PART III:

TOTAL GREENHOUSE GAS EMISSIONS

1. TRENDS IN GHG EMISSIONS

CO_2 emissions from fuel combustion represent the majority of anthropogenic GHG emissions. However, comprehensive analysis of emission trends considers other sources of CO_2 as well as other gases, knowing that data on gases and sources other than CO_2 from fuel combustion are much more uncertain. Country-specific estimates of CO_2 from biomass burning and F-gas emissions are particularly difficult to ascertain.

To complement work regarding the emissions of CO_2 from fuel combustion, the IEA elected to include EDGAR data on other CO_2 sources and on five other greenhouse gases; methane (CH_4), nitrous oxide (N_2O) and the fluorinated gases (or "F-gases") HFCs, PFCs and SF_6, all gases addressed by the Kyoto Protocol.

Main changes in this edition are: (a) CO_2 emissions from *fuel combustion* were calculated by the IEA using the default emission factors from the 2006 IPCC guidelines instead of the 1996 Guidelines, thereby increasing emissions by about 0.5% to 2%; (b) CO_2 emissions from carbon released in fossil fuel use, labelled in the sectoral energy balance as 'non-energy use' or 'chemical feedstock', are now reported in the Tables under *Industrial Processes and Others* and taken from the EDGAR4.3.0 dataset (mainly based on the production of specific chemicals, whereas previously estimated by IEA using consumption of specific fuels and default fractions stored by fuel type); (c) CO_2 emissions of fugitive nature (such as leakages, transformation losses, flaring) and of non-combustion emissions from industrial processes are also taken from the EDGAR4.3.0 dataset and reported in the Tables under *Fugitives* and *Industrial Processes*.

The information in Part III (with the exception of CO_2 emissions from fuel combustion) has been provided by Jos G.J. Olivier from the PBL Netherlands Environmental Assessment Agency and Greet Janssens-Maenhout from the Joint Research Centre (JRC) of the European Commission, using the EDGAR database (version 4.3.0 and 4.2FT2010) developed jointly by JRC and PBL. Please see Chapter 2 for further details on data sources and methodology.

Global and regional trends

Dominated by emissions related to fossil fuels, total emissions of all greenhouse gases - weighted by their GWP[1] - increased by more than 80% since 1970 (Figure 1). Significant increases were observed for all gases in the 1970-2010 period: CO_2, including large-scale biomass burning of forests and biomass decay (107%); CH_4 (47%), N_2O (43%), and the F-gases (about 700%).

Global total GHG emissions increased by 31% during the period 1990-2010, driven again by a 44% growth in CO_2 emissions from fuel combustion. Over the same period, although highly variable over time, CO_2 emissions from biomass burning and post-burn decay – based on satellite observations – are assumed to have decreased by about 10% with CO_2 from decay of drained peatland increasing by 18%. Increases in CO_2 emissions from cement production (120%), CH_4 emissions from fossil fuel production (44%) and from waste (21%), N_2O emissions from agriculture (20%), and the F-gases (about 225%, mainly from HFC use) also contributed to the total increase. The F-gases doubled their share of global emissions from 1% in 1990 to 2% in 2010.

1. Global Warming Potential: see Box 1.

The picture varies significantly across regions and gases. In 2010, most **methane** (CH_4) emissions originated in non-Annex I regions such as China (21%), Asia excl. China (21%), and Latin America (12%). Emissions from Annex I countries contributed 26% of total emissions, with the largest contribution coming from the Annex I members of the Former Soviet Union (8%) and North America (8%).

CH_4 emissions from animals and their waste are dominant in Latin America and South Asia, while emissions from rice cultivation are common in South, East and Southeast Asia. Fugitive methane emissions are concentrated at coal production sites in East Asia (mainly China), North America, Europe and Eurasia, and at gas production and distribution systems in the Former Soviet Union countries and North America. Methane from waste stems mainly from landfills in Annex I countries and from wastewater disposal predominantly in non-Annex I countries.

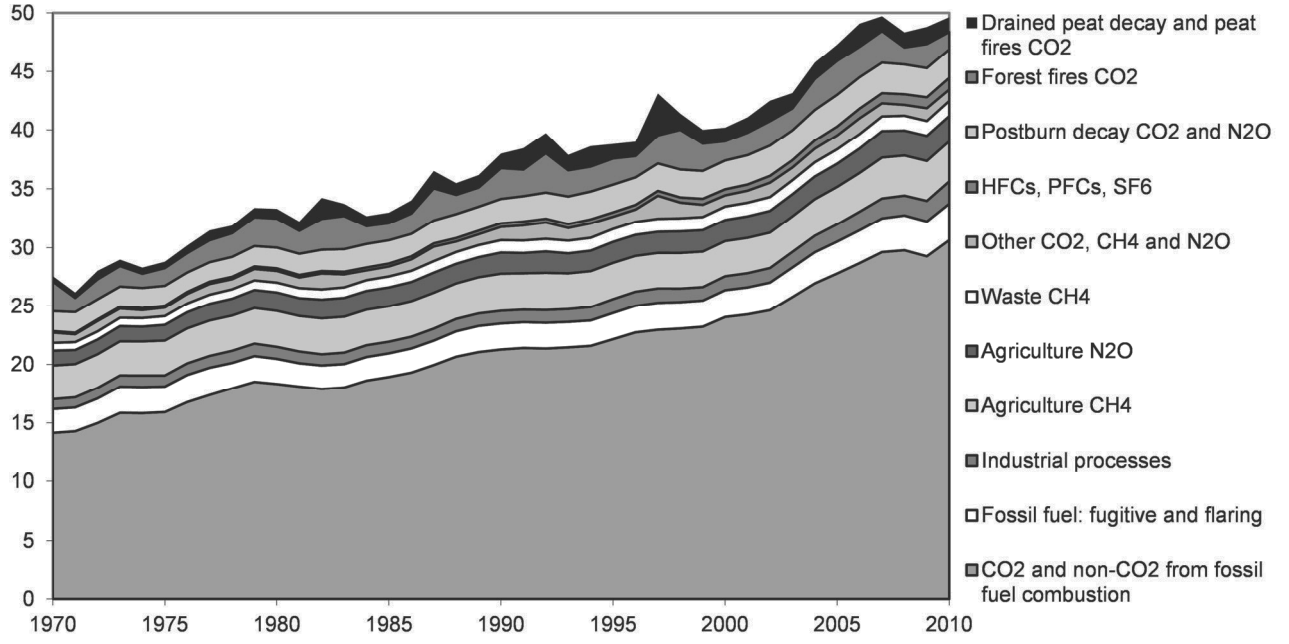
Non-Annex I regions produced three-quarters of global **nitrous oxide** (N_2O) emissions in 2010: Africa (19%), Asia excl. China (18%), China (18%) and Latin America (14%). N_2O emissions from Annex I countries contributed 27% to the global total, with most emissions originating in North America (11%) and OECD Europe (9%).

N_2O emissions from animal waste are dominant in the non-Annex I regions of Latin America, Africa and South Asia; N_2O from fertiliser use is largest in East Asia (mainly China) and Latin America followed by North America, Annex II Europe and South Asia (mainly India). N_2O emissions from crop production are largest in North America, Latin America, South Asia and East Asia. Industrial processes also emit significant volumes of N_2O.

The shares of Annex I countries in total CH_4 and total N_2O emissions (26% and 27% respectively) are relatively low compared to their share in global CO_2 emissions (38%).

In 2010, most **fluorinated gas** (F-gas) emissions originated in Annex I countries (66%), with North America contributing 38%, OECD Europe 13%, OECD Asia Oceania 9% and Other Europe and Eurasia 7%. Non Annex I countries contributed about 34% to global F-gas emissions.

Figure 1. Global GHG emissions 1970-2010

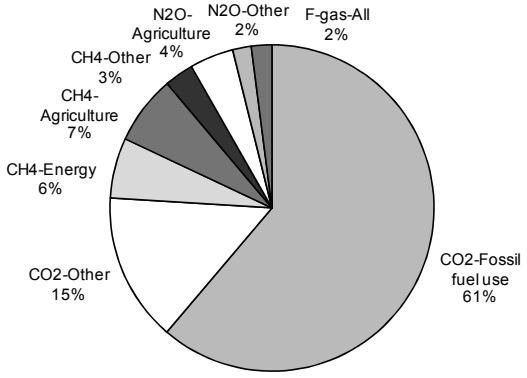


Sources: IEA for CO_2 from fuel combustion and JRC/PBL (2012, 2015) [EDGAR 4.2 FT2010 and 4.3.0] for all other sources.

Trends by gas

In 2010, CO_2 contributed 76% of global GHG emissions, CH_4 about 16%, N_2O about 6% and the combined F-gases about 2% (Figure 2). The largest sources of GHG emissions were the energy sector (67%, mainly CO_2 fossil fuel use), and agriculture (11%, mainly CH_4 and N_2O). Other sources of greenhouse gases were CO_2 from biomass burning (10%, mostly forest and peat fires and post-burn decay in non-Annex I countries), and CO_2 from processes in cement production (3%). Please note that emissions from forest and peat fires are highly variable over the years.

Figure 2. Global GHG emissions by gas/source in 2010



CO_2 emission trends

Energy increasingly dominates the trend in global CO_2 emissions, accounting for 82% of the global total in 2010, up from 72% in 1970. This share varies between 90-99% in most Annex I countries, whereas it varies more widely in non-Annex I countries (e.g. lower than 10% in some African, Latin American and Asian countries).

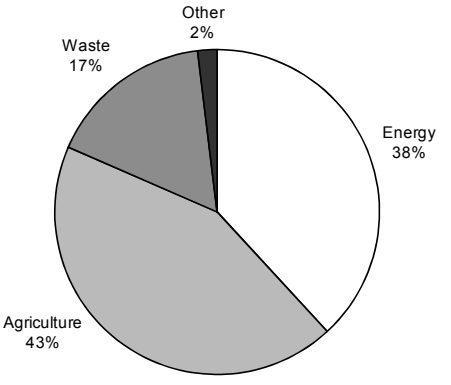
Over the 1990-2010 period, total fossil fuel combustion emissions of CO_2 increased about 45% worldwide (by about 147% in non-Annex I countries while decreasing 4% in Annex I countries). Emissions from electricity and heat production and from road transport dominated global trends. Between 1990 and 2010, CO_2 emissions from electricity and heat production increased on average by 18% for Annex II countries and by 105% in other countries. Over the same period, road transport emissions rose 23% in Annex II countries and 125% in other countries. By 2010, these two sectors together accounted for 59% of global total CO_2 emissions from fuel combustion. The introduction at the beginning of this publication provides a more complete discussion of CO_2 emissions in 2013 and the recent trends in energy-related CO_2 emissions.

In 2010, the highly variable emissions from deforestation (i.e. forest fires) and from decay of drained peatland accounted for about 7% of global CO_2 emissions (or about 13% including indirect CO_2 emissions from post-burn decay of remaining aboveground biomass). The share of deforestation in global emissions was about 18% until 2000. Since 2000, however, this share has decreased due to rapidly increasing emissions from fossil fuel combustion. In 2010, CO_2 emissions from processes in cement clinker production – i.e. excluding fossil fuel use – represented almost 4% of total CO_2 emissions worldwide. Between 1990 and 2010, CO_2 from cement production increased by more than 150%.

CH_4 emission trends

As seen in Figure 3, the major global sources of **methane** (CH_4) emissions in 2010 were (a) agriculture (43%), mainly from enteric fermentation by animals and animal waste, from rice cultivation and from savannah burning; (b) energy production and transmission/distribution (38%), mainly from coal production, and gas production, transmission and distribution; and (c) waste (17%), from landfills and wastewater.

Figure 3. Global CH_4 emissions in 2010



Between 1970 and 2010, global methane emissions increased by almost half. In the 1970s emissions increased with an average growth rate of 1.3% per year. In the 1980s, this growth rate slowed down to an average 1.1% per year, determined mainly by the growth rates of emissions in Other Europe and Eurasia (from increased gas production and transmission) and in East Asia (where coal production shifted towards sur-

face mining, which releases less methane than underground mining). In addition, enteric fermentation by ruminants and waste and wastewater disposal contributed to the increased emissions, particularly in non-Annex I regions. Emissions from rice cultivation are estimated to have decreased due to changes in types of rice grown and to other organic amendment practices.

In the 1990s, an average decrease of 0.2% per year was observed. The economic decline of Former Soviet Union countries in the early 1990s strongly influenced this global methane trend. Their emissions from coal production, from gas transmission and from animals (enteric fermentation) decreased substantially between 1990 and 1995. It should be stressed, however, that detailed statistics for this region are uncertain over this period. Despite the overall decline in the 1990s, increases were observed regionally: for gas production in the Middle East and North America, for landfills in Latin America and wastewater in South Asia, for large-scale biomass burning in developing countries and for coal production in China.

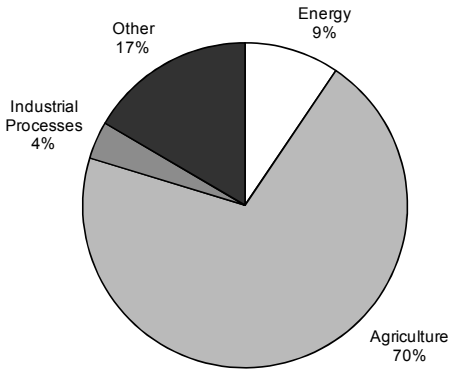
Since 2000, emissions started increasing again, with an average growth rate of 1.9% per year, yielding a faster increase than in the last four decades. This led to a global increase of about 20% over the period 2000-2010, driven by increased coal mining in China (+50%) and increased cattle numbers in Brazil (+23%).

Between 1990 and 2010, country-specific trends of activity data and emission factors lead to an increase of global total methane emissions of about 17%. During this period, emissions in non-Annex I countries increased about 38%, with the largest absolute growth occurring in Asia and Africa. Emissions in Annex I countries decreased by 18%, mainly driven by the countries of the Former Soviet Union. Annex II emissions as a whole decreased over the same period by 16% and OECD Europe decreased by about 21%, mainly as a result of the policies of the United Kingdom and Germany, with reduced coal production and increased methane recovery from coal mines (up to 50%). In North America and OECD Europe, methane from landfills also decreased by about 50% due to enhanced waste separation and methane recovery.

N_2O emission trends

For **nitrous oxide** (N_2O), agriculture contributed 70% of emissions in 2010, mainly from synthetic fertilisers, animal waste dropped on soils (either as animal manure or on pasture during grazing) and agricultural waste burning (Figure 3). Much smaller sources are fuel combustion (9%, mainly from coal, fuelwood and road transport) and industrial processes (4%), mostly in Annex I countries. Between 1970 and 2010, global emissions of N_2O increased by about 43%. Increased use of synthetic fertilisers and manure from livestock since the 1970s caused agricultural emissions in South Asia and East Asia to increase on average by 3-4% annually. These regional emission trends continued into the 2000s (Figure 7). Emissions from Latin America and Africa also increased in the 1990s, predominantly from the same sources and from forest fires.

Figure 3. Global N_2O emissions in 2010



In contrast, N_2O emissions from industrial processes decreased by 40% during the 1980s. This decrease resulted from the gradual upgrade of global production facilities for nitric acid. By 1990 about 20% of the facilities were equipped for non-selective catalytic reduction limiting NO_x emissions while simultaneously reducing N_2O emissions. Since 1990 further reductions occurred due to emission abatement in adipic acid production.

During the 1970s, North America and Japan introduced catalytic converters in cars with gasoline engines to reduce emissions of precursors of tropospheric ozone, but with higher N_2O emissions as a side effect. Since the 1990s this technology was also introduced in Europe and Australia. Until about 2000 these catalytic converters contributed to an increase in N_2O emissions in these countries, however, in the late 1990s newer types were introduced with lower specific N_2O emissions.

In the period 1990-2010, global N_2O emissions are estimated to have increased by only about 10%, thanks to a 75% reduction in industrial emissions from adipic acid manufacturing. Over this period, emissions in non-Annex I countries increased by over

35%, mainly in the agricultural sectors of South Asia, East Asia and Latin America. The increase was partially offset by decreasing emissions in the non-Annex I members of the Former Soviet Union countries (-24%) and, to a lesser extent, in other EIT countries. In OECD Europe, N_2O decreased by almost 29% since 1990, mainly due to emissions abatement in the chemical industry, and to decreased use of nitrogen fertilisers.

Box 1: Global Warming Potential

The contribution of non-CO_2 gases to total emissions can be estimated by expressing the emissions of all the gases in CO_2-equivalent units. For a given gas, emissions expressed in mass are multiplied by its specific weighting factor, the Global Warming Potential (GWP). The GWP-100 is an estimate of the relative contribution of 1 kg of that gas to global radiative forcing, as compared to 1 kg of CO_2, integrated over a fixed period of 100 years.

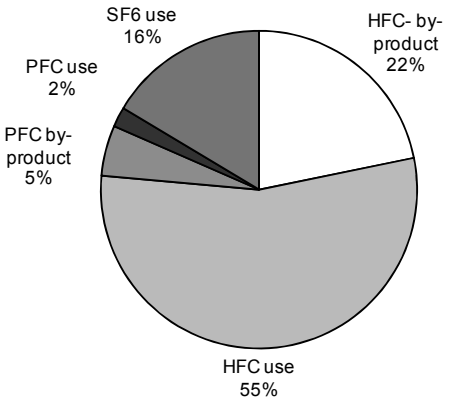
The data in this chapter follow the UN Framework Convention on Climate Change (UNFCCC), which used GWP values from the ***Second*** Assessment Report (SAR) of the Intergovernmental Panel on Climate Change (IPCC, 1997), for reporting total greenhouse gas emissions: GWP-100 values of 21 for CH_4, 310 for N_2O and 23 900 for SF_6. For the most common HFCs, GWP-100 vary between 140 and 3 000 (1,300 for HFC-134a, 11 700 for HFC-23). The GWP-100 for PFCs vary between 6 500 (CF_4) to 9,200 (C_2F_6). The GHG data in this chapter are all expressed in CO_2-equivalents using these GWP-100 values.

However, the Parties to the Climate Convention have decided to use the updated GWP-100 values from IPCC's ***Fourth*** Assessment Report (IPCC, 2006) for their emissions inventory reporting from 2015 onwards. These GWP-100 values give a 19% higher weighting to CH_4 (25), and a 4% lower weighting to N_2O (298). In addition, for the F-gases, most GWP-100 values have increased, *e.g.* by 10% for HFC-134a and by 26% for HFC-23. In particular the higher GWP-100 value for CH_4 impacts the total GHG emissions trend and the share of the sources. A GWP-100 value of 25 for CH_4 increases the share of total CH_4 in 2010 by 2.5% points (from 15.8% to 18.3%) while the share of CO_2 from fossil fuels decreases by 1.6% points (from 61.2% to 59.6%).

HFC, PFC and SF_6 emission trends

For the **fluorinated gases** ("F-gases") (Figure 4), emissions are split between "use" and "by-products" because of the different ways in which they are produced. HFC use represented 55% of the total in 2010, of which HFC 134a alone represented 42%. Total by-product emissions of HFC contributed 22% and of PFCs another 5%. SF_6 use represented 16%. Most F-gas emissions are emitted by Annex I countries.

Figure 4. Global F-gas emissions in 2010



Between 1990 and 2010, the estimated emissions of F-gases increased by about 225%, mainly due to an increase in HFC emissions: emissions of HFC in 2010 were about nine times higher than in 1990. During the same period, PFCs emissions decreased by about 35% while SF_6 emissions increased by about 45%. Annex I regions experienced large growth in F-gas emissions, with regional increases on the order of 125% except for North America which showed an increase of over 250%. On a regional basis, total F-gas emission trends varied between 10% and 1500% for the non-Annex I regions, with the largest absolute increases coming from East Asia, driven by a fifteen-fold increase in China, which is here included in East Asia.

Since 1995, global F-gas emissions have increased more rapidly. The increase in HFC emissions (4.5 times higher) more than offset a 30% reduction in PFCs emissions. The small reductions in global SF_6 emissions observed in the period 1996-2004 were mainly due to reductions in emissions from the manufacture and use of switchgear for the electricity sector. The large reduction in PFC emissions in recent years is due to the phasing-out of old Søderberg technology for aluminium production in China. Global emissions of HFCs other than HFC-134a now exceed emissions of HFC-134a, widely used for refrigeration and air-conditioning.

2. SOURCES AND METHODS

The information in Part III (with the exception of CO_2 emissions from fossil fuel combustion) has been provided by Jos G.J. Olivier and Greet Janssens-Maenhout based on the EDGAR 4.2FT2010 dataset except most other sources of CO_2 for which data from EDGAR version 4.3.0 was used. JRC and PBL are responsible for these datasets.

General note on EDGAR

Version 4 of the *Emission Database for Global Atmospheric Research* (*EDGAR4)* has been developed jointly by the European Commission's Joint Research Centre (JRC) and the PBL Netherlands Environmental Assessment Agency and is hosted at *edgar.jrc.ec.europa.eu*. EDGAR4 is providing global anthropogenic emissions of greenhouse gases CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 and of precursor gases and air pollutants CO, NO_x, NMVOC, SO_2 and the aerosols PM_{10}, $PM_{2.5}$, BC, OC, per source category, both at country level as well as on a 0.1°x0.1° grid online to its large community of users. EDGAR data are used for policy applications and scientific studies such as atmospheric modelling and were used for the *Fifth Assessment Report* of the *Intergovernmental Panel on Climate Change* (IPCC, 2014) (Working Group III).

Activity data were mostly taken from international statistics (checked for completeness and consistency and where required gap filled) and greenhouse gas emission factors were selected mostly from the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* (IPCC, 2006) to ensure a consistent approach across countries and complete and consistent time series. It is stressed that the uncertainty in the resulting dataset at national level may be substantial, especially for methane and nitrous oxide, and even more so for the F-gases (see Box 2 for more details). However, this dataset provides a sound basis for comparability with national emissions reports and other studies since the methods used are either IPCC methodologies or comparable to them (see below), global totals are obtained in a transparent way and comply with budgets used in atmospheric studies, and the data were based on international information sources. The EDGAR 4.2 Fast Track 2010 (FT2010 dataset is built on the previous dataset 4.2 (with 1970-2008 time-series by adding emissions for 2009 and 2010. For the GHG update, reports of Annex I countries to the *UN Convention on Climate Change* (UNFCCC) and the recent and significant impact of *Clean Development Mechanism* projects in developing countries to reduce CH_4, N_2O and HFC-23 emissions were taken into account. This applies to sources such as coal mines and landfills (CH_4 recovery), nitric acid and adipic acid production (N_2O) and the production of HCFC-22 (HFC-23).

The EDGAR4.3.0 dataset covers 1970-2012 time-series for all sector-specific and country-specific totals of greenhouse gases. Thereto new activity data statistics (with updated and revised time series) were uploaded and emission factors revised where appropriate. Although this dataset has been constructed with great care, JRC and PBL do not accept any liability from use of the data provided in this report including any inaccuracies or omissions in the data provided. For details on uncertainty and caveats identified in the dataset, as well as more detailed source category estimates, we refer users to the EDGAR 4 website at *edgar.jrc.ec.europa.eu*. Note that estimates for other more recent years than 2010 are made publicly available through this website. Most recent trends for CO_2 emissions through 2014 are discussed in Olivier et al. (2015).

Box 2: Uncertainty in greenhouse gas emissions.

When considering comparative shares and trends in greenhouse-gas emissions, data on gases and sources other than CO_2 from fuel combustion are much more uncertain. Country-specific estimates of CO_2 from biomass burning and F-gas emissions are particularly difficult to ascertain. The uncertainty in these emissions is caused by the limited accuracy of international activity data used and in particular of emission factors selected for calculating emissions on a country level (Olivier, 2002; Olivier *et al.,* 2005). For a detailed evaluation of emission uncertainties using international statistics and IPCC and other emission factors we refer to the 2006 IPCC Guidelines (2006), and for comparisons between countries and datasets to Olivier et al (2005, 2010, 2015).

For global total anthropogenic CO_2 emissions the calculated uncertainty in the total ranges from about -10% to +10%, including large-scale biomass burning. For global emissions of CH_4, N_2O and the F-gases uncertainty estimates of 25%, 30% and 20%, respectively, were assumed based on default uncertainty estimates for the 2006 IPCC methodologies (IPCC, 2006), which correspond with emissions estimates inferred from atmospheric concentration measurements (UNEP, 2012).

When considering emission shares and trends of countries one should note that:

CO_2: Fossil fuel combustion, which is often the largest source of CO_2 in a country, is estimated to have an uncertainty of about 5% (95% confidence interval) for OECD countries. However, for many non-OECD countries the uncertainty is estimated at about 10%. This is often regarded as the most accurate source of GHG emissions.

CH_4: Uncertainties are particularly large for methane emissions from fugitive sources (coal mining and from oil and gas production and transmission) and from landfills and wastewater.

N_2O: Uncertainties of most N_2O sources are very large, e.g. the uncertainty for agricultural sources may sometimes exceed 100%.

F-gases: Uncertainties in annual emissions of most sources of F-gases are very large, e.g. at a country level they may well exceed 100%. Therefore, the figures provided for individual countries should be considered solely as order-of-magnitude estimates.

Source definitions

The source definitions for *Fuel combustion* refer to the categories and codes used in the 2006 IPCC guidelines, Chapter 8 of Vol. 1: *General guidance and reporting* (IPCC, 2006). For other categories and codes the definitions refer to the Revised 1996 IPCC guidelines, Chapter 1 of Vol. 1: *Reporting instructions* (IPCC, 1996).

For carbon dioxide:

Fuel combustion refers to fossil fuel combustion only. Emissions have been estimated by the IEA using the methodology as described in Part I, Chapter 3: *IEA estimates: Changes under the 2006 IPCC Guidelines*. (2006 IPCC Source/Sink Category 1A)

Fugitive refers mainly to flaring of associated gas in oil and gas production (in some cases including indirect CO_2 from methane venting) (IPCC Source/Sink Category 1B).

Industrial Processes refer to production of cement, lime, soda ash, carbides, ammonia, methanol, ethylene and other chemicals, metals and to the use of soda ash, limestone and dolomite, and non-energy use of lubricants and waxes. Emissions exclude *Fuel combustion* emissions. (IPCC Source/Sink Category 2).

Other refers to direct emissions from forest fires and peat fires, emissions from decay (decomposition) of aboveground biomass that remains after logging & deforestation and emissions from the decay of drained peat soils (IPCC Source/Sink Category 5). CO_2 from solvent use (IPCC Source/Sink Category 3), from application of urea and agricultural lime (IPCC Source/Sink Category 4) and from fossil fuel fires (coal fires & the Kuwait oil fires) (IPCC Source/Sink Category 7) is also included here.

For methane:

Energy comprises production, handling, transmission and combustion of fossil fuels and biofuels (IPCC Source/Sink Categories 1A and 1B).

Agriculture comprises enteric fermentation, rice production, manure management, agricultural waste burning (non-energy, on-site) and savannah burning (IPCC Source/Sink Category 4).

Waste comprises landfills, wastewater treatment, wastewater disposal and waste incineration (non-energy) (IPCC Source/Sink Category 6).

Other includes industrial process emissions e.g. methanol production, and forest and peat fires and other vegetation fires (IPCC Source/Sink Categories 2 and 5).

For nitrous oxide:

Energy comprises combustion of fossil fuels and biofuels (IPCC Source/Sink Categories 1A and 1B).

Agriculture comprises fertiliser use (synthetic and manure), animal waste (manure) management, agricultural waste burning (non-energy, on-site) and savannah burning (IPCC Source/Sink Category 4).

Industrial Processes comprise non-combustion emissions from manufacturing of adipic acid, nitric acid, caprolactam and glyoxal (IPCC Source/Sink Category 2).

Other includes N_2O usage, forest and peat fires (including post-burn decay emissions from remaining biomass) and other vegetation fires, human sewage discharge and waste incineration (non-energy) and indirect N_2O from atmospheric deposition of NO_x and NH_3 from non-agricultural sources (IPCC Source/Sink Categories 3, 5, 6 and 7).

For fluorinated gases:

HFC emissions comprise by-product emissions of HFC-23 from HCFC-22 manufacture and the use of HFCs (IPCC Source/Sink Categories 2E and 2F).

PFC emissions comprise by-product emissions of CF_4 and C_2F_6 from primary aluminium production and the use of PFCs, in particular for the manufacture of semiconductors, flat panel displays and photovoltaic cells) (IPCC Source/Sink Categories 2C, 2E and 2F). *SF_6 emissions* stem from various sources of SF_6 use (mainly manufacturing of Gas Insulated Switchgear (GIS) used in the electricity distribution networks) (IPCC Source/Sink Categories 2C and 2F) and from SF_6 production (Category 2E).

Data sources and methodology for EDGAR 4.2FT2010 and 4.3.0

The **EDGAR 4.2FT2010** has been available online since October 2013[2]. For greenhouse gases, the default emission factors from the *2006 IPCC Guidelines* (IPCC, 2006) were used, except for CH_4 and N_2O from road transport where technology-specific factors were used from the EMEP-EEA emission inventory guidebook (EEA, 2009).

To estimate the trend for the main sources of each greenhouse gas in 2009 and 2010, an emissions trend for each year was used as a proxy. These were taken either from the Common Reporting Format (CRF) files of the National Inventory Reports (NIR) reported to the UNFCCC or from statistics for an activity that was assumed to be a good proxy for that source, such as sectoral CO_2 emissions (IEA, 2012), fossil-fuel production (IEA, 2012), gas flaring of the U.S. National Oceanic and Atmospheric Administration (NOAA), production of steel, aluminium, cement, lime and ammonia of U.S. Geological Survey (USGS) or the World Steel Association (WSA), animal numbers, crop production and nitrogen fertiliser consumption of the Food and Agriculture Organisation (FAO), large-scale biomass burning of the GFED 3 dataset. The use of the NIR trends allowed to account for implemented control measures.

For small-scale sources, such as industrial process sources of methane and nitrous oxide from caprolactam production, linear extrapolation of the past trend from 2005 to 2008 was assumed.

The **EDGAR 4.3.0** dataset covers the entire period 1970-2012. CO_2 emissions data from this dataset were used for *Fugitives* and *Industrial Processes*. The methods, data sources and emission factors used for this new dataset are the same as for version 4.2, except that the activity data have been updated, and sometimes revised, through 2012.

Methods and data applied for all years (except 2009 and 2010 in FT2010) are summarised below. More details and full references on the EDGAR 4.2 FT2010 dataset can be found in Part III of last year's report[3].

Energy / Fugitives / Biofuel

The data sources for **fugitive CO_2 emissions** and **CH_4 and N_2O from energy** are listed below. Data for fossil fuel production and use for 138 countries were taken from the IEA energy statistics for OECD and Non-OECD countries 1970-2008. This dataset comprises 94 sectors and 64 fuel types. For the countries of the Former Soviet Union, Former Yugoslavia and former Czechoslovakia, a modified dataset was used to achieve a complete time series for the new countries from 1970 to 2008, the sum of which converges to the older dataset for the total Former Soviet Union, Czechoslovakia and Yugoslavia. For another 62 countries, the aggregated IEA data for the regions

2. See *http://edgar.jrc.ec.europa.eu/overview.php?v=42FT2010.*

3. For Part III of that report see: *http://www.pbl.nl/en/publications/co2-emissions-from-fuel-combustion-2014-edition.*

"Other America", "Other Africa" and "Other Asia" have been split using the sectoral IEA data per region together with total production and consumption figures per country of coal, gas and oil from energy statistics reported by the US Energy Information Administration (EIA).

Please note that the figures of CO_2 from fuel combustion provided by the IEA in this report differ somewhat from the EDGAR 4.2FT2010 and EDGAR 4.3.0 dataset, for the following reasons:

- IEA energy statistics used for 1970-2008/2012 may differ slightly due to revisions included in subsequent IEA releases. For EDGAR 4.2 FT2010 the releases of 2007 and 2010 were used for 1970-1999 and 2000-2008, respectively (IEA, 2007, 2010),
- For EDGAR 4.3 (covering 1970-2012) the IEA release in 2014 was used (IEA, 2014).

To estimate CH_4 emissions from fossil fuel production and transmission, hard coal and brown coal production data have been separated into surface and underground mining based on various national reports. For gas transport and distribution, pipeline length was used as activity data. Pipeline length and material statistics are taken from reports on Europe by Eurogas and Marcogaz, national reports (e.g. the United States and Canada), UNFCCC and supplemental data from CIA. Total amounts of natural gas flared (sometimes including gas vented) for most countries for 1994 onwards are primarily based on amounts of gas flared determined from the satellite observations of the intensity of flaring lights reported by NOAA. For other years before 1994 and for other countries emissions or emissions trends were supplemented by CO_2 trends from CDIAC, EIA and UNFCCC.

Biofuel data were also taken from IEA. However, to avoid incomplete time series for large sectors, solid biomass consumption in the residential and commercial sectors in non-OECD countries were replaced by fuelwood and charcoal consumption from FAO. Also, vegetal waste and dung used as fuel are based on other data sources. Charcoal production data were taken from IEA and supplemented or extrapolated using data from UN and FAO and include 49 more countries not included in the IEA dataset.

Methane emission factors for coal mining are based on average depths of coal production and include post mining emissions. Methane recovery from coal mining was included for twelve countries.

Emission factors for oil and gas production, transport and distribution from the *2006 IPCC guidelines* were supplemented with data from UNFCCC. The CH_4 emission factor for venting and flaring has been derived from country-specific data reported to UNFCCC with the average value used as global default, applied to all other countries. The CO_2 emission factor excludes the indirect emissions through gas venting.

For N_2O from gasoline cars in road transport, the fraction of cars equipped with different types of catalytic converters was taken into account (based on various references).

Industrial processes

Production data for the CO_2 sources cement, iron and steel, non-ferrous metals and various chemicals were based on UN Industrial Commodity Statistics. often supplemented for recent years by data from the US Geological Survey (USGS). The same method applied to paper, wine, beer and bread production. Data for other CO_2 sources such as production of lime, soda ash, ammonia, ferroalloys and non-ferrous metals were from USGS, supplemented by data reported to the UNFCCC. Data from the International Fertiliser Industry Association (IFA) was used for urea production (where it is assumed that the fossil carbon in CO_2 from ammonia production is stored) and FAO for production of pulp, meat and poultry. Iron and steel production was further split into technologies (basic oxygen furnace, open hearth, electric arc furnace) using data from the World Steel Association (WSA).

For the N_2O sources nitric acid, adipic acid and caprolactam, production data are based on UNFCCC and on smoothed and averaged data from SRI Consulting. For other industrial production for which no international statistics were available, such as silicon carbide and glyoxal, UNFCCC was used, though limited to Annex I countries.

However, for many countries interpolations and extrapolations were necessary to arrive at complete time series per country for 1970-2005/2008. Special attention had to be given to new EIT countries, in particular to Former Soviet Union and Former Yugoslavia countries, to maintain consistency with the older totals for the former countries.

Note that emissions of CO_2 from cement production are based on the Tier 1 emission factor for clinker production, whereas cement clinker production is calculated from cement production reported by the USGS and the implied clinker to cement ratio based on either clinker production data from UNFCCC reporting (Annex I countries) and the China Cement Almanac (for China) or ratios from the GNR database

from the Cement Sustainability Initiative (CSI) of the World Business Council for Sustainable Development (WBCSD). For adipic acid, abatement is only assumed from 1990 onwards if indicated in UNFCCC combined with activity data from SRI Consulting. For nitric acid in 1970, all old technology is assumed, changing their technology towards 1990 into high pressure plants in non-Annex I countries and a mix of low and medium pressure plants in Annex I countries that matches reported emissions in UNFCCC.

Global annual total production of HCFC-22 was taken from AFEAS and others and included captive production, but was modified using UNFCCC and other data sources. Primary aluminium production statistics per country from UN were combined with smelter types characterised by technology according to Aluminium Verlag and others. The default emission factor for HFC-23 from HCFC-22 manufacture was set for non-OECD countries at the IPCC default for old, unoptimised plants and for OECD countries at a somewhat lower and which decreased over time to reflect atmospheric concentrations. Country-specific fractions of emission abatement were estimated for six Annex II countries based on reported emissions in UNFCCC and UNEP Risø Centre for other countries. For aluminium production the CF_4 emission factors per technology were based on large-survey factors for 1990 to 2002 reported by the International Aluminium Institute (IAI), but with modifications for Söderberg technologies to comply with atmospheric concentration trends, and for C_2F_6 based on the ratio to CF_4 reported in the *2006 IPCC Guidelines* for default Tier 2 emission factors. The emission factors for the F-gases as by-product emissions were based *2006 IPCC guidelines*, but modified for HFC-23 to match global emissions to observations of atmospheric concentrations.

Global consumption of HFC-125, 134a (in three applications) and 143a was taken from AFEAS for HFC-152a, 227ea, 245fa, 32 and 365mfc from) and for HFC-23, 236fa and 43-10-mee from other sources. Global HFC consumption was distributed to countries according to their share in global CFC-12 or CFC-11 consumption and calibrated to reported regional totals). Global emission factors for HFC use were mostly derived from the emissions also reported by these data sources.

Global consumption data of PFCs (and SF_6) for semiconductor manufacture for Annex I countries in 1990 to 2005 were mainly based on UNFCCC and for other non-Annex I countries mainly based on their global share in semiconductor manufacture. PFC consumption for other PFC uses was based on data for PFC use in fire extinguishing and air-conditioning.

Global consumption of SF_6 per application was taken from Knopman and Smythe (2007). For SF_6 containing switchgear, equipment manufacture and utility stock estimates were adjusted using the method in Mais and Brenninkmeijer (1998) with the regional and per country distribution based on various references and for missing countries and years based on the trend in the increase of electricity consumption as a proxy for GIS stock additions. For primary magnesium production and diecasting global consumption was distributed using production statistics from USGS and the International Magnesium Association (IMA) and others for the number of diecasting companies per country.

Note that both the variables for distributing global total consumption per source category and the emission factors vary widely between different plants and countries. This implies that the estimated emissions of F-gases at country level should be considered as very uncertain (an order of magnitude).

Solvent and other product use

For N_2O from the use of anaesthesia and from aerosol spray cans, an amount per capita in 2000 was used for EIT and Annex II countries based on the average values in reported to the UNFCCC.

Agriculture

In general, the IPCC (2006) methodology and default emission factors for CO_2, CH_4 and N_2O from the *2006 IPCC Guidelines* were used, except for the instances specified below. Please note that N_2O emissions from agriculture as reported in EDGAR 4.2 FT2010 are substantially lower than those previously reported by most Annex I countries due to two markedly lower emission factors: 1) the default IPCC emission factor ("EF1") for direct soil emissions of N_2O from the use of synthetic fertilisers, manure used as fertiliser and from crop residues left in the field has been reduced by 20%; and 2) the default emission factor ("EF5") for indirect N_2O emissions from nitrogen leaching and run-off been reduced by 70% compared to the values recommended in the *1996 IPCC Guidelines* and the *IPCC Good Practice Guidance* (IPCC, 1997, 2000).

Livestock numbers were taken from FAO. For enteric fermentation by cattle, country-specific methane emission factors were calculated following the IPCC methodology (IPCC, 2006) using country-specific milk yield (dairy cattle) and carcass weight (other

cattle) trends from FAO (2007) to estimate the trends in the emission factors. For other animal types, regional emission factors from IPCC (2006) were used.

Livestock numbers were combined with estimates for animal waste generated per head to estimate the total amount of animal waste generated. Nitrogen excretion rates for cattle, pigs and chicken in Europe were based on the CAPRI model and for all other countries and animal types in IPCC (2006). The trend in carcass weight was used to determine the development in nitrogen excretion over time. The shares of different animal waste management systems were based on regional defaults provided in IPCC (2006) and regional trend estimates for diary and non-dairy cattle for the fractions stall-fed, extensive grazing and mixed systems from Bouwman *et al.* (2005). Methane emissions from manure management were estimated by applying default IPCC emission factors for each country and temperature zone. Livestock fractions of the countries were calculated for 19 annual mean temperature zones for cattle, swine and buffalo and three climates zones for other animals (cold, temperate, warm). N_2O emissions from manure management were based on distribution of manure management systems from Annex I countries reporting to the UNFCCC, Zhou *et al.* (2007) for China and IPCC (2006) for the rest of the countries.

The total area for rice cultivation was obtained from FAO which was split over different ecology types (rainfed, irrigated, deep water and upland) using data from the International Rice Research Institute (IRRI) The total harvested area of rice production in China was increased by 40%, due to recognition that official harvested rice area statistics for China largely underestimate the actual area. Methane emission factors were taken from IIASA (2007).

The same data as described above for manure management were used to estimate N_2O emissions from the use of animal waste as fertilizer by taking into account the loss of nitrogen that occurs from manure management systems before manure is applied to soils and additional nitrogen introduced by bedding material. N_2O emissions from fertilizer use and CO_2 from urea fertilization were estimated based on IFA and FAO statistics.

CO_2 emissions from liming of soils were estimated from Annex I country reports to the UNFCCC and on the use of ammonium fertilizers for other countries from FAO,as liming is needed to balance the acidity caused by ammonium fertilizers.

Areas of cultivated histosols were estimated by combining three different maps: the FAO climate map and soil map and the RIVM land use map. However, where available, areas reported by Annex I countries to the UNFCCC were used. Separate N_2O emission factors were applied for tropical and non-tropical regions (IPCC, 2006).

Nitrogen and dry-matter content of agricultural residues were estimated based on cultivation area and yield for 24 crop types from FAO (2007) and IPCC (2006) factors. The fractions of crop residues removed from and burned in the field were estimated using data of Yevich and Logan (2003) and UNFCCC National Inventory reports of 2008 for fractions burned in the field by Annex I countries.

Indirect N_2O emissions from leaching and runoff were estimated based on nitrogen input to agricultural soils as described above. Leaching and run-off was assumed to occur in other areas than non-irrigated dryland regions, which were identified based mainly on FAO. The fraction of nitrogen lost through leaching and runoff was based on a study of Van Drecht *et al.* (2003).

For savannah burning, estimates for areas burned are based on satellite measurements (see next section).

Large-scale biomass burning

For estimating the amounts of biomass burned in large-scale fires the three key parameters have to be multiplied: (a) area burned, (b) aboveground biomass density (fuel load) (kg/ha), and (c) fraction of aboveground biomass burned (combustion completeness). Country-specific data for large-scale biomass burning (total amount of dry matter burned, which were subdivided into tropical and non-tropical forest fires, savannah fires and grassland fires), have been taken from the gridded data of the *Global Fire Emissions Database* (GFED version 2 of Van der Werf et al., 2010) for the years 1997-2005. For years prior to 1997, the GFED v2.0 data were scaled back to 1970 using regional biomass burning trends from the RETRO dataset (Schultz et al., 2008). GFED data for agricultural areas were attributed to savannah and grassland fires. The GFED data on biomass burning were estimated using burned area time series for 2001-2005 derived from the MODIS satellite sensors in combination with the fuel load estimated by the satellite-driven Carnegie-Ames-Stanford-Approach (CASA) biogeochemical model that was adjusted to account for fires. The 1997–2000 period was included using fire counts from the VIRS/ATSR sensors. For

2006-2008 only the trend in the activity data from the GFED v3 model was used, since the new dataset is not consistent with the previous version. The non-CO_2 emission factors for large scale biomass burning were not taken from IPCC (2006), but updated values were used from Andreae (2011), including the carbon content of 0.47 kg C/kg dry matter. For greenhouse gas accounting purposes, net CO_2 emissions from savannah and grassland fires have been assumed to be zero (organic carbon in a short cycle). Note that there is a large uncertainty in the assumptions for the carbon contents and the fraction of carbon that is actually being burned and thus in the amount of burned carbon.

CO_2 emissions from large-scale biomass burning are only one component of emissions from forest fires. Roughly half of the aboveground biomass is not burned, but rather decomposes over time. This results in delayed decay emissions of approximately the same level of magnitude as the direct emissions from the fires but distributed over a period of 10 to 20 years (IPCC, 2006). Post-burn CO_2 emissions have been estimated from the same activity data as direct burning emissions by assuming that remaining aboveground biomass decays in the 15 years after the year the fire or deforestation occurred and a carbon content of 0.47 kg C/kg dry matter tropical forest from IPCC (2006).

For CO_2 emissions from drained peatlands the comprehensive dataset of Joosten (2009) was used, comprising of activity data and CO_2 emission factors per hectare of drained peatland.

In addition, enhanced N_2O emissions that occur after large-scale tropical biomass burning were calculated from the post-burn biomass dataset.

Waste handling

To estimate the amount of organic solid waste in landfills three key parameters have to been estimated: (a) Municipal Solid Waste (MSW) generated per year (kg/cap), (b) fraction of total solid waste that is landfilled, and (c) fraction of Degradable Organic Carbon (DOC) in the MSW (%). Total and urban population figures were taken from UN. The amounts of Municipal Solid Waste (MSW) generated are the primary statistics for emissions from landfills. For 70 countries, the *2006 IPCC Guidelines* provide country-specific data for 2000 of the amount of MSW generated per year per capita (urban capita in case of non-Annex I countries) and the fraction landfilled and incinerated. For 58 more countries, country-specific values for the MSW generation per capita were found in the literature. For the remaining 91 countries, the waste generation per capita in 2000 was estimated using an exponential fit of the IPCC (2006) country-specific data for 70 countries of MSW/cap for 2000 to GDP/cap. For Annex I countries trend data for MSW generation/cap are available for the period 1990-2005 reported to the UNFCCC. For other years and for other countries for which these data are not available, extrapolation from 2000 back and forward was done using the exponential fit mentioned above. Based on regional defaults for the composition of MSW, IPCC (2006) provides regional defaults for the fraction of Degradable Organic Carbon (DOC). For Annex I countries, country-specific data from UNFCCC were used (sometimes including a change over time) and for 94 Non-Annex I countries, country-specific MSW composition data were found, from which the average DOC value was calculated. However, note that in version 4.2 for a number of Annex I countries the DOC fraction was adjusted to better reflect the overall emission trends for landfills as reported to UNFCCC.

Calculation of methane emissions from landfills using the First Order Decay (FOD) model of IPCC (2006), the Methane Conversion Factor (MCF), requires the k-value and the Oxidation Factor (OX). The MCF is characterised by the type of landfill: managed aerobic or anaerobic, unmanaged deep or shallow. For the k-value, which is the methane generation rate (inversely proportional to the halflife value of the DOC), default regional MSW composition weighted k-values for four climate zones (tropical dry/wet and non-tropical dry/wet) were provided by IPCC (2006). For EDGAR 4.2 FT2010, country-specific values were calculated using the country-specific fractions of the population (urban population for non-Annex I countries) in each climate zone. The IPCC default values were used to estimate the Oxidation Factor. Finally, the amounts of methane recovered (and used or flared) to be subtracted from the gross methane emissions, were taken as reported by Annex I countries in UNFCCC and for 23 non-Annex I countries from CDM projects reported by the UNEP Risø Centre.

For domestic wastewater, total organics in wastewater (BOD_5) was estimated using regional default or country-specific default values for BOD_5 generation per capita per day provided by the *2006 IPCC Guidelines*. For industrial wastewater, total organically degradable material in wastewater from industry was calculated per type of industry from wastewater generation per ton of product and COD (chemical oxygen demand) in values of wastewater, using defaults from the *2006 IPCC Guidelines*. Production statistics for industry

types that produce most organics in wastewater are available from UN. To estimate methane emissions from domestic wastewater, additional information is required on the wastewater treatment systems, such as sewer systems (to wastewater treatment plants (WWTP) or to raw discharge), latrines by type, open pits and septic tanks. Regional or country-specific default fractions for 2000 were from *2006 IPCC Guidelines*. In addition, country-specific fractions of improved sanitation over time from Van Drecht *et al.* (2009) were used, based on the UN Water Supply and Sanitation (WSS) dataset and other national reports, and fractions reported by Doorn and Liles (1999). For industrial methane emissions, fractions of on-site treatment in WWTP, sewer with and without city-WWTP, and raw discharge were based on regional values reported by Doorn *et al.* (1997)..

To estimate N_2O emissions from wastewater, the activity data used is the total annual amount of nitrogen in the wastewater, which was calculated from annual protein consumption per capita reported by FAO.

Other waste sources are incineration, with activity data from UNFCCC and IPCC (2006) and extrapolations assuming a fixed ratio to landfilling, and composting (based on UNFCCC data and two other data sources).

Other sources

Indirect N_2O emissions from atmospheric deposition of nitrogen of NO_x and NH_3 emissions from non-agricultural sources, mainly fossil fuel combustion and large scale biomass burning, were estimated using nitrogen in NO_x and NH_3 emissions from these sources as activity data, based on EDGAR 4.2 FT2010 data for these gases. The same emission factor from the *2006 IPCC Guidelines* was used for indirect N_2O from atmospheric deposition of nitrogen from NH_3 and NO_x emissions as was used for agricultural emissions.

General Note

We note that EDGAR 4.2 FT2010 estimates for all sources have been made for all years. For more detailed data of the EDGAR 4.2 FT2010 dataset, including the complete period 1970-2010 and a few small corrections after the release of the dataset for some sources of F-gas emissions in 2010 (HFC-23 from HCFC manufacture and PFCs from solvent use and from PV cell manufacture) and estimates for more recent years we refer to the EDGAR version 4 website at *edgar.jrc.ec.europa.eu*. Here also the new dataset 4.3.0 covering 1970 to 2012 will be available and for CO_2 in Olivier et al. (2015).

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TOTAL GHG EMISSIONS

1990 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

	CO_2						CH_4					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
World [1]	**20 623.0**	**452.1**	**1 246.4**	**5 987.4**	**28 308.9**	**74.4%**	**2 074.6**	**3 185.8**	**1 068.8**	**270.2**	**6 599.4**	**31.4%**
Annex I Parties	*13 724.5*	*203.5*	*727.9*	*850.5*	*15 506.4*	*89.8%*	*1 043.2*	*842.9*	*555.6*	*30.5*	*2 472.3*	*42.2%*
Annex II Parties	*9 660.0*	*87.1*	*457.9*	*379.1*	*10 584.0*	*92.1%*	*442.3*	*542.1*	*444.2*	*14.6*	*1 443.3*	*30.6%*
North America	*5 221.5*	*31.4*	*164.4*	*136.0*	*5 553.3*	*94.6%*	*282.0*	*191.6*	*229.3*	*8.2*	*711.2*	*39.7%*
Europe	*3 107.9*	*45.8*	*192.4*	*183.3*	*3 529.4*	*89.4%*	*127.9*	*210.8*	*182.5*	*2.2*	*523.4*	*24.4%*
Asia Oceania	*1 330.6*	*9.9*	*101.1*	*59.7*	*1 501.3*	*89.3%*	*32.4*	*139.7*	*32.4*	*4.2*	*208.7*	*15.5%*
Annex I EIT	*3 931.1*	*112.2*	*252.9*	*470.1*	*4 766.2*	*84.8%*	*593.0*	*276.0*	*99.7*	*15.9*	*984.5*	*60.2%*
Non-Annex I Parties	*6 268.3*	*248.6*	*518.5*	*5 136.8*	*12 172.2*	*53.5%*	*1 031.4*	*2 342.9*	*513.2*	*239.7*	*4 127.2*	*25.0%*
Annex I Kyoto Parties	*8 269.8*	*167.6*	*542.1*	*669.1*	*9 648.7*	*87.4%*	*752.1*	*612.3*	*311.3*	*22.2*	*1 697.9*	*44.3%*
Int. marine bunkers	**371.5**	**-**	**-**	**-**	**371.5**	**100.0%**	**-**	**-**	**-**	**-**	**-**	**0.0%**
Int. aviation bunkers	**258.8**	**-**	**-**	**-**	**258.8**	**100.0%**	**-**	**-**	**-**	**-**	**-**	**0.0%**
Non-OECD Total	**8 987.0**	**331.8**	**687.2**	**5 520.6**	**15 526.7**	**60.0%**	**1 496.8**	**2 501.1**	**568.7**	**253.4**	**4 820.0**	**31.1%**
OECD Total	**11 005.8**	**120.3**	**559.2**	**466.7**	**12 152.0**	**91.6%**	**577.8**	**684.7**	**500.1**	**16.8**	**1 779.4**	**32.5%**
Canada	419.0	4.3	22.9	25.7	472.0	89.7%	32.2	18.9	22.1	2.9	76.1	42.4%
Chile	29.4	0.9	2.4	1.0	33.7	90.0%	3.0	5.8	3.0	0.2	12.0	25.1%
Mexico	259.5	2.6	24.2	39.1	325.4	80.6%	29.0	52.5	15.3	1.5	98.3	29.5%
United States	4 802.5	27.0	141.5	110.3	5 081.3	95.0%	249.8	172.7	207.2	5.4	635.1	39.3%
OECD Americas	**5 510.4**	**34.8**	**191.0**	**176.1**	**5 912.3**	**93.8%**	**314.1**	**249.9**	**247.5**	**10.0**	**821.5**	**38.2%**
Australia	259.6	5.9	9.9	25.9	301.2	88.1%	24.6	75.6	11.3	3.6	115.0	21.4%
Israel	32.8	-	2.2	0.3	35.3	92.9%	0.1	0.7	1.1	0.0	1.9	6.3%
Japan	1 049.3	4.1	89.9	28.7	1 171.9	89.9%	6.9	40.5	19.0	0.5	66.9	10.3%
Korea	231.7	13.8	21.6	0.4	267.6	91.8%	8.8	15.0	7.5	0.1	31.3	28.0%
New Zealand	21.7	0.0	1.4	5.1	28.2	77.1%	0.9	23.6	2.1	0.0	26.7	3.4%
OECD Asia Oceania	**1 595.1**	**23.8**	**125.0**	**60.4**	**1 804.3**	**89.7%**	**41.2**	**155.4**	**41.0**	**4.3**	**241.9**	**17.0%**
Austria	56.2	0.5	4.6	0.6	61.8	91.6%	2.0	5.0	3.0	0.1	10.0	20.3%
Belgium	106.2	1.3	7.0	0.8	115.3	93.2%	2.7	6.6	3.1	0.0	12.4	21.6%
Czech Republic	150.3	3.3	6.9	2.0	162.6	94.5%	6.4	8.9	2.7	0.2	18.2	35.3%
Denmark	51.0	0.2	1.0	3.7	55.9	91.6%	0.6	5.5	1.9	-	8.0	7.6%
Estonia	36.0	0.7	0.9	14.1	51.6	71.1%	1.2	1.7	0.5	-	3.4	35.0%
Finland	53.5	0.1	2.1	53.7	109.4	49.0%	0.8	2.6	6.7	0.0	10.1	7.6%
France	345.5	2.9	27.8	8.0	384.3	90.7%	20.3	40.7	14.6	0.1	75.7	26.8%
Germany	940.3	20.8	41.9	40.6	1 043.5	92.1%	36.8	41.8	36.6	0.2	115.4	31.8%
Greece	69.9	0.1	7.6	0.8	78.5	89.3%	1.6	3.7	2.3	0.1	7.7	20.6%
Hungary	65.7	0.4	4.2	1.1	71.4	92.6%	2.1	5.3	2.5	0.0	10.1	21.1%
Iceland	1.9	-	0.4	17.6	20.0	9.5%	0.0	0.2	0.1	0.0	0.3	2.0%
Ireland	30.1	0.1	1.6	10.9	42.7	70.8%	1.2	10.8	1.9	0.0	13.9	8.7%
Italy	389.3	3.8	28.2	3.1	424.4	92.6%	8.6	21.0	17.3	0.3	47.1	18.2%
Luxembourg	10.7	-	0.9	0.0	11.7	92.1%	0.1	0.8	0.1	0.0	1.0	10.1%
Netherlands	144.9	0.7	12.7	9.5	167.7	86.8%	6.3	11.6	12.2	0.1	30.1	20.8%
Norway	27.5	2.3	6.1	1.2	37.1	80.3%	6.1	2.2	5.8	0.1	14.1	43.0%
Poland	344.8	6.8	16.1	27.5	395.2	89.0%	74.8	22.8	9.9	0.1	107.6	69.5%
Portugal	37.9	0.2	4.6	0.3	43.0	88.5%	0.7	4.3	4.7	0.1	9.9	7.2%
Slovak Republic	54.8	0.4	4.8	0.4	60.5	91.3%	1.1	4.0	1.3	0.0	6.5	17.4%
Slovenia	13.5	0.0	1.4	0.4	15.3	88.4%	1.0	1.4	0.6	0.0	3.0	32.8%
Spain	202.6	2.4	19.6	2.0	226.6	90.5%	5.4	17.7	8.9	0.8	32.8	16.4%
Sweden	52.1	0.9	3.4	15.1	71.4	74.1%	1.1	3.4	7.0	0.0	11.5	9.6%
Switzerland	40.7	0.0	3.4	2.3	46.4	87.7%	1.1	3.7	1.0	0.1	5.9	18.8%
Turkey	127.1	4.2	16.6	1.4	149.3	88.0%	7.9	24.5	11.4	0.1	43.9	18.0%
United Kingdom	547.7	9.5	19.4	13.2	589.8	94.5%	32.7	29.1	55.4	0.1	117.3	27.8%
OECD Europe	**3 900.2**	**61.7**	**243.3**	**230.2**	**4 435.4**	**89.3%**	**222.5**	**279.3**	**211.6**	**2.6**	**716.0**	**31.1%**
European Union - 28	*4 023.8*	*56.6*	*244.8*	*221.3*	*4 546.5*	*89.7%*	*231.6*	*280.0*	*208.5*	*2.6*	*722.8*	*32.0%*
G7	*8 493.6*	*72.4*	*371.5*	*229.7*	*9 167.2*	*93.4%*	*387.2*	*364.8*	*372.2*	*9.5*	*1 133.7*	*34.2%*
G8	*10 656.8*	*136.6*	*509.7*	*584.7*	*11 887.9*	*90.8%*	*809.7*	*497.3*	*426.5*	*24.6*	*1 758.2*	*46.1%*
G20	*16 899.0*	*262.5*	*1 022.7*	*1 869.6*	*20 053.9*	*85.6%*	*1 558.6*	*2 093.2*	*856.9*	*94.2*	*4 602.9*	*33.9%*

1. Total World includes Non-OECD total, OECD total as well as international bunkers.

Sources: IEA, CO_2 emissions from fuel combustion. EDGAR 4.3.0 and 4.2 FT2010 databases for other emissions. In general, estimates for emissions other than CO_2 from fuel combustion are subject to significantly larger uncertainties.

1990 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

N_2O						HFCs	PFCs	SF_6	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP [1]	
235.4	**239.9**	**1 805.6**	**526.9**	**2 807.7**	**8.4%**	**75.8**	**115.6**	**114.1**	**38 021.7**	**61.5%**	**0.95**	**World**
147.4	*213.7*	*623.2*	*162.1*	*1 146.4*	*12.9%*	*61.5*	*86.7*	*83.9*	*19 357.3*	*78.1%*	*0.74*	*Annex I Parties*
115.3	*166.3*	*408.3*	*108.9*	*798.8*	*14.4%*	*56.5*	*65.3*	*76.9*	*13 024.7*	*79.1%*	*0.59*	*Annex II Parties*
76.0	*56.4*	*170.1*	*52.0*	*354.5*	*21.4%*	*29.6*	*29.4*	*46.2*	*6 724.2*	*83.4%*	*0.75*	*North America*
30.0	*98.7*	*168.2*	*37.7*	*334.6*	*9.0%*	*17.1*	*26.4*	*15.8*	*4 446.7*	*74.5%*	*0.48*	*Europe*
9.3	*11.2*	*70.0*	*19.3*	*109.7*	*8.4%*	*9.8*	*9.5*	*14.9*	*1 853.8*	*74.6%*	*0.49*	*Asia Oceania*
28.2	*47.2*	*192.4*	*50.5*	*318.3*	*8.8%*	*5.0*	*20.9*	*5.0*	*6 100.1*	*76.5%*	*1.71*	*Annex I EIT*
88.0	*26.2*	*1 182.3*	*364.8*	*1 661.3*	*5.3%*	*14.3*	*28.9*	*30.2*	*18 034.1*	*42.3%*	*1.30*	*Non-Annex I Parties*
66.5	*155.0*	*418.1*	*106.6*	*746.3*	*8.9%*	*31.9*	*56.8*	*35.7*	*12 217.2*	*75.8%*	*0.74*	*Annex I Kyoto Parties*
-	**-**	**-**	**-**	**-**	**0.0%**	**-**	**-**	**-**	**371.5**	**100.0%**	**..**	**Int. marine bunkers**
-	**-**	**-**	**-**	**-**	**0.0%**	**-**	**-**	**-**	**258.8**	**100.0%**	**..**	**Int. aviation bunkers**
105.6	**62.2**	**1 299.4**	**400.4**	**1 867.6**	**5.7%**	**15.9**	**46.5**	**29.8**	**22 306.4**	**49.0%**	**1.47**	**Non-OECD Total**
129.8	**177.8**	**506.1**	**126.5**	**940.1**	**13.8%**	**60.0**	**69.1**	**84.4**	**15 085.0**	**78.4%**	**0.61**	**OECD Total**
7.0	11.8	17.0	6.8	42.6	16.4%	0.4	8.6	4.0	603.7	76.6%	0.78	Canada
0.3	0.0	4.1	0.7	5.1	5.7%	-	0.0	0.0	50.8	66.2%	0.58	Chile
2.2	1.0	31.0	5.8	40.1	5.6%	1.6	0.5	0.9	466.8	62.8%	0.54	Mexico
69.0	44.6	153.1	45.1	311.9	22.1%	29.2	20.8	42.2	6 120.5	84.1%	0.74	United States
78.5	**57.5**	**205.2**	**58.5**	**399.7**	**19.7%**	**31.2**	**30.0**	**47.0**	**7 241.7**	**82.0%**	**0.73**	**OECD Americas**
2.7	0.8	50.4	9.2	63.1	4.2%	0.6	3.9	0.4	484.2	60.4%	1.13	Australia
0.1	0.3	0.7	0.4	1.5	9.1%	0.0	0.0	1.0	39.8	83.2%	0.46	Israel
6.3	10.3	9.7	9.8	36.2	17.5%	9.2	4.7	14.4	1 303.3	81.8%	0.40	Japan
1.6	1.1	4.9	2.2	9.8	16.1%	1.9	0.8	3.5	314.9	81.3%	0.67	Korea
0.3	-	9.9	0.3	10.5	2.4%	0.0	0.9	0.0	66.3	34.5%	1.02	New Zealand
11.0	**12.5**	**75.7**	**21.9**	**121.1**	**9.1%**	**11.7**	**10.3**	**19.3**	**2 208.5**	**75.7%**	**0.51**	**OECD Asia Oceania**
0.6	0.8	2.9	0.7	5.1	12.6%	0.0	1.0	0.4	78.4	75.7%	0.39	Austria
0.7	3.9	3.3	1.1	9.0	8.1%	0.0	0.0	0.1	136.9	81.0%	0.54	Belgium
1.9	1.3	5.2	1.3	9.7	19.8%	0.0	0.0	0.0	190.5	85.0%	1.07	Czech Republic
0.5	1.1	5.8	0.6	8.0	6.0%	0.0	0.0	0.1	72.0	72.7%	0.54	Denmark
0.5	-	1.2	0.2	1.9	24.9%	-	0.0	0.0	56.9	67.4%	3.48	Estonia
1.4	1.5	3.8	0.7	7.4	19.0%	0.0	0.0	0.1	127.0	43.9%	1.07	Finland
3.6	26.7	35.5	4.8	70.7	5.1%	4.7	1.6	3.2	540.2	68.9%	0.38	France
11.1	20.5	33.6	8.0	73.2	15.2%	2.6	4.4	5.6	1 244.7	81.1%	0.59	Germany
0.8	1.1	4.5	1.1	7.5	11.1%	0.5	1.7	0.1	96.0	75.5%	0.53	Greece
0.7	3.2	5.4	0.8	10.1	6.7%	0.0	0.7	0.0	92.3	74.7%	0.67	Hungary
0.0	0.0	0.3	0.0	0.4	6.1%	-	1.0	0.0	21.7	8.9%	3.23	Iceland
0.2	0.9	6.6	0.3	8.2	3.0%	0.0	0.0	0.0	64.8	48.9%	0.97	Ireland
2.4	7.2	15.6	5.2	30.3	7.8%	2.0	0.9	1.2	505.9	79.9%	0.36	Italy
0.0	-	0.3	0.1	0.4	12.4%	0.0	0.0	-	13.0	83.5%	0.79	Luxembourg
0.7	5.8	7.2	1.3	15.0	4.7%	2.8	3.1	0.3	219.0	69.6%	0.53	Netherlands
0.4	2.1	1.9	0.5	4.9	8.1%	-	6.3	2.3	64.7	56.0%	0.46	Norway
2.1	3.4	19.0	2.9	27.3	7.5%	0.0	0.4	0.1	530.7	80.7%	1.69	Poland
0.5	0.5	2.9	0.9	4.8	11.2%	0.0	0.0	0.1	57.7	68.1%	0.35	Portugal
1.1	1.0	2.9	0.4	5.5	20.2%	-	0.1	-	72.5	79.2%	1.13	Slovak Republic
0.1	-	1.0	0.2	1.3	9.5%	-	0.8	0.0	20.4	71.7%	0.61	Slovenia
1.9	3.0	15.5	4.5	24.9	7.6%	2.0	3.8	0.4	290.4	73.1%	0.37	Spain
1.0	0.8	4.0	0.9	6.7	15.1%	0.0	0.7	0.2	90.5	60.8%	0.41	Sweden
0.4	0.2	1.6	0.6	2.8	15.1%	0.0	0.3	0.6	56.1	75.4%	0.23	Switzerland
3.9	0.2	22.3	2.6	29.0	13.6%	-	0.5	2.0	224.7	63.7%	0.52	Turkey
3.5	22.6	22.8	6.4	55.3	6.3%	2.6	1.6	1.1	767.6	77.3%	0.54	United Kingdom
40.3	**107.8**	**225.2**	**46.1**	**419.4**	**9.6%**	**17.1**	**28.8**	**18.0**	**5 634.8**	**75.0%**	**0.54**	**OECD Europe**
37.9	*113.3*	*227.0*	*45.6*	*423.8*	*8.9%*	*17.1*	*23.5*	*13.1*	*5 746.9*	*75.7%*	*0.57*	*European Union - 28*
103.0	*143.7*	*287.3*	*86.1*	*620.0*	*16.6%*	*50.6*	*42.5*	*71.7*	*11 085.8*	*81.7%*	*0.59*	*G7*
117.9	*158.9*	*372.2*	*121.9*	*771.0*	*15.3%*	*55.6*	*58.4*	*76.6*	*14 607.7*	*80.2%*	*0.71*	*G8*
196.8	*214.9*	*1 181.2*	*303.0*	*1 895.9*	*10.4%*	*74.8*	*94.0*	*99.4*	*26 821.0*	*70.5%*	*0.82*	*G20*

1. GHG / GDP PPP ratio is expressed in kg of CO_2-equivalent per 2005 USD.

1990 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

	CO_2						CH_4					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Non-OECD Total	**8 987.0**	**331.8**	**687.2**	**5 520.6**	**15 526.7**	**60.0%**	**1 496.8**	**2 501.1**	**568.7**	**253.4**	**4 820.0**	**31.1%**
Albania	5.7	0.2	0.5	0.7	7.0	83.1%	0.8	1.6	0.2	0.0	2.5	31.0%
Armenia	19.8	-	0.7	0.4	20.9	95.1%	1.3	1.3	0.3	0.0	2.9	45.4%
Azerbaijan	53.5	0.0	0.8	0.3	54.6	98.0%	5.8	4.3	1.4	0.0	11.4	50.6%
Belarus	99.8	0.3	4.2	44.0	148.3	67.5%	1.1	14.3	3.3	0.0	18.7	6.1%
Bosnia-Herzegovina	24.0	-	0.4	0.4	24.8	96.7%	2.8	1.6	0.2	0.0	4.6	60.1%
Bulgaria	74.6	0.2	6.0	0.3	81.1	92.2%	1.3	5.5	8.8	0.1	15.7	8.4%
Croatia	20.7	0.2	3.8	0.1	24.7	84.4%	1.6	1.8	0.8	0.0	4.2	37.8%
Cyprus [1]	3.9	-	0.6	0.0	4.5	85.9%	0.0	0.2	0.2	-	0.4	3.3%
FYR of Macedonia	8.6	0.0	2.6	0.1	11.2	76.6%	0.3	1.1	0.2	0.1	1.7	18.7%
Georgia	33.5	0.0	0.8	0.4	34.7	96.5%	1.7	2.6	0.7	0.0	5.0	34.5%
Gibraltar	0.1	-	-	0.0	0.1	99.7%	0.0	-	0.0	-	0.0	12.0%
Kazakhstan	237.2	1.4	11.5	16.2	266.3	89.6%	33.7	25.6	3.2	6.8	69.2	48.6%
Kosovo [2]	..	..	..	..	..	..	..	..	..	..	..	..
Kyrgyzstan	22.8	0.0	0.7	0.7	24.1	94.4%	0.7	4.3	0.6	0.2	5.8	12.2%
Latvia	18.8	0.0	1.0	5.2	25.0	75.3%	1.6	3.2	0.6	0.0	5.5	30.0%
Lithuania	32.2	0.0	2.5	6.1	40.8	79.0%	1.6	4.9	1.1	0.0	7.6	21.3%
Malta	2.3	-	0.0	0.0	2.3	99.7%	0.0	0.1	0.1	-	0.2	1.6%
Republic of Moldova	30.5	-	1.2	0.2	31.9	95.6%	1.4	2.2	0.5	0.0	4.1	34.8%
Montenegro [2]	..	..	..	..	..	..	..	..	..	..	..	..
Romania	168.3	1.1	14.2	2.0	185.6	91.3%	18.1	15.7	3.6	0.0	37.4	48.3%
Russian Federation	2 163.2	64.2	138.2	355.0	2 720.7	81.9%	422.5	132.5	54.3	15.1	624.5	67.7%
Serbia [2]	62.0	0.9	2.9	0.6	66.4	94.8%	4.5	6.2	1.2	0.0	11.9	37.9%
Tajikistan	11.0	0.0	1.1	0.1	12.2	90.6%	0.8	2.9	0.6	0.0	4.3	18.4%
Turkmenistan	44.6	0.0	0.6	0.6	45.8	97.4%	26.4	2.8	0.6	0.0	29.8	88.5%
Ukraine	688.4	34.5	48.6	12.0	783.5	92.3%	58.4	54.1	9.5	0.2	122.3	47.8%
Uzbekistan	114.9	0.0	6.2	1.7	122.8	93.6%	17.1	13.2	2.6	0.0	32.9	52.0%
Non-OECD Europe and Eurasia	**3 940.4**	**103.1**	**249.1**	**446.7**	**4 739.3**	**85.3%**	**603.7**	**301.6**	**94.7**	**22.6**	**1 022.7**	**59.0%**
Algeria	51.2	12.7	3.6	0.2	67.6	94.4%	24.4	3.7	3.1	0.0	31.2	78.2%
Angola	3.9	7.2	0.1	7.4	18.7	59.6%	6.8	14.0	1.1	0.1	22.1	31.0%
Benin	0.3	0.0	0.1	37.9	38.3	0.7%	0.7	1.9	0.5	2.0	5.1	13.9%
Botswana	2.8	-	0.0	0.4	3.2	87.1%	0.4	5.5	0.2	0.1	6.1	6.1%
Cameroon	2.6	1.7	0.4	63.4	68.1	6.3%	3.3	7.7	1.6	3.4	16.0	20.7%
Congo	0.6	1.7	0.0	49.8	52.1	4.4%	1.8	2.4	0.3	2.7	7.2	25.3%
Côte d'Ivoire	2.7	0.0	0.2	129.5	132.5	2.0%	1.6	2.1	1.5	6.9	12.1	13.5%
Dem. Rep. of Congo	3.0	0.0	0.3	1 188.1	1 191.4	0.3%	3.6	26.8	4.0	63.9	98.3	3.7%
Egypt	77.8	3.0	8.4	1.1	90.4	89.5%	10.4	10.5	6.0	0.0	26.9	38.7%
Eritrea	-	-	0.0	0.0	0.0	0.0%	0.3	1.5	0.3	-	2.1	15.0%
Ethiopia	2.2	-	0.1	0.4	2.7	79.6%	3.2	32.6	4.2	-	40.0	8.1%
Gabon	0.9	5.2	0.0	4.1	10.3	59.5%	3.0	0.1	0.2	0.2	3.5	86.2%
Ghana	2.5	-	0.6	12.7	15.8	16.0%	1.8	3.7	1.7	0.7	7.9	22.5%
Kenya	5.5	-	0.8	2.1	8.4	65.5%	4.9	13.4	2.1	-	20.3	23.9%
Libya	25.8	8.4	2.4	0.1	36.8	93.0%	14.8	1.1	0.8	0.0	16.7	88.7%
Mauritius	1.2	-	0.0	0.0	1.2	99.3%	0.0	0.0	0.2	-	0.2	5.6%
Morocco	19.6	-	4.6	0.3	24.5	80.0%	1.0	5.4	2.9	-	9.2	10.4%
Mozambique	1.1	-	0.0	17.4	18.5	5.9%	1.7	7.7	1.5	0.9	11.8	14.6%
Namibia	-	-	0.0	0.0	0.0	0.0%	0.1	3.3	0.1	-	3.6	2.2%
Niger [3]	..	-	0.0	..	..	..	..	..	..	..	..	..
Nigeria	28.1	43.8	1.9	9.4	83.2	86.4%	33.8	22.0	8.8	0.4	65.1	51.9%
Senegal	2.1	-	0.2	0.1	2.4	89.3%	1.0	3.7	1.0	-	5.6	17.4%
South Africa	243.8	14.4	9.6	2.6	270.5	95.5%	23.6	19.1	8.4	2.2	53.4	44.3%
South Sudan [4]	..	..	..	..	..	..	..	..	..	..	..	..
Sudan [4]	5.3	-	0.1	4.0	9.4	56.2%	5.1	39.1	2.9	-	47.1	10.9%
United Rep. of Tanzania	1.7	-	0.3	44.9	46.9	3.6%	2.4	19.8	2.3	2.4	26.9	8.9%
Togo	0.6	-	0.2	7.4	8.1	7.1%	0.8	1.5	0.4	0.4	3.1	24.9%
Tunisia	12.2	0.0	2.4	0.1	14.7	83.2%	1.2	1.8	1.0	0.0	4.1	30.5%
Zambia	2.6	-	0.4	142.6	145.5	1.8%	1.7	19.2	0.8	7.5	29.1	5.7%
Zimbabwe	16.2	-	0.9	0.8	17.9	90.6%	1.2	8.1	0.9	0.0	10.3	11.4%
Other Africa [3]	12.6	-	0.4	268.1	281.2	4.5%	14.9	104.9	11.0	13.2	144.1	10.4%
Africa	**529.0**	**98.1**	**38.2**	**1 995.1**	**2 660.3**	**23.6%**	**169.7**	**382.6**	**69.8**	**107.0**	**729.1**	**23.3%**

1. Please refer to Part I, Chapter 4, *Geographical Coverage*.
2. For 1990, Serbia includes Kosovo and Montenegro.
3. For 1990, Other Africa includes all emissions for Niger, other than CO_2 from fugitive sources and CO_2 from industrial processes.
4. Prior to 2012, data for South Sudan are included in Sudan.

1990 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

N_2O						HFCs	PFCs	SF_6	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP [1]	
105.6	**62.2**	**1 299.4**	**400.4**	**1 867.6**	**5.7%**	**15.9**	**46.5**	**29.8**	**22 306.4**	**49.0%**	**1.47**	**Non-OECD Total**
0.0	-	1.1	0.2	1.3	3.0%	-	-	-	10.9	61.5%	0.84	Albania
0.0	-	0.6	0.2	0.8	4.6%	-	-	-	24.6	86.3%	2.08	Armenia
0.1	-	2.1	0.4	2.7	3.3%	-	0.2	-	68.9	86.2%	1.27	Azerbaijan
0.9	2.1	12.5	0.9	16.4	5.2%	-	0.0	-	183.4	55.7%	2.50	Belarus
0.9	-	0.9	0.2	2.0	43.8%	-	0.6	-	32.0	86.2%	3.28	Bosnia-Herzegovina
0.6	2.3	5.7	0.8	9.4	6.6%	-	0.0	-	106.2	72.2%	1.62	Bulgaria
0.4	0.9	2.2	0.3	3.8	9.7%	-	0.9	-	33.5	68.0%	0.50	Croatia
0.0	-	0.2	0.0	0.2	6.6%	-	-	-	5.2	75.3%	0.50	Cyprus
0.1	-	0.6	0.1	0.9	14.6%	-	-	-	13.8	65.7%	0.85	FYR of Macedonia
0.1	0.8	1.6	0.3	2.8	3.4%	-	-	-	42.5	83.1%	1.24	Georgia
0.0	-	-	0.0	0.0	21.3%	-	-	-	0.2	94.4%	0.26	Gibraltar
3.6	-	18.3	11.6	33.5	10.7%	-	-	-	369.0	74.8%	1.99	Kazakhstan
..	..	..	..	..	..	..	..	..	..	..	..	Kosovo
0.8	-	2.2	0.6	3.6	21.4%	-	-	-	33.5	72.3%	2.47	Kyrgyzstan
0.2	-	2.5	0.3	3.0	7.3%	0.0	0.0	-	33.5	61.8%	1.24	Latvia
0.3	0.8	3.9	0.4	5.3	5.6%	0.0	0.0	-	53.7	63.6%	1.16	Lithuania
0.0	-	0.0	0.0	0.1	12.0%	-	-	-	2.6	90.2%	0.53	Malta
0.1	-	1.4	0.3	1.7	4.9%	-	-	-	37.7	84.9%	1.79	Republic of Moldova
..	..	..	..	..	..	..	..	..	..	..	..	Montenegro
0.9	4.1	13.4	1.5	19.8	4.3%	-	2.0	0.0	244.8	76.9%	1.35	Romania
15.0	15.2	84.9	35.9	150.9	9.9%	5.0	15.9	4.9	3 521.9	75.7%	1.88	Russian Federation
0.4	0.7	3.3	0.6	4.9	8.8%	0.0	0.8	-	84.0	80.8%	0.95	Serbia
0.0	-	1.2	0.2	1.4	2.3%	-	2.8	-	20.6	57.3%	1.20	Tajikistan
0.1	0.1	1.8	0.2	2.2	3.5%	-	-	-	77.9	91.3%	2.86	Turkmenistan
3.6	13.0	32.6	4.7	53.9	6.7%	0.0	0.2	-	959.9	81.8%	1.98	Ukraine
0.2	0.2	7.8	1.0	9.2	2.0%	-	-	-	164.9	80.2%	2.97	Uzbekistan
28.3	**40.1**	**200.7**	**60.7**	**329.8**	**8.6%**	**5.0**	**23.4**	**4.9**	**6 125.1**	**76.3%**	**1.81**	**Non-OECD Europe and Eurasia**
0.3	0.4	2.5	0.7	3.9	7.9%	-	-	0.3	103.0	86.0%	0.44	Algeria
0.1	-	15.7	2.0	17.7	0.7%	-	-	-	58.5	31.0%	1.50	Angola
0.1	-	1.8	1.8	3.7	2.5%	-	-	-	47.2	2.2%	7.78	Benin
0.0	-	4.9	0.5	5.4	0.6%	-	-	-	14.7	21.8%	1.47	Botswana
0.2	-	7.0	3.3	10.5	1.5%	-	0.9	-	95.5	8.1%	3.21	Cameroon
0.0	-	2.1	2.3	4.4	0.9%	-	-	-	63.7	6.6%	5.70	Congo
0.2	-	1.7	5.8	7.6	2.3%	-	-	-	152.2	3.0%	4.36	Côte d'Ivoire
0.7	-	31.4	55.1	87.2	0.8%	-	-	-	1 376.9	0.5%	32.22	Dem. Rep. of Congo
0.5	1.4	8.4	1.6	11.9	4.2%	-	1.3	0.8	131.3	69.9%	0.43	Egypt
0.0	-	1.0	0.0	1.0	3.0%	-	-	-	3.1	10.9%	..	Eritrea
0.7	-	23.1	1.5	25.3	2.6%	-	-	-	68.0	8.9%	2.44	Ethiopia
0.0	-	0.1	0.2	0.3	8.7%	-	-	-	14.1	65.0%	0.87	Gabon
0.3	-	3.8	1.1	5.1	5.0%	-	0.6	-	29.5	15.5%	1.20	Ghana
0.4	-	8.5	0.4	9.3	4.5%	-	-	-	38.0	28.4%	0.77	Kenya
0.1	-	0.8	0.3	1.2	11.6%	-	-	0.3	55.0	89.4%	0.85	Libya
0.0	-	0.1	0.0	0.1	4.4%	-	-	-	1.5	77.5%	0.21	Mauritius
0.2	-	4.4	0.6	5.2	3.5%	-	-	-	38.9	53.4%	0.45	Morocco
0.3	-	8.5	1.8	10.6	2.4%	-	-	-	40.9	7.5%	7.34	Mozambique
0.1	-	2.4	0.1	2.5	2.1%	-	-	-	6.2	2.1%	..	Namibia
..	..	..	..	..	..	..	..	..	..	..	..	Niger
1.2	-	15.5	2.3	19.0	6.1%	-	-	0.2	167.6	63.8%	0.65	Nigeria
0.1	-	2.6	0.3	2.9	3.5%	-	-	-	11.0	29.3%	0.88	Senegal
2.0	1.0	13.5	5.1	21.5	9.2%	0.0	0.4	1.1	346.9	81.8%	1.07	South Africa
..	..	..	..	..	..	..	..	..	..	..	..	South Sudan
0.4	-	32.7	2.9	36.0	1.1%	-	-	-	92.5	11.7%	2.17	Sudan
0.4	-	17.3	3.5	21.1	1.7%	-	-	-	94.9	4.6%	2.95	United Rep. of Tanzania
0.1	-	1.6	0.5	2.2	3.8%	-	-	-	13.4	10.6%	2.94	Togo
0.1	0.4	1.2	0.2	2.0	7.0%	-	-	-	20.7	65.6%	0.52	Tunisia
0.2	0.5	25.8	8.6	35.0	0.5%	-	-	-	209.6	2.1%	12.47	Zambia
0.2	-	6.0	0.5	6.8	3.6%	-	-	-	34.9	50.5%	7.28	Zimbabwe
1.9	-	86.2	19.0	107.1	1.8%	-	-	-	532.3	5.5%	4.56	Other Africa
10.7	**3.7**	**330.3**	**122.0**	**466.7**	**2.3%**	**0.0**	**3.2**	**2.7**	**3 862.0**	**20.9%**	**2.09**	**Africa**

1. GHG / GDP PPP ratio is expressed in kg of CO_2-equivalent per 2005 USD. The high GHG / GDP PPP ratio for DR of Congo and Zambia is due to high levels of forest fires and subsequent post-burn decay.

1990 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

	CO_2						CH_4					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Bangladesh	11.4	0.0	0.6	10.4	22.4	50.9%	5.8	69.4	11.6	0.4	87.1	6.6%
Brunei Darussalam	3.3	0.0	0.0	10.7	14.1	23.4%	3.0	0.0	0.1	0.5	3.6	83.5%
Cambodia	-	-	-	0.0	0.0	0.0%	1.0	13.2	0.8	-	15.1	6.9%
DPR of Korea	116.8	2.9	9.7	694.2	823.6	14.5%	12.4	5.6	2.7	1.0	21.6	57.1%
India	534.1	6.9	34.3	0.8	576.1	93.9%	67.2	366.9	77.0	2.5	513.6	13.1%
Indonesia	133.9	11.2	10.7	52.0	207.9	69.8%	37.4	82.0	26.2	6.6	152.2	24.6%
Malaysia	49.2	1.7	3.7	3.1	57.6	88.3%	9.1	6.9	3.0	4.6	23.6	38.4%
Mongolia	12.9	-	0.3	106.7	119.8	10.7%	0.6	6.4	0.2	1.1	8.3	7.7%
Myanmar	3.9	0.0	0.3	30.5	34.8	11.3%	3.1	39.0	4.5	37.4	84.0	3.7%
Nepal	0.9	-	0.1	742.9	743.9	0.1%	1.3	17.3	1.7	0.0	20.3	6.4%
Pakistan	56.0	0.6	5.0	0.2	61.7	91.6%	15.4	64.6	10.8	0.0	90.8	16.9%
Philippines	38.0	0.0	3.3	0.4	41.7	91.1%	3.7	28.6	9.0	0.2	41.6	8.9%
Singapore	29.0	-	2.2	5.1	36.3	79.9%	0.4	0.1	0.5	0.0	1.0	41.2%
Sri Lanka	3.7	-	0.3	0.3	4.3	86.5%	0.6	8.6	2.3	0.0	11.5	5.1%
Chinese Taipei	111.1	0.8	12.1	1.0	125.1	89.5%	1.0	1.4	3.9	0.0	6.3	16.2%
Thailand	80.9	0.0	10.9	13.2	104.9	77.1%	14.5	61.3	8.6	0.5	85.0	17.1%
Viet Nam	17.4	0.0	2.0	6.1	25.5	68.1%	6.6	46.8	7.0	0.0	60.5	10.9%
Other Asia	10.3	0.0	0.2	40.3	50.9	20.4%	2.3	15.9	3.3	1.6	23.1	9.9%
Asia (excl. China)	**1 212.7**	**24.2**	**95.8**	**1 718.0**	**3 050.6**	**40.5%**	**185.4**	**833.9**	**173.3**	**56.6**	**1 249.1**	**14.8%**
People's Rep. of China	2 183.6	28.9	218.0	83.4	2 513.9	88.0%	353.5	523.3	135.7	4.4	1 016.9	34.8%
Hong Kong, China	33.3	1.0	0.9	0.1	35.3	97.3%	0.1	-	1.4	-	1.5	6.0%
China	**2 216.9**	**29.9**	**218.9**	**83.5**	**2 549.2**	**88.1%**	**353.6**	**523.3**	**137.2**	**4.4**	**1 018.5**	**34.7%**
Argentina	99.4	4.1	2.8	17.3	123.7	83.7%	13.6	78.2	7.1	3.0	102.0	13.4%
Bolivia	5.2	1.1	0.2	149.1	155.6	4.0%	2.8	11.4	0.9	7.3	22.4	12.4%
Brazil	184.3	5.1	24.9	905.2	1 119.4	16.9%	25.0	209.5	41.4	43.7	319.6	7.8%
Colombia	45.8	1.9	4.1	52.0	103.8	46.0%	6.9	36.1	4.7	2.5	50.2	13.7%
Costa Rica	2.6	-	0.2	0.1	2.9	88.8%	0.2	3.2	0.4	-	3.8	4.5%
Cuba	34.1	0.0	2.1	4.5	40.6	83.9%	1.3	8.2	2.6	0.1	12.1	10.4%
Curaçao	2.7	-	-	0.0	2.7	98.2%	0.1	0.0	0.0	-	0.1	56.6%
Dominican Republic	7.4	-	0.5	0.6	8.5	87.0%	0.5	4.2	1.2	0.0	6.0	8.2%
Ecuador	13.3	3.4	0.7	1.0	18.4	90.7%	2.4	7.3	1.3	0.0	11.0	22.0%
El Salvador	2.1	-	0.3	0.3	2.7	79.3%	0.3	1.6	0.7	-	2.7	12.2%
Guatemala	3.2	0.0	0.5	3.8	7.5	42.7%	0.8	2.9	1.0	0.2	4.8	16.1%
Haiti	0.9	-	0.2	0.0	1.1	82.0%	0.7	1.7	0.9	-	3.3	22.2%
Honduras	2.2	-	0.1	5.0	7.3	29.7%	0.3	2.9	0.5	0.2	4.0	8.8%
Jamaica	7.2	-	0.3	0.1	7.6	95.5%	0.2	0.6	0.4	-	1.2	18.8%
Nicaragua	1.8	-	0.1	0.4	2.3	79.6%	0.3	3.8	0.7	-	4.8	5.9%
Panama	2.6	-	0.1	0.4	3.1	82.2%	0.1	2.3	0.4	-	2.8	4.7%
Paraguay	1.9	-	0.2	37.2	39.3	4.9%	0.8	12.0	0.7	2.0	15.5	5.3%
Peru	19.1	0.2	1.2	19.4	40.0	48.5%	1.7	7.9	3.0	0.9	13.6	12.4%
Trinidad and Tobago	7.9	0.6	3.3	0.0	11.9	71.7%	2.4	0.1	0.6	0.0	3.0	77.9%
Uruguay	3.6	0.0	0.2	0.4	4.3	85.0%	0.1	15.0	0.7	-	15.8	0.7%
Venezuela	93.6	2.1	5.5	39.8	141.0	67.9%	18.8	19.4	4.0	1.8	43.9	42.7%
Other Non-OECD Americas	12.4	0.0	1.0	22.1	35.5	34.8%	0.2	2.6	1.8	0.8	5.4	4.0%
Non-OECD Americas	**553.2**	**18.6**	**48.5**	**1 259.0**	**1 879.3**	**30.4%**	**79.5**	**430.9**	**75.0**	**62.6**	**648.0**	**12.3%**
Bahrain	10.7	0.0	0.9	0.1	11.7	91.6%	1.6	0.0	0.1	0.0	1.8	90.0%
Islamic Rep. of Iran	171.2	23.4	8.5	0.7	203.9	95.4%	31.1	17.7	7.9	0.0	56.7	54.8%
Iraq	51.4	9.4	6.9	3.1	70.7	85.8%	15.2	3.3	2.9	0.0	21.4	71.0%
Jordan	9.3	-	0.9	0.0	10.2	91.3%	0.1	0.3	0.4	-	0.9	13.7%
Kuwait	27.8	2.8	1.5	0.0	32.2	95.1%	4.7	0.1	0.6	0.0	5.3	88.4%
Lebanon	5.5	-	0.5	0.0	6.0	92.2%	0.1	0.2	0.4	-	0.7	11.7%
Oman	10.2	5.3	0.0	14.0	29.5	52.5%	5.6	0.3	0.2	-	6.2	91.0%
Qatar	12.4	2.6	1.5	0.0	16.6	90.8%	4.1	0.1	0.2	0.0	4.4	93.0%
Saudi Arabia	151.1	8.1	12.0	0.2	171.4	92.9%	24.7	1.8	3.0	0.1	29.7	83.3%
Syrian Arab Republic	27.2	3.7	1.6	0.1	32.5	95.0%	4.5	2.6	1.3	0.0	8.4	53.4%
United Arab Emirates	51.9	2.5	2.0	0.1	56.4	96.4%	12.7	0.3	0.4	-	13.4	95.0%
Yemen	6.3	0.0	0.5	0.0	6.9	92.0%	0.7	2.2	1.0	-	3.9	17.0%
Middle East	**534.9**	**57.9**	**36.8**	**18.4**	**648.0**	**91.5%**	**105.0**	**28.8**	**18.7**	**0.1**	**152.6**	**68.8%**

1990 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

N_2O						HFCs	PFCs	SF_6	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP [1]	
1.3	-	12.2	1.7	15.2	8.4%	-	-	-	124.7	14.8%	1.05	Bangladesh
0.0	-	0.1	0.5	0.6	1.0%	-	-	-	18.2	34.5%	1.03	Brunei Darussalam
0.2	-	3.3	0.4	3.9	5.4%	-	-	-	19.0	6.6%	..	Cambodia
0.6	-	5.6	2.6	8.7	6.9%	0.0	-	-	854.0	15.5%	5.77	DPR of Korea
18.4	1.1	121.1	18.7	159.5	11.6%	1.7	2.1	5.8	1 258.7	49.8%	0.92	India
3.7	0.1	54.9	30.2	88.9	4.2%	-	0.7	1.1	450.8	41.3%	0.66	Indonesia
0.3	-	8.2	5.1	13.6	1.9%	0.0	0.0	0.6	95.4	63.1%	0.58	Malaysia
0.1	-	3.3	1.8	5.2	1.8%	-	-	-	133.3	10.2%	15.93	Mongolia
0.4	-	8.4	35.4	44.2	0.9%	-	-	-	163.0	4.6%	10.84	Myanmar
0.5	-	2.8	0.3	3.6	13.7%	-	-	-	767.7	0.3%	38.39	Nepal
2.1	0.6	13.7	2.0	18.4	11.6%	-	-	1.0	171.9	43.1%	0.59	Pakistan
1.0	-	7.1	1.6	9.7	9.9%	-	-	0.2	93.1	45.8%	0.42	Philippines
0.1	-	0.1	0.3	0.4	16.8%	0.0	0.1	0.4	38.1	77.2%	0.41	Singapore
0.2	-	1.2	0.3	1.8	14.0%	-	-	-	17.5	25.8%	0.35	Sri Lanka
0.4	0.5	2.4	0.7	4.0	10.3%	0.0	0.1	1.9	137.4	82.5%	0.49	Chinese Taipei
2.8	-	14.4	2.3	19.5	14.6%	-	-	1.4	210.8	46.6%	0.66	Thailand
0.9	-	9.5	1.2	11.6	7.4%	-	-	-	97.6	25.4%	1.11	Viet Nam
0.4	-	10.3	2.3	13.0	3.2%	-	-	-	87.0	15.0%	1.47	Other Asia
33.4	**2.4**	**278.5**	**107.3**	**421.6**	**7.9%**	**1.7**	**3.0**	**12.3**	**4 738.4**	**30.7%**	**1.20**	**Asia (excl. China)**
21.3	10.1	253.4	33.6	318.4	6.7%	6.0	4.7	1.7	3 861.6	67.0%	2.57	People's Rep. of China
0.1	-	-	0.2	0.4	37.2%	-	-	0.4	37.6	92.0%	0.27	Hong Kong, China
21.4	**10.1**	**253.4**	**33.9**	**318.8**	**6.7%**	**6.0**	**4.7**	**2.1**	**3 899.2**	**67.2%**	**2.38**	**China**
0.9	0.1	32.4	5.1	38.5	2.4%	0.2	1.9	0.1	266.5	44.3%	1.09	Argentina
0.1	-	7.5	7.0	14.6	0.6%	-	-	-	192.7	4.7%	8.52	Bolivia
4.1	4.1	102.5	45.0	155.8	2.7%	1.9	5.0	1.5	1 603.2	13.6%	1.20	Brazil
0.6	0.2	16.3	3.1	20.2	3.1%	-	0.0	0.0	174.3	31.7%	0.76	Colombia
0.1	0.1	1.5	0.1	1.8	2.8%	-	-	-	8.5	33.1%	0.42	Costa Rica
0.8	0.7	7.3	0.9	9.6	8.1%	-	-	-	62.3	58.0%	0.83	Cuba
0.0	-	0.0	0.1	0.1	9.9%	-	-	-	2.9	93.8%	1.90	Curaçao
0.1	-	1.7	0.3	2.1	4.8%	-	-	-	16.6	48.0%	0.49	Dominican Republic
0.2	-	2.7	0.3	3.2	4.9%	-	-	-	32.6	59.1%	0.48	Ecuador
0.1	-	1.1	0.2	1.3	6.1%	-	-	-	6.6	37.8%	0.31	El Salvador
0.2	-	1.9	0.4	2.5	7.2%	0.0	-	-	14.8	28.1%	0.35	Guatemala
0.1	-	0.8	0.1	0.9	6.2%	-	-	-	5.4	32.2%	0.41	Haiti
0.1	-	2.0	0.4	2.4	3.6%	-	-	-	13.7	19.0%	0.98	Honduras
0.1	-	0.3	0.1	0.5	12.8%	-	-	-	9.3	81.0%	0.58	Jamaica
0.1	-	2.8	0.2	3.1	2.4%	-	-	-	10.2	21.5%	0.90	Nicaragua
0.0	-	0.9	0.1	1.0	3.5%	-	-	-	6.9	39.5%	0.42	Panama
0.1	-	6.6	2.3	9.0	1.6%	-	-	-	63.8	4.5%	2.82	Paraguay
0.2	0.2	3.9	1.2	5.6	4.1%	-	-	-	59.1	36.0%	0.58	Peru
0.0	-	0.1	0.1	0.2	10.9%	-	-	-	15.1	72.0%	1.03	Trinidad and Tobago
0.1	-	5.9	0.1	6.1	1.5%	-	-	-	26.1	14.7%	0.98	Uruguay
0.4	0.0	9.2	2.5	12.0	3.0%	1.0	1.9	0.3	200.2	57.3%	0.78	Venezuela
0.1	-	2.5	1.0	3.6	2.6%	-	0.3	0.0	44.8	28.3%	1.50	Other Non-OECD Americas
8.4	**5.4**	**209.9**	**70.4**	**294.0**	**2.8%**	**3.1**	**9.1**	**2.0**	**2 835.5**	**23.3%**	**1.09**	**Non-OECD Americas**
0.0	-	0.0	0.0	0.1	19.5%	-	2.5	-	16.1	76.7%	1.03	Bahrain
2.0	0.3	14.5	2.1	18.8	10.5%	-	0.2	2.4	281.9	80.7%	0.65	Islamic Rep. of Iran
0.2	-	3.0	0.5	3.8	6.4%	-	-	0.3	96.2	79.2%	0.32	Iraq
0.0	-	0.3	0.1	0.5	6.7%	-	-	-	11.5	82.1%	0.58	Jordan
0.1	-	0.0	0.2	0.3	25.3%	0.0	-	0.3	38.1	93.0%	0.41	Kuwait
0.0	-	0.2	0.1	0.4	8.8%	-	-	-	7.0	79.9%	0.38	Lebanon
0.0	-	0.2	0.1	0.3	14.6%	-	-	-	36.0	58.7%	0.64	Oman
0.0	-	0.0	0.1	0.1	20.9%	-	-	-	21.1	90.8%	0.68	Qatar
0.6	-	3.1	1.8	5.5	10.0%	0.0	-	2.4	209.0	88.2%	0.41	Saudi Arabia
0.2	0.2	3.2	0.5	4.1	5.1%	-	-	-	45.0	79.1%	1.23	Syrian Arab Republic
0.1	-	0.2	0.4	0.7	18.5%	-	0.4	0.5	71.4	94.2%	0.39	United Arab Emirates
0.1	-	1.8	0.2	2.1	2.8%	-	-	-	12.9	54.8%	0.36	Yemen
3.4	**0.5**	**26.6**	**6.1**	**36.7**	**9.2%**	**0.0**	**3.1**	**5.8**	**846.2**	**82.9%**	**0.49**	**Middle East**

1. GHG / GDP PPP ratio is expressed in kg of CO_2-equivalent per 2005 USD. The high GHG / GDP PPP ratio for Mongolia is due to high levels of peat decay.

2000 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

	CO_2						CH_4					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
World [1]	**23 321.6**	**528.8**	**1 515.9**	**5 300.8**	**30 667.1**	**77.8%**	**2 136.7**	**3 007.8**	**1 144.1**	**176.0**	**6 464.6**	**33.1%**
Annex I Parties	*13 559.6*	*210.4*	*669.2*	*836.6*	*15 275.7*	*90.1%*	*913.4*	*686.2*	*457.2*	*37.0*	*2 093.8*	*43.6%*
Annex II Parties	*10 836.5*	*60.7*	*491.5*	*351.5*	*11 740.1*	*92.8%*	*432.8*	*536.1*	*334.4*	*15.1*	*1 318.5*	*32.8%*
North America	*6 158.5*	*28.7*	*197.3*	*106.4*	*6 490.9*	*95.3%*	*279.1*	*208.5*	*160.0*	*6.5*	*654.1*	*42.7%*
Europe	*3 157.7*	*26.0*	*193.6*	*168.0*	*3 545.2*	*89.8%*	*116.8*	*193.7*	*150.3*	*1.8*	*462.6*	*25.2%*
Asia Oceania	*1 520.3*	*6.1*	*100.6*	*77.1*	*1 704.0*	*89.6%*	*36.9*	*133.9*	*24.1*	*6.8*	*201.8*	*18.3%*
Annex I EIT	*2 513.4*	*147.1*	*155.1*	*483.9*	*3 299.6*	*80.6%*	*471.2*	*127.3*	*97.8*	*21.9*	*718.2*	*65.6%*
Non-Annex I Parties	*8 908.3*	*318.4*	*846.7*	*4 464.3*	*14 537.7*	*63.5%*	*1 223.3*	*2 321.6*	*686.9*	*139.0*	*4 370.8*	*28.0%*
Annex I Kyoto Parties	*7 139.3*	*179.0*	*446.4*	*685.9*	*8 450.5*	*86.6%*	*624.0*	*446.6*	*268.2*	*30.5*	*1 369.2*	*45.6%*
Int. marine bunkers	**498.7**	**-**	**-**	**-**	**498.7**	**100.0%**	**-**	**-**	**-**	**-**	**-**	**0.0%**
Int. aviation bunkers	**355.0**	**-**	**-**	**-**	**355.0**	**100.0%**	**-**	**-**	**-**	**-**	**-**	**0.0%**
Non-OECD Total	**10 021.3**	**443.9**	**899.2**	**4 863.9**	**16 228.3**	**64.5%**	**1 595.4**	**2 349.8**	**728.8**	**159.3**	**4 833.2**	**33.0%**
OECD Total	**12 446.6**	**84.9**	**616.8**	**436.9**	**13 585.2**	**92.2%**	**541.3**	**658.0**	**415.3**	**16.7**	**1 631.4**	**33.2%**
Canada	515.9	5.3	26.8	26.3	574.2	90.8%	46.8	23.3	28.3	2.0	100.4	46.6%
Chile	48.6	1.0	3.9	0.3	53.8	92.1%	4.3	6.9	5.6	0.1	16.9	25.1%
Mexico	344.0	6.6	24.3	42.7	417.6	83.9%	29.3	53.5	18.7	1.2	102.7	28.5%
United States	5 642.6	23.4	170.5	80.1	5 916.7	95.8%	232.4	185.2	131.7	4.4	553.7	42.0%
OECD Americas	**6 551.1**	**36.2**	**225.6**	**149.5**	**6 962.3**	**94.6%**	**312.7**	**268.9**	**184.4**	**7.8**	**773.8**	**40.4%**
Australia	334.7	3.5	12.2	42.5	392.8	86.1%	31.4	78.5	11.5	6.4	127.7	24.6%
Israel	54.8	-	4.1	0.2	59.2	92.6%	0.1	1.0	1.5	0.0	2.7	5.0%
Japan	1 156.6	2.5	85.3	29.7	1 274.1	91.0%	4.5	31.8	10.8	0.4	47.5	9.4%
Korea	431.7	4.5	41.4	0.5	478.1	91.2%	5.9	12.5	12.4	0.1	30.9	19.1%
New Zealand	29.0	0.1	3.1	4.9	37.1	78.3%	1.1	23.5	1.9	0.1	26.6	4.0%
OECD Asia Oceania	**2 006.8**	**10.6**	**146.2**	**77.8**	**2 241.3**	**90.0%**	**43.0**	**147.5**	**38.0**	**6.9**	**235.4**	**18.3%**
Austria	61.7	0.4	4.3	0.5	66.8	92.8%	1.9	4.4	2.6	0.0	9.0	21.7%
Belgium	114.1	0.0	9.4	0.6	124.2	91.9%	1.6	6.5	2.9	0.0	11.0	14.7%
Czech Republic	121.3	2.3	5.6	1.2	130.4	94.8%	5.7	4.3	2.9	0.1	12.9	43.8%
Denmark	50.7	0.5	1.6	3.3	56.1	91.3%	1.1	5.4	1.7	-	8.1	13.0%
Estonia	14.5	0.5	0.6	11.4	27.1	55.4%	0.8	0.6	0.7	-	2.1	38.3%
Finland	54.4	0.4	2.3	52.2	109.2	50.1%	0.8	2.1	7.4	0.0	10.3	7.4%
France	364.5	1.3	25.8	7.6	399.3	91.6%	34.2	38.3	13.0	0.1	85.6	39.9%
Germany	812.4	6.4	37.4	36.6	892.8	91.7%	21.2	31.8	23.0	0.2	76.1	27.8%
Greece	88.0	0.0	7.8	0.5	96.4	91.3%	1.9	3.7	2.5	0.1	8.1	23.3%
Hungary	53.3	0.5	3.5	1.0	58.3	92.3%	2.4	3.0	2.8	0.0	8.2	28.9%
Iceland	2.2	-	0.7	17.6	20.5	10.6%	0.0	0.2	0.1	0.0	0.3	1.7%
Ireland	40.8	0.1	2.3	9.5	52.8	77.5%	1.3	11.8	1.8	0.0	14.9	8.6%
Italy	420.3	4.0	27.2	2.4	453.9	93.5%	7.5	18.3	20.7	0.2	46.7	16.1%
Luxembourg	8.1	-	0.6	0.0	8.7	92.6%	0.1	0.8	0.1	0.0	1.0	10.2%
Netherlands	157.2	0.6	12.9	7.4	178.1	88.6%	4.9	10.1	9.1	0.1	24.3	20.2%
Norway	31.9	1.9	7.7	0.9	42.4	79.7%	11.6	2.2	3.3	0.1	17.2	67.4%
Poland	289.7	5.3	14.9	26.3	336.1	87.8%	48.7	14.7	9.3	0.1	72.8	66.9%
Portugal	57.8	0.2	5.4	0.3	63.8	91.0%	0.9	4.4	6.6	0.5	12.3	7.4%
Slovak Republic	36.9	1.0	4.0	0.4	42.3	89.5%	0.9	1.8	1.7	0.0	4.4	21.1%
Slovenia	14.1	0.0	1.0	0.3	15.3	92.1%	1.1	1.1	0.7	0.0	2.9	37.3%
Spain	278.5	2.3	23.5	1.6	305.9	91.8%	4.3	20.0	10.4	0.5	35.1	12.2%
Sweden	52.0	1.4	3.6	14.7	71.6	74.5%	1.2	3.3	6.9	0.0	11.5	10.6%
Switzerland	41.9	0.0	2.4	0.5	44.8	93.5%	0.9	3.2	1.0	0.0	5.1	17.8%
Turkey	201.2	2.5	21.9	1.2	226.9	89.8%	9.3	22.4	24.5	0.0	56.3	16.6%
United Kingdom	521.2	6.5	18.4	11.8	557.9	94.6%	21.5	27.2	37.2	0.1	85.9	25.0%
OECD Europe	**3 888.6**	**38.1**	**245.1**	**209.7**	**4 381.5**	**89.6%**	**185.7**	**241.7**	**192.9**	**2.0**	**622.2**	**29.8%**
European Union - 28	*3 782.2*	*35.8*	*228.4*	*202.0*	*4 248.4*	*89.9%*	*182.5*	*228.6*	*181.4*	*2.4*	*594.9*	*30.7%*
G7	*9 433.5*	*49.4*	*391.5*	*194.6*	*10 069.0*	*94.2%*	*367.9*	*355.9*	*264.8*	*7.3*	*996.0*	*36.9%*
G8	*10 907.7*	*152.6*	*472.4*	*574.5*	*12 107.3*	*91.4%*	*705.2*	*413.9*	*314.0*	*28.3*	*1 461.5*	*48.3%*
G20	*19 279.9*	*278.2*	*1 277.6*	*2 472.4*	*23 308.0*	*83.9%*	*1 491.1*	*1 972.4*	*867.4*	*67.6*	*4 398.5*	*33.9%*

1. Total World includes Non-OECD total, OECD total as well as international bunkers.

Sources: IEA, CO_2 emissions from fuel combustion. EDGAR 4.3.0 and 4.2 FT2010 databases for other emissions. In general, estimates for emissions other than CO_2 from fuel combustion are subject to significantly larger uncertainties.

2000 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

N_2O						HFCs	PFCs	SF_6	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP [1]	
269.4	**183.1**	**1 802.2**	**495.3**	**2 750.1**	**9.8%**	**293.1**	**100.7**	**117.1**	**40 392.7**	**65.0%**	**0.75**	**World**
156.8	*131.5*	*541.7*	*166.7*	*996.6*	*15.7%*	*227.8*	*73.8*	*84.6*	*18 752.3*	*79.1%*	*0.59*	*Annex I Parties*
132.8	*91.6*	*424.4*	*112.4*	*761.3*	*17.4%*	*207.4*	*46.2*	*74.2*	*14 147.7*	*81.0%*	*0.49*	*Annex II Parties*
91.4	*31.3*	*191.5*	*53.4*	*367.6*	*24.9%*	*118.9*	*21.8*	*50.9*	*7 704.2*	*85.1%*	*0.61*	*North America*
27.9	*54.2*	*156.8*	*35.7*	*274.7*	*10.2%*	*51.5*	*13.8*	*15.6*	*4 363.3*	*76.3%*	*0.37*	*Europe*
13.6	*6.2*	*76.0*	*23.3*	*119.1*	*11.4%*	*37.0*	*10.6*	*7.7*	*2 080.2*	*75.8%*	*0.48*	*Asia Oceania*
20.0	*35.6*	*95.5*	*50.9*	*201.9*	*9.9%*	*19.3*	*27.0*	*9.4*	*4 275.4*	*73.7%*	*1.55*	*Annex I EIT*
112.5	*51.7*	*1 260.6*	*328.7*	*1 753.4*	*6.4%*	*65.3*	*26.9*	*32.5*	*20 786.8*	*50.8%*	*0.96*	*Non-Annex I Parties*
61.0	*94.2*	*320.3*	*109.4*	*584.9*	*10.4%*	*107.7*	*51.3*	*32.7*	*10 596.4*	*75.5%*	*0.57*	*Annex I Kyoto Parties*
-	**-**	**-**	**-**	**-**	**0.0%**	**-**	**-**	**-**	**498.7**	**100.0%**	**..**	**Int. marine bunkers**
-	**-**	**-**	**-**	**-**	**0.0%**	**-**	**-**	**-**	**355.0**	**100.0%**	**..**	**Int. aviation bunkers**
116.0	**69.7**	**1 286.1**	**363.4**	**1 835.2**	**6.3%**	**70.6**	**50.0**	**35.8**	**23 053.1**	**52.8%**	**1.10**	**Non-OECD Total**
153.3	**113.4**	**516.2**	**132.0**	**914.9**	**16.8%**	**222.5**	**50.7**	**81.3**	**16 486.0**	**80.2%**	**0.51**	**OECD Total**
8.3	3.8	22.5	6.3	40.9	20.3%	6.2	7.1	4.9	733.8	78.5%	0.72	Canada
0.8	0.7	5.3	0.8	7.6	10.1%	-	0.0	0.0	78.4	69.7%	0.47	Chile
2.8	1.2	32.5	6.7	43.2	6.5%	3.3	0.6	0.8	568.2	67.3%	0.47	Mexico
83.1	27.5	169.0	47.1	326.7	25.4%	112.7	14.7	45.9	6 970.5	85.8%	0.60	United States
94.9	**33.3**	**229.3**	**60.9**	**418.4**	**22.7%**	**122.2**	**22.4**	**51.7**	**8 350.9**	**83.8%**	**0.60**	**OECD Americas**
4.0	1.7	56.6	13.3	75.6	5.3%	2.5	1.2	0.5	600.3	62.2%	0.99	Australia
0.3	0.2	0.9	0.6	1.9	13.6%	0.7	0.1	1.0	65.6	84.2%	0.43	Israel
9.2	4.4	8.7	9.7	32.0	28.7%	34.1	9.0	7.2	1 403.9	83.5%	0.38	Japan
3.1	6.8	4.7	3.3	18.0	17.2%	8.4	2.2	4.1	541.6	82.2%	0.59	Korea
0.4	-	10.8	0.3	11.5	3.4%	0.3	0.4	0.1	75.9	40.2%	0.87	New Zealand
16.9	**13.2**	**81.7**	**27.2**	**138.9**	**12.2%**	**46.1**	**12.8**	**12.7**	**2 687.4**	**77.3%**	**0.49**	**OECD Asia Oceania**
0.6	0.8	2.5	0.8	4.8	13.3%	1.0	0.1	0.3	82.0	78.8%	0.31	Austria
0.8	4.8	3.1	1.1	9.8	8.0%	1.0	0.0	0.1	146.2	79.7%	0.46	Belgium
5.0	1.2	3.2	1.0	10.5	47.7%	0.4	0.0	0.0	154.3	87.1%	0.82	Czech Republic
0.6	1.0	4.9	0.6	7.1	8.1%	0.7	0.0	0.1	72.0	73.4%	0.42	Denmark
0.2	-	0.6	0.1	0.8	20.0%	0.0	0.0	0.0	30.1	53.2%	1.89	Estonia
1.6	1.3	3.2	0.6	6.7	24.6%	0.4	0.0	0.1	126.8	45.1%	0.86	Finland
4.0	10.0	33.6	4.6	52.1	7.6%	9.4	1.1	2.4	550.0	73.5%	0.31	France
6.5	9.6	30.5	5.8	52.5	12.4%	11.3	1.7	5.6	1 039.9	81.4%	0.40	Germany
1.0	0.8	3.7	1.1	6.6	14.6%	2.4	0.3	0.1	113.9	79.8%	0.49	Greece
0.3	1.8	4.0	0.7	6.9	5.0%	0.4	0.3	0.0	74.1	76.2%	0.52	Hungary
0.0	-	0.3	0.0	0.4	9.8%	0.0	0.1	0.0	21.3	10.3%	2.45	Iceland
0.3	0.7	7.0	0.4	8.4	3.9%	0.4	0.4	0.1	77.0	55.2%	0.58	Ireland
2.8	8.1	14.1	5.6	30.6	9.2%	7.1	0.4	1.3	540.0	80.5%	0.33	Italy
0.1	-	0.3	0.1	0.4	19.1%	0.1	0.0	-	10.2	80.8%	0.38	Luxembourg
0.9	5.7	6.2	1.3	14.2	6.2%	6.2	1.0	0.3	224.0	73.0%	0.39	Netherlands
0.4	1.8	1.8	0.7	4.8	7.7%	0.2	4.6	1.0	70.1	65.3%	0.35	Norway
3.5	4.4	17.0	2.5	27.4	12.8%	0.7	0.5	0.2	437.6	79.3%	0.97	Poland
0.8	0.5	2.8	1.7	5.8	14.0%	0.4	0.0	0.1	82.4	72.5%	0.37	Portugal
0.5	1.1	1.2	0.3	3.1	15.8%	0.1	0.1	-	50.0	78.5%	0.72	Slovak Republic
0.2	-	0.8	0.2	1.2	14.3%	0.1	0.2	0.0	19.6	78.0%	0.49	Slovenia
2.6	2.5	17.4	4.9	27.4	9.4%	3.3	2.3	2.5	376.5	76.4%	0.37	Spain
1.1	0.7	3.8	0.8	6.5	17.7%	0.6	0.7	0.2	91.1	61.2%	0.33	Sweden
0.5	0.2	1.4	0.5	2.6	18.9%	0.8	0.1	0.3	53.7	80.6%	0.20	Switzerland
3.9	4.3	21.6	3.3	33.0	11.9%	1.0	0.6	1.0	318.7	68.1%	0.51	Turkey
3.3	5.6	20.2	5.0	34.1	9.6%	6.3	0.9	1.2	686.3	80.5%	0.38	United Kingdom
41.5	**67.0**	**205.2**	**43.9**	**357.5**	**11.6%**	**54.2**	**15.5**	**16.8**	**5 447.8**	**76.3%**	**0.41**	**OECD Europe**
38.2	*67.1*	*192.8*	*42.5*	*340.6*	*11.2%*	*52.9*	*10.9*	*14.6*	*5 262.1*	*76.7%*	*0.42*	*European Union - 28*
117.1	*69.1*	*298.5*	*84.1*	*568.8*	*20.6%*	*187.1*	*34.9*	*68.5*	*11 924.3*	*83.6%*	*0.50*	*G7*
124.4	*79.3*	*334.6*	*123.7*	*662.1*	*18.8%*	*203.9*	*59.8*	*77.5*	*14 572.1*	*81.6%*	*0.58*	*G8*
226.9	*153.8*	*1 232.9*	*311.5*	*1 925.1*	*11.8%*	*284.7*	*86.0*	*106.4*	*30 108.6*	*70.7%*	*0.68*	*G20*

1. GHG / GDP PPP ratio is expressed in kg of CO_2-equivalent per 2005 USD.

2000 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

	CO_2						CH_4					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Non-OECD Total	**10 021.3**	**443.9**	**899.2**	**4 863.9**	**16 228.3**	**64.5%**	**1 595.4**	**2 349.8**	**728.8**	**159.3**	**4 833.2**	**33.0%**
Albania	3.0	0.0	0.1	0.6	3.7	81.2%	0.4	1.8	0.2	0.2	2.6	14.7%
Armenia	3.4	-	0.1	0.3	3.8	89.0%	1.3	0.9	0.4	0.0	2.6	50.9%
Azerbaijan	27.3	0.3	0.2	0.2	28.1	98.4%	4.3	4.1	1.5	0.0	10.0	43.5%
Belarus	52.1	0.2	3.0	43.0	98.3	53.2%	0.9	8.4	4.0	0.0	13.3	7.0%
Bosnia-Herzegovina	13.7	-	0.5	0.4	14.6	94.2%	0.9	1.0	0.3	0.5	2.7	35.3%
Bulgaria	42.2	1.0	4.0	0.3	47.5	90.9%	1.3	2.4	9.8	0.3	13.8	9.3%
Croatia	16.9	0.0	2.1	0.0	19.0	88.9%	1.9	1.1	0.9	0.0	3.9	47.2%
Cyprus [1]	6.3	-	0.7	0.0	7.0	90.0%	0.0	0.3	0.3	-	0.6	3.8%
FYR of Macedonia	8.5	0.0	0.5	0.1	9.1	94.1%	0.5	0.7	0.3	0.0	1.5	30.5%
Georgia	4.6	0.0	0.4	0.3	5.4	86.1%	1.4	2.1	0.6	0.0	4.1	33.3%
Gibraltar	0.3	-	-	-	0.3	100.0%	-	-	-	-	-	0.0%
Kazakhstan	112.0	13.5	4.8	0.6	130.9	95.9%	23.3	9.4	3.8	2.1	38.6	60.3%
Kosovo [2]	5.1	..	..	..	..	..	..	..	..	..	..	..
Kyrgyzstan	4.5	0.0	0.2	0.5	5.2	86.0%	0.3	2.5	0.7	0.0	3.5	7.3%
Latvia	6.8	0.0	0.4	4.6	11.9	57.7%	1.4	0.8	0.6	0.0	2.8	49.1%
Lithuania	10.2	0.0	1.1	6.0	17.3	59.0%	1.8	1.9	1.3	0.0	5.0	36.3%
Malta	2.1	-	0.0	0.0	2.1	99.7%	0.0	0.1	0.2	-	0.2	1.0%
Republic of Moldova	6.5	-	0.1	0.1	6.8	96.2%	1.7	1.1	0.4	0.0	3.3	51.3%
Montenegro [2]	..	..	..	..	..	..	..	..	..	..	..	..
Romania	86.2	1.1	7.8	1.5	96.6	90.4%	12.2	8.4	4.4	0.1	25.1	48.6%
Russian Federation	1 474.2	103.3	80.9	380.0	2 038.3	77.4%	337.3	58.1	49.2	21.0	465.5	72.5%
Serbia [2]	43.0	0.6	1.7	0.7	46.0	94.8%	3.3	4.0	1.2	0.2	8.7	37.8%
Tajikistan	2.2	-	0.5	0.1	2.7	80.1%	0.5	2.1	0.7	0.0	3.3	13.7%
Turkmenistan	36.7	2.1	0.3	0.4	39.5	98.0%	16.3	4.2	0.8	0.0	21.2	76.6%
Ukraine	295.0	31.9	26.4	7.8	361.2	90.5%	54.8	20.8	9.5	0.2	85.2	64.3%
Uzbekistan	114.0	2.4	3.3	1.6	121.2	96.0%	22.8	11.0	3.2	0.0	37.1	61.6%
Non-OECD Europe and Eurasia	**2 377.0**	**156.4**	**139.1**	**449.2**	**3 121.7**	**81.2%**	**488.4**	**147.1**	**94.2**	**24.8**	**754.6**	**64.7%**
Algeria	61.5	17.5	4.9	0.2	84.0	94.0%	35.4	4.2	4.1	0.0	43.8	80.9%
Angola	4.6	11.8	0.1	6.2	22.8	72.0%	10.2	3.9	1.5	0.1	15.8	65.0%
Benin	1.4	-	0.1	25.2	26.8	5.3%	0.8	2.1	0.8	0.8	4.5	18.1%
Botswana	4.0	-	0.1	0.4	4.6	88.1%	0.5	3.2	0.2	0.0	3.9	11.5%
Cameroon	2.8	2.4	0.5	56.2	61.8	8.3%	2.5	8.6	2.2	2.6	15.8	15.6%
Congo	0.5	4.0	0.0	43.1	47.6	9.4%	3.9	1.6	0.5	2.1	8.0	48.7%
Côte d'Ivoire	6.3	0.2	0.3	138.2	145.0	4.5%	2.6	2.2	2.1	7.3	14.2	18.6%
Dem. Rep. of Congo	0.9	0.8	0.1	912.7	914.4	0.2%	5.4	14.5	5.3	38.5	63.7	8.5%
Egypt	99.7	4.1	15.4	1.1	120.4	86.3%	15.1	13.3	7.5	0.0	35.8	42.0%
Eritrea	0.6	-	0.0	0.0	0.7	91.5%	0.3	2.0	0.4	-	2.7	12.3%
Ethiopia	3.2	-	0.4	0.5	4.1	77.8%	7.1	33.3	5.8	-	46.2	15.4%
Gabon	1.5	5.0	0.1	2.2	8.8	73.5%	3.7	0.1	0.3	0.0	4.1	89.9%
Ghana	5.0	-	1.0	8.6	14.6	34.1%	2.8	4.0	2.5	0.3	9.6	28.9%
Kenya	7.8	-	0.6	3.2	11.6	66.9%	6.5	12.5	3.3	-	22.3	29.0%
Libya	37.0	9.0	3.1	0.1	49.2	93.4%	11.1	0.8	1.0	0.0	13.0	85.6%
Mauritius	2.4	0.0	0.0	0.0	2.4	99.6%	0.0	0.0	0.2	-	0.2	8.8%
Morocco	29.5	-	5.5	0.3	35.3	83.6%	0.4	5.4	3.8	-	9.6	4.2%
Mozambique	1.3	-	0.2	41.5	43.0	3.1%	2.1	6.1	1.9	2.9	13.0	15.9%
Namibia	1.9	-	0.0	0.0	2.0	97.6%	0.1	4.3	0.2	-	4.6	2.3%
Niger [3]	0.6	0.0	0.0	..	..	..	..	..	..	..	..	..
Nigeria	43.8	53.9	1.4	9.0	108.1	90.3%	44.8	24.9	12.5	0.4	82.6	54.3%
Senegal	3.5	-	0.4	0.1	4.0	87.2%	1.1	4.7	1.3	-	7.1	15.4%
South Africa	280.5	12.9	13.3	2.6	309.3	94.9%	27.2	18.9	11.1	2.2	59.4	45.8%
South Sudan [4]	..	..	..	..	..	..	..	..	..	..	..	..
Sudan [4]	5.5	0.3	0.1	4.1	9.9	57.9%	6.7	53.4	4.3	-	64.4	10.3%
United Rep. of Tanzania	2.6	-	0.3	47.6	50.5	5.2%	3.7	19.4	3.5	2.5	29.1	12.8%
Togo	0.9	-	0.3	6.1	7.3	13.0%	1.3	1.3	0.6	0.3	3.4	38.8%
Tunisia	17.6	0.5	2.8	0.1	21.1	86.2%	3.4	2.1	1.4	0.0	6.9	49.0%
Zambia	1.7	-	0.3	110.8	112.7	1.5%	2.2	10.5	1.0	4.4	18.1	12.1%
Zimbabwe	13.3	0.3	0.9	0.9	15.4	87.9%	1.2	7.1	1.3	0.0	9.7	12.8%
Other Africa [3]	16.4	2.4	0.7	235.2	254.7	7.4%	20.2	99.1	14.9	9.3	143.5	14.1%
Africa	**658.3**	**125.0**	**53.1**	**1 656.5**	**2 493.0**	**31.4%**	**222.3**	**363.4**	**95.7**	**73.6**	**755.1**	**29.4%**

1. Please refer to Part I, Chapter 4, *Geographical Coverage*.
2. For 2000, Serbia includes Montenegro for all greenhouse gases and Kosovo for all emissions other than CC_2 from fuel combustion.
3. For 2000, Other Africa includes Niger for all emissions except CO_2 from fuel combustion, CO_2 from fugitive sources and CO_2 from industrial processes.
4. Prior to 2012, data for South Sudan are included in Sudan.

2000 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

N_2O						HFCs	PFCs	SF_6	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP [1]	
116.0	**69.7**	**1 286.1**	**363.4**	**1 835.2**	**6.3%**	**70.6**	**50.0**	**35.8**	**23 053.1**	**52.8%**	**1.10**	**Non-OECD Total**
0.1	-	0.7	0.5	1.3	5.6%	0.0	-	-	7.6	45.6%	0.52	Albania
0.0	-	0.4	0.1	0.5	1.1%	0.0	-	-	6.9	68.4%	0.87	Armenia
0.1	-	1.6	0.4	2.0	3.9%	0.0	0.0	-	40.1	79.9%	1.26	Azerbaijan
0.5	1.7	8.1	0.6	10.8	4.2%	0.1	0.0	-	122.6	43.8%	1.88	Belarus
0.2	-	0.7	0.9	1.7	9.7%	0.1	0.3	-	19.4	76.5%	1.03	Bosnia-Herzegovina
0.3	1.0	2.2	0.9	4.4	6.8%	0.1	0.0	-	65.8	68.0%	1.10	Bulgaria
0.2	0.9	1.5	0.3	2.9	7.6%	0.0	0.1	-	25.9	73.2%	0.47	Croatia
0.0	-	0.2	0.1	0.3	9.7%	0.1	-	-	7.9	80.3%	0.50	Cyprus
0.1	-	0.4	0.2	0.7	8.5%	0.1	-	-	11.3	80.3%	0.76	FYR of Macedonia
0.1	0.6	1.1	0.2	2.0	3.4%	0.0	-	-	11.5	52.8%	0.90	Georgia
-	-	-	-	-	0.0%	-	-	-	0.3	100.0%	0.44	Gibraltar
1.9	-	9.8	4.2	16.0	12.0%	0.1	-	-	185.5	81.2%	1.44	Kazakhstan
..	..	..	..	..	..	..	..	..	..	..	..	Kosovo
0.1	-	1.2	0.3	1.6	8.0%	0.0	-	-	10.2	47.2%	1.13	Kyrgyzstan
0.1	-	0.9	0.2	1.2	11.5%	0.2	0.0	-	16.0	52.2%	0.79	Latvia
0.1	1.3	2.0	0.2	3.7	3.0%	0.2	0.0	-	26.2	46.4%	0.78	Lithuania
0.0	-	0.0	0.0	0.1	10.3%	0.1	-	-	2.5	86.1%	0.31	Malta
0.0	-	0.6	0.2	0.8	5.2%	0.0	-	-	10.8	76.1%	1.44	Republic of Moldova
..	..	..	..	..	..	..	..	..	..	..	..	Montenegro
0.7	3.2	6.0	1.5	11.3	6.5%	0.1	0.7	0.0	133.9	74.9%	0.88	Romania
7.3	10.2	36.1	39.6	93.2	7.8%	16.8	24.9	9.0	2 647.8	72.6%	2.10	Russian Federation
0.4	0.5	2.5	0.7	4.2	10.7%	1.7	0.3	-	60.8	77.8%	1.24	Serbia
0.0	-	0.9	0.2	1.1	1.0%	0.0	0.8	-	7.9	33.4%	1.21	Tajikistan
0.1	0.5	2.1	0.2	2.9	2.1%	0.0	-	-	63.6	86.5%	2.97	Turkmenistan
1.1	8.8	12.0	2.7	24.6	4.5%	0.1	0.2	0.2	471.5	81.2%	2.24	Ukraine
0.6	0.1	7.5	1.0	9.2	6.7%	0.2	-	-	167.8	83.3%	3.08	Uzbekistan
14.1	**28.8**	**98.3**	**55.1**	**196.3**	**7.2%**	**19.8**	**27.4**	**9.2**	**4 129.0**	**73.5%**	**1.82**	**Non-OECD Europe and Eurasia**
0.4	0.6	2.7	0.8	4.5	8.3%	0.1	-	0.3	132.7	86.5%	0.48	Algeria
0.2	-	2.5	0.3	3.0	6.1%	0.0	-	-	41.6	64.6%	0.99	Angola
0.1	-	2.0	1.3	3.3	3.5%	-	-	-	34.6	6.8%	3.67	Benin
0.1	-	2.3	0.2	2.5	2.9%	-	-	-	11.0	41.3%	0.69	Botswana
0.2	-	7.5	3.0	10.7	2.1%	-	0.5	-	88.9	8.8%	2.61	Cameroon
0.1	-	1.4	1.9	3.4	1.8%	0.0	-	-	59.1	14.3%	4.59	Congo
0.2	-	2.0	6.2	8.5	2.5%	-	-	-	167.7	5.6%	3.83	Côte d'Ivoire
1.1	-	16.6	40.7	58.5	2.0%	-	-	-	1 036.7	0.8%	43.16	Dem. Rep. of Congo
0.6	3.3	12.2	2.1	18.2	3.4%	0.1	1.4	1.1	177.0	67.5%	0.38	Egypt
0.0	-	1.3	0.1	1.4	3.3%	-	-	-	4.7	21.0%	0.93	Eritrea
1.5	-	23.5	1.8	26.7	5.4%	0.0	-	-	77.0	15.3%	2.10	Ethiopia
0.0	-	0.1	0.1	0.3	18.0%	0.0	-	-	13.2	77.5%	0.69	Gabon
0.4	-	3.8	1.0	5.3	8.4%	0.0	0.1	-	29.7	27.7%	0.79	Ghana
0.6	-	8.1	0.6	9.2	6.0%	-	-	-	43.1	34.3%	0.72	Kenya
0.2	-	0.7	0.4	1.3	13.3%	-	-	0.2	63.7	89.9%	0.96	Libya
0.0	-	0.1	0.0	0.2	5.8%	-	-	-	2.9	85.4%	0.24	Mauritius
0.4	-	4.5	0.7	5.6	7.2%	-	-	-	50.5	60.1%	0.44	Morocco
0.3	-	6.6	2.7	9.6	3.2%	0.0	0.0	-	65.7	5.6%	6.93	Mozambique
0.1	-	3.2	0.2	3.5	2.4%	-	-	-	10.1	20.8%	0.97	Namibia
..	..	..	..	..	..	..	..	..	..	..	..	Niger
1.9	-	16.2	2.9	21.0	8.9%	0.1	-	0.2	211.9	68.1%	0.68	Nigeria
0.1	-	3.3	0.3	3.8	3.0%	-	-	-	14.9	31.7%	0.89	Senegal
2.6	1.5	13.7	5.4	23.2	11.1%	0.3	0.5	1.0	393.7	82.1%	1.01	South Africa
..	..	..	..	..	..	..	..	..	..	..	..	South Sudan
0.6	-	40.3	2.8	43.8	1.4%	-	-	-	118.1	11.0%	1.61	Sudan
0.5	-	14.9	3.2	18.6	2.7%	-	-	-	98.2	7.0%	2.26	United Rep. of Tanzania
0.1	-	1.3	0.4	1.8	5.9%	-	-	-	12.6	19.0%	2.22	Togo
0.2	0.4	1.5	0.3	2.4	8.4%	-	-	-	30.4	71.5%	0.48	Tunisia
0.2	0.5	15.2	5.8	21.7	1.0%	0.0	-	-	152.5	2.7%	7.70	Zambia
0.2	-	5.0	0.4	5.6	4.4%	-	-	-	30.7	49.1%	5.38	Zimbabwe
2.6	-	73.0	15.5	91.1	2.8%	0.0	-	-	489.3	8.5%	3.44	Other Africa
15.6	**6.2**	**285.6**	**101.3**	**408.8**	**3.8%**	**0.5**	**2.5**	**2.8**	**3 662.7**	**27.9%**	**1.55**	**Africa**

1. GHG / GDP PPP ratio is expressed in kg of CO_2-equivalent per 2005 USD. The high GHG / GDP PPP ratio for DR of Congo and Zambia is due to high levels of forest fires and subsequent post-burn decay.

2000 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

	CO_2						CH_4					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Bangladesh	20.9	0.0	2.7	7.5	31.2	67.1%	7.9	65.7	15.5	0.1	89.2	8.9%
Brunei Darussalam	4.4	0.4	0.1	7.5	12.4	38.7%	3.8	0.0	0.1	-	3.9	97.6%
Cambodia	2.0	-	0.0	3.2	5.2	38.0%	1.1	12.5	1.3	0.1	15.0	7.5%
DPR of Korea	70.0	-	3.2	2.7	75.9	92.2%	10.2	3.9	3.1	0.1	17.3	58.7%
India	892.0	6.7	62.7	57.3	1 018.7	88.2%	82.1	376.0	101.1	2.4	561.6	14.6%
Indonesia	258.3	9.6	19.5	890.7	1 178.1	22.7%	45.6	78.9	39.9	3.4	167.8	27.2%
Malaysia	114.1	2.8	8.9	90.0	215.8	54.2%	17.8	5.6	4.8	1.0	29.2	60.8%
Mongolia	9.0	-	0.1	38.6	47.7	18.8%	0.3	8.5	0.3	0.2	9.2	2.9%
Myanmar	9.3	0.1	0.3	455.3	465.0	2.0%	6.2	44.3	5.7	10.9	66.9	9.2%
Nepal	3.1	-	0.2	0.1	3.4	90.9%	1.4	17.6	2.2	-	21.2	6.6%
Pakistan	96.0	2.2	6.4	0.4	104.9	93.5%	24.6	76.9	15.4	0.1	117.1	21.0%
Philippines	68.1	0.0	6.0	2.9	76.9	88.5%	6.1	31.5	12.2	0.0	49.9	12.3%
Singapore	42.1	-	2.7	0.4	45.1	93.3%	0.9	0.0	0.8	0.0	1.7	52.9%
Sri Lanka	10.5	-	0.6	0.6	11.6	90.3%	0.6	6.2	2.8	-	9.6	6.7%
Chinese Taipei	214.3	1.0	14.6	0.8	230.8	93.3%	1.3	1.1	5.3	0.0	7.7	16.6%
Thailand	152.3	0.3	16.4	8.7	177.7	85.9%	16.4	54.5	12.5	0.1	83.4	19.6%
Viet Nam	44.2	1.4	7.9	6.8	60.3	75.7%	14.4	51.4	9.6	0.0	75.4	19.1%
Other Asia	11.4	0.6	0.4	51.8	64.1	18.6%	2.4	16.0	4.0	0.9	23.3	10.3%
Asia (excl. China)	**2 021.9**	**25.0**	**152.7**	**1 625.3**	**3 824.9**	**53.5%**	**243.1**	**850.5**	**236.5**	**19.4**	**1 349.6**	**18.0%**
People's Rep. of China	3 259.3	45.6	432.8	100.5	3 838.3	86.1%	377.3	485.7	176.8	3.5	1 043.4	36.2%
Hong Kong, China	40.3	1.3	0.7	0.1	42.4	98.3%	0.8	-	1.9	-	2.7	28.9%
China	**3 299.7**	**47.0**	**433.5**	**100.5**	**3 880.7**	**86.2%**	**378.1**	**485.7**	**178.8**	**3.5**	**1 046.1**	**36.1%**
Argentina	139.3	2.1	4.5	9.2	155.1	91.2%	16.3	71.6	9.2	2.0	99.1	16.4%
Bolivia	7.1	0.7	0.4	131.2	139.4	5.6%	3.2	10.6	1.2	4.8	19.8	16.0%
Brazil	292.3	5.1	33.2	606.8	937.4	31.7%	27.7	245.5	53.8	16.0	343.0	8.1%
Colombia	54.2	1.9	5.0	41.4	102.5	54.7%	10.7	36.7	5.9	1.8	55.1	19.5%
Costa Rica	4.5	-	0.5	0.1	5.1	88.6%	0.2	2.2	0.5	-	2.9	6.9%
Cuba	27.3	0.2	1.0	3.5	32.1	85.9%	1.1	7.0	2.5	-	10.6	10.3%
Curaçao	5.6	-	-	0.0	5.7	99.2%	0.1	0.0	0.0	-	0.1	55.6%
Dominican Republic	16.2	-	1.2	0.4	17.8	91.1%	1.0	3.7	1.5	-	6.2	16.5%
Ecuador	18.1	2.5	1.0	0.9	22.5	91.6%	2.9	8.4	1.6	0.0	12.8	22.3%
El Salvador	5.2	-	0.4	0.2	5.8	88.8%	0.4	1.4	1.0	-	2.8	14.1%
Guatemala	8.6	0.0	0.8	108.5	117.8	7.3%	1.0	8.1	1.3	9.0	19.4	5.1%
Haiti	1.4	-	0.2	0.0	1.6	86.6%	0.7	2.3	1.2	-	4.1	17.5%
Honduras	4.5	-	0.4	3.3	8.3	54.4%	0.3	2.5	0.7	-	3.4	9.2%
Jamaica	9.8	-	0.4	0.1	10.3	95.1%	0.3	0.6	0.5	-	1.4	19.6%
Nicaragua	3.5	-	0.2	0.4	4.1	85.6%	0.4	4.2	1.0	-	5.6	6.5%
Panama	4.9	-	0.3	0.4	5.6	87.3%	0.2	2.1	0.5	-	2.8	5.8%
Paraguay	3.3	-	0.3	26.3	29.9	11.0%	0.7	12.4	1.0	1.1	15.2	4.8%
Peru	26.4	0.4	1.7	20.7	49.3	54.5%	1.5	10.1	3.7	1.0	16.3	9.3%
Trinidad and Tobago	10.1	0.2	7.4	0.0	17.7	58.2%	4.3	0.1	1.0	0.1	5.5	77.6%
Uruguay	5.1	0.0	0.3	0.4	5.8	87.9%	0.2	17.2	0.8	-	18.2	0.8%
Venezuela	116.2	7.5	7.5	38.6	169.7	72.9%	28.4	22.2	5.3	1.6	57.5	49.4%
Other Non-OECD Americas	15.1	0.0	0.9	16.8	32.8	46.1%	0.2	2.4	2.5	0.2	5.2	3.8%
Non-OECD Americas	**778.8**	**20.7**	**67.6**	**1 009.3**	**1 876.3**	**42.6%**	**101.6**	**471.3**	**96.6**	**37.5**	**707.1**	**14.4%**
Bahrain	15.8	0.0	1.3	0.1	17.3	91.8%	2.1	0.0	0.3	0.0	2.4	86.6%
Islamic Rep. of Iran	312.2	21.4	15.8	0.8	350.1	95.3%	48.6	19.8	11.3	0.0	79.7	61.0%
Iraq	70.8	14.1	1.0	3.3	89.3	95.2%	16.1	2.8	3.4	0.0	22.3	72.3%
Jordan	14.4	-	1.1	0.0	15.6	92.8%	0.2	0.4	0.8	-	1.4	16.5%
Kuwait	46.3	5.6	2.4	0.0	54.3	95.5%	9.4	0.1	0.7	0.0	10.2	91.9%
Lebanon	14.0	-	1.2	0.1	15.2	91.9%	0.1	0.2	0.6	-	0.9	12.1%
Oman	20.4	4.3	0.5	18.0	43.2	57.1%	9.4	0.5	0.4	-	10.3	90.9%
Qatar	21.3	6.6	3.0	0.0	30.9	90.0%	12.6	0.1	0.4	0.0	13.1	96.0%
Saudi Arabia	234.6	7.6	19.0	0.3	261.6	92.6%	34.8	1.9	4.9	0.2	41.8	83.2%
Syrian Arab Republic	37.0	6.1	2.1	0.2	45.4	94.9%	8.0	2.7	1.9	-	12.6	63.1%
United Arab Emirates	85.5	2.9	4.9	0.1	93.5	94.6%	18.6	0.5	0.8	-	19.9	93.5%
Yemen	13.3	1.4	0.7	0.0	15.5	95.3%	1.9	2.7	1.5	-	6.1	31.5%
Middle East	**885.6**	**70.0**	**53.1**	**23.0**	**1 031.7**	**92.6%**	**161.7**	**31.7**	**27.0**	**0.3**	**220.7**	**73.3%**

2000 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

N_2O						HFCs	PFCs	SF_6	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP [1]	
1.5	-	16.2	1.9	19.6	7.4%	-	-	-	140.0	21.6%	0.74	Bangladesh
0.0	-	0.1	0.3	0.4	2.6%	0.1	-	-	16.8	51.2%	0.76	Brunei Darussalam
0.2	-	2.6	0.4	3.3	6.2%	-	-	-	23.4	14.0%	1.58	Cambodia
0.4	-	2.0	0.8	3.3	12.9%	1.8	-	-	98.3	82.0%	0.95	DPR of Korea
23.4	1.6	149.9	24.6	199.5	11.7%	8.1	2.0	3.4	1 793.3	56.0%	0.76	India
4.2	0.2	59.9	26.3	90.7	4.7%	-	0.2	0.8	1 437.6	22.1%	1.39	Indonesia
0.5	0.5	8.4	3.6	12.9	3.7%	0.0	0.1	0.4	258.5	52.3%	0.79	Malaysia
0.1	-	4.6	0.4	5.1	2.7%	-	-	-	62.0	15.1%	7.43	Mongolia
0.7	-	10.0	20.5	31.2	2.3%	-	-	-	563.1	2.9%	18.78	Myanmar
0.6	-	3.2	0.4	4.2	13.4%	-	-	-	28.8	17.6%	0.89	Nepal
3.1	0.7	17.8	3.2	24.8	12.4%	-	-	0.3	247.1	50.9%	0.57	Pakistan
1.2	0.0	8.9	2.2	12.2	9.6%	-	-	0.2	139.3	54.2%	0.47	Philippines
0.1	5.6	0.0	0.3	6.0	1.5%	0.7	0.4	0.3	54.2	79.5%	0.29	Singapore
0.3	-	1.4	0.4	2.0	12.4%	-	-	-	23.3	49.0%	0.28	Sri Lanka
0.9	0.5	2.1	1.2	4.7	19.9%	0.1	4.1	1.6	249.1	87.3%	0.49	Chinese Taipei
3.7	0.4	13.5	2.5	20.1	18.7%	-	-	0.5	281.7	61.3%	0.57	Thailand
1.2	-	16.6	1.8	19.6	6.1%	-	-	-	155.3	39.4%	0.85	Viet Nam
0.5	-	8.3	2.1	10.8	4.5%	0.0	-	-	98.2	15.1%	1.38	Other Asia
42.6	**9.5**	**325.5**	**93.0**	**470.6**	**9.0%**	**10.8**	**6.8**	**7.6**	**5 670.3**	**41.1%**	**0.89**	**Asia (excl. China)**
29.3	15.6	303.6	44.0	392.4	7.5%	38.1	8.0	10.8	5 331.0	69.6%	1.31	People's Rep. of China
0.2	-	-	0.3	0.5	32.9%	-	-	0.2	45.7	93.1%	0.23	Hong Kong, China
29.5	**15.6**	**303.6**	**44.3**	**392.9**	**7.5%**	**38.1**	**8.0**	**10.9**	**5 376.7**	**69.8%**	**1.26**	**China**
1.4	0.1	36.0	4.4	42.0	3.4%	0.1	0.1	0.2	296.6	53.6%	0.78	Argentina
0.1	-	5.5	5.8	11.3	0.8%	-	-	-	170.5	6.5%	5.21	Bolivia
5.1	7.7	122.7	32.1	167.6	3.0%	0.1	4.1	0.8	1 453.1	22.7%	0.85	Brazil
0.6	0.3	17.1	2.9	20.9	3.1%	-	0.0	0.0	178.5	37.8%	0.60	Colombia
0.1	0.1	1.3	0.2	1.7	5.0%	0.0	-	-	9.7	49.4%	0.29	Costa Rica
0.4	0.6	5.7	0.6	7.3	5.5%	0.0	-	-	50.0	58.1%	0.77	Cuba
0.0	-	0.0	0.1	0.1	15.5%	-	-	-	5.9	97.3%	2.79	Curaçao
0.2	-	1.6	0.4	2.2	8.4%	-	-	-	26.3	66.4%	0.43	Dominican Republic
0.2	-	3.5	0.4	4.1	3.8%	0.0	-	-	39.4	59.9%	0.47	Ecuador
0.1	-	1.0	0.2	1.4	7.8%	0.0	-	-	10.0	56.6%	0.30	El Salvador
0.3	-	8.2	6.0	14.4	1.8%	0.2	-	-	151.7	6.5%	2.41	Guatemala
0.1	-	1.2	0.1	1.4	5.3%	-	-	-	7.1	30.6%	0.54	Haiti
0.1	-	2.6	0.4	3.1	2.8%	-	-	-	14.8	32.9%	0.77	Honduras
0.1	-	0.4	0.2	0.6	8.9%	0.0	-	-	12.3	82.1%	0.71	Jamaica
0.1	-	2.9	0.3	3.3	2.7%	-	-	-	13.0	30.7%	0.82	Nicaragua
0.0	-	0.9	0.1	1.0	4.7%	-	-	-	9.4	54.0%	0.35	Panama
0.2	-	6.1	1.5	7.8	1.9%	-	-	-	52.9	7.9%	1.84	Paraguay
0.2	0.0	5.9	1.6	7.7	3.1%	0.1	-	-	73.4	38.9%	0.49	Peru
0.0	-	0.1	0.1	0.2	10.5%	-	-	-	23.5	62.3%	1.17	Trinidad and Tobago
0.1	-	6.1	0.1	6.3	1.6%	0.0	-	-	30.4	17.7%	0.82	Uruguay
0.5	0.0	10.1	2.6	13.2	3.7%	0.5	0.5	0.2	241.6	63.2%	0.77	Venezuela
0.1	-	2.4	0.8	3.2	3.2%	0.0	0.0	0.0	41.3	37.4%	1.07	Other Non-OECD Americas
9.9	**8.9**	**241.2**	**61.0**	**320.9**	**3.1%**	**1.1**	**4.7**	**1.2**	**2 911.3**	**31.3%**	**0.84**	**Non-OECD Americas**
0.0	-	0.0	0.1	0.1	26.8%	-	0.2	-	20.0	89.8%	0.74	Bahrain
2.1	0.5	18.4	3.1	24.1	8.8%	-	0.1	1.7	455.7	84.3%	0.73	Islamic Rep. of Iran
0.3	-	3.3	0.8	4.5	7.4%	-	-	0.2	116.2	87.3%	0.47	Iraq
0.1	-	0.3	0.2	0.6	8.5%	0.0	-	-	17.6	83.7%	0.54	Jordan
0.1	-	0.1	0.3	0.5	27.9%	0.1	-	0.4	65.5	93.7%	0.52	Kuwait
0.1	-	0.3	0.2	0.6	14.0%	-	-	-	16.7	84.8%	0.47	Lebanon
0.1	-	0.3	0.1	0.5	14.8%	0.0	-	-	54.1	63.1%	0.61	Oman
0.1	-	0.1	0.1	0.3	26.9%	-	-	-	44.3	91.4%	0.74	Qatar
0.9	-	2.8	2.4	6.0	14.4%	0.1	-	1.3	310.7	89.4%	0.47	Saudi Arabia
0.3	0.2	3.6	0.6	4.7	6.1%	-	-	-	62.7	81.9%	1.04	Syrian Arab Republic
0.2	-	0.5	0.5	1.1	15.5%	-	0.2	0.7	115.4	93.0%	0.40	United Arab Emirates
0.2	-	2.1	0.4	2.7	9.2%	-	-	-	24.3	69.6%	0.39	Yemen
4.5	**0.7**	**31.8**	**8.7**	**45.7**	**9.8%**	**0.3**	**0.6**	**4.1**	**1 303.1**	**86.1%**	**0.56**	**Middle East**

1. GHG / GDP PPP ratio is expressed in kg of CO_2-equivalent per 2005 USD. The high GHG / GDP PPP ratio for Mongolia is due to high levels of peat decay.

2005 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

	CO_2						CH_4					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
World [1]	**27 047.6**	**562.9**	**1 901.2**	**7 084.9**	**36 596.5**	**75.4%**	**2 532.6**	**3 170.3**	**1 225.4**	**283.9**	**7 212.2**	**35.1%**
Annex I Parties	*13 882.5*	*233.5*	*687.2*	*667.7*	*15 470.8*	*91.2%*	*912.3*	*663.5*	*446.7*	*20.9*	*2 043.3*	*44.6%*
Annex II Parties	*11 107.9*	*57.5*	*484.1*	*333.6*	*11 983.1*	*93.2%*	*404.7*	*526.0*	*306.1*	*11.4*	*1 248.2*	*32.4%*
North America	*6 237.9*	*23.6*	*186.3*	*111.9*	*6 559.7*	*95.5%*	*256.5*	*216.7*	*162.9*	*6.4*	*642.5*	*39.9%*
Europe	*3 268.7*	*17.0*	*198.6*	*163.3*	*3 647.7*	*90.1%*	*106.0*	*184.1*	*122.1*	*1.8*	*414.0*	*25.6%*
Asia Oceania	*1 601.3*	*17.0*	*99.1*	*58.4*	*1 775.7*	*91.1%*	*42.1*	*125.2*	*21.2*	*3.2*	*191.8*	*22.0%*
Annex I EIT	*2 548.6*	*173.7*	*176.5*	*332.7*	*3 231.5*	*84.2%*	*497.2*	*115.5*	*107.7*	*9.4*	*729.8*	*68.1%*
Non-Annex I Parties	*12 162.0*	*329.4*	*1 213.9*	*6 417.3*	*20 122.6*	*62.1%*	*1 620.3*	*2 506.8*	*778.7*	*263.0*	*5 168.9*	*31.3%*
Annex I Kyoto Parties	*7 363.6*	*205.5*	*470.6*	*511.7*	*8 551.5*	*88.5%*	*644.4*	*416.7*	*246.0*	*14.4*	*1 321.6*	*48.8%*
Int. marine bunkers	**580.3**	**-**	**-**	**-**	**580.3**	**100.0%**	**-**	**-**	**-**	**-**	**-**	**0.0%**
Int. aviation bunkers	**422.8**	**-**	**-**	**-**	**422.8**	**100.0%**	**-**	**-**	**-**	**-**	**-**	**0.0%**
Non-OECD Total	**13 228.9**	**479.8**	**1 285.0**	**6 658.6**	**21 652.4**	**63.3%**	**2 013.1**	**2 522.7**	**827.1**	**269.9**	**5 632.9**	**35.7%**
OECD Total	**12 815.5**	**83.0**	**616.2**	**426.3**	**13 941.0**	**92.5%**	**519.5**	**647.6**	**398.3**	**14.0**	**1 579.3**	**32.9%**
Canada	535.6	3.8	28.8	42.8	611.0	88.3%	46.0	26.1	31.2	3.3	106.7	43.2%
Chile	54.4	0.5	4.4	0.3	59.7	92.1%	4.5	7.2	6.4	0.2	18.2	24.6%
Mexico	381.8	4.6	25.0	52.0	463.3	83.4%	36.5	54.3	20.4	2.1	113.3	32.2%
United States	5 702.3	19.8	157.5	69.1	5 948.6	96.2%	210.5	190.6	131.7	3.1	535.8	39.3%
OECD Americas	**6 674.0**	**28.7**	**215.8**	**164.2**	**7 082.7**	**94.6%**	**297.5**	**278.2**	**189.6**	**8.7**	**774.0**	**38.4%**
Australia	371.4	12.1	14.8	22.6	420.8	91.1%	37.7	70.1	11.4	2.8	122.0	30.9%
Israel	58.8	0.0	2.7	0.2	61.8	95.2%	0.7	1.1	1.7	0.0	3.5	19.6%
Japan	1 196.1	4.8	82.8	30.7	1 314.5	91.4%	3.5	30.2	8.3	0.3	42.2	8.2%
Korea	457.5	11.0	43.8	0.5	512.8	91.4%	6.4	12.3	13.2	0.1	32.0	20.0%
New Zealand	33.7	0.1	1.6	5.1	40.4	83.5%	1.0	24.9	1.6	0.0	27.5	3.6%
OECD Asia Oceania	**2 117.6**	**28.0**	**145.6**	**59.1**	**2 350.3**	**91.3%**	**49.2**	**138.6**	**36.1**	**3.3**	**227.2**	**21.7%**
Austria	75.1	0.5	4.8	0.5	80.8	93.5%	1.8	4.1	2.4	0.0	8.4	21.9%
Belgium	107.4	-	9.7	0.6	117.7	91.2%	1.2	5.7	2.7	0.0	9.6	12.7%
Czech Republic	118.5	1.8	5.6	1.0	126.7	94.9%	5.0	3.9	3.2	0.0	12.0	41.4%
Denmark	48.4	0.4	1.6	3.0	53.5	91.3%	1.3	5.2	1.5	-	8.0	16.4%
Estonia	16.8	0.7	0.7	10.3	28.5	61.6%	0.9	0.6	0.7	-	2.2	41.3%
Finland	54.6	0.4	2.5	51.3	108.8	50.6%	0.8	2.0	6.9	0.0	9.8	8.3%
France	370.2	2.3	24.9	7.6	405.1	92.0%	34.4	36.9	11.5	0.1	82.9	41.5%
Germany	786.8	2.6	35.3	35.4	860.2	91.8%	16.5	29.6	15.4	0.2	61.7	26.7%
Greece	95.2	0.1	8.4	0.4	104.2	91.5%	1.9	3.6	2.6	0.0	8.2	23.3%
Hungary	54.7	0.3	3.9	1.0	60.0	91.8%	2.3	2.6	2.9	0.0	7.9	29.4%
Iceland	2.2	-	0.9	17.6	20.8	10.8%	0.0	0.2	0.1	0.0	0.3	1.2%
Ireland	44.2	0.5	2.3	8.9	55.9	80.0%	1.8	11.8	1.4	0.0	15.0	12.1%
Italy	456.3	0.4	32.3	2.3	491.3	93.0%	6.1	16.2	17.7	0.1	40.1	15.2%
Luxembourg	11.5	-	0.6	0.0	12.0	95.3%	0.1	0.9	0.1	0.0	1.1	10.6%
Netherlands	163.2	0.6	12.2	6.5	182.6	89.8%	5.0	9.2	6.9	0.1	21.3	23.7%
Norway	34.6	1.4	7.2	0.7	43.9	81.9%	12.4	2.1	2.3	0.1	16.9	73.2%
Poland	296.3	3.4	13.7	25.4	338.8	88.5%	46.2	15.4	9.0	0.0	70.6	65.4%
Portugal	61.4	-	5.6	0.3	67.3	91.2%	1.6	4.3	6.9	0.8	13.6	11.8%
Slovak Republic	37.3	0.9	4.3	0.4	42.8	89.0%	0.8	1.5	1.7	0.0	4.1	20.4%
Slovenia	15.5	-	2.2	0.3	17.9	86.4%	1.1	1.1	0.7	0.0	3.0	37.4%
Spain	333.6	1.4	26.2	1.5	362.8	92.3%	4.0	20.6	11.3	0.4	36.3	11.0%
Sweden	49.1	0.8	4.2	14.6	68.7	72.6%	1.2	3.2	7.1	0.0	11.5	10.3%
Switzerland	43.9	0.0	2.6	0.4	46.9	93.6%	0.9	3.2	0.8	0.0	5.0	19.2%
Turkey	216.2	2.3	25.8	1.4	245.7	88.9%	10.4	21.6	32.3	0.1	64.4	16.2%
United Kingdom	531.2	5.5	17.4	11.4	565.4	94.9%	14.8	25.1	24.4	0.0	64.4	23.0%
OECD Europe	**4 023.9**	**26.4**	**254.8**	**203.0**	**4 508.1**	**89.8%**	**172.8**	**230.8**	**172.6**	**2.0**	**578.1**	**29.9%**
European Union - 28	*3 915.9*	*23.9*	*236.9*	*195.3*	*4 372.1*	*90.1%*	*168.1*	*218.8*	*154.9*	*2.0*	*543.8*	*30.9%*
G7	*9 578.4*	*39.3*	*379.0*	*199.4*	*10 196.1*	*94.3%*	*331.8*	*354.7*	*240.1*	*7.1*	*933.8*	*35.5%*
G8	*11 060.0*	*181.0*	*472.1*	*432.5*	*12 145.6*	*92.6%*	*708.5*	*405.8*	*297.3*	*16.0*	*1 427.5*	*49.6%*
G20	*22 197.7*	*338.1*	*1 582.4*	*4 338.1*	*28 456.3*	*79.2%*	*1 774.7*	*2 062.6*	*913.9*	*186.4*	*4 937.6*	*35.9%*

1. Total World includes Non-OECD total, OECD total as well as international bunkers.

Sources: IEA, CO_2 emissions from fuel combustion. EDGAR 4.3.0 and 4.2 FT2010 databases for other emissions. In general, estimates for emissions other than CO_2 from fuel combustion are subject to significantly larger uncertainties.

2005 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

N_2O						HFCs	PFCs	SF_6	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP [1]	
284.0	**163.7**	**1 953.7**	**566.9**	**2 968.3**	**9.6%**	**534.8**	**93.3**	**131.2**	**47 536.4**	**64.0%**	**0.74**	**World**
144.6	*123.0*	*537.4*	*141.5*	*946.6*	*15.3%*	*347.4*	*64.2*	*73.5*	*18 945.8*	*80.1%*	*0.52*	*Annex I Parties*
122.5	*78.1*	*420.7*	*103.6*	*724.8*	*16.9%*	*312.3*	*35.4*	*62.0*	*14 365.8*	*81.4%*	*0.45*	*Annex II Parties*
80.4	*27.5*	*202.6*	*50.3*	*360.8*	*22.3%*	*198.2*	*15.2*	*46.1*	*7 822.6*	*84.3%*	*0.55*	*North America*
27.8	*45.7*	*148.6*	*35.9*	*258.0*	*10.8%*	*67.4*	*11.5*	*10.9*	*4 409.4*	*77.6%*	*0.35*	*Europe*
14.3	*4.9*	*69.4*	*17.4*	*106.0*	*13.5%*	*46.6*	*8.7*	*5.0*	*2 133.8*	*78.5%*	*0.45*	*Asia Oceania*
18.5	*41.1*	*94.8*	*34.4*	*188.8*	*9.8%*	*32.0*	*28.2*	*9.8*	*4 220.1*	*76.7%*	*1.17*	*Annex I EIT*
139.4	*40.7*	*1 416.3*	*425.4*	*2 021.8*	*6.9%*	*187.4*	*29.1*	*57.7*	*27 587.5*	*51.7%*	*0.97*	*Non-Annex I Parties*
60.0	*89.5*	*304.3*	*87.1*	*540.9*	*11.1%*	*145.6*	*48.4*	*25.7*	*10 633.6*	*77.8%*	*0.51*	*Annex I Kyoto Parties*
-	**-**	**-**	**-**	**-**	**0.0%**	**-**	**-**	**-**	**580.3**	**100.0%**	**..**	**Int. marine bunkers**
-	**-**	**-**	**-**	**-**	**0.0%**	**-**	**-**	**-**	**422.8**	**100.0%**	**..**	**Int. aviation bunkers**
142.6	**68.2**	**1 440.1**	**442.8**	**2 093.7**	**6.8%**	**201.7**	**53.7**	**61.7**	**29 696.1**	**53.4%**	**1.05**	**Non-OECD Total**
141.4	**95.5**	**513.6**	**124.1**	**874.6**	**16.2%**	**333.2**	**39.6**	**69.5**	**16 837.2**	**80.5%**	**0.46**	**OECD Total**
7.2	2.1	23.6	7.2	40.2	18.0%	11.9	6.2	4.2	780.3	76.0%	0.67	Canada
0.8	0.9	6.0	0.9	8.6	9.6%	-	0.0	0.0	86.5	69.7%	0.42	Chile
3.4	1.2	31.9	7.1	43.6	7.8%	7.1	-	0.4	627.7	67.9%	0.47	Mexico
73.1	25.4	179.0	43.1	320.6	22.8%	186.3	9.0	42.0	7 042.3	85.3%	0.54	United States
84.6	**29.6**	**240.5**	**58.4**	**413.0**	**20.5%**	**205.3**	**15.2**	**46.5**	**8 536.8**	**83.0%**	**0.54**	**OECD Americas**
4.7	1.8	48.9	7.7	63.0	7.4%	5.1	0.8	0.5	612.3	69.5%	0.85	Australia
0.3	0.2	0.9	0.6	2.0	14.0%	1.3	0.1	0.6	69.2	86.4%	0.41	Israel
9.2	3.1	8.3	9.4	30.0	30.6%	40.8	7.6	4.5	1 439.6	84.3%	0.37	Japan
3.3	2.2	4.9	3.6	14.0	23.3%	4.9	2.5	4.6	570.8	83.8%	0.49	Korea
0.5	-	12.2	0.3	13.0	3.5%	0.7	0.2	0.1	81.9	43.0%	0.77	New Zealand
17.9	**7.4**	**75.2**	**21.6**	**122.0**	**14.6%**	**52.9**	**11.2**	**10.2**	**2 773.8**	**79.8%**	**0.46**	**OECD Asia Oceania**
0.8	0.3	2.3	0.8	4.2	19.1%	1.9	0.2	0.2	95.7	81.7%	0.34	Austria
0.8	3.9	2.9	1.2	8.8	8.9%	1.9	0.0	0.1	138.1	79.2%	0.40	Belgium
2.4	1.1	3.3	0.9	7.6	31.2%	1.1	0.0	0.0	147.5	86.5%	0.65	Czech Republic
0.6	-	4.6	0.6	5.8	10.1%	1.2	0.0	0.0	68.5	74.0%	0.37	Denmark
0.2	-	0.6	0.2	1.0	23.3%	0.0	0.0	0.0	31.7	58.9%	1.41	Estonia
1.9	1.6	3.0	0.6	7.1	26.5%	0.8	0.0	0.1	126.4	45.6%	0.75	Finland
4.0	6.9	32.8	4.6	48.2	8.2%	12.7	0.7	1.6	551.2	74.6%	0.29	France
5.9	10.4	29.5	5.7	51.5	11.4%	14.7	1.4	5.4	994.9	81.6%	0.38	Germany
1.0	0.5	3.5	1.0	6.0	16.0%	1.9	0.1	0.1	120.5	81.5%	0.43	Greece
0.3	1.8	4.2	0.7	7.0	4.8%	1.2	0.3	0.0	76.3	75.6%	0.44	Hungary
0.0	0.0	0.3	0.0	0.4	10.2%	0.0	0.1	0.0	21.7	10.5%	2.03	Iceland
0.3	-	6.8	0.4	7.5	4.4%	0.9	0.2	0.1	79.5	58.9%	0.48	Ireland
3.3	7.5	12.5	5.3	28.7	11.6%	9.1	0.4	0.9	570.5	81.7%	0.33	Italy
0.1	-	0.3	0.1	0.5	20.0%	0.1	0.0	-	13.7	85.5%	0.44	Luxembourg
0.9	5.6	5.8	1.3	13.5	6.4%	3.1	0.4	0.1	220.9	76.9%	0.37	Netherlands
0.4	1.9	1.8	0.8	5.0	7.4%	0.3	4.6	0.3	71.0	68.5%	0.32	Norway
4.1	4.8	17.4	2.6	29.0	14.2%	1.7	0.6	0.2	440.9	79.4%	0.84	Poland
0.7	0.5	2.6	2.1	6.0	11.8%	0.6	0.0	0.1	87.7	72.6%	0.38	Portugal
0.4	1.2	1.3	0.3	3.3	13.4%	0.3	0.1	-	50.6	77.9%	0.57	Slovak Republic
0.2	-	0.8	0.2	1.1	13.3%	0.4	0.1	0.0	22.5	74.4%	0.47	Slovenia
3.0	1.7	16.6	5.0	26.3	11.4%	6.3	2.0	0.7	434.4	78.7%	0.36	Spain
1.1	0.5	3.5	0.8	5.9	19.0%	1.1	0.7	0.2	88.2	59.2%	0.28	Sweden
0.4	0.1	1.4	0.5	2.5	17.5%	1.6	0.1	0.3	56.3	80.3%	0.19	Switzerland
3.6	3.9	21.8	3.4	32.6	10.9%	2.9	0.5	1.6	347.7	66.9%	0.45	Turkey
2.7	4.1	18.4	5.0	30.2	9.0%	9.0	0.6	0.6	670.2	82.7%	0.32	United Kingdom
39.0	**58.5**	**197.9**	**44.1**	**339.6**	**11.5%**	**75.0**	**13.1**	**12.7**	**5 526.6**	**77.1%**	**0.38**	**OECD Europe**
36.2	*59.2*	*185.9*	*42.1*	*323.3*	*11.2%*	*72.8*	*8.2*	*10.4*	*5 330.6*	*77.7%*	*0.39*	*European Union - 28*
105.4	*59.6*	*304.1*	*80.4*	*549.4*	*19.2%*	*284.6*	*25.9*	*59.1*	*12 048.9*	*83.5%*	*0.45*	*G7*
112.7	*73.1*	*337.9*	*103.8*	*627.5*	*18.0%*	*308.8*	*52.5*	*68.4*	*14 630.3*	*82.4%*	*0.52*	*G8*
235.8	*137.1*	*1 341.5*	*382.3*	*2 096.7*	*11.2%*	*515.3*	*79.6*	*117.1*	*36 202.5*	*67.8%*	*0.69*	*G20*

1. GHG / GDP PPP ratio is expressed in kg of CO_2-equivalent per 2005 USD.

2005 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

	CO_2						CH_4					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Non-OECD Total	**13 228.9**	**479.8**	**1 285.0**	**6 658.6**	**21 652.4**	**63.3%**	**2 013.1**	**2 522.7**	**827.1**	**269.9**	**5 632.9**	**35.7%**
Albania	3.8	0.0	0.3	0.6	4.7	81.1%	0.6	1.7	0.2	0.0	2.5	22.2%
Armenia	4.1	-	0.3	0.3	4.7	87.4%	1.5	1.1	0.4	0.0	3.0	50.8%
Azerbaijan	29.0	0.4	0.9	0.3	30.5	96.3%	5.5	5.0	1.6	0.0	12.1	45.6%
Belarus	55.0	2.1	3.6	42.6	103.4	55.3%	1.0	8.1	4.9	0.0	14.0	6.8%
Bosnia-Herzegovina	15.9	0.2	0.6	0.4	17.1	94.3%	1.2	1.2	0.3	0.0	2.7	45.2%
Bulgaria	46.5	0.5	4.7	0.4	52.2	90.1%	1.4	2.1	9.2	0.1	12.8	11.3%
Croatia	20.0	0.0	2.3	0.0	22.4	89.5%	2.2	1.3	1.0	0.0	4.5	48.9%
Cyprus [1]	7.0	-	0.8	0.0	7.9	89.6%	0.0	0.3	0.3	-	0.6	2.2%
FYR of Macedonia	8.9	0.0	0.7	0.1	9.7	91.7%	0.5	0.7	0.3	0.0	1.4	32.7%
Georgia	4.1	0.0	0.6	0.3	5.0	82.1%	1.6	2.2	0.6	0.0	4.4	36.1%
Gibraltar	0.4	-	-	0.0	0.4	99.9%	0.0	-	0.0	-	0.0	6.7%
Kazakhstan	156.9	16.7	7.7	0.4	181.8	95.5%	35.1	11.9	4.7	2.2	53.9	65.2%
Kosovo [2]	6.6	..	..	..	..	..	..	..	..	..	..	..
Kyrgyzstan	4.9	0.0	0.4	0.5	5.8	84.8%	0.2	2.6	0.7	0.0	3.6	6.8%
Latvia	7.6	-	0.4	4.3	12.3	61.7%	1.7	0.9	0.6	0.0	3.1	53.7%
Lithuania	12.3	0.0	1.2	6.1	19.5	62.9%	1.8	1.9	1.4	0.0	5.0	35.1%
Malta	2.7	-	0.0	0.0	2.7	99.8%	0.0	0.0	0.2	-	0.2	0.8%
Republic of Moldova	7.7	-	0.3	0.1	8.1	94.7%	1.7	1.0	0.8	0.0	3.5	47.8%
Montenegro [2]	2.0	..	..	..	..	..	..	..	..	..	..	..
Romania	92.7	0.7	9.3	1.5	104.2	89.6%	11.9	8.8	5.2	0.0	26.0	46.0%
Russian Federation	1 481.7	141.7	93.0	233.1	1 949.4	83.3%	376.7	51.0	57.2	8.8	493.8	76.3%
Serbia [2]	49.6	0.6	2.2	0.7	53.0	94.6%	3.0	3.4	1.1	0.0	7.6	39.8%
Tajikistan	2.3	0.0	0.8	0.0	3.2	74.3%	0.5	2.7	0.7	0.0	3.9	12.5%
Turkmenistan	48.4	4.1	0.4	0.5	53.4	98.3%	22.6	6.1	0.9	0.0	29.5	76.5%
Ukraine	293.9	21.5	31.6	6.2	353.3	89.3%	44.2	16.4	10.0	0.3	70.9	62.4%
Uzbekistan	107.1	3.6	4.0	1.5	116.3	95.2%	25.4	13.4	3.5	0.0	42.4	60.0%
Non-OECD Europe and Eurasia	**2 471.2**	**192.2**	**166.2**	**300.1**	**3 129.7**	**85.1%**	**540.3**	**143.5**	**105.8**	**11.6**	**801.3**	**67.4%**
Algeria	77.4	13.2	7.0	0.2	97.9	92.6%	36.5	4.5	4.7	0.0	45.6	80.0%
Angola	6.1	9.5	0.5	5.6	21.8	71.7%	10.6	3.9	1.9	0.0	16.4	64.6%
Benin	2.7	-	0.1	20.2	23.0	11.6%	0.9	2.0	1.0	0.5	4.4	20.5%
Botswana	4.3	-	0.2	0.4	4.9	87.9%	0.5	3.9	0.3	0.0	4.7	10.2%
Cameroon	2.9	1.9	0.6	35.6	41.0	11.9%	2.2	8.0	2.5	0.9	13.7	16.3%
Congo	0.8	3.5	0.0	37.6	42.0	10.4%	3.8	1.8	0.5	1.5	7.7	49.9%
Côte d'Ivoire	5.8	0.1	0.3	114.3	120.4	4.9%	3.3	2.0	2.4	4.8	12.5	26.4%
Dem. Rep. of Congo	1.3	0.8	0.2	833.8	836.2	0.3%	5.9	14.1	6.3	31.3	57.7	10.3%
Egypt	144.6	3.5	21.6	1.1	170.7	86.7%	24.7	14.8	8.3	0.0	47.8	51.6%
Eritrea	0.6	-	0.0	0.0	0.6	94.4%	0.4	1.8	0.4	-	2.6	16.1%
Ethiopia	4.5	-	0.7	0.6	5.8	77.8%	7.8	38.3	6.9	-	53.0	14.7%
Gabon	1.7	4.7	0.1	6.2	12.7	50.6%	3.5	0.1	0.3	0.4	4.3	81.5%
Ghana	6.4	0.0	0.8	9.6	16.8	38.3%	2.9	3.7	2.9	0.4	10.0	29.6%
Kenya	7.5	-	1.1	3.8	12.4	60.5%	7.2	14.5	3.9	-	25.6	28.2%
Libya	43.0	9.3	3.6	0.1	56.0	93.4%	14.3	0.8	1.1	0.0	16.3	87.7%
Mauritius	3.0	0.0	0.0	0.0	3.0	99.7%	0.0	0.0	0.2	-	0.3	10.5%
Morocco	39.5	-	6.3	0.3	46.1	85.7%	0.9	5.5	4.2	0.0	10.6	8.3%
Mozambique	1.5	0.0	1.1	34.9	37.5	4.0%	3.4	6.0	2.3	2.0	13.7	25.0%
Namibia	2.5	-	0.0	0.0	2.5	98.1%	0.1	4.9	0.2	0.0	5.3	2.3%
Niger [3]	0.7	0.0	0.0	..	..	..	..	..	..	..	..	..
Nigeria	56.4	42.2	1.7	8.1	108.3	91.0%	43.3	26.1	14.5	0.2	84.1	51.5%
Senegal	4.6	-	1.1	0.1	5.8	79.6%	1.2	5.0	1.6	-	7.7	15.0%
South Africa	372.3	27.3	15.6	4.7	419.9	95.1%	30.5	20.0	12.5	2.4	65.3	46.6%
South Sudan [4]	..	..	..	..	..	..	..	..	..	..	..	..
Sudan [4]	9.9	0.6	0.1	4.1	14.6	71.3%	6.6	58.9	5.2	-	70.7	9.3%
United Rep. of Tanzania	5.1	0.0	0.6	65.1	70.8	7.1%	5.1	20.7	4.2	3.6	33.6	15.3%
Togo	1.0	-	0.3	7.4	8.7	11.1%	1.5	1.2	0.7	0.4	3.7	39.6%
Tunisia	19.5	0.6	3.1	0.2	23.3	86.0%	3.6	2.1	1.5	0.0	7.2	50.0%
Zambia	2.1	-	0.3	124.2	126.6	1.7%	2.4	12.3	1.2	5.4	21.2	11.1%
Zimbabwe	10.3	0.4	0.6	1.0	12.3	86.6%	1.1	7.1	1.5	0.0	9.7	11.4%
Other Africa [3]	19.6	2.9	1.4	246.7	270.6	8.3%	26.0	105.6	17.1	9.6	158.4	16.4%
Africa	**857.6**	**120.5**	**69.1**	**1 565.8**	**2 613.0**	**37.4%**	**250.3**	**389.7**	**110.2**	**63.4**	**813.6**	**30.8%**

1. Please refer to Part I, Chapter 4, *Geographical Coverage*.
2. For 2005, Serbia includes Kosovo and Montenegro for all emissions other than CC_2 from fuel combustion.
3. For 2005, Other Africa includes Niger for all emissions except CO_2 from fuel combustion, CO_2 from fugitive sources and CO_2 from industrial processes.
4. Prior to 2012, data for South Sudan are included in Sudan.

2005 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

N_2O						HFCs	PFCs	SF_6	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP [1]	
142.6	**68.2**	**1 440.1**	**442.8**	**2 093.7**	**6.8%**	**201.7**	**53.7**	**61.7**	**29 696.1**	**53.4%**	**1.05**	**Non-OECD Total**
0.1	-	0.8	0.2	1.0	7.2%	0.1	-	-	8.3	53.6%	0.43	Albania
0.0	-	0.5	0.1	0.6	1.0%	0.3	-	-	8.6	65.5%	0.61	Armenia
0.2	-	2.0	0.4	2.6	6.2%	0.1	0.2	-	45.5	77.1%	0.76	Azerbaijan
0.6	2.2	8.5	0.6	11.9	5.1%	0.4	0.0	-	129.8	45.2%	1.39	Belarus
0.1	-	0.7	0.2	1.0	12.7%	0.4	0.1	-	21.4	81.7%	0.89	Bosnia-Herzegovina
0.3	0.9	2.0	0.6	4.0	8.8%	0.4	0.0	-	69.3	70.4%	0.90	Bulgaria
0.2	0.8	1.5	0.3	2.8	8.5%	0.0	0.0	-	29.8	75.5%	0.43	Croatia
0.0	-	0.2	0.1	0.3	13.0%	0.2	-	-	9.0	79.2%	0.48	Cyprus
0.1	-	0.4	0.1	0.6	17.6%	0.1	-	-	11.9	79.9%	0.74	FYR of Macedonia
0.1	0.7	1.1	0.2	2.0	3.2%	0.0	-	-	11.4	50.2%	0.62	Georgia
0.0	-	-	0.0	0.0	34.4%	-	-	-	0.4	97.1%	0.47	Gibraltar
2.6	-	11.0	4.5	18.1	14.2%	0.3	-	-	254.1	83.2%	1.21	Kazakhstan
..	..	..	..	..	..	..	..	..	..	..	..	Kosovo
0.2	-	1.1	0.2	1.5	11.0%	0.0	-	-	10.9	48.7%	1.00	Kyrgyzstan
0.2	-	1.0	0.2	1.3	12.0%	0.9	0.0	-	17.6	53.5%	0.59	Latvia
0.1	2.0	2.1	0.2	4.5	2.7%	0.6	0.0	-	29.7	47.8%	0.61	Lithuania
0.0	-	0.0	0.0	0.1	11.6%	0.1	-	-	3.2	86.4%	0.37	Malta
0.1	-	0.6	0.2	0.9	6.0%	0.0	-	-	12.6	75.2%	1.19	Republic of Moldova
..	..	..	..	..	..	..	..	..	..	..	..	Montenegro
0.7	2.9	6.5	1.3	11.4	6.0%	0.4	0.3	0.0	142.2	74.5%	0.70	Romania
7.3	13.5	33.7	23.5	78.1	9.4%	24.2	26.6	9.3	2 581.4	77.8%	1.52	Russian Federation
0.2	0.5	2.9	0.4	4.1	5.0%	4.3	0.1	-	69.1	77.2%	1.09	Serbia
0.0	-	1.2	0.2	1.4	1.1%	0.0	0.4	-	8.8	32.3%	0.85	Tajikistan
0.1	0.6	3.3	0.3	4.3	1.8%	0.1	-	-	87.3	86.1%	3.17	Turkmenistan
1.4	9.8	11.9	2.9	26.0	5.6%	0.2	0.2	0.3	450.9	80.1%	1.48	Ukraine
0.5	0.1	8.4	1.1	10.1	5.0%	0.6	-	-	169.4	80.7%	2.39	Uzbekistan
15.1	**34.0**	**101.6**	**37.8**	**188.5**	**8.0%**	**33.9**	**28.0**	**9.6**	**4 190.9**	**76.8%**	**1.34**	**Non-OECD Europe and Eurasia**
0.4	0.7	2.9	0.9	4.9	8.2%	0.2	-	0.3	148.9	85.7%	0.41	Algeria
0.2	-	2.6	0.3	3.1	6.6%	0.0	-	-	41.2	64.0%	0.60	Angola
0.1	-	1.8	1.0	2.9	4.2%	-	-	-	30.3	12.2%	2.63	Benin
0.1	-	2.8	0.2	3.1	2.9%	-	-	-	12.6	38.4%	0.66	Botswana
0.2	-	6.8	2.0	9.0	2.6%	-	0.4	-	64.1	11.4%	1.57	Cameroon
0.1	-	1.8	1.7	3.6	1.9%	0.0	-	-	53.3	15.5%	3.39	Congo
0.2	-	2.1	5.1	7.5	3.1%	-	-	-	140.4	6.7%	3.21	Côte d'Ivoire
1.3	-	16.3	37.1	54.7	2.3%	-	-	-	948.5	1.0%	32.76	Dem. Rep. of Congo
1.3	3.2	15.2	2.3	22.0	6.0%	0.3	1.7	1.1	243.7	71.4%	0.45	Egypt
0.0	-	1.1	0.1	1.2	4.1%	-	-	-	4.4	23.7%	0.77	Eritrea
1.6	-	26.8	1.9	30.3	5.3%	0.0	-	-	89.0	15.6%	1.78	Ethiopia
0.0	-	0.1	0.3	0.5	10.2%	0.0	-	-	17.5	57.1%	0.84	Gabon
0.4	-	3.4	1.0	4.8	9.3%	0.0	0.0	-	31.6	31.1%	0.66	Ghana
0.6	-	9.4	0.6	10.6	5.7%	-	-	-	48.6	31.5%	0.68	Kenya
0.2	-	0.7	0.5	1.3	11.9%	-	-	0.3	73.9	90.4%	0.91	Libya
0.0	-	0.1	0.4	0.5	2.6%	-	-	-	3.8	79.9%	0.27	Mauritius
0.5	-	4.8	0.8	6.1	8.0%	-	-	-	62.8	65.0%	0.43	Morocco
0.3	-	6.5	2.5	9.3	3.5%	0.1	0.2	-	60.8	8.7%	4.21	Mozambique
0.1	-	3.5	0.2	3.9	3.4%	-	-	-	11.7	23.6%	0.89	Namibia
..	..	..	..	..	..	..	..	..	..	..	..	Niger
2.0	-	16.6	3.0	21.6	9.4%	0.3	-	0.3	214.7	67.0%	0.42	Nigeria
0.1	-	3.6	0.4	4.0	3.0%	-	-	-	17.5	33.7%	0.83	Senegal
2.9	2.1	14.4	5.8	25.2	11.5%	0.5	0.5	1.5	513.0	84.4%	1.09	South Africa
..	..	..	..	..	..	..	..	..	..	..	..	South Sudan
0.6	-	44.8	3.3	48.7	1.3%	-	-	-	134.0	13.2%	1.34	Sudan
0.6	-	16.7	4.2	21.4	2.7%	-	-	-	125.8	8.6%	2.06	United Rep. of Tanzania
0.1	-	1.1	0.5	1.7	6.7%	-	-	-	14.2	18.0%	2.37	Togo
0.2	0.3	1.6	0.3	2.4	9.0%	-	-	-	33.0	72.5%	0.42	Tunisia
0.2	0.4	17.4	6.7	24.7	1.0%	0.0	-	-	172.5	2.7%	6.45	Zambia
0.2	-	5.1	0.4	5.7	3.9%	-	-	-	27.7	43.3%	7.12	Zimbabwe
3.0	-	77.3	16.2	96.5	3.1%	0.1	-	-	525.6	9.8%	2.65	Other Africa
17.9	**6.8**	**306.9**	**99.7**	**431.3**	**4.1%**	**1.6**	**2.9**	**3.6**	**3 865.9**	**32.2%**	**1.25**	**Africa**

1. GHG / GDP PPP ratio is expressed in kg of CO_2-equivalent per 2005 USD. The high GHG / GDP PPP ratio for DR of Congo and Zambia is due to high levels of forest fires and subsequent post-burn decay.

2005 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

	CO_2						CH_4					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Bangladesh	32.0	0.0	4.0	7.6	43.5	73.4%	9.7	66.5	17.9	0.1	94.2	10.3%
Brunei Darussalam	4.8	0.2	0.1	12.1	17.3	29.2%	3.9	0.0	0.1	0.5	4.5	86.2%
Cambodia	2.6	-	0.0	31.1	33.7	7.8%	1.2	15.5	1.6	2.3	20.5	5.6%
DPR of Korea	75.3	-	3.8	2.7	81.8	92.1%	11.8	4.3	3.2	0.1	19.3	60.9%
India	1 086.5	18.4	83.2	48.7	1 236.7	89.3%	93.5	375.9	113.3	1.8	584.5	16.0%
Indonesia	321.6	6.4	25.3	2 054.9	2 408.2	13.6%	49.0	98.3	50.8	61.6	259.7	18.9%
Malaysia	154.6	4.9	14.2	113.2	286.9	55.6%	22.1	5.8	5.7	2.8	36.5	60.7%
Mongolia	11.0	0.0	0.1	42.8	53.9	20.4%	0.4	5.6	0.3	0.0	6.3	5.9%
Myanmar	10.6	0.0	0.3	387.8	398.8	2.7%	9.7	54.3	6.4	7.8	78.2	12.4%
Nepal	3.1	-	0.1	0.2	3.4	89.5%	1.4	18.4	2.5	0.0	22.3	6.4%
Pakistan	116.8	0.3	9.4	0.4	126.9	92.2%	34.1	87.0	17.6	0.1	138.7	24.6%
Philippines	71.5	0.0	8.2	2.2	81.9	87.3%	5.6	33.6	14.0	0.0	53.2	10.5%
Singapore	37.9	-	4.6	0.4	42.8	88.4%	1.4	0.0	0.9	0.0	2.3	60.7%
Sri Lanka	13.4	-	0.7	0.5	14.6	91.8%	0.6	6.7	3.0	-	10.3	6.1%
Chinese Taipei	253.6	0.7	15.3	0.9	270.5	94.0%	1.4	1.1	5.8	0.0	8.3	17.0%
Thailand	200.2	0.5	23.0	13.0	236.7	84.8%	19.1	56.1	13.7	0.5	89.4	21.3%
Viet Nam	79.1	1.2	16.6	9.9	106.9	75.2%	28.1	55.1	10.9	0.3	94.3	29.8%
Other Asia	15.5	0.8	0.5	68.7	85.5	19.1%	2.9	18.6	5.1	1.9	28.4	10.1%
Asia (excl. China)	**2 490.0**	**33.4**	**209.6**	**2 797.0**	**5 530.1**	**45.6%**	**295.8**	**902.8**	**272.5**	**79.7**	**1 550.8**	**19.1%**
People's Rep. of China	5 359.7	46.1	678.6	109.6	6 194.0	87.3%	606.0	516.9	201.6	3.3	1 327.8	45.6%
Hong Kong, China	41.3	1.5	0.5	0.1	43.4	98.7%	0.8	-	2.1	-	2.8	26.8%
China	**5 401.0**	**47.6**	**679.1**	**109.7**	**6 237.4**	**87.4%**	**606.8**	**516.9**	**203.7**	**3.3**	**1 330.6**	**45.6%**
Argentina	149.4	1.4	6.6	9.7	167.2	90.2%	17.9	71.9	8.7	1.5	100.0	17.9%
Bolivia	9.4	0.3	0.5	219.3	229.7	4.3%	7.2	10.4	1.3	10.9	29.8	24.1%
Brazil	310.5	4.9	33.7	1 462.7	1 811.8	17.4%	37.9	302.6	58.8	92.9	492.2	7.7%
Colombia	53.6	1.1	5.2	24.5	84.4	64.8%	11.1	39.6	6.5	0.5	57.7	19.3%
Costa Rica	5.4	-	0.8	0.1	6.3	86.2%	0.3	1.7	0.4	-	2.4	10.5%
Cuba	25.1	0.2	0.7	3.2	29.2	86.5%	0.9	5.9	2.5	-	9.3	9.4%
Curaçao	6.0	-	-	0.0	6.1	99.2%	0.1	0.0	0.1	-	0.1	55.6%
Dominican Republic	17.4	-	1.1	0.3	18.8	92.7%	1.1	3.9	1.7	-	6.7	16.2%
Ecuador	23.2	2.8	1.4	2.1	29.5	88.2%	3.4	9.9	1.8	0.1	15.1	22.2%
El Salvador	6.3	-	0.4	0.2	6.9	90.3%	0.4	1.7	1.1	-	3.2	13.0%
Guatemala	10.6	0.0	0.9	37.5	49.0	21.7%	1.1	4.1	1.5	1.7	8.4	12.6%
Haiti	2.0	-	0.2	0.0	2.2	89.2%	0.7	2.3	1.3	-	4.3	17.2%
Honduras	7.2	-	0.5	2.7	10.3	69.2%	0.4	4.1	0.7	-	5.2	7.5%
Jamaica	10.3	-	0.3	0.1	10.7	96.0%	0.2	0.7	0.5	-	1.3	11.7%
Nicaragua	4.0	-	0.2	0.4	4.7	86.0%	0.4	4.5	1.1	-	6.0	6.8%
Panama	6.7	-	0.4	0.4	7.5	89.2%	0.1	2.5	0.5	-	3.2	4.2%
Paraguay	3.5	-	0.3	20.5	24.2	14.3%	0.9	13.0	1.1	0.8	15.8	5.6%
Peru	28.6	0.2	2.4	11.4	42.6	67.7%	1.8	10.5	4.0	0.3	16.6	10.5%
Trinidad and Tobago	17.5	0.3	14.1	0.0	32.0	55.8%	9.4	0.1	1.3	0.2	11.1	85.3%
Uruguay	5.2	-	0.2	0.4	5.8	88.2%	0.5	18.4	0.8	0.0	19.8	2.5%
Venezuela	137.1	5.4	7.8	48.5	198.9	71.7%	25.2	24.6	5.6	2.1	57.5	43.9%
Other Non-OECD Americas	16.1	0.0	1.0	16.7	33.8	47.8%	0.2	2.5	2.7	0.2	5.7	3.6%
Non-OECD Americas	**855.3**	**16.7**	**78.8**	**1 861.0**	**2 811.8**	**31.0%**	**121.0**	**534.9**	**104.1**	**111.4**	**871.4**	**13.9%**
Bahrain	20.6	0.0	2.0	0.1	22.7	90.7%	2.5	0.0	0.3	0.0	2.8	88.7%
Islamic Rep. of Iran	417.6	24.4	23.3	0.7	466.1	94.8%	66.2	20.9	12.6	0.1	99.8	66.3%
Iraq	81.7	14.1	1.5	3.4	100.7	95.2%	14.0	3.0	3.7	0.0	20.6	67.9%
Jordan	18.1	-	1.8	0.0	19.9	91.0%	0.5	0.4	1.0	-	1.8	26.5%
Kuwait	64.7	6.4	3.5	0.1	74.7	95.2%	11.8	0.2	0.8	0.0	12.8	92.6%
Lebanon	14.5	-	2.0	0.0	16.5	87.6%	0.1	0.3	0.7	-	1.0	11.6%
Oman	24.7	5.1	2.5	20.0	52.2	56.9%	13.5	0.5	0.5	-	14.5	92.7%
Qatar	33.2	4.5	3.9	0.0	41.7	90.5%	18.0	0.1	0.5	0.0	18.6	96.8%
Saudi Arabia	298.0	8.2	30.3	0.3	336.8	90.9%	43.4	1.9	5.7	0.2	51.3	84.6%
Syrian Arab Republic	53.4	2.3	2.1	0.2	58.1	96.0%	6.2	3.5	2.3	0.0	11.9	51.7%
United Arab Emirates	108.7	2.1	8.5	0.1	119.4	92.8%	20.7	0.6	1.0	-	22.3	92.8%
Yemen	18.8	2.1	0.8	0.0	21.7	96.2%	2.2	3.7	1.9	-	7.8	28.6%
Middle East	**1 153.9**	**69.3**	**82.1**	**25.1**	**1 330.5**	**91.9%**	**198.9**	**35.0**	**30.8**	**0.4**	**265.1**	**75.0%**

2005 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

N_2O						HFCs	PFCs	SF_6	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP [1]	
1.6	-	17.8	2.1	21.5	7.4%	-	-	-	159.2	27.1%	0.65	Bangladesh
0.0	-	0.1	0.6	0.7	1.7%	0.3	-	-	22.7	39.5%	0.93	Brunei Darussalam
0.3	-	3.8	2.0	6.1	4.1%	-	-	-	60.3	6.7%	2.59	Cambodia
0.5	-	2.1	0.8	3.4	13.7%	2.8	-	-	107.3	81.6%	1.00	DPR of Korea
26.0	1.8	156.3	27.2	211.2	12.3%	9.8	1.1	4.6	2 048.0	59.8%	0.63	India
4.5	0.2	80.8	71.1	156.6	2.9%	-	0.1	0.9	2 825.5	13.5%	2.17	Indonesia
0.7	0.4	9.7	4.5	15.3	4.6%	0.0	0.3	0.6	339.8	53.7%	0.82	Malaysia
0.1	-	3.3	0.2	3.5	3.4%	-	-	-	63.7	18.0%	5.58	Mongolia
0.8	-	13.2	17.7	31.7	2.5%	-	-	-	508.7	4.2%	9.26	Myanmar
0.6	-	3.5	0.5	4.5	13.1%	-	-	-	30.3	16.9%	0.79	Nepal
3.3	0.7	19.9	3.2	27.1	12.2%	-	-	0.8	293.5	52.6%	0.53	Pakistan
0.8	0.0	9.5	2.1	12.4	6.2%	-	-	0.4	147.8	52.7%	0.40	Philippines
0.1	0.7	0.0	0.3	1.1	7.9%	1.4	0.8	0.3	48.7	80.7%	0.21	Singapore
0.3	-	1.3	0.5	2.1	13.0%	-	-	-	27.0	53.0%	0.26	Sri Lanka
1.3	0.7	1.7	1.4	5.1	25.9%	0.1	3.2	3.3	290.5	88.5%	0.48	Chinese Taipei
4.5	0.5	14.6	3.0	22.6	20.1%	-	-	1.1	349.7	64.1%	0.55	Thailand
1.4	-	19.1	2.3	22.8	6.1%	-	-	-	224.0	49.0%	0.88	Viet Nam
0.5	-	10.5	3.0	14.0	3.9%	0.1	-	-	127.9	15.4%	1.28	Other Asia
47.2	**5.0**	**367.1**	**142.4**	**561.7**	**8.4%**	**14.5**	**5.6**	**12.0**	**7 674.6**	**37.3%**	**0.92**	**Asia (excl. China)**
45.8	17.9	347.1	52.3	463.2	9.9%	146.7	10.6	29.0	8 171.3	74.1%	1.26	People's Rep. of China
0.2	-	-	0.3	0.4	39.7%	-	-	0.1	46.8	93.6%	0.19	Hong Kong, China
46.0	**17.9**	**347.1**	**52.6**	**463.6**	**9.9%**	**146.7**	**10.6**	**29.1**	**8 218.0**	**74.2%**	**1.22**	**China**
1.7	0.2	44.4	3.7	50.0	3.4%	0.2	0.1	0.3	317.8	53.6%	0.76	Argentina
0.1	-	5.5	9.7	15.3	0.7%	-	-	-	274.8	6.2%	7.21	Bolivia
5.9	2.5	157.5	72.4	238.2	2.5%	1.8	5.6	1.2	2 550.9	14.1%	1.30	Brazil
0.6	0.3	18.3	2.1	21.3	3.0%	-	0.0	0.1	163.5	40.6%	0.46	Colombia
0.1	0.0	1.1	0.2	1.4	5.0%	0.1	-	-	10.2	56.5%	0.25	Costa Rica
0.3	0.7	5.0	0.5	6.4	4.2%	0.1	-	-	45.1	58.6%	0.54	Cuba
0.0	-	0.0	0.0	0.1	17.7%	-	-	-	6.3	97.6%	2.79	Curaçao
0.2	-	1.7	0.4	2.3	8.6%	-	-	-	27.8	67.3%	0.38	Dominican Republic
0.2	-	3.9	0.5	4.6	3.8%	0.1	-	-	49.3	60.0%	0.47	Ecuador
0.1	-	1.0	0.2	1.4	8.3%	0.1	-	-	11.6	58.7%	0.31	El Salvador
0.3	-	3.0	2.1	5.4	5.6%	0.5	-	-	63.3	18.9%	0.87	Guatemala
0.1	-	1.2	0.1	1.5	6.7%	-	-	-	7.9	35.4%	0.62	Haiti
0.1	-	2.5	0.5	3.1	3.4%	-	-	-	18.6	41.1%	0.77	Honduras
0.1	-	0.4	0.2	0.7	11.1%	0.1	-	-	12.7	82.6%	0.68	Jamaica
0.1	-	3.1	0.3	3.5	3.2%	-	-	-	14.2	32.1%	0.77	Nicaragua
0.1	-	1.0	0.1	1.2	4.9%	-	-	-	12.0	57.9%	0.36	Panama
0.2	-	7.4	1.5	9.0	1.8%	-	-	-	49.1	9.2%	1.55	Paraguay
0.2	-	6.2	1.3	7.7	2.8%	0.3	-	-	67.2	45.9%	0.36	Peru
0.0	-	0.1	0.1	0.3	11.7%	-	-	-	43.3	63.1%	1.47	Trinidad and Tobago
0.1	-	6.8	0.1	7.0	1.5%	0.1	-	-	32.7	17.6%	0.87	Uruguay
0.6	0.0	11.2	3.1	14.9	4.3%	0.7	0.3	0.2	272.6	61.8%	0.76	Venezuela
0.1	-	2.4	0.8	3.3	3.7%	0.0	0.0	0.0	42.8	38.5%	0.97	Other Non-OECD Americas
11.2	**3.6**	**283.7**	**100.0**	**398.5**	**2.8%**	**4.0**	**6.0**	**1.9**	**4 093.6**	**24.5%**	**1.03**	**Non-OECD Americas**
0.0	-	0.0	0.1	0.1	27.2%	-	0.3	-	25.8	89.2%	0.75	Bahrain
2.5	0.6	20.1	4.0	27.2	9.1%	-	0.1	2.4	595.5	85.8%	0.72	Islamic Rep. of Iran
0.4	-	2.2	0.9	3.5	10.8%	-	-	0.1	124.9	88.3%	0.49	Iraq
0.1	-	0.4	0.2	0.7	9.4%	0.1	-	-	22.5	83.0%	0.50	Jordan
0.2	-	0.1	0.4	0.7	27.6%	0.5	-	0.4	89.1	93.4%	0.47	Kuwait
0.1	-	0.4	0.2	0.6	12.9%	-	-	-	18.2	80.7%	0.42	Lebanon
0.1	-	0.4	0.1	0.6	16.5%	0.2	-	-	67.6	64.1%	0.73	Oman
0.1	-	0.0	0.1	0.3	29.2%	-	-	-	60.5	92.2%	0.68	Qatar
1.0	-	3.0	2.5	6.4	14.8%	0.2	-	2.0	396.7	88.3%	0.47	Saudi Arabia
0.3	0.3	4.3	0.7	5.5	4.8%	-	-	-	75.5	82.4%	0.99	Syrian Arab Republic
0.2	-	0.5	0.7	1.4	16.7%	-	0.3	0.8	144.1	91.4%	0.38	United Arab Emirates
0.4	-	2.4	0.5	3.3	12.3%	-	-	-	32.8	71.8%	0.43	Yemen
5.2	**0.9**	**33.7**	**10.4**	**50.2**	**10.4%**	**1.0**	**0.7**	**5.6**	**1 653.1**	**86.3%**	**0.56**	**Middle East**

1. GHG / GDP PPP ratio is expressed in kg of CO_2-equivalent per 2005 USD. The high GHG / GDP PPP ratio for Mongolia is due to high levels of peat decay.

2010 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

	CO_2						CH_4					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
World [1]	**29 838.2**	**508.3**	**2 407.1**	**5 210.8**	**37 964.3**	**79.9%**	**2 978.7**	**3 389.5**	**1 291.9**	**151.6**	**7 811.8**	**38.1%**
Annex I Parties	*13 226.5*	*171.2*	*656.6*	*440.0*	*14 494.3*	*92.4%*	*972.3*	*640.2*	*446.8*	*3.9*	*2 063.1*	*47.1%*
Annex II Parties	*10 400.4*	*53.1*	*450.5*	*208.8*	*11 112.8*	*94.1%*	*409.9*	*520.2*	*287.8*	*3.2*	*1 221.1*	*33.6%*
North America	*5 870.7*	*29.8*	*166.2*	*43.0*	*6 109.8*	*96.6%*	*254.2*	*222.6*	*150.6*	*1.7*	*629.2*	*40.4%*
Europe	*2 988.4*	*18.8*	*180.8*	*145.0*	*3 333.0*	*90.2%*	*106.8*	*177.7*	*115.9*	*0.6*	*401.0*	*26.6%*
Asia Oceania	*1 541.4*	*4.5*	*103.4*	*20.8*	*1 670.1*	*92.6%*	*48.9*	*119.9*	*21.3*	*0.9*	*190.9*	*25.6%*
Annex I EIT	*2 550.8*	*117.0*	*166.3*	*230.8*	*3 064.9*	*87.0%*	*547.3*	*96.5*	*119.5*	*0.6*	*763.8*	*71.6%*
Non-Annex I Parties	*15 484.8*	*337.1*	*1 750.5*	*4 770.8*	*22 343.1*	*70.8%*	*2 006.4*	*2 749.4*	*845.2*	*147.7*	*5 748.7*	*34.9%*
Annex I Kyoto Parties	*7 020.7*	*136.0*	*446.3*	*355.2*	*7 958.1*	*89.9%*	*701.9*	*385.6*	*249.8*	*2.2*	*1 339.3*	*52.4%*
Int. marine bunkers	**667.2**	**-**	**-**	**-**	**667.2**	**100.0%**	**-**	**-**	**-**	**-**	**-**	**0.0%**
Int. aviation bunkers	**459.8**	**-**	**-**	**-**	**459.8**	**100.0%**	**-**	**-**	**-**	**-**	**-**	**0.0%**
Non-OECD Total	**16 405.6**	**435.5**	**1 811.2**	**4 935.8**	**23 588.1**	**71.4%**	**2 448.3**	**2 744.7**	**910.0**	**147.2**	**6 250.2**	**39.2%**
OECD Total	**12 305.6**	**72.8**	**595.8**	**275.0**	**13 249.3**	**93.4%**	**530.4**	**644.8**	**382.0**	**4.4**	**1 561.6**	**34.0%**
Canada	515.2	6.7	25.3	7.3	554.6	94.1%	43.2	27.0	33.7	0.5	104.5	41.3%
Chile	68.6	0.2	5.1	0.2	74.1	92.8%	4.3	7.9	5.6	0.2	18.0	24.0%
Mexico	414.0	7.3	24.6	31.3	477.2	88.3%	40.3	55.4	19.4	0.8	115.9	34.8%
United States	5 355.5	23.1	140.9	35.7	5 555.2	96.8%	211.1	195.6	116.9	1.1	524.7	40.2%
OECD Americas	**6 353.3**	**37.3**	**195.9**	**74.6**	**6 661.0**	**95.9%**	**298.9**	**285.9**	**175.6**	**2.7**	**763.0**	**39.2%**
Australia	385.1	3.3	15.6	12.2	416.2	93.3%	44.1	65.0	12.9	0.6	122.5	36.0%
Israel	68.4	0.1	3.2	0.1	71.8	95.4%	1.1	1.1	1.1	-	3.4	32.3%
Japan	1 126.1	1.0	85.8	4.5	1 217.4	92.6%	3.3	29.5	7.2	0.3	40.3	8.1%
Korea	550.8	4.0	43.9	0.0	598.7	92.7%	7.3	13.2	11.4	0.1	32.0	22.8%
New Zealand	30.2	0.2	2.0	4.1	36.4	83.4%	1.5	25.4	1.2	0.0	28.1	5.3%
OECD Asia Oceania	**2 160.6**	**8.6**	**150.5**	**20.9**	**2 340.6**	**92.7%**	**57.2**	**134.2**	**33.8**	**1.0**	**226.3**	**25.3%**
Austria	69.7	0.3	4.7	0.3	75.0	93.3%	2.1	4.0	2.2	0.0	8.4	25.6%
Belgium	101.9	0.5	10.1	0.3	112.8	90.8%	1.5	5.5	2.6	0.0	9.6	15.8%
Czech Republic	111.4	1.7	5.1	0.5	118.7	95.3%	5.2	3.4	3.4	0.0	12.0	43.4%
Denmark	47.4	0.2	0.9	2.7	51.2	92.9%	1.2	5.2	1.3	-	7.8	15.5%
Estonia	18.7	0.3	0.2	9.2	28.4	66.6%	1.0	0.6	0.7	-	2.3	42.8%
Finland	61.6	0.4	2.5	50.7	115.2	53.8%	0.9	1.9	6.0	0.0	8.9	10.4%
France	340.1	1.9	26.2	2.8	371.0	92.2%	36.1	35.2	12.3	0.1	83.8	43.1%
Germany	759.0	5.5	37.2	31.4	833.1	91.8%	14.8	28.6	13.7	0.2	57.2	25.9%
Greece	83.4	0.0	5.5	0.1	89.0	93.7%	1.7	3.6	3.1	0.0	8.4	19.8%
Hungary	47.5	0.4	3.1	0.7	51.7	92.6%	2.2	2.3	2.8	0.0	7.3	30.8%
Iceland	1.9	-	1.7	17.6	21.2	9.2%	0.0	0.2	0.2	0.0	0.4	0.8%
Ireland	39.3	1.0	1.3	8.0	49.6	81.3%	2.1	10.9	0.9	0.0	13.9	14.9%
Italy	392.0	1.3	25.9	0.4	419.6	93.7%	7.0	15.6	15.0	0.0	37.5	18.5%
Luxembourg	10.6	-	0.5	0.0	11.1	95.6%	0.1	1.0	0.1	0.0	1.2	11.4%
Netherlands	168.3	0.7	12.5	5.4	187.0	90.4%	5.7	9.7	4.9	0.0	20.3	27.9%
Norway	37.7	0.9	7.3	1.0	46.9	82.4%	13.1	2.1	1.9	0.1	17.1	76.3%
Poland	310.4	3.6	14.2	23.3	351.5	89.3%	41.7	15.1	8.6	0.0	65.5	63.8%
Portugal	47.5	-	4.8	0.1	52.4	90.7%	1.5	4.1	6.9	0.0	12.6	12.0%
Slovak Republic	34.6	1.1	4.9	0.2	40.8	87.3%	0.9	1.3	1.7	0.0	4.0	23.8%
Slovenia	15.4	-	1.8	0.2	17.4	88.7%	1.2	1.0	0.6	0.0	2.9	42.2%
Spain	262.0	0.2	19.1	0.1	281.4	93.2%	3.2	20.0	13.5	0.1	36.8	8.8%
Sweden	46.0	1.4	4.1	14.4	65.9	72.0%	1.3	3.1	6.4	0.0	10.8	12.0%
Switzerland	43.1	-	2.5	0.3	45.9	93.8%	1.2	3.1	0.7	0.0	5.0	23.0%
Turkey	265.4	1.2	39.2	0.3	306.0	87.1%	15.2	23.2	38.9	0.0	77.3	19.6%
United Kingdom	476.6	4.4	14.0	9.5	504.5	95.4%	13.3	23.7	24.2	0.0	61.2	21.7%
OECD Europe	**3 791.7**	**27.0**	**249.4**	**179.5**	**4 247.6**	**89.9%**	**174.3**	**224.7**	**172.6**	**0.7**	**572.3**	**30.5%**
European Union - 28	*3 611.2*	*25.7*	*213.0*	*171.6*	*4 021.5*	*90.4%*	*164.8*	*210.5*	*148.8*	*0.7*	*524.8*	*31.4%*
G7	*8 964.5*	*44.0*	*355.3*	*91.5*	*9 455.4*	*95.3%*	*328.7*	*355.3*	*223.0*	*2.2*	*909.2*	*36.1%*
G8	*10 493.5*	*135.2*	*450.7*	*230.8*	*11 310.2*	*94.0%*	*754.7*	*395.8*	*289.6*	*2.6*	*1 442.7*	*52.3%*
G20	*24 241.3*	*315.4*	*2 014.7*	*2 222.5*	*28 793.9*	*85.3%*	*2 100.2*	*2 133.4*	*959.1*	*24.1*	*5 216.9*	*40.3%*

1. Total World includes Non-OECD total, OECD total as well as international bunkers.

Sources: IEA, CO_2 emissions from fuel combustion. EDGAR 4.3.0 and 4.2 FT2010 databases for other emissions. In general, estimates for emissions other than CO_2 from fuel combustion are subject to significantly larger uncertainties.

2010 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

N_2O						HFCs	PFCs	SF_6	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP [1]	
282.7	**115.1**	**2 166.5**	**510.9**	**3 075.3**	**9.2%**	**776.2**	**72.7**	**166.8**	**49 867.1**	**67.4%**	**0.64**	**World**
126.5	*82.8*	*515.5*	*113.4*	*838.2*	*15.1%*	*535.7*	*46.1*	*72.7*	*18 050.0*	*80.3%*	*0.47*	*Annex I Parties*
106.8	*47.5*	*396.6*	*88.3*	*639.1*	*16.7%*	*489.0*	*24.1*	*60.4*	*13 546.6*	*81.0%*	*0.41*	*Annex II Parties*
69.9	*25.3*	*199.2*	*42.7*	*337.1*	*20.7%*	*322.5*	*10.6*	*45.3*	*7 454.3*	*83.5%*	*0.50*	*North America*
25.9	*17.5*	*137.3*	*32.8*	*213.5*	*12.1%*	*97.0*	*6.1*	*10.8*	*4 061.4*	*77.3%*	*0.31*	*Europe*
11.1	*4.6*	*60.1*	*12.7*	*88.5*	*12.5%*	*69.5*	*7.5*	*4.3*	*2 030.9*	*79.1%*	*0.42*	*Asia Oceania*
16.5	*33.2*	*93.0*	*21.1*	*163.8*	*10.1%*	*41.5*	*21.4*	*10.3*	*4 065.8*	*79.5%*	*0.96*	*Annex I EIT*
156.2	*32.4*	*1 651.0*	*397.6*	*2 237.1*	*7.0%*	*240.5*	*26.7*	*94.1*	*30 690.1*	*58.6%*	*0.78*	*Non-Annex I Parties*
52.7	*52.5*	*281.0*	*66.1*	*452.3*	*11.7%*	*207.5*	*34.9*	*25.5*	*10 017.7*	*79.0%*	*0.45*	*Annex I Kyoto Parties*
-	**-**	**-**	**-**	**-**	**0.0%**	**-**	**-**	**-**	**667.2**	**100.0%**	**..**	**Int. marine bunkers**
-	**-**	**-**	**-**	**-**	**0.0%**	**-**	**-**	**-**	**459.8**	**100.0%**	**..**	**Int. aviation bunkers**
157.9	**60.3**	**1 668.0**	**403.0**	**2 289.2**	**6.9%**	**259.7**	**45.6**	**96.7**	**32 529.5**	**59.8%**	**0.83**	**Non-OECD Total**
124.7	**54.9**	**498.5**	**107.9**	**786.0**	**15.9%**	**516.5**	**27.1**	**70.1**	**16 210.6**	**80.4%**	**0.42**	**OECD Total**
6.6	0.7	21.0	4.6	33.0	20.1%	21.6	4.2	4.1	721.9	79.2%	0.58	Canada
0.6	0.7	6.5	1.0	8.8	6.6%	-	-	0.0	100.9	73.0%	0.41	Chile
3.7	0.6	32.5	6.3	43.1	8.6%	8.5	0.0	0.5	645.2	72.1%	0.44	Mexico
63.2	24.6	178.2	38.1	304.1	20.8%	300.9	6.4	41.2	6 732.4	84.0%	0.50	United States
74.1	**26.6**	**238.2**	**50.1**	**389.0**	**19.1%**	**331.0**	**10.6**	**45.8**	**8 200.4**	**82.5%**	**0.50**	**OECD Americas**
3.7	2.0	41.9	3.9	51.5	7.2%	8.0	0.6	0.5	599.2	72.8%	0.73	Australia
0.3	0.0	0.9	0.6	1.7	16.6%	2.0	0.1	0.7	79.6	87.7%	0.37	Israel
7.1	2.6	7.5	8.5	25.7	27.5%	60.3	6.7	3.8	1 354.2	84.0%	0.34	Japan
3.8	1.1	6.6	3.2	14.7	25.6%	2.8	1.8	6.2	656.3	86.2%	0.46	Korea
0.3	-	10.8	0.3	11.3	2.5%	1.2	0.2	0.1	77.4	41.6%	0.69	New Zealand
15.1	**5.8**	**67.6**	**16.4**	**104.9**	**14.4%**	**74.3**	**9.4**	**11.2**	**2 766.8**	**81.0%**	**0.42**	**OECD Asia Oceania**
0.7	0.1	2.2	0.8	3.8	19.4%	2.8	0.2	0.2	90.4	80.6%	0.30	Austria
0.7	5.4	2.8	1.2	10.1	7.0%	2.7	0.0	0.1	135.4	77.3%	0.37	Belgium
1.5	0.5	4.5	0.8	7.3	20.0%	3.6	0.0	0.0	141.7	84.5%	0.55	Czech Republic
0.6	-	4.3	0.6	5.4	10.4%	1.7	0.0	0.0	66.2	74.6%	0.36	Denmark
0.1	-	0.6	0.2	0.9	15.0%	0.1	0.0	0.0	31.7	63.3%	1.44	Estonia
2.4	0.2	2.6	0.7	5.8	41.5%	1.2	0.0	0.1	131.2	49.8%	0.75	Finland
3.5	1.8	29.0	4.3	38.7	9.2%	18.9	0.4	1.4	514.2	74.2%	0.26	France
5.6	3.6	27.7	5.6	42.4	13.1%	19.8	0.9	5.3	958.8	81.9%	0.34	Germany
0.7	0.4	3.1	0.9	5.1	13.7%	1.2	0.1	0.1	104.0	82.5%	0.38	Greece
0.3	0.0	3.3	0.6	4.2	7.4%	1.7	0.0	0.0	65.0	77.6%	0.38	Hungary
0.0	0.0	0.3	0.0	0.4	3.8%	0.1	0.1	0.0	22.2	8.9%	1.95	Iceland
0.3	-	7.0	0.4	7.7	3.7%	1.2	0.0	0.1	72.5	58.8%	0.43	Ireland
3.1	0.9	10.6	5.0	19.6	15.9%	14.1	0.5	1.0	492.3	81.9%	0.29	Italy
0.1	-	0.3	0.1	0.5	17.1%	0.1	0.0	-	13.0	83.6%	0.37	Luxembourg
0.8	1.6	5.6	1.2	9.2	8.8%	4.6	0.3	0.2	221.5	79.2%	0.34	Netherlands
0.3	0.4	1.8	0.8	3.3	10.2%	0.5	1.2	0.2	69.2	75.3%	0.30	Norway
4.0	1.5	18.7	2.6	26.8	15.0%	2.0	0.3	0.3	446.3	80.6%	0.67	Poland
0.5	0.4	2.5	0.9	4.3	11.5%	1.1	0.0	0.2	70.5	70.2%	0.30	Portugal
0.4	0.9	1.7	0.3	3.4	12.2%	1.5	0.1	-	49.7	74.4%	0.45	Slovak Republic
0.1	-	0.9	0.2	1.2	11.5%	0.5	0.1	0.0	22.1	76.1%	0.42	Slovenia
2.4	0.7	15.1	4.3	22.6	10.8%	10.0	1.2	0.9	352.9	75.9%	0.28	Spain
1.2	0.5	3.1	0.8	5.6	22.0%	1.6	0.4	0.2	84.6	59.1%	0.25	Sweden
0.4	0.2	1.4	0.5	2.4	16.2%	2.3	0.1	0.4	56.1	79.5%	0.17	Switzerland
3.1	2.1	25.7	3.9	34.9	9.0%	4.7	0.5	2.0	425.5	66.9%	0.47	Turkey
2.4	1.4	17.9	4.8	26.5	9.2%	13.3	0.5	0.6	606.5	81.9%	0.28	United Kingdom
35.5	**22.5**	**192.7**	**41.5**	**292.1**	**12.1%**	**111.2**	**7.1**	**13.1**	**5 243.4**	**76.8%**	**0.34**	**OECD Europe**
32.9	*22.8*	*179.3*	*38.6*	*273.7*	*12.0%*	*108.3*	*5.4*	*10.6*	*4 944.3*	*77.6%*	*0.34*	*European Union - 28*
91.6	*35.6*	*291.9*	*71.0*	*490.1*	*18.7%*	*448.8*	*19.5*	*57.3*	*11 380.3*	*82.9%*	*0.41*	*G7*
98.4	*52.6*	*320.7*	*82.1*	*553.8*	*17.8%*	*475.7*	*40.1*	*66.9*	*13 889.4*	*82.7%*	*0.47*	*G8*
234.6	*89.1*	*1 402.2*	*282.5*	*2 008.4*	*11.7%*	*744.3*	*62.9*	*148.9*	*36 975.3*	*72.7%*	*0.59*	*G20*

1. GHG / GDP PPP ratio is expressed in kg of CO_2-equivalent per 2005 USD.

2010 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

	CO_2						CH_4					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Non-OECD Total	**16 405.6**	**435.5**	**1 811.2**	**4 935.8**	**23 588.1**	**71.4%**	**2 448.3**	**2 744.7**	**910.0**	**147.2**	**6 250.2**	**39.2%**
Albania	3.9	0.0	0.6	0.6	5.0	77.8%	0.8	1.6	0.2	0.0	2.6	30.0%
Armenia	4.0	-	0.2	0.1	4.4	92.0%	2.0	1.1	0.3	-	3.3	59.5%
Azerbaijan	23.5	0.4	0.6	0.1	24.6	97.1%	10.9	5.7	1.8	0.0	18.4	59.5%
Belarus	59.9	4.3	4.2	41.5	109.9	58.4%	1.0	8.5	6.9	0.0	16.4	6.4%
Bosnia-Herzegovina	20.5	0.6	1.0	0.3	22.4	94.2%	1.4	1.3	0.3	-	3.1	47.2%
Bulgaria	44.4	0.4	3.7	0.2	48.7	92.0%	1.6	1.8	8.7	0.0	12.0	12.9%
Croatia	18.4	0.0	2.2	0.0	20.6	89.3%	2.4	1.3	1.3	0.0	5.0	47.4%
Cyprus [1]	7.3	-	0.7	-	7.9	91.5%	0.0	0.2	0.4	-	0.6	2.1%
FYR of Macedonia	8.3	0.0	0.8	0.0	9.2	90.8%	0.5	0.6	0.3	0.0	1.4	33.6%
Georgia	5.0	0.0	0.9	0.2	6.1	81.9%	2.0	2.4	0.5	0.0	4.9	40.8%
Gibraltar	0.5	-	-	-	0.5	100.0%	0.0	-	0.0	-	0.0	4.7%
Kazakhstan	221.1	11.9	9.0	0.1	242.1	96.2%	45.7	14.7	5.5	1.7	67.5	67.6%
Kosovo [2]	8.7	..	..	..	..	..	..	..	..	..	..	..
Kyrgyzstan	6.0	0.0	0.3	0.4	6.8	89.2%	0.3	3.0	0.7	-	4.0	6.7%
Latvia	8.1	-	0.4	4.1	12.6	64.4%	1.8	0.8	0.6	0.0	3.2	57.2%
Lithuania	12.2	0.0	1.0	6.0	19.3	63.3%	1.8	1.8	1.4	0.0	5.1	35.0%
Malta	2.5	-	0.0	-	2.5	100.0%	0.0	0.0	0.2	-	0.2	0.3%
Republic of Moldova	7.9	-	0.4	0.0	8.3	95.0%	1.8	0.8	0.8	-	3.4	53.9%
Montenegro [2]	2.5	..	..	..	..	..	..	..	..	..	..	..
Romania	74.8	0.4	6.2	1.0	82.4	91.2%	12.3	8.5	5.3	0.0	26.1	47.1%
Russian Federation	1 528.9	91.2	95.4	139.3	1 854.8	87.3%	426.0	40.6	66.6	0.4	533.5	79.8%
Serbia [2]	45.9	0.4	1.8	0.6	48.7	95.1%	3.1	2.4	1.0	0.0	6.6	47.5%
Tajikistan	2.3	0.0	0.7	-	3.0	76.9%	0.5	3.6	0.8	-	4.9	10.9%
Turkmenistan	57.2	3.2	1.0	0.3	61.7	97.9%	19.5	6.1	1.0	-	26.5	73.4%
Ukraine	266.3	13.7	23.6	4.6	308.1	90.9%	48.0	9.5	10.8	0.1	68.4	70.2%
Uzbekistan	97.1	2.8	5.8	1.1	106.7	93.6%	25.6	17.4	3.8	-	46.9	54.6%
Non-OECD Europe and Eurasia	**2 537.1**	**129.1**	**160.7**	**200.4**	**3 027.3**	**88.1%**	**609.0**	**133.6**	**119.3**	**2.3**	**864.2**	**70.5%**
Algeria	95.8	11.4	8.7	0.0	115.9	92.4%	37.5	4.9	5.3	0.0	47.7	78.6%
Angola	15.1	8.3	0.5	7.4	31.3	74.7%	11.9	4.2	2.3	0.2	18.6	64.1%
Benin	4.6	-	0.5	30.8	35.8	12.7%	1.0	3.0	1.1	1.7	6.8	14.8%
Botswana	4.9	-	0.2	0.4	5.4	89.4%	0.5	3.5	0.3	0.0	4.4	11.1%
Cameroon	5.0	2.0	0.5	42.5	50.0	14.0%	2.6	11.6	2.2	1.8	18.2	14.4%
Congo	1.8	3.5	0.0	27.4	32.7	16.3%	3.9	1.6	0.6	0.8	7.0	55.4%
Côte d'Ivoire	6.2	0.2	0.1	133.3	139.8	4.6%	3.5	2.4	1.9	8.2	15.9	22.2%
Dem. Rep. of Congo	1.8	0.7	0.2	969.0	971.8	0.3%	6.6	18.4	6.5	42.3	73.9	8.9%
Egypt	176.4	3.3	24.6	0.0	204.3	88.0%	29.7	13.3	8.0	0.0	51.0	58.3%
Eritrea	0.5	-	0.0	-	0.5	96.1%	0.6	1.8	0.4	-	2.8	20.5%
Ethiopia	6.0	-	0.6	0.5	7.1	83.7%	10.7	44.6	7.9	-	63.2	16.9%
Gabon	2.4	3.3	0.1	11.3	17.0	33.3%	2.4	0.2	0.4	0.8	3.8	63.8%
Ghana	10.4	0.1	0.8	38.1	49.3	21.3%	3.1	11.8	2.9	2.9	20.7	15.1%
Kenya	11.2	-	1.6	4.2	17.1	65.8%	8.1	14.8	4.5	-	27.5	29.6%
Libya	48.0	7.8	4.9	0.0	60.7	91.9%	16.0	0.9	1.1	0.0	18.1	88.5%
Mauritius	3.7	0.0	0.0	-	3.7	99.8%	0.0	0.0	0.2	-	0.3	12.8%
Morocco	46.0	-	5.0	0.0	51.0	90.1%	1.6	5.8	4.3	0.0	11.8	13.9%
Mozambique	2.4	0.0	1.2	14.5	18.1	13.1%	4.9	2.1	2.8	0.0	9.8	50.5%
Namibia	3.1	-	0.0	0.0	3.1	98.5%	0.1	4.6	0.3	-	5.0	2.7%
Niger [3]	1.4	0.0	0.0	..	..	..	..	..	..	..	..	..
Nigeria	55.8	29.8	4.7	23.8	114.0	75.1%	36.1	35.7	14.8	1.5	88.0	41.0%
Senegal	5.5	-	1.5	0.0	7.0	77.9%	1.8	6.2	1.7	-	9.7	19.0%
South Africa	408.9	27.2	16.0	0.6	452.6	96.3%	29.8	20.1	13.1	2.3	65.3	45.7%
South Sudan [4]	..	..	..	..	..	..	..	..	..	..	..	..
Sudan [4]	15.0	0.8	0.7	4.0	20.4	77.0%	7.2	81.2	6.3	-	94.6	7.6%
United Rep. of Tanzania	6.1	0.0	0.8	24.3	31.3	19.6%	7.0	15.7	4.6	0.1	27.4	25.4%
Togo	2.1	-	0.4	12.3	14.8	14.0%	1.7	2.0	0.8	0.8	5.2	32.6%
Tunisia	23.3	0.9	3.2	0.0	27.4	88.3%	4.5	2.2	0.8	0.0	7.5	60.0%
Zambia	1.7	-	0.5	59.4	61.6	2.7%	2.6	2.5	1.4	-	6.4	40.1%
Zimbabwe	9.0	0.2	0.5	1.0	10.8	85.4%	1.1	5.8	1.6	0.0	8.4	12.9%
Other Africa [3]	25.3	2.4	2.0	570.2	599.9	4.6%	31.5	170.0	19.3	35.3	256.1	12.3%
Africa	**999.0**	**101.7**	**79.9**	**1 975.3**	**3 155.8**	**34.9%**	**268.2**	**490.7**	**117.5**	**98.9**	**975.3**	**27.5%**

1. Please refer to Part I, Chapter 4, *Geographical Coverage*.
2. For 2010, Serbia includes Kosovo and Montenegro for all emissions other than CC_2 from fuel combustion.
3. For 2010, Other Africa includes Niger for all emissions except CO_2 from fuel combustion, CO_2 from fugitive sources and CO_2 from industrial processes.
4. Prior to 2012, data for South Sudan are included in Sudan.

2010 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

N_2O						HFCs	PFCs	SF_6	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP [1]	
157.9	**60.3**	**1 668.0**	**403.0**	**2 289.2**	**6.9%**	**259.7**	**45.6**	**96.7**	**32 529.5**	**59.8%**	**0.83**	**Non-OECD Total**
0.1	-	0.9	0.1	1.1	6.1%	0.1	-	-	8.9	53.8%	0.36	Albania
0.0	-	0.9	0.1	1.0	2.3%	0.6	-	-	9.3	65.2%	0.54	Armenia
0.1	-	2.1	0.4	2.6	5.1%	0.1	0.2	-	45.9	76.1%	0.36	Azerbaijan
0.7	2.8	9.3	0.6	13.4	5.3%	0.5	0.0	-	140.3	47.0%	1.06	Belarus
0.1	-	0.8	0.2	1.1	11.7%	0.8	0.1	-	27.4	82.6%	0.98	Bosnia-Herzegovina
0.3	0.5	3.2	0.5	4.5	6.4%	0.6	0.0	-	65.8	70.8%	0.74	Bulgaria
0.2	0.9	1.6	0.3	2.9	6.5%	0.1	0.0	-	28.7	73.2%	0.41	Croatia
0.0	-	0.2	0.1	0.3	11.5%	0.3	-	-	9.2	79.7%	0.44	Cyprus
0.0	-	0.4	0.1	0.5	8.7%	0.2	-	-	11.3	78.6%	0.59	FYR of Macedonia
0.1	0.8	1.2	0.2	2.3	3.0%	0.0	-	-	13.3	53.2%	0.56	Georgia
0.0	-	-	0.0	0.0	37.5%	-	-	-	0.5	97.4%	0.54	Gibraltar
1.4	-	12.3	3.8	17.5	7.8%	0.6	-	-	327.7	85.4%	1.15	Kazakhstan
..	..	..	..	..	..	..	..	..	..	..	..	Kosovo
0.0	-	1.2	0.2	1.5	1.8%	0.0	-	-	12.2	51.7%	0.91	Kyrgyzstan
0.2	-	1.0	0.2	1.4	12.0%	1.3	0.0	-	18.5	54.5%	0.64	Latvia
0.1	0.5	3.8	0.2	4.6	2.5%	1.3	0.0	-	30.2	46.6%	0.59	Lithuania
0.0	-	0.0	0.0	0.1	8.9%	0.2	-	-	3.0	84.6%	0.32	Malta
0.1	-	0.5	0.1	0.6	8.7%	0.0	-	-	12.3	79.1%	0.99	Republic of Moldova
..	..	..	..	..	..	..	..	..	..	..	..	Montenegro
0.5	1.1	6.0	1.1	8.8	6.0%	0.8	0.2	0.0	118.3	74.4%	0.51	Romania
6.8	17.0	28.8	11.1	63.7	10.7%	26.9	20.6	9.6	2 509.1	81.8%	1.24	Russian Federation
0.3	0.2	6.5	0.5	7.4	4.0%	7.2	0.1	-	70.0	71.0%	1.00	Serbia
0.0	-	1.5	0.2	1.7	1.2%	0.0	0.3	-	10.0	28.6%	0.70	Tajikistan
0.1	0.9	3.7	0.3	5.0	1.8%	0.1	-	-	93.3	85.7%	2.07	Turkmenistan
1.2	7.5	9.5	2.4	20.7	5.9%	0.4	0.1	0.4	398.2	82.7%	1.24	Ukraine
0.3	0.1	10.5	1.1	12.0	2.8%	1.0	-	-	166.5	75.5%	1.56	Uzbekistan
12.7	**32.3**	**105.9**	**23.8**	**174.7**	**7.3%**	**43.2**	**21.8**	**10.0**	**4 141.2**	**79.4%**	**1.09**	**Non-OECD Europe and Eurasia**
0.5	1.6	3.1	1.1	6.3	8.0%	0.3	-	0.4	170.5	85.1%	0.41	Algeria
0.2	-	2.9	0.5	3.6	6.2%	0.0	-	-	53.5	66.4%	0.44	Angola
0.1	-	2.9	1.7	4.8	2.9%	-	-	-	47.5	12.0%	3.42	Benin
0.1	-	2.1	0.1	2.2	2.7%	-	-	-	12.0	45.1%	0.51	Botswana
0.3	-	10.6	2.8	13.6	1.8%	-	0.4	-	82.1	12.0%	1.74	Cameroon
0.1	-	1.6	1.3	2.9	2.9%	0.0	-	-	42.6	21.8%	2.10	Congo
0.2	-	2.7	6.9	9.8	2.4%	-	-	-	165.6	6.1%	3.39	Côte d'Ivoire
1.4	-	21.3	43.9	66.6	2.1%	-	-	-	1 112.3	1.0%	29.33	Dem. Rep. of Congo
1.7	5.7	14.9	2.4	24.6	6.8%	0.5	1.9	1.5	283.7	74.4%	0.38	Egypt
0.1	-	1.1	0.1	1.2	6.0%	-	-	-	4.6	24.8%	0.83	Eritrea
1.8	-	34.2	3.1	39.1	4.6%	0.0	-	-	109.4	16.9%	1.31	Ethiopia
0.0	-	0.2	0.6	0.8	5.3%	0.0	-	-	21.7	37.6%	0.94	Gabon
0.5	-	13.0	3.8	17.2	2.9%	0.0	-	-	87.3	16.2%	1.32	Ghana
0.7	-	9.9	0.8	11.4	6.0%	-	-	-	55.9	35.9%	0.61	Kenya
0.2	-	0.7	0.6	1.4	12.3%	-	-	0.4	80.6	89.3%	0.80	Libya
0.0	-	0.1	0.1	0.2	9.3%	-	-	-	4.1	89.7%	0.24	Mauritius
0.7	-	4.1	1.1	5.9	11.4%	-	-	-	68.7	70.3%	0.37	Morocco
0.4	-	1.1	0.7	2.2	16.0%	0.1	0.2	-	30.5	25.2%	1.53	Mozambique
0.1	-	2.8	0.1	3.0	4.5%	-	-	-	11.1	30.1%	0.68	Namibia
..	..	..	..	..	..	..	..	..	..	..	..	Niger
1.9	-	28.1	5.5	35.5	5.2%	0.6	0.0	0.4	238.5	51.8%	0.33	Nigeria
0.1	-	5.7	0.6	6.4	2.3%	-	-	-	23.2	32.2%	0.92	Senegal
2.2	0.0	14.1	5.6	21.9	10.2%	0.8	0.5	1.9	543.0	86.2%	0.99	South Africa
..	..	..	..	..	..	..	..	..	..	..	..	South Sudan
0.7	-	72.1	10.5	83.3	0.8%	-	-	-	198.4	11.9%	1.47	Sudan
0.7	-	10.7	1.6	12.9	5.2%	-	-	-	71.7	19.2%	0.87	United Rep. of Tanzania
0.1	-	2.0	0.8	3.0	5.0%	-	-	-	23.0	17.1%	3.29	Togo
0.2	0.3	2.1	0.3	2.9	7.0%	-	-	-	37.8	76.4%	0.39	Tunisia
0.2	0.3	5.4	2.3	8.2	2.8%	0.0	-	-	76.3	5.8%	1.88	Zambia
0.2	-	3.7	0.2	4.2	5.6%	-	-	-	23.4	45.0%	6.75	Zimbabwe
3.5	-	149.5	41.5	194.5	1.8%	0.2	-	-	1 050.7	6.0%	4.12	Other Africa
19.0	**7.9**	**422.5**	**140.3**	**589.7**	**3.2%**	**2.6**	**3.0**	**4.6**	**4 730.9**	**29.3%**	**1.18**	**Africa**

1. GHG / GDP PPP ratio is expressed in kg of CO_2-equivalent per 2005 USD. The high GHG / GDP PPP ratio for DR of Congo and Zambia is due to high levels of forest fires and subsequent post-burn decay.

2010 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

	CO_2						CH_4					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Bangladesh	49.9	0.0	6.3	5.4	61.5	81.1%	12.4	70.4	20.3	0.0	103.1	12.0%
Brunei Darussalam	6.9	0.4	0.1	5.5	12.9	56.1%	4.3	0.0	0.1	-	4.5	97.3%
Cambodia	4.6	-	0.4	138.6	143.5	3.2%	1.4	21.4	1.9	10.5	35.2	4.0%
DPR of Korea	65.5	-	3.4	2.5	71.5	91.7%	10.9	4.4	3.4	0.0	18.6	58.5%
India	1 596.8	7.4	115.6	36.1	1 755.9	91.4%	116.1	377.6	125.3	2.5	621.5	18.7%
Indonesia	383.2	4.7	26.2	1 182.7	1 596.7	24.3%	68.2	94.3	56.2	0.3	218.9	31.1%
Malaysia	188.4	4.0	16.7	78.2	287.4	67.0%	21.6	5.5	5.9	0.5	33.6	64.4%
Mongolia	14.2	0.1	0.2	47.0	61.4	23.2%	1.0	4.8	0.3	0.0	6.1	16.4%
Myanmar	7.9	0.1	0.4	243.2	251.5	3.2%	10.7	59.3	7.2	1.9	79.1	13.5%
Nepal	4.1	-	0.6	0.2	4.9	83.3%	1.5	19.2	2.8	0.0	23.5	6.4%
Pakistan	131.4	0.2	15.1	0.1	146.7	89.7%	40.5	95.0	19.8	0.0	155.2	26.1%
Philippines	77.1	0.1	7.0	1.0	85.2	90.7%	6.1	34.7	15.2	0.0	56.0	10.9%
Singapore	44.2	-	6.2	0.1	50.5	87.6%	1.3	0.0	1.0	0.0	2.3	57.5%
Sri Lanka	12.4	-	1.2	0.2	13.8	89.9%	0.6	7.8	3.3	-	11.6	5.0%
Chinese Taipei	256.2	0.7	15.8	-	272.7	94.2%	1.4	1.2	6.3	0.0	8.9	16.0%
Thailand	223.4	0.4	23.7	36.7	284.3	78.7%	23.2	64.2	14.2	2.7	104.4	22.3%
Viet Nam	126.1	1.0	25.7	8.9	161.8	78.6%	40.9	58.0	12.1	0.2	111.3	36.8%
Other Asia	22.1	0.1	1.2	115.9	139.3	16.0%	3.3	20.4	6.0	6.1	35.8	9.3%
Asia (excl. China)	**3 214.4**	**19.2**	**265.7**	**1 902.2**	**5 401.4**	**59.9%**	**365.5**	**938.2**	**301.3**	**24.8**	**1 629.8**	**22.4%**
People's Rep. of China	7 095.3	101.1	1 069.2	73.7	8 339.3	86.3%	819.3	589.9	229.2	3.9	1 642.3	49.9%
Hong Kong, China	42.0	-	0.7	-	42.7	98.4%	0.8	-	2.3	-	3.1	24.6%
China	**7 137.3**	**101.1**	**1 069.8**	**73.7**	**8 382.0**	**86.4%**	**820.1**	**589.9**	**231.5**	**3.9**	**1 645.3**	**49.8%**
Argentina	173.5	1.2	8.9	3.4	187.0	93.4%	15.8	62.6	7.9	0.4	86.7	18.3%
Bolivia	14.1	0.2	0.9	97.2	112.4	12.7%	10.3	10.6	1.4	0.5	22.8	45.1%
Brazil	370.5	2.5	45.8	523.7	942.4	39.6%	43.3	327.2	62.8	10.0	443.3	9.8%
Colombia	60.2	1.9	3.8	22.9	88.8	70.0%	13.6	43.8	6.5	2.8	66.7	20.4%
Costa Rica	6.6	-	0.5	0.0	7.1	92.5%	0.3	1.5	0.5	-	2.3	11.4%
Cuba	29.8	0.1	0.8	3.1	33.8	88.6%	0.8	5.1	2.5	-	8.4	9.9%
Curaçao	4.4	-	-	-	4.4	100.0%	0.1	0.0	0.1	-	0.1	51.3%
Dominican Republic	19.1	-	1.5	0.1	20.7	92.0%	0.8	4.0	2.0	-	6.7	11.6%
Ecuador	33.2	3.5	1.9	0.7	39.4	93.2%	3.4	10.3	1.7	0.0	15.5	22.2%
El Salvador	5.9	-	0.5	0.1	6.4	91.2%	0.4	1.6	1.0	-	3.0	12.5%
Guatemala	10.3	0.0	1.1	20.0	31.4	32.9%	1.7	3.5	1.5	0.1	6.7	24.7%
Haiti	2.1	-	0.2	0.0	2.3	89.7%	0.9	2.2	1.4	-	4.5	19.2%
Honduras	7.3	-	0.6	2.4	10.3	71.0%	0.5	4.4	0.9	-	5.7	8.3%
Jamaica	6.9	-	0.5	0.1	7.5	92.0%	0.1	0.6	0.5	-	1.3	9.9%
Nicaragua	4.4	-	0.3	0.4	5.0	86.5%	0.4	4.7	1.3	-	6.4	6.6%
Panama	8.9	-	0.6	0.4	9.9	90.2%	0.1	2.7	0.5	-	3.3	3.7%
Paraguay	4.7	-	0.3	11.6	16.6	28.0%	1.4	13.2	1.3	0.1	15.9	8.7%
Peru	41.1	0.2	3.4	6.6	51.3	80.5%	3.9	11.5	3.5	0.0	18.9	20.6%
Trinidad and Tobago	22.3	0.1	15.9	0.0	38.4	58.5%	12.6	0.1	1.5	0.4	14.5	86.6%
Uruguay	6.0	-	0.3	0.4	6.7	89.3%	0.7	17.8	0.7	0.0	19.2	3.6%
Venezuela	171.6	6.7	8.6	48.7	235.7	75.7%	23.9	25.8	5.5	1.9	57.1	41.8%
Other Non-OECD Americas	19.0	0.0	0.6	16.7	36.3	52.3%	0.2	2.6	1.1	0.4	4.3	5.1%
Non-OECD Americas	**1 021.9**	**16.4**	**97.1**	**758.7**	**1 894.1**	**54.8%**	**135.1**	**555.7**	**105.9**	**16.7**	**813.4**	**16.6%**
Bahrain	25.8	0.0	2.3	-	28.2	91.7%	3.0	0.0	0.2	0.0	3.3	91.9%
Islamic Rep. of Iran	498.4	23.5	43.7	0.2	565.9	92.2%	79.4	21.6	14.0	0.3	115.3	68.9%
Iraq	103.5	18.1	3.6	3.3	128.5	94.6%	16.6	3.2	4.1	0.0	23.9	69.4%
Jordan	18.9	-	1.7	-	20.6	91.6%	0.8	0.4	0.9	-	2.1	38.9%
Kuwait	77.0	4.5	4.1	-	85.5	95.2%	11.4	0.2	0.9	0.0	12.4	91.6%
Lebanon	18.2	-	2.3	0.0	20.5	88.7%	0.1	0.3	0.7	-	1.1	10.5%
Oman	47.9	3.3	6.3	22.0	79.5	64.4%	15.4	0.6	0.6	-	16.5	92.9%
Qatar	57.1	3.8	7.1	-	68.1	89.5%	39.6	0.1	0.6	0.0	40.3	98.2%
Saudi Arabia	419.1	8.0	48.6	-	475.7	89.8%	51.7	1.8	6.5	0.2	60.3	85.8%
Syrian Arab Republic	55.9	1.9	2.8	0.0	60.7	95.4%	6.2	3.8	2.5	0.0	12.5	49.7%
United Arab Emirates	151.8	2.1	14.5	0.0	168.3	91.4%	23.8	0.6	1.2	-	25.6	92.8%
Yemen	22.4	2.7	0.9	0.0	26.1	96.4%	2.4	4.1	2.3	-	8.8	27.2%
Middle East	**1 496.0**	**67.9**	**138.1**	**25.5**	**1 727.6**	**90.5%**	**250.4**	**36.7**	**34.5**	**0.6**	**322.2**	**77.7%**

2010 Greenhouse-gas emissions

million tonnes of CO_2 equivalent using GWP-100

N_2O						HFCs	PFCs	SF_6	Total			
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	GHG / GDP PPP [1]	
1.8	-	22.0	2.4	26.2	6.9%	-	-	-	190.7	33.6%	0.58	Bangladesh
0.0	-	0.1	0.2	0.3	5.0%	0.4	-	-	18.1	64.0%	0.72	Brunei Darussalam
0.3	-	8.1	8.0	16.4	1.7%	-	-	-	195.1	3.2%	6.07	Cambodia
0.4	-	2.2	0.6	3.2	12.6%	4.2	-	-	97.6	78.8%	0.98	DPR of Korea
28.8	0.3	170.6	34.5	234.1	12.3%	13.4	1.7	5.8	2 632.5	66.4%	0.54	India
4.1	0.2	65.6	21.4	91.3	4.5%	-	0.1	1.1	1 908.2	24.1%	1.11	Indonesia
1.0	0.9	10.4	2.8	15.0	6.4%	0.0	0.4	0.8	337.2	63.8%	0.66	Malaysia
0.1	-	3.2	0.1	3.5	3.3%	-	-	-	71.0	21.6%	4.54	Mongolia
0.8	-	12.9	12.5	26.3	3.2%	-	-	-	356.9	5.5%	4.47	Myanmar
0.6	-	3.4	0.5	4.5	14.3%	-	-	-	33.0	19.1%	0.69	Nepal
3.7	0.0	23.0	3.3	30.1	12.3%	-	-	1.0	333.1	52.8%	0.51	Pakistan
0.8	0.0	9.4	2.3	12.5	6.1%	-	-	0.5	154.2	54.5%	0.33	Philippines
0.1	0.7	0.0	1.0	1.9	4.7%	2.2	0.7	0.4	58.0	78.7%	0.18	Singapore
0.3	-	1.3	0.5	2.1	13.7%	-	-	-	27.6	48.2%	0.20	Sri Lanka
1.4	0.7	1.7	1.2	5.0	27.2%	0.1	2.7	4.3	293.6	88.4%	0.40	Chinese Taipei
3.2	0.6	20.0	6.5	30.2	10.5%	-	-	1.4	420.3	59.5%	0.55	Thailand
1.7	-	28.6	3.5	33.8	5.2%	-	-	-	306.9	55.3%	0.88	Viet Nam
0.6	-	9.2	7.6	17.4	3.3%	0.1	-	-	192.6	13.6%	1.28	Other Asia
49.6	**3.4**	**391.8**	**109.0**	**553.8**	**9.0%**	**20.6**	**5.6**	**15.2**	**7 626.4**	**47.8%**	**0.67**	**Asia (excl. China)**
58.1	12.9	415.1	64.2	550.3	10.6%	183.9	8.4	57.1	10 781.2	74.9%	0.98	People's Rep. of China
0.2	-	-	0.3	0.5	41.0%	-	-	0.2	46.4	92.6%	0.15	Hong Kong, China
58.3	**12.9**	**415.1**	**64.5**	**550.8**	**10.6%**	**183.9**	**8.4**	**57.2**	**10 827.6**	**75.0%**	**0.96**	**China**
1.8	0.2	48.0	2.1	52.1	3.4%	0.5	0.1	0.4	326.9	58.8%	0.56	Argentina
0.2	-	5.2	4.2	9.5	1.8%	-	-	-	144.7	17.1%	3.03	Bolivia
7.4	1.9	165.0	33.2	207.6	3.6%	3.3	5.8	1.5	1 603.9	26.4%	0.66	Brazil
0.7	0.1	20.1	4.3	25.1	2.7%	-	-	0.1	180.7	42.3%	0.41	Colombia
0.1	0.0	1.3	0.2	1.5	5.2%	0.1	-	-	11.1	62.8%	0.22	Costa Rica
0.2	0.5	4.5	0.6	5.8	3.3%	0.2	-	-	48.2	64.2%	0.45	Cuba
0.0	-	0.0	0.1	0.1	18.4%	-	-	-	4.6	97.6%	1.92	Curaçao
0.2	-	1.5	0.4	2.1	10.2%	-	-	-	29.6	67.8%	0.30	Dominican Republic
0.2	-	4.6	0.5	5.3	3.6%	0.1	-	-	60.3	66.9%	0.49	Ecuador
0.1	-	1.0	0.2	1.4	7.2%	0.1	-	-	10.9	58.0%	0.27	El Salvador
0.4	-	2.9	1.2	4.5	8.5%	0.8	-	-	43.5	28.5%	0.50	Guatemala
0.1	-	1.2	0.2	1.5	7.2%	-	-	-	8.3	36.9%	0.62	Haiti
0.1	-	2.4	0.6	3.1	3.9%	-	-	-	19.2	41.3%	0.66	Honduras
0.1	-	0.4	0.2	0.6	10.8%	0.1	-	-	9.5	74.6%	0.52	Jamaica
0.1	-	3.0	0.3	3.4	3.4%	-	-	-	14.8	33.0%	0.71	Nicaragua
0.1	-	1.0	0.3	1.4	6.2%	-	-	-	14.6	62.6%	0.30	Panama
0.2	-	8.2	0.7	9.2	2.3%	-	-	-	41.8	15.0%	1.04	Paraguay
0.3	-	7.1	0.9	8.3	3.7%	0.5	-	-	79.1	57.5%	0.31	Peru
0.0	-	0.1	0.1	0.3	15.4%	-	-	-	53.2	66.0%	1.53	Trinidad and Tobago
0.1	-	7.7	0.1	7.9	1.7%	0.1	-	-	33.9	20.0%	0.68	Uruguay
0.8	0.0	11.7	3.3	15.8	5.1%	1.9	0.2	0.3	310.9	65.3%	0.73	Venezuela
0.1	-	2.2	0.9	3.3	4.4%	0.0	-	0.0	43.9	44.1%	0.94	Other Non-OECD Americas
13.4	**2.6**	**299.2**	**54.8**	**370.0**	**3.6%**	**7.8**	**6.0**	**2.4**	**3 093.6**	**38.4%**	**0.62**	**Non-OECD Americas**
0.0	-	0.0	0.1	0.1	25.0%	-	0.3	-	31.9	90.6%	0.71	Bahrain
1.9	0.9	18.6	2.5	23.9	8.0%	-	0.1	3.0	708.2	85.2%	0.68	Islamic Rep. of Iran
0.5	-	2.5	1.9	4.9	10.3%	-	-	0.1	157.4	88.1%	0.46	Iraq
0.1	-	0.3	0.2	0.6	10.5%	0.2	-	-	23.5	84.1%	0.39	Jordan
0.2	-	0.1	0.4	0.7	28.8%	0.9	-	0.5	100.1	92.9%	0.50	Kuwait
0.1	-	0.2	0.2	0.5	15.5%	-	-	-	22.1	83.2%	0.35	Lebanon
0.1	-	0.8	0.2	1.1	9.5%	0.3	0.0	-	97.5	68.3%	0.83	Oman
0.1	-	0.1	0.2	0.3	28.2%	-	-	-	108.7	92.5%	0.53	Qatar
1.1	-	2.2	2.9	6.2	17.5%	0.3	-	2.6	545.1	88.0%	0.49	Saudi Arabia
0.2	0.3	4.6	0.8	5.9	3.7%	-	-	-	79.1	81.3%	0.82	Syrian Arab Republic
0.2	-	1.4	0.7	2.4	8.2%	-	0.4	1.0	197.7	89.9%	0.46	United Arab Emirates
0.5	-	2.6	0.6	3.6	12.5%	-	-	-	38.5	72.8%	0.42	Yemen
4.9	**1.2**	**33.5**	**10.7**	**50.3**	**9.8%**	**1.8**	**0.8**	**7.2**	**2 109.9**	**86.2%**	**0.55**	**Middle East**

1. GHG / GDP PPP ratio is expressed in kg of CO_2-equivalent per 2005 USD. The high GHG / GDP PPP ratio for Mongolia is due to high levels of peat decay.