

# IEA STATISTICS

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2012  
EDITION

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

H I G H L I G H T S



International  
Energy Agency

2012  
EDITION

## CO<sub>2</sub> EMISSIONS FROM FUEL COMBUSTION H I G H L I G H T S

In the lead-up to the UN climate negotiations in Doha, the latest information on the level and growth of CO<sub>2</sub> emissions, their source and geographic distribution will be essential to lay the foundation for a global agreement. To provide input to and support for the UN process the IEA is making available for free download the “Highlights” version of *CO<sub>2</sub> Emissions from Fuel Combustion*.

This annual publication contains:

- estimates of CO<sub>2</sub> emissions by country from 1971 to 2010;
- selected indicators such as CO<sub>2</sub>/GDP, CO<sub>2</sub>/capita, CO<sub>2</sub>/TPES and CO<sub>2</sub>/kWh; and
- CO<sub>2</sub> emissions from international marine and aviation bunkers, and other relevant information.

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. This volume of “Highlights”, drawn from the full-scale study, was specially designed for delegations and observers of the meeting in Doha.



**2012**  
EDITION

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

**H I G H L I G H T S**

# 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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**International  
Energy Agency**

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**International Energy Agency**  
9 rue de la Fédération  
75739 Paris Cedex 15, France  
[www.iea.org](http://www.iea.org)

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

# FOREWORD

In the lead-up to the UN climate negotiations in Doha, Qatar, the latest information on the level and growth of CO<sub>2</sub> emissions, their source and geographic distribution will be essential to lay the foundation for a global agreement. To provide input to and support for the UN process, the IEA is making available for free download – the “Highlights” version of *CO<sub>2</sub> Emissions from Fuel Combustion*. The PDF publication and an EXCEL file with the tables can be downloaded for free at [www.iea.org/co2highlights](http://www.iea.org/co2highlights).

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.

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.

These data are only for energy-related CO<sub>2</sub>, not for any other greenhouse gases. Thus they may differ from countries’ official submissions of emissions inventories to the UNFCCC Secretariat. However, the full-scale study contains data for CO<sub>2</sub> from non-energy-related sources and gas flaring, and emissions of CH<sub>4</sub>, N<sub>2</sub>O, HFC, PFC and SF<sub>6</sub>. In addition, the full-scale study also includes information on “Key Sources” from fuel combustion, as developed in the *IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*.

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

**Maria Van der Hoeven**  
Executive Director

## What's New?

### **Electricity-only emission factors**

In previous editions of this publication, the IEA has published an indicator for CO<sub>2</sub> 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<sub>2</sub> per kWh. For a complete description of the methodology used to estimate this indicator, please see Chapter 4.

### **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.

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### Important cautionary notes

The estimates of CO<sub>2</sub> emissions from fuel combustion presented in this publication are calculated using the IEA energy balances and the default methods and emission factors from the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*. There are many reasons why **the IEA Secretariat estimates may not be the same as the 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<sub>2</sub> emissions calculated using both the IPCC Reference Approach and the IPCC Tier 1 Sectoral Approach. In some of the OECD non-member countries, there can be **large differences between the two sets of calculations** due to various problems in some energy data. As a consequence, this can lead to different emission trends between 1990 and 2009 for certain countries. Please see Chapter 3 for further details.

Energy data on OECD member and non-member countries<sup>1</sup> are collected by the Energy Data Centre (EDC) of the IEA Secretariat, headed by 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<sub>2</sub> emissions from fuel combustion. Alex Blackburn developed the new indicator for CO<sub>2</sub> emissions per kWh. Desktop publishing support was provided by Sharon Burghraeve.

CO<sub>2</sub> 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](http://www.iea.org).

Enquiries about data or methodology should be addressed to:

Karen Tréanton:  
Telephone: (+33-1) 40-57-66-33,  
E-mail: [emissions@iea.org](mailto: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.



# 1. SNAPSHOT OF CO<sub>2</sub> EMISSIONS

## Latest developments in 2010<sup>2</sup> (and beyond)

Global CO<sub>2</sub> 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<sup>3</sup> 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<sub>2</sub> emissions increased by 1.3 GtCO<sub>2</sub> between 2009 and 2010. However, growth rates by region varied greatly: emissions in Latin America<sup>4</sup>, 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

2. Energy consumption in 2009 was affected by the global financial crisis and some of the CO<sub>2</sub> emission trends seen may be deceptive.

3. 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](http://www.unfccc.int). For country coverage of Annex I EIT and Annex II, see Geographical Coverage.

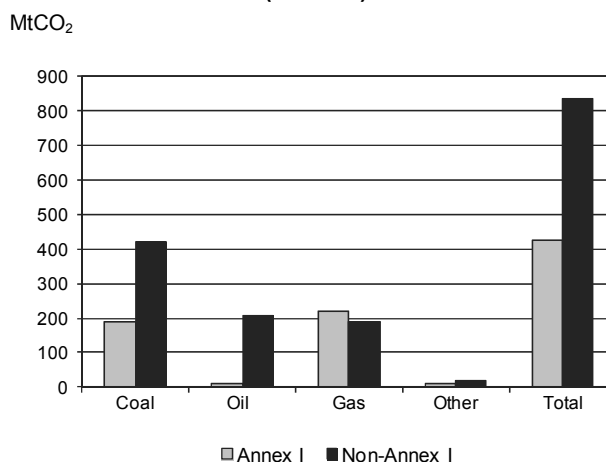
4. For the purposes of this discussion, Latin America includes non-OECD Americas and Chile.

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<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> emissions (2009-10)**



*Key point: CO<sub>2</sub> emissions increased in both Annex I and non-Annex I countries in 2010; however, the source of the emissions growth varied.*

In the medium term, in its New Policies Scenario, the *World Energy Outlook (WEO 2012)*<sup>5</sup> projects that global CO<sub>2</sub> emissions from fuel combustion will continue to grow unabated, albeit at a lower rate, reaching 37.0 GtCO<sub>2</sub> by 2035, compared to 30.3 GtCO<sub>2</sub> 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)<sup>6</sup> 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<sub>2</sub> emissions by fuel

In 2010, 43% of CO<sub>2</sub> 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<sub>2</sub> emissions from the combustion of coal increased by 4.9% and represented 13.1 GtCO<sub>2</sub>. Currently, coal fills much of the growing energy demand of those developing countries (such as China and India) where energy-intensive industrial production is growing rapidly and large coal reserves exist with limited reserves of other energy sources. Without additional abatement measures, the *WEO 2012* projects that emissions from coal will grow to 15.3 GtCO<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> emissions unless there was a very widespread deployment of CCS.

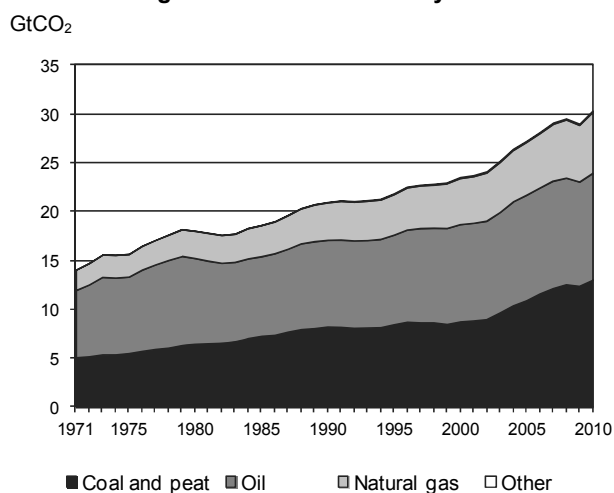
5. Unless otherwise specified, projections from the *World Energy Outlook* refer to the New Policies Scenario from the 2012 edition. This scenario takes account of the broad policy commitments and plans that have been announced by countries around the world, including national pledges to reduce GHG emissions 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.

6. 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.

CO<sub>2</sub> emissions from oil represented 10.9 GtCO<sub>2</sub> 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<sub>2</sub> emissions from oil. *WEO 2012* projects, however, that emissions from oil will grow to 12.6 GtCO<sub>2</sub> in 2035, principally due to increased transport demand.

Emissions of CO<sub>2</sub> from gas in 2010 represented 6.2 GtCO<sub>2</sub>, 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<sub>2</sub> in 2035.

Figure 2. CO<sub>2</sub> emissions by fuel

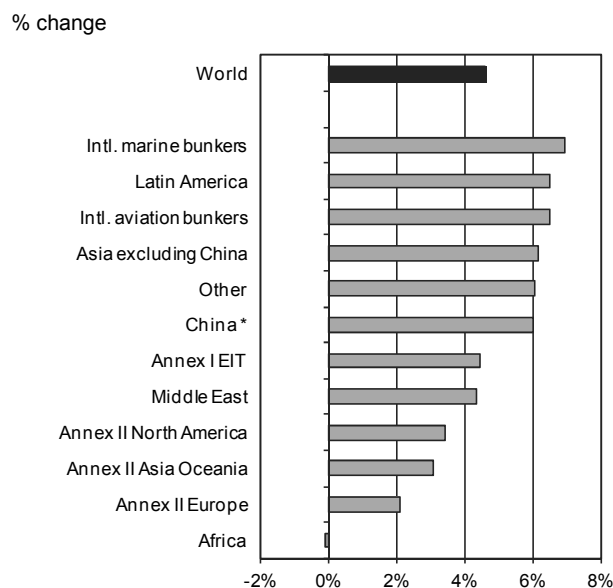


*Key point: Combustion of coal has driven the growth in global emissions in recent years. Although there was a decline in 2009 due to the financial crisis, this anomaly was short term and the trend has returned to its previous trajectory.*

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

Between 2009 and 2010, CO<sub>2</sub> emissions increased in all regions except Africa, however, growth rates varied among regions. As mentioned earlier, CO<sub>2</sub> 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.

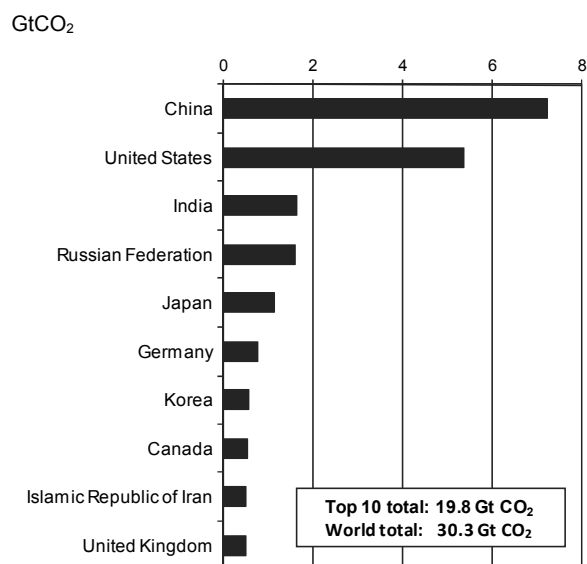
At the regional level (Figure 3), between 2009 and 2010, CO<sub>2</sub> emissions increased significantly in Latin America (6.5%), Asia excluding China (6.1%) and China (6.0%). CO<sub>2</sub> emissions increased at a lower rate in Annex II regions, ranging from 2.1% in Annex II Europe to 3.4% in Annex II North America. Emissions in Africa remained stable.

**Figure 3. Change in CO<sub>2</sub> emissions by region (2009-10)**

\* China includes Hong Kong.

*Key point: Between 2009 and 2010, CO<sub>2</sub> emissions grew in all regions with the exception of Africa.*

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

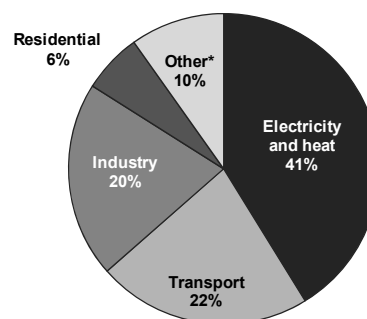
**Figure 4. Top 10 emitting countries in 2010**

*Key point: The top 10 emitting countries account for nearly two-thirds of the world CO<sub>2</sub> 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<sub>2</sub>, 41.5% of world CO<sub>2</sub> emissions (Figure 4).

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

Two sectors produced nearly two-thirds of global CO<sub>2</sub> emissions in 2010: electricity and heat generation accounted for 41% while transport produced 22% (Figure 5).

**Figure 5. World CO<sub>2</sub> 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.

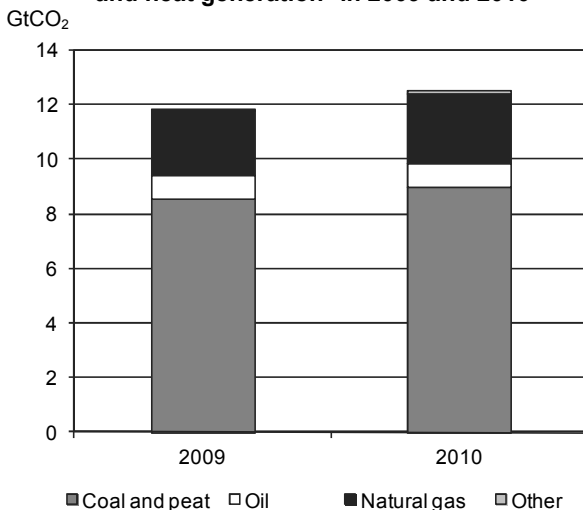
*Key point: The combined share of electricity and heat generation and transport represented nearly two-thirds of global emissions in 2010.*

Generation of electricity and heat was by far the largest producer of CO<sub>2</sub> emissions and was responsible for 41% of world CO<sub>2</sub> 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<sub>2</sub> emissions from the generation of electricity and heat increased by 5.6% (Figure 6), while the fuel mix remained unchanged. CO<sub>2</sub> 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<sub>2</sub> emissions from electricity and heat generation\* in 2009 and 2010**



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

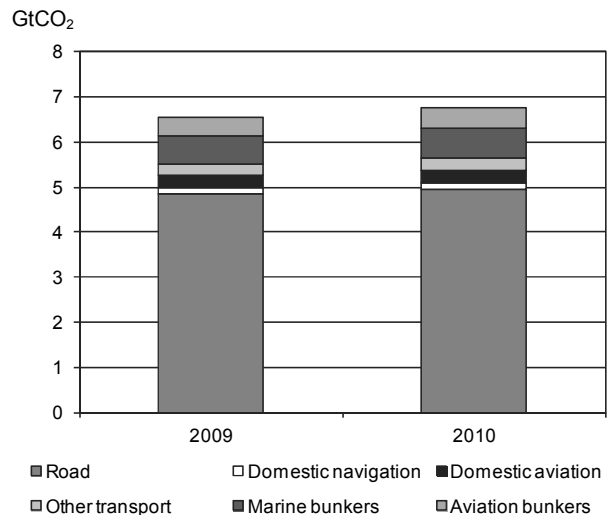
*Key point: CO<sub>2</sub> emissions from electricity and heat generation increased between 2009 and 2010, after having decreased slightly the previous year.*

As mentioned above, transport, the second-largest sector in terms of emissions, represented 22% of global CO<sub>2</sub> 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<sub>2</sub> emissions from transport in 2009 and 2010**



*Key point: CO<sub>2</sub> 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.

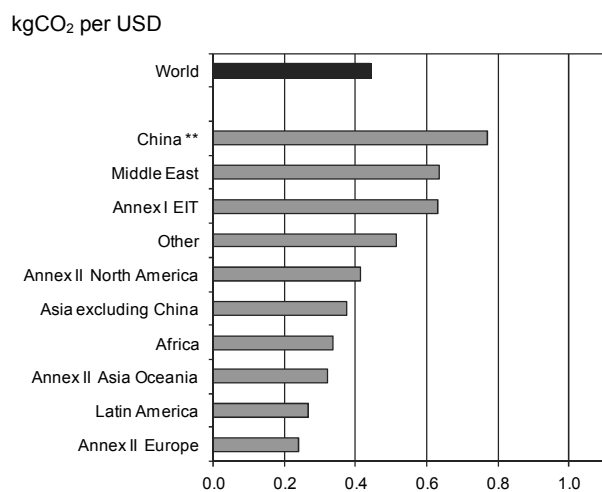
These policies would both reduce the environmental impact of transport and help to secure domestic fuel supplies, which are sometimes unsettled (*e.g.* by the threat of supply disruptions, whether from natural disasters, accidents or the geopolitics of oil trade). As these policies will ease demand growth, 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<sub>2</sub> 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<sup>7</sup>

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

**Figure 8. CO<sub>2</sub> 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<sup>8</sup> (GDP) and 56% of the global CO<sub>2</sub> emissions and. However, the relative shares of these five countries for all three variables were very diverse.

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

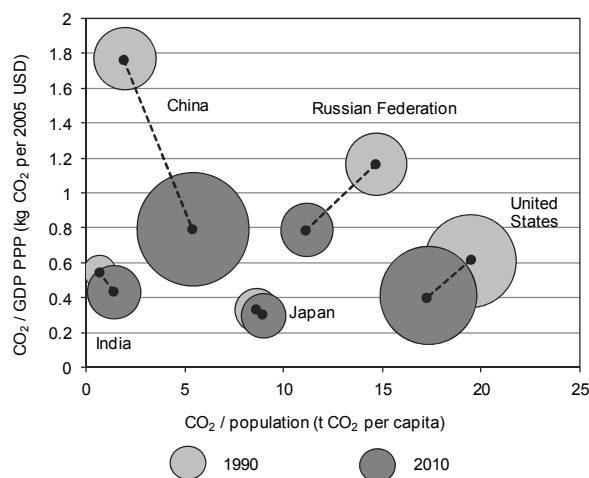
8. Throughout this analysis, GDP refers to GDP in 2005 USD, using purchasing power parities.

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<sub>2</sub> emissions from economic growth. Possible improvements can derive from fuel switching away from carbon-intensive sources or from energy efficiency at all stages of the energy value chain (from raw material extraction to energy end-use).<sup>9</sup>

Among the five largest emitters of CO<sub>2</sub> in 2010, China, the Russian Federation and the United States have significantly reduced their CO<sub>2</sub> emissions per unit of GDP between 1990 and 2010 (Figure 9).

**Figure 9. Trends in CO<sub>2</sub> emission intensities for the top five emitting countries\***



\* Size of circle represents total CO<sub>2</sub> 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<sub>2</sub> emitted per unit of GDP.*

A note of caution is necessary concerning this indicator. CO<sub>2</sub> 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

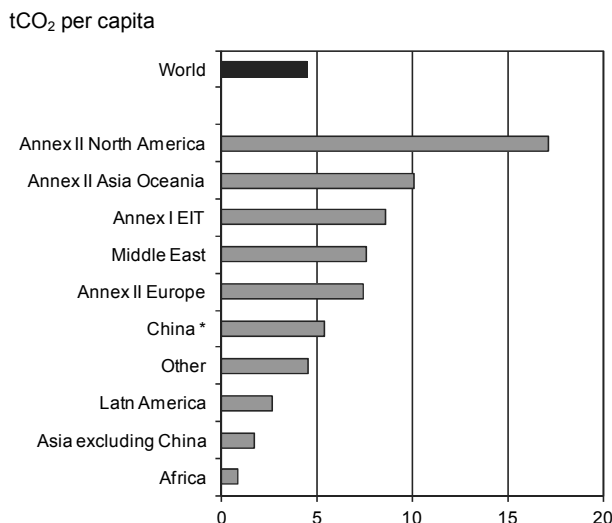
9. The IEA's Policies and Measures Databases offer access to information on energy-related policies and measures taken or planned to reduce GHG emissions, improve energy efficiency and support renewable energy development and deployment. The online databases can be consulted at: [www.iea.org/textbase/pm/index.html](http://www.iea.org/textbase/pm/index.html).

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<sub>2</sub>/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<sub>2</sub> 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<sub>2</sub> emissions. Among the five largest emitters, the levels of per-capita emissions were very diverse, ranging from 1 tCO<sub>2</sub> per capita for India and 5 tCO<sub>2</sub> for China to 17 tCO<sub>2</sub> for the United States.

**Figure 10. CO<sub>2</sub> 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 CO<sub>2</sub> 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.

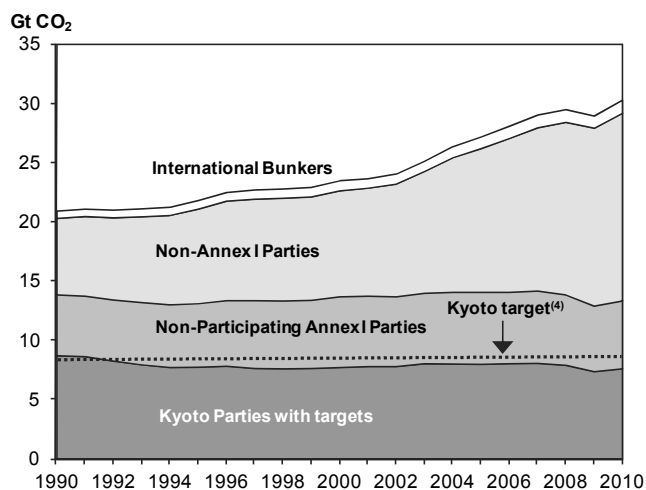
A breakthrough in this effort was the agreement at the United Nations Framework Convention on Climate Change (UNFCCC) 17<sup>th</sup> Conference of the Parties (COP17) talks in Durban (December 2011) to “launch a process to develop a protocol, another legal instrument or an agreed outcome with legal 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<sub>2</sub> emissions from fuel combustion and Kyoto Protocol targets<sup>(1)</sup>**MtCO<sub>2</sub>

	1990	2010	% change 90-10	Kyoto Target		1990	2010	% change 90-10	Kyoto Target
<b>KYOTO PARTIES WITH TARGETS</b>	<b>8 784.3</b>	<b>7 695.8</b>	<b>-12.4%</b>	<b>-4.7% e</b>	<b>OTHER COUNTRIES</b>	<b>11 571.8</b>	<b>21 481.3</b>	<b>85.6%</b>	
<i>North America</i>	432.9	536.6	24.0%		<i>Non-participating</i>				
Canada	432.9	536.6	24.0%	-6%	<i>Annex I Parties</i>	5 122.4	5 702.3	11.3%	
					Belarus	124.5	65.3	-47.5%	none
<i>Europe</i>	3 152.8	3 056.6	-3.1%		Malta	2.3	2.5	8.3%	none
Austria	56.4	69.3	22.9%	-13%	Turkey	126.9	265.9	109.5%	none
Belgium	107.9	106.4	-1.4%	-7.5%	United States	4 868.7	5 368.6	10.3%	-7%
Denmark	50.4	47.0	-6.8%	-21%					
Finland	54.4	62.9	15.7%	0%	<i>Other Regions</i>	6 338.5	15 609.9	146.3%	none
France <sup>(2)</sup>	352.3	357.8	1.6%	0%	Africa	544.4	929.7	70.8%	none
Germany	949.7	761.6	-19.8%	-21%	Middle East	557.1	1 546.3	177.6%	none
Greece	70.1	84.3	20.2%	+25%	N-OECD Eur. & Eurasia <sup>(3)</sup>	641.8	499.4	-22.2%	none
Iceland	1.9	1.9	2.3%	+10%	Latin America <sup>(3)</sup>	843.0	1 482.3	75.8%	none
Ireland	29.8	38.7	29.7%	+13%	Asia (excl. China) <sup>(3)</sup>	1 508.1	3 893.7	158.2%	none
Italy	397.4	398.5	0.3%	-6.5%	China	2 244.1	7 258.5	223.5%	none
Luxembourg	10.4	10.6	1.6%	-28%					
Netherlands	155.8	187.0	20.0%	-6%	<b>INTL. MARINE BUNKERS</b>	<b>362.5</b>	<b>643.7</b>	<b>77.6%</b>	
Norway	28.3	39.2	38.5%	+1%	<b>INTL. AVIATION BUNKERS</b>	<b>255.3</b>	<b>455.3</b>	<b>78.3%</b>	
Portugal	39.3	48.2	22.6%	+27%					
Spain	205.2	268.3	30.7%	+15%	<b>WORLD</b>	<b>20 973.9</b>	<b>30 276.1</b>	<b>44.4%</b>	
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%					
<i>Asia Oceania</i>	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%					
<i>Economies in Transition</i>	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%					



(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<sub>2</sub> 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<sub>2</sub> emissions from fuel combustion only, therefore it does not represent the total target for the six-gas basket. This assumes that the reduction targets are spread equally across all gases.

*Key point: The existing climate targets under the Kyoto Protocol are not sufficiently comprehensive to lead to reductions in global CO<sub>2</sub> 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<sub>2</sub> emissions, as measured in 2010.

Through its flexibility mechanisms and provisions for international trading, the Kyoto Protocol has made CO<sub>2</sub> a tradable commodity, and has been a key driver for the development of 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<sub>2</sub> 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.<sup>10</sup> 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,<sup>11</sup> 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

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

11. 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 12<sup>th</sup> 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<sub>2</sub> and other GHG statistics will prove central to ascertaining compliance with international agreements and to informing policy makers and carbon market participants. The ability of countries to monitor and review emissions from their sources is essential in their engagement towards national and global GHG mitigation.

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## 2. REGIONAL ASPECTS OF THE ENERGY-CLIMATE CHALLENGE

A growing body of evidence has established links between climate change and the carbon dioxide (CO<sub>2</sub>) 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*,<sup>12</sup> 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.

12. IPCC *Fourth Assessment Report – Climate Change 2007*, available at [www.ipcc.ch](http://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<sub>2</sub>) 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<sub>2</sub> (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<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O).

Some impacts of the increased GHG concentrations may be slow to become apparent since stability is an inherent characteristic of the interacting climate, ecological and socio-economic systems. Even after stabilisation of the atmospheric concentration of CO<sub>2</sub>, anthropogenic warming and sea level rise would continue for centuries due to the time scales associated with climate processes and feedbacks. Some changes in the climate system would be irreversible in the course of a human lifespan.

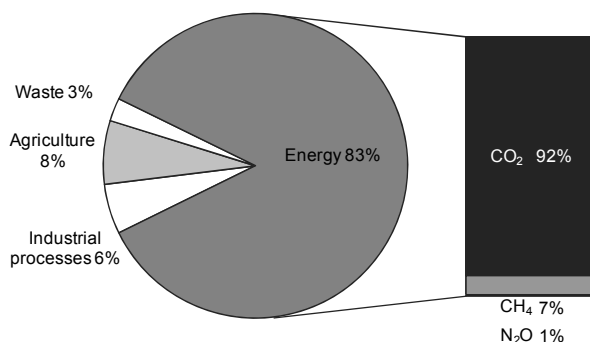
Given the long lifetime of CO<sub>2</sub> in the atmosphere, stabilising concentrations of greenhouse gases at any level would require large reductions of global CO<sub>2</sub> emissions from current levels. The lower the chosen level for stabilisation, the sooner the decline in global CO<sub>2</sub> emissions would need to begin, or the deeper the emission reduction would need to be over time.

The 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<sub>4</sub> and N<sub>2</sub>O from domestic livestock and rice cultivation, and to industrial processes not related to energy, producing mainly fluorinated gases and N<sub>2</sub>O (Figure 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<sub>2</sub>.*

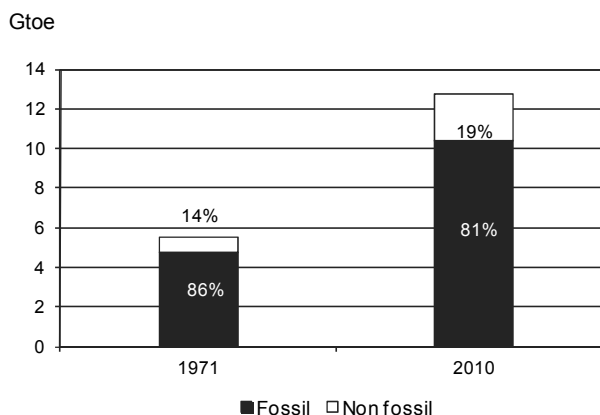
Direct combustion of fuels dominates the GHG emissions from the energy sector.<sup>13</sup> A by-product of fuel combustion, CO<sub>2</sub> results from the oxidation of carbon in fuels.

13. 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<sub>4</sub> emissions from coal mining or oil and gas systems).

CO<sub>2</sub> 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.*

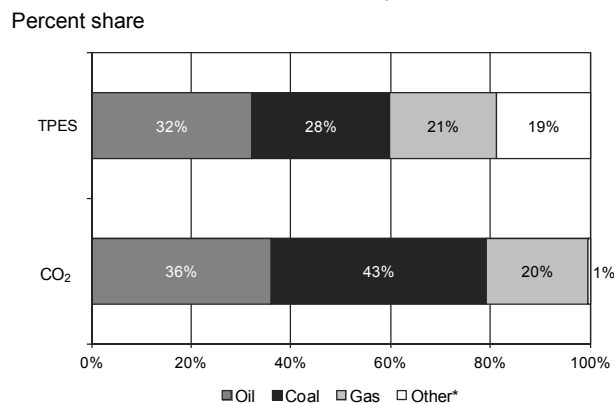
Despite the growth of non-fossil energy (such as nuclear and hydropower) considered as non-emitting,<sup>14</sup> the share of fossil fuels within the world energy supply is relatively unchanged over the past 39 years. In 2010, fossil sources accounted for 81% of the global TPES.

Though coal represented only 28% of the world TPES in 2010, it accounted for 43% of the global CO<sub>2</sub> 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.<sup>15</sup>

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

15. 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<sub>2</sub> emissions: shares by fuel in 2010**

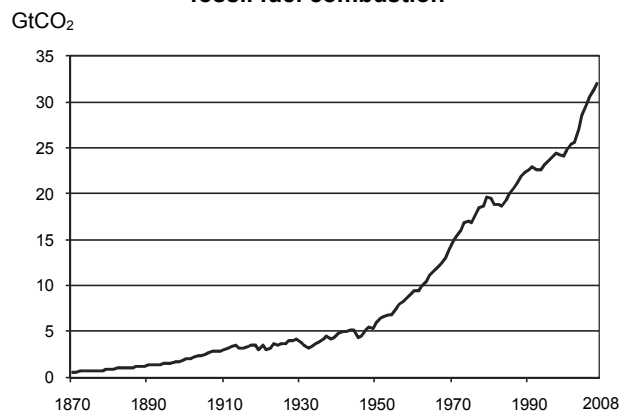


\* Other includes nuclear, hydro, geothermal, solar, tide, wind, biofuels and waste.

*Key point: Coal combustion generates about twice the CO<sub>2</sub> 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<sub>2</sub> emissions (Figure 14). Since the Industrial Revolution, annual CO<sub>2</sub> emissions from fuel combustion dramatically increased from near zero to over 30 GtCO<sub>2</sub> in 2010.

**Figure 14. Trend in CO<sub>2</sub> emissions from fossil fuel combustion**



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

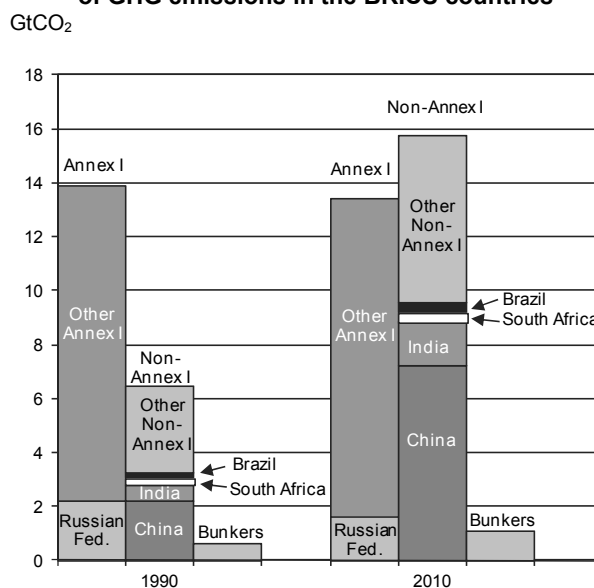
*Key point: Since 1870, CO<sub>2</sub> emissions from fuel combustion have risen exponentially.*

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,<sup>16</sup> up from 16% in 1990. Also in 2010, these five countries represented 33% of global energy use and 37% of CO<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> 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

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

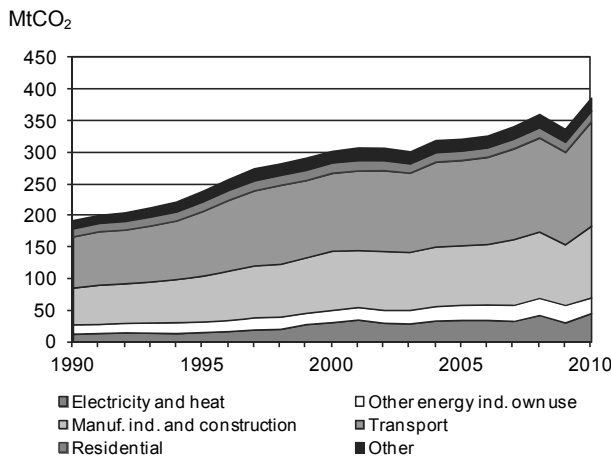
supply constraints and sectoral consumption patterns. Consequently, the issues relating to CO<sub>2</sub> emissions facing these five countries are quite different.

## 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<sub>2</sub> emissions from fuel combustion in Brazil are small, representing only 1.3% of global CO<sub>2</sub> 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).

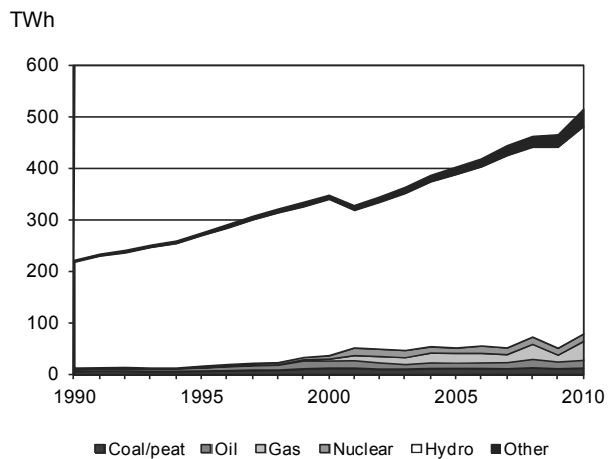
**Figure 16. Brazil: CO<sub>2</sub> emissions by sector**



*Key point: The transport sector produces the largest share of CO<sub>2</sub> 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<sub>2</sub> emissions intensity.<sup>17</sup> CO<sub>2</sub> emissions per unit of fuel consumed in road traffic are 20% lower than the world average (2.3 versus 2.8 tCO<sub>2</sub> per toe).

17. 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<sub>2</sub> emissions intensity considers the tank-to-wheel emissions and assumes that the CO<sub>2</sub> 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<sub>2</sub> 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.

\* 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.

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.

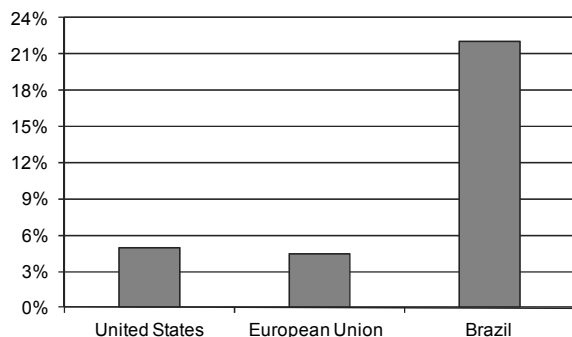
In the future, it is crucial that policies foster innovation and support only sustainable biofuels that can provide considerable emission reductions compared to the use of fossil gasoline and diesel. Continuous monitoring of the environmental, social and economic impacts of biofuel production and use 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.

\*\*\* Advanced biofuels in the US Renewable Fuels Standard refer to biofuels that provide more than 50% life-cycle CO<sub>2</sub> savings compared with gasoline.

\*\*\*\* Cellulose is an organic compound with the formula C<sub>6</sub>H<sub>10</sub>O<sub>5</sub> 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.<sup>18</sup> 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.*

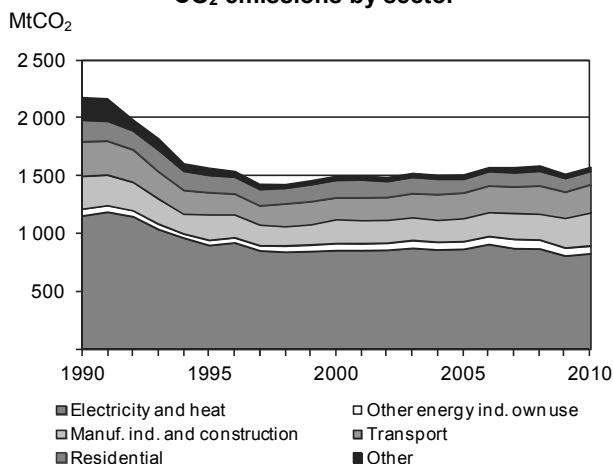
Brazil's profile as an energy producer will be transformed in the medium term, following the discovery in November 2007 of major deepwater oil resources in the Santos Basin, which are now being developed with some fields already in production. However, no new concessions have been awarded since 2007, 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<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> emissions remained fairly constant for the next five years. After falling 5% in 2009, largely due to the global financial crisis, CO<sub>2</sub> emissions grew by 4% in 2010, their second-highest annual increase since 1990.

The *WEO 2012* New Policies Scenario projects that the Russian Federation CO<sub>2</sub> emissions will continue to increase steadily, and will be 14% under 1990 levels in 2035.

**Figure 19. Russian Federation: CO<sub>2</sub> emissions by sector**



*Key point: CO<sub>2</sub> emissions in the Russian Federation have remained fairly constant over the last ten years.*

CO<sub>2</sub> emissions from fuel combustion in the Russian Federation have stabilised over the 2000s. However, other sources of greenhouse gases (in particular, CH<sub>4</sub> emissions from leaks in the oil and gas transmission/distribution system and CO<sub>2</sub> 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.

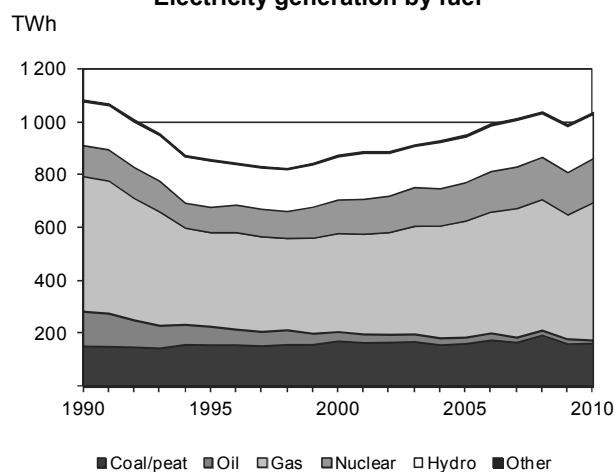
In 2010, the electricity and heat generation sector represented 53% of Russian CO<sub>2</sub> emissions, compared to a global average of 41%. Within this sector, 50% of the electricity was generated by natural gas, 16% by coal and only 1% by oil (Figure 20).

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



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.*

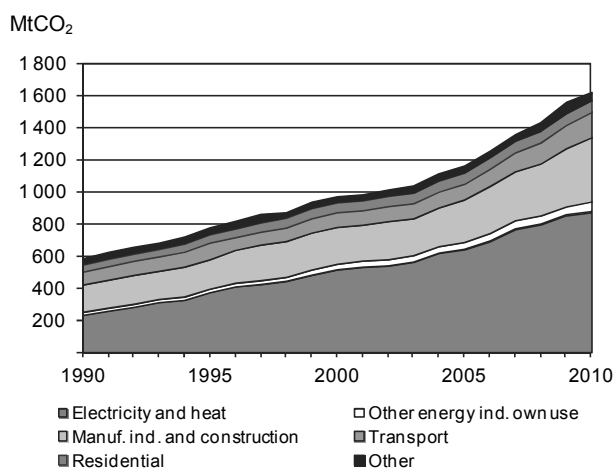
Of the BRICS countries, in 2010, the Russian Federation had the highest CO<sub>2</sub> emissions per capita (11.2 tCO<sub>2</sub>), which put it slightly above the average of OECD member countries (10.1 tCO<sub>2</sub>). In terms of CO<sub>2</sub>/GDP, the Russian Federation's economy remains CO<sub>2</sub> intensive with 0.8 kgCO<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> emissions and shows a clear trend of rapid increase: CO<sub>2</sub> emissions have almost tripled between 1990 and 2010. The *WEO 2012 New Policies Scenario* projects that CO<sub>2</sub> 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<sub>2</sub> in 2010, up from 40% in 1990. CO<sub>2</sub> 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<sub>2</sub> emissions by sector**

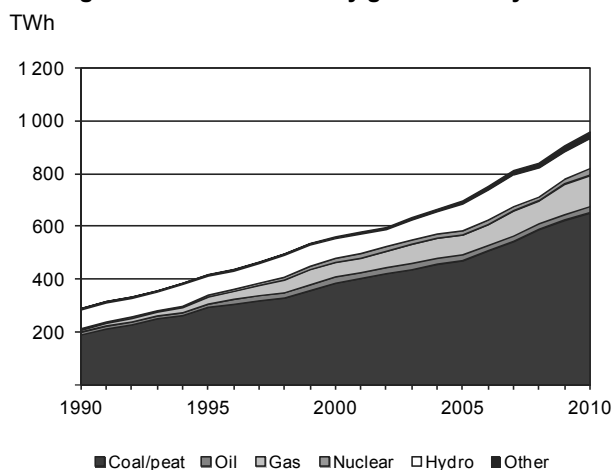


*Key point: The bulk of CO<sub>2</sub> emissions in India comes from the electricity and heat generation sector, the share of which continues to grow.*

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<sub>2</sub> emissions per capita (1.4 tCO<sub>2</sub> 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<sub>2</sub> per capita will still be substantially lower than the world average of 4.3 tCO<sub>2</sub> per capita in the same year.

In terms of CO<sub>2</sub>/GDP, India has continuously improved the efficiency of its economy and reduced the CO<sub>2</sub> 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.<sup>19</sup>

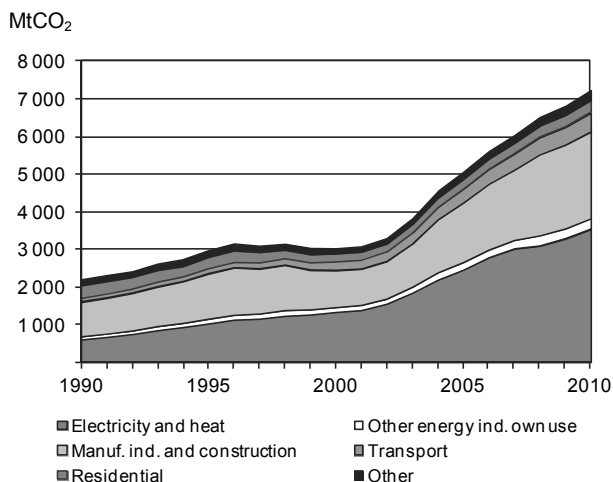
19. As per its stated goal in association with the Copenhagen Accord.

## China

With over 7 billion tonnes of CO<sub>2</sub> 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<sub>2</sub>, although in cumulative and per-capita terms the United States remains the larger. Chinese CO<sub>2</sub> 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<sub>2</sub> emissions in 2010 (Figure 23). Emissions in the transport sector also grew rapidly, but from a much smaller base; they represented 7% of CO<sub>2</sub> 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<sub>2</sub> emissions by sector**

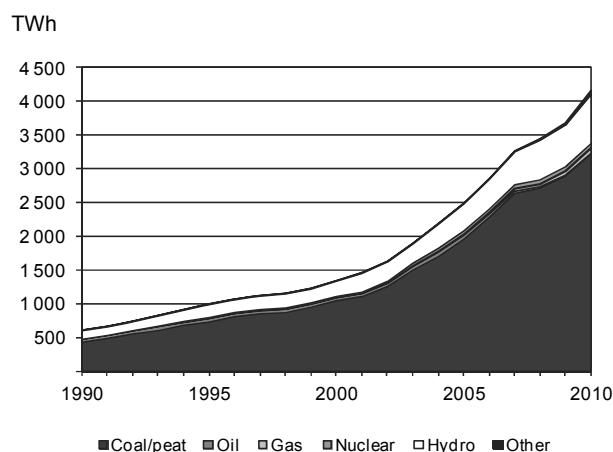


*Key point: In recent years, and in line with vigorous economic expansion, China showed dramatic growth in CO<sub>2</sub> emissions from electricity and heat generation.*

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<sub>2</sub> emissions.*

In the past few decades, China experienced a rapid decoupling of energy consumption and CO<sub>2</sub> 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.

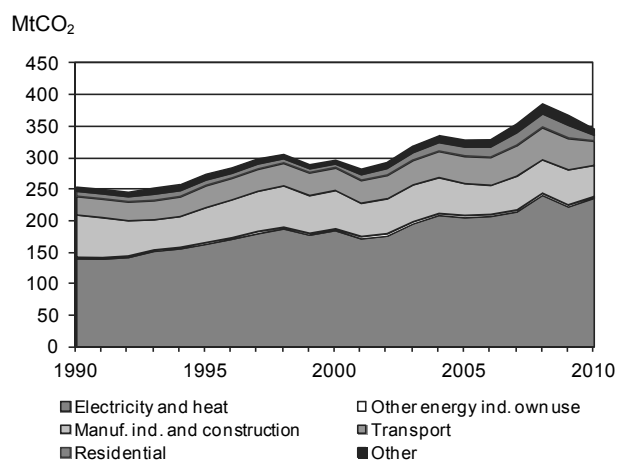
The rapid expansion since 2003 of heavy industrial sectors to serve huge infrastructure investments and burgeoning demand for Chinese products from domestic and overseas consumers pushed up demand for fossil fuels. As a result, CO<sub>2</sub> emissions per unit of GDP actually rose from 2003 to 2005. Still, at 0.79 kgCO<sub>2</sub> per unit of GDP, the 2010 CO<sub>2</sub>/GDP is 55% lower than in 1990 (1.77 kgCO<sub>2</sub> 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<sub>2</sub> emissions, though, and is requiring all provincial and local governments to participate in implementing the 12<sup>th</sup> Five-Year Plan target of lowering CO<sub>2</sub> 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<sub>2</sub> emissions per unit of GDP by 40% to 45% in 2020 compared to 2005.

## South Africa

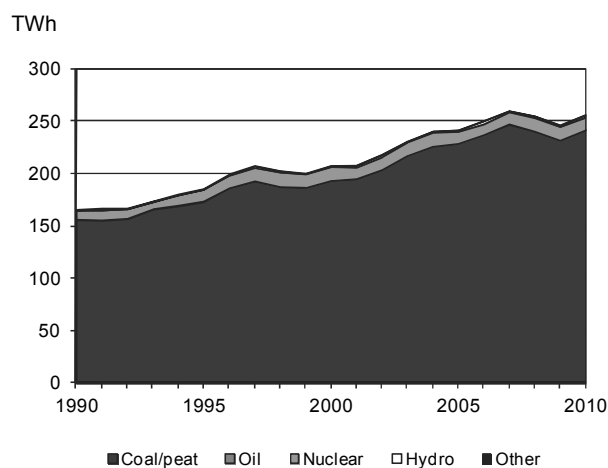
South Africa currently relies heavily on fossil fuels as a primary energy source (87% in 2010); with coal providing 74% of it. Although South Africa accounted for 37% of CO<sub>2</sub> emissions from fuel combustion across all of Africa in 2010, it represented only 1% of the global total. The electricity and heat sector produced 69% of South Africa's CO<sub>2</sub> 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<sub>2</sub> emissions by sector**

*Key point: The largest share of CO<sub>2</sub> 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.*

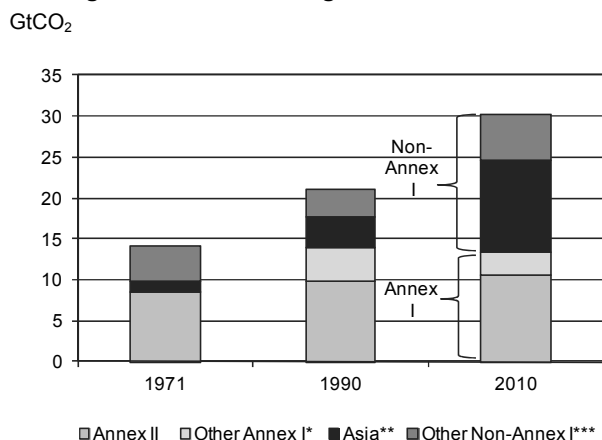
The prices of commercial forms of energy in South Africa are, in general, quite low by international standards. Given the relatively lower rate of electrification (about 88% in urban areas and only 55% in rural areas in 2008), direct use of commercial forms of energy by households is limited. Traditional 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<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> emissions**

\* 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<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> 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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### 3. IEA EMISSIONS ESTIMATES

The estimates of CO<sub>2</sub> emissions from fuel combustion presented in this publication are calculated using the IEA energy data<sup>20</sup> and the default methods and emission factors from the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, IPCC/OECD/IEA, Paris, 1997 (*1996 IPCC Guidelines*).

Although the IPCC approved the *2006 Guidelines* at the 25<sup>th</sup> session of the IPCC in April 2006 in Mauritius, many countries (as well as the IEA Secretariat) are still calculating their inventories using the *1996 IPCC Guidelines* since this was the version used for the Kyoto Protocol. In December 2011 in Durban, the Parties adopted Decision 15/CP.17 to update their reporting tables so as to implement the *2006 Guidelines*. 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<sub>2</sub> emissions from energy combustion also use the Reference Approach for verification purposes. This will identify areas where a full accounting of emissions may not have been made (see Chapter 5, IPCC methodologies).

#### Reference Approach vs. Sectoral Approach

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

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

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

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

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



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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

processes. The IEA estimates of emissions from fuel combustion in this publication include the coke inputs to blast furnaces.

- **The units may be different.**

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

## 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<sub>2</sub> 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<sub>2</sub> (only fugitive), CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs and SF<sub>6</sub>, not taking into account CO<sub>2</sub> emissions/removals from land use, land use change and forestry.<sup>21</sup>

For the non-Annex I Parties, CO<sub>2</sub> 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<sub>2</sub> from fuel combustion. As a result, in most cases the cumulative contribution will not be 95% as recommended in the *Good Practice Guidance* and key sources from fugitive emissions, industrial processes, solvents, agriculture and waste will not be shown. The percentage of CO<sub>2</sub> 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<sub>2</sub> emissions by sector

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

**Row 2:** *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

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

**Row 11:** *Differences due to losses and/or transformation* contains emissions that result from the transformation of energy from a primary fuel to a secondary or tertiary fuel. Included here are solid fuel transformation, oil refineries, gas works and other fuel transformation industries. These emissions are normally reported as fugitive emissions in the IPCC

Source/Sink Category 1 B, but will be included in 1 A in inventories that are calculated using the IPCC Reference Approach. Theoretically, this category should show relatively small emissions representing the loss of carbon by other ways than combustion, such as evaporation or leakage.

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

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

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

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

## 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<sub>2</sub> emissions calculated using the Reference Approach while the Sectoral Approach remained fairly constant. For the 2006 edition, the IEA received revisions to the coal and oil data which had a significant impact on both the energy data and the CO<sub>2</sub> emissions. The most significant revisions occurred for

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

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

## **United Kingdom**

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

## **Vietnam**

A detailed sectoral breakdown is available starting in 1980.

## 4. 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.<sup>22</sup>

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).

22. 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<sup>23</sup> **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<sub>2</sub> emissions

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

23. 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.

## 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**<sup>24</sup> **producer** and **autoproducer**<sup>25</sup> **plants** have been included where available.

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

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

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

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

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

24. 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.

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



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

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

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

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

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

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

### Coverage

In the first table on CO<sub>2</sub> emissions per kWh, the CO<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> 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

$$\text{CO2kWh} = \frac{\text{CO2}_{\text{ELE}} + (\text{CO2}_{\text{CHP}} \times \% \text{ from elec.}) + \text{OWNUSE}_{\text{ELE}}}{\text{ELoutput}_{\text{ELE}} + \text{ELoutput}_{\text{CHP}}}$$

where:

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

and:

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

$\text{CO2}_{\text{ELE}}$  = CO<sub>2</sub> emissions from electricity only plants in ktCO<sub>2</sub>

$\text{CO2}_{\text{CHP}}$  = CO<sub>2</sub> emissions from CHP plants in ktCO<sub>2</sub>

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

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

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

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

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

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

CHPinputs = energy inputs to CHP plants in ktoe

EFF<sub>HEAT</sub> 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<sub>2</sub> intensity. The same is true if we allocate a high efficiency to the heat part of CHP generation; this decreases the efficiency of the electricity part and thus increases electricity's carbon intensity. Further, CHP and heat plants are more likely to be

powered by CO<sub>2</sub>-light natural gas while electricity-only plants tend to be powered by CO<sub>2</sub>-heavy coal, making the new ratio more CO<sub>2</sub> intensive for these countries.

### Specific country examples

The country 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<sub>2</sub> 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<sub>2</sub> 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 <sub>2</sub> / 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.



## 5. 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<sup>26</sup>, Georgia, Gibraltar, Kazakhstan, Kosovo, Kyrgyzstan, Latvia,

Lithuania, Former Yugoslav Republic of Macedonia (FYROM), Malta, Republic of Moldova, Montenegro, Romania, Russian Federation, Serbia<sup>27</sup>, Tajikistan, Turkmenistan, Ukraine, Uzbekistan, Former Soviet Union<sup>28</sup> (prior to 1990) and Former Yugoslavia<sup>28</sup> (prior to 1990).

**Non-OECD Americas** includes Argentina, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Netherlands Antilles<sup>29</sup>, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, Uruguay, Venezuela and **Other Non-OECD Americas**.

**Other Non-OECD Americas** includes Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, British Virgin Islands, Cayman Islands, Dominica, Falkland Islands, French Guyana, Grenada, Guadeloupe, Guyana, Martinique, Montserrat, Puerto Rico<sup>30</sup> (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),

26. 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.

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

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

29. 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.

30. 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<sup>31</sup>, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel<sup>32</sup>, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia<sup>12</sup>, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States.

Within the **OECD**:

**Australia** excludes the overseas territories.

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

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

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

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

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

**Japan** includes Okinawa.

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

**Portugal** includes the Azores and Madeira.

**Spain** includes the Canary Islands.

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

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

**United States** includes the 50 states and the District of Columbia. Oil statistics as well as coal trade statistics also include Puerto Rico<sup>33</sup>, 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<sup>34</sup>, 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<sup>34</sup>, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom and the United States.

*The countries that are listed above are included in Annex I of the United Nations Framework Convention on Climate Change as amended on 11 December 1997 by the 12<sup>th</sup> Plenary meeting of the Third Conference of the Parties in Decision 4/CP.3. This includes the*

31. 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.

32. 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.

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

34. 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<sup>35</sup>, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russian Federation, the Slovak Republic<sup>35</sup>, 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 UNFCCC, 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<sup>36</sup> (except for oil data).

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

36. Oil data for Liechtenstein are included under Switzerland.





## 6. SUMMARY TABLES

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

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>World *</b>	<b>14 064.8</b>	<b>15 668.5</b>	<b>18 042.2</b>	<b>18 623.5</b>	<b>20 973.9</b>	<b>21 843.8</b>	<b>23 509.1</b>	<b>27 187.4</b>	<b>29 483.0</b>	<b>28 946.7</b>	<b>30 276.1</b>	<b>44.4%</b>
<i>Annex I Parties</i>	..	..	..	..	13 906.7	13 177.7	13 762.0	14 129.1	13 904.3	12 972.7	13 398.1	-3.7%
<i>Annex II Parties</i>	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%
<i>North America</i>	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%
<i>Europe</i>	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%
<i>Asia Oceania</i>	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%
<i>Annex I EIT</i>	..	..	..	..	3 975.4	2 820.2	2 553.2	2 604.9	2 692.5	2 499.6	2 610.5	-34.3%
<i>Non-Annex I Parties</i>	..	..	..	..	6 449.4	7 959.8	8 908.3	12 078.7	14 511.3	14 944.6	15 779.0	144.7%
<i>Annex I Kyoto Parties</i>	..	..	..	..	8 784.3	7 822.6	7 802.5	8 076.4	7 987.0	7 466.8	7 695.8	-12.4%
<b>Intl. marine bunkers</b>	<b>344.2</b>	<b>331.7</b>	<b>347.9</b>	<b>297.7</b>	<b>362.5</b>	<b>419.5</b>	<b>488.8</b>	<b>565.8</b>	<b>620.2</b>	<b>601.8</b>	<b>643.7</b>	<b>77.6%</b>
<b>Intl. aviation bunkers</b>	<b>167.3</b>	<b>171.8</b>	<b>199.7</b>	<b>222.0</b>	<b>255.3</b>	<b>286.8</b>	<b>350.1</b>	<b>413.8</b>	<b>447.1</b>	<b>427.6</b>	<b>455.3</b>	<b>78.3%</b>
<b>Non-OECD Total **</b>	<b>4 183.1</b>	<b>5 366.5</b>	<b>6 783.9</b>	<b>7 659.6</b>	<b>9 199.3</b>	<b>9 459.5</b>	<b>10 035.8</b>	<b>13 175.3</b>	<b>15 628.6</b>	<b>15 894.3</b>	<b>16 736.8</b>	<b>81.9%</b>
<b>OECD Total ***</b>	<b>9 370.1</b>	<b>9 798.5</b>	<b>10 710.6</b>	<b>10 444.1</b>	<b>11 156.8</b>	<b>11 678.0</b>	<b>12 634.4</b>	<b>13 032.5</b>	<b>12 787.0</b>	<b>12 023.0</b>	<b>12 440.3</b>	<b>11.5%</b>
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%
<b>OECD Americas</b>	<b>4 748.8</b>	<b>4 894.0</b>	<b>5 322.0</b>	<b>5 219.2</b>	<b>5 597.4</b>	<b>5 940.0</b>	<b>6 633.3</b>	<b>6 774.7</b>	<b>6 609.5</b>	<b>6 175.4</b>	<b>6 391.9</b>	<b>14.2%</b>
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%
<b>OECD Asia Oceania</b>	<b>983.1</b>	<b>1 147.2</b>	<b>1 249.1</b>	<b>1 296.5</b>	<b>1 610.6</b>	<b>1 864.6</b>	<b>2 046.6</b>	<b>2 151.6</b>	<b>2 140.0</b>	<b>2 089.8</b>	<b>2 188.6</b>	<b>35.9%</b>
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%
<b>OECD Europe ***</b>	<b>3 638.2</b>	<b>3 757.3</b>	<b>4 139.5</b>	<b>3 928.4</b>	<b>3 948.7</b>	<b>3 873.3</b>	<b>3 954.6</b>	<b>4 106.2</b>	<b>4 037.6</b>	<b>3 757.8</b>	<b>3 859.8</b>	<b>-2.3%</b>
<i>European Union - 27</i>	..	..	..	..	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<sub>2</sub> emissions: Sectoral Approachmillion tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>Non-OECD Total *</b>	<b>4 183.1</b>	<b>5 366.5</b>	<b>6 783.9</b>	<b>7 659.6</b>	<b>9 199.3</b>	<b>9 459.5</b>	<b>10 035.8</b>	<b>13 175.3</b>	<b>15 628.6</b>	<b>15 894.3</b>	<b>16 736.8</b>	<b>81.9%</b>
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	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>2 243.2</b>	<b>2 862.7</b>	<b>3 414.9</b>	<b>3 584.8</b>	<b>3 996.8</b>	<b>2 667.6</b>	<b>2 417.5</b>	<b>2 526.4</b>	<b>2 707.8</b>	<b>2 488.3</b>	<b>2 606.3</b>	<b>-34.8%</b>
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%
<b>Africa</b>	<b>248.7</b>	<b>324.2</b>	<b>401.9</b>	<b>475.6</b>	<b>544.4</b>	<b>596.6</b>	<b>678.8</b>	<b>826.0</b>	<b>940.7</b>	<b>930.6</b>	<b>929.7</b>	<b>70.8%</b>

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

	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%
<b>Asia</b>	<b>434.1</b>	<b>534.0</b>	<b>711.1</b>	<b>916.9</b>	<b>1 278.8</b>	<b>1 713.7</b>	<b>2 134.8</b>	<b>2 620.6</b>	<b>3 018.7</b>	<b>3 153.0</b>	<b>3 330.6</b>	<b>160.4%</b>
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%
<b>China</b>	<b>809.6</b>	<b>1 062.0</b>	<b>1 419.8</b>	<b>1 726.9</b>	<b>2 244.1</b>	<b>3 022.1</b>	<b>3 077.2</b>	<b>5 103.1</b>	<b>6 549.0</b>	<b>6 846.3</b>	<b>7 258.5</b>	<b>223.5%</b>
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%
<b>Non-OECD Americas</b>	<b>347.7</b>	<b>424.5</b>	<b>529.5</b>	<b>508.9</b>	<b>578.1</b>	<b>685.1</b>	<b>815.3</b>	<b>900.2</b>	<b>1 008.0</b>	<b>992.2</b>	<b>1 065.4</b>	<b>84.3%</b>
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%
<b>Middle East</b>	<b>99.8</b>	<b>159.0</b>	<b>306.7</b>	<b>446.6</b>	<b>557.1</b>	<b>774.5</b>	<b>912.3</b>	<b>1 198.9</b>	<b>1 404.4</b>	<b>1 483.8</b>	<b>1 546.3</b>	<b>177.6%</b>

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

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>World *</b>	<b>5 181.0</b>	<b>5 596.8</b>	<b>6 549.3</b>	<b>7 366.5</b>	<b>8 302.3</b>	<b>8 540.1</b>	<b>8 832.4</b>	<b>10 999.1</b>	<b>12 619.1</b>	<b>12 458.0</b>	<b>13 065.9</b>	<b>57.4%</b>
<i>Annex I Parties</i>	..	..	..	..	5 110.7	4 596.9	4 713.3	4 744.2	4 697.3	4 219.2	4 407.5	-13.8%
<i>Annex II Parties</i>	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%
<i>North America</i>	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%
<i>Europe</i>	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%
<i>Asia Oceania</i>	271.5	292.9	298.7	369.4	434.9	476.7	562.8	639.6	626.6	602.9	629.9	44.8%
<i>Annex I EIT</i>	..	..	..	..	1 565.7	1 134.1	965.8	928.5	967.0	891.1	912.0	-41.7%
<i>Non-Annex I Parties</i>	..	..	..	..	3 191.6	3 943.2	4 119.1	6 254.9	7 921.8	8 238.8	8 658.4	171.3%
<i>Annex I Kyoto Parties</i>	..	..	..	..	3 245.6	2 634.5	2 495.7	2 532.0	2 494.2	2 273.0	2 345.0	-27.7%
<b>Intl. marine bunkers</b>	<b>0.1</b>	-	-	-	-	-	-	-	-	-	-	-
<b>Intl. aviation bunkers</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Non-OECD Total **</b>	<b>2 047.5</b>	<b>2 462.4</b>	<b>2 950.7</b>	<b>3 335.5</b>	<b>4 147.8</b>	<b>4 514.2</b>	<b>4 500.1</b>	<b>6 582.8</b>	<b>8 252.8</b>	<b>8 495.3</b>	<b>8 884.4</b>	<b>114.2%</b>
<b>OECD Total ***</b>	<b>3 133.5</b>	<b>3 134.4</b>	<b>3 598.7</b>	<b>4 031.1</b>	<b>4 154.6</b>	<b>4 025.9</b>	<b>4 332.3</b>	<b>4 416.3</b>	<b>4 366.4</b>	<b>3 962.7</b>	<b>4 181.5</b>	<b>0.6%</b>
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%
<b>OECD Americas</b>	<b>1 150.7</b>	<b>1 263.4</b>	<b>1 493.4</b>	<b>1 741.6</b>	<b>1 920.7</b>	<b>2 034.6</b>	<b>2 291.1</b>	<b>2 287.9</b>	<b>2 235.8</b>	<b>1 976.3</b>	<b>2 092.2</b>	<b>8.9%</b>
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%
<b>OECD Asia Oceania</b>	<b>292.7</b>	<b>323.5</b>	<b>346.9</b>	<b>456.7</b>	<b>530.6</b>	<b>594.4</b>	<b>761.4</b>	<b>863.5</b>	<b>892.8</b>	<b>884.0</b>	<b>935.0</b>	<b>76.2%</b>
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%
<b>OECD Europe ***</b>	<b>1 690.0</b>	<b>1 547.5</b>	<b>1 758.4</b>	<b>1 832.7</b>	<b>1 703.3</b>	<b>1 396.8</b>	<b>1 279.9</b>	<b>1 264.9</b>	<b>1 237.8</b>	<b>1 102.4</b>	<b>1 154.4</b>	<b>-32.2%</b>
<i>European Union - 27</i>	..	..	..	..	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<sub>2</sub> emissions: Sectoral Approach - Coal/peatmillion tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>Non-OECD Total *</b>	<b>2 047.5</b>	<b>2 462.4</b>	<b>2 950.7</b>	<b>3 335.5</b>	<b>4 147.8</b>	<b>4 514.2</b>	<b>4 500.1</b>	<b>6 582.8</b>	<b>8 252.8</b>	<b>8 495.3</b>	<b>8 884.4</b>	<b>114.2%</b>
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	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>976.6</b>	<b>1 143.9</b>	<b>1 273.5</b>	<b>1 159.5</b>	<b>1 335.6</b>	<b>886.8</b>	<b>755.8</b>	<b>767.3</b>	<b>854.3</b>	<b>779.5</b>	<b>788.1</b>	<b>-41.0%</b>
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%
<b>Africa</b>	<b>143.6</b>	<b>182.3</b>	<b>187.9</b>	<b>207.9</b>	<b>234.4</b>	<b>253.0</b>	<b>277.0</b>	<b>301.6</b>	<b>341.7</b>	<b>323.9</b>	<b>319.7</b>	<b>36.4%</b>

\* 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<sub>2</sub> emissions: Sectoral Approach - Coal/peatmillion tonnes of CO<sub>2</sub>

	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%
<b>Asia</b>	<b>231.8</b>	<b>276.1</b>	<b>332.4</b>	<b>473.9</b>	<b>617.0</b>	<b>753.3</b>	<b>947.3</b>	<b>1 244.9</b>	<b>1 520.7</b>	<b>1 603.4</b>	<b>1 681.2</b>	<b>172.5%</b>
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%
<b>China</b>	<b>678.0</b>	<b>838.1</b>	<b>1 125.2</b>	<b>1 448.1</b>	<b>1 913.7</b>	<b>2 563.2</b>	<b>2 450.9</b>	<b>4 196.8</b>	<b>5 460.4</b>	<b>5 720.0</b>	<b>6 014.0</b>	<b>214.3%</b>
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%
<b>Non-OECD Americas</b>	<b>17.0</b>	<b>20.0</b>	<b>29.6</b>	<b>44.5</b>	<b>45.9</b>	<b>55.6</b>	<b>65.4</b>	<b>66.5</b>	<b>70.3</b>	<b>62.9</b>	<b>74.6</b>	<b>62.6%</b>
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	-	-	-	-	-	-	-	-	-	-	-	-
<b>Middle East</b>	<b>0.4</b>	<b>2.1</b>	<b>2.0</b>	<b>1.6</b>	<b>1.2</b>	<b>2.3</b>	<b>3.7</b>	<b>5.6</b>	<b>5.3</b>	<b>5.6</b>	<b>6.9</b>	<b>483.5%</b>

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

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>World *</b>	<b>6 824.1</b>	<b>7 785.9</b>	<b>8 719.7</b>	<b>8 085.6</b>	<b>8 824.5</b>	<b>9 122.4</b>	<b>9 893.8</b>	<b>10 725.0</b>	<b>10 843.8</b>	<b>10 606.6</b>	<b>10 890.5</b>	<b>23.4%</b>
<i>Annex I Parties</i>	..	..	..	..	5 686.4	5 332.7	5 489.0	5 654.7	5 304.9	5 018.0	5 026.0	-11.6%
<i>Annex II Parties</i>	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%
<i>North America</i>	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%
<i>Europe</i>	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%
<i>Asia Oceania</i>	632.3	731.8	736.6	636.9	756.7	798.4	767.7	743.7	667.3	627.6	632.1	-16.5%
<i>Annex I EIT</i>	..	..	..	..	1 137.0	626.8	552.0	552.5	589.0	562.5	553.6	-51.3%
<i>Non-Annex I Parties</i>	..	..	..	..	2 520.3	3 083.3	3 565.9	4 090.7	4 471.6	4 559.2	4 765.5	89.1%
<i>Annex I Kyoto Parties</i>	..	..	..	..	3 492.7	3 167.4	3 101.1	3 121.2	2 987.6	2 822.1	2 813.1	-19.5%
<b>Intl. marine bunkers</b>	<b>344.2</b>	<b>331.7</b>	<b>347.9</b>	<b>297.7</b>	<b>362.5</b>	<b>419.5</b>	<b>488.8</b>	<b>565.8</b>	<b>620.2</b>	<b>601.8</b>	<b>643.7</b>	<b>77.6%</b>
<b>Intl. aviation bunkers</b>	<b>167.3</b>	<b>171.8</b>	<b>199.7</b>	<b>222.0</b>	<b>255.3</b>	<b>286.8</b>	<b>350.1</b>	<b>413.8</b>	<b>447.1</b>	<b>427.6</b>	<b>455.3</b>	<b>78.3%</b>
<b>Non-OECD Total **</b>	<b>1 560.0</b>	<b>2 184.3</b>	<b>2 819.6</b>	<b>2 885.4</b>	<b>3 172.7</b>	<b>3 106.5</b>	<b>3 478.6</b>	<b>4 002.9</b>	<b>4 415.7</b>	<b>4 492.7</b>	<b>4 683.2</b>	<b>47.6%</b>
<b>OECD Total ***</b>	<b>4 752.7</b>	<b>5 098.0</b>	<b>5 352.4</b>	<b>4 680.4</b>	<b>5 034.0</b>	<b>5 309.5</b>	<b>5 576.3</b>	<b>5 742.5</b>	<b>5 360.8</b>	<b>5 084.5</b>	<b>5 108.2</b>	<b>1.5%</b>
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%
<b>OECD Americas</b>	<b>2 319.1</b>	<b>2 460.5</b>	<b>2 604.6</b>	<b>2 364.3</b>	<b>2 468.9</b>	<b>2 508.9</b>	<b>2 804.4</b>	<b>2 998.5</b>	<b>2 790.4</b>	<b>2 643.4</b>	<b>2 675.5</b>	<b>8.4%</b>
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%
<b>OECD Asia Oceania</b>	<b>677.4</b>	<b>795.0</b>	<b>832.3</b>	<b>727.2</b>	<b>916.3</b>	<b>1 062.5</b>	<b>1 017.4</b>	<b>974.1</b>	<b>876.1</b>	<b>836.2</b>	<b>847.9</b>	<b>-7.5%</b>
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%
<b>OECD Europe ***</b>	<b>1 756.2</b>	<b>1 842.6</b>	<b>1 915.6</b>	<b>1 588.9</b>	<b>1 648.8</b>	<b>1 738.1</b>	<b>1 754.5</b>	<b>1 769.9</b>	<b>1 694.3</b>	<b>1 604.9</b>	<b>1 584.9</b>	<b>-3.9%</b>
<i>European Union - 27</i>	..	..	..	..	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<sub>2</sub> emissions: Sectoral Approach - Oilmillion tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>Non-OECD Total *</b>	<b>1 560.0</b>	<b>2 184.3</b>	<b>2 819.6</b>	<b>2 885.4</b>	<b>3 172.7</b>	<b>3 106.5</b>	<b>3 478.6</b>	<b>4 002.9</b>	<b>4 415.7</b>	<b>4 492.7</b>	<b>4 683.2</b>	<b>47.6%</b>
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	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>780.0</b>	<b>1 130.0</b>	<b>1 347.5</b>	<b>1 307.0</b>	<b>1 256.6</b>	<b>637.9</b>	<b>545.9</b>	<b>540.1</b>	<b>578.5</b>	<b>543.0</b>	<b>549.8</b>	<b>-56.2%</b>
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%
<b>Africa</b>	<b>99.9</b>	<b>132.9</b>	<b>187.7</b>	<b>221.5</b>	<b>247.7</b>	<b>264.4</b>	<b>300.3</b>	<b>368.9</b>	<b>419.6</b>	<b>430.2</b>	<b>423.9</b>	<b>71.2%</b>

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

	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%
<b>Asia</b>	<b>192.1</b>	<b>241.6</b>	<b>349.9</b>	<b>385.3</b>	<b>555.5</b>	<b>770.1</b>	<b>923.9</b>	<b>984.0</b>	<b>1 046.5</b>	<b>1 073.3</b>	<b>1 144.3</b>	<b>106.0%</b>
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%
<b>China</b>	<b>124.2</b>	<b>206.6</b>	<b>266.8</b>	<b>256.9</b>	<b>304.6</b>	<b>427.1</b>	<b>577.1</b>	<b>818.3</b>	<b>934.9</b>	<b>957.6</b>	<b>1 026.1</b>	<b>236.9%</b>
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%
<b>Non-OECD Americas</b>	<b>290.1</b>	<b>354.3</b>	<b>430.8</b>	<b>373.4</b>	<b>415.6</b>	<b>489.1</b>	<b>565.0</b>	<b>597.1</b>	<b>659.6</b>	<b>660.7</b>	<b>699.5</b>	<b>68.3%</b>
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%
<b>Middle East</b>	<b>73.8</b>	<b>118.9</b>	<b>237.0</b>	<b>341.4</b>	<b>392.8</b>	<b>518.0</b>	<b>566.4</b>	<b>694.6</b>	<b>776.6</b>	<b>827.8</b>	<b>839.6</b>	<b>113.8%</b>

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

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>World *</b>	<b>2 058.7</b>	<b>2 281.8</b>	<b>2 768.0</b>	<b>3 163.5</b>	<b>3 806.3</b>	<b>4 107.5</b>	<b>4 688.6</b>	<b>5 370.3</b>	<b>5 914.7</b>	<b>5 768.4</b>	<b>6 179.1</b>	<b>62.3%</b>
<i>Annex I Parties</i>	..	..	..	..	3 070.2	3 178.2	3 471.3	3 646.7	3 809.2	3 633.8	3 854.5	25.5%
<i>Annex II Parties</i>	1 438.5	1 503.1	1 663.5	1 616.2	1 794.6	2 123.1	2 426.3	2 490.4	2 622.4	2 542.2	2 661.1	48.3%
<i>North America</i>	1 257.4	1 143.4	1 179.4	1 058.1	1 135.1	1 309.4	1 423.0	1 359.9	1 439.8	1 410.1	1 460.7	28.7%
<i>Europe</i>	168.1	331.0	414.3	446.1	505.1	631.3	783.8	894.7	907.4	856.8	910.8	80.3%
<i>Asia Oceania</i>	12.9	28.7	69.8	112.0	154.4	182.4	219.5	235.8	275.2	275.3	289.5	87.5%
<i>Annex I EIT</i>	..	..	..	..	1 269.1	1 042.1	1 016.2	1 103.5	1 116.6	1 024.1	1 120.2	-11.7%
<i>Non-Annex I Parties</i>	..	..	..	..	736.1	929.3	1 217.2	1 723.6	2 105.4	2 134.6	2 324.6	215.8%
<i>Annex I Kyoto Parties</i>	..	..	..	..	2 024.8	1 979.4	2 155.3	2 365.9	2 439.1	2 298.7	2 458.0	21.4%
<b>Intl. marine bunkers</b>	-	-	-	-	-	-	-	-	-	-	-	-
<b>Intl. aviation bunkers</b>	-	-	-	-	-	-	-	-	-	-	-	-
<b>Non-OECD Total **</b>	<b>575.6</b>	<b>719.7</b>	<b>1 013.7</b>	<b>1 438.8</b>	<b>1 878.7</b>	<b>1 826.2</b>	<b>2 041.0</b>	<b>2 569.7</b>	<b>2 941.2</b>	<b>2 885.9</b>	<b>3 128.9</b>	<b>66.5%</b>
<b>OECD Total ***</b>	<b>1 483.1</b>	<b>1 562.1</b>	<b>1 754.3</b>	<b>1 724.7</b>	<b>1 927.6</b>	<b>2 281.4</b>	<b>2 647.6</b>	<b>2 800.6</b>	<b>2 973.5</b>	<b>2 882.4</b>	<b>3 050.2</b>	<b>58.2%</b>
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%
<b>OECD Americas</b>	<b>1 278.9</b>	<b>1 170.1</b>	<b>1 224.0</b>	<b>1 113.3</b>	<b>1 189.3</b>	<b>1 367.4</b>	<b>1 499.9</b>	<b>1 462.2</b>	<b>1 556.9</b>	<b>1 527.6</b>	<b>1 594.4</b>	<b>34.1%</b>
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%
<b>OECD Asia Oceania</b>	<b>13.1</b>	<b>28.8</b>	<b>70.0</b>	<b>112.0</b>	<b>160.8</b>	<b>201.8</b>	<b>259.4</b>	<b>302.8</b>	<b>357.0</b>	<b>355.8</b>	<b>389.9</b>	<b>142.5%</b>
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%
<b>OECD Europe ***</b>	<b>191.1</b>	<b>363.2</b>	<b>460.3</b>	<b>499.4</b>	<b>577.5</b>	<b>712.2</b>	<b>888.3</b>	<b>1 035.6</b>	<b>1 059.5</b>	<b>999.1</b>	<b>1 065.9</b>	<b>84.6%</b>
<i>European Union - 27</i>	..	..	..	..	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<sub>2</sub> emissions: Sectoral Approach - Natural gasmillion tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>Non-OECD Total *</b>	<b>575.6</b>	<b>719.7</b>	<b>1 013.7</b>	<b>1 438.8</b>	<b>1 878.7</b>	<b>1 826.2</b>	<b>2 041.0</b>	<b>2 569.7</b>	<b>2 941.2</b>	<b>2 885.9</b>	<b>3 128.9</b>	<b>66.5%</b>
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	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>486.6</b>	<b>588.8</b>	<b>793.9</b>	<b>1 118.3</b>	<b>1 404.5</b>	<b>1 130.7</b>	<b>1 101.1</b>	<b>1 202.1</b>	<b>1 259.1</b>	<b>1 148.5</b>	<b>1 248.6</b>	<b>-11.1%</b>
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
<b>Africa</b>	<b>5.2</b>	<b>9.0</b>	<b>26.3</b>	<b>46.2</b>	<b>62.4</b>	<b>79.2</b>	<b>101.5</b>	<b>155.5</b>	<b>179.3</b>	<b>176.5</b>	<b>186.1</b>	<b>198.2%</b>

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

	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%
<b>Asia</b>	<b>10.2</b>	<b>16.3</b>	<b>28.8</b>	<b>57.7</b>	<b>106.2</b>	<b>189.9</b>	<b>262.1</b>	<b>388.7</b>	<b>448.5</b>	<b>473.2</b>	<b>501.8</b>	<b>372.5%</b>
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
<b>China</b>	<b>7.3</b>	<b>17.3</b>	<b>27.8</b>	<b>21.9</b>	<b>25.8</b>	<b>31.8</b>	<b>49.2</b>	<b>88.0</b>	<b>153.8</b>	<b>168.8</b>	<b>201.3</b>	<b>679.8%</b>
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	+
<b>Non-OECD Americas</b>	<b>40.7</b>	<b>50.2</b>	<b>69.2</b>	<b>91.0</b>	<b>116.6</b>	<b>140.4</b>	<b>184.9</b>	<b>236.6</b>	<b>278.0</b>	<b>268.6</b>	<b>291.4</b>	<b>149.8%</b>
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
<b>Middle East</b>	<b>25.6</b>	<b>38.0</b>	<b>67.7</b>	<b>103.6</b>	<b>163.1</b>	<b>254.2</b>	<b>342.1</b>	<b>498.7</b>	<b>622.5</b>	<b>650.4</b>	<b>699.8</b>	<b>328.9%</b>

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

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>World *</b>	<b>14 612.0</b>	<b>16 155.0</b>	<b>18 630.4</b>	<b>19 282.4</b>	<b>21 532.3</b>	<b>22 124.5</b>	<b>23 728.9</b>	<b>27 688.1</b>	<b>29 937.2</b>	<b>29 627.8</b>	<b>31 102.3</b>	<b>44.4%</b>
<i>Annex I Parties</i>	..	..	..	..	14 167.6	13 311.2	13 864.4	14 320.5	14 123.4	13 120.9	13 594.0	-4.0%
<i>Annex II Parties</i>	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%
<i>North America</i>	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%
<i>Europe</i>	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%
<i>Asia Oceania</i>	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%
<i>Annex I EIT</i>	..	..	..	..	4 184.0	2 938.4	2 639.7	2 718.0	2 802.0	2 533.1	2 735.8	-34.6%
<i>Non-Annex I Parties</i>	..	..	..	..	6 746.8	8 106.9	9 025.6	12 388.0	14 746.4	15 477.5	16 409.3	143.2%
<i>Annex I Kyoto Parties</i>	..	..	..	..	9 039.4	7 970.2	7 922.7	8 190.4	8 123.1	7 500.4	7 837.8	-13.3%
<b>Intl. marine bunkers</b>	<b>344.2</b>	<b>331.7</b>	<b>347.9</b>	<b>297.7</b>	<b>362.5</b>	<b>419.5</b>	<b>488.8</b>	<b>565.8</b>	<b>620.2</b>	<b>601.8</b>	<b>643.7</b>	<b>77.6%</b>
<b>Intl. aviation bunkers</b>	<b>167.3</b>	<b>171.8</b>	<b>199.7</b>	<b>222.0</b>	<b>255.3</b>	<b>286.8</b>	<b>350.1</b>	<b>413.8</b>	<b>447.1</b>	<b>427.6</b>	<b>455.3</b>	<b>78.3%</b>
<b>Non-OECD Total **</b>	<b>4 639.0</b>	<b>5 727.6</b>	<b>7 112.9</b>	<b>8 135.2</b>	<b>9 640.0</b>	<b>9 705.1</b>	<b>10 230.5</b>	<b>13 557.4</b>	<b>15 907.3</b>	<b>16 424.5</b>	<b>17 443.8</b>	<b>81.0%</b>
<b>OECD Total ***</b>	<b>9 461.5</b>	<b>9 923.9</b>	<b>10 969.9</b>	<b>10 627.5</b>	<b>11 274.5</b>	<b>11 713.1</b>	<b>12 659.5</b>	<b>13 151.2</b>	<b>12 962.6</b>	<b>12 173.9</b>	<b>12 559.5</b>	<b>11.4%</b>
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%
<b>OECD Americas</b>	<b>4 734.6</b>	<b>4 937.7</b>	<b>5 455.5</b>	<b>5 295.3</b>	<b>5 604.8</b>	<b>5 909.4</b>	<b>6 593.0</b>	<b>6 863.5</b>	<b>6 699.5</b>	<b>6 274.5</b>	<b>6 407.8</b>	<b>14.3%</b>
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%
<b>OECD Asia Oceania</b>	<b>999.0</b>	<b>1 156.3</b>	<b>1 291.2</b>	<b>1 322.6</b>	<b>1 631.9</b>	<b>1 874.9</b>	<b>2 066.4</b>	<b>2 137.4</b>	<b>2 188.1</b>	<b>2 088.9</b>	<b>2 225.2</b>	<b>36.4%</b>
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%
<b>OECD Europe ***</b>	<b>3 727.9</b>	<b>3 830.3</b>	<b>4 223.1</b>	<b>4 009.6</b>	<b>4 037.7</b>	<b>3 928.8</b>	<b>4 000.0</b>	<b>4 150.2</b>	<b>4 074.9</b>	<b>3 810.5</b>	<b>3 926.5</b>	<b>-2.8%</b>
<i>European Union - 27</i>	..	..	..	..	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<sub>2</sub> emissions: Reference Approachmillion tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>Non-OECD Total *</b>	<b>4 639.0</b>	<b>5 727.6</b>	<b>7 112.9</b>	<b>8 135.2</b>	<b>9 640.0</b>	<b>9 705.1</b>	<b>10 230.5</b>	<b>13 557.4</b>	<b>15 907.3</b>	<b>16 424.5</b>	<b>17 443.8</b>	<b>81.0%</b>
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	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>2 616.4</b>	<b>3 138.8</b>	<b>3 617.7</b>	<b>3 851.1</b>	<b>4 182.8</b>	<b>2 775.1</b>	<b>2 502.9</b>	<b>2 640.5</b>	<b>2 804.0</b>	<b>2 522.3</b>	<b>2 728.9</b>	<b>-34.8%</b>
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%
<b>Africa</b>	<b>245.9</b>	<b>302.9</b>	<b>404.4</b>	<b>545.6</b>	<b>602.5</b>	<b>674.7</b>	<b>734.8</b>	<b>917.0</b>	<b>1 044.6</b>	<b>1 040.8</b>	<b>1 029.4</b>	<b>70.9%</b>

\* 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<sub>2</sub> emissions: Reference Approachmillion tonnes of CO<sub>2</sub>

	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%
<b>Asia</b>	<b>439.4</b>	<b>539.6</b>	<b>727.9</b>	<b>935.5</b>	<b>1 303.0</b>	<b>1 757.0</b>	<b>2 167.7</b>	<b>2 692.4</b>	<b>3 055.5</b>	<b>3 229.3</b>	<b>3 386.8</b>	<b>159.9%</b>
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%
<b>China</b>	<b>876.7</b>	<b>1 145.0</b>	<b>1 503.5</b>	<b>1 817.5</b>	<b>2 402.0</b>	<b>2 992.7</b>	<b>3 091.4</b>	<b>5 165.1</b>	<b>6 602.7</b>	<b>7 197.2</b>	<b>7 711.4</b>	<b>221.0%</b>
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%
<b>Non-OECD Americas</b>	<b>350.0</b>	<b>442.4</b>	<b>552.0</b>	<b>534.6</b>	<b>601.8</b>	<b>701.7</b>	<b>819.6</b>	<b>916.7</b>	<b>1 011.0</b>	<b>992.5</b>	<b>1 082.5</b>	<b>79.9%</b>
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%
<b>Middle East</b>	<b>110.5</b>	<b>158.9</b>	<b>307.5</b>	<b>451.0</b>	<b>547.9</b>	<b>803.9</b>	<b>914.2</b>	<b>1 225.7</b>	<b>1 389.5</b>	<b>1 442.4</b>	<b>1 504.8</b>	<b>174.7%</b>



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

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>World</b>	<b>344.25</b>	<b>331.73</b>	<b>347.90</b>	<b>297.73</b>	<b>362.49</b>	<b>419.49</b>	<b>488.78</b>	<b>565.76</b>	<b>620.23</b>	<b>601.85</b>	<b>643.72</b>	<b>77.6%</b>
<i>Annex I Parties</i>	..	..	..	..	233.65	231.01	250.90	271.97	277.24	252.71	264.38	13.2%
<i>Annex II Parties</i>	202.63	216.81	234.71	171.25	223.39	227.72	245.78	263.43	268.83	244.72	250.76	12.3%
<i>North America</i>	26.41	36.12	93.91	56.43	93.55	93.68	92.24	83.63	83.62	78.67	84.81	-9.3%
<i>Europe</i>	120.20	110.37	97.05	87.88	109.00	112.20	132.89	156.28	164.11	147.08	147.83	35.6%
<i>Asia Oceania</i>	56.02	70.31	43.75	26.94	20.84	21.84	20.65	23.52	21.10	18.97	18.12	-13.1%
<i>Annex I EIT</i>	..	..	..	..	9.80	2.58	1.79	3.14	3.46	3.57	7.83	-20.1%
<i>Non-Annex I Parties</i>	..	..	..	..	128.84	188.48	237.88	293.79	342.99	349.14	379.34	194.4%
<i>Annex I Kyoto Parties</i>	..	..	..	..	142.50	139.79	158.67	184.82	190.35	171.74	175.96	23.5%
<b>Non-OECD Total *</b>	<b>137.33</b>	<b>111.51</b>	<b>109.39</b>	<b>121.14</b>	<b>130.70</b>	<b>164.82</b>	<b>203.70</b>	<b>257.51</b>	<b>310.33</b>	<b>321.77</b>	<b>356.78</b>	<b>173.0%</b>
<b>OECD Total **</b>	<b>206.91</b>	<b>220.22</b>	<b>238.51</b>	<b>176.59</b>	<b>231.79</b>	<b>254.68</b>	<b>285.08</b>	<b>308.24</b>	<b>309.90</b>	<b>280.08</b>	<b>286.94</b>	<b>23.8%</b>
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%
<b>OECD Americas</b>	<b>27.27</b>	<b>36.88</b>	<b>95.18</b>	<b>57.85</b>	<b>94.12</b>	<b>97.35</b>	<b>98.02</b>	<b>89.63</b>	<b>90.44</b>	<b>83.67</b>	<b>88.60</b>	<b>-5.9%</b>
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%
<b>OECD Asia Oceania</b>	<b>57.55</b>	<b>70.48</b>	<b>44.06</b>	<b>28.98</b>	<b>26.49</b>	<b>43.84</b>	<b>51.69</b>	<b>57.57</b>	<b>51.43</b>	<b>46.88</b>	<b>47.93</b>	<b>80.9%</b>
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%
<b>OECD Europe **</b>	<b>122.10</b>	<b>112.87</b>	<b>99.26</b>	<b>89.76</b>	<b>111.18</b>	<b>113.49</b>	<b>135.37</b>	<b>161.04</b>	<b>168.03</b>	<b>149.52</b>	<b>150.41</b>	<b>35.3%</b>
<i>European Union - 27</i>	..	..	..	..	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<sub>2</sub> emissions from international marine bunkersmillion tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>Non-OECD Total *</b>	<b>137.33</b>	<b>111.51</b>	<b>109.39</b>	<b>121.14</b>	<b>130.70</b>	<b>164.82</b>	<b>203.70</b>	<b>257.51</b>	<b>310.33</b>	<b>321.77</b>	<b>356.78</b>	<b>173.0%</b>
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 ***	..	..	..	..	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>13.92</b>	<b>14.81</b>	<b>14.64</b>	<b>15.53</b>	<b>9.63</b>	<b>5.06</b>	<b>6.45</b>	<b>9.50</b>	<b>11.35</b>	<b>13.83</b>	<b>19.37</b>	<b>101.0%</b>
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%
<b>Africa</b>	<b>21.76</b>	<b>15.95</b>	<b>16.48</b>	<b>13.70</b>	<b>16.49</b>	<b>24.55</b>	<b>22.83</b>	<b>19.61</b>	<b>16.81</b>	<b>16.47</b>	<b>17.55</b>	<b>6.4%</b>

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

	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%
<b>Asia</b>	<b>14.42</b>	<b>15.43</b>	<b>20.62</b>	<b>20.66</b>	<b>44.75</b>	<b>50.23</b>	<b>74.54</b>	<b>94.49</b>	<b>123.18</b>	<b>126.45</b>	<b>140.51</b>	<b>214.0%</b>
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%
<b>China</b>	<b>2.26</b>	<b>2.37</b>	<b>4.70</b>	<b>5.58</b>	<b>9.11</b>	<b>13.78</b>	<b>23.63</b>	<b>44.30</b>	<b>47.71</b>	<b>63.22</b>	<b>70.43</b>	<b>672.8%</b>
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%
<b>Non-OECD Americas</b>	<b>30.34</b>	<b>23.94</b>	<b>21.19</b>	<b>19.63</b>	<b>19.42</b>	<b>24.24</b>	<b>31.58</b>	<b>35.47</b>	<b>43.36</b>	<b>42.48</b>	<b>43.88</b>	<b>125.9%</b>
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%
<b>Middle East</b>	<b>54.64</b>	<b>39.00</b>	<b>31.76</b>	<b>46.04</b>	<b>31.28</b>	<b>46.95</b>	<b>44.66</b>	<b>54.14</b>	<b>67.91</b>	<b>59.32</b>	<b>65.05</b>	<b>108.0%</b>

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

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>World</b>	<b>167.33</b>	<b>171.81</b>	<b>199.72</b>	<b>222.02</b>	<b>255.34</b>	<b>286.84</b>	<b>350.10</b>	<b>413.78</b>	<b>447.08</b>	<b>427.57</b>	<b>455.32</b>	<b>78.3%</b>
<i>Annex I Parties</i>	..	..	..	..	168.67	179.33	223.55	254.02	267.39	248.40	251.90	49.3%
<i>Annex II Parties</i>	58.57	61.75	70.77	81.47	131.19	159.76	204.47	229.79	239.51	220.94	223.60	70.4%
<i>North America</i>	16.61	17.53	21.18	21.83	41.50	48.54	60.20	70.76	72.19	65.49	67.82	63.4%
<i>Europe</i>	35.96	37.67	42.70	48.59	70.77	87.26	115.76	127.38	138.43	128.60	127.02	79.5%
<i>Asia Oceania</i>	6.01	6.55	6.90	11.05	18.92	23.96	28.52	31.65	28.88	26.85	28.76	52.0%
<i>Annex I EIT</i>	..	..	..	..	36.73	18.58	17.17	20.76	23.64	22.97	24.40	-33.6%
<i>Non-Annex I Parties</i>	..	..	..	..	86.66	107.51	126.55	159.76	179.69	179.17	203.42	134.7%
<i>Annex I Kyoto Parties</i>	..	..	..	..	129.13	132.38	164.53	182.34	192.57	180.76	183.35	42.0%
<b>Non-OECD Total *</b>	<b>103.69</b>	<b>103.63</b>	<b>119.14</b>	<b>129.91</b>	<b>113.41</b>	<b>112.62</b>	<b>128.74</b>	<b>157.79</b>	<b>175.13</b>	<b>176.40</b>	<b>200.81</b>	<b>77.1%</b>
<b>OECD Total **</b>	<b>63.64</b>	<b>68.18</b>	<b>80.58</b>	<b>92.11</b>	<b>141.93</b>	<b>174.22</b>	<b>221.36</b>	<b>256.00</b>	<b>271.95</b>	<b>251.17</b>	<b>254.51</b>	<b>79.3%</b>
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%
<b>OECD Americas</b>	<b>18.43</b>	<b>20.27</b>	<b>25.95</b>	<b>26.85</b>	<b>47.29</b>	<b>55.93</b>	<b>69.29</b>	<b>80.33</b>	<b>83.20</b>	<b>74.75</b>	<b>77.42</b>	<b>63.7%</b>
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%
<b>OECD Asia Oceania</b>	<b>7.80</b>	<b>8.79</b>	<b>9.93</b>	<b>14.74</b>	<b>21.33</b>	<b>28.10</b>	<b>32.56</b>	<b>42.06</b>	<b>42.63</b>	<b>40.16</b>	<b>43.02</b>	<b>101.7%</b>
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%
<b>OECD Europe **</b>	<b>37.41</b>	<b>39.12</b>	<b>44.70</b>	<b>50.51</b>	<b>73.30</b>	<b>90.19</b>	<b>119.51</b>	<b>133.60</b>	<b>146.12</b>	<b>136.27</b>	<b>134.07</b>	<b>82.9%</b>
<i>European Union - 27</i>	..	..	..	..	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<sub>2</sub> emissions from international aviation bunkersmillion tonnes of CO<sub>2</sub>

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>Non-OECD Total *</b>	<b>103.69</b>	<b>103.63</b>	<b>119.14</b>	<b>129.91</b>	<b>113.41</b>	<b>112.62</b>	<b>128.74</b>	<b>157.79</b>	<b>175.13</b>	<b>176.40</b>	<b>200.81</b>	<b>77.1%</b>
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	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>68.31</b>	<b>63.86</b>	<b>73.00</b>	<b>79.40</b>	<b>42.14</b>	<b>19.64</b>	<b>18.29</b>	<b>22.85</b>	<b>25.51</b>	<b>24.41</b>	<b>26.34</b>	<b>-37.5%</b>
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%
<b>Africa</b>	<b>4.91</b>	<b>6.93</b>	<b>10.70</b>	<b>11.28</b>	<b>11.44</b>	<b>13.39</b>	<b>17.41</b>	<b>17.32</b>	<b>21.28</b>	<b>20.44</b>	<b>19.94</b>	<b>74.4%</b>

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

	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%
<b>Asia</b>	<b>15.16</b>	<b>13.36</b>	<b>13.71</b>	<b>15.20</b>	<b>22.93</b>	<b>32.67</b>	<b>42.20</b>	<b>53.94</b>	<b>59.22</b>	<b>58.66</b>	<b>64.65</b>	<b>181.9%</b>
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%
<b>China</b>	<b>1.41</b>	<b>1.83</b>	<b>2.24</b>	<b>2.77</b>	<b>6.12</b>	<b>10.20</b>	<b>10.43</b>	<b>20.90</b>	<b>20.19</b>	<b>22.07</b>	<b>32.55</b>	<b>431.9%</b>
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%
<b>Non-OECD Americas</b>	<b>4.63</b>	<b>5.34</b>	<b>7.20</b>	<b>7.42</b>	<b>8.64</b>	<b>12.25</b>	<b>14.94</b>	<b>16.67</b>	<b>17.23</b>	<b>16.99</b>	<b>20.79</b>	<b>140.5%</b>
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%
<b>Middle East</b>	<b>9.26</b>	<b>12.31</b>	<b>12.30</b>	<b>13.84</b>	<b>22.13</b>	<b>24.47</b>	<b>25.47</b>	<b>26.11</b>	<b>31.70</b>	<b>33.82</b>	<b>36.55</b>	<b>65.1%</b>

CO<sub>2</sub> emissions by sector in 2010 \*million tonnes of CO<sub>2</sub>

	Total CO <sub>2</sub> 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
<b>World ***</b>	<b>30 276.1</b>	<b>12 480.6</b>	<b>1 570.8</b>	<b>6 186.4</b>	<b>6 755.8</b>	<b>4 972.1</b>	<b>3 282.6</b>	<b>1 880.4</b>
<i>Annex I Parties</i>	13 398.1	5 526.6	674.8	1 980.5	3 369.4	2 908.3	1 846.9	1 090.5
<i>Annex II Parties</i>	10 519.3	4 104.1	562.5	1 460.3	2 921.2	2 582.9	1 471.2	824.5
<i>North America</i>	5 905.3	2 424.2	325.1	687.9	1 791.4	1 540.1	676.8	360.6
<i>Europe</i>	3 056.6	1 006.6	160.7	467.9	811.4	760.4	610.1	394.6
<i>Asia Oceania</i>	1 557.4	673.3	76.8	304.5	318.5	282.3	184.3	69.3
<i>Annex I EIT</i>	2 610.5	1 320.4	101.3	469.2	403.6	285.9	316.0	225.0
<i>Non-Annex I Parties</i>	15 779.0	6 954.0	896.0	4 205.9	2 287.4	2 063.8	1 435.7	789.9
<i>Annex I Kyoto Parties</i>	7 695.8	3 081.9	397.6	1 332.2	1 695.7	1 462.1	1 188.4	719.8
<b>Non-OECD Total</b>	<b>16 736.8</b>	<b>7 542.6</b>	<b>883.6</b>	<b>4 432.3</b>	<b>2 331.0</b>	<b>2 004.5</b>	<b>1 547.3</b>	<b>898.5</b>
<b>OECD Total</b>	<b>12 440.3</b>	<b>4 937.9</b>	<b>687.2</b>	<b>1 754.1</b>	<b>3 325.8</b>	<b>2 967.6</b>	<b>1 735.3</b>	<b>982.0</b>
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
<b>OECD Americas</b>	<b>6 391.9</b>	<b>2 572.2</b>	<b>383.0</b>	<b>758.1</b>	<b>1 964.0</b>	<b>1 706.2</b>	<b>714.7</b>	<b>382.9</b>
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
<b>OECD Asia Oceania</b>	<b>2 188.6</b>	<b>992.9</b>	<b>116.2</b>	<b>406.5</b>	<b>417.2</b>	<b>376.0</b>	<b>255.8</b>	<b>104.9</b>
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
<b>OECD Europe</b>	<b>3 859.8</b>	<b>1 372.9</b>	<b>188.1</b>	<b>589.4</b>	<b>944.6</b>	<b>885.4</b>	<b>764.8</b>	<b>494.1</b>
<i>European Union - 27</i>	3 659.5	1 340.9	173.3	546.9	900.4	848.2	698.1	449.4

\* This table shows CO<sub>2</sub> emissions for the same sectors which are present throughout this publication. In particular, the emissions from electricity and heat production are shown separately and not reallocated as in the table on pages 72-74.

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

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

CO<sub>2</sub> emissions by sector in 2010million tonnes of CO<sub>2</sub>

	Total CO <sub>2</sub> 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
<b>Non-OECD Total</b>	<b>16 736.8</b>	<b>7 542.6</b>	<b>883.6</b>	<b>4 432.3</b>	<b>2 331.0</b>	<b>2 004.5</b>	<b>1 547.3</b>	<b>898.5</b>
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
<b>Non-OECD Europe and Eurasia</b>	<b>2 606.3</b>	<b>1 259.7</b>	<b>146.8</b>	<b>486.0</b>	<b>369.2</b>	<b>246.8</b>	<b>344.6</b>	<b>215.6</b>
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
<b>Africa</b>	<b>929.7</b>	<b>423.4</b>	<b>39.8</b>	<b>140.9</b>	<b>219.7</b>	<b>203.0</b>	<b>105.9</b>	<b>57.6</b>



CO<sub>2</sub> emissions by sector in 2010million tonnes of CO<sub>2</sub>

	Total CO <sub>2</sub> 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
<b>Asia</b>	<b>3 330.6</b>	<b>1 517.1</b>	<b>144.7</b>	<b>882.0</b>	<b>527.8</b>	<b>486.4</b>	<b>258.9</b>	<b>133.9</b>
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
<b>China</b>	<b>7 258.5</b>	<b>3 576.9</b>	<b>275.5</b>	<b>2 333.4</b>	<b>513.6</b>	<b>400.9</b>	<b>559.2</b>	<b>303.1</b>
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
<b>Non-OECD Americas</b>	<b>1 065.4</b>	<b>210.1</b>	<b>115.9</b>	<b>267.4</b>	<b>362.9</b>	<b>333.3</b>	<b>109.1</b>	<b>60.8</b>
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
<b>Middle East</b>	<b>1 546.3</b>	<b>555.4</b>	<b>160.9</b>	<b>322.6</b>	<b>337.8</b>	<b>334.1</b>	<b>169.6</b>	<b>127.4</b>

CO<sub>2</sub> emissions with electricity and heat allocated to consuming sectors \* in 2010million tonnes of CO<sub>2</sub>

	Total CO <sub>2</sub> emissions from fuel combustion	Other energy industry own use **	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
<b>World ***</b>	<b>30 276.1</b>	<b>2 175.7</b>	<b>11 166.7</b>	<b>6 912.9</b>	<b>4 972.1</b>	<b>10 020.8</b>	<b>5 376.3</b>
<i>Annex I Parties</i>	13 398.1	956.1	3 653.4	3 445.5	2 908.3	5 343.1	2 907.1
<i>Annex II Parties</i>	10 519.3	686.3	2 632.0	2 957.9	2 582.9	4 243.1	2 183.1
<i>North America</i>	5 905.3	394.8	1 271.4	1 796.7	1 540.1	2 442.4	1 231.3
<i>Europe</i>	3 056.6	198.5	830.5	830.3	760.4	1 197.3	683.9
<i>Asia Oceania</i>	1 557.4	92.9	530.1	330.9	282.3	603.4	267.9
<i>Annex I EIT</i>	2 610.5	257.7	920.6	442.7	285.9	989.4	660.1
<i>Non-Annex I Parties</i>	15 779.0	1 219.6	7 513.2	2 368.4	2 063.8	4 677.7	2 469.3
<i>Annex I Kyoto Parties</i>	7 695.8	611.8	2 399.8	1 766.5	1 462.1	2 917.7	1 665.4
<b>Non-OECD Total</b>	<b>16 736.8</b>	<b>1 284.1</b>	<b>8 205.7</b>	<b>2 425.5</b>	<b>2 004.5</b>	<b>4 821.6</b>	<b>2 659.6</b>
<b>OECD Total</b>	<b>12 440.3</b>	<b>845.3</b>	<b>3 281.9</b>	<b>3 369.2</b>	<b>2 967.6</b>	<b>4 943.8</b>	<b>2 548.2</b>
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
<b>OECD Americas</b>	<b>6 391.9</b>	<b>457.2</b>	<b>1 423.6</b>	<b>1 970.2</b>	<b>1 706.2</b>	<b>2 541.0</b>	<b>1 286.1</b>
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
<b>OECD Asia Oceania</b>	<b>2 188.6</b>	<b>138.1</b>	<b>782.2</b>	<b>430.8</b>	<b>376.0</b>	<b>837.4</b>	<b>360.8</b>
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
<b>OECD Europe</b>	<b>3 859.8</b>	<b>250.0</b>	<b>1 076.1</b>	<b>968.3</b>	<b>885.4</b>	<b>1 565.4</b>	<b>901.3</b>
<i>European Union - 27</i>	3 659.5	239.2	1 005.9	924.6	848.2	1 489.9	859.8

\* CO<sub>2</sub> emissions from electricity and heat generation have been allocated to final consuming sectors in proportion to the electricity and heat consumed. The detailed unallocated emissions are shown in the table on pages 69-71.

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

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

## CO<sub>2</sub> emissions with electricity and heat allocated to consuming sectors in 2010

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

	Total CO <sub>2</sub> emissions from fuel combustion	Other energy industry own use	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
<b>Non-OECD Total</b>	<b>16 736.8</b>	<b>1 284.1</b>	<b>8 205.7</b>	<b>2 425.5</b>	<b>2 004.5</b>	<b>4 821.6</b>	<b>2 659.6</b>
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
<b>Non-OECD Europe and Eurasia</b>	<b>2 606.3</b>	<b>292.4</b>	<b>936.4</b>	<b>407.3</b>	<b>246.8</b>	<b>970.3</b>	<b>615.4</b>
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
<b>Africa</b>	<b>929.7</b>	<b>53.2</b>	<b>321.8</b>	<b>224.4</b>	<b>203.0</b>	<b>330.4</b>	<b>170.8</b>

CO<sub>2</sub> emissions with electricity and heat allocated to consuming sectors in 2010million tonnes of CO<sub>2</sub>

	Total CO <sub>2</sub> 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
<b>Asia</b>	<b>3 330.6</b>	<b>147.8</b>	<b>1 561.5</b>	<b>546.4</b>	<b>486.4</b>	<b>1 074.8</b>	<b>502.9</b>
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
<b>China</b>	<b>7 258.5</b>	<b>489.3</b>	<b>4 615.2</b>	<b>545.6</b>	<b>400.9</b>	<b>1 608.5</b>	<b>873.3</b>
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
<b>Non-OECD Americas</b>	<b>1 065.4</b>	<b>118.7</b>	<b>351.0</b>	<b>363.7</b>	<b>333.3</b>	<b>231.9</b>	<b>125.9</b>
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
<b>Middle East</b>	<b>1 546.3</b>	<b>182.8</b>	<b>419.8</b>	<b>338.0</b>	<b>334.1</b>	<b>605.7</b>	<b>371.3</b>

## Total primary energy supply

petajoules

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>World *</b>	<b>231 428</b>	<b>259 118</b>	<b>302 052</b>	<b>324 001</b>	<b>367 298</b>	<b>386 656</b>	<b>419 055</b>	<b>479 455</b>	<b>513 426</b>	<b>509 603</b>	<b>534 434</b>	<b>45.5%</b>
<i>Annex I Parties</i>	..	..	..	..	233 722	229 465	241 484	250 834	249 028	235 948	245 230	4.9%
<i>Annex II Parties</i>	130 359	138 423	153 297	154 085	167 903	180 342	194 917	201 276	197 316	187 892	193 303	15.1%
<i>North America</i>	72 382	76 179	83 622	82 358	88 908	96 212	105 707	108 482	106 419	101 141	103 337	16.2%
<i>Europe</i>	44 325	46 578	51 959	53 014	56 452	58 854	62 241	65 512	64 226	60 980	63 180	11.9%
<i>Asia Oceania</i>	13 651	15 666	17 715	18 712	22 543	25 276	26 969	27 281	26 670	25 771	26 786	18.8%
<i>Annex I EIT</i>	..	..	..	..	63 581	46 516	43 343	45 988	47 553	43 933	47 491	-25.3%
<i>Non-Annex I Parties</i>	..	..	..	..	125 186	147 609	166 185	215 334	249 937	259 706	274 312	119.1%
<i>Annex I Kyoto Parties</i>	..	..	..	..	149 400	139 272	142 046	149 053	148 356	140 062	146 839	-1.7%
<b>Intl. marine bunkers</b>	<b>4 525</b>	<b>4 362</b>	<b>4 577</b>	<b>3 920</b>	<b>4 783</b>	<b>5 529</b>	<b>6 439</b>	<b>7 441</b>	<b>8 144</b>	<b>7 908</b>	<b>8 459</b>	<b>76.9%</b>
<b>Intl. aviation bunkers</b>	<b>2 366</b>	<b>2 428</b>	<b>2 822</b>	<b>3 137</b>	<b>3 608</b>	<b>4 053</b>	<b>4 946</b>	<b>5 846</b>	<b>6 316</b>	<b>6 041</b>	<b>6 433</b>	<b>78.3%</b>
<b>Non-OECD Total **</b>	<b>83 346</b>	<b>100 867</b>	<b>124 322</b>	<b>144 310</b>	<b>169 560</b>	<b>173 048</b>	<b>186 081</b>	<b>235 260</b>	<b>269 812</b>	<b>276 697</b>	<b>293 209</b>	<b>72.9%</b>
<b>OECD Total ***</b>	<b>141 192</b>	<b>151 462</b>	<b>170 330</b>	<b>172 634</b>	<b>189 348</b>	<b>204 026</b>	<b>221 588</b>	<b>230 908</b>	<b>229 154</b>	<b>218 957</b>	<b>226 333</b>	<b>19.5%</b>
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%
<b>OECD Americas</b>	<b>74 546</b>	<b>78 975</b>	<b>88 002</b>	<b>87 307</b>	<b>94 623</b>	<b>102 415</b>	<b>112 837</b>	<b>116 793</b>	<b>115 270</b>	<b>109 688</b>	<b>112 089</b>	<b>18.5%</b>
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%
<b>OECD Asia Oceania</b>	<b>14 602</b>	<b>16 984</b>	<b>19 768</b>	<b>21 270</b>	<b>26 920</b>	<b>31 986</b>	<b>35 611</b>	<b>36 855</b>	<b>37 130</b>	<b>36 268</b>	<b>38 213</b>	<b>41.9%</b>
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%
<b>OECD Europe ***</b>	<b>52 044</b>	<b>55 502</b>	<b>62 561</b>	<b>64 057</b>	<b>67 804</b>	<b>69 625</b>	<b>73 140</b>	<b>77 259</b>	<b>76 754</b>	<b>73 002</b>	<b>76 031</b>	<b>12.1%</b>
<i>European Union - 27</i>	..	..	..	..	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
<b>Non-OECD Total *</b>	<b>83 346</b>	<b>100 867</b>	<b>124 322</b>	<b>144 310</b>	<b>169 560</b>	<b>173 048</b>	<b>186 081</b>	<b>235 260</b>	<b>269 812</b>	<b>276 697</b>	<b>293 209</b>	<b>72.9%</b>
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	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>35 753</b>	<b>43 678</b>	<b>51 963</b>	<b>58 140</b>	<b>64 483</b>	<b>44 900</b>	<b>41 943</b>	<b>45 112</b>	<b>47 716</b>	<b>43 762</b>	<b>47 374</b>	<b>-26.5%</b>
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%
<b>Africa</b>	<b>8 055</b>	<b>9 321</b>	<b>11 488</b>	<b>14 243</b>	<b>16 233</b>	<b>18 356</b>	<b>20 756</b>	<b>24 953</b>	<b>27 976</b>	<b>28 284</b>	<b>28 547</b>	<b>75.9%</b>

\* 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%
<b>Asia</b>	<b>13 141</b>	<b>15 266</b>	<b>19 076</b>	<b>23 073</b>	<b>29 634</b>	<b>36 831</b>	<b>44 044</b>	<b>52 704</b>	<b>58 449</b>	<b>61 160</b>	<b>63 812</b>	<b>115.3%</b>
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%
<b>China</b>	<b>16 526</b>	<b>20 418</b>	<b>25 251</b>	<b>29 248</b>	<b>36 493</b>	<b>44 292</b>	<b>46 401</b>	<b>71 555</b>	<b>89 247</b>	<b>96 336</b>	<b>103 391</b>	<b>183.3%</b>
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%
<b>Non-OECD Americas</b>	<b>8 061</b>	<b>9 628</b>	<b>11 790</b>	<b>12 590</b>	<b>13 872</b>	<b>15 729</b>	<b>17 964</b>	<b>20 488</b>	<b>22 901</b>	<b>22 692</b>	<b>24 395</b>	<b>75.9%</b>
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%
<b>Middle East</b>	<b>1 810</b>	<b>2 556</b>	<b>4 753</b>	<b>7 015</b>	<b>8 846</b>	<b>12 939</b>	<b>14 974</b>	<b>20 449</b>	<b>23 523</b>	<b>24 462</b>	<b>25 689</b>	<b>190.4%</b>

## Total primary energy supply

million tonnes of oil equivalent

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>World *</b>	<b>5 527.6</b>	<b>6 188.9</b>	<b>7 214.4</b>	<b>7 738.6</b>	<b>8 772.8</b>	<b>9 235.1</b>	<b>10 008.9</b>	<b>11 451.6</b>	<b>12 263.0</b>	<b>12 171.7</b>	<b>12 764.7</b>	<b>45.5%</b>
<i>Annex I Parties</i>	..	..	..	..	5 582.3	5 480.7	5 767.8	5 991.1	5 947.9	5 635.5	5 857.2	4.9%
<i>Annex II Parties</i>	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%
<i>North America</i>	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%
<i>Europe</i>	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%
<i>Asia Oceania</i>	326.1	374.2	423.1	446.9	538.4	603.7	644.1	651.6	637.0	615.5	639.8	18.8%
<i>Annex I EIT</i>	..	..	..	..	1 518.6	1 111.0	1 035.2	1 098.4	1 135.8	1 049.3	1 134.3	-25.3%
<i>Non-Annex I Parties</i>	..	..	..	..	2 990.0	3 525.6	3 969.3	5 143.2	5 969.6	6 203.0	6 551.8	119.1%
<i>Annex I Kyoto Parties</i>	..	..	..	..	3 568.3	3 326.5	3 392.7	3 560.1	3 543.4	3 345.3	3 507.2	-1.7%
<b>Intl. marine bunkers</b>	<b>108.1</b>	<b>104.2</b>	<b>109.3</b>	<b>93.6</b>	<b>114.2</b>	<b>132.1</b>	<b>153.8</b>	<b>177.7</b>	<b>194.5</b>	<b>188.9</b>	<b>202.0</b>	<b>76.9%</b>
<b>Intl. aviation bunkers</b>	<b>56.5</b>	<b>58.0</b>	<b>67.4</b>	<b>74.9</b>	<b>86.2</b>	<b>96.8</b>	<b>118.1</b>	<b>139.6</b>	<b>150.9</b>	<b>144.3</b>	<b>153.6</b>	<b>78.3%</b>
<b>Non-OECD Total **</b>	<b>1 990.7</b>	<b>2 409.2</b>	<b>2 969.4</b>	<b>3 446.8</b>	<b>4 049.9</b>	<b>4 133.2</b>	<b>4 444.5</b>	<b>5 619.1</b>	<b>6 444.3</b>	<b>6 608.8</b>	<b>7 003.2</b>	<b>72.9%</b>
<b>OECD Total ***</b>	<b>3 372.3</b>	<b>3 617.6</b>	<b>4 068.3</b>	<b>4 123.3</b>	<b>4 522.5</b>	<b>4 873.1</b>	<b>5 292.5</b>	<b>5 515.1</b>	<b>5 473.2</b>	<b>5 229.7</b>	<b>5 405.9</b>	<b>19.5%</b>
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%
<b>OECD Americas</b>	<b>1 780.5</b>	<b>1 886.3</b>	<b>2 101.9</b>	<b>2 085.3</b>	<b>2 260.0</b>	<b>2 446.1</b>	<b>2 695.1</b>	<b>2 789.6</b>	<b>2 753.2</b>	<b>2 619.8</b>	<b>2 677.2</b>	<b>18.5%</b>
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%
<b>OECD Asia Oceania</b>	<b>348.8</b>	<b>405.7</b>	<b>472.1</b>	<b>508.0</b>	<b>643.0</b>	<b>764.0</b>	<b>850.5</b>	<b>880.3</b>	<b>886.8</b>	<b>866.2</b>	<b>912.7</b>	<b>41.9%</b>
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%
<b>OECD Europe ***</b>	<b>1 243.0</b>	<b>1 325.7</b>	<b>1 494.2</b>	<b>1 530.0</b>	<b>1 619.5</b>	<b>1 663.0</b>	<b>1 746.9</b>	<b>1 845.3</b>	<b>1 833.2</b>	<b>1 743.6</b>	<b>1 816.0</b>	<b>12.1%</b>
<i>European Union - 27</i>	..	..	..	..	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
<b>Non-OECD Total *</b>	<b>1 990.7</b>	<b>2 409.2</b>	<b>2 969.4</b>	<b>3 446.8</b>	<b>4 049.9</b>	<b>4 133.2</b>	<b>4 444.5</b>	<b>5 619.1</b>	<b>6 444.3</b>	<b>6 608.8</b>	<b>7 003.2</b>	<b>72.9%</b>
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	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>853.9</b>	<b>1 043.2</b>	<b>1 241.1</b>	<b>1 388.7</b>	<b>1 540.2</b>	<b>1 072.4</b>	<b>1 001.8</b>	<b>1 077.5</b>	<b>1 139.7</b>	<b>1 045.2</b>	<b>1 131.5</b>	<b>-26.5%</b>
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%
<b>Africa</b>	<b>192.4</b>	<b>222.6</b>	<b>274.4</b>	<b>340.2</b>	<b>387.7</b>	<b>438.4</b>	<b>495.7</b>	<b>596.0</b>	<b>668.2</b>	<b>675.5</b>	<b>681.8</b>	<b>75.9%</b>

\* 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%
<b>Asia</b>	<b>313.9</b>	<b>364.6</b>	<b>455.6</b>	<b>551.1</b>	<b>707.8</b>	<b>879.7</b>	<b>1 052.0</b>	<b>1 258.8</b>	<b>1 396.0</b>	<b>1 460.8</b>	<b>1 524.1</b>	<b>115.3%</b>
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%
<b>China</b>	<b>394.7</b>	<b>487.7</b>	<b>603.1</b>	<b>698.6</b>	<b>871.6</b>	<b>1 057.9</b>	<b>1 108.3</b>	<b>1 709.1</b>	<b>2 131.6</b>	<b>2 300.9</b>	<b>2 469.5</b>	<b>183.3%</b>
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%
<b>Non-OECD Americas</b>	<b>192.5</b>	<b>230.0</b>	<b>281.6</b>	<b>300.7</b>	<b>331.3</b>	<b>375.7</b>	<b>429.1</b>	<b>489.3</b>	<b>547.0</b>	<b>542.0</b>	<b>582.7</b>	<b>75.9%</b>
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%
<b>Middle East</b>	<b>43.2</b>	<b>61.0</b>	<b>113.5</b>	<b>167.6</b>	<b>211.3</b>	<b>309.0</b>	<b>357.6</b>	<b>488.4</b>	<b>561.8</b>	<b>584.3</b>	<b>613.6</b>	<b>190.4%</b>

## GDP using exchange rates

billion 2005 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>World</b>	<b>16 059.5</b>	<b>18 628.4</b>	<b>22 495.4</b>	<b>25 502.6</b>	<b>30 153.2</b>	<b>33 419.1</b>	<b>39 638.9</b>	<b>45 617.3</b>	<b>50 115.6</b>	<b>48 950.1</b>	<b>50 942.5</b>	<b>68.9%</b>
<i>Annex I Parties</i>	..	..	..	..	24 881.0	26 806.0	31 375.1	34 964.7	37 064.3	35 522.4	36 536.1	46.8%
<i>Annex II Parties</i>	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%
<i>North America</i>	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%
<i>Europe</i>	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%
<i>Asia Oceania</i>	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%
<i>Annex I EIT</i>	..	..	..	..	1 638.8	1 198.6	1 344.7	1 736.8	2 093.7	1 963.6	2 029.3	23.8%
<i>Non-Annex I Parties</i>	..	..	..	..	5 272.2	6 613.1	8 263.8	10 652.6	13 051.2	13 427.8	14 406.4	173.3%
<i>Annex I Kyoto Parties</i>	..	..	..	..	16 621.6	17 450.3	19 803.8	21 881.2	23 376.7	22 323.2	22 905.2	37.8%
<b>Non-OECD Total *</b>	<b>2 627.5</b>	<b>3 327.1</b>	<b>4 289.5</b>	<b>4 742.1</b>	<b>5 446.7</b>	<b>6 086.8</b>	<b>7 413.0</b>	<b>9 810.4</b>	<b>12 228.5</b>	<b>12 548.8</b>	<b>13 448.4</b>	<b>146.9%</b>
<b>OECD Total **</b>	<b>13 431.9</b>	<b>15 301.3</b>	<b>18 205.8</b>	<b>20 760.5</b>	<b>24 706.5</b>	<b>27 332.2</b>	<b>32 225.9</b>	<b>35 806.9</b>	<b>37 887.0</b>	<b>36 401.3</b>	<b>37 494.1</b>	<b>51.8%</b>
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%
<b>OECD Americas</b>	<b>5 038.0</b>	<b>5 667.5</b>	<b>6 858.4</b>	<b>7 987.8</b>	<b>9 312.1</b>	<b>10 506.1</b>	<b>13 025.0</b>	<b>14 662.4</b>	<b>15 360.9</b>	<b>14 805.0</b>	<b>15 279.6</b>	<b>64.1%</b>
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%
<b>OECD Asia Oceania</b>	<b>2 039.3</b>	<b>2 429.6</b>	<b>2 992.3</b>	<b>3 701.7</b>	<b>4 743.7</b>	<b>5 301.9</b>	<b>5 804.6</b>	<b>6 408.9</b>	<b>6 762.0</b>	<b>6 490.8</b>	<b>6 756.0</b>	<b>42.4%</b>
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%
<b>OECD Europe **</b>	<b>6 354.6</b>	<b>7 204.1</b>	<b>8 355.1</b>	<b>9 071.0</b>	<b>10 650.8</b>	<b>11 524.3</b>	<b>13 396.3</b>	<b>14 735.7</b>	<b>15 764.1</b>	<b>15 105.5</b>	<b>15 458.5</b>	<b>45.1%</b>
<i>European Union - 27</i>	..	..	..	..	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
<b>Non-OECD Total *</b>	<b>2 627.5</b>	<b>3 327.1</b>	<b>4 289.5</b>	<b>4 742.1</b>	<b>5 446.7</b>	<b>6 086.8</b>	<b>7 413.0</b>	<b>9 810.4</b>	<b>12 228.5</b>	<b>12 548.8</b>	<b>13 448.4</b>	<b>146.9%</b>
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	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>766.0</b>	<b>967.4</b>	<b>1 207.9</b>	<b>1 340.1</b>	<b>1 375.6</b>	<b>869.8</b>	<b>944.8</b>	<b>1 287.2</b>	<b>1 588.3</b>	<b>1 478.4</b>	<b>1 532.9</b>	<b>11.4%</b>
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%
<b>Africa</b>	<b>372.9</b>	<b>422.2</b>	<b>521.2</b>	<b>555.9</b>	<b>624.4</b>	<b>662.6</b>	<b>789.1</b>	<b>989.6</b>	<b>1 169.5</b>	<b>1 196.7</b>	<b>1 251.8</b>	<b>100.5%</b>

\* 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%
<b>Asia</b>	<b>389.1</b>	<b>474.6</b>	<b>638.3</b>	<b>817.4</b>	<b>1 120.5</b>	<b>1 504.0</b>	<b>1 833.1</b>	<b>2 383.6</b>	<b>2 856.5</b>	<b>2 971.2</b>	<b>3 216.6</b>	<b>187.1%</b>
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%
<b>China</b>	<b>149.1</b>	<b>187.7</b>	<b>267.9</b>	<b>428.1</b>	<b>624.5</b>	<b>1 064.8</b>	<b>1 562.2</b>	<b>2 434.7</b>	<b>3 390.4</b>	<b>3 677.8</b>	<b>4 053.3</b>	<b>549.0%</b>
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%
<b>Non-OECD Americas</b>	<b>615.7</b>	<b>794.3</b>	<b>1 013.4</b>	<b>1 044.0</b>	<b>1 146.7</b>	<b>1 356.4</b>	<b>1 510.8</b>	<b>1 747.5</b>	<b>2 081.0</b>	<b>2 070.8</b>	<b>2 197.4</b>	<b>91.6%</b>
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%
<b>Middle East</b>	<b>334.7</b>	<b>481.0</b>	<b>640.8</b>	<b>556.5</b>	<b>555.0</b>	<b>629.3</b>	<b>773.1</b>	<b>967.8</b>	<b>1 142.8</b>	<b>1 153.9</b>	<b>1 196.3</b>	<b>115.6%</b>



## GDP using purchasing power parities

billion 2005 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>Non-OECD Total *</b>	<b>5 886.5</b>	<b>7 397.3</b>	<b>9 444.4</b>	<b>10 596.4</b>	<b>12 186.2</b>	<b>13 604.6</b>	<b>16 716.2</b>	<b>22 477.4</b>	<b>28 220.0</b>	<b>29 174.7</b>	<b>31 317.8</b>	<b>157.0%</b>
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	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>1 755.5</b>	<b>2 215.9</b>	<b>2 756.6</b>	<b>3 061.2</b>	<b>3 184.3</b>	<b>1 979.5</b>	<b>2 141.7</b>	<b>2 933.2</b>	<b>3 629.1</b>	<b>3 383.0</b>	<b>3 513.5</b>	<b>10.3%</b>
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%
<b>Africa</b>	<b>766.8</b>	<b>871.6</b>	<b>1 086.2</b>	<b>1 177.3</b>	<b>1 335.8</b>	<b>1 430.0</b>	<b>1 717.4</b>	<b>2 161.3</b>	<b>2 568.4</b>	<b>2 640.8</b>	<b>2 769.2</b>	<b>107.3%</b>

\* 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%
<b>Asia</b>	<b>1 117.4</b>	<b>1 335.5</b>	<b>1 761.9</b>	<b>2 264.8</b>	<b>3 000.3</b>	<b>3 966.1</b>	<b>4 877.8</b>	<b>6 537.0</b>	<b>7 959.9</b>	<b>8 383.2</b>	<b>9 072.1</b>	<b>202.4%</b>
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%
<b>China</b>	<b>332.0</b>	<b>416.1</b>	<b>584.7</b>	<b>948.8</b>	<b>1 384.6</b>	<b>2 402.3</b>	<b>3 566.6</b>	<b>5 607.3</b>	<b>7 849.9</b>	<b>8 538.5</b>	<b>9 417.1</b>	<b>580.1%</b>
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%
<b>Non-OECD Americas</b>	<b>1 186.6</b>	<b>1 522.3</b>	<b>1 932.1</b>	<b>1 973.5</b>	<b>2 162.2</b>	<b>2 585.9</b>	<b>2 875.5</b>	<b>3 326.1</b>	<b>3 966.7</b>	<b>3 954.0</b>	<b>4 200.2</b>	<b>94.3%</b>
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%
<b>Middle East</b>	<b>728.2</b>	<b>1 035.9</b>	<b>1 322.9</b>	<b>1 170.7</b>	<b>1 119.0</b>	<b>1 240.8</b>	<b>1 537.3</b>	<b>1 912.5</b>	<b>2 245.9</b>	<b>2 275.2</b>	<b>2 345.7</b>	<b>109.6%</b>



## Population

millions

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>World</b>	<b>3 758.9</b>	<b>4 058.5</b>	<b>4 431.4</b>	<b>4 833.2</b>	<b>5 266.2</b>	<b>5 675.7</b>	<b>6 070.7</b>	<b>6 447.3</b>	<b>6 673.0</b>	<b>6 748.7</b>	<b>6 825.4</b>	<b>29.6%</b>
<i>Annex I Parties</i>	..	..	..	..	1 175.9	1 207.4	1 231.5	1 257.8	1 275.9	1 281.4	1 286.8	9.4%
<i>Annex II Parties</i>	705.3	729.4	755.0	775.9	799.3	827.8	853.1	882.0	900.0	905.2	910.0	13.8%
<i>North America</i>	229.7	239.1	252.2	264.3	277.9	295.9	313.1	328.5	338.1	341.2	344.2	23.9%
<i>Europe</i>	354.6	361.4	367.8	371.3	377.3	384.4	389.9	401.1	408.2	410.0	411.4	9.0%
<i>Asia Oceania</i>	121.0	128.8	135.0	140.2	144.2	147.5	150.1	152.5	153.7	154.0	154.3	7.1%
<i>Annex I EIT</i>	..	..	..	..	321.1	319.5	313.8	306.8	304.4	304.0	303.6	-5.4%
<i>Non-Annex I Parties</i>	..	..	..	..	4 090.3	4 468.3	4 839.1	5 189.5	5 397.1	5 467.2	5 538.6	35.4%
<i>Annex I Kyoto Parties</i>	..	..	..	..	860.0	870.5	874.5	882.8	890.0	892.1	894.0	3.9%
<b>Non-OECD Total *</b>	<b>2 864.2</b>	<b>3 123.8</b>	<b>3 451.5</b>	<b>3 813.1</b>	<b>4 202.2</b>	<b>4 564.2</b>	<b>4 918.8</b>	<b>5 254.3</b>	<b>5 455.2</b>	<b>5 523.5</b>	<b>5 593.2</b>	<b>33.1%</b>
<b>OECD Total **</b>	<b>894.7</b>	<b>934.7</b>	<b>980.0</b>	<b>1 020.2</b>	<b>1 064.1</b>	<b>1 111.5</b>	<b>1 151.9</b>	<b>1 193.0</b>	<b>1 217.8</b>	<b>1 225.1</b>	<b>1 232.2</b>	<b>15.8%</b>
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%
<b>OECD Americas</b>	<b>289.3</b>	<b>306.3</b>	<b>329.1</b>	<b>350.0</b>	<b>372.3</b>	<b>401.5</b>	<b>426.8</b>	<b>448.6</b>	<b>461.5</b>	<b>465.6</b>	<b>469.6</b>	<b>26.1%</b>
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%
<b>OECD Asia Oceania</b>	<b>157.0</b>	<b>167.6</b>	<b>177.0</b>	<b>185.3</b>	<b>191.7</b>	<b>198.1</b>	<b>203.4</b>	<b>207.6</b>	<b>209.7</b>	<b>210.2</b>	<b>210.8</b>	<b>10.0%</b>
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%
<b>OECD Europe **</b>	<b>448.4</b>	<b>460.9</b>	<b>473.8</b>	<b>484.9</b>	<b>500.1</b>	<b>511.9</b>	<b>521.7</b>	<b>536.9</b>	<b>546.6</b>	<b>549.3</b>	<b>551.8</b>	<b>10.3%</b>
<i>European Union - 27</i>	..	..	..	..	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
<b>Non-OECD Total *</b>	<b>2 864.2</b>	<b>3 123.8</b>	<b>3 451.5</b>	<b>3 813.1</b>	<b>4 202.2</b>	<b>4 564.2</b>	<b>4 918.8</b>	<b>5 254.3</b>	<b>5 455.2</b>	<b>5 523.5</b>	<b>5 593.2</b>	<b>33.1%</b>
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	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	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>297.6</b>	<b>308.5</b>	<b>322.1</b>	<b>335.6</b>	<b>343.4</b>	<b>344.1</b>	<b>340.3</b>	<b>336.6</b>	<b>336.7</b>	<b>337.3</b>	<b>338.0</b>	<b>-1.6%</b>
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%
<b>Africa</b>	<b>377.3</b>	<b>419.2</b>	<b>481.2</b>	<b>553.4</b>	<b>633.5</b>	<b>718.5</b>	<b>810.3</b>	<b>910.4</b>	<b>975.6</b>	<b>998.3</b>	<b>1 021.6</b>	<b>61.3%</b>

\* 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%
<b>Asia</b>	<b>1 051.9</b>	<b>1 152.2</b>	<b>1 294.7</b>	<b>1 449.7</b>	<b>1 615.7</b>	<b>1 774.7</b>	<b>1 936.0</b>	<b>2 085.8</b>	<b>2 171.0</b>	<b>2 199.5</b>	<b>2 228.6</b>	<b>37.9%</b>
People's Rep. of China	841.1	916.4	981.2	1 051.0	1 135.2	1 204.9	1 262.6	1 303.7	1 324.7	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%
<b>China</b>	<b>845.2</b>	<b>920.9</b>	<b>986.3</b>	<b>1 056.5</b>	<b>1 140.9</b>	<b>1 211.0</b>	<b>1 269.3</b>	<b>1 310.5</b>	<b>1 331.6</b>	<b>1 338.4</b>	<b>1 345.4</b>	<b>17.9%</b>
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%
<b>Non-OECD Americas</b>	<b>227.1</b>	<b>249.1</b>	<b>278.8</b>	<b>310.5</b>	<b>341.6</b>	<b>371.8</b>	<b>401.7</b>	<b>429.8</b>	<b>445.1</b>	<b>450.1</b>	<b>455.1</b>	<b>33.2%</b>
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%
<b>Middle East</b>	<b>65.1</b>	<b>73.9</b>	<b>88.4</b>	<b>107.3</b>	<b>127.0</b>	<b>144.1</b>	<b>161.2</b>	<b>181.2</b>	<b>195.2</b>	<b>200.0</b>	<b>204.6</b>	<b>61.0%</b>

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

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>World *</b>	<b>60.8</b>	<b>60.5</b>	<b>59.7</b>	<b>57.5</b>	<b>57.1</b>	<b>56.5</b>	<b>56.1</b>	<b>56.7</b>	<b>57.4</b>	<b>56.8</b>	<b>56.7</b>	<b>-0.8%</b>
<i>Annex I Parties</i>	..	..	..	..	59.5	57.4	57.0	56.3	55.8	55.0	54.6	-8.2%
<i>Annex II Parties</i>	66.0	64.2	62.3	59.5	58.4	56.6	56.5	56.2	55.5	54.4	54.4	-6.8%
<i>North America</i>	64.0	62.2	60.9	60.1	59.6	58.3	59.0	58.4	57.7	56.5	57.1	-4.2%
<i>Europe</i>	69.0	66.4	64.5	58.6	55.8	53.3	51.7	51.1	50.4	49.1	48.4	-13.4%
<i>Asia Oceania</i>	67.1	67.2	62.4	59.8	59.8	57.7	57.6	59.5	59.0	58.6	58.1	-2.8%
<i>Annex I EIT</i>	..	..	..	..	62.5	60.6	58.9	56.6	56.6	56.9	55.0	-12.1%
<i>Non-Annex I Parties</i>	..	..	..	..	51.5	53.9	53.6	56.1	58.1	57.5	57.5	11.7%
<i>Annex I Kyoto Parties</i>	..	..	..	..	58.8	56.2	54.9	54.2	53.8	53.3	52.4	-10.9%
<b>Non-OECD Total **</b>	<b>50.2</b>	<b>53.2</b>	<b>54.6</b>	<b>53.1</b>	<b>54.3</b>	<b>54.7</b>	<b>53.9</b>	<b>56.0</b>	<b>57.9</b>	<b>57.4</b>	<b>57.1</b>	<b>5.2%</b>
<b>OECD Total ***</b>	<b>66.4</b>	<b>64.7</b>	<b>62.9</b>	<b>60.5</b>	<b>58.9</b>	<b>57.2</b>	<b>57.0</b>	<b>56.4</b>	<b>55.8</b>	<b>54.9</b>	<b>55.0</b>	<b>-6.7%</b>
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%
<b>OECD Americas</b>	<b>63.7</b>	<b>62.0</b>	<b>60.5</b>	<b>59.8</b>	<b>59.2</b>	<b>58.0</b>	<b>58.8</b>	<b>58.0</b>	<b>57.3</b>	<b>56.3</b>	<b>57.0</b>	<b>-3.6%</b>
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%
<b>OECD Asia Oceania</b>	<b>67.3</b>	<b>67.5</b>	<b>63.2</b>	<b>61.0</b>	<b>59.8</b>	<b>58.3</b>	<b>57.5</b>	<b>58.4</b>	<b>57.6</b>	<b>57.6</b>	<b>57.3</b>	<b>-4.3%</b>
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%
<b>OECD Europe ***</b>	<b>69.9</b>	<b>67.7</b>	<b>66.2</b>	<b>61.3</b>	<b>58.2</b>	<b>55.6</b>	<b>54.1</b>	<b>53.1</b>	<b>52.6</b>	<b>51.5</b>	<b>50.8</b>	<b>-12.8%</b>
<i>European Union - 27</i>	..	..	..	..	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<sub>2</sub> emissions / TPEStonnes CO<sub>2</sub> / 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%
<b>Asia</b>	<b>33.0</b>	<b>35.0</b>	<b>37.3</b>	<b>39.7</b>	<b>43.2</b>	<b>46.5</b>	<b>48.5</b>	<b>49.7</b>	<b>51.6</b>	<b>51.6</b>	<b>52.2</b>	<b>20.9%</b>
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%
<b>China</b>	<b>49.0</b>	<b>52.0</b>	<b>56.2</b>	<b>59.0</b>	<b>61.5</b>	<b>68.2</b>	<b>66.3</b>	<b>71.3</b>	<b>73.4</b>	<b>71.1</b>	<b>70.2</b>	<b>14.2%</b>
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%
<b>Non-OECD Americas</b>	<b>43.1</b>	<b>44.1</b>	<b>44.9</b>	<b>40.4</b>	<b>41.7</b>	<b>43.6</b>	<b>45.4</b>	<b>43.9</b>	<b>44.0</b>	<b>43.7</b>	<b>43.7</b>	<b>4.8%</b>
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%
<b>Middle East</b>	<b>55.1</b>	<b>62.2</b>	<b>64.5</b>	<b>63.7</b>	<b>63.0</b>	<b>59.9</b>	<b>60.9</b>	<b>58.6</b>	<b>59.7</b>	<b>60.7</b>	<b>60.2</b>	<b>-4.4%</b>

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

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>World *</b>	<b>0.88</b>	<b>0.84</b>	<b>0.80</b>	<b>0.73</b>	<b>0.70</b>	<b>0.65</b>	<b>0.59</b>	<b>0.60</b>	<b>0.59</b>	<b>0.59</b>	<b>0.59</b>	<b>-14.6%</b>
<i>Annex I Parties</i>	..	..	..	..	0.56	0.49	0.44	0.40	0.38	0.37	0.37	-34.4%
<i>Annex II Parties</i>	0.68	0.62	0.56	0.47	0.43	0.40	0.37	0.35	0.32	0.31	0.31	-27.4%
<i>North America</i>	0.97	0.89	0.80	0.66	0.61	0.57	0.51	0.46	0.43	0.41	0.42	-31.8%
<i>Europe</i>	0.51	0.46	0.43	0.37	0.32	0.29	0.26	0.25	0.22	0.22	0.22	-31.8%
<i>Asia Oceania</i>	0.47	0.46	0.39	0.33	0.31	0.31	0.31	0.30	0.28	0.28	0.28	-10.5%
<i>Annex I EIT</i>	..	..	..	..	2.43	2.35	1.90	1.50	1.29	1.27	1.29	-47.0%
<i>Non-Annex I Parties</i>	..	..	..	..	1.22	1.20	1.08	1.13	1.11	1.11	1.10	-10.5%
<i>Annex I Kyoto Parties</i>	..	..	..	..	0.53	0.45	0.39	0.37	0.34	0.33	0.34	-36.4%
<b>Non-OECD Total **</b>	<b>1.59</b>	<b>1.61</b>	<b>1.58</b>	<b>1.62</b>	<b>1.69</b>	<b>1.55</b>	<b>1.35</b>	<b>1.34</b>	<b>1.28</b>	<b>1.27</b>	<b>1.24</b>	<b>-26.3%</b>
<b>OECD Total ***</b>	<b>0.70</b>	<b>0.64</b>	<b>0.59</b>	<b>0.50</b>	<b>0.45</b>	<b>0.43</b>	<b>0.39</b>	<b>0.36</b>	<b>0.34</b>	<b>0.33</b>	<b>0.33</b>	<b>-26.5%</b>
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%
<b>OECD Americas</b>	<b>0.94</b>	<b>0.86</b>	<b>0.78</b>	<b>0.65</b>	<b>0.60</b>	<b>0.57</b>	<b>0.51</b>	<b>0.46</b>	<b>0.43</b>	<b>0.42</b>	<b>0.42</b>	<b>-30.4%</b>
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%
<b>OECD Asia Oceania</b>	<b>0.48</b>	<b>0.47</b>	<b>0.42</b>	<b>0.35</b>	<b>0.34</b>	<b>0.35</b>	<b>0.35</b>	<b>0.34</b>	<b>0.32</b>	<b>0.32</b>	<b>0.32</b>	<b>-4.6%</b>
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%
<b>OECD Europe ***</b>	<b>0.57</b>	<b>0.52</b>	<b>0.50</b>	<b>0.43</b>	<b>0.37</b>	<b>0.34</b>	<b>0.30</b>	<b>0.28</b>	<b>0.26</b>	<b>0.25</b>	<b>0.25</b>	<b>-32.7%</b>
<i>European Union - 27</i>	..	..	..	..	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<sub>2</sub> emissions / GDP using exchange rateskilogrammes CO<sub>2</sub> / US dollar using 2005 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>Non-OECD Total *</b>	<b>1.59</b>	<b>1.61</b>	<b>1.58</b>	<b>1.62</b>	<b>1.69</b>	<b>1.55</b>	<b>1.35</b>	<b>1.34</b>	<b>1.28</b>	<b>1.27</b>	<b>1.24</b>	<b>-26.3%</b>
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	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>2.93</b>	<b>2.96</b>	<b>2.83</b>	<b>2.68</b>	<b>2.91</b>	<b>3.07</b>	<b>2.56</b>	<b>1.96</b>	<b>1.70</b>	<b>1.68</b>	<b>1.70</b>	<b>-41.5%</b>
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%
<b>Africa</b>	<b>0.67</b>	<b>0.77</b>	<b>0.77</b>	<b>0.86</b>	<b>0.87</b>	<b>0.90</b>	<b>0.86</b>	<b>0.83</b>	<b>0.80</b>	<b>0.78</b>	<b>0.74</b>	<b>-14.8%</b>

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

	1971	1975	1980	1985	1990	1995	2000	2005	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%
<b>Asia</b>	<b>1.12</b>	<b>1.13</b>	<b>1.11</b>	<b>1.12</b>	<b>1.14</b>	<b>1.14</b>	<b>1.16</b>	<b>1.10</b>	<b>1.06</b>	<b>1.06</b>	<b>1.04</b>	<b>-9.3%</b>
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%
<b>China</b>	<b>5.43</b>	<b>5.66</b>	<b>5.30</b>	<b>4.03</b>	<b>3.59</b>	<b>2.84</b>	<b>1.97</b>	<b>2.10</b>	<b>1.93</b>	<b>1.86</b>	<b>1.79</b>	<b>-50.2%</b>
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%
<b>Non-OECD Americas</b>	<b>0.56</b>	<b>0.53</b>	<b>0.52</b>	<b>0.49</b>	<b>0.50</b>	<b>0.51</b>	<b>0.54</b>	<b>0.52</b>	<b>0.48</b>	<b>0.48</b>	<b>0.48</b>	<b>-3.8%</b>
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%
<b>Middle East</b>	<b>0.30</b>	<b>0.33</b>	<b>0.48</b>	<b>0.80</b>	<b>1.00</b>	<b>1.23</b>	<b>1.18</b>	<b>1.24</b>	<b>1.23</b>	<b>1.29</b>	<b>1.29</b>	<b>28.8%</b>

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

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>World *</b>	<b>0.74</b>	<b>0.70</b>	<b>0.66</b>	<b>0.60</b>	<b>0.58</b>	<b>0.54</b>	<b>0.49</b>	<b>0.47</b>	<b>0.45</b>	<b>0.44</b>	<b>0.44</b>	<b>-23.6%</b>
<i>Annex I Parties</i>	..	..	..	..	0.55	0.50	0.44	0.40	0.37	0.36	0.36	-33.8%
<i>Annex II Parties</i>	0.73	0.67	0.60	0.51	0.46	0.43	0.40	0.37	0.34	0.33	0.33	-27.8%
<i>North America</i>	0.97	0.89	0.80	0.66	0.61	0.57	0.51	0.46	0.43	0.41	0.42	-31.8%
<i>Europe</i>	0.57	0.51	0.48	0.41	0.35	0.32	0.29	0.27	0.25	0.24	0.24	-31.8%
<i>Asia Oceania</i>	0.55	0.53	0.46	0.38	0.36	0.36	0.36	0.35	0.32	0.32	0.32	-11.1%
<i>Annex I EIT</i>	..	..	..	..	1.14	1.15	0.94	0.74	0.63	0.62	0.63	-44.9%
<i>Non-Annex I Parties</i>	..	..	..	..	0.59	0.58	0.52	0.53	0.51	0.51	0.50	-15.5%
<i>Annex I Kyoto Parties</i>	..	..	..	..	0.52	0.46	0.41	0.37	0.34	0.34	0.34	-35.3%
<b>Non-OECD Total **</b>	<b>0.71</b>	<b>0.73</b>	<b>0.72</b>	<b>0.72</b>	<b>0.75</b>	<b>0.70</b>	<b>0.60</b>	<b>0.59</b>	<b>0.55</b>	<b>0.54</b>	<b>0.53</b>	<b>-29.2%</b>
<b>OECD Total ***</b>	<b>0.72</b>	<b>0.66</b>	<b>0.60</b>	<b>0.52</b>	<b>0.46</b>	<b>0.44</b>	<b>0.40</b>	<b>0.37</b>	<b>0.34</b>	<b>0.33</b>	<b>0.34</b>	<b>-27.8%</b>
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%
<b>OECD Americas</b>	<b>0.91</b>	<b>0.84</b>	<b>0.75</b>	<b>0.63</b>	<b>0.58</b>	<b>0.55</b>	<b>0.49</b>	<b>0.45</b>	<b>0.41</b>	<b>0.40</b>	<b>0.40</b>	<b>-30.6%</b>
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%
<b>OECD Asia Oceania</b>	<b>0.55</b>	<b>0.53</b>	<b>0.47</b>	<b>0.39</b>	<b>0.38</b>	<b>0.39</b>	<b>0.38</b>	<b>0.36</b>	<b>0.34</b>	<b>0.34</b>	<b>0.34</b>	<b>-8.7%</b>
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%
<b>OECD Europe ***</b>	<b>0.61</b>	<b>0.55</b>	<b>0.52</b>	<b>0.46</b>	<b>0.39</b>	<b>0.35</b>	<b>0.31</b>	<b>0.29</b>	<b>0.27</b>	<b>0.26</b>	<b>0.26</b>	<b>-33.6%</b>
<i>European Union - 27</i>	..	..	..	..	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<sub>2</sub> emissions / GDP using purchasing power paritieskilogrammes CO<sub>2</sub> / US dollar using 2005 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>Non-OECD Total *</b>	<b>0.71</b>	<b>0.73</b>	<b>0.72</b>	<b>0.72</b>	<b>0.75</b>	<b>0.70</b>	<b>0.60</b>	<b>0.59</b>	<b>0.55</b>	<b>0.54</b>	<b>0.53</b>	<b>-29.2%</b>
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	0.20	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	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>1.28</b>	<b>1.29</b>	<b>1.24</b>	<b>1.17</b>	<b>1.26</b>	<b>1.35</b>	<b>1.13</b>	<b>0.86</b>	<b>0.75</b>	<b>0.74</b>	<b>0.74</b>	<b>-40.9%</b>
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%
<b>Africa</b>	<b>0.32</b>	<b>0.37</b>	<b>0.37</b>	<b>0.40</b>	<b>0.41</b>	<b>0.42</b>	<b>0.40</b>	<b>0.38</b>	<b>0.37</b>	<b>0.35</b>	<b>0.34</b>	<b>-17.6%</b>

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

	1971	1975	1980	1985	1990	1995	2000	2005	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%
<b>Asia</b>	<b>0.39</b>	<b>0.40</b>	<b>0.40</b>	<b>0.40</b>	<b>0.43</b>	<b>0.43</b>	<b>0.44</b>	<b>0.40</b>	<b>0.38</b>	<b>0.38</b>	<b>0.37</b>	<b>-13.9%</b>
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%
<b>China</b>	<b>2.44</b>	<b>2.55</b>	<b>2.43</b>	<b>1.82</b>	<b>1.62</b>	<b>1.26</b>	<b>0.86</b>	<b>0.91</b>	<b>0.83</b>	<b>0.80</b>	<b>0.77</b>	<b>-52.4%</b>
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%
<b>Non-OECD Americas</b>	<b>0.29</b>	<b>0.28</b>	<b>0.27</b>	<b>0.26</b>	<b>0.27</b>	<b>0.26</b>	<b>0.28</b>	<b>0.27</b>	<b>0.25</b>	<b>0.25</b>	<b>0.25</b>	<b>-5.1%</b>
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%
<b>Middle East</b>	<b>0.14</b>	<b>0.15</b>	<b>0.23</b>	<b>0.38</b>	<b>0.50</b>	<b>0.62</b>	<b>0.59</b>	<b>0.63</b>	<b>0.63</b>	<b>0.65</b>	<b>0.66</b>	<b>32.4%</b>

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

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>World *</b>	<b>3.74</b>	<b>3.86</b>	<b>4.07</b>	<b>3.85</b>	<b>3.98</b>	<b>3.85</b>	<b>3.87</b>	<b>4.22</b>	<b>4.42</b>	<b>4.29</b>	<b>4.44</b>	<b>11.4%</b>
<i>Annex I Parties</i>	..	..	..	..	11.83	10.91	11.17	11.23	10.90	10.12	10.41	-12.0%
<i>Annex II Parties</i>	12.20	12.18	12.64	11.82	12.26	12.33	12.90	12.82	12.16	11.28	11.56	-5.7%
<i>North America</i>	20.16	19.82	20.17	18.72	19.08	18.94	19.90	19.27	18.15	16.74	17.16	-10.1%
<i>Europe</i>	8.63	8.56	9.11	8.36	8.36	8.16	8.26	8.35	7.92	7.30	7.43	-11.1%
<i>Asia Oceania</i>	7.57	8.18	8.19	7.98	9.35	9.90	10.35	10.65	10.24	9.81	10.09	7.9%
<i>Annex I EIT</i>	..	..	..	..	12.38	8.83	8.14	8.49	8.85	8.22	8.60	-30.6%
<i>Non-Annex I Parties</i>	..	..	..	..	1.58	1.78	1.84	2.33	2.69	2.73	2.85	80.7%
<i>Annex I Kyoto Parties</i>	..	..	..	..	10.21	8.99	8.92	9.15	8.97	8.37	8.61	-15.7%
<b>Non-OECD Total **</b>	<b>1.46</b>	<b>1.72</b>	<b>1.97</b>	<b>2.01</b>	<b>2.19</b>	<b>2.07</b>	<b>2.04</b>	<b>2.51</b>	<b>2.86</b>	<b>2.88</b>	<b>2.99</b>	<b>36.7%</b>
<b>OECD Total ***</b>	<b>10.47</b>	<b>10.48</b>	<b>10.93</b>	<b>10.24</b>	<b>10.49</b>	<b>10.51</b>	<b>10.97</b>	<b>10.92</b>	<b>10.50</b>	<b>9.81</b>	<b>10.10</b>	<b>-3.7%</b>
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%
<b>OECD Americas</b>	<b>16.41</b>	<b>15.98</b>	<b>16.17</b>	<b>14.91</b>	<b>15.03</b>	<b>14.80</b>	<b>15.54</b>	<b>15.10</b>	<b>14.32</b>	<b>13.26</b>	<b>13.61</b>	<b>-9.5%</b>
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%
<b>OECD Asia Oceania</b>	<b>6.26</b>	<b>6.85</b>	<b>7.06</b>	<b>7.00</b>	<b>8.40</b>	<b>9.41</b>	<b>10.06</b>	<b>10.37</b>	<b>10.21</b>	<b>9.94</b>	<b>10.38</b>	<b>23.6%</b>
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%
<b>OECD Europe ***</b>	<b>8.11</b>	<b>8.15</b>	<b>8.74</b>	<b>8.10</b>	<b>7.90</b>	<b>7.57</b>	<b>7.58</b>	<b>7.65</b>	<b>7.39</b>	<b>6.84</b>	<b>6.99</b>	<b>-11.4%</b>
<i>European Union - 27</i>	..	..	..	..	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<sub>2</sub> emissions / populationtonnes CO<sub>2</sub> / capita

	1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	% change 90-10
<b>Non-OECD Total *</b>	<b>1.46</b>	<b>1.72</b>	<b>1.97</b>	<b>2.01</b>	<b>2.19</b>	<b>2.07</b>	<b>2.04</b>	<b>2.51</b>	<b>2.86</b>	<b>2.88</b>	<b>2.99</b>	<b>36.7%</b>
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	..	..	..	..	..	..	..	..
<b>Non-OECD Europe and Eurasia *</b>	<b>7.54</b>	<b>9.28</b>	<b>10.60</b>	<b>10.68</b>	<b>11.64</b>	<b>7.75</b>	<b>7.10</b>	<b>7.51</b>	<b>8.04</b>	<b>7.38</b>	<b>7.71</b>	<b>-33.7%</b>
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%
<b>Africa</b>	<b>0.66</b>	<b>0.77</b>	<b>0.84</b>	<b>0.86</b>	<b>0.86</b>	<b>0.83</b>	<b>0.84</b>	<b>0.91</b>	<b>0.96</b>	<b>0.93</b>	<b>0.91</b>	<b>5.9%</b>

\* 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<sub>2</sub> emissions / populationtonnes CO<sub>2</sub> / 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%
<b>Asia</b>	<b>0.41</b>	<b>0.46</b>	<b>0.55</b>	<b>0.63</b>	<b>0.79</b>	<b>0.97</b>	<b>1.10</b>	<b>1.26</b>	<b>1.39</b>	<b>1.43</b>	<b>1.49</b>	<b>88.8%</b>
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%
<b>China</b>	<b>0.96</b>	<b>1.15</b>	<b>1.44</b>	<b>1.63</b>	<b>1.97</b>	<b>2.50</b>	<b>2.42</b>	<b>3.89</b>	<b>4.92</b>	<b>5.12</b>	<b>5.40</b>	<b>174.3%</b>
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%
<b>Non-OECD Americas</b>	<b>1.53</b>	<b>1.70</b>	<b>1.90</b>	<b>1.64</b>	<b>1.69</b>	<b>1.84</b>	<b>2.03</b>	<b>2.09</b>	<b>2.26</b>	<b>2.20</b>	<b>2.34</b>	<b>38.4%</b>
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%
<b>Middle East</b>	<b>1.53</b>	<b>2.15</b>	<b>3.47</b>	<b>4.16</b>	<b>4.39</b>	<b>5.38</b>	<b>5.66</b>	<b>6.62</b>	<b>7.19</b>	<b>7.42</b>	<b>7.56</b>	<b>72.4%</b>

## Per capita emissions by sector in 2010 \*

kg CO<sub>2</sub> / capita

	Total CO <sub>2</sub> 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
<b>World ***</b>	<b>4 436</b>	<b>1 829</b>	<b>230</b>	<b>906</b>	<b>990</b>	<b>728</b>	<b>481</b>	<b>276</b>
<i>Annex I Parties</i>	10 412	4 295	524	1 539	2 618	2 260	1 435	847
<i>Annex II Parties</i>	11 560	4 510	618	1 605	3 210	2 838	1 617	906
<i>North America</i>	17 156	7 043	944	1 998	5 204	4 474	1 966	1 048
<i>Europe</i>	7 429	2 446	391	1 137	1 972	1 848	1 483	959
<i>Asia Oceania</i>	10 092	4 363	498	1 973	2 064	1 829	1 194	449
<i>Annex I EIT</i>	8 598	4 349	334	1 545	1 329	942	1 041	741
<i>Non-Annex I Parties</i>	2 849	1 256	162	759	413	373	259	143
<i>Annex I Kyoto Parties</i>	8 608	3 447	445	1 490	1 897	1 636	1 329	805
<b>Non-OECD Total</b>	<b>2 992</b>	<b>1 349</b>	<b>158</b>	<b>792</b>	<b>417</b>	<b>358</b>	<b>277</b>	<b>161</b>
<b>OECD Total</b>	<b>10 096</b>	<b>4 007</b>	<b>558</b>	<b>1 423</b>	<b>2 699</b>	<b>2 408</b>	<b>1 408</b>	<b>797</b>
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
<b>OECD Americas</b>	<b>13 611</b>	<b>5 477</b>	<b>816</b>	<b>1 614</b>	<b>4 182</b>	<b>3 633</b>	<b>1 522</b>	<b>815</b>
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
<b>OECD Asia Oceania</b>	<b>10 381</b>	<b>4 710</b>	<b>551</b>	<b>1 928</b>	<b>1 979</b>	<b>1 784</b>	<b>1 214</b>	<b>498</b>
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
<b>OECD Europe</b>	<b>6 995</b>	<b>2 488</b>	<b>341</b>	<b>1 068</b>	<b>1 712</b>	<b>1 605</b>	<b>1 386</b>	<b>896</b>
<i>European Union - 27</i>	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 105-107.

\*\* 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<sub>2</sub> / capita

	Total CO <sub>2</sub> 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
<b>Non-OECD Total</b>	<b>2 992</b>	<b>1 349</b>	<b>158</b>	<b>792</b>	<b>417</b>	<b>358</b>	<b>277</b>	<b>161</b>
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
<b>Non-OECD Europe and Eurasia</b>	<b>7 711</b>	<b>3 727</b>	<b>434</b>	<b>1 438</b>	<b>1 092</b>	<b>730</b>	<b>1 019</b>	<b>638</b>
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
<b>Africa</b>	<b>910</b>	<b>414</b>	<b>39</b>	<b>138</b>	<b>215</b>	<b>199</b>	<b>104</b>	<b>56</b>

## Per capita emissions by sector in 2010

kg CO<sub>2</sub> / capita

	Total CO <sub>2</sub> 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
<b>Asia</b>	<b>1 494</b>	<b>681</b>	<b>65</b>	<b>396</b>	<b>237</b>	<b>218</b>	<b>116</b>	<b>60</b>
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
<b>China</b>	<b>5 395</b>	<b>2 659</b>	<b>205</b>	<b>1 734</b>	<b>382</b>	<b>298</b>	<b>416</b>	<b>225</b>
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
<b>Non-OECD Americas</b>	<b>2 341</b>	<b>462</b>	<b>255</b>	<b>588</b>	<b>797</b>	<b>733</b>	<b>240</b>	<b>134</b>
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
<b>Middle East</b>	<b>7 559</b>	<b>2 715</b>	<b>786</b>	<b>1 577</b>	<b>1 651</b>	<b>1 633</b>	<b>829</b>	<b>623</b>

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

kg CO<sub>2</sub> / capita

	Total CO <sub>2</sub> emissions from fuel combustion	Other energy industry own use **	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
<b>World ***</b>	<b>4 436</b>	<b>319</b>	<b>1 636</b>	<b>1 013</b>	<b>728</b>	<b>1 468</b>	<b>788</b>
<i>Annex I Parties</i>	10 412	763	2 880	2 688	2 260	4 082	2 238
<i>Annex II Parties</i>	11 560	762	2 936	3 259	2 838	4 603	2 372
<i>North America</i>	17 156	1 159	3 741	5 222	4 474	7 033	3 546
<i>Europe</i>	7 429	485	1 986	2 019	1 848	2 940	1 680
<i>Asia Oceania</i>	10 092	583	3 421	2 143	1 829	3 945	1 748
<i>Annex I EIT</i>	8 598	861	3 056	1 465	942	3 216	2 158
<i>Non-Annex I Parties</i>	2 849	211	1 405	423	373	810	422
<i>Annex I Kyoto Parties</i>	8 608	685	2 678	1 977	1 636	3 269	1 864
<b>Non-OECD Total</b>	<b>2 992</b>	<b>242</b>	<b>1 433</b>	<b>436</b>	<b>358</b>	<b>881</b>	<b>498</b>
<b>OECD Total</b>	<b>10 096</b>	<b>689</b>	<b>2 686</b>	<b>2 741</b>	<b>2 408</b>	<b>3 981</b>	<b>2 053</b>
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
<b>OECD Americas</b>	<b>13 611</b>	<b>982</b>	<b>3 066</b>	<b>4 197</b>	<b>3 633</b>	<b>5 365</b>	<b>2 715</b>
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
<b>OECD Asia Oceania</b>	<b>10 381</b>	<b>642</b>	<b>3 703</b>	<b>2 044</b>	<b>1 784</b>	<b>3 993</b>	<b>1 721</b>
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
<b>OECD Europe</b>	<b>6 995</b>	<b>445</b>	<b>1 932</b>	<b>1 757</b>	<b>1 605</b>	<b>2 861</b>	<b>1 636</b>
<i>European Union - 27</i>	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 102-104.

\*\* 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<sub>2</sub> / capita

	Total CO <sub>2</sub> emissions from fuel combustion	Other energy industry own use	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
<b>Non-OECD Total</b>	<b>2 992</b>	<b>242</b>	<b>1 433</b>	<b>436</b>	<b>358</b>	<b>881</b>	<b>498</b>
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
<b>Non-OECD Europe and Eurasia</b>	<b>7 711</b>	<b>878</b>	<b>2 771</b>	<b>1 210</b>	<b>730</b>	<b>2 852</b>	<b>1 819</b>
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
<b>Africa</b>	<b>910</b>	<b>49</b>	<b>310</b>	<b>219</b>	<b>199</b>	<b>332</b>	<b>180</b>

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

kg CO<sub>2</sub> / capita

	Total CO <sub>2</sub> 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
<b>Asia</b>	<b>1 494</b>	<b>67</b>	<b>699</b>	<b>244</b>	<b>218</b>	<b>485</b>	<b>234</b>
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
<b>China</b>	<b>5 395</b>	<b>363</b>	<b>3 428</b>	<b>405</b>	<b>298</b>	<b>1 198</b>	<b>650</b>
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	1 211	-	23	661	664	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
<b>Non-OECD Americas</b>	<b>2 341</b>	<b>267</b>	<b>778</b>	<b>799</b>	<b>733</b>	<b>497</b>	<b>262</b>
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
<b>Middle East</b>	<b>7 559</b>	<b>884</b>	<b>2 087</b>	<b>1 652</b>	<b>1 633</b>	<b>2 935</b>	<b>1 784</b>

## Electricity output \*

terawatt hours

	1990	1995	2000	2003	2004	2005	2006	2007	2008	2009	2010	% change 90-10
<b>World</b>	<b>11 819.0</b>	<b>13 229.7</b>	<b>15 410.5</b>	<b>16 704.7</b>	<b>17 494.8</b>	<b>18 247.5</b>	<b>18 944.3</b>	<b>19 798.7</b>	<b>20 178.1</b>	<b>20 087.3</b>	<b>21 396.9</b>	<b>81.0%</b>
<i>Annex I Parties</i>	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%
<i>Annex II Parties</i>	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%
<i>North America</i>	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%
<i>Europe</i>	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%
<i>Asia Oceania</i>	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%
<i>Annex I EIT</i>	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%
<i>Non-Annex I Parties</i>	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%
<i>Annex I Kyoto Parties</i>	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%
<b>Non-OECD Total</b>	<b>4 189.7</b>	<b>4 684.2</b>	<b>5 680.7</b>	<b>6 721.7</b>	<b>7 241.9</b>	<b>7 747.4</b>	<b>8 370.6</b>	<b>9 018.6</b>	<b>9 382.1</b>	<b>9 694.5</b>	<b>10 542.5</b>	<b>151.6%</b>
<b>OECD Total</b>	<b>7 629.3</b>	<b>8 545.5</b>	<b>9 729.8</b>	<b>9 982.9</b>	<b>10 253.0</b>	<b>10 500.2</b>	<b>10 573.6</b>	<b>10 780.0</b>	<b>10 796.1</b>	<b>10 392.8</b>	<b>10 854.4</b>	<b>42.3%</b>
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%
<b>OECD Americas</b>	<b>3 819.1</b>	<b>4 298.7</b>	<b>4 875.7</b>	<b>4 904.7</b>	<b>5 031.8</b>	<b>5 191.2</b>	<b>5 193.2</b>	<b>5 278.6</b>	<b>5 305.5</b>	<b>5 101.1</b>	<b>5 293.6</b>	<b>38.6%</b>
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%
<b>OECD Asia Oceania</b>	<b>1 148.3</b>	<b>1 380.7</b>	<b>1 629.3</b>	<b>1 695.7</b>	<b>1 761.0</b>	<b>1 797.7</b>	<b>1 823.7</b>	<b>1 891.9</b>	<b>1 863.3</b>	<b>1 837.9</b>	<b>1 952.4</b>	<b>70.0%</b>
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%
<b>OECD Europe</b>	<b>2 661.9</b>	<b>2 866.1</b>	<b>3 224.8</b>	<b>3 382.5</b>	<b>3 460.2</b>	<b>3 511.3</b>	<b>3 556.7</b>	<b>3 609.6</b>	<b>3 627.2</b>	<b>3 453.8</b>	<b>3 608.4</b>	<b>35.6%</b>
<i>European Union - 27</i>	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
<b>Non-OECD Total</b>	<b>4 189.7</b>	<b>4 684.2</b>	<b>5 680.7</b>	<b>6 721.7</b>	<b>7 241.9</b>	<b>7 747.4</b>	<b>8 370.6</b>	<b>9 018.6</b>	<b>9 382.1</b>	<b>9 694.5</b>	<b>10 542.5</b>	<b>151.6%</b>
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%
<b>Non-OECD Europe and Eurasia</b>	<b>1 894.4</b>	<b>1 448.7</b>	<b>1 430.5</b>	<b>1 515.9</b>	<b>1 550.9</b>	<b>1 581.0</b>	<b>1 644.4</b>	<b>1 663.0</b>	<b>1 696.3</b>	<b>1 616.4</b>	<b>1 695.5</b>	<b>-10.5%</b>
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%
<b>Africa</b>	<b>316.0</b>	<b>362.9</b>	<b>441.2</b>	<b>508.3</b>	<b>538.8</b>	<b>560.4</b>	<b>584.9</b>	<b>611.8</b>	<b>619.6</b>	<b>625.5</b>	<b>664.2</b>	<b>110.2%</b>

\*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%
<b>Asia</b>	<b>621.1</b>	<b>916.5</b>	<b>1 240.7</b>	<b>1 438.5</b>	<b>1 521.2</b>	<b>1 598.0</b>	<b>1 698.8</b>	<b>1 800.6</b>	<b>1 845.2</b>	<b>1 945.9</b>	<b>2 078.0</b>	<b>234.6%</b>
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%
<b>China</b>	<b>650.1</b>	<b>1 035.7</b>	<b>1 387.6</b>	<b>1 944.0</b>	<b>2 238.1</b>	<b>2 538.1</b>	<b>2 902.9</b>	<b>3 315.2</b>	<b>3 496.7</b>	<b>3 734.7</b>	<b>4 212.0</b>	<b>547.9%</b>
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%
<b>Non-OECD Americas</b>	<b>489.0</b>	<b>612.1</b>	<b>758.7</b>	<b>805.7</b>	<b>849.0</b>	<b>883.1</b>	<b>911.8</b>	<b>961.2</b>	<b>1 006.5</b>	<b>1 011.4</b>	<b>1 069.0</b>	<b>118.6%</b>
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%
<b>Middle East</b>	<b>219.1</b>	<b>308.3</b>	<b>422.0</b>	<b>509.3</b>	<b>543.8</b>	<b>586.7</b>	<b>627.8</b>	<b>666.9</b>	<b>717.7</b>	<b>760.6</b>	<b>823.8</b>	<b>276.0%</b>



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

	1990	1995	2000	2003	2004	2005	2006	2007	2008	2009	2010	Average 08-10
<b>World</b>	<b>586</b>	<b>575</b>	<b>572</b>	<b>584</b>	<b>586</b>	<b>587</b>	<b>589</b>	<b>589</b>	<b>582</b>	<b>573</b>	<b>565</b>	<b>573</b>
<i>Annex I Parties</i>	394	385	386	384	376	373	369	376	363	345	346	351
<i>Annex II Parties</i>	456	431	431	430	423	419	414	420	405	385	384	391
<i>North America</i>	507	489	502	495	490	488	480	485	472	447	454	457
<i>Europe</i>	365	321	297	289	282	276	278	276	256	242	231	243
<i>Asia Oceania</i>	481	461	466	513	495	489	480	505	496	479	473	482
<i>Annex I EIT</i>	150	135	111	119	106	106	112	121	117	104	124	115
<i>Non-Annex I Parties</i>	577	628	622	630	646	642	649	646	645	650	636	644
<i>Annex I Kyoto Parties</i>	302	288	280	287	276	270	270	276	262	249	248	253
<b>Non-OECD Total</b>	<b>680</b>	<b>668</b>	<b>664</b>	<b>677</b>	<b>686</b>	<b>693</b>	<b>704</b>	<b>690</b>	<b>688</b>	<b>681</b>	<b>662</b>	<b>677</b>
<b>OECD Total</b>	<b>497</b>	<b>482</b>	<b>478</b>	<b>479</b>	<b>471</b>	<b>466</b>	<b>458</b>	<b>465</b>	<b>449</b>	<b>433</b>	<b>433</b>	<b>439</b>
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
<b>OECD Americas</b>	<b>533</b>	<b>533</b>	<b>544</b>	<b>534</b>	<b>528</b>	<b>523</b>	<b>505</b>	<b>510</b>	<b>494</b>	<b>471</b>	<b>479</b>	<b>482</b>
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
<b>OECD Asia Oceania</b>	<b>492</b>	<b>481</b>	<b>487</b>	<b>520</b>	<b>512</b>	<b>502</b>	<b>497</b>	<b>514</b>	<b>507</b>	<b>503</b>	<b>501</b>	<b>504</b>
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
<b>OECD Europe</b>	<b>447</b>	<b>405</b>	<b>375</b>	<b>379</b>	<b>369</b>	<b>364</b>	<b>370</b>	<b>373</b>	<b>355</b>	<b>340</b>	<b>331</b>	<b>342</b>
<i>European Union - 27</i>	585	521	470	480	469	466	474	480	458	439	429	442

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

	1990	1995	2000	2003	2004	2005	2006	2007	2008	2009	2010	Average 08-10
<b>Non-OECD Total</b>	<b>680</b>	<b>668</b>	<b>664</b>	<b>677</b>	<b>686</b>	<b>693</b>	<b>704</b>	<b>690</b>	<b>688</b>	<b>681</b>	<b>662</b>	<b>677</b>
Albania	218	62	43	33	30	26	26	31	-	1	2	2
Armenia	893	407	454	275	221	250	246	298	306	196	181	228
Azerbaijan	2 294	1 325	1 560	1 218	1 272	1 219	1 275	846	771	714	584	690
Belarus	703	649	611	590	609	590	595	577	595	618	585	600
Bosnia and Herzegovina	713	176	824	883	772	797	852	1 007	835	811	729	792
Bulgaria	886	675	545	594	603	567	549	658	621	591	579	597
Croatia	481	414	386	508	381	397	403	497	435	356	305	365
Cyprus	838	822	838	835	776	793	763	769	766	750	702	739
Georgia	1 125	1 014	225	68	95	105	149	165	82	144	71	99
Gibraltar	776	766	760	755	766	761	751	751	757	757	762	758
Kazakhstan	1 046	974	1 142	1 067	1 004	985	1 353	1 095	958	810	766	845
Kosovo *	..	..	1 316	1 424	1 297	1 121	1 127	1 089	1 088	1 286	1 287	1 220
Kyrgyzstan	300	178	128	126	120	105	102	111	93	94	94	94
Latvia	205	221	230	234	175	161	213	202	210	182	227	206
Lithuania	338	199	233	163	175	229	231	201	193	192	548	311
FYR of Macedonia	926	880	797	809	797	791	784	871	905	800	687	797
Malta	1 587	957	819	946	913	1 034	954	1 012	849	850	872	857
Republic of Moldova	782	816	1 031	930	593	596	575	603	578	597	583	586
Montenegro *	..	..	..	..	..	341	386	352	456	274	405	379
Romania	1 373	991	749	781	653	629	632	671	635	575	499	570
Russian Federation	673	609	665	691	677	732	749	723	727	684	639	684
Serbia *	892	1 001	885	920	883	1 341	1 464	758	776	768	724	756
Tajikistan	126	42	44	21	34	32	31	29	29	25	24	26
Turkmenistan	686	931	1 733	1 733	1 733	1 734	1 734	1 734	1 845	1 721	1 898	1 821
Ukraine	681	593	429	471	394	432	458	468	475	417	419	437
Uzbekistan	903	765	833	804	780	780	774	811	723	756	734	737
<b>Non-OECD Europe and Eurasia</b>	<b>733</b>	<b>649</b>	<b>658</b>	<b>677</b>	<b>649</b>	<b>688</b>	<b>723</b>	<b>691</b>	<b>685</b>	<b>641</b>	<b>605</b>	<b>644</b>
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
<b>Africa</b>	<b>670</b>	<b>690</b>	<b>649</b>	<b>628</b>	<b>649</b>	<b>634</b>	<b>627</b>	<b>616</b>	<b>667</b>	<b>641</b>	<b>637</b>	<b>648</b>

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

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

	1990	1995	2000	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	844	841	821	860	759	810	807	798	805
Cambodia	..	805	834	787	806	793	797	805	820	816	804	813
Chinese Taipei	520	620	766	808	812	811	816	815	795	786	768	783
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	1 171	1 892	1 679	1 506	1 387	1 405	1 347	1 496	1 369	1 371	1 492	1 411
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
<b>Asia</b>	<b>672</b>	<b>716</b>	<b>750</b>	<b>730</b>	<b>749</b>	<b>747</b>	<b>745</b>	<b>766</b>	<b>766</b>	<b>759</b>	<b>746</b>	<b>757</b>
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
<b>China</b>	<b>894</b>	<b>906</b>	<b>865</b>	<b>858</b>	<b>877</b>	<b>863</b>	<b>859</b>	<b>822</b>	<b>803</b>	<b>800</b>	<b>766</b>	<b>790</b>
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
<b>Non-OECD Americas</b>	<b>184</b>	<b>167</b>	<b>174</b>	<b>180</b>	<b>179</b>	<b>179</b>	<b>182</b>	<b>179</b>	<b>185</b>	<b>183</b>	<b>197</b>	<b>188</b>
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
<b>Middle East</b>	<b>737</b>	<b>809</b>	<b>701</b>	<b>692</b>	<b>679</b>	<b>676</b>	<b>668</b>	<b>650</b>	<b>673</b>	<b>688</b>	<b>674</b>	<b>679</b>

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

	1990	1995	2000	2003	2004	2005	2006	2007	2008	2009	2010	Average 08-10
<b>World</b>	<b>984</b>	<b>997</b>	<b>974</b>	<b>974</b>	<b>996</b>	<b>989</b>	<b>992</b>	<b>981</b>	<b>976</b>	<b>977</b>	<b>958</b>	<b>971</b>
<i>Annex I Parties</i>	819	828	815	818	823	813	813	824	805	807	814	809
<i>Annex II Parties</i>	897	904	889	888	894	882	885	894	877	882	877	879
<i>North America</i>	900	920	887	893	899	888	888	901	880	888	886	884
<i>Europe</i>	854	834	855	825	838	833	845	847	831	826	812	823
<i>Asia Oceania</i>	1 017	972	961	971	959	927	932	930	924	929	922	925
<i>Annex I EIT</i>	385	339	284	317	299	303	314	340	326	308	381	338
<i>Non-Annex I Parties</i>	1 019	1 068	1 037	1 010	1 047	1 030	1 022	998	1 006	1 005	978	996
<i>Annex I Kyoto Parties</i>	735	722	724	730	735	722	724	729	705	709	723	712
<b>Non-OECD Total</b>	<b>1 085</b>	<b>1 084</b>	<b>1 052</b>	<b>1 040</b>	<b>1 075</b>	<b>1 072</b>	<b>1 065</b>	<b>1 032</b>	<b>1 032</b>	<b>1 024</b>	<b>990</b>	<b>1 015</b>
<b>OECD Total</b>	<b>940</b>	<b>950</b>	<b>927</b>	<b>925</b>	<b>932</b>	<b>918</b>	<b>922</b>	<b>926</b>	<b>914</b>	<b>918</b>	<b>917</b>	<b>916</b>
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
<b>OECD Americas</b>	<b>916</b>	<b>951</b>	<b>924</b>	<b>923</b>	<b>928</b>	<b>917</b>	<b>910</b>	<b>923</b>	<b>904</b>	<b>909</b>	<b>908</b>	<b>907</b>
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
<b>OECD Asia Oceania</b>	<b>1 081</b>	<b>1 003</b>	<b>967</b>	<b>972</b>	<b>974</b>	<b>948</b>	<b>957</b>	<b>935</b>	<b>929</b>	<b>941</b>	<b>942</b>	<b>938</b>
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	3 442	-	-	-	-	-	-	-	-	-	-
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
<b>OECD Europe</b>	<b>949</b>	<b>933</b>	<b>911</b>	<b>900</b>	<b>915</b>	<b>903</b>	<b>925</b>	<b>927</b>	<b>925</b>	<b>920</b>	<b>917</b>	<b>921</b>
<i>European Union - 27</i>	952	938	908	902	917	910	928	928	926	920	915	920

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

	1990	1995	2000	2003	2004	2005	2006	2007	2008	2009	2010	Average 08-10
<b>Non-OECD Total</b>	<b>1 085</b>	<b>1 084</b>	<b>1 052</b>	<b>1 040</b>	<b>1 075</b>	<b>1 072</b>	<b>1 065</b>	<b>1 032</b>	<b>1 032</b>	<b>1 024</b>	<b>990</b>	<b>1 015</b>
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
<b>Non-OECD Europe and Eurasia</b>	<b>1 065</b>	<b>945</b>	<b>921</b>	<b>986</b>	<b>968</b>	<b>1 037</b>	<b>1 094</b>	<b>1 026</b>	<b>939</b>	<b>897</b>	<b>809</b>	<b>882</b>
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
<b>Africa</b>	<b>923</b>	<b>962</b>	<b>970</b>	<b>913</b>	<b>938</b>	<b>913</b>	<b>892</b>	<b>883</b>	<b>1 010</b>	<b>969</b>	<b>990</b>	<b>990</b>

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

CO<sub>2</sub> emissions per kWh from electricity generation using coal/peatgrammes CO<sub>2</sub> / 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
<b>Asia</b>	<b>1 101</b>	<b>1 123</b>	<b>1 131</b>	<b>1 100</b>	<b>1 141</b>	<b>1 157</b>	<b>1 151</b>	<b>1 189</b>	<b>1 173</b>	<b>1 160</b>	<b>1 132</b>	<b>1 155</b>
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
<b>China</b>	<b>1 144</b>	<b>1 154</b>	<b>1 063</b>	<b>1 043</b>	<b>1 087</b>	<b>1 064</b>	<b>1 047</b>	<b>996</b>	<b>1 001</b>	<b>999</b>	<b>967</b>	<b>989</b>
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	-	-	-	-	-	-	-	-	-	-	-	-
<b>Non-OECD Americas</b>	<b>1 617</b>	<b>1 480</b>	<b>1 388</b>	<b>1 404</b>	<b>1 313</b>	<b>1 358</b>	<b>1 371</b>	<b>1 300</b>	<b>1 252</b>	<b>1 267</b>	<b>1 323</b>	<b>1 280</b>
Bahrain	-	-	-	-	-	-	-	-	-	-	-	-
Islamic Republic of Iran	601	605	2 650	2 892	2 779	2 774	2 789	2 904	3 296	3 354	3 410	3 354
Iraq	-	-	-	-	-	-	-	-	-	-	-	-
Jordan	-	-	-	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-	-	-	-
Lebanon	-	-	-	-	-	-	-	-	-	-	-	-
Oman	-	-	-	-	-	-	-	-	-	-	-	-
Qatar	-	-	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	-	-	-	-	-	-	-	-	-	-	-	-
Syrian Arab Republic	-	-	-	-	-	-	-	-	-	-	-	-
United Arab Emirates	-	-	-	-	-	-	-	-	-	-	-	-
Yemen	-	-	-	-	-	-	-	-	-	-	-	-
<b>Middle East</b>	<b>601</b>	<b>605</b>	<b>2 650</b>	<b>2 892</b>	<b>2 779</b>	<b>2 774</b>	<b>2 789</b>	<b>2 904</b>	<b>3 296</b>	<b>3 354</b>	<b>3 410</b>	<b>3 354</b>

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

	1990	1995	2000	2003	2004	2005	2006	2007	2008	2009	2010	Average 08-10
<b>World</b>	<b>731</b>	<b>732</b>	<b>737</b>	<b>748</b>	<b>745</b>	<b>760</b>	<b>754</b>	<b>743</b>	<b>755</b>	<b>787</b>	<b>796</b>	<b>779</b>
<i>Annex I Parties</i>	532	536	568	546	559	577	535	562	552	517	517	529
<i>Annex II Parties</i>	635	603	606	577	588	604	572	586	573	550	533	552
<i>North America</i>	677	568	660	659	654	660	661	669	666	606	654	642
<i>Europe</i>	605	566	536	452	485	519	479	477	475	485	413	458
<i>Asia Oceania</i>	634	655	636	618	612	619	602	607	596	574	554	575
<i>Annex I EIT</i>	259	204	176	182	144	137	129	173	193	205	209	203
<i>Non-Annex I Parties</i>	742	800	738	779	760	776	770	760	782	827	836	815
<i>Annex I Kyoto Parties</i>	506	531	531	502	514	538	507	539	532	501	484	506
<b>Non-OECD Total</b>	<b>792</b>	<b>811</b>	<b>777</b>	<b>798</b>	<b>796</b>	<b>808</b>	<b>798</b>	<b>787</b>	<b>809</b>	<b>848</b>	<b>859</b>	<b>839</b>
<b>OECD Total</b>	<b>674</b>	<b>662</b>	<b>696</b>	<b>693</b>	<b>686</b>	<b>705</b>	<b>687</b>	<b>679</b>	<b>665</b>	<b>661</b>	<b>657</b>	<b>661</b>
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
<b>OECD Americas</b>	<b>710</b>	<b>657</b>	<b>791</b>	<b>819</b>	<b>768</b>	<b>771</b>	<b>793</b>	<b>758</b>	<b>730</b>	<b>723</b>	<b>734</b>	<b>729</b>
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
<b>OECD Asia Oceania</b>	<b>648</b>	<b>669</b>	<b>618</b>	<b>600</b>	<b>607</b>	<b>623</b>	<b>613</b>	<b>608</b>	<b>594</b>	<b>576</b>	<b>562</b>	<b>578</b>
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
<b>OECD Europe</b>	<b>675</b>	<b>666</b>	<b>658</b>	<b>646</b>	<b>657</b>	<b>713</b>	<b>670</b>	<b>713</b>	<b>715</b>	<b>706</b>	<b>698</b>	<b>706</b>
<i>European Union - 27</i>	704	661	652	654	662	722	676	722	719	706	701	709

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

	1990	1995	2000	2003	2004	2005	2006	2007	2008	2009	2010	Average 08-10
<b>Non-OECD Total</b>	<b>792</b>	<b>811</b>	<b>777</b>	<b>798</b>	<b>796</b>	<b>808</b>	<b>798</b>	<b>787</b>	<b>809</b>	<b>848</b>	<b>859</b>	<b>839</b>
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
<b>Non-OECD Europe and Eurasia</b>	<b>778</b>	<b>656</b>	<b>777</b>	<b>786</b>	<b>810</b>	<b>816</b>	<b>797</b>	<b>796</b>	<b>777</b>	<b>745</b>	<b>784</b>	<b>769</b>
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	-	1 666	-	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
<b>Africa</b>	<b>850</b>	<b>935</b>	<b>664</b>	<b>758</b>	<b>902</b>	<b>875</b>	<b>853</b>	<b>780</b>	<b>799</b>	<b>785</b>	<b>774</b>	<b>786</b>

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



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

	1990	1995	2000	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
<b>Asia</b>	<b>812</b>	<b>808</b>	<b>826</b>	<b>837</b>	<b>842</b>	<b>818</b>	<b>825</b>	<b>855</b>	<b>874</b>	<b>901</b>	<b>887</b>	<b>887</b>
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
<b>China</b>	<b>815</b>	<b>818</b>	<b>863</b>	<b>866</b>	<b>830</b>	<b>826</b>	<b>828</b>	<b>834</b>	<b>858</b>	<b>838</b>	<b>1 044</b>	<b>913</b>
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
<b>Non-OECD Americas</b>	<b>681</b>	<b>665</b>	<b>634</b>	<b>651</b>	<b>638</b>	<b>645</b>	<b>636</b>	<b>634</b>	<b>637</b>	<b>672</b>	<b>695</b>	<b>668</b>
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
<b>Middle East</b>	<b>845</b>	<b>991</b>	<b>813</b>	<b>844</b>	<b>802</b>	<b>861</b>	<b>842</b>	<b>813</b>	<b>857</b>	<b>934</b>	<b>939</b>	<b>910</b>

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

	1990	1995	2000	2003	2004	2005	2006	2007	2008	2009	2010	Average 08-10
<b>World</b>	<b>490</b>	<b>503</b>	<b>480</b>	<b>466</b>	<b>463</b>	<b>464</b>	<b>458</b>	<b>453</b>	<b>451</b>	<b>449</b>	<b>451</b>	<b>450</b>
<i>Annex I Parties</i>	230	257	272	247	245	247	252	257	256	259	257	258
<i>Annex II Parties</i>	399	348	344	310	306	308	313	317	316	316	316	316
<i>North America</i>	400	325	348	310	310	322	331	337	334	332	334	333
<i>Europe</i>	302	293	276	237	236	233	230	231	238	238	236	237
<i>Asia Oceania</i>	475	466	443	437	436	438	440	443	440	435	431	435
<i>Annex I EIT</i>	29	42	44	43	43	41	40	43	40	30	33	34
<i>Non-Annex I Parties</i>	540	546	511	492	491	493	497	488	484	480	481	482
<i>Annex I Kyoto Parties</i>	160	215	228	211	207	200	202	207	209	211	206	209
<b>Non-OECD Total</b>	<b>475</b>	<b>520</b>	<b>533</b>	<b>524</b>	<b>520</b>	<b>526</b>	<b>531</b>	<b>519</b>	<b>518</b>	<b>514</b>	<b>511</b>	<b>514</b>
<b>OECD Total</b>	<b>510</b>	<b>488</b>	<b>439</b>	<b>417</b>	<b>415</b>	<b>412</b>	<b>399</b>	<b>401</b>	<b>396</b>	<b>395</b>	<b>398</b>	<b>396</b>
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
<b>OECD Americas</b>	<b>546</b>	<b>535</b>	<b>481</b>	<b>445</b>	<b>447</b>	<b>446</b>	<b>415</b>	<b>419</b>	<b>412</b>	<b>405</b>	<b>411</b>	<b>409</b>
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
<b>OECD Asia Oceania</b>	<b>476</b>	<b>465</b>	<b>439</b>	<b>440</b>	<b>440</b>	<b>435</b>	<b>434</b>	<b>437</b>	<b>433</b>	<b>431</b>	<b>426</b>	<b>430</b>
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
<b>OECD Europe</b>	<b>461</b>	<b>405</b>	<b>379</b>	<b>368</b>	<b>361</b>	<b>359</b>	<b>360</b>	<b>357</b>	<b>358</b>	<b>361</b>	<b>366</b>	<b>362</b>
<i>European Union - 27</i>	487	416	385	374	362	359	361	358	359	360	365	361

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

	1990	1995	2000	2003	2004	2005	2006	2007	2008	2009	2010	Average 08-10
<b>Non-OECD Total</b>	<b>475</b>	<b>520</b>	<b>533</b>	<b>524</b>	<b>520</b>	<b>526</b>	<b>531</b>	<b>519</b>	<b>518</b>	<b>514</b>	<b>511</b>	<b>514</b>
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
<b>Non-OECD Europe and Eurasia</b>	<b>406</b>	<b>455</b>	<b>511</b>	<b>507</b>	<b>499</b>	<b>513</b>	<b>513</b>	<b>511</b>	<b>516</b>	<b>512</b>	<b>506</b>	<b>512</b>
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
<b>Africa</b>	<b>554</b>	<b>539</b>	<b>542</b>	<b>532</b>	<b>528</b>	<b>526</b>	<b>525</b>	<b>521</b>	<b>524</b>	<b>530</b>	<b>514</b>	<b>523</b>

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

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

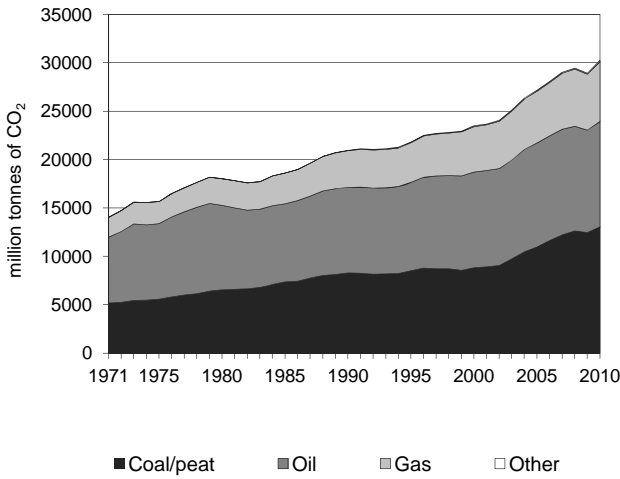
grammes CO<sub>2</sub> / kilowatt hour

	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	1 202	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
<b>Asia</b>	<b>632</b>	<b>524</b>	<b>483</b>	<b>461</b>	<b>458</b>	<b>463</b>	<b>463</b>	<b>451</b>	<b>455</b>	<b>457</b>	<b>480</b>	<b>464</b>
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
<b>China</b>	<b>539</b>	<b>552</b>	<b>485</b>	<b>482</b>	<b>479</b>	<b>488</b>	<b>490</b>	<b>502</b>	<b>500</b>	<b>506</b>	<b>507</b>	<b>504</b>
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
<b>Non-OECD Americas</b>	<b>702</b>	<b>568</b>	<b>551</b>	<b>520</b>	<b>506</b>	<b>510</b>	<b>603</b>	<b>565</b>	<b>501</b>	<b>526</b>	<b>508</b>	<b>512</b>
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
<b>Middle East</b>	<b>718</b>	<b>695</b>	<b>633</b>	<b>631</b>	<b>638</b>	<b>626</b>	<b>620</b>	<b>599</b>	<b>590</b>	<b>568</b>	<b>552</b>	<b>570</b>

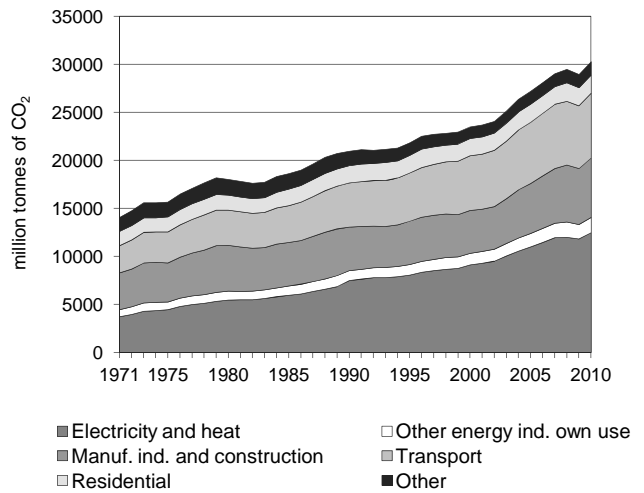
## 7. GLOBAL TOTAL

## World

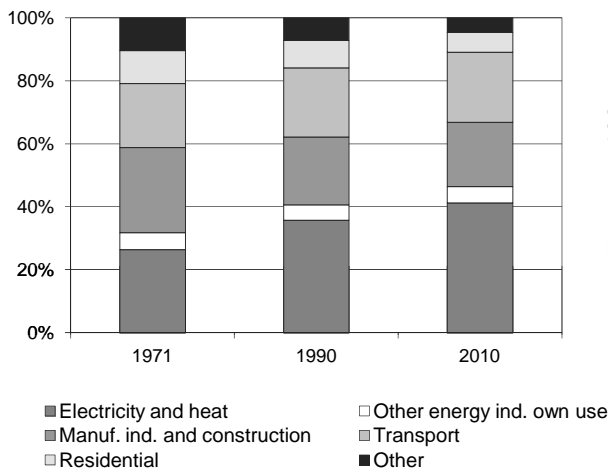
**Figure 1. CO<sub>2</sub> emissions by fuel**



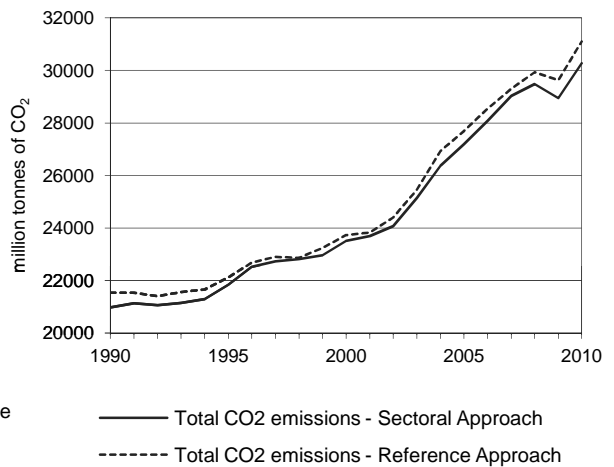
**Figure 2. CO<sub>2</sub> emissions by sector**



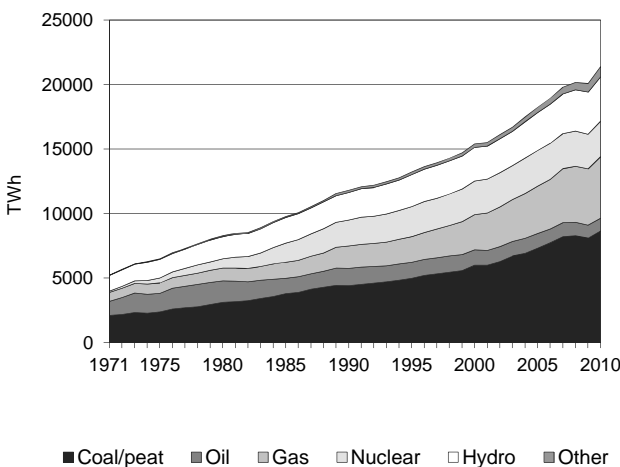
**Figure 3. CO<sub>2</sub> emissions by sector**



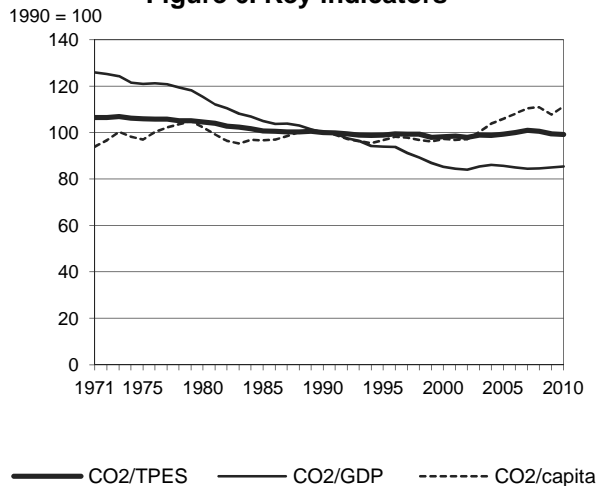
**Figure 4. Reference vs Sectoral Approach**



**Figure 5. Electricity generation by fuel**



**Figure 6. Key indicators**



## World

### Key indicators

	1990	1995	2000	2005	2008	2009	2010	% change 90-10
CO <sub>2</sub> Sectoral Approach (MtCO <sub>2</sub> )	20 973.9	21 843.8	23 509.1	27 187.4	29 483.0	28 946.7	30 276.1	44.4%
CO <sub>2</sub> Reference Approach (MtCO <sub>2</sub> )	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 <sub>2</sub> / TPES (tCO <sub>2</sub> per TJ)	57.1	56.5	56.1	56.7	57.4	56.8	56.7	-0.8%
CO <sub>2</sub> / GDP (kgCO <sub>2</sub> per 2005 USD)	0.70	0.65	0.59	0.60	0.59	0.59	0.59	-14.6%
CO <sub>2</sub> / GDP PPP (kgCO <sub>2</sub> per 2005 USD)	0.58	0.54	0.49	0.47	0.45	0.44	0.44	-23.6%
CO <sub>2</sub> / population (tCO <sub>2</sub> 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<sub>2</sub> emissions by sector

million tonnes of CO <sub>2</sub>	Natural				Total	% change 90-10
	Coal/peat	Oil	gas	Other *		
<b>Sectoral Approach **</b>	<b>13 065.9</b>	<b>10 890.5</b>	<b>6 179.1</b>	<b>140.6</b>	<b>30 276.1</b>	<b>44.4%</b>
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%
<i>of which: road</i>	-	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%
<i>of which: residential</i>	301.0	595.3	984.1	0.0	1 880.4	3.2%
<b>Reference Approach **</b>	<b>13 700.9</b>	<b>11 007.0</b>	<b>6 253.8</b>	<b>140.6</b>	<b>31 102.3</b>	<b>44.4%</b>
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	
<i>Memo: international marine bunkers</i>	-	643.7	-	-	643.7	77.6%
<i>Memo: international aviation bunkers</i>	-	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<sub>2</sub> emissions from fuel combustion in 2010

IPCC source category	CO <sub>2</sub> emissions (MtCO <sub>2</sub> )	% 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
<i>Memo: total CO<sub>2</sub> from fuel combustion</i>	<i>30 276.1</i>	<i>44.4%</i>	<i>68.4</i>	<i>68.4</i>

\*\*\* Percent calculated using the total GHG estimate for CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs and SF<sub>6</sub> excluding CO<sub>2</sub> emissions/removals from land use change and forestry.





# 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<sub>2</sub> emissions, and energy prices and taxes. The data managers are responsible for receiving, reviewing and inputting data submissions from Member countries and other sources into large computerised databases. They check for completeness, correct calculations, internal consistency, accuracy and consistency with definitions. Often this entails proactively investigating and helping to resolve anomalies in collaboration with national administrations of Member and Non-Member countries. The data managers/statisticians also play a key role in helping to design and implement computer macros used in the preparation of their energy statistics publication(s).

## Principal Qualifications

- University degree in a topic relevant to energy, computer programming or statistics. We currently have staff with degrees in Mathematics, Statistics, Information Technology, Economics, Engineering, Physics, Chemistry, Environmental Studies, Hydrology, Public Administration and Business.
- Experience in the basic use of databases and computer software. Good computer programming skills in Visual Basic.
- Ability to work accurately, pay attention to detail and work to deadlines. Ability to deal simultaneously with a wide variety of tasks and to organise work efficiently.
- Good communication skills; ability to work well in a team and in a multicultural environment, particularly in liaising with contacts in national administrations and industry.
- Very good knowledge of one of the two official languages of the Organisation (English or French). Knowledge of other languages would be an advantage.
- Some knowledge of energy industry operations and terminology would also be an advantage, but is not required.

Nationals of any OECD Member country are eligible for appointment. Basic salaries start at 3 080 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](mailto: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

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### ■ 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<sub>2</sub> 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<sub>2</sub> emissions from fossil fuel combustion, a major source of anthropogenic emissions. The data in this book are designed to assist in understanding the evolution of the emissions of CO<sub>2</sub> from 1971 to 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*

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## Two Quarterlies

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### ■ Oil, Gas, Coal and Electricity, Quarterly Statistics

This publication provides up-to-date, detailed quarterly statistics on oil, coal, natural gas and electricity for OECD countries. Oil statistics cover production, trade, refinery intake and output, stock changes and consumption for crude oil, NGL and nine selected oil product groups. Statistics for electricity, natural gas and coal show supply and trade. Import and export data are reported by origin and destination. Moreover, oil as well as hard coal and brown coal production are reported on a worldwide basis.

*Published Quarterly - Price €120, annual subscription €380*

### ■ Energy Prices and Taxes

This publication responds to the needs of the energy industry and OECD governments for up-to-date information on prices and taxes in national and international energy markets. It contains crude oil import prices by crude stream, industry prices and consumer prices. The end-user prices for OECD member countries cover main petroleum products, gas, coal and electricity. Every issue includes full notes on sources and methods and a description of price mechanisms in each country. Time series availability varies with each data series.

*Published Quarterly - Price €120, annual subscription €380*

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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 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)          |
| ■ <i>Combined subscription of the above four series</i>     | <i>Price: €1 400 (single user)</i> |
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| ■ Natural Gas Information 2012                              | Price: €550 (single user)          |
| ■ Oil Information 2012                                      | Price: €550 (single user)          |
| ■ Renewables Information 2012                               | Price: €400 (single user)          |
| ■ CO <sub>2</sub> Emissions from Fuel Combustion, 1971-2010 | Price: €550 (single user)          |

#### Quarterly CD-ROMs / Online Databases

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|---------------------------|---|
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## Other Online Services

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### ■ The Monthly Oil Data Service

The IEA Monthly Oil Data Service provides the detailed databases of historical and projected information which is used in preparing the IEA's monthly *Oil Market Report* (OMR). The IEA Monthly Oil Data Service comprises three packages available separately or combined as a subscriber service on the Internet. The data are available at the same time as the official release of the Oil Market Report.

The packages include:

- |                                       |                                    |
|---------------------------------------|------------------------------------|
| ■ Supply, Demand, Balances and Stocks | Price: €6 000 (single user)        |
| ■ Trade                               | Price: €2 000 (single user)        |
| ■ Field-by-Field Supply               | Price: €3 000 (single user)        |
| ■ <i>Complete Service</i>             | <i>Price: €9 000 (single user)</i> |

A description of this service is available on our website: <http://www.iea.org/stats/mods.asp>

## ■ The Monthly Gas Data Service

The service provides monthly natural gas data for OECD countries:

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- 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>

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