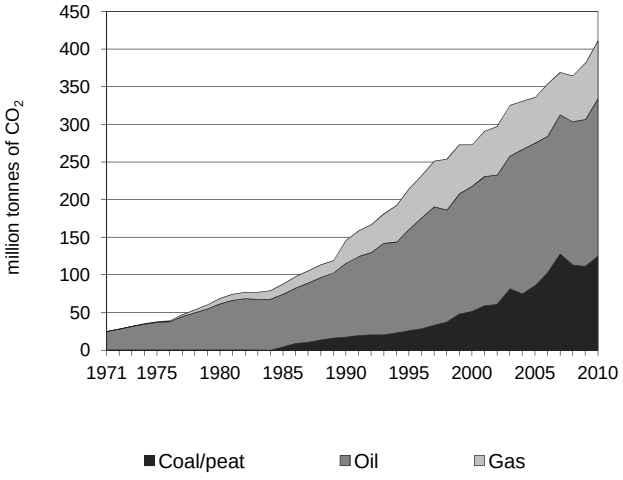


Figure 2. CO_2 emissions by sector

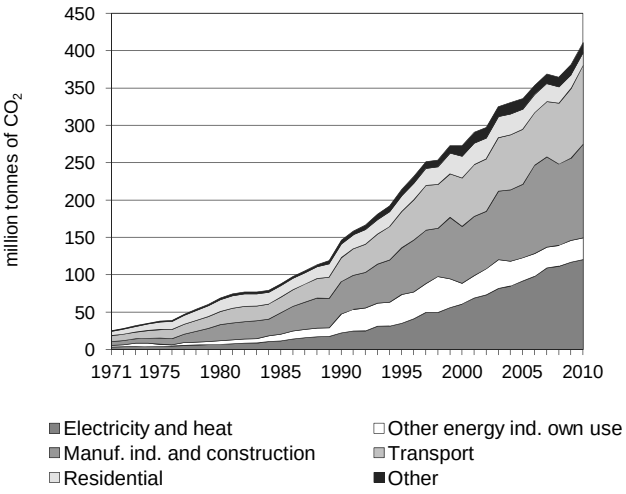


Figure 3. CO_2 emissions by sector

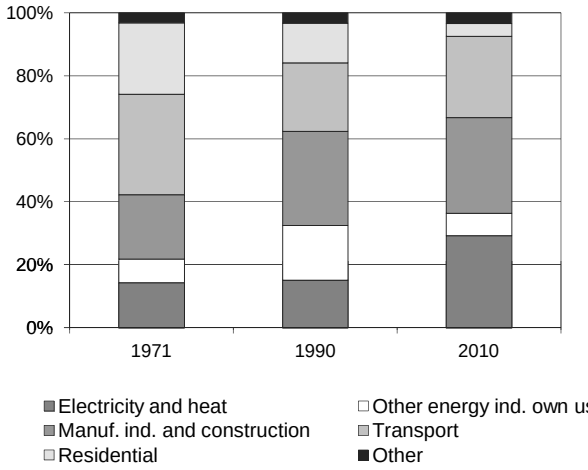


Figure 4. Reference vs Sectoral Approach

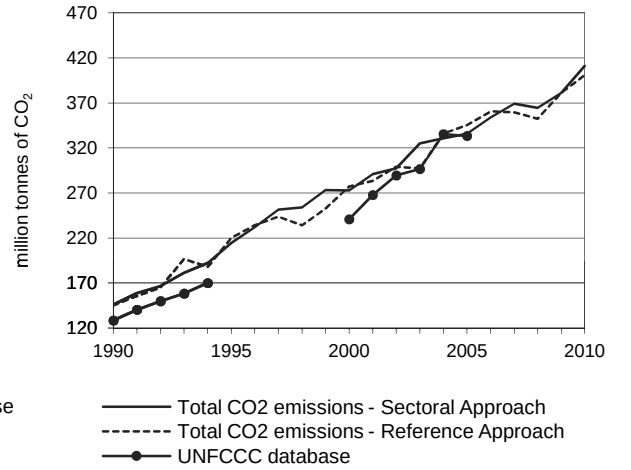


Figure 5. Electricity generation by fuel

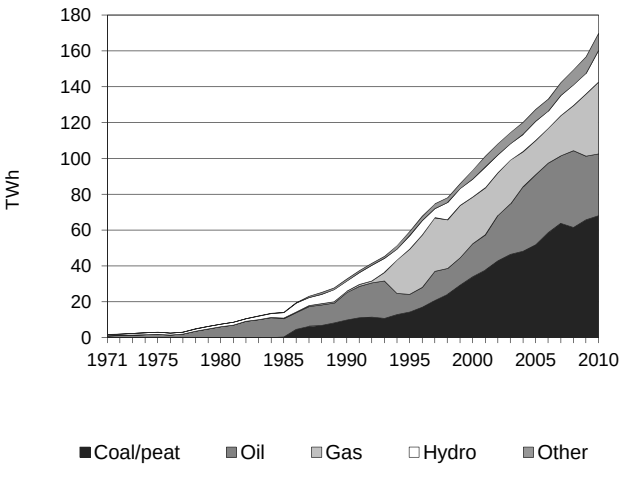
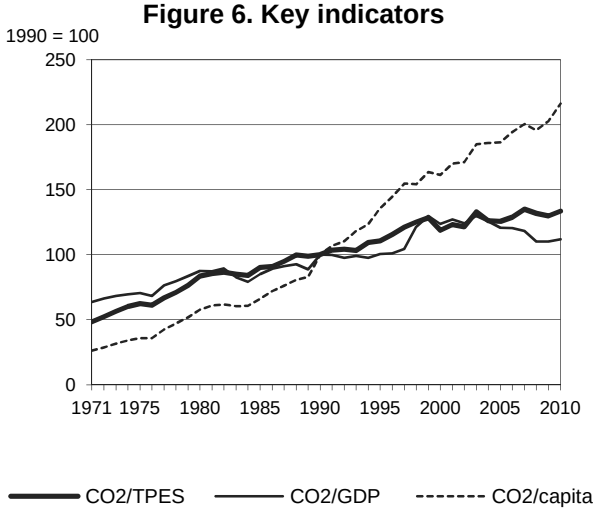


Figure 6. Key indicators



Indonesia

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	146.05	214.41	272.88	335.74	364.54	381.38	410.94	181.4%
CO_2 Reference Approach ($MtCO_2$)	145.36	220.10	277.16	345.46	352.37	381.25	400.91	175.8%
TPES (PJ)	4 129	5 477	6 495	7 558	7 826	8 311	8 702	110.8%
TPES (Mtoe)	98.62	130.82	155.13	180.51	186.92	198.51	207.85	110.8%
GDP (billion 2005 USD)	150.09	219.17	226.92	285.87	340.02	355.58	377.28	151.4%
GDP PPP (billion 2005 USD)	370.23	540.62	559.74	705.16	838.73	877.11	930.65	151.4%
Population (millions)	184.35	199.40	213.40	227.30	234.95	237.41	239.87	30.1%
CO_2 / TPES (tCO_2 per TJ)	35.4	39.1	42.0	44.4	46.6	45.9	47.2	33.5%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.97	0.98	1.20	1.17	1.07	1.07	1.09	11.9%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.39	0.40	0.49	0.48	0.43	0.43	0.44	11.9%
CO_2 / population (tCO_2 per capita)	0.79	1.08	1.28	1.48	1.55	1.61	1.71	116.2%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**124.49**	**209.47**	**76.99**	**-**	**410.94**	**181.4%**
Main activity producer elec. and heat	49.62	25.56	16.35	-	91.53	312.7%
Unallocated autoproducers	24.21	0.80	3.85	-	28.86	x
Other energy industry own use	-	6.46	22.76	-	29.23	15.3%
Manufacturing industries and construction	50.65	40.64	33.65	-	124.95	187.0%
Transport	-	105.80	0.02	-	105.83	232.1%
of which: road	-	*92.81*	*0.02*	-	*92.83*	224.6%
Other	-	30.20	0.35	-	30.55	32.2%
of which: residential	-	*16.73*	*0.04*	-	*16.77*	-8.4%
Reference Approach	**120.11**	**193.16**	**87.64**	**-**	**400.91**	**175.8%**
Diff. due to losses and/or transformation	0.02	0.49	8.70	-	9.21	
Statistical differences	- 4.39	- 16.80	1.95	-	- 19.24	
Memo: international marine bunkers	-	*0.72*	-	-	*0.72*	*-57.2%*
Memo: international aviation bunkers	-	*2.01*	-	-	*2.01*	*109.2%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	92.81	224.5%	12.5	12.5
Manufacturing industries - coal/peat	50.65	502.7%	6.8	19.3
Main activity prod. elec. and heat - coal/peat	49.62	441.8%	6.7	25.9
Manufacturing industries - oil	40.64	67.6%	5.5	31.4
Manufacturing industries - gas	33.65	209.1%	4.5	35.9
Main activity prod. elec. and heat - oil	25.56	104.0%	3.4	39.4
Unallocated autoproducers - coal/peat	24.21	x	3.3	42.6
Other energy industry own use - gas	22.76	18.8%	3.1	45.7
Residential - oil	16.73	-8.6%	2.2	47.9
Main activity prod. elec. and heat - gas	16.35	+	2.2	50.1
Non-specified other - oil	13.47	182.8%	1.8	51.9
Memo: total CO_2 from fuel combustion	*410.94*	*181.4%*	*55.2*	*55.2*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Islamic Republic of Iran

Figure 1. CO_2 emissions by fuel

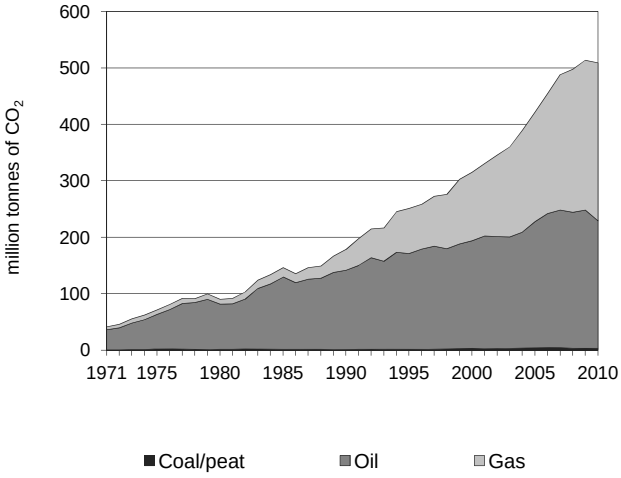


Figure 2. CO_2 emissions by sector

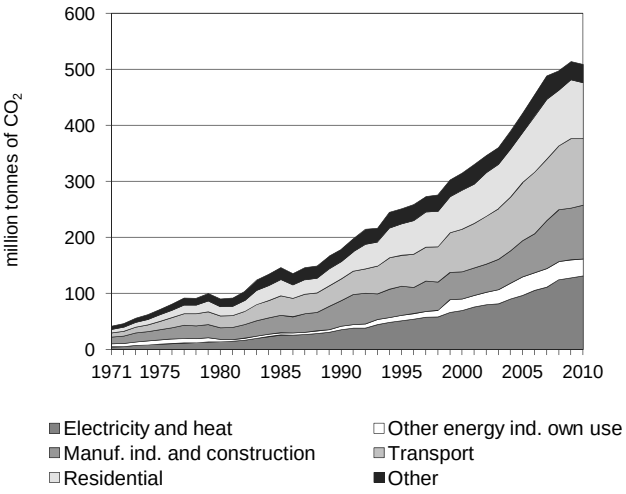


Figure 3. CO_2 emissions by sector

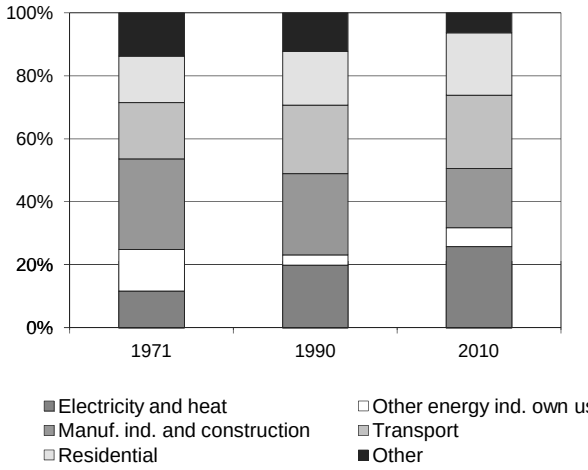


Figure 4. Reference vs Sectoral Approach

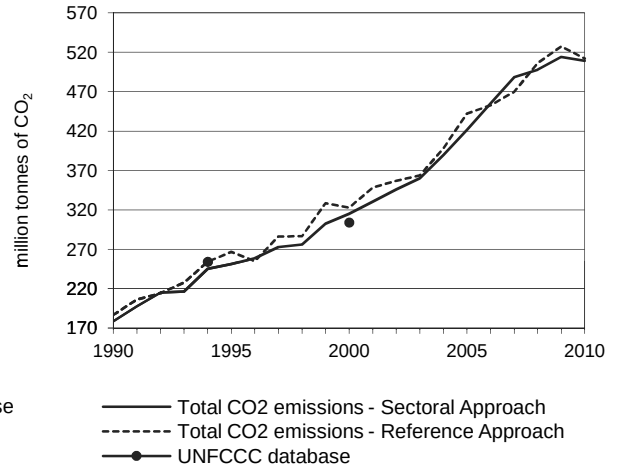


Figure 5. Electricity generation by fuel

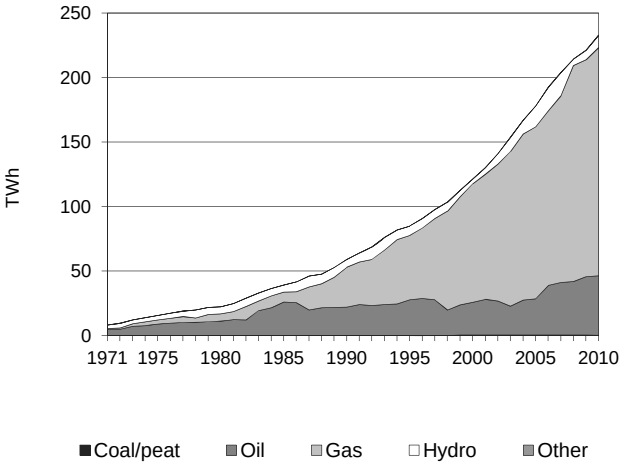
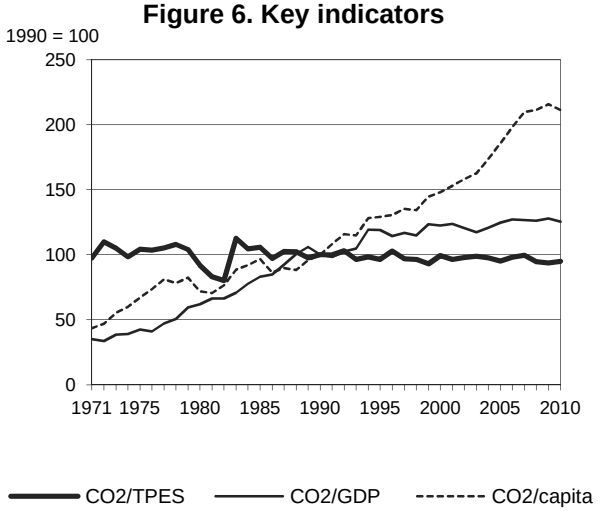


Figure 6. Key indicators



Islamic Republic of Iran

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	178.69	251.27	315.08	421.61	497.67	513.91	509.00	184.9%
CO_2 Reference Approach ($MtCO_2$)	186.88	266.56	322.68	442.32	506.52	527.61	512.04	174.0%
TPES (PJ)	2 903	4 238	5 149	7 205	8 533	8 913	8 724	200.5%
TPES (Mtoe)	69.34	101.22	122.98	172.09	203.80	212.89	208.37	200.5%
GDP (billion 2005 USD)	101.52	119.98	146.29	192.02	224.29	228.32	230.67	127.2%
GDP PPP (billion 2005 USD)	340.23	402.09	490.25	643.50	751.65	765.18	773.05	127.2%
Population (millions)	54.87	59.76	65.34	69.73	72.29	73.14	73.97	34.8%
CO_2 / TPES (tCO_2 per TJ)	61.6	59.3	61.2	58.5	58.3	57.7	58.3	-5.2%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	1.76	2.09	2.15	2.20	2.22	2.25	2.21	25.4%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.53	0.62	0.64	0.66	0.66	0.67	0.66	25.4%
CO_2 / population (tCO_2 per capita)	3.26	4.20	4.82	6.05	6.88	7.03	6.88	111.3%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**3.23**	**226.07**	**279.70**	**-**	**509.00**	**184.9%**
Main activity producer elec. and heat	-	41.60	83.97	-	125.57	283.8%
Unallocated autoproducers	1.20	0.00	4.76	-	5.97	105.1%
Other energy industry own use	1.00	9.49	19.69	-	30.18	414.7%
Manufacturing industries and construction	0.99	28.91	66.03	-	95.94	108.2%
Transport	-	106.73	11.92	-	118.65	206.2%
of which: road	-	*106.47*	*10.96*	-	*117.43*	203.0%
Other	0.03	39.34	93.32	-	132.70	153.4%
of which: residential	*0.03*	*19.59*	*80.78*	-	*100.40*	227.9%
Reference Approach	**5.94**	**226.40**	**279.70**	**-**	**512.04**	**174.0%**
Diff. due to losses and/or transformation	0.22	4.44	0.07	-	4.73	
Statistical differences	2.49	- 4.11	- 0.07	-	- 1.69	
Memo: international marine bunkers	-	*7.31*	-	-	*7.31*	*494.8%*
Memo: international aviation bunkers	-	*3.80*	-	-	*3.80*	*156.4%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	106.47	174.8%	15.3	15.3
Main activity prod. elec. and heat - gas	83.97	435.9%	12.1	27.4
Residential - gas	80.78	+	11.6	39.0
Manufacturing industries - gas	66.03	368.7%	9.5	48.5
Main activity prod. elec. and heat - oil	41.60	144.0%	6.0	54.5
Manufacturing industries - oil	28.91	-7.8%	4.2	58.6
Non-specified other - oil	19.75	-9.2%	2.8	61.5
Other energy industry own use - gas	19.69	+	2.8	64.3
Residential - oil	19.59	-20.1%	2.8	67.1
Non-specified other - gas	12.55	x	1.8	68.9
Road - gas	10.96	x	1.6	70.5
Memo: total CO_2 from fuel combustion	*509.00*	*184.9%*	*73.2*	*73.2*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Iraq

Figure 1. CO_2 emissions by fuel

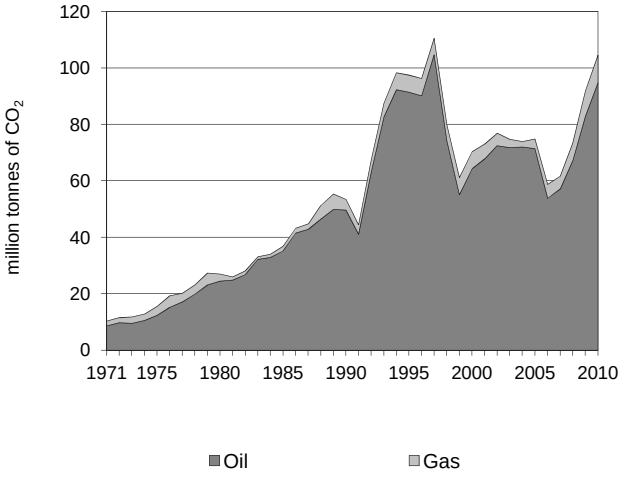


Figure 2. CO_2 emissions by sector

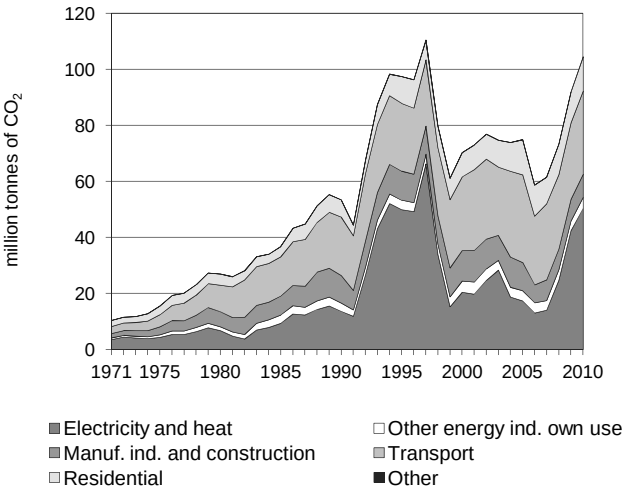


Figure 3. CO_2 emissions by sector

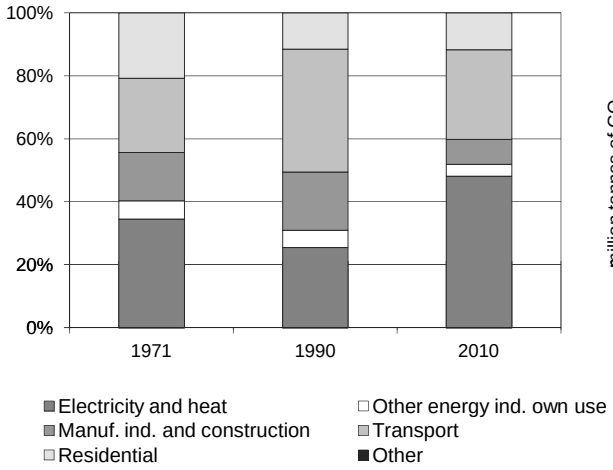


Figure 4. Reference vs Sectoral Approach

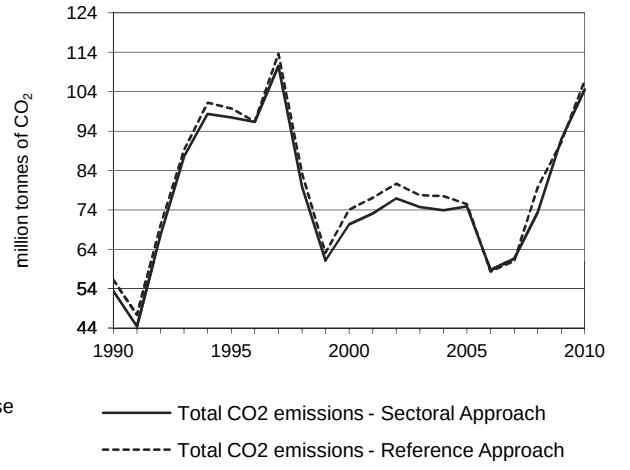


Figure 5. Electricity generation by fuel

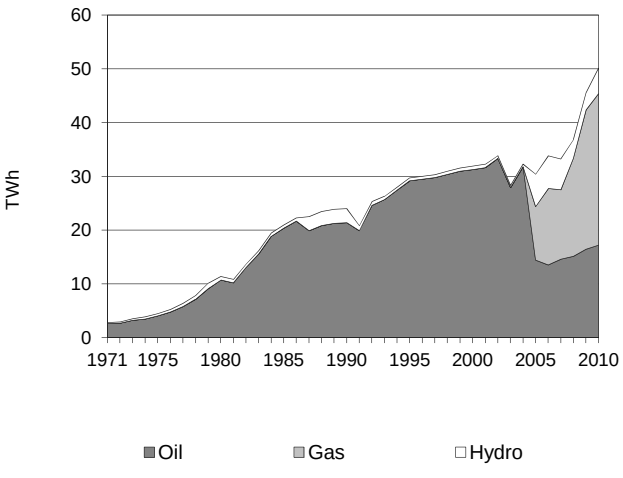
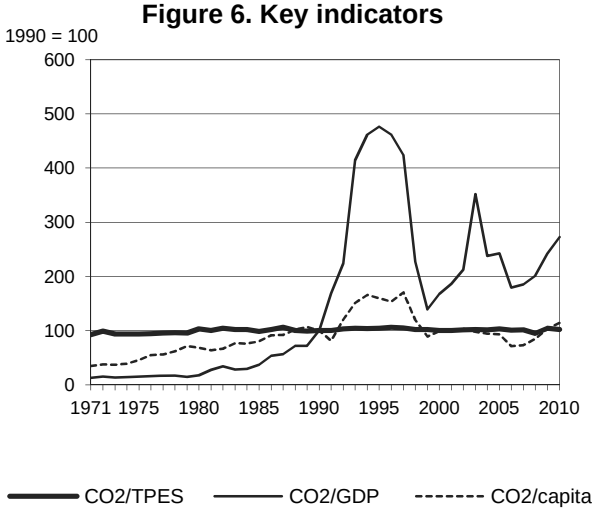


Figure 6. Key indicators



Iraq

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	53.42	97.46	70.29	74.90	73.35	91.95	104.50	95.6%
CO_2 Reference Approach ($MtCO_2$)	56.25	99.73	74.05	75.43	79.70	91.18	106.91	90.1%
TPES (PJ)	825	1 446	1 086	1 125	1 191	1 360	1 583	91.8%
TPES (Mtoe)	19.71	34.55	25.94	26.87	28.45	32.49	37.80	91.8%
GDP (billion 2005 USD)	54.15	20.73	42.58	31.31	36.96	38.51	38.84	-28.3%
GDP PPP (billion 2005 USD)	142.67	54.61	112.20	82.51	97.39	101.48	102.34	-28.3%
Population (millions)	18.90	21.59	25.11	28.48	30.71	31.49	32.32	71.0%
CO_2 / TPES (tCO_2 per TJ)	64.7	67.4	64.7	66.6	61.6	67.6	66.0	2.0%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.99	4.70	1.65	2.39	1.98	2.39	2.69	172.8%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.37	1.78	0.63	0.91	0.75	0.91	1.02	172.8%
CO_2 / population (tCO_2 per capita)	2.83	4.51	2.80	2.63	2.39	2.92	3.23	14.4%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**94.71**	**9.79**	**-**	**104.50**	**95.6%**
Main activity producer elec. and heat	-	40.99	9.32	-	50.31	268.5%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	4.01	-	-	4.01	37.9%
Manufacturing industries and construction	-	7.77	0.47	-	8.23	-16.5%
Transport	-	29.73	-	-	29.73	42.5%
of which: road	-	*29.73*	-	-	*29.73*	42.5%
Other	-	12.21	-	-	12.21	99.7%
of which: residential	-	*12.21*	-	-	*12.21*	99.7%
Reference Approach	**-**	**97.12**	**9.79**	**-**	**106.91**	**90.1%**
Diff. due to losses and/or transformation	-	0.11	-	-	0.11	
Statistical differences	-	2.29	0.00	-	2.29	
Memo: international marine bunkers	-	*0.44*	-	-	*0.44*	*10.8%*
Memo: international aviation bunkers	-	*2.22*	-	-	*2.22*	*126.5%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	40.99	248.4%	27.0	27.0
Road - oil	29.73	42.5%	19.6	46.6
Residential - oil	12.21	99.7%	8.0	54.6
Main activity prod. elec. and heat - gas	9.32	393.4%	6.1	60.7
Manufacturing industries - oil	7.77	-2.6%	5.1	65.9
Other energy industry own use - oil	4.01	37.9%	2.6	68.5
Manufacturing industries - gas	0.47	-75.3%	0.3	68.8
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*104.50*	*95.6%*	*68.8*	*68.8*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Ireland

Figure 1. CO_2 emissions by fuel

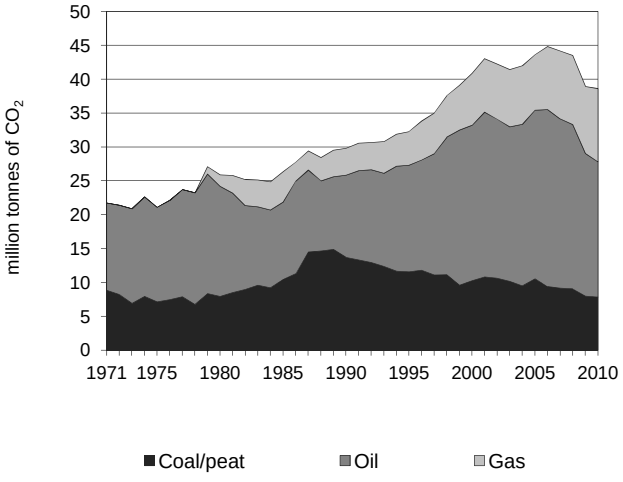


Figure 2. CO_2 emissions by sector

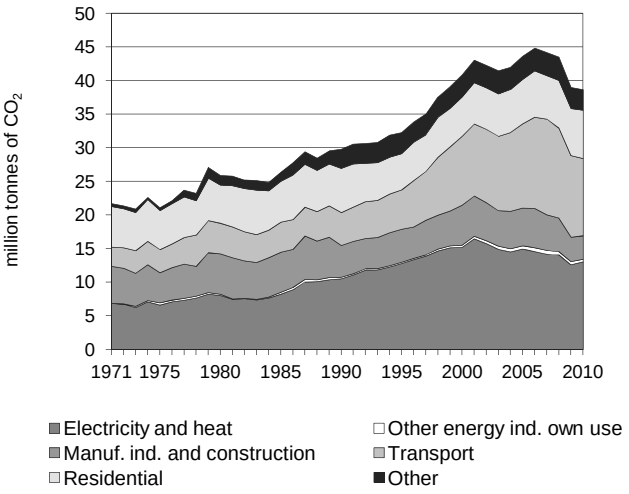


Figure 3. CO_2 emissions by sector

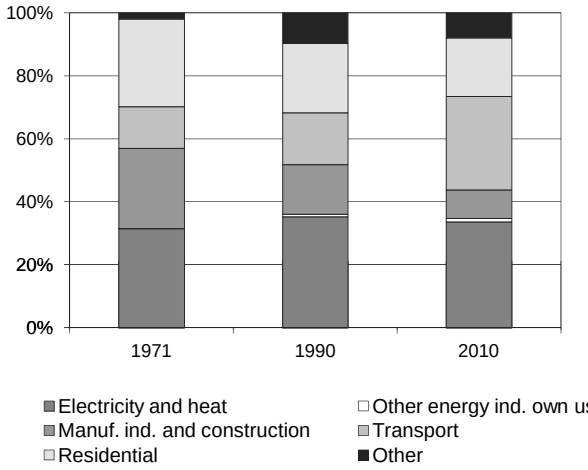


Figure 4. Reference vs Sectoral Approach

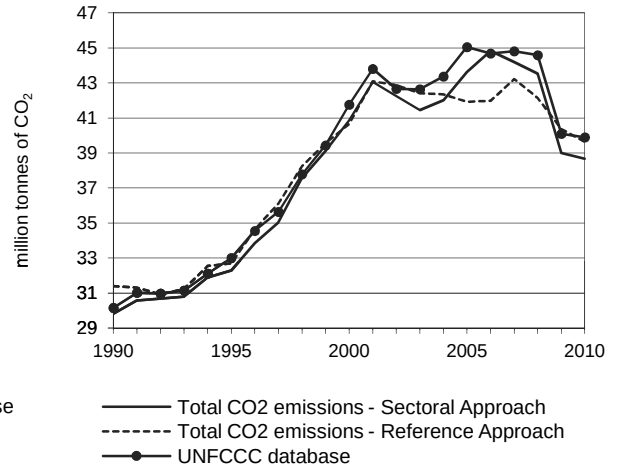


Figure 5. Electricity generation by fuel

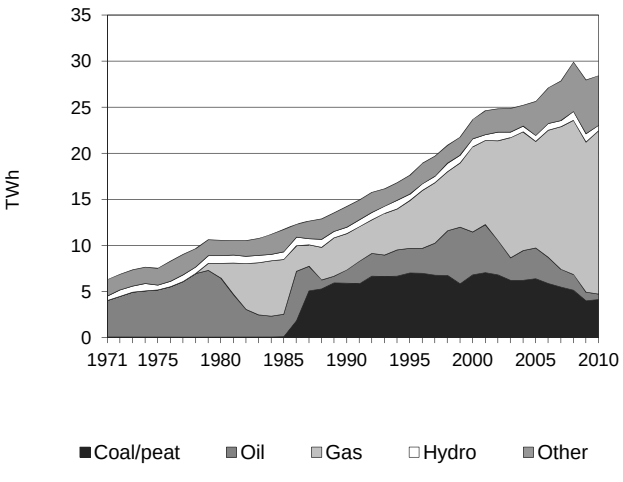
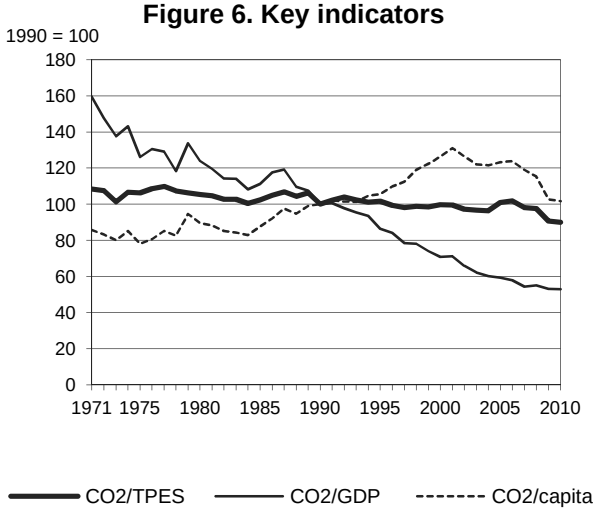


Figure 6. Key indicators



Ireland

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	29.81	32.29	40.87	43.63	43.53	39.00	38.66	29.7%
CO_2 Reference Approach ($MtCO_2$)	31.40	32.69	40.66	41.93	42.14	40.37	39.63	26.2%
TPES (PJ)	418	445	575	606	626	603	603	44.1%
TPES (Mtoe)	9.99	10.63	13.73	14.47	14.96	14.40	14.40	44.1%
GDP (billion 2005 USD)	82.43	103.38	159.79	203.28	218.48	203.20	202.33	145.5%
GDP PPP (billion 2005 USD)	65.61	82.29	127.19	161.81	173.90	161.74	161.05	145.5%
Population (millions)	3.51	3.60	3.80	4.16	4.44	4.47	4.48	27.7%
CO_2 / TPES (tCO_2 per TJ)	71.3	72.5	71.1	72.0	69.5	64.7	64.1	-10.0%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.36	0.31	0.26	0.21	0.20	0.19	0.19	-47.2%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.45	0.39	0.32	0.27	0.25	0.24	0.24	-47.2%
CO_2 / population (tCO_2 per capita)	8.50	8.97	10.74	10.49	9.80	8.73	8.64	1.6%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**7.87**	**19.94**	**10.82**	**0.04**	**38.66**	**29.7%**
Main activity producer elec. and heat	5.48	0.41	6.45	-	12.34	18.8%
Unallocated autoproducers	0.07	0.02	0.60	-	0.68	383.3%
Other energy industry own use	0.13	0.27	-	-	0.40	81.9%
Manufacturing industries and construction	0.40	1.97	1.09	0.04	3.50	-25.7%
Transport	-	11.48	-	-	11.48	133.8%
of which: road	-	*11.15*	-	-	*11.15*	143.9%
Other	1.78	5.80	2.68	-	10.26	8.7%
of which: residential	*1.78*	*3.75*	*1.65*	-	*7.19*	9.4%
Reference Approach	**8.51**	**20.11**	**10.97**	**0.04**	**39.63**	**26.2%**
Diff. due to losses and/or transformation	0.23	0.22	0.16	-	0.61	
Statistical differences	0.42	- 0.05	- 0.02	-	0.36	
Memo: international marine bunkers	-	*0.26*	-	-	*0.26*	*359.8%*
Memo: international aviation bunkers	-	*2.14*	-	-	*2.14*	*107.4%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	11.15	143.9%	18.6	18.6
Main activity prod. elec. and heat - gas	6.45	238.2%	10.7	29.3
Main activity prod. elec. and heat - coal/peat	5.48	-26.1%	9.1	38.4
Residential - oil	3.75	224.7%	6.2	44.7
Non-specified other - oil	2.05	-20.9%	3.4	48.1
Manufacturing industries - oil	1.97	-11.5%	3.3	51.4
Residential - coal/peat	1.78	-65.3%	3.0	54.3
Residential - gas	1.65	505.3%	2.8	57.1
Manufacturing industries - gas	1.09	-27.6%	1.8	58.9
Non-specified other - gas	1.03	368.0%	1.7	60.6
Unallocated autoproducers - gas	0.60	949.3%	1.0	61.6
Memo: total CO_2 from fuel combustion	*38.66*	*29.7%*	*64.4*	*64.4*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Israel

Figure 1. CO_2 emissions by fuel

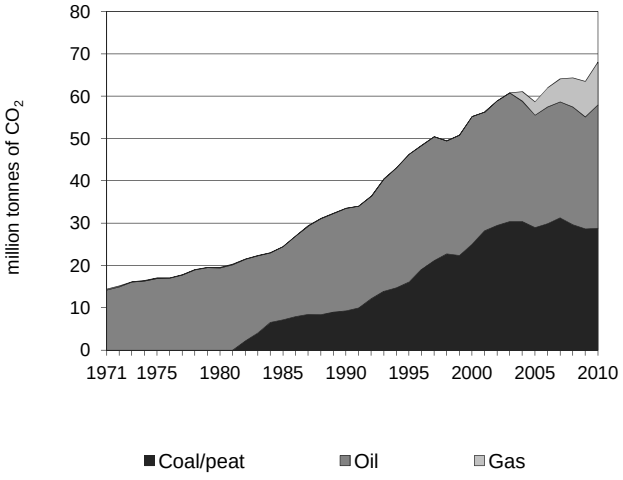


Figure 2. CO_2 emissions by sector

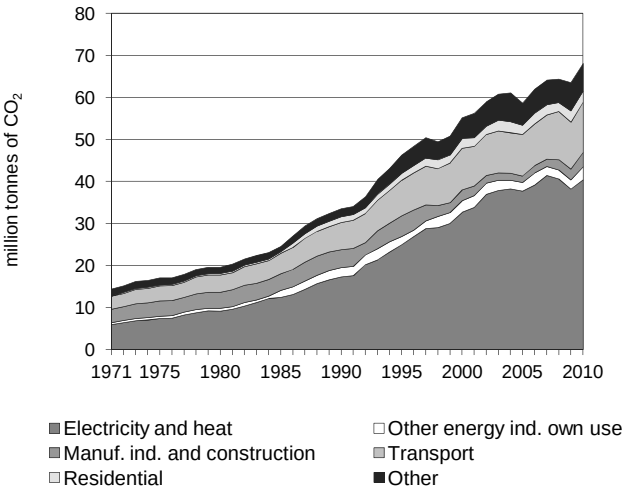


Figure 3. CO_2 emissions by sector

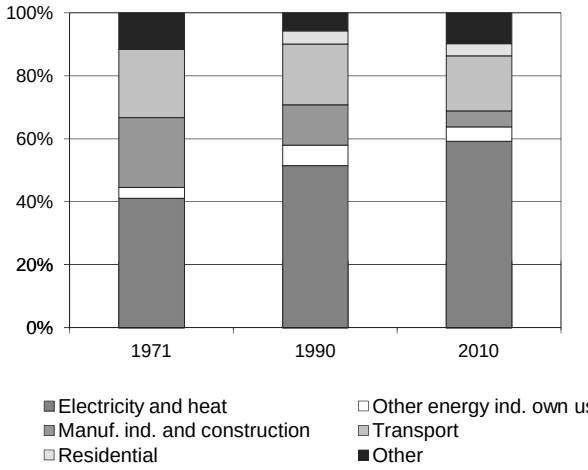


Figure 4. Reference vs Sectoral Approach

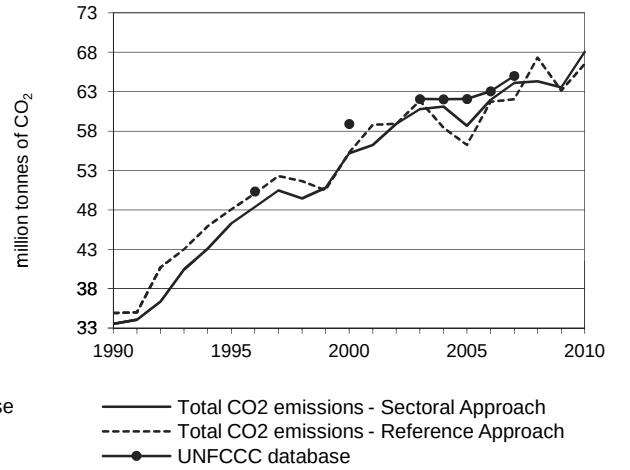


Figure 5. Electricity generation by fuel

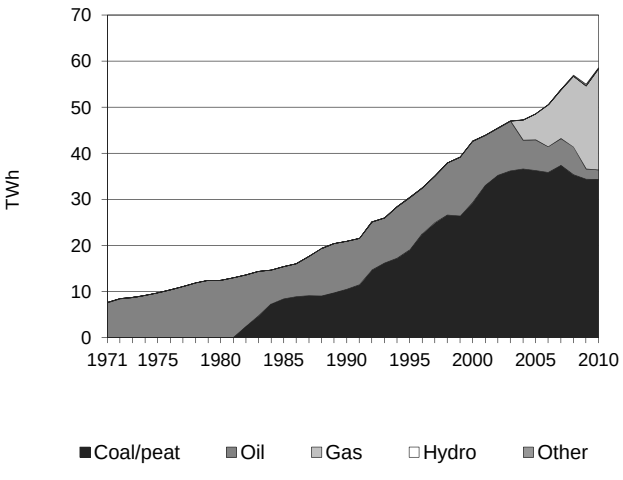
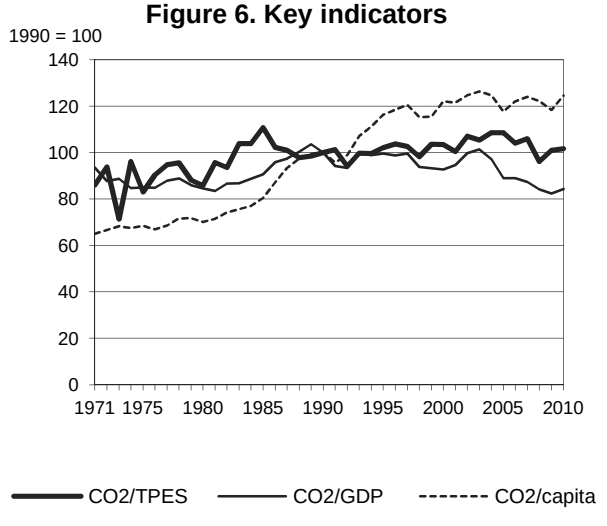


Figure 6. Key indicators



Israel

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	33.54	46.27	55.18	58.68	64.33	63.53	68.06	103.0%
CO_2 Reference Approach ($MtCO_2$)	34.89	48.09	55.26	56.24	67.31	63.16	66.50	90.6%
TPES (PJ)	480	650	764	774	958	901	959	99.7%
TPES (Mtoe)	11.48	15.52	18.25	18.50	22.88	21.53	22.91	99.7%
GDP (billion 2005 USD)	68.12	94.31	120.91	133.97	155.25	156.55	164.14	140.9%
GDP PPP (billion 2005 USD)	82.25	113.87	145.99	161.75	187.44	189.01	198.17	141.0%
Population (millions)	4.68	5.55	6.30	6.96	7.34	7.48	7.62	63.0%
CO_2 / TPES (tCO_2 per TJ)	69.8	71.2	72.2	75.8	67.1	70.5	71.0	1.6%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.49	0.49	0.46	0.44	0.41	0.41	0.41	-15.8%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.41	0.41	0.38	0.36	0.34	0.34	0.34	-15.8%
CO_2 / population (tCO_2 per capita)	7.17	8.34	8.76	8.44	8.76	8.49	8.93	24.5%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**28.80**	**29.12**	**10.14**	**-**	**68.06**	**103.0%**
Main activity producer elec. and heat	28.67	1.01	9.36	-	39.04	132.0%
Unallocated autoproducers	0.13	0.83	0.35	-	1.31	187.0%
Other energy industry own use	-	2.83	0.28	-	3.11	41.8%
Manufacturing industries and construction	-	3.30	0.15	-	3.45	-19.6%
Transport	-	11.91	-	-	11.91	83.9%
of which: road	-	*11.91*	-	-	*11.91*	85.4%
Other	-	9.25	-	-	9.25	180.6%
of which: residential	-	*2.62*	-	-	*2.62*	87.3%
Reference Approach	**28.76**	**27.44**	**10.30**	**-**	**66.50**	**90.6%**
Diff. due to losses and/or transformation	-	0.88	-	-	0.88	
Statistical differences	- 0.04	- 2.57	0.16	-	- 2.45	
Memo: international marine bunkers	-	*1.06*	-	-	*1.06*	*179.1%*
Memo: international aviation bunkers	-	*2.37*	-	-	*2.37*	*51.6%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	28.67	210.6%	36.6	36.6
Road - oil	11.91	85.4%	15.2	51.8
Main activity prod. elec. and heat - gas	9.36	x	12.0	63.8
Non-specified other - oil	6.62	249.5%	8.5	72.3
Manufacturing industries - oil	3.30	-21.4%	4.2	76.5
Other energy industry own use - oil	2.83	29.1%	3.6	80.1
Residential - oil	2.62	87.3%	3.3	83.5
Main activity prod. elec. and heat - oil	1.01	-86.7%	1.3	84.7
Unallocated autoproducers - oil	0.83	81.3%	1.1	85.8
Unallocated autoproducers - gas	0.35	x	0.4	86.2
Other energy industry own use - gas	0.28	x	0.4	86.6
Memo: total CO_2 from fuel combustion	*68.06*	*103.0%*	*87.0*	*87.0*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Italy

Figure 1. CO_2 emissions by fuel

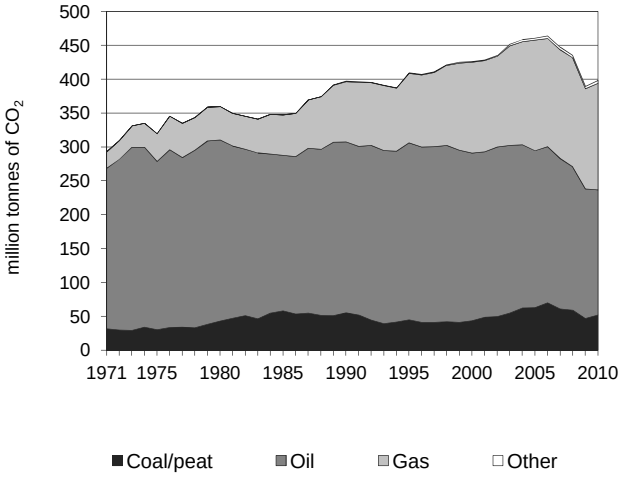


Figure 2. CO_2 emissions by sector

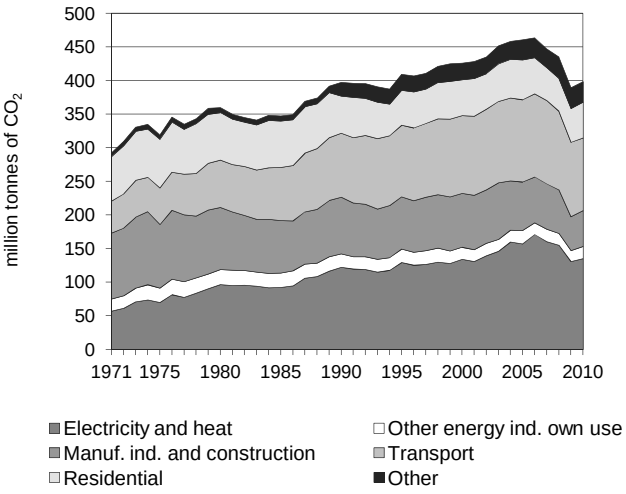


Figure 3. CO_2 emissions by sector

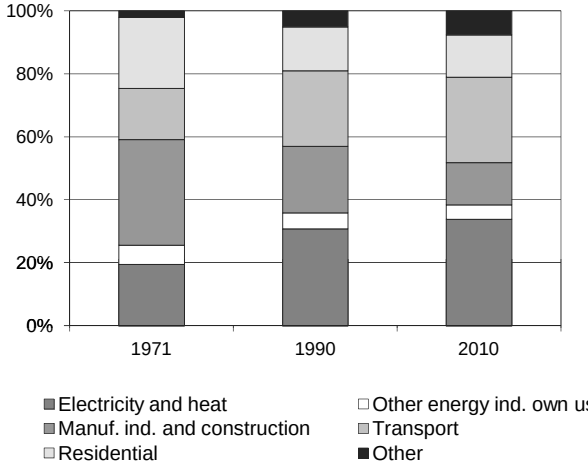


Figure 4. Reference vs Sectoral Approach

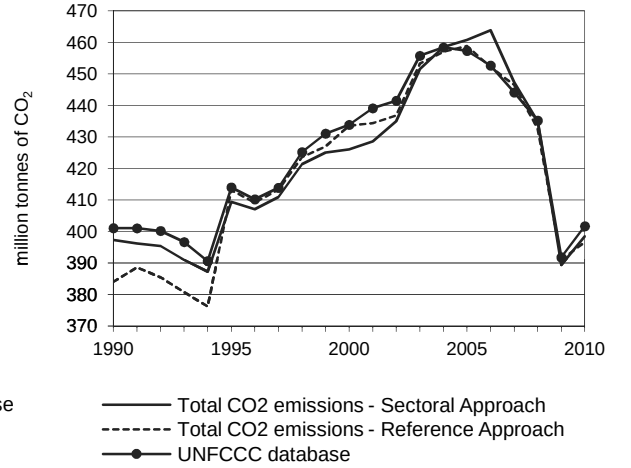


Figure 5. Electricity generation by fuel

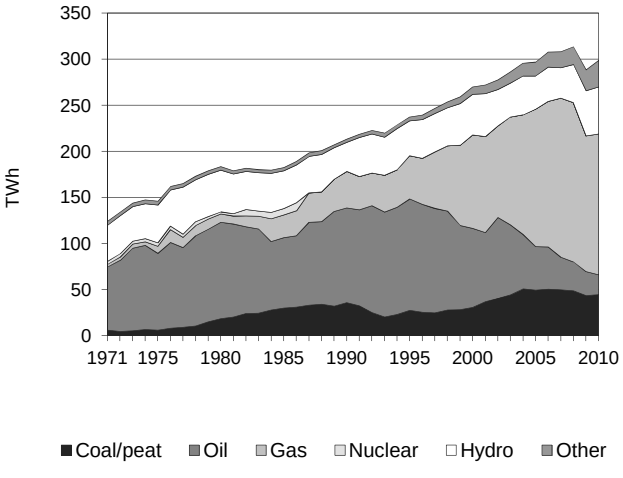
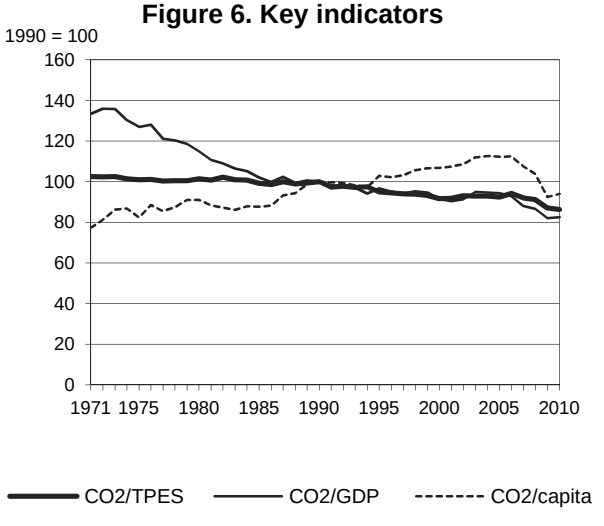


Figure 6. Key indicators



Italy

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	397.36	409.41	426.04	460.81	435.07	389.41	398.47	0.3%
CO_2 Reference Approach ($MtCO_2$)	384.05	413.04	433.61	458.85	432.53	391.02	396.63	3.3%
TPES (PJ)	6 136	6 662	7 181	7 698	7 369	6 902	7 128	16.2%
TPES (Mtoe)	146.56	159.13	171.52	183.87	176.00	164.86	170.24	16.2%
GDP (billion 2005 USD)	1 451.61	1 547.70	1 700.99	1 786.28	1 834.82	1 734.00	1 765.29	21.6%
GDP PPP (billion 2005 USD)	1 346.88	1 436.04	1 578.27	1 657.40	1 702.44	1 608.90	1 637.93	21.6%
Population (millions)	56.72	56.84	56.94	58.61	59.83	60.19	60.48	6.6%
CO_2 / TPES (tCO_2 per TJ)	64.8	61.4	59.3	59.9	59.0	56.4	55.9	-13.7%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.27	0.26	0.25	0.26	0.24	0.22	0.23	-17.5%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.30	0.29	0.27	0.28	0.26	0.24	0.24	-17.5%
CO_2 / population (tCO_2 per capita)	7.01	7.20	7.48	7.86	7.27	6.47	6.59	-6.0%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**51.81**	**184.94**	**157.43**	**4.29**	**398.47**	**0.3%**
Main activity producer elec. and heat	43.34	13.99	55.48	3.48	116.29	8.7%
Unallocated autoproducers	0.06	8.80	9.60	0.24	18.71	20.9%
Other energy industry own use	0.15	16.52	1.52	-	18.19	-9.3%
Manufacturing industries and construction	7.75	19.99	25.07	0.57	53.38	-36.4%
Transport	-	106.47	1.62	-	108.09	13.2%
of which: road	-	*100.30*	*1.62*	-	*101.92*	11.4%
Other	0.50	19.18	64.14	-	83.82	11.1%
of which: residential	*0.01*	*9.59*	*43.68*	-	*53.29*	-3.5%
Reference Approach	**54.27**	**179.50**	**158.57**	**4.29**	**396.63**	**3.3%**
Diff. due to losses and/or transformation	0.75	- 2.90	1.14	-	- 1.01	
Statistical differences	1.71	- 2.54	0.00	- 0.00	- 0.83	
Memo: international marine bunkers	-	*9.43*	-	-	*9.43*	*12.7%*
Memo: international aviation bunkers	-	*9.39*	-	-	*9.39*	*108.8%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	100.30	10.2%	20.1	20.1
Main activity prod. elec. and heat - gas	55.48	245.2%	11.1	31.3
Residential - gas	43.68	65.3%	8.8	40.0
Main activity prod. elec. and heat - coal/peat	43.34	56.6%	8.7	48.7
Manufacturing industries - gas	25.07	-23.9%	5.0	53.8
Non-specified other - gas	20.46	106.9%	4.1	57.9
Manufacturing industries - oil	19.99	-43.4%	4.0	61.9
Other energy industry own use - oil	16.52	12.6%	3.3	65.2
Main activity prod. elec. and heat - oil	13.99	-77.9%	2.8	68.0
Unallocated autoproducers - gas	9.60	243.4%	1.9	70.0
Residential - oil	9.59	-65.7%	1.9	71.9
Memo: total CO_2 from fuel combustion	*398.47*	*0.3%*	*80.0*	*80.0*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Jamaica

Figure 1. CO_2 emissions by fuel

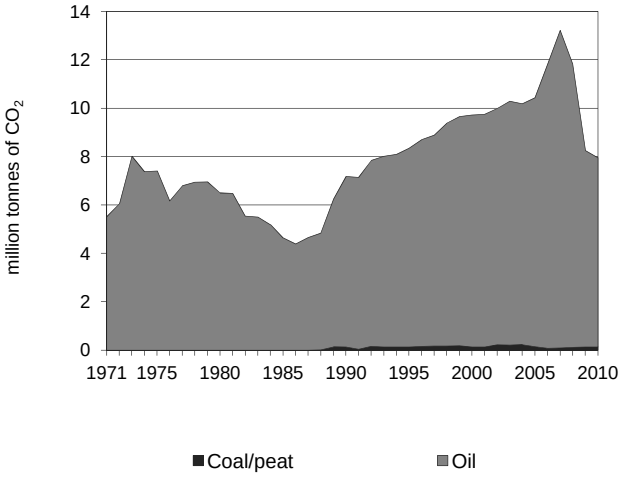


Figure 2. CO_2 emissions by sector

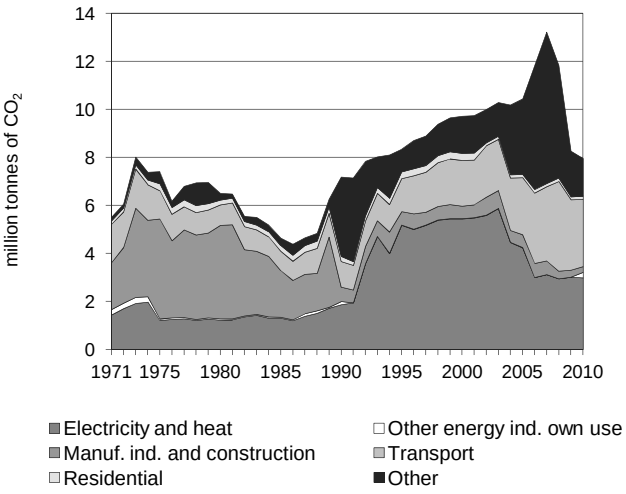


Figure 3. CO_2 emissions by sector

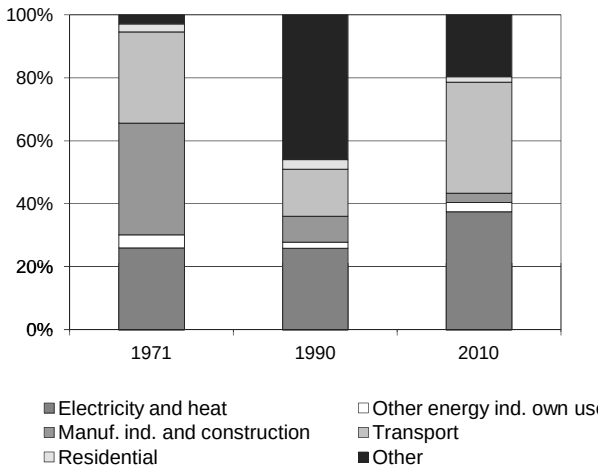


Figure 4. Reference vs Sectoral Approach

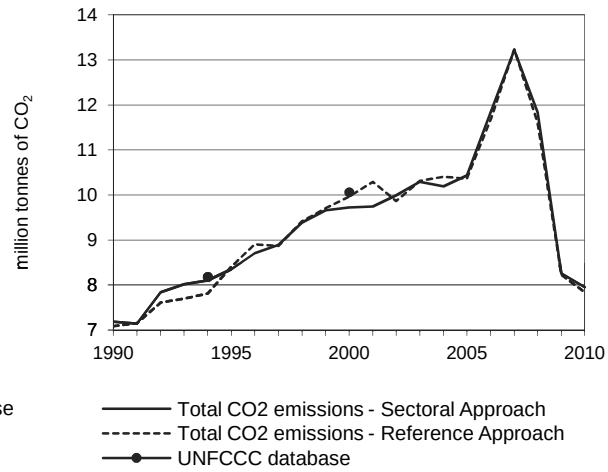


Figure 5. Electricity generation by fuel

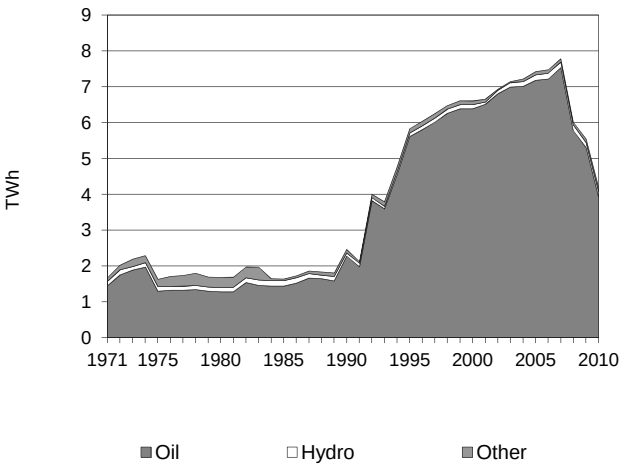
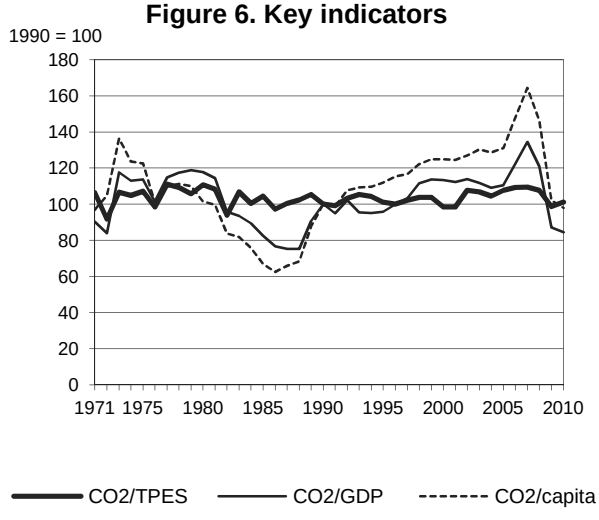


Figure 6. Key indicators



Jamaica

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	7.18	8.35	9.72	10.43	11.83	8.26	7.96	10.7%
CO_2 Reference Approach ($MtCO_2$)	7.08	8.41	9.97	10.37	11.60	8.23	7.84	10.7%
TPES (PJ)	117	134	160	157	179	136	128	9.6%
TPES (Mtoe)	2.79	3.21	3.83	3.76	4.26	3.25	3.05	9.6%
GDP (billion 2005 USD)	8.49	10.30	10.13	11.15	11.56	11.20	11.14	31.2%
GDP PPP (billion 2005 USD)	14.18	17.21	16.92	18.63	19.30	18.71	18.60	31.2%
Population (millions)	2.39	2.48	2.59	2.65	2.69	2.70	2.70	13.1%
CO_2 / TPES (tCO_2 per TJ)	61.6	62.2	60.6	66.3	66.3	60.7	62.2	1.1%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.85	0.81	0.96	0.94	1.02	0.74	0.71	-15.6%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.51	0.49	0.57	0.56	0.61	0.44	0.43	-15.6%
CO_2 / population (tCO_2 per capita)	3.01	3.37	3.75	3.94	4.40	3.06	2.94	-2.1%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.13**	**7.82**	**-**	**-**	**7.96**	**10.7%**
Main activity producer elec. and heat	-	1.73	-	-	1.73	-6.9%
Unallocated autoproducers	-	1.25	-	-	1.25	x
Other energy industry own use	-	0.24	-	-	0.24	70.8%
Manufacturing industries and construction	0.13	0.10	-	-	0.24	-60.4%
Transport	-	2.80	-	-	2.80	161.1%
of which: road	-	*1.41*	-	-	*1.41*	94.9%
Other	-	1.70	-	-	1.70	-51.7%
of which: residential	-	*0.14*	-	-	*0.14*	-36.8%
Reference Approach	**0.13**	**7.71**	**-**	**-**	**7.84**	**10.7%**
Diff. due to losses and/or transformation	-	- 0.04	-	-	- 0.04	
Statistical differences	-	- 0.08	-	-	- 0.08	
Memo: international marine bunkers	-	*0.13*	-	-	*0.13*	*25.0%*
Memo: international aviation bunkers	-	*0.76*	-	-	*0.76*	*63.3%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	1.73	-6.9%	16.7	16.7
Non-specified other - oil	1.56	-52.6%	15.1	31.7
Road - oil	1.41	94.9%	13.6	45.4
Other transport - oil	1.39	299.1%	13.4	58.7
Unallocated autoproducers - oil	1.25	x	12.0	70.7
Other energy industry own use - oil	0.24	70.8%	2.3	73.0
Residential - oil	0.14	-36.8%	1.3	74.3
Manufacturing industries - coal/peat	0.13	3.8%	1.3	75.6
Manufacturing industries - oil	0.10	-78.4%	1.0	76.6
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*7.96*	*10.7%*	*76.6*	*76.6*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Japan

Figure 1. CO_2 emissions by fuel

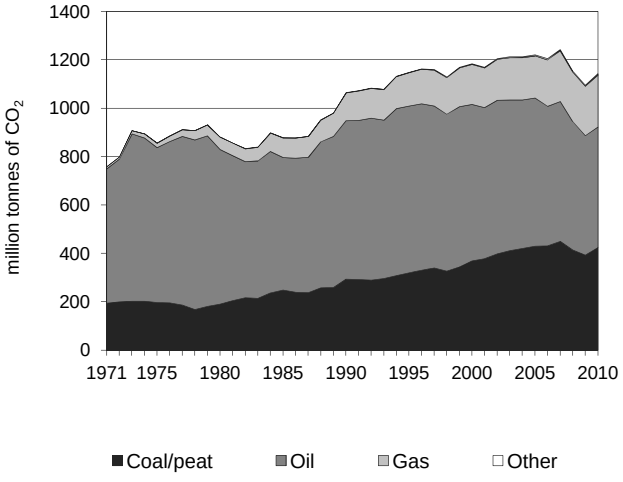


Figure 2. CO_2 emissions by sector

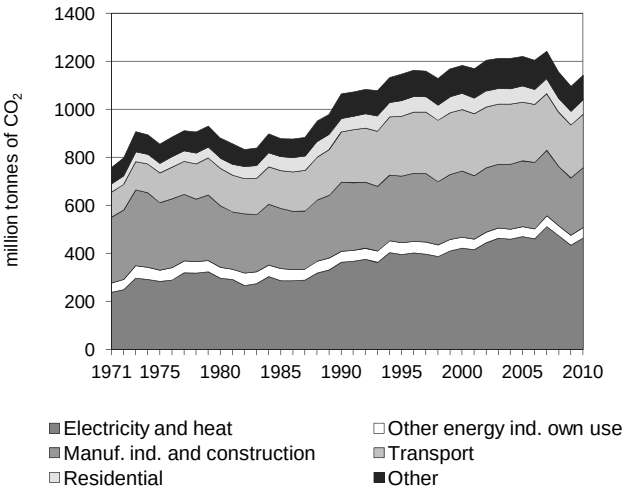


Figure 3. CO_2 emissions by sector

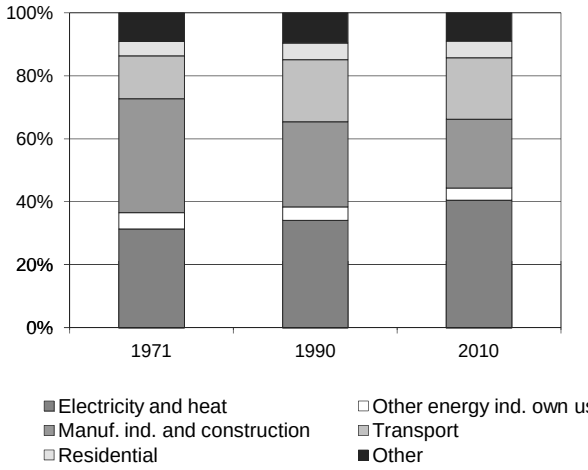


Figure 4. Reference vs Sectoral Approach

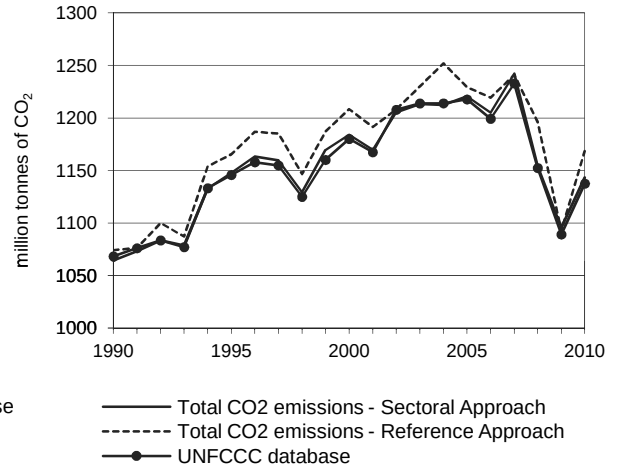


Figure 5. Electricity generation by fuel

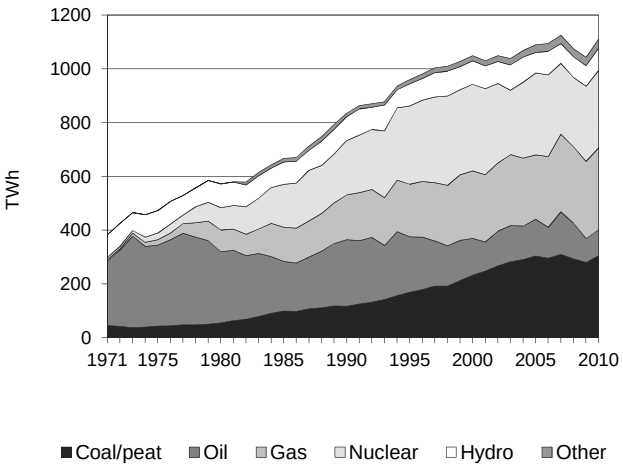
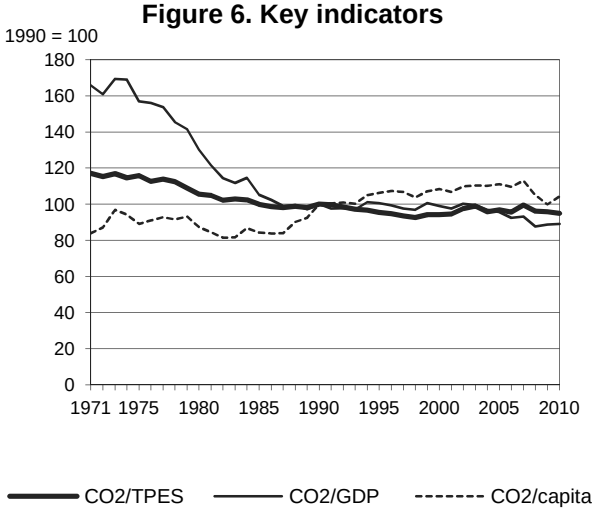


Figure 6. Key indicators



Japan *

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	1 064.37	1 147.91	1 184.03	1 220.68	1 154.25	1 095.69	1 143.07	7.4%
CO_2 Reference Approach ($MtCO_2$)	1 074.10	1 165.52	1 208.42	1 229.32	1 196.13	1 092.59	1 168.49	8.8%
TPES (PJ)	18 394	20 777	21 728	21 794	20 739	19 766	20 802	13.1%
TPES (Mtoe)	439.33	496.26	518.96	520.54	495.35	472.10	496.85	13.1%
GDP (billion 2005 USD)	3 794.08	4 068.40	4 266.88	4 552.20	4 699.39	4 403.91	4 578.55	20.7%
GDP PPP (billion 2005 USD)	3 227.86	3 461.25	3 630.11	3 872.84	3 998.07	3 746.68	3 895.26	20.7%
Population (millions)	123.61	125.57	126.93	127.77	127.69	127.51	127.38	3.1%
CO_2 / TPES (tCO_2 per TJ)	57.9	55.2	54.5	56.0	55.7	55.4	55.0	-5.0%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.28	0.28	0.28	0.27	0.25	0.25	0.25	-11.0%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.33	0.33	0.33	0.32	0.29	0.29	0.29	-11.0%
CO_2 / population (tCO_2 per capita)	8.61	9.14	9.33	9.55	9.04	8.59	8.97	4.2%

Ratios are based on the Sectoral Approach.

* Please see the note in Chapter 1 on the revisions provided by the Japanese Administration.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other **	Total	% change 90-10
Sectoral Approach	**425.38**	**497.41**	**215.02**	**5.27**	**1 143.07**	**7.4%**
Main activity producer elec. and heat	227.50	38.99	126.71	1.45	394.64	28.2%
Unallocated autoproducers	47.18	14.03	5.21	2.42	68.84	22.7%
Other energy industry own use	17.56	23.58	2.87	-	44.02	-2.1%
Manufacturing industries and construction	131.12	98.48	18.79	1.40	249.79	-13.2%
Transport	-	222.71	-	-	222.71	6.2%
of which: road	-	*201.10*	-	-	*201.10*	7.6%
Other	2.01	99.62	61.45	-	163.07	3.2%
of which: residential	-	*39.37*	*21.42*	-	*60.80*	8.9%
Reference Approach	**446.01**	**516.45**	**200.75**	**5.28**	**1 168.49**	**8.8%**
Diff. due to losses and/or transformation	1.06	4.22	- 3.36	0.01	1.92	
Statistical differences	19.58	14.83	- 10.92	0.00	23.49	
Memo: international marine bunkers	-	*14.80*	-	-	*14.80*	*-16.2%*
Memo: international aviation bunkers	-	*16.36*	-	-	*16.36*	*22.9%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	227.50	131.4%	18.0	18.0
Road - oil	201.10	7.6%	15.9	33.9
Manufacturing industries - coal/peat	131.12	-9.9%	10.4	44.3
Main activity prod. elec. and heat - gas	126.71	63.9%	10.0	54.3
Manufacturing industries - oil	98.48	-26.0%	7.8	62.1
Non-specified other - oil	60.24	-32.5%	4.8	66.9
Unallocated autoproducers - coal/peat	47.18	56.8%	3.7	70.6
Non-specified other - gas	40.02	340.4%	3.2	73.8
Residential - oil	39.37	2.6%	3.1	76.9
Main activity prod. elec. and heat - oil	38.99	-70.5%	3.1	80.0
Other energy industry own use - oil	23.58	-17.2%	1.9	81.9
Memo: total CO_2 from fuel combustion	*1143.07*	*7.4%*	*90.5*	*90.5*

*** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Jordan

Figure 1. CO_2 emissions by fuel

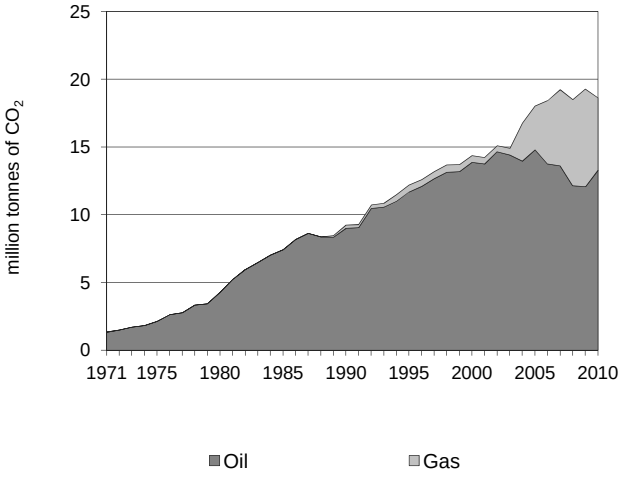


Figure 2. CO_2 emissions by sector

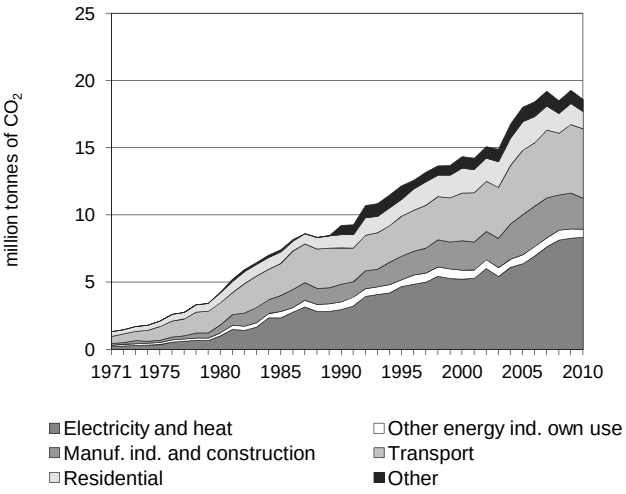


Figure 3. CO_2 emissions by sector

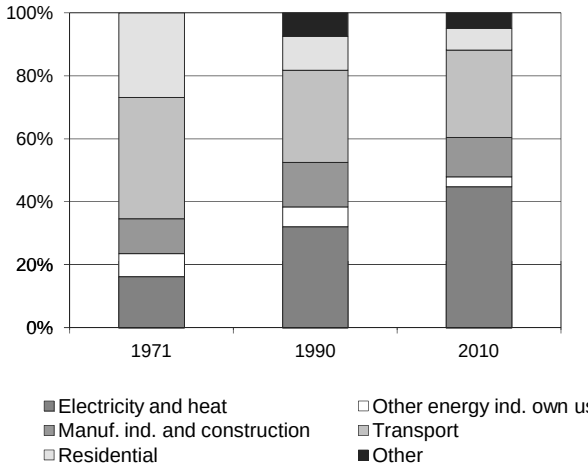


Figure 4. Reference vs Sectoral Approach

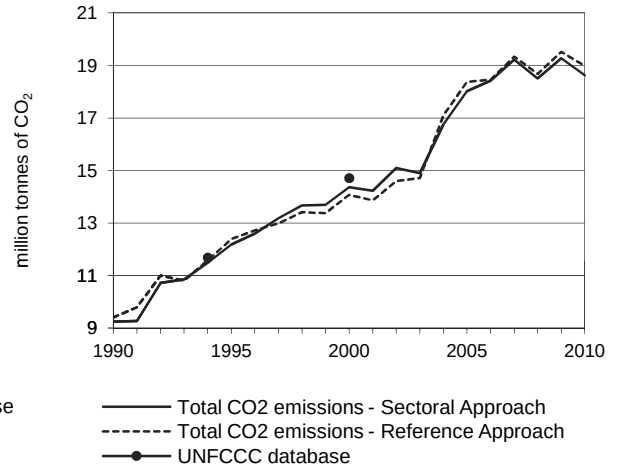


Figure 5. Electricity generation by fuel

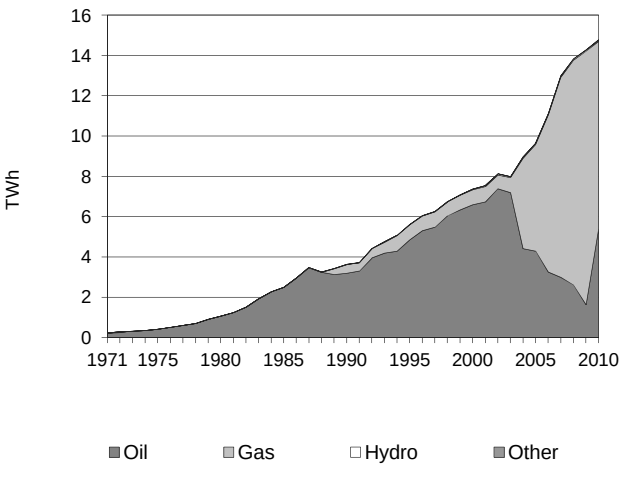
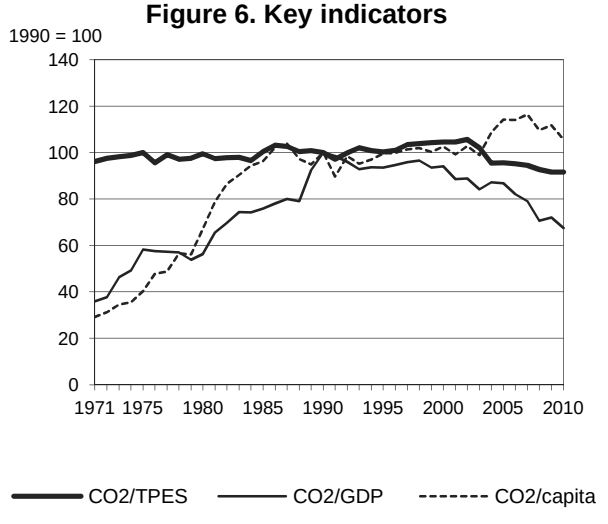


Figure 6. Key indicators



Jordan

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	9.24	12.19	14.36	18.02	18.50	19.28	18.63	101.5%
CO_2 Reference Approach ($MtCO_2$)	9.40	12.39	14.07	18.37	18.67	19.52	18.98	102.0%
TPES (PJ)	137	180	204	280	296	312	302	120.0%
TPES (Mtoe)	3.27	4.30	4.87	6.68	7.07	7.46	7.20	120.0%
GDP (billion 2005 USD)	5.60	7.90	9.25	12.59	15.86	16.23	16.74	198.8%
GDP PPP (billion 2005 USD)	10.44	14.71	17.23	23.46	29.56	30.25	31.19	198.8%
Population (millions)	3.17	4.20	4.80	5.41	5.79	5.92	6.05	90.8%
CO_2 / TPES (tCO_2 per TJ)	67.4	67.7	70.5	64.5	62.5	61.7	61.7	-8.4%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	1.65	1.54	1.55	1.43	1.17	1.19	1.11	-32.6%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.89	0.83	0.83	0.77	0.63	0.64	0.60	-32.6%
CO_2 / population (tCO_2 per capita)	2.92	2.91	2.99	3.33	3.20	3.26	3.08	5.6%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**13.28**	**5.35**	**-**	**18.63**	**101.5%**
Main activity producer elec. and heat	-	2.77	5.35	-	8.12	205.0%
Unallocated autoproducers	-	0.24	-	-	0.24	-21.5%
Other energy industry own use	-	0.58	-	-	0.58	0.3%
Manufacturing industries and construction	-	2.32	-	-	2.32	77.5%
Transport	-	5.16	-	-	5.16	91.1%
of which: road	-	*5.12*	-	-	*5.12*	92.7%
Other	-	2.20	-	-	2.20	30.4%
of which: residential	-	*1.29*	-	-	*1.29*	29.6%
Reference Approach	**-**	**13.63**	**5.35**	**-**	**18.98**	**102.0%**
Diff. due to losses and/or transformation	-	0.09	-	-	0.09	
Statistical differences	-	0.26	-	-	0.26	
Memo: international marine bunkers	-	*0.05*	-	-	*0.05*	*..*
Memo: international aviation bunkers	-	*1.08*	-	-	*1.08*	*62.3%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	5.35	+	22.9	22.9
Road - oil	5.12	92.7%	21.9	44.8
Main activity prod. elec. and heat - oil	2.77	14.3%	11.9	56.6
Manufacturing industries - oil	2.32	77.5%	9.9	66.5
Residential - oil	1.29	29.6%	5.5	72.1
Non-specified other - oil	0.91	31.7%	3.9	76.0
Other energy industry own use - oil	0.58	0.3%	2.5	78.5
Unallocated autoproducers - oil	0.24	-21.5%	1.0	79.5
Other transport - oil	0.04	-4.9%	0.2	79.7
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*18.63*	*101.5%*	*79.7*	*79.7*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Kazakhstan

Figure 1. CO_2 emissions by fuel

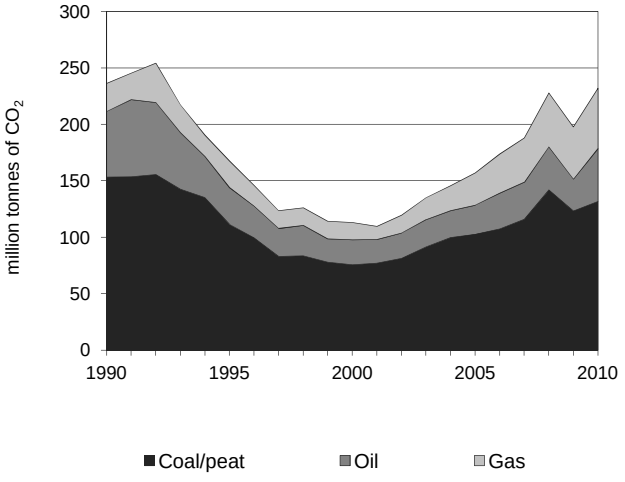


Figure 2. CO_2 emissions by sector

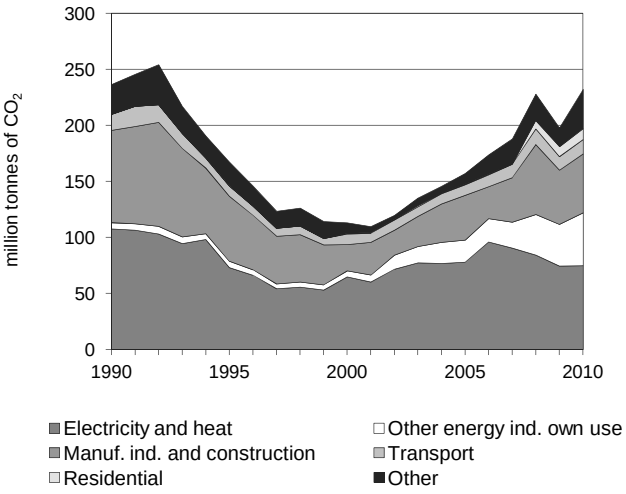


Figure 3. CO_2 emissions by sector

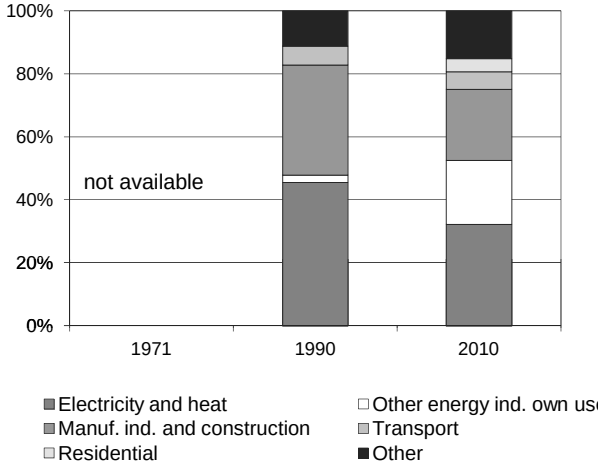


Figure 4. Reference vs Sectoral Approach

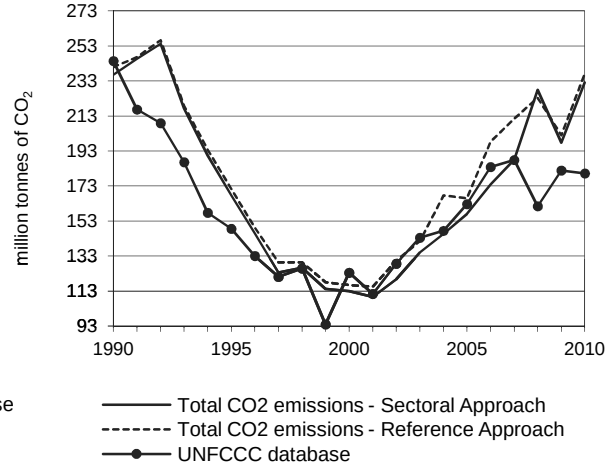


Figure 5. Electricity generation by fuel

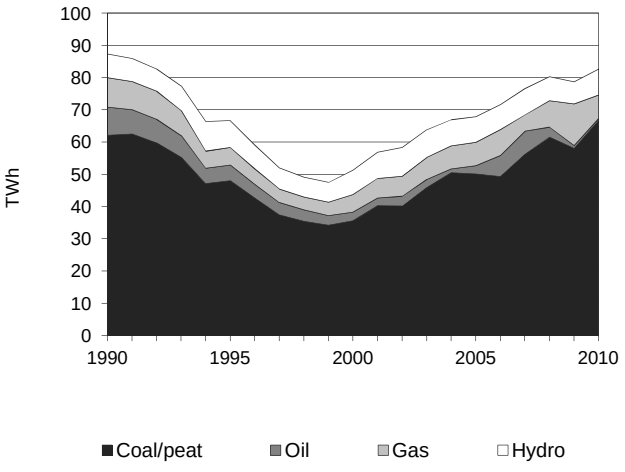
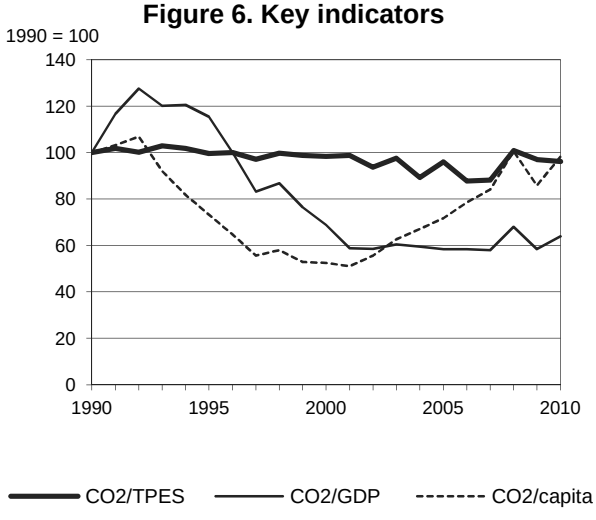


Figure 6. Key indicators



Kazakhstan

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	236.42	167.52	113.00	157.05	227.93	197.78	232.12	-1.8%
CO_2 Reference Approach ($MtCO_2$)	240.86	171.15	116.34	165.95	223.38	202.02	236.96	-1.6%
TPES (PJ)	3 075	2 187	1 494	2 127	2 939	2 651	3 140	2.1%
TPES (Mtoe)	73.45	52.24	35.68	50.81	70.20	63.32	75.01	2.1%
GDP (billion 2005 USD)	50.24	30.85	34.88	57.12	71.14	71.99	77.25	53.7%
GDP PPP (billion 2005 USD)	115.89	71.16	80.46	131.77	164.09	166.06	178.18	53.7%
Population (millions)	16.35	15.82	14.88	15.15	15.67	15.93	16.32	-0.2%
CO_2 / TPES (tCO_2 per TJ)	76.9	76.6	75.6	73.8	77.5	74.6	73.9	-3.9%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	4.71	5.43	3.24	2.75	3.20	2.75	3.01	-36.1%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	2.04	2.35	1.40	1.19	1.39	1.19	1.30	-36.1%
CO_2 / population (tCO_2 per capita)	14.46	10.59	7.59	10.37	14.54	12.42	14.23	-1.6%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**131.84**	**46.74**	**53.53**	**-**	**232.12**	**-1.8%**
Main activity producer elec. and heat	70.12	0.57	4.22	-	74.91	-30.4%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	2.52	2.80	41.84	-	47.16	740.3%
Manufacturing industries and construction	43.24	5.67	3.45	-	52.36	-36.5%
Transport	-	12.90	-	-	12.90	-9.7%
of which: road	-	*11.84*	-	-	*11.84*	-1.0%
Other	15.96	24.80	4.03	-	44.79	69.4%
of which: residential	*4.70*	*2.22*	*2.73*	-	*9.64*	x
Reference Approach	**133.78**	**50.45**	**52.72**	**-**	**236.96**	**-1.6%**
Diff. due to losses and/or transformation	7.42	4.94	2.32	-	14.68	
Statistical differences	- 5.48	- 1.23	- 3.13	-	- 9.84	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.25*	-	-	*0.25*	*-90.7%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	70.12	-25.0%	21.0	21.0
Manufacturing industries - coal/peat	43.24	-27.6%	12.9	33.9
Other energy industry own use - gas	41.84	+	12.5	46.4
Non-specified other - oil	22.58	172.5%	6.8	53.1
Road - oil	11.84	-1.0%	3.5	56.7
Non-specified other sectors - coal/peat	11.26	x	3.4	60.0
Manufacturing industries - oil	5.67	-75.0%	1.7	61.7
Residential - coal/peat	4.70	x	1.4	63.1
Main activity prod. elec. and heat - gas	4.22	21.1%	1.3	64.4
Manufacturing industries - gas	3.45	x	1.0	65.4
Other energy industry own use - oil	2.80	14.6%	0.8	66.3
Memo: total CO_2 from fuel combustion	*232.12*	*-1.8%*	*69.4*	*69.4*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Kenya

Figure 1. CO_2 emissions by fuel

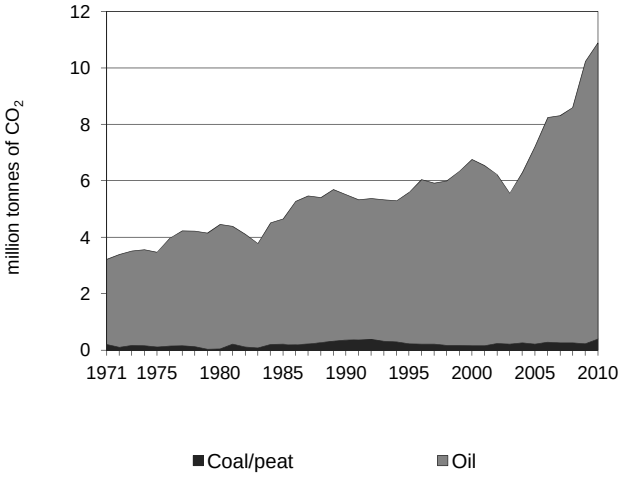


Figure 2. CO_2 emissions by sector

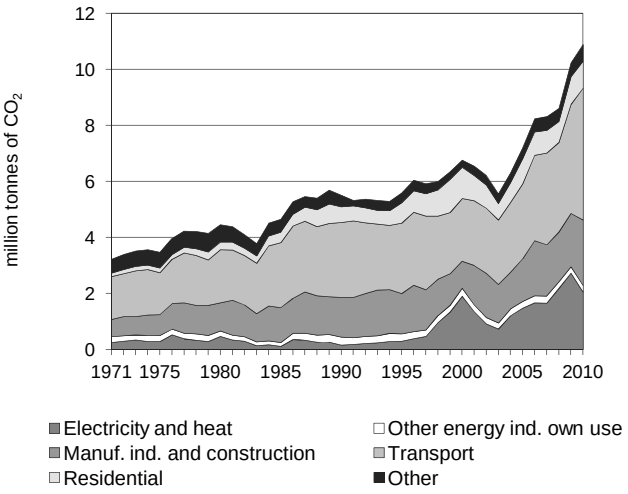


Figure 3. CO_2 emissions by sector

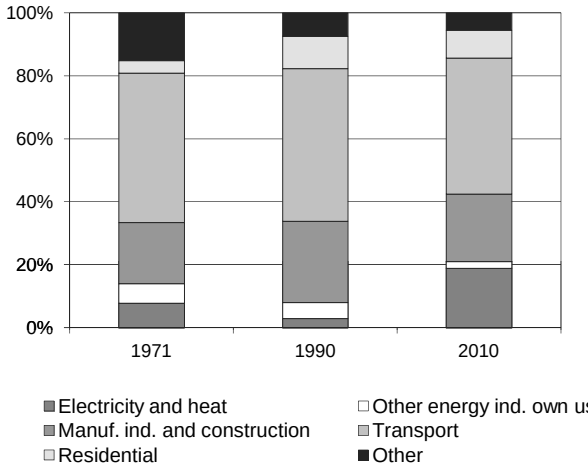


Figure 4. Reference vs Sectoral Approach

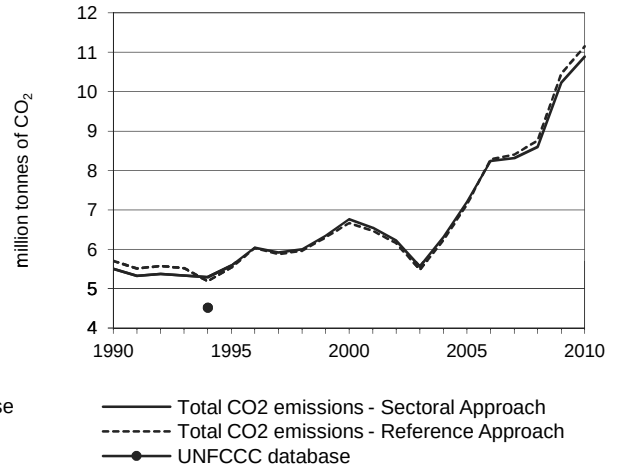


Figure 5. Electricity generation by fuel

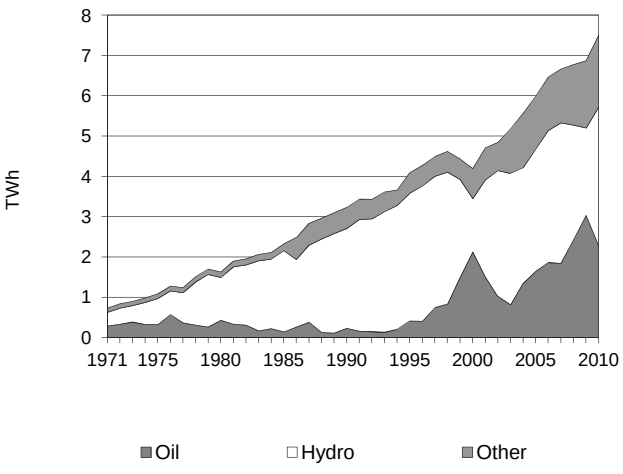
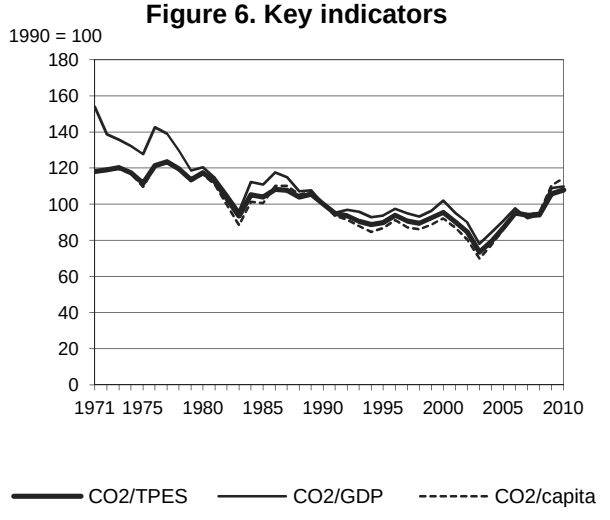


Figure 6. Key indicators



Kenya

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	5.51	5.59	6.76	7.20	8.60	10.23	10.89	97.7%
CO_2 Reference Approach ($MtCO_2$)	5.70	5.54	6.67	7.13	8.76	10.46	11.15	95.5%
TPES (PJ)	447	505	575	672	742	786	819	83.2%
TPES (Mtoe)	10.68	12.05	13.73	16.04	17.73	18.77	19.56	83.2%
GDP (billion 2005 USD)	13.02	14.09	15.67	18.74	21.65	22.22	23.45	80.1%
GDP PPP (billion 2005 USD)	33.32	36.06	40.11	47.95	55.39	56.85	60.01	80.1%
Population (millions)	23.45	27.43	31.25	35.62	38.46	39.46	40.51	72.8%
CO_2 / TPES (tCO_2 per TJ)	12.3	11.1	11.8	10.7	11.6	13.0	13.3	7.9%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.42	0.40	0.43	0.38	0.40	0.46	0.46	9.8%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.17	0.16	0.17	0.15	0.16	0.18	0.18	9.7%
CO_2 / population (tCO_2 per capita)	0.23	0.20	0.22	0.20	0.22	0.26	0.27	14.4%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.39**	**10.49**	**-**	**-**	**10.89**	**97.7%**
Main activity producer elec. and heat **	-	2.06	-	-	2.06	+
Unallocated autoproducers **	..	..	..	..	..	..
Other energy industry own use	-	0.23	-	-	0.23	-17.4%
Manufacturing industries and construction	0.39	1.94	-	-	2.34	64.4%
Transport	-	4.71	-	-	4.71	76.6%
of which: road	-	*4.47*	-	-	*4.47*	76.9%
Other	-	1.56	-	-	1.56	59.5%
of which: residential	-	*0.96*	-	-	*0.96*	68.3%
Reference Approach	**0.39**	**10.75**	**-**	**-**	**11.15**	**95.5%**
Diff. due to losses and/or transformation	-	0.26	-	-	0.26	
Statistical differences	-	- 0.00	-	-	- 0.00	
Memo: international marine bunkers	-	*0.02*	-	-	*0.02*	*-96.6%*
Memo: international aviation bunkers	-	*1.70*	-	-	*1.70*	*105.3%*

* Other includes industrial waste and non-renewable municipal waste.
** Emissions from autoproducers in 2010 have been included with main activity producer electricity and heat.

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) ***	Cumulative total (%)
Road - oil	4.47	76.9%	8.7	8.7
Main activity prod. elec. and heat - oil	2.06	+	4.0	12.7
Manufacturing industries - oil	1.94	83.2%	3.8	16.5
Residential - oil	0.96	68.3%	1.9	18.4
Non-specified other - oil	0.60	47.3%	1.2	19.5
Manufacturing industries - coal/peat	0.39	9.3%	0.8	20.3
Other transport - oil	0.23	70.8%	0.5	20.7
Other energy industry own use - oil	0.23	-17.4%	0.4	21.2
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*10.89*	*97.7%*	*21.2*	*21.2*

*** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Democratic People's Republic of Korea

Figure 1. CO_2 emissions by fuel

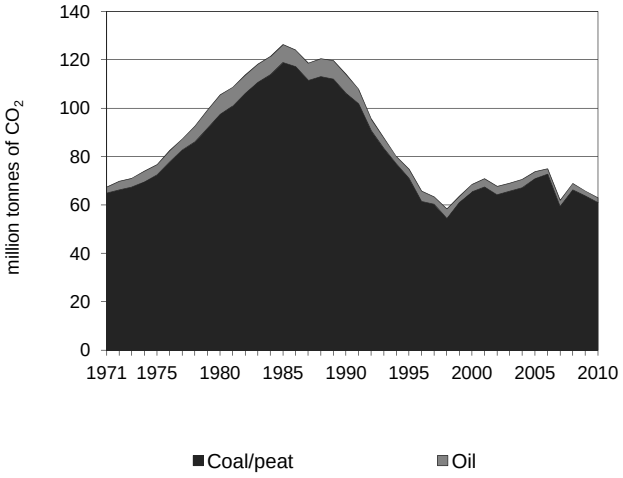


Figure 2. CO_2 emissions by sector

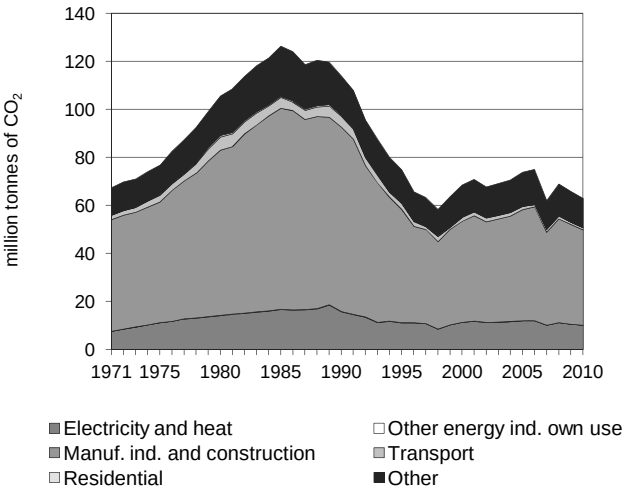


Figure 3. CO_2 emissions by sector

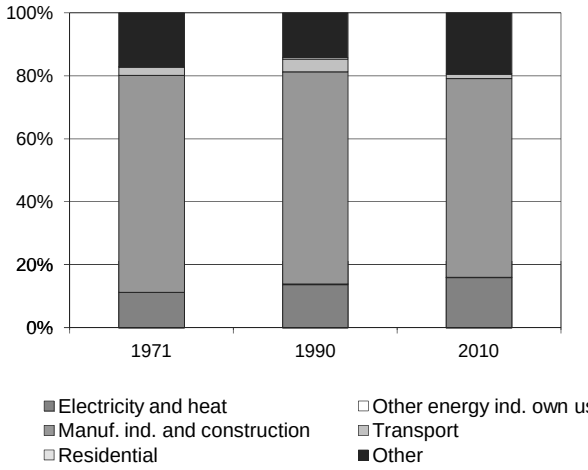


Figure 4. Reference vs Sectoral Approach

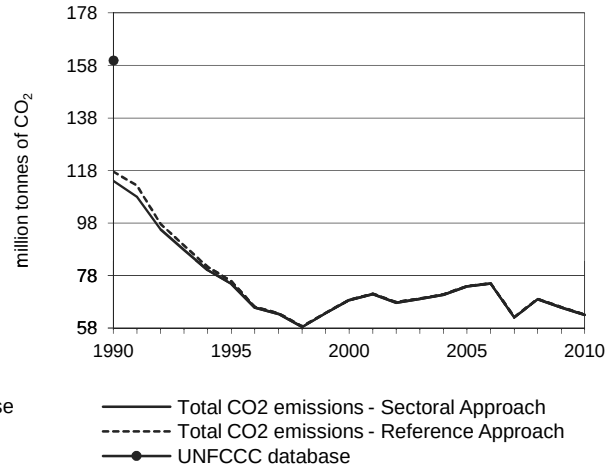


Figure 5. Electricity generation by fuel

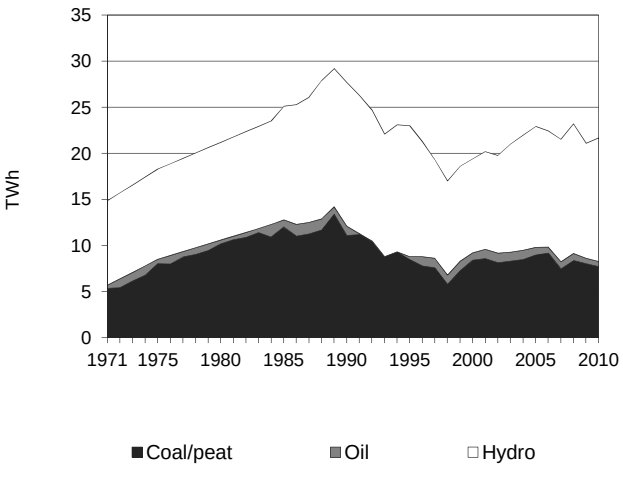
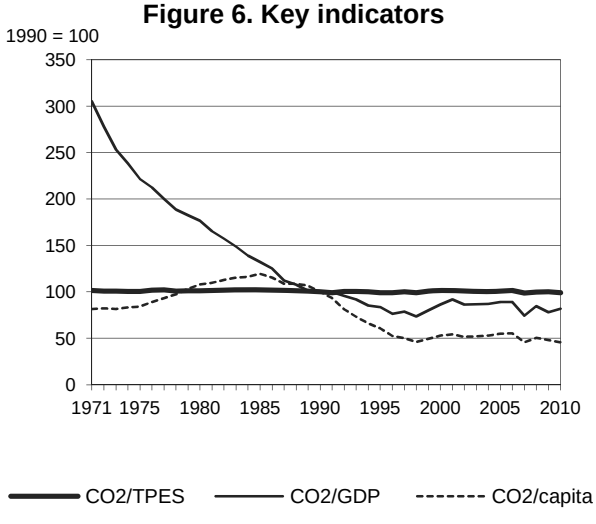


Figure 6. Key indicators



Democratic People's Republic of Korea

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	114.01	74.86	68.57	73.82	68.96	65.81	62.99	-44.7%
CO_2 Reference Approach ($MtCO_2$)	117.57	75.77	68.67	73.94	69.06	65.89	63.07	-46.4%
TPES (PJ)	1 391	920	826	893	844	803	776	-44.2%
TPES (Mtoe)	33.22	21.99	19.72	21.33	20.16	19.18	18.53	-44.2%
GDP (billion 2005 USD)	40.89	32.11	28.50	29.69	29.21	30.29	27.56	-32.6%
GDP PPP (billion 2005 USD)	153.47	120.53	106.99	111.45	109.63	113.69	103.45	-32.6%
Population (millions)	20.14	21.77	22.89	23.75	24.13	24.24	24.35	20.9%
CO_2 / TPES (tCO_2 per TJ)	82.0	81.3	83.1	82.7	81.7	82.0	81.2	-0.9%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	2.79	2.33	2.41	2.49	2.36	2.17	2.29	-18.0%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.74	0.62	0.64	0.66	0.63	0.58	0.61	-18.0%
CO_2 / population (tCO_2 per capita)	5.66	3.44	3.00	3.11	2.86	2.72	2.59	-54.3%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**61.05**	**1.95**	**-**	**-**	**62.99**	**-44.7%**
Main activity producer elec. and heat	9.29	0.79	-	-	10.08	-35.7%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.03	-	-	0.03	-84.6%
Manufacturing industries and construction	39.57	0.18	-	-	39.75	-48.3%
Transport	-	0.88	-	-	0.88	-81.0%
of which: road	-	*0.88*	-	-	*0.88*	-81.0%
Other	12.18	0.07	-	-	12.25	-26.6%
of which: residential	-	*0.07*	-	-	*0.07*	-86.5%
Reference Approach	**61.12**	**1.96**	**-**	**-**	**63.07**	**-46.4%**
Diff. due to losses and/or transformation	0.07	0.01	-	-	0.08	
Statistical differences	- 0.00	-	-	-	- 0.00	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	-	-	-	-	-

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Manufacturing industries - coal/peat	39.57	-47.7%	43.0	43.0
Non-specified other sectors - coal/peat	12.18	-24.6%	13.2	56.3
Main activity prod. elec. and heat - coal/peat	9.29	-35.2%	10.1	66.4
Road - oil	0.88	-81.0%	1.0	67.4
Main activity prod. elec. and heat - oil	0.79	-40.3%	0.9	68.2
Manufacturing industries - oil	0.18	-85.3%	0.2	68.4
Residential - oil	0.07	-86.5%	0.1	68.5
Other energy industry own use - oil	0.03	-84.6%	0.0	68.5
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*62.99*	*-44.7%*	*68.5*	*68.5*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Korea

Figure 1. CO_2 emissions by fuel

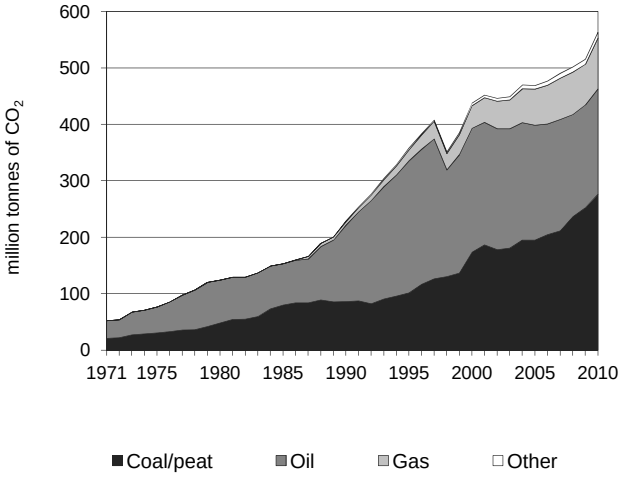


Figure 2. CO_2 emissions by sector

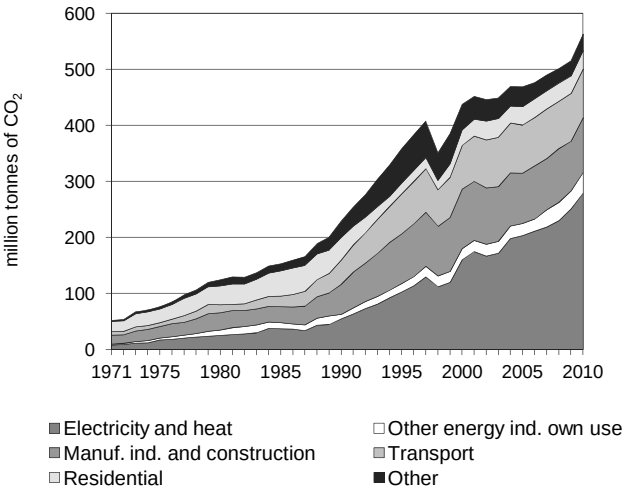


Figure 3. CO_2 emissions by sector

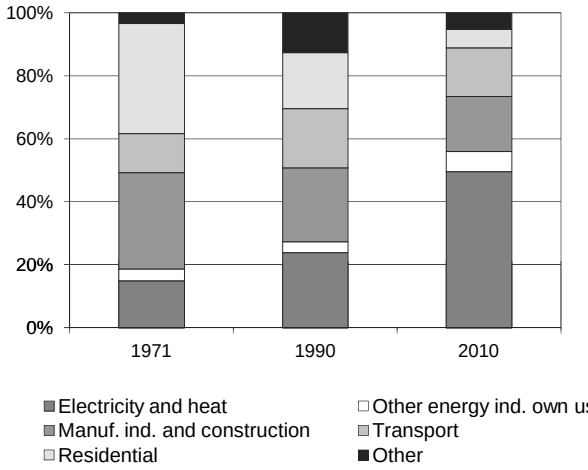


Figure 4. Reference vs Sectoral Approach

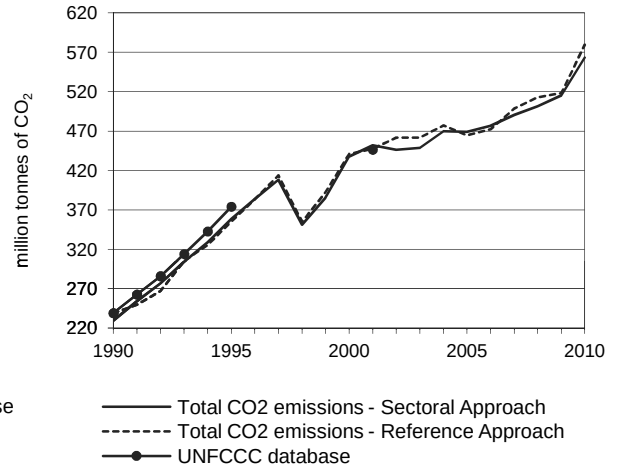


Figure 5. Electricity generation by fuel

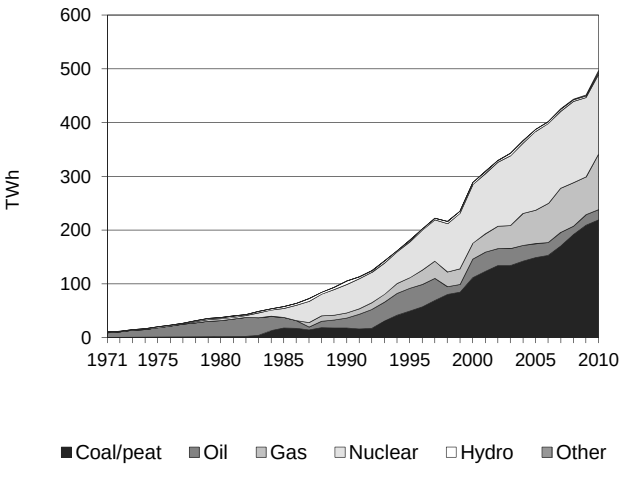
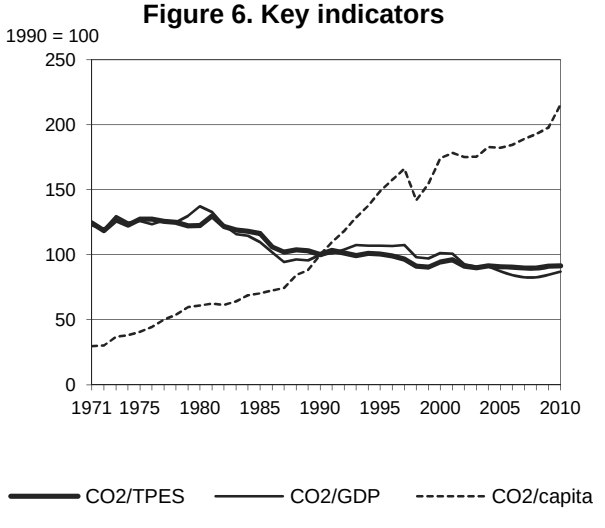


Figure 6. Key indicators



Korea

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	229.30	358.65	437.69	469.12	501.67	515.46	563.08	145.6%
CO_2 Reference Approach ($MtCO_2$)	238.60	355.28	440.99	464.63	512.84	518.15	579.67	143.0%
TPES (PJ)	3 897	6 061	7 878	8 800	9 502	9 595	10 467	168.6%
TPES (Mtoe)	93.09	144.76	188.16	210.18	226.95	229.18	250.01	168.6%
GDP (billion 2005 USD)	360.30	526.72	678.27	844.86	955.45	958.51	1 017.57	182.4%
GDP PPP (billion 2005 USD)	467.71	683.75	880.48	1 096.74	1 240.30	1 244.26	1 320.93	182.4%
Population (millions)	42.87	45.09	47.01	48.14	48.61	48.75	48.88	14.0%
CO_2 / TPES (tCO_2 per TJ)	58.8	59.2	55.6	53.3	52.8	53.7	53.8	-8.6%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.64	0.68	0.65	0.56	0.53	0.54	0.55	-13.0%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.49	0.52	0.50	0.43	0.40	0.41	0.43	-13.1%
CO_2 / population (tCO_2 per capita)	5.35	7.95	9.31	9.75	10.32	10.57	11.52	115.4%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**276.29**	**186.64**	**90.22**	**9.93**	**563.08**	**145.6%**
Main activity producer elec. and heat	184.72	10.74	41.05	-	236.51	586.5%
Unallocated autoproducers	35.14	5.22	1.02	1.30	42.68	109.5%
Other energy industry own use	18.96	16.65	0.57	0.05	36.24	353.3%
Manufacturing industries and construction	34.14	41.28	16.06	7.08	98.56	83.9%
Transport	-	84.37	2.39	-	86.76	100.5%
of which: road	-	*79.37*	*2.39*	-	*81.76*	159.2%
Other	3.32	28.38	29.14	1.50	62.33	-10.5%
of which: residential	*3.32*	*8.74*	*20.89*	-	*32.94*	-19.1%
Reference Approach	**284.94**	**194.43**	**90.38**	**9.93**	**579.67**	**143.0%**
Diff. due to losses and/or transformation	6.45	5.17	- 0.85	-	10.76	
Statistical differences	2.20	2.62	1.01	- 0.00	5.84	
Memo: international marine bunkers	-	*28.75*	-	-	*28.75*	*445.6%*
Memo: international aviation bunkers	-	*11.89*	-	-	*11.89*	+

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	184.72	+	28.5	28.5
Road - oil	79.37	151.6%	12.3	40.8
Manufacturing industries - oil	41.28	8.7%	6.4	47.2
Main activity prod. elec. and heat - gas	41.05	762.4%	6.3	53.5
Unallocated autoproducers - coal/peat	35.14	72.5%	5.4	58.9
Manufacturing industries - coal/peat	34.14	140.3%	5.3	64.2
Residential - gas	20.89	+	3.2	67.4
Non-specified other - oil	19.64	-30.9%	3.0	70.5
Other energy industry - coal/peat	18.96	562.8%	2.9	73.4
Other energy industry own use - oil	16.65	226.6%	2.6	76.0
Manufacturing industries - gas	16.06	+	2.5	78.5
Memo: total CO_2 from fuel combustion	*563.08*	*145.6%*	*87.0*	*87.0*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Kosovo

Figure 1. CO_2 emissions by fuel

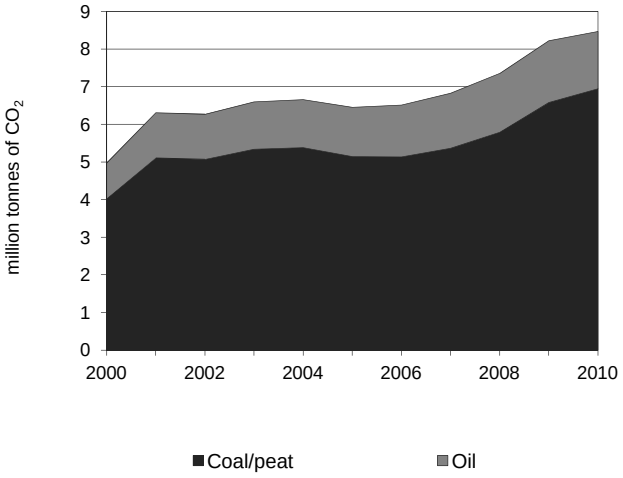


Figure 2. CO_2 emissions by sector

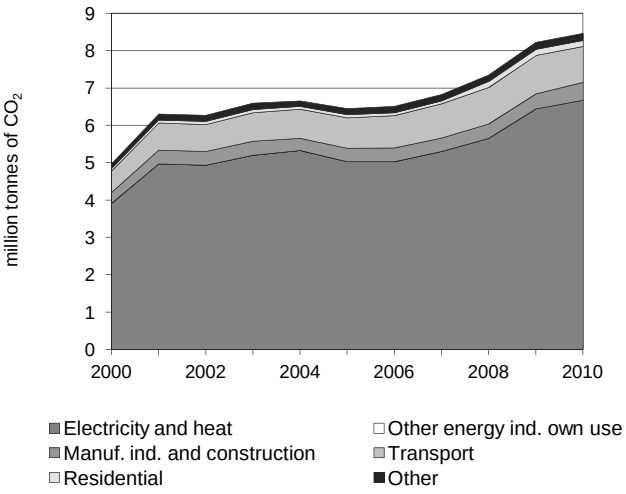


Figure 3. CO_2 emissions by sector

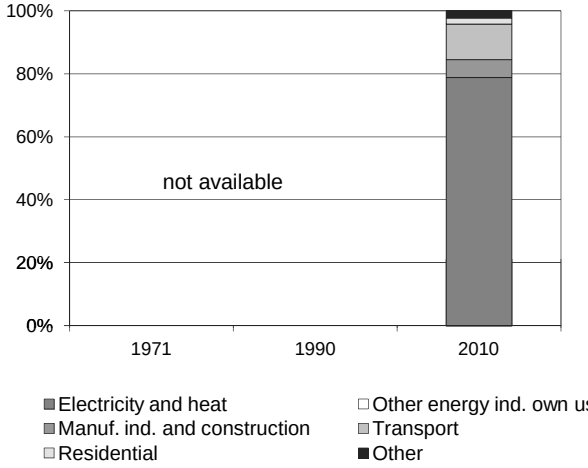


Figure 4. Reference vs Sectoral Approach

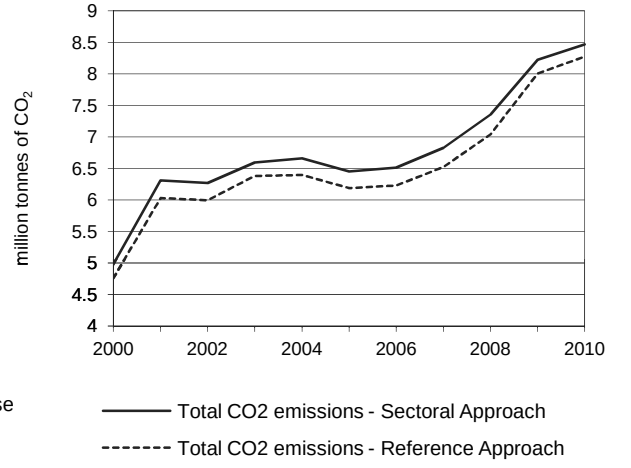


Figure 5. Electricity generation by fuel

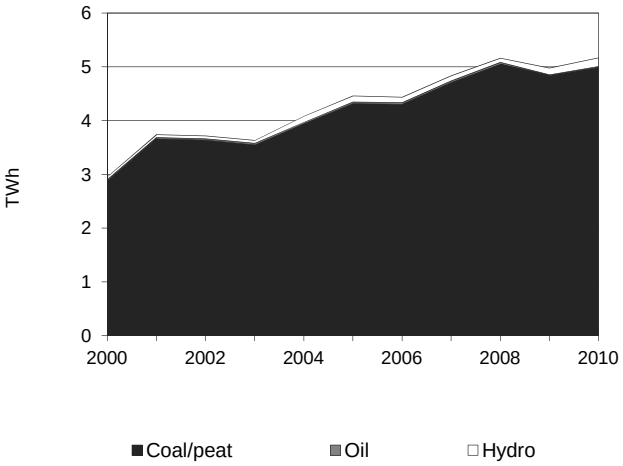
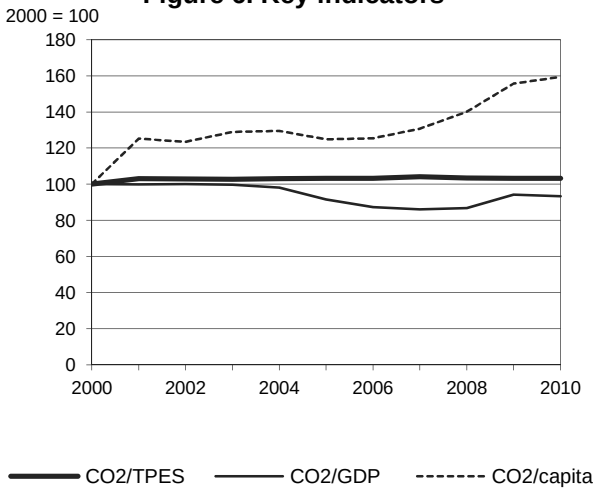


Figure 6. Key indicators



Kosovo *

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	..	..	4.97	6.45	7.36	8.22	8.47	..
CO_2 Reference Approach ($MtCO_2$)	..	..	4.75	6.19	7.04	8.01	8.28	..
TPES (PJ)	..	..	62	78	88	99	102	..
TPES (Mtoe)	..	..	1.48	1.86	2.11	2.37	2.44	..
GDP (billion 2005 USD)	..	..	2.64	3.74	4.51	4.64	4.83	..
GDP PPP (billion 2005 USD)	..	..	6.64	9.40	11.32	11.65	12.12	..
Population (millions)	..	..	1.70	1.77	1.80	1.81	1.82	..
CO_2 / TPES (tCO_2 per TJ)	..	..	80.4	82.9	83.1	83.0	83.0	..
CO_2 / GDP ($kgCO_2$ per 2005 USD)	..	..	1.88	1.72	1.63	1.77	1.75	..
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	..	..	0.75	0.69	0.65	0.71	0.70	..
CO_2 / population (tCO_2 per capita)	..	..	2.93	3.65	4.10	4.56	4.66	..

Ratios are based on the Sectoral Approach.

* Prior to 2000, data for Kosovo were included in Serbia.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other **	Total	% change 90-10
Sectoral Approach	**6.95**	**1.52**	**-**	**-**	**8.47**	**..**
Main activity producer elec. and heat	6.64	0.04	-	-	6.68	..
Unallocated autoproducers	-	-	-	-	-	..
Other energy industry own use	-	-	-	-	-	..
Manufacturing industries and construction	0.20	0.29	-	-	0.48	..
Transport	-	0.96	-	-	0.96	..
of which: road	-	*0.95*	-	-	*0.95*	..
Other	0.11	0.24	-	-	0.35	..
of which: residential	*0.09*	*0.07*	-	-	*0.17*	..
Reference Approach	**6.95**	**1.33**	**-**	**-**	**8.28**	**..**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	0.00	- 0.19	-	-	- 0.19	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.00*	-	-	*0.00*	*..*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	6.64	..	..	..
Road - oil	0.95	..	..	..
Manufacturing industries - oil	0.29	..	..	..
Manufacturing industries - coal/peat	0.20	..	..	..
Non-specified other - oil	0.17	..	..	..
Residential - coal/peat	0.09	..	..	..
Residential - oil	0.07	..	..	..
Main activity prod. elec. and heat - oil	0.04	..	..	..
Non-specified other sectors - coal/peat	0.02	..	..	..
Other transport - oil	0.00	..	..	..
-	-	..	-	-
Memo: total CO_2 from fuel combustion	*8.47*	*..*	-	-

*** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Kuwait

Figure 1. CO_2 emissions by fuel

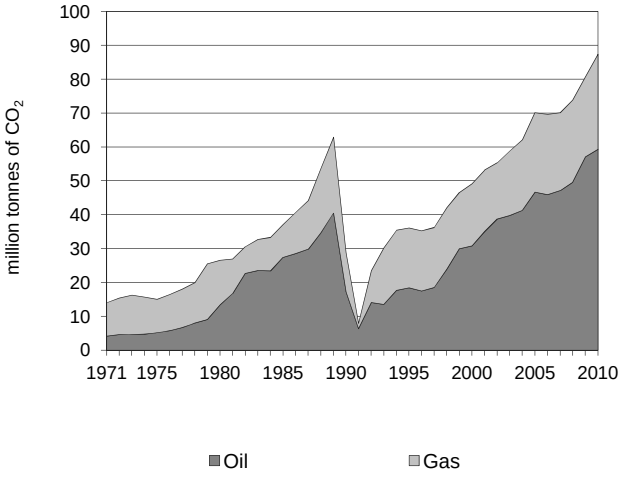


Figure 2. CO_2 emissions by sector

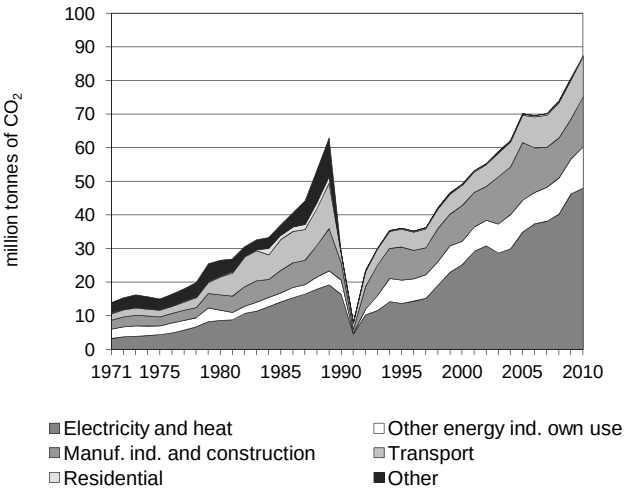


Figure 3. CO_2 emissions by sector

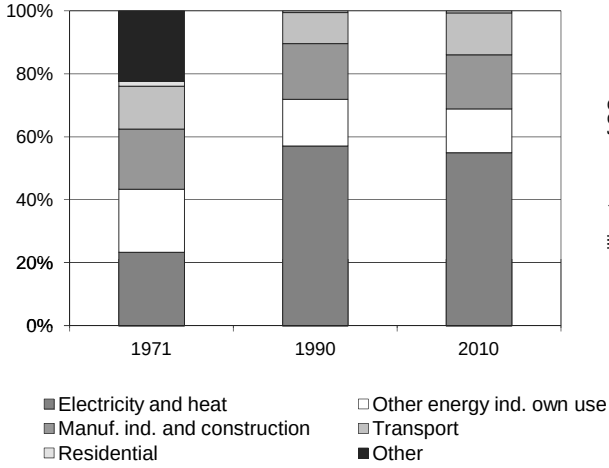


Figure 4. Reference vs Sectoral Approach

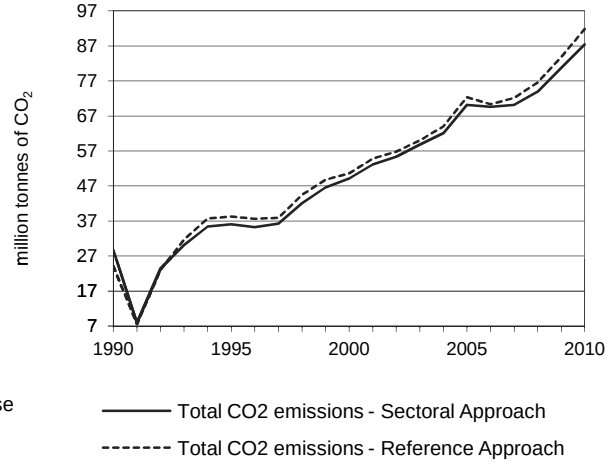


Figure 5. Electricity generation by fuel

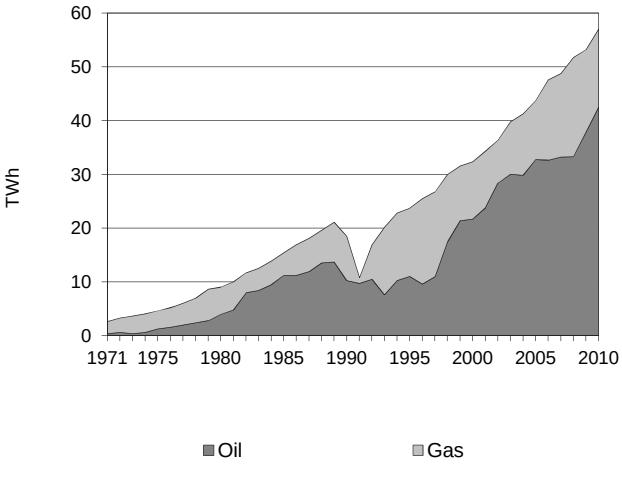
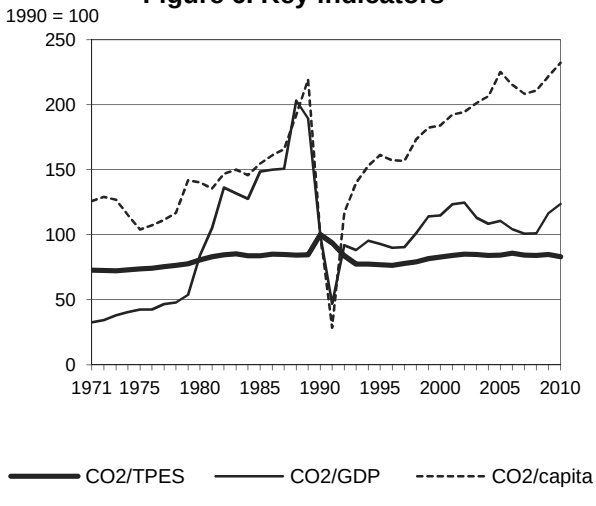


Figure 6. Key indicators



Kuwait

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	28.72	36.11	49.12	70.13	73.87	80.72	87.39	204.3%
CO_2 Reference Approach ($MtCO_2$)	24.06	38.31	50.57	72.37	76.55	83.89	91.83	281.7%
TPES (PJ)	381	623	787	1 105	1 167	1 263	1 398	266.6%
TPES (Mtoe)	9.11	14.87	18.81	26.40	27.87	30.17	33.40	266.6%
GDP (billion 2005 USD)	36.58	49.56	54.46	80.80	93.12	88.28	90.04	146.1%
GDP PPP (billion 2005 USD)	50.00	67.75	74.45	110.45	127.28	120.66	123.07	146.1%
Population (millions)	2.09	1.63	1.94	2.26	2.55	2.65	2.74	31.1%
CO_2 / TPES (tCO_2 per TJ)	75.3	58.0	62.4	63.4	63.3	63.9	62.5	-17.0%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.79	0.73	0.90	0.87	0.79	0.91	0.97	23.7%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.57	0.53	0.66	0.63	0.58	0.67	0.71	23.6%
CO_2 / population (tCO_2 per capita)	13.75	22.18	25.31	30.97	28.99	30.51	31.93	132.2%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**59.38**	**28.02**	**-**	**87.39**	**204.3%**
Main activity producer elec. and heat	-	40.35	7.67	-	48.02	192.9%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	1.30	10.89	-	12.19	186.0%
Manufacturing industries and construction	-	5.54	9.45	-	14.99	194.8%
Transport	-	11.67	-	-	11.67	314.8%
of which: road	-	*11.67*	-	-	*11.67*	314.8%
Other	-	0.52	-	-	0.52	223.1%
of which: residential	-	*0.52*	-	-	*0.52*	223.1%
Reference Approach	**-**	**63.82**	**28.02**	**-**	**91.83**	**281.7%**
Diff. due to losses and/or transformation	-	1.32	-	-	1.32	
Statistical differences	-	3.12	-	-	3.12	
Memo: international marine bunkers	-	*1.25*	-	-	*1.25*	*126.3%*
Memo: international aviation bunkers	-	*2.40*	-	-	*2.40*	*369.8%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	40.35	229.1%	38.2	38.2
Road - oil	11.67	314.8%	11.0	49.3
Other energy industry own use - gas	10.89	203.0%	10.3	59.6
Manufacturing industries - gas	9.45	150.3%	9.0	68.5
Main activity prod. elec. and heat - gas	7.67	85.6%	7.3	75.8
Manufacturing industries - oil	5.54	323.1%	5.2	81.0
Other energy industry own use - oil	1.30	94.8%	1.2	82.3
Residential - oil	0.52	223.1%	0.5	82.8
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*87.39*	*204.3%*	*82.8*	*82.8*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Kyrgyzstan

Figure 1. CO_2 emissions by fuel

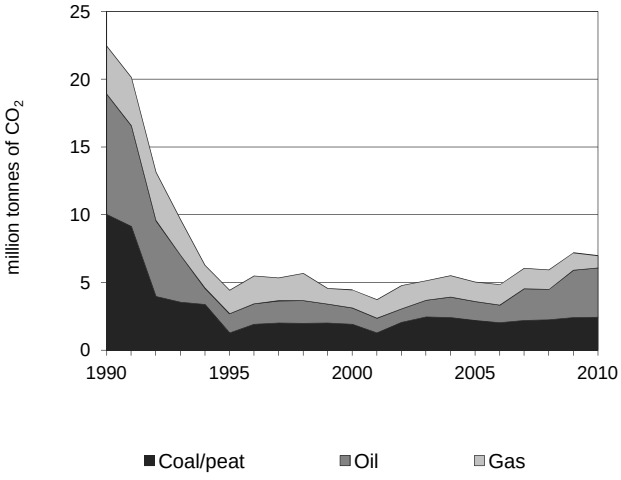


Figure 2. CO_2 emissions by sector

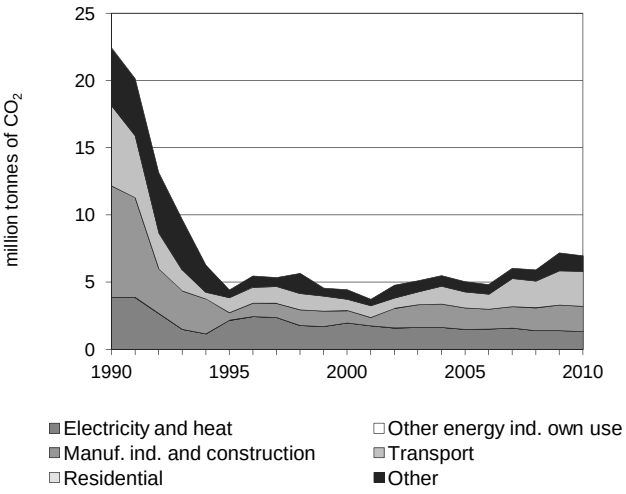


Figure 3. CO_2 emissions by sector

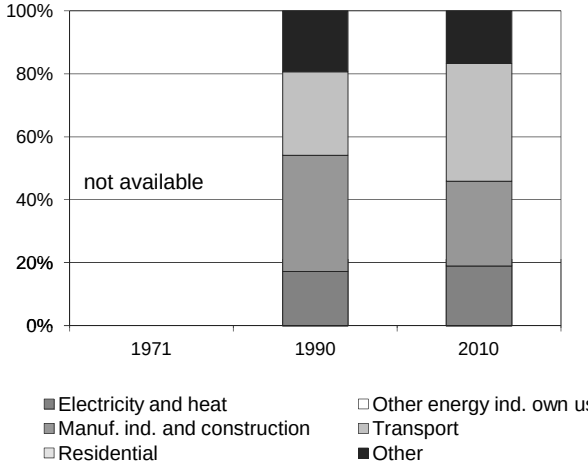


Figure 4. Reference vs Sectoral Approach

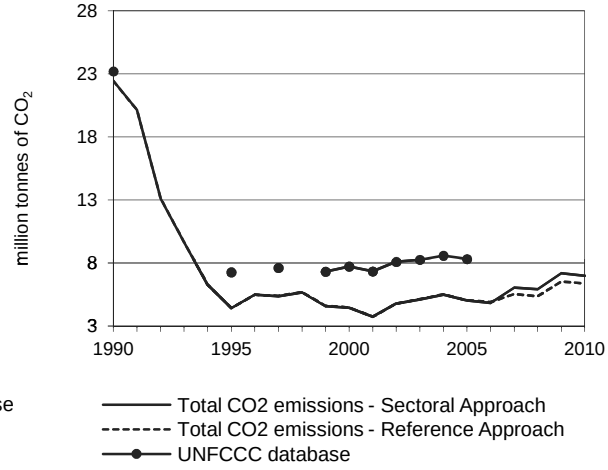


Figure 5. Electricity generation by fuel

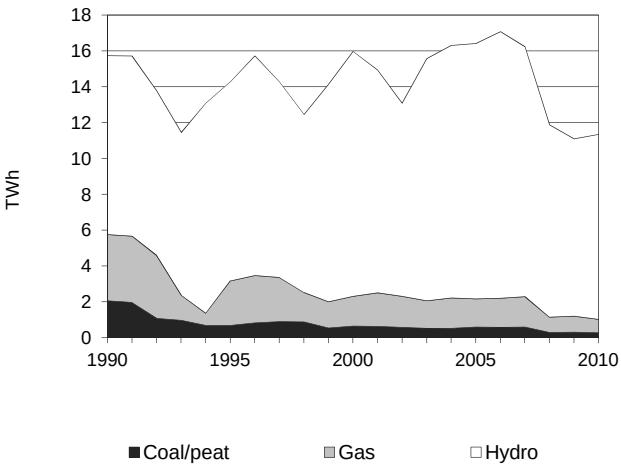
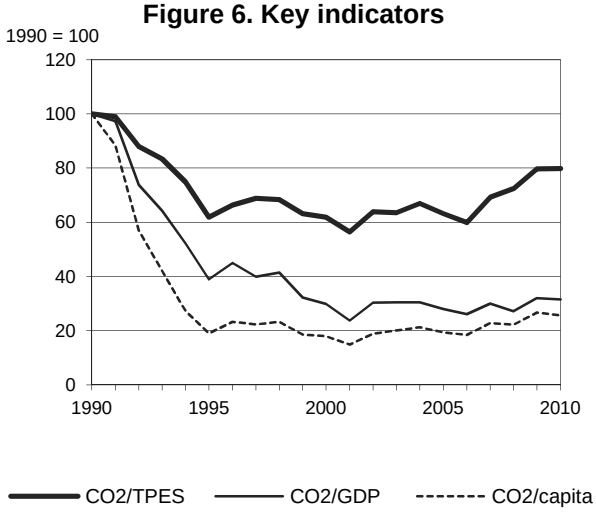


Figure 6. Key indicators



Kyrgyzstan

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	22.45	4.43	4.45	5.04	5.93	7.19	6.98	-68.9%
CO_2 Reference Approach ($MtCO_2$)	22.45	4.43	4.48	5.02	5.36	6.53	6.37	-71.7%
TPES (PJ)	313	100	101	111	114	126	122	-61.0%
TPES (Mtoe)	7.49	2.38	2.40	2.66	2.73	3.01	2.92	-61.0%
GDP (billion 2005 USD)	3.07	1.56	2.04	2.46	2.98	3.07	3.03	-1.2%
GDP PPP (billion 2005 USD)	11.08	5.62	7.38	8.89	10.78	11.09	10.94	-1.3%
Population (millions)	4.42	4.59	4.92	5.14	5.28	5.32	5.37	21.3%
CO_2 / TPES (tCO_2 per TJ)	71.6	44.3	44.3	45.3	51.9	57.1	57.1	-20.2%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	7.32	2.85	2.18	2.05	1.99	2.34	2.31	-68.5%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	2.03	0.79	0.60	0.57	0.55	0.65	0.64	-68.5%
CO_2 / population (tCO_2 per capita)	5.08	0.96	0.91	0.98	1.12	1.35	1.30	-74.4%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**2.43**	**3.64**	**0.91**	**-**	**6.98**	**-68.9%**
Main activity producer elec. and heat	0.57	-	0.75	-	1.32	-65.8%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	1.86	0.02	-	-	1.88	-77.3%
Transport	-	2.59	0.02	-	2.61	-56.2%
of which: road	-	*2.59*	*0.02*	-	*2.61*	-56.2%
Other	-	1.03	0.14	-	1.17	-73.1%
of which: residential	-	-	-	-	-	-
Reference Approach	**1.81**	**3.64**	**0.91**	**-**	**6.37**	**-71.7%**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	- 0.62	-	-	-	- 0.62	
Memo: international marine bunkers	-	-	-	-	-	-
Memo: international aviation bunkers	-	*1.22*	-	-	*1.22*	*366.3%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	2.59	-56.5%	19.8	19.8
Manufacturing industries - coal/peat	1.86	-77.6%	14.2	34.0
Non-specified other - oil	1.03	-64.8%	7.8	41.9
Main activity prod. elec. and heat - gas	0.75	-64.8%	5.7	47.6
Main activity prod. elec. and heat - coal/peat	0.57	-67.1%	4.4	52.0
Non-specified other - gas	0.14	-90.1%	1.1	53.1
Manufacturing industries - oil	0.02	x	0.2	53.3
Road - gas	0.02	x	0.1	53.4
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*6.98*	*-68.9%*	*53.4*	*53.4*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Latvia

Figure 1. CO_2 emissions by fuel

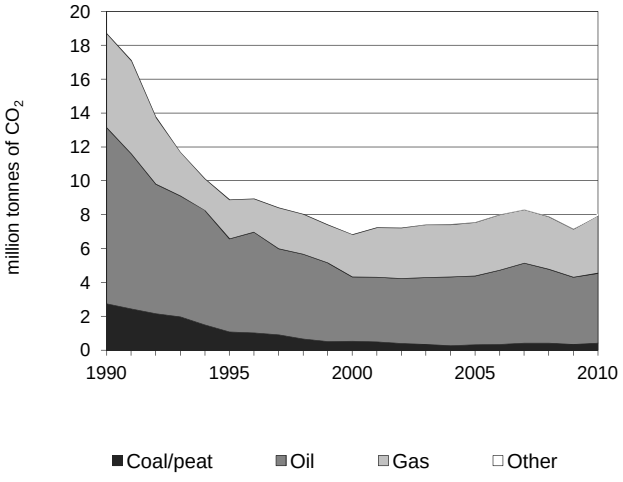


Figure 2. CO_2 emissions by sector

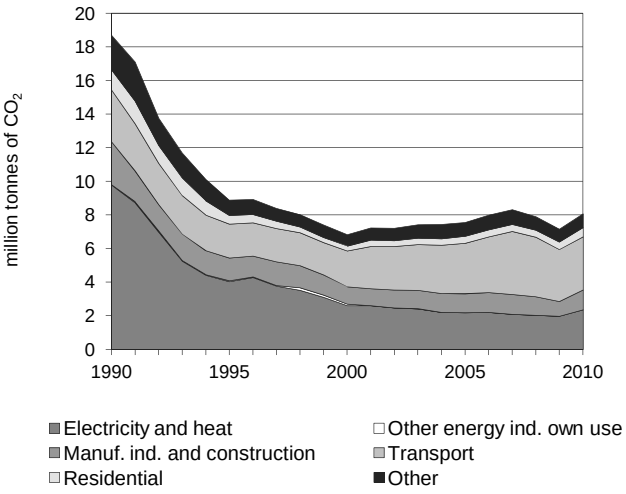


Figure 3. CO_2 emissions by sector

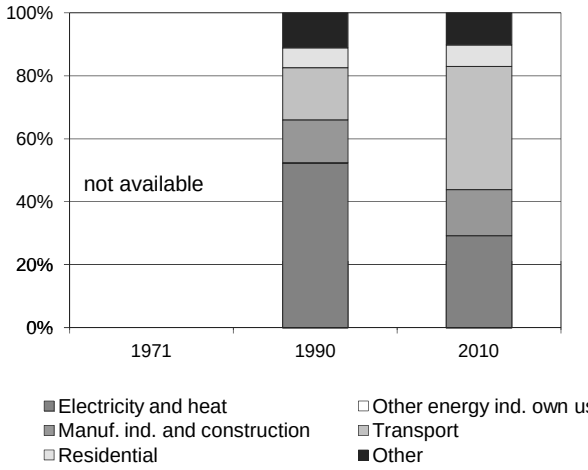


Figure 4. Reference vs Sectoral Approach

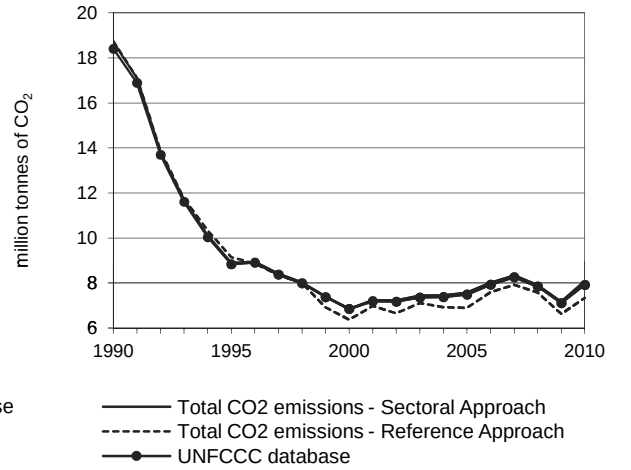


Figure 5. Electricity generation by fuel

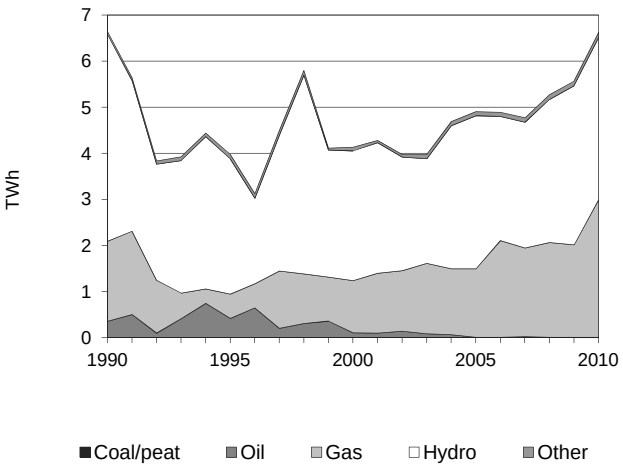
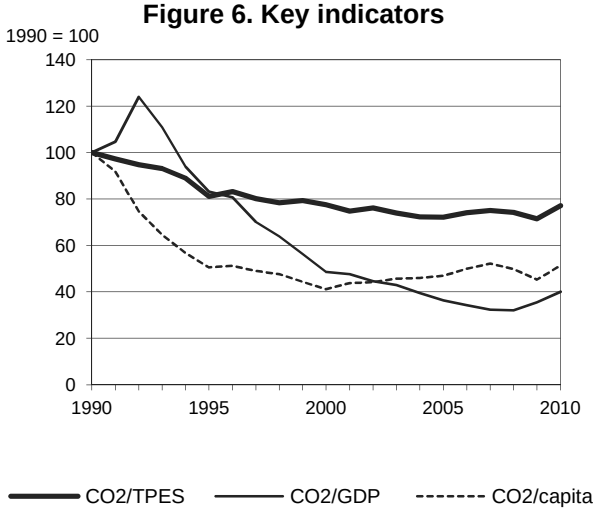


Figure 6. Key indicators



Latvia

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	18.70	8.89	6.83	7.56	7.90	7.16	8.08	-56.8%
CO_2 Reference Approach ($MtCO_2$)	18.76	9.14	6.37	6.90	7.58	6.62	7.33	-60.9%
TPES (PJ)	330	193	156	185	188	177	185	-44.0%
TPES (Mtoe)	7.88	4.61	3.71	4.42	4.48	4.22	4.41	-44.0%
GDP (billion 2005 USD)	14.40	8.22	10.82	16.04	18.96	15.56	15.50	7.7%
GDP PPP (billion 2005 USD)	26.95	15.38	20.26	30.03	35.49	29.12	29.02	7.7%
Population (millions)	2.67	2.52	2.37	2.30	2.27	2.26	2.24	-16.0%
CO_2 / TPES (tCO_2 per TJ)	56.7	46.0	43.9	40.9	42.1	40.5	43.7	-22.9%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	1.30	1.08	0.63	0.47	0.42	0.46	0.52	-59.9%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.69	0.58	0.34	0.25	0.22	0.25	0.28	-59.9%
CO_2 / population (tCO_2 per capita)	7.00	3.53	2.88	3.29	3.49	3.18	3.60	-48.6%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.42**	**4.13**	**3.40**	**0.13**	**8.08**	**-56.8%**
Main activity producer elec. and heat	0.04	0.07	2.16	-	2.27	-63.1%
Unallocated autoproducers	0.01	-	0.08	-	0.09	-97.4%
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.18	0.31	0.57	0.13	1.18	-53.6%
Transport	-	3.16	-	-	3.16	2.5%
of which: road	-	*2.91*	-	-	*2.91*	25.4%
Other	0.18	0.59	0.60	-	1.37	-58.0%
of which: residential	*0.10*	*0.15*	*0.29*	-	*0.54*	-54.3%
Reference Approach	**0.43**	**3.36**	**3.42**	**0.13**	**7.33**	**-60.9%**
Diff. due to losses and/or transformation	0.01	- 0.01	0.02	-	0.01	
Statistical differences	-	- 0.76	- 0.00	-	- 0.76	
Memo: international marine bunkers	-	*0.80*	-	-	*0.80*	*-46.8%*
Memo: international aviation bunkers	-	*0.35*	-	-	*0.35*	*60.6%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	2.91	26.3%	23.8	23.8
Main activity prod. elec. and heat - gas	2.16	-21.2%	17.6	41.4
Manufacturing industries - gas	0.57	-44.8%	4.6	46.1
Non-specified other - oil	0.43	-67.0%	3.6	49.6
Manufacturing industries - oil	0.31	-78.0%	2.5	52.1
Non-specified other - gas	0.31	0.9%	2.5	54.6
Residential - gas	0.29	30.1%	2.4	57.0
Other transport - oil	0.25	-64.6%	2.0	59.0
Manufacturing industries - coal/peat	0.18	40.0%	1.5	60.5
Residential - oil	0.15	-53.5%	1.2	61.8
Manufacturing industries -other	0.13	x	1.0	62.8
Memo: total CO_2 from fuel combustion	*8.08*	*-56.8%*	*66.0*	*66.0*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Lebanon

Figure 1. CO_2 emissions by fuel

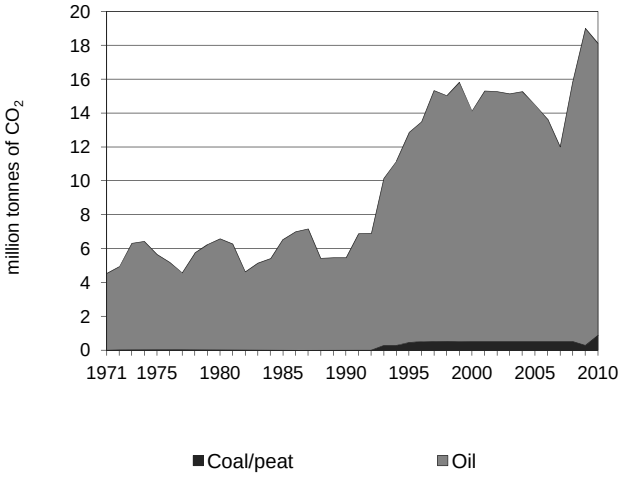


Figure 2. CO_2 emissions by sector

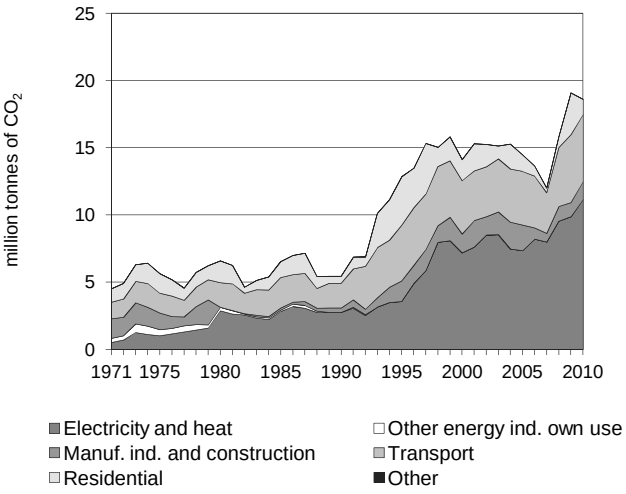


Figure 3. CO_2 emissions by sector

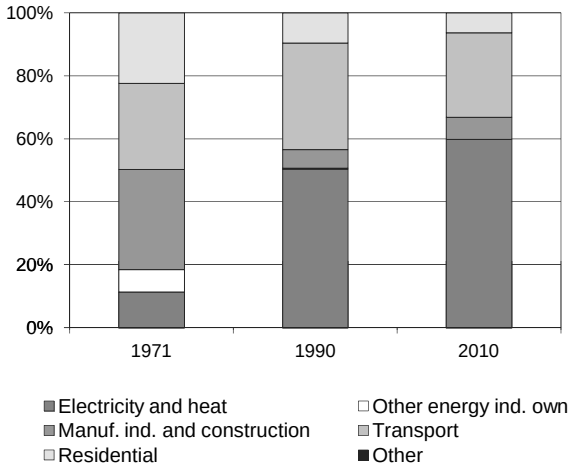


Figure 4. Reference vs Sectoral Approach

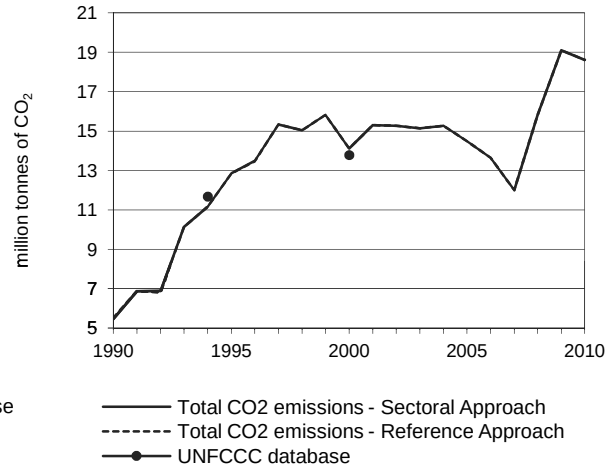


Figure 5. Electricity generation by fuel

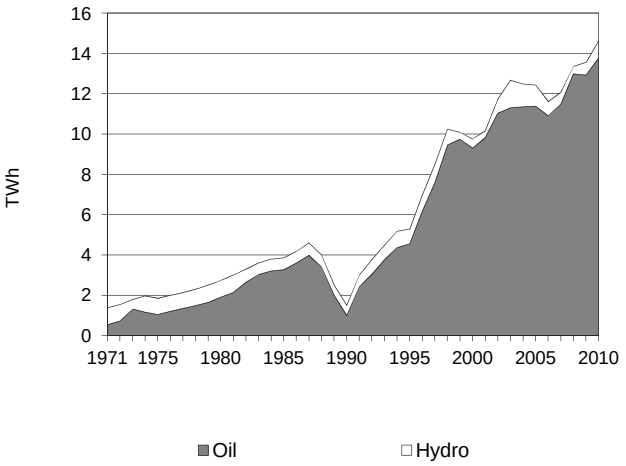
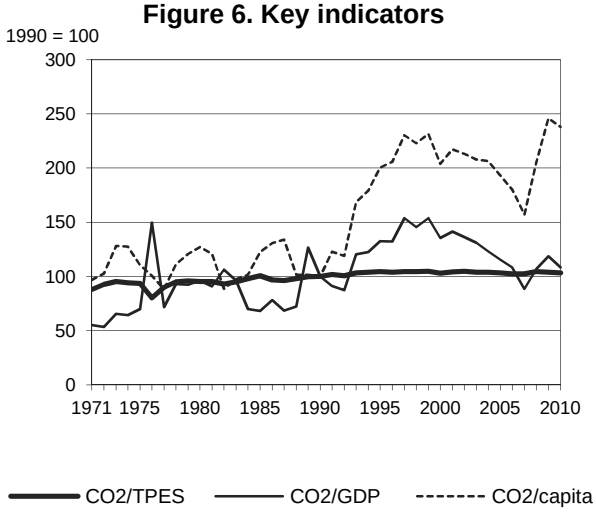


Figure 6. Key indicators



Lebanon

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	5.46	12.85	14.12	14.48	15.83	19.10	18.62	241.2%
CO_2 Reference Approach ($MtCO_2$)	5.51	12.85	14.12	14.48	15.83	19.10	18.62	238.0%
TPES (PJ)	82	185	205	210	227	276	270	230.2%
TPES (Mtoe)	1.95	4.41	4.91	5.02	5.42	6.59	6.45	230.2%
GDP (billion 2005 USD)	9.51	16.91	18.15	21.86	25.83	28.03	29.99	215.4%
GDP PPP (billion 2005 USD)	16.91	30.07	32.29	38.88	45.95	49.86	53.35	215.4%
Population (millions)	2.95	3.46	3.74	4.05	4.17	4.20	4.23	43.4%
CO_2 / TPES (tCO_2 per TJ)	66.7	69.6	68.7	68.9	69.7	69.2	68.9	3.3%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.57	0.76	0.78	0.66	0.61	0.68	0.62	8.2%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.32	0.43	0.44	0.37	0.34	0.38	0.35	8.1%
CO_2 / population (tCO_2 per capita)	1.85	3.71	3.77	3.57	3.80	4.55	4.40	137.9%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.87**	**17.25**	**0.50**	**-**	**18.62**	**241.2%**
Main activity producer elec. and heat	-	7.25	0.50	-	7.74	181.2%
Unallocated autoproducers	-	3.40	-	-	3.40	x
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.87	0.45	-	-	1.32	308.4%
Transport	-	5.00	-	-	5.00	170.9%
of which: road	-	*5.00*	-	-	*5.00*	170.9%
Other	-	1.17	-	-	1.17	123.6%
of which: residential	-	*1.17*	-	-	*1.17*	123.6%
Reference Approach	**0.87**	**17.25**	**0.50**	**-**	**18.62**	**238.0%**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	-	- 0.00	-	-	- 0.00	
Memo: international marine bunkers	-	*0.08*	-	-	*0.08*	*..*
Memo: international aviation bunkers	-	*0.70*	-	-	*0.70*	*342.0%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	7.25	163.2%	32.3	32.3
Road - oil	5.00	170.9%	22.3	54.6
Unallocated autoproducers - oil	3.40	x	15.1	69.7
Residential - oil	1.17	123.6%	5.2	75.0
Manufacturing industries - coal/peat	0.87	x	3.9	78.8
Main activity prod. elec. and heat - gas	0.50	x	2.2	81.1
Manufacturing industries - oil	0.45	38.5%	2.0	83.1
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*18.62*	*241.2%*	*83.1*	*83.1*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Libya

Figure 1. CO_2 emissions by fuel

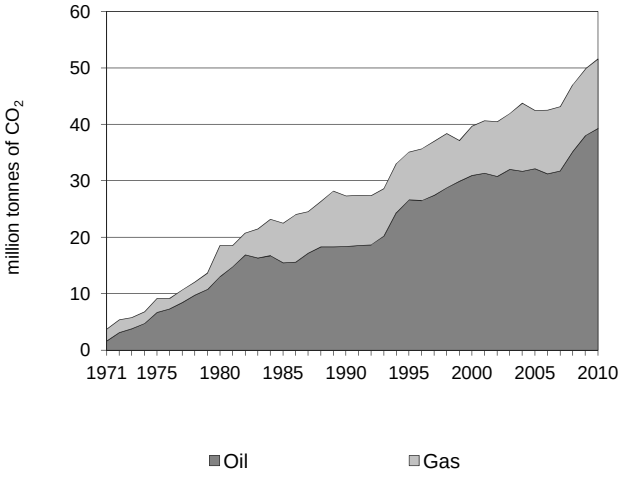


Figure 2. CO_2 emissions by sector

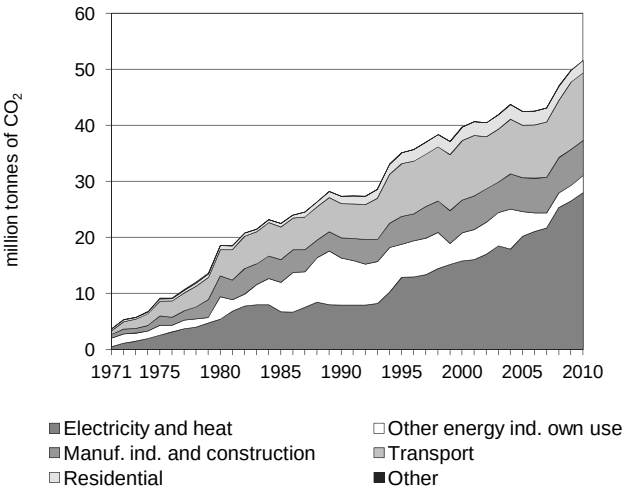


Figure 3. CO_2 emissions by sector

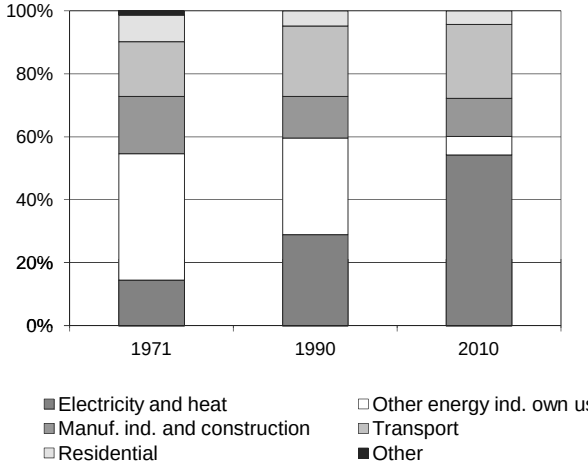


Figure 4. Reference vs Sectoral Approach

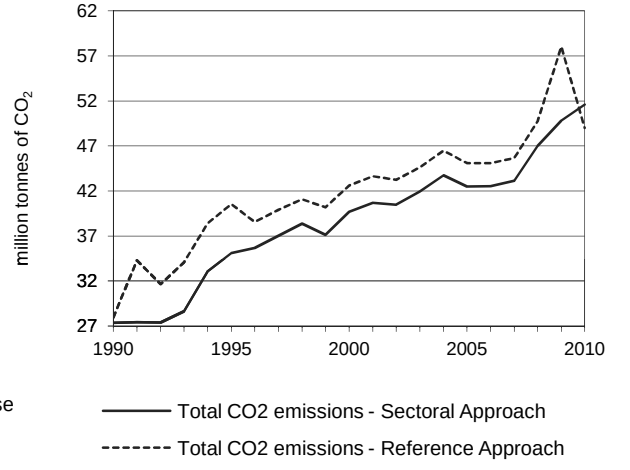


Figure 5. Electricity generation by fuel

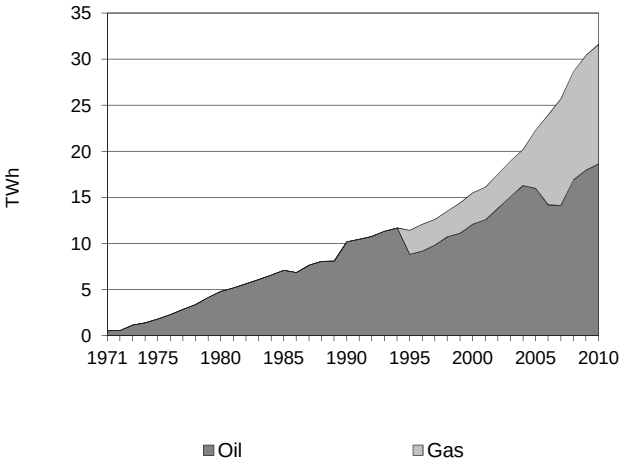
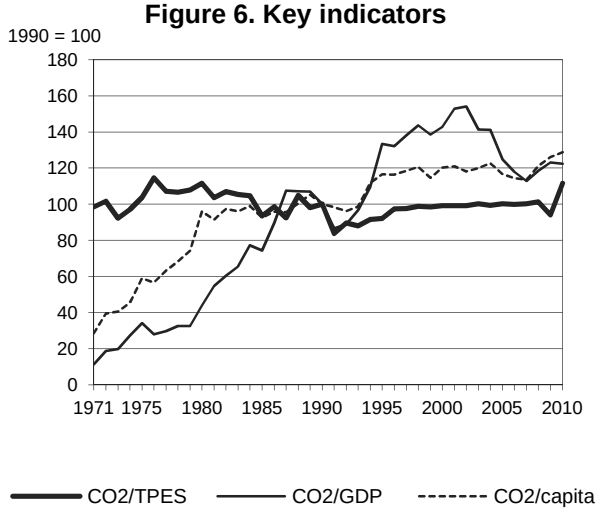


Figure 6. Key indicators



Libya

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	27.35	35.12	39.70	42.49	47.01	49.83	51.61	88.7%
CO_2 Reference Approach ($MtCO_2$)	27.97	40.56	42.62	45.08	49.76	58.04	48.99	75.2%
TPES (PJ)	474	661	694	735	805	919	802	69.0%
TPES (Mtoe)	11.33	15.79	16.58	17.56	19.23	21.94	19.15	69.0%
GDP (billion 2005 USD)	35.35	34.04	35.93	44.00	51.27	52.35	54.52	54.2%
GDP PPP (billion 2005 USD)	64.96	62.55	66.03	80.87	94.22	96.20	100.19	54.2%
Population (millions)	4.33	4.78	5.23	5.77	6.15	6.26	6.36	46.6%
CO_2 / TPES (tCO_2 per TJ)	57.7	53.1	57.2	57.8	58.4	54.2	64.4	11.7%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.77	1.03	1.10	0.97	0.92	0.95	0.95	22.3%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.42	0.56	0.60	0.53	0.50	0.52	0.52	22.4%
CO_2 / population (tCO_2 per capita)	6.31	7.35	7.59	7.36	7.64	7.96	8.12	28.7%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**39.30**	**12.30**	**-**	**51.61**	**88.7%**
Main activity producer elec. and heat	-	20.28	7.71	-	27.99	253.5%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	2.67	0.38	-	3.05	-63.7%
Manufacturing industries and construction	-	2.04	4.22	-	6.26	73.8%
Transport	-	12.09	-	-	12.09	97.4%
of which: road	-	*12.08*	-	-	*12.08*	97.4%
Other	-	2.22	-	-	2.22	70.7%
of which: residential	-	*2.22*	-	-	*2.22*	70.7%
Reference Approach	**-**	**36.69**	**12.30**	**-**	**48.99**	**75.2%**
Diff. due to losses and/or transformation	-	3.48	-	-	3.48	
Statistical differences	-	- 6.10	-	-	- 6.10	
Memo: international marine bunkers	-	*0.28*	-	-	*0.28*	*12.5%*
Memo: international aviation bunkers	-	*0.81*	-	-	*0.81*	*27.5%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	20.28	156.2%	25.0	25.0
Road - oil	12.08	97.4%	14.9	40.0
Main activity prod. elec. and heat - gas	7.71	x	9.5	49.5
Manufacturing industries - gas	4.22	65.6%	5.2	54.7
Other energy industry own use - oil	2.67	36.9%	3.3	58.0
Residential - oil	2.22	70.7%	2.7	60.7
Manufacturing industries - oil	2.04	93.6%	2.5	63.2
Other energy industry own use - gas	0.38	-94.2%	0.5	63.7
Other transport - oil	0.01	50.0%	0.0	63.7
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*51.61*	*88.7%*	*63.7*	*63.7*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Lithuania

Figure 1. CO_2 emissions by fuel

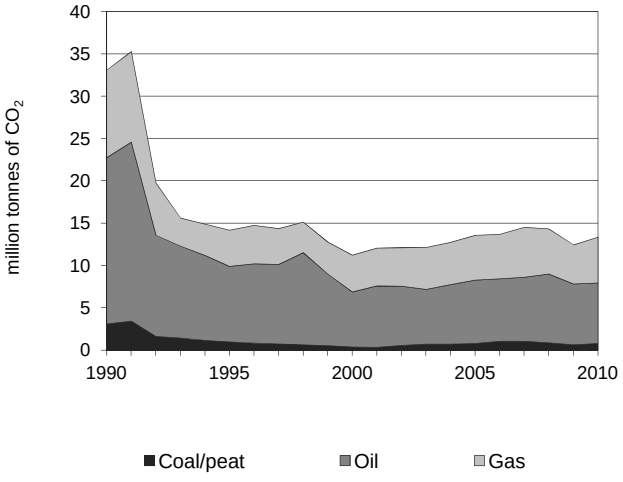


Figure 2. CO_2 emissions by sector

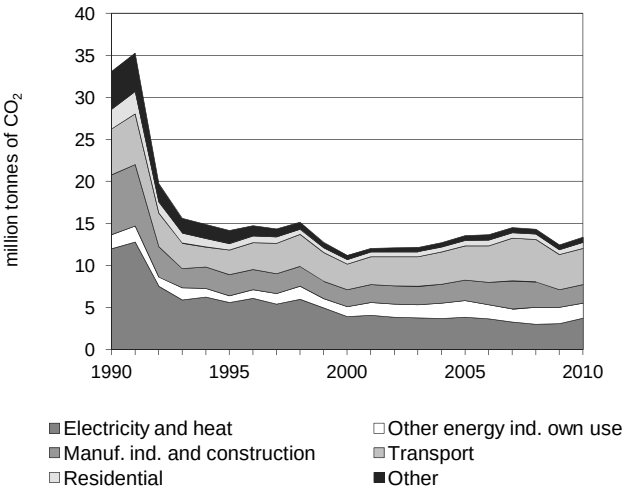


Figure 3. CO_2 emissions by sector

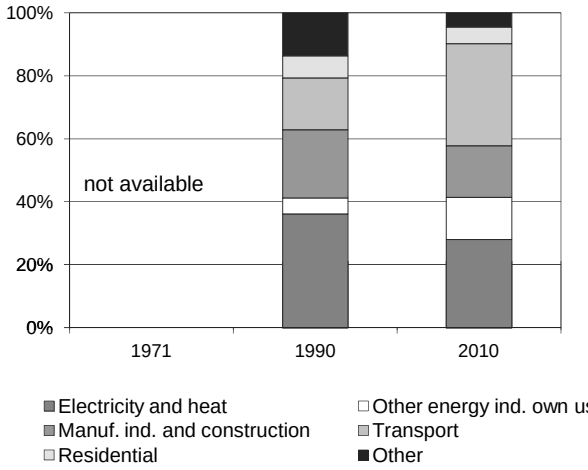


Figure 4. Reference vs Sectoral Approach

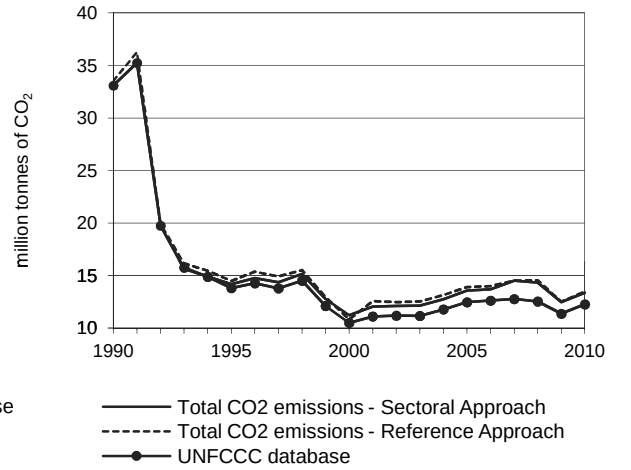


Figure 5. Electricity generation by fuel

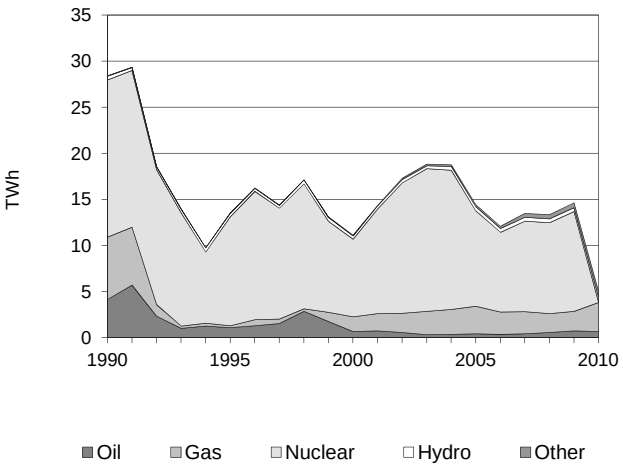
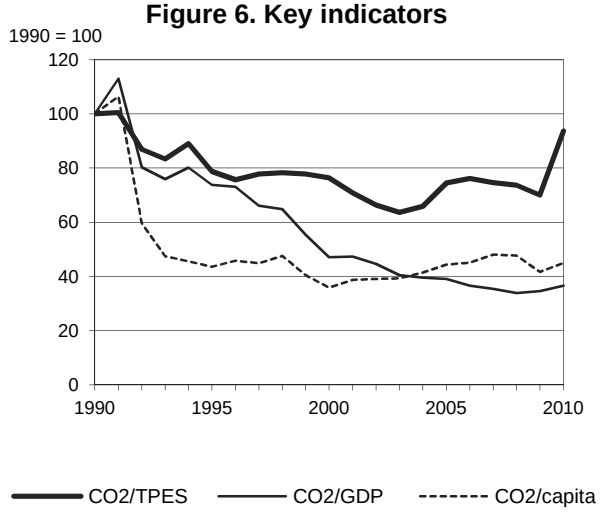


Figure 6. Key indicators



Lithuania

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	33.09	14.16	11.22	13.56	14.32	12.46	13.35	-59.6%
CO_2 Reference Approach ($MtCO_2$)	33.53	14.47	10.83	13.89	14.55	12.49	13.47	-59.8%
TPES (PJ)	673	366	298	370	395	362	290	-56.9%
TPES (Mtoe)	16.07	8.74	7.13	8.84	9.43	8.63	6.93	-56.9%
GDP (billion 2005 USD)	24.76	14.36	17.84	25.96	31.65	26.99	27.35	10.5%
GDP PPP (billion 2005 USD)	46.27	26.83	33.34	48.52	59.16	50.44	51.11	10.5%
Population (millions)	3.70	3.63	3.50	3.41	3.36	3.34	3.32	-10.2%
CO_2 / TPES (tCO_2 per TJ)	49.2	38.7	37.6	36.6	36.3	34.5	46.1	-6.4%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	1.34	0.99	0.63	0.52	0.45	0.46	0.49	-63.5%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.72	0.53	0.34	0.28	0.24	0.25	0.26	-63.5%
CO_2 / population (tCO_2 per capita)	8.95	3.90	3.20	3.97	4.26	3.73	4.02	-55.1%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.79**	**7.15**	**5.41**	**-**	**13.35**	**-59.6%**
Main activity producer elec. and heat	0.02	0.37	3.16	-	3.56	-67.6%
Unallocated autoproducers	0.01	0.09	0.09	-	0.19	-81.5%
Other energy industry own use	-	1.79	0.00	-	1.79	6.9%
Manufacturing industries and construction	0.34	0.35	1.50	-	2.19	-69.4%
Transport	-	4.27	0.06	-	4.33	-20.6%
of which: road	-	*4.03*	*0.01*	-	*4.04*	-20.5%
Other	0.43	0.28	0.60	-	1.30	-80.9%
of which: residential	*0.23*	*0.11*	*0.37*	-	*0.71*	-69.5%
Reference Approach	**0.79**	**7.27**	**5.41**	**-**	**13.47**	**-59.8%**
Diff. due to losses and/or transformation	0.00	0.11	0.00	-	0.11	
Statistical differences	- 0.00	0.00	0.00	-	- 0.00	
Memo: international marine bunkers	-	*0.44*	-	-	*0.44*	*49.4%*
Memo: international aviation bunkers	-	*0.14*	-	-	*0.14*	*-64.0%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	4.03	-20.6%	18.4	18.4
Main activity prod. elec. and heat - gas	3.16	-41.7%	14.4	32.8
Other energy industry own use - oil	1.79	6.7%	8.2	41.0
Manufacturing industries - gas	1.50	-51.2%	6.9	47.8
Main activity prod. elec. and heat - oil	0.37	-93.1%	1.7	49.6
Residential - gas	0.37	-28.2%	1.7	51.2
Manufacturing industries - oil	0.35	-91.1%	1.6	52.8
Manufacturing industries - coal/peat	0.34	81.6%	1.5	54.4
Other transport - oil	0.24	-36.7%	1.1	55.5
Non-specified other - gas	0.23	-74.1%	1.0	56.5
Residential - coal/peat	0.23	-84.0%	1.0	57.6
Memo: total CO_2 from fuel combustion	*13.35*	*-59.6%*	*60.9*	*60.9*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Luxembourg

Figure 1. CO_2 emissions by fuel

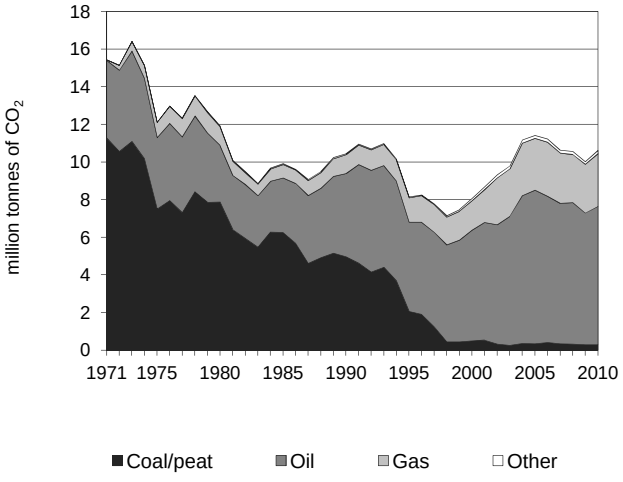


Figure 2. CO_2 emissions by sector

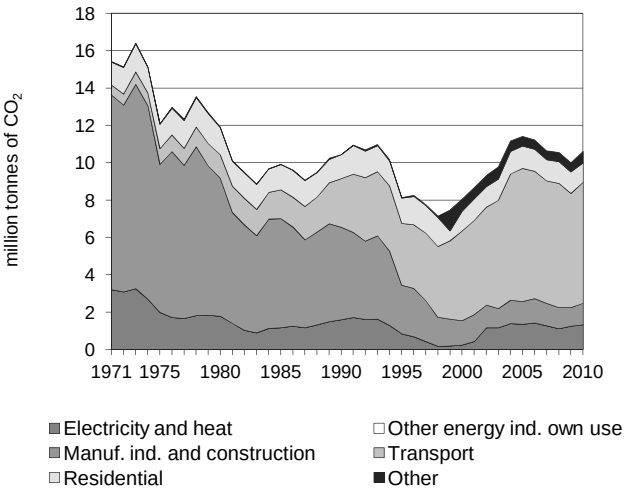


Figure 3. CO_2 emissions by sector

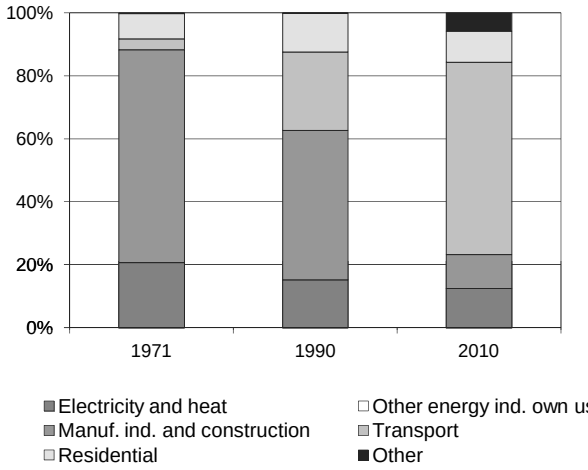


Figure 4. Reference vs Sectoral Approach

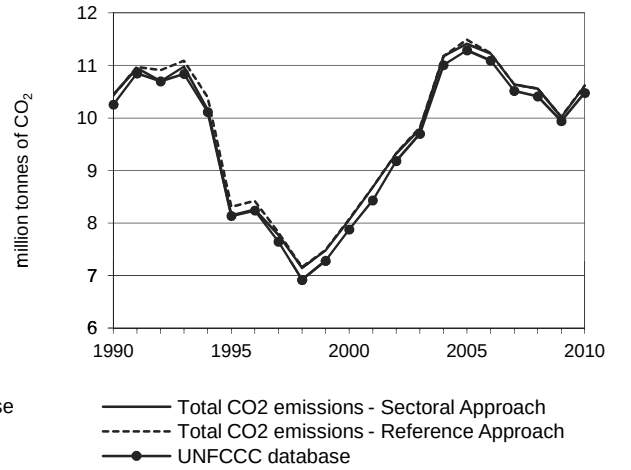


Figure 5. Electricity generation by fuel

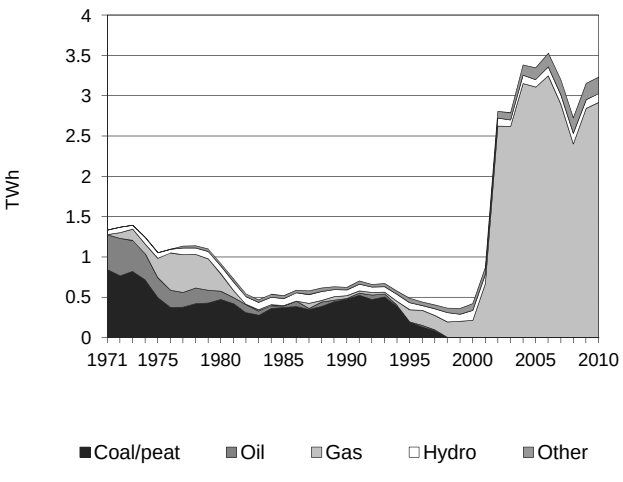
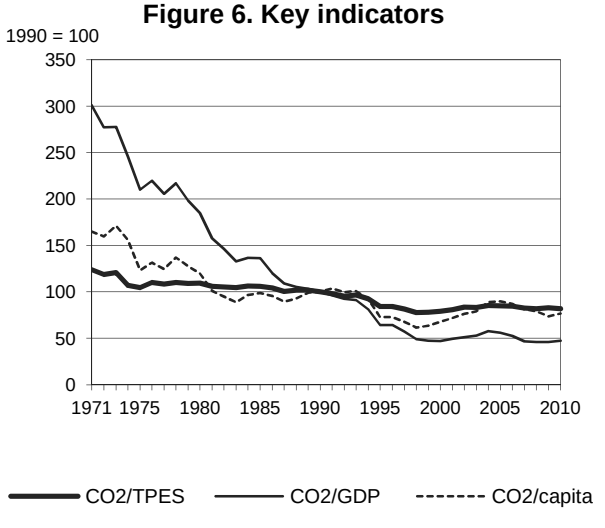


Figure 6. Key indicators



Luxembourg

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	10.44	8.15	8.06	11.41	10.56	10.01	10.61	1.6%
CO_2 Reference Approach ($MtCO_2$)	10.43	8.31	8.07	11.49	10.56	10.02	10.62	1.8%
TPES (PJ)	143	132	139	184	176	165	177	24.0%
TPES (Mtoe)	3.41	3.15	3.32	4.39	4.21	3.95	4.23	24.0%
GDP (billion 2005 USD)	19.32	23.45	31.57	37.66	42.47	40.22	41.30	113.8%
GDP PPP (billion 2005 USD)	16.30	19.79	26.64	31.78	35.84	33.94	34.85	113.8%
Population (millions)	0.38	0.41	0.44	0.47	0.49	0.50	0.51	32.5%
CO_2 / TPES (tCO_2 per TJ)	73.1	61.7	57.9	62.1	60.0	60.5	59.9	-18.0%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.54	0.35	0.26	0.30	0.25	0.25	0.26	-52.5%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.64	0.41	0.30	0.36	0.29	0.30	0.30	-52.5%
CO_2 / population (tCO_2 per capita)	27.34	19.92	18.49	24.54	21.64	20.15	20.98	-23.3%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.29**	**7.35**	**2.80**	**0.17**	**10.61**	**1.6%**
Main activity producer elec. and heat	-	-	1.22	0.11	1.32	+
Unallocated autoproducers	..	..	..	..	..	..
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	0.29	0.05	0.75	0.06	1.15	-76.8%
Transport	-	6.48	-	-	6.48	148.9%
of which: road	-	*6.47*	-	-	*6.47*	149.2%
Other	0.00	0.83	0.83	-	1.66	28.3%
of which: residential	*0.00*	*0.58*	*0.46*	-	*1.04*	-18.4%
Reference Approach	**0.29**	**7.36**	**2.80**	**0.17**	**10.62**	**1.8%**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	-	0.01	0.00	-	0.01	
Memo: international marine bunkers	-	-	-	-	-	-
Memo: international aviation bunkers	-	*1.28*	-	-	*1.28*	*227.3%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	6.47	149.2%	52.9	52.9
Main activity prod. elec. and heat - gas	1.22	x	10.0	62.9
Manufacturing industries - gas	0.75	14.6%	6.1	69.0
Residential - oil	0.58	-37.2%	4.8	73.8
Residential - gas	0.46	39.7%	3.8	77.5
Non-specified other - gas	0.37	x	3.0	80.6
Manufacturing industries - coal/peat	0.29	-91.5%	2.4	83.0
Non-specified other - oil	0.25	+	2.0	85.0
Main activity prod. elec. and heat - other	0.11	123.6%	0.9	85.9
Manufacturing industries -other	0.06	x	0.5	86.4
Manufacturing industries - oil	0.05	-94.7%	0.4	86.8
Memo: total CO_2 from fuel combustion	*10.61*	*1.6%*	*86.9*	*86.9*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Former Yugoslav Republic of Macedonia

Figure 1. CO_2 emissions by fuel

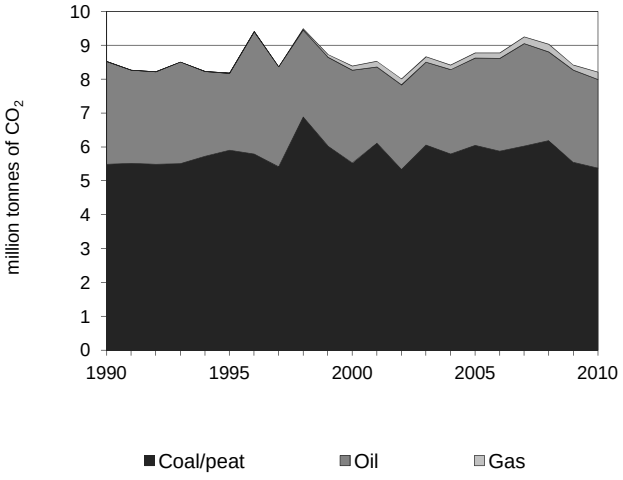


Figure 2. CO_2 emissions by sector

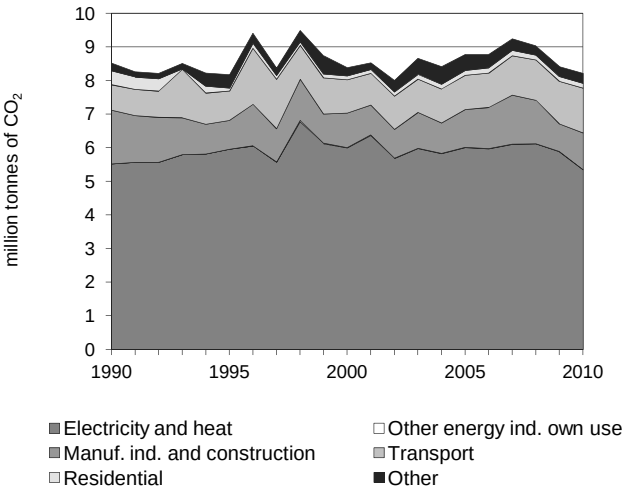


Figure 3. CO_2 emissions by sector

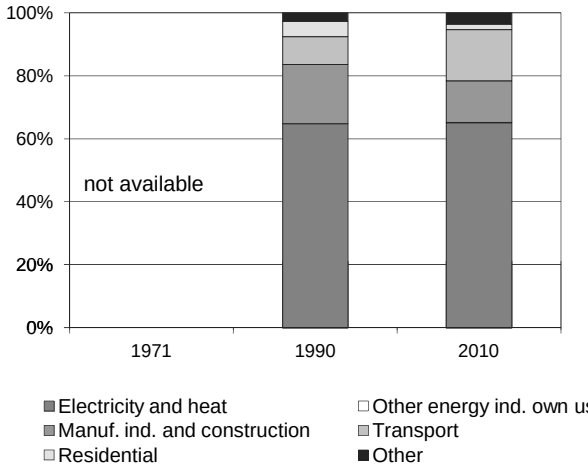


Figure 4. Reference vs Sectoral Approach

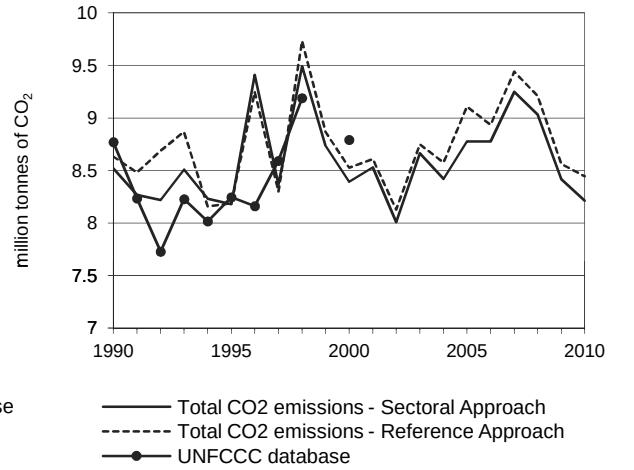


Figure 5. Electricity generation by fuel

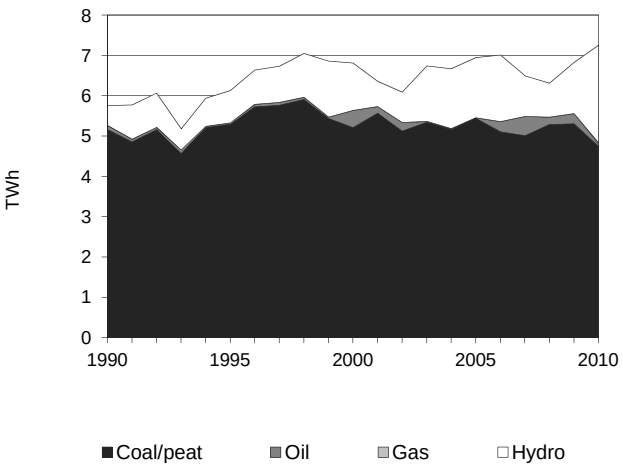
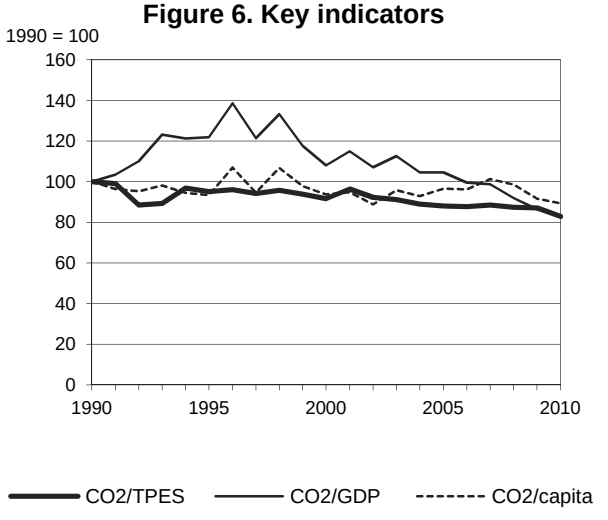


Figure 6. Key indicators



Former Yugoslav Republic of Macedonia

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	8.52	8.18	8.39	8.78	9.03	8.42	8.21	-3.6%
CO_2 Reference Approach ($MtCO_2$)	8.63	8.19	8.53	9.11	9.21	8.56	8.44	-2.2%
TPES (PJ)	104	105	112	121	126	118	121	16.6%
TPES (Mtoe)	2.48	2.50	2.67	2.90	3.01	2.81	2.89	16.6%
GDP (billion 2005 USD)	6.07	4.78	5.54	5.99	7.00	6.94	7.06	16.4%
GDP PPP (billion 2005 USD)	16.29	12.84	14.86	16.06	18.79	18.62	18.95	16.4%
Population (millions)	1.91	1.96	2.01	2.04	2.05	2.06	2.06	8.0%
CO_2 / TPES (tCO_2 per TJ)	82.1	78.1	75.2	72.3	71.7	71.5	67.9	-17.3%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	1.40	1.71	1.52	1.47	1.29	1.21	1.16	-17.1%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.52	0.64	0.56	0.55	0.48	0.45	0.43	-17.2%
CO_2 / population (tCO_2 per capita)	4.46	4.17	4.18	4.31	4.40	4.09	3.99	-10.7%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**5.38**	**2.62**	**0.22**	**-**	**8.21**	**-3.6%**
Main activity producer elec. and heat	4.89	0.10	0.12	-	5.12	-0.4%
Unallocated autoproducers	0.04	0.17	0.03	-	0.24	-38.0%
Other energy industry own use	-	0.00	-	-	0.00	x
Manufacturing industries and construction	0.43	0.59	0.07	-	1.09	-31.8%
Transport	-	1.33	0.00	-	1.33	75.5%
of which: road	-	*1.31*	*0.00*	-	*1.31*	77.5%
Other	0.02	0.42	0.00	-	0.44	-31.8%
of which: residential	*0.01*	*0.13*	-	-	*0.14*	-66.0%
Reference Approach	**5.44**	**2.78**	**0.22**	**-**	**8.44**	**-2.2%**
Diff. due to losses and/or transformation	-	0.17	0.00	-	0.17	
Statistical differences	0.06	- 0.00	-	-	0.06	
Memo: international marine bunkers	-	-	-	-	-	-
Memo: international aviation bunkers	-	*0.02*	-	-	*0.02*	*39.2%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	4.89	-1.6%	45.8	45.8
Road - oil	1.31	77.4%	12.2	58.1
Manufacturing industries - oil	0.59	-50.0%	5.6	63.6
Manufacturing industries - coal/peat	0.43	4.0%	4.0	67.7
Non-specified other - oil	0.29	34.7%	2.7	70.3
Unallocated autoproducers - oil	0.17	-43.9%	1.6	71.9
Residential - oil	0.13	-67.3%	1.2	73.2
Main activity prod. elec. and heat - gas	0.12	x	1.2	74.3
Main activity prod. elec. and heat - oil	0.10	-40.0%	1.0	75.3
Manufacturing industries - gas	0.07	x	0.6	75.9
Unallocated autoproducers - coal/peat	0.04	-49.6%	0.4	76.3
Memo: total CO_2 from fuel combustion	*8.21*	*-3.6%*	*77.0*	*77.0*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Malaysia

Figure 1. CO_2 emissions by fuel

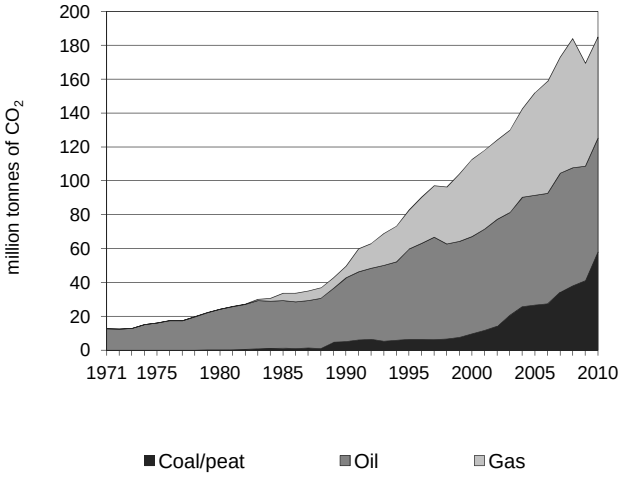


Figure 2. CO_2 emissions by sector

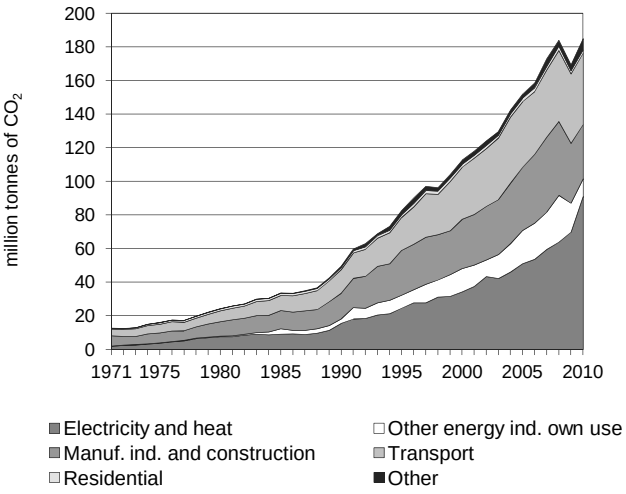


Figure 3. CO_2 emissions by sector

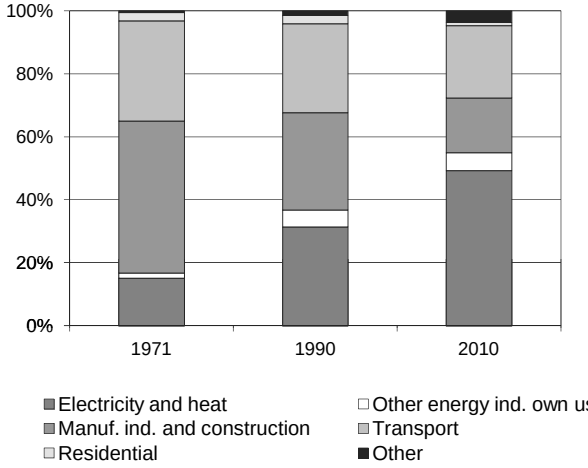


Figure 4. Reference vs Sectoral Approach

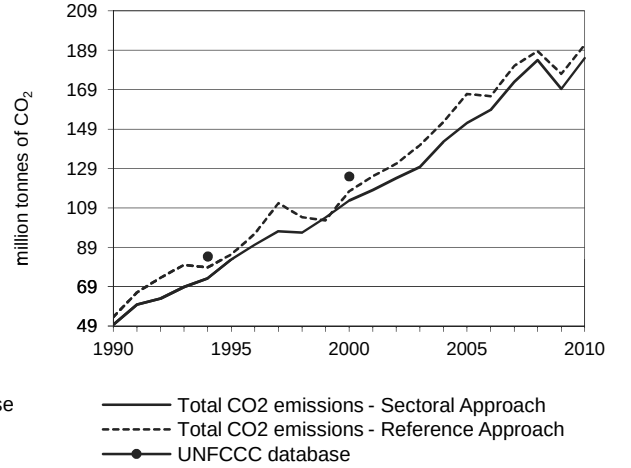


Figure 5. Electricity generation by fuel

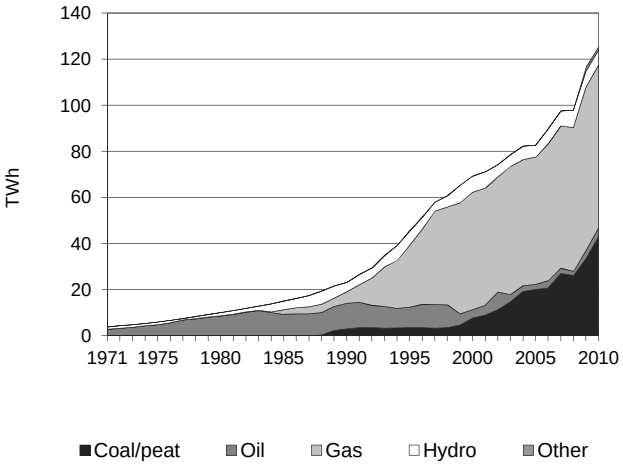
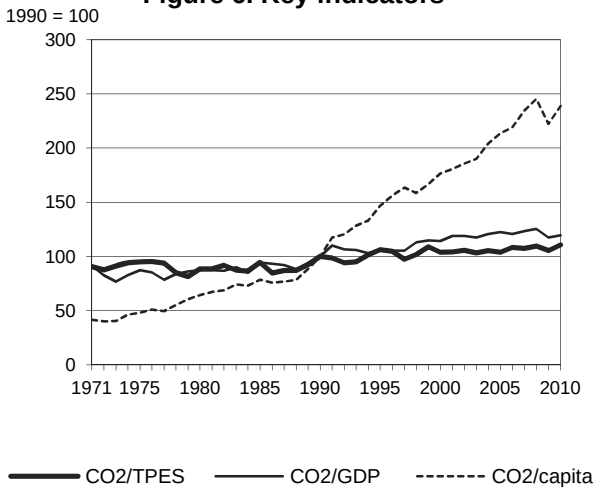


Figure 6. Key indicators



Malaysia

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	49.64	82.78	112.69	152.04	184.02	169.44	185.00	272.6%
CO_2 Reference Approach ($MtCO_2$)	53.56	85.43	117.44	166.85	188.56	177.10	191.66	257.8%
TPES (PJ)	902	1 419	1 972	2 659	3 057	2 925	3 042	237.1%
TPES (Mtoe)	21.55	33.88	47.11	63.51	73.01	69.86	72.65	237.1%
GDP (billion 2005 USD)	55.08	86.61	109.44	137.95	162.96	160.29	171.82	211.9%
GDP PPP (billion 2005 USD)	120.31	189.16	239.04	301.31	355.93	350.10	375.29	211.9%
Population (millions)	18.21	20.72	23.42	26.10	27.50	27.95	28.40	56.0%
CO_2 / TPES (tCO_2 per TJ)	55.0	58.4	57.1	57.2	60.2	57.9	60.8	10.5%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.90	0.96	1.03	1.10	1.13	1.06	1.08	19.5%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.41	0.44	0.47	0.50	0.52	0.48	0.49	19.5%
CO_2 / population (tCO_2 per capita)	2.73	3.99	4.81	5.83	6.69	6.06	6.51	138.9%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**58.01**	**67.22**	**59.77**	**0.01**	**185.00**	**272.6%**
Main activity producer elec. and heat	50.27	1.67	35.75	-	87.69	462.6%
Unallocated autoproducers	0.65	0.62	2.17	0.01	3.44	x
Other energy industry own use	-	0.66	9.85	-	10.51	290.4%
Manufacturing industries and construction	7.09	13.71	11.40	-	32.21	110.5%
Transport	-	41.91	0.52	-	42.43	202.3%
of which: road	-	*41.63*	*0.52*	-	*42.15*	203.1%
Other	-	8.64	0.08	-	8.72	330.5%
of which: residential	-	*1.87*	*0.01*	-	*1.88*	41.3%
Reference Approach	**56.67**	**70.54**	**64.44**	**0.01**	**191.66**	**257.8%**
Diff. due to losses and/or transformation	- 0.65	3.15	3.85	-	6.35	
Statistical differences	- 0.69	0.18	0.82	-	0.31	
Memo: international marine bunkers	-	*0.19*	-	-	*0.19*	*-35.6%*
Memo: international aviation bunkers	-	*7.07*	-	-	*7.07*	*277.0%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	50.27	+	20.4	20.4
Road - oil	41.63	199.4%	16.9	37.3
Main activity prod. elec. and heat - gas	35.75	+	14.5	51.8
Manufacturing industries - oil	13.71	19.7%	5.6	57.3
Manufacturing industries - gas	11.40	513.4%	4.6	61.9
Other energy industry own use - gas	9.85	352.3%	4.0	65.9
Manufacturing industries - coal/peat	7.09	255.9%	2.9	68.8
Non-specified other - oil	6.77	890.4%	2.7	71.6
Unallocated autoproducers - gas	2.17	x	0.9	72.4
Residential - oil	1.87	41.1%	0.8	73.2
Main activity prod. elec. and heat - oil	1.67	-82.5%	0.7	73.9
Memo: total CO_2 from fuel combustion	*185.00*	*272.6%*	*75.0*	*75.0*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Malta

Figure 1. CO_2 emissions by fuel

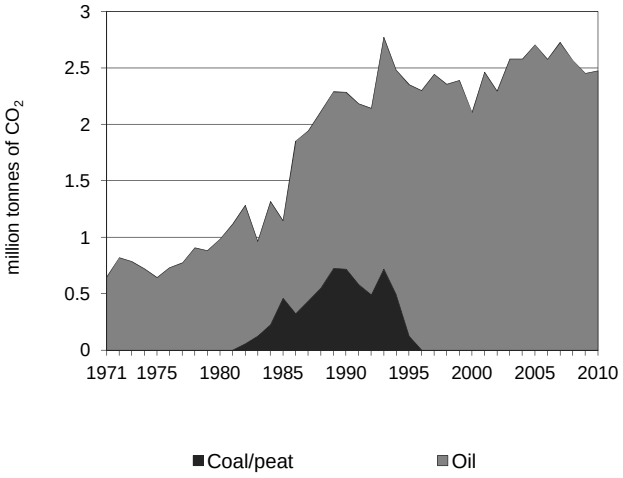


Figure 2. CO_2 emissions by sector

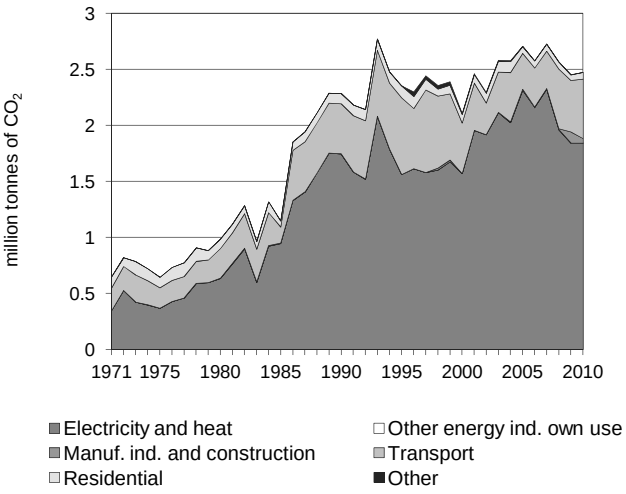


Figure 3. CO_2 emissions by sector

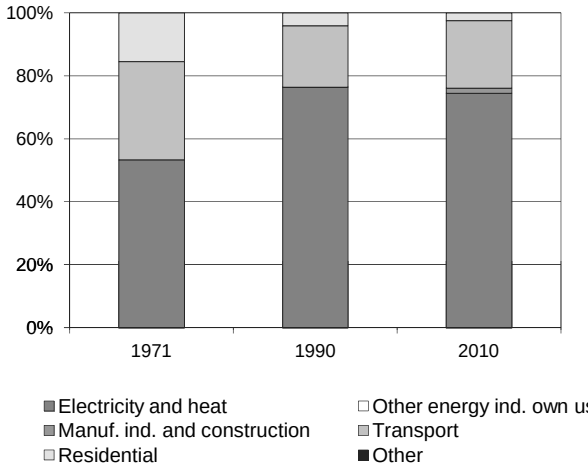


Figure 4. Reference vs Sectoral Approach

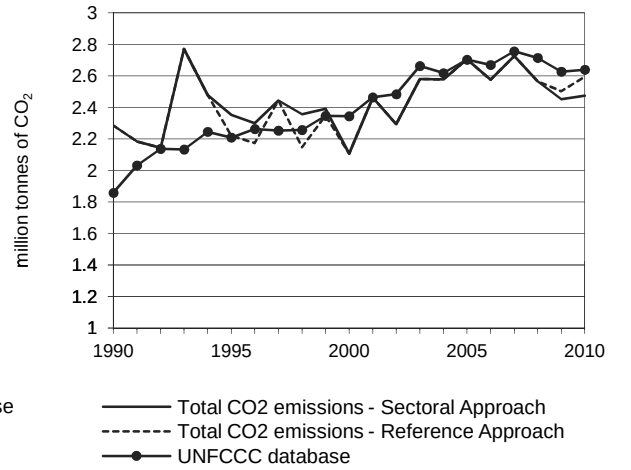


Figure 5. Electricity generation by fuel

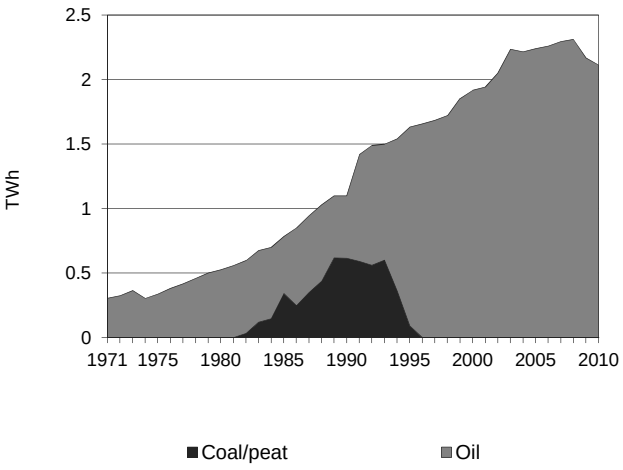
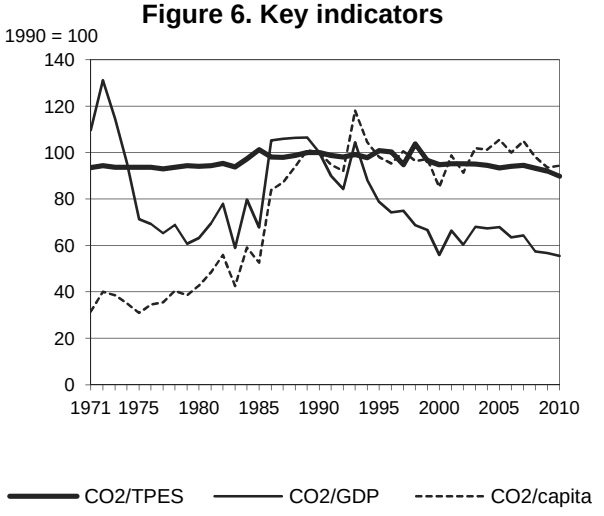


Figure 6. Key indicators



Malta *

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	2.29	2.35	2.11	2.71	2.57	2.45	2.47	8.3%
CO_2 Reference Approach ($MtCO_2$)	2.29	2.22	2.11	2.71	2.57	2.50	2.60	13.6%
TPES (PJ)	29	30	28	37	35	34	35	20.5%
TPES (Mtoe)	0.69	0.71	0.68	0.88	0.84	0.81	0.84	20.5%
GDP (billion 2005 USD)	3.42	4.47	5.64	5.96	6.69	6.47	6.67	95.0%
GDP PPP (billion 2005 USD)	4.86	6.35	8.02	8.47	9.50	9.19	9.48	95.1%
Population (millions)	0.36	0.38	0.39	0.40	0.41	0.41	0.41	14.7%
CO_2 / TPES (tCO_2 per TJ)	78.6	79.2	74.5	73.4	73.3	72.3	70.6	-10.2%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.67	0.53	0.37	0.45	0.38	0.38	0.37	-44.5%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.47	0.37	0.26	0.32	0.27	0.27	0.26	-44.5%
CO_2 / population (tCO_2 per capita)	6.35	6.22	5.40	6.70	6.23	5.94	5.99	-5.6%

Ratios are based on the Sectoral Approach.

* At its 15th session, the Conference of the Parties decided to amend Annex I to the Convention to include Malta.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other **	Total	% change 90-10
Sectoral Approach	**-**	**2.47**	**-**	**-**	**2.47**	**8.3%**
Main activity producer elec. and heat	-	1.84	-	-	1.84	5.6%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.04	-	-	0.04	+
Transport	-	0.53	-	-	0.53	18.7%
of which: road	-	*0.53*	-	-	*0.53*	18.7%
Other	-	0.06	-	-	0.06	-34.5%
of which: residential	-	*0.06*	-	-	*0.06*	-34.5%
Reference Approach	**-**	**2.60**	**-**	**-**	**2.60**	**13.6%**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	-	0.12	-	-	0.12	
Memo: international marine bunkers	-	*4.64*	-	-	*4.64*	+
Memo: international aviation bunkers	-	*0.30*	-	-	*0.30*	*41.4%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - oil	1.84	79.3%	64.2	64.2
Road - oil	0.53	18.7%	18.5	82.7
Residential - oil	0.06	-34.5%	2.1	84.8
Manufacturing industries - oil	0.04	+	1.4	86.2
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*2.47*	*8.3%*	*86.2*	*86.2*

*** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Mexico

Figure 1. CO_2 emissions by fuel

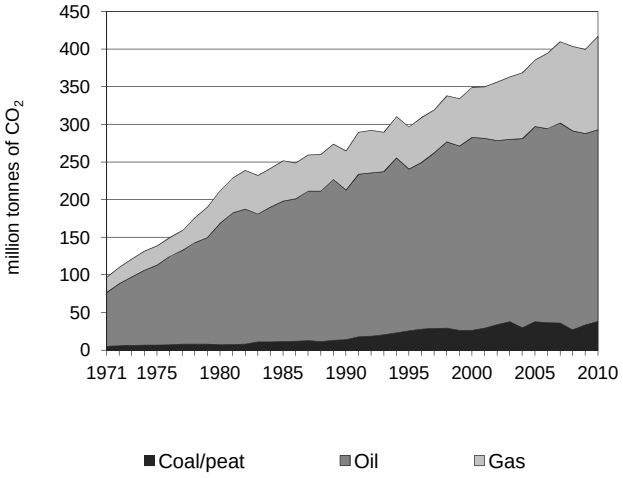


Figure 2. CO_2 emissions by sector

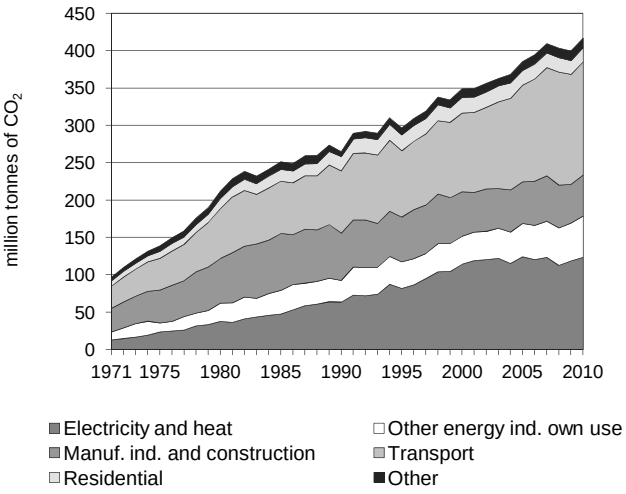


Figure 3. CO_2 emissions by sector

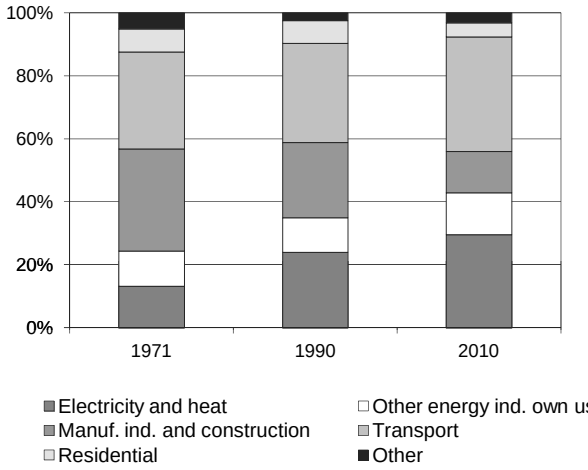


Figure 4. Reference vs Sectoral Approach

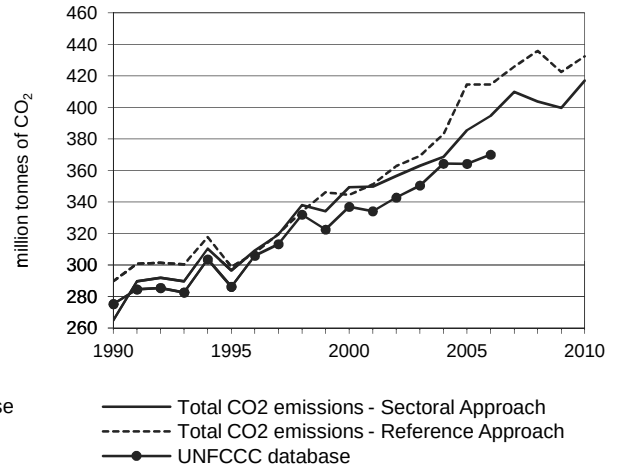


Figure 5. Electricity generation by fuel

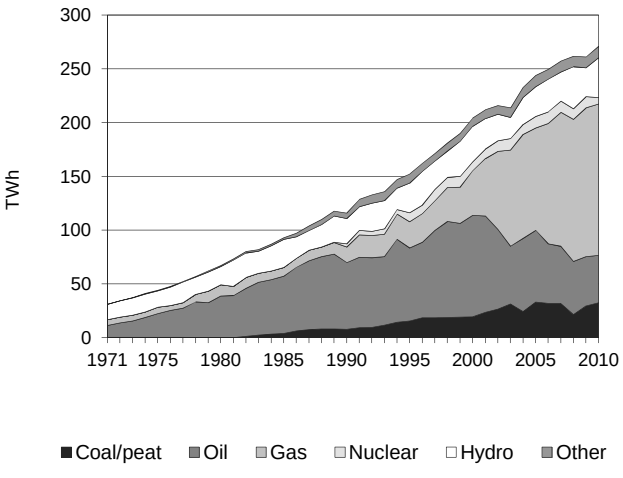
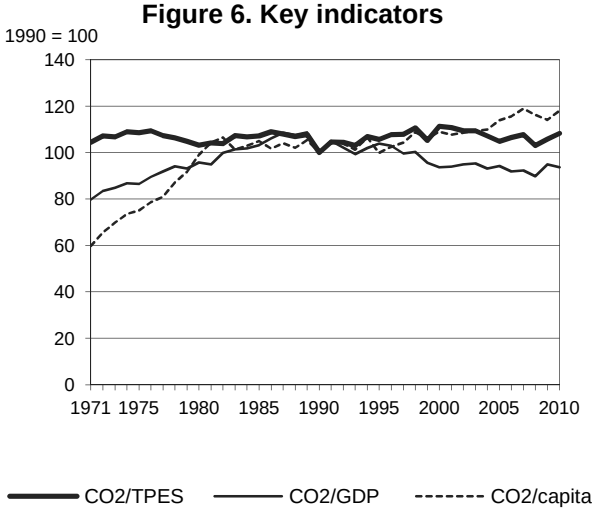


Figure 6. Key indicators



Mexico

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	264.86	296.60	349.32	385.52	403.70	399.67	416.91	57.4%
CO_2 Reference Approach ($MtCO_2$)	289.76	298.82	344.40	414.52	435.84	422.54	432.46	49.2%
TPES (PJ)	5 129	5 435	6 076	7 124	7 582	7 312	7 457	45.4%
TPES (Mtoe)	122.49	129.80	145.12	170.15	181.09	174.64	178.11	45.4%
GDP (billion 2005 USD)	547.80	590.98	770.74	846.09	929.98	871.55	920.02	67.9%
GDP PPP (billion 2005 USD)	837.66	903.69	1 178.55	1 293.79	1 422.07	1 332.71	1 406.83	67.9%
Population (millions)	81.25	91.17	98.30	103.83	106.57	107.44	108.29	33.3%
CO_2 / TPES (tCO_2 per TJ)	51.6	54.6	57.5	54.1	53.2	54.7	55.9	8.3%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.48	0.50	0.45	0.46	0.43	0.46	0.45	-6.3%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.32	0.33	0.30	0.30	0.28	0.30	0.30	-6.3%
CO_2 / population (tCO_2 per capita)	3.26	3.25	3.55	3.71	3.79	3.72	3.85	18.1%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**38.51**	**254.57**	**123.84**	**-**	**416.91**	**57.4%**
Main activity producer elec. and heat	29.81	28.03	52.55	-	110.39	73.5%
Unallocated autoproducers	1.17	5.11	6.59	-	12.86	x
Other energy industry own use	0.37	18.12	37.05	-	55.54	92.3%
Manufacturing industries and construction	7.16	22.27	25.37	-	54.80	-13.5%
Transport	-	151.35	0.03	-	151.38	81.7%
of which: road	-	*147.31*	*0.03*	-	*147.34*	84.2%
Other	-	29.70	2.26	-	31.96	24.5%
of which: residential	-	*17.22*	*1.72*	-	*18.95*	-1.1%
Reference Approach	**33.92**	**276.18**	**122.36**	**-**	**432.46**	**49.2%**
Diff. due to losses and/or transformation	- 0.35	17.75	- 1.49	-	15.90	
Statistical differences	- 4.23	3.87	0.01	-	- 0.35	
Memo: international marine bunkers	-	*2.50*	-	-	*2.50*	*..*
Memo: international aviation bunkers	-	*8.08*	-	-	*8.08*	*54.5%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	147.31	84.2%	24.2	24.2
Main activity prod. elec. and heat - gas	52.55	555.3%	8.6	32.8
Other energy industry own use - gas	37.05	186.7%	6.1	38.9
Main activity prod. elec. and heat - coal/peat	29.81	316.4%	4.9	43.8
Main activity prod. elec. and heat - oil	28.03	-42.2%	4.6	48.4
Manufacturing industries - gas	25.37	-13.3%	4.2	52.6
Manufacturing industries - oil	22.27	-18.2%	3.7	56.2
Other energy industry own use - oil	18.12	14.7%	3.0	59.2
Residential - oil	17.22	-0.2%	2.8	62.0
Non-specified other - oil	12.47	91.8%	2.0	64.1
Manufacturing industries - coal/peat	7.16	3.7%	1.2	65.3
Memo: total CO_2 from fuel combustion	*416.91*	*57.4%*	*68.5*	*68.5*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Republic of Moldova

Figure 1. CO_2 emissions by fuel

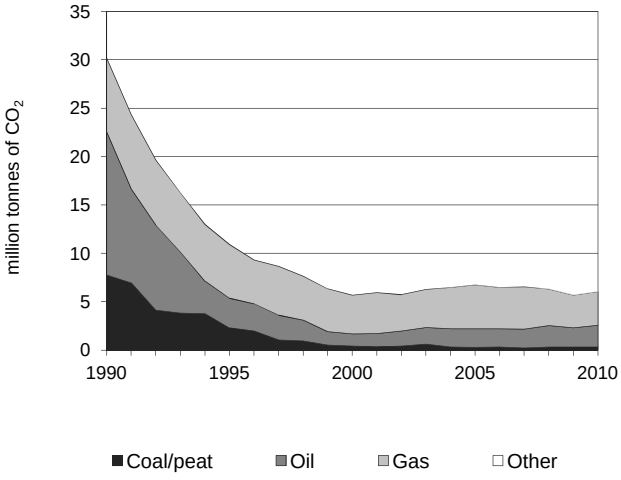


Figure 2. CO_2 emissions by sector

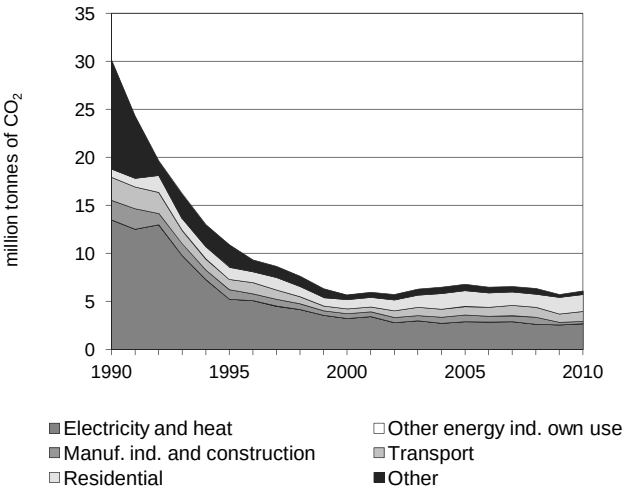


Figure 3. CO_2 emissions by sector

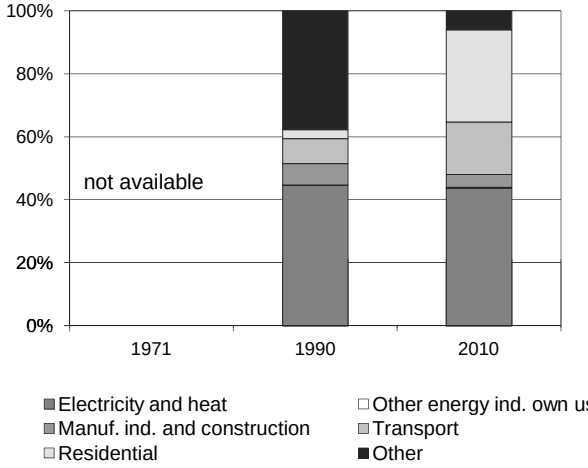


Figure 4. Reference vs Sectoral Approach

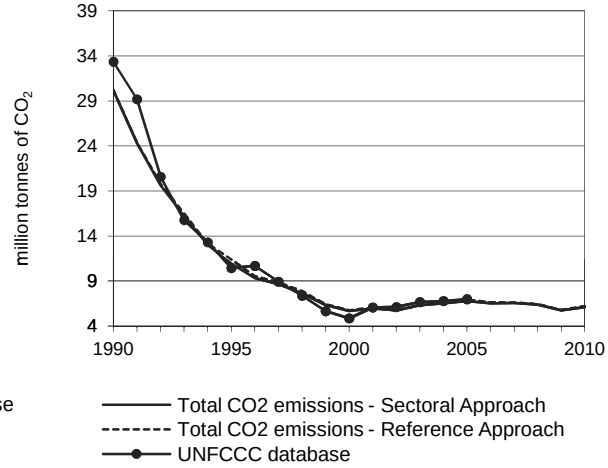


Figure 5. Electricity generation by fuel

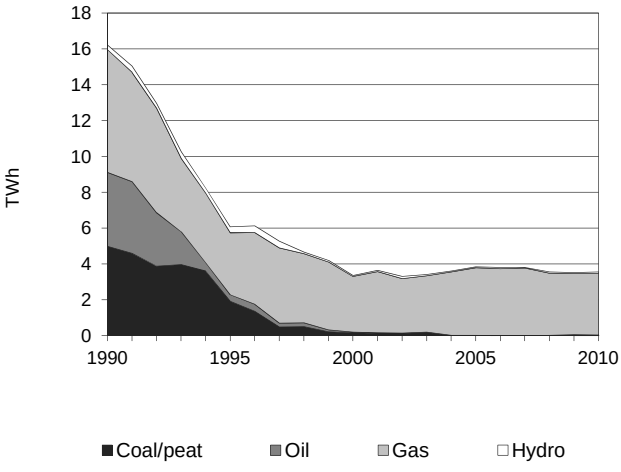
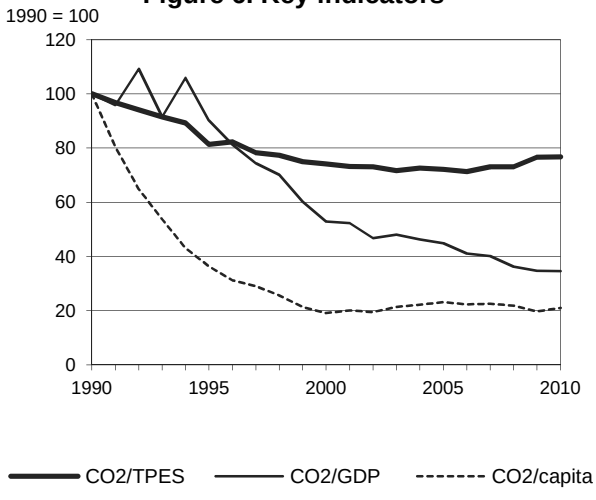


Figure 6. Key indicators



Republic of Moldova

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	30.18	10.92	5.68	6.79	6.37	5.74	6.11	-79.7%
CO_2 Reference Approach ($MtCO_2$)	30.24	11.38	5.74	6.92	6.43	5.79	6.19	-79.5%
TPES (PJ)	413	184	105	129	119	103	109	-73.6%
TPES (Mtoe)	9.87	4.39	2.51	3.08	2.85	2.45	2.60	-73.6%
GDP (billion 2005 USD)	5.96	2.39	2.12	2.99	3.48	3.27	3.50	-41.3%
GDP PPP (billion 2005 USD)	16.94	6.79	6.03	8.49	9.88	9.29	9.94	-41.3%
Population (millions)	3.70	3.68	3.64	3.60	3.57	3.57	3.56	-3.6%
CO_2 / TPES (tCO_2 per TJ)	73.1	59.4	54.2	52.7	53.4	56.0	56.1	-23.2%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	5.06	4.57	2.68	2.27	1.83	1.76	1.75	-65.5%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	1.78	1.61	0.94	0.80	0.64	0.62	0.62	-65.5%
CO_2 / population (tCO_2 per capita)	8.17	2.97	1.56	1.89	1.78	1.61	1.72	-79.0%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.34**	**2.24**	**3.47**	**0.06**	**6.11**	**-79.7%**
Main activity producer elec. and heat	-	0.07	2.35	-	2.42	-82.1%
Unallocated autoproducers	0.01	0.07	0.11	0.06	0.25	x
Other energy industry own use	-	0.02	-	-	0.02	113.3%
Manufacturing industries and construction	0.10	0.02	0.13	-	0.25	-87.7%
Transport	-	1.01	0.00	-	1.02	-57.5%
of which: road	-	*0.96*	*0.00*	-	*0.96*	-59.1%
Other	0.23	1.06	0.87	-	2.16	-82.4%
of which: residential	*0.07*	*0.87*	*0.84*	-	*1.79*	104.1%
Reference Approach	**0.34**	**2.23**	**3.57**	**0.06**	**6.19**	**-79.5%**
Diff. due to losses and/or transformation	-	0.01	0.10	-	0.11	
Statistical differences	- 0.00	- 0.03	- 0.00	-	- 0.03	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.04*	-	-	*0.04*	*-81.9%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	2.35	-55.7%	22.3	22.3
Road - oil	0.96	-58.9%	9.1	31.4
Residential - oil	0.87	139.9%	8.3	39.7
Residential - gas	0.84	64.0%	8.0	47.7
Non-specified other - oil	0.18	-97.8%	1.7	49.4
Non-specified other sectors - coal/peat	0.16	-93.9%	1.5	50.9
Manufacturing industries - gas	0.13	-89.2%	1.3	52.2
Unallocated autoproducers - gas	0.11	x	1.1	53.3
Manufacturing industries - coal/peat	0.10	-87.3%	1.0	54.2
Residential - coal/peat	0.07	x	0.7	54.9
Unallocated autoproducers - oil	0.07	x	0.7	55.6
Memo: total CO_2 from fuel combustion	*6.11*	*-79.7%*	*58.0*	*58.0*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Mongolia

Figure 1. CO_2 emissions by fuel

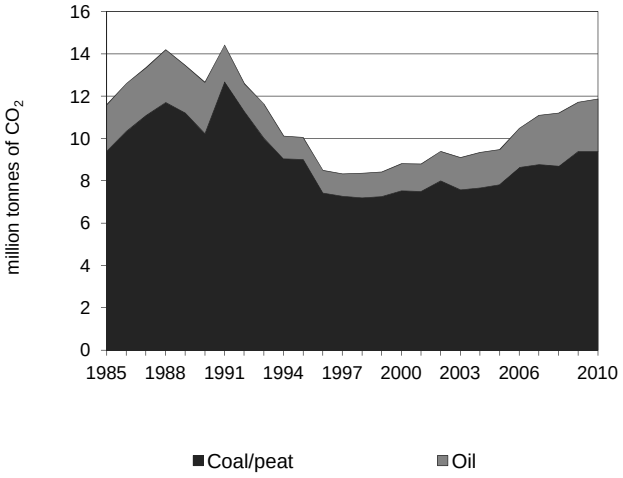


Figure 2. CO_2 emissions by sector

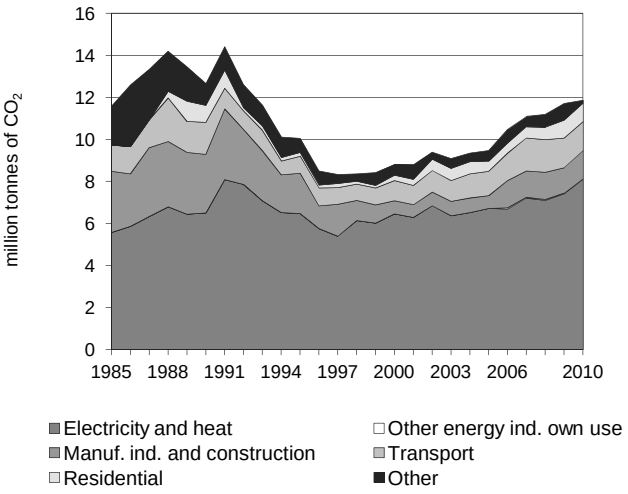


Figure 3. CO_2 emissions by sector

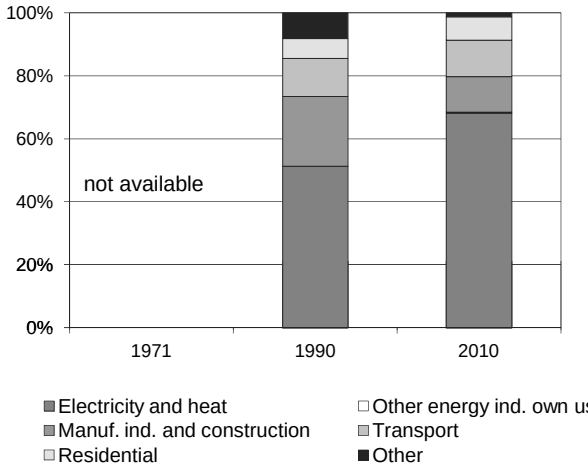


Figure 4. Reference vs Sectoral Approach

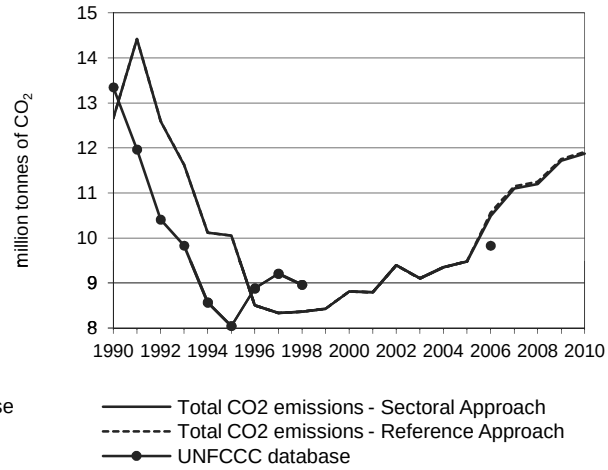


Figure 5. Electricity generation by fuel

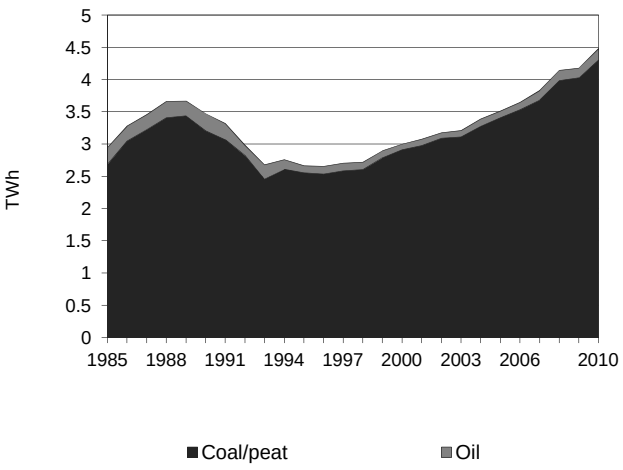
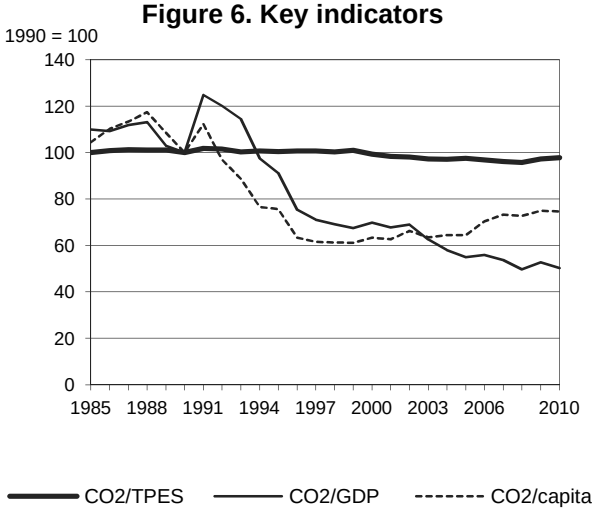


Figure 6. Key indicators



Mongolia

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	12.66	10.05	8.81	9.48	11.20	11.72	11.87	-6.2%
CO_2 Reference Approach ($MtCO_2$)	12.66	10.05	8.81	9.48	11.25	11.75	11.91	-5.9%
TPES (PJ)	143	113	100	110	132	136	137	-4.1%
TPES (Mtoe)	3.42	2.70	2.40	2.63	3.16	3.25	3.28	-4.1%
GDP (billion 2005 USD)	1.85	1.61	1.84	2.52	3.29	3.25	3.45	86.9%
GDP PPP (billion 2005 USD)	5.34	4.65	5.33	7.29	9.50	9.38	9.98	86.9%
Population (millions)	2.19	2.31	2.41	2.55	2.67	2.71	2.76	25.7%
CO_2 / TPES (tCO_2 per TJ)	88.5	88.8	87.8	86.3	84.8	86.1	86.6	-2.2%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	6.85	6.24	4.78	3.76	3.41	3.61	3.44	-49.8%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	2.37	2.16	1.66	1.30	1.18	1.25	1.19	-49.8%
CO_2 / population (tCO_2 per capita)	5.77	4.36	3.66	3.72	4.20	4.32	4.31	-25.3%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**9.39**	**2.48**	**-**	**-**	**11.87**	**-6.2%**
Main activity producer elec. and heat	7.90	0.19	-	-	8.10	24.6%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	0.03	-	-	-	0.03	x
Manufacturing industries and construction	0.49	0.85	-	-	1.34	-52.0%
Transport	0.07	1.31	-	-	1.38	-9.6%
of which: road	-	*0.96*	-	-	*0.96*	-13.6%
Other	0.89	0.13	-	-	1.02	-44.2%
of which: residential	*0.87*	-	-	-	*0.87*	8.3%
Reference Approach	**9.43**	**2.48**	**-**	**-**	**11.91**	**-5.9%**
Diff. due to losses and/or transformation	0.04	-	-	-	0.04	
Statistical differences	-	-	-	-	-	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.05*	-	-	*0.05*	*300.0%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	7.90	28.0%	36.5	36.5
Road - oil	0.96	-13.6%	4.4	40.9
Residential - coal/peat	0.87	8.3%	4.0	44.9
Manufacturing industries - oil	0.85	31.0%	3.9	48.9
Manufacturing industries - coal/peat	0.49	-77.0%	2.3	51.1
Other transport - oil	0.35	37.0%	1.6	52.8
Main activity prod. elec. and heat - oil	0.19	-40.4%	0.9	53.7
Non-specified other - oil	0.13	36.7%	0.6	54.3
Other transport - coal/peat	0.07	-56.1%	0.3	54.6
Other energy industry - coal/peat	0.03	x	0.1	54.7
Non-specified other sectors - coal/peat	0.02	-98.0%	0.1	54.8
Memo: total CO_2 from fuel combustion	*11.87*	*-6.2%*	*54.8*	*54.8*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Montenegro

Figure 1. CO_2 emissions by fuel

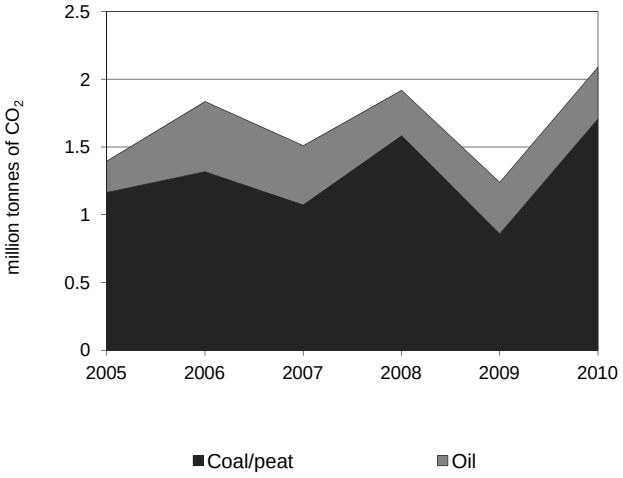


Figure 2. CO_2 emissions by sector

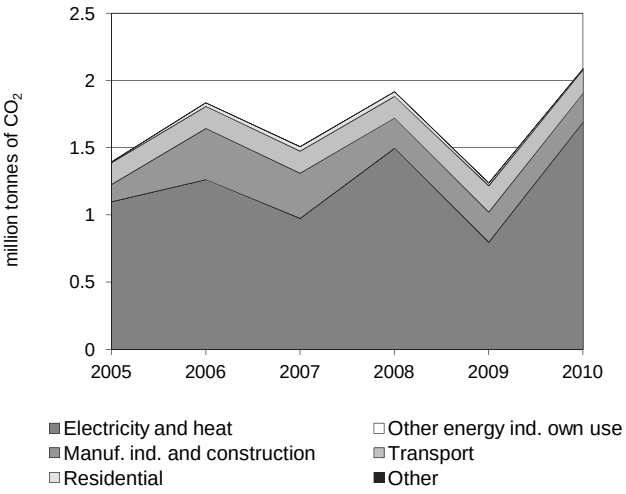


Figure 3. CO_2 emissions by sector

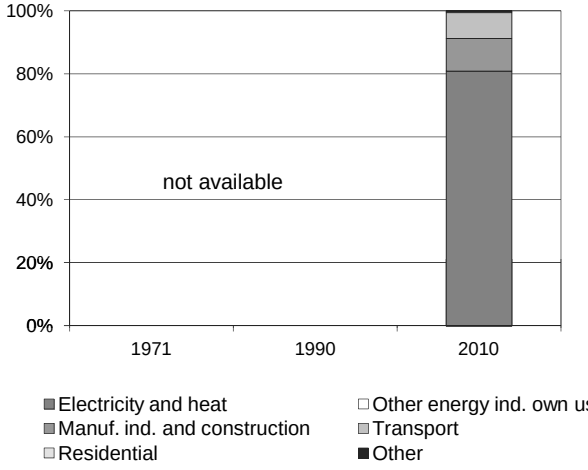


Figure 4. Reference vs Sectoral Approach

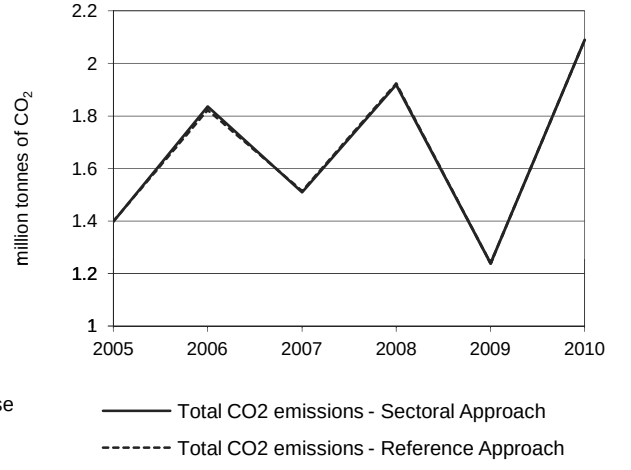


Figure 5. Electricity generation by fuel

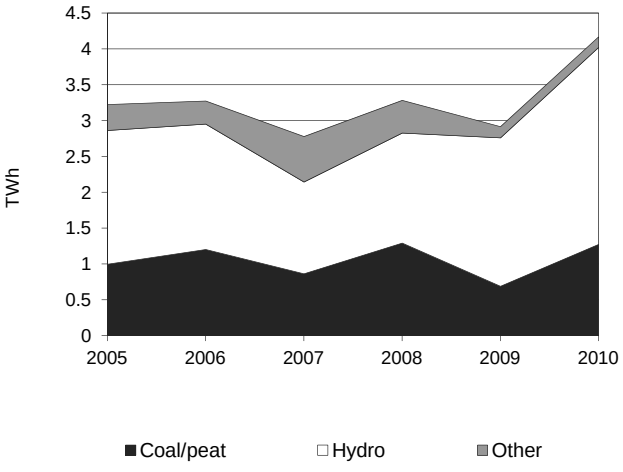
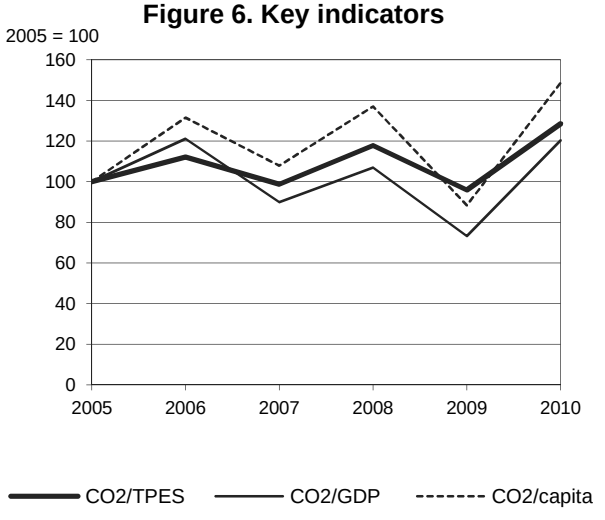


Figure 6. Key indicators



Montenegro *

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	..	..	..	1.40	1.92	1.24	2.09	..
CO_2 Reference Approach ($MtCO_2$)	..	..	..	1.40	1.92	1.24	2.09	..
TPES (PJ)	..	..	..	30	35	27	34	..
TPES (Mtoe)	..	..	..	0.71	0.83	0.65	0.82	..
GDP (billion 2005 USD)	..	..	..	2.26	2.90	2.74	2.80	..
GDP PPP (billion 2005 USD)	..	..	..	5.17	6.64	6.26	6.42	..
Population (millions)	..	..	..	0.63	0.63	0.63	0.63	..
CO_2 / TPES (tCO_2 per TJ)	..	..	..	47.2	55.6	45.2	60.6	..
CO_2 / GDP ($kgCO_2$ per 2005 USD)	..	..	..	0.62	0.66	0.45	0.75	..
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	..	..	..	0.27	0.29	0.20	0.33	..
CO_2 / population (tCO_2 per capita)	..	..	..	2.23	3.05	1.97	3.31	..

Ratios are based on the Sectoral Approach.

* Prior to 2005, data for Montenegro were included in Serbia.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other **	Total	% change 90-10
Sectoral Approach	**1.71**	**0.38**	**-**	**-**	**2.09**	**..**
Main activity producer elec. and heat	1.69	-	-	-	1.69	..
Unallocated autoproducers	-	-	-	-	-	..
Other energy industry own use	-	-	-	-	-	..
Manufacturing industries and construction	0.01	0.21	-	-	0.22	..
Transport	-	0.17	-	-	0.17	..
of which: road	-	-	-	-	-	..
Other	0.01	0.00	-	-	0.01	..
of which: residential	*0.01*	-	-	-	*0.01*	..
Reference Approach	**1.71**	**0.38**	**-**	**-**	**2.09**	**..**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	-	-	-	-	-	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.01*	-	-	*0.01*	*..*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	1.69	..	..	..
Manufacturing industries - oil	0.21	..	..	..
Other transport - oil	0.17	..	..	..
Manufacturing industries - coal/peat	0.01	..	..	..
Residential - coal/peat	0.01	..	..	..
Non-specified other - oil	0.00	..	..	..
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
Memo: total CO_2 from fuel combustion	*2.09*	*..*	-	-

*** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Morocco

Figure 1. CO_2 emissions by fuel

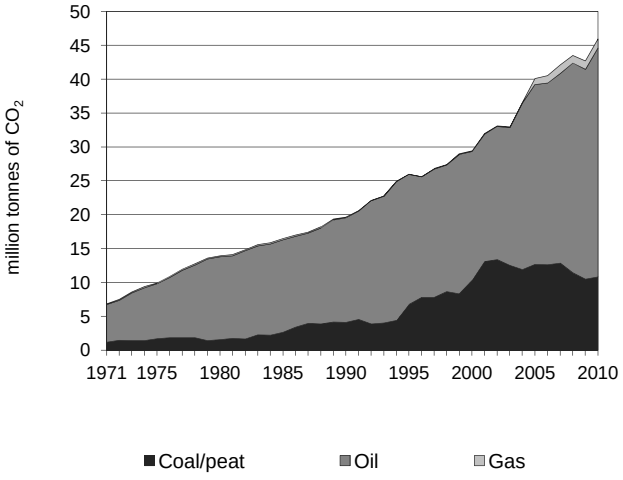


Figure 2. CO_2 emissions by sector

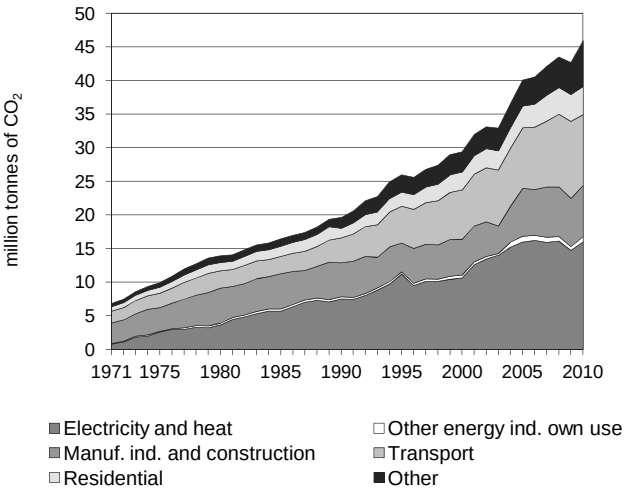


Figure 3. CO_2 emissions by sector

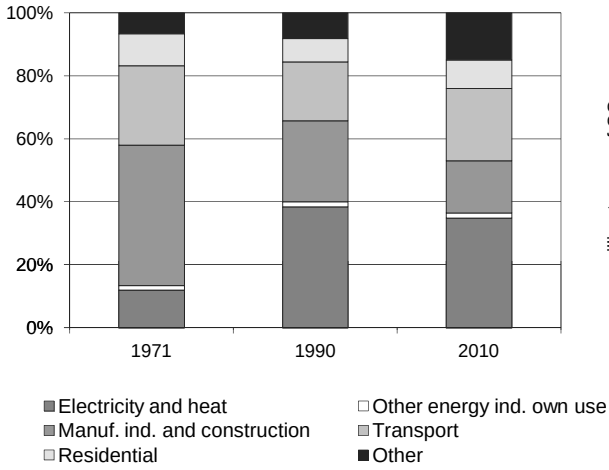


Figure 4. Reference vs Sectoral Approach

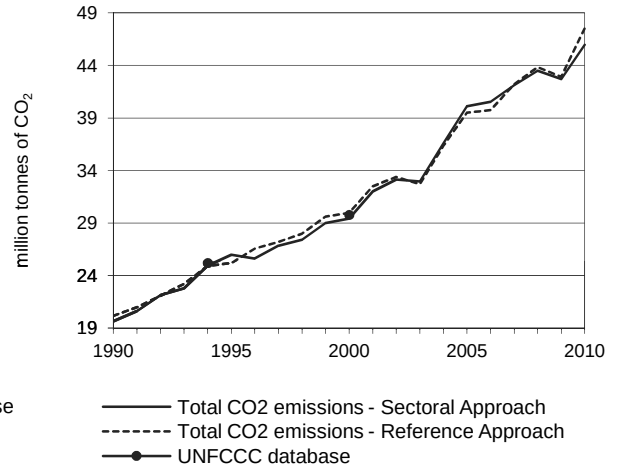


Figure 5. Electricity generation by fuel

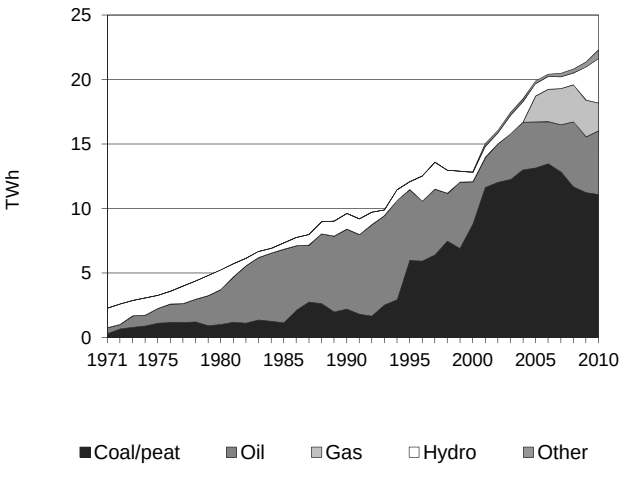
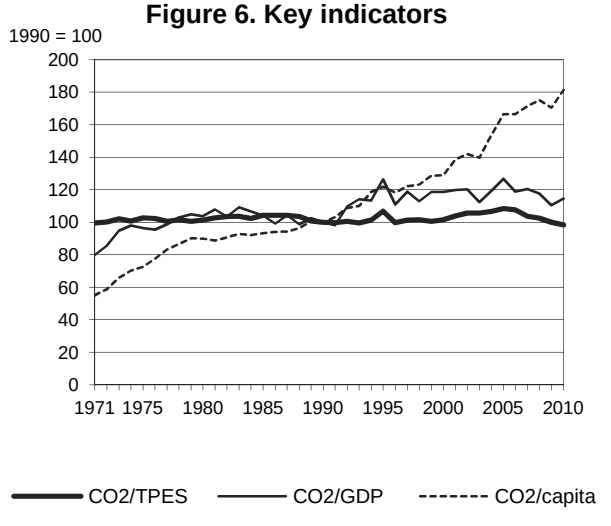


Figure 6. Key indicators



Morocco

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	19.64	25.99	29.42	40.10	43.51	42.71	45.95	134.0%
CO_2 Reference Approach ($MtCO_2$)	20.16	25.17	29.96	39.51	43.82	42.91	47.56	135.9%
TPES (PJ)	291	360	429	547	628	632	691	137.8%
TPES (Mtoe)	6.94	8.59	10.24	13.07	14.99	15.09	16.51	137.8%
GDP (billion 2005 USD)	36.97	38.70	46.69	59.52	69.56	72.87	75.55	104.4%
GDP PPP (billion 2005 USD)	67.18	70.33	84.84	108.17	126.41	132.42	137.29	104.4%
Population (millions)	24.78	26.93	28.79	30.39	31.32	31.64	31.95	28.9%
CO_2 / TPES (tCO_2 per TJ)	67.6	72.2	68.6	73.3	69.3	67.6	66.5	-1.6%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.53	0.67	0.63	0.67	0.63	0.59	0.61	14.5%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.29	0.37	0.35	0.37	0.34	0.32	0.33	14.5%
CO_2 / population (tCO_2 per capita)	0.79	0.97	1.02	1.32	1.39	1.35	1.44	81.5%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**10.82**	**33.80**	**1.33**	**-**	**45.95**	**134.0%**
Main activity producer elec. and heat	10.74	3.25	1.23	-	15.21	134.5%
Unallocated autoproducers	-	0.80	-	-	0.80	-24.2%
Other energy industry own use	-	0.77	-	-	0.77	141.0%
Manufacturing industries and construction	0.08	7.41	0.10	-	7.60	50.4%
Transport	-	10.57	-	-	10.57	187.1%
of which: road	-	*10.57*	-	-	*10.57*	187.1%
Other	-	11.01	-	-	11.01	261.1%
of which: residential	-	*4.16*	-	-	*4.16*	188.2%
Reference Approach	**10.82**	**35.41**	**1.33**	**-**	**47.56**	**135.9%**
Diff. due to losses and/or transformation	-	0.83	-	-	0.83	
Statistical differences	-	0.78	-	-	0.78	
Memo: international marine bunkers	-	*0.05*	-	-	*0.05*	*-24.9%*
Memo: international aviation bunkers	-	*1.77*	-	-	*1.77*	*124.9%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	10.74	290.7%	15.7	15.7
Road - oil	10.57	187.1%	15.4	31.1
Manufacturing industries - oil	7.41	107.5%	10.8	41.9
Non-specified other - oil	6.85	326.7%	10.0	51.9
Residential - oil	4.16	188.2%	6.1	58.0
Main activity prod. elec. and heat - oil	3.25	-13.1%	4.7	62.8
Main activity prod. elec. and heat - gas	1.23	x	1.8	64.5
Unallocated autoproducers - oil	0.80	-24.2%	1.2	65.7
Other energy industry own use - oil	0.77	141.0%	1.1	66.8
Manufacturing industries - gas	0.10	3.8%	0.2	67.0
Manufacturing industries - coal/peat	0.08	-94.1%	0.1	67.1
Memo: total CO_2 from fuel combustion	*45.95*	*134.0%*	*67.1*	*67.1*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Mozambique

Figure 1. CO_2 emissions by fuel

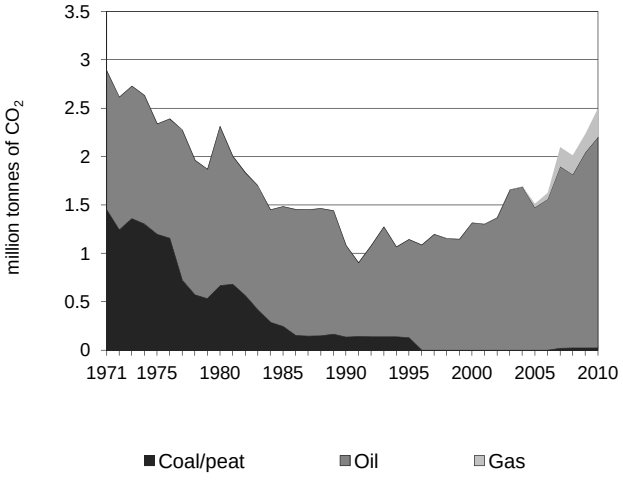


Figure 2. CO_2 emissions by sector

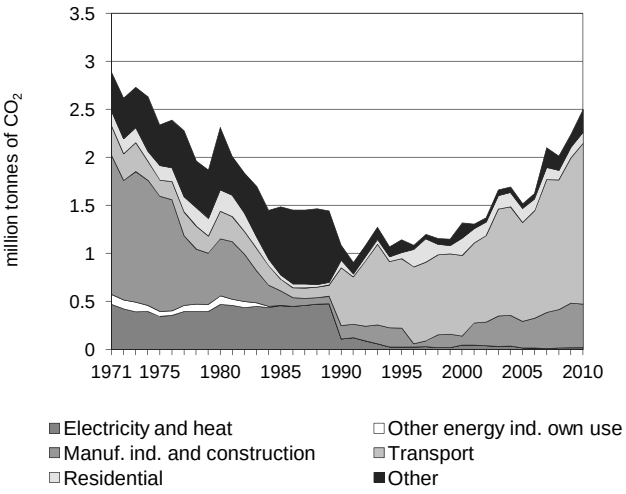


Figure 3. CO_2 emissions by sector

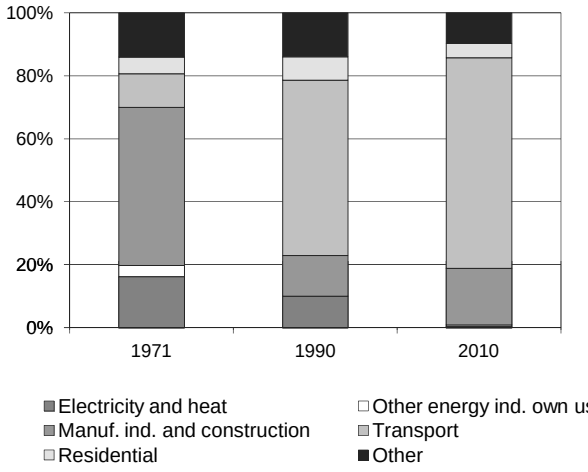


Figure 4. Reference vs Sectoral Approach

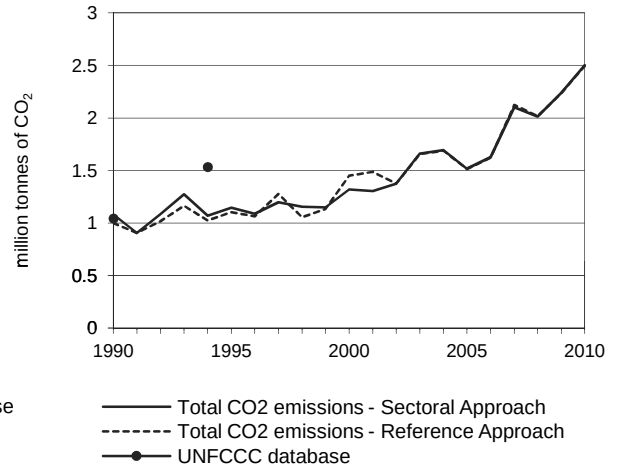


Figure 5. Electricity generation by fuel

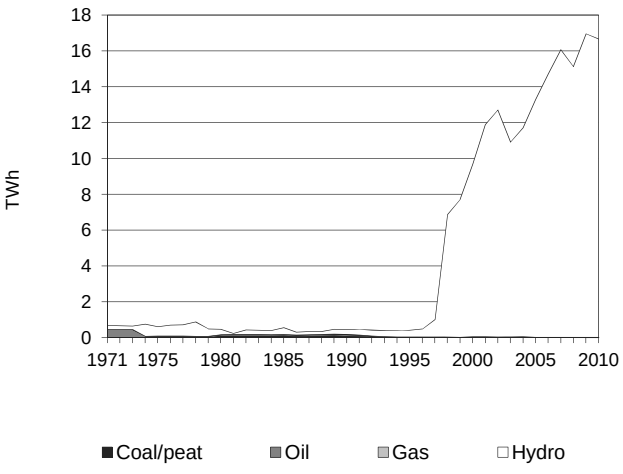
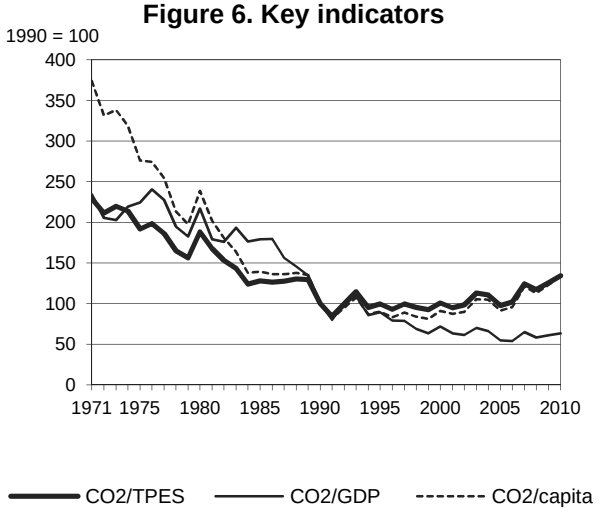


Figure 6. Key indicators



Mozambique

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	1.08	1.14	1.32	1.52	2.01	2.24	2.50	130.9%
CO_2 Reference Approach ($MtCO_2$)	1.00	1.10	1.45	1.51	2.02	2.24	2.50	149.4%
TPES (PJ)	248	263	300	355	393	409	427	72.2%
TPES (Mtoe)	5.92	6.28	7.17	8.49	9.39	9.78	10.20	72.2%
GDP (billion 2005 USD)	2.56	3.04	4.36	6.58	8.19	8.72	9.35	264.8%
GDP PPP (billion 2005 USD)	5.42	6.43	9.21	13.91	17.32	18.44	19.77	264.8%
Population (millions)	13.55	15.93	18.20	20.77	22.33	22.86	23.39	72.7%
CO_2 / TPES (tCO_2 per TJ)	4.4	4.3	4.4	4.3	5.1	5.5	5.9	34.1%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.42	0.38	0.30	0.23	0.25	0.26	0.27	-36.7%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.20	0.18	0.14	0.11	0.12	0.12	0.13	-36.7%
CO_2 / population (tCO_2 per capita)	0.08	0.07	0.07	0.07	0.09	0.10	0.11	33.8%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.02**	**2.18**	**0.30**	**-**	**2.50**	**130.9%**
Main activity producer elec. and heat	-	-	0.01	-	0.01	-90.1%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	0.01	-	-	-	0.01	x
Manufacturing industries and construction	0.01	0.31	0.13	-	0.45	222.8%
Transport	-	1.67	-	-	1.67	177.8%
of which: road	-	*1.54*	-	-	*1.54*	192.1%
Other	-	0.20	0.16	-	0.36	53.3%
of which: residential	-	*0.11*	*0.00*	-	*0.11*	42.0%
Reference Approach	**0.02**	**2.17**	**0.30**	**-**	**2.50**	**149.4%**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	-	- 0.01	0.00	-	- 0.01	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.20*	-	-	*0.20*	*56.1%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	1.54	192.1%	10.1	10.1
Manufacturing industries - oil	0.31	408.3%	2.0	12.2
Non-specified other - gas	0.16	x	1.0	13.2
Other transport - oil	0.14	79.2%	0.9	14.1
Manufacturing industries - gas	0.13	x	0.9	15.0
Residential - oil	0.11	41.7%	0.8	15.7
Non-specified other - oil	0.08	-45.4%	0.5	16.3
Other energy industry - coal/peat	0.01	x	0.1	16.3
Manufacturing industries - coal/peat	0.01	-85.3%	0.1	16.4
Main activity prod. elec. and heat - gas	0.01	x	0.1	16.5
Residential - gas	0.00	x	0.0	16.5
Memo: total CO_2 from fuel combustion	*2.50*	*130.9%*	*16.5*	*16.5*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Myanmar

Figure 1. CO_2 emissions by fuel

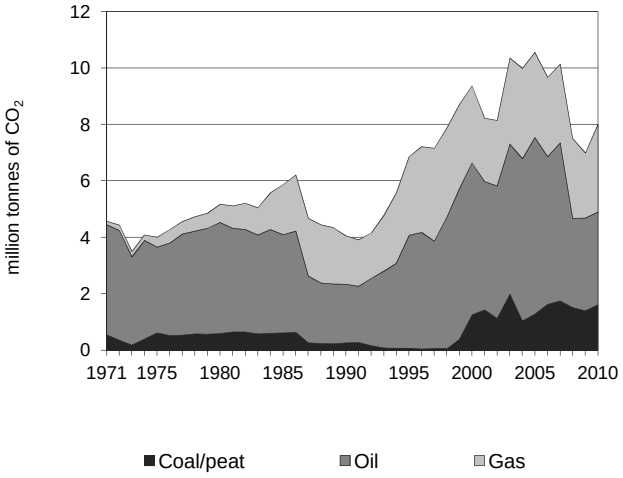


Figure 2. CO_2 emissions by sector

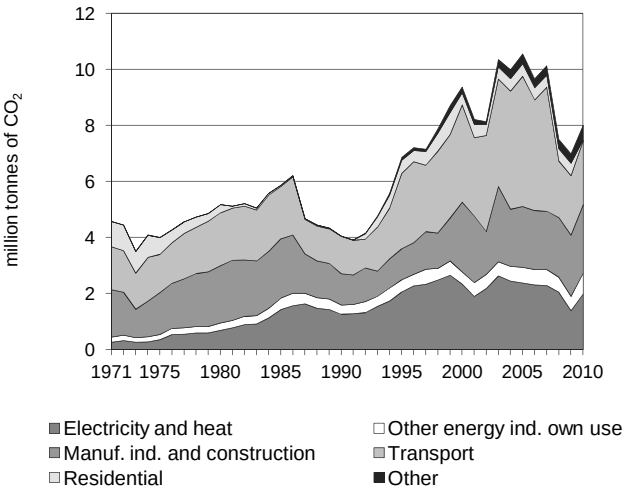


Figure 3. CO_2 emissions by sector

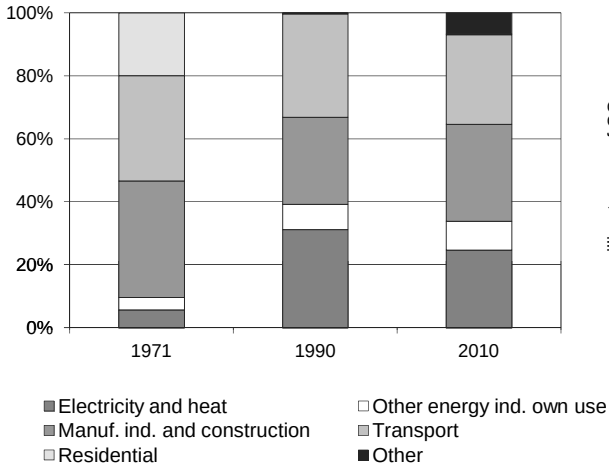


Figure 4. Reference vs Sectoral Approach

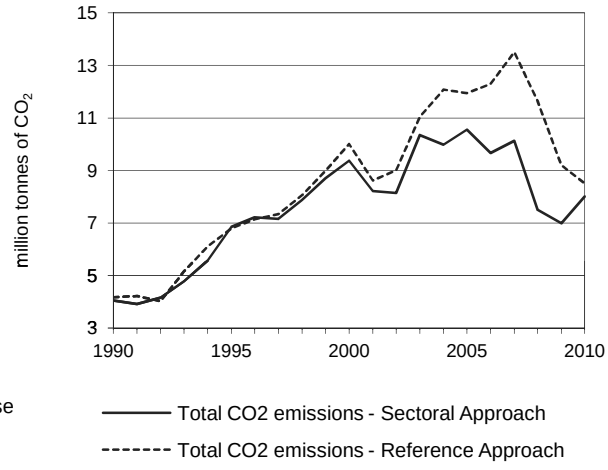


Figure 5. Electricity generation by fuel

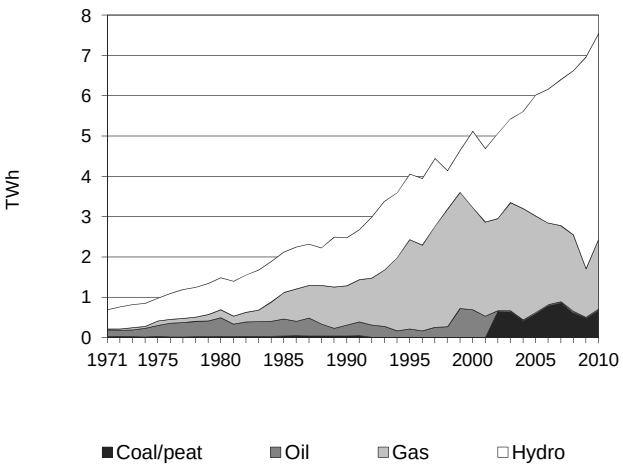
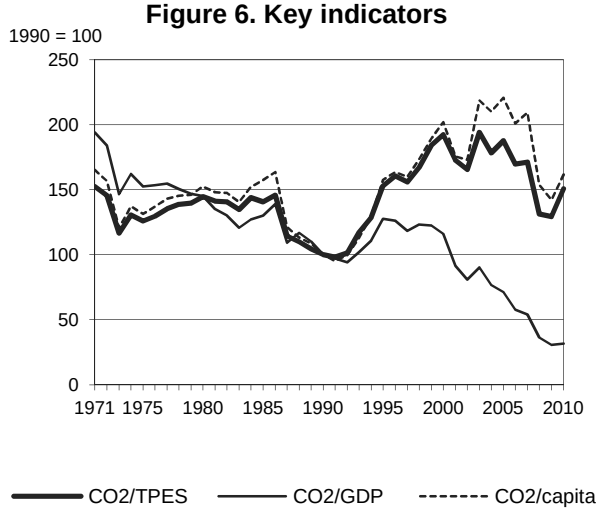


Figure 6. Key indicators



Myanmar

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	4.05	6.85	9.37	10.55	7.49	6.99	8.00	97.6%
CO_2 Reference Approach ($MtCO_2$)	4.17	6.79	10.01	11.95	11.63	9.20	8.51	104.2%
TPES (PJ)	447	494	538	620	629	596	586	31.1%
TPES (Mtoe)	10.68	11.81	12.84	14.82	15.03	14.25	14.00	31.1%
GDP (billion 2005 USD)	3.30	4.38	6.57	12.04	16.81	18.59	20.53	522.4%
GDP PPP (billion 2005 USD)	134.67	178.83	268.68	492.07	687.19	759.90	839.06	523.1%
Population (millions)	39.27	42.13	44.96	46.32	47.25	47.60	47.96	22.1%
CO_2 / TPES (tCO_2 per TJ)	9.1	13.9	17.4	17.0	11.9	11.7	13.7	50.8%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	1.23	1.57	1.43	0.88	0.45	0.38	0.39	-68.3%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.03	0.04	0.03	0.02	0.01	0.01	0.01	-68.4%
CO_2 / population (tCO_2 per capita)	0.10	0.16	0.21	0.23	0.16	0.15	0.17	61.7%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**1.61**	**3.29**	**3.10**	**-**	**8.00**	**97.6%**
Main activity producer elec. and heat	0.69	0.03	1.26	-	1.98	56.5%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.20	0.54	-	0.73	122.9%
Manufacturing industries and construction	0.87	0.72	0.87	-	2.46	120.3%
Transport	-	1.89	0.39	-	2.28	71.5%
of which: road	-	*1.36*	*0.39*	-	*1.75*	38.9%
Other	0.05	0.46	0.04	-	0.55	+
of which: residential	-	*0.02*	-	-	*0.02*	95.9%
Reference Approach	**1.59**	**3.89**	**3.03**	**-**	**8.51**	**104.2%**
Diff. due to losses and/or transformation	-	0.15	-	-	0.15	
Statistical differences	- 0.01	0.45	- 0.07	-	0.36	
Memo: international marine bunkers	-	*0.01*	-	-	*0.01*	*x*
Memo: international aviation bunkers	-	*0.06*	-	-	*0.06*	*200.0%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	1.36	7.9%	1.2	1.2
Main activity prod. elec. and heat - gas	1.26	24.0%	1.1	2.3
Manufacturing industries - gas	0.87	92.2%	0.8	3.1
Manufacturing industries - coal/peat	0.87	302.8%	0.8	3.8
Manufacturing industries - oil	0.72	61.2%	0.6	4.5
Main activity prod. elec. and heat - coal/peat	0.69	+	0.6	5.1
Other energy industry own use - gas	0.54	126.5%	0.5	5.5
Other transport - oil	0.53	662.4%	0.5	6.0
Non-specified other - oil	0.44	+	0.4	6.4
Road - gas	0.39	+	0.3	6.7
Other energy industry own use - oil	0.20	113.7%	0.2	6.9
Memo: total CO_2 from fuel combustion	*8.00*	*97.6%*	*7.0*	*7.0*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Namibia

Figure 1. CO_2 emissions by fuel

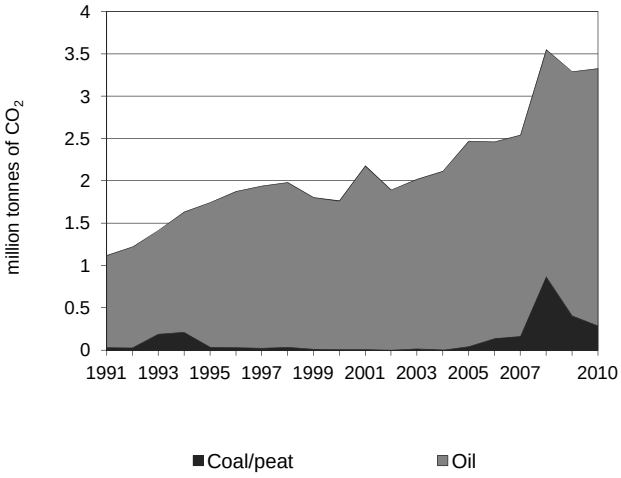


Figure 2. CO_2 emissions by sector

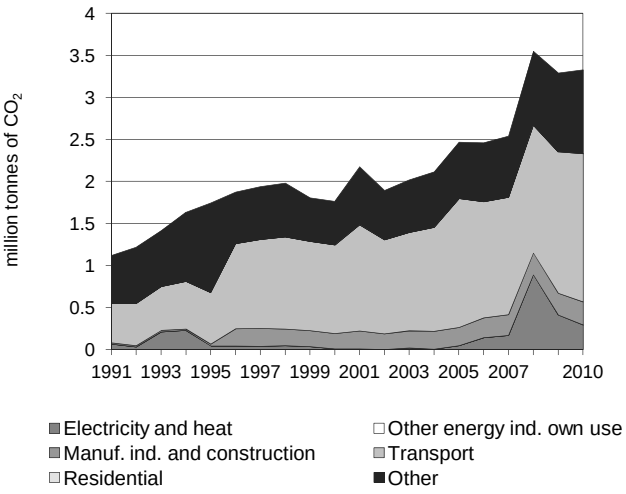


Figure 3. CO_2 emissions by sector

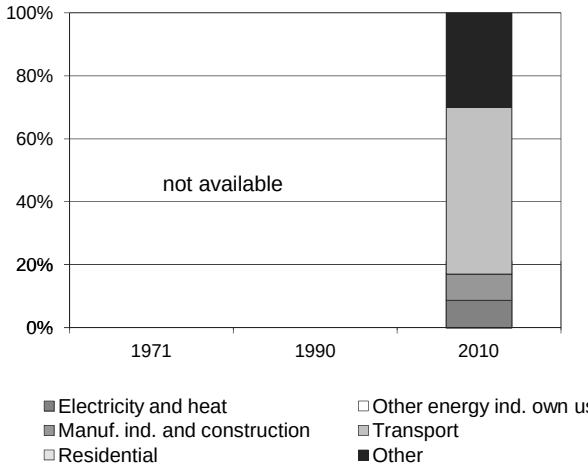


Figure 4. Reference vs Sectoral Approach

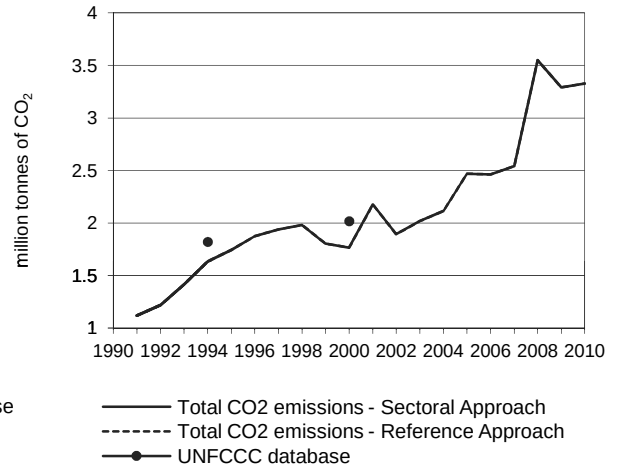


Figure 5. Electricity generation by fuel

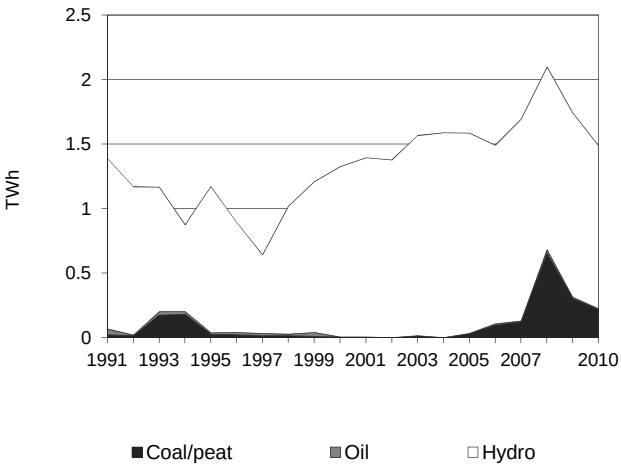
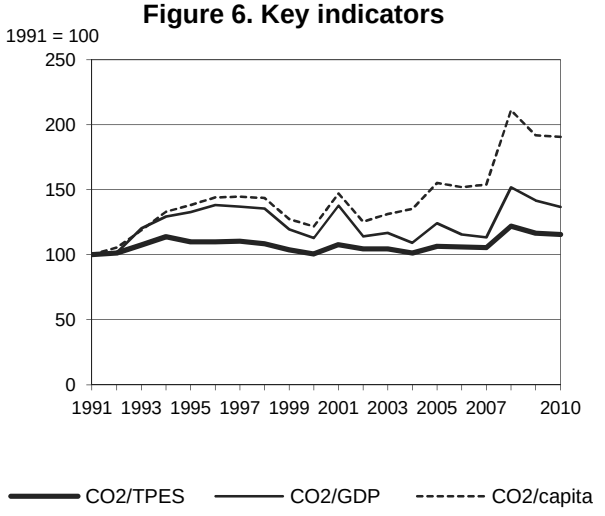


Figure 6. Key indicators



Namibia *

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	..	1.74	1.76	2.47	3.55	3.29	3.33	..
CO_2 Reference Approach ($MtCO_2$)	..	1.74	1.76	2.47	3.55	3.29	3.33	..
TPES (PJ)	..	37	41	54	68	66	67	..
TPES (Mtoe)	..	0.89	0.98	1.29	1.62	1.58	1.60	..
GDP (billion 2005 USD)	..	4.80	5.71	7.26	8.55	8.49	8.89	..
GDP PPP (billion 2005 USD)	..	7.16	8.51	10.83	12.74	12.65	13.26	..
Population (millions)	..	1.65	1.90	2.08	2.20	2.24	2.28	..
CO_2 / TPES (tCO_2 per TJ)	..	47.1	43.1	45.6	52.2	49.9	49.6	..
CO_2 / GDP ($kgCO_2$ per 2005 USD)	..	0.36	0.31	0.34	0.42	0.39	0.37	..
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	..	0.24	0.21	0.23	0.28	0.26	0.25	..
CO_2 / population (tCO_2 per capita)	..	1.06	0.93	1.19	1.61	1.47	1.46	..

Ratios are based on the Sectoral Approach.

* Prior to 1991, data for Namibia were included in Other Africa.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other **	Total	% change 90-10
Sectoral Approach	**0.29**	**3.04**	**-**	**-**	**3.33**	**..**
Main activity producer elec. and heat	0.29	0.01	-	-	0.29	..
Unallocated autoproducers	-	-	-	-	-	..
Other energy industry own use	-	-	-	-	-	..
Manufacturing industries and construction	-	0.27	-	-	0.27	..
Transport	-	1.76	-	-	1.76	..
of which: road	-	*1.66*	-	-	*1.66*	..
Other	-	1.00	-	-	1.00	..
of which: residential	-	-	-	-	-	..
Reference Approach	**0.29**	**3.04**	**-**	**-**	**3.33**	**..**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	-	-	-	-	-	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.12*	-	-	*0.12*	*..*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) ***	Cumulative total (%)
Road - oil	1.66	..	14.7	14.7
Non-specified other - oil	1.00	..	8.8	23.5
Main activity prod. elec. and heat - coal/peat	0.29	..	2.5	26.0
Manufacturing industries - oil	0.27	..	2.4	28.5
Other transport - oil	0.10	..	0.9	29.4
Main activity prod. elec. and heat - oil	0.01	..	0.1	29.4
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
Memo: total CO_2 from fuel combustion	*3.33*	*..*	*29.4*	*29.4*

*** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Nepal

Figure 1. CO_2 emissions by fuel

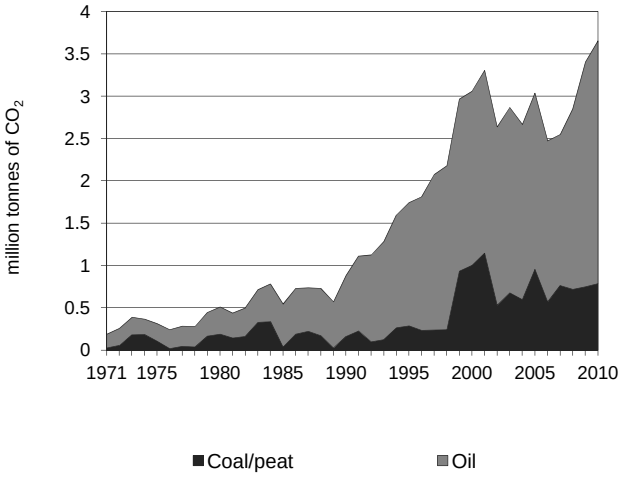


Figure 2. CO_2 emissions by sector

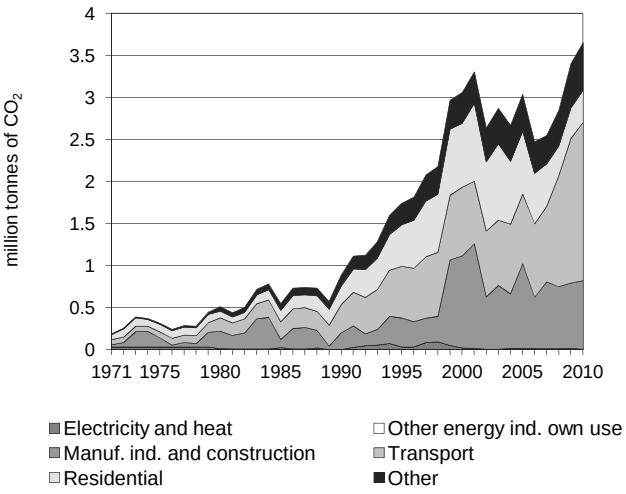


Figure 3. CO_2 emissions by sector

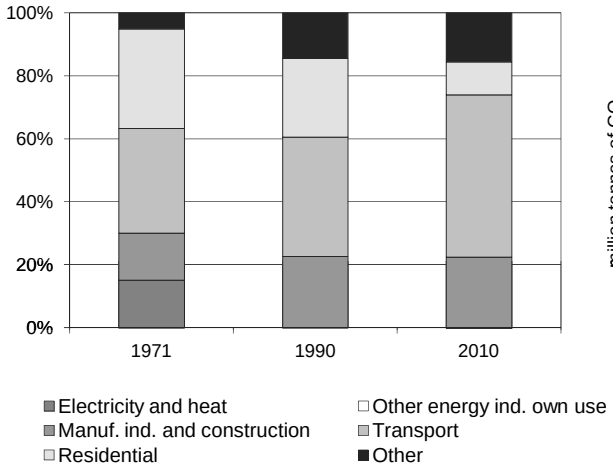


Figure 4. Reference vs Sectoral Approach

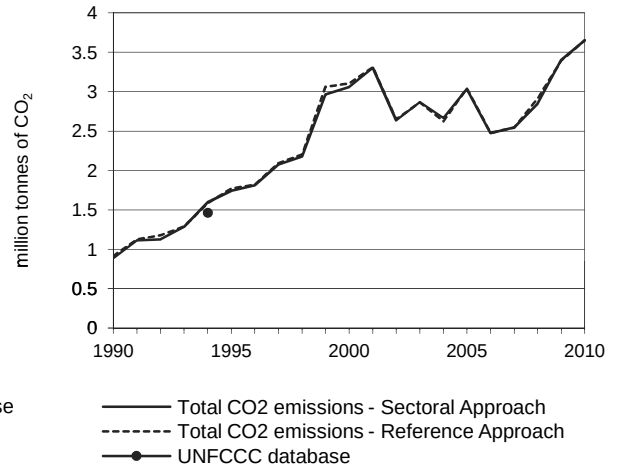


Figure 5. Electricity generation by fuel

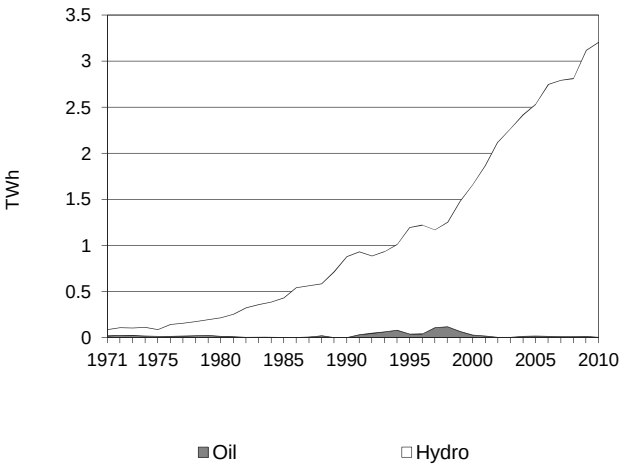
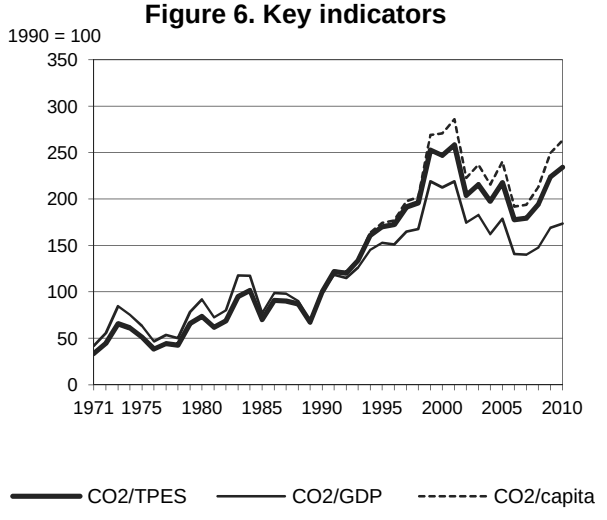


Figure 6. Key indicators



Nepal

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	0.88	1.74	3.06	3.04	2.85	3.40	3.65	313.1%
CO_2 Reference Approach ($MtCO_2$)	0.91	1.77	3.10	3.04	2.91	3.40	3.65	300.2%
TPES (PJ)	242	281	339	382	402	417	428	76.5%
TPES (Mtoe)	5.79	6.71	8.11	9.13	9.60	9.96	10.22	76.5%
GDP (billion 2005 USD)	4.23	5.45	6.88	8.13	9.22	9.63	10.07	138.1%
GDP PPP (billion 2005 USD)	13.53	17.43	22.03	26.02	29.51	30.82	32.22	138.1%
Population (millions)	19.08	21.60	24.40	27.28	28.91	29.43	29.96	57.0%
CO_2 / TPES (tCO_2 per TJ)	3.7	6.2	9.0	7.9	7.1	8.2	8.5	134.1%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.21	0.32	0.44	0.37	0.31	0.35	0.36	73.6%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.07	0.10	0.14	0.12	0.10	0.11	0.11	73.7%
CO_2 / population (tCO_2 per capita)	0.05	0.08	0.13	0.11	0.10	0.12	0.12	163.3%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.78**	**2.87**	**-**	**-**	**3.65**	**313.1%**
Main activity producer elec. and heat	-	0.00	-	-	0.00	x
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	0.78	0.03	-	-	0.82	307.8%
Transport	-	1.88	-	-	1.88	462.0%
of which: road	-	*1.88*	-	-	*1.88*	462.0%
Other	0.00	0.95	-	-	0.95	172.3%
of which: residential	*0.00*	*0.38*	-	-	*0.38*	71.8%
Reference Approach	**0.78**	**2.87**	**-**	**-**	**3.65**	**300.2%**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	-	- 0.00	-	-	- 0.00	
Memo: international marine bunkers	-	-	-	-	-	-
Memo: international aviation bunkers	-	*0.26*	-	-	*0.26*	*426.7%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	1.88	462.0%	5.9	5.9
Manufacturing industries - coal/peat	0.78	380.0%	2.5	8.4
Non-specified other - oil	0.57	347.1%	1.8	10.2
Residential - oil	0.38	70.8%	1.2	11.4
Manufacturing industries - oil	0.03	-9.7%	0.1	11.5
Main activity prod. elec. and heat - oil	0.00	x	0.0	11.5
Residential - coal/peat	0.00	x	0.0	11.5
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*3.65*	*313.1%*	*11.5*	*11.5*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Netherlands

Figure 1. CO_2 emissions by fuel

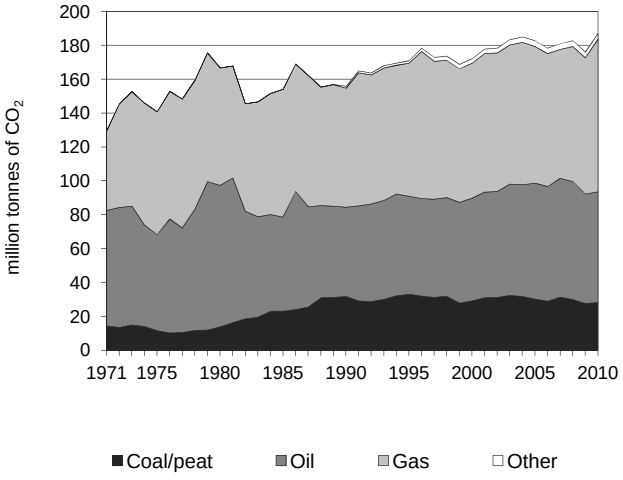


Figure 2. CO_2 emissions by sector

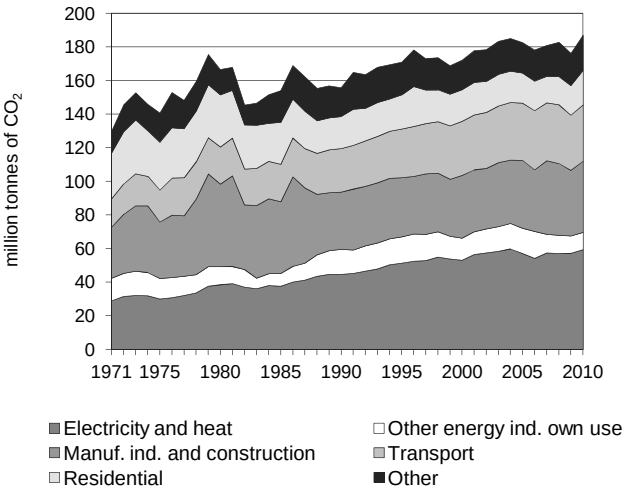


Figure 3. CO_2 emissions by sector

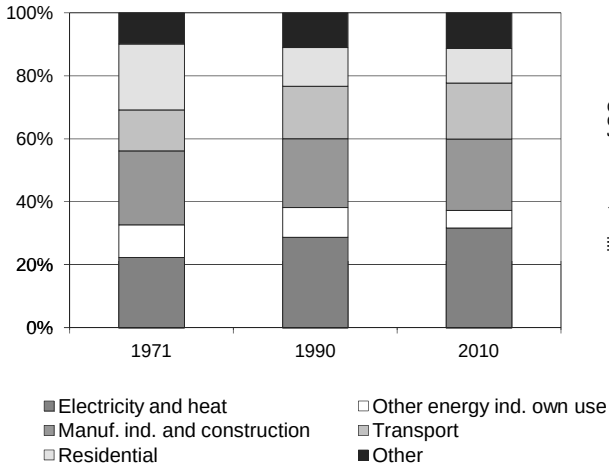


Figure 4. Reference vs Sectoral Approach

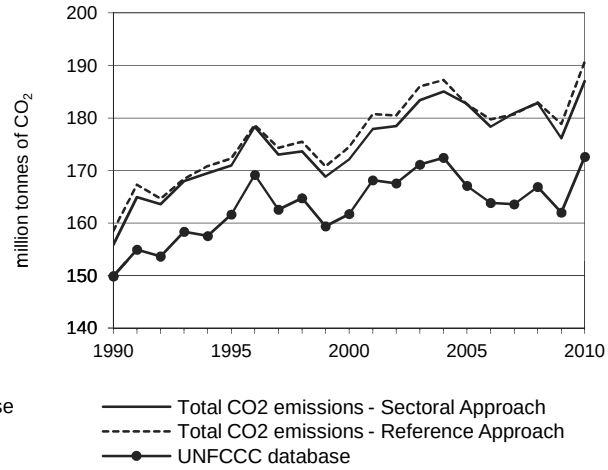


Figure 5. Electricity generation by fuel

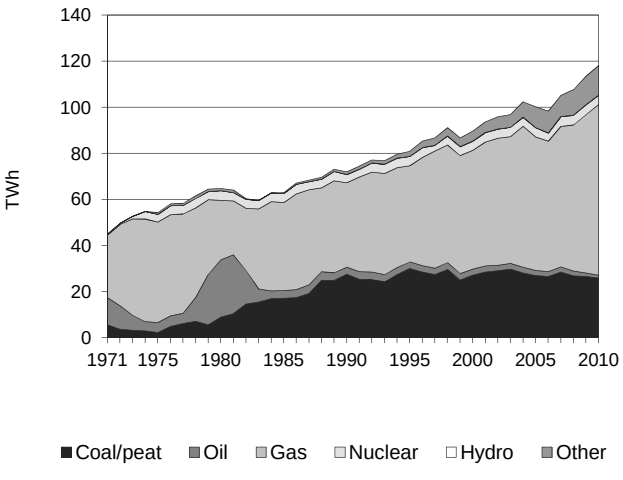
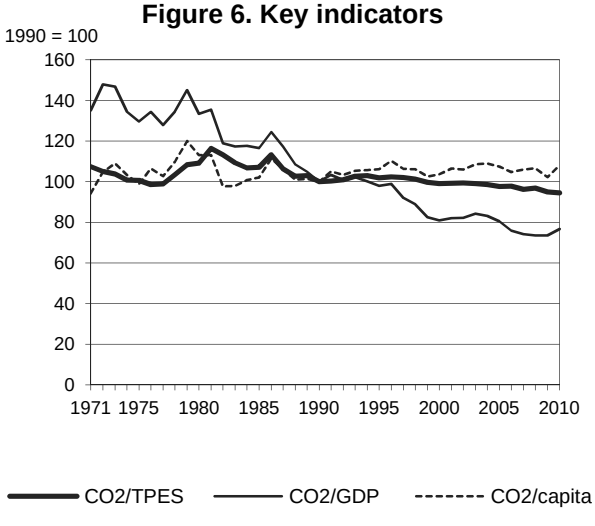


Figure 6. Key indicators



Netherlands

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	155.85	170.94	172.09	182.66	182.82	176.14	187.00	20.0%
CO_2 Reference Approach ($MtCO_2$)	158.50	172.27	174.47	182.57	182.93	178.89	190.72	20.3%
TPES (PJ)	2 750	2 962	3 066	3 300	3 331	3 273	3 493	27.0%
TPES (Mtoe)	65.69	70.75	73.22	78.82	79.55	78.17	83.43	27.0%
GDP (billion 2005 USD)	437.83	490.39	597.95	638.47	698.40	673.70	685.08	56.5%
GDP PPP (billion 2005 USD)	392.86	440.03	536.54	572.90	626.68	604.51	614.73	56.5%
Population (millions)	14.95	15.46	15.92	16.32	16.44	16.53	16.61	11.1%
CO_2 / TPES (tCO_2 per TJ)	56.7	57.7	56.1	55.3	54.9	53.8	53.5	-5.5%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.36	0.35	0.29	0.29	0.26	0.26	0.27	-23.3%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.40	0.39	0.32	0.32	0.29	0.29	0.30	-23.3%
CO_2 / population (tCO_2 per capita)	10.43	11.06	10.81	11.19	11.12	10.66	11.26	8.0%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**28.19**	**65.44**	**90.07**	**3.29**	**187.00**	**20.0%**
Main activity producer elec. and heat	23.73	0.29	26.71	-	50.74	34.6%
Unallocated autoproducers	0.07	0.75	4.53	3.29	8.65	22.1%
Other energy industry own use	0.54	5.79	4.04	-	10.37	-29.8%
Manufacturing industries and construction	3.81	22.65	15.87	-	42.33	24.2%
Transport	-	33.32	0.03	-	33.35	28.9%
of which: road	-	*32.48*	*0.03*	-	*32.51*	31.9%
Other	0.03	2.65	38.89	-	41.56	14.4%
of which: residential	*0.02*	*0.31*	*20.19*	-	*20.52*	7.0%
Reference Approach	**29.00**	**68.59**	**89.83**	**3.29**	**190.72**	**20.3%**
Diff. due to losses and/or transformation	0.81	0.27	- 0.24	-	0.84	
Statistical differences	0.00	2.88	- 0.00	-	2.88	
Memo: international marine bunkers	-	*43.72*	-	-	*43.72*	*27.5%*
Memo: international aviation bunkers	-	*10.00*	-	-	*10.00*	*133.0%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	32.48	31.8%	14.5	14.5
Main activity prod. elec. and heat - gas	26.71	106.2%	11.9	26.4
Main activity prod. elec. and heat - coal/peat	23.73	-3.5%	10.6	36.9
Manufacturing industries - oil	22.65	142.1%	10.1	47.0
Residential - gas	20.19	9.9%	9.0	56.0
Non-specified other - gas	18.70	32.7%	8.3	64.4
Manufacturing industries - gas	15.87	-15.5%	7.1	71.4
Other energy industry own use - oil	5.79	-50.5%	2.6	74.0
Unallocated autoproducers - gas	4.53	24.1%	2.0	76.0
Other energy industry own use - gas	4.04	69.6%	1.8	77.8
Manufacturing industries - coal/peat	3.81	-35.9%	1.7	79.5
Memo: total CO_2 from fuel combustion	*187.00*	*20.0%*	*83.3*	*83.3*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Netherlands Antilles

Figure 1. CO_2 emissions by fuel

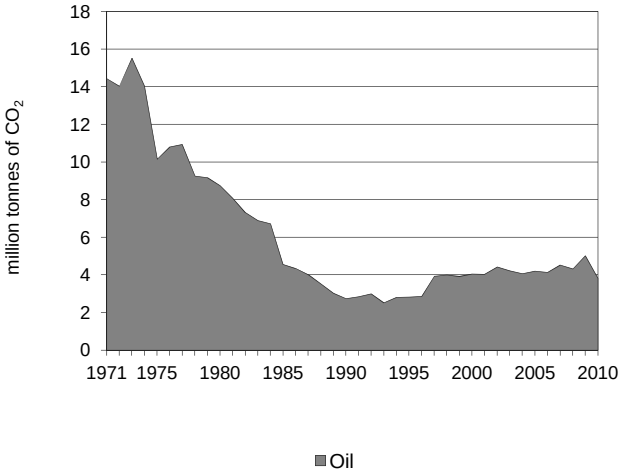


Figure 2. CO_2 emissions by sector

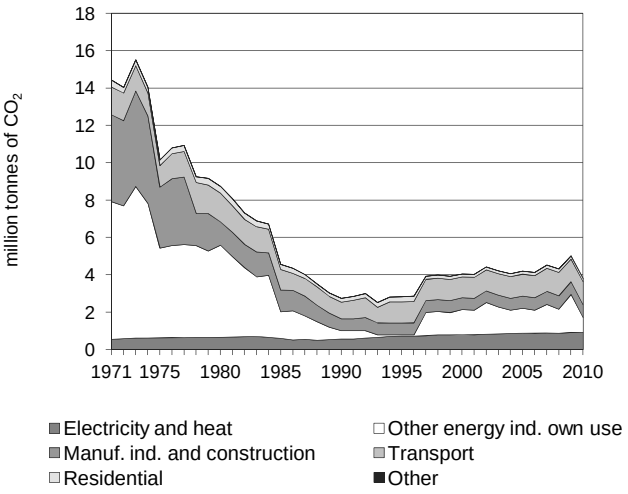


Figure 3. CO_2 emissions by sector

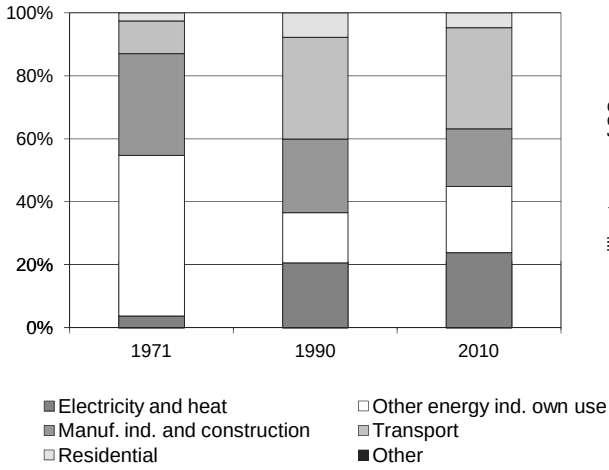


Figure 4. Reference vs Sectoral Approach

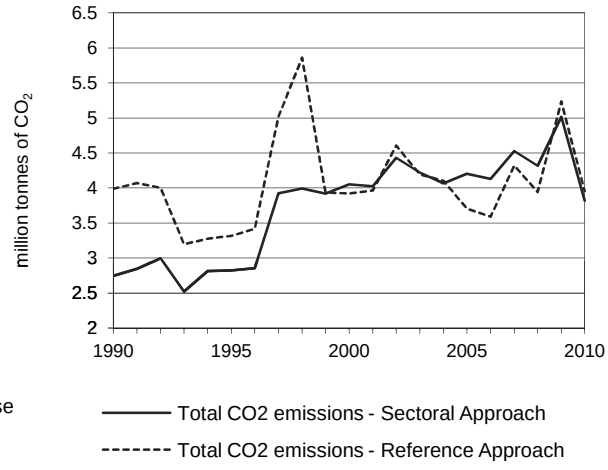


Figure 5. Electricity generation by fuel

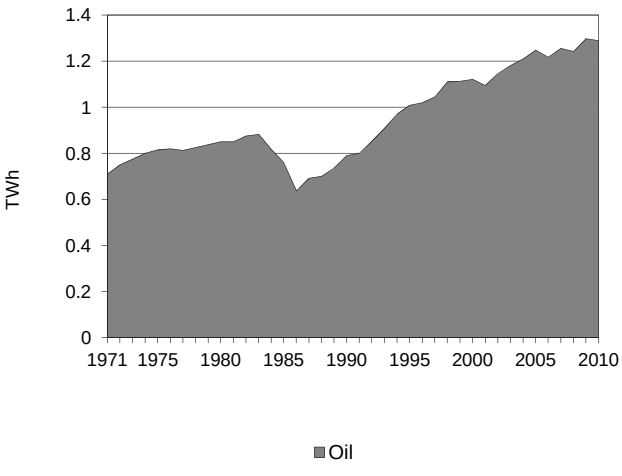
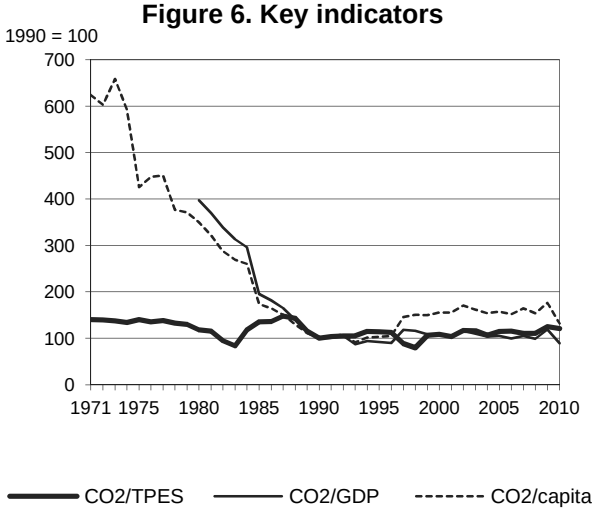


Figure 6. Key indicators



Netherlands Antilles

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	2.74	2.82	4.05	4.20	4.32	5.02	3.82	39.1%
CO_2 Reference Approach ($MtCO_2$) *	3.99	3.31	3.92	3.71	3.94	5.24	3.96	-0.8%
TPES (PJ)	61	55	83	81	87	89	70	15.2%
TPES (Mtoe)	1.46	1.31	1.98	1.95	2.07	2.13	1.68	15.2%
GDP (billion 2005 USD)	1.72	1.92	2.34	2.50	2.74	2.63	2.68	56.1%
GDP PPP (billion 2005 USD)	1.54	1.72	2.10	2.24	2.46	2.36	2.40	56.1%
Population (millions)	0.19	0.19	0.18	0.19	0.20	0.20	0.20	5.2%
CO_2 / TPES (tCO_2 per TJ)	45.0	51.3	48.9	51.6	49.8	56.2	54.3	20.7%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	1.60	1.47	1.73	1.68	1.58	1.91	1.43	-10.9%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	1.78	1.64	1.93	1.87	1.76	2.13	1.59	-10.9%
CO_2 / population (tCO_2 per capita)	14.37	14.77	22.38	22.60	22.14	25.33	18.99	32.2%

Ratios are based on the Sectoral Approach.

* The Reference Approach in 1990 overstates emissions since data for lubricants and bitumen (which store carbon) are not available.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other **	Total	% change 90-10
Sectoral Approach	**-**	**3.82**	**-**	**-**	**3.82**	**39.1%**
Main activity producer elec. and heat	-	0.45	-	-	0.45	62.2%
Unallocated autoproducers	-	0.46	-	-	0.46	59.6%
Other energy industry own use	-	0.81	-	-	0.81	84.1%
Manufacturing industries and construction	-	0.70	-	-	0.70	8.3%
Transport	-	1.23	-	-	1.23	38.4%
of which: road	-	*1.23*	-	-	*1.23*	38.4%
Other	-	0.18	-	-	0.18	-15.9%
of which: residential	-	*0.18*	-	-	*0.18*	-15.9%
Reference Approach *	**-**	**3.96**	**-**	**-**	**3.96**	**-0.8%**
Diff. due to losses and/or transformation	-	0.14	-	-	0.14	
Statistical differences	-	- 0.00	-	-	- 0.00	
Memo: international marine bunkers	-	*5.76*	-	-	*5.76*	*11.2%*
Memo: international aviation bunkers	-	*0.22*	-	-	*0.22*	*86.5%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) ***	Cumulative total (%)
Road - oil	1.23	38.4%	30.7	30.7
Other energy industry own use - oil	0.81	84.1%	20.1	50.8
Manufacturing industries - oil	0.70	8.3%	17.4	68.2
Unallocated autoproducers - oil	0.46	59.6%	11.5	79.7
Main activity prod. elec. and heat - oil	0.45	62.2%	11.2	90.9
Residential - oil	0.18	-15.9%	4.4	95.4
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*3.82*	*39.1%*	*95.4*	*95.4*

*** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

New Zealand

Figure 1. CO_2 emissions by fuel

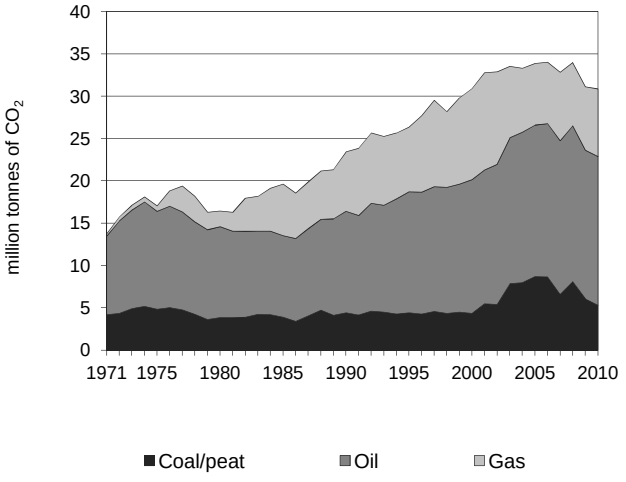


Figure 2. CO_2 emissions by sector

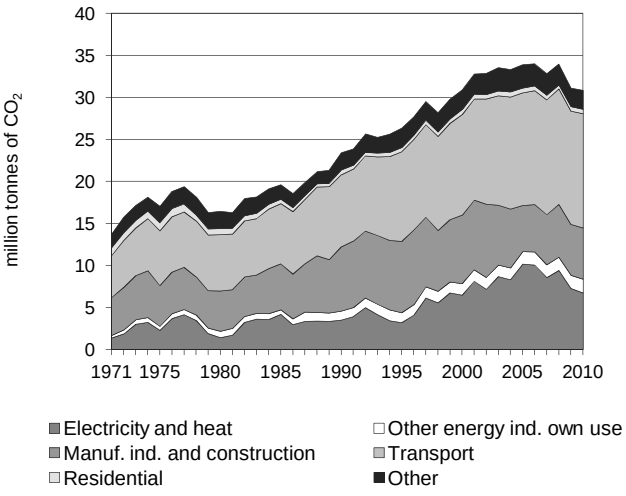


Figure 3. CO_2 emissions by sector

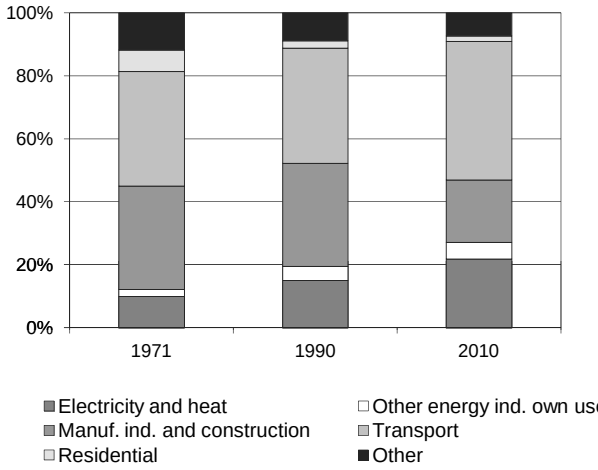


Figure 4. Reference vs Sectoral Approach

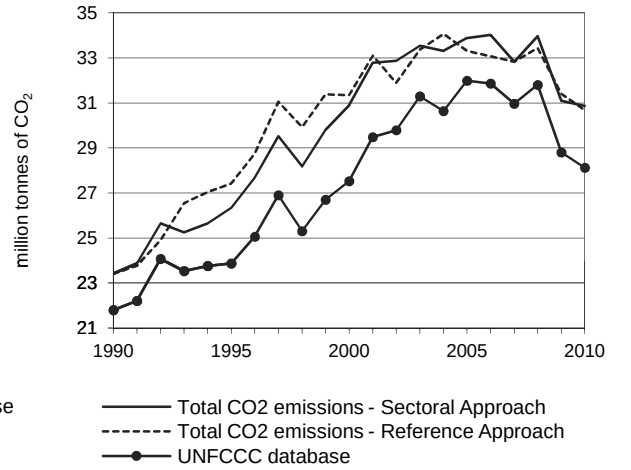


Figure 5. Electricity generation by fuel

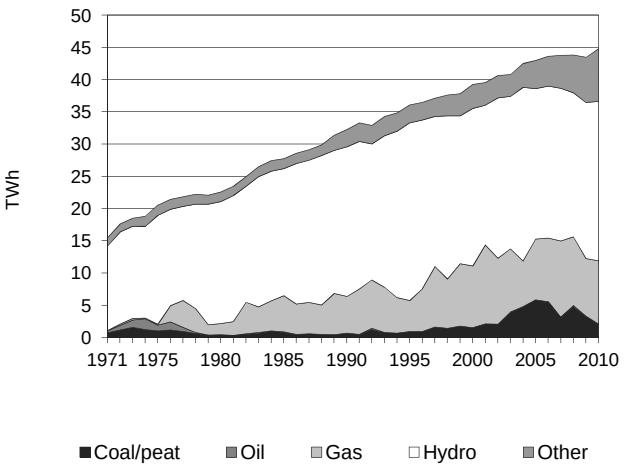
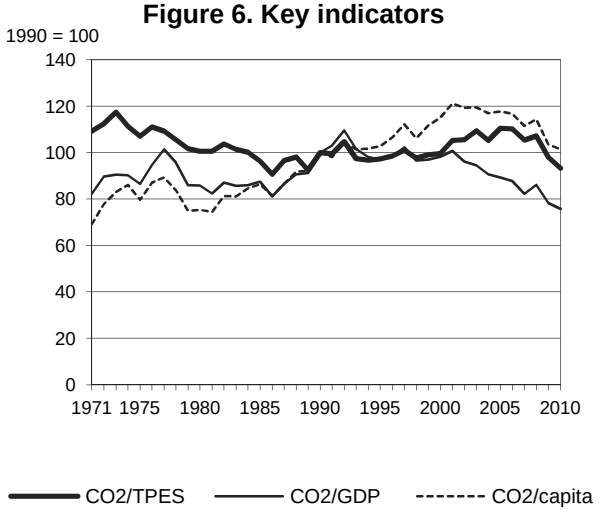


Figure 6. Key indicators



New Zealand

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	23.42	26.34	30.90	33.88	33.97	31.10	30.86	31.8%
CO_2 Reference Approach ($MtCO_2$)	23.42	27.42	31.35	33.32	33.45	31.41	30.68	31.0%
TPES (PJ)	539	623	714	705	729	731	762	41.4%
TPES (Mtoe)	12.87	14.89	17.06	16.85	17.41	17.46	18.20	41.4%
GDP (billion 2005 USD)	69.76	81.07	93.77	113.06	117.61	118.54	121.30	73.9%
GDP PPP (billion 2005 USD)	64.55	75.01	86.77	104.61	108.82	109.68	112.23	73.9%
Population (millions)	3.37	3.69	3.87	4.15	4.28	4.33	4.38	30.0%
CO_2 / TPES (tCO_2 per TJ)	43.5	42.3	43.3	48.0	46.6	42.5	40.5	-6.8%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.34	0.32	0.33	0.30	0.29	0.26	0.25	-24.2%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.36	0.35	0.36	0.32	0.31	0.28	0.28	-24.2%
CO_2 / population (tCO_2 per capita)	6.94	7.14	7.99	8.17	7.94	7.18	7.04	1.4%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**5.31**	**17.55**	**8.00**	**-**	**30.86**	**31.8%**
Main activity producer elec. and heat	1.21	-	3.99	-	5.20	55.6%
Unallocated autoproducers	1.45	-	0.08	-	1.53	780.3%
Other energy industry own use	0.18	0.99	0.47	-	1.64	53.9%
Manufacturing industries and construction	2.12	1.25	2.73	-	6.11	-20.2%
Transport	0.00	13.58	0.00	-	13.58	58.4%
of which: road	-	*12.15*	*0.00*	-	*12.15*	65.6%
Other	0.35	1.73	0.72	-	2.80	7.2%
of which: residential	*0.05*	*0.18*	*0.30*	-	*0.53*	-3.3%
Reference Approach	**5.15**	**17.24**	**8.29**	**-**	**30.68**	**31.0%**
Diff. due to losses and/or transformation	- 0.22	0.21	0.04	-	0.03	
Statistical differences	0.06	- 0.52	0.25	-	- 0.21	
Memo: international marine bunkers	-	*1.07*	-	-	*1.07*	*2.5%*
Memo: international aviation bunkers	-	*2.31*	-	-	*2.31*	*74.7%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	12.15	68.6%	16.3	16.3
Main activity prod. elec. and heat - gas	3.99	39.6%	5.4	21.7
Manufacturing industries - gas	2.73	-18.2%	3.7	25.4
Manufacturing industries - coal/peat	2.12	-34.0%	2.9	28.2
Non-specified other - oil	1.55	-1.2%	2.1	30.3
Unallocated autoproducers - coal/peat	1.45	948.4%	1.9	32.3
Other transport - oil	1.43	16.1%	1.9	34.2
Manufacturing industries - oil	1.25	14.5%	1.7	35.9
Main activity prod. elec. and heat - coal/peat	1.21	162.0%	1.6	37.5
Other energy industry own use - oil	0.99	20.0%	1.3	38.8
Other energy industry own use - gas	0.47	217.1%	0.6	39.4
Memo: total CO_2 from fuel combustion	*30.86*	*31.8%*	*41.5*	*41.5*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Nicaragua

Figure 1. CO_2 emissions by fuel

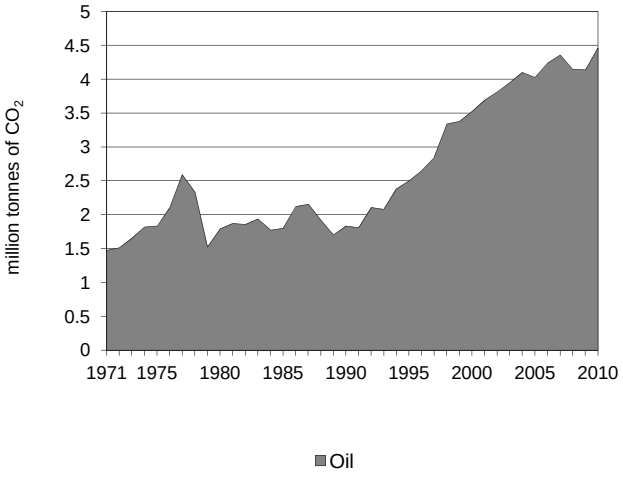


Figure 2. CO_2 emissions by sector

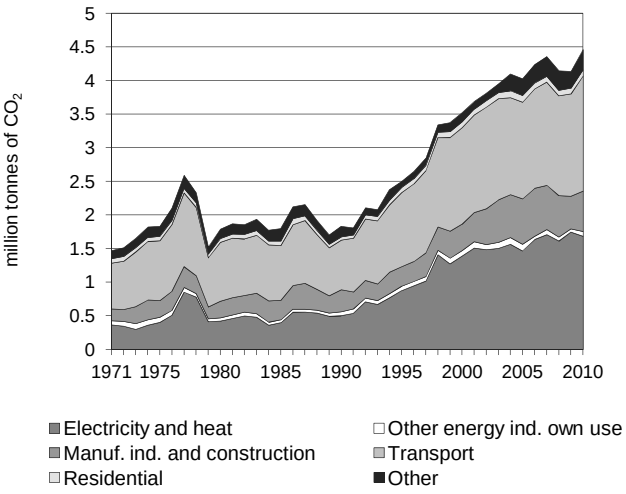


Figure 3. CO_2 emissions by sector

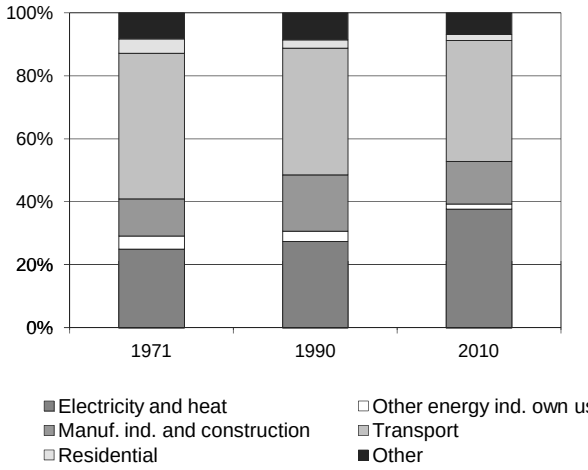


Figure 4. Reference vs Sectoral Approach

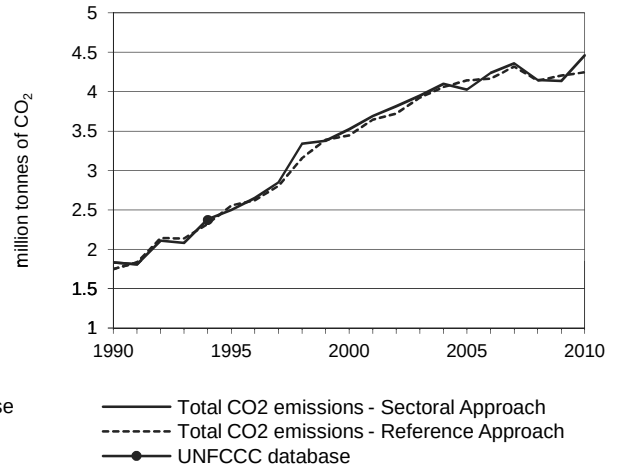


Figure 5. Electricity generation by fuel

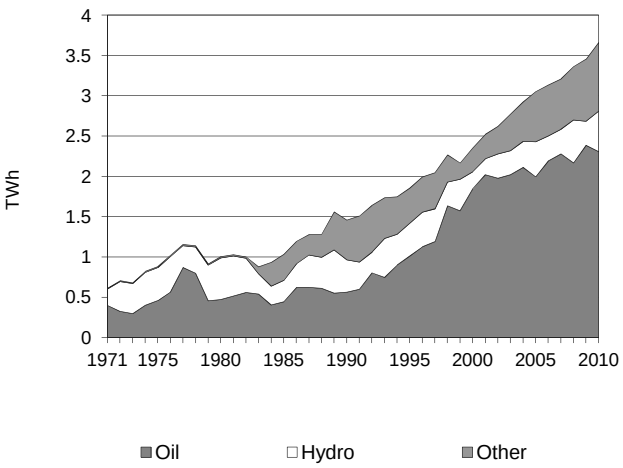
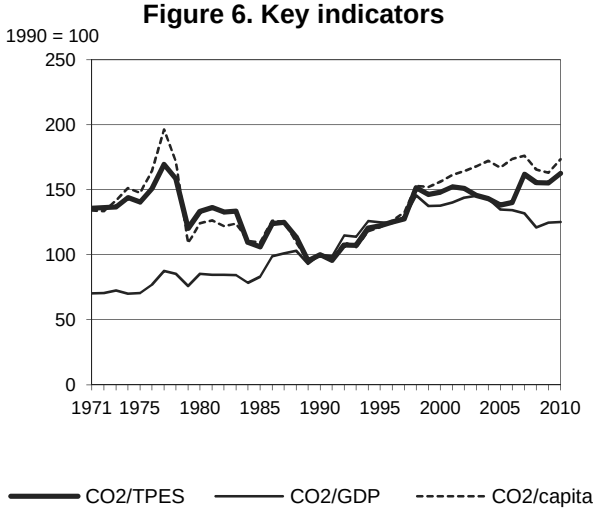


Figure 6. Key indicators



Nicaragua

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	1.83	2.50	3.52	4.03	4.15	4.14	4.46	143.6%
CO_2 Reference Approach ($MtCO_2$)	1.75	2.55	3.44	4.14	4.14	4.20	4.25	142.9%
TPES (PJ)	88	98	114	139	128	128	131	49.9%
TPES (Mtoe)	2.09	2.34	2.72	3.33	3.05	3.05	3.14	49.9%
GDP (billion 2005 USD)	2.99	3.27	4.17	4.87	5.59	5.41	5.82	94.7%
GDP PPP (billion 2005 USD)	7.77	8.49	10.85	12.67	14.54	14.06	15.13	94.6%
Population (millions)	4.12	4.64	5.07	5.42	5.64	5.71	5.79	40.5%
CO_2 / TPES (tCO_2 per TJ)	20.9	25.5	30.9	28.9	32.5	32.4	34.0	62.5%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.61	0.77	0.84	0.83	0.74	0.76	0.77	25.1%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.24	0.29	0.32	0.32	0.29	0.29	0.29	25.1%
CO_2 / population (tCO_2 per capita)	0.44	0.54	0.69	0.74	0.74	0.72	0.77	73.4%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**4.46**	**-**	**-**	**4.46**	**143.6%**
Main activity producer elec. and heat	-	1.65	-	-	1.65	240.9%
Unallocated autoproducers	-	0.03	-	-	0.03	84.9%
Other energy industry own use	-	0.07	-	-	0.07	23.0%
Manufacturing industries and construction	-	0.60	-	-	0.60	82.8%
Transport	-	1.71	-	-	1.71	132.5%
of which: road	-	*1.63*	-	-	*1.63*	133.8%
Other	-	0.39	-	-	0.39	91.4%
of which: residential	-	*0.09*	-	-	*0.09*	81.3%
Reference Approach	**-**	**4.25**	**-**	**-**	**4.25**	**142.9%**
Diff. due to losses and/or transformation	-	- 0.07	-	-	- 0.07	
Statistical differences	-	- 0.15	-	-	- 0.15	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.05*	-	-	*0.05*	*-30.7%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	1.65	240.9%	11.4	11.4
Road - oil	1.63	133.8%	11.3	22.7
Manufacturing industries - oil	0.60	82.8%	4.1	26.8
Non-specified other - oil	0.30	94.6%	2.1	28.9
Residential - oil	0.09	81.3%	0.6	29.5
Other transport - oil	0.08	107.3%	0.5	30.0
Other energy industry own use - oil	0.07	23.0%	0.5	30.5
Unallocated autoproducers - oil	0.03	84.9%	0.2	30.8
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*4.46*	*143.6%*	*30.8*	*30.8*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Nigeria

Figure 1. CO_2 emissions by fuel

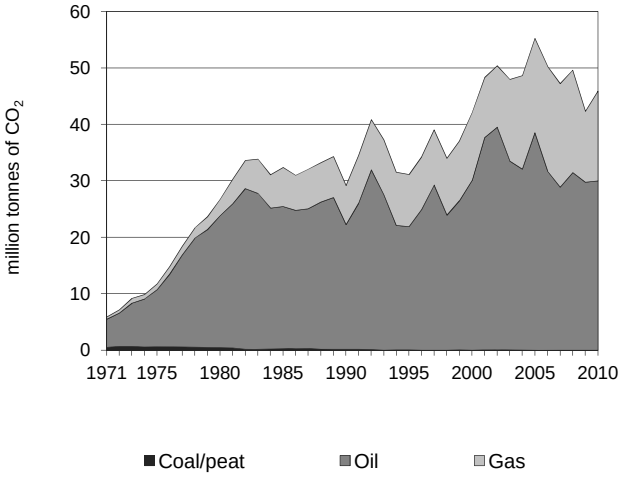


Figure 2. CO_2 emissions by sector

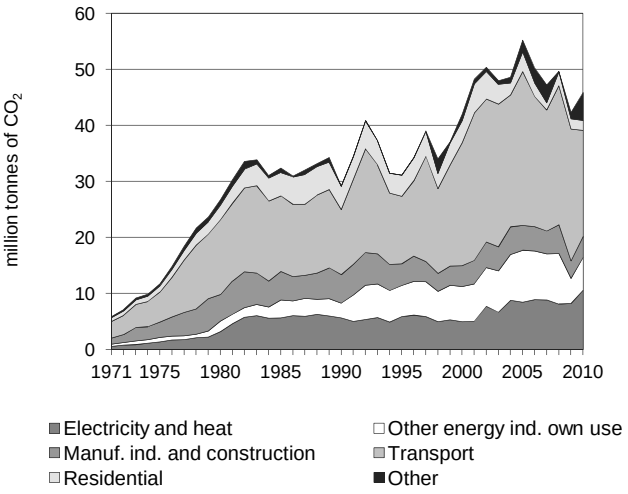


Figure 3. CO_2 emissions by sector

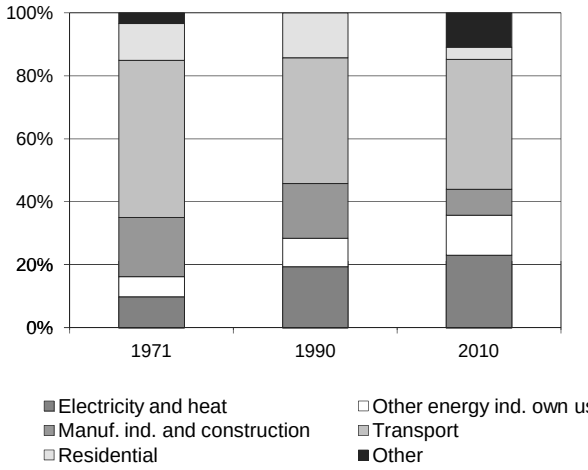


Figure 4. Reference vs Sectoral Approach

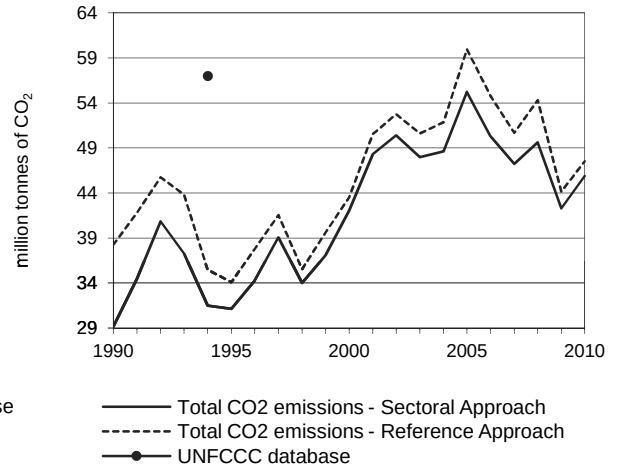


Figure 5. Electricity generation by fuel

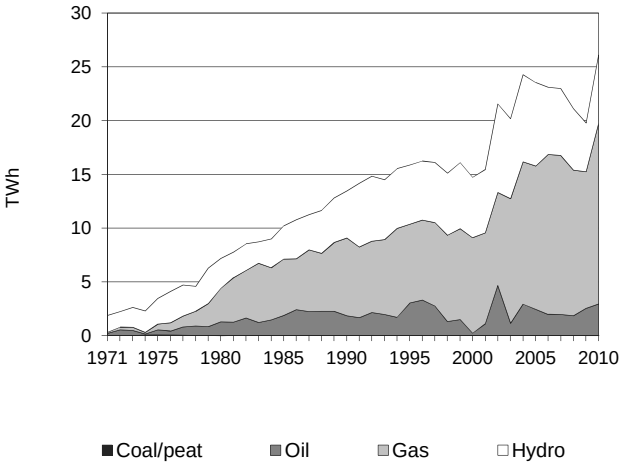
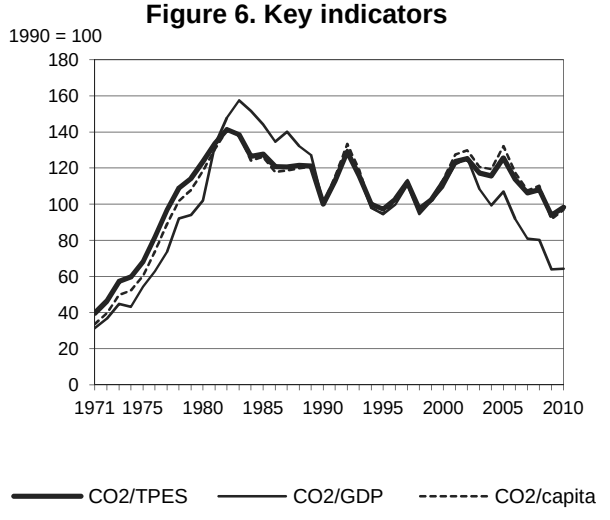


Figure 6. Key indicators



Nigeria

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$) *	29.16	31.12	42.05	55.23	49.63	42.31	45.90	57.4%
CO_2 Reference Approach ($MtCO_2$) *	38.23	34.09	43.50	59.94	54.30	44.16	47.54	24.3%
TPES (PJ)	2 955	3 246	3 793	4 459	4 656	4 574	4 733	60.2%
TPES (Mtoe)	70.58	77.54	90.60	106.51	111.21	109.24	113.05	60.2%
GDP (billion 2005 USD)	63.43	71.70	83.38	112.25	134.51	143.93	155.22	144.7%
GDP PPP (billion 2005 USD)	138.23	156.28	181.73	244.64	293.16	313.68	338.31	144.7%
Population (millions)	97.55	110.02	123.69	139.82	150.67	154.49	158.42	62.4%
CO_2 / TPES (tCO_2 per TJ)	9.9	9.6	11.1	12.4	10.7	9.3	9.7	-1.7%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.46	0.43	0.50	0.49	0.37	0.29	0.30	-35.7%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.21	0.20	0.23	0.23	0.17	0.13	0.14	-35.7%
CO_2 / population (tCO_2 per capita)	0.30	0.28	0.34	0.40	0.33	0.27	0.29	-3.1%

Ratios are based on the Sectoral Approach.

* The difference in the growth rate between the Sectoral and Reference Approaches is mainly due to statistical differences for some oil products in 1990.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other **	Total	% change 90-10
Sectoral Approach *	**0.02**	**29.97**	**15.91**	**-**	**45.90**	**57.4%**
Main activity producer elec. and heat	-	2.14	8.43	-	10.58	86.8%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	1.18	4.65	-	5.83	120.4%
Manufacturing industries and construction	0.02	0.95	2.82	-	3.78	-25.1%
Transport	-	18.96	-	-	18.96	62.9%
of which: road	-	*15.55*	-	-	*15.55*	36.2%
Other	-	6.74	-	-	6.74	62.0%
of which: residential	-	*1.73*	-	-	*1.73*	-58.4%
Reference Approach *	**0.02**	**30.78**	**16.73**	**-**	**47.54**	**24.3%**
Diff. due to losses and/or transformation	-	0.81	0.83	-	1.64	
Statistical differences	-	- 0.00	- 0.00	-	- 0.00	
Memo: international marine bunkers	-	*2.14*	-	-	*2.14*	*269.0%*
Memo: international aviation bunkers	-	*0.51*	-	-	*0.51*	*-46.0%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) ***	Cumulative total (%)
Road - oil	15.55	36.2%	7.8	7.8
Main activity prod. elec. and heat - gas	8.43	99.9%	4.2	12.0
Non-specified other - oil	5.01	x	2.5	14.6
Other energy industry own use - gas	4.65	371.1%	2.3	16.9
Other transport - oil	3.41	+	1.7	18.6
Manufacturing industries - gas	2.82	68.3%	1.4	20.0
Main activity prod. elec. and heat - oil	2.14	50.8%	1.1	21.1
Residential - oil	1.73	-58.4%	0.9	22.0
Other energy industry own use - oil	1.18	-28.9%	0.6	22.6
Manufacturing industries - oil	0.95	-70.6%	0.5	23.0
Manufacturing industries - coal/peat	0.02	-87.5%	0.0	23.0
Memo: total CO_2 from fuel combustion	*45.90*	*57.4%*	*23.0*	*23.0*

*** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Norway *

Figure 1. CO_2 emissions by fuel

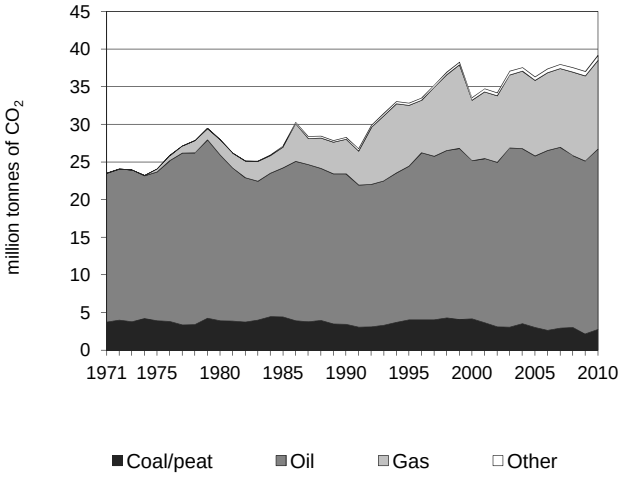


Figure 2. CO_2 emissions by sector

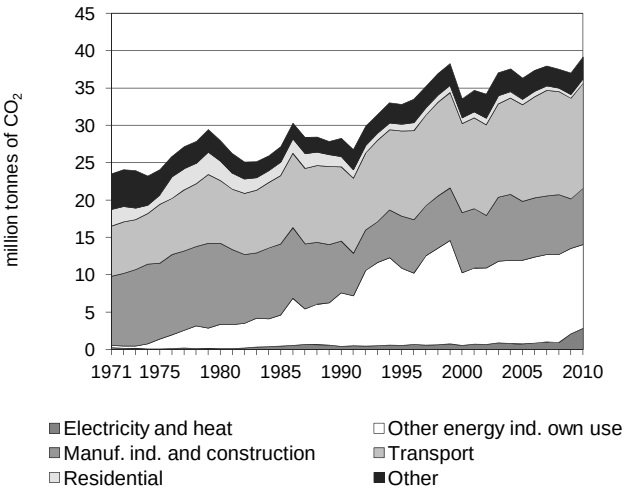


Figure 3. CO_2 emissions by sector

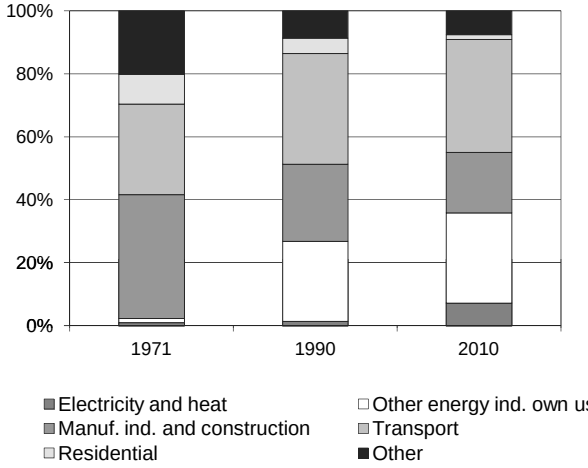


Figure 4. Reference vs Sectoral Approach

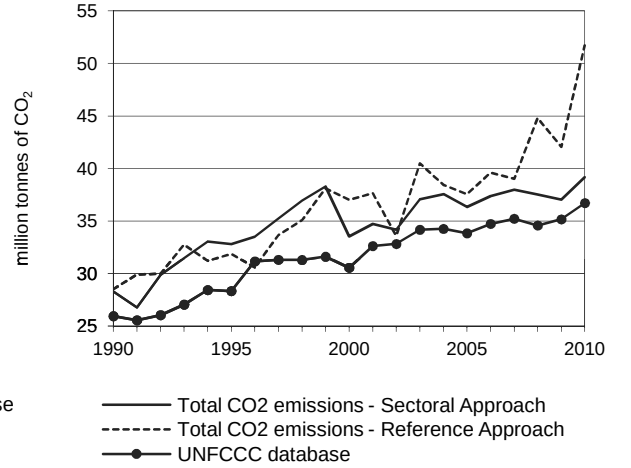


Figure 5. Electricity generation by fuel

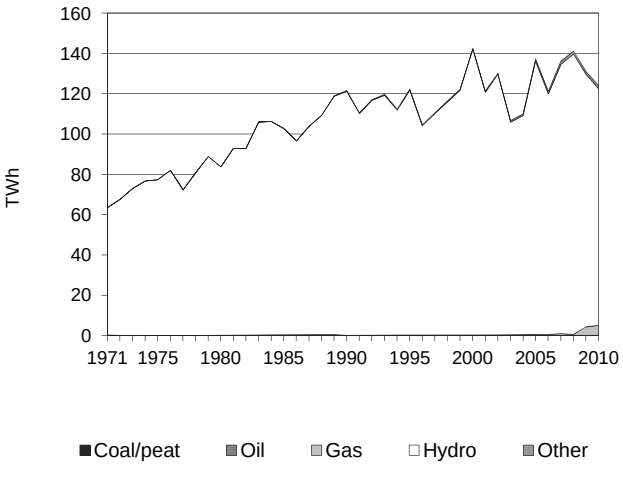
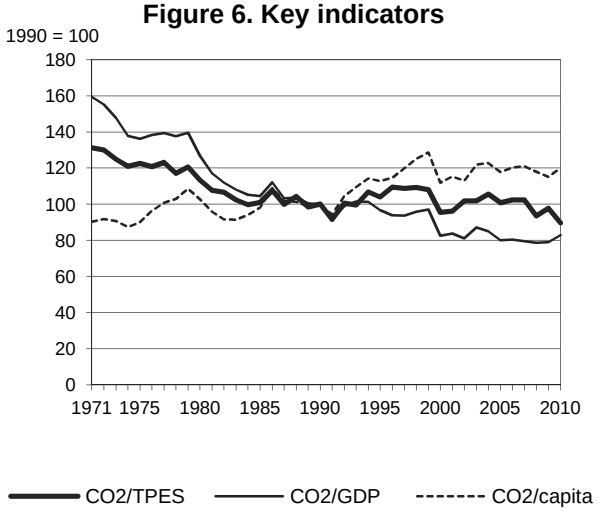


Figure 6. Key indicators



* Large statistical differences for oil and gas cause discrepancies between the Sectoral and Reference Approaches; please see the note in Chapter 1.

Norway

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$) *	28.29	32.81	33.54	36.32	37.53	37.04	39.17	38.5%
CO_2 Reference Approach ($MtCO_2$) *	28.51	31.84	37.01	37.56	44.80	42.07	51.70	81.4%
TPES (PJ)	879	981	1 092	1 120	1 248	1 179	1 359	54.5%
TPES (Mtoe)	21.00	23.44	26.09	26.76	29.80	28.16	32.45	54.5%
GDP (billion 2005 USD)	189.55	227.61	272.71	304.06	319.89	314.56	316.69	67.1%
GDP PPP (billion 2005 USD)	137.26	164.82	197.49	220.19	231.66	227.79	229.33	67.1%
Population (millions)	4.24	4.36	4.49	4.62	4.77	4.83	4.89	15.3%
CO_2 / TPES (tCO_2 per TJ)	32.2	33.4	30.7	32.4	30.1	31.4	28.8	-10.4%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.15	0.14	0.12	0.12	0.12	0.12	0.12	-17.1%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.21	0.20	0.17	0.17	0.16	0.16	0.17	-17.1%
CO_2 / population (tCO_2 per capita)	6.67	7.53	7.47	7.86	7.87	7.67	8.01	20.1%

Ratios are based on the Sectoral Approach.

* Large statistical differences for oil and gas cause discrepancies between the Sectoral and Reference Approaches; please see note in Chapter 1.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other **	Total	% change 90-10
Sectoral Approach *	**2.76**	**23.97**	**11.79**	**0.65**	**39.17**	**38.5%**
Main activity producer elec. and heat	0.26	0.26	0.05	0.57	1.14	170.7%
Unallocated autoproducers	-	0.01	1.68	0.01	1.70	x
Other energy industry own use	-	2.62	8.58	-	11.20	56.0%
Manufacturing industries and construction	2.50	3.72	1.25	0.07	7.53	8.8%
Transport	-	13.92	0.13	-	14.05	41.5%
of which: road	-	*10.36*	*0.01*	-	*10.37*	36.4%
Other	-	3.44	0.11	-	3.55	-7.3%
of which: residential	-	*0.58*	*0.01*	-	*0.59*	-57.3%
Reference Approach *	**3.41**	**33.41**	**14.23**	**0.65**	**51.70**	**81.4%**
Diff. due to losses and/or transformation	0.22	- 1.62	-	-	- 1.40	
Statistical differences	0.44	11.06	2.44	0.00	13.94	
Memo: international marine bunkers	-	*1.21*	-	-	*1.21*	*-12.9%*
Memo: international aviation bunkers	-	*1.28*	-	-	*1.28*	*2.4%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) ***	Cumulative total (%)
Road - oil	10.36	36.3%	18.4	18.4
Other energy industry own use - gas	8.58	85.8%	15.2	33.6
Manufacturing industries - oil	3.72	1.3%	6.6	40.2
Other transport - oil	3.56	53.0%	6.3	46.5
Non-specified other - oil	2.86	17.8%	5.1	51.6
Other energy industry own use - oil	2.62	2.3%	4.7	56.2
Manufacturing industries - coal/peat	2.50	-23.4%	4.4	60.7
Unallocated autoproducers - gas	1.68	x	3.0	63.6
Manufacturing industries - gas	1.25	x	2.2	65.9
Residential - oil	0.58	-57.2%	1.0	66.9
Main activity prod. elec. and heat - other	0.57	132.7%	1.0	67.9
Memo: total CO_2 from fuel combustion	*39.17*	*38.5%*	*69.5*	*69.5*

*** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Oman

Figure 1. CO_2 emissions by fuel

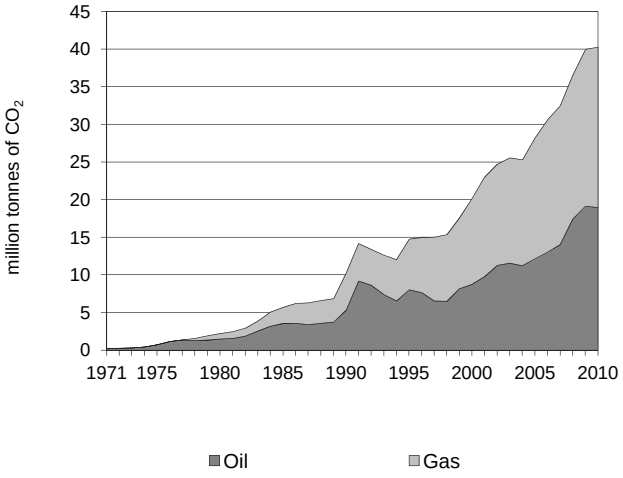


Figure 2. CO_2 emissions by sector

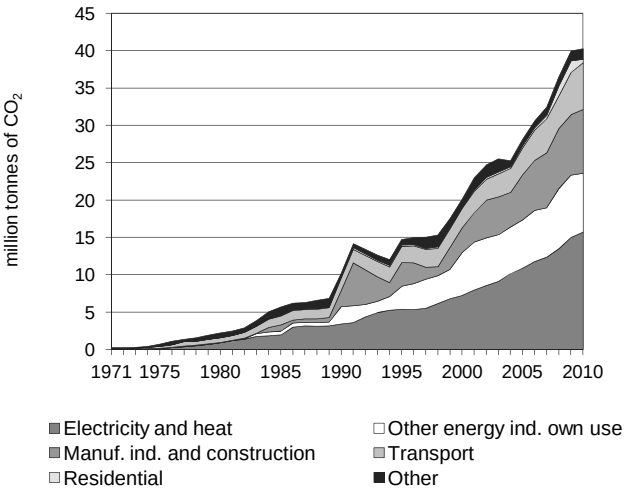


Figure 3. CO_2 emissions by sector

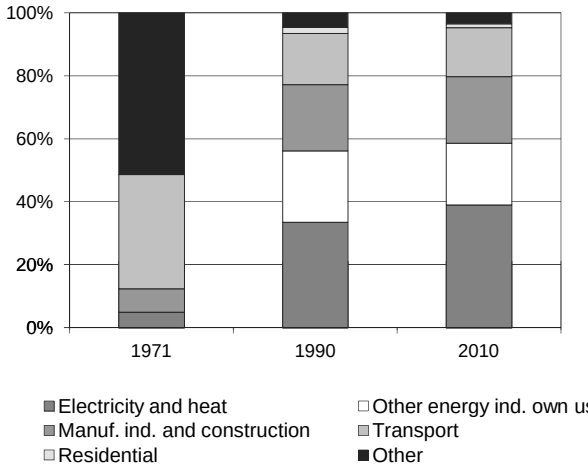


Figure 4. Reference vs Sectoral Approach

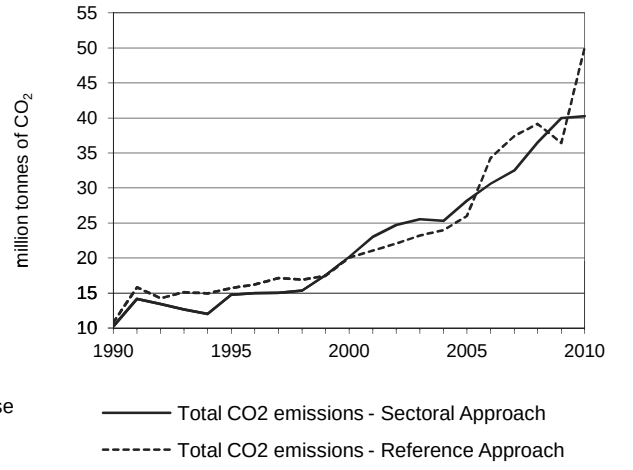


Figure 5. Electricity generation by fuel

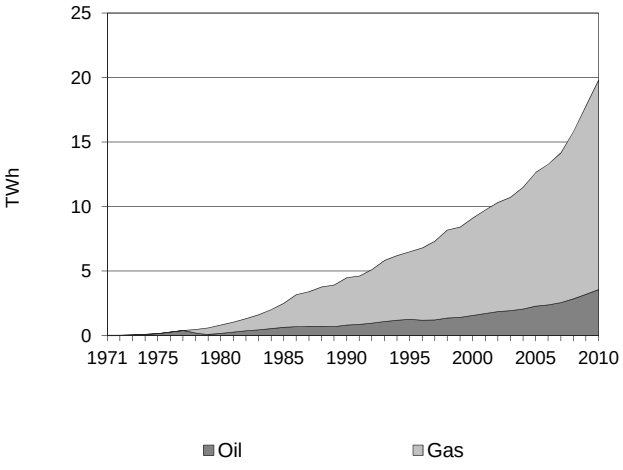
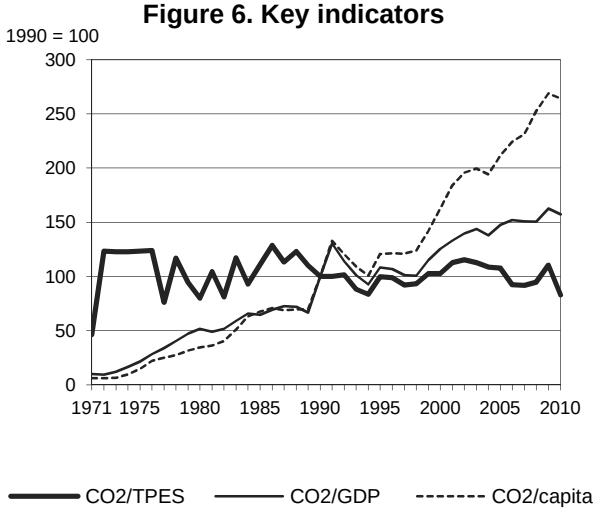


Figure 6. Key indicators



Oman

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	10.23	14.75	20.16	28.17	36.52	39.96	40.27	293.4%
CO_2 Reference Approach ($MtCO_2$)	10.76	15.73	20.04	25.99	39.16	36.44	50.09	365.6%
TPES (PJ)	177	255	338	451	665	624	837	374.1%
TPES (Mtoe)	4.22	6.10	8.08	10.77	15.89	14.91	20.00	374.1%
GDP (billion 2005 USD)	16.55	22.02	25.99	30.91	39.28	39.71	41.41	150.2%
GDP PPP (billion 2005 USD)	27.39	36.43	43.01	51.14	64.99	65.71	68.52	150.2%
Population (millions)	1.87	2.23	2.26	2.43	2.64	2.71	2.78	48.9%
CO_2 / TPES (tCO_2 per TJ)	58.0	57.8	59.6	62.5	54.9	64.0	48.1	-17.0%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.62	0.67	0.78	0.91	0.93	1.01	0.97	57.3%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.37	0.40	0.47	0.55	0.56	0.61	0.59	57.3%
CO_2 / population (tCO_2 per capita)	5.48	6.61	8.90	11.59	13.85	14.73	14.47	164.2%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**18.96**	**21.30**	**-**	**40.27**	**293.4%**
Main activity producer elec. and heat	-	3.62	12.11	-	15.73	358.4%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	1.93	5.94	-	7.87	239.6%
Manufacturing industries and construction	-	5.65	2.87	-	8.53	294.9%
Transport	-	6.28	-	-	6.28	276.8%
of which: road	-	*6.28*	-	-	*6.28*	276.8%
Other	-	1.49	0.38	-	1.87	182.1%
of which: residential	-	*0.47*	-	-	*0.47*	140.9%
Reference Approach	**-**	**19.15**	**30.94**	**-**	**50.09**	**365.6%**
Diff. due to losses and/or transformation	-	2.48	2.89	-	5.37	
Statistical differences	-	- 2.29	6.75	-	4.46	
Memo: international marine bunkers	-	*0.57*	-	-	*0.57*	*830.0%*
Memo: international aviation bunkers	-	*1.24*	-	-	*1.24*	*33.1%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	12.11	373.4%	19.2	19.2
Road - oil	6.28	276.8%	9.9	29.1
Other energy industry own use - gas	5.94	270.0%	9.4	38.5
Manufacturing industries - oil	5.65	260.6%	8.9	47.4
Main activity prod. elec. and heat - oil	3.62	314.5%	5.7	53.2
Manufacturing industries - gas	2.87	385.8%	4.5	57.7
Other energy industry own use - oil	1.93	170.8%	3.1	60.8
Non-specified other - oil	1.02	233.3%	1.6	62.4
Residential - oil	0.47	140.9%	0.7	63.1
Non-specified other - gas	0.38	135.3%	0.6	63.7
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*40.27*	*293.4%*	*63.7*	*63.7*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Pakistan

Figure 1. CO_2 emissions by fuel

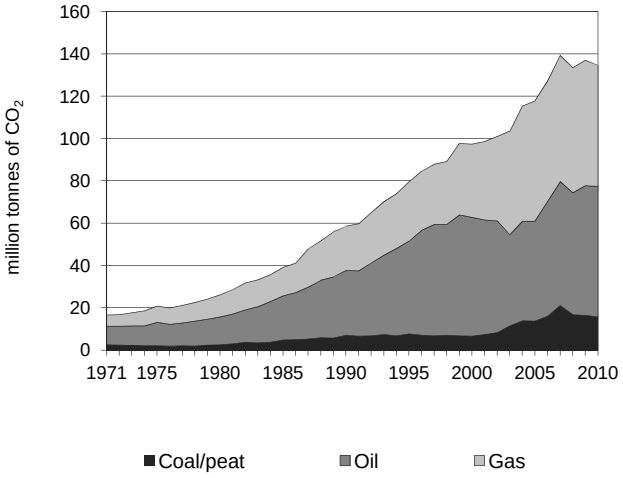


Figure 2. CO_2 emissions by sector

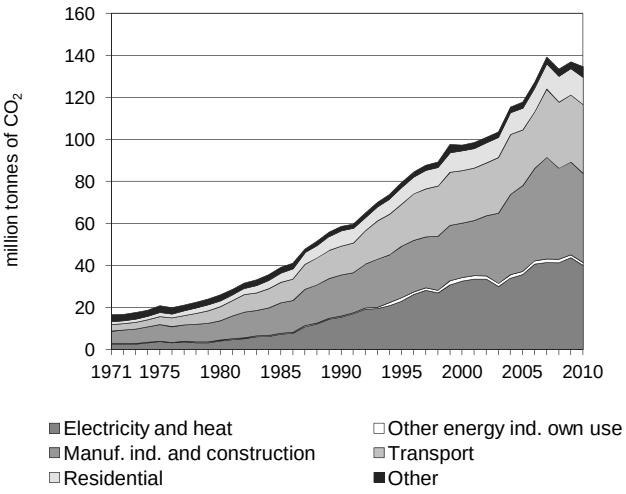


Figure 3. CO_2 emissions by sector

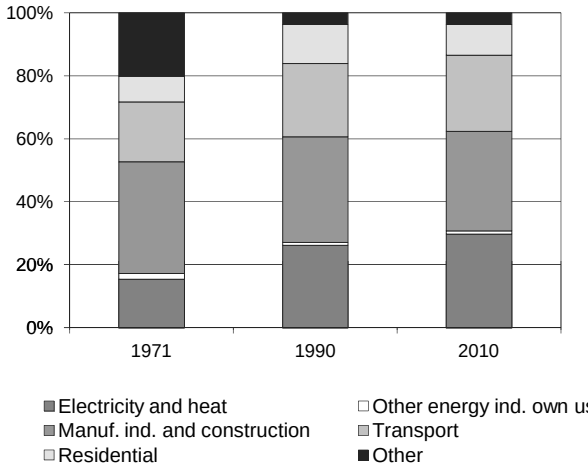


Figure 4. Reference vs Sectoral Approach

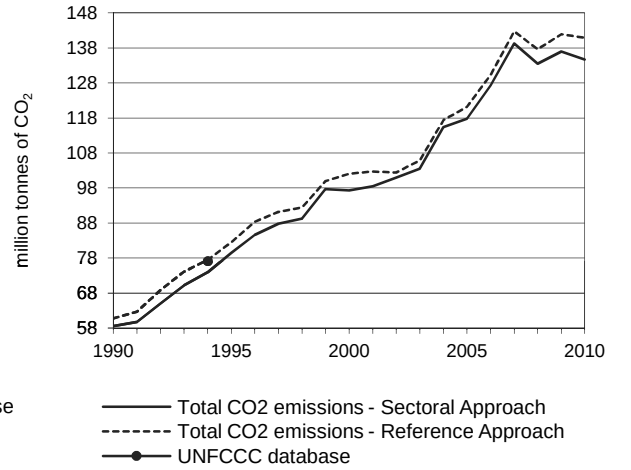


Figure 5. Electricity generation by fuel

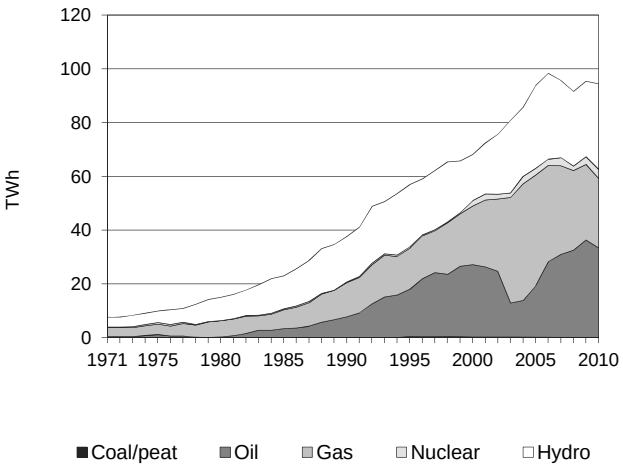
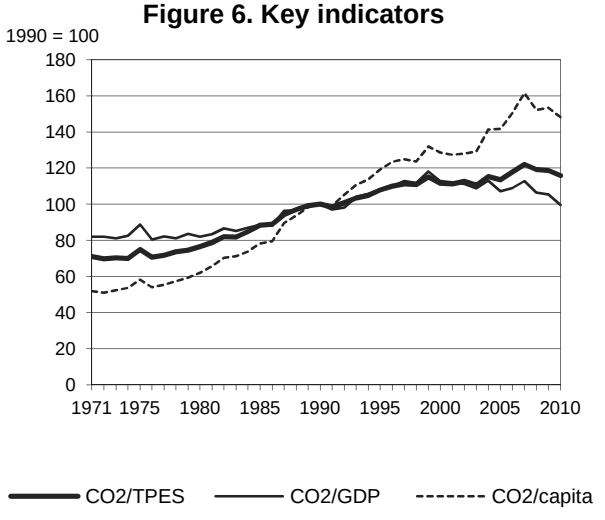


Figure 6. Key indicators



Pakistan

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	58.60	79.52	97.33	117.81	133.49	136.99	134.64	129.8%
CO_2 Reference Approach ($MtCO_2$)	60.73	82.49	102.04	121.19	137.65	141.88	140.87	132.0%
TPES (PJ)	1 786	2 248	2 658	3 162	3 417	3 520	3 542	98.3%
TPES (Mtoe)	42.67	53.69	63.49	75.52	81.61	84.07	84.59	98.3%
GDP (billion 2005 USD)	58.37	73.18	85.90	109.60	124.95	129.44	134.80	131.0%
GDP PPP (billion 2005 USD)	181.20	227.19	266.68	340.26	387.91	401.85	418.51	131.0%
Population (millions)	111.85	127.35	144.52	158.65	167.44	170.49	173.59	55.2%
CO_2 / TPES (tCO_2 per TJ)	32.8	35.4	36.6	37.3	39.1	38.9	38.0	15.9%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	1.00	1.09	1.13	1.07	1.07	1.06	1.00	-0.5%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.32	0.35	0.37	0.35	0.34	0.34	0.32	-0.5%
CO_2 / population (tCO_2 per capita)	0.52	0.62	0.67	0.74	0.80	0.80	0.78	48.0%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**15.67**	**61.77**	**57.19**	**-**	**134.64**	**129.8%**
Main activity producer elec. and heat	0.21	25.43	14.42	-	40.06	160.8%
Unallocated autoproducers	-	0.05	-	-	0.05	x
Other energy industry own use	-	0.82	0.54	-	1.36	140.4%
Manufacturing industries and construction	15.46	4.62	22.41	-	42.49	116.7%
Transport	-	26.78	5.87	-	32.66	139.4%
of which: road	-	*25.74*	*5.87*	-	*31.62*	147.8%
Other	-	4.06	13.96	-	18.02	91.3%
of which: residential	-	*1.00*	*12.06*	-	*13.06*	79.3%
Reference Approach	**16.28**	**64.03**	**60.56**	**-**	**140.87**	**132.0%**
Diff. due to losses and/or transformation	0.24	1.94	3.48	-	5.66	
Statistical differences	0.37	0.32	- 0.11	-	0.57	
Memo: international marine bunkers	-	*0.55*	-	-	*0.55*	*419.0%*
Memo: international aviation bunkers	-	*2.63*	-	-	*2.63*	*88.8%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	25.74	101.8%	7.7	7.7
Main activity prod. elec. and heat - oil	25.43	268.8%	7.6	15.2
Manufacturing industries - gas	22.41	166.7%	6.7	21.9
Manufacturing industries - coal/peat	15.46	121.3%	4.6	26.5
Main activity prod. elec. and heat - gas	14.42	71.8%	4.3	30.8
Residential - gas	12.06	247.7%	3.6	34.4
Road - gas	5.87	+	1.7	36.2
Manufacturing industries - oil	4.62	9.5%	1.4	37.5
Non-specified other - oil	3.06	104.9%	0.9	38.4
Non-specified other - gas	1.89	196.1%	0.6	39.0
Other transport - oil	1.04	17.5%	0.3	39.3
Memo: total CO_2 from fuel combustion	*134.64*	*129.8%*	*40.1*	*40.1*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Panama

Figure 1. CO_2 emissions by fuel

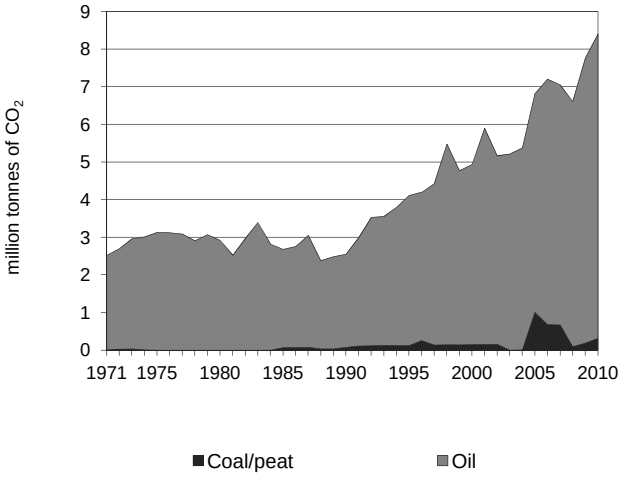


Figure 2. CO_2 emissions by sector

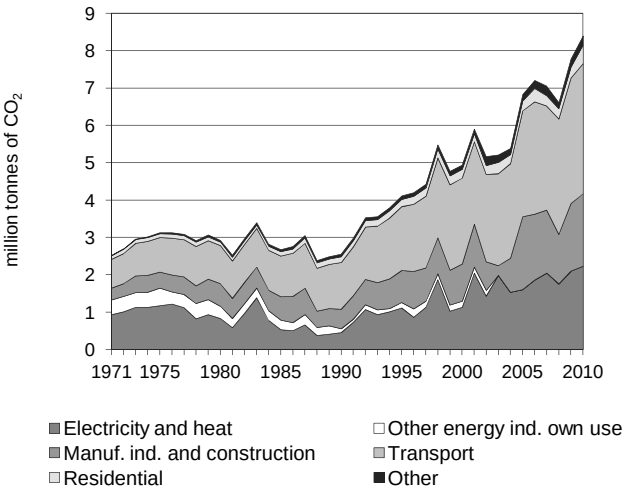


Figure 3. CO_2 emissions by sector

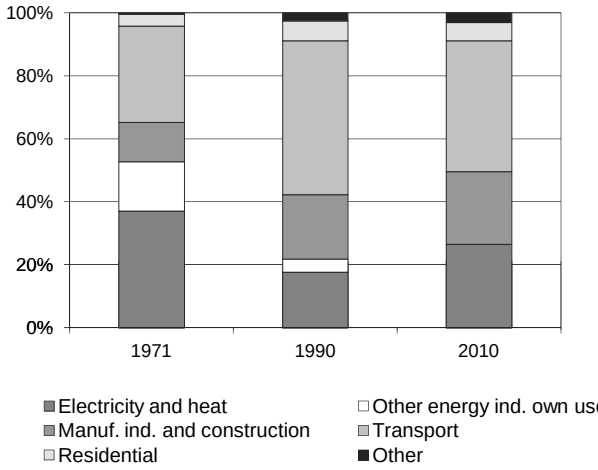


Figure 4. Reference vs Sectoral Approach

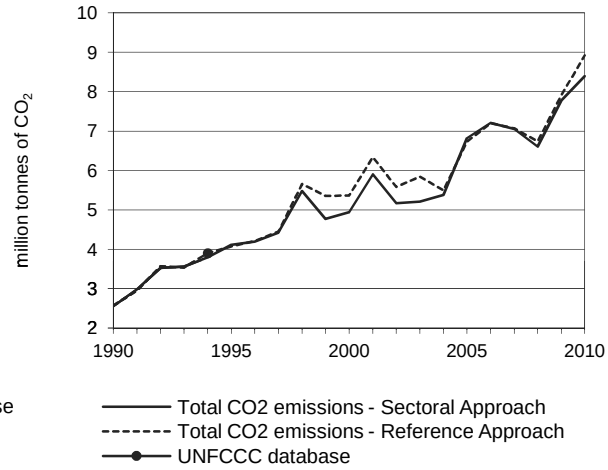


Figure 5. Electricity generation by fuel

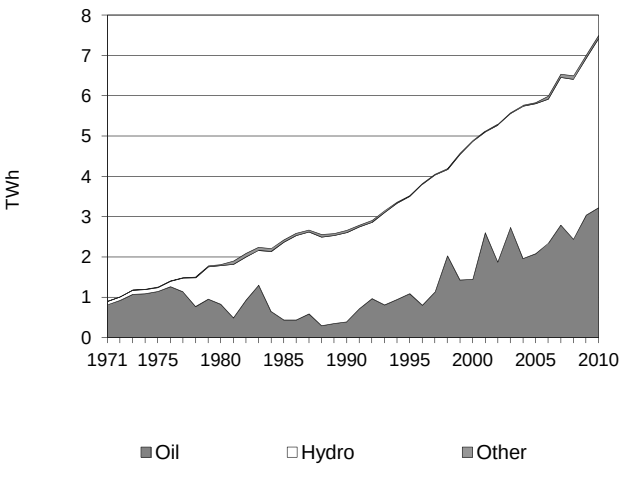
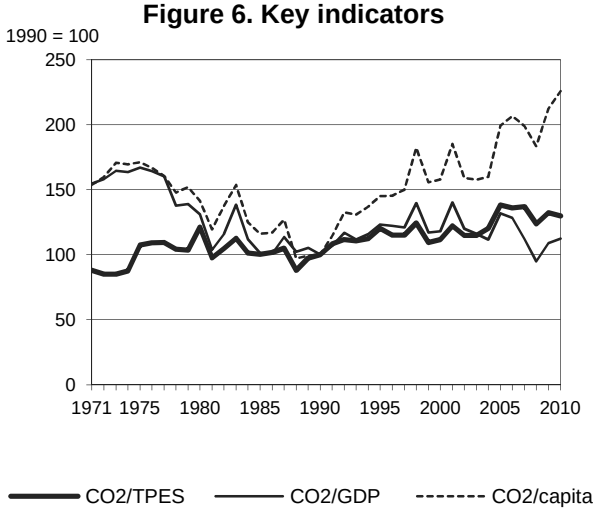


Figure 6. Key indicators



Panama

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	2.55	4.11	4.94	6.82	6.61	7.78	8.40	228.7%
CO_2 Reference Approach ($MtCO_2$)	2.57	4.07	5.37	6.73	6.74	7.91	8.92	247.2%
TPES (PJ)	62	83	108	120	130	144	158	153.0%
TPES (Mtoe)	1.49	1.99	2.58	2.88	3.12	3.43	3.77	153.0%
GDP (billion 2005 USD)	7.64	9.99	12.52	15.47	20.84	21.34	22.37	192.6%
GDP PPP (billion 2005 USD)	14.67	19.17	24.04	29.68	39.99	40.95	42.93	192.6%
Population (millions)	2.42	2.68	2.96	3.24	3.41	3.46	3.52	45.6%
CO_2 / TPES (tCO_2 per TJ)	40.9	49.3	45.7	56.6	50.6	54.1	53.2	29.9%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.33	0.41	0.39	0.44	0.32	0.36	0.38	12.3%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.17	0.21	0.21	0.23	0.17	0.19	0.20	12.3%
CO_2 / population (tCO_2 per capita)	1.06	1.54	1.67	2.11	1.94	2.25	2.39	125.8%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.32**	**8.08**	**-**	**-**	**8.40**	**228.7%**
Main activity producer elec. and heat	-	2.23	-	-	2.23	449.3%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.32	1.62	-	-	1.94	271.6%
Transport	-	3.49	-	-	3.49	179.2%
of which: road	-	*3.48*	-	-	*3.48*	178.5%
Other	-	0.74	-	-	0.74	227.8%
of which: residential	-	*0.49*	-	-	*0.49*	204.4%
Reference Approach	**0.32**	**8.60**	**-**	**-**	**8.92**	**247.2%**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	-	0.52	-	-	0.52	
Memo: international marine bunkers	-	*8.63*	-	-	*8.63*	*74.3%*
Memo: international aviation bunkers	-	*1.07*	-	-	*1.07*	*428.1%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	3.48	178.5%	25.7	25.7
Main activity prod. elec. and heat - oil	2.23	449.3%	16.5	42.2
Manufacturing industries - oil	1.62	263.7%	12.0	54.2
Residential - oil	0.49	204.4%	3.6	57.8
Manufacturing industries - coal/peat	0.32	317.9%	2.4	60.1
Non-specified other - oil	0.26	284.2%	1.9	62.0
Other transport - oil	0.01	x	0.1	62.1
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*8.40*	*228.7%*	*62.1*	*62.1*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Paraguay

Figure 1. CO_2 emissions by fuel

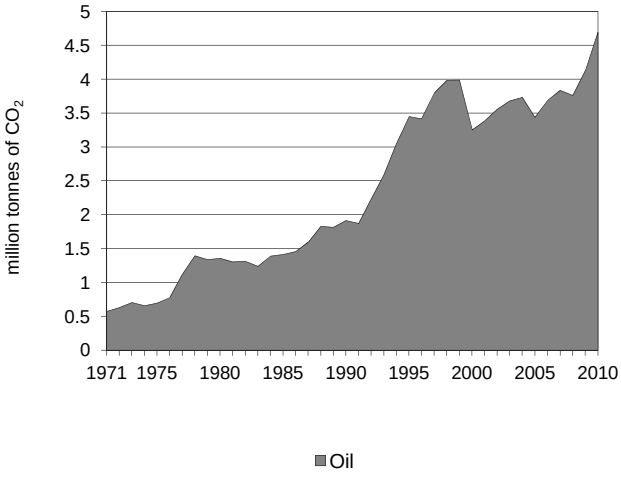


Figure 2. CO_2 emissions by sector

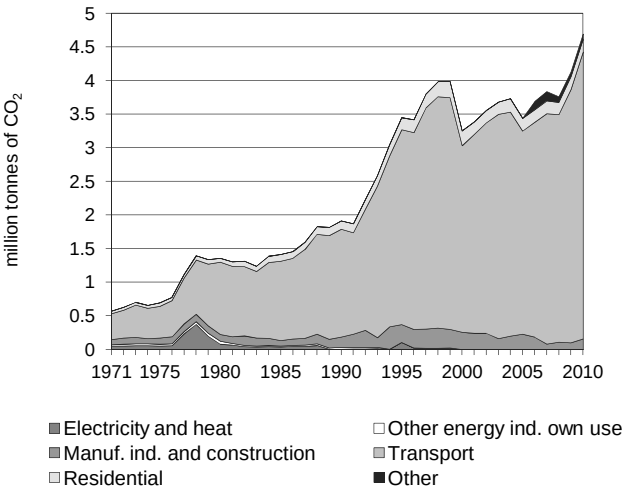


Figure 3. CO_2 emissions by sector

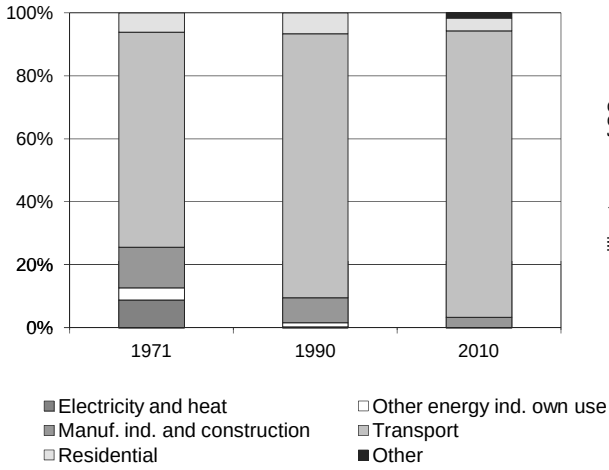


Figure 4. Reference vs Sectoral Approach

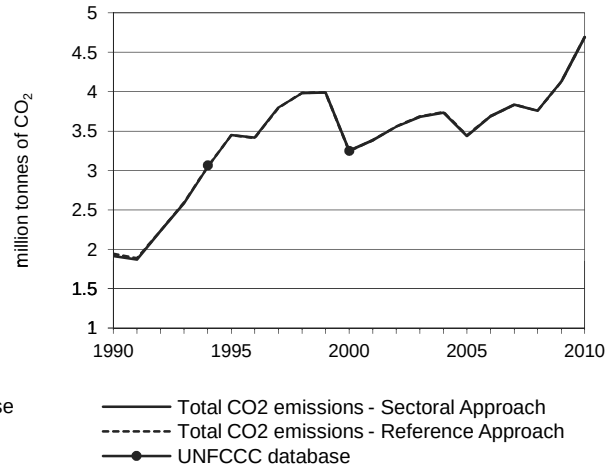


Figure 5. Electricity generation by fuel

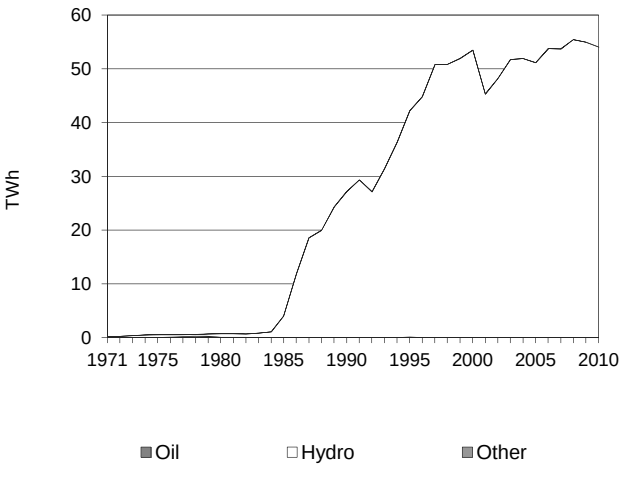
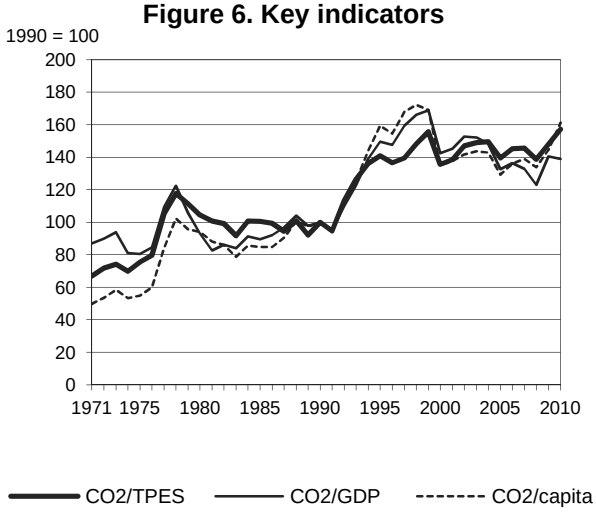


Figure 6. Key indicators



Paraguay

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	1.91	3.45	3.25	3.44	3.76	4.13	4.69	145.2%
CO_2 Reference Approach ($MtCO_2$)	1.94	3.45	3.25	3.45	3.76	4.13	4.69	141.5%
TPES (PJ)	129	164	161	166	182	187	200	55.9%
TPES (Mtoe)	3.07	3.93	3.85	3.95	4.35	4.48	4.79	55.9%
GDP (billion 2005 USD)	5.52	6.65	6.59	7.47	8.81	8.47	9.74	76.5%
GDP PPP (billion 2005 USD)	16.99	20.47	20.27	23.01	27.12	26.07	30.00	76.5%
Population (millions)	4.24	4.80	5.34	5.90	6.23	6.34	6.46	52.1%
CO_2 / TPES (tCO_2 per TJ)	14.9	21.0	20.2	20.8	20.6	22.0	23.4	57.3%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.35	0.52	0.49	0.46	0.43	0.49	0.48	38.9%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.11	0.17	0.16	0.15	0.14	0.16	0.16	38.9%
CO_2 / population (tCO_2 per capita)	0.45	0.72	0.61	0.58	0.60	0.65	0.73	61.2%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**4.69**	**-**	**-**	**4.69**	**145.2%**
Main activity producer elec. and heat	-	-	-	-	-	-100.0%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	-	0.16	-	-	0.16	3.9%
Transport	-	4.27	-	-	4.27	166.0%
of which: road	-	*4.22*	-	-	*4.22*	170.1%
Other	-	0.27	-	-	0.27	111.8%
of which: residential	-	*0.19*	-	-	*0.19*	49.7%
Reference Approach	**-**	**4.69**	**-**	**-**	**4.69**	**141.5%**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	-	-	-	-	-	
Memo: international marine bunkers	-	-	-	-	-	-
Memo: international aviation bunkers	-	*0.07*	-	-	*0.07*	*144.8%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	4.22	170.1%	14.0	14.0
Residential - oil	0.19	49.7%	0.6	14.7
Manufacturing industries - oil	0.16	3.9%	0.5	15.2
Non-specified other - oil	0.08	x	0.3	15.4
Other transport - oil	0.05	11.2%	0.2	15.6
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*4.69*	*145.2%*	*15.6*	*15.6*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Peru

Figure 1. CO_2 emissions by fuel

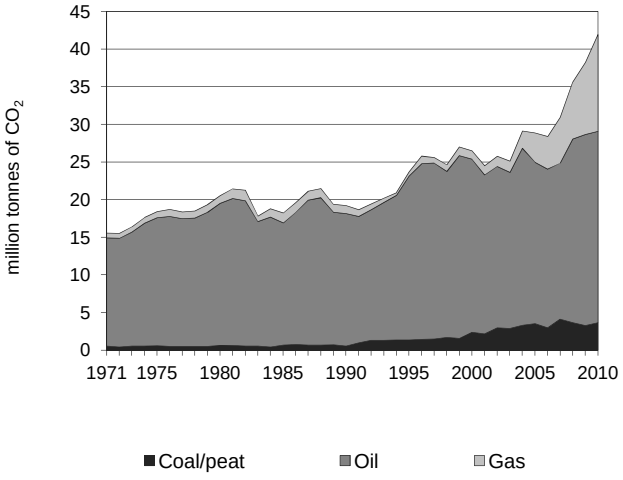


Figure 2. CO_2 emissions by sector

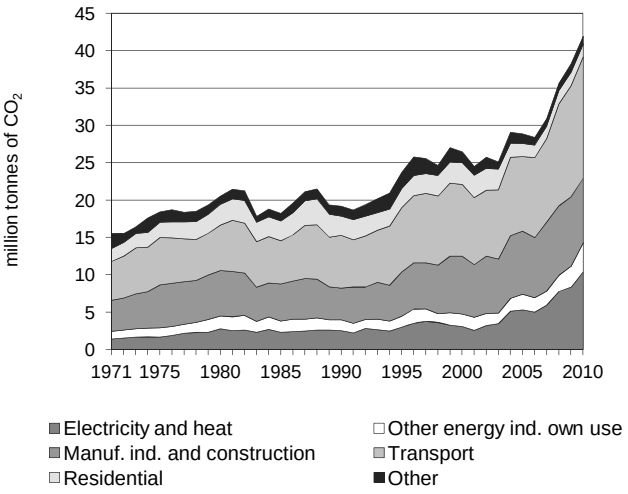


Figure 3. CO_2 emissions by sector

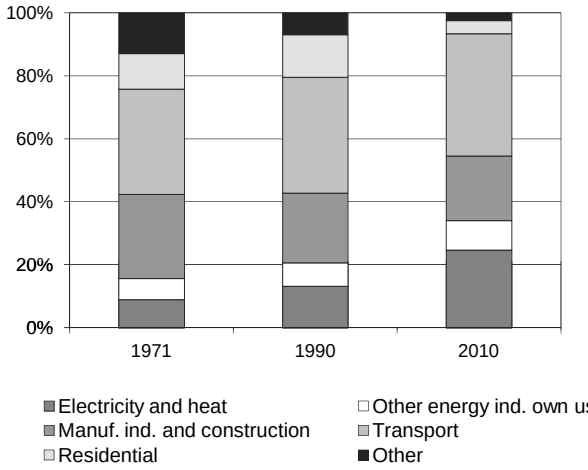


Figure 4. Reference vs Sectoral Approach

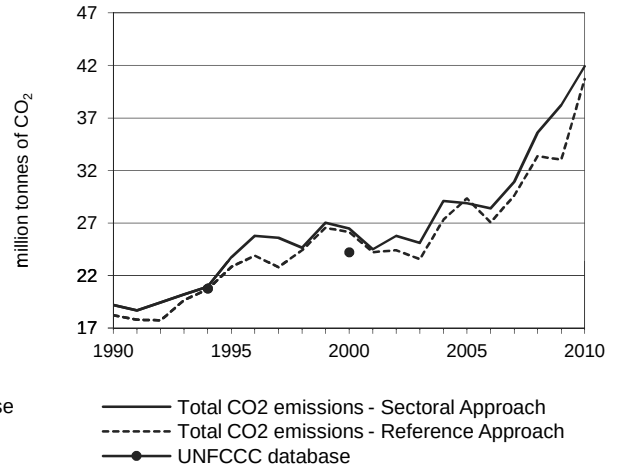


Figure 5. Electricity generation by fuel

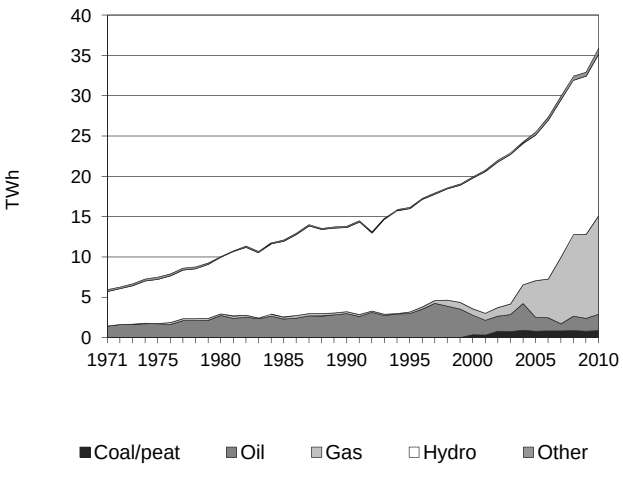
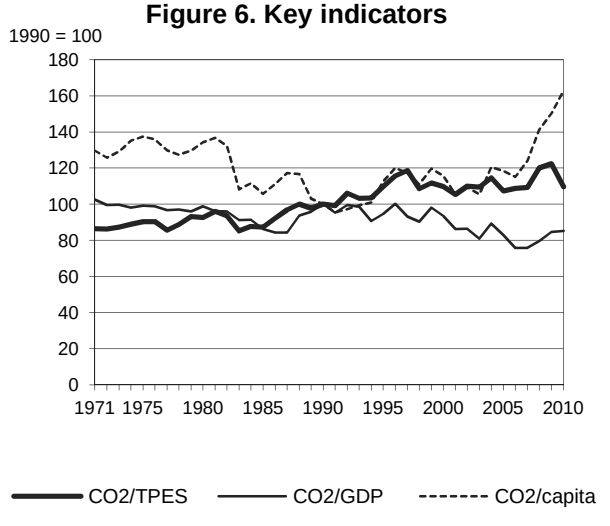


Figure 6. Key indicators



Peru

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	19.21	23.72	26.49	28.87	35.63	38.25	41.94	118.4%
CO_2 Reference Approach ($MtCO_2$)	18.23	22.83	26.13	29.35	33.35	33.01	40.71	123.3%
TPES (PJ)	408	459	512	571	630	663	812	99.3%
TPES (Mtoe)	9.73	10.97	12.22	13.65	15.04	15.83	19.40	99.3%
GDP (billion 2005 USD)	43.79	57.18	64.65	79.39	102.28	103.13	112.19	156.2%
GDP PPP (billion 2005 USD)	97.08	126.78	143.35	176.02	226.78	228.67	248.76	156.2%
Population (millions)	21.69	23.83	25.86	27.56	28.46	28.77	29.08	34.1%
CO_2 / TPES (tCO_2 per TJ)	47.1	51.6	51.8	50.5	56.6	57.7	51.6	9.6%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.44	0.41	0.41	0.36	0.35	0.37	0.37	-14.8%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.20	0.19	0.18	0.16	0.16	0.17	0.17	-14.8%
CO_2 / population (tCO_2 per capita)	0.89	1.00	1.02	1.05	1.25	1.33	1.44	62.9%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**3.64**	**25.45**	**12.84**	**-**	**41.94**	**118.4%**
Main activity producer elec. and heat	1.07	1.40	6.94	-	9.41	+
Unallocated autoproducers	-	0.59	0.37	-	0.96	-44.4%
Other energy industry own use	-	1.04	2.88	-	3.92	173.6%
Manufacturing industries and construction	2.50	4.45	1.65	-	8.60	102.0%
Transport	-	15.43	0.86	-	16.29	130.6%
of which: road	-	*15.43*	-	-	*15.43*	126.6%
Other	0.07	2.54	0.15	-	2.76	-29.6%
of which: residential	-	*1.70*	*0.01*	-	*1.72*	-33.8%
Reference Approach	**3.18**	**24.68**	**12.84**	**-**	**40.71**	**123.3%**
Diff. due to losses and/or transformation	-	0.89	-	-	0.89	
Statistical differences	- 0.46	- 1.65	- 0.00	-	- 2.12	
Memo: international marine bunkers	-	*0.76*	-	-	*0.76*	*544.6%*
Memo: international aviation bunkers	-	*1.94*	-	-	*1.94*	*200.5%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	15.43	126.6%	21.2	21.2
Main activity prod. elec. and heat - gas	6.94	x	9.5	30.8
Manufacturing industries - oil	4.45	22.0%	6.1	36.9
Other energy industry own use - gas	2.88	294.7%	4.0	40.9
Manufacturing industries - coal/peat	2.50	356.3%	3.4	44.3
Residential - oil	1.70	-31.0%	2.3	46.6
Manufacturing industries - gas	1.65	+	2.3	48.9
Main activity prod. elec. and heat - oil	1.40	74.1%	1.9	50.8
Main activity prod. elec. and heat - coal/peat	1.07	x	1.5	52.3
Other energy industry own use - oil	1.04	48.1%	1.4	53.7
Other transport - gas	0.86	x	1.2	54.9
Memo: total CO_2 from fuel combustion	*41.94*	*118.4%*	*57.7*	*57.7*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Philippines

Figure 1. CO_2 emissions by fuel

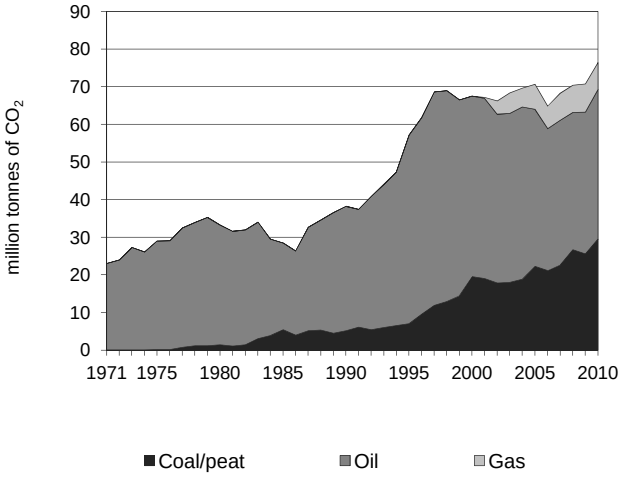


Figure 2. CO_2 emissions by sector

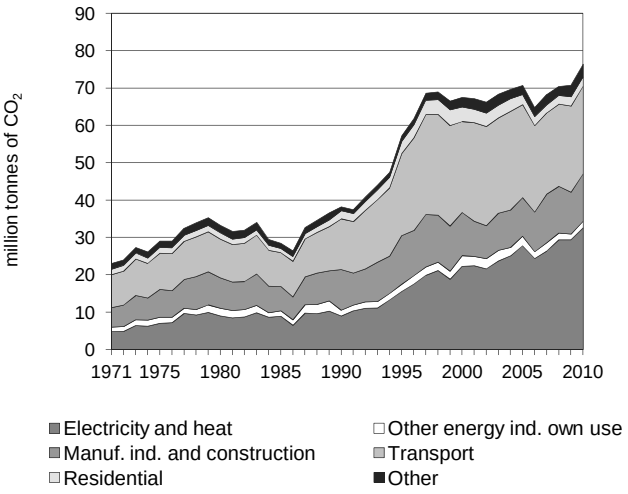


Figure 3. CO_2 emissions by sector

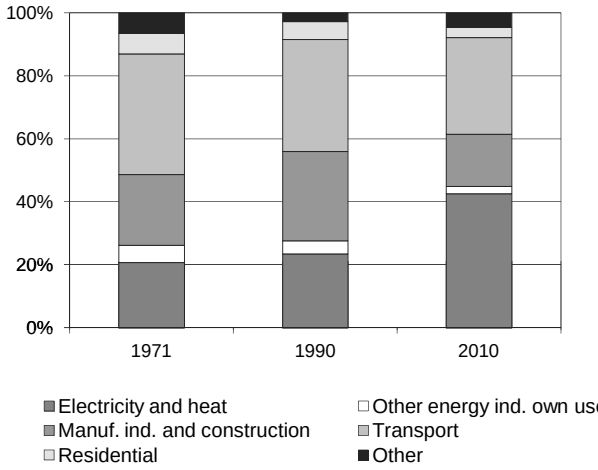


Figure 4. Reference vs Sectoral Approach

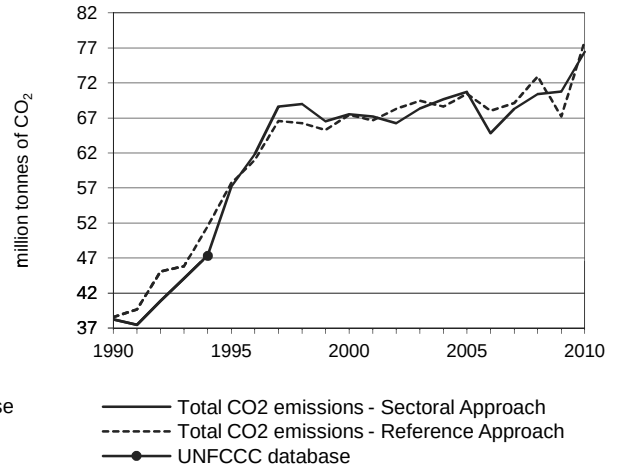


Figure 5. Electricity generation by fuel

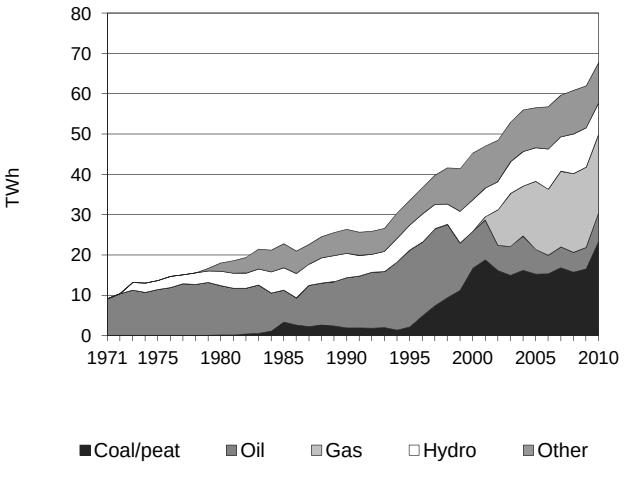
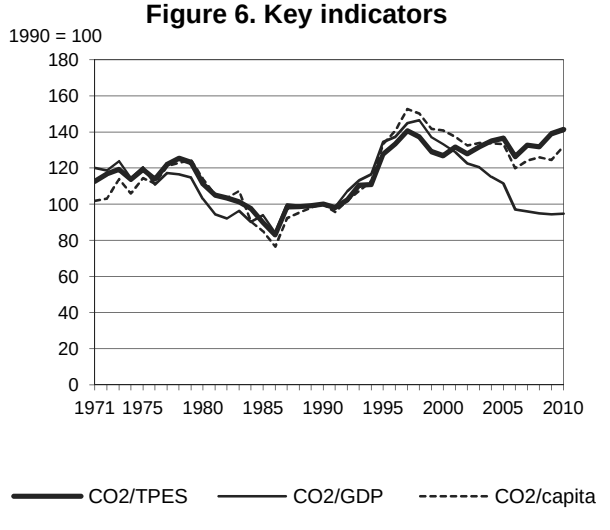


Figure 6. Key indicators



Philippines

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	38.23	57.20	67.52	70.71	70.42	70.79	76.43	99.9%
CO_2 Reference Approach ($MtCO_2$)	38.55	57.70	67.43	70.43	72.93	67.20	77.94	102.2%
TPES (PJ)	1 198	1 404	1 669	1 623	1 675	1 595	1 695	41.4%
TPES (Mtoe)	28.62	33.54	39.87	38.76	40.01	38.10	40.48	41.4%
GDP (billion 2005 USD)	62.10	69.13	82.35	103.07	120.45	121.83	131.13	111.2%
GDP PPP (billion 2005 USD)	157.25	175.04	208.54	260.99	305.01	308.51	332.06	111.2%
Population (millions)	61.63	69.26	77.31	85.55	90.17	91.70	93.26	51.3%
CO_2 / TPES (tCO_2 per TJ)	31.9	40.7	40.4	43.6	42.0	44.4	45.1	41.3%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.62	0.83	0.82	0.69	0.58	0.58	0.58	-5.3%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.24	0.33	0.32	0.27	0.23	0.23	0.23	-5.3%
CO_2 / population (tCO_2 per capita)	0.62	0.83	0.87	0.83	0.78	0.77	0.82	32.1%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**29.52**	**39.78**	**7.12**	**-**	**76.43**	**99.9%**
Main activity producer elec. and heat	21.45	4.70	6.43	-	32.58	263.3%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	1.21	0.53	-	1.74	8.8%
Manufacturing industries and construction	8.08	4.41	0.16	-	12.65	16.7%
Transport	-	23.50	0.00	-	23.51	72.8%
of which: road	-	*20.64*	*0.00*	-	*20.64*	80.9%
Other	-	5.96	-	-	5.96	84.6%
of which: residential	-	*2.48*	-	-	*2.48*	14.7%
Reference Approach	**30.19**	**40.63**	**7.12**	**-**	**77.94**	**102.2%**
Diff. due to losses and/or transformation	0.05	0.59	-	-	0.63	
Statistical differences	0.61	0.26	- 0.00	-	0.87	
Memo: international marine bunkers	-	*0.58*	-	-	*0.58*	*181.1%*
Memo: international aviation bunkers	-	*2.93*	-	-	*2.93*	*191.2%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	21.45	987.0%	14.1	14.1
Road - oil	20.64	80.9%	13.6	27.7
Manufacturing industries - coal/peat	8.08	149.3%	5.3	33.1
Main activity prod. elec. and heat - gas	6.43	x	4.2	37.3
Main activity prod. elec. and heat - oil	4.70	-32.8%	3.1	40.4
Manufacturing industries - oil	4.41	-41.9%	2.9	43.3
Non-specified other - oil	3.48	226.0%	2.3	45.6
Other transport - oil	2.87	30.8%	1.9	47.5
Residential - oil	2.48	14.7%	1.6	49.1
Other energy industry own use - oil	1.21	-24.5%	0.8	49.9
Other energy industry own use - gas	0.53	x	0.4	50.3
Memo: total CO_2 from fuel combustion	*76.43*	*99.9%*	*50.4*	*50.4*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Poland

Figure 1. CO_2 emissions by fuel

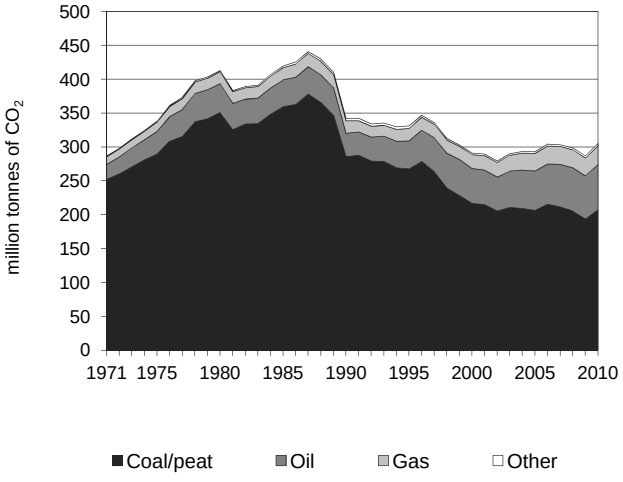


Figure 2. CO_2 emissions by sector

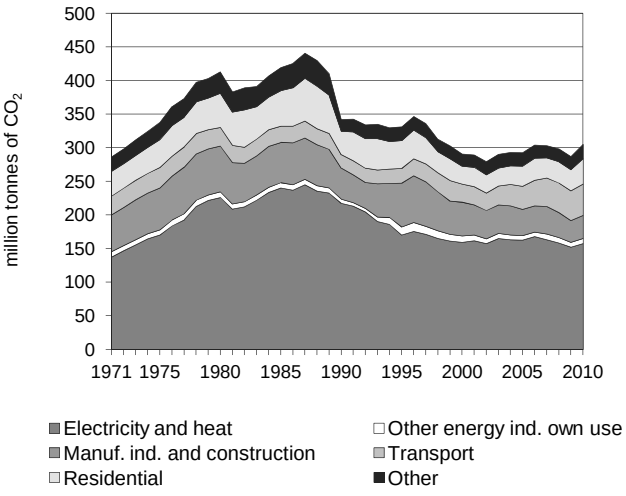


Figure 3. CO_2 emissions by sector

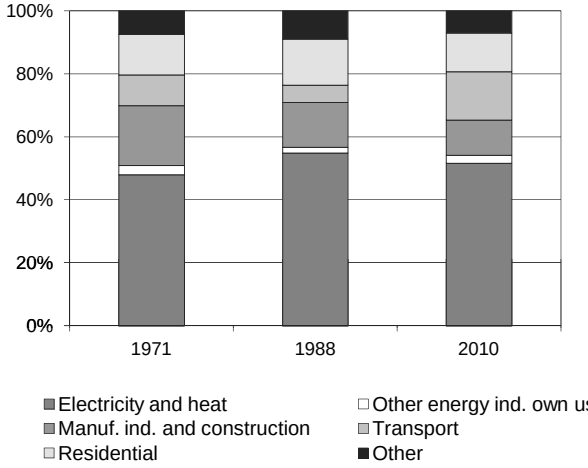


Figure 4. Reference vs Sectoral Approach

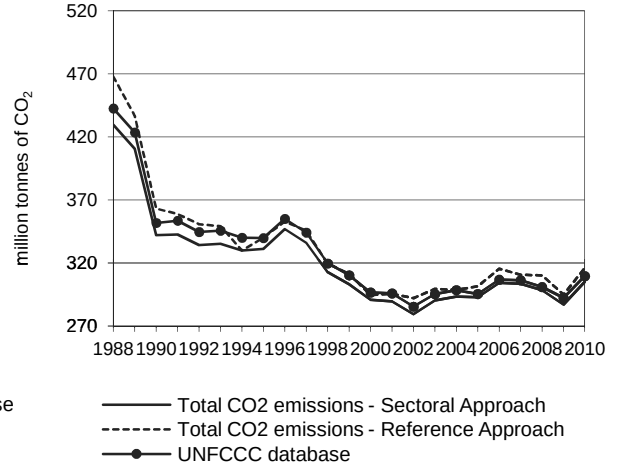


Figure 5. Electricity generation by fuel

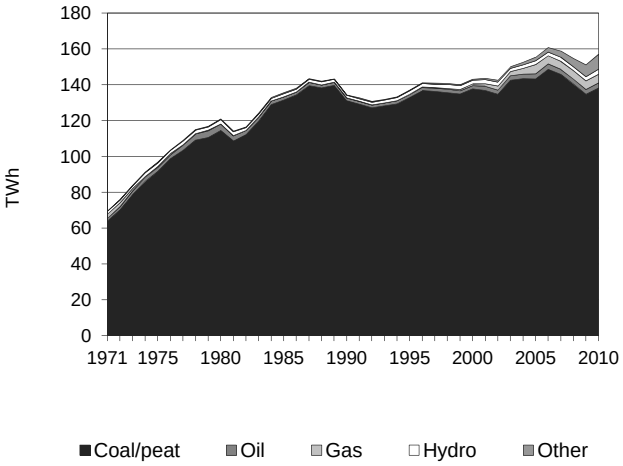
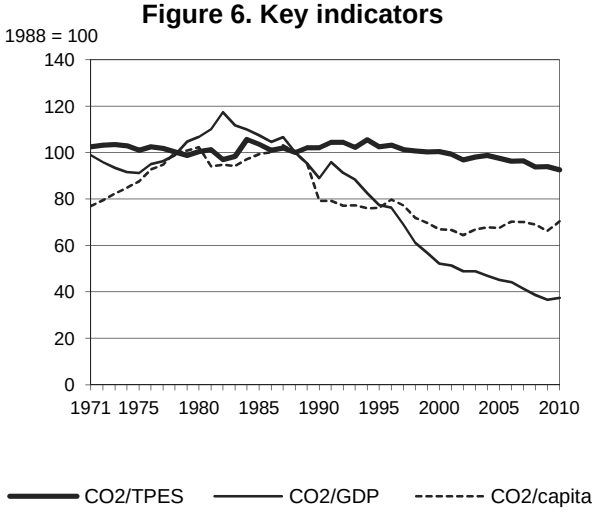


Figure 6. Key indicators



Poland *

Key indicators

	1988	1990	1995	2005	2008	2009	2010	% change 88-10
CO_2 Sectoral Approach ($MtCO_2$)	429.78	342.11	331.10	292.90	298.53	286.99	305.10	-29.0%
CO_2 Reference Approach ($MtCO_2$)	467.99	363.26	339.99	301.57	310.12	294.83	315.97	-32.5%
TPES (PJ)	5 538	4 317	4 165	3 868	4 099	3 935	4 248	-23.3%
TPES (Mtoe)	132.27	103.10	99.47	92.38	97.89	93.99	101.45	-23.3%
GDP (billion 2005 USD)	201.46	180.14	200.60	303.91	362.42	368.24	382.76	90.0%
GDP PPP (billion 2005 USD)	348.73	311.83	347.25	526.08	627.35	637.43	662.57	90.0%
Population (millions)	37.86	38.03	38.28	38.16	38.12	38.15	38.19	0.9%
CO_2 / TPES (tCO_2 per TJ)	77.6	79.3	79.5	75.7	72.8	72.9	71.8	-7.4%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	2.13	1.90	1.65	0.96	0.82	0.78	0.80	-62.6%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	1.23	1.10	0.95	0.56	0.48	0.45	0.46	-62.6%
CO_2 / population (tCO_2 per capita)	11.35	9.00	8.65	7.68	7.83	7.52	7.99	-29.6%

Ratios are based on the Sectoral Approach.

* According to the provisions of Article 4.6 of the Convention and Decisions 9/CP.2 and 11/CP.4, Poland is allowed to use 1988 as the base year.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other **	Total	% change 88-10
Sectoral Approach	**207.23**	**66.64**	**27.94**	**3.30**	**305.10**	**-29.0%**
Main activity producer elec. and heat	147.95	0.62	2.66	0.48	151.71	-8.9%
Unallocated autoproducers	4.25	1.30	0.26	0.16	5.97	-91.4%
Other energy industry own use	2.04	4.00	1.53	0.00	7.57	-6.5%
Manufacturing industries and construction	16.80	4.83	9.85	2.66	34.15	-43.9%
Transport	-	46.28	0.52	-	46.80	95.7%
of which: road	-	*45.75*	-	-	*45.75*	124.9%
Other	36.18	9.62	13.11	0.00	58.91	-41.8%
of which: residential	*27.47*	*1.59*	*8.28*	-	*37.35*	-40.7%
Reference Approach	**215.81**	**68.22**	**28.64**	**3.30**	**315.97**	**-32.5%**
Diff. due to losses and/or transformation	3.60	1.71	1.08	-	6.39	
Statistical differences	4.98	- 0.13	- 0.38	- 0.00	4.48	
Memo: international marine bunkers	-	*0.68*	-	-	*0.68*	*-60.7%*
Memo: international aviation bunkers	-	*1.52*	-	-	*1.52*	*35.3%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 88-10	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	147.95	-10.3%	37.3	37.3
Road - oil	45.75	124.9%	11.5	48.9
Residential - coal/peat	27.47	-51.6%	6.9	55.8
Manufacturing industries - coal/peat	16.80	-59.2%	4.2	60.0
Manufacturing industries - gas	9.85	-13.2%	2.5	62.5
Non-specified other sectors - coal/peat	8.71	-73.9%	2.2	64.7
Residential - gas	8.28	44.7%	2.1	66.8
Non-specified other - oil	8.02	106.7%	2.0	68.8
Manufacturing industries - oil	4.83	-25.6%	1.2	70.1
Non-specified other - gas	4.83	536.5%	1.2	71.3
Unallocated autoproducers - coal/peat	4.25	-93.3%	1.1	72.4
Memo: total CO_2 from fuel combustion	*305.10*	*-29.0%*	*77.0*	*77.0*

*** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Portugal

Figure 1. CO_2 emissions by fuel

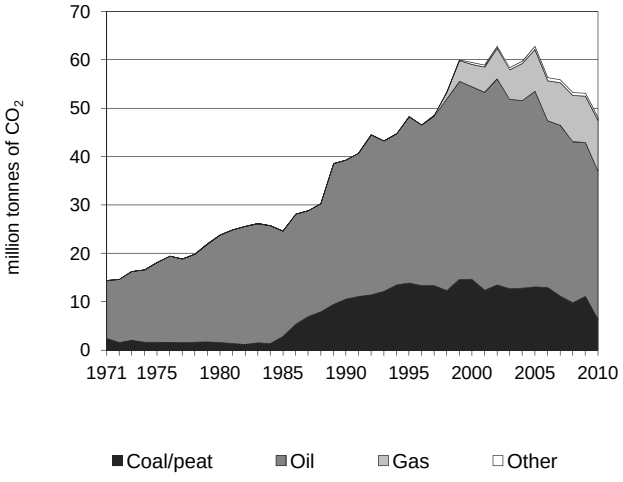


Figure 2. CO_2 emissions by sector

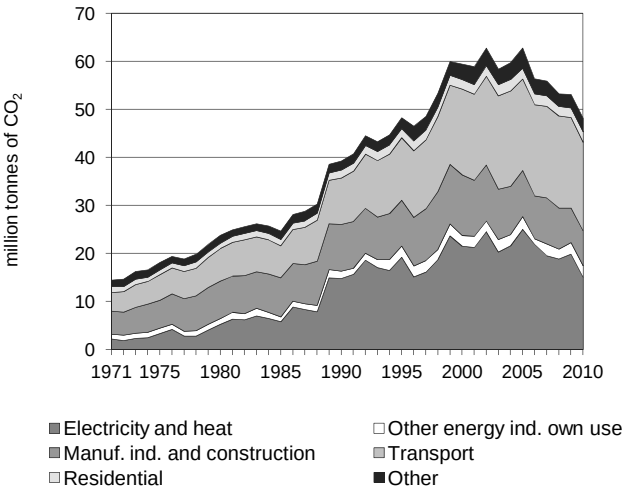


Figure 3. CO_2 emissions by sector

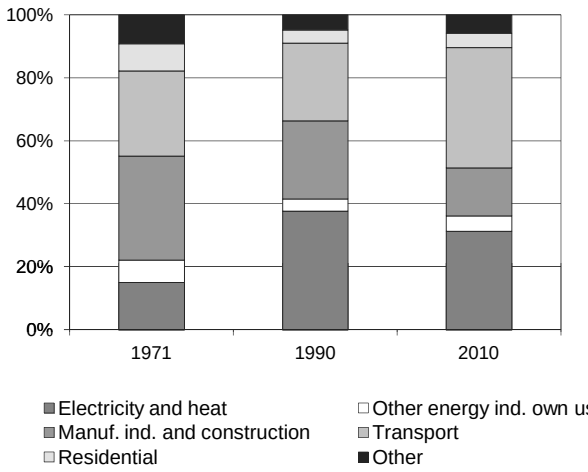


Figure 4. Reference vs Sectoral Approach

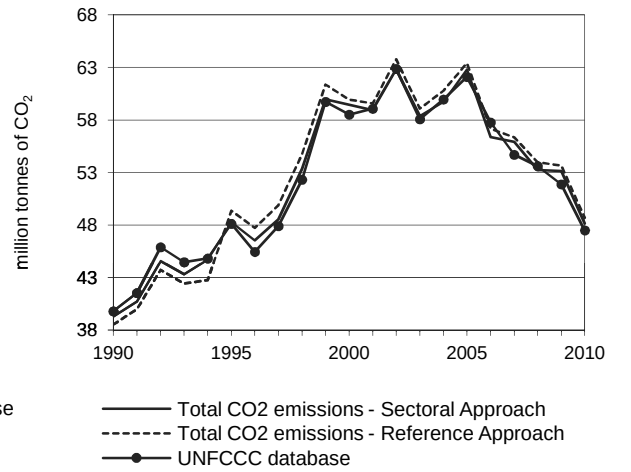


Figure 5. Electricity generation by fuel

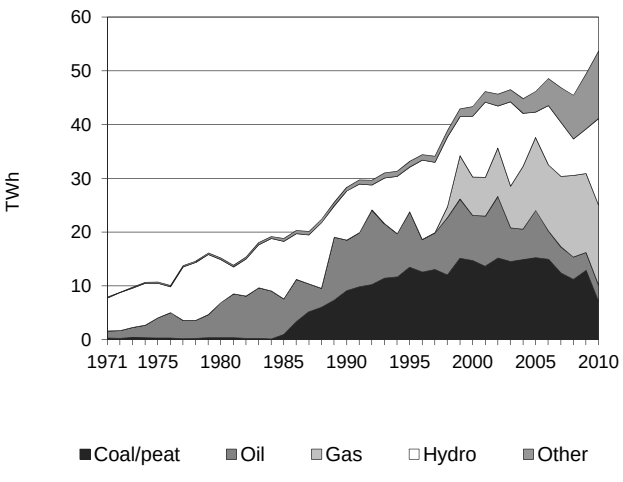
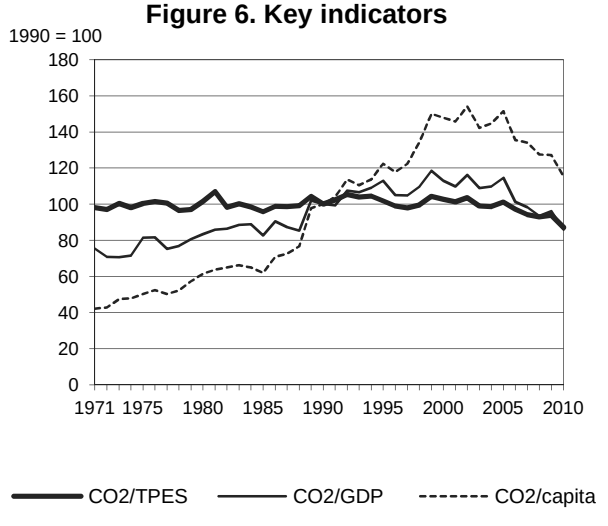


Figure 6. Key indicators



Portugal

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	39.28	48.27	59.44	62.80	53.25	53.14	48.15	22.6%
CO_2 Reference Approach ($MtCO_2$)	38.53	49.38	59.94	63.40	53.98	53.66	48.69	26.4%
TPES (PJ)	701	846	1 033	1 108	1 023	1 011	986	40.6%
TPES (Mtoe)	16.74	20.21	24.67	26.47	24.43	24.15	23.54	40.6%
GDP (billion 2005 USD)	137.44	149.56	184.10	191.85	199.21	193.42	196.13	42.7%
GDP PPP (billion 2005 USD)	161.50	175.74	216.33	225.43	234.09	227.28	230.46	42.7%
Population (millions)	10.00	10.03	10.23	10.55	10.62	10.63	10.64	6.4%
CO_2 / TPES (tCO_2 per TJ)	56.0	57.0	57.5	56.7	52.1	52.6	48.9	-12.8%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.29	0.32	0.32	0.33	0.27	0.27	0.25	-14.1%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.24	0.27	0.27	0.28	0.23	0.23	0.21	-14.1%
CO_2 / population (tCO_2 per capita)	3.93	4.81	5.81	5.95	5.01	5.00	4.53	15.2%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**6.40**	**30.65**	**10.46**	**0.65**	**48.15**	**22.6%**
Main activity producer elec. and heat	6.20	1.02	4.04	-	11.26	-20.8%
Unallocated autoproducers	-	0.90	2.44	0.47	3.82	550.5%
Other energy industry own use	-	2.08	0.28	-	2.36	54.5%
Manufacturing industries and construction	0.20	4.57	2.38	0.18	7.33	-24.7%
Transport	-	18.37	0.03	-	18.40	90.0%
of which: road	-	*17.41*	*0.03*	-	*17.44*	92.9%
Other	-	3.70	1.29	-	4.99	41.4%
of which: residential	-	*1.48*	*0.70*	-	*2.18*	33.8%
Reference Approach	**6.44**	**31.12**	**10.49**	**0.65**	**48.69**	**26.4%**
Diff. due to losses and/or transformation	-	0.52	0.03	-	0.55	
Statistical differences	0.04	- 0.05	- 0.00	-	- 0.01	
Memo: international marine bunkers	-	*1.46*	-	-	*1.46*	*-23.5%*
Memo: international aviation bunkers	-	*2.63*	-	-	*2.63*	*76.9%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	17.41	92.5%	24.4	24.4
Main activity prod. elec. and heat - coal/peat	6.20	-21.3%	8.7	33.1
Manufacturing industries - oil	4.57	-37.8%	6.4	39.5
Main activity prod. elec. and heat - gas	4.04	x	5.7	45.2
Unallocated autoproducers - gas	2.44	x	3.4	48.6
Manufacturing industries - gas	2.38	x	3.3	52.0
Non-specified other - oil	2.22	18.7%	3.1	55.1
Other energy industry own use - oil	2.08	39.1%	2.9	58.0
Residential - oil	1.48	-3.3%	2.1	60.1
Main activity prod. elec. and heat - oil	1.02	-83.9%	1.4	61.5
Other transport - oil	0.96	49.6%	1.3	62.9
Memo: total CO_2 from fuel combustion	*48.15*	*22.6%*	*67.6*	*67.6*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Qatar

Figure 1. CO_2 emissions by fuel

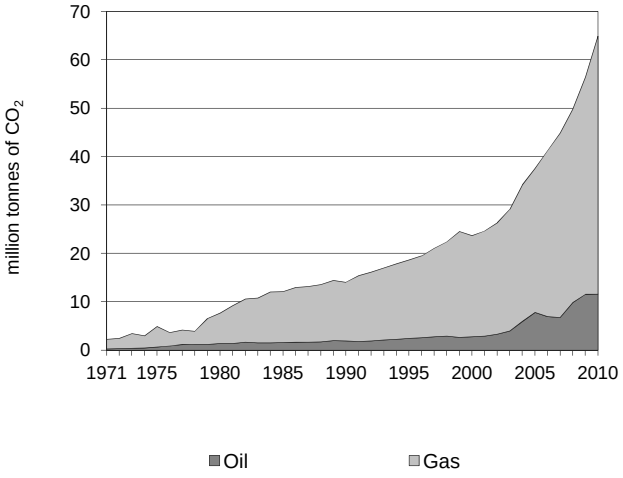


Figure 2. CO_2 emissions by sector

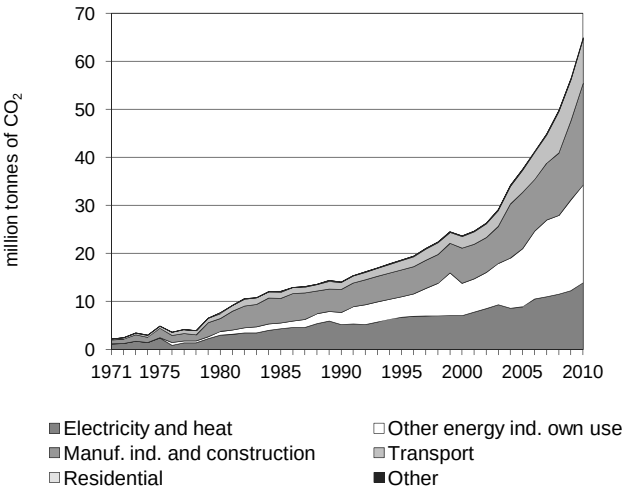


Figure 3. CO_2 emissions by sector

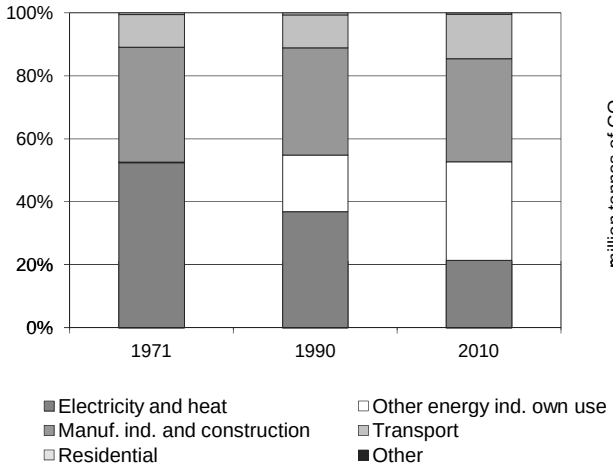


Figure 4. Reference vs Sectoral Approach

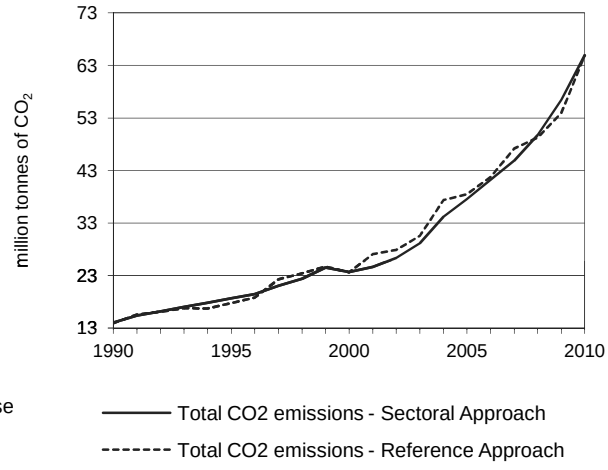


Figure 5. Electricity generation by fuel

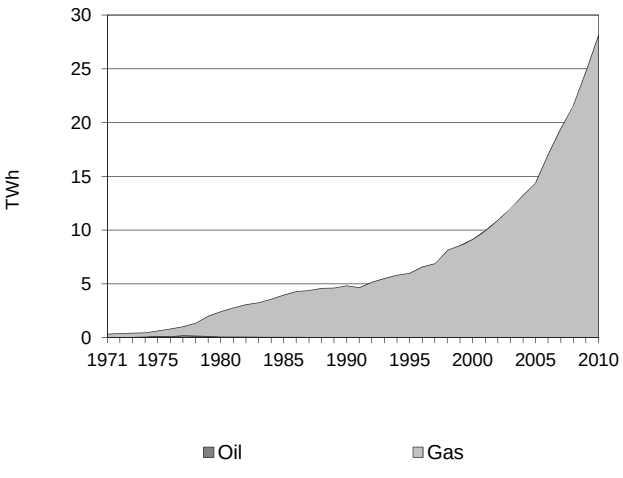
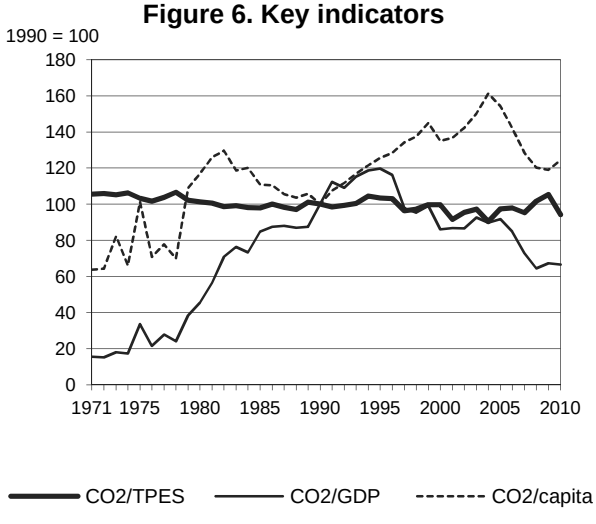


Figure 6. Key indicators



Qatar

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	14.06	18.66	23.67	37.55	49.77	56.43	64.91	361.7%
CO_2 Reference Approach ($MtCO_2$)	13.90	17.75	23.60	38.45	49.23	53.97	64.87	366.8%
TPES (PJ)	258	331	436	709	900	983	1 266	389.9%
TPES (Mtoe)	6.17	7.91	10.42	16.93	21.50	23.49	30.23	389.9%
GDP (billion 2005 USD)	14.78	16.38	28.89	43.04	81.19	88.20	102.56	594.0%
GDP PPP (billion 2005 USD)	19.59	21.72	38.31	57.07	107.65	116.95	135.99	594.0%
Population (millions)	0.47	0.50	0.59	0.82	1.40	1.60	1.76	271.1%
CO_2 / TPES (tCO_2 per TJ)	54.4	56.3	54.3	53.0	55.3	57.4	51.3	-5.8%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.95	1.14	0.82	0.87	0.61	0.64	0.63	-33.5%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.72	0.86	0.62	0.66	0.46	0.48	0.48	-33.5%
CO_2 / population (tCO_2 per capita)	29.66	37.25	40.05	45.74	35.65	35.32	36.90	24.4%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**11.59**	**53.32**	**-**	**64.91**	**361.7%**
Main activity producer elec. and heat	-	-	3.88	-	3.88	222.6%
Unallocated autoproducers	-	-	10.02	-	10.02	151.6%
Other energy industry own use	-	0.54	19.79	-	20.33	704.7%
Manufacturing industries and construction	-	1.60	19.62	-	21.22	342.6%
Transport	-	9.19	-	-	9.19	530.1%
of which: road	-	*9.19*	-	-	*9.19*	530.1%
Other	-	0.27	-	-	0.27	188.4%
of which: residential	-	*0.27*	-	-	*0.27*	188.4%
Reference Approach	**-**	**4.62**	**60.24**	**-**	**64.87**	**366.8%**
Diff. due to losses and/or transformation	-	- 6.97	6.41	-	- 0.56	
Statistical differences	-	- 0.00	0.52	-	0.52	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*3.84*	-	-	*3.84*	+

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Other energy industry own use - gas	19.79	806.5%	17.9	17.9
Manufacturing industries - gas	19.62	309.8%	17.8	35.7
Unallocated autoproducers - gas	10.02	151.6%	9.1	44.8
Road - oil	9.19	530.1%	8.3	53.1
Main activity prod. elec. and heat - gas	3.88	222.6%	3.5	56.6
Manufacturing industries - oil	1.60	+	1.4	58.1
Other energy industry own use - oil	0.54	56.4%	0.5	58.6
Residential - oil	0.27	188.4%	0.2	58.8
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*64.91*	*361.7%*	*58.8*	*58.8*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Romania

Figure 1. CO_2 emissions by fuel

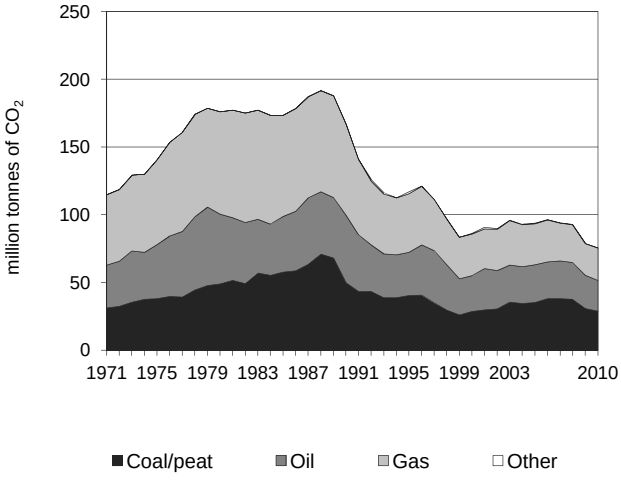


Figure 2. CO_2 emissions by sector

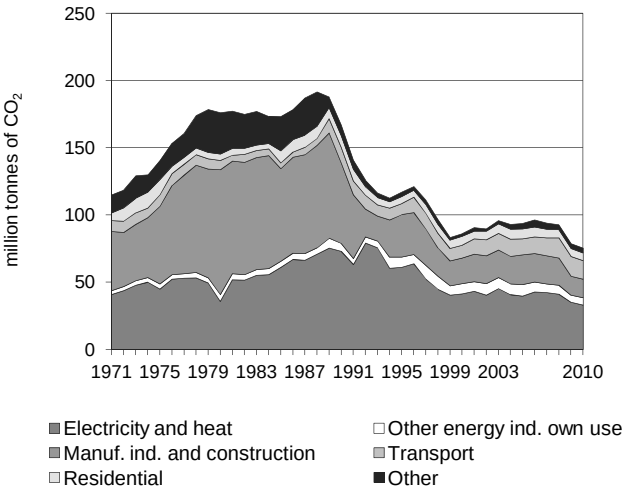


Figure 3. CO_2 emissions by sector

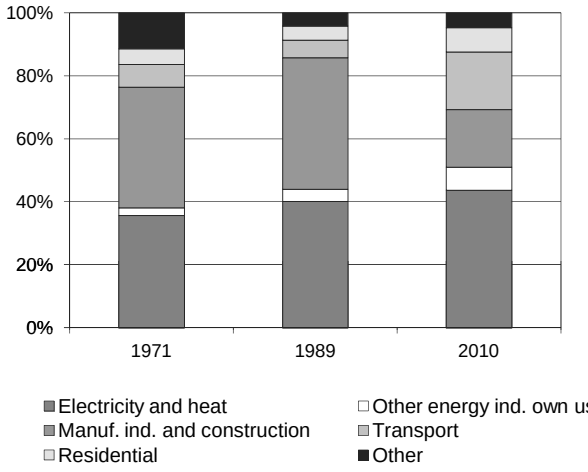


Figure 4. Reference vs Sectoral Approach

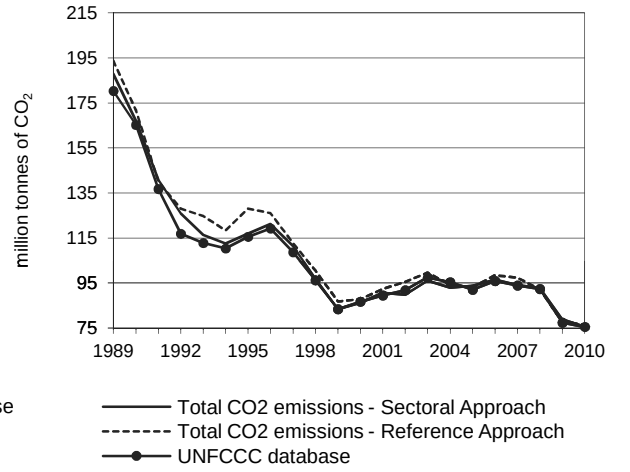


Figure 5. Electricity generation by fuel

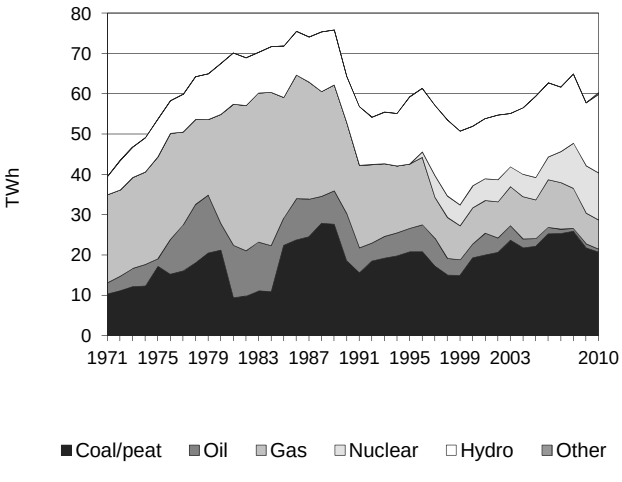
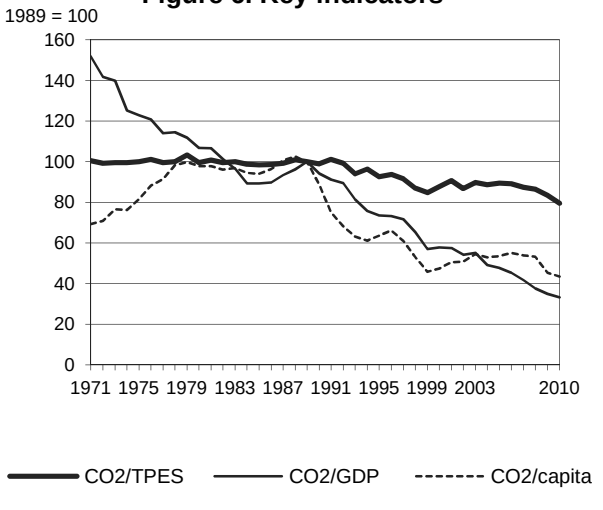


Figure 6. Key indicators



Romania *

Key indicators

	1989	1990	1995	2005	2008	2009	2010	% change 89-10
CO_2 Sectoral Approach ($MtCO_2$)	187.82	166.98	117.01	93.81	92.81	78.79	75.56	-59.8%
CO_2 Reference Approach ($MtCO_2$)	193.68	171.67	128.04	93.03	92.04	77.83	76.48	-60.5%
TPES (PJ)	2 897	2 605	1 950	1 618	1 656	1 457	1 465	-49.4%
TPES (Mtoe)	69.18	62.22	46.57	38.65	39.55	34.79	34.99	-49.4%
GDP (billion 2005 USD)	94.26	88.98	79.91	98.91	123.80	113.27	114.35	21.3%
GDP PPP (billion 2005 USD)	193.19	182.37	163.77	202.72	253.71	232.15	234.35	21.3%
Population (millions)	23.15	23.21	22.68	21.63	21.51	21.48	21.44	-7.4%
CO_2 / TPES (tCO_2 per TJ)	64.8	64.1	60.0	58.0	56.0	54.1	51.6	-20.5%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	1.99	1.88	1.46	0.95	0.75	0.70	0.66	-66.8%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.97	0.92	0.71	0.46	0.37	0.34	0.32	-66.8%
CO_2 / population (tCO_2 per capita)	8.11	7.20	5.16	4.34	4.31	3.67	3.52	-56.6%

Ratios are based on the Sectoral Approach.

* According to the provisions of Article 4.6 of the Convention and Decisions 9/CP.2 and 11/CP.4, Romania is allowed to use 1989 as the base year.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other **	Total	% change 89-10
Sectoral Approach	**28.90**	**22.69**	**23.82**	**0.14**	**75.56**	**-59.8%**
Main activity producer elec. and heat	22.95	1.03	6.20	-	30.18	-56.2%
Unallocated autoproducers	1.97	0.24	0.60	0.00	2.81	-56.5%
Other energy industry own use	0.00	3.78	1.77	-	5.55	-24.0%
Manufacturing industries and construction	3.90	2.08	7.72	0.14	13.83	-82.4%
Transport	-	13.77	0.02	-	13.80	31.5%
of which: road	-	*12.76*	-	-	*12.76*	42.2%
Other	0.08	1.80	7.51	-	9.39	-41.9%
of which: residential	*0.04*	*0.62*	*5.15*	-	*5.81*	-30.2%
Reference Approach	**28.95**	**22.77**	**24.62**	**0.14**	**76.48**	**-60.5%**
Diff. due to losses and/or transformation	0.45	- 1.31	0.79	-	- 0.07	
Statistical differences	- 0.39	1.39	0.00	- 0.00	0.99	
Memo: international marine bunkers	-	*0.05*	-	-	*0.05*	*..*
Memo: international aviation bunkers	-	*0.49*	-	-	*0.49*	*-34.0%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 89-10	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	22.95	-34.0%	18.9	18.9
Road - oil	12.76	42.2%	10.5	29.4
Manufacturing industries - gas	7.72	-83.1%	6.4	35.8
Main activity prod. elec. and heat - gas	6.20	-72.1%	5.1	40.9
Residential - gas	5.15	1.5%	4.2	45.1
Manufacturing industries - coal/peat	3.90	-82.5%	3.2	48.3
Other energy industry own use - oil	3.78	-40.5%	3.1	51.4
Non-specified other - gas	2.36	18.9%	1.9	53.4
Manufacturing industries - oil	2.08	-80.0%	1.7	55.1
Unallocated autoproducers - coal/peat	1.97	-69.5%	1.6	56.7
Other energy industry own use - gas	1.77	x	1.5	58.2
Memo: total CO_2 from fuel combustion	*75.56*	*-59.8%*	*62.2*	*62.2*

*** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Russian Federation

Figure 1. CO_2 emissions by fuel

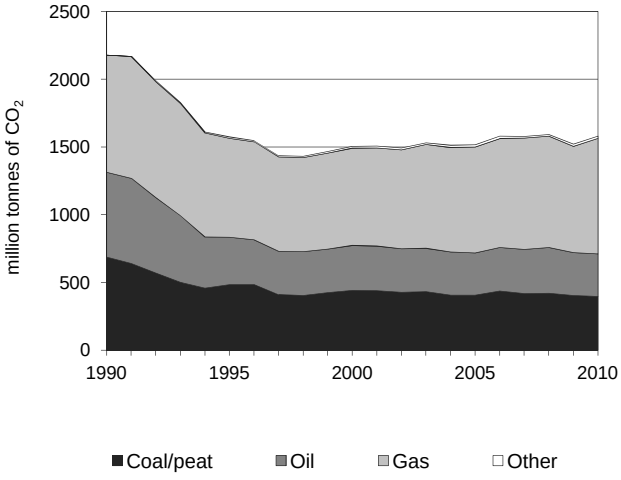


Figure 2. CO_2 emissions by sector

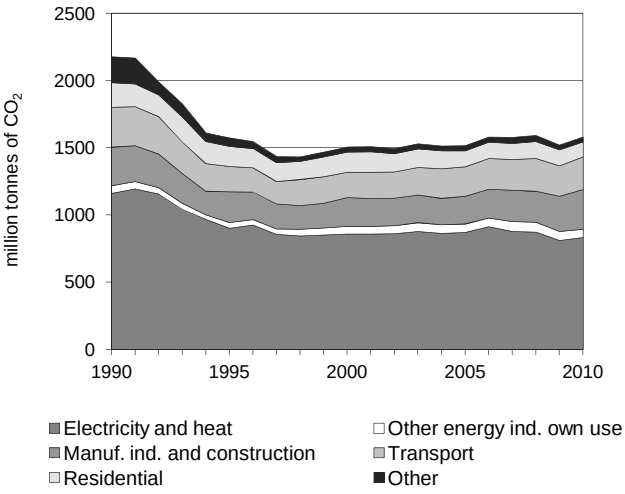


Figure 3. CO_2 emissions by sector

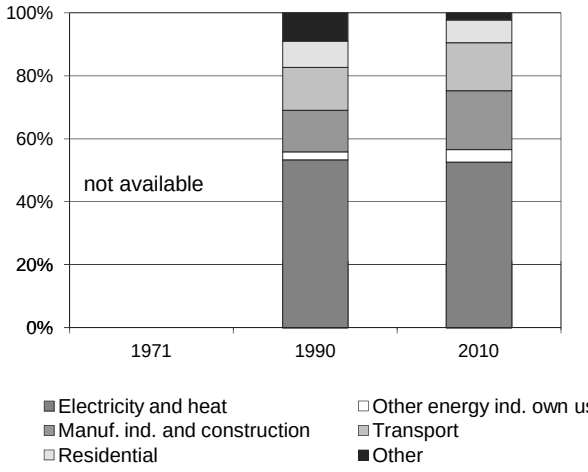


Figure 4. Reference vs Sectoral Approach

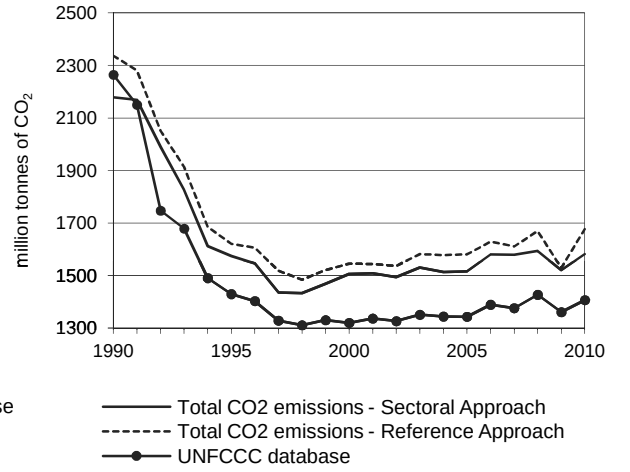


Figure 5. Electricity generation by fuel

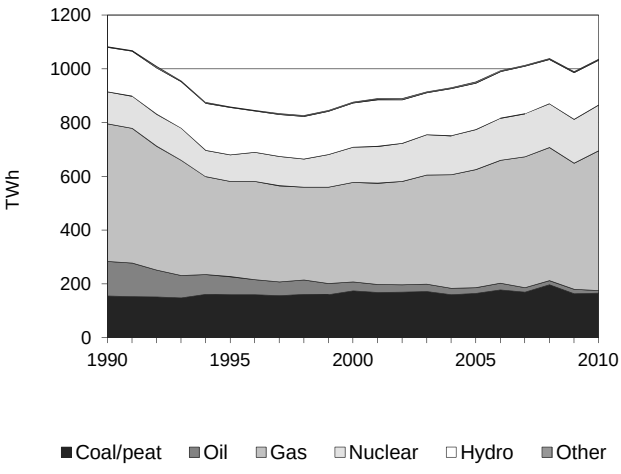
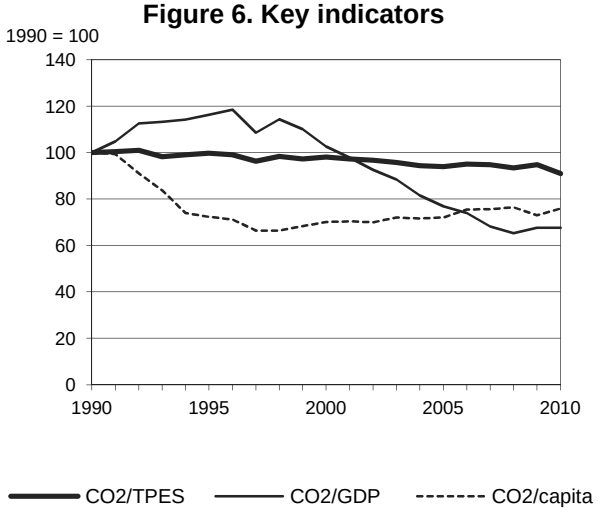


Figure 6. Key indicators



Russian Federation

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	2 178.8	1 574.5	1 505.5	1 516.2	1 593.4	1 520.4	1 581.4	-27.4%
CO_2 Reference Approach ($MtCO_2$)	2 337.2	1 620.4	1 545.2	1 579.8	1 669.5	1 528.6	1 676.4	-28.3%
TPES (PJ)	36 810	26 655	25 927	27 286	28 825	27 085	29 371	-20.2%
TPES (Mtoe)	879.2	636.6	619.3	651.7	688.5	646.9	701.5	-20.2%
GDP (billion 2005 USD)	843.1	523.7	567.4	764.0	943.9	870.1	905.2	7.4%
GDP PPP (billion 2005 USD)	1 872.3	1 163.0	1 260.1	1 696.7	2 096.2	1 932.4	2 010.4	7.4%
Population (millions)	148.3	148.1	146.3	143.2	142.0	141.9	141.8	-4.4%
CO_2 / TPES (tCO_2 per TJ)	59.2	59.1	58.1	55.6	55.3	56.1	53.8	-9.0%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	2.58	3.01	2.65	1.98	1.69	1.75	1.75	-32.4%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	1.16	1.35	1.19	0.89	0.76	0.79	0.79	-32.4%
CO_2 / population (tCO_2 per capita)	14.69	10.63	10.29	10.59	11.22	10.72	11.16	-24.1%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**396.7**	**314.8**	**851.7**	**18.2**	**1 581.4**	**-27.4%**
Main activity producer elec. and heat	157.1	6.1	329.9	-	493.1	-41.0%
Unallocated autoproducers	101.0	29.8	193.0	15.7	339.5	4.0%
Other energy industry own use	6.7	35.4	20.4	0.6	63.2	11.4%
Manufacturing industries and construction	115.8	48.5	128.8	1.2	294.3	2.5%
Transport	-	165.3	76.8	-	242.0	-18.3%
of which: road	-	*139.6*	*0.3*	-	*139.9*	-8.2%
Other	16.1	29.7	102.8	0.6	149.3	-60.4%
of which: residential	*6.0*	*13.0*	*94.5*	-	*113.5*	-38.0%
Reference Approach	**446.5**	**343.7**	**868.1**	**18.2**	**1 676.4**	**-28.3%**
Diff. due to losses and/or transformation	24.5	29.5	16.4	-	70.4	
Statistical differences	25.2	- 0.6	0.0	0.0	24.6	
Memo: international marine bunkers	-	*4.8*	-	-	*4.8*	*-18.4%*
Memo: international aviation bunkers	-	*18.5*	-	-	*18.5*	*-29.9%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	329.9	-5.0%	13.9	13.9
Unallocated autoproducers - gas	193.0	4.3%	8.1	22.0
Main activity prod. elec. and heat - coal/peat	157.1	-54.8%	6.6	28.6
Road - oil	139.6	-6.8%	5.9	34.5
Manufacturing industries - gas	128.8	23.5%	5.4	39.9
Manufacturing industries - coal/peat	115.8	19.5%	4.9	44.8
Unallocated autoproducers - coal/peat	101.0	20.0%	4.2	49.0
Residential - gas	94.5	-14.2%	4.0	53.0
Other transport - gas	76.5	-0.6%	3.2	56.2
Manufacturing industries - oil	48.5	-43.6%	2.0	58.3
Other energy industry own use - oil	35.4	-8.5%	1.5	59.8
Memo: total CO_2 from fuel combustion	*1 581.4*	*-27.4%*	*66.5*	*66.5*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Saudi Arabia

Figure 1. CO_2 emissions by fuel

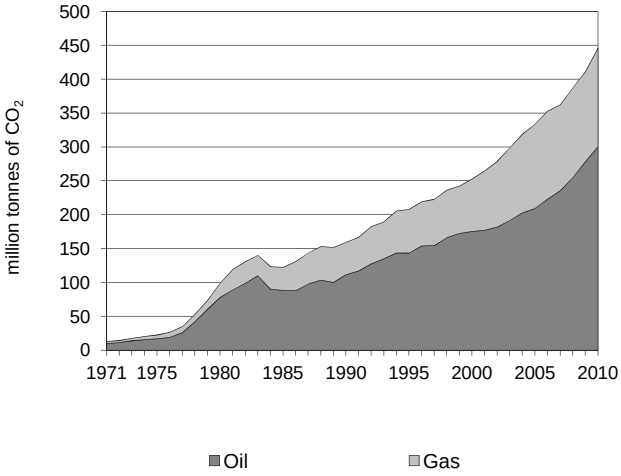


Figure 2. CO_2 emissions by sector

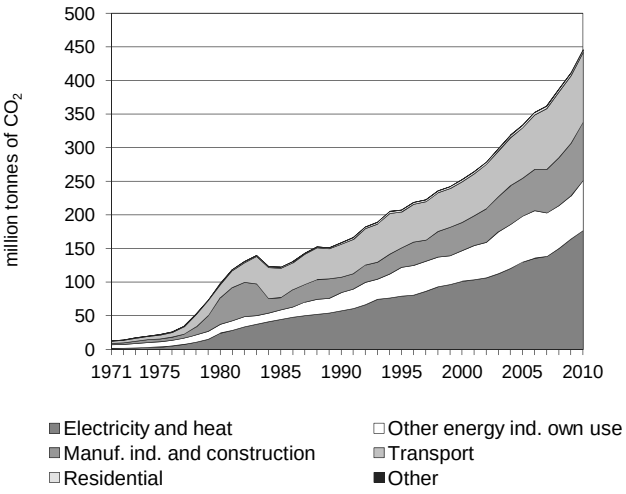


Figure 3. CO_2 emissions by sector

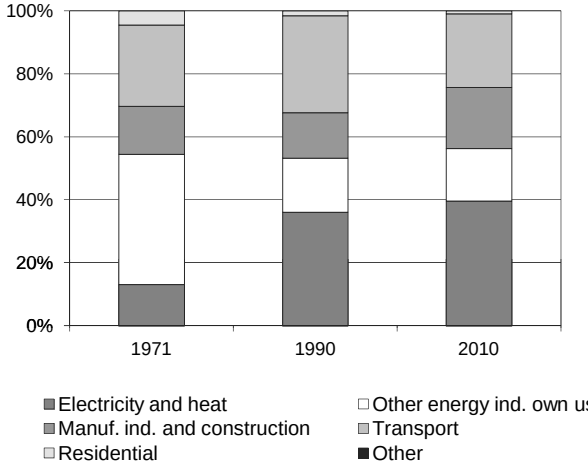


Figure 4. Reference vs Sectoral Approach

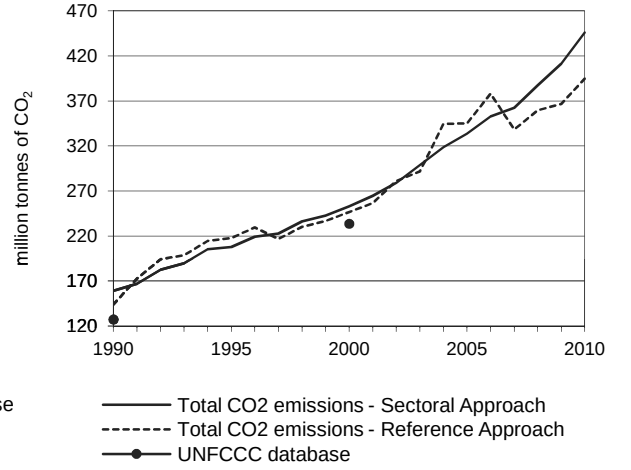


Figure 5. Electricity generation by fuel

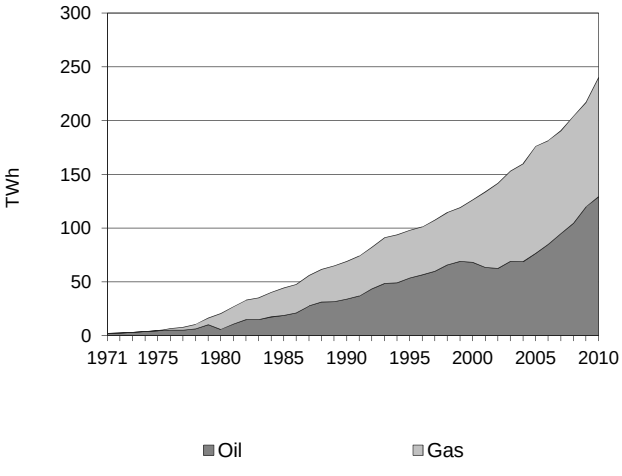
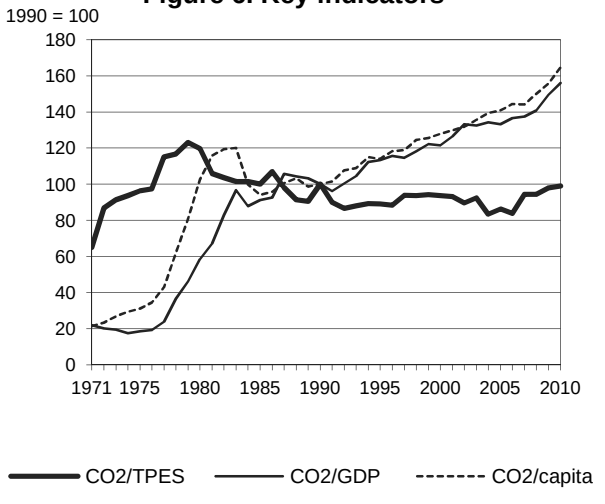


Figure 6. Key indicators



Saudi Arabia

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	159.11	207.78	252.78	333.79	387.14	411.39	445.95	180.3%
CO_2 Reference Approach ($MtCO_2$)	143.66	217.61	246.41	344.83	359.61	366.80	394.81	174.8%
TPES (PJ)	2 502	3 665	4 242	6 093	6 451	6 609	7 088	183.3%
TPES (Mtoe)	59.76	87.55	101.32	145.54	154.08	157.85	169.30	183.3%
GDP (billion 2005 USD)	200.42	230.83	262.04	315.58	346.16	346.70	359.75	79.5%
GDP PPP (billion 2005 USD)	311.56	358.83	407.35	490.58	538.11	538.96	559.24	79.5%
Population (millions)	16.14	18.49	20.05	24.04	26.17	26.81	27.45	70.1%
CO_2 / TPES (tCO_2 per TJ)	63.6	56.7	59.6	54.8	60.0	62.2	62.9	-1.1%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.79	0.90	0.96	1.06	1.12	1.19	1.24	56.1%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.51	0.58	0.62	0.68	0.72	0.76	0.80	56.1%
CO_2 / population (tCO_2 per capita)	9.86	11.24	12.61	13.88	14.80	15.35	16.25	64.8%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**300.21**	**145.75**	**-**	**445.95**	**180.3%**
Main activity producer elec. and heat	-	103.30	38.03	-	141.33	254.8%
Unallocated autoproducers	-	3.09	32.46	-	35.55	101.3%
Other energy industry own use	-	18.72	55.67	-	74.39	172.3%
Manufacturing industries and construction	-	66.69	19.59	-	86.27	277.0%
Transport	-	104.42	-	-	104.42	113.6%
of which: road	-	*102.27*	-	-	*102.27*	116.2%
Other	-	3.99	-	-	3.99	58.6%
of which: residential	-	*3.99*	-	-	*3.99*	58.6%
Reference Approach	**-**	**249.06**	**145.75**	**-**	**394.81**	**174.8%**
Diff. due to losses and/or transformation	-	- 10.88	-	-	- 10.88	
Statistical differences	-	- 40.27	-	-	- 40.27	
Memo: international marine bunkers	-	*10.29*	-	-	*10.29*	*79.4%*
Memo: international aviation bunkers	-	*6.46*	-	-	*6.46*	*34.7%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	103.30	265.0%	19.2	19.2
Road - oil	102.27	116.2%	19.0	38.1
Manufacturing industries - oil	66.69	254.8%	12.4	50.5
Other energy industry own use - gas	55.67	288.6%	10.3	60.8
Main activity prod. elec. and heat - gas	38.03	229.8%	7.1	67.9
Unallocated autoproducers - gas	32.46	83.8%	6.0	73.9
Manufacturing industries - gas	19.59	378.6%	3.6	77.5
Other energy industry own use - oil	18.72	44.1%	3.5	81.0
Residential - oil	3.99	58.6%	0.7	81.8
Unallocated autoproducers - oil	3.09	x	0.6	82.3
Other transport - oil	2.15	34.8%	0.4	82.7
Memo: total CO_2 from fuel combustion	*445.95*	*180.3%*	*82.7*	*82.7*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Senegal

Figure 1. CO_2 emissions by fuel

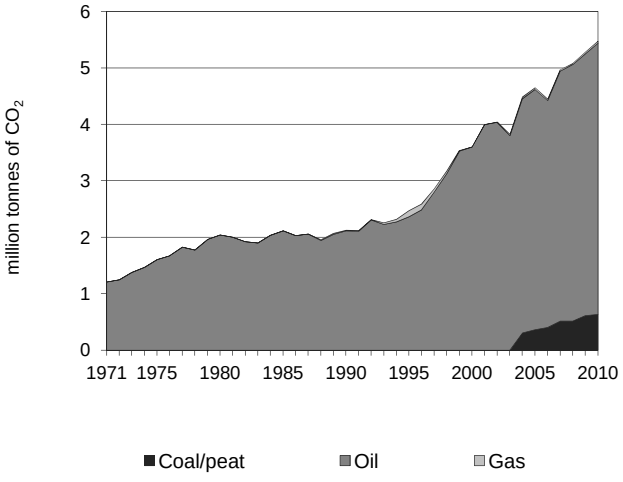


Figure 2. CO_2 emissions by sector

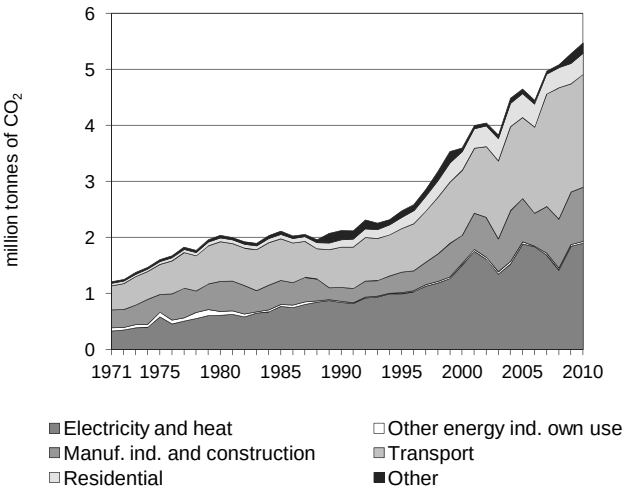


Figure 3. CO_2 emissions by sector

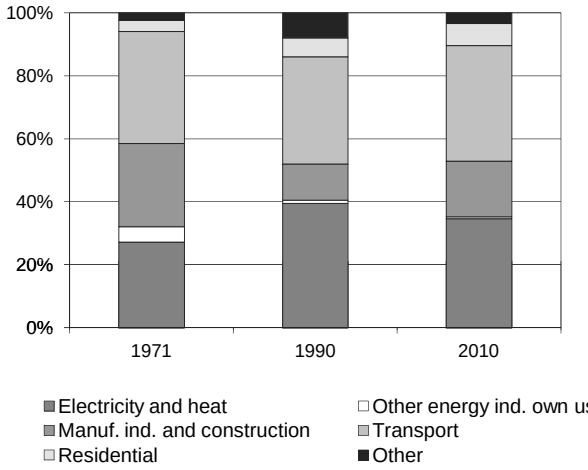


Figure 4. Reference vs Sectoral Approach

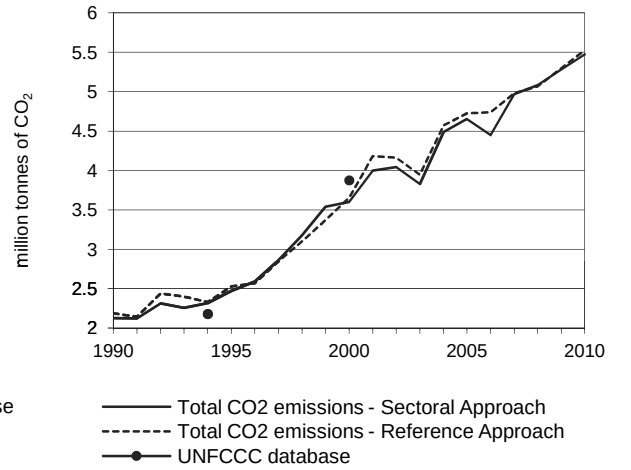


Figure 5. Electricity generation by fuel

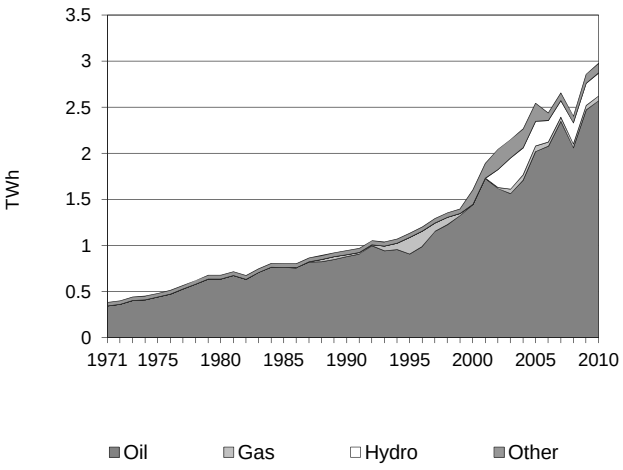
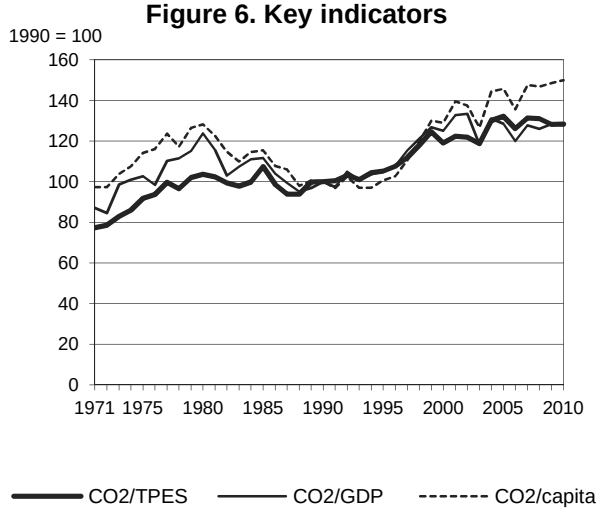


Figure 6. Key indicators



Senegal

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	2.13	2.47	3.60	4.65	5.08	5.28	5.47	157.4%
CO_2 Reference Approach ($MtCO_2$)	2.19	2.53	3.65	4.73	5.07	5.30	5.53	152.6%
TPES (PJ)	71	78	100	117	129	137	142	100.5%
TPES (Mtoe)	1.69	1.86	2.40	2.79	3.08	3.27	3.38	100.5%
GDP (billion 2005 USD)	5.12	5.67	6.93	8.70	9.70	9.91	10.32	101.7%
GDP PPP (billion 2005 USD)	10.70	11.86	14.50	18.21	20.30	20.73	21.58	101.7%
Population (millions)	7.24	8.37	9.51	10.87	11.79	12.11	12.43	71.7%
CO_2 / TPES (tCO_2 per TJ)	30.1	31.7	35.9	39.8	39.5	38.6	38.7	28.4%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.42	0.44	0.52	0.53	0.52	0.53	0.53	27.6%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.20	0.21	0.25	0.26	0.25	0.25	0.25	27.7%
CO_2 / population (tCO_2 per capita)	0.29	0.30	0.38	0.43	0.43	0.44	0.44	49.9%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.63**	**4.80**	**0.04**	**-**	**5.47**	**157.4%**
Main activity producer elec. and heat	-	1.69	0.04	-	1.73	108.9%
Unallocated autoproducers	-	0.17	-	-	0.17	+
Other energy industry own use	-	0.03	-	-	0.03	57.1%
Manufacturing industries and construction	0.63	0.33	-	-	0.97	294.8%
Transport	-	2.01	-	-	2.01	178.4%
of which: road	-	*1.92*	-	-	*1.92*	189.9%
Other	-	0.57	-	-	0.57	90.4%
of which: residential	-	*0.38*	-	-	*0.38*	197.0%
Reference Approach	**0.63**	**4.86**	**0.04**	**-**	**5.53**	**152.6%**
Diff. due to losses and/or transformation	-	0.16	-	-	0.16	
Statistical differences	-	- 0.11	-	-	- 0.11	
Memo: international marine bunkers	-	*0.20*	-	-	*0.20*	*78.2%*
Memo: international aviation bunkers	-	*0.65*	-	-	*0.65*	*43.1%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	1.92	189.9%	8.3	8.3
Main activity prod. elec. and heat - oil	1.69	107.9%	7.3	15.7
Manufacturing industries - coal/peat	0.63	x	2.8	18.4
Residential - oil	0.38	197.0%	1.7	20.1
Manufacturing industries - oil	0.33	36.0%	1.4	21.5
Non-specified other - oil	0.18	8.9%	0.8	22.3
Unallocated autoproducers - oil	0.17	+	0.7	23.0
Other transport - oil	0.10	54.9%	0.4	23.4
Main activity prod. elec. and heat - gas	0.04	172.2%	0.2	23.6
Other energy industry own use - oil	0.03	57.1%	0.2	23.7
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*5.47*	*157.4%*	*23.7*	*23.7*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Serbia

Figure 1. CO_2 emissions by fuel

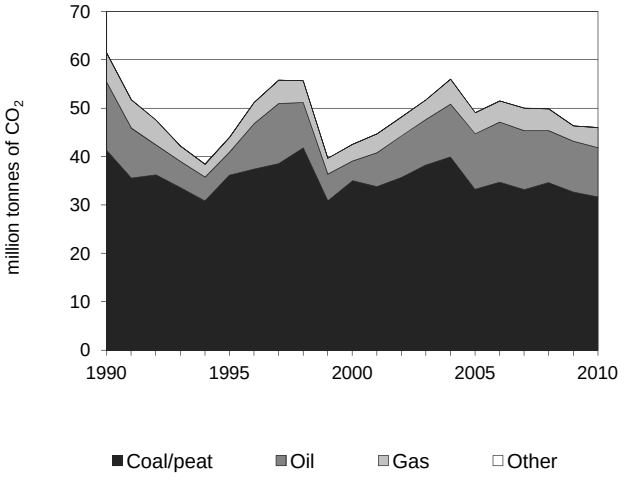


Figure 2. CO_2 emissions by sector

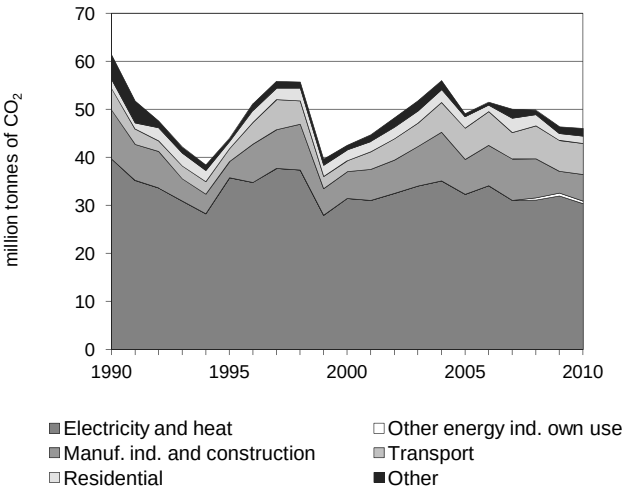


Figure 3. CO_2 emissions by sector

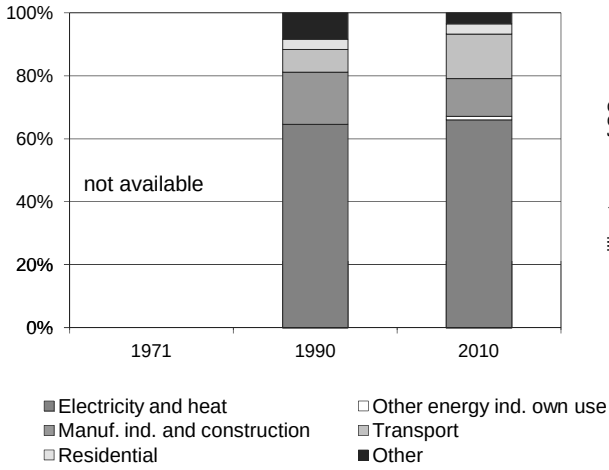


Figure 4. Reference vs Sectoral Approach

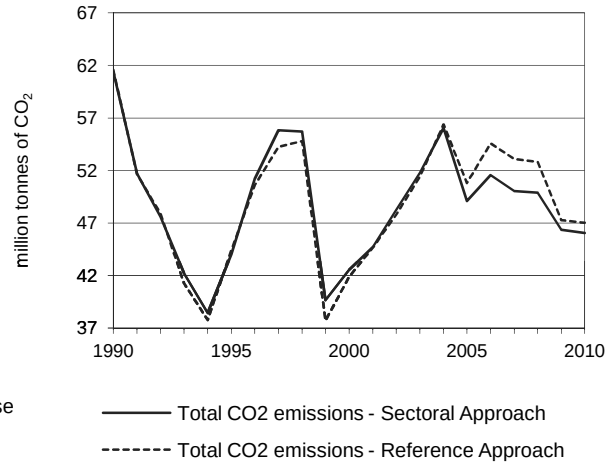


Figure 5. Electricity generation by fuel

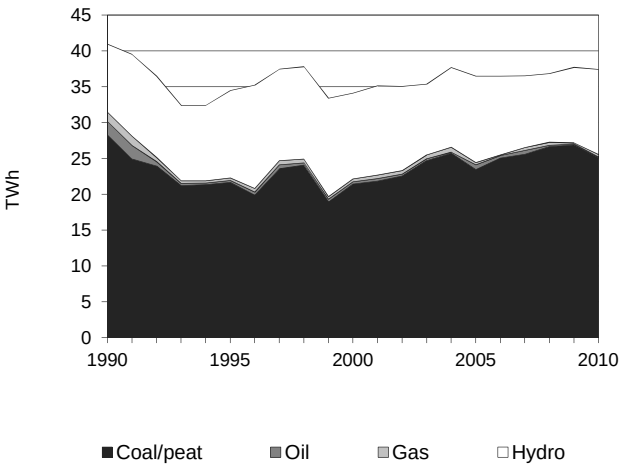
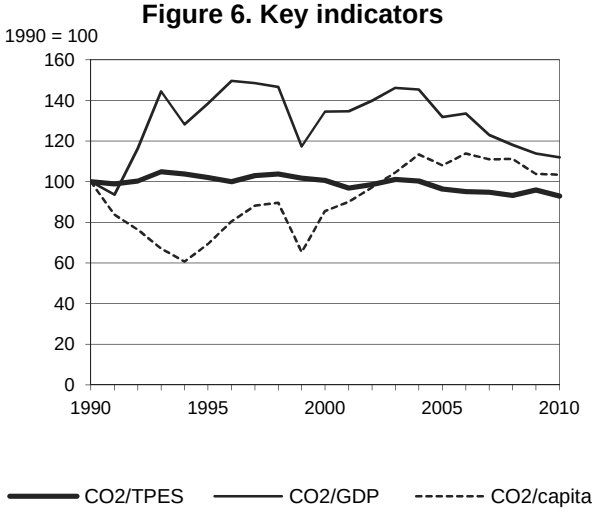


Figure 6. Key indicators



Serbia *

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	61.44	44.01	42.54	49.10	49.88	46.37	46.05	-25.0%
CO_2 Reference Approach ($MtCO_2$)	61.58	44.41	41.88	50.81	52.81	47.27	47.02	-23.6%
TPES (PJ)	810	569	557	672	706	638	654	-19.3%
TPES (Mtoe)	19.35	13.58	13.31	16.05	16.87	15.24	15.61	-19.3%
GDP (billion 2005 USD)	41.64	21.55	21.44	25.26	28.63	27.63	27.89	-33.0%
GDP PPP (billion 2005 USD)	104.17	53.73	53.41	63.43	71.90	69.38	70.04	-32.8%
Population (millions)	10.06	10.41	8.15	7.44	7.35	7.32	7.29	-27.5%
CO_2 / TPES (tCO_2 per TJ)	75.8	77.4	76.3	73.1	70.6	72.6	70.5	-7.1%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	1.48	2.04	1.98	1.94	1.74	1.68	1.65	11.9%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.59	0.82	0.80	0.77	0.69	0.67	0.66	11.5%
CO_2 / population (tCO_2 per capita)	6.11	4.23	5.22	6.60	6.79	6.33	6.31	3.4%

Ratios are based on the Sectoral Approach.

* Data for Serbia include Montenegro until 2004 and Kosovo until 1999.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other **	Total	% change 90-10
Sectoral Approach	**31.69**	**10.19**	**4.12**	**0.04**	**46.05**	**-25.0%**
Main activity producer elec. and heat	26.35	0.63	1.12	0.04	28.14	-29.1%
Unallocated autoproducers	1.29	0.59	0.38	-	2.25	x
Other energy industry own use	-	0.43	0.11	-	0.54	x
Manufacturing industries and construction	2.27	1.52	1.75	-	5.53	-45.8%
Transport	-	6.45	0.02	-	6.47	46.3%
of which: road	-	*5.49*	*0.02*	-	*5.50*	24.4%
Other	1.79	0.58	0.74	-	3.11	-56.3%
of which: residential	*0.94*	*0.08*	*0.50*	-	*1.52*	-24.2%
Reference Approach	**32.33**	**10.49**	**4.16**	**0.04**	**47.02**	**-23.6%**
Diff. due to losses and/or transformation	0.63	0.30	0.04	-	0.97	
Statistical differences	0.01	- 0.00	0.00	-	0.01	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.13*	-	-	*0.13*	*-69.7%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	26.35	-29.7%	..	..
Road - oil	5.49	24.0%	..	..
Manufacturing industries - coal/peat	2.27	46.5%	..	..
Manufacturing industries - gas	1.75	-3.8%	..	..
Manufacturing industries - oil	1.52	-77.8%	..	..
Unallocated autoproducers - coal/peat	1.29	x	..	..
Main activity prod. elec. and heat - gas	1.12	111.8%	..	..
Other transport - oil	0.96	x	..	..
Residential - coal/peat	0.94	-49.5%	..	..
Non-specified other sectors - coal/peat	0.85	101.1%	..	..
Main activity prod. elec. and heat - oil	0.63	-62.8%	..	..
Memo: total CO_2 from fuel combustion	*46.05*	*-25.0%*	-	-

*** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Singapore

Figure 1. CO_2 emissions by fuel

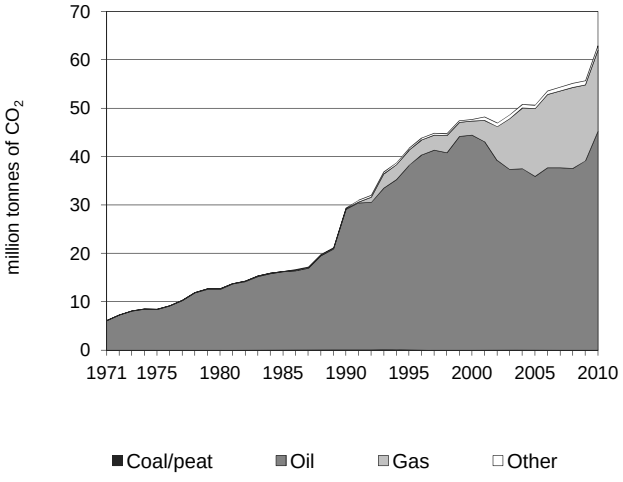


Figure 2. CO_2 emissions by sector

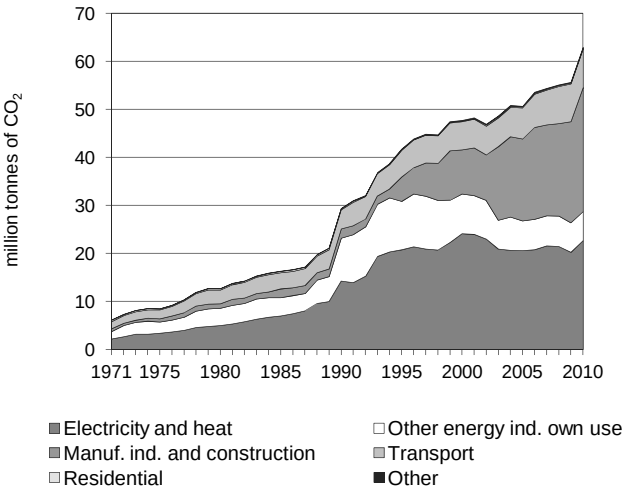


Figure 3. CO_2 emissions by sector

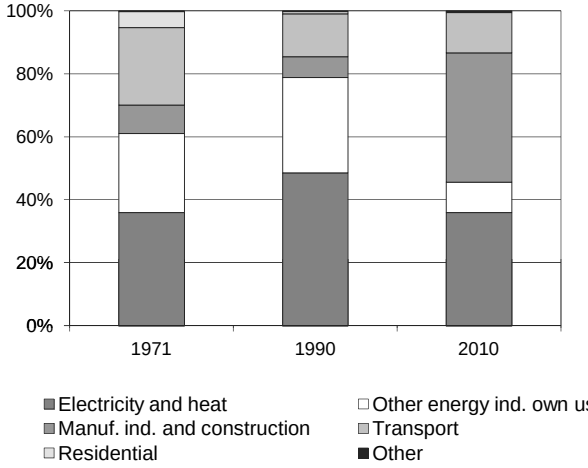


Figure 4. Reference vs Sectoral Approach

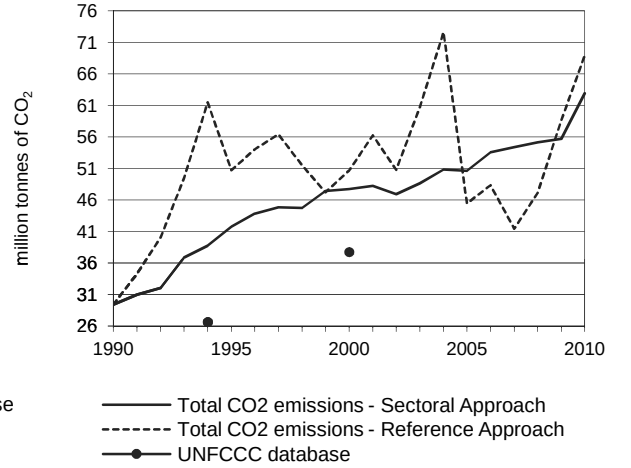


Figure 5. Electricity generation by fuel

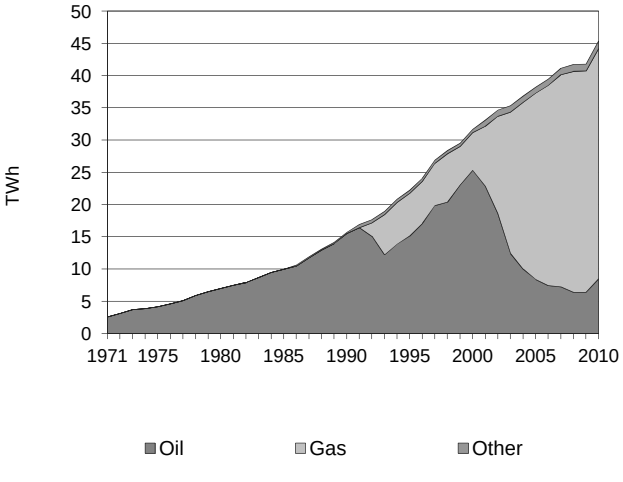
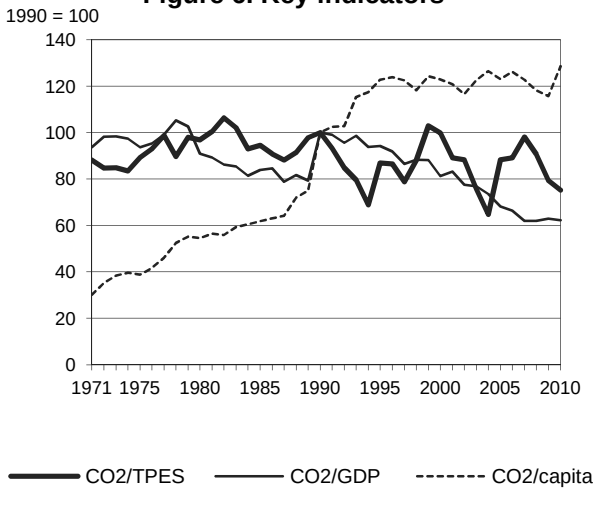


Figure 6. Key indicators



Singapore

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	29.39	41.72	47.72	50.64	55.14	55.68	62.93	114.1%
CO_2 Reference Approach ($MtCO_2$)	29.40	50.74	50.67	45.43	47.15	58.67	68.90	134.3%
TPES (PJ)	482	788	784	940	998	1 150	1 372	184.6%
TPES (Mtoe)	11.51	18.81	18.72	22.46	23.83	27.48	32.77	184.6%
GDP (billion 2005 USD)	48.90	73.70	97.76	123.51	148.21	147.07	168.35	244.3%
GDP PPP (billion 2005 USD)	76.64	115.51	153.21	193.56	232.27	230.48	263.83	244.3%
Population (millions)	3.05	3.53	4.03	4.27	4.84	4.99	5.08	66.6%
CO_2 / TPES (tCO_2 per TJ)	61.0	53.0	60.9	53.9	55.3	48.4	45.9	-24.8%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.60	0.57	0.49	0.41	0.37	0.38	0.37	-37.8%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.38	0.36	0.31	0.26	0.24	0.24	0.24	-37.8%
CO_2 / population (tCO_2 per capita)	9.65	11.84	11.85	11.87	11.40	11.16	12.39	28.5%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.03**	**45.16**	**16.82**	**0.92**	**62.93**	**114.1%**
Main activity producer elec. and heat	-	7.10	13.42	0.92	21.44	51.8%
Unallocated autoproducers	-	-	1.22	-	1.22	694.9%
Other energy industry own use	-	6.03	-	-	6.03	-32.2%
Manufacturing industries and construction	0.03	23.97	1.87	-	25.88	+
Transport	-	7.99	0.03	-	8.02	99.3%
of which: road	-	*7.99*	-	-	*7.99*	98.6%
Other	-	0.06	0.28	-	0.34	30.4%
of which: residential	-	*0.06*	*0.11*	-	*0.17*	-5.6%
Reference Approach	**0.03**	**51.13**	**16.82**	**0.92**	**68.90**	**134.3%**
Diff. due to losses and/or transformation	-	5.97	-	-	5.97	
Statistical differences	-	0.00	-	-	0.00	
Memo: international marine bunkers	-	*125.94*	-	-	*125.94*	*271.9%*
Memo: international aviation bunkers	-	*17.02*	-	-	*17.02*	*202.1%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Manufacturing industries - oil	23.97	+	33.8	33.8
Main activity prod. elec. and heat - gas	13.42	x	18.9	52.7
Road - oil	7.99	98.6%	11.3	64.0
Main activity prod. elec. and heat - oil	7.10	-49.2%	10.0	74.0
Other energy industry own use - oil	6.03	-32.2%	8.5	82.5
Manufacturing industries - gas	1.87	x	2.6	85.2
Unallocated autoproducers - gas	1.22	x	1.7	86.9
Main activity prod. elec. and heat - other	0.92	590.6%	1.3	88.2
Non-specified other - gas	0.16	117.8%	0.2	88.4
Residential - gas	0.11	60.7%	0.2	88.6
Residential - oil	0.06	-47.4%	0.1	88.7
Memo: total CO_2 from fuel combustion	*62.93*	*114.1%*	*88.7*	*88.7*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Slovak Republic

Figure 1. CO_2 emissions by fuel

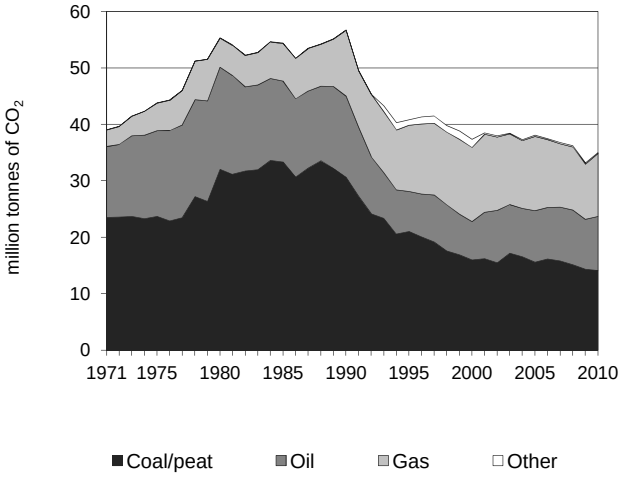


Figure 2. CO_2 emissions by sector

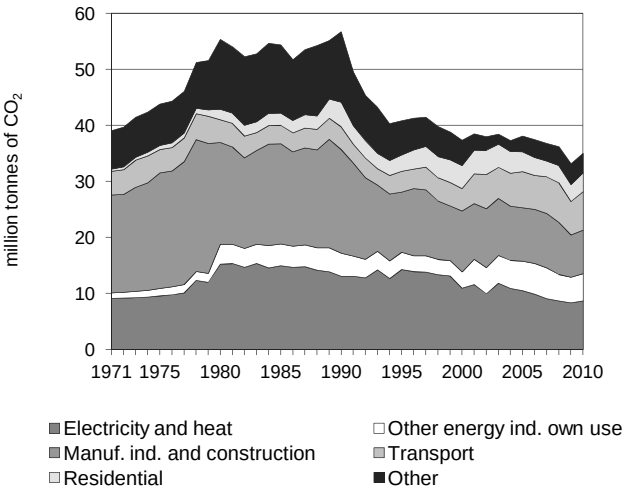


Figure 3. CO_2 emissions by sector

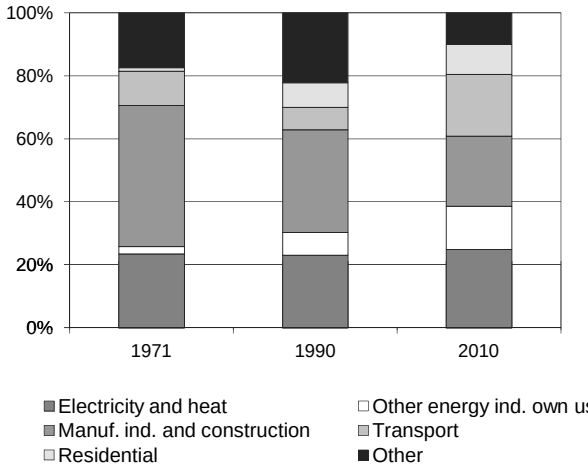


Figure 4. Reference vs Sectoral Approach

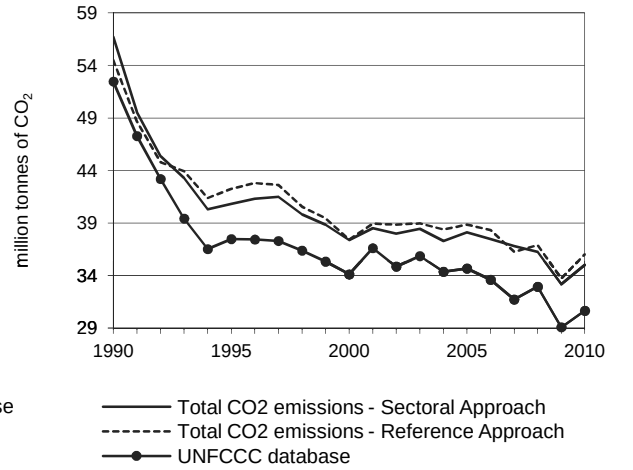


Figure 5. Electricity generation by fuel

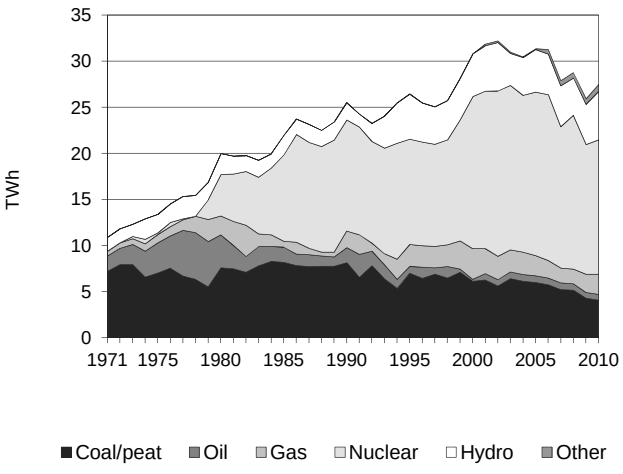
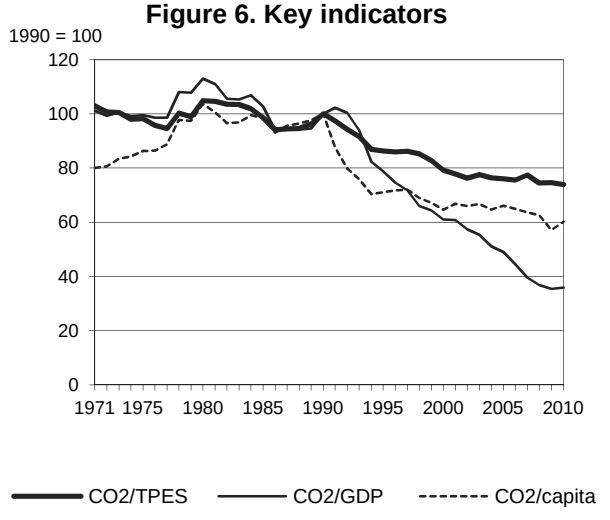


Figure 6. Key indicators



Slovak Republic

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	56.73	40.83	37.37	38.10	36.25	33.17	35.00	-38.3%
CO_2 Reference Approach ($MtCO_2$)	54.49	42.26	37.42	38.85	36.90	33.71	36.00	-33.9%
TPES (PJ)	893	744	743	788	766	700	746	-16.5%
TPES (Mtoe)	21.33	17.78	17.74	18.83	18.30	16.72	17.81	-16.5%
GDP (billion 2005 USD)	34.94	31.89	37.70	47.90	60.64	57.65	60.06	71.9%
GDP PPP (billion 2005 USD)	63.56	58.02	68.58	87.13	110.31	104.87	109.26	71.9%
Population (millions)	5.30	5.36	5.40	5.39	5.41	5.42	5.43	2.5%
CO_2 / TPES (tCO_2 per TJ)	63.5	54.9	50.3	48.3	47.3	47.4	46.9	-26.1%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	1.62	1.28	0.99	0.80	0.60	0.58	0.58	-64.1%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.89	0.70	0.55	0.44	0.33	0.32	0.32	-64.1%
CO_2 / population (tCO_2 per capita)	10.71	7.61	6.92	7.07	6.70	6.12	6.45	-39.8%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**14.09**	**9.61**	**11.15**	**0.15**	**35.00**	**-38.3%**
Main activity producer elec. and heat	4.69	0.94	2.12	0.00	7.75	-28.7%
Unallocated autoproducers	0.73	0.01	0.16	0.06	0.95	-56.9%
Other energy industry own use	3.05	1.39	0.38	-	4.82	16.8%
Manufacturing industries and construction	4.31	1.01	2.40	0.06	7.79	-57.9%
Transport	-	5.93	0.93	-	6.85	69.4%
of which: road	-	*5.92*	-	-	*5.92*	46.4%
Other	1.31	0.34	5.16	0.04	6.84	-59.7%
of which: residential	*0.22*	*0.03*	*3.11*	-	*3.36*	-24.2%
Reference Approach	**15.26**	**9.04**	**11.53**	**0.16**	**36.00**	**-33.9%**
Diff. due to losses and/or transformation	0.98	- 0.56	0.38	0.01	0.81	
Statistical differences	0.18	- 0.00	- 0.00	- 0.00	0.18	
Memo: international marine bunkers	-	-	-	-	-	-
Memo: international aviation bunkers	-	*0.12*	-	-	*0.12*	*x*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	5.92	46.4%	11.8	11.8
Main activity prod. elec. and heat - coal/peat	4.69	-42.5%	9.3	21.1
Manufacturing industries - coal/peat	4.31	-48.4%	8.6	29.6
Residential - gas	3.11	22.1%	6.2	35.8
Other energy industry - coal/peat	3.05	-10.5%	6.1	41.9
Manufacturing industries - gas	2.40	-22.8%	4.8	46.7
Main activity prod. elec. and heat - gas	2.12	3.4%	4.2	50.9
Non-specified other - gas	2.04	-41.3%	4.1	54.9
Other energy industry own use - oil	1.39	208.6%	2.8	57.7
Non-specified other sectors - coal/peat	1.09	-84.9%	2.2	59.9
Manufacturing industries - oil	1.01	-85.5%	2.0	61.9
Memo: total CO_2 from fuel combustion	*35.00*	*-38.3%*	*69.5*	*69.5*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Slovenia

Figure 1. CO_2 emissions by fuel

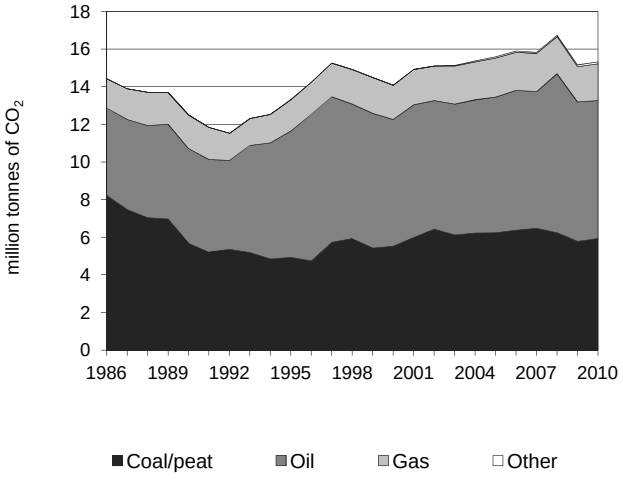


Figure 2. CO_2 emissions by sector

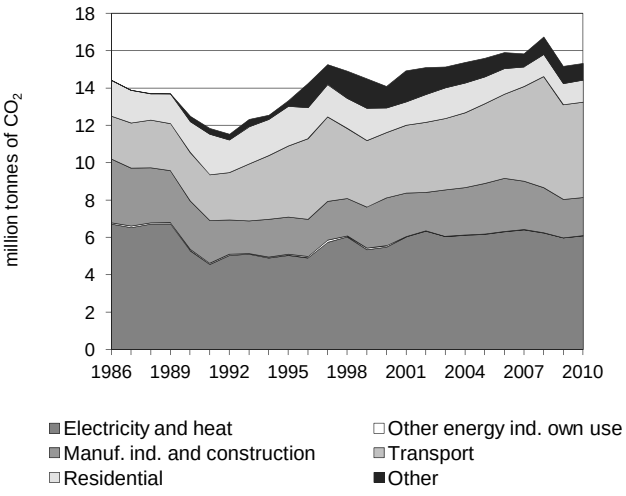


Figure 3. CO_2 emissions by sector

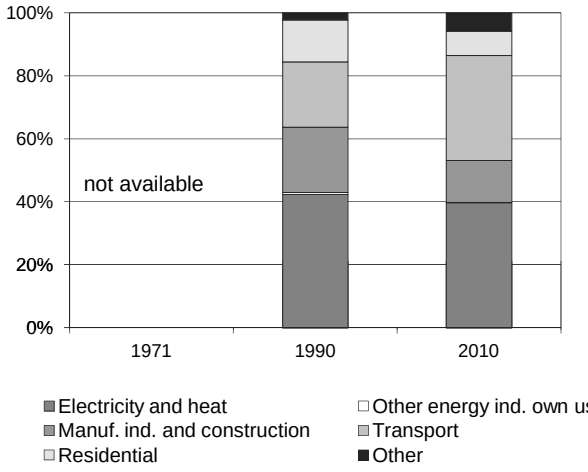


Figure 4. Reference vs Sectoral Approach

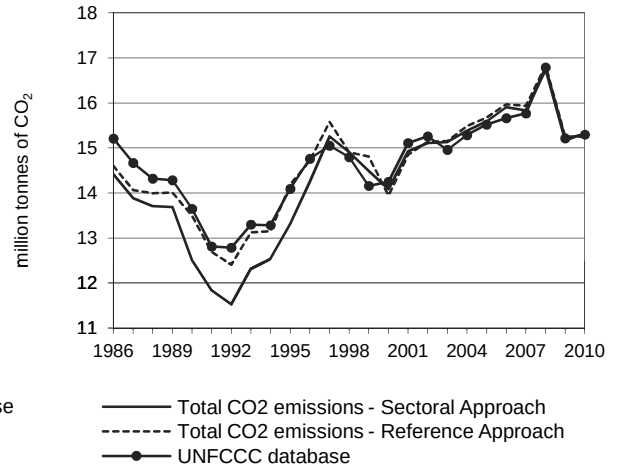


Figure 5. Electricity generation by fuel

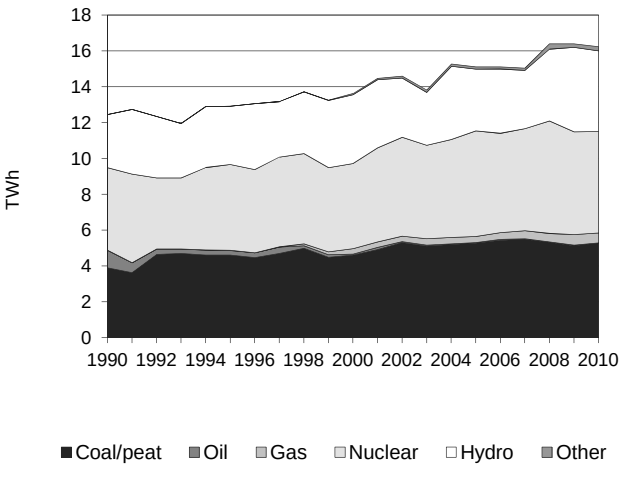
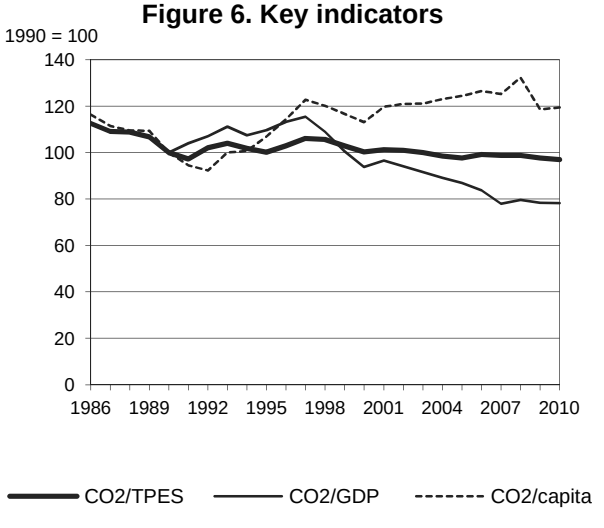


Figure 6. Key indicators



Slovenia *

Key indicators

	1986	1990	1995	2005	2008	2009	2010	% change 86-10
CO_2 Sectoral Approach ($MtCO_2$)	14.42e	12.50	13.31	15.59	16.74	15.16	15.32	6.3%
CO_2 Reference Approach ($MtCO_2$)	14.6e	13.49	14.19	15.68	16.82	15.25	15.25	4.4%
TPES (PJ)	245e	239	254	305	324	297	302	23.2%
TPES (Mtoe)	5.85e	5.71	6.07	7.29	7.74	7.09	7.21	23.2%
GDP (billion 2005 USD)	..	24.90	24.18	35.72	41.86	38.50	39.03	..
GDP PPP (billion 2005 USD)	..	32.73	31.79	46.96	55.03	50.62	51.32	..
Population (millions)	1.98e	2.00	1.99	2.00	2.02	2.04	2.05	3.4%
CO_2 / TPES (tCO_2 per TJ)	58.8e	52.3	52.4	51.1	51.7	51.1	50.8	-13.7%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	..	0.50	0.55	0.44	0.40	0.39	0.39	..
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	..	0.38	0.42	0.33	0.30	0.30	0.30	..
CO_2 / population (tCO_2 per capita)	7.28e	6.26	6.69	7.79	8.28	7.43	7.48	2.7%

Ratios are based on the Sectoral Approach.

* According to the provisions of Article 4.6 of the Convention and Decisions 9/CP.2 and 11/CP.4, Slovenia is allowed to use 1986 as the base year.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other **	Total	% change 86-10
Sectoral Approach	**5.94**	**7.32**	**1.96**	**0.11**	**15.32**	**6.3%**
Main activity producer elec. and heat	5.66	0.02	0.33	-	6.01	3.1%
Unallocated autoproducers	0.04	-	0.04	0.00	0.08	-91.0%
Other energy industry own use	-	-	0.01	-	0.01	-77.1%
Manufacturing industries and construction	0.24	0.45	1.25	0.10	2.04	-40.0%
Transport	-	5.10	-	-	5.10	121.6%
of which: road	-	*5.06*	-	-	*5.06*	123.1%
Other	-	1.76	0.32	-	2.08	7.9%
of which: residential	-	*0.93*	*0.27*	-	*1.19*	-37.7%
Reference Approach	**5.87**	**7.32**	**1.96**	**0.11**	**15.25**	**4.4%**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	- 0.07	0.00	-	-	- 0.07	
Memo: international marine bunkers	-	*0.06*	-	-	*0.06*	..
Memo: international aviation bunkers	-	*0.08*	-	-	*0.08*	*-21.9%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 86-10	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	5.66	-0.7%	28.9	28.9
Road - oil	5.06	123.1%	25.9	54.8
Manufacturing industries - gas	1.25	10.5%	6.4	61.2
Residential - oil	0.93	37.1%	4.8	66.0
Non-specified other - oil	0.83	x	4.2	70.2
Manufacturing industries - oil	0.45	-58.4%	2.3	72.5
Main activity prod. elec. and heat - gas	0.33	614.0%	1.7	74.2
Residential - gas	0.27	658.9%	1.4	75.5
Manufacturing industries - coal/peat	0.24	-80.0%	1.2	76.8
Manufacturing industries -other	0.10	x	0.5	77.3
Non-specified other - gas	0.06	425.9%	0.3	77.6
Memo: total CO_2 from fuel combustion	*15.32*	*6.3%*	*78.4*	*78.4*

*** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

South Africa

Figure 1. CO_2 emissions by fuel

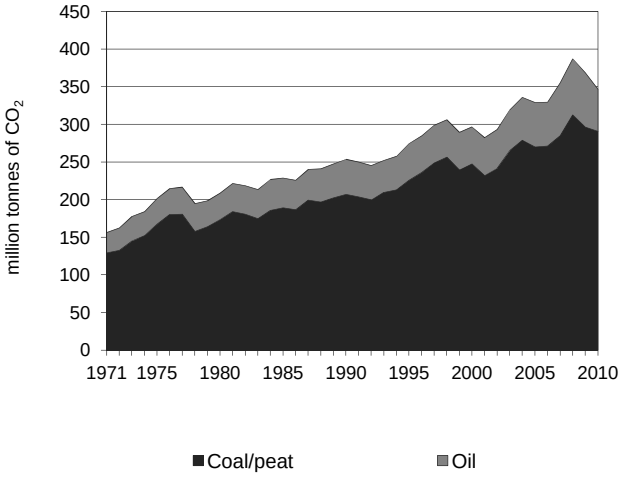


Figure 2. CO_2 emissions by sector

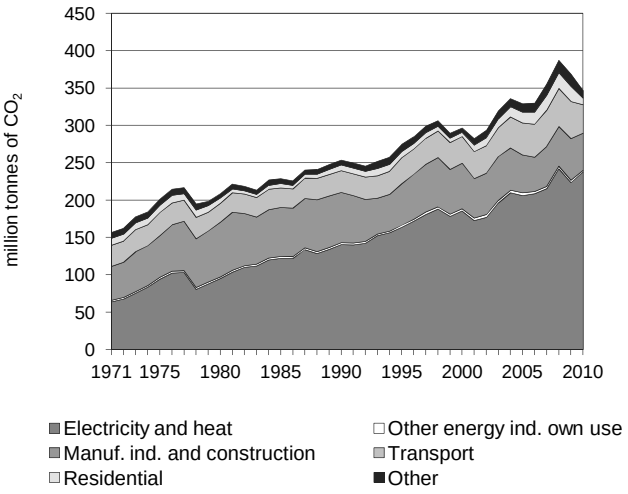


Figure 3. CO_2 emissions by sector

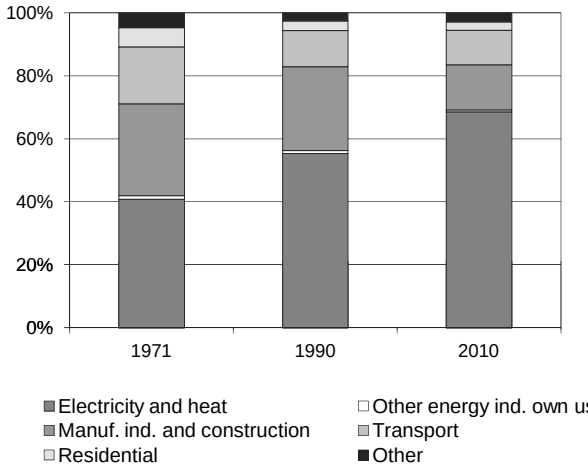


Figure 4. Reference vs Sectoral Approach

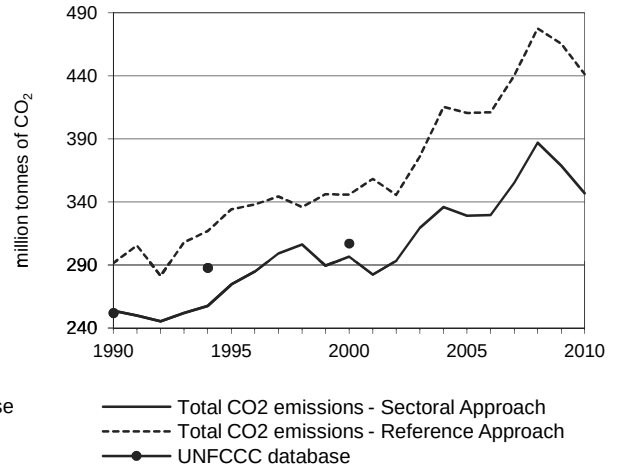


Figure 5. Electricity generation by fuel

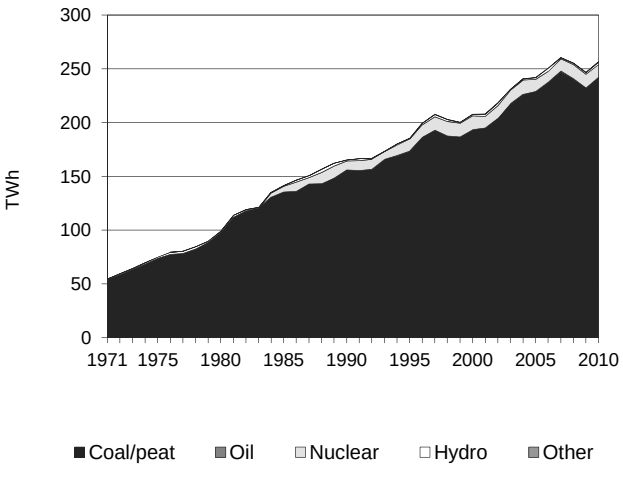
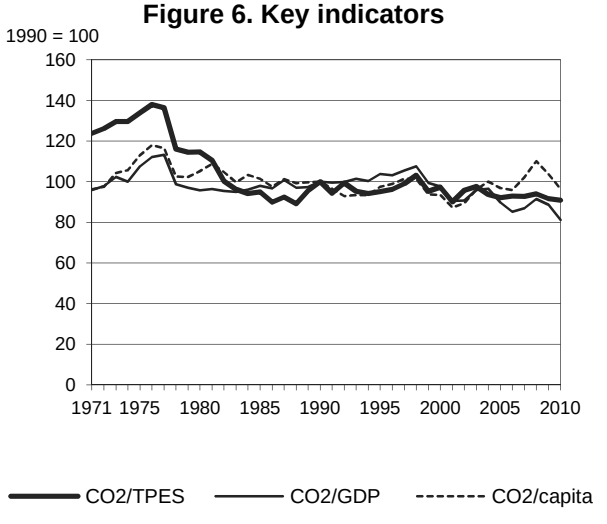


Figure 6. Key indicators



South Africa

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	253.65	274.49	296.65	329.17	387.13	368.75	346.84	36.7%
CO_2 Reference Approach ($MtCO_2$)	291.62	334.12	345.86	410.74	477.72	465.36	441.28	51.3%
TPES (PJ)	3 808	4 337	4 575	5 367	6 185	6 041	5 730	50.5%
TPES (Mtoe)	90.96	103.58	109.26	128.19	147.73	144.28	136.87	50.5%
GDP (billion 2005 USD)	170.92	178.42	204.71	247.06	285.29	280.49	288.46	68.8%
GDP PPP (billion 2005 USD)	280.71	293.02	336.20	405.76	468.53	460.65	473.77	68.8%
Population (millions)	35.20	39.12	44.00	47.20	48.79	49.32	49.99	42.0%
CO_2 / TPES (tCO_2 per TJ)	66.6	63.3	64.8	61.3	62.6	61.0	60.5	-9.1%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	1.48	1.54	1.45	1.33	1.36	1.31	1.20	-19.0%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.90	0.94	0.88	0.81	0.83	0.80	0.73	-19.0%
CO_2 / population (tCO_2 per capita)	7.21	7.02	6.74	6.97	7.93	7.48	6.94	-3.7%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**291.00**	**55.83**	**-**	**-**	**346.84**	**36.7%**
Main activity producer elec. and heat	228.32	0.15	-	-	228.47	73.0%
Unallocated autoproducers	9.33	-	-	-	9.33	8.9%
Other energy industry own use	-	2.27	-	-	2.27	-3.1%
Manufacturing industries and construction	40.36	9.14	-	-	49.50	-26.5%
Transport	-	38.18	-	-	38.18	30.6%
of which: road	-	*35.50*	-	-	*35.50*	27.1%
Other	13.00	6.09	-	-	19.08	35.2%
of which: residential	*7.57*	*1.46*	-	-	*9.02*	19.2%
Reference Approach	**390.58**	**43.81**	**6.89**	**-**	**441.28**	**51.3%**
Diff. due to losses and/or transformation	85.37	- 13.03	6.89	-	79.23	
Statistical differences	14.21	1.01	-	-	15.22	
Memo: international marine bunkers	-	*8.70*	-	-	*8.70*	*46.1%*
Memo: international aviation bunkers	-	*2.55*	-	-	*2.55*	*133.3%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	228.32	72.9%	50.0	50.0
Manufacturing industries - coal/peat	40.36	-29.2%	8.8	58.8
Road - oil	35.50	27.1%	7.8	66.6
Unallocated autoproducers - coal/peat	9.33	8.9%	2.0	68.6
Manufacturing industries - oil	9.14	-11.7%	2.0	70.6
Residential - coal/peat	7.57	31.4%	1.7	72.3
Non-specified other sectors - coal/peat	5.43	47.9%	1.2	73.5
Non-specified other - oil	4.63	61.4%	1.0	74.5
Other transport - oil	2.69	137.1%	0.6	75.1
Other energy industry own use - oil	2.27	-1.6%	0.5	75.6
Residential - oil	1.46	-19.6%	0.3	75.9
Memo: total CO_2 from fuel combustion	*346.84*	*36.7%*	*75.9*	*75.9*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Spain

Figure 1. CO_2 emissions by fuel

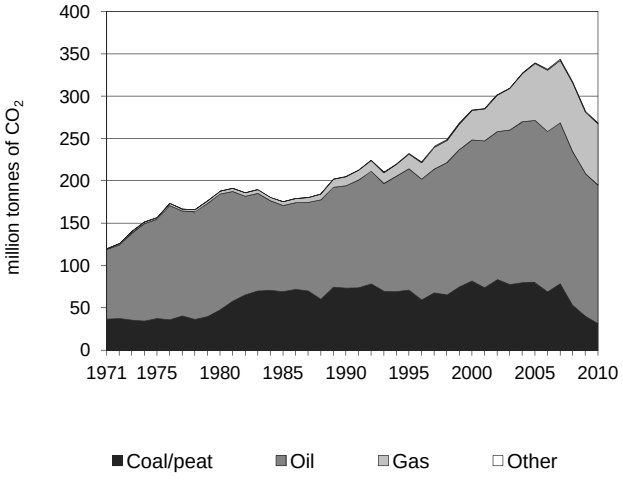


Figure 2. CO_2 emissions by sector

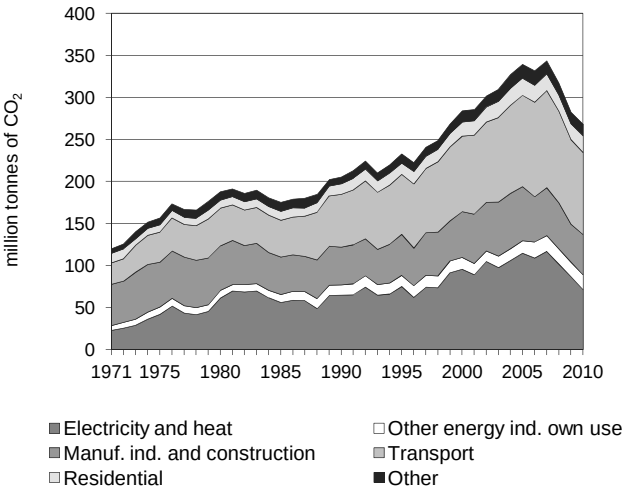


Figure 3. CO_2 emissions by sector

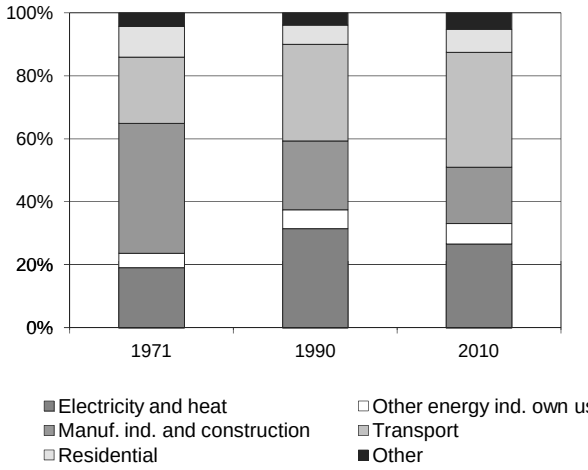


Figure 4. Reference vs Sectoral Approach

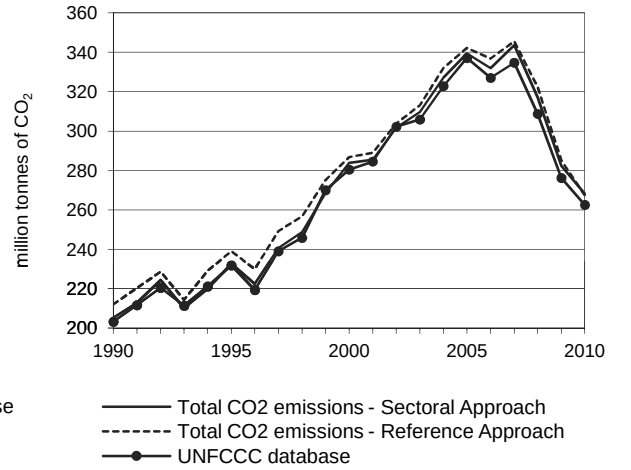


Figure 5. Electricity generation by fuel

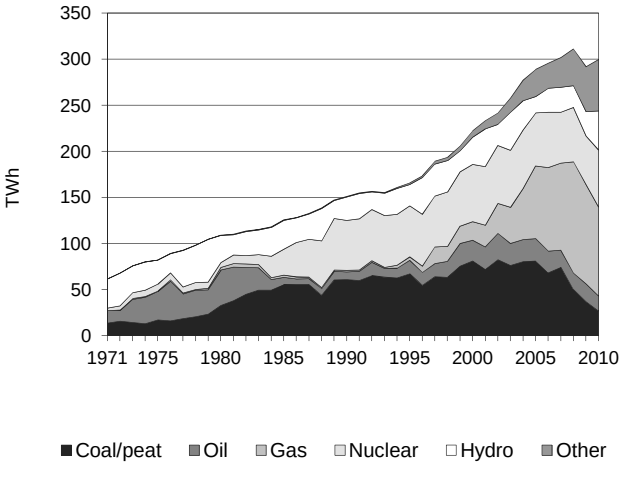
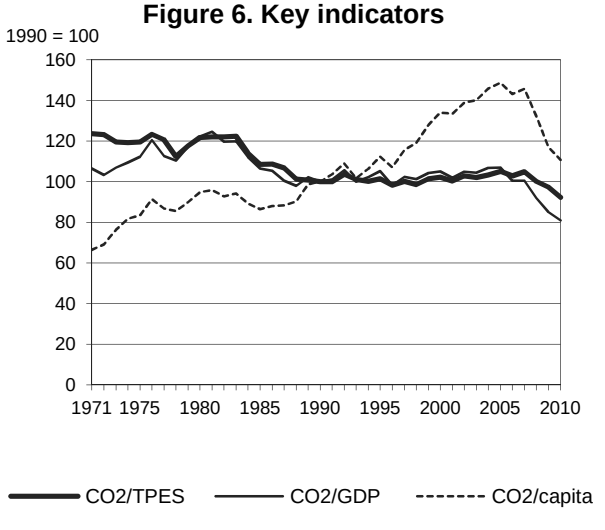


Figure 6. Key indicators



Spain

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	205.22	232.69	283.92	339.44	317.11	282.43	268.32	30.7%
CO_2 Reference Approach ($MtCO_2$)	212.07	239.04	286.78	342.15	322.39	285.20	267.46	26.1%
TPES (PJ)	3 772	4 220	5 107	5 940	5 821	5 336	5 348	41.8%
TPES (Mtoe)	90.08	100.79	121.97	141.87	139.03	127.46	127.74	41.8%
GDP (billion 2005 USD)	730.87	787.61	963.13	1 130.80	1 228.66	1 182.70	1 181.88	61.7%
GDP PPP (billion 2005 USD)	768.33	827.99	1 012.50	1 188.76	1 291.64	1 243.33	1 242.46	61.7%
Population (millions)	39.01	39.39	40.26	43.40	45.59	45.93	46.07	18.1%
CO_2 / TPES (tCO_2 per TJ)	54.4	55.1	55.6	57.1	54.5	52.9	50.2	-7.8%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.28	0.30	0.29	0.30	0.26	0.24	0.23	-19.2%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.27	0.28	0.28	0.29	0.25	0.23	0.22	-19.1%
CO_2 / population (tCO_2 per capita)	5.26	5.91	7.05	7.82	6.96	6.15	5.82	10.7%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**31.39**	**163.73**	**72.23**	**0.98**	**268.32**	**30.7%**
Main activity producer elec. and heat	24.24	9.48	23.62	0.24	57.58	-8.0%
Unallocated autoproducers	0.42	1.69	10.93	0.74	13.79	584.1%
Other energy industry own use	2.04	12.02	3.59	-	17.65	42.0%
Manufacturing industries and construction	3.90	23.98	20.05	-	47.92	6.8%
Transport	-	97.49	0.22	-	97.71	55.2%
of which: road	-	*85.00*	*0.13*	-	*85.13*	61.3%
Other	0.78	19.07	13.82	-	33.68	65.3%
of which: residential	*0.54*	*9.68*	*9.40*	-	*19.62*	57.1%
Reference Approach	**29.46**	**164.52**	**72.50**	**0.98**	**267.46**	**26.1%**
Diff. due to losses and/or transformation	0.12	2.34	0.25	-	2.71	
Statistical differences	- 2.05	- 1.54	0.03	- 0.00	- 3.57	
Memo: international marine bunkers	-	*26.53*	-	-	*26.53*	*131.5%*
Memo: international aviation bunkers	-	*9.02*	-	-	*9.02*	*171.7%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	85.00	61.1%	23.5	23.5
Main activity prod. elec. and heat - coal/peat	24.24	-56.8%	6.7	30.2
Manufacturing industries - oil	23.98	3.1%	6.6	36.8
Main activity prod. elec. and heat - gas	23.62	+	6.5	43.4
Manufacturing industries - gas	20.05	135.1%	5.5	48.9
Other transport - oil	12.50	22.7%	3.5	52.4
Other energy industry own use - oil	12.02	14.0%	3.3	55.7
Unallocated autoproducers - gas	10.93	+	3.0	58.7
Residential - oil	9.68	-2.5%	2.7	61.4
Main activity prod. elec. and heat - oil	9.48	58.6%	2.6	64.0
Residential - gas	9.40	937.8%	2.6	66.6
Memo: total CO_2 from fuel combustion	*268.32*	*30.7%*	*74.2*	*74.2*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Sri Lanka

Figure 1. CO_2 emissions by fuel

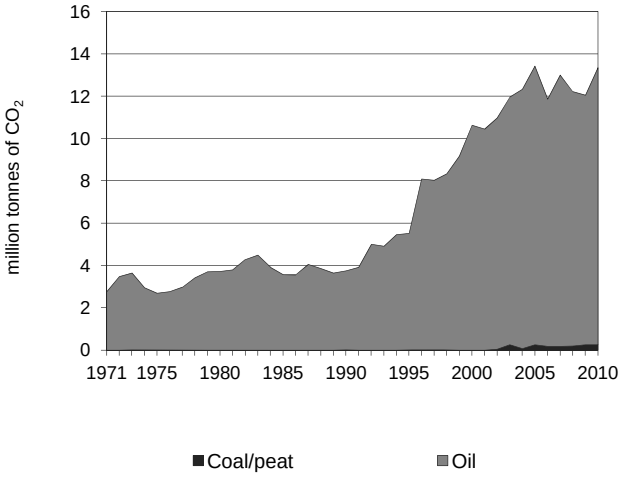


Figure 2. CO_2 emissions by sector

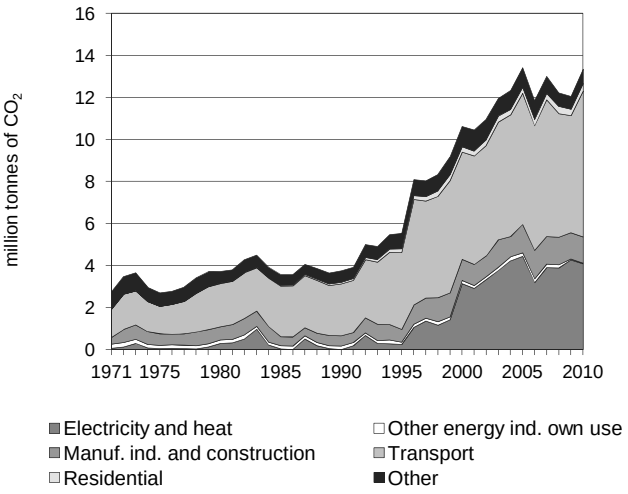


Figure 3. CO_2 emissions by sector

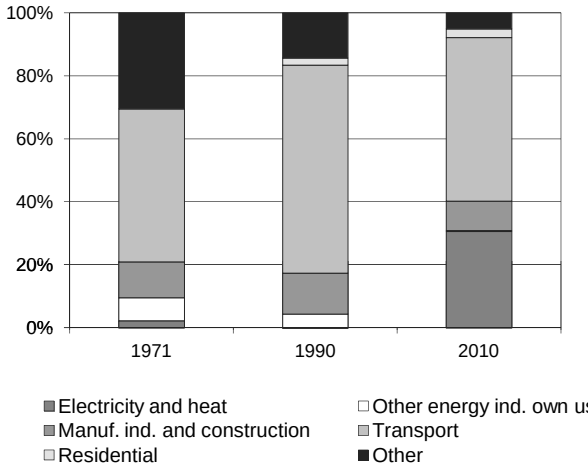


Figure 4. Reference vs Sectoral Approach

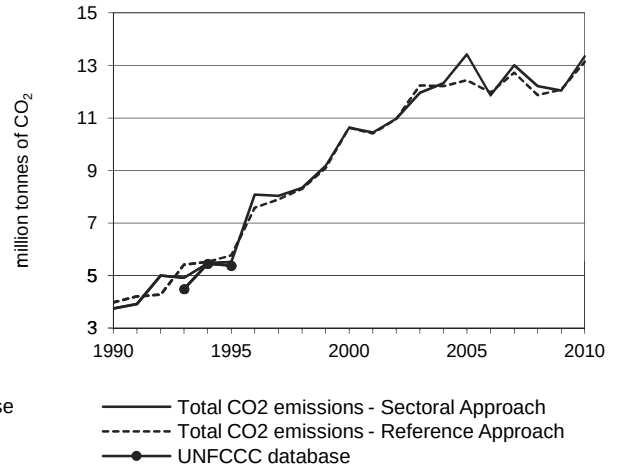


Figure 5. Electricity generation by fuel

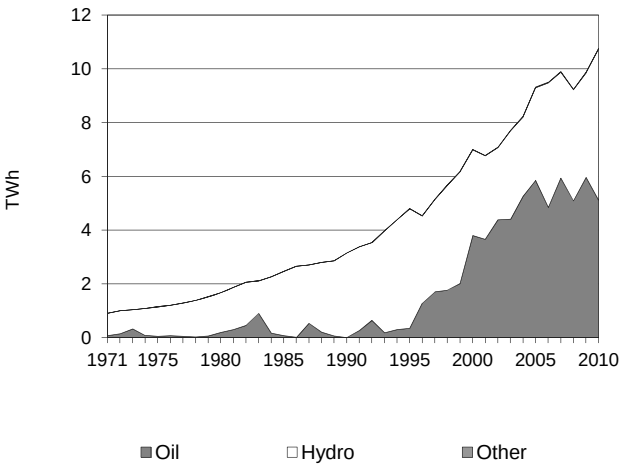
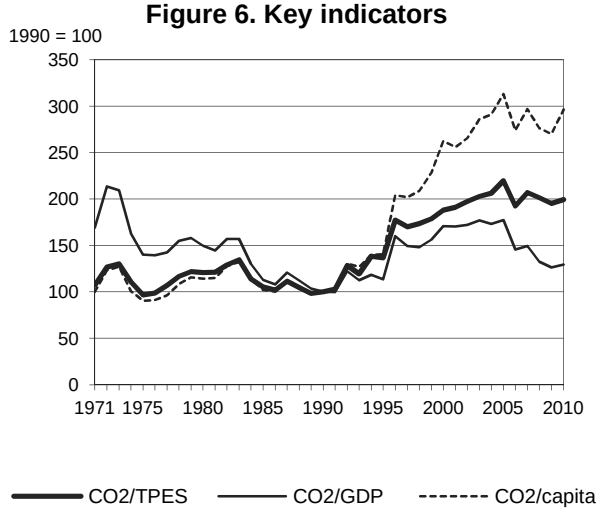


Figure 6. Key indicators



Sri Lanka

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	3.74	5.52	10.62	13.42	12.21	12.05	13.34	256.4%
CO_2 Reference Approach ($MtCO_2$)	3.98	5.77	10.63	12.44	11.87	12.08	13.14	230.5%
TPES (PJ)	231	249	349	377	374	381	413	78.9%
TPES (Mtoe)	5.52	5.95	8.33	9.00	8.94	9.09	9.87	78.9%
GDP (billion 2005 USD)	12.08	15.71	20.09	24.41	29.73	30.79	33.25	175.2%
GDP PPP (billion 2005 USD)	34.53	44.90	57.41	69.74	84.96	87.97	95.02	175.2%
Population (millions)	17.34	18.23	18.75	19.84	20.47	20.67	20.86	20.3%
CO_2 / TPES (tCO_2 per TJ)	16.2	22.2	30.5	35.6	32.6	31.7	32.3	99.2%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.31	0.35	0.53	0.55	0.41	0.39	0.40	29.5%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.11	0.12	0.19	0.19	0.14	0.14	0.14	29.5%
CO_2 / population (tCO_2 per capita)	0.22	0.30	0.57	0.68	0.60	0.58	0.64	196.3%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.26**	**13.09**	**-**	**-**	**13.34**	**256.4%**
Main activity producer elec. and heat	-	4.08	-	-	4.08	+
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.04	-	-	0.04	-74.0%
Manufacturing industries and construction	0.26	0.99	-	-	1.25	155.4%
Transport	-	6.94	-	-	6.94	180.9%
of which: road	-	*6.53*	-	-	*6.53*	196.7%
Other	-	1.04	-	-	1.04	67.4%
of which: residential	-	*0.36*	-	-	*0.36*	335.6%
Reference Approach	**0.26**	**12.88**	**-**	**-**	**13.14**	**230.5%**
Diff. due to losses and/or transformation	-	0.17	-	-	0.17	
Statistical differences	0.00	- 0.38	-	-	- 0.37	
Memo: international marine bunkers	-	*0.61*	-	-	*0.61*	*-49.8%*
Memo: international aviation bunkers	-	*0.35*	-	-	*0.35*	*x*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	6.53	196.7%	23.4	23.4
Main activity prod. elec. and heat - oil	4.08	+	14.6	38.0
Manufacturing industries - oil	0.99	110.7%	3.5	41.5
Non-specified other - oil	0.68	26.2%	2.4	43.9
Other transport - oil	0.41	51.3%	1.5	45.4
Residential - oil	0.36	335.6%	1.3	46.7
Manufacturing industries - coal/peat	0.26	+	0.9	47.6
Other energy industry own use - oil	0.04	-74.0%	0.1	47.7
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*13.34*	*256.4%*	*47.7*	*47.7*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Sudan

Figure 1. CO_2 emissions by fuel

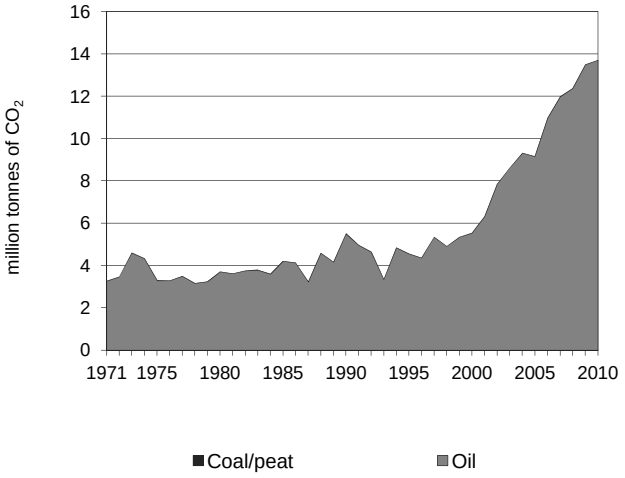


Figure 2. CO_2 emissions by sector

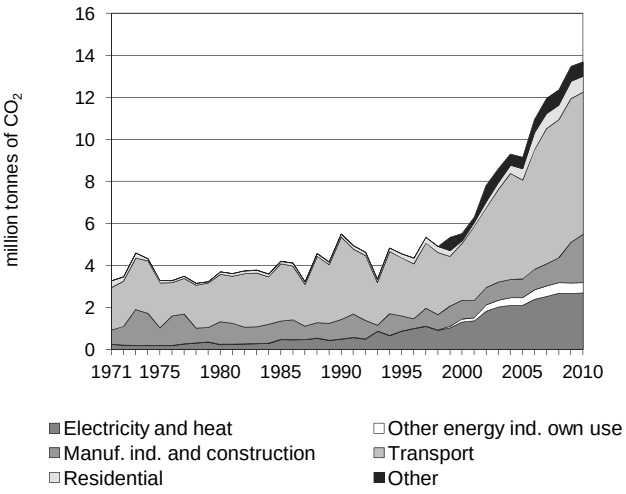


Figure 3. CO_2 emissions by sector

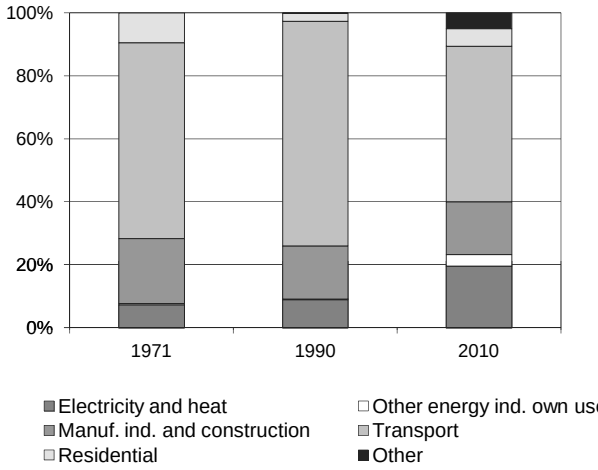


Figure 4. Reference vs Sectoral Approach

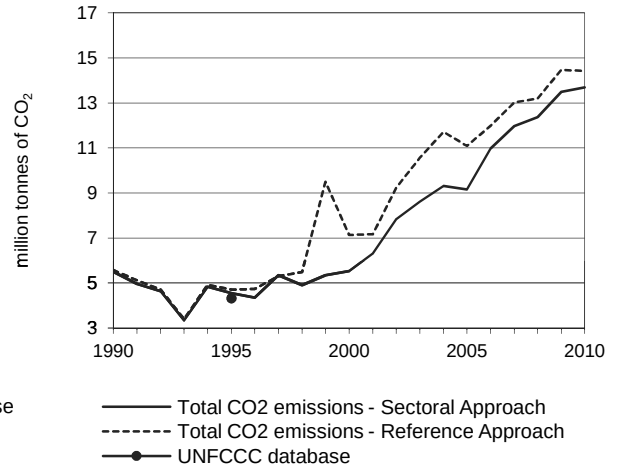


Figure 5. Electricity generation by fuel

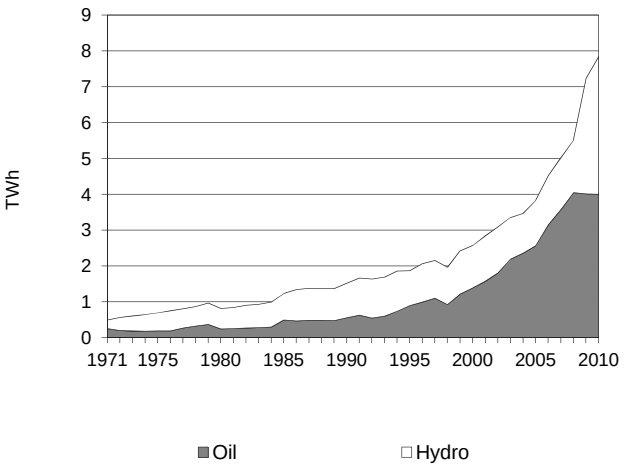
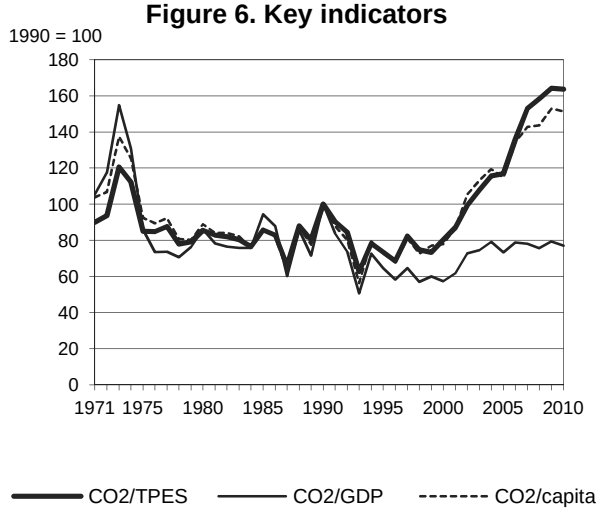


Figure 6. Key indicators



Sudan

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	5.50	4.56	5.53	9.15	12.36	13.49	13.70	148.8%
CO_2 Reference Approach ($MtCO_2$)	5.58	4.71	7.14	11.09	13.20	14.47	14.42	158.7%
TPES (PJ)	445	502	559	633	632	664	676	52.0%
TPES (Mtoe)	10.63	11.98	13.34	15.13	15.09	15.87	16.15	52.0%
GDP (billion 2005 USD)	12.06	15.47	21.11	27.39	35.87	37.30	38.96	223.1%
GDP PPP (billion 2005 USD)	27.27	34.99	47.76	61.96	81.15	84.37	88.13	223.1%
Population (millions)	26.49	30.14	34.19	38.41	41.42	42.48	43.55	64.4%
CO_2 / TPES (tCO_2 per TJ)	12.4	9.1	9.9	14.4	19.6	20.3	20.2	63.7%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.46	0.29	0.26	0.33	0.34	0.36	0.35	-23.0%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.20	0.13	0.12	0.15	0.15	0.16	0.16	-23.0%
CO_2 / population (tCO_2 per capita)	0.21	0.15	0.16	0.24	0.30	0.32	0.31	51.4%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**13.70**	**-**	**-**	**13.70**	**148.8%**
Main activity producer elec. and heat	-	2.69	-	-	2.69	446.9%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.49	-	-	0.49	+
Manufacturing industries and construction	-	2.30	-	-	2.30	147.0%
Transport	-	6.77	-	-	6.77	72.6%
of which: road	-	*6.72*	-	-	*6.72*	71.4%
Other	-	1.45	-	-	1.45	883.8%
of which: residential	-	*0.76*	-	-	*0.76*	440.5%
Reference Approach	**-**	**14.42**	**-**	**-**	**14.42**	**158.7%**
Diff. due to losses and/or transformation	-	0.73	-	-	0.73	
Statistical differences	-	- 0.00	-	-	- 0.00	
Memo: international marine bunkers	-	*0.06*	-	-	*0.06*	*171.4%*
Memo: international aviation bunkers	-	*0.75*	-	-	*0.75*	*688.1%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	6.72	71.4%	3.5	3.5
Main activity prod. elec. and heat - oil	2.69	446.9%	1.4	4.9
Manufacturing industries - oil	2.30	147.0%	1.2	6.1
Residential - oil	0.76	440.5%	0.4	6.5
Non-specified other - oil	0.69	+	0.4	6.9
Other energy industry own use - oil	0.49	+	0.3	7.1
Other transport - oil	0.05	x	0.0	7.1
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*13.70*	*148.8%*	*7.1*	*7.1*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Sweden

Figure 1. CO_2 emissions by fuel

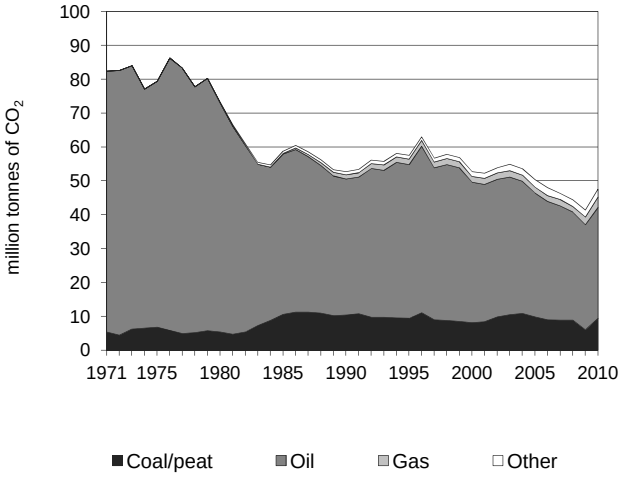


Figure 2. CO_2 emissions by sector

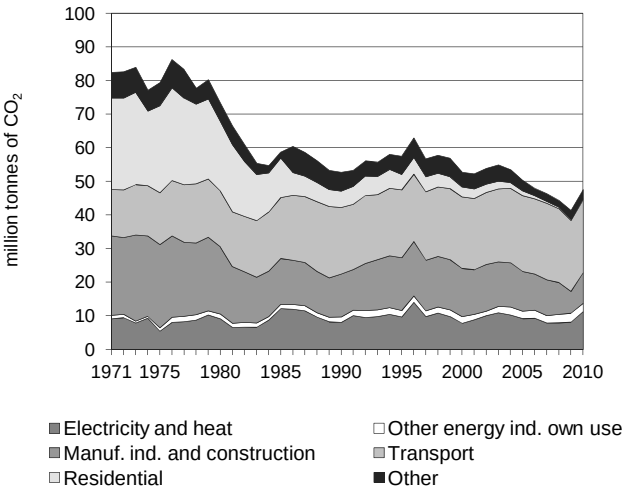


Figure 3. CO_2 emissions by sector

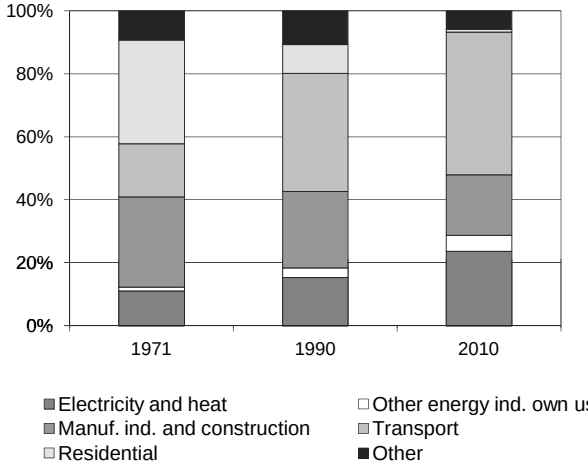


Figure 4. Reference vs Sectoral Approach

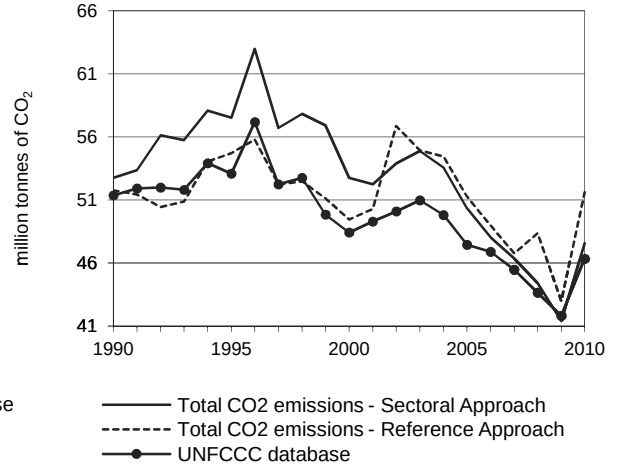


Figure 5. Electricity generation by fuel

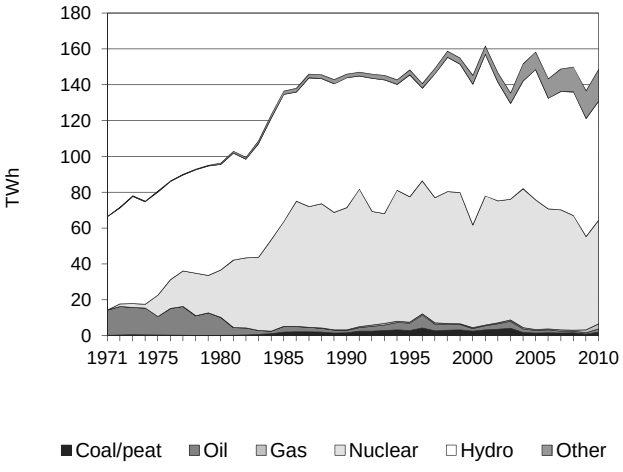
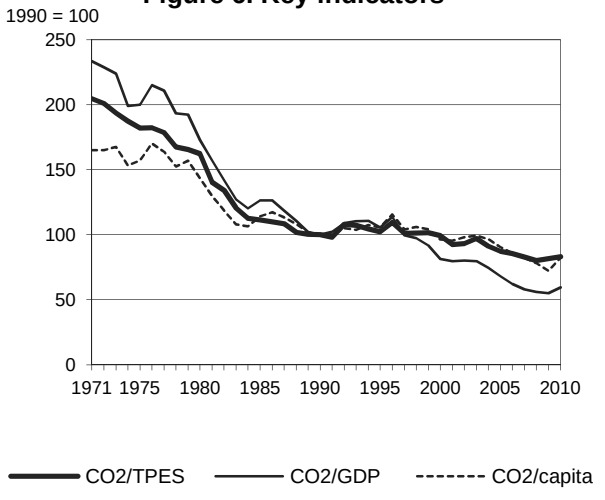


Figure 6. Key indicators



Sweden

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	52.75	57.52	52.76	50.34	44.41	41.40	47.57	-9.8%
CO_2 Reference Approach ($MtCO_2$)	51.76	54.71	49.46	51.29	48.37	42.98	51.62	-0.3%
TPES (PJ)	1 976	2 107	1 991	2 159	2 077	1 901	2 147	8.7%
TPES (Mtoe)	47.20	50.33	47.56	51.57	49.60	45.41	51.28	8.7%
GDP (billion 2005 USD)	263.88	272.95	324.51	370.58	396.86	376.91	400.03	51.6%
GDP PPP (billion 2005 USD)	210.27	217.50	258.58	295.29	316.24	300.34	318.76	51.6%
Population (millions)	8.56	8.83	8.87	9.03	9.22	9.30	9.38	9.6%
CO_2 / TPES (tCO_2 per TJ)	26.7	27.3	26.5	23.3	21.4	21.8	22.2	-17.0%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.20	0.21	0.16	0.14	0.11	0.11	0.12	-40.5%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.25	0.26	0.20	0.17	0.14	0.14	0.15	-40.5%
CO_2 / population (tCO_2 per capita)	6.16	6.52	5.95	5.58	4.82	4.45	5.07	-17.7%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**9.37**	**32.77**	**3.10**	**2.34**	**47.57**	**-9.8%**
Main activity producer elec. and heat	4.09	1.78	1.67	2.34	9.88	27.2%
Unallocated autoproducers	1.16	0.18	0.02	0.00	1.37	322.4%
Other energy industry own use	0.30	2.14	0.00	-	2.44	50.1%
Manufacturing industries and construction	3.80	4.39	0.96	-	9.15	-28.5%
Transport	-	21.48	0.06	-	21.55	9.0%
of which: road	-	*20.34*	*0.06*	-	*20.40*	14.5%
Other	0.03	2.80	0.37	-	3.19	-69.5%
of which: residential	*0.02*	*0.22*	*0.18*	-	*0.41*	-91.5%
Reference Approach	**9.70**	**36.27**	**3.31**	**2.34**	**51.62**	**-0.3%**
Diff. due to losses and/or transformation	1.72	0.95	0.01	-	2.68	
Statistical differences	- 1.40	2.56	0.21	-	1.37	
Memo: international marine bunkers	-	*6.19*	-	-	*6.19*	*195.7%*
Memo: international aviation bunkers	-	*2.04*	-	-	*2.04*	*90.1%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	20.34	14.2%	30.2	30.2
Manufacturing industries - oil	4.39	-41.9%	6.5	36.7
Main activity prod. elec. and heat - coal/peat	4.09	-21.8%	6.1	42.7
Manufacturing industries - coal/peat	3.80	-17.8%	5.6	48.4
Non-specified other - oil	2.58	-51.5%	3.8	52.2
Main activity prod. elec. and heat - other	2.34	145.3%	3.5	55.6
Other energy industry own use - oil	2.14	61.4%	3.2	58.8
Main activity prod. elec. and heat - oil	1.78	55.8%	2.6	61.5
Main activity prod. elec. and heat - gas	1.67	277.5%	2.5	63.9
Unallocated autoproducers - coal/peat	1.16	+	1.7	65.7
Other transport - oil	1.14	-41.4%	1.7	67.3
Memo: total CO_2 from fuel combustion	*47.57*	*-9.8%*	*70.5*	*70.5*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Switzerland

Figure 1. CO_2 emissions by fuel

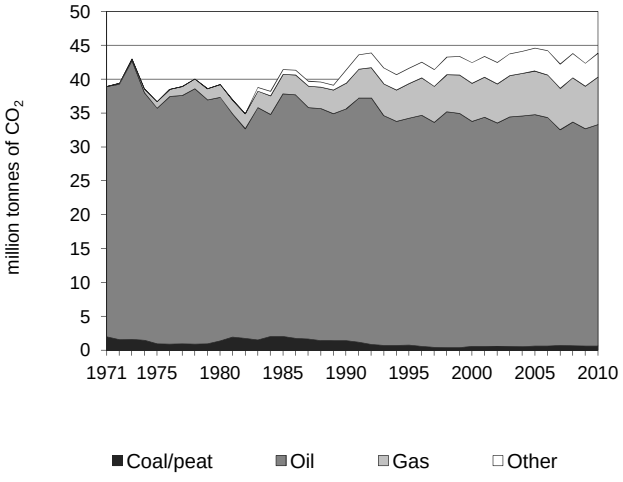


Figure 2. CO_2 emissions by sector

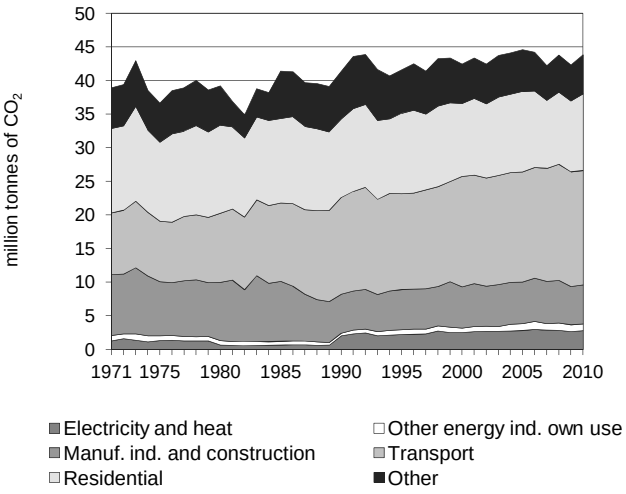


Figure 3. CO_2 emissions by sector

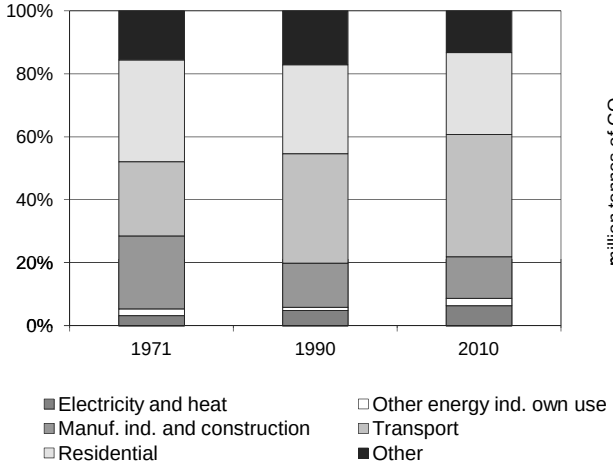


Figure 4. Reference vs Sectoral Approach

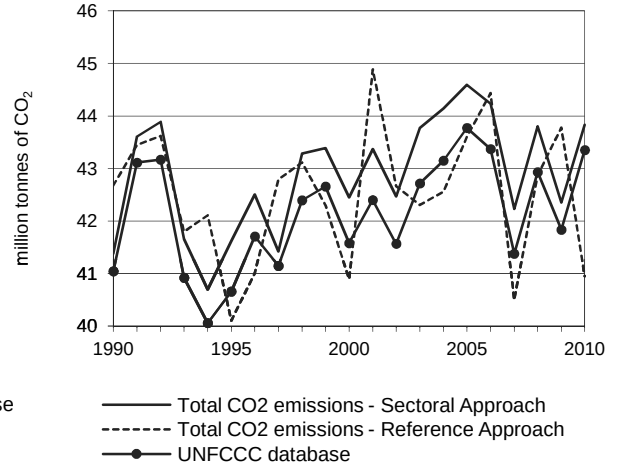


Figure 5. Electricity generation by fuel

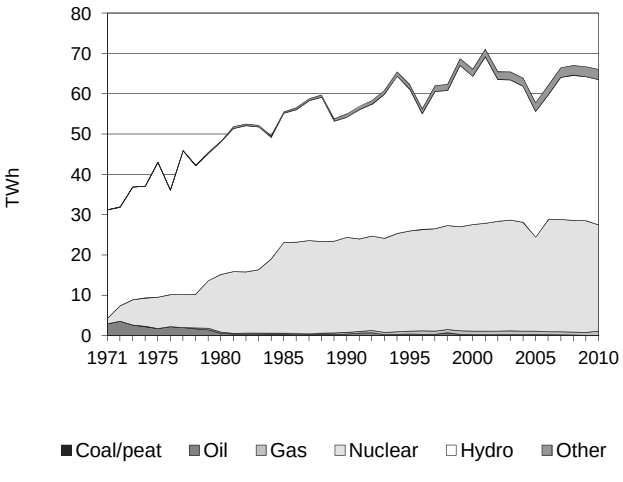
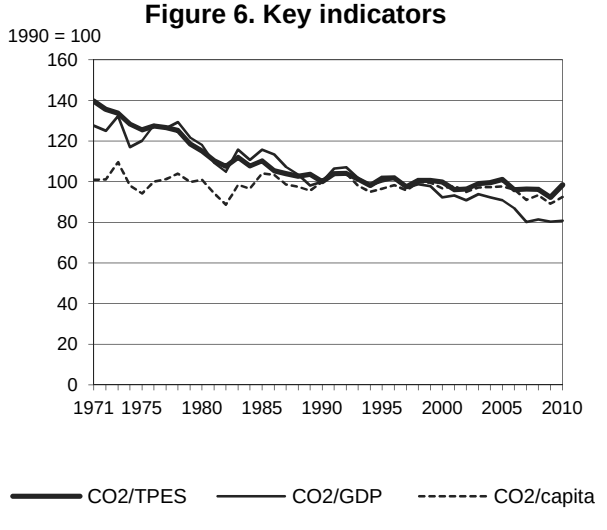


Figure 6. Key indicators



Switzerland

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	41.38	41.62	42.45	44.59	43.80	42.35	43.83	5.9%
CO_2 Reference Approach ($MtCO_2$)	42.68	40.11	40.89	43.60	42.87	43.78	40.95	-4.0%
TPES (PJ)	1 018	1 007	1 047	1 086	1 121	1 129	1 097	7.8%
TPES (Mtoe)	24.32	24.06	25.01	25.95	26.78	26.97	26.21	7.8%
GDP (billion 2005 USD)	313.93	315.49	349.05	372.48	408.45	400.78	411.66	31.1%
GDP PPP (billion 2005 USD)	224.30	225.41	249.39	266.13	291.83	286.35	294.12	31.1%
Population (millions)	6.80	7.08	7.21	7.50	7.71	7.80	7.79	14.6%
CO_2 / TPES (tCO_2 per TJ)	40.6	41.3	40.5	41.0	39.1	37.5	39.9	-1.7%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.13	0.13	0.12	0.12	0.11	0.11	0.11	-19.2%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.18	0.18	0.17	0.17	0.15	0.15	0.15	-19.2%
CO_2 / population (tCO_2 per capita)	6.09	5.88	5.89	5.95	5.68	5.43	5.63	-7.5%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.61**	**32.71**	**7.00**	**3.51**	**43.83**	**5.9%**
Main activity producer elec. and heat	-	0.01	0.29	-	0.30	-48.7%
Unallocated autoproducers	-	0.03	0.26	2.22	2.51	73.8%
Other energy industry own use	-	1.01	0.01	-	1.02	146.6%
Manufacturing industries and construction	0.57	2.28	1.99	0.95	5.79	-0.2%
Transport	-	16.97	0.04	-	17.01	18.2%
of which: road	-	*16.68*	*0.04*	-	*16.72*	20.6%
Other	0.04	12.40	4.42	0.34	17.20	-8.2%
of which: residential	*0.04*	*8.67*	*2.70*	-	*11.40*	-2.3%
Reference Approach	**0.61**	**29.80**	**7.03**	**3.51**	**40.95**	**-4.0%**
Diff. due to losses and/or transformation	-	0.34	0.03	-	0.37	
Statistical differences	0.00	- 3.25	- 0.00	-	- 3.25	
Memo: international marine bunkers	-	*0.03*	-	-	*0.03*	*-44.4%*
Memo: international aviation bunkers	-	*4.16*	-	-	*4.16*	*38.6%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	16.68	20.3%	30.5	30.5
Residential - oil	8.67	-15.2%	15.8	46.3
Non-specified other - oil	3.74	-40.0%	6.8	53.2
Residential - gas	2.70	92.4%	4.9	58.1
Manufacturing industries - oil	2.28	-10.3%	4.2	62.3
Unallocated autoproducers - other	2.22	72.9%	4.1	66.3
Manufacturing industries - gas	1.99	46.5%	3.6	69.9
Non-specified other - gas	1.72	140.7%	3.1	73.1
Other energy industry own use - oil	1.01	149.2%	1.8	74.9
Manufacturing industries -other	0.95	35.2%	1.7	76.7
Manufacturing industries - coal/peat	0.57	-52.1%	1.0	77.7
Memo: total CO_2 from fuel combustion	*43.83*	*5.9%*	*80.1*	*80.1*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Syrian Arab Republic

Figure 1. CO_2 emissions by fuel

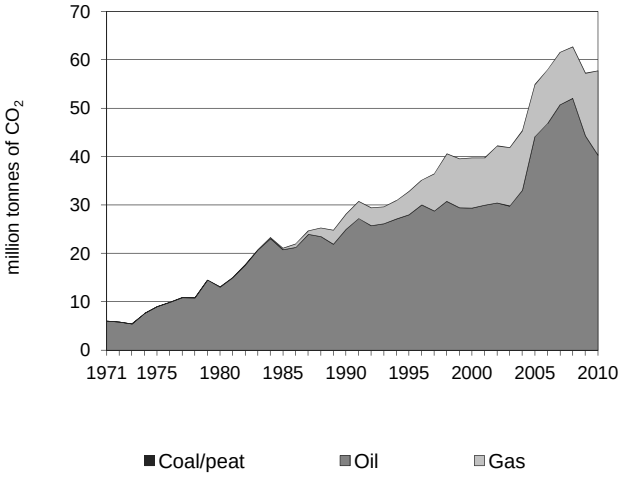


Figure 2. CO_2 emissions by sector

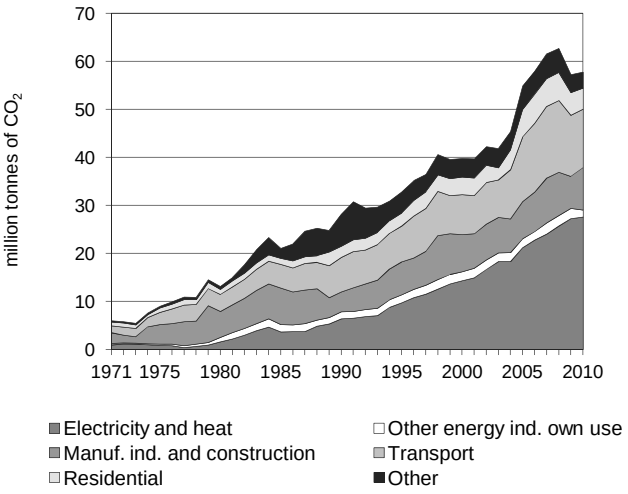


Figure 3. CO_2 emissions by sector

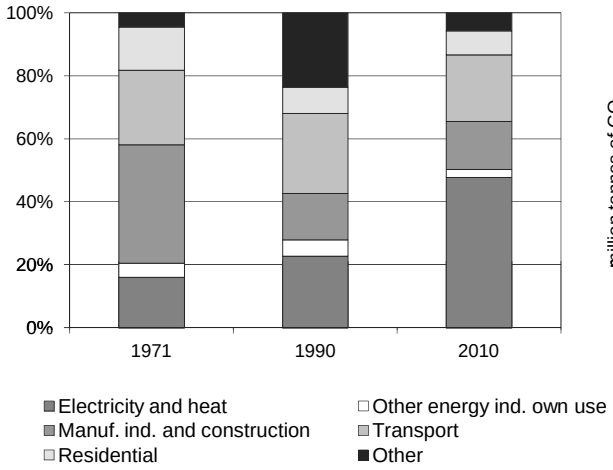


Figure 4. Reference vs Sectoral Approach

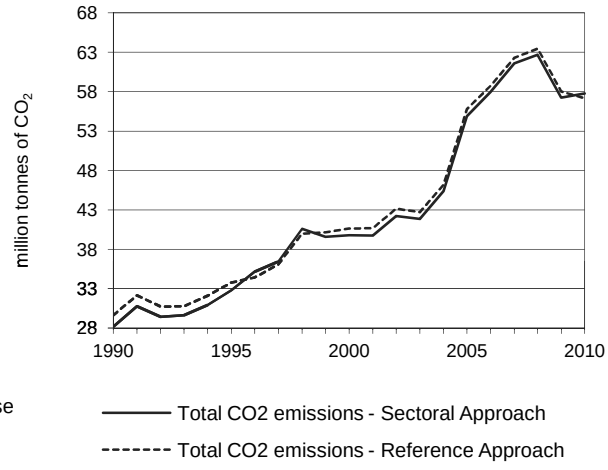


Figure 5. Electricity generation by fuel

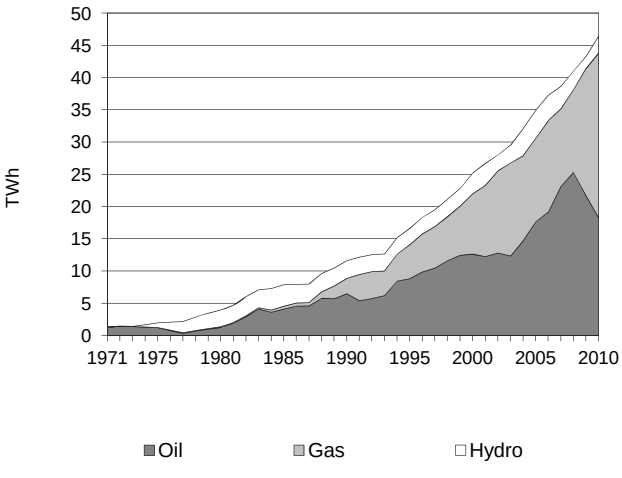
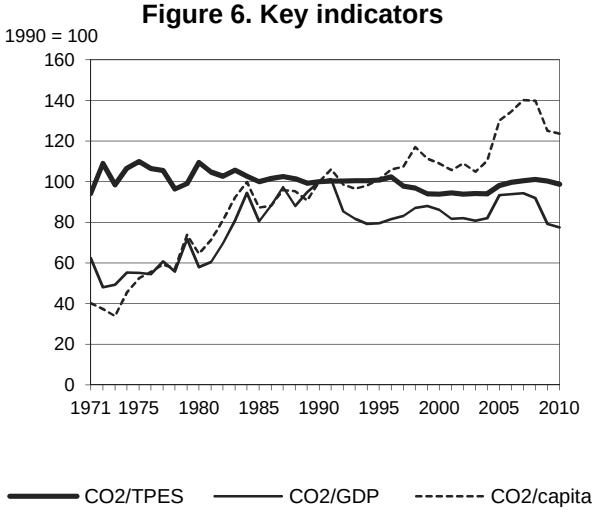


Figure 6. Key indicators



Syrian Arab Republic

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	28.16	32.79	39.78	54.90	62.71	57.25	57.76	105.1%
CO_2 Reference Approach ($MtCO_2$)	29.62	33.79	40.65	55.80	63.48	58.00	57.18	93.0%
TPES (PJ)	438	507	660	871	965	889	910	107.7%
TPES (Mtoe)	10.47	12.10	15.76	20.79	23.05	21.23	21.73	107.7%
GDP (billion 2005 USD)	13.82	20.25	22.68	28.86	33.47	35.48	36.61	165.0%
GDP PPP (billion 2005 USD)	36.58	53.62	60.05	76.40	88.61	93.93	96.93	165.0%
Population (millions)	12.32	14.17	15.99	18.48	19.64	20.04	20.45	65.9%
CO_2 / TPES (tCO_2 per TJ)	64.3	64.7	60.3	63.1	65.0	64.4	63.5	-1.2%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	2.04	1.62	1.75	1.90	1.87	1.61	1.58	-22.6%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.77	0.61	0.66	0.72	0.71	0.61	0.60	-22.6%
CO_2 / population (tCO_2 per capita)	2.28	2.31	2.49	2.97	3.19	2.86	2.82	23.6%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.01**	**40.28**	**17.47**	**-**	**57.76**	**105.1%**
Main activity producer elec. and heat	-	12.30	13.85	-	26.16	378.2%
Unallocated autoproducers	-	1.43	-	-	1.43	50.0%
Other energy industry own use	-	1.16	0.34	-	1.50	2.7%
Manufacturing industries and construction	0.01	5.97	2.83	-	8.80	113.0%
Transport	-	12.19	-	-	12.19	70.0%
of which: road	-	*11.97*	-	-	*11.97*	66.9%
Other	-	7.23	0.45	-	7.68	-14.4%
of which: residential	-	*4.36*	-	-	*4.36*	87.0%
Reference Approach	**0.01**	**39.70**	**17.47**	**-**	**57.18**	**93.0%**
Diff. due to losses and/or transformation	0.00	- 0.58	-	-	- 0.58	
Statistical differences	-	0.00	- 0.00	-	0.00	
Memo: international marine bunkers	-	*3.16*	-	-	*3.16*	*11.9%*
Memo: international aviation bunkers	-	*0.09*	-	-	*0.09*	*-89.1%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	13.85	969.9%	17.3	17.3
Main activity prod. elec. and heat - oil	12.30	194.7%	15.3	32.6
Road - oil	11.97	66.9%	14.9	47.5
Manufacturing industries - oil	5.97	44.4%	7.4	54.9
Residential - oil	4.36	87.0%	5.4	60.4
Non-specified other - oil	2.87	-41.3%	3.6	63.9
Manufacturing industries - gas	2.83	x	3.5	67.5
Unallocated autoproducers - oil	1.43	50.0%	1.8	69.2
Other energy industry own use - oil	1.16	-11.4%	1.4	70.7
Non-specified other - gas	0.45	-74.4%	0.6	71.2
Other energy industry own use - gas	0.34	124.9%	0.4	71.7
Memo: total CO_2 from fuel combustion	*57.76*	*105.1%*	*72.0*	*72.0*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Tajikistan

Figure 1. CO_2 emissions by fuel

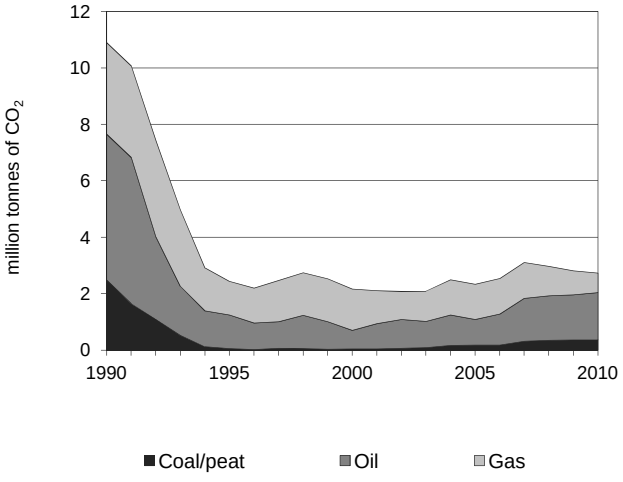


Figure 2. CO_2 emissions by sector

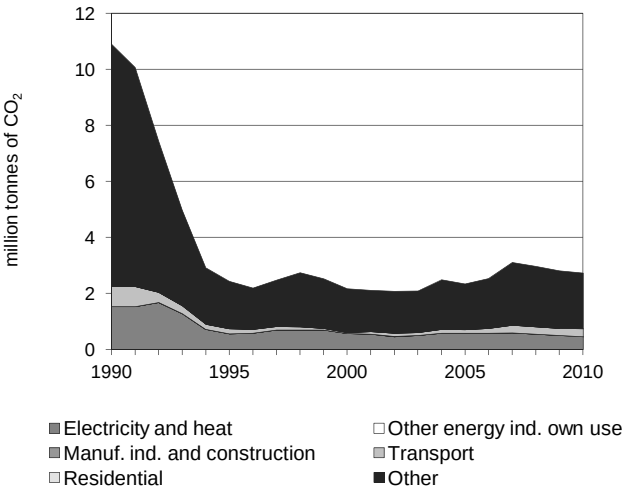


Figure 3. CO_2 emissions by sector

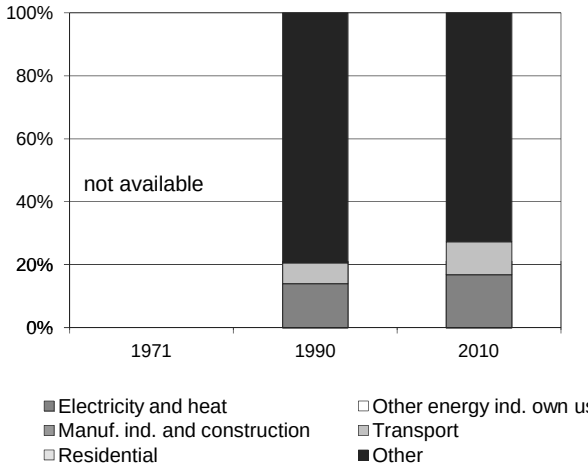


Figure 4. Reference vs Sectoral Approach

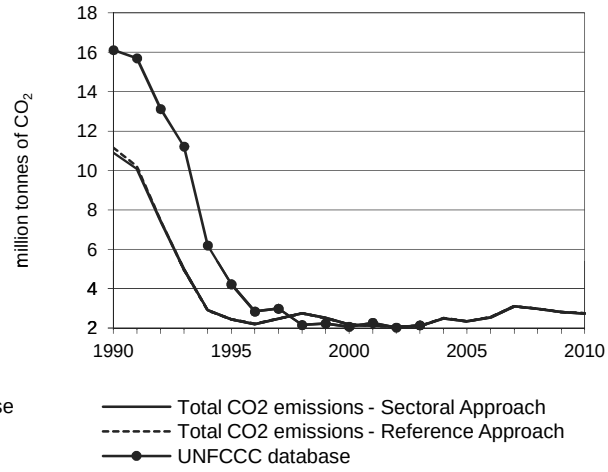


Figure 5. Electricity generation by fuel

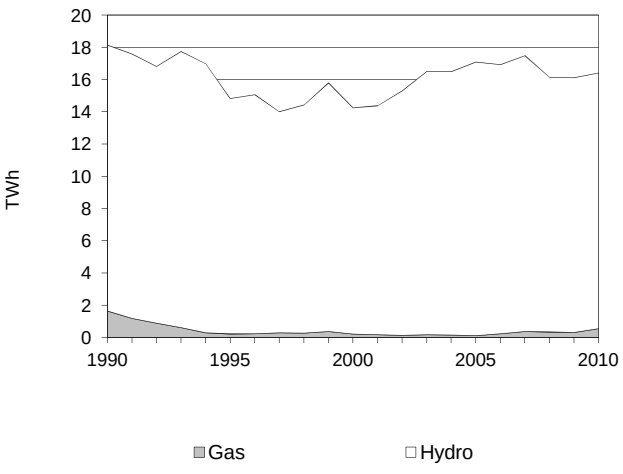
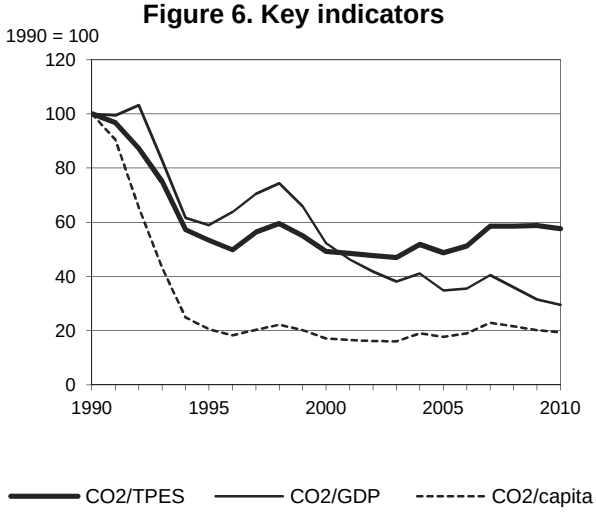


Figure 6. Key indicators



Tajikistan

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	10.90	2.44	2.17	2.34	2.97	2.81	2.73	-74.9%
CO_2 Reference Approach ($MtCO_2$)	11.17	2.44	2.17	2.35	2.98	2.82	2.74	-75.5%
TPES (PJ)	222	93	90	98	103	98	97	-56.5%
TPES (Mtoe)	5.31	2.23	2.15	2.34	2.47	2.33	2.31	-56.5%
GDP (billion 2005 USD)	3.75	1.43	1.43	2.31	2.85	3.07	3.19	-15.0%
GDP PPP (billion 2005 USD)	15.70	5.97	5.98	9.68	11.92	12.86	13.35	-15.0%
Population (millions)	5.30	5.78	6.17	6.45	6.69	6.78	6.88	29.7%
CO_2 / TPES (tCO_2 per TJ)	49.0	26.2	24.1	23.9	28.7	28.8	28.3	-42.4%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	2.91	1.71	1.52	1.01	1.04	0.92	0.86	-70.5%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.69	0.41	0.36	0.24	0.25	0.22	0.20	-70.5%
CO_2 / population (tCO_2 per capita)	2.06	0.42	0.35	0.36	0.44	0.41	0.40	-80.7%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.37**	**1.67**	**0.69**	**-**	**2.73**	**-74.9%**
Main activity producer elec. and heat	-	-	0.46	-	0.46	-69.8%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	-	-	-	-	-
Transport	-	0.26	0.03	-	0.29	-60.5%
of which: road	-	*0.26*	*0.03*	-	*0.29*	-60.5%
Other	0.37	1.41	0.21	-	1.98	-77.0%
of which: residential	-	-	-	-	-	-
Reference Approach	**0.37**	**1.68**	**0.69**	**-**	**2.74**	**-75.5%**
Diff. due to losses and/or transformation	-	0.01	-	-	0.01	
Statistical differences	-	-	- 0.00	-	- 0.00	
Memo: international marine bunkers	-	-	-	-	-	-
Memo: international aviation bunkers	-	*0.08*	-	-	*0.08*	*80.0%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Non-specified other - oil	1.41	-68.3%	14.2	14.2
Main activity prod. elec. and heat - gas	0.46	-69.8%	4.7	18.9
Non-specified other sectors - coal/peat	0.37	-85.2%	3.7	22.6
Road - oil	0.26	-64.2%	2.6	25.2
Non-specified other - gas	0.21	-88.0%	2.1	27.3
Road - gas	0.03	x	0.3	27.6
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*2.73*	*-74.9%*	*27.6*	*27.6*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

United Republic of Tanzania

Figure 1. CO_2 emissions by fuel

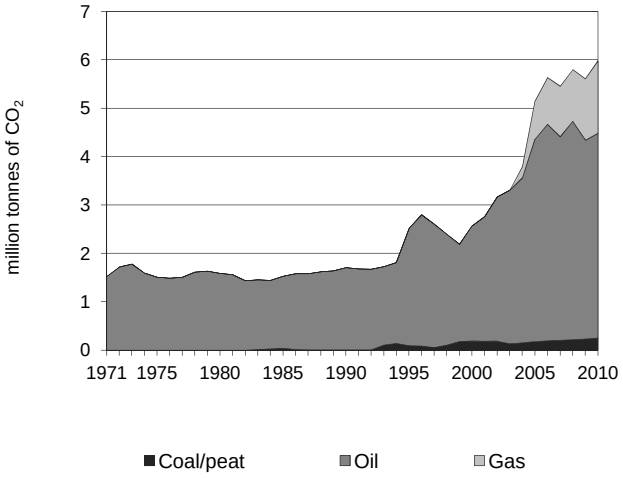


Figure 2. CO_2 emissions by sector

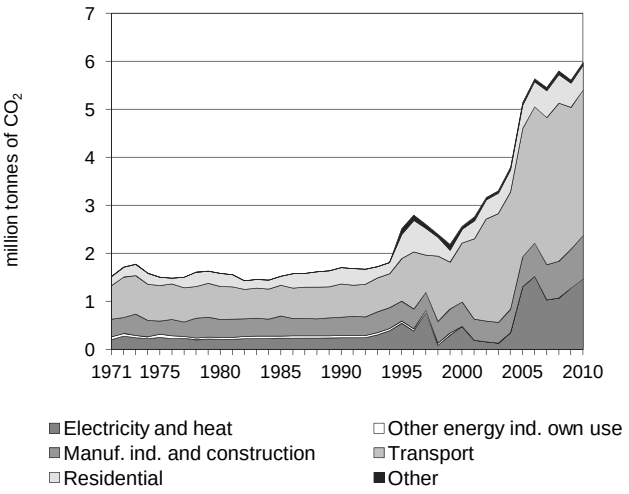


Figure 3. CO_2 emissions by sector

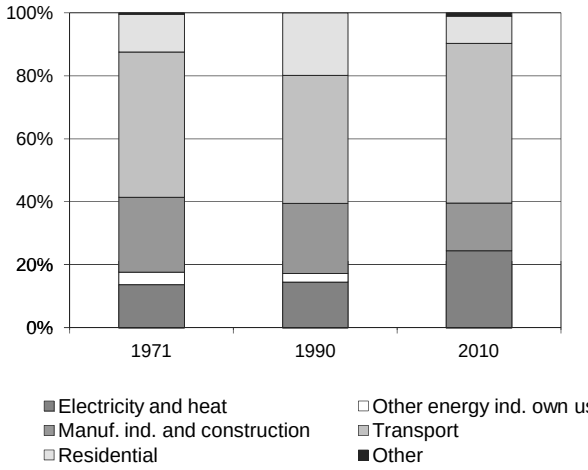


Figure 4. Reference vs Sectoral Approach

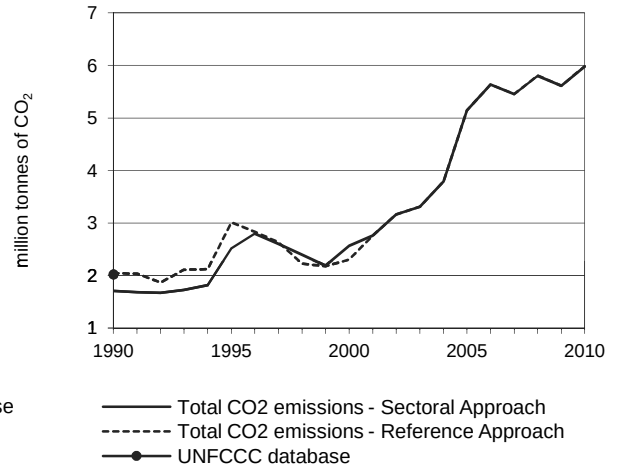


Figure 5. Electricity generation by fuel

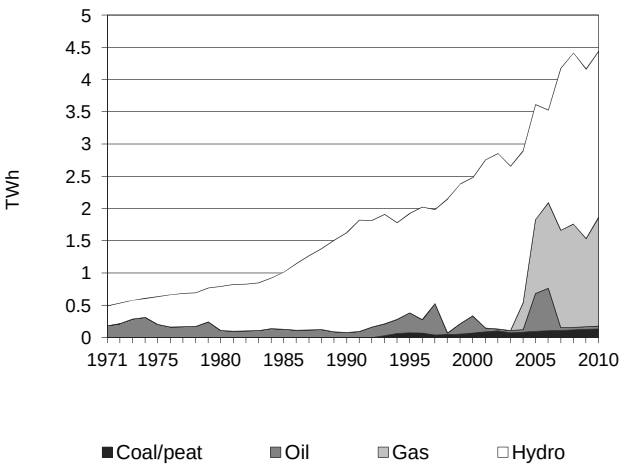
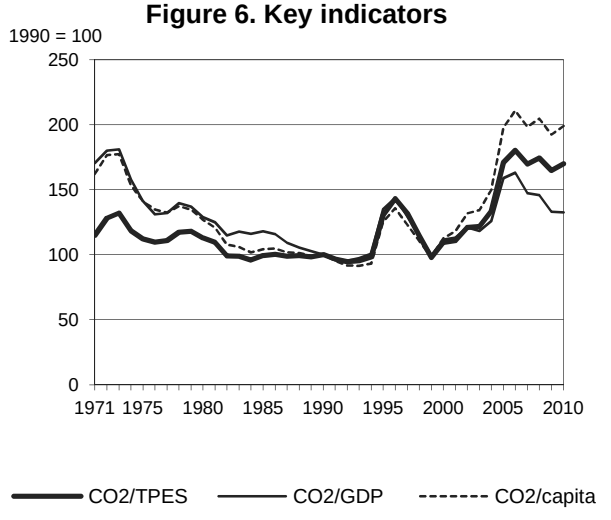


Figure 6. Key indicators



United Republic of Tanzania

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	1.71	2.52	2.57	5.15	5.80	5.61	5.98	250.5%
CO_2 Reference Approach ($MtCO_2$)	2.04	3.01	2.30	5.15	5.81	5.61	5.98	193.2%
TPES (PJ)	408	461	561	719	794	812	841	106.3%
TPES (Mtoe)	9.73	11.02	13.39	17.17	18.96	19.41	20.08	106.3%
GDP (billion 2005 USD)	7.45	8.15	10.06	14.14	17.38	18.42	19.71	164.4%
GDP PPP (billion 2005 USD)	21.27	23.25	28.71	40.35	49.58	52.57	56.24	164.4%
Population (millions)	25.48	29.94	34.04	38.83	42.27	43.53	44.84	76.0%
CO_2 / TPES (tCO_2 per TJ)	4.2	5.5	4.6	7.2	7.3	6.9	7.1	69.9%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.23	0.31	0.26	0.36	0.33	0.30	0.30	32.5%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.08	0.11	0.09	0.13	0.12	0.11	0.11	32.5%
CO_2 / population (tCO_2 per capita)	0.07	0.08	0.08	0.13	0.14	0.13	0.13	99.0%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.25**	**4.23**	**1.50**	**-**	**5.98**	**250.5%**
Main activity producer elec. and heat	-	0.04	1.26	-	1.31	427.7%
Unallocated autoproducers	0.16	-	-	-	0.16	x
Other energy industry own use	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.10	0.58	0.23	-	0.91	139.0%
Transport	-	3.03	-	-	3.03	337.6%
of which: road	-	*3.03*	-	-	*3.03*	337.6%
Other	-	0.58	-	-	0.58	71.2%
of which: residential	-	*0.52*	-	-	*0.52*	52.4%
Reference Approach	**0.25**	**4.23**	**1.50**	**-**	**5.98**	**193.2%**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	-	-	0.01	-	0.01	
Memo: international marine bunkers	-	*0.07*	-	-	*0.07*	*-15.5%*
Memo: international aviation bunkers	-	*0.32*	-	-	*0.32*	*44.6%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	3.03	337.6%	6.4	6.4
Main activity prod. elec. and heat - gas	1.26	x	2.7	9.1
Manufacturing industries - oil	0.58	56.6%	1.2	10.3
Residential - oil	0.52	52.4%	1.1	11.4
Manufacturing industries - gas	0.23	x	0.5	11.9
Unallocated autoproducers - coal/peat	0.16	x	0.3	12.3
Manufacturing industries - coal/peat	0.10	841.3%	0.2	12.5
Non-specified other - oil	0.06	x	0.1	12.6
Main activity prod. elec. and heat - oil	0.04	-82.6%	0.1	12.7
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*5.98*	*250.5%*	*12.7*	*12.7*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Thailand

Figure 1. CO_2 emissions by fuel

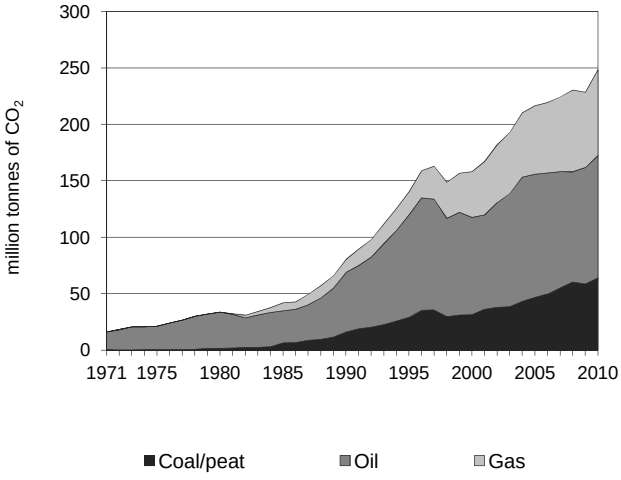


Figure 2. CO_2 emissions by sector

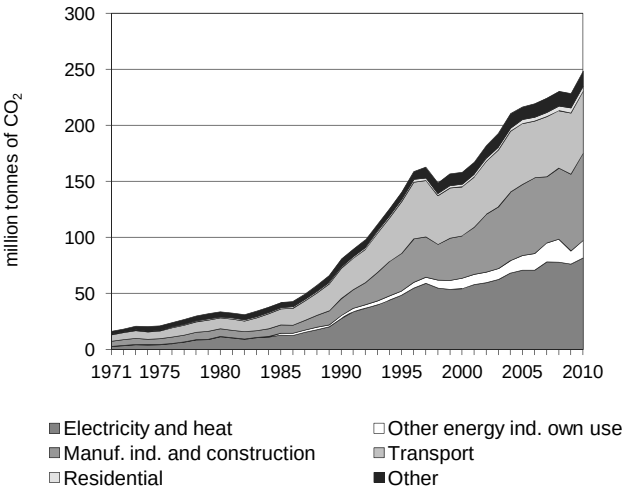


Figure 3. CO_2 emissions by sector

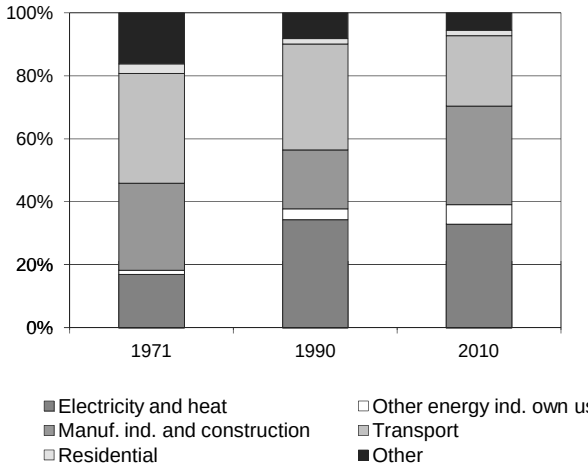


Figure 4. Reference vs Sectoral Approach

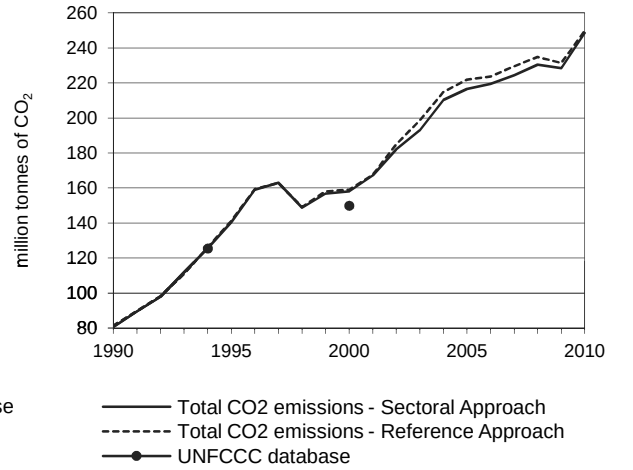


Figure 5. Electricity generation by fuel

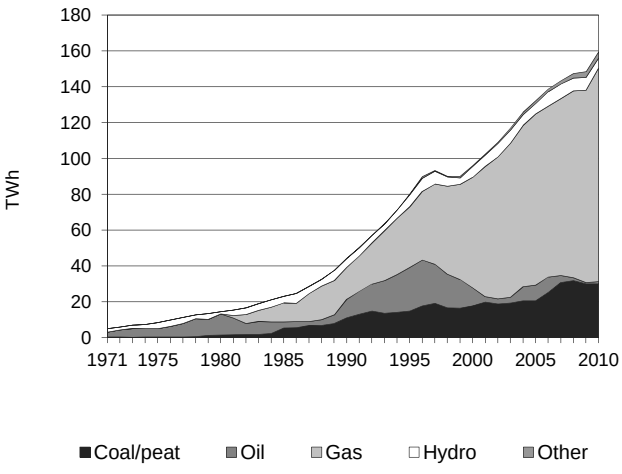
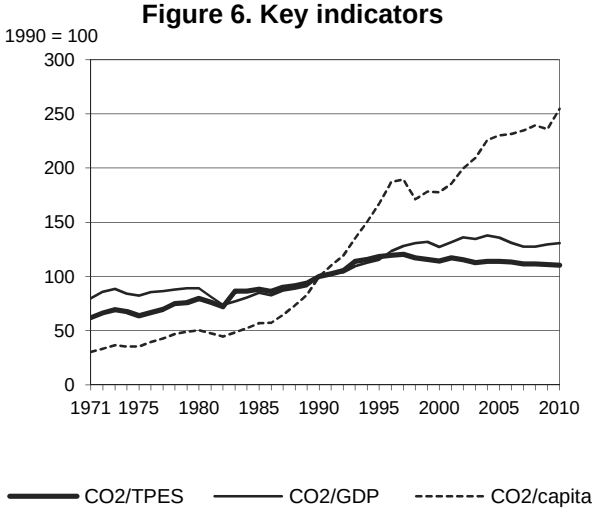


Figure 6. Key indicators



Thailand

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	80.48	140.47	158.14	216.60	230.36	228.50	248.45	208.7%
CO_2 Reference Approach ($MtCO_2$)	81.27	141.22	158.95	221.78	234.83	231.43	249.87	207.5%
TPES (PJ)	1 756	2 593	3 026	4 152	4 507	4 492	4 917	180.0%
TPES (Mtoe)	41.94	61.92	72.28	99.17	107.66	107.30	117.43	180.0%
GDP (billion 2005 USD)	88.92	134.47	137.52	176.35	199.52	194.87	210.09	136.3%
GDP PPP (billion 2005 USD)	224.49	339.46	347.15	445.20	503.68	491.94	530.37	136.3%
Population (millions)	57.07	59.65	63.16	66.70	68.27	68.71	69.12	21.1%
CO_2 / TPES (tCO_2 per TJ)	45.8	54.2	52.3	52.2	51.1	50.9	50.5	10.3%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.91	1.04	1.15	1.23	1.15	1.17	1.18	30.7%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.36	0.41	0.46	0.49	0.46	0.46	0.47	30.7%
CO_2 / population (tCO_2 per capita)	1.41	2.36	2.50	3.25	3.37	3.33	3.59	154.9%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**64.17**	**108.18**	**76.10**	**-**	**248.45**	**208.7%**
Main activity producer elec. and heat	26.13	0.82	47.72	-	74.68	169.9%
Unallocated autoproducers	1.88	0.02	5.24	-	7.14	x
Other energy industry own use	-	2.18	13.30	-	15.48	458.2%
Manufacturing industries and construction	36.16	35.15	6.42	-	77.73	418.3%
Transport	-	51.94	3.42	-	55.36	104.5%
of which: road	-	*51.45*	*3.42*	-	*54.86*	113.8%
Other	-	18.07	0.00	-	18.07	126.7%
of which: residential	-	*4.36*	-	-	*4.36*	200.9%
Reference Approach	**65.07**	**108.70**	**76.10**	**-**	**249.87**	**207.5%**
Diff. due to losses and/or transformation	0.01	0.27	-	-	0.28	
Statistical differences	0.89	0.25	- 0.00	-	1.14	
Memo: international marine bunkers	-	*4.42*	-	-	*4.42*	*159.9%*
Memo: international aviation bunkers	-	*11.15*	-	-	*11.15*	*99.7%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	51.45	100.5%	12.9	12.9
Main activity prod. elec. and heat - gas	47.72	434.1%	12.0	24.9
Manufacturing industries - coal/peat	36.16	559.3%	9.1	34.0
Manufacturing industries - oil	35.15	282.5%	8.8	42.9
Main activity prod. elec. and heat - coal/peat	26.13	147.0%	6.6	49.4
Non-specified other - oil	13.71	110.2%	3.4	52.9
Other energy industry own use - gas	13.30	451.6%	3.3	56.2
Manufacturing industries - gas	6.42	+	1.6	57.8
Unallocated autoproducers - gas	5.24	x	1.3	59.1
Residential - oil	4.36	200.9%	1.1	60.2
Road - gas	3.42	+	0.9	61.1
Memo: total CO_2 from fuel combustion	*248.45*	*208.7%*	*62.5*	*62.5*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Togo

Figure 1. CO_2 emissions by fuel

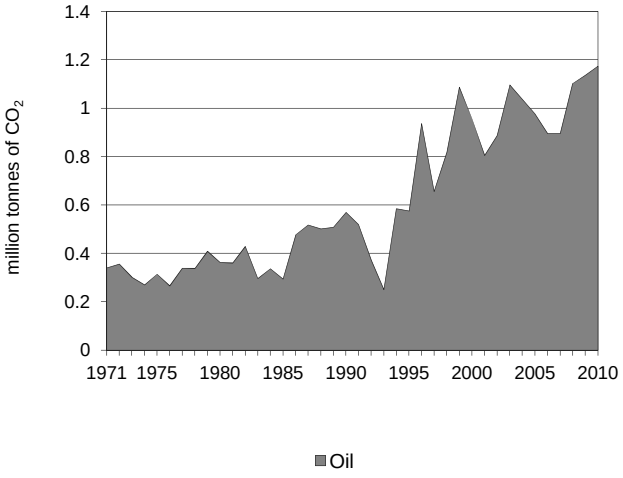


Figure 2. CO_2 emissions by sector

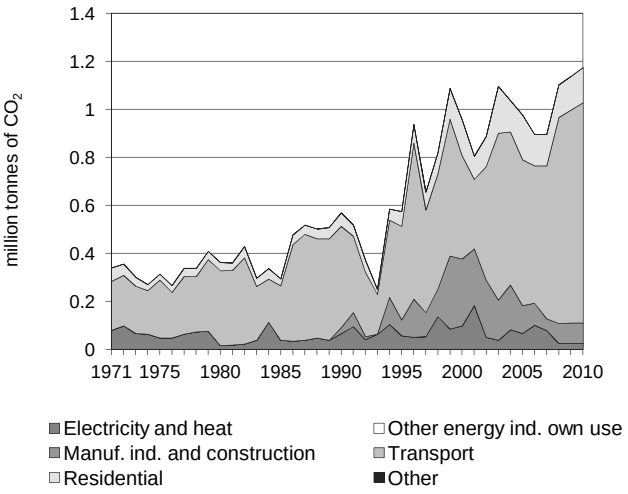


Figure 3. CO_2 emissions by sector

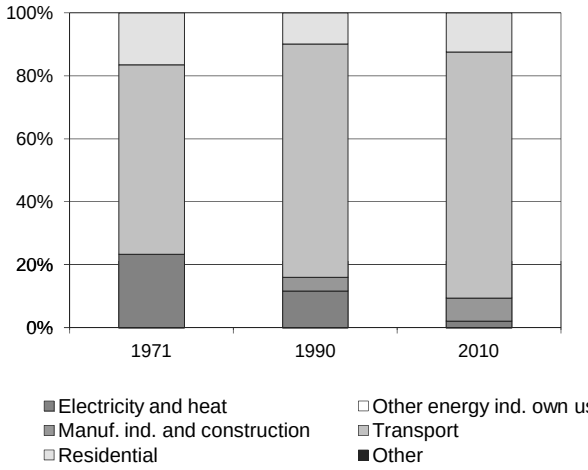


Figure 4. Reference vs Sectoral Approach

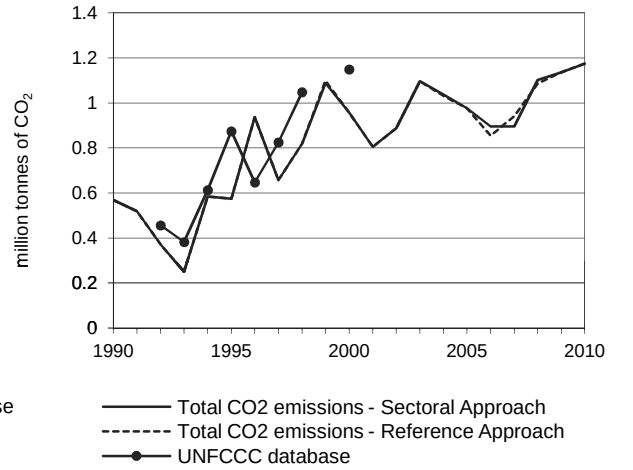


Figure 5. Electricity generation by fuel

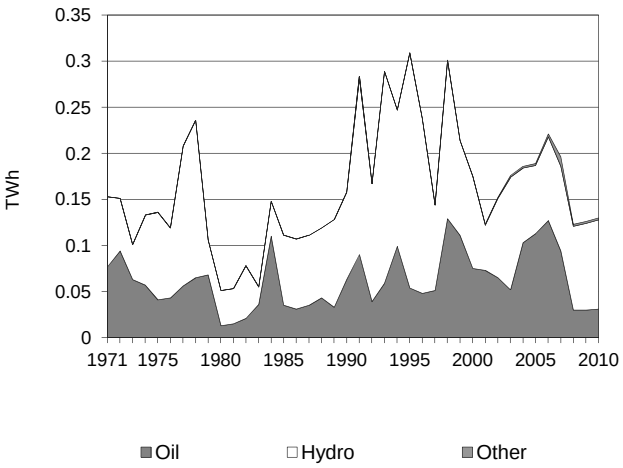
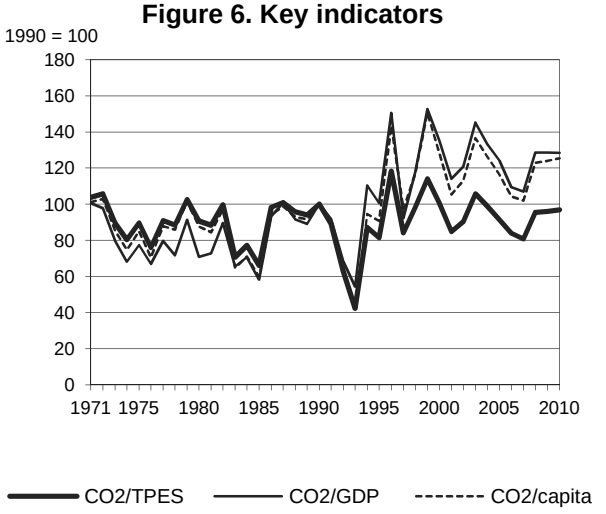


Figure 6. Key indicators



Togo

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	0.57	0.57	0.96	0.98	1.10	1.14	1.17	106.2%
CO_2 Reference Approach ($MtCO_2$)	0.57	0.57	0.96	0.98	1.09	1.14	1.17	106.2%
TPES (PJ)	53	66	88	99	107	110	113	112.9%
TPES (Mtoe)	1.26	1.57	2.11	2.37	2.56	2.63	2.69	112.9%
GDP (billion 2005 USD)	1.53	1.54	1.90	2.12	2.31	2.38	2.46	60.6%
GDP PPP (billion 2005 USD)	3.36	3.37	4.17	4.64	5.06	5.22	5.40	60.6%
Population (millions)	3.67	4.09	4.79	5.41	5.78	5.90	6.03	64.4%
CO_2 / TPES (tCO_2 per TJ)	10.8	8.8	10.8	9.8	10.3	10.3	10.4	-3.1%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.37	0.37	0.50	0.46	0.48	0.48	0.48	28.4%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.17	0.17	0.23	0.21	0.22	0.22	0.22	28.4%
CO_2 / population (tCO_2 per capita)	0.16	0.14	0.20	0.18	0.19	0.19	0.19	25.4%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**1.17**	**-**	**-**	**1.17**	**106.2%**
Main activity producer elec. and heat	-	0.02	-	-	0.02	-63.2%
Unallocated autoproducers	-	0.00	-	-	0.00	-50.0%
Other energy industry own use	-	-	-	-	-	-
Manufacturing industries and construction	-	0.09	-	-	0.09	246.5%
Transport	-	0.92	-	-	0.92	117.4%
of which: road	-	*0.92*	-	-	*0.92*	117.4%
Other	-	0.15	-	-	0.15	160.7%
of which: residential	-	*0.15*	-	-	*0.15*	160.7%
Reference Approach	**-**	**1.17**	**-**	**-**	**1.17**	**106.2%**
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	-	0.00	-	-	0.00	
Memo: international marine bunkers	-	*0.01*	-	-	*0.01*	*..*
Memo: international aviation bunkers	-	*0.20*	-	-	*0.20*	*90.9%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	0.92	117.4%	9.4	9.4
Residential - oil	0.15	160.7%	1.5	10.9
Manufacturing industries - oil	0.09	246.5%	0.9	11.8
Main activity prod. elec. and heat - oil	0.02	-63.2%	0.2	12.0
Unallocated autoproducers - oil	0.00	-50.0%	0.0	12.0
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*1.17*	*106.2%*	*12.0*	*12.0*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Trinidad and Tobago

Figure 1. CO_2 emissions by fuel

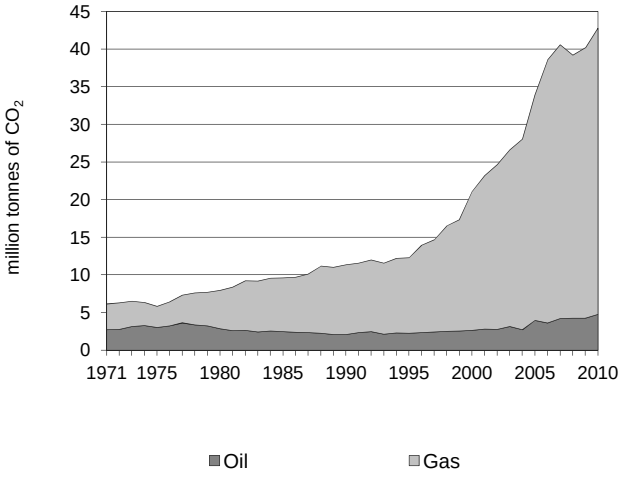


Figure 2. CO_2 emissions by sector

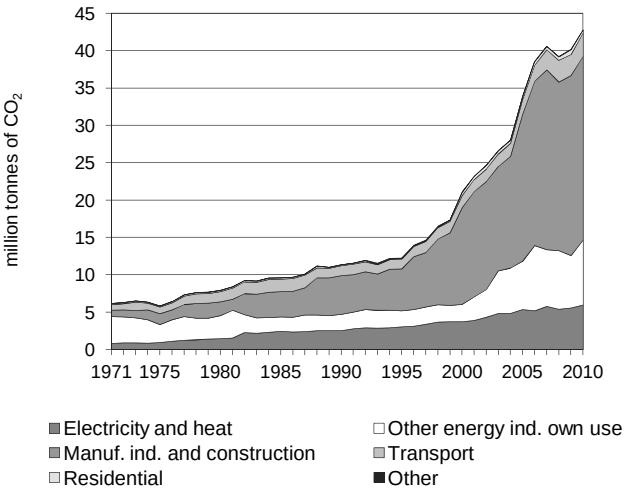


Figure 3. CO_2 emissions by sector

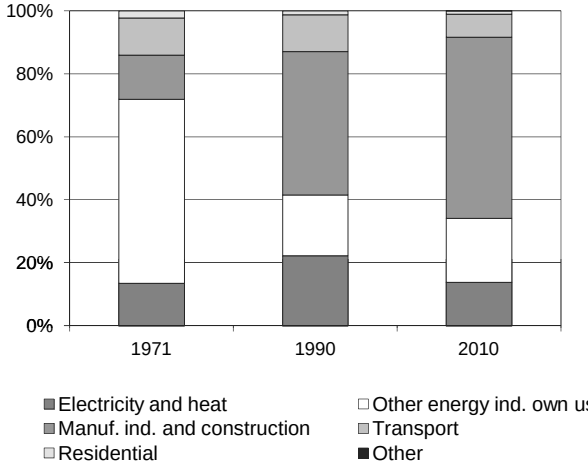


Figure 4. Reference vs Sectoral Approach

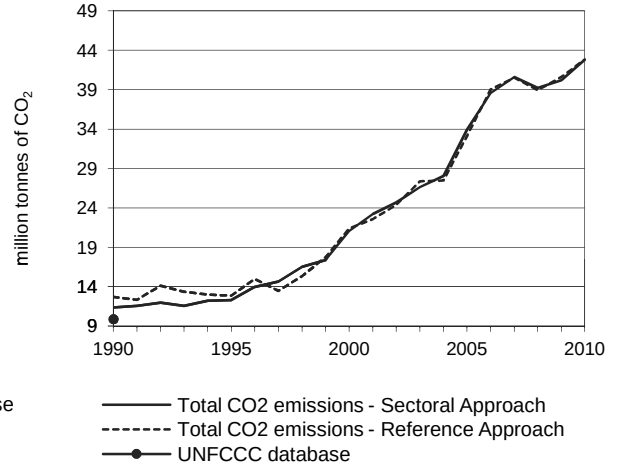


Figure 5. Electricity generation by fuel

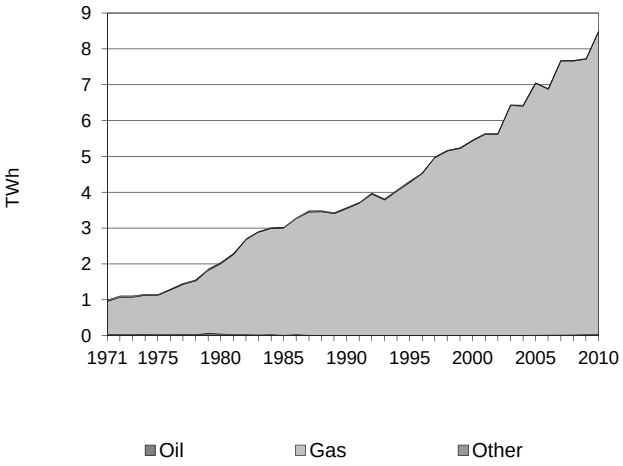
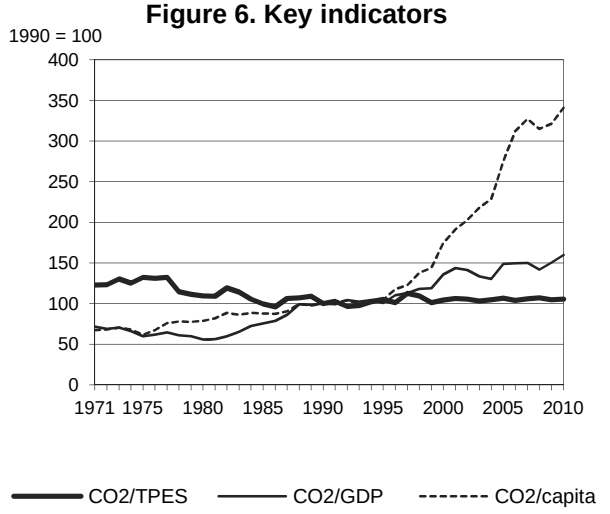


Figure 6. Key indicators



Trinidad and Tobago

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	11.37	12.27	21.08	33.90	39.21	40.18	42.79	276.3%
CO_2 Reference Approach ($MtCO_2$)	12.71	12.84	21.40	33.09	38.94	40.61	42.86	237.3%
TPES (PJ)	251	257	447	702	810	849	894	256.5%
TPES (Mtoe)	5.99	6.15	10.67	16.78	19.34	20.27	21.35	256.5%
GDP (billion 2005 USD)	7.97	8.54	10.88	15.98	19.42	18.74	18.76	135.4%
GDP PPP (billion 2005 USD)	13.15	14.09	17.96	26.38	32.05	30.93	30.96	135.4%
Population (millions)	1.22	1.26	1.29	1.32	1.33	1.34	1.34	10.4%
CO_2 / TPES (tCO_2 per TJ)	45.4	47.7	47.2	48.3	48.4	47.3	47.9	5.6%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	1.43	1.44	1.94	2.12	2.02	2.14	2.28	59.9%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.86	0.87	1.17	1.28	1.22	1.30	1.38	59.9%
CO_2 / population (tCO_2 per capita)	9.36	9.73	16.31	25.78	29.46	30.07	31.91	241.0%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**4.75**	**38.04**	**-**	**42.79**	**276.3%**
Main activity producer elec. and heat	-	0.02	5.89	-	5.91	145.4%
Unallocated autoproducers	-	-	0.03	-	0.03	-75.6%
Other energy industry own use	-	0.99	7.69	-	8.69	296.7%
Manufacturing industries and construction	-	0.37	24.22	-	24.59	375.1%
Transport	-	3.12	-	-	3.12	134.3%
of which: road	-	*3.11*	-	-	*3.11*	142.2%
Other	-	0.25	0.20	-	0.45	224.1%
of which: residential	-	*0.23*	*0.20*	-	*0.43*	208.1%
Reference Approach	**-**	**4.82**	**38.04**	**-**	**42.86**	**237.3%**
Diff. due to losses and/or transformation	-	0.29	-	-	0.29	
Statistical differences	-	- 0.22	0.00	-	- 0.22	
Memo: international marine bunkers	-	*1.06*	-	-	*1.06*	*874.2%*
Memo: international aviation bunkers	-	*0.20*	-	-	*0.20*	*3.2%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Manufacturing industries - gas	24.22	396.5%	41.7	41.7
Other energy industry own use - gas	7.69	313.0%	13.3	55.0
Main activity prod. elec. and heat - gas	5.89	145.0%	10.1	65.1
Road - oil	3.11	142.2%	5.4	70.5
Other energy industry own use - oil	0.99	204.0%	1.7	72.2
Manufacturing industries - oil	0.37	24.9%	0.6	72.8
Residential - oil	0.23	62.5%	0.4	73.2
Residential - gas	0.20	x	0.3	73.6
Unallocated autoproducers - gas	0.03	-75.6%	0.1	73.6
Non-specified other - oil	0.02	x	0.0	73.7
Main activity prod. elec. and heat - oil	0.02	400.2%	0.0	73.7
Memo: total CO_2 from fuel combustion	*42.79*	*276.3%*	*73.7*	*73.7*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Tunisia

Figure 1. CO_2 emissions by fuel

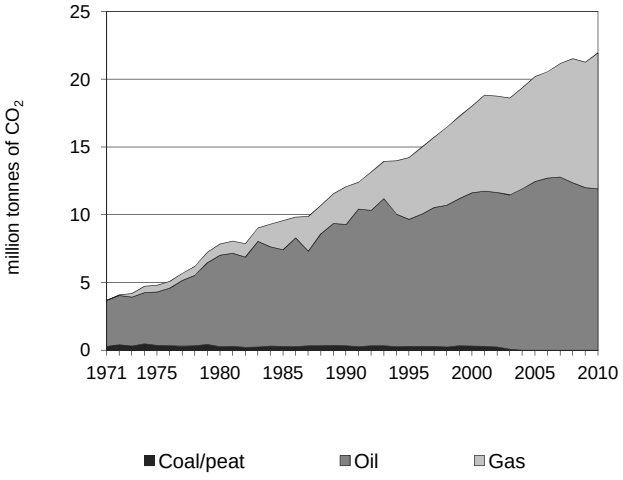


Figure 2. CO_2 emissions by sector

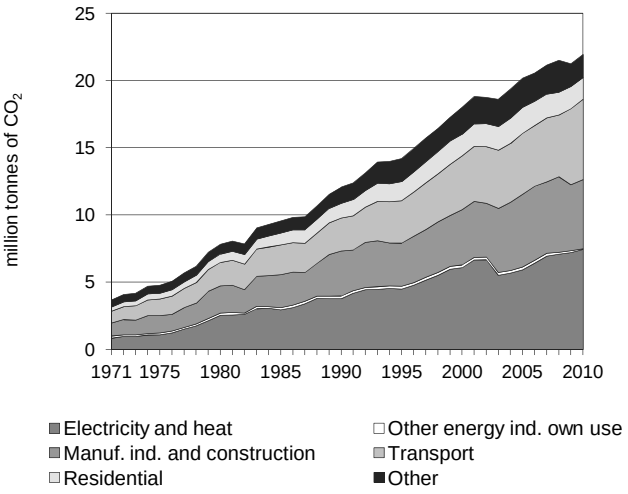


Figure 3. CO_2 emissions by sector

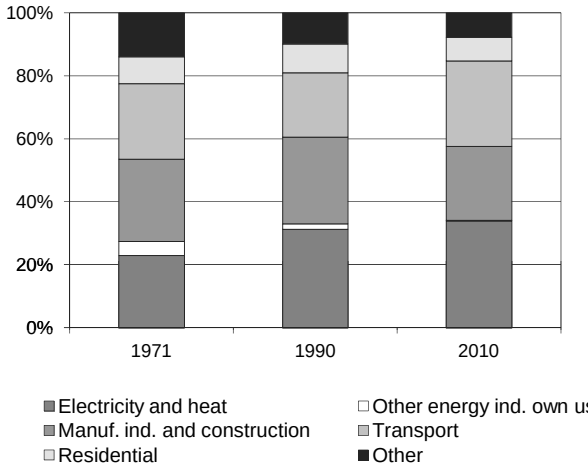


Figure 4. Reference vs Sectoral Approach

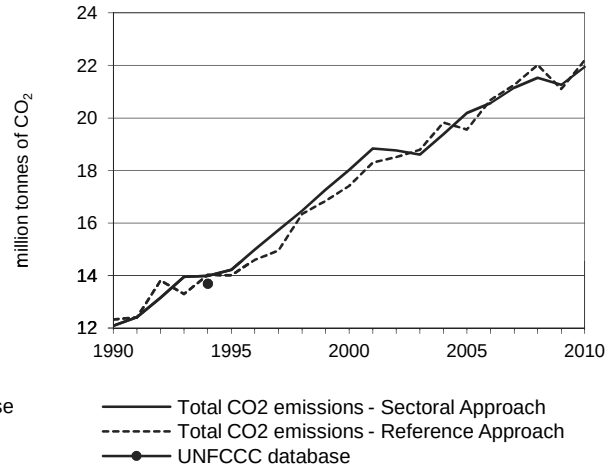


Figure 5. Electricity generation by fuel

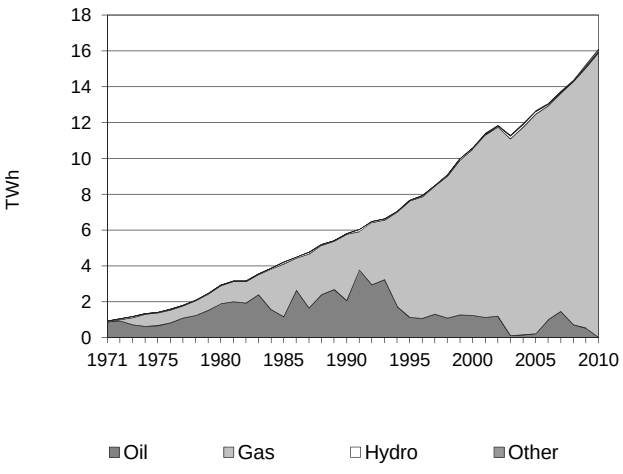
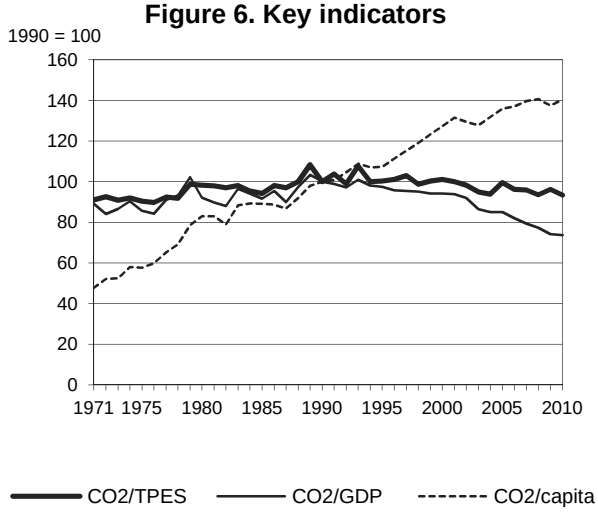


Figure 6. Key indicators



Tunisia

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	12.08	14.22	18.02	20.19	21.53	21.26	21.95	81.7%
CO_2 Reference Approach ($MtCO_2$)	12.33	14.01	17.41	19.55	22.01	21.10	22.20	80.0%
TPES (PJ)	207	243	306	348	395	379	403	94.7%
TPES (Mtoe)	4.95	5.80	7.31	8.31	9.43	9.05	9.63	94.7%
GDP (billion 2005 USD)	16.43	19.87	26.05	32.29	37.88	39.06	40.50	146.5%
GDP PPP (billion 2005 USD)	36.67	44.32	58.12	72.03	84.52	87.14	90.37	146.5%
Population (millions)	8.15	8.96	9.56	10.03	10.33	10.44	10.55	29.4%
CO_2 / TPES (tCO_2 per TJ)	58.3	58.5	58.9	58.0	54.5	56.1	54.4	-6.7%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.74	0.72	0.69	0.63	0.57	0.54	0.54	-26.3%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.33	0.32	0.31	0.28	0.25	0.24	0.24	-26.3%
CO_2 / population (tCO_2 per capita)	1.48	1.59	1.88	2.01	2.08	2.04	2.08	40.4%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**11.91**	**10.04**	**-**	**21.95**	**81.7%**
Main activity producer elec. and heat	-	0.01	6.10	-	6.11	91.0%
Unallocated autoproducers	-	-	1.34	-	1.34	128.6%
Other energy industry own use	-	0.04	0.01	-	0.05	-74.5%
Manufacturing industries and construction	-	3.30	1.85	-	5.15	54.4%
Transport	-	5.96	0.00	-	5.96	141.8%
of which: road	-	*5.96*	-	-	*5.96*	144.9%
Other	-	2.60	0.73	-	3.34	45.5%
of which: residential	-	*1.24*	*0.39*	-	*1.63*	48.1%
Reference Approach	**-**	**11.96**	**10.23**	**-**	**22.20**	**80.0%**
Diff. due to losses and/or transformation	-	- 0.02	-	-	- 0.02	
Statistical differences	-	0.07	0.20	-	0.27	
Memo: international marine bunkers	-	*0.04*	-	-	*0.04*	*-34.9%*
Memo: international aviation bunkers	-	*0.75*	-	-	*0.75*	*31.7%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	6.10	195.1%	16.7	16.7
Road - oil	5.96	144.9%	16.3	33.0
Manufacturing industries - oil	3.30	36.6%	9.0	42.1
Manufacturing industries - gas	1.85	210.4%	5.1	47.1
Non-specified other - oil	1.36	19.5%	3.7	50.9
Unallocated autoproducers - gas	1.34	x	3.7	54.5
Residential - oil	1.24	22.8%	3.4	57.9
Residential - gas	0.39	348.9%	1.1	59.0
Non-specified other - gas	0.34	567.3%	0.9	59.9
Other energy industry own use - oil	0.04	-80.7%	0.1	60.0
Other energy industry own use - gas	0.01	x	0.0	60.1
Memo: total CO_2 from fuel combustion	*21.95*	*81.7%*	*60.1*	*60.1*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Turkey

Figure 1. CO_2 emissions by fuel

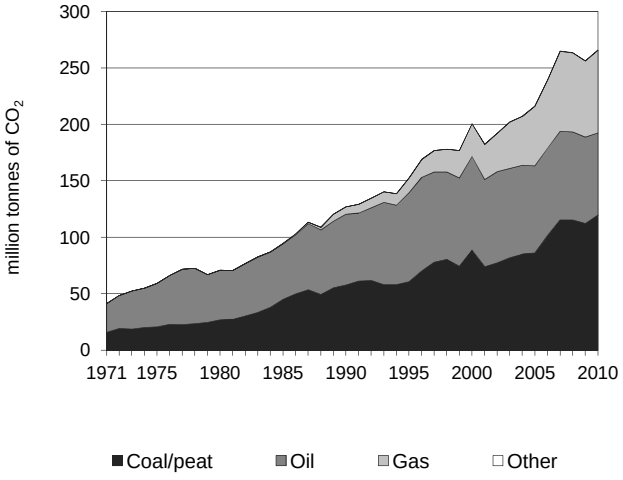


Figure 2. CO_2 emissions by sector

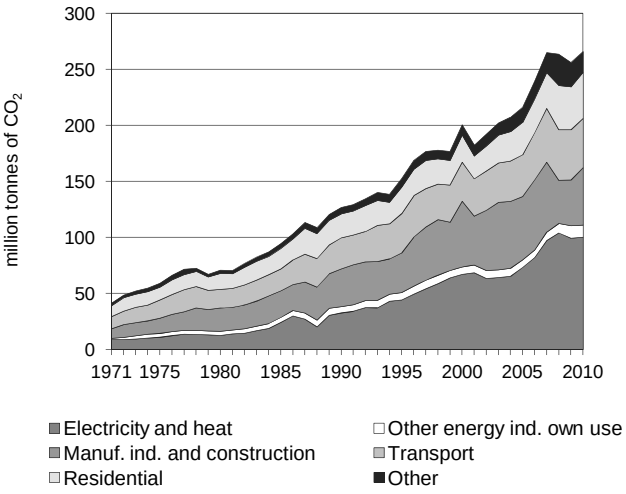


Figure 3. CO_2 emissions by sector

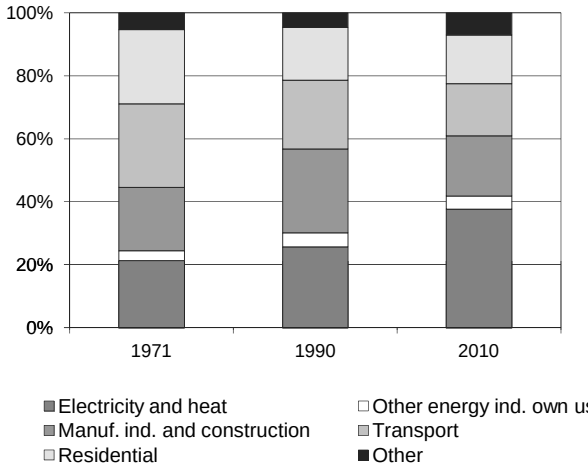


Figure 4. Reference vs Sectoral Approach

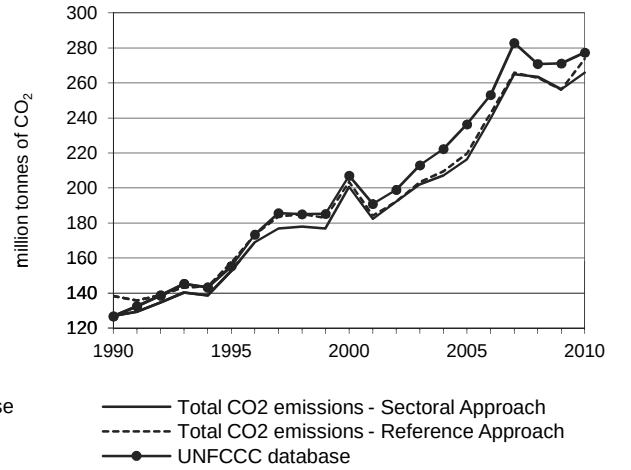


Figure 5. Electricity generation by fuel

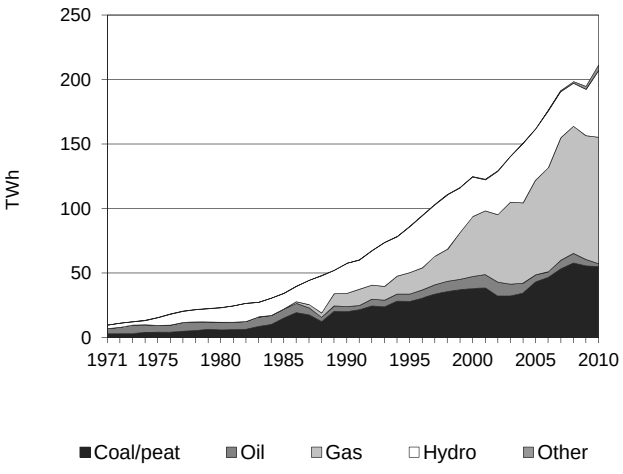
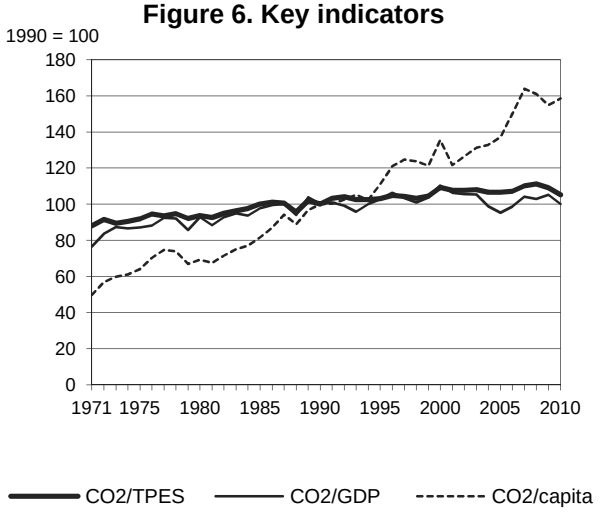


Figure 6. Key indicators



Turkey

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	126.91	152.66	200.56	216.36	263.53	256.31	265.88	109.5%
CO_2 Reference Approach ($MtCO_2$)	138.20	157.28	203.48	219.65	262.94	256.19	273.77	98.1%
TPES (PJ)	2 209	2 577	3 197	3 533	4 124	4 089	4 402	99.3%
TPES (Mtoe)	52.76	61.55	76.35	84.38	98.50	97.66	105.13	99.3%
GDP (billion 2005 USD)	269.69	315.86	386.59	482.99	543.95	517.70	564.32	109.3%
GDP PPP (billion 2005 USD)	436.22	510.91	625.31	781.24	879.84	837.38	912.80	109.3%
Population (millions)	55.12	59.76	64.26	68.58	71.08	71.90	72.85	32.2%
CO_2 / TPES (tCO_2 per TJ)	57.5	59.2	62.7	61.2	63.9	62.7	60.4	5.1%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.47	0.48	0.52	0.45	0.48	0.50	0.47	0.1%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.29	0.30	0.32	0.28	0.30	0.31	0.29	0.1%
CO_2 / population (tCO_2 per capita)	2.30	2.55	3.12	3.15	3.71	3.57	3.65	58.5%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**119.75**	**72.78**	**73.19**	**0.16**	**265.88**	**109.5%**
Main activity producer elec. and heat	51.95	0.94	36.21	0.02	89.11	231.6%
Unallocated autoproducers	6.44	0.84	3.77	0.14	11.20	92.0%
Other energy industry own use	4.75	3.48	2.67	-	10.90	93.9%
Manufacturing industries and construction	29.48	6.46	15.05	-	50.99	51.2%
Transport	-	43.50	0.51	-	44.01	58.5%
of which: road	-	*38.90*	*0.14*	-	*39.03*	55.0%
Other	27.13	17.55	14.98	-	59.66	120.1%
of which: residential	*25.72*	*3.88*	*11.33*	-	*40.92*	92.5%
Reference Approach	**127.74**	**72.67**	**73.20**	**0.16**	**273.77**	**98.1%**
Diff. due to losses and/or transformation	0.99	- 0.50	0.01	-	0.50	
Statistical differences	7.01	0.39	0.00	- 0.00	7.40	
Memo: international marine bunkers	-	*1.15*	-	-	*1.15*	*209.3%*
Memo: international aviation bunkers	-	*3.60*	-	-	*3.60*	*576.6%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	51.95	150.0%	13.3	13.3
Road - oil	38.90	54.5%	10.0	23.3
Main activity prod. elec. and heat - gas	36.21	628.2%	9.3	32.5
Manufacturing industries - coal/peat	29.48	51.2%	7.5	40.1
Residential - coal/peat	25.72	110.1%	6.6	46.7
Manufacturing industries - gas	15.05	952.9%	3.9	50.5
Non-specified other - oil	13.68	134.1%	3.5	54.0
Residential - gas	11.33	+	2.9	56.9
Manufacturing industries - oil	6.46	-49.5%	1.7	58.6
Unallocated autoproducers - coal/peat	6.44	88.9%	1.6	60.2
Other energy industry - coal/peat	4.75	151.0%	1.2	61.5
Memo: total CO_2 from fuel combustion	*265.88*	*109.5%*	*68.1*	*68.1*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Turkmenistan

Figure 1. CO_2 emissions by fuel

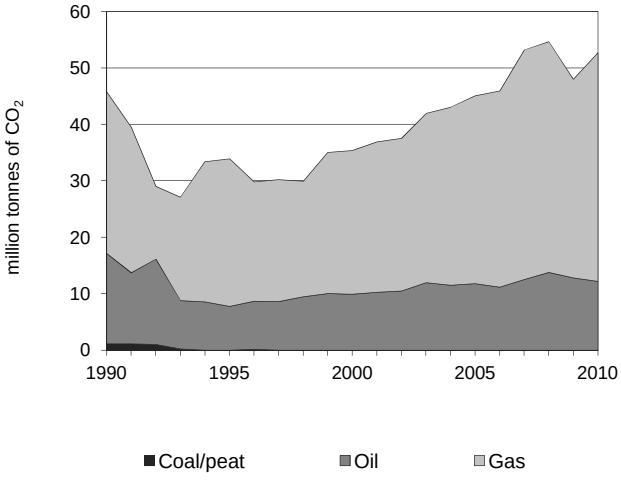


Figure 2. CO_2 emissions by sector

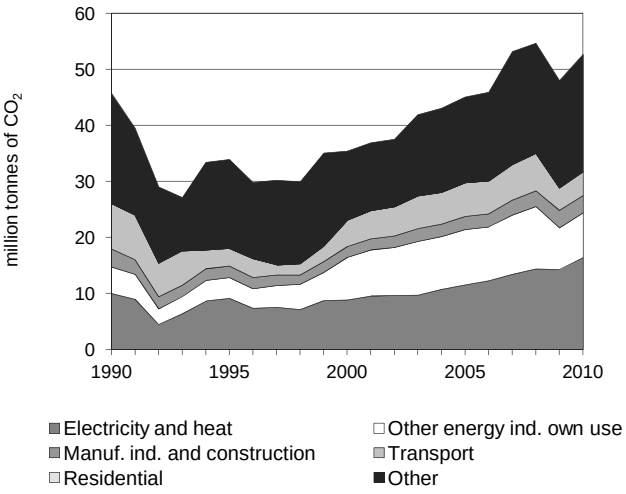


Figure 3. CO_2 emissions by sector

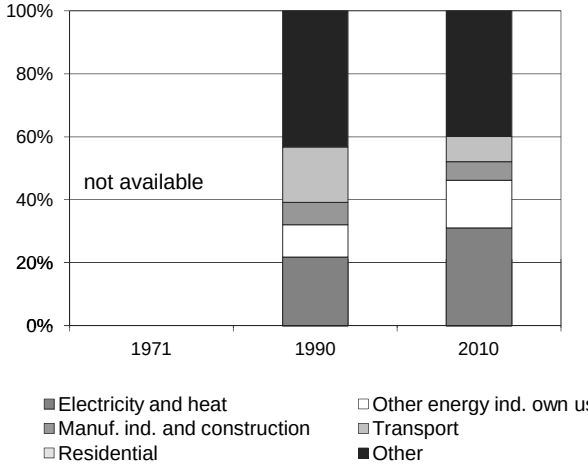


Figure 4. Reference vs Sectoral Approach

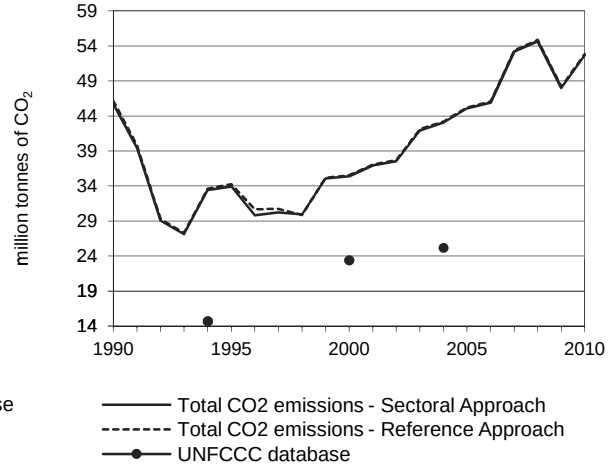


Figure 5. Electricity generation by fuel

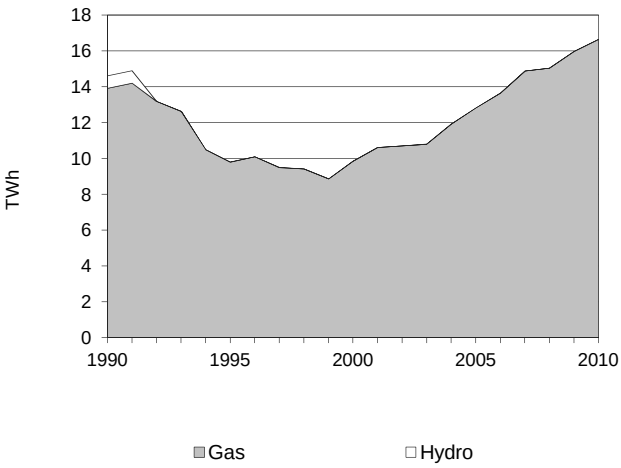
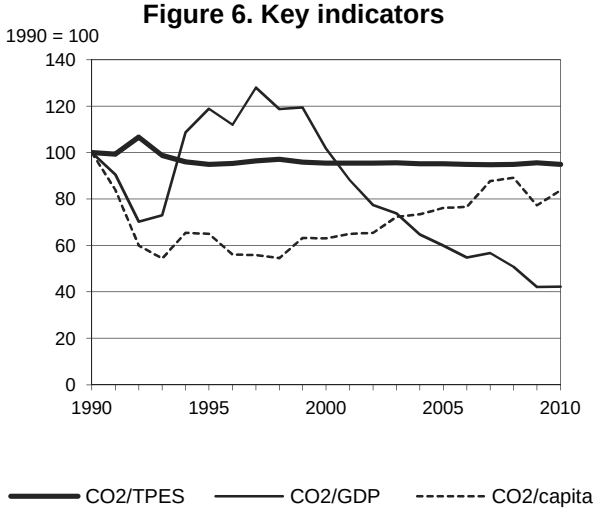


Figure 6. Key indicators



Turkmenistan

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	45.77	33.93	35.40	45.09	54.67	48.01	52.68	15.1%
CO_2 Reference Approach ($MtCO_2$)	46.15	34.24	35.51	45.23	54.84	48.17	52.83	14.5%
TPES (PJ)	735	575	596	762	925	807	892	21.3%
TPES (Mtoe)	17.57	13.73	14.24	18.19	22.10	19.28	21.31	21.3%
GDP (billion 2005 USD)	4.93	3.07	3.75	8.10	11.58	12.28	13.41	172.1%
GDP PPP (billion 2005 USD)	13.75	8.57	10.45	22.61	32.30	34.27	37.42	172.1%
Population (millions)	3.67	4.19	4.50	4.75	4.92	4.98	5.04	37.5%
CO_2 / TPES (tCO_2 per TJ)	62.2	59.0	59.4	59.2	59.1	59.5	59.1	-5.1%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	9.29	11.04	9.45	5.56	4.72	3.91	3.93	-57.7%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	3.33	3.96	3.39	1.99	1.69	1.40	1.41	-57.7%
CO_2 / population (tCO_2 per capita)	12.48	8.10	7.86	9.50	11.12	9.64	10.45	-16.3%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**12.17**	**40.52**	**-**	**52.68**	**15.1%**
Main activity producer elec. and heat	-	-	16.38	-	16.38	63.5%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	3.20	4.79	-	7.99	70.1%
Manufacturing industries and construction	-	1.57	1.52	-	3.09	-4.3%
Transport	-	2.39	1.86	-	4.26	-47.3%
of which: road	-	*2.39*	-	-	*2.39*	-0.9%
Other	-	5.00	15.96	-	20.96	6.1%
of which: residential	-	-	-	-	-	-
Reference Approach	**-**	**12.32**	**40.52**	**-**	**52.83**	**14.5%**
Diff. due to losses and/or transformation	-	0.15	-	-	0.15	
Statistical differences	-	- 0.00	-	-	- 0.00	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.98*	-	-	*0.98*	*61.0%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	16.38	63.5%	18.8	18.8
Non-specified other - gas	15.96	70.6%	18.4	37.2
Non-specified other - oil	5.00	-45.9%	5.7	43.0
Other energy industry own use - gas	4.79	67.2%	5.5	48.5
Other energy industry own use - oil	3.20	74.7%	3.7	52.2
Road - oil	2.39	-0.9%	2.8	54.9
Other transport - gas	1.86	-67.1%	2.1	57.1
Manufacturing industries - oil	1.57	-37.0%	1.8	58.9
Manufacturing industries - gas	1.52	107.9%	1.7	60.6
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*52.68*	*15.1%*	*60.6*	*60.6*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Ukraine

Figure 1. CO_2 emissions by fuel

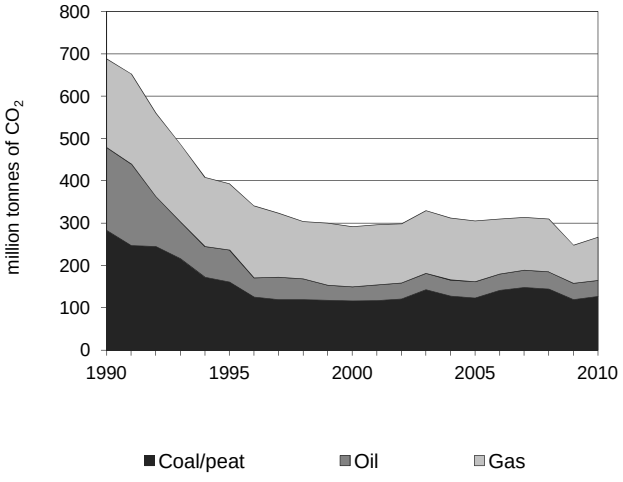


Figure 2. CO_2 emissions by sector

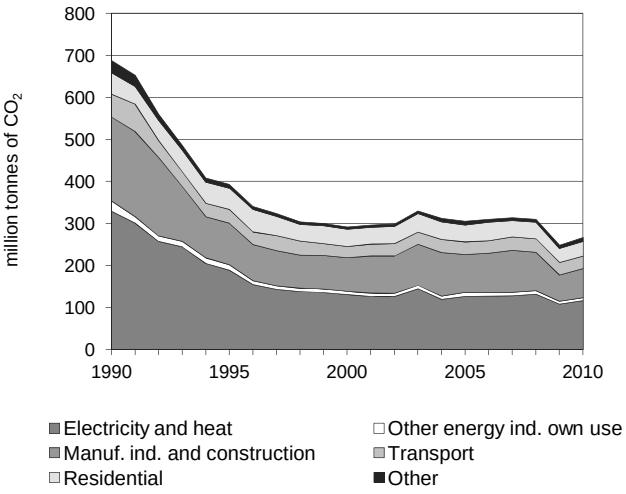


Figure 3. CO_2 emissions by sector

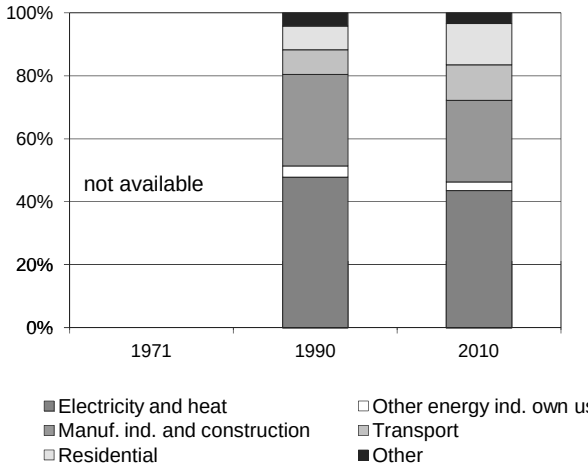


Figure 4. Reference vs Sectoral Approach

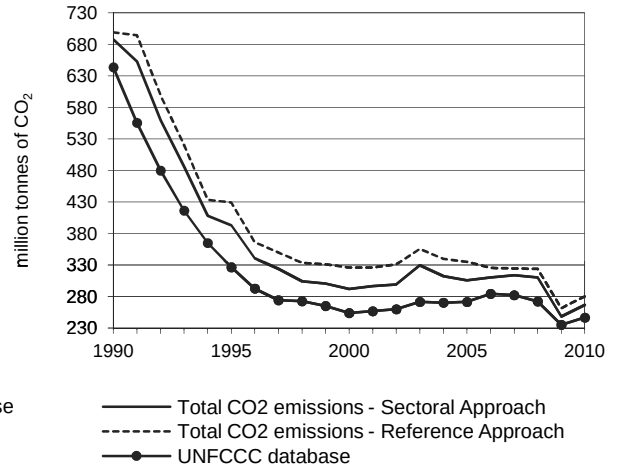


Figure 5. Electricity generation by fuel

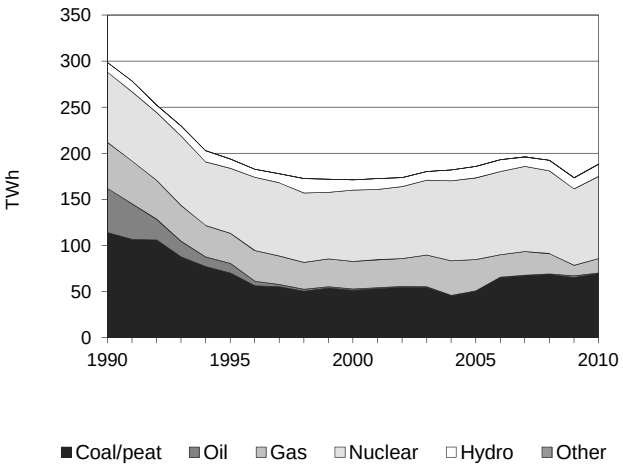
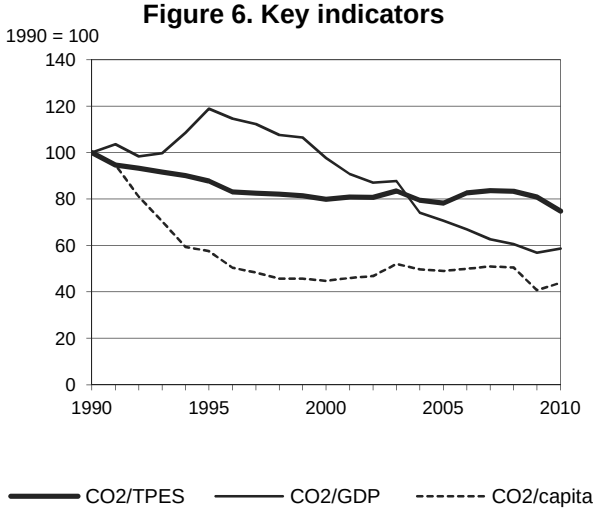


Figure 6. Key indicators



Ukraine

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	687.86	392.78	291.96	305.59	310.03	248.31	266.59	-61.2%
CO_2 Reference Approach ($MtCO_2$)	699.10	428.82	325.75	335.36	323.84	261.49	280.32	-59.9%
TPES (PJ)	10 541	6 859	5 602	5 982	5 700	4 703	5 464	-48.2%
TPES (Mtoe)	251.76	163.81	133.79	142.89	136.14	112.34	130.50	-48.2%
GDP (billion 2005 USD)	137.03	65.78	59.54	86.14	102.03	86.93	90.58	-33.9%
GDP PPP (billion 2005 USD)	418.39	200.83	181.78	263.01	311.50	265.40	276.55	-33.9%
Population (millions)	51.89	51.51	49.18	47.11	46.26	46.05	45.87	-11.6%
CO_2 / TPES (tCO_2 per TJ)	65.3	57.3	52.1	51.1	54.4	52.8	48.8	-25.2%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	5.02	5.97	4.90	3.55	3.04	2.86	2.94	-41.4%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	1.64	1.96	1.61	1.16	1.00	0.94	0.96	-41.4%
CO_2 / population (tCO_2 per capita)	13.26	7.63	5.94	6.49	6.70	5.39	5.81	-56.2%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**127.32**	**37.21**	**102.06**	**-**	**266.59**	**-61.2%**
Main activity producer elec. and heat	71.68	0.78	33.06	-	105.52	-64.7%
Unallocated autoproducers	7.25	0.32	3.22	-	10.80	-64.4%
Other energy industry own use	3.21	1.54	2.46	-	7.21	-70.6%
Manufacturing industries and construction	42.46	5.06	21.61	-	69.14	-65.4%
Transport	0.10	22.13	7.72	-	29.96	-44.8%
of which: road	-	*21.22*	*0.11*	-	*21.32*	-54.6%
Other	2.60	7.37	33.99	-	43.96	-45.2%
of which: residential	*1.87*	*0.16*	*32.87*	-	*34.89*	-31.8%
Reference Approach	**138.80**	**36.83**	**104.68**	**-**	**280.32**	**-59.9%**
Diff. due to losses and/or transformation	14.18	- 2.18	1.59	-	13.59	
Statistical differences	- 2.70	1.81	1.02	-	0.14	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.82*	-	-	*0.82*	*-86.6%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	71.68	-47.7%	17.8	17.8
Manufacturing industries - coal/peat	42.46	-59.7%	10.5	28.3
Main activity prod. elec. and heat - gas	33.06	-64.4%	8.2	36.5
Residential - gas	32.87	61.0%	8.2	44.7
Manufacturing industries - gas	21.61	-60.3%	5.4	50.0
Road - oil	21.22	-54.8%	5.3	55.3
Other transport - gas	7.61	x	1.9	57.2
Unallocated autoproducers - coal/peat	7.25	414.7%	1.8	59.0
Non-specified other - oil	7.21	-60.0%	1.8	60.8
Manufacturing industries - oil	5.06	-87.3%	1.3	62.0
Unallocated autoproducers - gas	3.22	-88.9%	0.8	62.8
Memo: total CO_2 from fuel combustion	*266.59*	*-61.2%*	*66.1*	*66.1*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

United Arab Emirates

Figure 1. CO_2 emissions by fuel

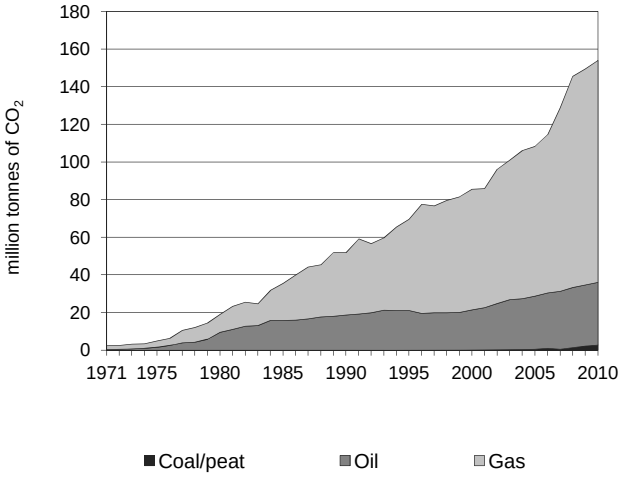


Figure 2. CO_2 emissions by sector

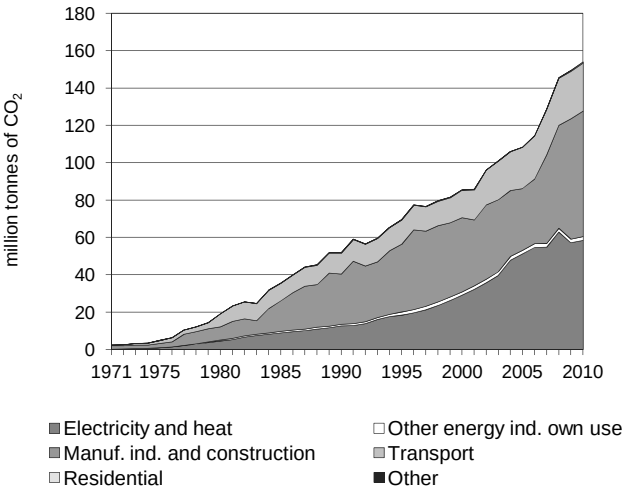


Figure 3. CO_2 emissions by sector

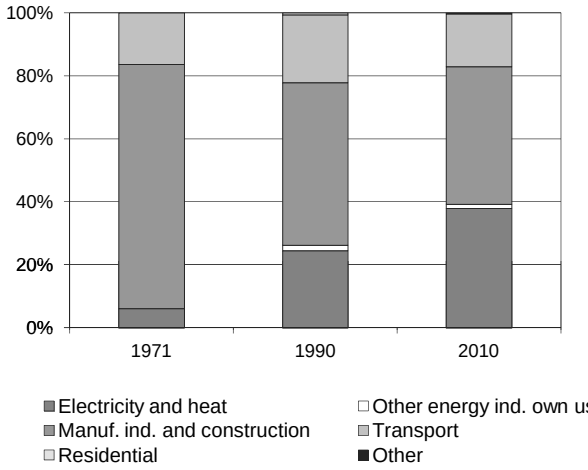


Figure 4. Reference vs Sectoral Approach

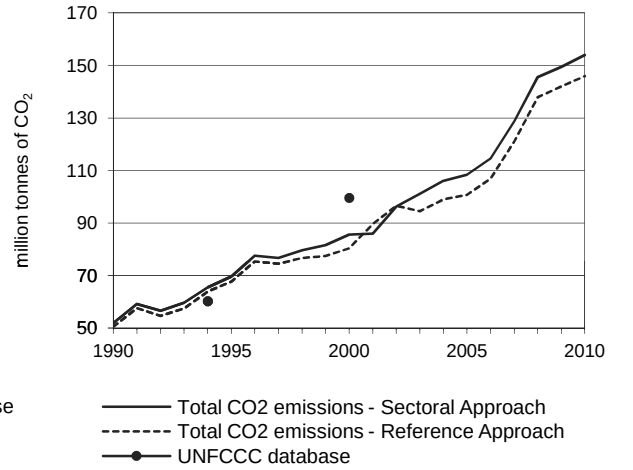


Figure 5. Electricity generation by fuel

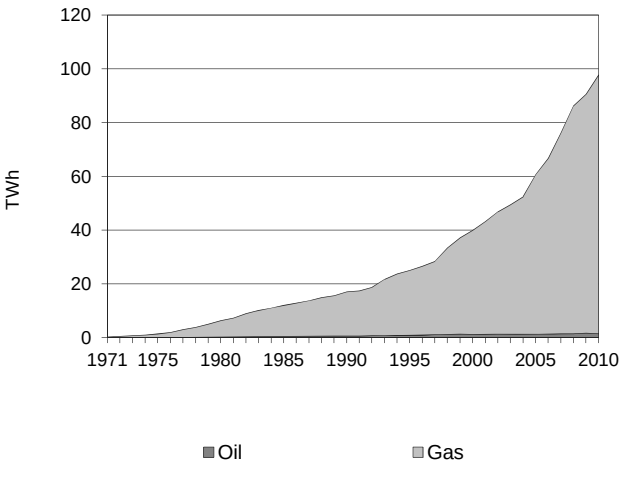
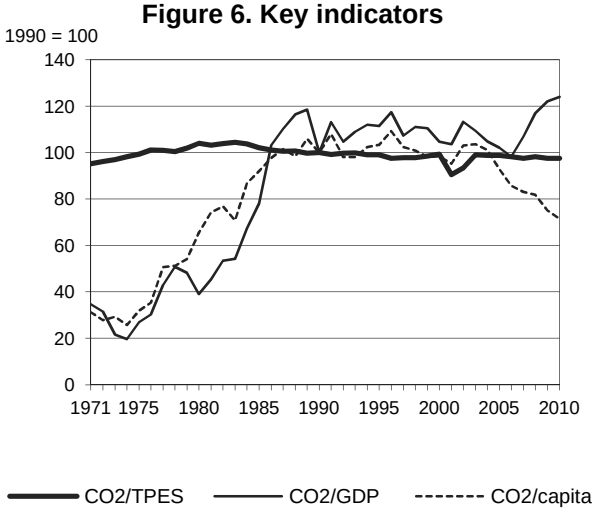


Figure 6. Key indicators



United Arab Emirates

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	51.88	69.64	85.59	108.40	145.59	149.44	154.00	196.8%
CO_2 Reference Approach ($MtCO_2$)	50.50	67.63	80.32	100.65	137.92	142.02	145.87	188.9%
TPES (PJ)	855	1 159	1 421	1 810	2 442	2 527	2 601	204.2%
TPES (Mtoe)	20.42	27.69	33.95	43.23	58.33	60.35	62.13	204.2%
GDP (billion 2005 USD)	88.26	106.24	139.12	180.62	211.64	208.23	211.22	139.3%
GDP PPP (billion 2005 USD)	132.94	160.02	209.55	272.06	318.78	313.65	318.14	139.3%
Population (millions)	1.81	2.35	3.03	4.07	6.21	6.94	7.51	315.3%
CO_2 / TPES (tCO_2 per TJ)	60.7	60.1	60.2	59.9	59.6	59.1	59.2	-2.4%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.59	0.66	0.62	0.60	0.69	0.72	0.73	24.0%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.39	0.44	0.41	0.40	0.46	0.48	0.48	24.0%
CO_2 / population (tCO_2 per capita)	28.68	29.65	28.22	26.64	23.46	21.54	20.50	-28.5%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**2.78**	**33.22**	**118.00**	**-**	**154.00**	**196.8%**
Main activity producer elec. and heat	-	1.72	56.70	-	58.42	360.1%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	-	0.51	1.55	-	2.06	124.0%
Manufacturing industries and construction	2.78	4.71	59.75	-	67.24	151.0%
Transport	-	25.72	-	-	25.72	130.2%
of which: road	-	*25.72*	-	-	*25.72*	130.2%
Other	-	0.56	-	-	0.56	84.3%
of which: residential	-	*0.56*	-	-	*0.56*	84.3%
Reference Approach	**2.78**	**25.09**	**118.00**	**-**	**145.87**	**188.9%**
Diff. due to losses and/or transformation	-	- 8.13	-	-	- 8.13	
Statistical differences	-	-	0.00	-	0.00	
Memo: international marine bunkers	-	*41.36*	-	-	*41.36*	*117.7%*
Memo: international aviation bunkers	-	*12.35*	-	-	*12.35*	*26.1%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Manufacturing industries - gas	59.75	192.7%	31.1	31.1
Main activity prod. elec. and heat - gas	56.70	369.3%	29.5	60.6
Road - oil	25.72	130.2%	13.4	74.0
Manufacturing industries - oil	4.71	-26.2%	2.5	76.5
Manufacturing industries - coal/peat	2.78	x	1.4	77.9
Main activity prod. elec. and heat - oil	1.72	179.8%	0.9	78.8
Other energy industry own use - gas	1.55	146.9%	0.8	79.6
Residential - oil	0.56	84.3%	0.3	79.9
Other energy industry own use - oil	0.51	75.0%	0.3	80.2
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*154.00*	*196.8%*	*80.2*	*80.2*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

United Kingdom

Figure 1. CO_2 emissions by fuel

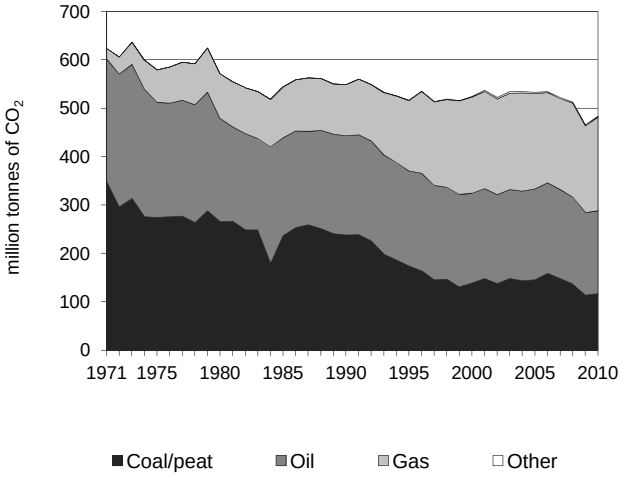


Figure 2. CO_2 emissions by sector

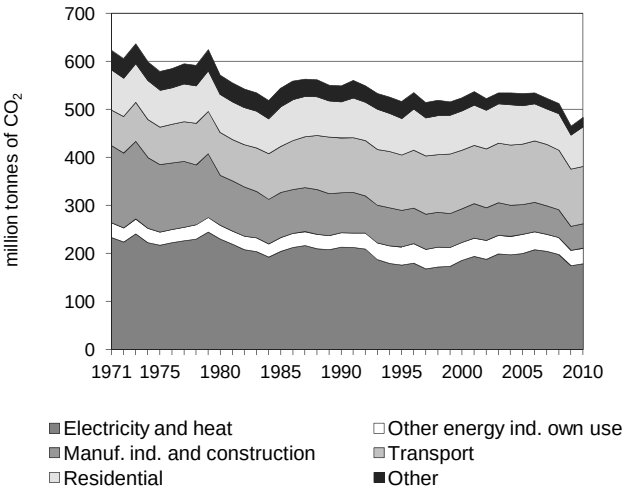


Figure 3. CO_2 emissions by sector

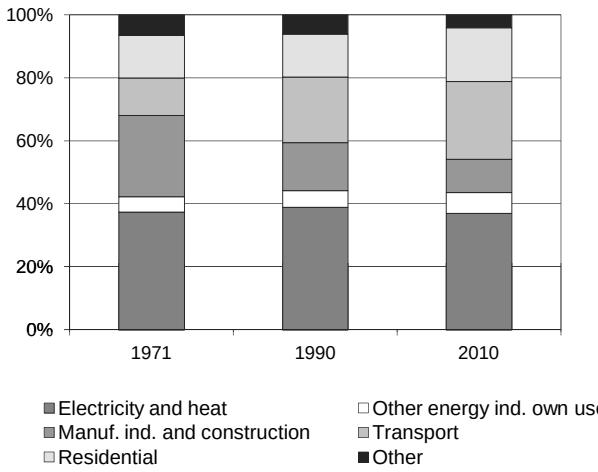


Figure 4. Reference vs Sectoral Approach

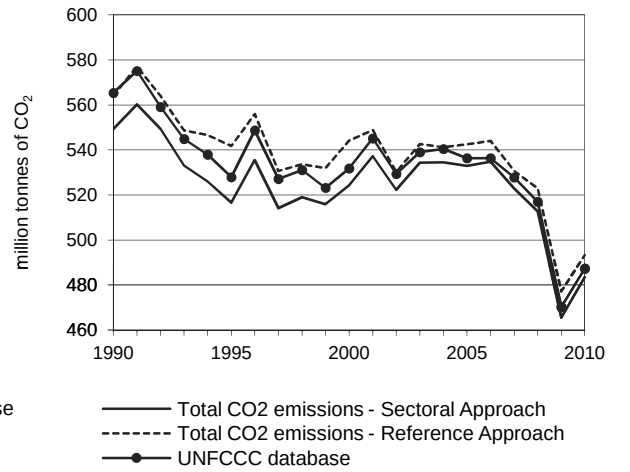


Figure 5. Electricity generation by fuel

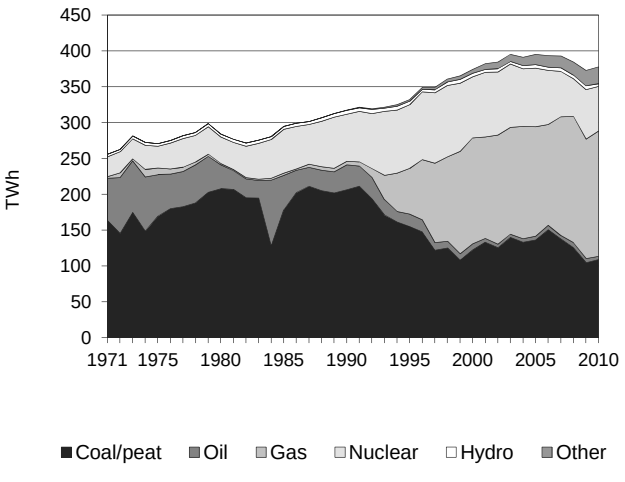
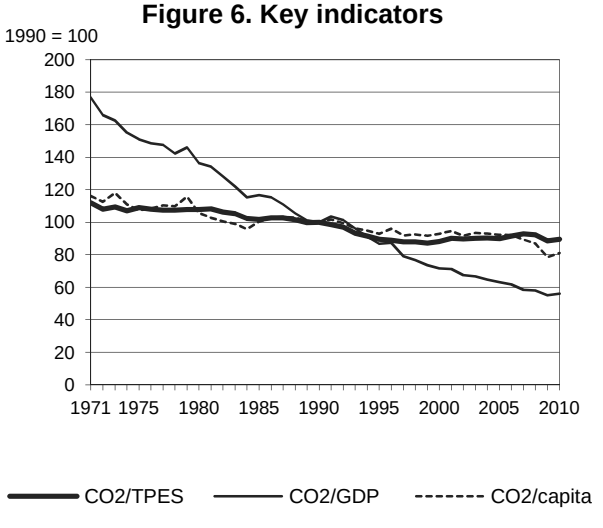


Figure 6. Key indicators



United Kingdom

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	549.25	516.60	524.29	533.01	512.76	465.51	483.52	-12.0%
CO_2 Reference Approach ($MtCO_2$)	564.00	541.68	544.23	542.49	522.95	477.17	493.21	-12.6%
TPES (PJ)	8 621	9 055	9 334	9 310	8 725	8 251	8 479	-1.7%
TPES (Mtoe)	205.92	216.26	222.94	222.37	208.39	197.07	202.51	-1.7%
GDP (billion 2005 USD)	1 485.13	1 611.07	1 979.33	2 280.54	2 394.40	2 289.69	2 337.59	57.4%
GDP PPP (billion 2005 USD)	1 283.95	1 392.84	1 711.21	1 971.62	2 070.06	1 979.53	2 020.94	57.4%
Population (millions)	57.24	58.03	58.89	60.24	61.40	61.79	62.18	8.6%
CO_2 / TPES (tCO_2 per TJ)	63.7	57.1	56.2	57.3	58.8	56.4	57.0	-10.5%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.37	0.32	0.26	0.23	0.21	0.20	0.21	-44.1%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.43	0.37	0.31	0.27	0.25	0.24	0.24	-44.1%
CO_2 / population (tCO_2 per capita)	9.60	8.90	8.90	8.85	8.35	7.53	7.78	-19.0%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**117.02**	**171.08**	**193.63**	**1.79**	**483.52**	**-12.0%**
Main activity producer elec. and heat	92.70	2.07	58.95	-	153.72	-23.2%
Unallocated autoproducers	9.11	1.71	12.58	1.56	24.95	86.5%
Other energy industry own use	3.79	15.94	12.56	-	32.29	9.7%
Manufacturing industries and construction	8.74	19.16	23.08	0.13	51.11	-38.8%
Transport	0.04	119.26	-	-	119.30	4.3%
of which: road	-	*110.75*	-	-	*110.75*	3.8%
Other	2.64	12.95	86.46	0.10	102.15	-5.8%
of which: residential	*2.55*	*9.37*	*70.44*	*0.02*	*82.38*	9.9%
Reference Approach	**118.41**	**175.36**	**197.65**	**1.79**	**493.21**	**-12.6%**
Diff. due to losses and/or transformation	2.88	3.82	3.44	-	10.14	
Statistical differences	- 1.49	0.46	0.58	0.00	- 0.45	
Memo: international marine bunkers	-	*6.60*	-	-	*6.60*	*-15.8%*
Memo: international aviation bunkers	-	*31.80*	-	-	*31.80*	*68.7%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	110.75	3.8%	18.8	18.8
Main activity prod. elec. and heat - coal/peat	92.70	-48.6%	15.7	34.5
Residential - gas	70.44	29.7%	11.9	46.4
Main activity prod. elec. and heat - gas ***	58.95	x	10.0	56.4
Manufacturing industries - gas	23.08	-13.7%	3.9	60.3
Manufacturing industries - oil	19.16	-27.5%	3.2	63.5
Non-specified other - gas	16.02	4.2%	2.7	66.3
Other energy industry own use - oil	15.94	-20.2%	2.7	69.0
Unallocated autoproducers - gas ***	12.58	383.4%	2.1	71.1
Other energy industry own use - gas	12.56	79.4%	2.1	73.2
Residential - oil	9.37	38.3%	1.6	74.8
Memo: total CO_2 from fuel combustion	*483.52*	*-12.0%*	*81.9*	*81.9*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

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

United States

Figure 1. CO_2 emissions by fuel

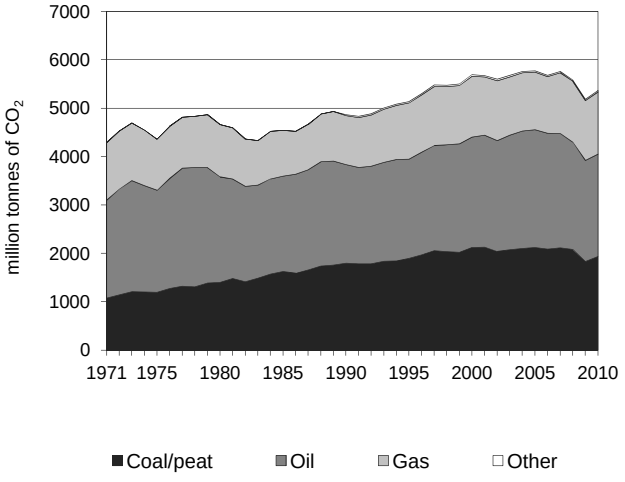


Figure 2. CO_2 emissions by sector

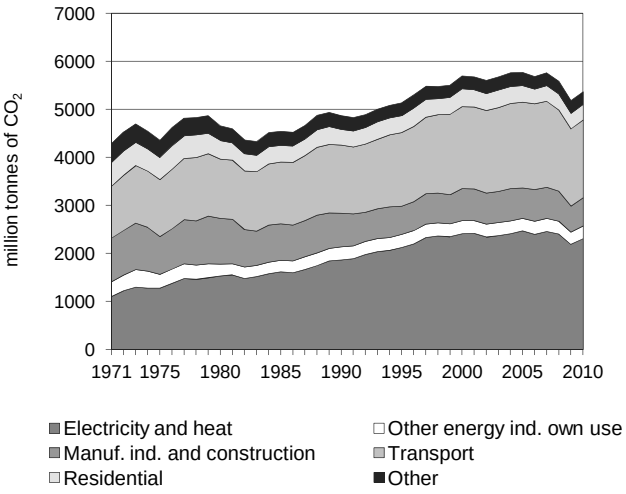


Figure 3. CO_2 emissions by sector

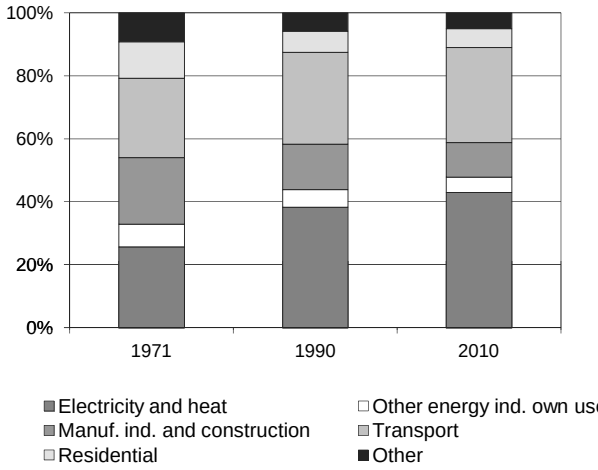


Figure 4. Reference vs Sectoral Approach

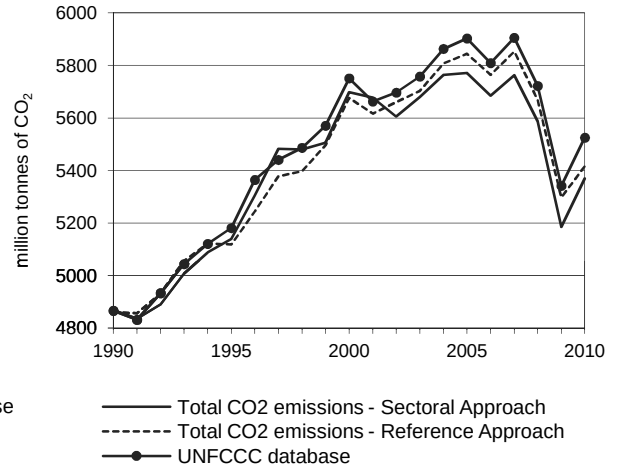


Figure 5. Electricity generation by fuel

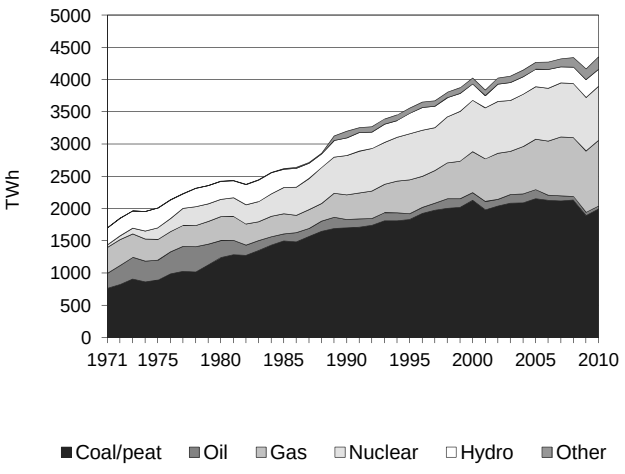
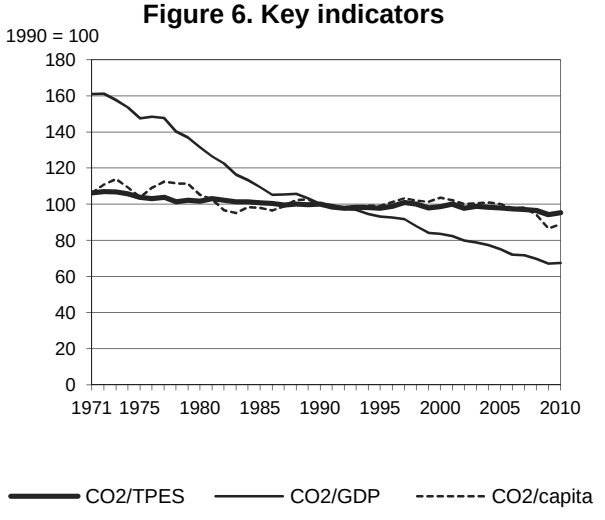


Figure 6. Key indicators



United States

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	4 868.7	5 138.7	5 698.1	5 771.7	5 586.8	5 184.8	5 368.6	10.3%
CO_2 Reference Approach ($MtCO_2$)	4 860.4	5 118.5	5 676.2	5 843.9	5 668.6	5 297.8	5 415.0	11.4%
TPES (PJ)	80 177	86 550	95 180	97 086	95 335	90 643	92 793	15.7%
TPES (Mtoe)	1 915.0	2 067.2	2 273.3	2 318.9	2 277.0	2 165.0	2 216.3	15.7%
GDP (billion 2005 USD)	7 962.6	9 019.9	11 158.1	12 564.3	13 097.2	12 635.2	13 017.0	63.5%
GDP PPP (billion 2005 USD)	7 962.6	9 019.9	11 158.1	12 564.3	13 097.2	12 635.2	13 017.0	63.5%
Population (millions)	250.2	266.6	282.4	296.2	304.8	307.5	310.1	24.0%
CO_2 / TPES (tCO_2 per TJ)	60.7	59.4	59.9	59.4	58.6	57.2	57.9	-4.7%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.61	0.57	0.51	0.46	0.43	0.41	0.41	-32.5%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.61	0.57	0.51	0.46	0.43	0.41	0.41	-32.5%
CO_2 / population (tCO_2 per capita)	19.46	19.28	20.18	19.48	18.33	16.86	17.31	-11.0%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**1 940.7**	**2 116.7**	**1 282.2**	**29.1**	**5 368.6**	**10.3%**
Main activity producer elec. and heat	1 798.7	31.7	400.1	13.5	2 244.0	26.5%
Unallocated autoproducers	21.2	5.5	32.4	6.6	65.7	-28.7%
Other energy industry own use	8.5	143.0	110.5	-	262.0	-4.1%
Manufacturing industries and construction	106.5	196.8	275.8	8.0	587.1	-16.5%
Transport	-	1 583.8	37.9	-	1 621.7	14.2%
of which: road	-	*1 398.9*	*1.7*	-	*1 400.5*	23.1%
Other	5.9	155.9	425.5	0.9	588.2	-3.1%
of which: residential	-	*62.2*	*259.5*	-	*321.7*	-0.6%
Reference Approach	**1 967.8**	**2 124.1**	**1 294.1**	**29.1**	**5 415.0**	**11.4%**
Diff. due to losses and/or transformation	16.0	- 11.9	- 2.8	-	1.3	
Statistical differences	11.0	19.3	14.7	0.0	45.1	
Memo: international marine bunkers	-	*82.6*	-	-	*82.6*	*-8.9%*
Memo: international aviation bunkers	-	*64.6*	-	-	*64.6*	*66.7%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	1 798.7	17.3%	27.1	27.1
Road - oil	1 398.9	22.9%	21.0	48.1
Main activity prod. elec. and heat - gas	400.1	162.1%	6.0	54.1
Manufacturing industries - gas	275.8	-1.0%	4.1	58.3
Residential - gas	259.5	8.3%	3.9	62.2
Manufacturing industries - oil	196.8	-9.4%	3.0	65.1
Other transport - oil	184.9	-24.9%	2.8	67.9
Non-specified other - gas	166.0	16.0%	2.5	70.4
Other energy industry own use - oil	143.0	-14.0%	2.2	72.6
Other energy industry own use - gas	110.5	6.0%	1.7	74.2
Manufacturing industries - coal/peat	106.5	-48.6%	1.6	75.8
Memo: total CO_2 from fuel combustion	*5 368.6*	*10.3%*	*80.8*	*80.8*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Uruguay

Figure 1. CO_2 emissions by fuel

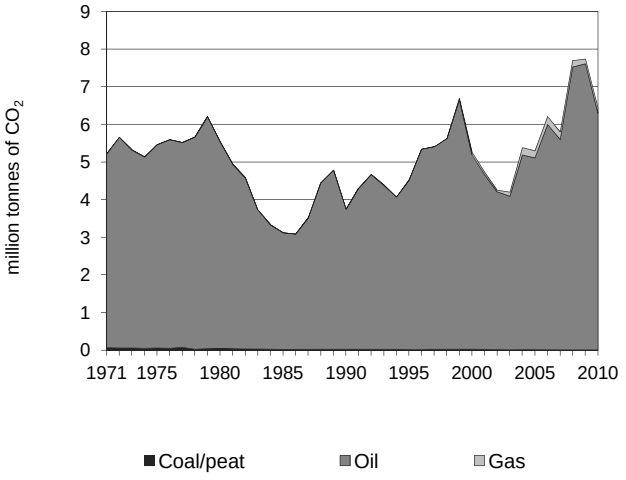


Figure 2. CO_2 emissions by sector

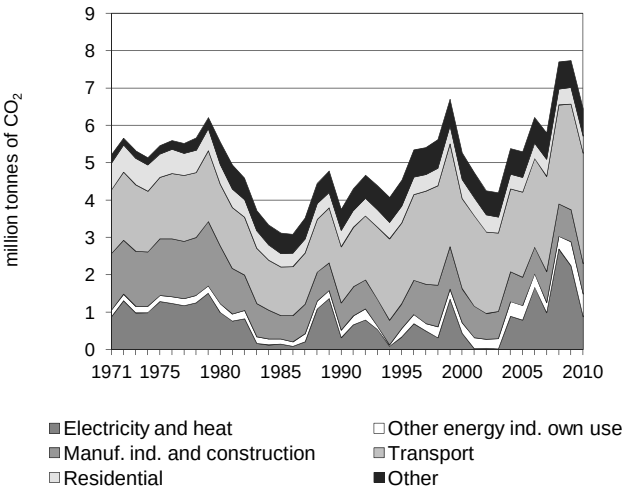


Figure 3. CO_2 emissions by sector

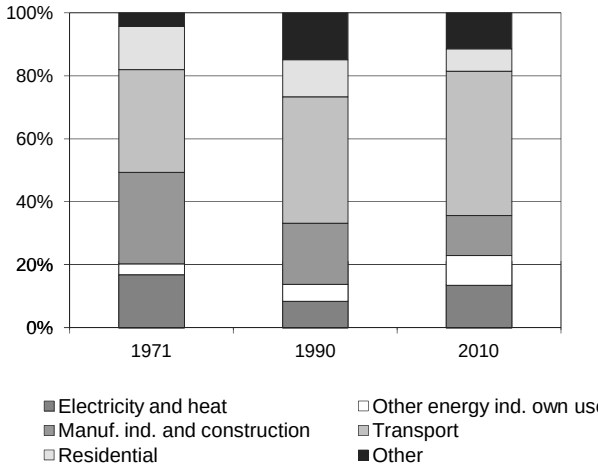


Figure 4. Reference vs Sectoral Approach

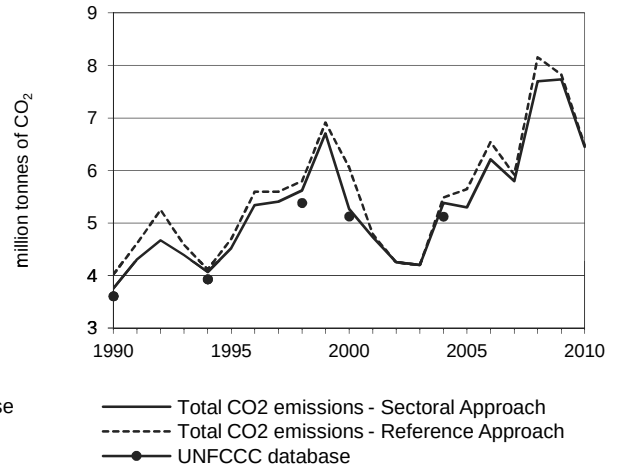


Figure 5. Electricity generation by fuel

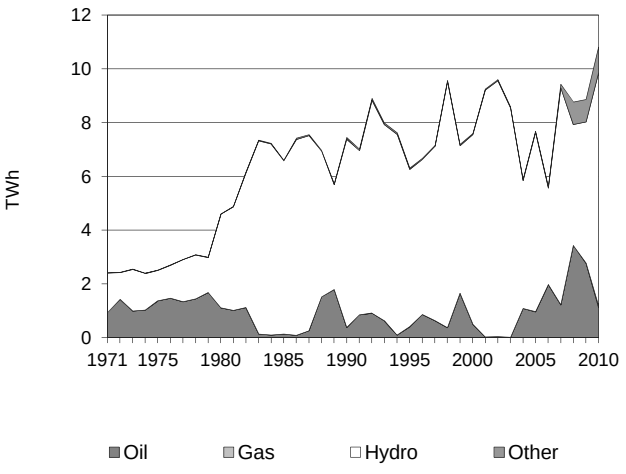
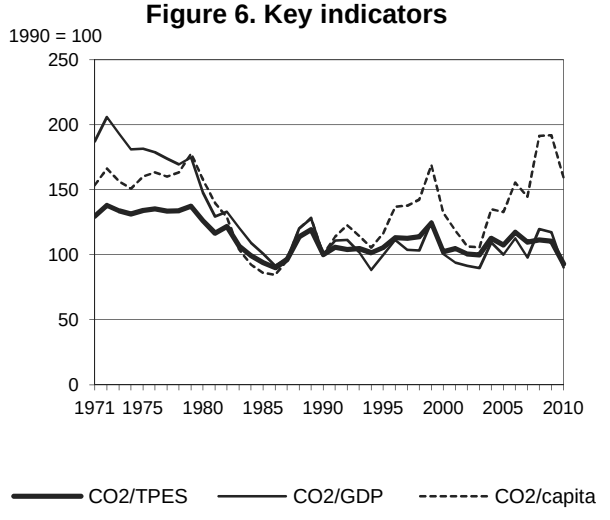


Figure 6. Key indicators



Uruguay

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	3.75	4.52	5.26	5.29	7.70	7.74	6.45	71.9%
CO_2 Reference Approach ($MtCO_2$)	4.02	4.70	6.06	5.65	8.16	7.83	6.48	61.3%
TPES (PJ)	94	108	129	124	174	176	174	85.0%
TPES (Mtoe)	2.25	2.57	3.09	2.96	4.15	4.21	4.17	85.0%
GDP (billion 2005 USD)	12.31	14.94	17.21	17.36	21.11	21.66	23.49	90.8%
GDP PPP (billion 2005 USD)	22.70	27.54	31.72	32.01	38.92	39.93	43.31	90.8%
Population (millions)	3.11	3.22	3.30	3.31	3.33	3.35	3.36	8.0%
CO_2 / TPES (tCO_2 per TJ)	39.8	42.0	40.7	42.8	44.3	43.9	37.0	-7.1%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.30	0.30	0.31	0.31	0.36	0.36	0.27	-9.9%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.17	0.16	0.17	0.17	0.20	0.19	0.15	-9.9%
CO_2 / population (tCO_2 per capita)	1.21	1.40	1.59	1.60	2.31	2.31	1.92	59.2%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.01**	**6.29**	**0.15**	**-**	**6.45**	**71.9%**
Main activity producer elec. and heat	-	0.82	0.04	-	0.86	191.6%
Unallocated autoproducers	-	0.01	0.00	-	0.01	-40.8%
Other energy industry own use	-	0.61	0.00	-	0.61	204.7%
Manufacturing industries and construction	0.01	0.77	0.03	-	0.81	11.4%
Transport	-	2.95	-	-	2.95	96.6%
of which: road	-	*2.94*	-	-	*2.94*	105.7%
Other	-	1.12	0.08	-	1.19	19.6%
of which: residential	-	*0.42*	*0.04*	-	*0.46*	4.3%
Reference Approach	**0.01**	**6.32**	**0.15**	**-**	**6.48**	**61.3%**
Diff. due to losses and/or transformation	-	0.06	0.00	-	0.06	
Statistical differences	-	- 0.03	0.00	-	- 0.03	
Memo: international marine bunkers	-	*1.41*	-	-	*1.41*	*284.1%*
Memo: international aviation bunkers	-	*0.24*	-	-	*0.24*	*x*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	2.94	105.7%	8.7	8.7
Main activity prod. elec. and heat - oil	0.82	178.2%	2.4	11.1
Manufacturing industries - oil	0.77	6.7%	2.3	13.4
Non-specified other - oil	0.70	26.9%	2.1	15.4
Other energy industry own use - oil	0.61	203.5%	1.8	17.2
Residential - oil	0.42	-2.2%	1.2	18.5
Residential - gas	0.04	x	0.1	18.6
Main activity prod. elec. and heat - gas	0.04	x	0.1	18.7
Non-specified other - gas	0.04	x	0.1	18.8
Manufacturing industries - gas	0.03	x	0.1	18.9
Other transport - oil	0.02	-79.4%	0.0	18.9
Memo: total CO_2 from fuel combustion	*6.45*	*71.9%*	*19.0*	*19.0*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Uzbekistan

Figure 1. CO_2 emissions by fuel

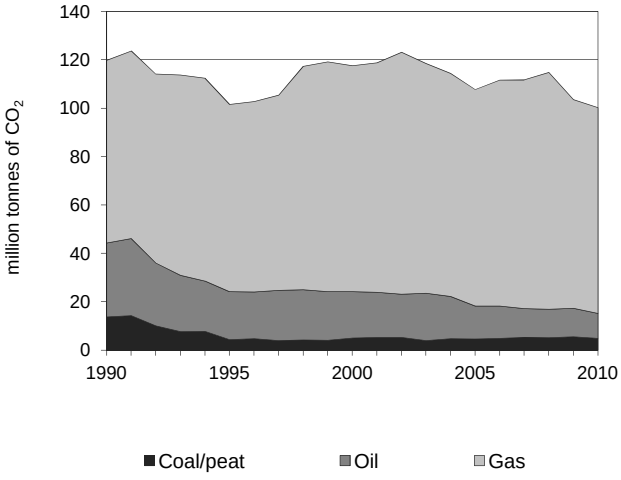


Figure 2. CO_2 emissions by sector

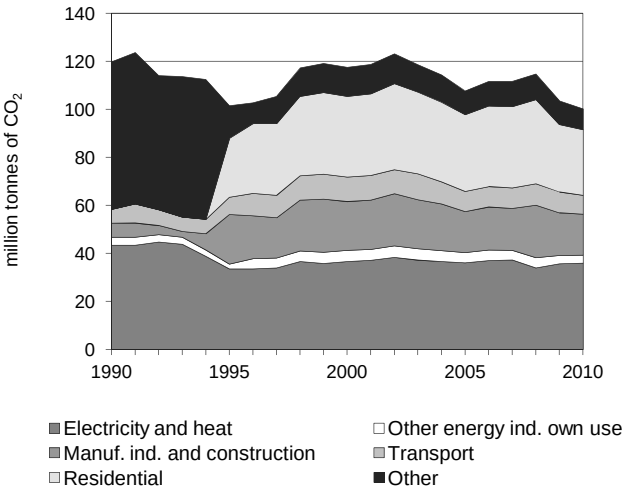


Figure 3. CO_2 emissions by sector

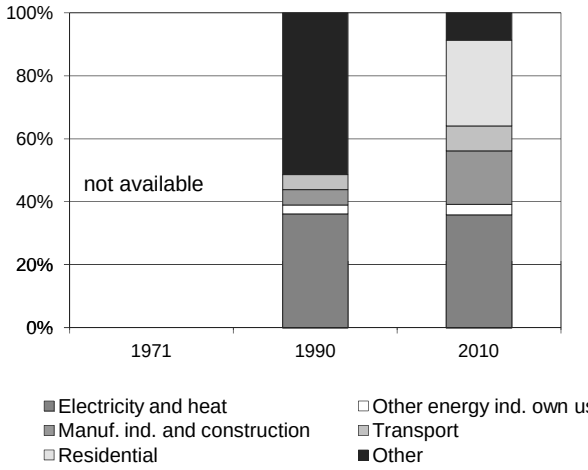


Figure 4. Reference vs Sectoral Approach

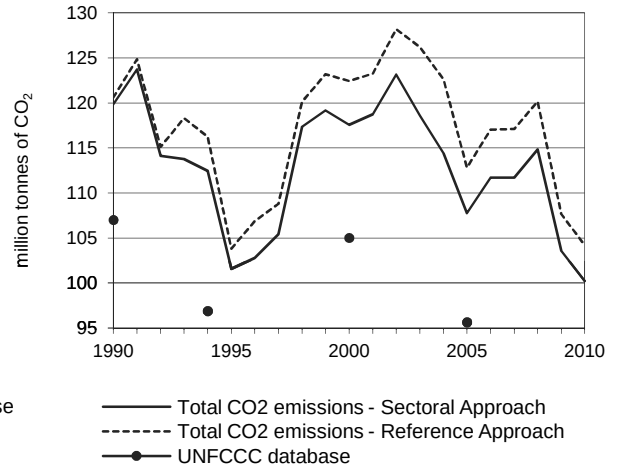


Figure 5. Electricity generation by fuel

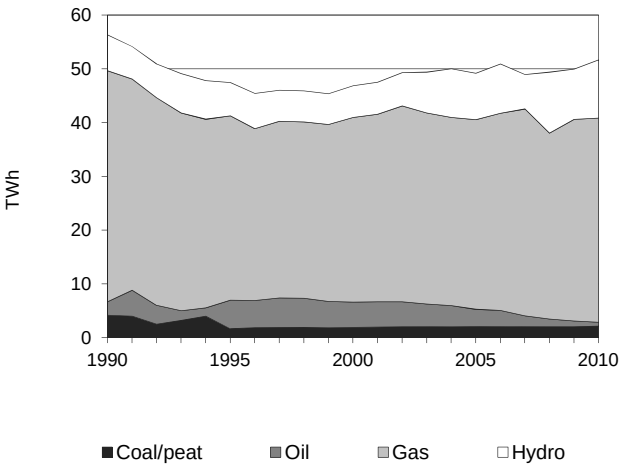
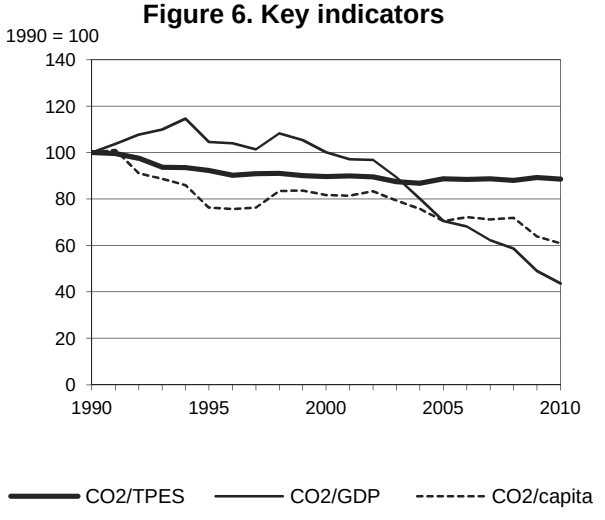


Figure 6. Key indicators



Uzbekistan

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	119.83	101.59	117.58	107.75	114.83	103.58	100.22	-16.4%
CO_2 Reference Approach ($MtCO_2$)	120.58	103.83	122.44	112.79	120.15	107.65	104.22	-13.6%
TPES (PJ)	1 941	1 782	2 124	1 967	2 114	1 881	1 833	-5.6%
TPES (Mtoe)	46.37	42.57	50.74	46.98	50.50	44.92	43.79	-5.6%
GDP (billion 2005 USD)	11.22	9.10	11.00	14.31	18.32	19.81	21.49	91.5%
GDP PPP (billion 2005 USD)	41.07	33.31	40.24	52.36	67.06	72.49	78.65	91.5%
Population (millions)	20.51	22.79	24.65	26.17	27.31	27.77	28.16	37.3%
CO_2 / TPES (tCO_2 per TJ)	61.7	57.0	55.3	54.8	54.3	55.1	54.7	-11.4%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	10.68	11.16	10.69	7.53	6.27	5.23	4.66	-56.3%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	2.92	3.05	2.92	2.06	1.71	1.43	1.27	-56.3%
CO_2 / population (tCO_2 per capita)	5.84	4.46	4.77	4.12	4.20	3.73	3.56	-39.1%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**4.95**	**10.26**	**85.01**	**-**	**100.22**	**-16.4%**
Main activity producer elec. and heat	3.83	0.77	31.34	-	35.94	-17.2%
Unallocated autoproducers	-	0.00	0.07	-	0.07	x
Other energy industry own use	-	0.45	2.82	-	3.27	-3.7%
Manufacturing industries and construction	0.35	1.47	15.24	-	17.06	192.2%
Transport	-	5.27	2.64	-	7.90	39.5%
of which: road	-	*4.63*	*0.12*	-	*4.74*	-12.7%
Other	0.77	2.30	32.89	-	35.97	-41.5%
of which: residential	*0.06*	*0.03*	*27.17*	-	*27.26*	x
Reference Approach	**5.00**	**11.19**	**88.04**	**-**	**104.22**	**-13.6%**
Diff. due to losses and/or transformation	0.05	0.12	3.02	-	3.19	
Statistical differences	0.00	0.80	0.00	-	0.80	
Memo: international marine bunkers	-	-	-	-	-	-
Memo: international aviation bunkers	-	-	-	-	-	-

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	31.34	15.5%	18.8	18.8
Residential - gas	27.17	x	16.3	35.2
Manufacturing industries - gas	15.24	x	9.2	44.3
Non-specified other - gas	5.72	-87.6%	3.4	47.8
Road - oil	4.63	-14.9%	2.8	50.5
Main activity prod. elec. and heat - coal/peat	3.83	-56.5%	2.3	52.8
Other energy industry own use - gas	2.82	16.9%	1.7	54.5
Other transport - gas	2.52	x	1.5	56.0
Non-specified other - oil	2.27	-78.5%	1.4	57.4
Manufacturing industries - oil	1.47	-74.8%	0.9	58.3
Main activity prod. elec. and heat - oil	0.77	-89.8%	0.5	58.8
Memo: total CO_2 from fuel combustion	*100.22*	*-16.4%*	*60.2*	*60.2*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Venezuela

Figure 1. CO_2 emissions by fuel

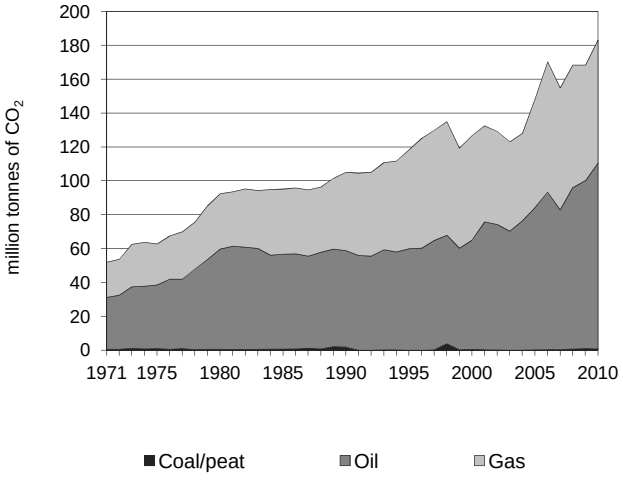


Figure 2. CO_2 emissions by sector

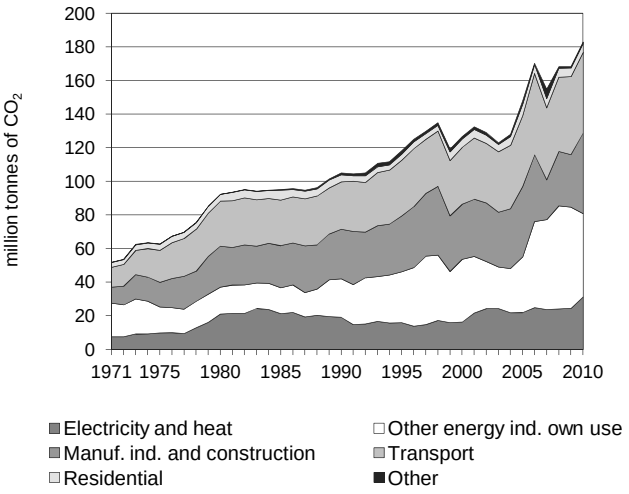


Figure 3. CO_2 emissions by sector

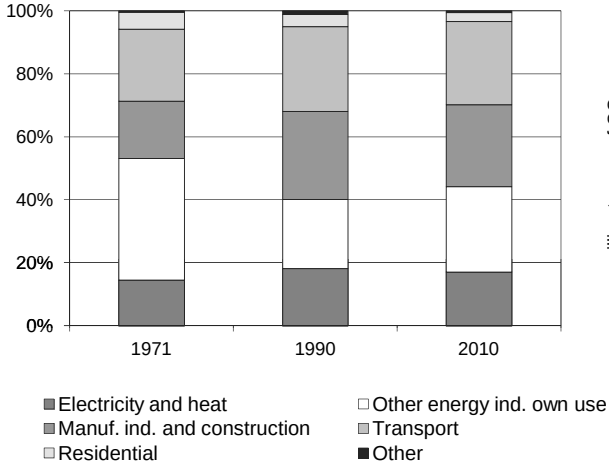


Figure 4. Reference vs Sectoral Approach

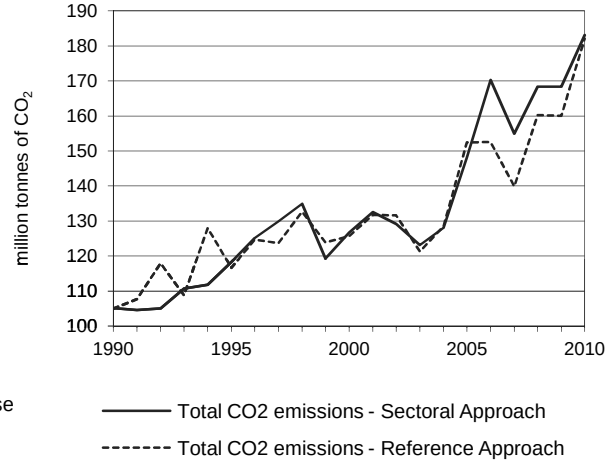


Figure 5. Electricity generation by fuel

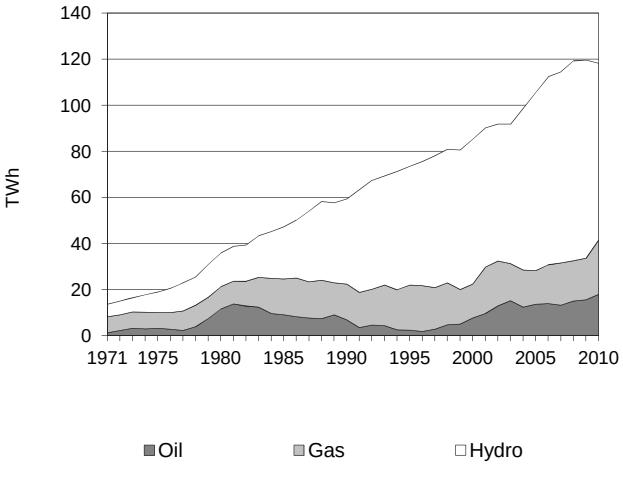
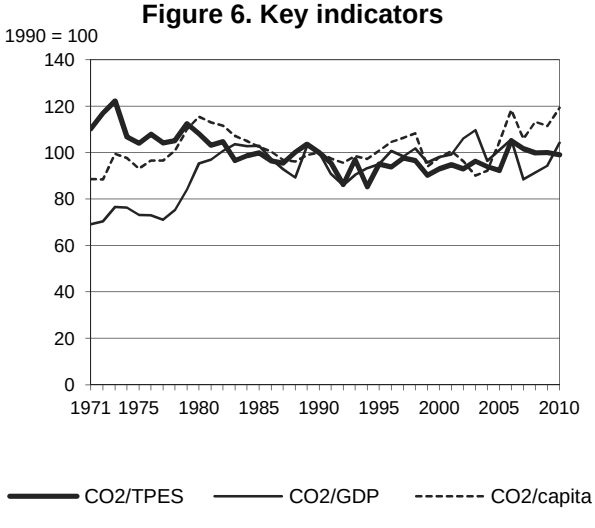


Figure 6. Key indicators



Venezuela

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	105.09	118.29	126.74	148.16	168.32	168.35	183.04	74.2%
CO_2 Reference Approach ($MtCO_2$)	104.94	116.62	125.71	152.50	160.24	160.08	182.05	73.5%
TPES (PJ)	1 833	2 171	2 377	2 802	2 938	2 935	3 222	75.8%
TPES (Mtoe)	43.77	51.86	56.76	66.91	70.17	70.09	76.95	75.8%
GDP (billion 2005 USD)	104.32	123.57	128.28	145.51	183.05	177.19	174.55	67.3%
GDP PPP (billion 2005 USD)	189.09	223.99	232.52	263.76	331.80	321.18	316.40	67.3%
Population (millions)	19.75	22.04	24.31	26.58	27.94	28.38	28.83	46.0%
CO_2 / TPES (tCO_2 per TJ)	57.3	54.5	53.3	52.9	57.3	57.4	56.8	-0.9%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	1.01	0.96	0.99	1.02	0.92	0.95	1.05	4.1%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.56	0.53	0.55	0.56	0.51	0.52	0.58	4.1%
CO_2 / population (tCO_2 per capita)	5.32	5.37	5.21	5.57	6.03	5.93	6.35	19.3%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.77**	**109.74**	**72.53**	**-**	**183.04**	**74.2%**
Main activity producer elec. and heat	-	16.98	13.18	-	30.16	97.9%
Unallocated autoproducers	-	-	1.11	-	1.11	-71.6%
Other energy industry own use	-	10.77	38.89	-	49.66	115.7%
Manufacturing industries and construction	0.77	31.20	15.73	-	47.70	62.3%
Transport	-	48.19	0.02	-	48.21	70.6%
of which: road	-	*48.19*	-	-	*48.19*	70.7%
Other	-	2.61	3.60	-	6.21	17.6%
of which: residential	-	*2.52*	*2.77*	-	*5.29*	27.7%
Reference Approach	**0.77**	**122.32**	**58.95**	**-**	**182.05**	**73.5%**
Diff. due to losses and/or transformation	-	4.59	-	-	4.59	
Statistical differences	-	8.00	- 13.57	-	- 5.58	
Memo: international marine bunkers	-	*2.72*	-	-	*2.72*	*8.7%*
Memo: international aviation bunkers	-	*1.88*	-	-	*1.88*	*83.5%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	48.19	70.7%	18.0	18.0
Other energy industry own use - gas	38.89	181.9%	14.5	32.5
Manufacturing industries - oil	31.20	228.2%	11.7	44.2
Main activity prod. elec. and heat - oil	16.98	200.2%	6.3	50.5
Manufacturing industries - gas	15.73	-13.0%	5.9	56.4
Main activity prod. elec. and heat - gas	13.18	37.6%	4.9	61.3
Other energy industry own use - oil	10.77	16.7%	4.0	65.3
Residential - gas	2.77	531.7%	1.0	66.4
Residential - oil	2.52	-31.9%	0.9	67.3
Unallocated autoproducers - gas	1.11	-67.9%	0.4	67.7
Non-specified other - gas	0.83	-14.9%	0.3	68.0
Memo: total CO_2 from fuel combustion	*183.04*	*74.2%*	*68.4*	*68.4*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Vietnam *

Figure 1. CO_2 emissions by fuel

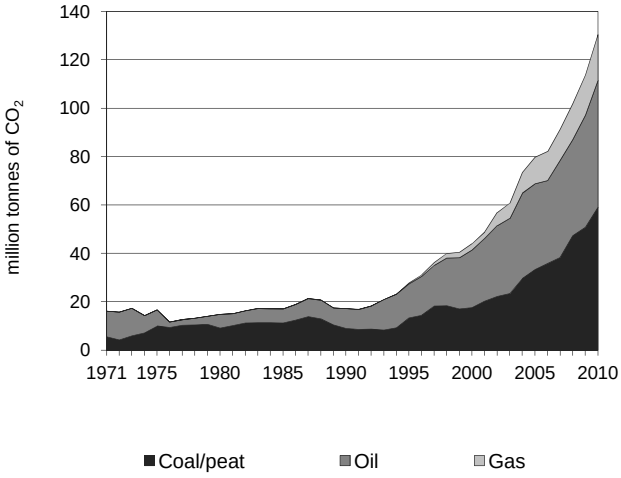


Figure 2. CO_2 emissions by sector

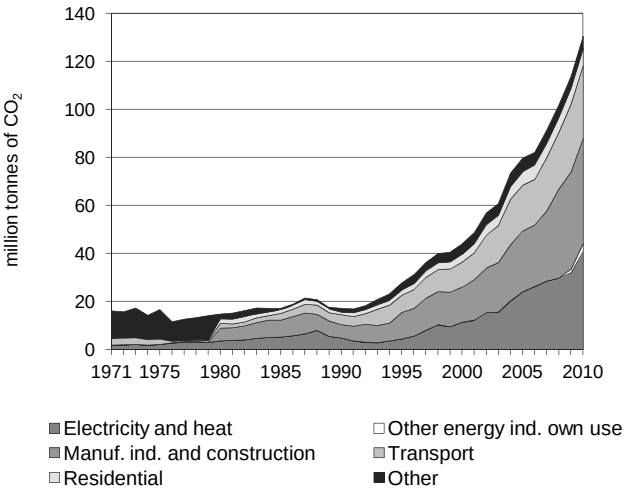


Figure 3. CO_2 emissions by sector

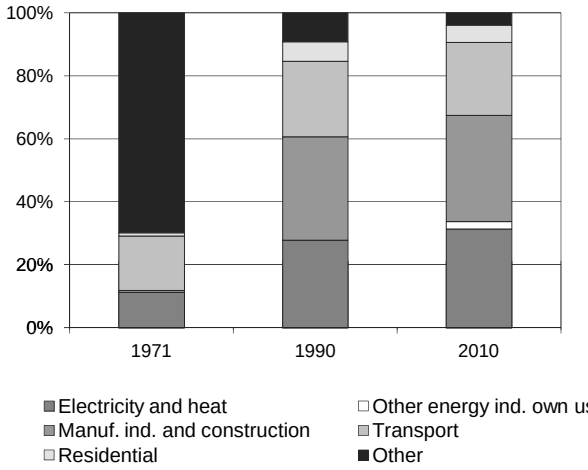


Figure 4. Reference vs Sectoral Approach

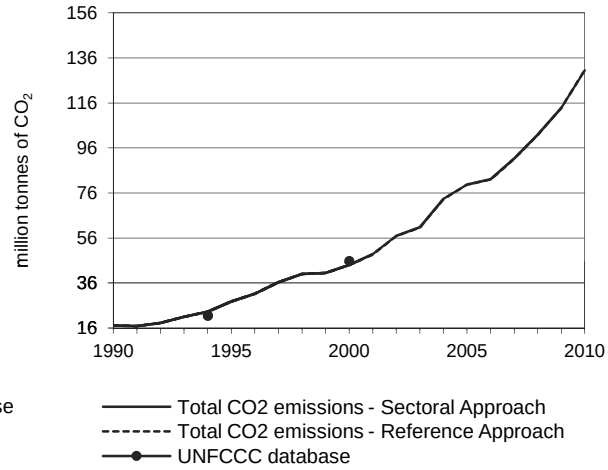


Figure 5. Electricity generation by fuel

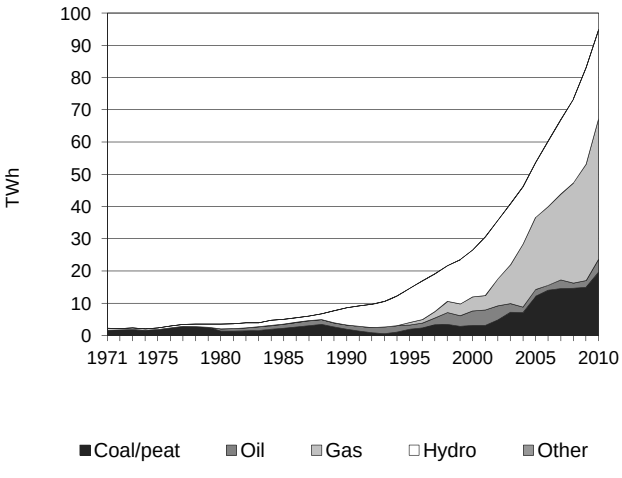
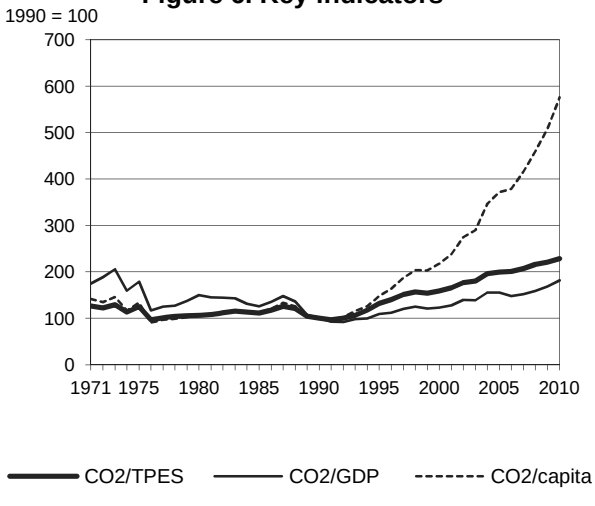


Figure 6. Key indicators



* A detailed sectoral breakdown is available starting in 1980.

Vietnam

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	17.20	27.79	44.01	79.75	101.86	113.78	130.46	658.5%
CO_2 Reference Approach ($MtCO_2$)	17.20	27.79	43.96	79.67	101.80	113.79	130.58	659.0%
TPES (PJ)	748	916	1 203	1 736	2 051	2 238	2 480	231.5%
TPES (Mtoe)	17.87	21.89	28.74	41.46	48.98	53.45	59.23	231.5%
GDP (billion 2005 USD)	17.76	26.34	36.86	52.93	66.05	69.57	74.29	318.4%
GDP PPP (billion 2005 USD)	59.74	88.61	123.99	178.08	222.22	234.05	249.92	318.4%
Population (millions)	66.02	72.00	77.63	82.39	85.12	86.03	86.94	31.7%
CO_2 / TPES (tCO_2 per TJ)	23.0	30.3	36.6	46.0	49.7	50.8	52.6	128.8%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.97	1.06	1.19	1.51	1.54	1.64	1.76	81.3%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.29	0.31	0.36	0.45	0.46	0.49	0.52	81.3%
CO_2 / population (tCO_2 per capita)	0.26	0.39	0.57	0.97	1.20	1.32	1.50	476.0%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**59.00**	**52.47**	**18.98**	**-**	**130.46**	**658.5%**
Main activity producer elec. and heat	18.97	1.99	17.24	-	38.20	697.0%
Unallocated autoproducers	0.47	1.70	0.59	-	2.76	x
Other energy industry own use	-	3.07	-	-	3.07	x
Manufacturing industries and construction	33.16	9.64	1.15	-	43.95	679.0%
Transport	-	30.23	-	-	30.23	633.1%
of which: road	-	*29.47*	-	-	*29.47*	686.4%
Other	6.40	5.84	-	-	12.24	363.5%
of which: residential	*4.85*	*2.32*	-	-	*7.18*	574.9%
Reference Approach	**59.00**	**52.60**	**18.98**	**-**	**130.58**	**659.0%**
Diff. due to losses and/or transformation	-	0.14	-	-	0.14	
Statistical differences	- 0.00	- 0.01	0.00	-	- 0.01	
Memo: international marine bunkers	-	*1.02*	-	-	*1.02*	+
Memo: international aviation bunkers	-	*2.01*	-	-	*2.01*	*x*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Manufacturing industries - coal/peat	33.16	698.7%	11.1	11.1
Road - oil	29.47	686.4%	9.9	21.0
Main activity prod. elec. and heat - coal/peat	18.97	429.8%	6.4	27.3
Main activity prod. elec. and heat - gas	17.24	+	5.8	33.1
Manufacturing industries - oil	9.64	547.2%	3.2	36.3
Residential - coal/peat	4.85	481.1%	1.6	37.9
Non-specified other - oil	3.52	183.4%	1.2	39.1
Other energy industry own use - oil	3.07	x	1.0	40.2
Residential - oil	2.32	917.9%	0.8	40.9
Main activity prod. elec. and heat - oil	1.99	65.0%	0.7	41.6
Unallocated autoproducers - oil	1.70	x	0.6	42.2
Memo: total CO_2 from fuel combustion	*130.46*	*658.5%*	*43.7*	*43.7*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Yemen

Figure 1. CO_2 emissions by fuel

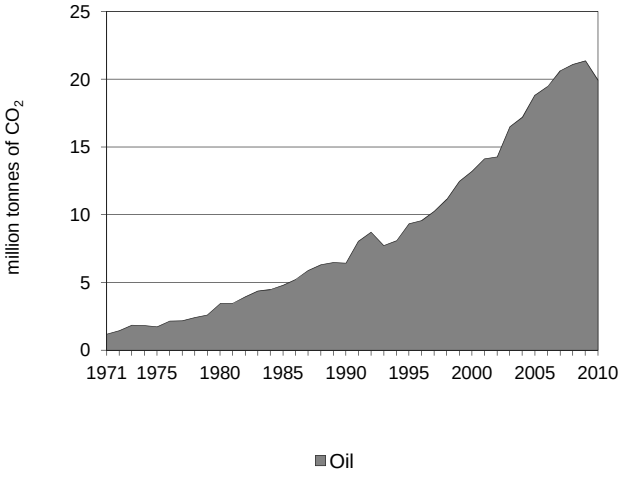


Figure 2. CO_2 emissions by sector

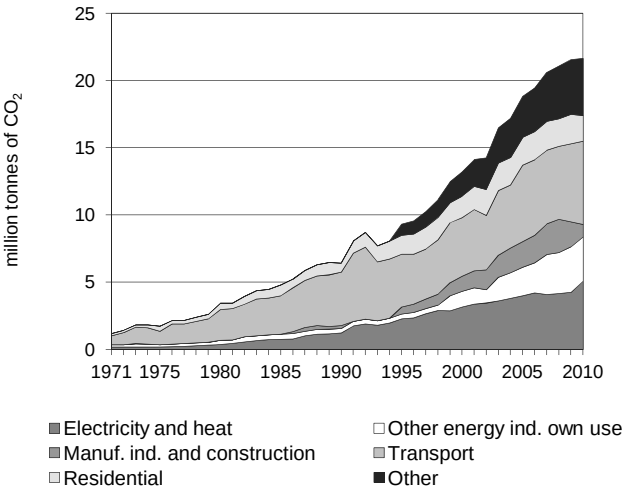


Figure 3. CO_2 emissions by sector

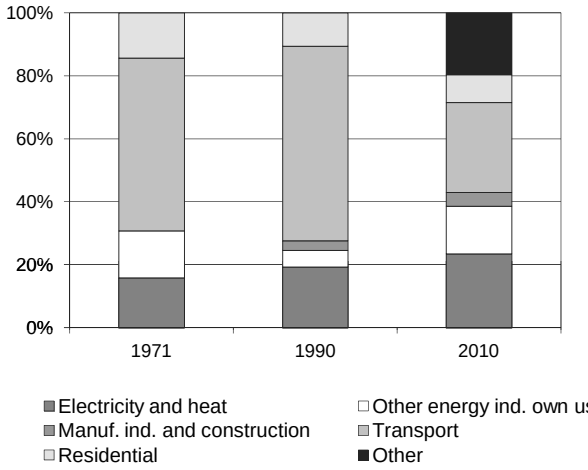


Figure 4. Reference vs Sectoral Approach

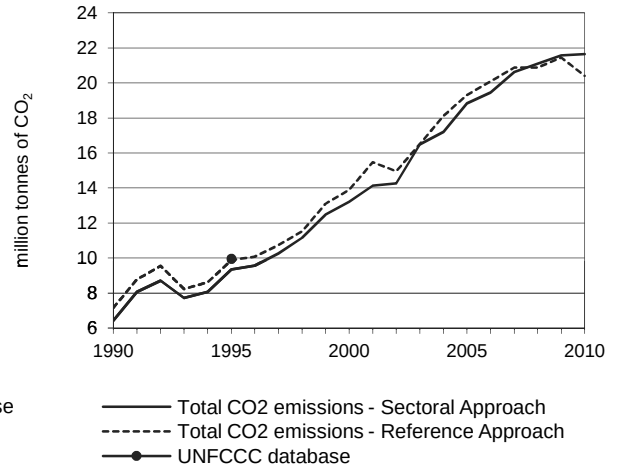


Figure 5. Electricity generation by fuel

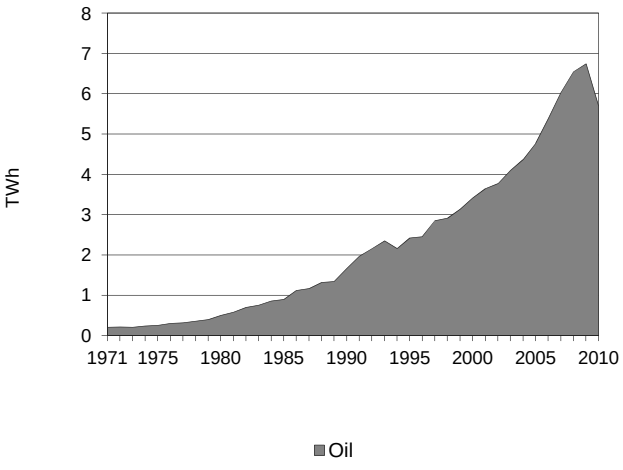
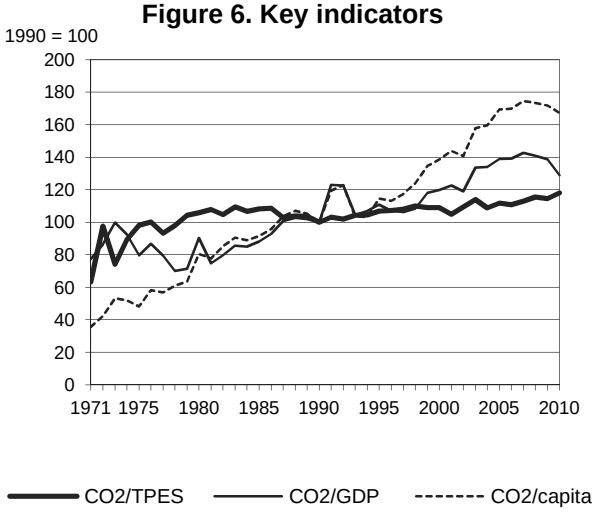


Figure 6. Key indicators



Yemen

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	6.43	9.34	13.21	18.83	21.10	21.58	21.65	236.7%
CO_2 Reference Approach ($MtCO_2$)	7.14	9.87	13.90	19.31	20.89	21.45	20.40	185.6%
TPES (PJ)	105	143	198	276	299	308	300	185.1%
TPES (Mtoe)	2.51	3.42	4.74	6.59	7.14	7.36	7.17	185.1%
GDP (billion 2005 USD)	7.94	10.41	13.61	16.74	18.49	19.19	20.73	161.1%
GDP PPP (billion 2005 USD)	21.88	28.68	37.50	46.13	50.97	52.88	57.12	161.1%
Population (millions)	11.95	15.15	17.72	20.65	22.63	23.33	24.05	101.3%
CO_2 / TPES (tCO_2 per TJ)	61.1	65.3	66.6	68.3	70.6	70.0	72.2	18.1%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.81	0.90	0.97	1.13	1.14	1.12	1.04	29.0%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.29	0.33	0.35	0.41	0.41	0.41	0.38	29.0%
CO_2 / population (tCO_2 per capita)	0.54	0.62	0.75	0.91	0.93	0.92	0.90	67.3%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**-**	**19.94**	**1.71**	**-**	**21.65**	**236.7%**
Main activity producer elec. and heat	-	3.60	1.14	-	4.74	415.8%
Unallocated autoproducers	-	0.34	-	-	0.34	5.3%
Other energy industry own use	-	2.71	0.58	-	3.29	870.1%
Manufacturing industries and construction	-	0.95	-	-	0.95	379.1%
Transport	-	6.17	-	-	6.17	55.4%
of which: road	-	*6.17*	-	-	*6.17*	55.4%
Other	-	6.16	-	-	6.16	807.3%
of which: residential	-	*1.93*	-	-	*1.93*	183.5%
Reference Approach	**-**	**18.69**	**1.71**	**-**	**20.40**	**185.6%**
Diff. due to losses and/or transformation	-	0.28	-	-	0.28	
Statistical differences	-	- 1.53	-	-	- 1.53	
Memo: international marine bunkers	-	*0.30*	-	-	*0.30*	*-75.7%*
Memo: international aviation bunkers	-	*0.39*	-	-	*0.39*	*121.9%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Road - oil	6.17	55.4%	16.3	16.3
Non-specified other - oil	4.24	x	11.2	27.5
Main activity prod. elec. and heat - oil	3.60	292.2%	9.5	37.0
Other energy industry own use - oil	2.71	699.3%	7.2	44.2
Residential - oil	1.93	183.5%	5.1	49.3
Main activity prod. elec. and heat - gas	1.14	x	3.0	52.3
Manufacturing industries - oil	0.95	379.1%	2.5	54.8
Other energy industry own use - gas	0.58	x	1.5	56.3
Unallocated autoproducers - oil	0.34	5.3%	0.9	57.2
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*21.65*	*236.7%*	*57.2*	*57.2*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Zambia

Figure 1. CO_2 emissions by fuel

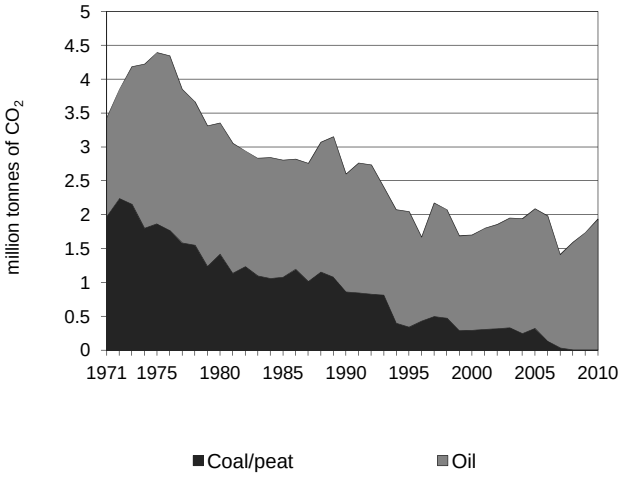


Figure 2. CO_2 emissions by sector

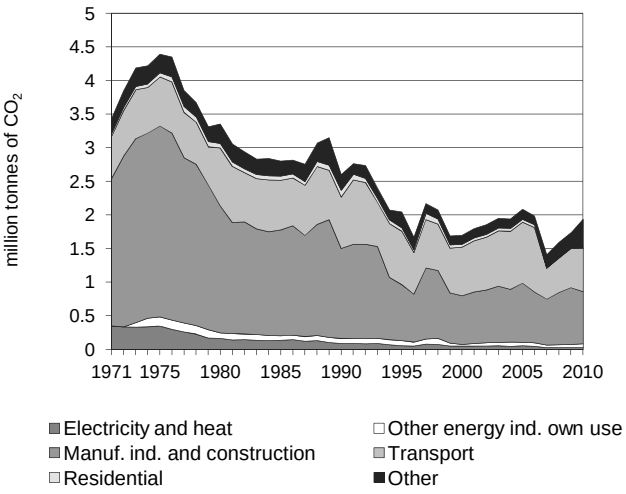


Figure 3. CO_2 emissions by sector

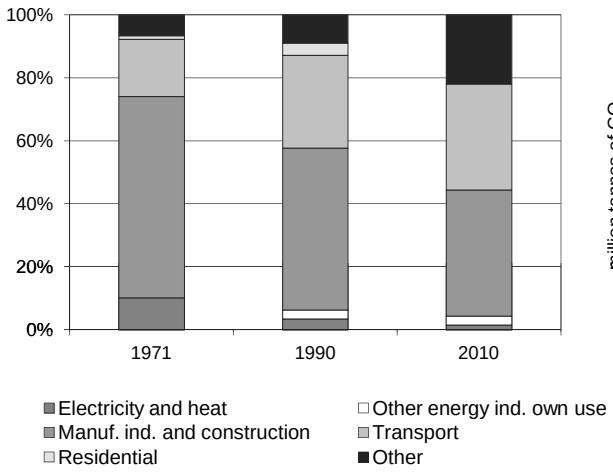


Figure 4. Reference vs Sectoral Approach

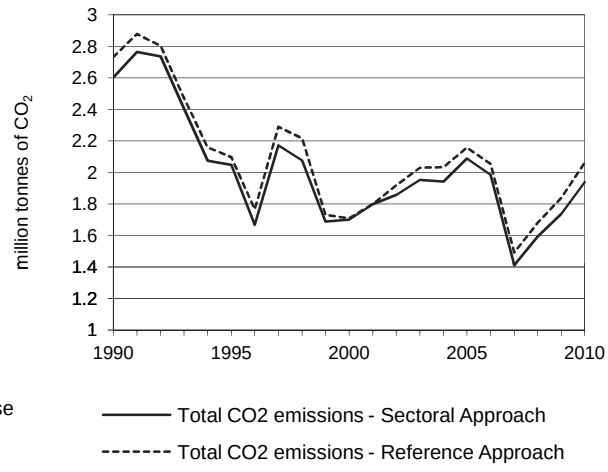


Figure 5. Electricity generation by fuel

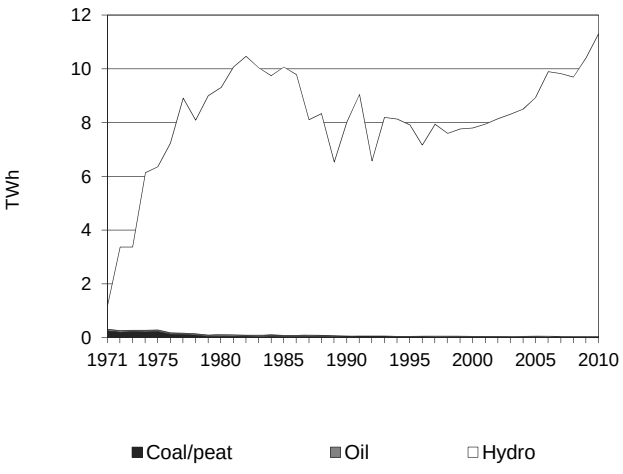
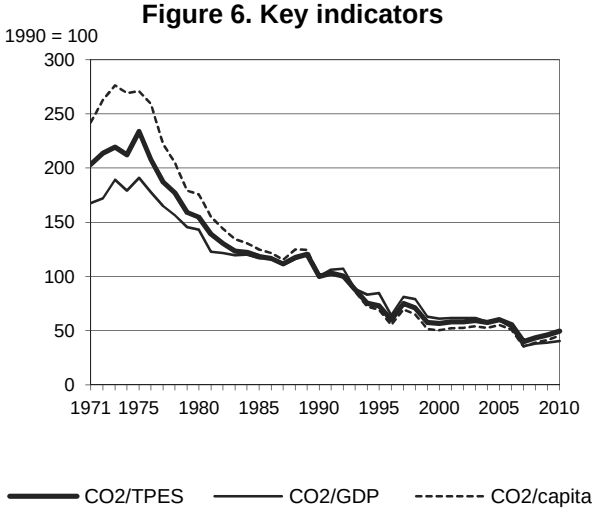


Figure 6. Key indicators



Zambia

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	2.60	2.05	1.70	2.09	1.59	1.74	1.94	-25.5%
CO_2 Reference Approach ($MtCO_2$)	2.73	2.10	1.71	2.16	1.68	1.84	2.06	-24.6%
TPES (PJ)	226	244	261	302	320	329	340	50.3%
TPES (Mtoe)	5.40	5.83	6.24	7.21	7.64	7.86	8.12	50.3%
GDP (billion 2005 USD)	5.31	4.95	5.68	7.18	8.56	9.11	9.80	84.6%
GDP PPP (billion 2005 USD)	9.81	9.14	10.50	13.27	15.82	16.83	18.11	84.6%
Population (millions)	7.86	8.92	10.20	11.46	12.38	12.72	12.93	64.5%
CO_2 / TPES (tCO_2 per TJ)	11.5	8.4	6.5	6.9	5.0	5.3	5.7	-50.5%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	0.49	0.41	0.30	0.29	0.19	0.19	0.20	-59.7%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	0.27	0.22	0.16	0.16	0.10	0.10	0.11	-59.6%
CO_2 / population (tCO_2 per capita)	0.33	0.23	0.17	0.18	0.13	0.14	0.15	-54.7%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**0.00**	**1.93**	**-**	**-**	**1.94**	**-25.5%**
Main activity producer elec. and heat	-	0.03	-	-	0.03	14.3%
Unallocated autoproducers	0.00	0.00	-	-	0.01	-92.5%
Other energy industry own use	-	0.05	-	-	0.05	-25.6%
Manufacturing industries and construction	0.00	0.77	-	-	0.78	-42.0%
Transport	-	0.65	-	-	0.65	-15.1%
of which: road	-	*0.43*	-	-	*0.43*	-36.6%
Other	-	0.43	-	-	0.43	27.9%
of which: residential	-	-	-	-	-	-100.0%
Reference Approach	**0.00**	**2.06**	**-**	**-**	**2.06**	**-24.6%**
Diff. due to losses and/or transformation	-	0.11	-	-	0.11	
Statistical differences	- 0.00	0.01	-	-	0.01	
Memo: international marine bunkers	-	-	-	-	-	-
Memo: international aviation bunkers	-	*0.09*	-	-	*0.09*	*-54.0%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Manufacturing industries - oil	0.77	23.6%	4.6	4.6
Road - oil	0.43	-36.6%	2.6	7.1
Non-specified other - oil	0.43	181.6%	2.5	9.6
Other transport - oil	0.22	165.2%	1.3	10.9
Other energy industry own use - oil	0.05	-25.6%	0.3	11.2
Main activity prod. elec. and heat - oil	0.03	14.3%	0.1	11.4
Unallocated autoproducers - oil	0.00	-6.0%	0.0	11.4
Unallocated autoproducers - coal/peat	0.00	-96.6%	0.0	11.4
Manufacturing industries - coal/peat	0.00	-99.7%	0.0	11.4
-	-	-	-	-
-	-	-	-	-
Memo: total CO_2 from fuel combustion	*1.94*	*-25.5%*	*11.4*	*11.4*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

Zimbabwe

Figure 1. CO_2 emissions by fuel

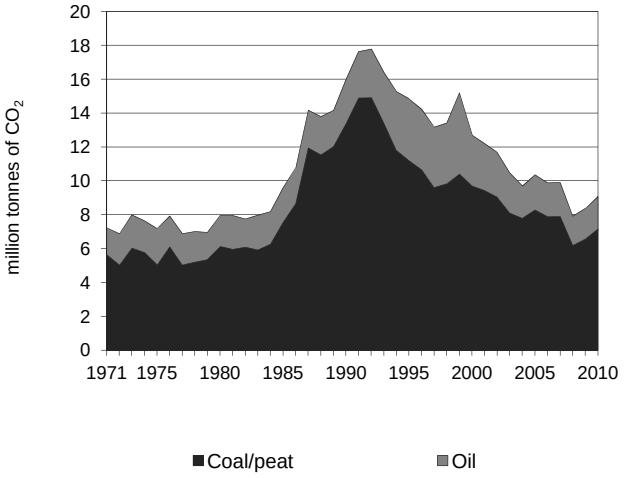


Figure 2. CO_2 emissions by sector

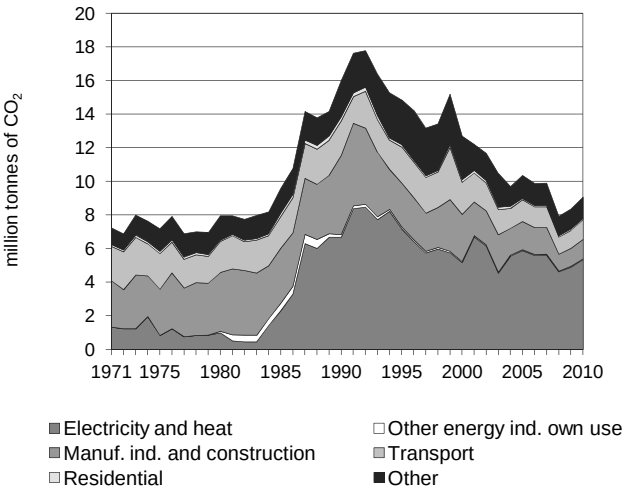


Figure 3. CO_2 emissions by sector

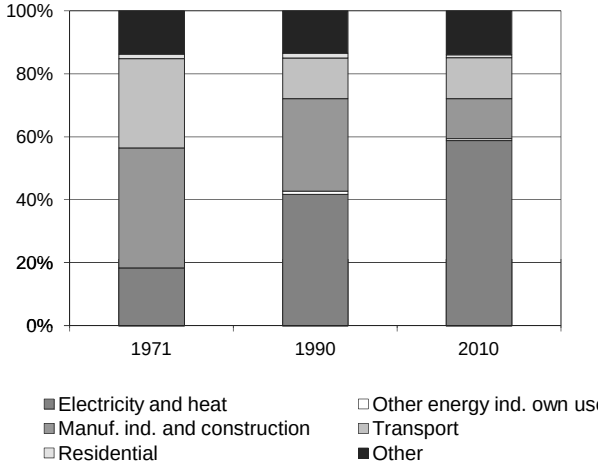


Figure 4. Reference vs Sectoral Approach

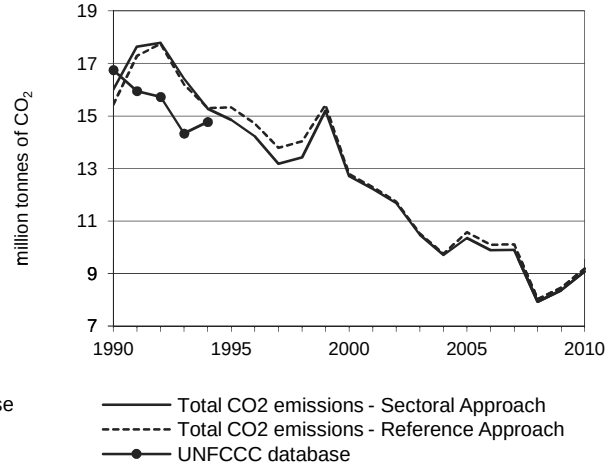


Figure 5. Electricity generation by fuel

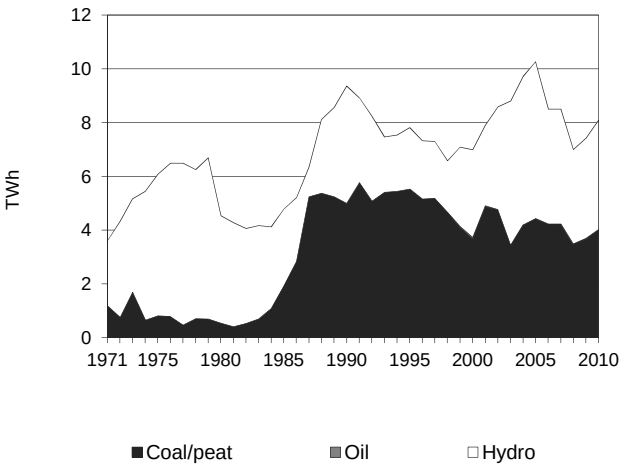
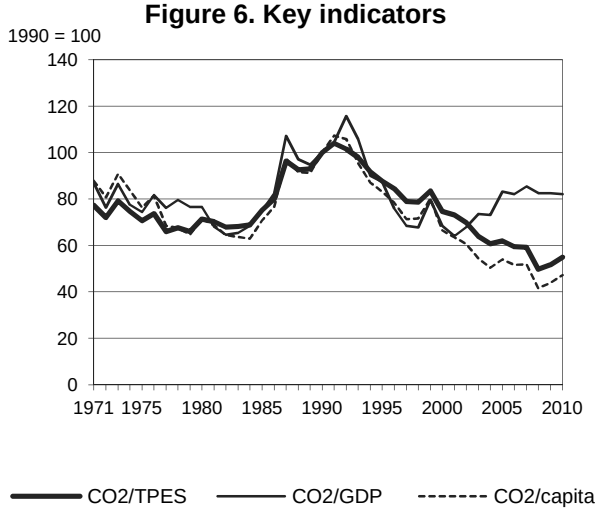


Figure 6. Key indicators



Zimbabwe

Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO_2 Sectoral Approach ($MtCO_2$)	16.00	14.85	12.71	10.36	7.92	8.37	9.07	-43.3%
CO_2 Reference Approach ($MtCO_2$)	15.44	15.33	12.79	10.58	8.02	8.47	9.18	-40.6%
TPES (PJ)	389	412	414	406	388	394	402	3.3%
TPES (Mtoe)	9.30	9.84	9.89	9.70	9.27	9.41	9.60	3.3%
GDP (billion 2005 USD)	7.17	7.61	8.32	5.58	4.30	4.55	4.95	-30.9%
GDP PPP (billion 2005 USD)	4.85	5.15	5.63	3.78	2.91	3.08	3.35	-30.9%
Population (millions)	10.47	11.69	12.51	12.57	12.45	12.47	12.57	20.1%
CO_2 / TPES (tCO_2 per TJ)	41.1	36.0	30.7	25.5	20.4	21.2	22.6	-45.1%
CO_2 / GDP ($kgCO_2$ per 2005 USD)	2.23	1.95	1.53	1.86	1.84	1.84	1.83	-17.9%
CO_2 / GDP PPP ($kgCO_2$ per 2005 USD)	3.30	2.88	2.26	2.74	2.72	2.72	2.71	-17.9%
CO_2 / population (tCO_2 per capita)	1.53	1.27	1.02	0.82	0.64	0.67	0.72	-52.8%

Ratios are based on the Sectoral Approach.

2010 CO_2 emissions by sector

million tonnes of CO_2	Coal/peat	Oil	Natural gas	Other *	Total	% change 90-10
Sectoral Approach	**7.14**	**1.93**	**-**	**-**	**9.07**	**-43.3%**
Main activity producer elec. and heat	5.29	0.05	-	-	5.34	-20.0%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industry own use	0.05	-	-	-	0.05	-67.3%
Manufacturing industries and construction	0.91	0.24	-	-	1.15	-75.5%
Transport	0.02	1.16	-	-	1.18	-43.1%
of which: road	-	*1.09*	-	-	*1.09*	-17.2%
Other	0.87	0.48	-	-	1.35	-43.4%
of which: residential	*0.00*	*0.08*	-	-	*0.09*	-64.5%
Reference Approach	**7.25**	**1.93**	**-**	**-**	**9.18**	**-40.6%**
Diff. due to losses and/or transformation	0.18	-	-	-	0.18	
Statistical differences	- 0.07	0.00	-	-	- 0.07	
Memo: international marine bunkers	-	*..*	-	-	*..*	*..*
Memo: international aviation bunkers	-	*0.02*	-	-	*0.02*	*-90.3%*

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

Key sources for CO_2 emissions from fuel combustion in 2010

IPCC source category	CO_2 emissions ($MtCO_2$)	% change 90-10	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	5.29	-20.8%	23.8	23.8
Road - oil	1.09	-17.2%	4.9	28.7
Manufacturing industries - coal/peat	0.91	-79.0%	4.1	32.8
Non-specified other sectors - coal/peat	0.87	-44.7%	3.9	36.7
Non-specified other - oil	0.40	-30.8%	1.8	38.5
Manufacturing industries - oil	0.24	-34.8%	1.1	39.6
Residential - oil	0.08	-29.0%	0.4	40.0
Other transport - oil	0.06	-73.3%	0.3	40.3
Other energy industry - coal/peat	0.05	-67.3%	0.2	40.5
Main activity prod. elec. and heat - oil	0.05	x	0.2	40.7
Other transport - coal/peat	0.02	-96.1%	0.1	40.8
Memo: total CO_2 from fuel combustion	*9.07*	*-43.3%*	*40.8*	*40.8*

** Percent calculated using the total GHG estimate for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 excluding CO_2 emissions/removals from land use change and forestry.

PART III:

GREENHOUSE-GAS EMISSIONS

1. SHARES AND TRENDS IN GHG EMISSIONS

The information in Part III (with the exception of CO_2 emissions from fuel combustion) has been provided by Jos G.J. Olivier from the PBL Netherlands Environmental Assessment Agency and Greet Janssens-Maenhout leading the EDGAR team of the Joint Research Centre (JRC) of the European Commission, using the EDGAR 4.2 FT2010 database developed jointly by JRC and PBL.

Country data have been provided for 1990, 2000, 2005 and 2010. Moving from the EDGAR 4.2 to the EDGAR 4.2 FT2010 database has resulted in a few revisions to greenhouse-gas (GHG) estimates for some source categories for years before 2010. However, in most cases these changes led to very small changes in the global total. Please see Chapter 2 for further details on data sources and methodology.

Emission trends for gases and sources are provided in this discussion through 2010.

CO_2 emissions from fuel combustion constitute the majority of anthropogenic GHG emissions. However, comprehensive analysis of emissions and emission trends considers other sources of CO_2 as well as other gases.

To complement work regarding the emissions of CO_2 from fuel combustion, the IEA elected to include the EDGAR data on other CO_2 sources and on five other greenhouse gases; CH_4, N_2O and the fluorinated gases (or "F-gases") HFCs, PFCs and SF_6. These gases are addressed by the Kyoto Protocol.

When considering comparative shares and trends in GHG emissions, data on gases and sources other than CO_2 from fuel combustion are much more uncertain. Country-specific estimates of CO_2 from biomass burning and F-gas emissions are particularly difficult to ascertain.

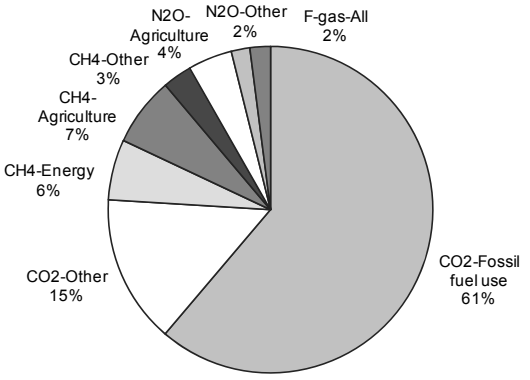
Shares by gas

The contribution of non-CO_2 gases to total emissions can be estimated by expressing the emissions of all the gases in CO_2-equivalent units. For a given gas, emissions expressed in mass are multiplied by its specific weighting factor, the Global Warming Potential (GWP). The GWP is an estimate of the relative contribution of a kilogramme of that gas to global radiative forcing, as compared to the same amount of CO_2, integrated over a fixed period of time (*e.g.* 100 years).

The UN Framework Convention on Climate Change (UNFCCC), following the Second Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), uses the 100-year GWPs of 21 for CH_4, 310 for N_2O and 23 900 for SF_6. For the most common HFCs, GWPs vary between 140 and 3 000 (1 300 for HFC-134a). For the by-product HFC-23, the GWP is 11 700. The GWPs for PFCs vary between 6 500 (CF_4) to 9 200 (C_2F_6). These two PFCs, the ones most commonly used, are also significant sources of by-product emissions. This chapter expresses all emission data in CO_2-equivalents using these GWP values.

In 2010, CO_2 contributed 76% of global GHG emissions, CH_4 about 16%, N_2O about 6% and the combined F-gases about 2% (Figure 1). The largest sources of GHG emissions were the energy sector (68%, mainly CO_2 fossil fuel use), and agriculture (11%, mainly CH_4 and N_2O). Other sources of greenhouse gases were CO_2 from biomass burning (10%, mostly forest and peat fires and post-burn decay in non-Annex I countries), and CO_2 from cement production (3%, of which 54% originated in China). Please note that emissions from forest and peat fires are highly variable over the years.

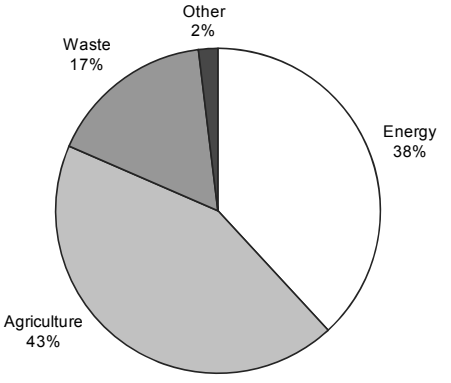
Figure 1. Global GHG emissions by gas/source in 2010



As seen in Figure 2, on an individual gas basis, the major global sources for **methane** (CH_4) in 2010 were:

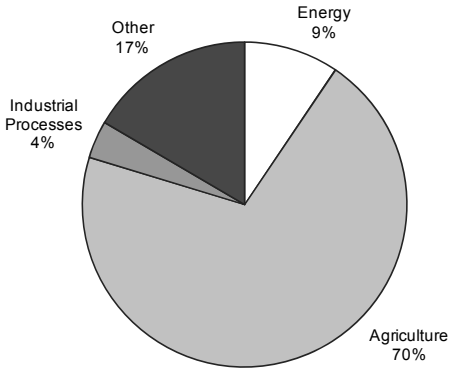
- agriculture (43%), mainly from enteric fermentation by animals and animal waste, from rice cultivation and from savannah burning;
- energy production and transmission (38%), mainly from coal production, and gas production and transmission;
- waste (17%), from landfills and wastewater.

Figure 2. Global CH_4 emissions in 2010



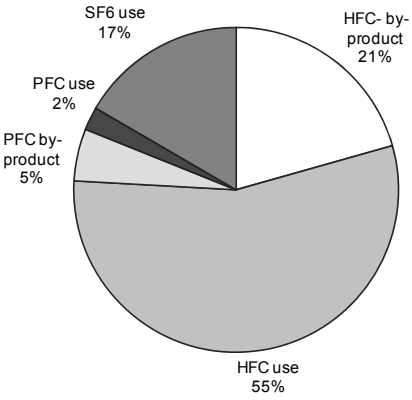
For **nitrous oxide** (N_2O), agriculture contributed 70% of emissions in 2010, mainly from synthetic fertilisers and animal waste dropped on soils (either as animal manure or by animals during grazing) and agricultural waste burning (Figure 3). A much smaller source is fuel combustion (9%, mainly from coal, fuelwood and road transport). Another small source is N_2O from industrial processes (4%), mostly in Annex I countries.

Figure 3. Global N_2O emissions in 2010



For the **fluorinated gases** (Figure 4), emissions are split between "use" and "by-products" because of the different ways they are produced. HFC use represented 55% of the total in 2010, of which HFC 134a alone represented 42%. Total by-product emissions of HFC contributed 21% and by-product emissions of PFCs another 5%. SF_6 use represented 17%, while PFC use represented the remaining 2%. Most F-gas emissions are emitted by Annex I countries.

Figure 4. Global F-gas emissions in 2010



Shares by region

In 2010, most **methane** emissions originated in non-Annex I regions such as Asia (42%) including China (21%) and Latin America[1] (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%).

For methane, emissions from animals and their waste dominate sources in Latin America and South Asia, while emissions from rice cultivation are common in South, East and Southeast Asia. Coal production emissions are concentrated in East Asia (mainly China), North America, and Other Europe and Eurasia, while emissions from gas systems are concentrated in the Former Soviet Union countries and North America. Methane from landfills stems mainly from Annex I countries, whereas methane emissions from wastewater disposal originate predominantly in non-Annex I countries.

Non-Annex I regions produced three-quarters of global **nitrous oxide** emissions in 2010: Asia (36%) including China (18%), Africa (19%) and Latin America (14%). N_2O emissions from Annex I countries contributed 27% to the global total, with most emissions originating in North America (11%) and OECD Europe (9%).

Of all nitrous oxide sources, animal waste emissions occur predominantly in the non-Annex I regions of Latin America, Africa and South Asia; N_2O from fertiliser use is largest in East Asia (mainly China) and Latin America followed by North America, Annex II Europe and South Asia (mainly India). N_2O emissions from crop production are largest in North America, Latin America, South Asia and East Asia. Industrial processes also emit significant volumes of N_2O.

The shares of Annex I countries in total CH_4 and total N_2O emissions (26% and 27% respectively) were relatively low compared to their share in global CO_2 emissions (38%).

In 2010, most **fluorinated gas** emissions originated in Annex I countries (66%), with North America contributing 38%, OECD Europe 13%, OECD Asia Oceania 9% and Other Europe and Eurasia 7%. Non-Annex I countries contributed about 34% to global F-gas emissions.

Total GHG emission trends

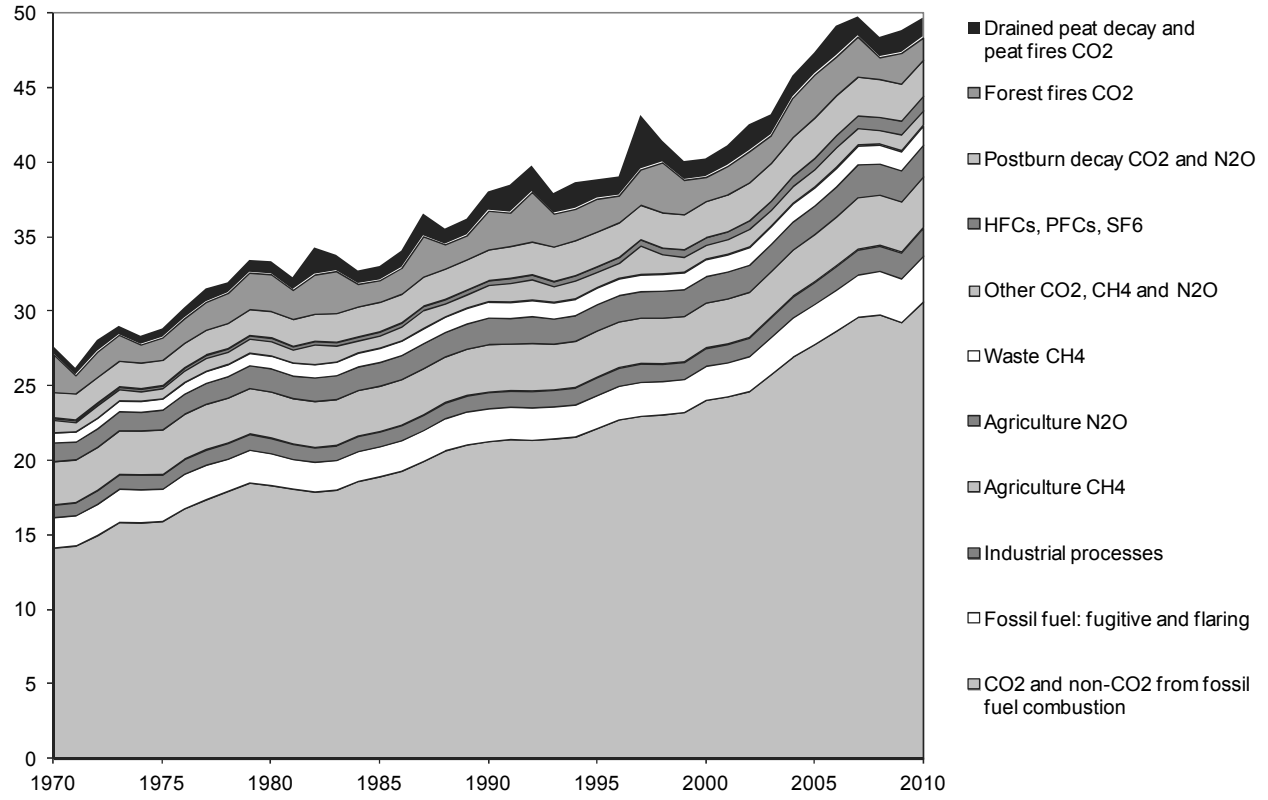
Emissions related to fossil fuels dominate the global trend in total GHG emissions. Between 1970 and 2010, total global anthropogenic GHG emissions increased considerably, with increases of CO_2 (including large-scale biomass burning of forests and biomass decay) by about 107% and increases of CH_4 and N_2O by about 47% and 43%, respectively, and the F-gases by about 700%. Total emissions of all greenhouse gases - weighted by their GWP - increased by about 80% since 1970.

According to the EDGAR 4.2 FT 2010 dataset, global total GHG emissions increased by 31% during the period 1990-2010 (Figure 5). A 44% growth in CO_2 emissions from fuel combustion drove much of this increase. Over the same period, although highly variable over time, CO_2 emissions from biomass burning and post-burn decay – based on satellite observations – are assumed to have decreased by about 10% with CO_2 from decay of drained peatland increasing by 18% since 1990. Increases in CO_2 emissions from cement production (120%), CH_4 emissions from fossil fuel production (44%) and waste (21%), N_2O emissions from agriculture (20%) and the F-gases (about 225%, mainly from HFC use) also contributed to the total increase. The F-gases (for which 1995 generally serves as base year) increased their share of global emissions from 1.0% in 1990 to 2.0% in 2010.

1. For the purposes of this discussion, Latin America refers to non-OECD Americas, Chile and Mexico. North America refers to Canada and the United States. Former Soviet Union contains both Annex I and non-Annex I countries.

Figure 5. Trend in global GHG emissions 1970-2010

$GtCO_2$-eq.



Sources: IEA for CO_2 from fuel combustion and JRC/PBL (2012) [EDGAR 4.2 FT2010] for all other sources.

CO_2 emission trends

Energy dominates the trend in CO_2 emissions, accounting for 82% of the global total CO_2 emissions in 2010 including non-energy uses. About 10 percentage points higher than in 1970, this share now varies between 90-99% in most Annex I countries. Within non-Annex I countries, the energy share in CO_2 emissions varies more widely. Indeed, in some African, Latin American and Asian countries, it can be lower than 10%.

Over the 1990-2010 period, total fossil fuel combustion emissions of CO_2 increased about 44% worldwide (by about 145% in non-Annex I countries while remaining flat in Annex I countries). Emissions from electricity and heat production and from road transport dominated global trends. Between 1990 and 2010, CO_2 emissions from electricity and heat production increased by 18% for Annex II countries and by 108% in the rest of the world. Over the same period, road transport emissions rose 21% in Annex II countries and 107% in the other countries. By 2010, these two sectors together accounted for 58% of global total CO_2 emissions from fuel combustion. The introduction at the beginning of this publication provides a more complete discussion of CO_2 emissions in 2010 and the trends in energy-related CO_2 emissions.

In 2010, the highly variable emissions from deforestation (*i.e.* forest fires) plus from decay of drained peatland accounted for about 7% of global CO_2 emissions (or about 13% including indirect CO_2 emissions from post-burn decay of remaining aboveground biomass). According to satellite observations the share of deforestation in global emissions was about 18% in the 1970s, 1980s and 1990s. Since 2000, however, this share has decreased due to rapidly increasing emissions from fossil fuel combustion. In 2010, CO_2 emissions from cement clinker production – excluding fossil fuel use – represented almost 4% of total emissions worldwide. Between 1990 and 2010, CO_2 from cement production increased by more than 150%.

CH_4 emission trends

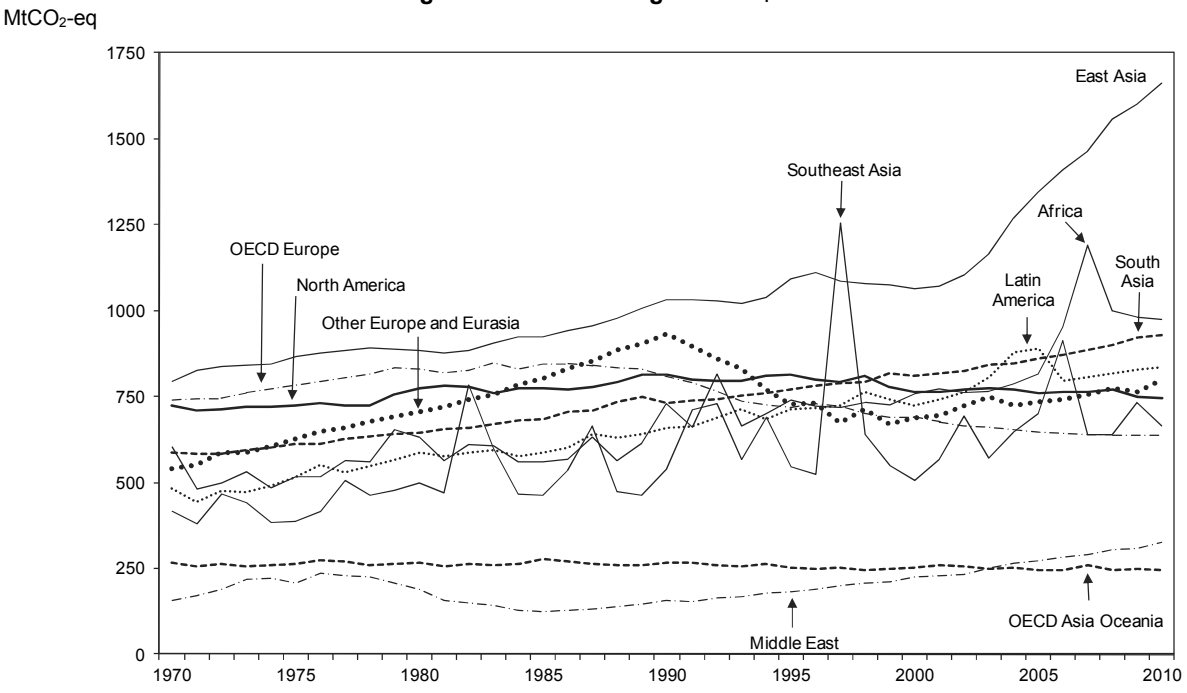
Between 1970 and 2010, global methane emissions increased by almost half. In the 1970s emissions increased with an average growth rate of 1.3% per year. In the 1980s, this growth rate slowed down to an average 1.1% per year, determined mainly by growth of emissions in Other Europe and Eurasia from gas production and transmission and in East Asia from coal production (Figure 6). In addition, enteric fermentation by ruminants and waste and wastewater disposal contributed to the increased emissions, particularly in non-Annex I regions. Emissions from rice cultivation are estimated to have decreased due to changes in types of rice grown and to other organic amendment practices. Furthermore, coal production shifted to incorporate more surface mining, which releases much less methane than underground mines.

In the 1990s, an average decrease of 0.2% per year was observed. The economic decline of FSU countries in the early 1990s strongly influenced this global methane trend. Their emissions from coal production, from gas transmission and from animals (enteric fermentation) decreased substantially between 1990 and 1995. It should be stressed, however, that detailed statistics for this region are uncertain over this period. Despite the overall decline in the 1990s, increases were observed regionally: from gas production (particularly in the Middle East and North America), from waste handling (landfills in Latin America and wastewater in South Asia), from large-scale biomass burning in developing countries and from coal production in China. These increases were partially offset by decreases in fugitive emissions from coal production and CH_4 emissions from animals in EIT countries.

Since 2000, emissions started increasing again, with an average growth rate of 1.9% per year, which has meant that since 2002, the emissions increased faster than in the last four decades. This led to a global increase of about 20% over the period 2000-2010, driven by increased coal mining by the top methane-emitting country China (+50%) and increased cattle numbers in Brazil (+23%).

Between 1990 and 2010, country-specific trends of activity data and emission factors lead to an increase of global total methane emissions of about 17%. During this period, emissions in non-Annex I countries increased about 38%, with the largest absolute growth occurring in Asia and Africa. Emissions in Annex I countries decreased by 18%, mainly driven by the countries of the Former Soviet Union. Annex II emissions as a whole decreased over the same period by 16% and OECD Europe decreased by about 21%, mainly as a result of the policies of the United Kingdom and Germany, which reduced coal production and increased methane recovery from coal mines, entailing emission reductions of about 50%. In North America and OECD Europe, methane emissions from landfills also decreased by about 50% due to enhanced waste separation and methane recovery.

Figure 6. Trends in regional CH_4 emissions



Source: EDGAR 4.2 FT2010 (JRC/PBL, 2012).

N_2O emission trends

Between 1970 and 2010, global emissions of N_2O increased by about 43%. Increased use since the 1970s of synthetic fertilisers and manure from livestock caused agricultural emissions in South Asia and East Asia to increase on average by 3-4% annually. These regional emission trends continued into the 2000s (Figure 7). Emissions from Latin America and Africa also increased in the 1990s, predominantly from the same sources and from forest fires.

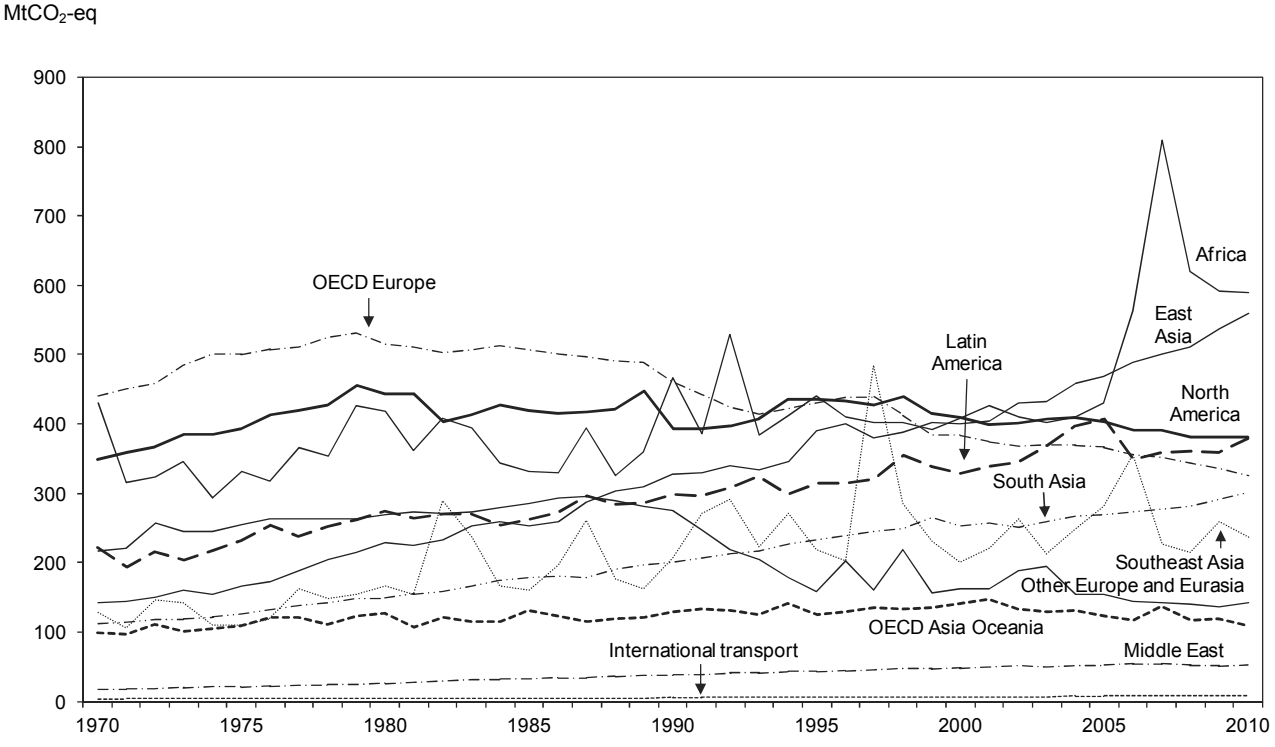
In contrast, N_2O emissions from industrial processes decreased by 40% during the 1980s. This decrease resulted from the gradual upgrade of global production facilities for nitric acid. By 1990 about 20% of the facilities were equipped for non-selective catalytic reduction limiting NO_x emissions while simultaneously reducing N_2O emissions.

During the 1970s, North America and Japan introduced catalytic converters in gasoline-fired cars to reduce emissions of precursors of tropospheric ozone, but with higher N_2O emissions as a side effect. Since the 1990s this technology was also introduced in Europe and Australia. Until about 2000 the catalytic converters contributed to the increase in N_2O emissions in these countries, though in the late 1990s newer types were introduced with lower specific N_2O emissions.

In the period 1990-2010, global N_2O emissions are estimated to have increased by about 10%. The three-quarter reduction in industrial emissions from adipic acid manufacturing particularly limited this increase. Over this period, emissions in non-Annex I countries increased by over 35%, mainly in the agricultural sector in South Asia, East Asia and Latin America. The increase was partially offset by decreasing emissions in the non-Annex I members of the Former Soviet Union countries (-24%) and, to a lesser extent, in other EIT countries. In OECD Europe, N_2O decreased by almost 29% since 1990, mainly due to emission abatement in the chemical industry and to a decrease in the use of nitrogen fertilisers.

When considering these trends, the reader should bear in mind that the uncertainties in annual emissions of most sources of N_2O are very large, *e.g.* the uncertainty for agricultural sources may sometimes exceed 100%.

Figure 7. Trends in regional N_2O emissions



Source: EDGAR 4.2 FT2010 (JRC,/PBL, 2012).

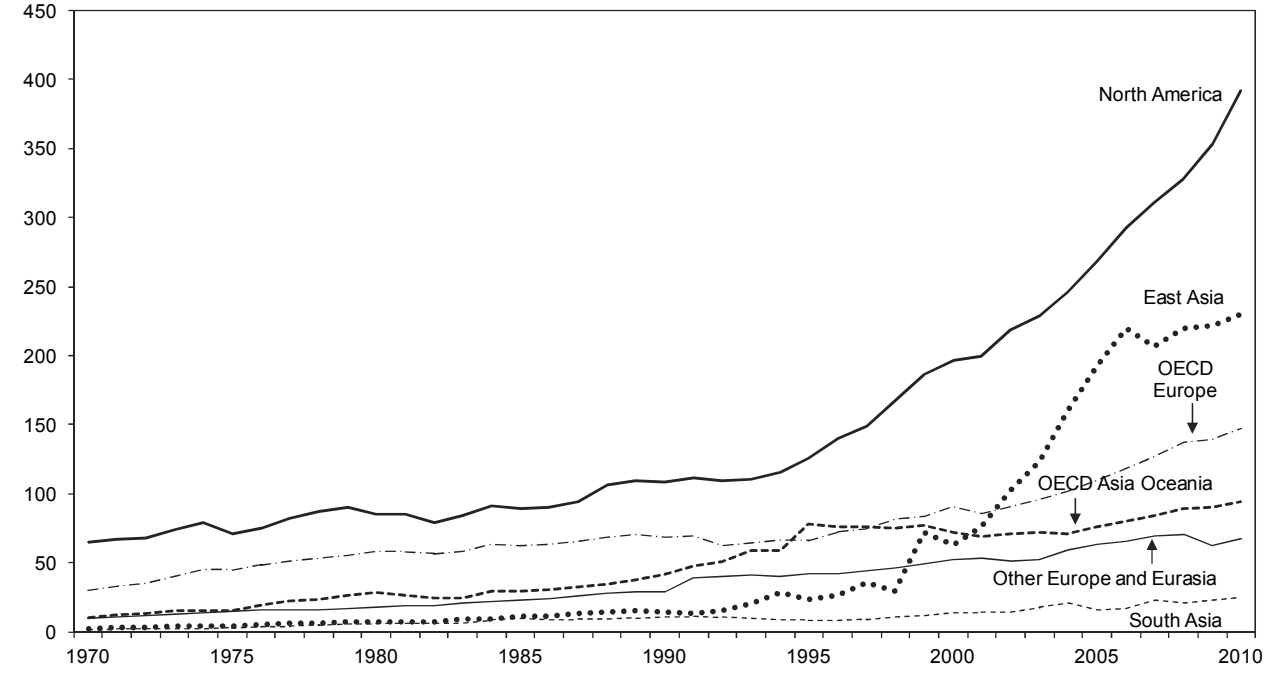
HFC, PFC and SF_6 emission trends

Between 1990 and 2010, the estimated emissions of F-gases increased by about 225%, mainly due to an increase in HFC emissions: emissions of HFC in 2010 were about 9 times higher than in 1990. During the same period, PFCs emissions decreased by about 35% while SF_6 emissions increased by about 45%. Annex I regions experienced large growth in F-gas emissions, with regional increases on the order of 125% except for North America which showed an increase of over 250%. On a regional basis, total F-gas emission trends varied between 10% and 1500% for the non-Annex I regions, with the largest absolute increases coming from East Asia, driven by a fifteen-fold increase in China, which is here included in East Asia.

Since 1995, global F-gas emissions have increased more rapidly. The increase in HFC emissions (4.5 times higher) more than offset a 30% reduction in PFCs emissions. The small reductions in global SF_6 emissions observed in the period 1996-2004 were mainly due to reductions in emissions from manufacture and use of switchgear for the electricity sector. The large reduction in PFC emissions in the last years is due to the phasing-out of old Søderberg technology for aluminium production in China. Global emissions of HFCs other than HFC-134a now exceed emissions of HFC-134a, widely used for refrigeration and air-conditioning.

When considering these trends, one should note that the uncertainties in annual emissions of most sources of F-gases are very large, *e.g.* at a country level they may well exceed 100%. Therefore, the figures provided for individual countries should be considered solely as order-of-magnitude estimates.

Figure 8. Trends in regional* F-gas emissions



* Only regions with significant emissions of F-gases have been included in this figure.

Source: EDGAR 4.2 FT2010 (JRC/PBL, 2012).

2. SOURCES AND METHODS

When looking at GHG emission trends, limiting the emissions to CO_2 from fuel combustion means that the estimates give an incomplete picture of total GHG emissions. Therefore, to put the CO_2 emissions from fuel combustion into context, information has been added from the emissions model "EDGAR", developed by the Netherlands Environmental Assessment Agency (PBL) and the European Commission's Joint Research Centre (JRC) to provide global anthropogenic emissions of greenhouse gases to be used as a reference database for science and policy applications.

The information in Part III (with the exception of CO_2 emissions from fossil fuel combustion) has been provided by Jos G.J. Olivier from PBL and Greet Janssens-Maenhout based on the EDGAR 4.2 FT2010 dataset. PBL and JRC are responsible for the calculation of the EDGAR 4.2 FT2010 data. Please see below for further details.

Background on PBL and JRC

The **PBL Netherlands Environmental Assessment Agency** is a government-funded agency that supports national and international policy makers by exploring future spatial and social trends that influence environmental, ecological and spatial quality, and by evaluating possible policy options. PBL explores the future quality of the environment and identifies possible strategic options. It aims to contribute to improving the quality of political and administrative decision-making at a regional, national, European and global scale by conducting outlook studies, analyses and evaluations in which an integrated approach and policy relevance are considered paramount.

PBL provides independent integrated assessments on topics such as sustainable development, energy and climate change, biodiversity, spatial planning, transport, land use and air quality. PBL acts as an interface between science and policy and provides the Netherlands government and international organisations such as EU/EEA, IEA/OECD, UN and the World Bank with sound, evidence-based assessments. PBL employs about 200 staff members and works in close collaboration with national and international partners, to assess future policies and the effects of policies already in place. A key feature of PBL research is taking a broad view of the subject matter and revealing the links between different spatial scales of investigation. This ranges from Dutch problems in the European and global context to global topics such as climate change, as well as European and global sustainability issues. PBL participates in the Topic Centre on Air and Climate Change of the European Environmental Agency (EEA), whose aim is to support EU policy on air pollution and climate change, together with 12 other organisations in Europe. PBL was also involved in the work of the IPCC's National Greenhouse Gas Inventory Programme (NGGIP).

The **Joint Research Centre (JRC)** is a Directorate General of the European Commission (EC). The mission of the JRC is to provide customer-driven scientific and technical support for the conception, development, implementation and monitoring of EU policies. A service of the European Commission, the JRC functions as a reference centre of science and technology for the Union. Close to the policy-making process, it serves the common interest of the Member States, while being independent of special interests, whether national or private. The Institute for Environment and Sustainability (IES) is one of seven institutes of the JRC, located in Ispra (Italy). The mission of IES is to provide scientific-technical support to the European Union's policies for the protection and sustainable development of the European and global environment. The IES adopts a systems-based approach to understand the complex interactions

between human activity and the physical environment, and manage strategic resources (water, land, forests, food, minerals, etc.) in a more sustainable manner. Together with other JRC institutes, the IES provides the scientific basis for the conception, development, implementation and evaluation of EU policies that promote the greening of Europe and the global sustainable management of natural resources. The IES has over 400 staff members and manages several large-scale research infrastructures and hosts a large number of unique pan-European and global databases. The main customers of the IES are the Policy Directorates-General of the European Commission, other European bodies such as the European Environment Agency (EEA) and the European Space Agency (ESA), and global organisations such as the United Nations Environment Programme (UNEP) and the United Nations Food and Agricultural Organisation (FAO). The IES cooperates with international organisations such as UN-ECE, WHO, IPCC and NASA.

General note on EDGAR

Version 4 of the *Emission Database for Global Atmospheric Research,* in short the *EDGAR 4 system*, has been developed jointly by the European Commission's Joint Research Centre (JRC) and the PBL Netherlands Environmental Assessment Agency. The aim of the EDGAR system, which was started in 1992 with financial support from the Netherlands' former Ministry of Housing, Spatial Planning and the Environment (VROM) and the Netherlands' National Research Programme on Global Air Pollution and Climate Change (NRP), is to provide global anthropogenic emissions of greenhouse gases CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 and of precursor gases and air pollutants CO, NO_x, NMVOC, SO_2 and the aerosols BC/OC, per source category, both at country/region levels as well as on a 0.1x0.1 degree grid. It is meant to serve as a reference database for policy applications, *e.g.* to provide JRC's POLES global economic energy scenario model and PBL's integrated global change model IMAGE 2 with emissions data and for assessments of potentials for emission reductions, as well as for scientific studies by providing gridded emissions as input for atmospheric models. The latter function is part of the *Global Exchange and Interactions Activity* (GEIA), that combines efforts to produce gridded inventories for all compounds relevant for the modelling activities within the *Analysis, Integration and Modelling of the Earth System* (AIMES) project of the *International Geosphere-Biosphere Programme* (IGBP) and of ACCENT, a Network of Excellence funded by the EC, 6th Framework Programme (FP6), Priority 1.1.6.3 Global Change and Ecosystems. EDGAR data have also been used in the Fourth Report of IPCC Working Group III (IPCC, 2007).

Activity data were mostly taken from international statistical sources and emission factors for greenhouse gases were selected mostly from the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* (IPCC, 2006) to ensure a consistent approach across countries. JRC and PBL have made all reasonable efforts to ensure that the information was generated correctly, but it is the responsibility of the EDGAR consortium to modify activity data when required to arrive at complete time series and for selecting the emission factors. It is stressed that the uncertainty in the resulting dataset at national level may be substantial, especially for methane and nitrous oxide, and even more so for the F-gases. The uncertainty is caused by the limited accuracy of international activity data used and in particular of emission factors selected for calculating emissions on a country level (Olivier *et al.,* 1999, 2001; Olivier and Berdowski, 2001; Olivier, 2002; Olivier *et al.,* 2005). However, since the methods used are either IPCC methodologies or comparable to them (see below), global totals comply with budgets used in atmospheric studies, plus the data were based on international information sources, this dataset provides a sound basis for comparability.

The main aim of the EDGAR 4.2 Fast Track 2010 (FT 2010) dataset was to provide an extended time series by adding emissions for 2009 and 2010. For the GHG update, the impact of CDM projects in developing countries to reduce CH_4, N_2O and HFC-23 emissions was taken into account. This applies to sources such as coal mines and landfills (CH_4 recovery), nitric acid and adipic acid production (N_2O) and the production of HCFC-22 (HFC-23), which now start to influence significantly global emission trends. In addition, a few errors found in the dataset have been corrected.

Although this dataset has been constructed with great care, JRC and PBL do not accept any liability from use of the data provided in this report including any inaccuracies or omissions in the data provided. For details on uncertainty and caveats identified in the dataset, as well as more detailed source category estimates, we refer user to the EDGAR 4 website at *edgar.jrc.ec.europa.eu*. Note that preliminary estimates for other more recent years than 2010 will be made publicly available through this website. Preliminary global trends of GHG emissions will also be made

available at PBL (2012). For CO_2 emissions through to 2011 please refer to Olivier et al. (2012).

Source definitions

For carbon dioxide:

Fuel combustion refers to fossil fuel combustion and the unstored fraction of non-energy/feedstock use (IPCC Source/Sink Category 1A) estimated using the IPCC Sectoral Approach from the *Revised 1996 IPCC Guidelines* (see Part I).

Fugitive refers to flaring of associated gas in oil and gas production (in some cases including indirect CO_2 from methane venting) (IPCC Source/Sink Category 1B).

Industrial Processes refers to production of cement, lime, soda ash, carbides, ammonia, methanol, ethylene and other chemicals, metals and to the use of soda ash, limestone and dolomite, and non-energy use of lubricants and waxes (IPCC Source/Sink Category 2). However, from EDGAR 4.1, only emissions from production of cement, lime and soda ash and from the use of soda ash, limestone and dolomite are included here, since all others were estimated by the IEA and reported under 'Fuel combustion'.

Other refers to direct emissions from forest fires and peat fires plus emissions from decay (decomposition) of aboveground biomass that remains after logging and deforestation and emissions from peat fires and decay of drained peat soils (IPCC Source/Sink Category 5). CO_2 from solvent use (IPCC Source/Sink Category 3), application of agricultural lime (IPCC Source/Sink Category 4) and from fossil fuel fires, notably coal fires and the Kuwait oil fires (IPCC Source/Sink Category 7), is also included here.

For methane:

Energy comprises production, handling, transmission and combustion of fossil fuels and biofuels (IPCC Source/Sink Categories 1A and 1B).

Agriculture comprises animals, animal waste, rice production, agricultural waste burning (non-energy, on-site) and savannah burning (IPCC Source/Sink Category 4).

Waste comprises landfills, wastewater treatment, human wastewater disposal and waste incineration (non-energy) (IPCC Source/Sink Category 6).

Others includes industrial process emissions such as methanol production, forest and peat fires and other vegetation fires (IPCC Source/Sink Categories 2 and 5).

For nitrous oxide:

Energy comprises combustion of fossil fuels and biofuels (IPCC Source/Sink Categories 1A and 1B).

Agriculture comprises fertiliser use (synthetic and animal manure), animal waste management, agricultural waste burning (non-energy, on-site) and savannah burning (IPCC Source/Sink Category 4).

Industrial Processes comprises non-combustion emissions from manufacturing of adipic acid, nitric acid, caprolactam and glyoxal (IPCC Source/Sink Category 2).

Others includes N_2O usage, forest and peat fires (including post-burn emissions from remaining biomass) and other vegetation fires, human sewage discharge and waste incineration (non-energy) and indirect N_2O from atmospheric deposition of NO_x and NH_3 from non-agricultural sources (IPCC Source/Sink Categories 3, 5, 6 and 7).

For fluorinated gases:

HFC emissions comprise by-product emissions of HFC-23 from HCFC-22 manufacture and the use of HFCs (IPCC Source/Sink Categories 2E and 2F).

PFC emissions comprise by-product emissions of CF_4 and C_2F_6 from primary aluminium production and the use of PFCs, in particular for the manufacture of semiconductors, flat panel displays and photovoltaic cells (IPCC Source/Sink Categories 2C, 2E and 2F).
SF_6 emissions stem from various sources of SF_6 use, of which the largest is the use and manufacture of Gas Insulated Switchgear (GIS) used in the electricity distribution networks (IPCC Source/Sink Categories 2C and 2F) and from SF_6 production (Category 2E).

Data sources and methodology for EDGAR 4.2 FT2010

For EDGAR 4.2 Fast Track 2010 (EDGAR 4.2 FT2010) the same methods and data were applied for 1970-2008 as for EDGAR 4.2 FT 2008 that was used in last year's edition, however, with some corrections (CO_2 from power generation in the United States in 2008). For greenhouse gases the default emission factors from the *2006 IPCC Guidelines* (IPCC, 2006) were used instead of those of the *Revised 1996 IPCC Guidelines* (IPCC, 1997), except for CH_4 and N_2O from road transport where technology-specific factors

were used from the EMEP-EEA emission inventory guidebook (EEA, 2009).

EDGAR 4.2 FT2010 provides an extended time series for all sources by adding emissions for 2009 and 2010. For the new Fast Track estimates for 2009 and 2010, for the main sources of each greenhouse gas as proxy of the emissions trend in these years, either the official national reported emissions trend from UNFCCC (2012) was used, or the trend in the latest activity data for 2008 to 2010, or statistics for an activity that was assumed to be a good proxy for that source. These statistics were sectoral CO_2 emissions (IEA, this publication), fossil-fuel production (IEA, 2012), gas flaring (NOAA/NCDC, 2012), production of steel, aluminium, cement, lime and ammonia (USGS, 2012; WSA, 2012), animal numbers, crop production and nitrogen fertiliser consumption (FAO, 2012), large-scale biomass burning (GFED 3; Van der Werf et al., 2010), photovoltaic solar cell production and flat panel display sales (IEA, 2011; and others).

For small-scale sources, such as industrial process sources of methane and nitrous oxide from caprolactam production, linear extrapolation of the past trend from 2005 to 2008 was assumed. These proxies – sometimes adjusted to incorporate significant trends in the emission factors – were applied to most sources, comprising more than 95% of the global total for gas. For important sources, where significant trends in the technology mix or in the application rate of emission control technology had occurred, trend estimates were included. In all other cases the mix and fraction of end-of-pipe abatement technology has been left unchanged after 2008.

To take into account non-CO_2 emission reductions that have occurred due to control measures implemented since 1990, officially reported emissions were used for Annex I countries (mainly countries that were already members of the OECD in 1990). These emission trends have been taken from the CRF emission data files which make up part of the National Inventory Reports (NIR) to the UNFCCC (UNFCCC, 2008, 2010, 2012). In addition, for non-CO_2 emission reductions in developing countries up to 2010, we used information on so-called CDM projects that have been implemented according to the "CDM pipeline" database maintained by the UNEP-Risø Centre (2011). This was done for methane recovery from coal mining and landfills, N_2O abatement in industrial processes and HFC-23 emission reductions from HCFC-22 manufacture.

Methods and data applied for all years except 2009 and 2010 are described below.

Energy / Fugitive / Biofuel

The data sources for **fugitive CO_2 emissions** and **CH_4 and N_2O from energy** are listed below. Data for fossil fuel production and use for 138 countries were taken from the IEA energy statistics for OECD and Non-OECD countries 1970-2008 (extended energy balances, in energy units) (IEA, 2007, 2010). This dataset comprises 94 sectors and 64 fuel types. For the countries of the Former Soviet Union and Former Yugoslavia a modified dataset was used to achieve a complete time series for the new countries from 1970 to 2008, the sum of which converges to the older dataset for the total Former Soviet Union and Yugoslavia. For another 62 countries, the aggregated IEA data for the regions 'Other America', 'Other Africa' and 'Other Asia' have been split using the sectoral IEA data per region together with total production and consumption figures per country of coal, gas and oil from energy statistics reported by the US Energy Information Administration (EIA, 2007, 2010).

Please note that the figures of CO_2 from fuel combustion and non-energy use of fuels in this report differ somewhat from the EDGAR 4.2 FT2010 dataset, for the following reasons:

- IEA energy statistics used for 1970-2008 may differ slightly due to revisions included in subsequent IEA releases. For EDGAR 4.2 FT2010 the releases of 2007 and 2010 were used for 1970-1999 and 2000-2008, respectively (IEA, 2007, 2010);
- the IEA uses the default CO_2 emission factors from the *Revised 1996 IPCC Guidelines*, which differ slightly due to different default oxidation factors (coal updated value +2%, oil products +1%, natural gas +0.5%) and updated defaults for carbon content for some fuels, the quality of which may vary considerably (mainly refinery gas, updated value -7%, coke oven gas -7%, blast furnace gas +7%, coke -1%);
- the IEA estimates CO_2 emissions from carbon released in fossil fuel use labelled in the sectoral energy balance as 'non-energy use' or 'chemical feedstock' using default fractions stored. For EDGAR 4.2 FT2010, for 1970-2008 default emission factors and methods from the *2006 IPCC Guidelines* were applied, which may give rise to considerable differences compared to the 1996 guidelines.

In addition, subtraction of the non-energy/feedstock fuel use part of the EDGAR 4.2 FT2010 dataset in order to combine it with the IEA CO_2 dataset also introduces some uncertainty.

To estimate CH_4 emissions from fossil fuel production and transmission, hard coal and brown coal production data have been separated into surface and underground mining based on various national reports. For gas transport and distribution, pipeline length was used as activity data. Pipeline length and material statistics are taken from reports on Europe by Eurogas and Marcogaz, national reports (*e.g.* the United States and Canada), UNFCCC (2008) and supplemental data from CIA (2008). Total amounts of natural gas flared (sometimes including gas vented) for most countries for 1994 onwards are primarily based on amounts of gas flared determined from the satellite observations of the intensity of flaring lights (Elvidge et al., 2009), reported by NOAA (2011). For other years before 1994 and for other countries emissions or emissions trends were supplemented by CO_2 trends from CDIAC (Marland *et al*., 2006), EIA (2011) and UNFCCC (2010).

Biofuel data were also taken from IEA (2007). However, to avoid incomplete time series for large sectors, solid biomass consumption in the residential and commercial sectors in non-OECD countries were replaced by fuelwood and charcoal consumption from FAO (2007a). Vegetal waste used as fuel is based on the amounts of crop residues per country and fractions used as fuel based on Yevich and Logan (2003) and IPCC (2006). The amount of dung used as fuel is based on the total amount of manure produced per country and the fraction of total manure burned as fuel with fractions from IPCC (2006) and UNFCCC (2008). The results are rather close to the work of Fernandes *et al.* (2007) who made an extensive analysis of global and regional biofuel use in 2000. Charcoal production data were taken from IEA (2010) and supplemented or extrapolated using data from UN (2010) for 1990-2005 and FAO (2010) for pre-1990 data and 49 more countries not included in the IEA dataset.

Emission factors for fossil fuel production and use are based on the default values in the *2006 IPCC Guidelines* (IPCC, 2006). Methane emission factors for coal mining are based on average depths of coal production based on CIAB (1994), EURACOAL (2008), Kirchgessner *et al.* (1993) and include post mining emissions. Methane recovery from coal mining was included for twelve countries amounting to about 1.3 Tg in 1990 (of which about one-third was allocated to the United States and Germany). Recovery in 2005 was estimated at 2.8 Tg (of which 50% in China and 25% in the United States (UNFCCC, 2010; Thakur *et al.*, 1994, 1996; EPA, 2008; Cheng et al., 2011).

Emission factors for oil and gas production, transport and distribution were taken from IPCC (2006), supplemented with data from UNFCCC (2008), except for the emission factor for CH_4 from oil tanker transport which is from Rudd and Hill (2001). The CH_4 emission factor for venting and flaring has been derived from country-specific data reported to UNFCCC (2010), with the average value used as global default, applied to all other countries. The CO_2 emission factor excludes the indirect emissions through gas venting.

For N_2O from gasoline cars in road transport, the fraction of cars equipped with different types of catalytic converters was taken into account (based on various references). The factors for biofuel combustion were taken from the *2006 IPCC Guidelines*. For charcoal production the emissions factors are from Andreae (2011).

Industrial processes

Production data for the CO_2 sources cement, iron and steel, non-ferrous metals and various chemicals were based on UN Industrial Commodity Statistics (UN, 2006a), often supplemented for recent years by data from the US Geological Survey (USGS, 2007). The same method applied to paper, wine, beer and bread production. Data for other CO_2 sources such as production of lime, soda ash, ammonia, ferroalloys and non-ferrous metals were from USGS (2007, 2010), supplemented by data reported to the UNFCCC (2010). IFA (2007) was used for urea production (where it is assumed that the fossil carbon in CO_2 from ammonia production is stored) and FAO (2007a,c) for production of pulp, meat and poultry. Iron and steel production was further split into technologies (basic oxygen furnace, open hearth, electric arc furnace) using data from WSA (2010).

For the N_2O sources nitric acid, adipic acid and caprolactam, production data are based on UNFCCC (2010) and on smoothed and averaged SRIC (2005) data. For other industrial production for which no international statistics were available, such as silicon carbide and glyoxal, UNFCCC (2010) was used, though limited to Annex I countries.

However, for many countries interpolations and extrapolations were necessary to arrive at complete time series per country for 1970-2005/2008. Special

attention had to be given to new EIT countries, in particular to Former Soviet Union and Former Yugoslavia countries, to maintain consistency with the older totals for the former countries.

Emission factors for CO_2, CH_4 and N_2O are described in IPCC (2006). Note that emissions of CO_2 from cement production are only a proxy for cement clinker production. The N_2O emission factors for the production of adipic acid, nitric acid, caprolactam and glyoxal are based on IPCC (2006). For adipic acid, abatement is only assumed from 1990 onwards if indicated in UNFCCC (2010) combined with activity data from SRIC (2005). For nitric acid in 1970, all old technology is assumed, changing their technology towards 1990 into high pressure plants in non-Annex I countries and a mix of low and medium pressure plants in Annex I countries that matches reported emissions in UNFCCC (2010). In addition, about 20% of global total production, all in Annex II countries, is equipped with Non-Selective Catalytic Reduction (NSCR) technology (Choe *et al.*, 1993). The emission factors for the F-gases as by-product emissions were based on IPCC (2006), but modified to match global emissions to observations of atmospheric concentrations.

Global annual total production of HCFC-22 was taken from AFEAS (2008) and McCulloch and Lindley (2007) and included captive production, but was modified using UNFCCC (2010) and other data sources. Primary aluminium production statistics per country from UN (2006a) were combined with smelter types characterised by one of five technologies according to Aluminium Verlag (2007) and Hunt (2004) for China. The default emission factor for HFC-23 from HCFC-22 manufacture was set for non-OECD countries at the IPCC default for old, un-optimised plants and for OECD countries at a somewhat lower and which decreased over time to reflect atmospheric concentrations. Country-specific fractions of emission abatement were estimated for six Annex II countries based on reported emissions in UNFCCC (2010) and UNEP Risø Centre (2011) for other countries. For aluminium production the CF_4 emission factors per technology were based on large-survey factors for 1990 to 2002 reported by IAI (2006, 2008), but with modifications for Söderberg technologies to comply with atmospheric concentration trends, and for C_2F_6 based on the ratio to CF_4 reported in IPCC (2006) for default Tier 2 emission factors.

Global consumption of HFC-125, 134a (in three applications) and 143a was taken from AFEAS (2008), for HFC-152a, 227ea, 245fa, 32 and 365mfc from Ashford *et al.* (2004) and for HFC-23, 236fa and 43-10-mee from UNFCCC (2008). Global HFC consumption was distributed to countries according to their share in global CFC-12 or CFC-11 consumption (ODP consumption statistics from the UN Ozone Secretariat) depending on their characteristics (either mostly for refrigeration/air-conditioning or mostly for other applications, largely foams/aerosols) and calibrated to regional totals calculated by Ashford *et al.* (2004)). Global emission factors for HFC use were derived from the emissions also reported by these data sources, except for HFC-125 and 143a which were from Ashford *et al.* (2004).

Global consumption data of PFCs (and SF_6) for semiconductor manufacture for Annex I countries in 1990 to 2005 were based on UNFCCC (2008) and the *National Inventory Report 2008* of Japan, for Taiwan on Lu (2006) and for other non-Annex I countries for 1995 and 2005 based on their global share in semiconductor manufacture (SEMI, 1998; SEMI, 2009). The trend from 1982 to 2005 of PFC use within four regions/countries (the United States, Japan, Europe and Rest of the World) was estimated from world market sales (SIA, 2006). Global CF_4 and SF_6 consumption and consumption in Taiwan for the production of flat panel displays for 2003 is from Lu (2006); trends and market shares per country from SEMI (2007). National consumption of PFCs for PV cells is based on the production per country of PV systems in m^2 (estimated from production statistics in MW for 1985-2003: Kammen, 2005; and for 1990, 1995, 2000-2007: Jäger-Waldau, 2008). The emission factors are from IPCC (2006), for semiconductors and FPD using the Tier 2a factors and for PV production taking into account the fraction of thin film production per country and assuming that 50% of the manufacturers uses PFCs. PFC consumption for other PFC uses was based on data for PFC use in fire extinguishing and air-conditioning, together with use as solvent reported by a few Annex I countries (UNFCCC, 2008), extrapolated to all Annex I countries and assuming an emission factor of 1.

Global consumption of SF_6 per application was taken from Knopman and Smythe (2007). For SF_6 containing switchgear, equipment manufacture and utility stock estimates were adjusted using the method in Mais and Brenninkmeijer (1998) with the regional and per country distribution based on various references (*e.g.* Mais and Brenninkmeijer, 1998; Bitsch, 1998, personal communication) and for missing countries and years

based on the trend in the increase of electricity consumption as a proxy for GIS stock additions. For primary magnesium production and diecasting global consumption was distributed using production statistics from USGS (2007) and IMA (1999a,b) and others for the number of diecasting companies per country. Other sources were distributed as follows: sport shoes among Annex I countries based on GDP, tyres according to reported consumption in Germany (UNFCCC, 2008), sound insulating windows mainly in Germany with 10% used in neighbouring countries, aluminium production as reported in UNFCCC (2010), accelerators were distributed according to the number of high-energy physics laboratories and miscellaneous sources according to the number of airborne early warning systems such as AWACs. A major revision was made to soundproof window production and small revisions to other sources, partly based on UNFCCC (2010).

Note that both the variables for distributing global total consumption per source category and the emission factors vary widely between different plants and countries. This implies that the estimated emissions of F-gases at country level should be considered as very uncertain (an order of magnitude).

Please note that CO_2 from fossil carbon accounted for in this sector (such as from ammonia and carbide production, iron and steel production using a blast furnace and metal production through smelting processes with carbon anode consumption) and CO_2 from urea application in agriculture have been subtracted from the EDGAR 4.2 FT2010 data. This avoids double counting compared with the IEA CO_2 dataset for fuel combustion that includes these emissions (see section on Energy).

Solvent and other product use

For N_2O from the use of anaesthesia, an amount of 24 gN_2O and 34 gN_2O per capita in 2000 was used for EIT and Annex II countries, respectively, based on the average values in UNFCCC (2010) and tentatively set at 5 g/cap/year for non-Annex I countries, based on Kroeze (1994). A global declining rate of 20% between 1990 and 2005 was assumed as observed for total Annex I countries.

For N_2O from aerosol spray cans, an amount of 10 gN_2O per capita in 2000 was used for Annex I countries based on the average values in UNFCCC (2010), and none for non-Annex I countries. A uniform inclining rate from 1990 to 2005 of 50% was assumed as observed for total Annex I countries.

Agriculture

In general, the IPCC (2006) methodology and new default emission factors for CO_2, CH_4 and N_2O were used to estimate agricultural emissions, except for the instances specified below. Please note that N_2O emissions from agriculture as reported in EDGAR 4.2 FT2010 are substantially lower than those presently reported by most Annex I countries due to two markedly lower emission factors: 1) the default IPCC emission factor ("EF1") for direct soil emissions of N_2O from the use of synthetic fertilisers, manure used as fertiliser and from crop residues left in the field has been reduced by 20%; and 2) the default emission factor ("EF5") for indirect N_2O 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 (2007b,c, 2010). For enteric fermentation by cattle, country-specific methane emission factors were calculated following the IPCC methodology (IPCC, 2006) using country-specific milk yield (dairy cattle) and carcass weight (other cattle) trends from FAO (2007c) to estimate the trends in the emission factors. For other animal types, regional emission factors from IPCC (2006) were used.

Livestock numbers were combined with estimates for animal waste generated per head to estimate the total amount of animal waste generated. Nitrogen excretion rates for cattle, pigs and chicken in Europe were based on the CAPRI model (Pérez, 2005; Britz, 2005; Leip *et al.*, 2007) and for all other countries and animal types in IPCC (2006), The trend in carcass weight was used to determine the development in nitrogen excretion over time. The shares of different animal waste management systems were based on regional defaults provided in IPCC (2006) and regional trend estimates for diary and non-dairy cattle for the fractions stall-fed, extensive grazing and mixed systems from Bouwman *et al.* (2005). Methane emissions from manure management were estimated by applying default IPCC emission factors for each country and temperature zone. For the latter, the 1x1 degree grid map for non-dairy cattle from Lerner *et al.* (1988) was used and the annual average temperature per grid cell from New *et al.* (1999) to calculate the livestock fractions of the countries in 19 annual mean temperature zones for cattle, swine and buffalo and three climates zones for other animals (cold, temperate, warm). N_2O emissions

from manure management were based on distribution of manure management systems from Annex I countries reporting to the UNFCCC (2008), Zhou *et al.* (2007) for China and IPCC (2006) for the rest of the countries.

The total area for rice cultivation was obtained from FAO (2007d, 2010), which was split over different ecology types (rainfed, irrigated, deep water and upland) using IRRI (2007). The total harvested area of rice production in China was increased by 40%, due to recognition that official harvested rice area statistics for China largely underestimate the actual area (Denier van der Gon, 1999; 2000; personal communication, 2000). However, methane emission factors were not taken from IPCC (2006) but from a review of Neue (1997), and country-specific studies by Mitra *et al.* (2004), Gupta *et al.* (2002) and IIASA (2007). For the period 1970-2000 a trend in the emission factors was assumed based on data from Denier van der Gon (1999, 2000).

The same data as described above for manure management were used to estimate N_2O emissions from the use of animal waste as fertilizer by taking into account the loss of nitrogen that occurs from manure management systems before manure is applied to soils and additional nitrogen introduced by bedding material. N_2O emissions from fertilizer use and CO_2 from urea fertilization were estimated based on IFA (2007) and FAO (2007e) statistics and emission factors from IPCC (2006).

CO_2 emissions from liming of soils were estimated from Annex I country reports to the UNFCCC (2010), and on the use of ammonium fertilizers for other countries (FAO, 2007e) as liming is needed to balance the acidity caused by ammonium fertilizers.

Areas of cultivated histosols were estimated by combining three different maps: the FAO climate map (FAO Geonetwork, 2007a), the FAO soil map (FAO Geonetwork, 2007b) and the land use map of Goldewijk *et al.* (2007). However, where available areas reported by Annex I countries to the UNFCCC (2008) were used. Separate N_2O 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 (2007d) and IPCC (2006) factors. The fractions of crop residues removed from and burned in the field were estimated using data of Yevich and Logan (2003) and UNFCCC (2008) for fractions burned in the field by Annex I countries. Subsequently, N_2O emissions from crop residues left in the field and non-CO_2 emissions from field burning of the residues were calculated using IPCC (2006) emission factors.

Indirect N_2O 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 dryland regions, which were identified based on FAO (1999; 2000; 2005) and Murray *et al.* (1999). The fraction of nitrogen lost through leaching and runoff was based on a study of Van Drecht *et al.* (2003). IPCC (2006) emission factors were used for indirect N_2O from leaching and runoff, as well as from deposition of agricultural NH_3 and NO_x emissions.

For savannah burning, estimates for areas burned are based on satellite measurements (see next section) and emission factors from IPCC (2006).

Large-scale biomass burning

For estimating the amounts of biomass burned in large-scale fires the three key parameters have to be multiplied: (a) area burned, (b) aboveground biomass density (fuel load) (kg/ha), and (c) fraction of aboveground biomass burned (combustion completeness). Country-specific data for large-scale biomass burning (total amount of dry matter burned, which were subdivided into tropical and non-tropical forest fires, savannah fires and grassland fires), have been taken from the gridded data at 1x1 degree grid of the *Global Fire Emissions Database* (GFED version 2; Van der Werf *et al.,* 2006) for the years 1997-2005. For years prior to 1997, the GFED v2.0 data were scaled back to 1970 using regional biomass burning trends from the RETRO dataset, covering the period 1960-2000 (Schultz *et al.,* 2008). GFED data for agricultural areas were attributed to savannah and grassland fires. There is an insignificant overlap with the EDGAR category for agricultural waste burning. The GFED data on biomass burning were estimated using burned area time series for 2001-2005 derived from the MODIS satellite sensors in combination with the fuel load estimated by the satellite-driven Carnegie-Ames-Stanford-Approach (CASA) biogeochemical model that was adjusted to account for fires. The 1997–2000 period was included using fire counts from the VIRS/ATSR sensors. The burning areas were mapped at 0.5x0.5 km spatial resolution. For some countries a correction was made to the time series for the

allocation of biomass burned in savannahs and tropical forests. Since these sources have different emission factors, total emissions have changed for these countries. For 2006-2008 the trend in the activity data from the GFED v3 model (Van der Werf et al., 2010) was used, since the new dataset is not consistent with the previous version. The non-CO_2 emission factors for large scale biomass burning have been updated using data from Andreae (2011). The GHG emission factors were not taken from IPCC (2006), (which were from Andreae and Merlet (2001)), but updated values from Andreae (2011), including the carbon content of 0.47 kg C/kg dry matter, which is the default value for tropical forest. For greenhouse gas accounting purposes, net CO_2 emissions from savannah and grassland fires have been assumed to be zero (organic carbon in a short cycle). There is a large uncertainty in the assumptions for the carbon contents and the fraction of carbon that is actually being burned and thus in the amount of burned carbon.

CO_2 emissions from large-scale biomass burning are only one component of emissions from forest fires. Roughly half of the aboveground biomass is not burned, but rather decomposes over time. This results in delayed decay emissions of approximately the same level of magnitude as the direct emissions from the fires but distributed over a period of 10 to 20 years (IPCC, 2006). Post-burn CO_2 emissions have been estimated from the same activity data as direct burning emissions by assuming that remaining aboveground biomass decays in the 15 year2 after the year the fire or deforestation occurred, *i.e.* 1/15 per year and a carbon content of 0.47 kg C/kg dry matter tropical forest from IPCC (2006).

For CO_2 emissions from drained peatlands the comprehensive dataset of Joosten (2009) was used, comprising of activity data for 1990 and 2008 and CO_2 emission factors per hectare of drained peatland. For intervening years, the activity data were linearly interpolated, except for Indonesia, for which the trend in the area of palm oil plantations was used as proxy for the interpolation. For years before 1990 a linear increase from 0 in 1970 was assumed, with a few exceptions, where the area was assumed to remain constant prior to 1990. In EDGAR 4.2 FT2010 the amount of peat burned (in Indonesia only) has been separated from the amount of tropical forest burned in the GFED v2.0 dataset and different emission factors have been applied for most substances (Christian et al., 2003; Weiss (2002), resulting in different emissions.

In addition, enhanced N_2O emissions that occur after large-scale tropical biomass burning (Bouwman *et al.,* 1997) were calculated from the post-burn biomass dataset.

Waste handling

To estimate the amount of organic solid waste in landfills three key parameters have to be determined: (a) Municipal Sold Waste (MSW) generated per year (kg/cap), (b) fraction of total solid waste that is landfilled, and (c) fraction of Degradable Organic Carbon (DOC) in the MSW (%). Total and urban population figures were taken from UN (2006b).The amounts of Municipal Sold Waste (MSW) generated are the primary statistics for emissions from landfills. For 70 countries, the *2006 IPCC Guidelines* provide country-specific data for 2000 of the amount of MSW generated per year per capita (urban capita in case of non-Annex I countries) and the fraction landfilled and incinerated. For 58 more countries, country-specific values for the MSW generation per capita were found in the literature. For the remaining 91 countries, the waste generation per capita in 2000 was estimated using an exponential fit of the IPCC (2006) country-specific data for 70 countries of MSW/cap for 2000 to GDP/cap. For Annex I countries trend data for MSW generation/cap are available for the period 1990-2005 (UNFCCC, 2008). For other years and for other countries for which these data are not available, extrapolation from 2000 back and forward was done using the exponential fit mentioned above. When the country-specific fraction of MSW landfilled was missing, regional defaults provided in IPCC (2006) were used. In addition, UN statistics on MSW treatment may provide country-specific data for years other than 2000. Based on regional defaults for the composition of MSW, IPCC (2006) provides regional defaults for the fraction of Degradable Organic Carbon (DOC). For Annex I countries, country-specific data from UNFCCC (2008) were used (sometimes including a change over time) and for 94 Non-Annex I countries, country-specific MSW composition data were found, from which the average DOC value was calculated. However, in version 4.2, for a number of Annex I countries, the DOC fraction was adjusted to better reflect the overall emission trends for landfills as reported to UNFCCC (2008).

Calculation of methane emissions from landfills using the First Order Decay (FOD) model of IPCC (2006), the Methane Conversion Factor (MCF), requires the k-value and the Oxidation Factor (OX). The MCF is

characterised by the type of landfill: managed aerobic or anaerobic, unmanaged deep or shallow. Apart from country-specific time series which are available for 11 Annex I countries, two sets of MCF time series for Annex I and non-Annex I countries were determined based on assumptions about the fractions of the four landfill types over time. For the k-value, which is the methane generation rate (inversely proportional to the half life value of the DOC), default regional MSW composition weighted k-values for four climate zones (tropical dry/wet and non-tropical dry/wet) were provided by IPCC (2006). For EDGAR 4.2 FT2010, country-specific values were calculated using the country-specific fractions of the population (urban population for non-Annex I countries) in each climate zone. The IPCC default values were used to estimate the Oxidation Factor (0.1 for Annex I and 0 for non-Annex I). Finally, the amounts of methane recovered (and used or flared) to be subtracted from the gross methane emissions, were taken as reported by Annex I countries in UNFCCC (2010) and for 23 non-Annex I countries from CDM projects reported by the UNEP Risø Centre (2011). Total recovery in 2010 is estimated at 12.9 Tg CH_4, half of which was by the United States and almost one fifth by the United Kingdom; about 13% is recovered by non-Annex I countries.

For domestic wastewater, total organics in wastewater (BOD_5) was estimated using regional default or country-specific default values for BOD_5 generation per capita per day provided by IPCC (2006). For industrial wastewater, total organically degradable material in wastewater from industry was calculated per type of industry from WW generation per ton of product and COD values (chemical oxygen demand (industrial degradable organic component in wastewater) in kg/m^3 WW, using defaults from IPCC (2006). Production statistics for industry types that produce most organics in wastewater are available from UN (2006a). Examples are meat and poultry, raw sugar, alcohol, pulp and organic chemicals. To estimate methane emissions from domestic wastewater, additional information is required on the WW treatment systems, such as sewer systems (to wastewater treatment plants (WWTP) or to raw discharge), latrines by type, open pits and septic tanks. Regional or country-specific default fractions for 2000 were from IPCC (2006). In addition, country-specific fractions of improved sanitation over time from Van Drecht *et al.* (2009) were used, based on the UN Water Supply and Sanitation (WSS) dataset and other national reports, and fractions reported by Doorn and Liles (1999). For industrial methane emissions, fractions of on-site treatment in WWTP, sewer with and without city-WWTP, and raw discharge were based on regional values reported by Doorn *et al.* (1997). To calculate methane emissions from wastewater, default factors provided by IPCC (2006) per type of WW treatment were used, with default methane correction factors (MCF) per type of treatment. For Annex I countries, OECD or EIT average fractions of methane recovered in WWTPs (and either used as biogas or flared) were used, except for five countries for which country-specific values reported in UNFCCC (2008) were used.

To estimate N_2O 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 (2007f), using correction factors for non-consumed protein and for the fraction of industrial and commercial protein that is co-discharged. For the correction factors and the N_2O emission factor, defaults provided in IPCC (2006) were used.

Other waste sources are incineration, with activity data from UNFCCC (2008) and IPCC (2006) and extrapolations assuming a fixed ratio to landfilling, and composting (UNFCCC, 2008; ECN, 2008; CCC, 2008).

Other sources

Indirect N_2O emissions from atmospheric deposition of nitrogen of NO_x and NH_3 emissions from non-agricultural sources, mainly fossil fuel combustion and large scale biomass burning, were estimated using nitrogen in NO_x and NH_3 emissions from these sources as activity data, based on preliminary EDGAR 4.2 FT2010 data for these gases. The same IPCC (2006) emission factor was used for indirect N_2O from atmospheric deposition of nitrogen from NH_3 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 possible small revisions upon the final release of the dataset and preliminary estimates for more recent years we refer to the EDGAR version 4 website at *edgar.jrc.ec.europa.eu*. Aggregated preliminary estimates can also be found at PBL (2012) and for CO_2 in Olivier et al. (2012).

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TOTAL GHG EMISSIONS

1990 Greenhouse-gas emissions

million tonnes of CO_2 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 *	**20 973.9**	**451.2**	**839.2**	**5 987.4**	**28 251.7**	**75.8%**	**2 075.4**	**3 185.8**	**1 068.8**	**270.2**	**6 600.2**	**31.4%**
Annex I Parties	*13 906.7*	*206.4*	*456.6*	*850.5*	*15 420.2*	*91.5%*	*1 043.2*	*842.7*	*555.4*	*30.5*	*2 471.8*	*42.2%*
Annex II Parties	*9 802.1*	*78.9*	*271.8*	*379.1*	*10 531.8*	*93.8%*	*442.3*	*542.1*	*444.2*	*14.6*	*1 443.3*	*30.6%*
North America	*5 301.5*	*24.3*	*70.2*	*136.0*	*5 532.0*	*96.3%*	*282.0*	*191.6*	*229.3*	*8.2*	*711.2*	*39.7%*
Europe	*3 152.8*	*39.2*	*129.8*	*183.3*	*3 505.1*	*91.1%*	*127.9*	*210.8*	*182.5*	*2.2*	*523.4*	*24.4%*
Asia Oceania	*1 347.8*	*15.4*	*71.8*	*59.7*	*1 494.7*	*91.2%*	*32.4*	*139.7*	*32.4*	*4.2*	*208.7*	*15.5%*
Annex I EIT	*3 975.4*	*123.4*	*172.4*	*470.1*	*4 741.1*	*86.4%*	*593.0*	*276.0*	*99.7*	*15.9*	*984.5*	*60.2%*
Non-Annex I Parties	*6 449.4*	*244.7*	*382.6*	*5 136.9*	*12 213.6*	*54.8%*	*1 031.4*	*2 343.1*	*513.4*	*239.7*	*4 127.6*	*25.0%*
Annex I Kyoto Parties	*8 784.3*	*180.8*	*381.1*	*694.8*	*10 041.0*	*89.3%*	*784.4*	*631.2*	*333.4*	*25.1*	*1 774.0*	*44.2%*
Int. marine bunkers	**362.5**	**-**	**-**	**-**	**362.5**	**100.0%**	**0.7**	**-**	**-**	**-**	**0.7**	**100%**
Int. aviation bunkers	**255.3**	**-**	**-**	**-**	**255.3**	**100.0%**	**0.0**	**-**	**-**	**-**	**0.0**	**100%**
Non-OECD Total	**9 199.3**	**359.1**	**495.3**	**5 520.6**	**15 574.3**	**61.4%**	**1 496.8**	**2 501.1**	**568.7**	**253.4**	**4 820.0**	**31.1%**
OECD Total	**11 156.8**	**92.1**	**343.9**	**466.7**	**12 059.5**	**93.3%**	**577.8**	**684.7**	**500.1**	**16.8**	**1 779.4**	**32.5%**
Canada	432.9	2.9	9.1	25.7	470.5	92.6%	32.2	18.9	22.1	2.9	76.1	42.4%
Chile	31.0	0.7	2.0	1.0	34.7	91.5%	3.0	5.8	3.0	0.2	12.0	25.1%
Mexico	264.9	2.9	16.3	39.1	323.1	82.9%	29.0	52.5	15.3	1.5	98.3	29.5%
United States	4 868.7	21.4	61.1	110.3	5 061.6	96.6%	249.8	172.7	207.2	5.4	635.1	39.3%
OECD Americas	**5 597.4**	**27.9**	**88.4**	**176.1**	**5 889.9**	**95.5%**	**314.1**	**249.9**	**247.5**	**10.0**	**821.5**	**38.2%**
Australia	260.0	4.2	6.0	25.9	296.1	89.2%	24.6	75.6	11.3	3.6	115.0	21.4%
Israel	33.5	-	1.5	0.3	35.3	94.9%	0.1	0.7	1.1	0.0	1.9	6.3%
Japan	1 064.4	11.1	65.4	28.7	1 169.6	92.0%	6.9	40.5	19.0	0.5	66.9	10.3%
Korea	229.3	1.5	17.6	0.4	248.9	92.8%	8.8	15.0	7.5	0.1	31.3	28.0%
New Zealand	23.4	0.1	0.4	5.1	29.1	81.0%	0.9	23.6	2.1	0.0	26.7	3.4%
OECD Asia Oceania	**1 610.6**	**16.9**	**90.9**	**60.4**	**1 778.9**	**91.5%**	**41.2**	**155.4**	**41.0**	**4.3**	**241.9**	**17.0%**
Austria	56.4	0.5	3.7	0.6	61.2	93.0%	2.0	5.0	3.0	0.1	10.0	20.3%
Belgium	107.9	1.3	5.3	0.8	115.4	94.7%	2.7	6.6	3.1	0.0	12.4	21.6%
Czech Republic	155.1	3.0	5.3	2.0	165.6	95.5%	6.4	8.9	2.7	0.2	18.2	35.3%
Denmark	50.4	0.3	1.0	3.7	55.4	91.5%	0.6	5.5	1.9	-	8.0	7.6%
Estonia	36.1	-	0.6	14.1	50.8	71.1%	1.2	1.7	0.5	-	3.4	35.0%
Finland	54.4	0.2	1.2	53.7	109.5	49.9%	0.8	2.6	6.7	0.0	10.1	7.6%
France	352.3	4.1	24.6	8.0	389.1	91.6%	20.3	40.7	14.6	0.1	75.7	26.8%
Germany	949.7	13.1	26.6	40.6	1 029.9	93.5%	36.8	41.8	36.6	0.2	115.4	31.8%
Greece	70.1	0.1	6.2	0.8	77.3	90.9%	1.6	3.7	2.3	0.1	7.7	20.6%
Hungary	66.4	0.5	2.8	1.1	70.8	94.5%	2.1	5.3	2.5	0.0	10.1	21.1%
Iceland	1.9	-	0.1	17.6	19.6	9.6%	0.0	0.2	0.1	0.0	0.3	2.0%
Ireland	29.8	-	0.9	10.9	41.6	71.6%	1.2	10.8	1.9	0.0	13.9	8.7%
Italy	397.4	4.5	22.5	3.1	427.5	94.0%	8.6	21.0	17.3	0.3	47.1	18.2%
Luxembourg	10.4	-	0.8	0.0	11.2	92.9%	0.1	0.8	0.1	0.0	1.0	10.1%
Netherlands	155.8	0.7	1.3	9.5	167.3	93.6%	6.3	11.6	12.2	0.1	30.1	20.8%
Norway	28.3	2.1	0.8	1.2	32.4	94.0%	6.1	2.2	5.8	0.1	14.1	43.0%
Poland	342.1	0.0	9.9	27.5	379.6	90.1%	74.8	22.8	9.9	0.1	107.6	69.5%
Portugal	39.3	0.2	3.5	0.3	43.3	91.2%	0.7	4.3	4.7	0.1	9.9	7.2%
Slovak Republic	56.7	0.2	3.0	0.4	60.3	94.4%	1.1	4.0	1.3	0.0	6.5	17.4%
Slovenia	12.5	0.0	0.7	0.4	13.7	91.6%	1.0	1.4	0.6	0.0	3.0	32.8%
Spain	205.2	1.8	15.0	2.0	224.0	92.4%	5.4	17.7	8.9	0.8	32.8	16.4%
Sweden	52.8	0.9	2.0	15.1	70.8	75.8%	1.1	3.4	7.0	0.0	11.5	9.6%
Switzerland	41.4	0.0	2.6	2.3	46.2	89.6%	1.1	3.7	1.0	0.1	5.9	18.8%
Turkey	126.9	4.2	12.5	1.4	145.0	90.4%	7.9	24.5	11.4	0.1	43.9	18.0%
United Kingdom	549.3	9.2	11.8	13.2	583.5	95.7%	32.7	29.1	55.4	0.1	117.3	27.8%
OECD Europe	**3 948.7**	**47.2**	**164.6**	**230.2**	**4 390.8**	**91.0%**	**222.5**	**279.3**	**211.6**	**2.6**	**716.0**	**31.1%**
European Union - 27	*4 050.0*	*42.4*	*165.0*	*221.3*	*4 478.7*	*91.4%*	*230.1*	*278.3*	*207.7*	*2.5*	*718.6*	*32.0%*

* Total World includes Non-OECD total, OECD total as well as international bunkers.

Sources: IEA, Sectoral Approach for CO_2 emissions from fuel combustion. EDGAR 4.2 FT2010 database for other emissions. In general, estimates for emissions other than CO_2 from fuel combustion are subject to significantly larger uncertainties.

1990 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

N_2O						HFCs	PFCs	SF_6	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP *	
255.6	**239.9**	**1 805.6**	**526.9**	**2 827.9**	**9.0%**	**75.8**	**115.6**	**114.1**	**37 985.4**	**62.5%**	**1.05**	**World**
147.4	*213.7*	*623.0*	*162.1*	*1 146.2*	*12.9%*	*61.5*	*86.7*	*83.9*	*19 270.4*	*79.4%*	*0.76*	*Annex I Parties*
115.3	*166.3*	*408.3*	*108.9*	*798.8*	*14.4%*	*56.5*	*65.3*	*76.9*	*12 972.5*	*80.5%*	*0.61*	*Annex II Parties*
76.0	*56.4*	*170.1*	*52.0*	*354.5*	*21.4%*	*29.6*	*29.4*	*46.2*	*6 702.9*	*84.8%*	*0.77*	*North America*
30.0	*98.7*	*168.2*	*37.7*	*334.6*	*9.0%*	*17.1*	*26.4*	*15.8*	*4 422.4*	*75.7%*	*0.49*	*Europe*
9.3	*11.2*	*70.0*	*19.3*	*109.7*	*8.4%*	*9.8*	*9.5*	*14.9*	*1 847.2*	*76.1%*	*0.50*	*Asia Oceania*
28.2	*47.2*	*192.4*	*50.5*	*318.3*	*8.8%*	*5.0*	*20.9*	*5.0*	*6 075.0*	*77.7%*	*1.75*	*Annex I EIT*
88.0	*26.2*	*1 182.5*	*364.8*	*1 661.6*	*5.3%*	*14.3*	*28.9*	*30.2*	*18 076.2*	*43.2%*	*1.66*	*Non-Annex I Parties*
73.5	*166.8*	*435.1*	*113.4*	*788.8*	*9.3%*	*32.3*	*65.4*	*39.7*	*12 741.3*	*77.1%*	*0.76*	*Annex I Kyoto Parties*
15.6	**-**	**-**	**-**	**15.6**	**100%**	**-**	**-**	**-**	**378.8**	**100.0%**	**..**	**Int. marine bunkers**
4.6	**-**	**-**	**-**	**4.6**	**100%**	**-**	**-**	**-**	**260.0**	**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**	**22 354.1**	**49.9%**	**1.83**	**Non-OECD Total**
129.8	**177.8**	**506.1**	**126.5**	**940.1**	**13.8%**	**60.0**	**69.1**	**84.4**	**14 992.5**	**79.7%**	**0.62**	**OECD Total**
7.0	11.8	17.0	6.8	42.6	16.4%	0.4	8.6	4.0	602.1	78.9%	0.80	Canada
0.3	0.0	4.1	0.7	5.1	5.7%	-	0.0	0.0	51.8	67.7%	0.60	Chile
2.2	1.0	31.0	5.8	40.1	5.6%	1.6	0.5	0.9	464.6	64.4%	0.55	Mexico
69.0	44.6	153.1	45.1	311.9	22.1%	29.2	20.8	42.2	6 100.8	85.4%	0.77	United States
78.5	**57.5**	**205.2**	**58.5**	**399.7**	**19.7%**	**31.2**	**30.0**	**47.0**	**7 219.3**	**83.4%**	**0.75**	**OECD Americas**
2.7	0.8	50.4	9.2	63.1	4.2%	0.6	3.9	0.4	479.1	60.8%	1.13	Australia
0.1	0.3	0.7	0.4	1.5	9.1%	0.0	0.0	1.0	39.8	84.9%	0.48	Israel
6.3	10.3	9.7	9.8	36.2	17.5%	9.2	4.7	14.4	1 300.9	83.7%	0.40	Japan
1.6	1.1	4.9	2.2	9.8	16.1%	1.9	0.8	3.5	296.1	81.4%	0.63	Korea
0.3	-	9.9	0.3	10.5	2.4%	0.0	0.9	0.0	67.2	36.8%	1.04	New Zealand
11.0	**12.5**	**75.7**	**21.9**	**121.1**	**9.1%**	**11.7**	**10.3**	**19.3**	**2 183.1**	**76.9%**	**0.51**	**OECD Asia Oceania**
0.6	0.8	2.9	0.7	5.1	12.6%	0.0	1.0	0.4	77.8	76.6%	0.40	Austria
0.7	3.9	3.3	1.1	9.0	8.1%	0.0	0.0	0.1	137.0	82.3%	0.55	Belgium
1.9	1.3	5.2	1.3	9.7	19.8%	0.0	0.0	0.0	193.5	86.1%	1.13	Czech Republic
0.5	1.1	5.8	0.6	8.0	6.0%	0.0	0.0	0.1	71.5	72.5%	0.55	Denmark
0.5	-	1.2	0.2	1.9	24.9%	-	0.0	0.0	56.1	67.4%	3.45	Estonia
1.4	1.5	3.8	0.7	7.4	19.0%	0.0	0.0	0.1	127.1	44.7%	1.10	Finland
3.6	26.7	35.5	4.8	70.7	5.1%	4.7	1.6	3.2	544.9	69.8%	0.39	France
11.1	20.5	33.6	8.0	73.2	15.2%	2.6	4.4	5.6	1 231.0	82.1%	0.60	Germany
0.8	1.1	4.5	1.1	7.5	11.1%	0.5	1.7	0.1	94.8	76.6%	0.54	Greece
0.7	3.2	5.4	0.8	10.1	6.7%	0.0	0.7	0.0	91.7	76.1%	0.67	Hungary
0.0	0.0	0.3	0.0	0.4	6.1%	-	1.0	0.0	21.3	8.9%	3.27	Iceland
0.2	0.9	6.6	0.3	8.2	3.0%	0.0	0.0	0.0	63.7	49.1%	0.97	Ireland
2.4	7.2	15.6	5.2	30.3	7.8%	2.0	0.9	1.2	509.0	81.1%	0.38	Italy
0.0	-	0.3	0.1	0.4	12.4%	0.0	0.0	-	12.6	83.9%	0.77	Luxembourg
0.7	5.8	7.2	1.3	15.0	4.7%	2.8	3.1	0.3	218.6	74.8%	0.56	Netherlands
0.4	2.1	1.9	0.5	4.9	8.1%	-	6.3	2.3	60.0	61.5%	0.44	Norway
2.1	3.4	19.0	2.9	27.3	7.5%	0.0	0.4	0.1	515.0	81.3%	1.65	Poland
0.5	0.5	2.9	0.9	4.8	11.2%	0.0	0.0	0.1	58.1	70.2%	0.36	Portugal
1.1	1.0	2.9	0.4	5.5	20.2%	-	0.1	-	72.4	81.8%	1.14	Slovak Republic
0.1	-	1.0	0.2	1.3	9.5%	-	0.8	0.0	18.8	72.6%	0.57	Slovenia
1.9	3.0	15.5	4.5	24.9	7.6%	2.0	3.8	0.4	287.8	74.5%	0.37	Spain
1.0	0.8	4.0	0.9	6.7	15.1%	0.0	0.7	0.2	89.9	62.1%	0.43	Sweden
0.4	0.2	1.6	0.6	2.8	15.1%	0.0	0.3	0.6	55.9	76.9%	0.25	Switzerland
3.9	0.2	22.3	2.6	29.0	13.6%	-	0.5	2.0	220.4	64.9%	0.51	Turkey
3.5	22.6	22.8	6.4	55.3	6.3%	2.6	1.6	1.1	761.3	78.1%	0.59	United Kingdom
40.3	**107.8**	**225.2**	**46.1**	**419.4**	**9.6%**	**17.1**	**28.8**	**18.0**	**5 590.1**	**76.2%**	**0.55**	**OECD Europe**
37.5	*112.4*	*224.8*	*45.3*	*420.1*	*8.9%*	*17.1*	*22.6*	*13.1*	*5 670.2*	*76.9%*	*0.59*	*European Union - 27*

* GHG / GDP PPP ratio is expressed in kg of CO_2-equivalent per 2005 USD.

1990 Greenhouse-gas emissions

million tonnes of CO_2 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	**9 199.3**	**359.1**	**495.3**	**5 520.6**	**15 574.3**	**61.4%**	**1 496.8**	**2 501.1**	**568.7**	**253.4**	**4 820.0**	**31.1%**
Albania	6.3	0.1	0.3	0.7	7.3	86.6%	0.8	1.6	0.2	0.0	2.5	31.0%
Armenia	20.5	-	0.7	0.4	21.5	95.1%	1.3	1.3	0.3	0.0	2.9	45.4%
Azerbaijan	65.0	0.0	0.6	0.3	65.9	98.7%	5.8	4.3	1.4	0.0	11.4	50.6%
Belarus	124.5	0.0	1.9	44.0	170.4	73.1%	1.1	14.3	3.3	0.0	18.7	6.1%
Bosnia-Herzegovina	23.7	-	0.2	0.4	24.3	97.5%	2.8	1.6	0.2	0.0	4.6	60.1%
Bulgaria	74.8	1.1	4.1	0.3	80.3	94.5%	1.3	5.5	8.8	0.1	15.7	8.4%
Croatia	21.6	0.2	1.4	0.1	23.2	93.8%	1.6	1.8	0.8	0.0	4.2	37.8%
Cyprus	3.8	-	0.5	0.0	4.3	88.6%	0.0	0.2	0.2	-	0.4	3.3%
Georgia	33.2	0.0	0.3	0.4	34.0	97.9%	1.7	2.6	0.7	0.0	5.0	34.5%
Gibraltar	0.2	-	-	0.0	0.2	99.8%	0.0	-	0.0	-	0.0	12.0%
Kazakhstan	236.4	6.1	6.7	16.2	265.5	91.4%	33.7	25.6	3.2	6.8	69.2	48.6%
Kosovo *	..	..	..	..	..	..	..	..	..	..	..	..
Kyrgyzstan	22.5	0.0	0.7	0.7	23.8	94.2%	0.7	4.3	0.6	0.2	5.8	12.2%
Latvia	18.7	-	0.9	5.2	24.8	75.4%	1.6	3.2	0.6	0.0	5.5	30.0%
Lithuania	33.1	0.0	1.8	6.1	41.0	80.8%	1.6	4.9	1.1	0.0	7.6	21.3%
FYR of Macedonia	8.5	-	0.3	0.1	8.9	95.7%	0.3	1.1	0.2	0.1	1.7	18.7%
Malta	2.3	-	0.0	0.0	2.3	99.6%	0.0	0.1	0.1	-	0.2	1.6%
Republic of Moldova	30.2	-	1.3	0.2	31.6	95.4%	1.4	2.2	0.5	0.0	4.1	34.8%
Montenegro *	..	..	..	..	..	..	..	..	..	..	..	..
Romania	167.0	0.5	9.0	2.0	178.3	93.9%	18.1	15.7	3.6	0.0	37.4	48.3%
Russian Federation	2 178.8	83.2	98.4	355.0	2 715.4	83.3%	422.5	132.5	54.3	15.1	624.5	67.7%
Serbia *	61.4	0.2	2.2	0.6	64.5	95.6%	4.5	6.2	1.2	0.0	11.9	37.9%
Tajikistan	10.9	0.0	0.6	0.1	11.5	94.5%	0.8	2.9	0.6	0.0	4.3	18.4%
Turkmenistan	45.8	0.9	0.6	0.6	47.8	97.6%	26.4	2.8	0.6	0.0	29.8	88.5%
Ukraine	687.9	34.5	32.6	12.0	767.0	94.2%	58.4	54.1	9.5	0.2	122.3	47.8%
Uzbekistan	119.8	1.8	3.6	1.7	126.8	95.9%	17.1	13.2	2.6	0.0	32.9	52.0%
Non-OECD Europe and Eurasia	**3 996.8**	**128.6**	**168.6**	**446.7**	**4 740.7**	**87.0%**	**603.7**	**301.6**	**94.7**	**22.6**	**1 022.7**	**59.0%**
Algeria	52.7	12.1	3.0	0.2	68.1	95.2%	24.4	3.7	3.1	0.0	31.2	78.2%
Angola	4.0	6.9	0.1	7.4	18.4	59.0%	6.8	14.0	1.1	0.1	22.1	31.0%
Benin	0.3	0.0	0.1	37.9	38.3	0.7%	0.7	1.9	0.5	2.0	5.1	13.9%
Botswana	2.9	-	-	0.4	3.3	87.6%	0.4	5.5	0.2	0.1	6.1	6.1%
Cameroon	2.7	3.7	0.3	63.4	70.1	9.1%	3.3	7.7	1.6	3.4	16.0	20.7%
Congo	0.6	1.5	0.0	49.8	51.9	4.1%	1.8	2.4	0.3	2.7	7.2	25.3%
Dem. Rep. of Congo	3.0	0.0	0.3	1 188.1	1 191.4	0.2%	3.6	26.8	4.0	63.9	98.3	3.7%
Côte d'Ivoire	2.6	0.0	0.2	129.5	132.4	2.0%	1.6	2.1	1.5	6.9	12.1	13.5%
Egypt	78.4	3.7	6.8	1.1	90.0	91.2%	10.4	10.5	6.0	0.0	26.9	38.7%
Eritrea	-	-	0.0	0.0	0.0	0.0%	0.3	1.5	0.3	-	2.1	15.0%
Ethiopia	2.2	-	0.2	0.4	2.8	79.5%	3.2	32.6	4.2	-	40.0	8.1%
Gabon	0.9	3.4	0.1	4.1	8.5	51.0%	3.0	0.1	0.2	0.2	3.5	86.2%
Ghana	2.7	-	0.3	12.7	15.7	17.2%	1.8	3.7	1.7	0.7	7.9	22.5%
Kenya	5.5	-	0.9	2.1	8.5	65.0%	4.9	13.4	2.1	-	20.3	23.9%
Libya	27.4	14.1	1.5	0.1	43.1	96.2%	14.8	1.1	0.8	0.0	16.7	88.7%
Morocco	19.6	-	2.5	0.3	22.4	87.6%	1.0	5.4	2.9	-	9.2	10.4%
Mozambique	1.1	-	0.0	17.4	18.5	5.8%	1.7	7.7	1.5	0.9	11.8	14.6%
Namibia	-	-	0.0	0.0	0.0	0.0%	0.1	3.3	0.1	-	3.6	2.2%
Nigeria	29.2	38.6	1.4	9.4	78.6	86.2%	33.8	22.0	8.8	0.4	65.1	51.9%
Senegal	2.1	-	0.2	0.1	2.4	88.6%	1.0	3.7	1.0	-	5.6	17.4%
South Africa	253.7	14.4	4.9	2.6	275.6	97.2%	23.6	19.1	8.4	2.2	53.4	44.3%
Sudan	5.5	-	0.1	4.0	9.6	57.2%	5.1	39.1	2.9	-	47.1	10.9%
United Rep. of Tanzania	1.7	-	0.3	44.9	46.9	3.6%	2.4	19.8	2.3	2.4	26.9	8.9%
Togo	0.6	-	0.2	7.4	8.1	7.0%	0.8	1.5	0.4	0.4	3.1	24.9%
Tunisia	12.1	0.0	2.5	0.1	14.7	82.2%	1.2	1.8	1.0	0.0	4.1	30.5%
Zambia	2.6	-	0.4	142.6	145.5	1.8%	1.7	19.2	0.8	7.5	29.1	5.7%
Zimbabwe	16.0	-	0.5	0.8	17.3	92.5%	1.2	8.1	0.9	0.0	10.3	11.4%
Other Africa	14.4	-	0.5	268.1	283.0	5.1%	14.9	104.9	11.2	13.2	144.3	10.4%
Africa	**544.4**	**98.4**	**27.4**	**1 995.1**	**2 665.3**	**24.1%**	**169.7**	**382.6**	**69.8**	**107.0**	**729.1**	**23.3%**

* For 1990, Serbia includes Kosovo and Montenegro.

1990 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

N_2O						HFCs	PFCs	SF_6	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP *	
105.6	**62.2**	**1 299.4**	**400.4**	**1 867.6**	**5.7%**	**15.9**	**46.5**	**29.8**	**22 354.1**	**49.9%**	**1.83**	**Non-OECD Total**
0.0	-	1.1	0.2	1.3	3.0%	-	-	-	11.1	64.3%	0.86	Albania
0.0	-	0.6	0.2	0.8	4.6%	-	-	-	25.2	86.5%	2.42	Armenia
0.1	-	2.1	0.4	2.7	3.3%	-	0.2	-	80.1	88.4%	2.35	Azerbaijan
0.9	2.1	12.5	0.9	16.4	5.2%	-	0.0	-	205.4	61.6%	3.13	Belarus
0.9	-	0.9	0.2	2.0	43.8%	-	0.6	-	31.5	86.7%	6.23	Bosnia-Herzegovina
0.6	2.3	5.7	0.8	9.4	6.6%	-	0.0	-	105.4	73.9%	1.60	Bulgaria
0.4	0.9	2.2	0.3	3.8	9.7%	-	0.9	-	32.1	74.0%	0.50	Croatia
0.0	-	0.2	0.0	0.2	6.6%	-	-	-	5.0	77.1%	0.48	Cyprus
0.1	0.8	1.6	0.3	2.8	3.4%	-	-	-	41.8	84.0%	1.42	Georgia
0.0	-	-	0.0	0.0	21.3%	-	-	-	0.2	95.5%	0.31	Gibraltar
3.6	-	18.3	11.6	33.5	10.7%	-	-	-	368.2	76.0%	3.18	Kazakhstan
..	..	..	..	..	..	..	..	..	..	..	..	Kosovo
0.8	-	2.2	0.6	3.6	21.4%	-	-	-	33.2	72.0%	3.00	Kyrgyzstan
0.2	-	2.5	0.3	3.0	7.3%	0.0	0.0	-	33.3	61.7%	1.24	Latvia
0.3	0.8	3.9	0.4	5.3	5.6%	0.0	0.0	-	53.9	65.0%	1.16	Lithuania
0.1	-	0.6	0.1	0.9	14.6%	-	-	-	11.4	78.3%	0.70	FYR of Macedonia
0.0	-	0.0	0.0	0.1	12.0%	-	-	-	2.6	90.0%	0.53	Malta
0.1	-	1.4	0.3	1.7	4.9%	-	-	-	37.5	84.6%	2.21	Republic of Moldova
..	..	..	..	..	..	..	..	..	..	..	..	Montenegro
0.9	4.1	13.4	1.5	19.8	4.3%	-	2.0	0.0	237.6	78.5%	1.30	Romania
15.0	15.2	84.9	35.9	150.9	9.9%	5.0	15.9	4.9	3 516.6	76.8%	1.88	Russian Federation
0.4	0.7	3.3	0.6	4.9	8.8%	0.0	0.8	-	82.1	81.1%	0.79	Serbia
0.0	-	1.2	0.2	1.4	2.3%	-	2.8	-	20.0	58.6%	1.27	Tajikistan
0.1	0.1	1.8	0.2	2.2	3.5%	-	-	-	79.9	91.6%	5.81	Turkmenistan
3.6	13.0	32.6	4.7	53.9	6.7%	0.0	0.2	-	943.4	83.1%	2.25	Ukraine
0.2	0.2	7.8	1.0	9.2	2.0%	-	-	-	169.0	82.2%	4.12	Uzbekistan
28.3	**40.1**	**200.7**	**60.7**	**329.8**	**8.6%**	**5.0**	**23.4**	**4.9**	**6 126.5**	**77.7%**	**1.92**	**Non-OECD Europe and Eurasia**
0.3	0.4	2.5	0.7	3.9	7.9%	-	-	0.3	103.5	86.5%	0.66	Algeria
0.1	-	15.7	2.0	17.7	0.7%	-	-	-	58.2	30.6%	1.71	Angola
0.1	-	1.8	1.8	3.7	2.5%	-	-	-	47.2	2.2%	8.85	Benin
0.0	-	4.9	0.5	5.4	0.6%	-	-	-	14.8	22.5%	1.54	Botswana
0.2	-	7.0	3.3	10.5	1.5%	-	0.9	-	97.4	10.1%	3.84	Cameroon
0.0	-	2.1	2.3	4.4	0.9%	-	-	-	63.5	6.3%	7.47	Congo
0.7	-	31.4	55.1	87.2	0.8%	-	-	-	1 376.9	0.5%	59.94	Dem. Rep. of Congo
0.2	-	1.7	5.8	7.6	2.3%	-	-	-	152.2	2.9%	6.36	Côte d'Ivoire
0.5	1.4	8.4	1.6	11.9	4.2%	-	1.3	0.8	130.9	71.1%	0.71	Egypt
0.0	-	1.0	0.0	1.0	3.0%	-	-	-	3.1	10.9%	..	Eritrea
0.7	-	23.1	1.5	25.3	2.6%	-	-	-	68.0	9.0%	2.58	Ethiopia
0.0	-	0.1	0.2	0.3	8.7%	-	-	-	12.3	59.9%	0.88	Gabon
0.3	-	3.8	1.1	5.1	5.0%	-	0.6	-	29.4	16.2%	2.19	Ghana
0.4	-	8.5	0.4	9.3	4.5%	-	-	-	38.1	28.3%	1.14	Kenya
0.1	-	0.8	0.3	1.2	11.6%	-	-	0.3	61.3	92.1%	0.94	Libya
0.2	-	4.4	0.6	5.2	3.5%	-	-	-	36.8	56.5%	0.55	Morocco
0.3	-	8.5	1.8	10.6	2.4%	-	-	-	40.9	7.5%	7.56	Mozambique
0.1	-	2.4	0.1	2.5	2.1%	-	-	-	6.1	2.2%	..	Namibia
1.2	-	15.5	2.3	19.0	6.1%	-	-	0.2	163.0	63.0%	1.18	Nigeria
0.1	-	2.6	0.3	2.9	3.5%	-	-	-	11.0	29.2%	1.03	Senegal
2.0	1.0	13.5	5.1	21.5	9.2%	0.0	0.4	1.1	352.0	83.4%	1.25	South Africa
0.4	-	32.7	2.9	36.0	1.1%	-	-	-	92.8	11.9%	3.40	Sudan
0.4	-	17.3	3.5	21.1	1.7%	-	-	-	95.0	4.7%	4.46	United Rep. of Tanzania
0.1	-	1.6	0.5	2.2	3.8%	-	-	-	13.4	10.6%	3.99	Togo
0.1	0.4	1.2	0.2	2.0	7.0%	-	-	-	20.8	64.9%	0.57	Tunisia
0.2	0.5	25.8	8.6	35.0	0.5%	-	-	-	209.7	2.1%	21.37	Zambia
0.2	-	6.0	0.5	6.8	3.6%	-	-	-	34.3	50.7%	7.08	Zimbabwe
1.9	-	86.3	19.0	107.2	1.8%	-	-	-	534.6	5.9%	4.97	Other Africa
10.7	**3.7**	**330.3**	**122.0**	**466.7**	**2.3%**	**0.0**	**3.2**	**2.7**	**3 867.0**	**21.3%**	**2.89**	**Africa**

* 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 CO_2 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	13.6	-	0.2	10.4	24.1	56.2%	5.8	69.4	11.6	0.4	87.1	6.6%
Brunei Darussalam	3.4	0.0	0.0	10.7	14.2	23.9%	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%
Chinese Taipei	114.4	1.2	8.8	0.8	125.2	92.3%	1.0	1.4	3.9	0.0	6.3	16.2%
India	582.3	14.0	23.5	52.0	671.8	88.8%	67.2	366.9	77.0	2.5	513.6	13.1%
Indonesia	146.1	10.2	7.8	694.2	858.3	18.2%	37.4	82.0	26.2	6.6	152.2	24.6%
DPR of Korea	114.0	2.0	8.1	3.1	127.2	91.2%	12.4	5.6	2.7	1.0	21.6	57.1%
Malaysia	49.6	1.5	2.8	106.7	160.6	31.9%	9.1	6.9	3.0	4.6	23.6	38.4%
Mongolia	12.7	-	0.3	30.5	43.5	29.1%	0.6	6.4	0.2	1.1	8.3	7.7%
Myanmar	4.1	0.0	0.2	742.9	747.1	0.5%	3.1	39.0	4.5	37.4	84.0	3.7%
Nepal	0.9	-	0.1	0.2	1.2	75.1%	1.3	17.3	1.7	0.0	20.3	6.4%
Pakistan	58.6	0.6	3.6	0.4	63.2	93.7%	15.4	64.6	10.8	0.0	90.8	16.9%
Philippines	38.2	0.0	3.0	5.1	46.3	82.5%	3.7	28.6	9.0	0.2	41.6	8.9%
Singapore	29.4	0.2	0.9	0.3	30.8	96.1%	0.4	0.1	0.5	0.0	1.0	41.2%
Sri Lanka	3.7	-	0.3	1.0	5.0	74.3%	0.6	8.6	2.3	0.0	11.5	5.1%
Thailand	80.5	0.0	8.7	13.2	102.4	78.6%	14.5	61.3	8.6	0.5	85.0	17.1%
Vietnam	17.2	1.1	1.7	6.1	26.1	70.1%	6.6	46.8	7.0	0.0	60.5	10.9%
Other Asia	10.2	0.0	0.2	40.3	50.8	20.2%	2.3	15.9	3.3	1.6	23.1	9.9%
Asia	**1 278.8**	**30.9**	**70.3**	**1 718.0**	**3 098.0**	**42.3%**	**185.4**	**833.9**	**173.3**	**56.6**	**1 249.1**	**14.8%**
People's Rep. of China	2 211.3	26.4	170.2	83.4	2 491.3	89.8%	353.5	523.3	135.7	4.4	1 016.9	34.8%
Hong Kong, China	32.8	0.7	0.9	0.1	34.4	97.4%	0.1	-	1.4	-	1.5	6.0%
China	**2 244.1**	**27.1**	**171.1**	**83.5**	**2 525.7**	**89.9%**	**353.6**	**523.3**	**137.2**	**4.4**	**1 018.5**	**34.7%**
Argentina	99.9	3.2	1.8	17.3	122.2	84.3%	13.6	78.2	7.1	3.0	102.0	13.4%
Bolivia	5.1	0.8	0.2	149.1	155.3	3.8%	2.8	11.4	0.9	7.3	22.4	12.4%
Brazil	194.3	5.8	17.1	905.2	1 122.3	17.8%	25.0	209.5	41.4	43.7	319.6	7.8%
Colombia	45.0	1.4	3.9	52.0	102.3	45.4%	6.9	36.1	4.7	2.5	50.2	13.7%
Costa Rica	2.6	-	0.2	0.1	2.9	88.8%	0.2	3.2	0.4	-	3.8	4.5%
Cuba	33.8	0.9	1.8	4.5	41.0	84.7%	1.3	8.2	2.6	0.1	12.1	10.4%
Dominican Republic	7.7	-	0.5	0.6	8.8	87.4%	0.5	4.2	1.2	0.0	6.0	8.2%
Ecuador	13.2	1.7	0.8	1.0	16.7	89.3%	2.4	7.3	1.3	0.0	11.0	22.0%
El Salvador	2.2	-	0.3	0.3	2.8	80.2%	0.3	1.6	0.7	-	2.7	12.2%
Guatemala	3.2	0.0	0.5	3.8	7.5	42.8%	0.8	2.9	1.0	0.2	4.8	16.1%
Haiti	0.9	-	0.2	0.0	1.1	82.1%	0.7	1.7	0.9	-	3.3	22.2%
Honduras	2.2	-	0.1	5.0	7.3	29.5%	0.3	2.9	0.5	0.2	4.0	8.8%
Jamaica	7.2	-	0.3	0.1	7.5	95.4%	0.2	0.6	0.4	-	1.2	18.8%
Netherlands Antilles	2.7	-	-	0.0	2.8	98.3%	0.1	0.0	0.0	-	0.1	56.6%
Nicaragua	1.8	-	0.1	0.4	2.3	79.5%	0.3	3.8	0.7	-	4.8	5.9%
Panama	2.6	-	0.1	0.4	3.1	82.1%	0.1	2.3	0.4	-	2.8	4.7%
Paraguay	1.9	-	0.2	37.2	39.3	4.9%	0.8	12.0	0.7	2.0	15.5	5.3%
Peru	19.2	0.4	1.0	19.4	40.1	49.0%	1.7	7.9	3.0	0.9	13.6	12.4%
Trinidad and Tobago	11.4	0.5	0.2	0.0	12.2	97.8%	2.4	0.1	0.6	0.0	3.0	77.9%
Uruguay	3.7	0.0	0.2	0.4	4.4	85.2%	0.1	15.0	0.7	-	15.8	0.7%
Venezuela	105.1	1.9	2.8	39.8	149.6	71.5%	18.8	19.4	4.0	1.8	43.9	42.7%
Other Non-OECD Americas	12.4	0.0	1.0	22.1	35.5	35.0%	0.2	2.6	1.8	0.8	5.4	4.0%
Non-OECD Americas	**578.1**	**16.7**	**33.4**	**1 259.0**	**1 887.2**	**31.5%**	**79.5**	**430.9**	**75.0**	**62.6**	**648.0**	**12.3%**
Bahrain	11.7	0.0	0.1	0.1	11.9	98.6%	1.6	0.0	0.1	0.0	1.8	90.0%
Islamic Rep. of Iran	178.7	22.3	7.4	0.7	209.1	96.1%	31.1	17.7	7.9	0.0	56.7	54.8%
Iraq	53.4	13.1	6.1	3.1	75.7	87.8%	15.2	3.3	2.9	0.0	21.4	71.0%
Jordan	9.2	-	0.8	0.0	10.1	91.7%	0.1	0.3	0.4	-	0.9	13.7%
Kuwait	28.7	2.5	0.4	0.0	31.7	98.6%	4.7	0.1	0.6	0.0	5.3	88.4%
Lebanon	5.5	-	0.4	0.0	5.9	92.5%	0.1	0.2	0.4	-	0.7	11.7%
Oman	10.2	4.8	0.0	14.0	29.0	51.7%	5.6	0.3	0.2	-	6.2	91.0%
Qatar	14.1	2.0	0.1	0.0	16.2	98.9%	4.1	0.1	0.2	0.0	4.4	93.0%
Saudi Arabia	159.1	3.9	5.7	0.2	168.9	96.5%	24.7	1.8	3.0	0.1	29.7	83.3%
Syrian Arab Republic	28.2	4.1	1.4	0.1	33.8	95.5%	4.5	2.6	1.3	0.0	8.4	53.4%
United Arab Emirates	51.9	4.7	1.5	0.1	58.1	97.3%	12.7	0.3	0.4	-	13.4	95.0%
Yemen	6.4	0.0	0.5	0.0	7.0	92.4%	0.7	2.2	1.0	-	3.9	17.0%
Middle East	**557.1**	**57.4**	**24.5**	**18.4**	**657.4**	**93.5%**	**105.0**	**28.8**	**18.7**	**0.1**	**152.6**	**68.8%**

1990 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

N_2O						HFCs	PFCs	SF_6	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP *	
1.3	-	12.2	1.7	15.2	8.4%	-	-	-	126.4	16.3%	1.61	Bangladesh
0.0	-	0.1	0.5	0.6	1.0%	-	-	-	18.3	34.9%	1.44	Brunei Darussalam
0.2	-	3.3	0.4	3.9	5.4%	-	-	-	19.0	6.6%	..	Cambodia
0.4	0.5	2.4	0.7	4.0	10.3%	0.0	0.1	1.9	137.6	85.0%	0.50	Chinese Taipei
18.4	1.1	121.1	18.7	159.5	11.6%	1.7	2.1	5.8	1 354.5	50.3%	1.28	India
3.7	0.1	54.9	30.2	88.9	4.2%	-	0.7	1.1	1 101.2	17.9%	2.97	Indonesia
0.6	-	5.6	2.6	8.7	6.9%	0.0	-	-	157.6	81.9%	1.03	DPR of Korea
0.3	-	8.2	5.1	13.6	1.9%	0.0	0.0	0.6	198.4	30.5%	1.65	Malaysia
0.1	-	3.3	1.8	5.2	1.8%	-	-	-	56.9	23.5%	10.66	Mongolia
0.4	-	8.4	35.4	44.2	0.9%	-	-	-	875.3	0.9%	6.50	Myanmar
0.5	-	2.8	0.3	3.6	13.7%	-	-	-	25.1	10.7%	1.85	Nepal
2.1	0.6	13.7	2.0	18.4	11.6%	-	-	1.0	173.5	44.2%	0.96	Pakistan
1.0	-	7.1	1.6	9.7	9.9%	-	-	0.2	97.7	43.9%	0.62	Philippines
0.1	-	0.1	0.3	0.4	16.8%	0.0	0.1	0.4	32.7	92.0%	0.43	Singapore
0.2	-	1.2	0.3	1.8	14.0%	-	-	-	18.3	25.0%	0.53	Sri Lanka
2.8	-	14.4	2.3	19.5	14.6%	-	-	1.4	208.2	47.0%	0.93	Thailand
0.9	-	9.5	1.2	11.6	7.4%	-	-	-	98.2	26.2%	1.64	Vietnam
0.4	-	10.3	2.3	13.0	3.2%	-	-	-	86.9	14.9%	2.01	Other Asia
33.4	**2.4**	**278.5**	**107.3**	**421.6**	**7.9%**	**1.7**	**3.0**	**12.3**	**4 785.8**	**31.9%**	**1.60**	**Asia**
21.3	10.1	253.4	33.6	318.4	6.7%	6.0	4.7	1.7	3 839.0	68.1%	3.07	People's Rep. of China
0.1	-	-	0.2	0.4	37.2%	-	-	0.4	36.7	91.9%	0.27	Hong Kong, China
21.4	**10.1**	**253.4**	**33.9**	**318.8**	**6.7%**	**6.0**	**4.7**	**2.1**	**3 875.7**	**68.3%**	**2.80**	**China**
0.9	0.1	32.4	5.1	38.5	2.4%	0.2	1.9	0.1	265.0	44.4%	1.09	Argentina
0.1	-	7.5	7.0	14.6	0.6%	-	-	-	192.3	4.6%	9.40	Bolivia
4.1	4.1	102.5	45.0	155.8	2.7%	1.9	5.0	1.5	1 606.1	14.3%	1.50	Brazil
0.6	0.2	16.3	3.1	20.2	3.1%	-	0.0	0.0	172.8	31.2%	0.85	Colombia
0.1	0.1	1.5	0.1	1.8	2.8%	-	-	-	8.5	33.1%	0.44	Costa Rica
0.8	0.7	7.3	0.9	9.6	8.1%	-	-	-	62.7	58.7%	1.43	Cuba
0.1	-	1.7	0.3	2.1	4.8%	-	-	-	16.9	48.9%	0.61	Dominican Republic
0.2	-	2.7	0.3	3.2	4.9%	-	-	-	30.9	56.6%	0.56	Ecuador
0.1	-	1.1	0.2	1.3	6.1%	-	-	-	6.8	39.0%	0.35	El Salvador
0.2	-	1.9	0.4	2.5	7.2%	0.0	-	-	14.8	28.1%	0.50	Guatemala
0.1	-	0.8	0.1	0.9	6.2%	-	-	-	5.4	32.3%	0.54	Haiti
0.1	-	2.0	0.4	2.4	3.6%	-	-	-	13.7	18.9%	1.05	Honduras
0.1	-	0.3	0.1	0.5	12.8%	-	-	-	9.2	80.9%	0.65	Jamaica
0.0	-	0.0	0.1	0.1	9.9%	-	-	-	3.0	93.9%	1.95	Netherlands Antilles
0.1	-	2.8	0.2	3.1	2.4%	-	-	-	10.2	21.5%	1.31	Nicaragua
0.0	-	0.9	0.1	1.0	3.5%	-	-	-	6.9	39.4%	0.47	Panama
0.1	-	6.6	2.3	9.0	1.6%	-	-	-	63.8	4.5%	3.75	Paraguay
0.2	0.2	3.9	1.2	5.6	4.1%	-	-	-	59.2	36.4%	0.61	Peru
0.0	-	0.1	0.1	0.2	10.9%	-	-	-	15.4	92.6%	1.17	Trinidad and Tobago
0.1	-	5.9	0.1	6.1	1.5%	-	-	-	26.2	15.2%	1.16	Uruguay
0.4	0.0	9.2	2.5	12.0	3.0%	1.0	1.9	0.3	208.8	60.4%	1.10	Venezuela
0.1	-	2.5	1.0	3.6	2.6%	-	0.3	0.0	44.8	28.5%	1.67	Other Non-OECD Americas
8.4	**5.4**	**209.9**	**70.4**	**294.0**	**2.8%**	**3.1**	**9.1**	**2.0**	**2 843.5**	**24.0%**	**1.32**	**Non-OECD Americas**
0.0	-	0.0	0.0	0.1	19.5%	-	2.5	-	16.3	81.9%	1.85	Bahrain
2.0	0.3	14.5	2.1	18.8	10.5%	-	0.2	2.4	287.2	81.5%	0.84	Islamic Rep. of Iran
0.2	-	3.0	0.5	3.8	6.4%	-	-	0.3	101.2	81.0%	0.71	Iraq
0.0	-	0.3	0.1	0.5	6.7%	-	-	-	11.4	82.3%	1.09	Jordan
0.1	-	0.0	0.2	0.3	25.3%	0.0	-	0.3	37.5	95.9%	0.75	Kuwait
0.0	-	0.2	0.1	0.4	8.8%	-	-	-	7.0	80.0%	0.41	Lebanon
0.0	-	0.2	0.1	0.3	14.6%	-	-	-	35.5	58.1%	1.30	Oman
0.0	-	0.0	0.1	0.1	20.9%	-	-	-	20.7	97.1%	1.06	Qatar
0.6	-	3.1	1.8	5.5	10.0%	0.0	-	2.4	206.6	91.1%	0.66	Saudi Arabia
0.2	0.2	3.2	0.5	4.1	5.1%	-	-	-	46.3	79.9%	1.26	Syrian Arab Republic
0.1	-	0.2	0.4	0.7	18.5%	-	0.4	0.5	73.1	95.0%	0.55	United Arab Emirates
0.1	-	1.8	0.2	2.1	2.8%	-	-	-	13.0	55.3%	0.59	Yemen
3.4	**0.5**	**26.6**	**6.1**	**36.7**	**9.2%**	**0.0**	**3.1**	**5.8**	**855.7**	**84.5%**	**0.76**	**Middle East**

* 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 CO_2 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 *	**23 509.1**	**427.2**	**1 003.2**	**5 300.8**	**30 240.4**	**79.2%**	**2 137.7**	**3 007.8**	**1 144.1**	**176.0**	**6 465.6**	**33.1%**
Annex I Parties	*13 762.0*	*169.0*	*379.2*	*836.5*	*15 146.8*	*92.0%*	*913.4*	*685.9*	*456.9*	*37.0*	*2 093.2*	*43.6%*
Annex II Parties	*11 006.1*	*59.7*	*273.0*	*351.5*	*11 690.2*	*94.7%*	*432.8*	*536.1*	*334.4*	*15.1*	*1 318.5*	*32.8%*
North America	*6 231.4*	*26.6*	*81.6*	*106.4*	*6 446.1*	*97.1%*	*279.1*	*208.5*	*160.0*	*6.5*	*654.1*	*42.7%*
Europe	*3 220.9*	*25.4*	*125.6*	*168.0*	*3 539.9*	*91.7%*	*116.8*	*193.7*	*150.3*	*1.8*	*462.6*	*25.2%*
Asia Oceania	*1 553.7*	*7.6*	*65.8*	*77.1*	*1 704.2*	*91.6%*	*36.9*	*133.9*	*24.1*	*6.8*	*201.8*	*18.3%*
Annex I EIT	*2 553.2*	*106.8*	*89.1*	*483.9*	*3 233.1*	*82.3%*	*471.2*	*127.3*	*97.8*	*21.9*	*718.2*	*65.6%*
Non-Annex I Parties	*8 908.3*	*258.2*	*624.0*	*4 464.3*	*14 254.7*	*64.3%*	*1 223.3*	*2 321.9*	*687.2*	*139.0*	*4 371.4*	*28.0%*
Annex I Kyoto Parties	*7 802.5*	*143.9*	*289.5*	*712.2*	*8 948.1*	*88.8%*	*670.7*	*469.9*	*296.5*	*32.5*	*1 469.6*	*45.6%*
Int. marine bunkers	**488.8**	**-**	**-**	**-**	**488.8**	**100.0%**	**0.9**	**-**	**-**	**-**	**0.9**	**100%**
Int. aviation bunkers	**350.1**	**-**	**-**	**-**	**350.1**	**100.0%**	**0.1**	**-**	**-**	**-**	**0.1**	**100%**
Non-OECD Total	**10 035.8**	**351.5**	**644.5**	**4 863.9**	**15 895.7**	**65.3%**	**1 595.4**	**2 349.8**	**728.8**	**159.3**	**4 833.2**	**33.0%**
OECD Total	**12 634.4**	**75.7**	**358.7**	**436.9**	**13 505.8**	**94.1%**	**541.3**	**658.0**	**415.3**	**16.7**	**1 631.4**	**33.2%**
Canada	533.3	4.0	10.4	26.3	574.1	93.6%	46.8	23.3	28.3	2.0	100.4	46.6%
Chile	52.5	1.0	2.2	0.3	56.1	95.5%	4.3	6.9	5.6	0.1	16.9	25.1%
Mexico	349.3	5.4	18.6	42.7	416.2	85.2%	29.3	53.5	18.7	1.2	102.7	28.5%
United States	5 698.1	22.6	71.2	80.1	5 872.0	97.4%	232.4	185.2	131.7	4.4	553.7	42.0%
OECD Americas	**6 633.3**	**33.1**	**102.5**	**149.5**	**6 918.3**	**96.4%**	**312.7**	**268.9**	**184.4**	**7.8**	**773.8**	**40.4%**
Australia	338.8	3.2	6.2	42.5	390.7	87.5%	31.4	78.5	11.5	6.4	127.7	24.6%
Israel	55.2	-	3.2	0.2	58.7	94.1%	0.1	1.0	1.5	0.0	2.7	5.0%
Japan	1 184.0	4.4	59.1	29.7	1 277.2	93.0%	4.5	31.8	10.8	0.4	47.5	9.4%
Korea	437.7	1.9	25.5	0.5	465.6	94.4%	5.9	12.5	12.4	0.1	30.9	19.1%
New Zealand	30.9	0.0	0.5	4.9	36.3	85.1%	1.1	23.5	1.9	0.1	26.6	4.0%
OECD Asia Oceania	**2 046.6**	**9.6**	**94.6**	**77.8**	**2 228.5**	**92.3%**	**43.0**	**147.5**	**38.0**	**6.9**	**235.4**	**18.3%**
Austria	61.7	0.4	3.7	0.5	66.2	93.7%	1.9	4.4	2.6	0.0	9.0	21.7%
Belgium	118.6	0.2	5.2	0.6	124.6	95.3%	1.6	6.5	2.9	0.0	11.0	14.7%
Czech Republic	121.9	4.0	4.1	1.2	131.1	96.0%	5.7	4.3	2.9	0.1	12.9	43.8%
Denmark	50.6	0.4	1.6	3.3	56.0	91.3%	1.1	5.4	1.7	-	8.1	13.0%
Estonia	14.6	-	0.4	11.4	26.5	55.3%	0.8	0.6	0.7	-	2.1	38.3%
Finland	55.1	0.5	1.1	52.2	108.8	51.0%	0.8	2.1	7.4	0.0	10.3	7.4%
France	376.9	1.7	20.6	7.6	406.7	93.1%	34.2	38.3	13.0	0.1	85.6	39.9%
Germany	825.0	5.1	23.1	36.6	889.9	93.3%	21.2	31.8	23.0	0.2	76.1	27.8%
Greece	87.4	0.0	7.1	0.5	95.0	92.0%	1.9	3.7	2.5	0.1	8.1	23.3%
Hungary	54.2	0.5	1.9	1.0	57.6	94.9%	2.4	3.0	2.8	0.0	8.2	28.9%
Iceland	2.1	-	0.1	17.6	19.8	10.8%	0.0	0.2	0.1	0.0	0.3	1.7%
Ireland	40.9	-	1.7	9.5	52.1	78.4%	1.3	11.8	1.8	0.0	14.9	8.6%
Italy	426.0	4.2	22.1	2.4	454.7	94.6%	7.5	18.3	20.7	0.2	46.7	16.1%
Luxembourg	8.1	-	0.6	0.0	8.7	92.6%	0.1	0.8	0.1	0.0	1.0	10.2%
Netherlands	172.1	0.6	1.3	7.4	181.4	95.2%	4.9	10.1	9.1	0.1	24.3	20.2%
Norway	33.5	1.7	1.0	0.9	37.1	95.0%	11.6	2.2	3.3	0.1	17.2	67.4%
Poland	290.9	0.2	9.0	26.3	326.4	89.2%	48.7	14.7	9.3	0.1	72.8	66.9%
Portugal	59.4	0.2	4.2	0.3	64.1	93.0%	0.9	4.4	6.6	0.5	12.3	7.4%
Slovak Republic	37.4	0.4	2.1	0.4	40.3	93.8%	0.9	1.8	1.7	0.0	4.4	21.1%
Slovenia	14.1	-	1.5	0.3	15.8	89.1%	1.1	1.1	0.7	0.0	2.9	37.3%
Spain	283.9	2.1	18.2	1.6	305.8	93.5%	4.3	20.0	10.4	0.5	35.1	12.2%
Sweden	52.8	1.5	2.0	14.7	70.9	76.5%	1.2	3.3	6.9	0.0	11.5	10.6%
Switzerland	42.5	0.0	1.7	0.5	44.8	94.9%	0.9	3.2	1.0	0.0	5.1	17.8%
Turkey	200.6	2.5	17.1	1.2	221.4	91.7%	9.3	22.4	24.5	0.0	56.3	16.6%
United Kingdom	524.3	6.8	10.3	11.8	553.2	96.0%	21.5	27.2	37.2	0.1	85.9	25.0%
OECD Europe	**3 954.6**	**33.1**	**161.7**	**209.7**	**4 359.0**	**91.5%**	**185.7**	**241.7**	**192.9**	**2.0**	**622.2**	**29.8%**
European Union - 27	*3 830.6*	*30.8*	*150.5*	*202.0*	*4 213.8*	*91.6%*	*180.6*	*227.4*	*180.5*	*2.4*	*590.9*	*30.6%*

* Total World includes Non-OECD total, OECD total as well as international bunkers.

Sources: IEA, Sectoral Approach for CO_2 emissions from fuel combustion. EDGAR 4.2 FT2010 database for other emissions. In general, estimates for emissions other than CO_2 from fuel combustion are subject to significantly larger uncertainties.

2000 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

N_2O						HFCs	PFCs	SF_6	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP *	
295.1	**183.1**	**1 802.2**	**495.3**	**2 775.8**	**10.6%**	**293.1**	**100.7**	**117.1**	**39 992.6**	**65.9%**	**0.83**	**World**
156.8	*131.5*	*541.5*	*166.6*	*996.4*	*15.7%*	*227.7*	*73.8*	*84.6*	*18 622.4*	*80.6%*	*0.60*	*Annex I Parties*
132.8	*91.6*	*424.4*	*112.4*	*761.3*	*17.4%*	*207.4*	*46.2*	*74.2*	*14 097.8*	*82.5%*	*0.51*	*Annex II Parties*
91.4	*31.3*	*191.5*	*53.4*	*367.6*	*24.9%*	*118.9*	*21.8*	*50.9*	*7 659.4*	*86.5%*	*0.63*	*North America*
27.9	*54.2*	*156.8*	*35.7*	*274.7*	*10.2%*	*51.5*	*13.8*	*15.6*	*4 358.0*	*77.8%*	*0.39*	*Europe*
13.6	*6.2*	*76.0*	*23.3*	*119.1*	*11.4%*	*37.0*	*10.6*	*7.7*	*2 080.3*	*77.5%*	*0.48*	*Asia Oceania*
20.0	*35.6*	*95.5*	*50.9*	*201.9*	*9.9%*	*19.3*	*27.0*	*9.4*	*4 208.9*	*74.9%*	*1.55*	*Annex I EIT*
112.6	*51.7*	*1 260.8*	*328.7*	*1 753.7*	*6.4%*	*65.4*	*26.9*	*32.5*	*20 504.7*	*51.2%*	*1.19*	*Non-Annex I Parties*
69.3	*98.0*	*342.8*	*115.6*	*625.7*	*11.1%*	*113.9*	*58.5*	*37.7*	*11 253.5*	*77.2%*	*0.59*	*Annex I Kyoto Parties*
20.3	**-**	**-**	**-**	**20.3**	**100%**	**-**	**-**	**-**	**510.0**	**100.0%**	**..**	**Int. marine bunkers**
5.4	**-**	**-**	**-**	**5.4**	**100%**	**-**	**-**	**-**	**355.5**	**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**	**22 720.5**	**53.3%**	**1.36**	**Non-OECD Total**
153.3	**113.4**	**516.2**	**132.0**	**914.9**	**16.8%**	**222.5**	**50.7**	**81.3**	**16 406.6**	**81.7%**	**0.52**	**OECD Total**
8.3	3.8	22.5	6.3	40.9	20.3%	6.2	7.1	4.9	733.6	80.7%	0.73	Canada
0.8	0.7	5.3	0.8	7.6	10.1%	-	0.0	0.0	80.6	72.6%	0.50	Chile
2.8	1.2	32.5	6.7	43.2	6.5%	3.3	0.6	0.8	566.8	68.3%	0.48	Mexico
83.1	27.5	169.0	47.1	326.7	25.4%	112.7	14.7	45.9	6 925.8	87.2%	0.62	United States
94.9	**33.3**	**229.3**	**60.9**	**418.4**	**22.7%**	**122.2**	**22.4**	**51.7**	**8 306.8**	**85.2%**	**0.62**	**OECD Americas**
4.0	1.7	56.6	13.3	75.6	5.3%	2.5	1.2	0.5	598.2	63.1%	0.98	Australia
0.3	0.2	0.9	0.6	1.9	13.6%	0.7	0.1	1.0	65.1	85.4%	0.45	Israel
9.2	4.4	8.7	9.7	32.0	28.7%	34.1	9.0	7.2	1 407.0	85.4%	0.39	Japan
3.1	6.8	4.7	3.3	18.0	17.2%	8.4	2.2	4.1	529.1	84.8%	0.60	Korea
0.4	-	10.8	0.3	11.5	3.4%	0.3	0.4	0.1	75.2	43.1%	0.87	New Zealand
16.9	**13.2**	**81.7**	**27.2**	**138.9**	**12.2%**	**46.1**	**12.8**	**12.7**	**2 674.5**	**79.1%**	**0.50**	**OECD Asia Oceania**
0.6	0.8	2.5	0.8	4.8	13.3%	1.0	0.1	0.3	81.4	79.4%	0.32	Austria
0.8	4.8	3.1	1.1	9.8	8.0%	1.0	0.0	0.1	146.7	82.6%	0.47	Belgium
5.0	1.2	3.2	1.0	10.5	47.7%	0.4	0.0	0.0	155.0	88.1%	0.87	Czech Republic
0.6	1.0	4.9	0.6	7.1	8.1%	0.7	0.0	0.1	71.9	73.3%	0.43	Denmark
0.2	-	0.6	0.1	0.8	20.0%	0.0	0.0	0.0	29.4	53.0%	1.87	Estonia
1.6	1.3	3.2	0.6	6.7	24.6%	0.4	0.0	0.1	126.4	45.9%	0.89	Finland
4.0	10.0	33.6	4.6	52.1	7.6%	9.4	1.1	2.4	557.3	74.8%	0.32	France
6.5	9.6	30.5	5.8	52.5	12.4%	11.3	1.7	5.6	1 037.0	82.7%	0.42	Germany
1.0	0.8	3.7	1.1	6.6	14.6%	2.4	0.3	0.1	112.5	80.2%	0.51	Greece
0.3	1.8	4.0	0.7	6.9	5.0%	0.4	0.3	0.0	73.5	78.1%	0.53	Hungary
0.0	-	0.3	0.0	0.4	9.8%	0.0	0.1	0.0	20.7	10.5%	2.46	Iceland
0.3	0.7	7.0	0.4	8.4	3.9%	0.4	0.4	0.1	76.3	55.6%	0.60	Ireland
2.8	8.1	14.1	5.6	30.6	9.2%	7.1	0.4	1.3	540.8	81.5%	0.34	Italy
0.1	-	0.3	0.1	0.4	19.1%	0.1	0.0	-	10.2	80.9%	0.38	Luxembourg
0.9	5.7	6.2	1.3	14.2	6.2%	6.2	1.0	0.3	227.3	78.5%	0.42	Netherlands
0.4	1.8	1.8	0.7	4.8	7.7%	0.2	4.6	1.0	64.8	72.9%	0.33	Norway
3.5	4.4	17.0	2.5	27.4	12.8%	0.7	0.5	0.2	427.9	80.2%	0.95	Poland
0.8	0.5	2.8	1.7	5.8	14.0%	0.4	0.0	0.1	82.7	74.2%	0.38	Portugal
0.5	1.1	1.2	0.3	3.1	15.8%	0.1	0.1	-	48.1	81.6%	0.70	Slovak Republic
0.2	-	0.8	0.2	1.2	14.3%	0.1	0.2	0.0	20.2	76.0%	0.51	Slovenia
2.6	2.5	17.4	4.9	27.4	9.4%	3.3	2.3	2.5	376.3	77.8%	0.37	Spain
1.1	0.7	3.8	0.8	6.5	17.7%	0.6	0.7	0.2	90.3	62.7%	0.35	Sweden
0.5	0.2	1.4	0.5	2.6	18.9%	0.8	0.1	0.3	53.7	81.8%	0.22	Switzerland
3.9	4.3	21.6	3.3	33.0	11.9%	1.0	0.6	1.0	313.2	69.1%	0.50	Turkey
3.3	5.6	20.2	5.0	34.1	9.6%	6.3	0.9	1.2	681.6	81.6%	0.40	United Kingdom
41.5	**67.0**	**205.2**	**43.9**	**357.5**	**11.6%**	**54.2**	**15.5**	**16.8**	**5 425.3**	**77.7%**	**0.43**	**OECD Europe**
38.0	*66.2*	*191.2*	*42.2*	*337.7*	*11.2%*	*52.9*	*10.8*	*14.6*	*5 220.7*	*78.2%*	*0.44*	*European Union - 27*

* GHG / GDP PPP ratio is expressed in kg of CO_2-equivalent per 2005 USD.

2000 Greenhouse-gas emissions

million tonnes of CO_2 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	**10 035.8**	**351.5**	**644.5**	**4 863.9**	**15 895.7**	**65.3%**	**1 595.4**	**2 349.8**	**728.8**	**159.3**	**4 833.2**	**33.0%**
Albania	3.1	0.0	0.0	0.6	3.8	82.5%	0.4	1.8	0.2	0.2	2.6	14.7%
Armenia	3.4	-	0.1	0.3	3.8	88.8%	1.3	0.9	0.4	0.0	2.6	50.9%
Azerbaijan	29.8	0.3	0.1	0.2	30.4	98.9%	4.3	4.1	1.5	0.0	10.0	43.5%
Belarus	58.7	0.0	1.4	43.0	103.1	56.9%	0.9	8.4	4.0	0.0	13.3	7.0%
Bosnia-Herzegovina	13.5	-	0.2	0.4	14.1	96.1%	0.9	1.0	0.3	0.5	2.7	35.3%
Bulgaria	42.1	0.9	2.7	0.3	46.0	93.3%	1.3	2.4	9.8	0.3	13.8	9.3%
Croatia	17.7	0.0	1.5	0.0	19.2	92.1%	1.9	1.1	0.9	0.0	3.9	47.2%
Cyprus	6.3	-	0.6	0.0	6.9	91.5%	0.0	0.3	0.3	-	0.6	3.8%
Georgia	4.6	0.0	0.2	0.3	5.1	90.9%	1.4	2.1	0.6	0.0	4.1	33.3%
Gibraltar	0.4	-	-	0.0	0.4	99.9%	0.0	-	0.0	-	0.0	11.9%
Kazakhstan	113.0	13.5	2.1	0.6	129.2	97.9%	23.3	9.4	3.8	2.1	38.6	60.3%
Kosovo *	5.0	..	..	..	..	..	..	..	..	..	..	..
Kyrgyzstan	4.5	0.0	0.2	0.5	5.2	85.9%	0.3	2.5	0.7	0.0	3.5	7.3%
Latvia	6.8	-	0.2	4.6	11.7	58.6%	1.4	0.8	0.6	0.0	2.8	49.1%
Lithuania	11.2	0.0	0.3	6.0	17.6	63.9%	1.8	1.9	1.3	0.0	5.0	36.3%
FYR of Macedonia	8.4	-	0.2	0.1	8.7	96.3%	0.5	0.7	0.3	0.0	1.5	30.5%
Malta	2.1	-	0.0	0.0	2.1	99.5%	0.0	0.1	0.2	-	0.2	1.0%
Republic of Moldova	5.7	-	0.1	0.1	5.9	95.7%	1.7	1.1	0.4	0.0	3.3	51.3%
Montenegro *	..	..	..	..	..	..	..	..	..	..	..	..
Romania	86.2	1.1	4.9	1.5	93.6	93.2%	12.2	8.4	4.4	0.1	25.1	48.6%
Russian Federation	1 505.5	68.0	43.6	380.0	1 997.1	78.8%	337.3	58.1	49.2	21.0	465.5	72.5%
Serbia *	42.5	0.0	1.2	0.7	44.4	95.8%	3.3	4.0	1.2	0.2	8.7	37.8%
Tajikistan	2.2	-	0.0	0.1	2.3	96.4%	0.5	2.1	0.7	0.0	3.3	13.7%
Turkmenistan	35.4	2.0	0.2	0.4	38.1	98.3%	16.3	4.2	0.8	0.0	21.2	76.6%
Ukraine	292.0	31.6	15.6	7.8	347.0	93.3%	54.8	20.8	9.5	0.2	85.2	64.3%
Uzbekistan	117.6	2.3	1.8	1.6	123.2	97.3%	22.8	11.0	3.2	0.0	37.1	61.6%
Non-OECD Europe and Eurasia	**2 417.5**	**119.7**	**77.3**	**449.2**	**3 063.7**	**82.8%**	**488.4**	**147.1**	**94.2**	**24.8**	**754.6**	**64.7%**
Algeria	63.5	14.9	3.7	0.2	82.3	95.3%	35.4	4.2	4.1	0.0	43.8	80.9%
Angola	5.1	10.5	0.2	6.2	22.0	70.9%	10.2	3.9	1.5	0.1	15.8	65.0%
Benin	1.4	-	0.1	25.2	26.7	5.3%	0.8	2.1	0.8	0.8	4.5	18.1%
Botswana	4.2	-	0.1	0.4	4.7	88.5%	0.5	3.2	0.2	0.0	3.9	11.5%
Cameroon	2.8	2.1	0.4	56.2	61.4	8.0%	2.5	8.6	2.2	2.6	15.8	15.6%
Congo	0.5	3.6	0.0	43.1	47.2	8.6%	3.9	1.6	0.5	2.1	8.0	48.7%
Dem. Rep. of Congo	1.7	0.0	0.1	912.7	914.4	0.2%	5.4	14.5	5.3	38.5	63.7	8.5%
Côte d'Ivoire	6.1	0.2	0.3	138.2	144.8	4.3%	2.6	2.2	2.1	7.3	14.2	18.6%
Egypt	101.3	3.4	11.2	1.1	117.0	89.5%	15.1	13.3	7.5	0.0	35.8	42.0%
Eritrea	0.6	-	0.0	0.0	0.7	91.3%	0.3	2.0	0.4	-	2.7	12.3%
Ethiopia	3.2	-	0.4	0.5	4.1	77.6%	7.1	33.3	5.8	-	46.2	15.4%
Gabon	1.4	4.5	0.1	2.2	8.2	71.5%	3.7	0.1	0.3	0.0	4.1	89.9%
Ghana	5.1	-	0.8	8.6	14.6	35.1%	2.8	4.0	2.5	0.3	9.6	28.9%
Kenya	6.8	-	0.7	3.2	10.6	63.7%	6.5	12.5	3.3	-	22.3	29.0%
Libya	39.7	8.0	1.5	0.1	49.3	96.7%	11.1	0.8	1.0	0.0	13.0	85.6%
Morocco	29.4	-	3.5	0.3	33.3	88.5%	0.4	5.4	3.8	-	9.6	4.2%
Mozambique	1.3	-	0.1	41.5	43.0	3.1%	2.1	6.1	1.9	2.9	13.0	15.9%
Namibia	1.8	-	0.0	0.0	1.8	97.6%	0.1	4.3	0.2	-	4.6	2.3%
Nigeria	42.0	48.0	1.1	9.0	100.2	89.9%	44.8	24.9	12.5	0.4	82.6	54.3%
Senegal	3.6	-	0.4	0.1	4.1	87.3%	1.1	4.7	1.3	-	7.1	15.4%
South Africa	296.7	12.8	4.9	2.6	317.0	97.6%	27.2	18.9	11.1	2.2	59.4	45.8%
Sudan	5.5	0.0	0.1	4.1	9.7	57.1%	6.7	53.4	4.3	-	64.4	10.3%
United Rep. of Tanzania	2.6	-	0.4	47.6	50.5	5.1%	3.7	19.4	3.5	2.5	29.1	12.8%
Togo	1.0	-	0.3	6.1	7.3	13.1%	1.3	1.3	0.6	0.3	3.4	38.8%
Tunisia	18.0	0.4	2.8	0.1	21.4	86.1%	3.4	2.1	1.4	0.0	6.9	49.0%
Zambia	1.7	-	0.3	110.8	112.8	1.5%	2.2	10.5	1.0	4.4	18.1	12.1%
Zimbabwe	12.7	0.3	0.4	0.9	14.4	90.3%	1.2	7.1	1.3	0.0	9.7	12.8%
Other Africa	19.2	2.1	0.7	235.2	257.3	8.3%	20.2	99.1	15.1	9.3	143.7	14.1%
Africa	**678.8**	**110.8**	**34.6**	**1 656.5**	**2 480.8**	**31.8%**	**222.3**	**363.4**	**95.7**	**73.6**	**755.1**	**29.4%**

* For 2000, Serbia includes Montenegro for all greenhouse gases and Kosovo for all emissions other than CO_2 from fuel combustion.

2000 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

N_2O						HFCs	PFCs	SF_6	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP *	
116.0	**69.7**	**1 286.1**	**363.4**	**1 835.2**	**6.3%**	**70.6**	**50.0**	**35.8**	**22 720.5**	**53.3%**	**1.36**	**Non-OECD Total**
0.1	-	0.7	0.5	1.3	5.6%	0.0	-	-	7.7	46.6%	0.52	Albania
0.0	-	0.4	0.1	0.5	1.1%	0.0	-	-	6.9	68.3%	0.98	Armenia
0.1	-	1.6	0.4	2.0	3.9%	0.0	0.0	-	42.4	81.3%	2.12	Azerbaijan
0.5	1.7	8.1	0.6	10.8	4.2%	0.1	0.0	-	127.4	47.2%	2.19	Belarus
0.2	-	0.7	0.9	1.7	9.7%	0.1	0.3	-	18.9	77.4%	1.02	Bosnia-Herzegovina
0.3	1.0	2.2	0.9	4.4	6.8%	0.1	0.0	-	64.4	69.2%	1.11	Bulgaria
0.2	0.9	1.5	0.3	2.9	7.6%	0.0	0.1	-	26.2	75.7%	0.48	Croatia
0.0	-	0.2	0.1	0.3	9.7%	0.1	-	-	7.8	81.4%	0.49	Cyprus
0.1	0.6	1.1	0.2	2.0	3.4%	0.0	-	-	11.2	54.0%	1.01	Georgia
0.0	-	-	0.0	0.0	28.9%	-	-	-	0.4	97.1%	0.51	Gibraltar
1.9	-	9.8	4.2	16.0	12.0%	0.1	-	-	183.8	82.5%	2.28	Kazakhstan
..	..	..	..	..	..	..	..	..	..	..	..	Kosovo
0.1	-	1.2	0.3	1.6	8.0%	0.0	-	-	10.2	47.2%	1.39	Kyrgyzstan
0.1	-	0.9	0.2	1.2	11.5%	0.2	0.0	-	15.9	52.7%	0.78	Latvia
0.1	1.3	2.0	0.2	3.7	3.0%	0.2	0.0	-	26.4	49.9%	0.79	Lithuania
0.1	-	0.4	0.2	0.7	8.5%	0.1	-	-	10.9	81.6%	0.73	FYR of Macedonia
0.0	-	0.0	0.0	0.1	10.3%	0.1	-	-	2.5	85.8%	0.31	Malta
0.0	-	0.6	0.2	0.8	5.2%	0.0	-	-	10.0	74.0%	1.65	Republic of Moldova
..	..	..	..	..	..	..	..	..	..	..	..	Montenegro
0.7	3.2	6.0	1.5	11.3	6.5%	0.1	0.7	0.0	130.9	76.6%	0.85	Romania
7.3	10.2	36.1	39.6	93.2	7.8%	16.8	24.9	9.0	2 606.5	73.6%	2.07	Russian Federation
0.4	0.5	2.5	0.7	4.2	10.7%	1.7	0.3	-	59.2	78.1%	1.11	Serbia
0.0	-	0.9	0.2	1.1	1.0%	0.0	0.8	-	7.4	35.4%	1.25	Tajikistan
0.1	0.5	2.1	0.2	2.9	2.1%	0.0	-	-	62.2	86.4%	5.95	Turkmenistan
1.1	8.8	12.0	2.7	24.6	4.5%	0.1	0.2	0.2	457.3	83.0%	2.52	Ukraine
0.6	0.1	7.5	1.0	9.2	6.7%	0.2	-	-	169.7	84.4%	4.22	Uzbekistan
14.1	**28.8**	**98.3**	**55.1**	**196.4**	**7.2%**	**19.8**	**27.4**	**9.2**	**4 071.1**	**74.7%**	**1.90**	**Non-OECD Europe and Eurasia**
0.4	0.6	2.7	0.8	4.5	8.3%	0.1	-	0.3	131.0	87.2%	0.71	Algeria
0.2	-	2.5	0.3	3.0	6.1%	0.0	-	-	40.7	63.9%	1.11	Angola
0.1	-	2.0	1.3	3.3	3.5%	-	-	-	34.6	6.8%	4.06	Benin
0.1	-	2.3	0.2	2.5	2.9%	-	-	-	11.2	42.1%	0.67	Botswana
0.2	-	7.5	3.0	10.7	2.1%	-	0.5	-	88.5	8.6%	3.05	Cameroon
0.1	-	1.4	1.9	3.4	1.8%	0.0	-	-	58.7	13.7%	6.00	Congo
1.1	-	16.6	40.7	58.5	2.0%	-	-	-	1 036.6	0.8%	80.27	Dem. Rep. of Congo
0.2	-	2.0	6.2	8.5	2.5%	-	-	-	167.5	5.5%	5.58	Côte d'Ivoire
0.6	3.3	12.2	2.1	18.2	3.4%	0.1	1.4	1.1	173.5	69.3%	0.62	Egypt
0.0	-	1.3	0.1	1.4	3.3%	-	-	-	4.7	20.8%	2.00	Eritrea
1.5	-	23.5	1.8	26.7	5.4%	0.0	-	-	77.0	15.3%	2.23	Ethiopia
0.0	-	0.1	0.1	0.3	18.0%	0.0	-	-	12.5	76.4%	0.77	Gabon
0.4	-	3.8	1.0	5.3	8.4%	0.0	0.1	-	29.6	28.2%	1.45	Ghana
0.6	-	8.1	0.6	9.2	6.0%	-	-	-	42.2	32.7%	1.05	Kenya
0.2	-	0.7	0.4	1.3	13.3%	-	-	0.2	63.8	92.5%	0.97	Libya
0.4	-	4.5	0.7	5.6	7.2%	-	-	-	48.5	62.4%	0.57	Morocco
0.3	-	6.6	2.7	9.6	3.2%	0.0	0.0	-	65.6	5.6%	7.12	Mozambique
0.1	-	3.2	0.2	3.5	2.4%	-	-	-	9.9	19.7%	1.16	Namibia
1.9	-	16.2	2.9	21.0	8.9%	0.1	-	0.2	204.0	67.0%	1.12	Nigeria
0.1	-	3.3	0.3	3.8	3.0%	-	-	-	15.0	32.0%	1.03	Senegal
2.6	1.5	13.7	5.4	23.2	11.1%	0.3	0.5	1.0	401.3	84.5%	1.19	South Africa
0.6	-	40.3	2.8	43.8	1.4%	-	-	-	118.0	10.9%	2.47	Sudan
0.5	-	14.9	3.2	18.6	2.7%	-	-	-	98.2	6.9%	3.42	United Rep. of Tanzania
0.1	-	1.3	0.4	1.8	5.9%	-	-	-	12.6	19.1%	3.01	Togo
0.2	0.4	1.5	0.3	2.4	8.4%	-	-	-	30.7	71.6%	0.53	Tunisia
0.2	0.5	15.2	5.8	21.7	1.0%	0.0	-	-	152.6	2.7%	14.54	Zambia
0.2	-	5.0	0.4	5.6	4.4%	-	-	-	29.6	48.8%	5.27	Zimbabwe
2.6	-	73.1	15.6	91.3	2.8%	0.0	-	-	492.3	9.0%	3.57	Other Africa
15.6	**6.2**	**285.6**	**101.3**	**408.8**	**3.8%**	**0.5**	**2.5**	**2.8**	**3 650.5**	**28.1%**	**2.13**	**Africa**

* 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 CO_2 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	25.3	-	1.6	7.5	34.5	73.5%	7.9	65.7	15.5	0.1	89.2	8.9%
Brunei Darussalam	4.6	0.3	0.1	7.5	12.5	39.4%	3.8	0.0	0.1	-	3.9	97.6%
Cambodia	2.0	-	-	3.2	5.2	38.0%	1.1	12.5	1.3	0.1	15.0	7.5%
Chinese Taipei	218.4	1.0	9.4	0.8	229.7	95.5%	1.3	1.1	5.3	0.0	7.7	16.6%
India	972.5	7.7	42.0	57.3	1 079.5	90.8%	82.1	376.0	101.1	2.4	561.6	14.6%
Indonesia	272.9	8.5	12.9	890.7	1 184.9	23.7%	45.6	78.9	39.9	3.4	167.8	27.2%
DPR of Korea	68.6	-	2.3	2.7	73.6	93.2%	10.2	3.9	3.1	0.1	17.3	58.7%
Malaysia	112.7	2.5	5.3	90.0	210.5	54.7%	17.8	5.6	4.8	1.0	29.2	60.8%
Mongolia	8.8	-	0.1	38.6	47.5	18.5%	0.3	8.5	0.3	0.2	9.2	2.9%
Myanmar	9.4	0.0	0.2	455.3	464.9	2.0%	6.2	44.3	5.7	10.9	66.9	9.2%
Nepal	3.1	-	0.1	0.1	3.4	91.2%	1.4	17.6	2.2	-	21.2	6.6%
Pakistan	97.3	2.0	4.7	0.4	104.3	95.2%	24.6	76.9	15.4	0.1	117.1	21.0%
Philippines	67.5	0.0	5.4	2.9	75.8	89.0%	6.1	31.5	12.2	0.0	49.9	12.3%
Singapore	47.7	0.2	0.6	0.4	48.8	98.1%	0.9	0.0	0.8	0.0	1.7	52.9%
Sri Lanka	10.6	-	0.5	0.6	11.7	91.2%	0.6	6.2	2.8	-	9.6	6.7%
Thailand	158.1	0.0	11.9	8.7	178.7	88.5%	16.4	54.5	12.5	0.1	83.4	19.6%
Vietnam	44.0	1.3	6.8	6.8	58.8	77.0%	14.4	51.4	9.6	0.0	75.4	19.1%
Other Asia	11.2	0.3	0.3	51.8	63.6	18.1%	2.4	16.0	4.0	0.9	23.3	10.3%
Asia	**2 134.8**	**23.8**	**104.0**	**1 625.3**	**3 887.9**	**55.5%**	**243.1**	**850.5**	**236.5**	**19.4**	**1 349.6**	**18.0%**
People's Rep. of China	3 037.3	14.9	352.4	100.5	3 505.1	87.1%	377.3	485.7	176.8	3.5	1 043.4	36.2%
Hong Kong, China	39.8	1.3	0.6	0.1	41.8	98.4%	0.8	-	1.9	-	2.7	28.9%
China	**3 077.2**	**16.2**	**353.0**	**100.5**	**3 546.9**	**87.2%**	**378.1**	**485.7**	**178.8**	**3.5**	**1 046.1**	**36.1%**
Argentina	139.0	1.9	4.2	9.2	154.3	91.3%	16.3	71.6	9.2	2.0	99.1	16.4%
Bolivia	7.1	0.7	0.4	131.2	139.4	5.6%	3.2	10.6	1.2	4.8	19.8	16.0%
Brazil	303.5	4.6	20.8	606.8	935.7	32.9%	27.7	245.5	53.8	16.0	343.0	8.1%
Colombia	58.7	1.4	5.1	41.4	106.6	56.4%	10.7	36.7	5.9	1.8	55.1	19.5%
Costa Rica	4.5	-	0.5	0.1	5.1	88.2%	0.2	2.2	0.5	-	2.9	6.9%
Cuba	27.1	1.3	0.7	3.5	32.6	86.9%	1.1	7.0	2.5	-	10.6	10.3%
Dominican Republic	17.4	-	1.3	0.4	19.1	91.4%	1.0	3.7	1.5	-	6.2	16.5%
Ecuador	18.2	2.2	1.1	0.9	22.4	91.0%	2.9	8.4	1.6	0.0	12.8	22.3%
El Salvador	5.2	-	0.4	0.2	5.9	88.7%	0.4	1.4	1.0	-	2.8	14.1%
Guatemala	8.5	0.0	0.8	108.5	117.7	7.2%	1.0	8.1	1.3	9.0	19.4	5.1%
Haiti	1.4	-	0.2	0.0	1.6	86.6%	0.7	2.3	1.2	-	4.1	17.5%
Honduras	4.4	-	0.4	3.3	8.2	54.0%	0.3	2.5	0.7	-	3.4	9.2%
Jamaica	9.7	-	0.4	0.1	10.2	95.0%	0.3	0.6	0.5	-	1.4	19.6%
Netherlands Antilles	4.1	-	-	0.0	4.1	98.9%	0.1	0.0	0.0	-	0.1	55.6%
Nicaragua	3.5	-	0.2	0.4	4.1	85.4%	0.4	4.2	1.0	-	5.6	6.5%
Panama	4.9	-	0.3	0.4	5.7	87.2%	0.2	2.1	0.5	-	2.8	5.8%
Paraguay	3.3	-	0.3	26.3	29.9	10.9%	0.7	12.4	1.0	1.1	15.2	4.8%
Peru	26.5	0.3	1.6	20.7	49.2	54.6%	1.5	10.1	3.7	1.0	16.3	9.3%
Trinidad and Tobago	21.1	0.2	0.4	0.0	21.6	98.2%	4.3	0.1	1.0	0.1	5.5	77.6%
Uruguay	5.3	0.0	0.3	0.4	6.0	87.8%	0.2	17.2	0.8	-	18.2	0.8%
Venezuela	126.7	6.7	3.9	38.6	175.9	75.9%	28.4	22.2	5.3	1.6	57.5	49.4%
Other Non-OECD Americas	15.1	-	0.9	16.8	32.8	46.1%	0.2	2.4	2.5	0.2	5.2	3.8%
Non-OECD Americas	**815.3**	**19.3**	**44.4**	**1 009.3**	**1 888.3**	**44.2%**	**101.6**	**471.3**	**96.6**	**37.5**	**707.1**	**14.4%**
Bahrain	14.1	0.0	0.0	0.1	14.3	98.8%	2.1	0.0	0.3	0.0	2.4	86.6%
Islamic Rep. of Iran	315.1	19.4	12.4	0.8	347.6	96.2%	48.6	19.8	11.3	0.0	79.7	61.0%
Iraq	70.3	12.6	0.9	3.3	87.1	95.2%	16.1	2.8	3.4	0.0	22.3	72.3%
Jordan	14.4	-	1.1	0.0	15.5	92.4%	0.2	0.4	0.8	-	1.4	16.5%
Kuwait	49.1	3.5	0.7	0.0	53.4	98.6%	9.4	0.1	0.7	0.0	10.2	91.9%
Lebanon	14.1	-	1.2	0.1	15.4	91.7%	0.1	0.2	0.6	-	0.9	12.1%
Oman	20.2	4.1	0.6	18.0	42.8	56.6%	9.4	0.5	0.4	-	10.3	90.9%
Qatar	23.7	6.0	0.5	0.0	30.1	98.3%	12.6	0.1	0.4	0.0	13.1	96.0%
Saudi Arabia	252.8	6.8	8.2	0.3	268.1	96.8%	34.8	1.9	4.9	0.2	41.8	83.2%
Syrian Arab Republic	39.8	5.4	2.1	0.2	47.5	95.2%	8.0	2.7	1.9	-	12.6	63.1%
United Arab Emirates	85.6	2.6	2.7	0.1	91.0	96.9%	18.6	0.5	0.8	-	19.9	93.5%
Yemen	13.2	1.2	0.7	0.0	15.2	95.0%	1.9	2.7	1.5	-	6.1	31.5%
Middle East	**912.3**	**61.6**	**31.1**	**23.0**	**1 028.1**	**94.7%**	**161.7**	**31.7**	**27.0**	**0.3**	**220.7**	**73.3%**

2000 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

N_2O						HFCs	PFCs	SF_6	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP *	
1.5	-	16.2	1.9	19.6	7.4%	-	-	-	143.3	24.2%	1.14	Bangladesh
0.0	-	0.1	0.3	0.4	2.6%	0.1	-	-	16.9	51.6%	1.06	Brunei Darussalam
0.2	-	2.6	0.4	3.3	6.2%	-	-	-	23.4	14.0%	1.82	Cambodia
0.9	0.5	2.1	1.2	4.7	19.9%	0.1	4.1	1.6	247.9	89.4%	0.49	Chinese Taipei
23.4	1.6	149.9	24.6	199.5	11.7%	8.1	2.0	3.4	1 854.1	58.6%	1.03	India
4.2	0.2	59.9	26.3	90.7	4.7%	-	0.2	0.8	1 444.4	22.9%	2.58	Indonesia
0.4	-	2.0	0.8	3.3	12.9%	1.8	-	-	96.0	82.5%	0.90	DPR of Korea
0.5	0.5	8.4	3.6	12.9	3.7%	0.0	0.1	0.4	253.2	52.7%	1.06	Malaysia
0.1	-	4.6	0.4	5.1	2.7%	-	-	-	61.8	14.9%	11.61	Mongolia
0.7	-	10.0	20.5	31.2	2.3%	-	-	-	563.1	2.9%	2.10	Myanmar
0.6	-	3.2	0.4	4.2	13.4%	-	-	-	28.8	17.5%	1.31	Nepal
3.1	0.7	17.8	3.2	24.8	12.4%	-	-	0.3	246.6	51.5%	0.92	Pakistan
1.2	0.0	8.9	2.2	12.2	9.6%	-	-	0.2	138.2	54.2%	0.66	Philippines
0.1	5.6	0.0	0.3	6.0	1.5%	0.7	0.4	0.3	57.9	84.4%	0.38	Singapore
0.3	-	1.4	0.4	2.0	12.4%	-	-	-	23.3	49.4%	0.41	Sri Lanka
3.7	0.4	13.5	2.5	20.1	18.7%	-	-	0.5	282.7	63.1%	0.81	Thailand
1.2	-	16.6	1.8	19.6	6.1%	-	-	-	153.9	39.6%	1.24	Vietnam
0.5	-	8.3	2.1	10.8	4.5%	0.0	-	-	97.7	14.7%	1.66	Other Asia
42.6	**9.5**	**325.5**	**93.0**	**470.6**	**9.0%**	**10.8**	**6.8**	**7.6**	**5 733.2**	**42.6%**	**1.18**	**Asia**
29.3	15.6	303.6	44.0	392.4	7.5%	38.1	8.0	10.8	4 997.8	69.2%	1.48	People's Rep. of China
0.2	-	-	0.3	0.5	32.9%	-	-	0.2	45.2	93.2%	0.23	Hong Kong, China
29.5	**15.6**	**303.6**	**44.3**	**392.9**	**7.5%**	**38.1**	**8.0**	**10.9**	**5 042.9**	**69.4%**	**1.41**	**China**
1.4	0.1	36.0	4.4	42.0	3.4%	0.1	0.1	0.2	295.8	53.6%	0.78	Argentina
0.1	-	5.5	5.8	11.3	0.8%	-	-	-	170.5	6.5%	5.75	Bolivia
5.1	7.7	122.7	32.1	167.6	3.0%	0.1	4.1	0.8	1 451.4	23.5%	1.05	Brazil
0.6	0.3	17.1	2.9	20.9	3.1%	-	0.0	0.0	182.6	39.1%	0.69	Colombia
0.1	0.1	1.3	0.2	1.7	5.0%	0.0	-	-	9.7	49.3%	0.30	Costa Rica
0.4	0.6	5.7	0.6	7.3	5.5%	0.0	-	-	50.5	59.0%	1.34	Cuba
0.2	-	1.6	0.4	2.2	8.4%	-	-	-	27.5	67.7%	0.55	Dominican Republic
0.2	-	3.5	0.4	4.1	3.8%	0.0	-	-	39.3	59.5%	0.59	Ecuador
0.1	-	1.0	0.2	1.4	7.8%	0.0	-	-	10.1	56.7%	0.33	El Salvador
0.3	-	8.2	6.0	14.4	1.8%	0.2	-	-	151.6	6.4%	3.41	Guatemala
0.1	-	1.2	0.1	1.4	5.3%	-	-	-	7.2	30.8%	0.73	Haiti
0.1	-	2.6	0.4	3.1	2.8%	-	-	-	14.8	32.7%	0.82	Honduras
0.1	-	0.4	0.2	0.6	8.9%	0.0	-	-	12.3	82.0%	0.72	Jamaica
0.0	-	0.0	0.1	0.1	15.5%	-	-	-	4.3	96.3%	2.04	Netherlands Antilles
0.1	-	2.9	0.3	3.3	2.7%	-	-	-	13.0	30.6%	1.20	Nicaragua
0.0	-	0.9	0.1	1.0	4.7%	-	-	-	9.5	54.2%	0.40	Panama
0.2	-	6.1	1.5	7.8	1.9%	-	-	-	52.9	7.8%	2.61	Paraguay
0.2	0.0	5.9	1.6	7.7	3.1%	0.1	-	-	73.3	39.0%	0.51	Peru
0.0	-	0.1	0.1	0.2	10.5%	-	-	-	27.4	93.3%	1.53	Trinidad and Tobago
0.1	-	6.1	0.1	6.3	1.6%	0.0	-	-	30.6	18.2%	0.96	Uruguay
0.5	0.0	10.1	2.6	13.2	3.7%	0.5	0.5	0.2	247.8	65.5%	1.07	Venezuela
0.1	-	2.4	0.8	3.2	3.2%	0.0	0.0	0.0	41.3	37.4%	1.19	Other Non-OECD Americas
9.9	**8.9**	**241.2**	**61.0**	**320.9**	**3.1%**	**1.1**	**4.7**	**1.2**	**2 923.3**	**32.4%**	**1.02**	**Non-OECD Americas**
0.0	-	0.0	0.1	0.1	26.8%	-	0.2	-	17.0	95.3%	1.12	Bahrain
2.1	0.5	18.4	3.1	24.1	8.8%	-	0.1	1.7	453.2	85.0%	0.92	Islamic Rep. of Iran
0.3	-	3.3	0.8	4.5	7.4%	-	-	0.2	114.0	87.1%	1.02	Iraq
0.1	-	0.3	0.2	0.6	8.5%	0.0	-	-	17.6	83.4%	1.02	Jordan
0.1	-	0.1	0.3	0.5	27.9%	0.1	-	0.4	64.6	96.2%	0.87	Kuwait
0.1	-	0.3	0.2	0.6	14.0%	-	-	-	16.9	84.6%	0.52	Lebanon
0.1	-	0.3	0.1	0.5	14.8%	0.0	-	-	53.6	62.8%	1.25	Oman
0.1	-	0.1	0.1	0.3	26.9%	-	-	-	43.5	97.2%	1.14	Qatar
0.9	-	2.8	2.4	6.0	14.4%	0.1	-	1.3	317.2	93.1%	0.78	Saudi Arabia
0.3	0.2	3.6	0.6	4.7	6.1%	-	-	-	64.8	82.5%	1.08	Syrian Arab Republic
0.2	-	0.5	0.5	1.1	15.5%	-	0.2	0.7	112.9	94.8%	0.54	United Arab Emirates
0.2	-	2.1	0.4	2.7	9.2%	-	-	-	24.0	69.1%	0.64	Yemen
4.5	**0.7**	**31.8**	**8.7**	**45.7**	**9.8%**	**0.3**	**0.6**	**4.1**	**1 299.5**	**87.7%**	**0.85**	**Middle East**

* 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 CO_2 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 *	**27 187.4**	**452.9**	**1 311.6**	**7 084.9**	**36 036.8**	**76.7%**	**2 533.7**	**3 170.3**	**1 225.4**	**283.9**	**7 213.3**	**35.1%**
Annex I Parties	*14 129.1*	*177.7*	*412.3*	*667.7*	*15 386.8*	*93.0%*	*912.3*	*663.2*	*446.3*	*20.9*	*2 042.7*	*44.7%*
Annex II Parties	*11 305.2*	*49.8*	*282.2*	*333.6*	*11 970.8*	*94.9%*	*404.7*	*526.0*	*306.1*	*11.4*	*1 248.2*	*32.4%*
North America	*6 331.0*	*22.0*	*87.8*	*111.9*	*6 552.8*	*97.0%*	*256.5*	*216.7*	*162.9*	*6.4*	*642.5*	*39.9%*
Europe	*3 350.4*	*18.5*	*131.1*	*163.3*	*3 663.3*	*92.0%*	*106.0*	*184.1*	*122.1*	*1.8*	*414.0*	*25.6%*
Asia Oceania	*1 623.8*	*9.3*	*63.3*	*58.4*	*1 754.7*	*93.1%*	*42.1*	*125.2*	*21.2*	*3.2*	*191.8*	*22.0%*
Annex I EIT	*2 604.9*	*125.6*	*106.8*	*332.7*	*3 169.9*	*86.1%*	*497.2*	*115.5*	*107.7*	*9.4*	*729.8*	*68.1%*
Non-Annex I Parties	*12 078.7*	*275.2*	*899.3*	*6 417.3*	*19 670.5*	*62.8%*	*1 620.3*	*2 507.1*	*779.1*	*263.0*	*5 169.5*	*31.3%*
Annex I Kyoto Parties	*8 076.4*	*156.4*	*309.1*	*554.6*	*9 096.5*	*90.5%*	*690.4*	*442.8*	*277.2*	*17.7*	*1 428.2*	*48.3%*
Int. marine bunkers	**565.8**	**-**	**-**	**-**	**565.8**	**100.0%**	**1.0**	**-**	**-**	**-**	**1.0**	**100%**
Int. aviation bunkers	**413.8**	**-**	**-**	**-**	**413.8**	**100.0%**	**0.1**	**-**	**-**	**-**	**0.1**	**100%**
Non-OECD Total	**13 175.3**	**381.1**	**936.8**	**6 658.6**	**21 151.8**	**64.1%**	**2 013.1**	**2 522.7**	**827.1**	**269.9**	**5 632.9**	**35.7%**
OECD Total	**13 032.5**	**71.9**	**374.8**	**426.3**	**13 905.5**	**94.2%**	**519.5**	**647.6**	**398.3**	**14.0**	**1 579.3**	**32.9%**
Canada	559.4	3.0	10.2	42.8	615.4	91.4%	46.0	26.1	31.2	3.3	106.7	43.2%
Chile	58.2	0.4	1.9	0.3	60.8	96.3%	4.5	7.2	6.4	0.2	18.2	24.6%
Mexico	385.5	3.7	19.8	52.0	460.9	84.4%	36.5	54.3	20.4	2.1	113.3	32.2%
United States	5 771.7	19.0	77.7	69.1	5 937.4	97.5%	210.5	190.6	131.7	3.1	535.8	39.3%
OECD Americas	**6 774.7**	**26.1**	**109.5**	**164.2**	**7 074.6**	**96.1%**	**297.5**	**278.2**	**189.6**	**8.7**	**774.0**	**38.4%**
Australia	369.2	3.5	6.1	22.6	401.5	92.9%	37.7	70.1	11.4	2.8	122.0	30.9%
Israel	58.7	0.0	2.3	0.2	61.2	95.9%	0.7	1.1	1.7	0.0	3.5	19.6%
Japan	1 220.7	5.7	56.6	30.7	1 313.7	93.4%	3.5	30.2	8.3	0.3	42.2	8.2%
Korea	469.1	11.0	27.8	0.5	508.4	94.4%	6.4	12.3	13.2	0.1	32.0	20.0%
New Zealand	33.9	0.1	0.5	5.1	39.6	85.7%	1.0	24.9	1.6	0.0	27.5	3.6%
OECD Asia Oceania	**2 151.6**	**20.3**	**93.4**	**59.1**	**2 324.4**	**93.4%**	**49.2**	**138.6**	**36.1**	**3.3**	**227.2**	**21.7%**
Austria	74.6	0.5	3.8	0.5	79.5	94.5%	1.8	4.1	2.4	0.0	8.4	21.9%
Belgium	112.6	0.1	5.2	0.6	118.5	95.1%	1.2	5.7	2.7	0.0	9.6	12.7%
Czech Republic	119.6	3.7	3.9	1.0	128.1	96.2%	5.0	3.9	3.2	0.0	12.0	41.4%
Denmark	48.3	0.4	1.6	3.0	53.3	91.3%	1.3	5.2	1.5	-	8.0	16.4%
Estonia	16.9	-	0.4	10.3	27.5	61.3%	0.9	0.6	0.7	-	2.2	41.3%
Finland	55.2	0.5	1.3	51.3	108.3	51.5%	0.8	2.0	6.9	0.0	9.8	8.3%
France	388.4	2.8	21.3	7.6	420.2	93.1%	34.4	36.9	11.5	0.1	82.9	41.5%
Germany	809.0	3.7	20.9	35.4	869.1	93.5%	16.5	29.6	15.4	0.2	61.7	26.7%
Greece	95.0	0.0	7.6	0.4	103.0	92.2%	1.9	3.6	2.6	0.0	8.2	23.3%
Hungary	56.4	0.3	2.0	1.0	59.7	94.9%	2.3	2.6	2.9	0.0	7.9	29.4%
Iceland	2.2	-	0.1	17.6	19.8	11.0%	0.0	0.2	0.1	0.0	0.3	1.2%
Ireland	43.6	-	2.4	8.9	54.9	79.5%	1.8	11.8	1.4	0.0	15.0	12.1%
Italy	460.8	0.6	25.3	2.3	489.1	94.4%	6.1	16.2	17.7	0.1	40.1	15.2%
Luxembourg	11.4	-	0.5	0.0	12.0	95.4%	0.1	0.9	0.1	0.0	1.1	10.6%
Netherlands	182.7	0.7	1.5	6.5	191.3	95.8%	5.0	9.2	6.9	0.1	21.3	23.7%
Norway	36.3	1.2	0.9	0.7	39.2	95.8%	12.4	2.1	2.3	0.1	16.9	73.2%
Poland	292.9	0.5	7.3	25.4	326.2	90.0%	46.2	15.4	9.0	0.0	70.6	65.4%
Portugal	62.8	0.0	4.5	0.3	67.7	92.8%	1.6	4.3	6.9	0.8	13.6	11.8%
Slovak Republic	38.1	0.2	2.2	0.4	40.8	93.6%	0.8	1.5	1.7	0.0	4.1	20.4%
Slovenia	15.6	-	1.7	0.3	17.6	88.8%	1.1	1.1	0.7	0.0	3.0	37.4%
Spain	339.4	1.1	20.9	1.5	362.9	93.8%	4.0	20.6	11.3	0.4	36.3	11.0%
Sweden	50.3	0.9	2.1	14.6	67.9	75.4%	1.2	3.2	7.1	0.0	11.5	10.3%
Switzerland	44.6	0.0	1.9	0.4	46.9	95.1%	0.9	3.2	0.8	0.0	5.0	19.2%
Turkey	216.4	2.3	23.3	1.4	243.3	89.9%	10.4	21.6	32.3	0.1	64.4	16.2%
United Kingdom	533.0	5.9	9.4	11.4	559.6	96.3%	14.8	25.1	24.4	0.0	64.4	23.0%
OECD Europe	**4 106.2**	**25.4**	**171.9**	**203.0**	**4 506.5**	**91.7%**	**172.8**	**230.8**	**172.6**	**2.0**	**578.1**	**29.9%**
European Union - 27	*3 977.3*	*22.9*	*157.5*	*195.3*	*4 353.0*	*91.9%*	*165.9*	*217.5*	*153.9*	*2.0*	*539.3*	*30.8%*

* Total World includes Non-OECD total, OECD total as well as international bunkers.

Sources: IEA, Sectoral Approach for CO_2 emissions from fuel combustion. EDGAR 4.2 FT2010 database for other emissions. In general, estimates for emissions other than CO_2 from fuel combustion are subject to significantly larger uncertainties.

2005 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

N_2O						HFCs	PFCs	SF_6	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP *	
313.1	**163.7**	**1 953.7**	**566.9**	**2 997.4**	**10.4%**	**534.8**	**93.3**	**131.2**	**47 006.8**	**64.9%**	**0.81**	**World**
144.6	*123.0*	*537.2*	*141.5*	*946.3*	*15.3%*	*347.2*	*64.2*	*73.5*	*18 860.7*	*81.5%*	*0.54*	*Annex I Parties*
122.5	*78.1*	*420.7*	*103.6*	*724.8*	*16.9%*	*312.3*	*35.4*	*62.0*	*14 353.5*	*82.8%*	*0.47*	*Annex II Parties*
80.4	*27.5*	*202.6*	*50.3*	*360.8*	*22.3%*	*198.2*	*15.2*	*46.1*	*7 815.7*	*85.6%*	*0.57*	*North America*
27.8	*45.7*	*148.6*	*35.9*	*258.0*	*10.8%*	*67.4*	*11.5*	*10.9*	*4 425.0*	*79.2%*	*0.36*	*Europe*
14.3	*4.9*	*69.4*	*17.4*	*106.0*	*13.5%*	*46.6*	*8.7*	*5.0*	*2 112.8*	*80.0%*	*0.45*	*Asia Oceania*
18.5	*41.1*	*94.8*	*34.4*	*188.8*	*9.8%*	*32.0*	*28.2*	*9.8*	*4 158.6*	*78.1%*	*1.17*	*Annex I EIT*
139.5	*40.7*	*1 416.5*	*425.4*	*2 022.0*	*6.9%*	*187.6*	*29.1*	*57.7*	*27 136.5*	*52.0%*	*1.19*	*Non-Annex I Parties*
67.3	*91.6*	*328.0*	*94.3*	*581.1*	*11.6%*	*157.5*	*54.6*	*29.9*	*11 347.8*	*79.2%*	*0.53*	*Annex I Kyoto Parties*
22.7	**-**	**-**	**-**	**22.7**	**100%**	**-**	**-**	**-**	**589.5**	**100.0%**	**..**	**Int. marine bunkers**
6.4	**-**	**-**	**-**	**6.4**	**100%**	**-**	**-**	**-**	**420.2**	**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**	**29 195.5**	**53.8%**	**1.30**	**Non-OECD Total**
141.4	**95.5**	**513.6**	**124.1**	**874.6**	**16.2%**	**333.2**	**39.6**	**69.5**	**16 801.6**	**81.9%**	**0.48**	**OECD Total**
7.2	2.1	23.6	7.2	40.2	18.0%	11.9	6.2	4.2	784.6	78.5%	0.69	Canada
0.8	0.9	6.0	0.9	8.6	9.6%	-	0.0	0.0	87.6	72.9%	0.44	Chile
3.4	1.2	31.9	7.1	43.6	7.8%	7.1	-	0.4	625.4	68.6%	0.48	Mexico
73.1	25.4	179.0	43.1	320.6	22.8%	186.3	9.0	42.0	7 031.0	86.4%	0.56	United States
84.6	**29.6**	**240.5**	**58.4**	**413.0**	**20.5%**	**205.3**	**15.2**	**46.5**	**8 528.7**	**84.2%**	**0.56**	**OECD Americas**
4.7	1.8	48.9	7.7	63.0	7.4%	5.1	0.8	0.5	593.0	70.0%	0.82	Australia
0.3	0.2	0.9	0.6	2.0	14.0%	1.3	0.1	0.6	68.7	86.9%	0.42	Israel
9.2	3.1	8.3	9.4	30.0	30.6%	40.8	7.6	4.5	1 438.8	86.1%	0.37	Japan
3.3	2.2	4.9	3.6	14.0	23.3%	4.9	2.5	4.6	566.4	86.5%	0.52	Korea
0.5	-	12.2	0.3	13.0	3.5%	0.7	0.2	0.1	81.0	43.6%	0.77	New Zealand
17.9	**7.4**	**75.2**	**21.6**	**122.0**	**14.6%**	**52.9**	**11.2**	**10.2**	**2 747.9**	**81.5%**	**0.46**	**OECD Asia Oceania**
0.8	0.3	2.3	0.8	4.2	19.1%	1.9	0.2	0.2	94.4	82.4%	0.34	Austria
0.8	3.9	2.9	1.2	8.8	8.9%	1.9	0.0	0.1	138.9	82.6%	0.41	Belgium
2.4	1.1	3.3	0.9	7.6	31.2%	1.1	0.0	0.0	148.8	87.8%	0.68	Czech Republic
0.6	-	4.6	0.6	5.8	10.1%	1.2	0.0	0.0	68.4	73.9%	0.38	Denmark
0.2	-	0.6	0.2	1.0	23.3%	0.0	0.0	0.0	30.7	58.6%	1.38	Estonia
1.9	1.6	3.0	0.6	7.1	26.5%	0.8	0.0	0.1	126.0	46.4%	0.78	Finland
4.0	6.9	32.8	4.6	48.2	8.2%	12.7	0.7	1.6	566.3	75.9%	0.30	France
5.9	10.4	29.5	5.7	51.5	11.4%	14.7	1.4	5.4	1 003.8	83.2%	0.39	Germany
1.0	0.5	3.5	1.0	6.0	16.0%	1.9	0.1	0.1	119.4	82.0%	0.44	Greece
0.3	1.8	4.2	0.7	7.0	4.8%	1.2	0.3	0.0	76.1	78.0%	0.44	Hungary
0.0	0.0	0.3	0.0	0.4	10.2%	0.0	0.1	0.0	20.7	10.7%	2.00	Iceland
0.3	-	6.8	0.4	7.5	4.4%	0.9	0.2	0.1	78.5	58.3%	0.49	Ireland
3.3	7.5	12.5	5.3	28.7	11.6%	9.1	0.4	0.9	568.2	82.9%	0.34	Italy
0.1	-	0.3	0.1	0.5	20.0%	0.1	0.0	-	13.6	85.5%	0.43	Luxembourg
0.9	5.6	5.8	1.3	13.5	6.4%	3.1	0.4	0.1	229.7	82.4%	0.40	Netherlands
0.4	1.9	1.8	0.8	5.0	7.4%	0.3	4.6	0.3	66.3	75.9%	0.30	Norway
4.1	4.8	17.4	2.6	29.0	14.2%	1.7	0.6	0.2	428.3	80.2%	0.81	Poland
0.7	0.5	2.6	2.1	6.0	11.8%	0.6	0.0	0.1	88.1	73.9%	0.39	Portugal
0.4	1.2	1.3	0.3	3.3	13.4%	0.3	0.1	-	48.6	81.4%	0.56	Slovak Republic
0.2	-	0.8	0.2	1.1	13.3%	0.4	0.1	0.0	22.1	76.1%	0.47	Slovenia
3.0	1.7	16.6	5.0	26.3	11.4%	6.3	2.0	0.7	434.6	80.0%	0.37	Spain
1.1	0.5	3.5	0.8	5.9	19.0%	1.1	0.7	0.2	87.4	61.3%	0.30	Sweden
0.4	0.1	1.4	0.5	2.5	17.5%	1.6	0.1	0.3	56.4	81.6%	0.21	Switzerland
3.6	3.9	21.8	3.4	32.6	10.9%	2.9	0.5	1.6	345.4	67.4%	0.44	Turkey
2.7	4.1	18.4	5.0	30.2	9.0%	9.0	0.6	0.6	664.4	83.7%	0.34	United Kingdom
39.0	**58.5**	**197.9**	**44.1**	**339.6**	**11.5%**	**75.0**	**13.1**	**12.7**	**5 525.1**	**78.6%**	**0.39**	**OECD Europe**
35.9	*58.4*	*184.4*	*41.8*	*320.5*	*11.2%*	*72.7*	*8.2*	*10.4*	*5 304.2*	*79.2%*	*0.40*	*European Union - 27*

* GHG / GDP PPP ratio is expressed in kg of CO_2-equivalent per 2005 USD.

2005 Greenhouse-gas emissions

million tonnes of CO_2 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	**13 175.3**	**381.1**	**936.8**	**6 658.6**	**21 151.8**	**64.1%**	**2 013.1**	**2 522.7**	**827.1**	**269.9**	**5 632.9**	**35.7%**
Albania	4.1	0.0	0.2	0.6	4.9	83.6%	0.6	1.7	0.2	0.0	2.5	22.2%
Armenia	4.1	-	0.3	0.3	4.7	87.0%	1.5	1.1	0.4	0.0	3.0	50.8%
Azerbaijan	32.8	0.3	0.7	0.3	34.2	97.1%	5.5	5.0	1.6	0.0	12.1	45.6%
Belarus	62.1	0.0	2.2	42.6	106.9	58.1%	1.0	8.1	4.9	0.0	14.0	6.8%
Bosnia-Herzegovina	15.6	0.2	0.5	0.4	16.7	95.1%	1.2	1.2	0.3	0.0	2.7	45.2%
Bulgaria	45.9	0.4	4.2	0.4	50.9	90.9%	1.4	2.1	9.2	0.1	12.8	11.3%
Croatia	20.8	0.0	1.8	0.0	22.6	91.9%	2.2	1.3	1.0	0.0	4.5	48.9%
Cyprus	7.0	-	0.7	0.0	7.7	90.5%	0.0	0.3	0.3	-	0.6	2.2%
Georgia	4.3	0.0	0.2	0.3	4.8	89.5%	1.6	2.2	0.6	0.0	4.4	36.1%
Gibraltar	0.5	-	-	0.0	0.5	99.9%	0.0	-	0.0	-	0.0	6.7%
Kazakhstan	157.1	16.2	4.5	0.4	178.1	97.2%	35.1	11.9	4.7	2.2	53.9	65.2%
Kosovo *	6.5	..	..	..	..	..	..	..	..	..	..	..
Kyrgyzstan	5.0	0.0	0.4	0.5	5.9	85.4%	0.2	2.6	0.7	0.0	3.6	6.8%
Latvia	7.6	-	0.3	4.3	12.2	61.8%	1.7	0.9	0.6	0.0	3.1	53.7%
Lithuania	13.6	0.0	0.4	6.1	20.1	67.6%	1.8	1.9	1.4	0.0	5.0	35.1%
FYR of Macedonia	8.8	-	0.3	0.1	9.2	95.6%	0.5	0.7	0.3	0.0	1.4	32.7%
Malta	2.7	-	0.0	0.0	2.7	99.6%	0.0	0.0	0.2	-	0.2	0.8%
Republic of Moldova	6.8	-	0.3	0.1	7.2	93.9%	1.7	1.0	0.8	0.0	3.5	47.8%
Montenegro *	1.4	..	..	..	..	..	..	..	..	..	..	..
Romania	93.8	0.7	6.0	1.5	102.0	92.6%	11.9	8.8	5.2	0.0	26.0	46.0%
Russian Federation	1 516.2	98.7	52.5	233.1	1 900.4	85.0%	376.7	51.0	57.2	8.8	493.8	76.3%
Serbia *	49.1	0.0	1.3	0.7	51.0	96.2%	3.0	3.4	1.1	0.0	7.6	39.8%
Tajikistan	2.3	0.0	0.1	0.0	2.5	93.0%	0.5	2.7	0.7	0.0	3.9	12.5%
Turkmenistan	45.1	2.6	0.3	0.5	48.5	98.4%	22.6	6.1	0.9	0.0	29.5	76.5%
Ukraine	305.6	21.2	21.8	6.2	354.8	92.1%	44.2	16.4	10.0	0.3	70.9	62.4%
Uzbekistan	107.8	4.6	2.4	1.5	116.3	96.6%	25.4	13.4	3.5	0.0	42.4	60.0%
Non-OECD Europe and Eurasia	**2 526.5**	**144.9**	**101.5**	**300.1**	**3 072.9**	**86.9%**	**540.3**	**143.5**	**105.8**	**11.6**	**801.3**	**67.4%**
Algeria	79.6	11.3	5.5	0.2	96.5	94.1%	36.5	4.5	4.7	0.0	45.6	80.0%
Angola	7.2	8.5	0.5	5.6	21.8	71.8%	10.6	3.9	1.9	0.0	16.4	64.6%
Benin	2.7	-	0.1	20.2	23.0	11.5%	0.9	2.0	1.0	0.5	4.4	20.5%
Botswana	4.4	-	0.2	0.4	5.0	88.4%	0.5	3.9	0.3	0.0	4.7	10.2%
Cameroon	2.9	1.7	0.4	35.6	40.6	11.5%	2.2	8.0	2.5	0.9	13.7	16.3%
Congo	0.8	3.2	0.0	37.6	41.6	9.6%	3.8	1.8	0.5	1.5	7.7	49.9%
Dem. Rep. of Congo	2.3	0.0	0.2	833.8	836.3	0.3%	5.9	14.1	6.3	31.3	57.7	10.3%
Côte d'Ivoire	5.8	0.1	0.3	114.3	120.5	4.9%	3.3	2.0	2.4	4.8	12.5	26.4%
Egypt	152.6	3.1	14.4	1.1	171.1	91.0%	24.7	14.8	8.3	0.0	47.8	51.6%
Eritrea	0.6	-	0.0	0.0	0.6	94.6%	0.4	1.8	0.4	-	2.6	16.1%
Ethiopia	4.5	-	0.7	0.6	5.7	77.7%	7.8	38.3	6.9	-	53.0	14.7%
Gabon	2.1	4.2	0.1	6.2	12.6	50.2%	3.5	0.1	0.3	0.4	4.3	81.5%
Ghana	6.4	-	0.8	9.6	16.8	38.3%	2.9	3.7	2.9	0.4	10.0	29.6%
Kenya	7.2	-	1.1	3.8	12.1	59.6%	7.2	14.5	3.9	-	25.6	28.2%
Libya	42.5	8.3	1.7	0.1	52.6	96.5%	14.3	0.8	1.1	0.0	16.3	87.7%
Morocco	40.1	-	4.6	0.3	45.0	89.1%	0.9	5.5	4.2	0.0	10.6	8.3%
Mozambique	1.5	-	0.2	34.9	36.6	4.1%	3.4	6.0	2.3	2.0	13.7	25.0%
Namibia	2.5	-	0.0	0.0	2.5	98.2%	0.1	4.9	0.2	0.0	5.3	2.3%
Nigeria	55.2	37.6	1.1	8.1	102.0	91.0%	43.3	26.1	14.5	0.2	84.1	51.5%
Senegal	4.7	-	1.1	0.1	5.8	80.0%	1.2	5.0	1.6	-	7.7	15.0%
South Africa	329.2	15.6	6.3	4.7	355.8	96.9%	30.5	20.0	12.5	2.4	65.3	46.6%
Sudan	9.2	0.0	0.1	4.1	13.4	68.6%	6.6	58.9	5.2	-	70.7	9.3%
United Rep. of Tanzania	5.1	0.0	0.6	65.1	70.9	7.3%	5.1	20.7	4.2	3.6	33.6	15.3%
Togo	1.0	-	0.3	7.4	8.7	11.2%	1.5	1.2	0.7	0.4	3.7	39.6%
Tunisia	20.2	0.5	3.1	0.2	23.9	86.3%	3.6	2.1	1.5	0.0	7.2	50.0%
Zambia	2.1	-	0.3	124.2	126.6	1.6%	2.4	12.3	1.2	5.4	21.2	11.1%
Zimbabwe	10.4	0.4	0.3	1.0	12.0	89.6%	1.1	7.1	1.5	0.0	9.7	11.4%
Other Africa	23.3	2.5	1.1	246.7	273.5	9.4%	26.1	105.7	17.3	9.6	158.6	16.4%
Africa	**826.0**	**96.8**	**45.1**	**1 565.8**	**2 533.7**	**36.4%**	**250.3**	**389.7**	**110.2**	**63.4**	**813.6**	**30.8%**

* For 2005, Serbia includes Kosovo and Montenegro for all emissions other than CO_2 from fuel combustion.

2005 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

N_2O						HFCs	PFCs	SF_6	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP *	
142.6	**68.2**	**1 440.1**	**442.8**	**2 093.7**	**6.8%**	**201.7**	**53.7**	**61.7**	**29 195.5**	**53.8%**	**1.30**	**Non-OECD Total**
0.1	-	0.8	0.2	1.0	7.2%	0.1	-	-	8.5	55.8%	0.44	Albania
0.0	-	0.5	0.1	0.6	1.0%	0.3	-	-	8.6	65.4%	0.69	Armenia
0.2	-	2.0	0.4	2.6	6.2%	0.1	0.2	-	49.1	79.1%	1.30	Azerbaijan
0.6	2.2	8.5	0.6	11.9	5.1%	0.4	0.0	-	133.3	47.7%	1.60	Belarus
0.1	-	0.7	0.2	1.0	12.7%	0.4	0.1	-	21.0	82.1%	0.89	Bosnia-Herzegovina
0.3	0.9	2.0	0.6	4.0	8.8%	0.4	0.0	-	68.1	70.7%	0.90	Bulgaria
0.2	0.8	1.5	0.3	2.8	8.5%	0.0	0.0	-	30.0	77.4%	0.44	Croatia
0.0	-	0.2	0.1	0.3	13.0%	0.2	-	-	8.8	79.8%	0.48	Cyprus
0.1	0.7	1.1	0.2	2.0	3.2%	0.0	-	-	11.3	53.1%	0.72	Georgia
0.0	-	-	0.0	0.0	34.4%	-	-	-	0.5	97.4%	0.52	Gibraltar
2.6	-	11.0	4.5	18.1	14.2%	0.3	-	-	250.4	84.2%	1.90	Kazakhstan
..	..	..	..	..	..	..	..	..	..	..	..	Kosovo
0.2	-	1.1	0.2	1.5	11.0%	0.0	-	-	11.0	49.4%	1.24	Kyrgyzstan
0.2	-	1.0	0.2	1.3	12.0%	0.9	0.0	-	17.5	53.5%	0.58	Latvia
0.1	2.0	2.1	0.2	4.5	2.7%	0.6	0.0	-	30.2	51.2%	0.62	Lithuania
0.1	-	0.4	0.1	0.6	17.6%	0.1	-	-	11.3	82.5%	0.71	FYR of Macedonia
0.0	-	0.0	0.0	0.1	11.6%	0.1	-	-	3.1	86.3%	0.37	Malta
0.1	-	0.6	0.2	0.9	6.0%	0.0	-	-	11.7	73.2%	1.37	Republic of Moldova
..	..	..	..	..	..	..	..	..	..	..	..	Montenegro
0.7	2.9	6.5	1.3	11.4	6.0%	0.4	0.3	0.0	140.1	76.5%	0.69	Romania
7.3	13.5	33.7	23.5	78.1	9.4%	24.2	26.6	9.3	2 532.4	78.9%	1.49	Russian Federation
0.2	0.5	2.9	0.4	4.1	5.0%	4.3	0.1	-	67.1	78.0%	1.06	Serbia
0.0	-	1.2	0.2	1.4	1.1%	0.0	0.4	-	8.2	34.8%	0.84	Tajikistan
0.1	0.6	3.3	0.3	4.3	1.8%	0.1	-	-	82.4	85.4%	3.64	Turkmenistan
1.4	9.8	11.9	2.9	26.0	5.6%	0.2	0.2	0.3	452.4	82.3%	1.72	Ukraine
0.5	0.1	8.4	1.1	10.1	5.0%	0.6	-	-	169.4	81.6%	3.23	Uzbekistan
15.1	**34.0**	**101.6**	**37.8**	**188.5**	**8.0%**	**33.9**	**28.0**	**9.6**	**4 134.2**	**78.1%**	**1.41**	**Non-OECD Europe and Eurasia**
0.4	0.7	2.9	0.9	4.9	8.2%	0.2	-	0.3	147.5	86.6%	0.63	Algeria
0.2	-	2.6	0.3	3.1	6.6%	0.0	-	-	41.3	64.1%	0.69	Angola
0.1	-	1.8	1.0	2.9	4.2%	-	-	-	30.3	12.1%	2.94	Benin
0.1	-	2.8	0.2	3.1	2.9%	-	-	-	12.8	39.1%	0.59	Botswana
0.2	-	6.8	2.0	9.0	2.6%	-	0.4	-	63.8	11.2%	1.83	Cameroon
0.1	-	1.8	1.7	3.6	1.9%	0.0	-	-	52.9	14.9%	4.43	Congo
1.3	-	16.3	37.1	54.7	2.3%	-	-	-	948.7	1.0%	60.38	Dem. Rep. of Congo
0.2	-	2.1	5.1	7.5	3.1%	-	-	-	140.4	6.7%	4.68	Côte d'Ivoire
1.3	3.2	15.2	2.3	22.0	6.0%	0.3	1.7	1.1	244.1	74.4%	0.73	Egypt
0.0	-	1.1	0.1	1.2	4.1%	-	-	-	4.4	24.1%	1.66	Eritrea
1.6	-	26.8	1.9	30.3	5.3%	0.0	-	-	89.0	15.5%	1.88	Ethiopia
0.0	-	0.1	0.3	0.5	10.2%	0.0	-	-	17.4	56.9%	0.97	Gabon
0.4	-	3.4	1.0	4.8	9.3%	0.0	0.0	-	31.6	31.1%	1.21	Ghana
0.6	-	9.4	0.6	10.6	5.7%	-	-	-	48.3	31.1%	1.01	Kenya
0.2	-	0.7	0.5	1.3	11.9%	-	-	0.3	70.5	92.5%	0.87	Libya
0.5	-	4.8	0.8	6.1	8.0%	-	-	-	61.7	67.2%	0.57	Morocco
0.3	-	6.5	2.5	9.3	3.5%	0.1	0.2	-	60.0	8.8%	4.31	Mozambique
0.1	-	3.5	0.2	3.9	3.4%	-	-	-	11.6	23.4%	1.07	Namibia
2.0	-	16.6	3.0	21.6	9.4%	0.3	-	0.3	208.4	66.3%	0.85	Nigeria
0.1	-	3.6	0.4	4.0	3.0%	-	-	-	17.5	33.8%	0.96	Senegal
2.9	2.1	14.4	5.8	25.2	11.5%	0.5	0.5	1.5	448.8	84.3%	1.11	South Africa
0.6	-	44.8	3.3	48.7	1.3%	-	-	-	132.7	12.3%	2.14	Sudan
0.6	-	16.7	4.2	21.4	2.7%	-	-	-	125.9	8.6%	3.12	United Rep. of Tanzania
0.1	-	1.1	0.5	1.7	6.7%	-	-	-	14.2	18.1%	3.06	Togo
0.2	0.3	1.6	0.3	2.4	9.0%	-	-	-	33.5	73.0%	0.47	Tunisia
0.2	0.4	17.4	6.7	24.7	1.0%	0.0	-	-	172.5	2.7%	13.00	Zambia
0.2	-	5.1	0.4	5.7	3.9%	-	-	-	27.4	44.1%	7.26	Zimbabwe
3.0	-	77.4	16.6	97.1	3.1%	0.1	-	-	529.3	10.4%	2.82	Other Africa
17.9	**6.8**	**306.9**	**99.7**	**431.3**	**4.1%**	**1.6**	**2.9**	**3.6**	**3 786.6**	**31.5%**	**1.75**	**Africa**

* 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 CO_2 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	36.5	-	2.3	7.6	46.4	78.7%	9.7	66.5	17.9	0.1	94.2	10.3%
Brunei Darussalam	5.1	0.2	0.1	12.1	17.5	30.1%	3.9	0.0	0.1	0.5	4.5	86.2%
Cambodia	2.6	-	-	31.1	33.7	7.8%	1.2	15.5	1.6	2.3	20.5	5.6%
Chinese Taipei	262.5	0.7	10.0	0.9	274.2	96.0%	1.4	1.1	5.8	0.0	8.3	17.0%
India	1 164.8	19.5	60.4	48.7	1 293.5	91.6%	93.5	375.9	113.3	1.8	584.5	16.0%
Indonesia	335.7	5.6	15.4	2 054.9	2 411.7	14.2%	49.0	98.3	50.8	61.6	259.7	18.9%
DPR of Korea	73.8	-	3.0	2.7	79.5	92.9%	11.8	4.3	3.2	0.1	19.3	60.9%
Malaysia	152.0	3.2	8.1	113.2	276.6	56.1%	22.1	5.8	5.7	2.8	36.5	60.7%
Mongolia	9.5	0.0	0.1	42.8	52.4	18.1%	0.4	5.6	0.3	0.0	6.3	5.9%
Myanmar	10.6	0.0	0.2	387.8	398.7	2.7%	9.7	54.3	6.4	7.8	78.2	12.4%
Nepal	3.0	-	0.1	0.2	3.4	89.4%	1.4	18.4	2.5	0.0	22.3	6.4%
Pakistan	117.8	2.0	7.7	0.4	128.0	93.6%	34.1	87.0	17.6	0.1	138.7	24.6%
Philippines	70.7	0.0	6.9	2.2	79.8	88.6%	5.6	33.6	14.0	0.0	53.2	10.5%
Singapore	50.6	0.2	0.1	0.4	51.3	99.0%	1.4	0.0	0.9	0.0	2.3	60.7%
Sri Lanka	13.4	-	0.7	0.5	14.6	92.2%	0.6	6.7	3.0	-	10.3	6.1%
Thailand	216.6	0.0	17.4	13.0	247.0	87.7%	19.1	56.1	13.7	0.5	89.4	21.3%
Vietnam	79.8	1.1	14.9	9.9	105.7	76.5%	28.1	55.1	10.9	0.3	94.3	29.8%
Other Asia	15.4	0.6	0.4	68.7	85.0	18.8%	2.9	18.6	5.1	1.9	28.4	10.1%
Asia	**2 620.6**	**33.2**	**147.8**	**2 797.0**	**5 598.8**	**47.4%**	**295.8**	**902.8**	**272.5**	**79.7**	**1 550.8**	**19.1%**
People's Rep. of China	5 062.4	28.3	556.1	109.6	5 756.3	88.4%	606.0	516.9	201.6	3.3	1 327.8	45.6%
Hong Kong, China	40.7	1.5	0.4	0.1	42.8	98.8%	0.8	-	2.1	-	2.8	26.8%
China	**5 103.1**	**29.7**	**556.5**	**109.7**	**5 799.0**	**88.5%**	**606.8**	**516.9**	**203.7**	**3.3**	**1 330.6**	**45.6%**
Argentina	151.0	0.9	5.1	9.7	166.8	91.1%	17.9	71.9	8.7	1.5	100.0	17.9%
Bolivia	9.5	0.3	0.6	219.3	229.7	4.2%	7.2	10.4	1.3	10.9	29.8	24.1%
Brazil	322.5	4.2	19.2	1 462.7	1 808.5	18.1%	37.9	302.6	58.8	92.9	492.2	7.7%
Colombia	57.5	1.0	4.9	24.5	88.0	66.5%	11.1	39.6	6.5	0.5	57.7	19.3%
Costa Rica	5.7	-	0.6	0.1	6.3	89.7%	0.3	1.7	0.4	-	2.4	10.5%
Cuba	25.1	1.3	0.7	3.2	30.4	87.1%	0.9	5.9	2.5	-	9.3	9.4%
Dominican Republic	17.5	-	1.1	0.3	18.9	92.6%	1.1	3.9	1.7	-	6.7	16.2%
Ecuador	24.2	2.5	1.4	2.1	30.3	88.3%	3.4	9.9	1.8	0.1	15.1	22.2%
El Salvador	6.1	-	0.4	0.2	6.8	89.9%	0.4	1.7	1.1	-	3.2	13.0%
Guatemala	10.5	0.0	1.2	37.5	49.2	21.3%	1.1	4.1	1.5	1.7	8.4	12.6%
Haiti	2.0	-	0.2	0.0	2.2	89.0%	0.7	2.3	1.3	-	4.3	17.2%
Honduras	6.9	-	0.5	2.7	10.2	68.4%	0.4	4.1	0.7	-	5.2	7.5%
Jamaica	10.4	-	0.5	0.1	11.1	94.2%	0.2	0.7	0.5	-	1.3	11.7%
Netherlands Antilles	4.2	-	-	0.0	4.3	98.9%	0.1	0.0	0.1	-	0.1	55.6%
Nicaragua	4.0	-	0.2	0.4	4.7	85.9%	0.4	4.5	1.1	-	6.0	6.8%
Panama	6.8	-	0.4	0.4	7.6	89.2%	0.1	2.5	0.5	-	3.2	4.2%
Paraguay	3.4	-	0.3	20.5	24.2	14.2%	0.9	13.0	1.1	0.8	15.8	5.6%
Peru	28.9	0.2	2.0	11.4	42.5	68.4%	1.8	10.5	4.0	0.3	16.6	10.5%
Trinidad and Tobago	33.9	0.3	0.3	0.0	34.5	99.0%	9.4	0.1	1.3	0.2	11.1	85.3%
Uruguay	5.3	-	0.3	0.4	6.0	88.3%	0.5	18.4	0.8	0.0	19.8	2.5%
Venezuela	148.2	4.8	2.8	48.5	204.2	74.9%	25.2	24.6	5.6	2.1	57.5	43.9%
Other Non-OECD Americas	16.7	-	1.0	16.7	34.3	48.5%	0.2	2.5	2.7	0.2	5.7	3.6%
Non-OECD Americas	**900.2**	**15.5**	**43.9**	**1 861.0**	**2 820.6**	**32.5%**	**121.0**	**534.9**	**104.1**	**111.4**	**871.4**	**13.9%**
Bahrain	18.1	0.0	0.2	0.1	18.5	98.3%	2.5	0.0	0.3	0.0	2.8	88.7%
Islamic Rep. of Iran	421.6	21.8	15.9	0.7	460.1	96.4%	66.2	20.9	12.6	0.1	99.8	66.3%
Iraq	74.9	12.6	1.3	3.4	92.2	94.9%	14.0	3.0	3.7	0.0	20.6	67.9%
Jordan	18.0	-	1.7	0.0	19.7	91.3%	0.5	0.4	1.0	-	1.8	26.5%
Kuwait	70.1	4.4	0.9	0.1	75.5	98.7%	11.8	0.2	0.8	0.0	12.8	92.6%
Lebanon	14.5	-	1.9	0.0	16.5	88.0%	0.1	0.3	0.7	-	1.0	11.6%
Oman	28.2	4.7	1.2	20.0	54.0	60.8%	13.5	0.5	0.5	-	14.5	92.7%
Qatar	37.6	4.2	0.7	0.0	42.4	98.3%	18.0	0.1	0.5	0.0	18.6	96.8%
Saudi Arabia	333.8	7.3	11.3	0.3	352.7	96.7%	43.4	1.9	5.7	0.2	51.3	84.6%
Syrian Arab Republic	54.9	2.3	2.0	0.2	59.3	96.4%	6.2	3.5	2.3	0.0	11.9	51.7%
United Arab Emirates	108.4	1.9	4.1	0.1	114.5	96.3%	20.7	0.6	1.0	-	22.3	92.8%
Yemen	18.8	1.8	0.8	0.0	21.4	96.3%	2.2	3.7	1.9	-	7.8	28.6%
Middle East	**1 198.9**	**60.9**	**41.9**	**25.1**	**1 326.8**	**95.0%**	**198.9**	**35.0**	**30.8**	**0.4**	**265.1**	**75.0%**

2005 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

N_2O						HFCs	PFCs	SF_6	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP *	
1.6	-	17.8	2.1	21.5	7.4%	-	-	-	162.1	29.5%	0.99	Bangladesh
0.0	-	0.1	0.6	0.7	1.7%	0.3	-	-	22.9	40.1%	1.31	Brunei Darussalam
0.3	-	3.8	2.0	6.1	4.1%	-	-	-	60.2	6.7%	2.99	Cambodia
1.3	0.7	1.7	1.4	5.1	25.9%	0.1	3.2	3.3	294.2	90.4%	0.48	Chinese Taipei
26.0	1.8	156.3	27.2	211.2	12.3%	9.8	1.1	4.6	2 104.7	61.9%	0.84	India
4.5	0.2	80.8	71.1	156.6	2.9%	-	0.1	0.9	2 829.0	14.0%	4.01	Indonesia
0.5	-	2.1	0.8	3.4	13.7%	2.8	-	-	104.9	82.0%	0.94	DPR of Korea
0.7	0.4	9.7	4.5	15.3	4.6%	0.0	0.3	0.6	329.4	54.1%	1.09	Malaysia
0.1	-	3.3	0.2	3.5	3.4%	-	-	-	62.2	16.0%	8.53	Mongolia
0.8	-	13.2	17.7	31.7	2.5%	-	-	-	508.6	4.2%	1.03	Myanmar
0.6	-	3.5	0.5	4.5	13.1%	-	-	-	30.2	16.8%	1.16	Nepal
3.3	0.7	19.9	3.2	27.1	12.2%	-	-	0.8	294.6	53.4%	0.87	Pakistan
0.8	0.0	9.5	2.1	12.4	6.2%	-	-	0.4	145.7	52.9%	0.56	Philippines
0.1	0.7	0.0	0.3	1.1	7.9%	1.4	0.8	0.3	57.2	91.4%	0.30	Singapore
0.3	-	1.3	0.5	2.1	13.0%	-	-	-	26.9	53.1%	0.39	Sri Lanka
4.5	0.5	14.6	3.0	22.6	20.1%	-	-	1.1	360.0	66.7%	0.81	Thailand
1.4	-	19.1	2.3	22.8	6.1%	-	-	-	222.9	49.5%	1.25	Vietnam
0.5	-	10.5	3.0	14.0	3.9%	0.1	-	-	127.4	15.2%	1.59	Other Asia
47.2	**5.0**	**367.1**	**142.4**	**561.7**	**8.4%**	**14.5**	**5.6**	**12.0**	**7 743.3**	**38.7%**	**1.18**	**Asia**
45.8	17.9	347.1	52.3	463.2	9.9%	146.7	10.6	29.0	7 733.5	74.3%	1.44	People's Rep. of China
0.2	-	-	0.3	0.4	39.7%	-	-	0.1	46.1	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**	**7 779.6**	**74.4%**	**1.39**	**China**
1.7	0.2	44.4	3.7	50.0	3.4%	0.2	0.1	0.3	317.3	54.0%	0.76	Argentina
0.1	-	5.5	9.7	15.3	0.7%	-	-	-	274.8	6.2%	7.96	Bolivia
5.9	2.5	157.5	72.4	238.2	2.5%	1.8	5.6	1.2	2 547.6	14.5%	1.61	Brazil
0.6	0.3	18.3	2.1	21.3	3.0%	-	0.0	0.1	167.1	42.1%	0.53	Colombia
0.1	0.0	1.1	0.2	1.4	5.0%	0.1	-	-	10.2	58.8%	0.26	Costa Rica
0.3	0.7	5.0	0.5	6.4	4.2%	0.1	-	-	46.2	59.7%	0.96	Cuba
0.2	-	1.7	0.4	2.3	8.6%	-	-	-	27.9	67.2%	0.47	Dominican Republic
0.2	-	3.9	0.5	4.6	3.8%	0.1	-	-	50.0	60.5%	0.57	Ecuador
0.1	-	1.0	0.2	1.4	8.3%	0.1	-	-	11.4	58.1%	0.33	El Salvador
0.3	-	3.0	2.1	5.4	5.6%	0.5	-	-	63.5	18.7%	1.23	Guatemala
0.1	-	1.2	0.1	1.5	6.7%	-	-	-	7.9	35.4%	0.83	Haiti
0.1	-	2.5	0.5	3.1	3.4%	-	-	-	18.4	40.3%	0.82	Honduras
0.1	-	0.4	0.2	0.7	11.1%	0.1	-	-	13.1	81.5%	0.70	Jamaica
0.0	-	0.0	0.0	0.1	17.7%	-	-	-	4.4	96.6%	1.98	Netherlands Antilles
0.1	-	3.1	0.3	3.5	3.2%	-	-	-	14.2	32.0%	1.12	Nicaragua
0.1	-	1.0	0.1	1.2	4.9%	-	-	-	12.1	58.1%	0.41	Panama
0.2	-	7.4	1.5	9.0	1.8%	-	-	-	49.0	9.2%	2.13	Paraguay
0.2	-	6.2	1.3	7.7	2.8%	0.3	-	-	67.1	46.3%	0.38	Peru
0.0	-	0.1	0.1	0.3	11.7%	-	-	-	45.9	95.2%	1.74	Trinidad and Tobago
0.1	-	6.8	0.1	7.0	1.5%	0.1	-	-	32.8	17.9%	1.03	Uruguay
0.6	0.0	11.2	3.1	14.9	4.3%	0.7	0.3	0.2	277.9	64.3%	1.05	Venezuela
0.1	-	2.4	0.8	3.3	3.7%	0.0	0.0	0.0	43.3	39.2%	1.11	Other Non-OECD Americas
11.2	**3.6**	**283.7**	**100.0**	**398.5**	**2.8%**	**4.0**	**6.0**	**1.9**	**4 102.4**	**25.5%**	**1.23**	**Non-OECD Americas**
0.0	-	0.0	0.1	0.1	27.2%	-	0.3	-	21.6	95.4%	1.06	Bahrain
2.5	0.6	20.1	4.0	27.2	9.1%	-	0.1	2.4	589.5	86.9%	0.92	Islamic Rep. of Iran
0.4	-	2.2	0.9	3.5	10.8%	-	-	0.1	116.4	87.6%	1.41	Iraq
0.1	-	0.4	0.2	0.7	9.4%	0.1	-	-	22.3	83.1%	0.95	Jordan
0.2	-	0.1	0.4	0.7	27.6%	0.5	-	0.4	89.8	96.3%	0.81	Kuwait
0.1	-	0.4	0.2	0.6	12.9%	-	-	-	18.1	81.0%	0.47	Lebanon
0.1	-	0.4	0.1	0.6	16.5%	0.2	-	-	69.3	67.0%	1.36	Oman
0.1	-	0.0	0.1	0.3	29.2%	-	-	-	61.3	97.6%	1.07	Qatar
1.0	-	3.0	2.5	6.4	14.8%	0.2	-	2.0	412.6	93.4%	0.84	Saudi Arabia
0.3	0.3	4.3	0.7	5.5	4.8%	-	-	-	76.7	82.9%	1.00	Syrian Arab Republic
0.2	-	0.5	0.7	1.4	16.7%	-	0.3	0.8	139.3	94.2%	0.51	United Arab Emirates
0.4	-	2.4	0.5	3.3	12.3%	-	-	-	32.4	71.6%	0.70	Yemen
5.2	**0.9**	**33.7**	**10.4**	**50.2**	**10.4%**	**1.0**	**0.7**	**5.6**	**1 649.4**	**88.8%**	**0.86**	**Middle East**

* 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 CO_2 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 *	**30 276.1**	**420.0**	**1 776.0**	**5 129.8**	**37 601.9**	**81.6%**	**2 980.4**	**3 389.5**	**1 291.9**	**151.6**	**7 813.4**	**38.1%**
Annex I Parties	*13 398.1*	*125.8*	*403.5*	*440.0*	*14 367.4*	*94.1%*	*972.3*	*639.9*	*446.4*	*3.9*	*2 062.5*	*47.1%*
Annex II Parties	*10 519.3*	*40.1*	*271.1*	*208.8*	*11 039.3*	*95.7%*	*409.9*	*520.2*	*287.8*	*3.2*	*1 221.1*	*33.6%*
North America	*5 905.3*	*19.2*	*67.8*	*43.0*	*6 035.2*	*98.2%*	*254.2*	*222.6*	*150.6*	*1.7*	*629.2*	*40.4%*
Europe	*3 056.6*	*17.1*	*125.5*	*145.0*	*3 344.3*	*91.9%*	*106.8*	*177.7*	*115.9*	*0.6*	*401.0*	*26.6%*
Asia Oceania	*1 557.4*	*3.8*	*77.8*	*20.8*	*1 659.9*	*94.1%*	*48.9*	*119.9*	*21.3*	*0.9*	*190.9*	*25.6%*
Annex I EIT	*2 610.5*	*82.8*	*102.3*	*230.8*	*3 026.4*	*89.0%*	*547.3*	*96.5*	*119.5*	*0.6*	*763.8*	*71.6%*
Non-Annex I Parties	*15 779.0*	*294.2*	*1 372.6*	*4 689.8*	*22 135.5*	*72.6%*	*2 006.4*	*2 749.6*	*845.6*	*147.7*	*5 749.3*	*34.9%*
Annex I Kyoto Parties	*7 695.8*	*108.4*	*311.9*	*362.5*	*8 478.6*	*92.0%*	*745.0*	*412.6*	*283.5*	*2.7*	*1 443.8*	*51.6%*
Int. marine bunkers	**643.7**	**-**	**-**	**-**	**643.7**	**100.0%**	**1.6**	**-**	**-**	**-**	**1.6**	**100%**
Int. aviation bunkers	**455.3**	**-**	**-**	**-**	**455.3**	**100.0%**	**0.1**	**-**	**-**	**-**	**0.1**	**100%**
Non-OECD Total	**16 736.8**	**361.0**	**1 409.1**	**4 854.8**	**23 361.7**	**73.2%**	**2 448.3**	**2 744.7**	**910.0**	**147.2**	**6 250.2**	**39.2%**
OECD Total	**12 440.3**	**58.9**	**367.0**	**275.0**	**13 141.2**	**95.1%**	**530.4**	**644.8**	**382.0**	**4.4**	**1 561.6**	**34.0%**
Canada	536.6	4.7	9.3	7.3	558.0	97.0%	43.2	27.0	33.7	0.5	104.5	41.3%
Chile	69.7	0.4	2.4	0.2	72.7	96.4%	4.3	7.9	5.6	0.2	18.0	24.0%
Mexico	416.9	4.2	16.8	31.3	469.3	89.7%	40.3	55.4	19.4	0.8	115.9	34.8%
United States	5 368.6	14.5	58.4	35.7	5 477.2	98.3%	211.1	195.6	116.9	1.1	524.7	40.2%
OECD Americas	**6 391.9**	**23.8**	**86.9**	**74.6**	**6 577.2**	**97.5%**	**298.9**	**285.9**	**175.6**	**2.7**	**763.0**	**39.2%**
Australia	383.5	1.3	7.6	12.2	404.7	95.1%	44.1	65.0	12.9	0.6	122.5	36.0%
Israel	68.1	0.1	2.3	0.1	70.5	96.6%	1.1	1.1	1.1	-	3.4	32.3%
Japan	1 143.1	2.4	69.6	4.5	1 219.6	93.9%	3.3	29.5	7.2	0.3	40.3	8.1%
Korea	563.1	6.3	22.4	0.0	591.7	96.2%	7.3	13.2	11.4	0.1	32.0	22.8%
New Zealand	30.9	0.1	0.6	4.1	35.6	87.0%	1.5	25.4	1.2	0.0	28.1	5.3%
OECD Asia Oceania	**2 188.6**	**10.2**	**102.5**	**20.9**	**2 322.1**	**94.7%**	**57.2**	**134.2**	**33.8**	**1.0**	**226.3**	**25.3%**
Austria	69.3	0.2	4.0	0.3	73.8	94.2%	2.1	4.0	2.2	0.0	8.4	25.6%
Belgium	106.4	0.3	5.1	0.3	112.2	95.2%	1.5	5.5	2.6	0.0	9.6	15.8%
Czech Republic	114.5	3.3	4.5	0.5	122.7	96.0%	5.2	3.4	3.4	0.0	12.0	43.4%
Denmark	47.0	0.2	1.8	2.7	51.7	91.2%	1.2	5.2	1.3	-	7.8	15.5%
Estonia	18.5	0.8	0.6	9.2	29.1	66.2%	1.0	0.6	0.7	-	2.3	42.8%
Finland	62.9	0.4	1.0	50.7	115.1	55.0%	0.9	1.9	6.0	0.0	8.9	10.4%
France	357.8	2.5	22.4	2.8	385.5	93.5%	36.1	35.2	12.3	0.1	83.8	43.1%
Germany	761.6	4.3	19.1	31.4	816.3	93.8%	14.8	28.6	13.7	0.2	57.2	25.9%
Greece	84.3	0.0	7.7	0.1	92.1	91.5%	1.7	3.6	3.1	0.0	8.4	19.8%
Hungary	48.9	0.5	2.3	0.7	52.4	94.3%	2.2	2.3	2.8	0.0	7.3	30.8%
Iceland	1.9	-	0.1	17.6	19.6	9.8%	0.0	0.2	0.2	0.0	0.4	0.8%
Ireland	38.7	-	2.7	8.0	49.4	78.3%	2.1	10.9	0.9	0.0	13.9	14.9%
Italy	398.5	1.9	21.6	0.4	422.4	94.8%	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	187.0	0.7	1.1	5.4	194.2	96.7%	5.7	9.7	4.9	0.0	20.3	27.9%
Norway	39.2	0.6	1.5	1.0	42.3	94.0%	13.1	2.1	1.9	0.1	17.1	76.3%
Poland	305.1	0.0	10.2	23.3	338.6	90.1%	41.7	15.1	8.6	0.0	65.5	63.8%
Portugal	48.2	0.1	4.3	0.1	52.5	91.8%	1.5	4.1	6.9	0.0	12.6	12.0%
Slovak Republic	35.0	0.5	2.8	0.2	38.5	92.2%	0.9	1.3	1.7	0.0	4.0	23.8%
Slovenia	15.3	-	1.6	0.2	17.1	89.5%	1.2	1.0	0.6	0.0	2.9	42.2%
Spain	268.3	0.6	18.8	0.1	287.8	93.4%	3.2	20.0	13.5	0.1	36.8	8.8%
Sweden	47.6	1.2	2.0	14.4	65.1	74.9%	1.3	3.1	6.4	0.0	10.8	12.0%
Switzerland	43.8	0.0	2.1	0.3	46.3	94.8%	1.2	3.1	0.7	0.0	5.0	23.0%
Turkey	265.9	2.9	30.1	0.3	299.2	89.8%	15.2	23.2	38.9	0.0	77.3	19.6%
United Kingdom	483.5	4.1	9.8	9.5	506.9	96.2%	13.3	23.7	24.2	0.0	61.2	21.7%
OECD Europe	**3 859.8**	**25.0**	**177.6**	**179.5**	**4 241.9**	**91.6%**	**174.3**	**224.7**	**172.6**	**0.7**	**572.3**	**30.5%**
European Union - 27	*3 659.5*	*22.2*	*156.4*	*171.6*	*4 009.7*	*91.8%*	*162.4*	*209.1*	*147.5*	*0.7*	*519.8*	*31.2%*

* Total World includes Non-OECD total, OECD total as well as international bunkers.

Sources: IEA, Sectoral Approach for CO_2 emissions from fuel combustion. EDGAR 4.2 FT2010 database for other emissions. In general, estimates for emissions other than CO_2 from fuel combustion are subject to significantly larger uncertainties.

2010 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

N_2O						HFCs	PFCs	SF_6	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP *	
291.6	**115.1**	**2 166.5**	**510.9**	**3 084.1**	**9.5%**	**761.7**	**75.1**	**166.8**	**49 503.1**	**68.6%**	**0.72**	**World**
126.4	*82.8*	*515.3*	*113.3*	*837.9*	*15.1%*	*545.7*	*46.9*	*72.7*	*17 933.1*	*81.5%*	*0.49*	*Annex I Parties*
106.8	*47.5*	*396.6*	*88.3*	*639.1*	*16.7%*	*493.0*	*24.9*	*60.4*	*13 477.8*	*82.2%*	*0.42*	*Annex II Parties*
69.9	*25.3*	*199.2*	*42.7*	*337.1*	*20.7%*	*324.4*	*10.6*	*45.2*	*7 381.7*	*84.6%*	*0.52*	*North America*
25.9	*17.5*	*137.3*	*32.8*	*213.5*	*12.1%*	*98.6*	*7.3*	*10.8*	*4 075.5*	*78.7%*	*0.32*	*Europe*
11.1	*4.6*	*60.1*	*12.7*	*88.5*	*12.5%*	*70.0*	*7.0*	*4.3*	*2 020.7*	*80.2%*	*0.42*	*Asia Oceania*
16.5	*33.2*	*93.0*	*21.1*	*163.8*	*10.1%*	*47.9*	*21.4*	*10.3*	*4 033.6*	*80.7%*	*0.97*	*Annex I EIT*
156.2	*32.4*	*1 651.2*	*397.6*	*2 237.4*	*7.0%*	*216.0*	*28.2*	*94.1*	*30 460.5*	*59.9%*	*0.96*	*Non-Annex I Parties*
59.4	*53.2*	*302.1*	*70.7*	*485.4*	*12.2%*	*237.5*	*39.9*	*29.5*	*10 714.7*	*80.3%*	*0.47*	*Annex I Kyoto Parties*
4.9	**-**	**-**	**-**	**4.9**	**100%**	**-**	**-**	**-**	**650.2**	**100.0%**	**..**	**Int. marine bunkers**
4.0	**-**	**-**	**-**	**4.0**	**100%**	**-**	**-**	**-**	**459.4**	**100.0%**	**..**	**Int. aviation bunkers**
157.9	**60.3**	**1 668.0**	**403.0**	**2 289.2**	**6.9%**	**241.7**	**45.7**	**96.7**	**32 285.1**	**61.0%**	**1.03**	**Non-OECD Total**
124.7	**54.9**	**498.5**	**107.9**	**786.0**	**15.9%**	**520.0**	**29.5**	**70.1**	**16 108.5**	**81.7%**	**0.43**	**OECD Total**
6.6	0.7	21.0	4.6	33.0	20.1%	21.6	4.2	4.0	725.3	81.5%	0.60	Canada
0.6	0.7	6.5	1.0	8.8	6.6%	-	-	0.0	99.5	75.4%	0.43	Chile
3.7	0.6	32.5	6.3	43.1	8.6%	10.0	1.5	0.5	640.3	72.6%	0.46	Mexico
63.2	24.6	178.2	38.1	304.1	20.8%	302.8	6.4	41.2	6 656.4	85.0%	0.51	United States
74.1	**26.6**	**238.2**	**50.1**	**389.0**	**19.1%**	**334.4**	**12.1**	**45.8**	**8 121.5**	**83.6%**	**0.51**	**OECD Americas**
3.7	2.0	41.9	3.9	51.5	7.2%	8.0	0.6	0.5	587.7	73.6%	0.71	Australia
0.3	0.0	0.9	0.6	1.7	16.6%	2.0	0.1	0.7	78.4	88.6%	0.40	Israel
7.1	2.6	7.5	8.5	25.7	27.5%	60.8	6.2	3.8	1 356.4	85.2%	0.35	Japan
3.8	1.1	6.6	3.2	14.7	25.6%	0.9	1.8	6.2	647.3	89.7%	0.49	Korea
0.3	-	10.8	0.3	11.3	2.5%	1.2	0.2	0.1	76.5	42.8%	0.68	New Zealand
15.1	**5.8**	**67.6**	**16.4**	**104.9**	**14.4%**	**72.9**	**9.0**	**11.2**	**2 746.4**	**82.7%**	**0.43**	**OECD Asia Oceania**
0.7	0.1	2.2	0.8	3.8	19.4%	2.8	1.0	0.2	89.9	80.5%	0.30	Austria
0.7	5.4	2.8	1.2	10.1	7.0%	2.7	0.0	0.1	134.7	80.9%	0.38	Belgium
1.5	0.5	4.5	0.8	7.3	20.0%	3.6	0.0	0.0	145.7	85.4%	0.59	Czech Republic
0.6	-	4.3	0.6	5.4	10.4%	1.7	0.0	0.0	66.7	73.4%	0.37	Denmark
0.1	-	0.6	0.2	0.9	15.0%	0.1	0.0	0.0	32.4	62.9%	1.45	Estonia
2.4	0.2	2.6	0.7	5.8	41.5%	1.2	0.0	0.1	131.1	50.9%	0.78	Finland
3.5	1.8	29.0	4.3	38.7	9.2%	19.8	0.4	1.4	529.6	75.5%	0.28	France
5.6	3.6	27.7	5.6	42.4	13.1%	20.6	0.9	5.3	942.8	83.4%	0.35	Germany
0.7	0.4	3.1	0.9	5.1	13.7%	1.2	0.1	0.1	107.0	81.0%	0.39	Greece
0.3	0.0	3.3	0.6	4.2	7.4%	1.7	0.0	0.0	65.7	79.1%	0.39	Hungary
0.0	0.0	0.3	0.0	0.4	3.8%	0.1	0.1	0.0	20.5	9.4%	1.97	Iceland
0.3	-	7.0	0.4	7.7	3.7%	1.2	0.0	0.1	72.3	56.7%	0.45	Ireland
3.1	0.9	10.6	5.0	19.6	15.9%	14.1	0.5	1.0	495.1	82.9%	0.30	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%	4.4	0.3	0.2	228.6	85.0%	0.37	Netherlands
0.3	0.4	1.8	0.8	3.3	10.2%	0.5	1.2	0.2	64.5	82.4%	0.28	Norway
4.0	1.5	18.7	2.6	26.8	15.0%	2.0	0.3	0.3	433.4	80.9%	0.65	Poland
0.5	0.4	2.5	0.9	4.3	11.5%	1.1	0.5	0.2	71.1	70.6%	0.31	Portugal
0.4	0.9	1.7	0.3	3.4	12.2%	1.5	0.1	-	47.4	77.7%	0.43	Slovak Republic
0.1	-	0.9	0.2	1.2	11.5%	0.5	0.1	0.0	21.8	76.6%	0.42	Slovenia
2.4	0.7	15.1	4.3	22.6	10.8%	9.9	1.2	0.9	359.3	76.4%	0.29	Spain
1.2	0.5	3.1	0.8	5.6	22.0%	1.6	0.4	0.2	83.8	61.2%	0.26	Sweden
0.4	0.2	1.4	0.5	2.4	16.2%	2.3	0.1	0.4	56.4	80.5%	0.19	Switzerland
3.1	2.1	25.7	3.9	34.9	9.0%	4.7	0.7	2.0	418.7	68.6%	0.46	Turkey
2.4	1.4	17.9	4.8	26.5	9.2%	13.3	0.5	0.6	608.9	82.7%	0.30	United Kingdom
35.5	**22.5**	**192.7**	**41.5**	**292.1**	**12.1%**	**112.8**	**8.4**	**13.1**	**5 240.6**	**78.1%**	**0.35**	**OECD Europe**
32.7	*21.9*	*177.8*	*38.4*	*270.7*	*12.1%*	*109.8*	*6.6*	*10.6*	*4 927.2*	*78.7%*	*0.35*	*European Union - 27*

* GHG / GDP PPP ratio is expressed in kg of CO_2-equivalent per 2005 USD.

2010 Greenhouse-gas emissions

million tonnes of CO_2 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	**16 736.8**	**361.0**	**1 409.1**	**4 854.8**	**23 361.7**	**73.2%**	**2 448.3**	**2 744.7**	**910.0**	**147.2**	**6 250.2**	**39.2%**
Albania	3.8	-	0.4	0.6	4.7	79.9%	0.8	1.6	0.2	0.0	2.6	30.0%
Armenia	4.0	-	0.4	0.1	4.6	88.7%	2.0	1.1	0.3	-	3.3	59.5%
Azerbaijan	24.7	0.2	0.8	0.1	25.8	96.4%	10.9	5.7	1.8	0.0	18.4	59.5%
Belarus	65.3	0.0	3.0	41.5	109.9	59.5%	1.0	8.5	6.9	0.0	16.4	6.4%
Bosnia-Herzegovina	19.9	0.3	0.7	0.3	21.2	95.4%	1.4	1.3	0.3	-	3.1	47.2%
Bulgaria	43.8	0.0	3.5	0.2	47.5	92.3%	1.6	1.8	8.7	0.0	12.0	12.9%
Croatia	19.0	0.0	3.3	0.0	22.3	85.2%	2.4	1.3	1.3	0.0	5.0	47.4%
Cyprus	7.2	-	0.8	-	8.1	89.6%	0.0	0.2	0.4	-	0.6	2.1%
Georgia	4.9	0.0	0.2	0.2	5.4	92.3%	2.0	2.4	0.5	0.0	4.9	40.8%
Gibraltar	0.5	-	0.0	-	0.5	99.8%	0.0	-	0.0	-	0.0	4.7%
Kazakhstan	232.1	12.2	4.7	0.1	249.0	98.1%	45.7	14.7	5.5	1.7	67.5	67.6%
Kosovo *	8.5	..	..	..	..	..	..	..	..	..	..	..
Kyrgyzstan	7.0	-	0.6	0.4	8.0	87.2%	0.3	3.0	0.7	-	4.0	6.7%
Latvia	8.1	-	0.2	4.1	12.4	65.2%	1.8	0.8	0.6	0.0	3.2	57.2%
Lithuania	13.4	0.0	0.6	6.0	20.0	66.8%	1.8	1.8	1.4	0.0	5.1	35.0%
FYR of Macedonia	8.2	-	0.4	0.0	8.6	95.0%	0.5	0.6	0.3	0.0	1.4	33.6%
Malta	2.5	-	0.0	-	2.5	99.7%	0.0	0.0	0.2	-	0.2	0.3%
Republic of Moldova	6.1	-	0.4	0.0	6.5	94.2%	1.8	0.8	0.8	-	3.4	53.9%
Montenegro *	2.1	..	..	..	..	..	..	..	..	..	..	..
Romania	75.6	0.7	7.5	1.0	84.7	90.0%	12.3	8.5	5.3	0.0	26.1	47.1%
Russian Federation	1 581.4	64.7	45.8	139.3	1 831.2	89.9%	426.0	40.6	66.6	0.4	533.5	79.8%
Serbia *	46.0	-	1.5	0.6	48.1	95.7%	3.1	2.4	1.0	0.0	6.6	47.5%
Tajikistan	2.7	-	0.2	-	2.9	94.7%	0.5	3.6	0.8	-	4.9	10.9%
Turkmenistan	52.7	2.2	0.4	0.3	55.6	98.7%	19.5	6.1	1.0	-	26.5	73.4%
Ukraine	266.6	12.3	16.4	4.6	299.9	93.0%	48.0	9.5	10.8	0.1	68.4	70.2%
Uzbekistan	100.2	3.2	3.2	1.1	107.7	96.0%	25.6	17.4	3.8	-	46.9	54.6%
Non-OECD Europe and Eurasia	**2 606.3**	**95.8**	**95.0**	**200.4**	**2 997.6**	**90.1%**	**609.0**	**133.6**	**119.3**	**2.3**	**864.2**	**70.5%**
Algeria	98.6	10.6	7.7	0.0	116.9	93.4%	37.5	4.9	5.3	0.0	47.7	78.6%
Angola	16.6	7.2	0.6	7.4	31.8	74.8%	11.9	4.2	2.3	0.2	18.6	64.1%
Benin	4.5	-	0.7	30.8	36.0	12.5%	1.0	3.0	1.1	1.7	6.8	14.8%
Botswana	4.6	-	0.1	0.4	5.1	89.9%	0.5	3.5	0.3	0.0	4.4	11.1%
Cameroon	5.0	1.6	0.4	42.5	49.6	13.4%	2.6	11.6	2.2	1.8	18.2	14.4%
Congo	1.7	3.3	-	27.4	32.3	15.4%	3.9	1.6	0.6	0.8	7.0	55.4%
Dem. Rep. of Congo	3.1	-	0.2	969.0	972.4	0.3%	6.6	18.4	6.5	42.3	73.9	8.9%
Côte d'Ivoire	5.8	0.2	0.3	59.8	66.1	9.0%	3.5	2.4	1.9	8.2	15.9	22.2%
Egypt	177.6	2.7	19.6	0.0	199.9	90.2%	29.7	13.3	8.0	0.0	51.0	58.3%
Eritrea	0.5	-	0.0	-	0.5	95.7%	0.6	1.8	0.4	-	2.8	20.5%
Ethiopia	5.4	-	0.8	0.5	6.7	79.8%	10.7	44.6	7.9	-	63.2	16.9%
Gabon	2.7	3.0	0.1	11.3	17.0	33.0%	2.4	0.2	0.4	0.8	3.8	63.8%
Ghana	9.5	-	0.8	38.1	48.4	19.6%	3.1	11.8	2.9	2.9	20.7	15.1%
Kenya	10.9	-	1.6	4.2	16.7	65.0%	8.1	14.8	4.5	-	27.5	29.6%
Libya	51.6	6.7	2.8	0.0	61.1	95.4%	16.0	0.9	1.1	0.0	18.1	88.5%
Morocco	46.0	-	4.9	0.0	50.8	90.4%	1.6	5.8	4.3	0.0	11.8	13.9%
Mozambique	2.5	-	0.3	14.5	17.4	14.4%	4.9	2.1	2.8	0.0	9.8	50.5%
Namibia	3.3	-	0.0	0.0	3.4	98.8%	0.1	4.6	0.3	-	5.0	2.7%
Nigeria	45.9	26.6	2.2	23.8	98.5	73.6%	36.1	35.7	14.8	1.5	88.0	41.0%
Senegal	5.5	-	1.4	0.0	6.9	79.1%	1.8	6.2	1.7	-	9.7	19.0%
South Africa	346.8	12.8	6.9	0.6	367.2	97.9%	29.8	20.1	13.1	2.3	65.3	45.7%
Sudan	13.7	-	0.1	4.0	17.8	76.8%	7.2	81.2	6.3	-	94.6	7.6%
United Rep. of Tanzania	6.0	0.1	0.7	24.3	31.0	19.4%	7.0	15.7	4.6	0.1	27.4	25.4%
Togo	1.2	-	0.4	12.3	13.8	8.5%	1.7	2.0	0.8	0.8	5.2	32.6%
Tunisia	21.9	0.6	3.6	0.0	26.1	86.3%	4.5	2.2	0.8	0.0	7.5	60.0%
Zambia	1.9	-	0.4	59.4	61.8	3.1%	2.6	2.5	1.4	-	6.4	40.1%
Zimbabwe	9.1	0.4	0.2	1.0	10.6	88.7%	1.1	5.8	1.6	0.0	8.4	12.9%
Other Africa	27.9	2.0	1.3	570.2	601.4	5.0%	31.5	170.1	19.5	35.3	256.4	12.3%
Africa	**929.7**	**77.5**	**58.4**	**1 901.8**	**2 967.3**	**33.9%**	**268.2**	**490.7**	**117.5**	**98.9**	**975.3**	**27.5%**

* For 2010, Serbia includes Kosovo and Montenegro for all emissions other than CO_2 from fuel combustion.

2010 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

N_2O						HFCs	PFCs	SF_6	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP *	
157.9	**60.3**	**1 668.0**	**403.0**	**2 289.2**	**6.9%**	**241.7**	**45.7**	**96.7**	**32 285.1**	**61.0%**	**1.03**	**Non-OECD Total**
0.1	-	0.9	0.1	1.1	6.1%	0.1	-	-	8.5	54.0%	0.35	Albania
0.0	-	0.9	0.1	1.0	2.3%	0.6	-	-	9.4	64.1%	0.62	Armenia
0.1	-	2.1	0.4	2.6	5.1%	0.1	0.2	-	47.2	76.3%	0.58	Azerbaijan
0.7	2.8	9.3	0.6	13.4	5.3%	0.5	0.0	-	140.3	47.8%	1.18	Belarus
0.1	-	0.8	0.2	1.1	11.7%	0.8	0.1	-	26.2	83.0%	0.95	Bosnia-Herzegovina
0.3	0.5	3.2	0.5	4.5	6.4%	0.6	0.0	-	64.7	70.7%	0.75	Bulgaria
0.2	0.9	1.6	0.3	2.9	6.5%	0.1	0.0	-	30.4	71.1%	0.43	Croatia
0.0	-	0.2	0.1	0.3	11.5%	0.3	-	-	9.3	78.2%	0.45	Cyprus
0.1	0.8	1.2	0.2	2.3	3.0%	0.0	-	-	12.5	55.9%	0.62	Georgia
0.0	-	-	0.0	0.0	37.5%	-	-	-	0.5	97.5%	0.60	Gibraltar
1.4	-	12.3	3.8	17.5	7.8%	0.6	-	-	334.6	87.1%	1.88	Kazakhstan
..	..	..	..	..	..	..	..	..	..	..	..	Kosovo
0.0	-	1.2	0.2	1.5	1.8%	0.0	-	-	13.5	54.0%	1.23	Kyrgyzstan
0.2	-	1.0	0.2	1.4	12.0%	1.4	0.0	-	18.4	55.0%	0.63	Latvia
0.1	0.5	3.8	0.2	4.6	2.5%	1.3	0.0	-	31.0	49.2%	0.61	Lithuania
0.0	-	0.4	0.1	0.5	8.7%	0.2	-	-	10.7	81.3%	0.57	FYR of Macedonia
0.0	-	0.0	0.0	0.1	8.9%	0.2	-	-	3.0	84.0%	0.31	Malta
0.1	-	0.5	0.1	0.6	8.7%	0.0	-	-	10.6	75.9%	1.06	Republic of Moldova
..	..	..	..	..	..	..	..	..	..	..	..	Montenegro
0.5	1.1	6.0	1.1	8.8	6.0%	0.8	0.2	0.0	120.7	73.8%	0.51	Romania
6.8	17.0	28.8	11.1	63.7	10.7%	33.2	20.6	9.6	2 491.9	83.4%	1.24	Russian Federation
0.3	0.2	6.5	0.5	7.4	4.0%	7.2	0.1	-	69.5	71.2%	0.99	Serbia
0.0	-	1.5	0.2	1.7	1.2%	0.0	0.3	-	9.9	33.2%	0.74	Tajikistan
0.1	0.9	3.7	0.3	5.0	1.8%	0.1	-	-	87.2	85.4%	2.33	Turkmenistan
1.2	7.5	9.5	2.4	20.7	5.9%	0.4	0.1	0.4	390.0	84.1%	1.41	Ukraine
0.3	0.1	10.5	1.1	12.0	2.8%	1.0	-	-	167.5	77.2%	2.13	Uzbekistan
12.7	**32.3**	**105.9**	**23.8**	**174.7**	**7.3%**	**49.5**	**21.8**	**10.0**	**4 117.9**	**80.7%**	**1.17**	**Non-OECD Europe and Eurasia**
0.5	1.6	3.1	1.1	6.3	8.0%	0.3	-	0.4	171.6	85.8%	0.64	Algeria
0.2	-	2.9	0.5	3.6	6.2%	0.0	-	-	54.0	66.6%	0.51	Angola
0.1	-	2.9	1.7	4.8	2.9%	-	-	-	47.6	11.9%	3.78	Benin
0.1	-	2.1	0.1	2.2	2.7%	-	-	-	11.7	44.1%	0.47	Botswana
0.3	-	10.6	2.8	13.6	1.8%	-	0.4	-	81.7	11.6%	2.03	Cameroon
0.1	-	1.6	1.3	2.9	2.9%	0.0	-	-	42.3	21.1%	2.74	Congo
1.4	-	21.3	43.9	66.6	2.1%	-	-	-	1 112.8	1.0%	54.20	Dem. Rep. of Congo
0.2	-	2.7	6.9	9.8	2.4%	-	-	-	91.9	10.6%	2.73	Côte d'Ivoire
1.7	5.7	14.9	2.4	24.6	6.8%	0.5	1.9	1.5	279.3	75.8%	0.62	Egypt
0.1	-	1.1	0.1	1.2	6.0%	-	-	-	4.6	25.0%	1.78	Eritrea
1.8	-	34.2	3.1	39.1	4.6%	0.0	-	-	109.0	16.4%	1.41	Ethiopia
0.0	-	0.2	0.6	0.8	5.3%	0.0	-	-	21.6	37.3%	1.07	Gabon
0.5	-	13.0	3.8	17.2	2.9%	0.0	-	-	86.3	15.2%	2.40	Ghana
0.7	-	9.9	0.8	11.4	6.0%	-	-	-	55.6	35.5%	0.93	Kenya
0.2	-	0.7	0.6	1.4	12.3%	-	-	0.4	81.0	91.9%	0.81	Libya
0.7	-	4.1	1.1	5.9	11.4%	-	-	-	68.5	70.5%	0.50	Morocco
0.4	-	1.1	0.7	2.2	16.0%	0.1	0.2	-	29.7	26.2%	1.50	Mozambique
0.1	-	2.8	0.1	3.0	4.5%	-	-	-	11.3	31.7%	0.86	Namibia
1.9	-	28.1	5.5	35.5	5.2%	0.6	0.0	0.4	223.0	49.5%	0.66	Nigeria
0.1	-	5.7	0.6	6.4	2.3%	-	-	-	23.1	32.4%	1.07	Senegal
2.2	0.0	14.1	5.6	21.9	10.2%	0.8	0.5	1.9	457.6	85.6%	0.97	South Africa
0.7	-	72.1	10.5	83.3	0.8%	-	-	-	195.8	11.0%	2.22	Sudan
0.7	-	10.7	1.6	12.9	5.2%	-	-	-	71.4	19.2%	1.27	United Rep. of Tanzania
0.1	-	2.0	0.8	3.0	5.0%	-	-	-	22.0	13.7%	4.08	Togo
0.2	0.3	2.1	0.3	2.9	7.0%	-	-	-	36.5	74.6%	0.40	Tunisia
0.2	0.3	5.4	2.3	8.2	2.8%	0.0	-	-	76.4	6.2%	4.22	Zambia
0.2	-	3.7	0.2	4.2	5.6%	-	-	-	23.2	46.3%	6.94	Zimbabwe
3.6	-	149.6	41.6	194.7	1.8%	0.2	-	-	1 052.7	6.2%	4.44	Other Africa
19.0	**7.9**	**422.5**	**140.3**	**589.7**	**3.2%**	**2.6**	**3.0**	**4.6**	**4 542.4**	**28.5%**	**1.64**	**Africa**

* 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 CO_2 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	53.0	0.2	2.4	5.4	60.9	87.3%	12.4	70.4	20.3	0.0	103.1	12.0%
Brunei Darussalam	8.2	0.3	0.1	5.5	14.1	60.2%	4.3	0.0	0.1	-	4.5	97.3%
Cambodia	3.8	-	0.0	138.6	142.3	2.6%	1.4	21.4	1.9	10.5	35.2	4.0%
Chinese Taipei	270.2	1.3	8.6	-	280.1	96.9%	1.4	1.2	6.3	0.0	8.9	16.0%
India	1 625.8	32.7	120.1	36.1	1 814.8	91.4%	116.1	377.6	125.3	2.5	621.5	18.7%
Indonesia	410.9	4.2	17.8	1 182.7	1 615.5	25.7%	68.2	94.3	56.2	0.3	218.9	31.1%
DPR of Korea	63.0	-	2.9	2.5	68.4	92.1%	10.9	4.4	3.4	0.0	18.6	58.5%
Malaysia	185.0	2.6	9.2	78.2	275.0	68.2%	21.6	5.5	5.9	0.5	33.6	64.4%
Mongolia	11.9	0.1	0.1	47.0	59.0	20.2%	1.0	4.8	0.3	0.0	6.1	16.4%
Myanmar	8.0	0.1	0.3	243.2	251.6	3.2%	10.7	59.3	7.2	1.9	79.1	13.5%
Nepal	3.7	-	0.1	0.2	4.0	91.1%	1.5	19.2	2.8	0.0	23.5	6.4%
Pakistan	134.6	2.2	12.7	0.1	149.5	91.5%	40.5	95.0	19.8	0.0	155.2	26.1%
Philippines	76.4	0.1	6.1	1.0	83.7	91.5%	6.1	34.7	15.2	0.0	56.0	10.9%
Singapore	62.9	0.2	0.3	0.1	63.5	99.3%	1.3	0.0	1.0	0.0	2.3	57.5%
Sri Lanka	13.3	-	0.8	0.2	14.4	92.5%	0.6	7.8	3.3	-	11.6	5.0%
Thailand	248.5	-	13.3	36.7	298.4	83.2%	23.2	64.2	14.2	2.7	104.4	22.3%
Vietnam	130.5	0.9	22.2	8.9	162.4	80.9%	40.9	58.0	12.1	0.2	111.3	36.8%
Other Asia	20.9	0.1	0.5	115.9	137.4	15.3%	3.3	20.4	6.0	6.1	35.8	9.3%
Asia	**3 330.6**	**44.9**	**217.4**	**1 902.2**	**5 495.1**	**61.4%**	**365.5**	**938.2**	**301.3**	**24.8**	**1 629.8**	**22.4%**
People's Rep. of China	7 217.1	68.7	918.5	73.7	8 278.0	88.0%	819.3	589.9	229.2	3.9	1 642.3	49.9%
Hong Kong, China	41.5	1.3	0.5	-	43.3	98.9%	0.8	-	2.3	-	3.1	24.6%
China	**7 258.5**	**70.0**	**919.0**	**73.7**	**8 321.3**	**88.1%**	**820.1**	**589.9**	**231.5**	**3.9**	**1 645.3**	**49.8%**
Argentina	170.2	0.8	5.6	3.4	180.1	95.0%	15.8	62.6	7.9	0.4	86.7	18.3%
Bolivia	14.1	0.1	0.7	97.2	112.1	12.7%	10.3	10.6	1.4	0.5	22.8	45.1%
Brazil	387.7	3.0	27.6	523.7	942.0	41.5%	43.3	327.2	62.8	10.0	443.3	9.8%
Colombia	60.7	1.2	5.2	15.4	82.5	75.0%	13.6	43.8	6.5	2.8	66.7	20.4%
Costa Rica	6.5	-	0.6	0.0	7.2	91.3%	0.3	1.5	0.5	-	2.3	11.4%
Cuba	30.0	1.5	0.8	3.1	35.4	89.1%	0.8	5.1	2.5	-	8.4	9.9%
Dominican Republic	18.6	-	1.7	0.1	20.3	91.3%	0.8	4.0	2.0	-	6.7	11.6%
Ecuador	30.1	3.1	1.6	0.7	35.6	93.3%	3.4	10.3	1.7	0.0	15.5	22.2%
El Salvador	5.9	-	0.5	0.1	6.5	90.5%	0.4	1.6	1.0	-	3.0	12.5%
Guatemala	10.3	-	1.3	20.0	31.6	32.6%	1.7	3.5	1.5	0.1	6.7	24.7%
Haiti	2.1	-	0.2	0.0	2.3	90.9%	0.9	2.2	1.4	-	4.5	19.2%
Honduras	7.3	-	0.7	2.4	10.4	69.9%	0.5	4.4	0.9	-	5.7	8.3%
Jamaica	8.0	-	0.4	0.1	8.5	93.9%	0.1	0.6	0.5	-	1.3	9.9%
Netherlands Antilles	3.8	-	-	-	3.8	100.0%	0.1	0.0	0.1	-	0.1	51.3%
Nicaragua	4.5	-	0.2	0.4	5.1	87.3%	0.4	4.7	1.3	-	6.4	6.6%
Panama	8.4	-	0.4	0.4	9.2	90.9%	0.1	2.7	0.5	-	3.3	3.7%
Paraguay	4.7	-	0.3	11.6	16.6	28.2%	1.4	13.2	1.3	0.1	15.9	8.7%
Peru	41.9	0.1	2.9	6.6	51.5	81.6%	3.9	11.5	3.5	0.0	18.9	20.6%
Trinidad and Tobago	42.8	0.1	0.4	0.0	43.3	99.2%	12.6	0.1	1.5	0.4	14.5	86.6%
Uruguay	6.4	-	0.3	0.4	7.1	90.7%	0.7	17.8	0.7	0.0	19.2	3.6%
Venezuela	183.0	5.7	3.9	48.7	241.4	78.2%	23.9	25.8	5.5	1.9	57.1	41.8%
Other Non-OECD Americas	18.4	-	0.4	16.7	35.5	51.9%	0.2	2.6	1.1	0.4	4.3	5.1%
Non-OECD Americas	**1 065.4**	**15.7**	**55.8**	**751.2**	**1 888.1**	**57.3%**	**135.1**	**555.7**	**105.9**	**16.7**	**813.4**	**16.6%**
Bahrain	23.6	-	0.2	-	23.8	99.3%	3.0	0.0	0.2	0.0	3.3	91.9%
Islamic Rep. of Iran	509.0	20.5	23.6	0.2	553.4	95.7%	79.4	21.6	14.0	0.3	115.3	68.9%
Iraq	104.5	16.0	2.5	3.3	126.3	95.4%	16.6	3.2	4.1	0.0	23.9	69.4%
Jordan	18.6	-	1.9	-	20.5	90.7%	0.8	0.4	0.9	-	2.1	38.9%
Kuwait	87.4	2.6	1.0	-	91.0	98.9%	11.4	0.2	0.9	0.0	12.4	91.6%
Lebanon	18.6	-	2.2	0.0	20.8	89.3%	0.1	0.3	0.7	-	1.1	10.5%
Oman	40.3	3.1	1.8	22.0	67.2	64.6%	15.4	0.6	0.6	-	16.5	92.9%
Qatar	64.9	3.2	1.5	-	69.7	97.8%	39.6	0.1	0.6	0.0	40.3	98.2%
Saudi Arabia	446.0	5.9	17.8	-	469.6	96.2%	51.7	1.8	6.5	0.2	60.3	85.8%
Syrian Arab Republic	57.8	1.7	2.4	0.0	61.9	96.2%	6.2	3.8	2.5	0.0	12.5	49.7%
United Arab Emirates	154.0	1.5	7.1	0.0	162.6	95.6%	23.8	0.6	1.2	-	25.6	92.8%
Yemen	21.7	2.4	1.5	0.0	25.5	94.3%	2.4	4.1	2.3	-	8.8	27.2%
Middle East	**1 546.3**	**57.1**	**63.4**	**25.5**	**1 692.3**	**94.7%**	**250.4**	**36.7**	**34.5**	**0.6**	**322.2**	**77.7%**

2010 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

N_2O						HFCs	PFCs	SF_6	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP *	
1.8	-	22.0	2.4	26.2	6.9%	-	-	-	190.2	35.4%	0.86	Bangladesh
0.0	-	0.1	0.2	0.3	5.0%	0.4	-	-	19.3	66.4%	1.05	Brunei Darussalam
0.3	-	8.1	8.0	16.4	1.7%	-	-	-	193.9	2.8%	6.97	Cambodia
1.4	0.7	1.7	1.2	5.0	27.2%	0.1	2.7	4.3	301.0	91.1%	0.41	Chinese Taipei
28.8	0.3	170.6	34.5	234.1	12.3%	16.0	1.7	5.8	2 693.9	66.9%	0.72	India
4.1	0.2	65.6	21.4	91.3	4.5%	-	0.1	1.1	1 927.0	25.3%	2.07	Indonesia
0.4	-	2.2	0.6	3.2	12.6%	4.2	-	-	94.5	78.7%	0.91	DPR of Korea
1.0	0.9	10.4	2.8	15.0	6.4%	0.0	0.4	0.8	324.8	64.7%	0.87	Malaysia
0.1	-	3.2	0.1	3.5	3.3%	-	-	-	68.6	19.0%	6.88	Mongolia
0.8	-	12.9	12.5	26.3	3.2%	-	-	-	357.0	5.5%	0.43	Myanmar
0.6	-	3.4	0.5	4.5	14.3%	-	-	-	32.0	18.2%	0.99	Nepal
3.7	0.0	23.0	3.3	30.1	12.3%	-	-	1.0	335.9	53.9%	0.80	Pakistan
0.8	0.0	9.4	2.3	12.5	6.1%	-	-	0.5	152.7	54.6%	0.46	Philippines
0.1	0.7	0.0	1.0	1.9	4.7%	2.2	0.7	0.4	71.0	90.9%	0.27	Singapore
0.3	-	1.3	0.5	2.1	13.7%	-	-	-	28.2	50.5%	0.30	Sri Lanka
3.2	0.6	20.0	6.5	30.2	10.5%	-	-	1.4	434.5	63.3%	0.82	Thailand
1.7	-	28.6	3.5	33.8	5.2%	-	-	-	307.5	56.6%	1.23	Vietnam
0.6	-	9.2	7.6	17.4	3.3%	0.1	-	-	190.7	13.1%	1.60	Other Asia
49.6	**3.4**	**391.8**	**109.0**	**553.8**	**9.0%**	**23.1**	**5.6**	**15.2**	**7 722.6**	**49.1%**	**0.85**	**Asia**
58.1	12.9	415.1	64.2	550.3	10.6%	157.2	8.4	57.1	10 693.3	76.3%	1.17	People's Rep. of China
0.2	-	-	0.3	0.5	41.0%	-	-	0.2	47.0	93.1%	0.16	Hong Kong, China
58.3	**12.9**	**415.1**	**64.5**	**550.8**	**10.6%**	**157.2**	**8.4**	**57.2**	**10 740.3**	**76.4%**	**1.14**	**China**
1.8	0.2	48.0	2.1	52.1	3.4%	0.4	0.1	0.4	319.9	59.0%	0.55	Argentina
0.2	-	5.2	4.2	9.5	1.8%	-	-	-	144.5	17.1%	3.34	Bolivia
7.4	1.9	165.0	33.2	207.6	3.6%	3.3	5.8	1.5	1 603.5	27.5%	0.82	Brazil
0.7	0.1	20.1	4.3	25.1	2.7%	-	-	0.1	174.4	43.6%	0.44	Colombia
0.1	0.0	1.3	0.2	1.5	5.2%	0.1	-	-	11.1	62.1%	0.23	Costa Rica
0.2	0.5	4.5	0.6	5.8	3.3%	0.2	-	-	49.8	65.4%	0.80	Cuba
0.2	-	1.5	0.4	2.1	10.2%	-	-	-	29.2	67.0%	0.35	Dominican Republic
0.2	-	4.6	0.5	5.3	3.6%	0.1	-	-	56.5	65.2%	0.54	Ecuador
0.1	-	1.0	0.2	1.4	7.2%	0.1	-	-	11.0	57.8%	0.30	El Salvador
0.4	-	2.9	1.2	4.5	8.5%	0.8	-	-	43.7	28.3%	0.71	Guatemala
0.1	-	1.2	0.2	1.5	7.2%	-	-	-	8.3	37.3%	0.83	Haiti
0.1	-	2.4	0.6	3.1	3.9%	-	-	-	19.3	40.9%	0.72	Honduras
0.1	-	0.4	0.2	0.6	10.8%	0.1	-	-	10.5	77.7%	0.56	Jamaica
0.0	-	0.0	0.1	0.1	18.4%	-	-	-	4.0	97.2%	1.67	Netherlands Antilles
0.1	-	3.0	0.3	3.4	3.4%	-	-	-	14.9	33.6%	0.98	Nicaragua
0.1	-	1.0	0.3	1.4	6.2%	-	-	-	13.9	61.8%	0.32	Panama
0.2	-	8.2	0.7	9.2	2.3%	-	-	-	41.7	15.1%	1.39	Paraguay
0.3	-	7.1	0.9	8.3	3.7%	0.5	-	-	79.3	58.3%	0.32	Peru
0.0	-	0.1	0.1	0.3	15.4%	-	-	-	58.1	95.6%	1.88	Trinidad and Tobago
0.1	-	7.7	0.1	7.9	1.7%	0.1	-	-	34.3	21.2%	0.79	Uruguay
0.8	0.0	11.7	3.3	15.8	5.1%	1.7	0.2	0.3	316.4	67.4%	1.00	Venezuela
0.1	-	2.2	0.9	3.3	4.4%	0.0	-	0.0	43.1	43.6%	1.05	Other Non-OECD Americas
13.4	**2.6**	**299.2**	**54.8**	**370.0**	**3.6%**	**7.5**	**6.0**	**2.4**	**3 087.3**	**39.8%**	**0.74**	**Non-OECD Americas**
0.0	-	0.0	0.1	0.1	25.0%	-	0.3	-	27.5	96.9%	1.03	Bahrain
1.9	0.9	18.6	2.5	23.9	8.0%	-	0.1	3.0	695.7	87.8%	0.90	Islamic Rep. of Iran
0.5	-	2.5	1.9	4.9	10.3%	-	-	0.1	155.2	88.7%	1.52	Iraq
0.1	-	0.3	0.2	0.6	10.5%	0.2	-	-	23.4	83.4%	0.75	Jordan
0.2	-	0.1	0.4	0.7	28.8%	0.9	-	0.5	105.6	96.2%	0.86	Kuwait
0.1	-	0.2	0.2	0.5	15.5%	-	-	-	22.4	83.9%	0.42	Lebanon
0.1	-	0.8	0.2	1.1	9.5%	0.3	0.0	-	85.2	69.1%	1.24	Oman
0.1	-	0.1	0.2	0.3	28.2%	-	-	-	110.4	97.7%	0.81	Qatar
1.1	-	2.2	2.9	6.2	17.5%	0.3	-	2.6	539.1	93.6%	0.96	Saudi Arabia
0.2	0.3	4.6	0.8	5.9	3.7%	-	-	-	80.3	82.1%	0.83	Syrian Arab Republic
0.2	-	1.4	0.7	2.4	8.2%	-	0.4	1.0	192.0	93.5%	0.60	United Arab Emirates
0.5	-	2.6	0.6	3.6	12.5%	-	-	-	37.9	71.0%	0.66	Yemen
4.9	**1.2**	**33.5**	**10.7**	**50.3**	**9.8%**	**1.8**	**0.8**	**7.2**	**2 074.6**	**89.6%**	**0.88**	**Middle East**

* 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 principaux	**Hauptkennzahlen**
CO_2 Méthode sectorielle (Mt de CO_2)	CO_2 Sektorspezifischer Ansatz ($MTCO_2$)
CO_2 Méthode de référence (Mt de CO_2)	CO_2 Referenzansatz ($MTCO_2$)
ATEP (PJ)	PEV (PJ)
ATEP (Mtep)	PEV (Mtoe)
PIB (milliards de $US 2005)	BIP (Mrd. 2005 US$)
PIB PPA (milliards de $US 2005)	BIP Kaufkraftparität (Mrd. 2005 US$)
Population (millions)	Bevölkerung (Mio.)
CO_2 / ATEP (tCO_2 par TJ)	CO_2 / PEV (tCO_2 pro TJ)
CO_2 / PIB ($kgCO_2$ par $US 2005)	CO_2 / BIP ($kgCO_2$ pro 2005 US$)
CO_2 / PIB PPA ($kgCO_2$ par $US 2005)	CO_2 / BIP Kaufkraftparität ($kgCO_2$ pro 2005 US$)
CO_2 / Population (tCO_2 par habitant)	tCO_2 pro Kopf
Les rapports sont fondés sur la méthode sectorielle.	Verhältniszahlen basieren auf dem Sektorspezifischer Ansatz.

Emissions de CO_2 par secteur en 2010	**CO_2-Emissionen nach Sektoren (2010)**
millions de tonnes de CO_2	*Mio. Tonnen CO_2*
Méthode sectorielle	**Sektorspezifischer Ansatz**
Production d'électricité et de chaleur (activité principale)	Öffentliche Elektrizitäts- und Wärmeerzeugung
Autoproducteurs non spécifiés	Nicht zugeordnete Eigenerzeuger
Autres industries de l'énergie	Andere Energieindustrien
Industries manufacturières et de construction	Verarbeitende Industrie und Baugewerbe
Transport	Verkehr
dont: transport routier	*davon: Straßenverkehr*
Autres secteurs	Andere Sektoren
dont: résidentiel	*davon: Haushalte*
Méthode de référence	**Referenzansatz**
Ecarts dus aux pertes et/ou aux transformations	Differenzen infolge von Verlusten und/oder Umwandlung
Ecarts statistiques	Stat. Differenzen
Pour mémoire : soutes maritimes internationales	*Anmerkung: Bunkerung von Brennstoffen durch seegehende Schiffe*
Pour mémoire : soutes aériennes internationales	*Anmerkung: Bunkerung von Brennstoffen im luftverkehr*
La catégorie Autres inclut les déchets industriels et les déchets urbains non renouvelables.	Andern inklusive Industrieabfälle und nichterneuerbane städtische Abfälle.

italiano
Italian

Japanese
Japanese

Principali indicatori	**主 要 指 標**
CO_2 Metodo settoriale (Mt di CO_2)	CO_2 排出量 セクター別 アプローチ (二酸化炭素 百万 ﾄﾝ)
CO_2 Metodo di base (Mt di CO_2)	CO_2 排出量 レファレンス・アプローチ (二酸化炭素 百万 ﾄﾝ)
ATEP (PJ)	一次エネルギー供 給 (PJ)
ATEP (Mtep)	一次エネルギー供 給 (石油換算 百万 ﾄﾝ)
PIL (miliardi di US$ 2005)	GDP (10億 米ドル 、2005年 価格)
PIL PPA (miliardi di US$ 2005)	GDP PPP (購買力平価ベースのGDP) (10億 米ドル 、 2005年 価格)
Popolazione (milioni)	人口 (百万)
CO_2 / ATEP (t di CO_2 per TJ)	CO_2 排出量 / 一次エネルギー 供 給 (CO_2 ﾄﾝ / PJ)
CO_2 / PIL (kg di CO_2 per US$ 2005)	CO_2 排出量 / GDP (CO_2 ｷﾛ ｸﾞﾗﾑ / 米ドル、2005年 価格)
CO_2 / PIL PPA (kg di CO_2 per US$ 2005)	CO_2 排出量 / GDP PPP (CO_2 ｷﾛ ｸﾞﾗﾑ / 米ドル、2005年 価格)
CO_2 / Popolazione (t di CO_2 per abitante)	一人当たり CO_2 排出量 (二酸化炭素 ﾄﾝ / 人)
I rapporti sono basati sul metodo settoriale.	レートはセクター別アプローチを基に算出

Emissioni di CO_2 per settore in 2010	**2010年 の 部 門 別 二 酸 化 炭 素 排 出 量**
milioni di tonnellate di CO_2	CO_2 百 万 ﾄﾝ
Metodo settoriale	**セクター別 アプローチ**
Produzione di elettricità e di calore (attività principale)	電気 ・ 熱供給事業者
Auto-produttori non specificati	自家発
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	運輸業
di cui: trasporti stradali	国内道路運送業
Altri settori	その他
di cui: settore domestico	国内民生・家庭用
Metodo di base	**レファレンス ・ アプローチ**
Differenza dovuta alle perdite e/o alle trasformaz.	転換ロス等に起因する誤差
Differenza statistica	統計誤差
Memo: bunkeraggi marittimi internazionali	メモ：国際海運バンカー
Memo: bunkeraggi aerei internazionali	メモ：国際航空バンカー
La categoria Altri comprende rifiuti industriali e rifiuti urbani non rinnovabili.	「その他」は「産業廃棄物」及び「再利用不可の都市廃棄物」を含む

español
Spanish

русский
Russian

Indicadores Básicos	**Основные показатели**
CO_2 Metodo Sectorial (Mt de CO_2)	CO2 секторный подход (млнт CO2)
CO_2 Metodo Base (Mt de CO_2)	CO2 системный подход (млнт CO2)
TPES (PJ)	ОППТЭ (PJ)
TPES (Mtep)	ОППТЭ (млн тнэ)
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)	CO2/ОППТЭ (тCO2 на тнэ)
CO_2 / PIB ($kgCO_2$ por 2005 USD)	CO2/ВВП (кгCO2 на доллар США 2005 г.)
CO_2 / PIB PPP ($kgCO_2$ por 2005 USD)	CO2/ВВП ППС (кгCO2 на доллар США 2005 г.)
CO_2 / Población (tCO_2 per capita)	CO2/Численность населения (тнэ на человека)
Los ratios estan calculados a partir del metodo sectorial.	коэффициенты основаны на секторном подходе.

Emisiones de CO_2 por Sector en 2010	**Выбросы CO2 в 2010 г. по отраслям**
millón de toneladas de CO_2	*миллионов тон CO2*
Metodo Sectorial	**секторный подход**
Producción de electricidad y calor (actividad principal)	Электростанции и теплоцентрали общего пользования
Autoproductores no especificados	Электростанции и теплоцентрали предприятий
Otras Industrias de Energía	Прочие топливно-энергетические отрасли
Industrias Manufactureras y Construcción	Обрабатывающие отрасли промышленности и строителство
Transporte	Транспорт (включая международную морскую бункеровку)
del cual: Carretera	*в том числе : Автомобильный*
Otros sectores	Прочие отрасли
del cual: Residencial	*в том числе : Жилищно-коммунальное хозяйство*
Metodo Base	**системный подход**
Diferencias por Pérdidas y/o Transformación	Расхождение от потерь и/или переработки
Diferencias estadísticas	Статистическое расхождение
Memo: Bunkers de Navegación Internacional	*К сведению : Международная морская бункеровка*
Memo: Bunkers de Aviación Internacional	*К сведению : Международная воздушная бункеровка*
Otros incluye residuos industriales y residuos municipales no renovables.	Категория Другие включает промышленные отходы и ком.-быт. твердые отходы.

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 28 member countries in their effort to ensure reliable, affordable and clean energy for their citizens. Founded during the oil crisis of 1973-74, the IEA's initial role was to co-ordinate measures in times of oil supply emergencies. As energy markets have changed, so has the IEA. Its mandate has broadened to incorporate the "Three E's" of balanced energy policy making: energy security, economic development and environmental protection. Current work focuses on climate change policies, market reform, energy technology collaboration and outreach to the rest of the world, especially major consumers and producers of energy like China, India, Russia and the OPEC countries.

The Energy Data Centre, with a staff of around 30 people, provides a dynamic environment for young people just finishing their studies or with one to two years of work experience.

Job description

The data managers/statisticians compile, verify and disseminate information on all aspects of energy including production, transformation and consumption of all fuels, renewables, the emergency reporting system, energy efficiency indicators, CO_2 emissions, and energy prices and taxes. The data managers are responsible for receiving, reviewing and inputting data submissions from Member countries and other sources into large computerised databases. They check for completeness, correct calculations, internal consistency, accuracy and consistency with definitions. Often this entails proactively investigating and helping to resolve anomalies in collaboration with national administrations of Member and Non-Member countries. The data managers/statisticians also play a key role in helping to design and implement computer macros used in the preparation of their energy statistics publication(s).

Principal Qualifications

- University degree in a topic relevant to energy, computer programming or statistics. We currently have staff with degrees in Mathematics, Statistics, Information Technology, Economics, Engineering, Physics, Chemistry, Environmental Studies, Hydrology, Public Administration and Business.
- Experience in the basic use of databases and computer software. Good computer programming skills in Visual Basic.
- Ability to work accurately, pay attention to detail and work to deadlines. Ability to deal simultaneously with a wide variety of tasks and to organise work efficiently.
- Good communication skills; ability to work well in a team and in a multicultural environment, particularly in liaising with contacts in national administrations and industry.
- Very good knowledge of one of the two official languages of the Organisation (English or French). Knowledge of other languages would be an advantage.
- Some knowledge of energy industry operations and terminology would also be an advantage, but is not required.

Nationals of any OECD Member country are eligible for appointment. Basic salaries start at 3 080 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:

Personnel and Finance Division
International Energy Agency
9 rue de la Fédération
75739 Paris Cedex 15, France
Email: recruitment@iea.org

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, 2012 Edition

No other publication offers such in-depth statistical coverage. It is intended for anyone involved in analytical or policy work related to energy issues. It contains data on energy supply and consumption in original units for coal, oil, natural gas, biofuels/waste and products derived from these primary fuels, as well as for electricity and heat. Complete data are available for 2009 and 2010 and supply estimates are available for the most recent year (*i.e.* 2011). Historical tables summarise data on production, trade and final consumption. Each issue includes definitions of products and flows and explanatory notes on the individual country data.

Published July 2012 - Price €120

Energy Balances of OECD Countries, 2012 Edition

A companion volume to *Energy Statistics of OECD Countries*, this publication presents standardised energy balances expressed in million tonnes of oil equivalent. Energy supply and consumption data are divided by main fuel: coal, oil, natural gas, nuclear, hydro, geothermal/solar, biofuels/waste, electricity and heat. This allows for easy comparison of the contributions each fuel makes to the economy and their interrelationships through the conversion of one fuel to another. All of this is essential for estimating total energy supply, forecasting, energy conservation, and analysing the potential for interfuel substitution. Complete data are available for 2009 and 2010 and supply estimates are available for the most recent year (*i.e.* 2011). Historical tables summarise key energy and economic indicators as well as data on production, trade and final consumption. Each issue includes definitions of products and flows and explanatory notes on the individual country data as well as conversion factors from original units to tonnes of oil equivalent.

Published July 2012 - Price €120

Energy Statistics of Non-OECD Countries, 2012 Edition

This publication offers the same in-depth statistical coverage as the homonymous publication covering OECD countries. It includes data in original units for more than 100 individual countries and nine main regions. The consistency of OECD and non-OECD countries' detailed statistics provides an accurate picture of the global energy situation for 2009 and 2010. For a description of the content, please see *Energy Statistics of OECD Countries* above.

Published August 2012 - Price €120

Energy Balances of Non-OECD Countries, 2012 Edition

A companion volume to the publication *Energy Statistics of Non-OECD Countries*, this publication presents energy balances in thousand tonnes of oil equivalent and key economic and energy indicators for more than 100 individual countries and nine main regions. It offers the same statistical coverage as the homonymous publication covering OECD countries, and thus provides an accurate picture of the global energy situation for 2009 and 2010. For a description of the content, please see *Energy Balances of OECD Countries* above.

Published August 2012 - Price €120

Electricity Information 2012

This reference document provides essential statistics on electricity and heat for each OECD member country by bringing together information on production, installed capacity, input energy mix to electricity and heat production, input fuel prices, consumption, end-user electricity prices and electricity trades.

Published August 2012 - Price €150

Coal Information 2012

This well-established publication provides detailed information on past and current evolution of the world coal market. It presents country-specific statistics for OECD member countries and selected non-OECD countries on coal production, demand, trade and prices. This publication represents a key reference tool for all those involved in the coal supply or consumption stream, as well as institutions and governments involved in market and policy analysis of the world coal market.

Published August 2012 - Price €165

Natural Gas Information 2012

A detailed reference work on gas supply and demand, covering not only OECD countries but also the rest of the world. Contains essential information on LNG and pipeline trade, gas reserves, storage capacity and prices. The main part of the book, however, concentrates on OECD countries, showing a detailed gas supply and demand balance for each individual country and for the three OECD regions, as well as a breakdown of gas consumption by end-user. Import and export data are reported by source and destination.

Published August 2012 - Price €165

Oil Information 2012

A comprehensive reference book on current developments in oil supply and demand. The first part of this publication contains key data on world production, trade, prices and consumption of major oil product groups, with time series back to the early 1970s. The second part gives a more detailed and comprehensive picture of oil supply, demand, trade, production and consumption by end-user for each OECD country individually and for OECD regions. Trade data are reported extensively by origin and destination.

Published August 2012 - Price €165

Renewables Information 2012

This reference document brings together in one volume essential statistics on renewables and waste energy sources. It presents a detailed and comprehensive picture of developments for renewable and waste energy sources for each of the OECD member countries, encompassing energy indicators, generating capacity, electricity and heat production from renewable and waste sources, as well as production and consumption of renewable and waste products.

Published August 2012 - Price €110

CO_2 Emissions from Fuel Combustion, 2012 Edition

In order for nations to tackle the problem of climate change, they need accurate greenhouse gas emissions data. This publication provides a basis for comparative analysis of CO_2 emissions from fossil fuel combustion, a major source of anthropogenic emissions. The data in this book are designed to assist in understanding the evolution of the emissions of CO_2 from 1971 to 2010 for more than 140 countries and regions by sector and by fuel. Emissions were calculated using IEA energy databases and the default methods and emissions factors from the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*.

Published November 2012 - 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. 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. In contains crude oil import prices by crude stream, industry prices and consumer prices. The end-user prices for OECD member countries cover main petroleum products, gas, coal and electricity. Every issue includes full notes on sources and methods and a description of price mechanisms in each country. Time series availability varies with each data series.

Published Quarterly - Price €120, annual subscription €380

Electronic Editions

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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.

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- Energy Statistics of OECD Countries, 1960-2011 — Price: €550 (single user)
- Energy Balances of OECD Countries, 1960-2011 — Price: €550 (single user)
- Energy Statistics of Non-OECD Countries, 1971-2010 — Price: €550 (single user)
- Energy Balances of Non-OECD Countries, 1971-2010 — Price: €550 (single user)
- *Combined subscription of the above four series* — *Price: € 1 400 (single user)*

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A description of these services are 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)
- *Complete Service* — *Price: €9 000 (single user)*

A description of this service is available on our website: **http://www.iea.org/stats/mods.asp**

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 imports origins and exports destinations;
- LNG trade detail available from January 2002.

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: **http://data.iea.org**

Moreover, the IEA statistics website contains key energy indicators by country, graphs on the world and OECD's energy situation evolution from 1971 to the most recent year available, as well as selected databases for demonstration.

The IEA statistics website can be accessed at www.iea.org/statistics/

International Energy Agency

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