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GHG EMISSIONS OF ALL WORLD COUNTRIES

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Contents

Abstract

The Emissions Database for Global Atmospheric Research (EDGAR) provides greenhouse gas (GHG) emissions time series for all countries and for all anthropogenic sectors from 1970 until 2023, including emissions and removals from land use and forestry. The report contributes to the Paris Agreement process with an independent quantitative overview of global GHG emissions, based on the IEA-EDGAR CO_2, EDGAR CH_4, EDGAR N_2O and EDGAR F-gases version EDGAR_2024_GHG (2024).

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Executive summary

Policy context

Most countries around the world are preparing plans and implementing actions to tackle climate change.

The European Union has ambitious objectives in this regard, and in the context of the European Green Deal[1] and European Climate Law[2], has set a target to reduce its net domestic greenhouse gas (GHG) emissions by at least 55% by 2030 compared to 1990 levels and to become climate neutral (net zero greenhouse gas emissions) by 2050.

On the 14th of July 2021, the European Commission proposed a package of legislative actions (known as the "Fit for 55" package[3]) covering climate, energy, land use, transport and taxation, that will lead the EU to achieve its 2030 GHG emissions reduction target. The climate measures in the package have been agreed by co-legislators; their full implementation is estimated to reduce EU net greenhouse gas emissions by 57% by 2030[4]. In February 2024, the Commission published a Communication on the EU's climate target for 2040, an intermediate step on the path to climate neutrality in 2050, as required by the European Climate Law. The Commission recommended reducing the EU's greenhouse gas emissions by 90% by 2040 relative to 1990.

At the global level, about 140 countries, covering in total around 88% of current global GHG emissions, have decided to fix a target date in which they will become net-zero emitters[5]. Of the large emitters, USA, Canada, Brazil, Australia and the European Union have pledged to reach climate neutrality by 2050, China and Saudi Arabia by 2060, while India targets net zero emissions by 2070.

The Paris Agreement requires each of its Parties to prepare, communicate and maintain successive Nationally Determined Contributions (NDCs) that it intends to achieve. NDCs embody efforts by each country to reduce national emissions and adapt to the impacts of climate change, and the next round of submissions - of NDCs with a horizon beyond 2030 - is due by 2025. Moreover, under the transparency framework of the Paris Agreement, all Parties must report bottom-up inventories of national greenhouse gas emissions and track progress towards the implementation and achievement of their NDCs. This reporting is to be contained in Biennial Transparency Reports (BTRs), which are first due by the end of 2024. Parties may submit their inventory reports as part of the BTR or separately, and Annex I[6] countries must continue submitting inventories annually.

Bottom-up national emission inventories are therefore an essential component of reporting and tracking progress towards the goals of the Paris Agreement. However, national inventory reports are not yet available for all countries and years. In addition, although generally compliant with IPCC

(1) See the Communication from the European Commission on the European Green Deal: COM(2019) 640 final.

(2) Regulation (EU) 2021/1119, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32021R1119https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32021R1119

(3) https://ec.europa.eu/clima/eu-action/european-green-deal/delivering-european-green-deal_en

(4) https://ec.europa.eu/commission/presscorner/detail/en/IP_23_4754

(5) https://www.un.org/en/climatechange/net-zero-coalition

(6) Annex I Parties comprise the industrialised countries that were members of the OECD (Organisation for Economic Co-operation and Development) in 1992, plus countries with economies in transition (the EIT Parties), including the Russian Federation, the Baltic States, and several Central and Eastern European States.

guidelines, they could be dependent on individual national reporting processes and methodological choices, that can present data gaps for specific sectors. Currently, except for Annex I parties, there is no obligation to include long-term series of emissions up to the most recent year.

The European Commission's in-house Emissions Database for Global Atmospheric Research (EDGAR)[7] offers an alternative to overcome these limitations and to complement national inventories and has the advantage of producing timely emission estimates that are based on a common methodology and thus comparable across countries.

EDGAR relies on several sources of international statistics to underpinning data. Foremost among these is the International Energy Agency (IEA). To harmonise global GHG emission estimates, this booklet incorporates IEA CO_2 emissions from fossil fuel combustion sources named IEA-EDGAR CO_2 emission dataset (v3), which are complemented with in-house EDGAR_2024_GHG (2024) estimates for CH_4, N_2O and F-gas emissions. EDGAR completes the global picture with emissions time-series for each country, contributing to enhanced transparency and providing an additional source with which national and global estimates can be compared.

This report presents the latest update to the most recent years of the GHG emission time series, including emissions from anthropogenic sectors and Land Use, Land Use Change and Forestry (LULUCF) up to 2023. For all countries, including the EU and its 27 Member States[8], EDGAR emissions may differ from official national inventories due to differences in data sources, methodologies and approaches, although both are, in principle, based on the Intergovernmental Panel on Climate Change (IPCC) guidelines for GHG reporting. However, the overall EU GHG emissions trend is the same as that reported to the United Nations Framework Convention on Climate Change (UNFCCC) and, even though the figures do not match completely, differences among inventories mostly fall within the uncertainty levels intrinsic to this type of estimates.

Key conclusions

According to the latest data, global GHG emissions in 2023 reached 53.0 Gt CO_{2eq} (without LULUCF)[9]. The 2023 data represent the highest level recorded and experienced an increase of 1.9% or 994 Mt CO_{2eq} compared to the levels in 2022.

Taking a longer-term perspective and considering the top six emitters in 2023, i.e., China, the United States, the EU27, India, the Russian Federation and Brazil, the European Union's GHG emissions demonstrated the most significant relative decrease among the top emitting economies, being 33.9% lower in 2023 than in 1990 and showing GHG emissions decoupling from economic growth. Over the same period, Russia's GHG emissions also saw a decrease of 12.8%, while the United States' emissions decreased by 4.0%. On the contrary, emerging economies such as China and India have experienced considerable increases in their GHG emissions. China's GHG emissions have increased by 311.3%, while India's GHG emissions have increased by 198.9% from 1990 to 2023. GHG emissions

(7) EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO_2, EDGAR CH_4, EDGAR N_2O, EDGAR F-GASES version EDGAR_2024_GHG (2024), European Commission, https://edgar.jrc.ec.europa.eu/report_2024.

(8) Hereafter the EU27

(9) The analysis of GHG emissions trends presented does not include the emissions from LULUCF. Hereafter, these emissions will be defined as GHG emissions.

from Brazil increased by 93.6% over the same period but remained almost constant in 2023 (+ 0.1%) compared to the previous year.

Globally, LULUCF has acted as a stable net sink for CO_2 emissions since 2000, if the contribution of wildfire related GHG emissions is excluded[10]. In 2023, this sector was a net sink of about 1.25 Gt CO_{2eq}, excluding wildfires, equivalent to 2.3% of global GHG emissions of that year. Global deforestation was responsible for net CO_2 emissions of about 3.9 Gt CO_2 in 2023, equivalent to 10.0% (or 7.3%) of the total anthropogenic CO_2 (or GHG) emissions. Wildfire emissions were particularly high in 2023, contributing 2.8 Gt CO_{2eq}, largely due to Australia's exceptional 2023 fire season, which was the biggest bushfire season in more than a decade, and eight times as large as the 2019-2020 black summer bushfires. Canada also experienced the worst and most destructive fire season ever recorded. In the EU27, LULUCF in 2023 was a net sink of 214 Mt CO_{2eq} (or 221 Mt CO_{2eq} when excluding wildfires), which is approximately 40% less than in 1990.

Main findings

With only two exceptions, 2009 (global financial crisis) and 2020 (COVID-19), global GHG emissions have grown steadily since the beginning of the 21st century, mainly due to the increase in fossil CO_2 emissions by China, India, and other emerging economies. Based on the emission estimates for 2023 provided by EDGAR, global GHG emissions increased by 1.9% compared to 2022, reaching 53.0 Gt CO_{2eq}. In 2023, the majority of GHG emissions consisted of fossil CO_2 accounting for 73.7% of total emissions, while CH_4 contributed by 18.9% to the total, N_2O by 4.7% and F-gases by 2.7%. Global fossil CO_2 emissions increased by 72.1% since 1990. The increases in CH_4 and N_2O emissions have followed a somewhat slower pace: CH_4 increased by 28.2% and N_2O by 32.4% between 1990 and 2023, while F-gases have seen a four-fold increase (+294%) in the same period.

China, the United States, India, the EU27, Russia and Brazil were the world's largest GHG emitters in 2023 (see Figure 1). Together they account for 49.8% of global population, 63.2% of global gross domestic product (WB, 2024), 64.2% of global fossil fuel consumption (EI, 2024[11]) and 62.7% of global GHG emissions. Among these top emitters, in 2023 China, India, Russia and Brazil increased their emissions compared to 2022, with India having the largest increase in relative terms (+ 6.1%) and China the largest absolute increase by 784 Mt CO_{2eq}.

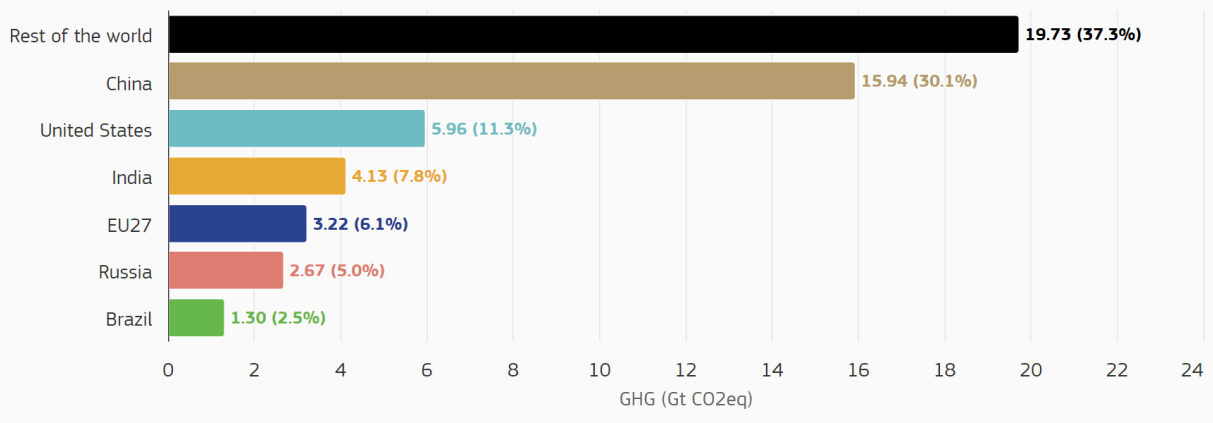
In 2023, the EU27's GHG emissions, excluding LULUCF, were 33.9% lower than in 1990 reaching 3.22 Gt $CO_{2eq.}$ In 2023, EU27 emissions decreased by 7.5% (-261 Mt CO_{2eq}) and the EU27's share of global emissions decreased from 6.8% in 2022 to 6.1% in 2023.

Out of the 17 countries and regions contributing more than 1% to the total global greenhouse gas emissions (see Table 1), six of them decreased their GHG emissions in 2023, (namely the United States, EU27, Japan, South Korea, Germany and Pakistan) while the others increased their emissions.

([10]) Net LULUCF emissions are provided with and without the contribution of wildfires due to the high variability of fire emissions which may completely offset the trend of the LULUCF sector.

([11]) Defined as the sum of all coal, liquid fossil fuels and natural gas primary energy consumption.

Figure 1. GHG emissions and contribution of the six largest emitting economies and the rest of the world in 2023 (in Gt CO_{2eq} and percentage of the global total)



Source: JRC, 2024

Emissions from international aviation and shipping, which represented 0.9% and 1.4% of global GHG emissions in 2023, increased by 19.5% and 1.1% compared to 2022, respectively with aviation still rebounding from the important decrease caused by the COVID crisis.

Table 1. 2023 GHG emissions, shares in 2023 global emissions[12], yearly GHG emission absolute and relative changes[13] in 2023 and CAGR[14] in 1990-2023 (%) for countries and regions accounting for more than 1% of global GHG emissions and international aviation and international shipping

Country	2023 Emissions (MtCO2-eq)	Share in global (%)	2023 Emission Change (Mt CO2-eq)	2023 percentage change (%)	CAGR (1990-2023)
Global	52962.9		994.4	1.9%	1.5%
China	15944.0	30.1%	784.3	5.2%	4.4%
United States	5960.8	11.3%	-85.4	-1.4%	-0.1%
India	4133.6	7.8%	236.3	6.1%	3.4%
EU27	3221.8	6.1%	-260.5	-7.5%	-1.2%
Russia	2672.0	5.0%	50.5	1.9%	-0.4%
Brazil	1300.2	2.5%	1.7	0.1%	2.0%
Indonesia	1200.2	2.3%	47.5	4.1%	3.4%
Japan	1041.0	2.0%	-66.6	-6.0%	-0.7%
Iran	996.8	1.9%	36.3	3.8%	3.4%
Saudi Arabia	805.2	1.5%	18.2	2.3%	3.8%
Canada	747.7	1.4%	2.4	0.3%	0.8%
Mexico	712.1	1.3%	24.6	3.6%	1.5%
Germany	681.8	1.3%	-80.2	-10.5%	-1.8%
South Korea	653.8	1.2%	-14.5	-2.2%	2.1%
Türkiye	606.4	1.1%	7.6	1.3%	3.1%
Australia	571.8	1.1%	2.8	0.5%	0.7%
Pakistan	532.4	1.0%	-3.7	-0.7%	3.0%
International Shipping	746.9	1.4%	7.9	1.1%	1.9%
International Aviation	498.2	0.9%	81.2	19.5%	1.9%

Source: JRC, 2024

([12]) In Table 1, countries are ranked by their GHG emission share in the global total (countries with a share of more than 1% are shown, alongside international shipping and aviation).

([13]) It is important to acknowledge that year-to-year variations in emissions are estimated with an accuracy level of approximately ±0.5% (Olivier et al., 2016) when relying on robust statistical activity data (such as IEA energy balance data or CO_2 emissions from fossil fuel combustion for the period 1970-2020). For the data spanning 2021-2022, the accuracy can range up to ±2% (based on a Fast-Track approach), contingent upon regional, sectoral, and fuel-specific contributions. Emission magnitudes, on the other hand, have a range of accuracy that depends on the level of aggregation (for example global or country level, total emission, or specific sector, as detailed by Solazzo et al., 2021), as well as the substance, with N_2O in particular having higher levels of uncertainty, and CO_2 the least. Global total GHG emissions are estimated with around ±10% accuracy, while the range of accuracy for country level total CO_2 emissions is between ±4% and ±35% (95% confidence interval). Policy makers and the scientific community should consider these uncertainties when using these data for further analysis.

([14]) Compound annual growth rate (CAGR) calculates annual changes over a specified number of years as if this change had happened steadily each year over that time period.

Quick guide

The main sections of this booklet present an overview of the global and regional trends of GHG emissions. A brief and representative analysis describes the role of top emitters (by country and sector) in the evolution of emissions over a 53-year period. Section 3 is devoted to preliminary estimation of LULUCF CO_2 emissions and removals, and GHG emissions from wildfires. Then, for each country, a fact sheet is provided with time series of GHG emissions from all anthropogenic activities except land use, land-use change, forestry, and large-scale biomass burning which are provided in Annex 7 for world macro-regions.

1 Introduction

Scope

In December 2015, the Paris Agreement brought together 195 nations to undertake ambitious efforts to combat climate change and required all parties to the agreement to put forward their best efforts through "nationally determined contributions" (NDC). Acknowledging the need to ensure environmental integrity, an enhanced transparency framework was created and 5-yearly Global Stocktakes were planned from 2023 onwards. Global emissions reported in this context are nevertheless not in line with modelled global mitigation pathways consistent with the temperature goal of the Paris Agreement; the latest UNEP emission gaps report (UNEP, 2023) has estimated that additional emission reductions between 17 and 27 Gt CO_{2eq} in comparison with NDCs will need to be achieved by 2030 in order to remain on track with the least-cost pathways consistent with 1.5 C maximum temperature rise by 2100 compared to the pre-industrial time. The Emissions Database for Global Atmospheric Research (EDGAR) contributes to global climate actions offering an independent and quantitative view of global GHG emissions. EDGAR is a global database that provides estimates of country and sector-specific GHG emissions (CO_2, CH_4, N_2O and F-gases) implementing a transparent state-of-the-art methodology (Janssens-Maenhout et al., 2019; IPCC, 2006a; IPCC 2019b). As such, it supports efforts to provide consistent and transparent emission estimates that are global in scope and can inform climate action under the Paris Agreement, although the conception and early versions of EDGAR precede by far the Paris Agreement.

EDGAR estimates of GHG emissions use global statistics and state-of-the-art scientific knowledge of emission mechanisms for a wide range of anthropogenic activities. The methodology used is transparent and in line with the most recent scientific literature and Intergovernmental Panel on Climate Change (IPCC) guidelines (IPCC, 2006a; IPCC, 2019b). The EDGAR Community GHG emission database used in this report comprises IEA-EDGAR CO_2[15], EDGAR CH_4, EDGAR N_2O and EDGAR F-gases version EDGAR_2024_GHG (2024). This edition of the booklet also includes annual macro-regional estimates of CO_2 emissions from Land Use, Land Use Change and Forestry (LULUCF) sector from 1990 to 2023, including GHG emissions from wildfires from the Global Wildfire Information System (GWIS)[16], as part of the continuous improvement and expanding outreach of the EDGAR database.

A combination of reliability, independence, transparency and completeness makes EDGAR a valuable quantitative tool to support the complex international scientific and political discussions on climate mitigation. EDGAR data contributes to the Paris Agreement's Global Stocktakes and, more generally, provides decision makers with a resource that fills knowledge gaps and allows the benchmarking of reported data with robust and scientifically sound data. Previous editions of this booklet have been regularly presented to the annual Conference of Parties (COP) to the UNFCCC.

Overview

This booklet presents the trends of global GHG emissions from 1990 to 2023 together with emissions and removals from LULUCF and wildfires. EDGAR applies a bottom-up methodology, a summary of which is available in the Annex 1 of this booklet, together with data sources and references. For each country, as well as for the world and the EU27 emissions, a fact-sheet with time series of GHG is

([15]) IEA-EDGAR CO_2 dataset incorporates IEA CO_2 emissions from fossil fuel combustion (1970-2021), extended up to 2023 with a Fast-Track (FT) methodology and JRC computed CO_2 process emissions (1970-2023), as described in Annex 1.

([16]) https://gwis.jrc.ec.europa.eu/

provided which reveals sector-specific trends and trends in emissions per capita and per GDP. The upper panel of the fact sheet includes emissions from 1990 until 2023 by aggregated sectors, together with a pie chart indicating the relative share of each GHG to the country total in 2023. An overview table with total emissions by country for the years 1990, 2005 (Kyoto protocol), 2015 (Paris Agreement) and 2023 is also reported, together with per capita and per GDP emissions and population data. Finally, the bottom panel of each fact-sheet shows the changes of emissions by sector for the last available year (2023) compared to 1990, 2005 and 2022. All data presented in this booklet are available for download and further analysis from the EDGAR website https://edgar.jrc.ec.europa.eu/report_2024.

Related and future JRC work

The reliability, independence and completeness of the EDGAR GHG emission estimates make them a valuable quantitative information source in support of the complex international scientific and political discussions on climate mitigation. The EDGAR database compiles global GHG emissions, making use of international statistics and a globally consistent methodology across countries, complementing official national inventories reported by the EU Member States to the European Environmental Agency and by Parties to the UNFCCC[17].

The EDGAR database aims to inform policy makers and the scientific community in the field of GHG emissions and budgets. It complements and supports the Paris Agreement's Global Stocktake process. It also underpins analyses of the co-benefits of air pollution and GHG emission mitigation strategies, supports the development of an independent verification system and helps in the understanding of emissions and their uncertainty ranges. EDGAR depends on several sources of international statistics for the underlying data. Foremost among these is the International Energy Agency (IEA). The IEA and the JRC are committed to the yearly co-production of consistent fossil CO_2 emissions estimates up to the year *t-1*, directly using IEA CO_2 emissions from fossil fuel combustion (up to *t-2* extended by the JRC with a Fast-Track approach) and JRC computations of CO_2 process emissions.

In addition, the EDGAR framework and the JRC experience in compiling emissions inventories are shared and compared within the international emissions community of the Global Emissions InitiAtive (GEIA) where EDGAR is represented in the Scientific Steering Committee.

EDGAR GHG emissions presented in the yearly EDGAR booklets also contributed to the Sixth Assessment Report (AR6) of the Intergovernmental Panel on Climate Change (IPCC) Working Group III on climate mitigation (Dhakal et al., 2022) and are regularly used in the yearly UNEP Emission Gap Reports.

EDGAR also supports the IPCC Task Force on National Greenhouse Gas Inventories, compiling and refining guidelines for national GHG emission inventories and providing training support and knowledge databases to visualise emission hot spots. EDGAR supports the Arctic Monitoring and Assessment Programme (AMAP) of the Arctic Council by providing methane (CH_4), Persistent Organic Pollutant (POPs) and mercury (Hg) emission data. Finally, EDGAR air pollutant emission estimates contribute to the United Nations Economic Commission for Europe (UNECE) Convention on Long-

([17]) Whenever available, officially reported data, used for tracking progress towards policy targets and for a number of countries or regions, normally provide a more robust and complete picture than the data available under EDGAR. For the EU, for example, the national inventory data is more complete/accurate and should be used as the basis for assessing EU climate progress.

Range Transboundary Air Pollution (CLRTAP) and the Task Force on Hemispheric Transport of Air Pollution (TF-HTAP) with the compilation of global air pollutant emission mosaics[18] (Crippa et al., 2023) and to global atmospheric modelling activities to enhance the scientific understanding of the intercontinental transport of air pollution and related impacts.

Ongoing developments of EDGAR include the extension of historical and up to date emissions with projections under different climate scenarios, and the development of high spatial resolution emissions in support of European sub-national climate territorial policies, as used in the EU Cohesion Reports (European Union 2022, 2024). Moreover, starting from the EDGAR-FOOD work[19], EDGAR will further provide tools and data to move from a sector-based approach to a system perspective.

Thanks to their transparency, completeness and high level of detail, EDGAR data are also being used by an ever-increasing pool of researchers, policy makers and engaged citizens as a reliable source of information on climate-relevant emissions.

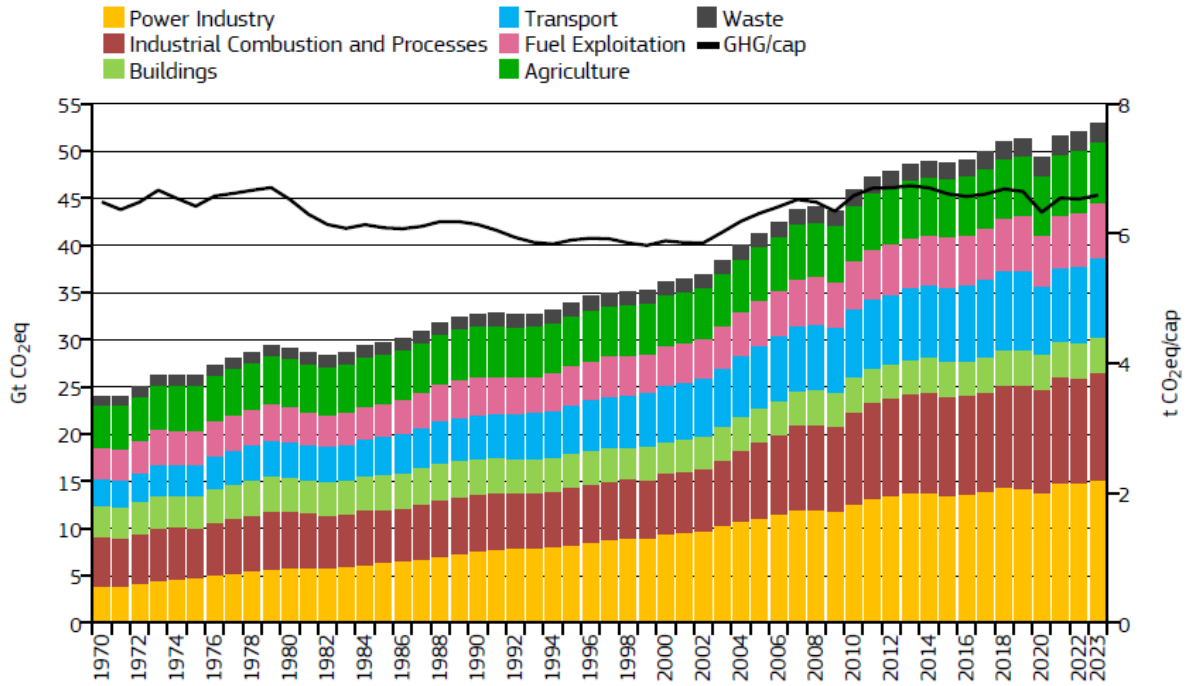
(18) https://edgar.jrc.ec.europa.eu/dataset_htap_v3

(19) https://edgar.jrc.ec.europa.eu/edgar_food

2 Global GHG emissions from 1970 until 2023

The evolution of global GHG emissions over the period 1970-2023 is illustrated in Figure 2. Emission trends for the main activity sectors (namely power industry[20], industrial combustion and processes[21], transport[22], buildings[23], agriculture[24], waste[25] and fuel exploitation[26]) are also shown. Global GHG emissions reached in 2023 the level of 53.0 Gt CO_{2eq}[27], which is 1.9% higher than the 2022 values. In 2023, all sectors increased their emissions, with transport showing the largest increase, both in relative (+3.7%) and absolute terms (301 Mt CO_{2eq}).

Figure 2. Global GHG emissions by sector (left axis, bars) and per capita (right axis, black line), 1970-2023



Source: JRC, 2024

([20]) Power industry includes power and heat generation plants (public and auto-producers).

([21]) Industrial combustion and processes includes combustion for industrial manufacturing and industrial process emissions (e.g. non-metallic minerals, non-ferrous metals, solvents and other product use, chemicals, etc.).

([22]) Transport includes road transport, rail transport, domestic aviation, domestic shipping and inland waterway transport for each country. International shipping and aviation also belong to this sector and are presented separately in the country factsheets due to their international nature. Figure 2 includes also international shipping and aviation under the transport sector.

([23]) Buildings includes small-scale non-industrial stationary combustion.

([24]) Agriculture includes agriculture livestock (enteric fermentation, manure management), agriculture soils (fertilisers, lime application, rice cultivation, direct soil emissions, indirect N_2O emissions from agriculture), field burning of agricultural residues.

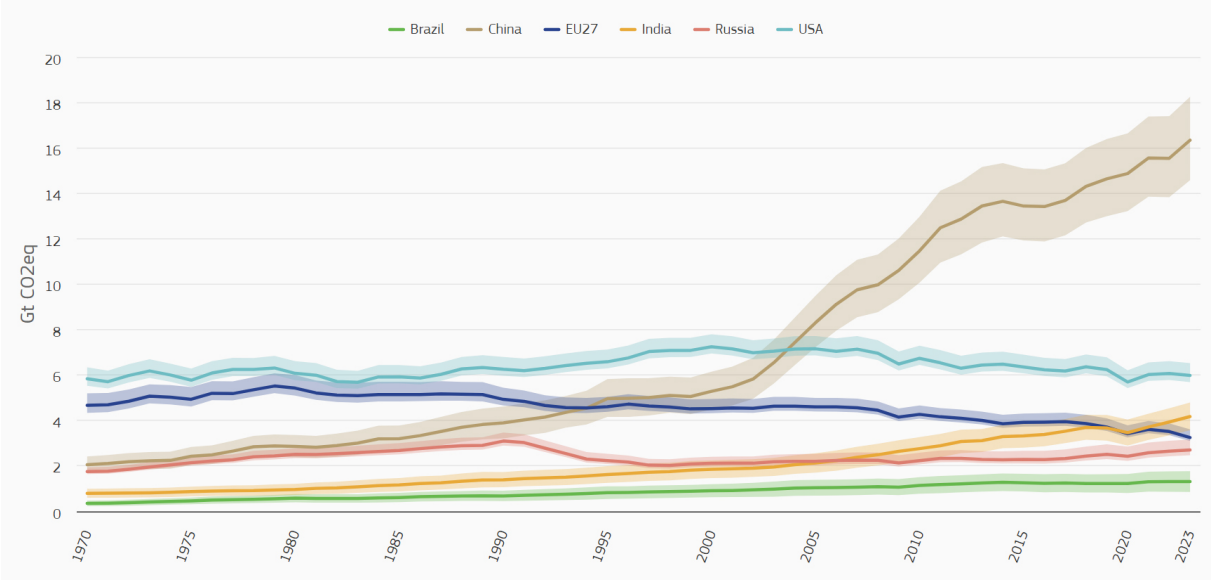
([25]) Waste includes solid waste disposed on land, solid waste composted and hazardous solid waste processing/storage, waste water handling, waste incineration.

([26]) Fuel exploitation: fuel extraction, transformation and refineries activities, including venting and flaring.

([27]) Total GHG consists of CO_2, CH_4, N_2O and F-gas emissions which are expressed in CO_{2eq} using their Global Warming Potential values established in the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. More details are provided in Annex 1.

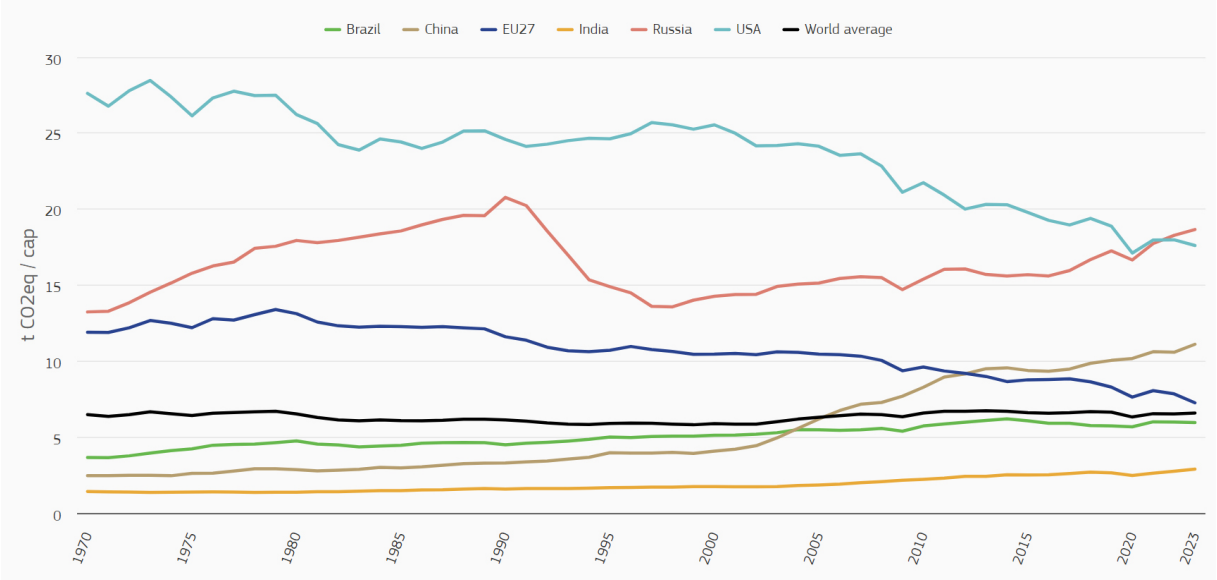
Figure 3 shows total annual GHG emissions of the EU27 and the other five top-emitting countries in the world (China, the United States, India, Russia and Brazil) from 1970 to 2023 including also uncertainty bands showing the 95% confidence interval of the emission estimates[28]. The corresponding per capita CO_2 emissions (in t CO_{2eq}/cap) and the world average are represented in Figure 4. Figure 5 depicts GHG emissions per unit of GDP PPP (in t CO_{2eq}/k USD) in top emitting economies and for the world average.

Figure 3. GHG emissions in top emitting economies and estimated uncertainty (coloured bands), 1970-2023 (in Gt CO_{2eq})



Source: JRC, 2024

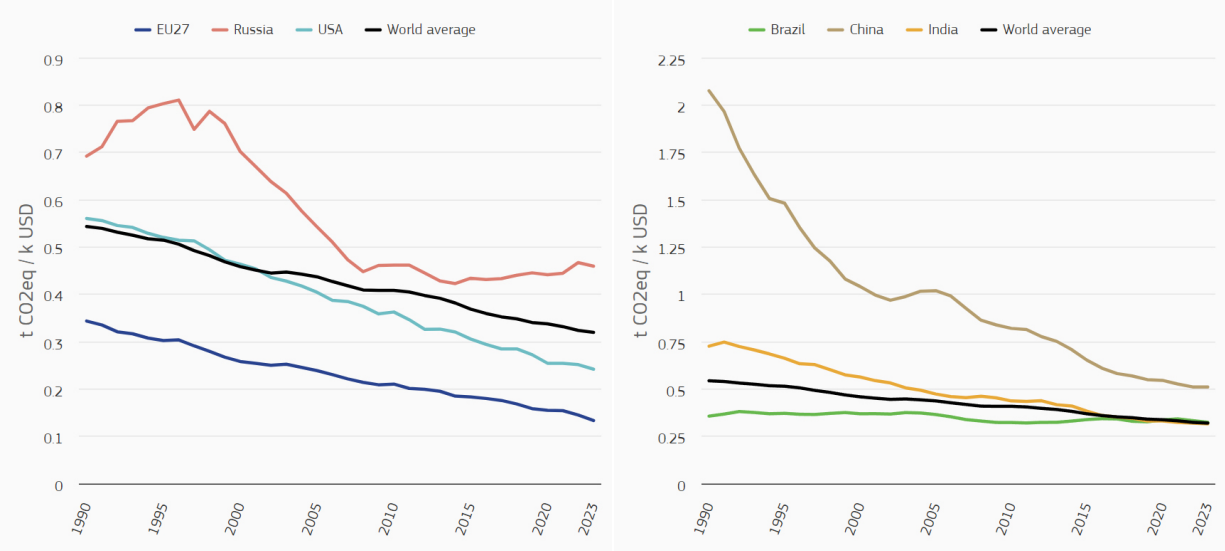
Figure 4. GHG emissions per capita in top emitting economies, 1970-2023, (t CO_{2eq}/cap)



Source: JRC, 2024

([28]) The estimated uncertainty considers the accuracy of both activity data and emission factor statistics. The tiered model of IPCC (IPCC, 2006a) is used to estimate the uncertainty, assigning lower/higher uncertainty to more/least developed countries (Solazzo et al., 2021). The overall accuracy depends on the degree of aggregation (global or country level, total or sector-specific, etc.).

Figure 5. GHG emissions per unit of GDP PPP in top emitting economies, 1990-2023 (t CO_{2eq}/k USD)[29]



Source: JRC, 2024

Global greenhouse gas emissions increased by 1.9% or 994 Mt CO_{2eq} in 2023, reaching a new record high of 53.0 Gt CO_{2eq}. Among the 17 countries and regions accounting for more than 1% of global emissions, six experienced a decrease in their total GHG emissions in 2023 compared with 2022: the United States (-1.4%), the EU27 (-7.5%), Japan (-6.0%), South Korea (-2.2%), Germany (-10.5%)[30] and Pakistan (-0.7%)All other top emitters experienced a rise in their GHG emissions in 2023. Notably, India saw a significant increase of 6.1%, followed by China with 5.2% and Indonesia with 4.1%. Global GHG emissions per capita increased by 7.4% from 6.14 t CO_{2eq}/cap to 6.59 t CO_{2eq}/cap between 1990 and 2023. In terms of emissions intensity per GDP PPP in 2023 they reached 0.320 tCO_{2eq}/k USD, 1.2% lower than in 2022.

Table 2 shows GDP PPP[31] and emission intensity for 2023 together with emission intensity change between 2023 and 2022 for the world and the top emitters, including the EU27.

([29]) On the left hand side emerging economies are represented while industrialised countries are on the right hand side.

([30]) Germany is already included in the EU27 total, but it is also reported as individual country due to its contribution to the global total above 1%.

([31]) GDP: Gross Domestic Product GDP, expressed in Purchasing Power Parity (PPP) (constant 2021 international $, USD). The difference with GDP nominal is that GDP PPP is adjusted for the difference in the level of prices and is in constant prices (but not adjusted for inflation). GDP PPP data (expressed as billion USD, 2021 prices and PPPs) are mainly sourced from World Bank (WB, 2024) and complemented for missing countries with IEA GDP data (IEA, 2023a). For countries where the 2023 GDP data were not available (i.e. Syria, Gibraltar, Greenland, North Korea), the 2022 value was considered also for 2023.

Table 2. GDP PPP, GDP change in 2023, GHG emissions intensity in 2023 and changes in emission intensity between 2022 and 2023 for top emitters

Country	GDP 2023 (Billions of USD)	2023 GDP change (%)	2023 Emission Intensity (tCO2-eq/kUSD)	2023 Emission Intensity change (%)
Global	165666	2.8%	0.320	-1.2%
China	31227	5.2%	0.511	0.0%
United States	24662	2.5%	0.242	-3.9%
India	24177	7.6%	0.315	-1.4%
EU27	13104	0.5%	0.133	-8.0%
Russia	5816	3.6%	0.459	-1.6%
Brazil	4016	2.9%	0.324	-2.7%
Indonesia	3906	5.0%	0.307	-0.9%
Japan	5761	1.9%	0.181	-7.8%
Iran	1440	5.0%	0.692	-1.1%
Saudi Arabia	1831	-0.8%	0.440	3.1%
Canada	2238	1.1%	0.334	-0.7%
Mexico	2873	3.2%	0.248	0.3%
South Korea	2615	1.4%	0.250	-3.5%
Germany	5230	-0.3%	0.130	-10.2%
Türkiye	2936	4.5%	0.207	-3.1%
Australia	1584	3.0%	0.361	-2.4%
Pakistan	1347	0.0%	0.395	-0.7%

Source: JRC, 2024

In 2023, the majority of GHG emissions consisted of CO_2, resulting from the combustion of fossil fuels (73.7%). CH_4 contributed 18.9% to the total, while the remaining share of emissions comprised N_2O (4.7%) and F-gases (2.7%). Fossil CO_2 emissions have experienced a significant global increase of over 72.1% since 1990. In the same period CH_4 increased by 28.2% and N_2O by 32.4%, while F- gases have seen a four-fold increase (+294%). In the EU27, on the contrary, a consistent downward trend appears for CO_2, CH_4, and N_2O, showing a decrease of 34.1%, 38.9% and 33.6% respectively between 1990 and 2023. In the same period, F-gases have increased also in the EU27 by 43.2%.

In the **EU27**, there was a noticeable 7.5% (or 261 Mt CO_{2eq}) decrease in total GHG emissions in 2023 compared to 2022, as indicated in Table 1, continuing the EU27 decades-long decreasing trend. In 2023, all EU27 countries except Croatia and Cyprus experienced a decrease in their emission levels compared to the previous year. In terms of contribution to the EU27's GHG emissions in 2023, Germany remained the largest emitter, followed by France, Italy, Poland and Spain.

In the EU27, all sectors experienced a decrease in their GHG emissions in 2023 compared to 2022. The largest relative drop was observed in the power industry sector, in which emissions decreased by 20.1%. The industrial combustion and processes showed the second-highest decrease, falling by 8.1% below the 2022 levels. From a longer-term perspective, GHG emissions in the EU27[32] have been on a decreasing trend over the past three decades, and in 2023 they were 3.22 Gt CO_{2eq}, representing a 33.9% reduction from the 1990 level (see Figure 3). The EU27's share of global emissions has also decreased over the last decades (from 14.9% in 1990 to 6.1% in 2023).

CO_2 accounted for 78.0% of the EU27 GHG emissions in 2023. CH_4 contributed 13.5%, N_2O 6.2% and F-gases with 2.2%. Fossil CO_2 emissions in the EU27 have decreased by 32.9%, N_2O by 34.1% and

([32]) As mentioned in the executive summary, EDGAR emission estimates aim to contribute to the upcoming UNFCCC Global Stocktakes, complementing officially reported national emission inventories which are also based on IPCC reporting guidelines and reviewed by UNFCCC. The EDGAR data are different from those used to track the accomplishment of EU reduction policies and officially submitted to UNFCCC.

CH_4 by 38.9% since 1990. Over the same time span, emissions related to F-gases increased by 43.2%. In terms of per-capita emissions, the EU27's GHG emissions amounted to 7.26 t CO_{2eq} per person in 2023 (see Figure 4), representing a 7.5% decrease compared to 2022. GHG emissions per unit of GDP PPP reached 0.133 t CO_{2eq}/k USD in 2023, indicating an 8.0% decrease compared to 2022.

China's GHG emissions increased by 5.2% in 2023 compared to 2022, reaching 15.9 Gt CO_{2eq}. China's GHG emissions in 2023 were almost four times larger than in 1990 and accounted for 30.1% of global GHG emissions (in 1990, this share was 11.8%). This increase is mainly due to increased economic activity which resulted in an increase of CO_2 emissions, which were 5.5 higher than in 1990 and accounted for 83.2% in total national GHG whereas the non-CO_2 GHG gases, i.e. CH_4, F-gases and N_2O, contributed 11.2%, 3.0% and 2.6%, respectively in 2023. The main sectors contributing to the CO_2 emissions in 2023 were power industry (48.8%), industrial combustion (21.7%), processes (11%) and transport (8.1%). The contributions to CH_4 emissions were from fuel exploitation (41.1%), agriculture (35.3%) and waste (19.9%) sectors, while for N_2O they were from agriculture (57.6%), power industry (15.3%) and processes (9.8%). Per-capita GHG emissions in 2023 were 11.1 t CO_{2eq}/cap, while GHG emission per GDP PPP amounted to 0.511 t CO_{2eq}/kUSD, having the highest GHG intensity among top emitting economies (see Table 2).

Emissions of GHGs in the **United States** decreased in 2023 by 1.4% in comparison with 2022 (see Table 1), reaching about 6.0 Gt CO_{2eq} (see Figure 1). The contributions to the total national emissions by substance in 2023 were 78.5% for CO_2, 14.3 for CH_4, 3.5% for N_2O and 3.6% for F-gases. Overall, emissions were only 4% lower in 2023 than in 1990. Emissions mostly fell between 2005 and 2020 (see Figure 3), primarily due to decreases in CO_2 emissions in the power industry, transport and buildings sectors, by 39.6%, by 16.6% and by 12.7% respectively. In 2023, emissions per unit of GDP PPP were 0.242 t CO_{2eq}/kUSD, i.e., 3.9% lower than in 2022 (see Table 2), continuing the decreasing trend of the previous years. Per-capita GHG emissions in 2023 (17.6 t CO_{2eq}/cap) were very close to Russia's value which is much higher than other top emitters (see Figure 4).

India's GHG emissions increased by 6.1% (or 0.24 Gt CO_{2eq}) in 2023 compared to 2022 (see Table 1). In the last three decades, India's emissions have increased almost continuously, and were almost three times higher in 2023 than in 1990 (see Figure 3). In 2023 the shares of CO_2, CH_4, F-gases and N_2O in total national emissions expressed in CO_{2eq} were 71.5%, 20.3%, 1.7% and 6.5%, respectively. The increase in GHG emissions from 1990 in India is mainly due to the increase in CO_2 emissions from power industry, processes, and transport, which were six and five times higher respectively in 2023 compared to 1990. With a share of approximately 7.8% in the total global emissions in 2023, India is the third largest emitting economy after China and the United States. However, India's per-capita emissions (2.9 t CO_{2eq}/cap in 2023) are six times lower than those of the United States and Russia, four times and three times lower than those of China and the EU27 and two times lower than those of Brazil. India's emissions per unit of GDP PPP were 0.315 t CO_{2eq}/kUSD in 2023, i.e., 1.4% lower than in 2022.

In 2023, **Russia**'s GHG emissions increased by 1.9% compared to 2022 (see Table 1). Compared to 1990, emissions were 12.8% lower in 2023 (see Figure 3). With a 5.0% share of global emissions in 2023, Russia was the fifth largest emitter after China, the United States, India and the EU27. Per-capita emissions (18.7 t CO_{2eq}/cap in 2023) were comparable to the United States, and higher than those of China (by 68%) and the EU27 (by 157%) (see Figure 4). Emissions per unit of GDP PPP were 0.459 t CO_{2eq}/k USD in 2023, i.e., 1.6% higher than in 2022 (see Table 2).

In 2023, **Brazil**'s GHG emissions increased by 0.1% compared to 2022 (see Table 1). Compared to 1990, emissions are 93.6% higher in 2023 (see Figure 3). With a 2.5% share of global emissions in

2023, Brazil is the sixth largest emitter after China, the United States, India, the EU27 and Russia. In contrast to the other top emitters, CH_4 accounts for the largest share of emissions (49.1%) followed by CO_2 (36.9%), N_2O (12.8%) and F-gases (1.3%). In 2023, Brazil's per-capita emissions were 6.0 t CO_{2eq}/cap, 10% lower than the world average.

3 Global GHG emissions from LULUCF from 1990 until 2023

This edition of the EDGAR booklet includes annual estimates of CO_2 emissions and removals from Land Use, Land-Use Change and Forestry (LULUCF), identified as one of the key sectors for tackling climate change and for compliance with emission reduction strategies (IPCC 2019a). The inclusion of emissions from LULUCF helps to provide a more complete overview of global CO_2 fluxes. However, LULUCF is an extremely complex sector to account for in terms of carbon emissions and removals, due to the inherent complexity of terrestrial ecosystems and the difficulty of disentangling anthropogenic and natural fluxes.

In this version of the EDGAR-LULUCF dataset, only the living biomass pools (i.e., above- and below-ground biomass) of the "Forest Land" category and the emissions from biomass burning have been estimated independently, while the other LULUCF fluxes (i.e., non-biomass forest pools and non-forest categories) were taken from a compilation of the official country reporting to the UNFCCC (Grassi et al., 2022). Emissions from biomass burning are estimated within the Global Wildfire Information System (GWIS) (Artés et al., 2019).

As a forthcoming development, a new dataset of emissions from deforestation, obtained using deforestation maps developed within the European Forest Observatory following a Tier 1 IPCC approach, has also been developed. The data will be shortly available in the European Forest Observatory portal (https://forest-observatory.ec.europa.eu/) in the new Global land use carbon flux hub.

We focus on Forest Land (i.e. managed forest existing for at least 20 years and land converted to Forest Land within the previous 20 years) because this category is very important in terms of absolute CO_2 fluxes, but its reporting is often incomplete (especially in developing countries) and the attribution of anthropogenic vs. natural fluxes is very uncertain. Furthermore, within this category, we focus on living biomass because it is by far the most important carbon pool (typically representing >80% of the net CO_2 flux, based on data from Annex I countries). The estimates for forest land presented here combine satellite-derived data to track land use with specific default IPCC factors for forest growth and country statistics for forest harvest (see Annex 2 for details). The IPCC factors provided in the IPCC Guidelines are often very uncertain and show a high variability across different continents (even for the same tree species or forest types). It should be noted that our estimates are based on the IPCC Tier 1 approach, i.e. the most basic approach to estimate GHG fluxes.

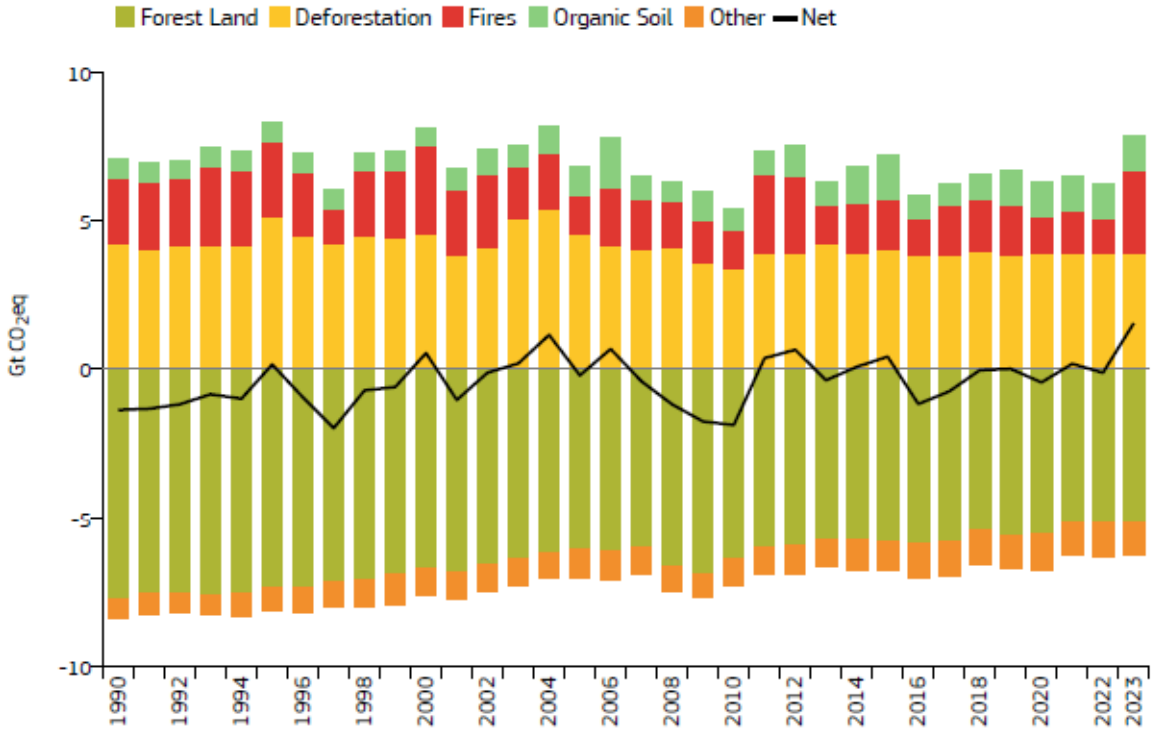
Our estimates serve as a valuable source of information for areas where official estimations are lacking or limited (e.g. several African countries). However, it is important to clarify that our intention is not to challenge or verify the estimates provided by individual countries when they utilise locally available parameters, reliable datasets, and advanced methods (Tier 2 or Tier 3). This particularly applies to Annex I countries. This year, we have substantially improved our methodology, thoroughly updated, and reviewed the reference data.

In terms of attribution of anthropogenic fluxes, the approach used here is, in principle, comparable with what most countries include in their GHG reporting prepared following the IPCC Guidelines for National GHG inventories (IPCC, 2006a; IPCC, 2019b), but differs from the global models used in the IPCC reports (e.g., IPCC, 2022). Global models typically consider as managed forest only those areas subject to intense harvest, whereas countries may define managed forest more broadly within their GHG Inventories and thereby include a much larger area. In addition, countries generally include in their GHG inventories most of the natural response of land to human-induced environmental changes (e.g., CO_2 fertilisation, etc.), while the global model approach treats this response as part of the non-

anthropogenic flux (Grassi et al., 2021; IPCC, 2019a). Our approach is closer to country GHG inventories because we filter the total satellite-derived forest area with non-intact forest area, which is a reasonable proxy for countries' managed forests (Grassi et al., 2021), and because the IPCC growth factors are expected to incorporate most of the recent human-induced environmental changes.

For the other LULUCF fluxes, we use a compilation of countries' data officially reported to the UNFCCC (Grassi et al., 2022), including GHG Inventories for Annex I parties (complete time series 1990-2023, with 2023 assumed to be equal to 2022) and other GHG reporting such as National Communications, Biennial Update Reports, Nationally Determined Contributions and REDD+ submissions for Non-Annex I parties (often incomplete time series, gap-filled when necessary). In this booklet, we aggregated the available data into categories aimed to be a minimum common denominator between the detailed reporting of Annex I countries, the often coarse reporting from non-Annex I countries, and the outputs by the global models (Grassi et al., 2023; Friedlingstein et al., 2022). These categories are 'deforestation', 'organic soil', and 'other'. Deforestation incudes CO_2 emissions reported under 'Forest conversion to other land use categories'. Organic soils include data from all land uses, including peat fires (e.g., in Indonesia). The category 'other' includes all the fluxes not covered in the previous categories, e.g. from non-biomass forest pools and from other land use categories such as cropland, grassland, wetlands, settlements, and Other Land. We also include in EDGAR-LULUCF part of the emissions associated with wild fires from the GWIS database (see details in Annex 3). Since CO_2 emissions from forest fires in tropical regions can be assumed to be mostly associated to deforestation practices (e.g. Van der Werf et al., 2017), to avoid double-counting we excluded them from the EDGAR dataset. Forest fire emissions in non-tropical regions were included in our estimates of net CO_2 fluxes. Moreover, CH_4 and N_2O emissions arising from crop burning are removed from GWIS to avoid double-counting with EDGAR emissions from the agricultural residue burning sector. GHG emissions and removals from LULUCF are presented below for the world (see Figure 7) and for the EU27 (see Figure 8) from 1990 to 2023.

Figure 6. Global GHG emissions and removals from LULUCF sector (in Gt CO_{2eq}), 1990-2023



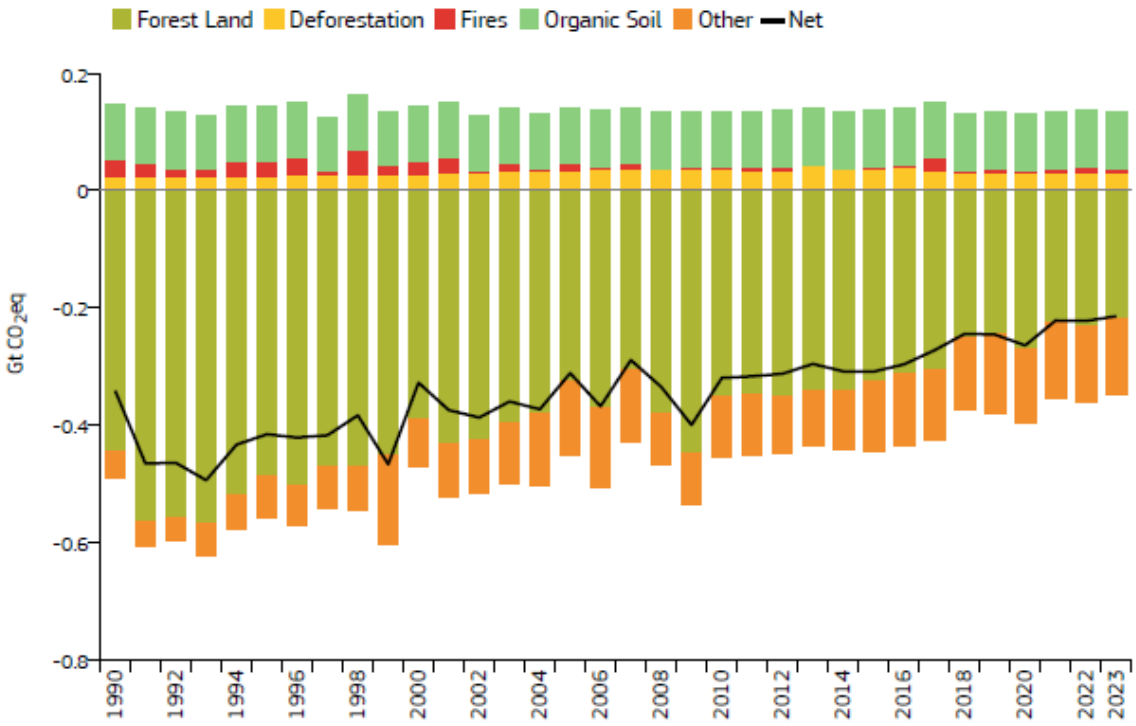
Source: JRC, 2024

Global: The LULUCF sector was estimated to remove about 1.25 Gt CO_{2eq} excluding wildfires in 2023, representing 2.3% of global GHG emissions without LULUCF of 2023. When including fires, the LULUCF sector exceptionally represents a source of GHG emissions in 2023, accounting for 1.5 Gt CO_{2eq}. Australia's 2023 fire season was the biggest bushfire season in more than a decade, eight times as big as the 2019-20 black summer bushfires. Also Canada in 2023 experienced the worst and most destructive fire season ever recorded.

Based on our estimates, managed forests (living biomass, excluding deforestation) are by far the largest CO_2 removal category, with an estimated 5.1 Gt in 2023, equivalent to 9.6% of global anthropogenic fossil emissions (excluding LULUCF) emitted in the same period. This independently estimated net removal is lower than what countries include in their GHG reports (about 6.3 Gt CO_2, Grassi et al. 2022); the difference may be explained by different methodologies and assumptions between country reports and our approach. In particular, we estimate a larger Carbon (C) gain in the boreal area (e.g., in Russian Federation and Canada), mostly due to the IPCC default factors suggesting a greater tree growth than the country GHG reports, and larger C losses in some tropical areas, mostly due to the high values of harvest reported by some countries to FAOSTAT (e.g., India, Ethiopia). In most cases, it can be assumed that the local data and approaches used in country GHG reports which use Tier 2 or Tier 3 methods are better suited for GHG reporting than the global-scale implementation of a default IPCC Tier 1 approach, as done in our study.
In 2023, based on GWIS data, global wildfires contributed 2.8 Gt CO_{2eq} to LULUCF emissions, which is 2.4 times higher than the corresponding emissions of the previous year due mainly to the Australian and Canadian extreme fire 2023 seasons. For the same year, based on country GHG reports, global deforestation was responsible for net CO_2 emissions of 3.9 Gt CO_2, equivalent to 9.8% (or 7.3%) of

the total anthropogenic CO_2 (or GHG) emissions. Among the other components, in 2023 organic soils contributed rather stable emissions of about 1.2 Gt CO_2. The large difference between the net LULUCF estimates in this booklet and those from the IPCC reports (which report net anthropogenic land-use emissions of about 5 to 6 Gt CO_2/yr, IPCC, 2022) can be to a large extent explained by different approaches in assessing the "anthropogenic" CO_2 removals, i.e. this booklet (consistently with most country GHG reports) consider as anthropogenic the part of the CO_2 removals that global models (as reflected in the IPCC reports) consider as natural. Once the difference in defining the 'anthropogenic' sink between countries and models are understood, LULUCF estimates can be largely reconciled at global and regional level (Grassi et al. 2021; Grassi et al., 2023).

Figure 7. EU27 GHG emissions and removals from LULUCF sector (in Gt CO_2eq), 1990-2023



Source: JRC, 2024

The EU27: The LULUCF sector produced a net removal of CO_2 emissions of 0.214 Gt CO_{2eq} (or 0.221 Gt CO_2 when excluding wildfires) in 2023, approximately 40% less than the 1990s levels. Total GHG emissions from this sector including wildfires represent approximately 6.7% of the EU27 fossil GHG emissions excluding LULUCF.

Living biomass in managed forests is by far the most important C sink, with an estimated net 0.217 Gt CO_2 in 2023, equivalent to 8.5% of fossil CO_2 emitted in the EU27 in the same period excluding LULUCF. The other components (non-biomass forest pools, deforestation, organic soils and other, based on country GHG reports) were offsetting each other, with a net sink of 0.003 Gt CO_2 in 2023. Based on our estimates, wild fire emissions represent a minor component for the EU27 in 2023, with a contribution of 0.006 Gt CO_{2eq}, although this figure obviously vary greatly according to the fire season severity (0.021 Gt CO_{2eq} were emitted in 2017). It is important to highlight that these data are not aimed at criticising nor challenging what is produced by Member States in their reporting

process under the climate agreements, which are by definition produced with the best data and methods locally available and with several country-specific assumptions. This study is, on the contrary, part of a global methodologically coherent estimation at Tier 1.

4 Conclusions

The Emissions Database for Global Atmospheric Research (EDGAR) is a comprehensive inventory of anthropogenic emission time series from 1970 until 2023 for GHG. The data used in this report consists of the IEA-EDGAR CO_2, EDGAR CH_4, EDGAR N_2O and EDGAR F-gases, which are included in the EDGAR_2024_GHG (2024) dataset. An IPCC-based bottom-up emission calculation methodology is applied to all countries, demonstrating that consistent inventories can be developed for all countries within the limitations of the quality of the available data.

EDGAR complements the national inventories and reporting prepared by Parties to the Paris Agreement, in particular by producing a timely independent emissions estimate[33] based on the consistent application of homogeneous information and methodological tools across countries. In particular, the time series of EDGAR can provide collective emissions trend information for all countries that will be needed for the Paris Agreement's Global Stocktake beyond 2023 and for the Biennial Transparency Reports.

Overall, EDGAR provides an important input to the analysis of global GHG emission trends with its 53-year time series and is a reference product for the scientific community, policy makers and active citizens interested in the climate debate.

This report shows that global GHG emissions from anthropogenic activities have increased by nearly 1.5% annually on average since 1990, and they were 61.8% higher in 2023 than in 1990. In 2023, among the six major economies collectively contributing 62.7% to the global GHG emissions (China, USA, India, EU27, Russia, and Brazil), four showed increases in their emissions (China +5.2%; India +6.1%; Russia +1.9%; Brazil +0.1%) while two showed a decrease (USA –1.4% and EU27 –7.5%). Nevertheless, all major emitters reduced their emission intensity in terms of GHG emissions per unit of GDP, with the exception of China, where it remained broadly constant.

This edition of the EDGAR booklet also includes estimates of GHG emissions from Land Use, Land Use Change and Forestry (LULUCF), finding a global removal of approximately 1.25 Gt CO_{2eq} in 2023 when excluding wildfires. The net global flux actually reflects the offsetting between much larger removals (mostly from forest land) and emissions (mostly from deforestation and fires), each close to around 5 Gt CO_{2eq}, and includes emissions from the exceptional fire event in Australia in 2023. In the EU27, LULUCF reduced its absorption capacity significantly compared to 1990, but nevertheless it is still an important net removal, equal to 0.221 Gt CO_{2eq} in 2023 (excluding wildfires).

([33]) In the official National Inventory Reports, the latest reporting year can be up to two years prior to the submission year.

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List of abbreviations and definitions

Abbreviations	Definitions
AR5	Fifth Assessment Report of IPCC
AR6	Sixth Assessment Report of IPCC
Cap	capita (population)
BGS	British Geological Society
CH_4	Methane, greenhouse gas with GWP-100 = 28-30 under IPCC AR5
CO_2	Carbon dioxide
DG CLIMA	Directorate-General for Climate Action, European Commission
EDGAR	Emissions Database for Global Atmospheric Research
EI	Energy Institute (formerly British Petroleum Company plc)
EIA	Energy Information Administration (of the U.S.)
EU27	European Union with 27 Member States
F-gases	Fluorinated gases
GCSA	Global Cement and Concrete Association
GDP	Gross Domestic Product
GGFR	Global Gas Flaring Reduction Partnership of the World Bank
GHG	Greenhouse Gas
Gt	Gigatonnes (1000 megatonnes = 10^9 metric tonnes)
GWP-100	Global Warming Potential over a 100-year period
IEA	International Energy Agency of the OECD (Paris)

Abbreviations	Definitions
IFA	International Fertiliser Association
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
JRC	Joint Research Centre of the European Commission
k USD	1000 US Dollar GDP
LULUCF	Land use, land-use change and forestry
Mt	Megatonnes (10^6 tonnes or 1 tera gramme) mass of a given (greenhouse gas) substance
NBSC	National Bureau of Statistics of China
NOAA U.S.	National Oceanic and Atmospheric Administration
N_2O	Nitrous oxide, greenhouse gas with GWP-100 = 265 under IPCC AR5
n/a	Not Available
OECD	Organisation for Economic Co-operation and Development
PPP	Purchasing Power Parity
t	tonne (1 t or 1 mega gramme) mass of a given (greenhouse gas) substance
UNFCCC	United Nations Framework Convention on Climate Change
UNPD	United Nations Population Division
USD	U.S. Dollar
USDA	United States Department of Agriculture
USGS	United States Geological Survey
Worldsteel	Word Steel Association

Abbreviations	Definitions
yr	Year

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Annexes

Annex 1. Bottom-up methodology for global GHG emissions compilation

The EDGAR_2024_GHG (2024) emissions presented in this report include IEA-EDGAR CO_2 data (v3)[34] (IEA 2023b) covering fossil CO_2 emissions from combustion and processes, EDGAR CH_4, EDGAR N_2O and EDGAR F-gases up to 2023. In EDGAR, the emissions per country and compound are calculated on an annual basis and sector-wise by multiplying the country-specific activity and technology mix data by country-specific emission factors and reduction factors for installed abatement system for each sector. For the greenhouse gas emission factors, the global default values recommended in the IPCC 2006 guidelines (IPCC, 2006a) were used and where recommended, region-specific values were applied for other sources.

Regarding GHG emissions, all anthropogenic activities leading to climate relevant emissions are included (see Table 3), except biomass/biofuel combustion (short-cycle carbon) in the power, industry, buildings, transport, and agricultural sectors for CO_2 only. Large-scale biomass burning and land use, land-use change and forestry (LULUCF) are now part of the EDGAR estimations for CO_2 emissions.

EDGAR makes use of the IPCC sectorial classification, and a consistent bottom-up emission calculation methodology is applied to all countries, so that emissions of different countries can be compared, considering their respective levels of detail, uncertainties or data limitations. In particular, for developing countries with less robust and systematic statistical data infrastructures and limited experience in reporting their emission inventories, EDGAR can provide information and support them in complying with their inventory preparation.

In order to compute emissions up to the year t-1 for all sectors and gases, a Fast-Track approach is applied. For combustion sources, both IEA-EDGAR CO_2 (v3) emissions and non-CO_2 GHGs are extended until 2023 using the IEA Energy Balances[35] (2024) and the Energy Institute (EI, 2024) detailed statistics by fuel type for the years 2022 and 2023, while still assuming the same sectoral breakdown as in the last year of the IEA energy balance statistics. As a consequence of this approach, the emissions for the Fast-Track years (2022-2023) reported in this booklet will be updated in subsequent editions of this booklet, using future releases of the complete IEA energy balance statistics up to most recent years for all countries. For agriculture related sources, USDA (2024) data are used to extend FAOSTAT statistics up to 2023. For the other sectors with lower contributions to global GHG emissions, the time series have been extended for the latest years using proxy data and relative changes in activity data and trends to be applied to the latest available year. More details on

([34]) IEA-EDGAR CO_2 emissions from fossil fuel combustion are those reported by IEA from 1990 to 2021. Emissions from 1970 to 1989 are still based on IEA data, but complemented with additional statistics gathered over the years and included in previous releases of the EDGAR database. Furthermore, it includes non-energy use emissions computed from the IEA energy balances (IEA, 2023a) which are however not reported in the IEA CO_2 emissions (IEA, 2023b).

([35]) The IEA Energy Balances released in April every year provide detailed statistics for countries included in the 'IEA Family and beyond'. More specifically they cover: Albania, Algeria, Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, China, Colombia, Costa Rica, Curaçao, Cyprus, Czechia, Denmark, Ecuador, Egypt, Finland, France and Monaco, Germany, Ghana, Greece, Guatemala, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Ireland, Israel and Palestine, State of, Italy, San Marino and the Holy See, Japan, Kenya, Luxembourg, Malta, Mauritius, Mexico, Morocco, Netherlands, New Zealand, Norway, Paraguay, Poland, Portugal, Romania, Senegal, Singapore, Slovakia, South Africa, South Korea, Spain and Andorra, Sweden, Switzerland and Liechtenstein, Thailand, Tunisia, Türkiye, United Kingdom, United States, Zambia.

the assumptions of the Fast-Track methdology are included in the following description of each emitting sector when relevant.

Table 3. Main activities included in EDGAR emissions estimations

GHG (fossil CO_2, CH_4, N_2O, F-gases)		**IPCC 2006 categories**	**LULUCF (CO_2, CH_4, N_2O)**		**IPCC 2006 categories**
POWER INDUSTRY	Power and heat generation plants (public and auto-producers)	1A1a	**FOREST LAND**	Forest land remaining forest land and other lands converted to forest	3B1
INDUSTRIAL COMBUSTION AND PROCESSES	Combustion for industrial manufacturing, industrial processes (e.g. iron and steel, cement, aluminium, chemicals, production, solvents, etc.)	1A2+2+5A (only from non-agricultural activities)	**DEFORESTATION**	Deforestation including tropical fires	3B2bi+3B3bi+3B5bi+3B6bi
BUILDINGS	Small scale non-industrial stationary combustion	1A4+1A5	**ORGANIC SOIL**	Drainage of organic soils	
TRANSPORT	Road, non-road, domestic and international aviation, inland waterways and international shipping	1A3	**OTHER**	Non biomass forest pools, cropland, grassland, settlements, wetlands and other lands	3B2+3B3+3B4+3B5+3B6
AGRICULTURE	Livestock (enteric fermentation, manure management), agricultural soils (fertilisers, lime application, rice cultivation, direct soil emissions, indirect N_2O emissions from agriculture), field burning of agricultural residues	3A+3C1b+3C2+3C3+3C4+3C5+3C6+3C7+5A (only from agricultural activities)	**FIRES**	Forest fires (boreal, temperate), peat fires, shrubland fires, non-tropical savannah fires	3C1a (excluding tropical areas)+3C1c+3C1d
FUEL EXPLOITATION	Fuel extraction, transformation and refineries activities, including venting and flaring	**1B+5B**			
WASTE	Solid waste disposed on land, solid waste composted and hazardous solid waste processing/storage, waste water handling, waste incineration	**4**			

Source: JRC, 2024

For combustion sources: detailed IEA-EDGAR CO_2 (v3) emissions (IEA,2023b) are used for the period 1970-2021 (IEA, 2023a) together with CH_4 and N_2O emissions from EDGAR_2024_GHG (2024). To extend GHG emission time series from combustion sources up to 2023, trends based on detailed IEA energy statistics (2024) and EI (2024) consumption data by fuel type (coal, oil and gas) are applied to the corresponding 2021 and/or 2022 values. In particular, EI (2024) oil regional consumption data trends from Jet/Kerosene fuel are applied to domestic aviation emissions to extend them up to 2023. To extend GHG emissions from international aviation transport, we rely on the latest data from the Industry Statistics from IATA Statistics (IATA, 2024), while for shipping (international and domestic) we use fuel oil regional consumption statistics from EI (2024). Biofuel combustion related emissions are extended using FAOSTAT (2024) data for primary solid biomass and charcoal, while biodiesel and biogasoline are derived from EI (2024).

For the countries belonging to "Other Africa"[36], "Other Non-OECD Asia"[37] and "Other Non-OECD Americas"[38] in the IEA classification: the combined share of CO_2 emissions from all these countries in global total is very small, e.g. in 2021, this was less than 1%. To allocate the corresponding activity data and emissions to each single country, we used splitting factors derived from the U.S. Energy Information Administration (EIA, 2024) country specific data on fuel consumption and production of coal, oil and natural gas. Consequently, the uncertainties in GHG emission estimations for these countries are larger than the ones for individually reported countries, in particular for the sectorial subdivision. Additional reliable data and information are needed to further improve their GHG emissions allocation.

For the fugitive emissions: CO_2 emissions from coke production for 2020 and 2021 follow the same relative change as reported for the crude steel production by the World Steel Association (worldsteel, 2024). CO_2 flared at oil and gas extraction facilities for 1994 onwards is based on the total amount of gas flared derived from satellite observation of the intensity of flaring lights per country (GGFR/NOAA, 2024). CH_4 emissions from venting are estimated based on data and information from UNFCCC (2023), EPA (2023) and Höglund-Isaksson (2017). Compared to previous EDGAR CH_4 emission estimates, we also include fugitive emissions from abandoned mines following the methodology of the IPCC 2019 Refinements (IPCC, 2019b).

For the metal industry: the largest contribution is from blast furnaces, which in addition to the CO_2 emissions from blast furnace gas combustion (accounted for under the energy sector) emit also CO_2 from the coke/coal input as reducing agent and limestone used for iron and steel production. Here the crude steel production statistics reported by World Steel Association (worldsteel, 2024) are used as input to calculate CO_2 emissions. Ferro-alloys production data are from USGS (2024) up to 2020 and BGS (2023) up to 2021 which are further extended to the year 2022 using the pig iron production

([36]) Includes Burkina Faso; Burundi; Cape Verde; Central African Republic; Chad; Comoros; Djibouti; Gambia; Guinea; Guinea-Bissau; Lesotho; Liberia; Malawi; Mali; Mauritania; Namibia (until 1990); Réunion (until 2010); Sao Tome and Principe; Seychelles; Sierra Leone; and Somalia..

([37]) Includes Afghanistan; Bhutan; Cambodia (until 1994); Cook Islands; East Timor; Fiji; French Polynesia; Kiribati; Lao People's Democratic Republic (until 1999); Macau, China; Maldives; Mongolia (until 1984); New Caledonia; Palau (from 1994); Papua New Guinea; Samoa; Solomon Islands; Tonga and Vanuatu.

([38]) Includes Anguilla, Antigua and Barbuda; Aruba; Bahamas; Barbados; Belize; Bermuda; Bonaire; British Virgin Islands; Cayman Islands; Dominica; Falkland Islands (Malvinas); French Guiana (until 2010); Grenada; Guadeloupe (until 2010); Martinique (until 2010); Montserrat; Puerto Rico (for natural gas); Saba (from 2012); Saint Eustatius (from 2012); Saint Kitts and Nevis; Saint Lucia; Saint Pierre and Miquelon; Saint Vincent and the Grenadines; Sint Maarten (from 2012); Suriname (until 1999); and the Turks and Caicos Islands.

trends and data from World Steel Association (worldsteel, 2023), USGS (2024), BGS (2023) and NBSC (2024) for China.

For non-metallic minerals: CO_2 emissions from carbonates used in cement clinker production are based on reported or estimated cement clinker production. Cement production was calculated from cement production reported by the USGS (2024), except for China for the latest years (NBSC, 2024). The clinker-to-cement ratio is based on the clinker production data until 2020 from UNFCCC (2023) for the Annex I countries, and for USA up to 2023 using USGS (2024) data; for China it is calculated from World Cement (2022). For Brazil, Egypt, Philippines and Thailand, we used clinker production ratios from the GCSA (2022) up to the year 2019 and then applied a constant trend. The changes in the lime production from USGS (2024) are applied to extrapolate CO_2 emissions from all other carbonate uses (glass production, etc.). Concerning the feedstock use for chemicals production, the ammonia production from USGS (2024) is used, except for urea consumption and production, where data are provided by the International Fertiliser Industry Association (IFA, 2024). It is assumed that small soil liming emissions follow the gross ammonia production trend.

For waste: GHG emissions from waste **incineration** (no energy recovery) include open burning of municipal solid waste (MSW), industrial solid waste, biogenic waste, clinical waste, sewage sludge waste, waste from cremation[39] and other waste. For Annex I countries the main data source for the activity data is the UNFCCC Locator (UNFCCC, 2024a). Population is used to fill the backward trend. To estimate waste incineration in non-Annex I countries, per capita generation figures from the IPCC are used, considering specific country or region data and urban population information for the year 2000. The fraction of MSW incinerated in 2000 is determined based on the total IPCC numbers for the fraction of incinerated MSW, with consideration for country or region-specific data. The dataset for waste incineration is completed using also reports from Non-Annex I countries to the UNFCCC, specifically on annual net emissions/removals under waste incineration (UNFCCC, 2024b). The year 2000 is taken as the base year, and population data is utilized to fill in the backward and forward trends.

CH_4 and N_2O emissions associated with **wastewater handling** have been updated until 2022, following the IPCC (2006c) methodology as outlined in Janssens-Maenhout et al. (2019). These updates consider the latest statistics from FAOSTAT (2024) on meat, pulp, sugar production, average protein supply, as well as data from UN (2024) and RFA (2024) for alcohol production. The population data, both urban and rural, are sourced from UNDP (2019).

The emissions from **landfills** are calculated using the first-order exponential decay method, following the 2006 IPCC Guidelines. For Annex I countries, waste data reported by the parties via the UNFCCC Locator tool is considered. To account for the global domain, additional sources include UN statistics on municipal solid waste (MSW) collection and landfill disposal, as well as per capita MSW generation rates and disposal fractions from the IPCC Guidelines. Non-Annex I countries maintain a constant per capita landfill waste estimate based on the latest available year, as advised by the IPCC Guidelines. In developing countries, municipal waste collection is assumed to occur solely in urban areas, utilizing urban population data from UN statistics (UNDP, 2019) (Janssens-Maenhout et al., 2019). For a more detailed information, refer to Oreggioni et al. (2021).

([39]) Data sourced from https://www.cremation.org.uk

The emissions from waste **composting** are calculated using the UNFCCC Locator for the Annex-I countries. The methodology applied is that of IPPCC using the emission factor for "wet weight waste" for both CH_4 and N_2O. In the case of non-Annex I countries, UNSD/ENVSAT (2024) country data are utilized. The urban population is employed to address the backward and upward trends, following a similar procedure as applied to waste incineration.

Hazardous waste emissions are estimated using sources as Eurostat, 2024 (for the EU27, UK, Turkey and Western Balkan countries) and the UNSD/ENVSTAT (2024). The Non-Annex I countries are categorized into two groups: (i) countries with UNSD/ENVSTAT (2024) data on hazardous waste, and (ii) countries without UNSD/ENVSTAT (2024) data on hazardous waste. Additional data sources used are the biennial data from EPA[40] for the USA (last year 2021).

For agriculture: The agricultural sector encompasses various activities, including the application of urea and agricultural lime, enteric fermentation, rice cultivation, manure management, fertilizer use (both synthetic and from manure), and agricultural waste burning in fields. However, the current analysis does not consider large-scale biomass burning from savannah. Estimation of emissions from the agricultural sector relies on activity data obtained from FAOSTAT (2024) and emission factors provided by the IPCC Guidelines (2006b). CH_4 emission factors for enteric fermentation in both dairy and non-dairy cattle have been updated to incorporate the IPCC 2006 Tier 2 methodology. Agriculture related emissions are extended up to 2023 making use of crop and livestock specific data at macro regional level from USDA (2024).

Fluorinated gases (F-gases): EDGAR_2024_GHG (2024) includes, among other substances, the fluorinated gases (F-gases), a class of man-made chemicals used in a wide range of industrial applications. F-gases play an important role in some key sectors of the economy, such as the production of magnesium and aluminium or the semiconductor manufacturing. F-gases represent a set of powerful greenhouse gases which is significantly contributing to climate change. F-gases include three main groups: (1) Hydrofluorocarbons (HFCs) mainly used as refrigerants, blowing agents for foams and solvents; (2) Perfluorocarbons (PFCs) used in the electronics sector (3) sulphur hexafluoride (SF_6) used mainly as insulating gas, in high voltage switchgear and in the production of magnesium and aluminium (refer to Table 4). Details on the methodology and data sources used are provided in Olivier et al. (2022).

Table 4. Overview on F-gases by sector included in EDGAR_2024_GHG (2024)

General category			PFCs	HFCs
Substances	SF6	NF3	C2F6, C3F8, C4F10, C5F12, C6F14, c-C5F8, CH4	HFC-23, HFC-32, HFC-41, HFC-125, HFC-134, HFC-134a, HFC-143, HFC-143a, HFC-152a, HFC-227ea, HFC-236fa, HFC-245fa, HFC-365mfc, HFC-43-10-mee, HFC-131b, HFC-142b
Industrial processes	Non-Ferrous metal production Chemical industry Electrocnic industry Electrical equipment	Electronic industry	Non-Ferrous metal production Electronic industry PFC use in fire extinguishers other application	Refregeration and air conditioning Fire estingishers Solvents Aerosols foam blowing other application

Source: JRC, 2024

(40) https://rcrapublic.epa.gov/rcrainfoweb/action/modules/br/trends/view

Changes compared to previous editions of the report

The current version of this report includes several updates compared to previous editions which may result in differences in final emission estimates by country and by sector. The main changes are summarised here below:

- **Updated statistics** and data sources are used for all emitting sectors, thus resulting in possible differences with previous estimates.

- **Refinement of the Fast-Track methodology:** for the fossil fuel combustion sectors, the latest IEA statistics (IEA, 2024) for the IEA family and beyond countries are used in the Fast-Track approach to best estimate the emissions for the year t-2. This improvement will reduce differences in the estimates of the t-2 emissions for these sectors between two consecutive releases of EDGAR GHG emissions.

- **CH_4 emission estimates have been improved revising the emission factors of waste water treatment and fuel exploitation sectors.** These updates result in 10% lower global CH_4 emissions on average, which is however in the range of uncertainty for CH_4 emissions (which is between ±30% and ±60% as 95% confidence interval). Technology specific emission factors for the waste water treatment sector have been revised following the IPCC 2006 Guidelines, specifically for CH_4 emissions from domestic waste water using latrines and sewer to raw discharge or a treatment plant, but also for industrial waste water treatment for pulp and organic chemicals production. Fugitive CH_4 emissions from gas and oil operations have been improved using different emission factors for on- and off-shore activities for developed and developing countries in line with the IPCC 2006 Guidelines and the 2019 Refinements.

- **Technologies and abatement measures used in the power generation sector** have been updated accordingly with the World Electric Power Plants database (S&P, 2023), resulting in changes of CH_4 and N_2O emissions for this sector in particular in the latest years (i.e. globally around 7% difference for CH_4 over the period 2010-2023 and around 40% difference for N_2O for the entire time series). The power generation sector represents however a minor source of CH_4 and N_2O emissions; therefore, these changes represent a small contribution to the total CH_4 and N_2O emission changes.

- **Revision of technologies, emission factors and abatement measures for the residential sector** in Europe as described in Banja et al. (2023).

- **Gross Domestic Product** data have been updated using the latest World Bank information (World Bank, 2024) which use PPP units in 2021 constant USD that are not comparable to previous GDP PPP constant 2017 USD. This results in 15% difference for global GDP values on average.

Annex 2. Methodology for the estimation of emissions from Land Use, Land-Use Change and Forestry (LULUCF)

The EDGAR-LULUCF component is the fourth release of a dataset developed by the JRC. It includes estimates of emissions and removals from living biomass in the whole Forest Land sector, therefore including the Forest Land remaining Forest Land category (i.e. managed forest existing from at least 20 years) and the areas converted to forest land in the previous 20 years, covered by the Land converted to Forest Land category. Wild fire emissions are also included in current EDGAR-LULUCF estimates and are based on the Global Wildfire Information System (GWIS) data, as discussed in Annex 3. The net fluxes from the other land use categories, namely Deforestation (the Forest Land converted to Other Land category), Organic Soils, and the remaining categories and pools grouped under the "Other" term, are derived from a dataset based on the official country GHG reports submitted to UNFCCC (see Grassi et al. 2022). The resulting dataset is largely complete on most land uses for developed countries, while the GHG reports from several developing countries are still rather incomplete (in this case, gap-filling was done to ensure a complete time series, see Grassi et al. 2023).

The dataset for Forest Land living biomass is produced through a geographically explicit global scale implementation of the IPCC Tier 1 approach for Greenhouse Gas Inventories (GHGI), as outlined in the IPCC Guidelines (IPCC, 2006 and 2019 Refinement), that combines activity data (areas of land stable in the different land use categories, and conversions among them) and various default factors and country statistics to estimate separately the carbon removals (gains) and emissions (losses). Tier 1 is the most basic and widely-applicable approach, while Tier 2 requires the use of locally-derived parameters, and Tier 3 involves more advanced modelling. Parties to the UNFCCC are required to use at least Tier 2 when estimating categories and carbon pools most significant for their GHG inventory.

The activity data for the gains consist in the areas of the different land use categories, which we assessed by means of one of the most widely used recent spatial land cover datasets, the "Land cover classification gridded maps from 1992 to present derived from satellite observations", part of the Copernicus Climate Change Service (C3S). This dataset guarantees backward compatibility with the ESA Climate Change Initiative (CCI) Land Cover Dataset (ESA, 2017) previously released for the years 1992-2015.

The dataset currently furnishes annual global land cover maps for the period 1992-2022 at approximately 300m spatial resolution at the equator developed harmonizing data from different sensors, such as AVHRR from 1992 to 1999, SPOT-Vegetation from 1998 to 2012, MERIS (2003-2012), PROBA-V and Sentinel-3 OLCI (S3 OLCI) from 2013. Data are released with a two-year delay, meaning that the latest available global map refers at the moment to 2022.
The legend consists of 22 classes which follow the FAO Land Cover Classification System (LCCS). The Land Cover maps were converted to IPCC land use classes by means of a conversion table which considers, for each of the 22 LCCS classes, the shares within the pixel of the different IPCC land use categories (Forest Land-partitioned in broadleaf and needle leaf, Cropland, Grassland, Settlements, Wetlands, and Other Land), based on the definition of each LCCS classes. For each pixel of the map, these shares were then converted to actual land areas belonging to the various IPCC categories used within GHG inventories. An Intact Forest layer (Potapov et al., 2017) was used to distinguish managed from unmanaged forest, assuming intact forests to be a good proxy for unmanaged forests (see Grassi et al. 2021).

The activity data for the losses are the country harvest production statistics (industrial roundwood and fuelwood, partitioned in broadleaf and needle leaf) from the FAOSTAT database. When possible, harvest data were corrected for illegal and informal logging, not registered in official statistics, using estimates from different datasets (see Kleinschmit et al. 2016).

At the EU level, a calibration procedure was applied on the original satellite-derived land use areas to best harmonize the temporal behaviour of the ESA/Copernicus time series with the trajectory of the country GHG inventories, showing an increase in the EU forest cover.

In the Tier 1 approach, activity data are modelled into gains and losses through a series of default emission factors and parameters (forest growth rate, Biomass Conversion and Expansion Factors, wood density, carbon density, root-to-shoot ratio etc.) available for the whole world. The IPCC Guidelines contain tables with default parameters values compiled from existing literature, varying by geographical area (continents) and vegetation characteristics (broad leaf/needle leaf, naturally growing/planted forest, age class, etc.). In our geographically explicit modelling approach, the appropriate parameters were assigned to each forest type according to vegetation/climate/management characteristics identified through ancillary spatial and statistical datasets such as the FAO-GEZ (Global Ecological Zones dataset, FAO 2013), the FAO Forest Resource Assessment (FRA), etc. Compared to last year, the ancillary data used were updated. The shares for the 0-20, 21-100 and over 100 years old age classes were obtained at the country level from the GFAD 1.1 database (Poulter et al. 2019). The shares of Naturally-growing and Planted were also updated using the latest FAO-FRA. This allowed the partitioning of each pixel area according to vegetation characteristics essential to select the correct parameters in each context, such as the tree type (broadleaf or needle leaf), the type of forest (e.g., Tropical Rainforest, Temperate Continental Forest, etc., from FAO/GEZ), the vegetation characteristics (planted trees or natural grown forest), and the forest age class (less or equal 20 years old, between 21 and 100, and over 100 years old).
The default parameters are obtained from the IPCC Guidelines (2006 and 2019 Refinement), the official reference for the production of national GHG Inventories. These parameters values are compiled from a wide range of literature and present a high degree of heterogeneity among the different continents (also for the same tree species or forest type), reflecting the difficulty of identifying specific parameters which are truly representative for the IPCC forest species/types or climate zone.
Compared to last year, the set of parameters used this year is more solidly grounded in the IPCC Guidelines. The standard IPCC Tier 1 approach considers two forest age classes, 0-20 years old and above 21 years old. From the previous results we found that this approach overestimates the forest gain, as it does not consider the ageing of forests which reduces the carbon absorption capability of trees. Within the standard IPCC framework, a 21 years old forest absorbs like a 300 years old forest. An important improvement implemented this year refers therefore to the subdivision of the "above 21 years old" class in two classes, a 21-100 years old class and another one for forests above 100 years old. For these "older" forests, we used the parameters for primary forests furnished by the IPCC Guidelines.
2022 losses are produced from the FAOSTAT data, while 2023 harvest data are estimated through an interpolation of the previous 5 years.

The results for Forest Land were evaluated in comparison with the available official country GHG reports, generally produced using more advanced Tiers, as it is the case of Annex I countries. When possible, we compared both the results in terms of emissions and removals, as well as the areas. While for most developed areas (e.g. EU, USA) the match is fairly good for at least part of the time series, the differences observed for some other countries (e.g. Canada, Russia, some African and South-Asian countries) may depend on the assumptions made and methods used by the specific countries. In fact, within their inventories countries can make specific choices based on local characteristics and local expertise that cannot be extrapolated in a dataset like ours and applied at the global level. Also, several countries adopt stock-difference methods which are very different from our gain/loss approach, and in fact we notice the biggest discrepancies between our results and country data where stock difference approaches are implemented.

The Tier 1 estimates presented here are aimed to provide a globally-consistent overview for LULUCF using IPCC official default methodologies. These estimates can provide useful information on areas for which no or little official estimations are available (e.g. several African countries). It is

however important to highlight that the EDGAR-LULUCF estimates are expressly not aimed at challenging nor verifying the estimates produced by individual countries, generally made using locally available data and parameters at Tier 2, or advanced Tier 3 modelling approaches.
By definition, each country should use the best locally available data and expertise to produce its inventories, while we are on purpose adopting a global Tier 1 approach, using the best data and parameters available at the global scale, inevitably less precise and reliable.
To date, the database provides georeferenced information on the following items:

1. Land Use Area subdivided by
    a. Tree type: Broadleaf, Needle leaf
    b. Age Class: <=20 years, 21-100 years, >100 years
    c. System: Planted, Naturally growing
2. C GAINS (Removals from the atmosphere) subdivided as the Land use areas above
3. C LOSSES (Emissions in the atmosphere) subdivided by
    a. Plant type: Broadleaf, Needle leaf

Harvest type: Fuelwood, Industrial roundwood.

To further develop the dataset, the JRC created a new dataset of emissions from deforestation. The methodology is again the Tier 1 IPCC approach. Activity data are the deforestation maps from the European Forest Observatory, also developed by the JRC. Parameters are derived from the IPCC Guidelines. Ancillary data include Global Ecological Zones (GEZ) from FAO and age classes from the GFAD dataset.

These new deforestation data will be shortly available in the European Forest Observatory portal (https://forest-observatory.ec.europa.eu/) in the new Global land use carbon flux hub.

Annex 3. Methodology for the estimation of emissions from large scale biomass burning

Estimates of atmospheric emissions due to biomass burning have conventionally been derived adopting 'bottom up' inventory-based methods (Seiler & Crutzen, 1980). The IPCC AFOLU guidelines thus estimate the emissions as:

$$L = A \times Mb \times Cf \times Gef \qquad \text{[Equation 1]}$$

where:

L [g] is the quantity of emitted gas or particulate

A [m^2] is the area affected by fire

Mb [g m^{-2}] is the fuel loading per unit area

Cf [g g^{-1}] is the combustion factor i.e. the proportion of biomass consumed as a result of fire

Gef [g g^{-1}] is the emission factor or emission ratio, i.e. the amount of gas released for each gaseous species per unit of biomass load consumed by the fire.

As the methodology developed is based on the IPCC Tier 1 approach for Greenhouse Gas Inventories (GHGI), as outlined in the IPCC Guidelines (IPCC, 2006 and 2019 Refinement), the parameters of equation 1 are typically not available for each pixel, but reference values are used instead, for instance those given in tables 2.4, 2.5 and 2.6 of the IPCC guidelines. Those reference values are stratified by landcover class, and it is convenient to rewrite equation 1 as:

$$L_{lc} = A_{lc} \text{ x } Mb_{lc} \times Cf_{lc} \times Gef_{lc} \qquad \text{[Equation 2]}$$

where:

L_{lc} [g] is the quantity of emitted gas or particulate for landcover class *lc*

A_{lc} [m^2] is the total area burned in landcover class *lc*

Mb_{lc}, Cf_{lc} and Gef_{lc} are the fuel load, the combustion factor and the emission factor derived from the IPCC tables for landcover class *lc*.

The total emission over the whole area of interest is the summation of L_{lc} for all the landcover areas:

$$L = \sum L_{lc} \qquad \text{[Equation 3]}$$

The IPCC 2006 AFOLU guidelines contain tables for biomass consumed as a function of the landcover, but the vegetation types used are not immediately compatible with the legend of any of the current landcover products. To this end, a procedure was developed to combine data on area burned, landcover, JRC climatic characterization and soil classification map, as described in the following.

- **Area burned**

The area burned used is derived from the GlobFire Database developed under the umbrella of the Global Wildfire Information System (GWIS) (Artés et al., 2019). This burned area product is derived from the most recent Collection 6 Moderate Resolution Imaging Spectroradiometer (MODIS) burned

area product (MCD64A1), which maps the extent of fire at 500m resolution and the approximate day of burning (Giglio et al., 2018).

- **Landcover**

The Annual International Geosphere-Biosphere Programme (IGBP) classification legend of the global MODIS landcover product MCD12A1 (Friedl & Sulla-Menashe, 2019) was used. The MCD12A1 global land product is part of the standard MODIS suite, and has been produced at annual intervals since the beginning of the mission. The current Collection 6 version has a spatial resolution of 500m, and it is distributed in the same sinusoidal tiled geometry as the MCD64A1 product, allowing for the computation of stratified total area burned Alc in equation 2 without the need for resampling or reprojection. For each pixel, the MCD12A1 product provides a class label assigned following different legends to cover the needs of multiple user communities. The IPCC legend (LC_Type1) was used in the present application.

- **JRC climatic characterisation and soil classification map**

The Climatic Zone and Soil Type raster maps were created by the Joint Research Centre in support of the European Commission guidelines for the calculation of land carbon stocks for the purpose of Annex V to Directive 2009/28/EC. The Climatic Zone layer is defined based on the classification of IPCC (IPCC, 2006b). Soil types are classified according to the World Reference Base (WRB). The raster data layers were resampled and reprojected to the MODIS sinusoidal projection, and tiled into the MODIS geometry, to ensure interoperability with the MODIS MCD64A1 and MCD12A1 products.

The result of the merged approach is a 500 m landcover map, which uses a set of vegetation classes compatible with the IPCC tables. The procedure is fully automatic, and is repeated for every year from 2000 to 2019, to ensure that the statistics are generated using the most appropriate landcover information for the year.

For the period between 1982 to 1999, where MODIS burned area data were not available, images from the Advanced Very High Resolution Radiometer Long Term Data Record burned area product (AVHRR-LTDR) were used. The final burned area product (designated as FireCCILT10) (Otón et al., 2021) estimated BA in a spatial resolution of 0.05° for the period between 1982 and 2017 (excluding 1994, due to input data gaps).

This product is the longest global burned area product currently available, extending almost 20 years back from the existing NASA (MODIS) and European Space Agency (ESA) burned area products. Despite FireCCILT10 and MCD64A1 are based on different sensors and methodologies, Otón et al. (2021) reported high correlation values (r2 >0.9) between burned area estimations from both with better agreement in tropical regions rather than boreal regions. Spatial trends were found to be similar to existing global burned area products, but temporal trends showed unstable annual variations, most likely linked to the changes in the AVHRR sensor and orbital decays of the NOAA satellites.

The methodology applied for this period was similar to the one developed for the MODIS period (2000-2019), including the resampling and reprojection to the MODIS sinusoidal projection, and tiled into the MODIS geometry, to ensure interoperability with the MCD12A1 products.

Annex 4. Content of country fact-sheets

For each country, a fact sheet is provided with the time series of GHG emissions from all anthropogenic activities except land use, land-use change, forestry and large scale biomass burning. The upper panel of the fact sheet includes GHG annual totals from 1990 until 2023 per sector. A pie chart is also shown representing the share of each individual GHG (fossil CO_2, CH_4, N_2O, F-gases) to the 2023 country total rounded at the first digit[41]. Then, an overview table with total emissions by country for the years 1990, 2005 (Kyoto Protocol), 2015 (Paris Agreement), and 2023 is also reported, together with per capita, per GDP (PPP constant 2021 international $, USD) emissions, and population data. Along with the summary of the GHG emission time series for each country, a graphical visualisation aids the interpretation of the emission changes by sector over time at the bottom of each page.

The graphs compare GHG emissions for the last available year (2023) with the emission levels of the previous year (2022) and of two key years: 1990 (base year for national greenhouse gases inventory) and 2005, when the Kyoto Protocol came into effect. Emissions stalling, rising or dampening for the year 2023 are expressed in terms of % change with respect to these two years, for sectors specified as follow:

[41] The sum of the rounded shares may differ from 100% by a percentage point.

Legend of the sectors:


Power Industry - Power and heat generation plants (public & autoproducers)


Industrial Combustion and Processes - Combustion for industrial manufacturing and processes


Buildings – Small scale non-industrial stationary combustion


Transport – Mobile combustion (road & rail & ship & aviation)


Fuel Exploitation – Fuel extraction, transformation and refinieries


Agriculture – Agricultural soils, livestock, field burning of agricultural residues, indirect N_2O emissions from agriculture


Waste – Solid waste disposal and waste water treatment


All sectors – Sum of all sectors. The pie chart represents the GHG sectorial share in 2023.


indicates a reduction in 2023 emissions by the amount expressed by the percentage value (in green)


indicates growth in 2023 emissions by the amount expressed by the percentage value (in red)

In the cases where 2023 emissions have reduced or have grown by less than 5% with respect to the reference year, or have stalled, a horizontal orange arrow is shown. Also in this case the amount is expressed by the percentage value (in orange)

An “n/a” is used to indicate either a sector missing throughout the time series (meaning that no data are reported for that sector) or that no data are available for the reference years or 2023. When computing the emission trend for the sum of all sectors, no value is reported in the case of incomplete statistics for the most emitting sectors for the year 1990 (as for example Greenland).

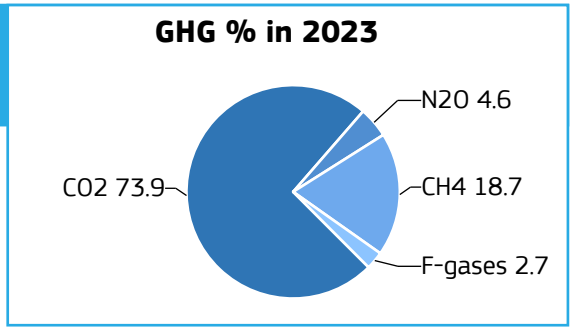
Country-specific GHG emission time series data can be downloaded at the following website: https://edgar.jrc.ec.europa.eu/report_2024.

Annex 5. GHG emissions for the world, international transport and the EU27

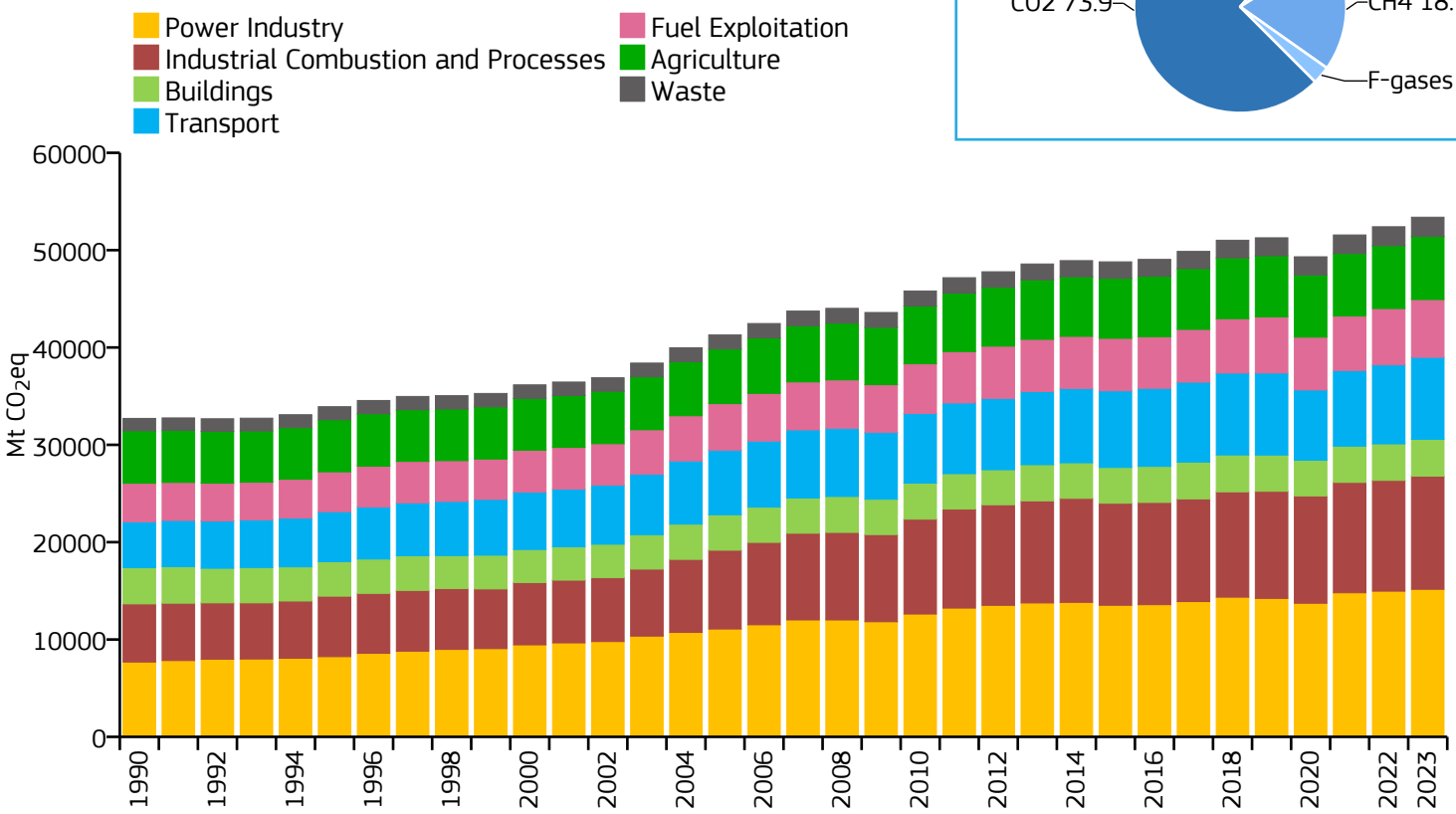
Global totals for all countries, including international shipping and aviation, followed by the international transport sector (shipping and aviation).

Total EU27 emissions from Member States: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

WORLD



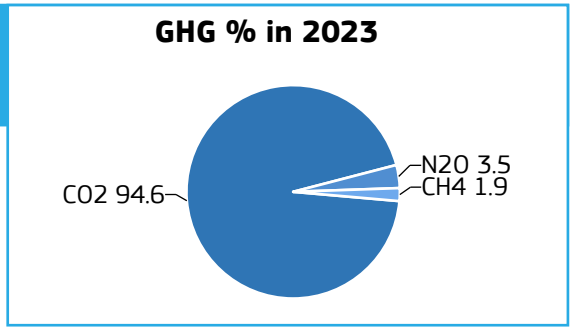
GHG emissions by sector



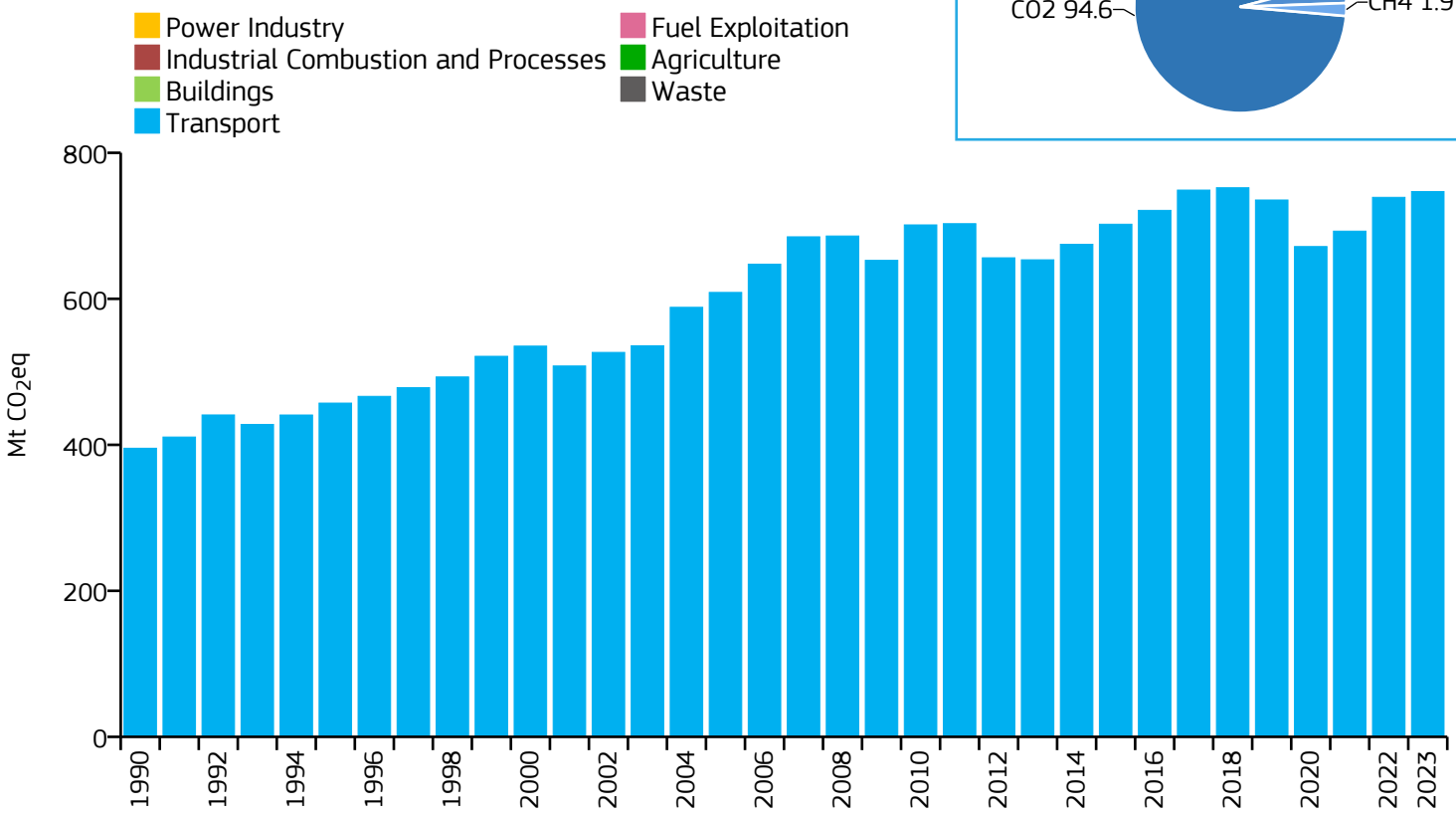
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	53383.393	6.646	0.322	8.032G
2015	48799.156	6.611	0.369	7.381G
2005	41286.738	6.312	0.437	6.540G
1990	32714.648	6.138	0.543	5.330G

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+97%	+37%	+1%
Industrial Combustion and Processes	+95%	+44%	+2%
Buildings	+2%	+4%	+1%
Transport	+79%	+27%	+4%
Fuel Exploitation	+50%	+24%	+3%
Agriculture	+20%	+16%	0%
Waste	+56%	+37%	+2%
All sectors	+63%	+29%	+2%

International Shipping



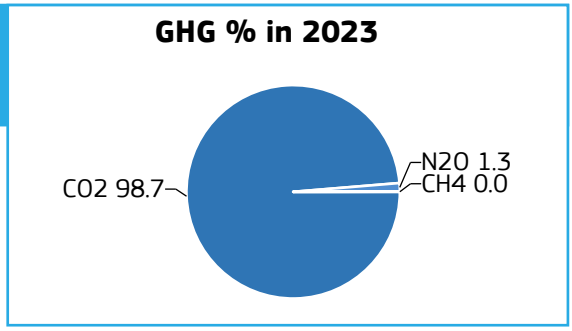
GHG emissions by sector



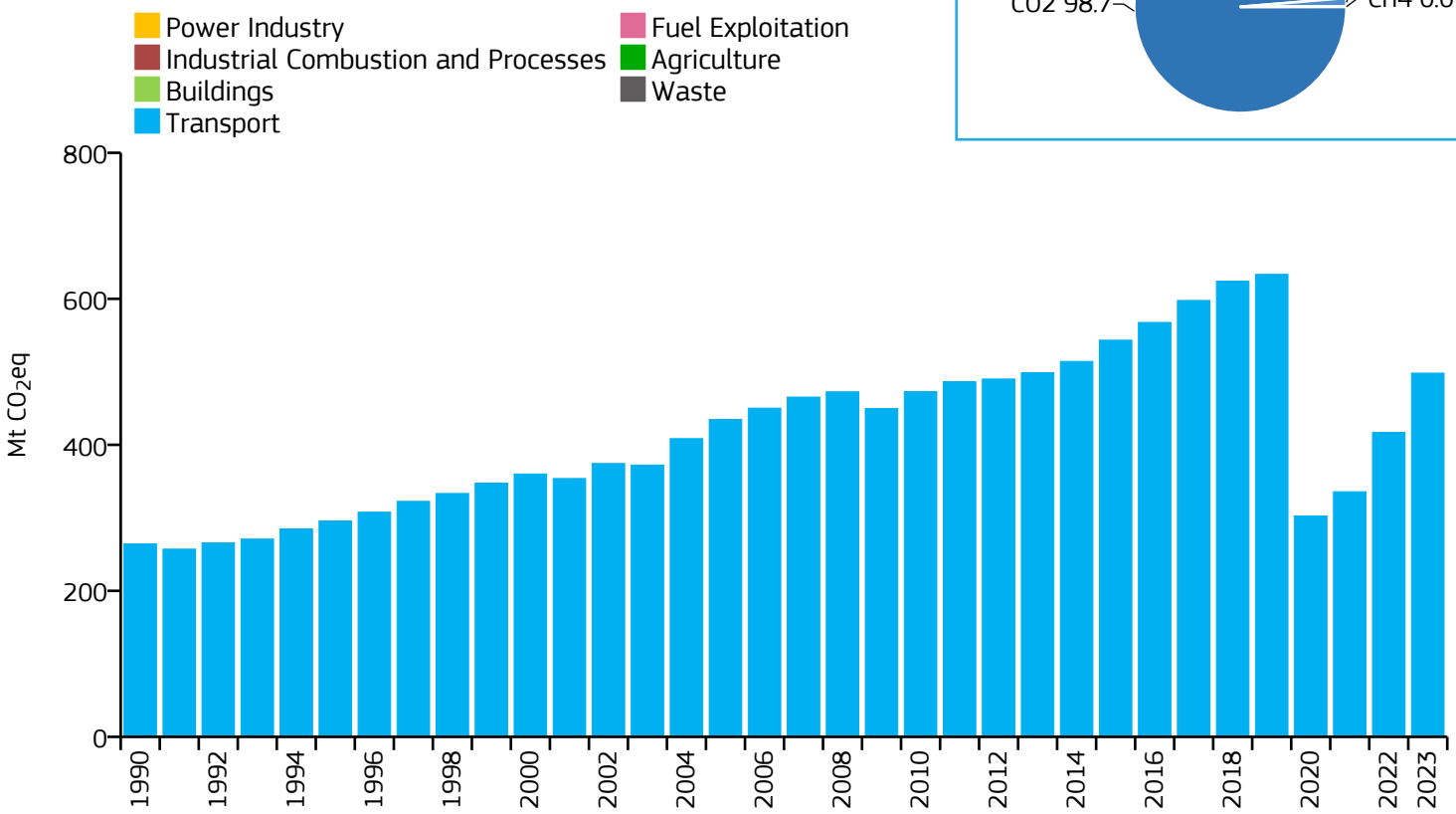
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	746.944	n/a	n/a	n/a
2015	702.186	n/a	n/a	n/a
2005	608.737	n/a	n/a	n/a
1990	395.335	n/a	n/a	n/a

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	n/a	n/a	n/a
Industrial Combustion and Processes	n/a	n/a	n/a
Buildings	n/a	n/a	n/a
Transport	↗ +89%	↗ +23%	→ +1%
Fuel Exploitation	n/a	n/a	n/a
Agriculture	n/a	n/a	n/a
Waste	n/a	n/a	n/a
All sectors	n/a	n/a	n/a

International Aviation



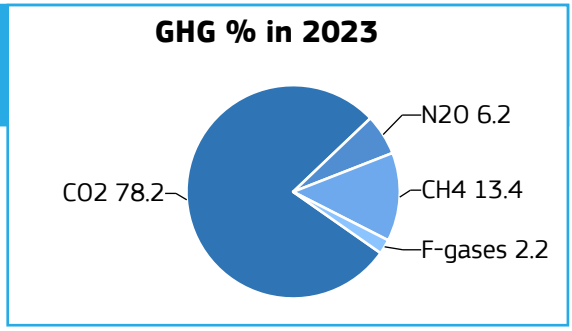
GHG emissions by sector



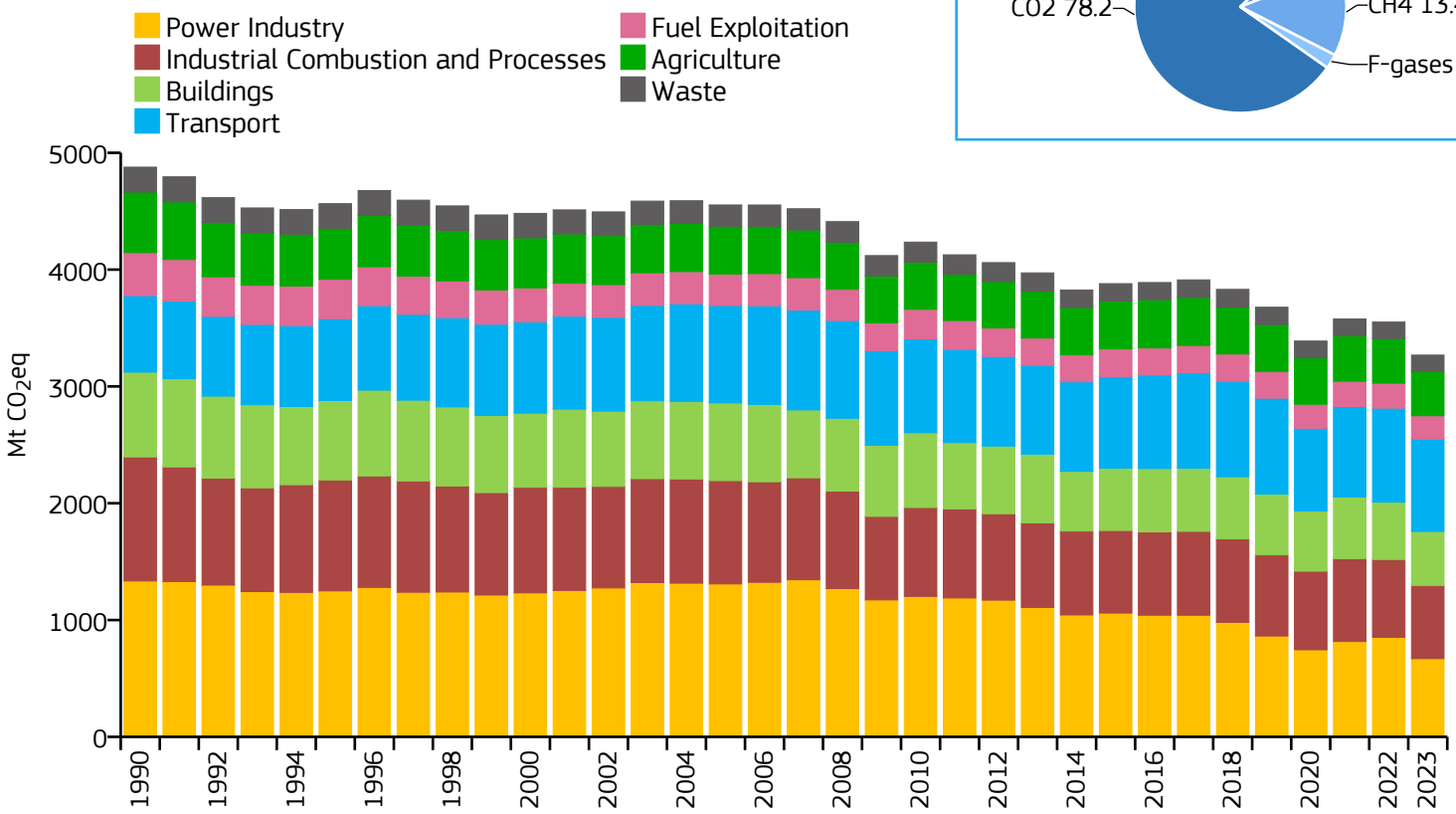
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	498.178	n/a	n/a	n/a
2015	543.354	n/a	n/a	n/a
2005	434.738	n/a	n/a	n/a
1990	264.257	n/a	n/a	n/a

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	n/a	n/a	n/a
Industrial Combustion and Processes	n/a	n/a	n/a
Buildings	n/a	n/a	n/a
Transport	↗ +89%	↗ +15%	↗ +19%
Fuel Exploitation	n/a	n/a	n/a
Agriculture	n/a	n/a	n/a
Waste	n/a	n/a	n/a
All sectors	n/a	n/a	n/a

EU27



GHG emissions by sector



Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	3268.050	7.368	0.135	443.523M
2015	3879.729	8.776	0.183	442.095M
2005	4553.550	10.464	0.239	435.163M
1990	4877.245	11.607	0.343	420.198M

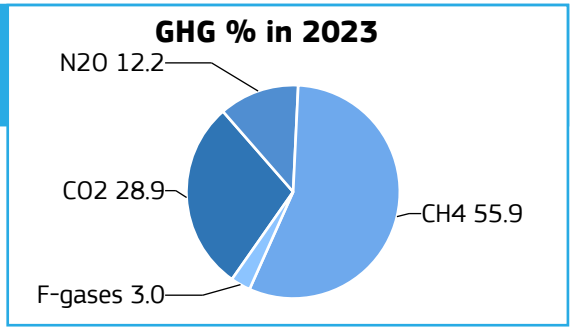
	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-50%	-49%	-21%
Industrial Combustion and Processes	-41%	-29%	-6%
Buildings	-36%	-30%	-6%
Transport	+21%	-5%	-2%
Fuel Exploitation	-45%	-26%	-6%
Agriculture	-27%	-6%	0%
Waste	-35%	-26%	-2%
All sectors	-33%	-28%	-8%

Annex 6: GHG emissions by country

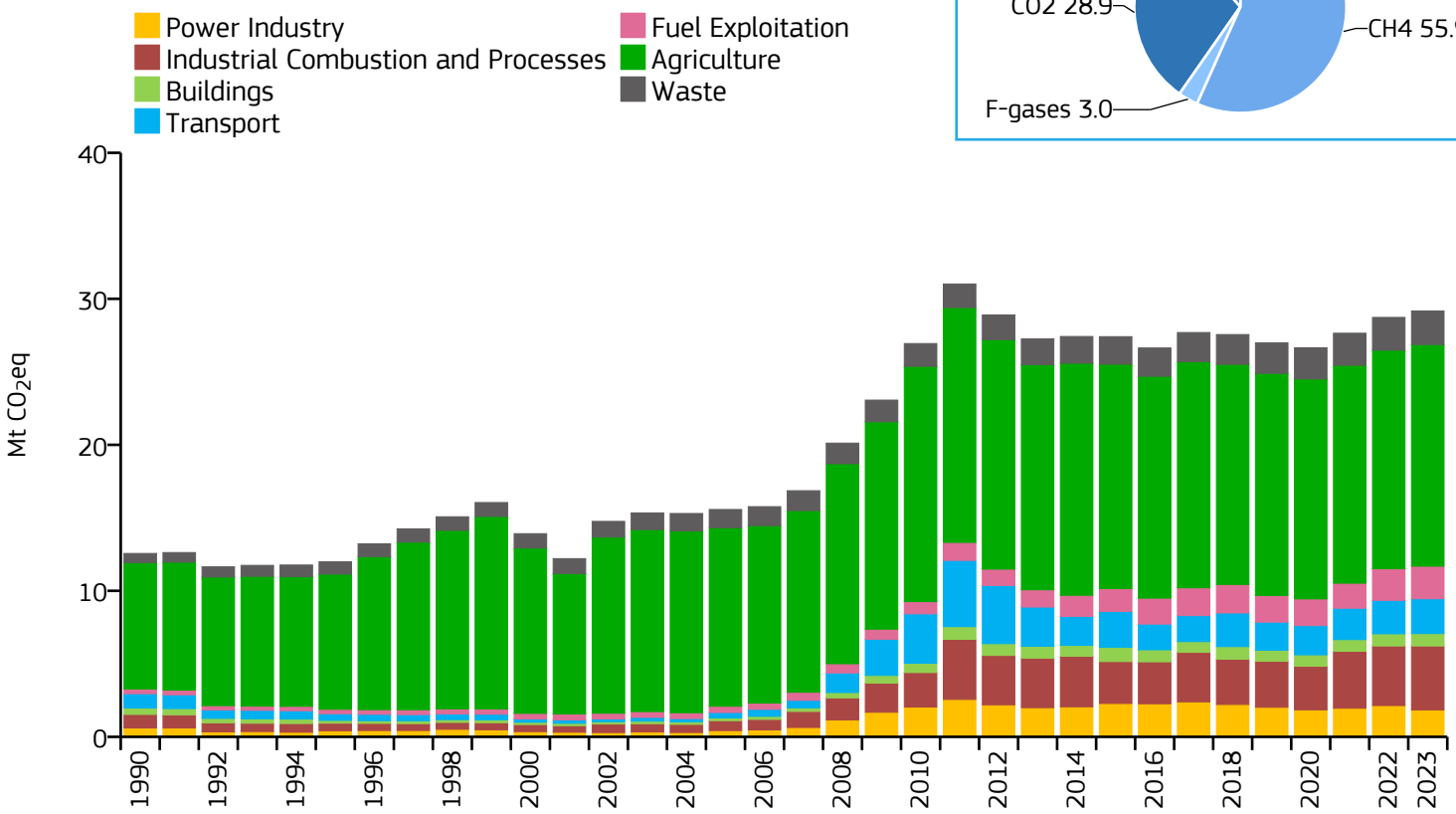
The following countries are presented:

Afghanistan; Albania; Algeria; Angola; Anguilla; Antigua and Barbuda; Argentina; Armenia; Aruba; Australia; Austria; Azerbaijan; Bahamas; Bahrain; Bangladesh; Barbados; Belarus; Belgium; Belize; Benin; Bermuda; Bhutan; Bolivia; Bosnia and Herzegovina; Botswana; Brazil; British Virgin Islands; Brunei; Bulgaria; Burkina Faso; Burundi; Cabo Verde; Cambodia; Cameroon; Canada; Cayman Islands; Central African Republic; Chad; Chile; China; Colombia; Comoros; Congo; Cook Islands; Costa Rica; Côte d'Ivoire; Croatia; Cuba; Curaçao; Cyprus; Czechia; Democratic Republic of the Congo; Denmark; Djibouti; Dominica; Dominican Republic; Ecuador; Egypt; El Salvador; Equatorial Guinea; Eritrea; Estonia; Eswatini; Ethiopia; Falkland Islands; Faroes; Fiji; Finland; France and Monaco; French Guiana; French Polynesia; Gabon; Georgia; Germany; Ghana; Gibraltar; Greece; Greenland; Grenada; Guadeloupe; Guatemala; Guinea; Guinea-Bissau; Guyana; Haiti; Honduras; Hong Kong; Hungary; Iceland; India; Indonesia; Iran; Iraq; Ireland; Israel and Palestine, State of; Italy, San Marino and the Holy See; Jamaica; Japan; Jordan; Kazakhstan; Kenya; Kiribati; Kuwait; Kyrgyzstan; Laos; Latvia; Lebanon; Lesotho; Liberia; Libya; Lithuania; Luxembourg; Macao; Madagascar; Malawi; Malaysia; Maldives; Mali; Malta; Martinique; Mauritania; Mauritius; Mexico; Moldova; Mongolia; Morocco; Mozambique; Myanmar/Burma; Namibia; Nepal; Netherlands; New Caledonia; New Zealand; Nicaragua; Niger; Nigeria; North Korea; North Macedonia; Norway; Oman; Pakistan; Palau; Panama; Papua New Guinea; Paraguay; Peru; Philippines; Poland; Portugal; Puerto Rico; Qatar; Réunion; Romania; Russia; Rwanda; Saint Helena, Ascension and Tristan da Cunha; Saint Kitts and Nevis; Saint Lucia; Saint Pierre and Miquelon; Saint Vincent and the Grenadines; Samoa; São Tomé and Príncipe; Saudi Arabia; Senegal; Serbia and Montenegro; Seychelles; Sierra Leone; Singapore; Slovakia; Slovenia; Solomon Islands; Somalia; South Africa; South Korea; Spain and Andorra; Sri Lanka; Sudan and South Sudan; Suriname; Sweden; Switzerland and Liechtenstein; Syria; Taiwan; Tajikistan; Tanzania; Thailand; The Gambia; Timor-Leste; Togo; Tonga; Trinidad and Tobago; Tunisia; Türkiye; Turkmenistan; Turks and Caicos Islands; Uganda; Ukraine; United Arab Emirates; United Kingdom; United States; Uruguay; Uzbekistan; Vanuatu; Venezuela; Viet Nam; Western Sahara; Yemen; Zambia; Zimbabwe.

Afghanistan



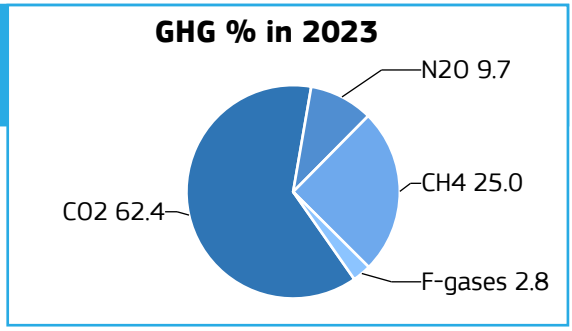
GHG emissions by sector



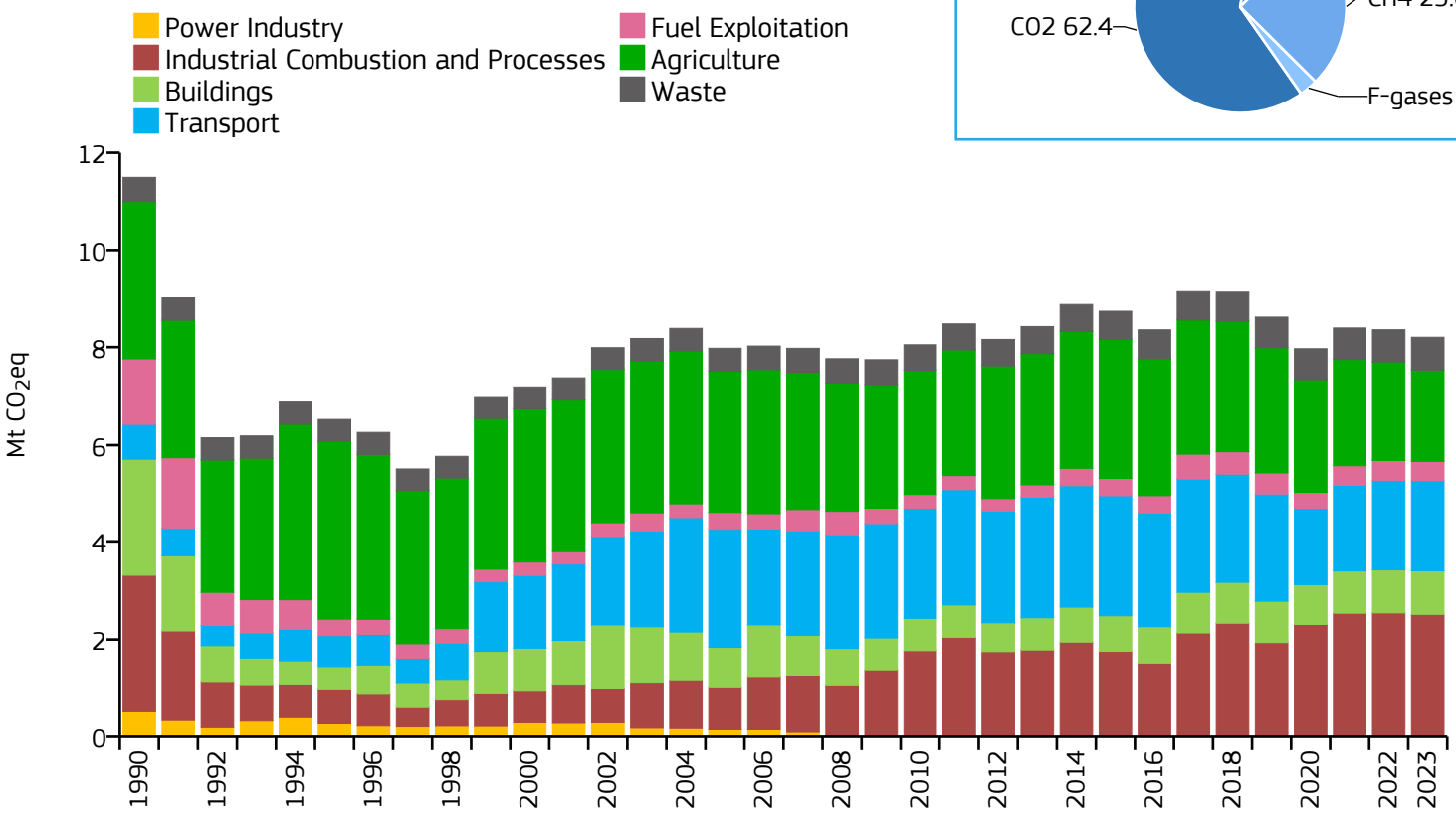
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	29.164	0.717	0.379	40.649M
2015	27.408	0.812	0.273	33.736M
2005	15.571	0.621	0.334	25.071M
1990	12.561	1.025	0.235	12.249M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +204%	↗ > +300%	↘ -14%
Industrial Combustion and Processes	↗ > +300%	↗ > +300%	↗ +7%
Buildings	↗ +91%	↗ > +300%	→ +2%
Transport	↗ +144%	↗ > +300%	→ +4%
Fuel Exploitation	↗ > +300%	↗ > +300%	→ +3%
Agriculture	↗ +75%	↗ +24%	→ +1%
Waste	↗ +266%	↗ +83%	→ +2%
All sectors	↗ +132%	↗ +87%	→ +2%

Albania



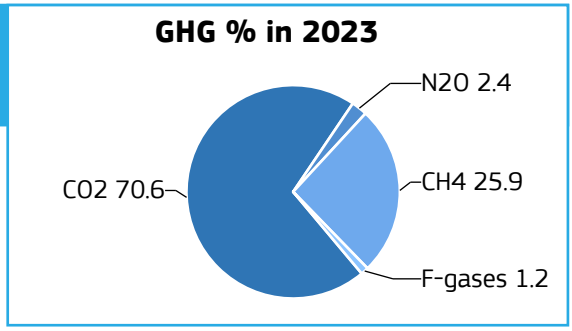
GHG emissions by sector



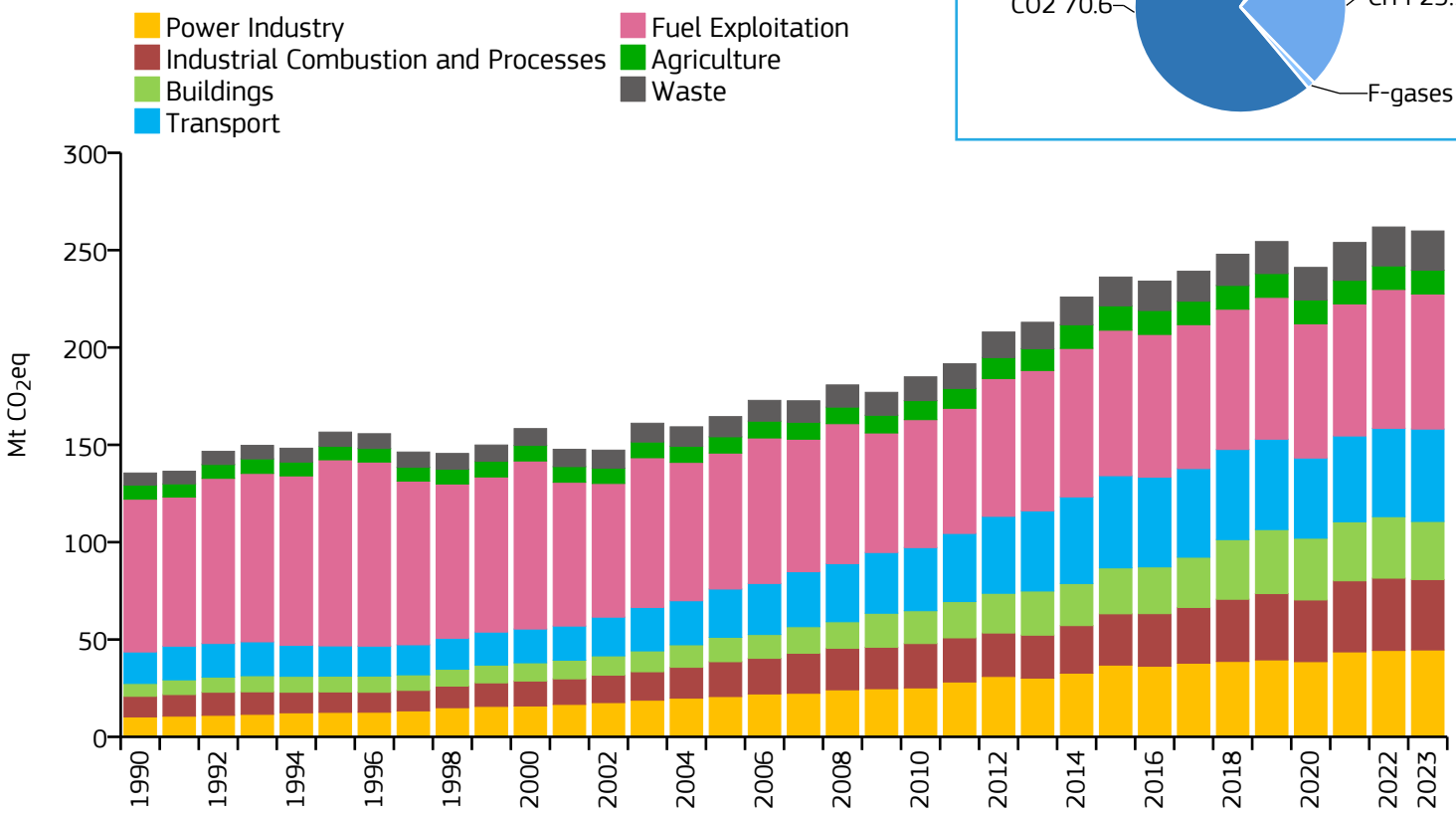
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	8.204	2.784	0.165	2.947M
2015	8.740	2.990	0.229	2.923M
2005	7.977	2.591	0.296	3.079M
1990	11.493	3.502	0.650	3.281M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	n/a	n/a	n/a
Industrial Combustion and Processes	-10%	+185%	-1%
Buildings	-62%	+10%	+1%
Transport	+158%	-23%	+1%
Fuel Exploitation	-70%	+15%	-4%
Agriculture	-42%	-36%	-7%
Waste	+36%	+42%	+2%
All sectors	-29%	+3%	-2%

Algeria



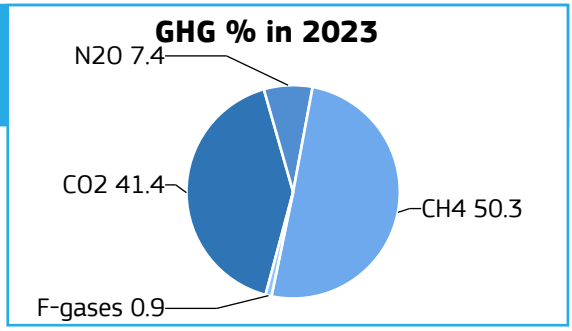
GHG emissions by sector



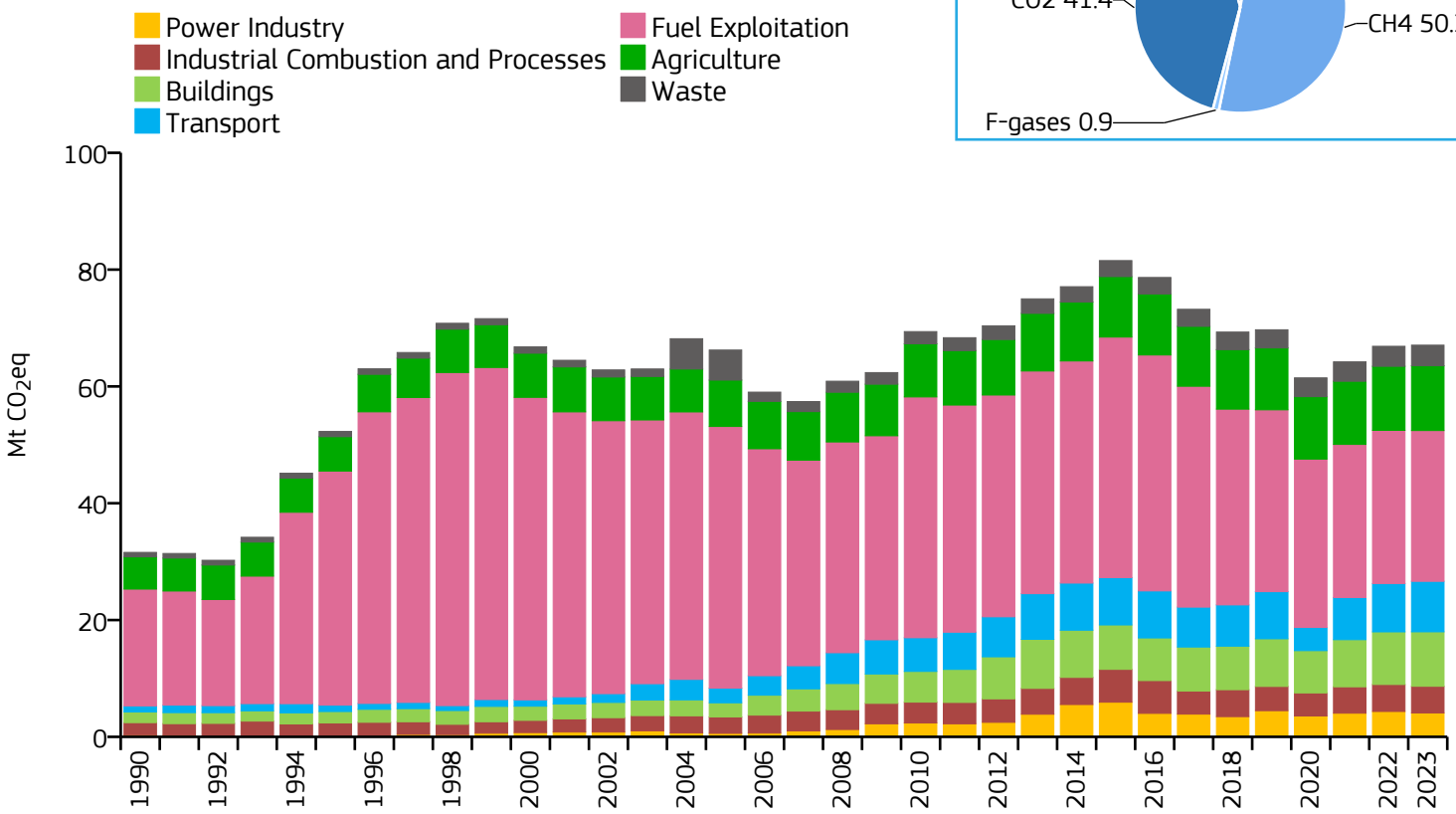
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	259.848	5.752	0.371	45.179M
2015	236.183	5.924	0.387	39.871M
2005	164.487	4.941	0.362	33.288M
1990	135.530	5.230	0.455	25.912M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+116%	+1%
Industrial Combustion and Processes	+242%	+102%	-3%
Buildings	> +300%	+138%	-6%
Transport	+193%	+92%	+5%
Fuel Exploitation	-12%	-1%	-3%
Agriculture	+69%	+46%	+1%
Waste	+222%	+95%	+1%
All sectors	+92%	+58%	-1%

Angola



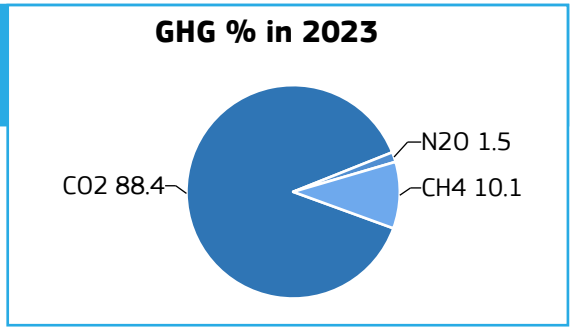
GHG emissions by sector



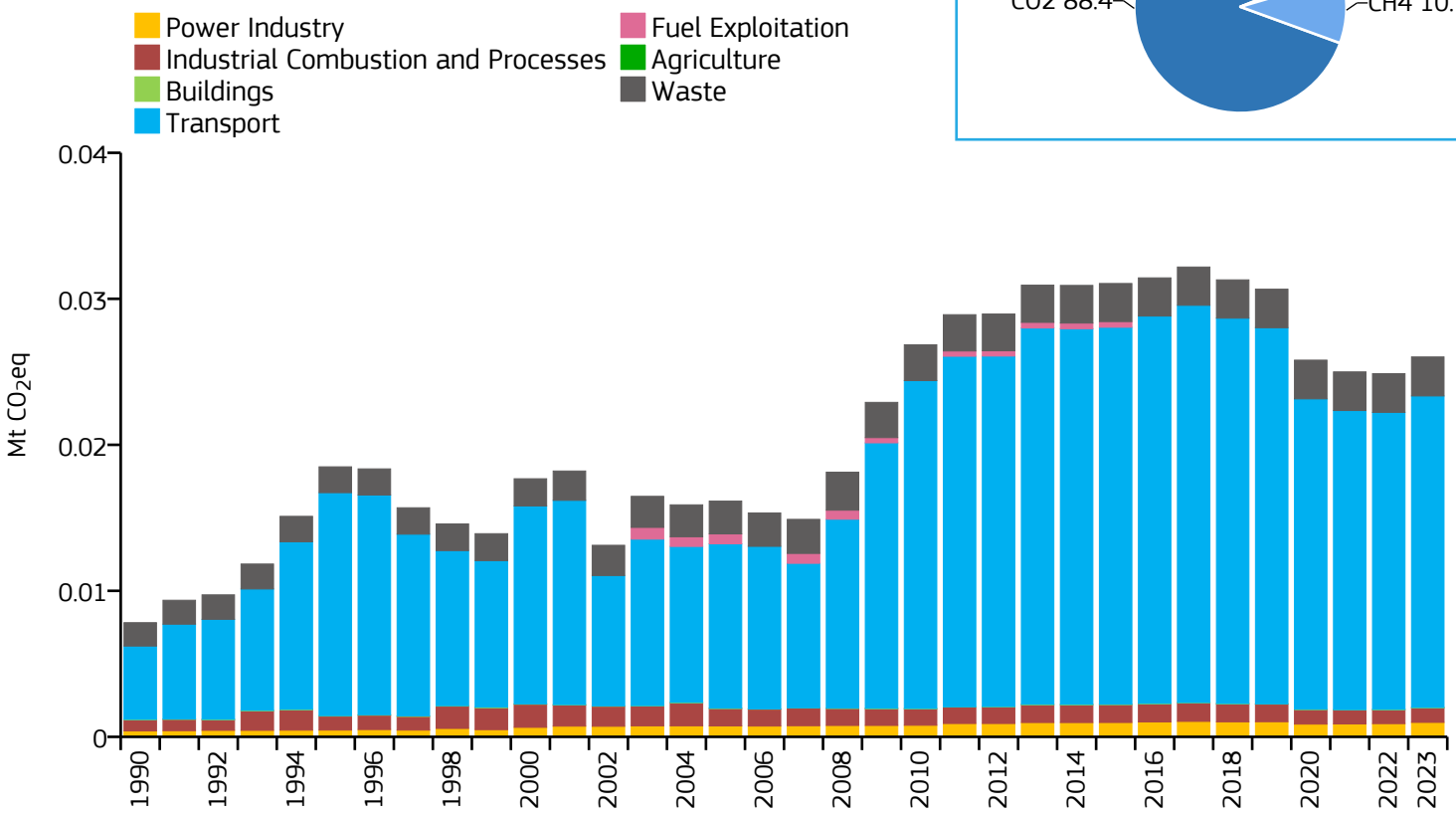
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	67.064	1.857	0.252	36.109M
2015	81.545	2.927	0.290	27.859M
2005	66.228	3.387	0.438	19.552M
1990	31.584	2.595	0.368	12.171M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ > +300%	↗ > +300%	↘ -6%
Industrial Combustion and Processes	↗ +113%	↗ +62%	→ -1%
Buildings	↗ > +300%	↗ +285%	→ +4%
Transport	↗ > +300%	↗ +245%	→ +4%
Fuel Exploitation	↗ +29%	↘ -42%	→ -2%
Agriculture	↗ +101%	↗ +40%	→ +1%
Waste	↗ > +300%	↘ -31%	→ +3%
All sectors	↗ +112%	→ +1%	→ 0%

Anguilla



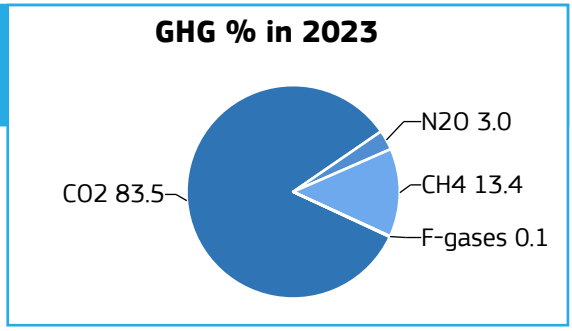
GHG emissions by sector



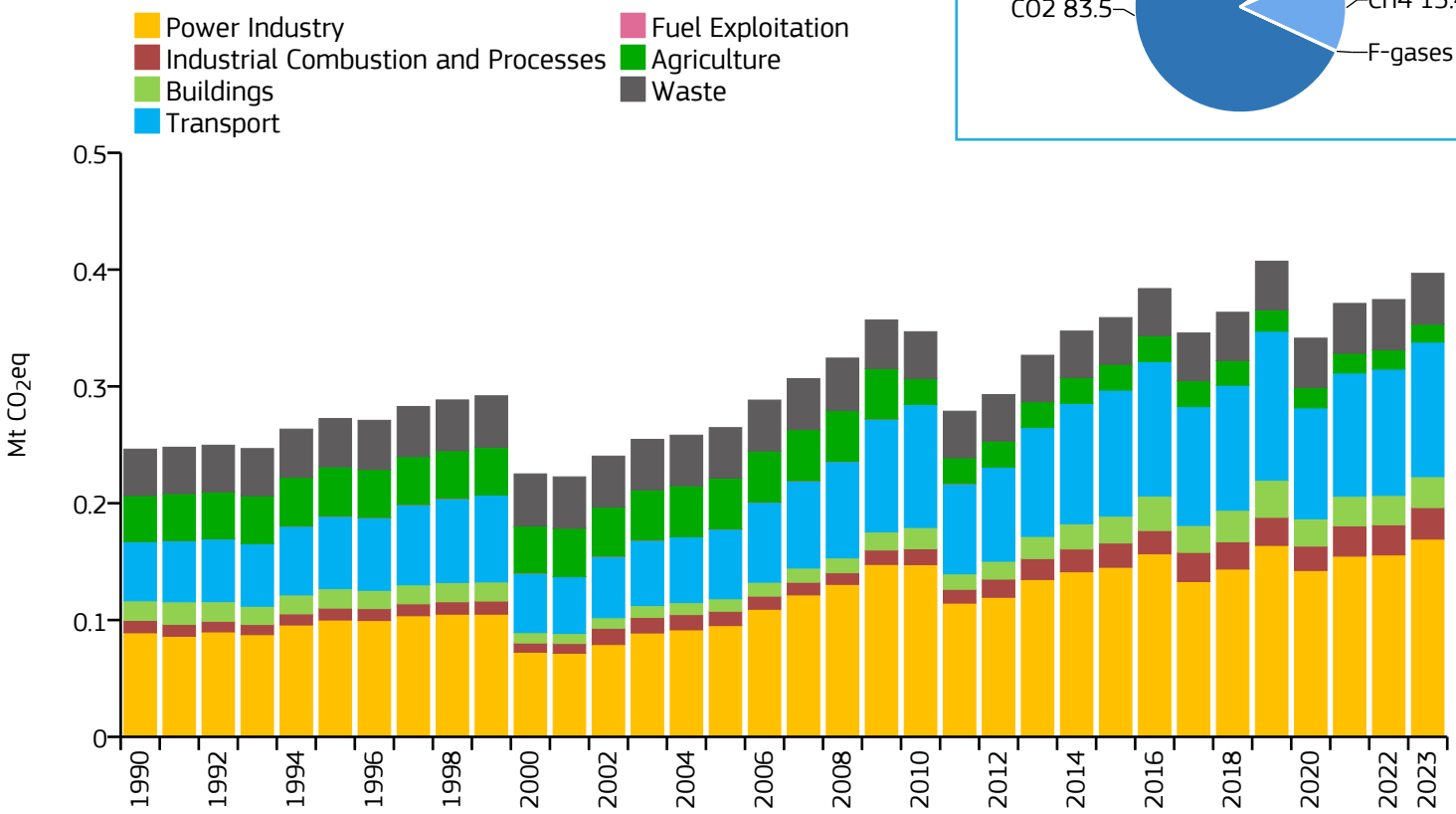
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.026	1.626	0.082	16.000k
2015	0.031	2.125	0.113	14.611k
2005	0.016	1.277	0.034	12.638k
1990	0.008	0.938	0.029	8.334k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +145%	↗ +32%	↗ +9%
Industrial Combustion and Processes	↗ +31%	↘ -16%	→ +5%
Buildings	↘ -30%	↘ -20%	→ +5%
Transport	↗ > +300%	↗ +89%	→ +5%
Fuel Exploitation	n/a	n/a	n/a
Agriculture	n/a	n/a	n/a
Waste	↗ +67%	↗ +19%	→ +1%
All sectors	↗ +233%	↗ +61%	→ +5%

Antigua and Barbuda



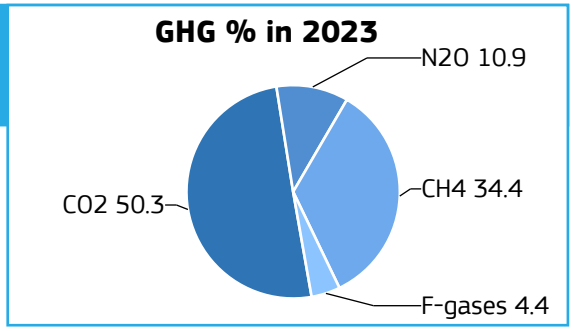
GHG emissions by sector



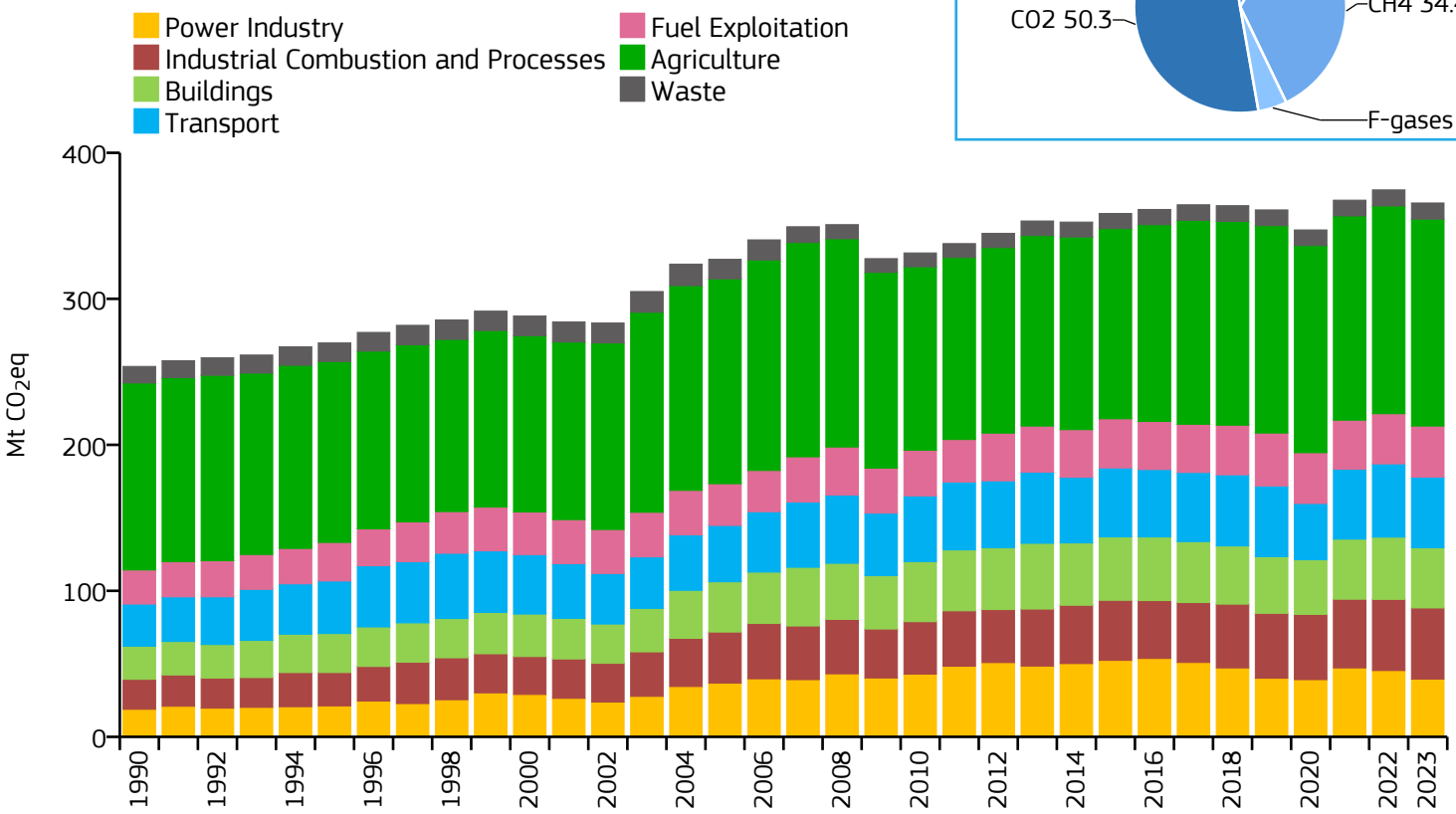
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.397	3.674	0.147	108.000k
2015	0.359	3.592	0.156	99.923k
2005	0.265	2.966	0.120	89.253k
1990	0.246	3.693	0.185	66.696k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+90%	+78%	+9%
Industrial Combustion and Processes	+155%	+120%	+5%
Buildings	+58%	+148%	+5%
Transport	+127%	+93%	+7%
Fuel Exploitation	n/a	n/a	n/a
Agriculture	-61%	-65%	-7%
Waste	+10%	+1%	+1%
All sectors	+61%	+50%	+6%

Argentina



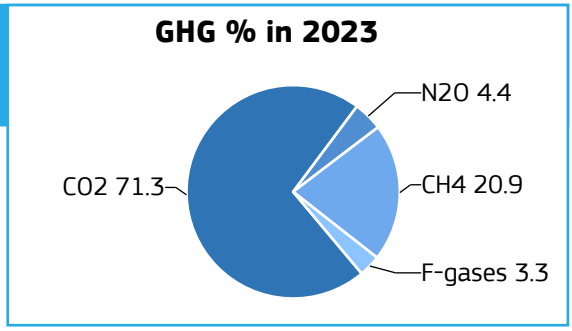
GHG emissions by sector



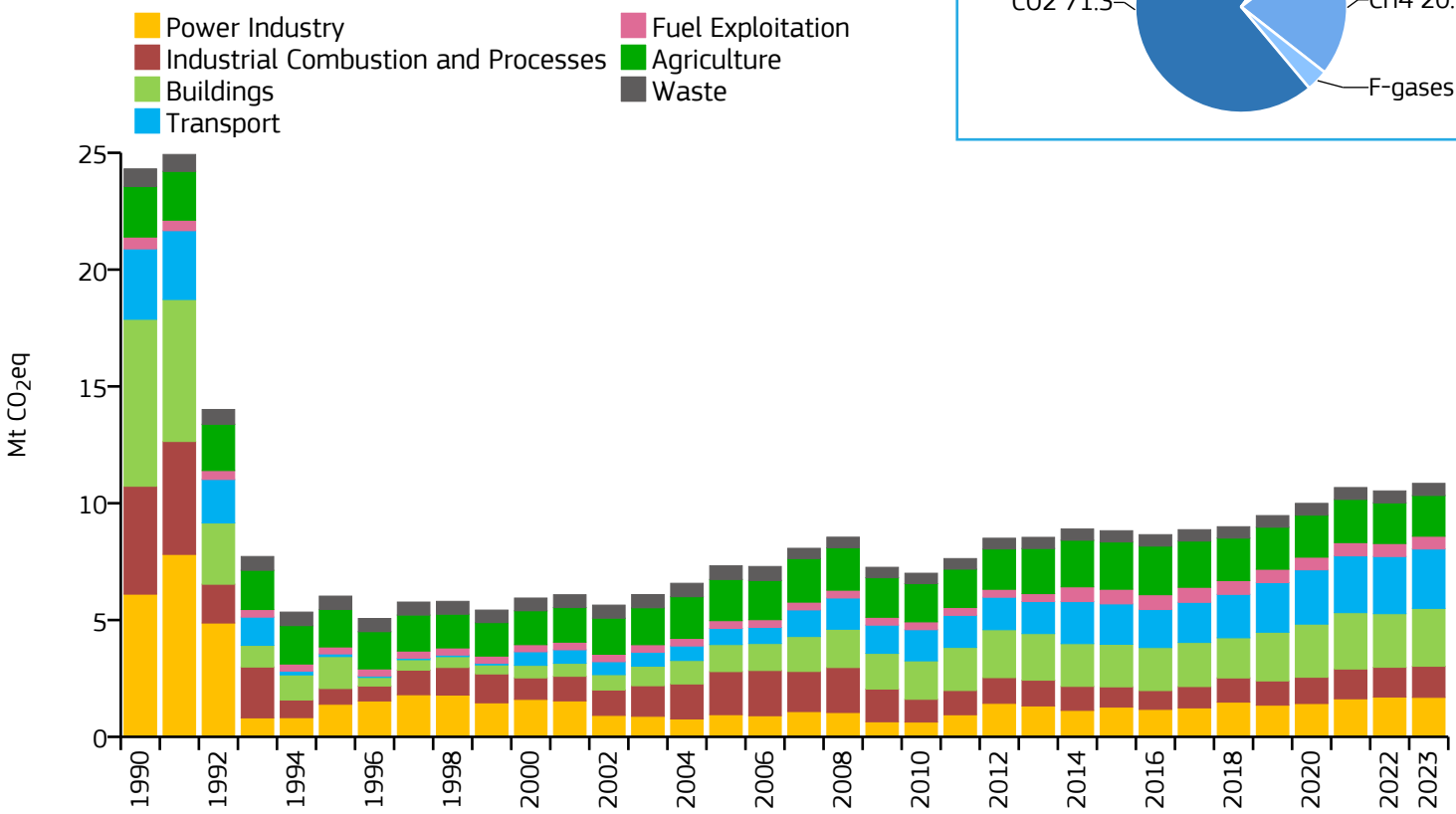
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	365.641	7.828	0.296	46.707M
2015	358.466	8.256	0.288	43.418M
2005	327.061	8.355	0.358	39.145M
1990	253.698	7.751	0.455	32.730M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +110%	↗ +7%	↘ -13%
Industrial Combustion and Processes	↗ +137%	↗ +39%	→ 0%
Buildings	↗ +82%	↗ +20%	→ -3%
Transport	↗ +67%	↗ +25%	→ -4%
Fuel Exploitation	↗ +50%	↗ +22%	→ +2%
Agriculture	↗ +11%	→ +1%	→ 0%
Waste	→ -3%	↘ -17%	→ +1%
All sectors	↗ +44%	↗ +12%	→ -2%

Armenia



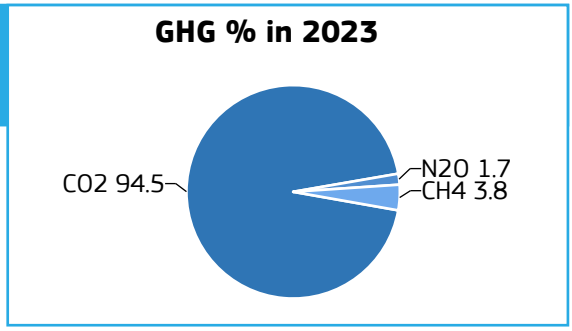
GHG emissions by sector



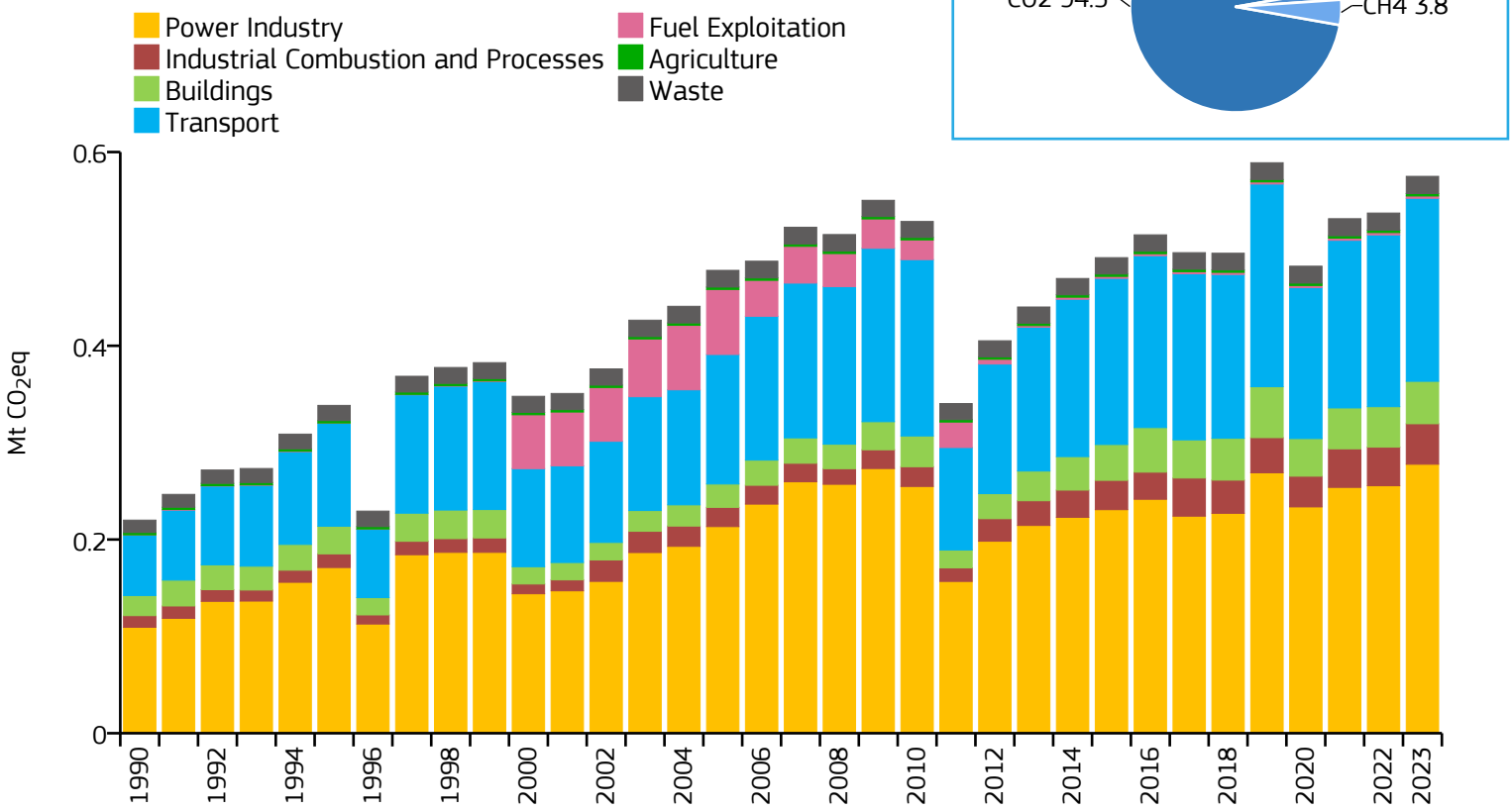
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	10.849	3.692	0.188	2.939M
2015	8.824	3.025	0.224	2.917M
2005	7.321	2.456	0.278	2.981M
1990	24.312	6.871	1.115	3.538M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-72%	+78%	-1%
Industrial Combustion and Processes	-71%	-28%	+5%
Buildings	-65%	+114%	+8%
Transport	-16%	+267%	+4%
Fuel Exploitation	+8%	+65%	-2%
Agriculture	-19%	-1%	0%
Waste	-31%	-11%	+1%
All sectors	-55%	+48%	+3%

Aruba



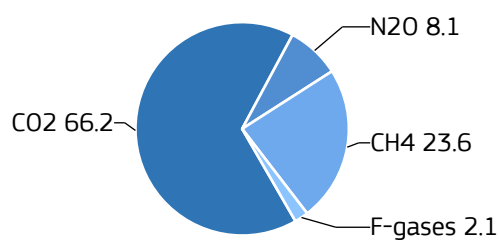
GHG emissions by sector



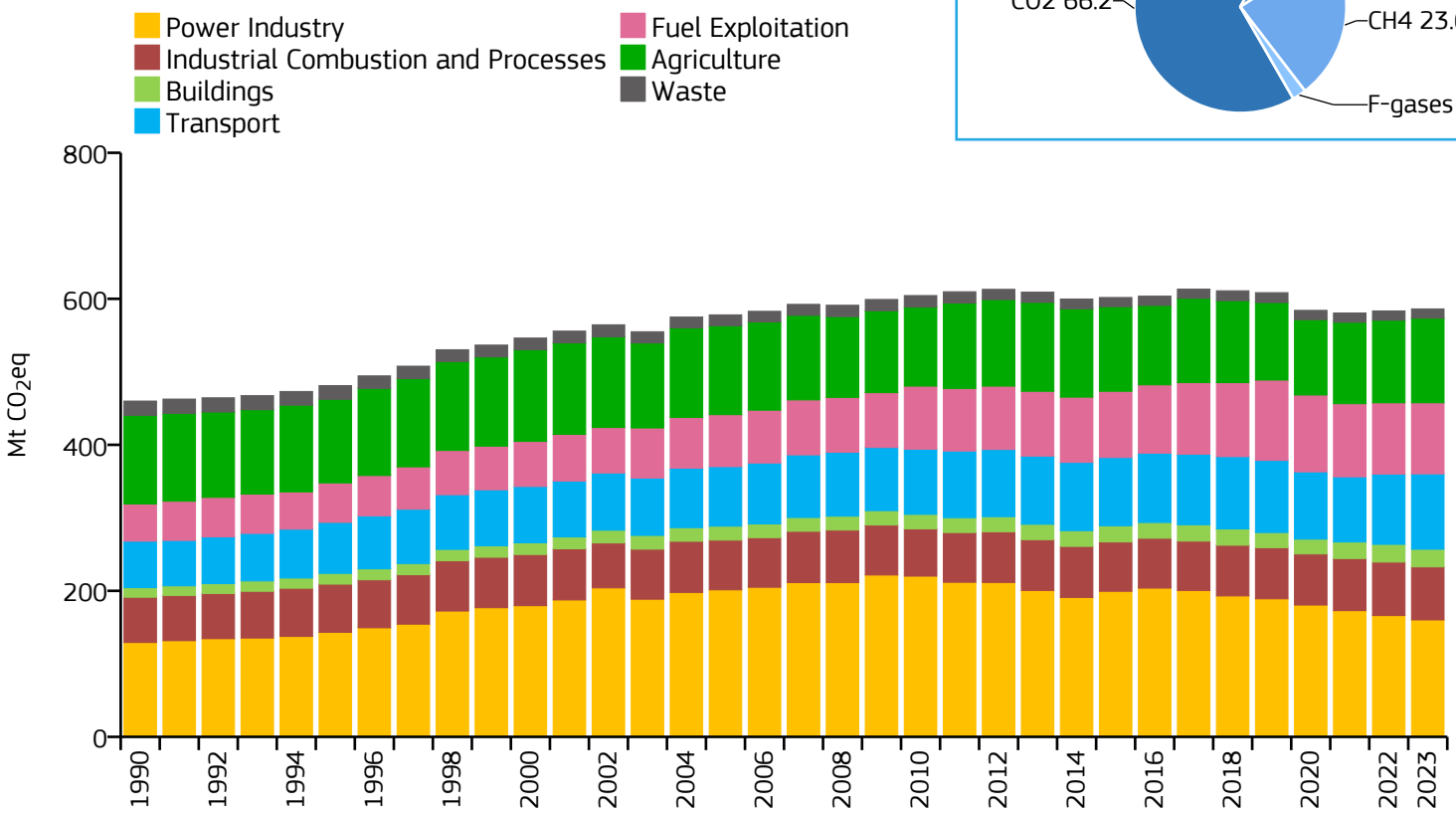
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.575	5.323	0.121	108.000k
2015	0.491	4.706	0.127	104.341k
2005	0.478	4.777	0.120	100.031k
1990	0.220	3.540	0.101	62.149k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +154%	↗ +30%	↗ +9%
Industrial Combustion and Processes	↗ +248%	↗ +110%	→ +5%
Buildings	↗ +111%	↗ +82%	→ +5%
Transport	↗ +204%	↗ +41%	↗ +7%
Fuel Exploitation	↗ > +300%	↘ -97%	→ 0%
Agriculture	→ +5%	→ +2%	→ 0%
Waste	↗ +39%	→ +3%	→ +1%
All sectors	↗ +161%	↗ +20%	↗ +7%

Australia



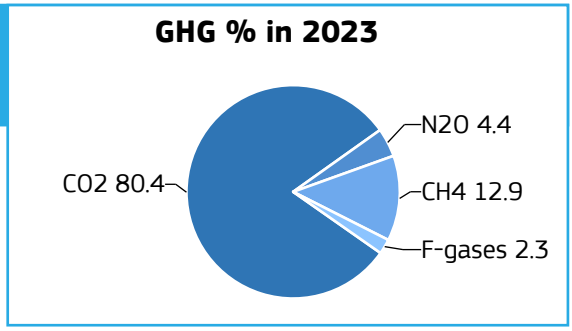
GHG emissions by sector



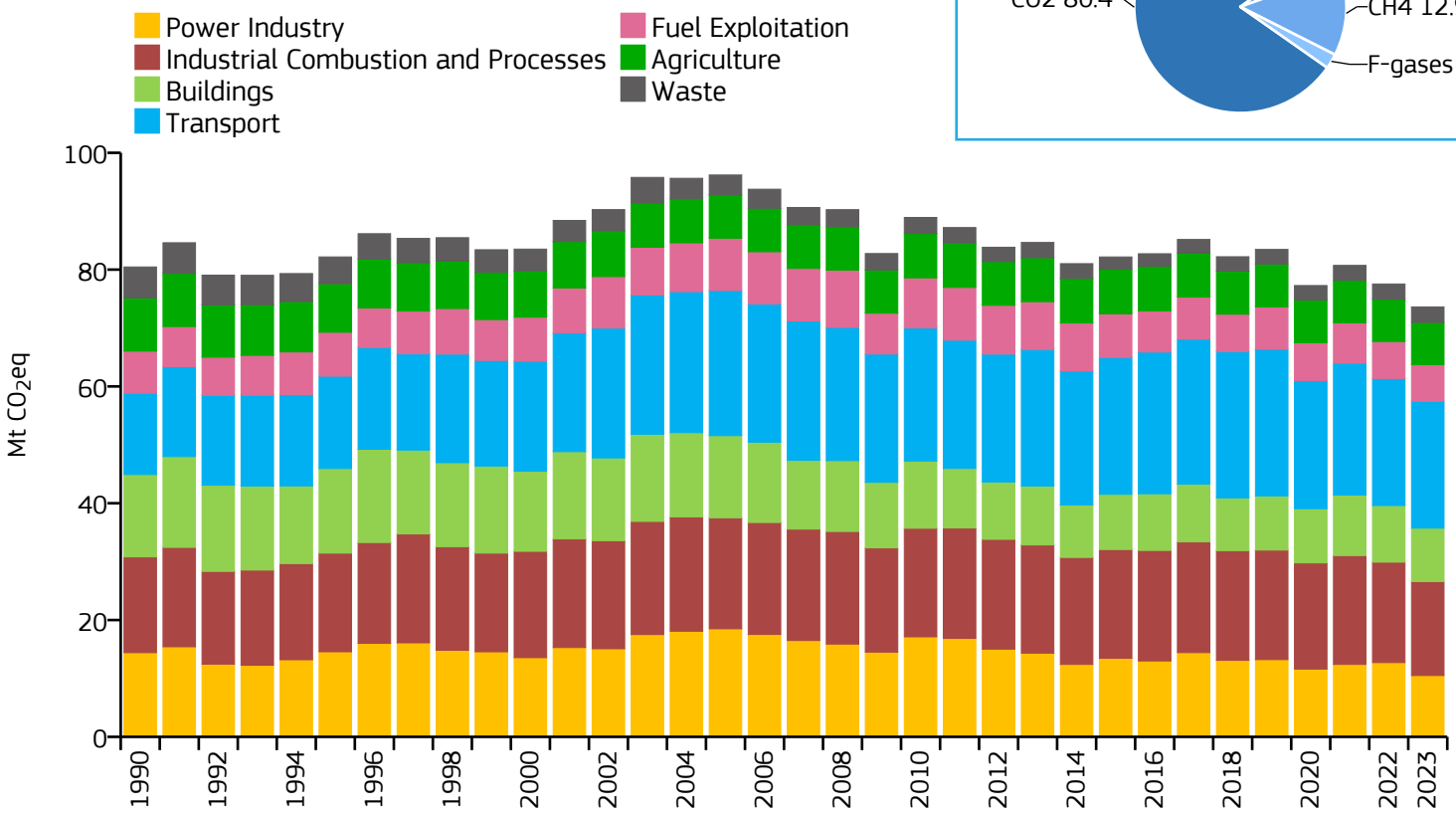
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	586.177	22.299	0.370	26.287M
2015	601.800	25.286	0.459	23.800M
2005	578.013	28.559	0.581	20.239M
1990	459.923	26.989	0.754	17.041M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+24%	-20%	-4%
Industrial Combustion and Processes	+17%	+7%	-1%
Buildings	+85%	+27%	-1%
Transport	+62%	+27%	+7%
Fuel Exploitation	+91%	+37%	0%
Agriculture	-4%	-5%	+2%
Waste	-35%	-14%	0%
All sectors	+27%	+1%	0%

Austria



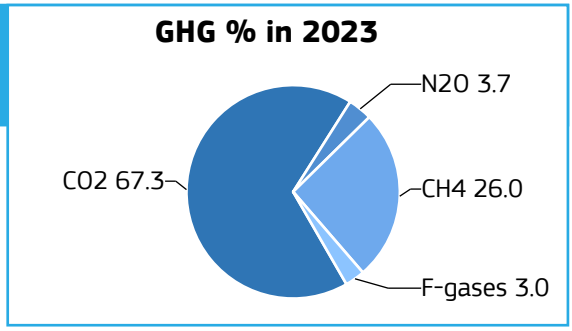
GHG emissions by sector



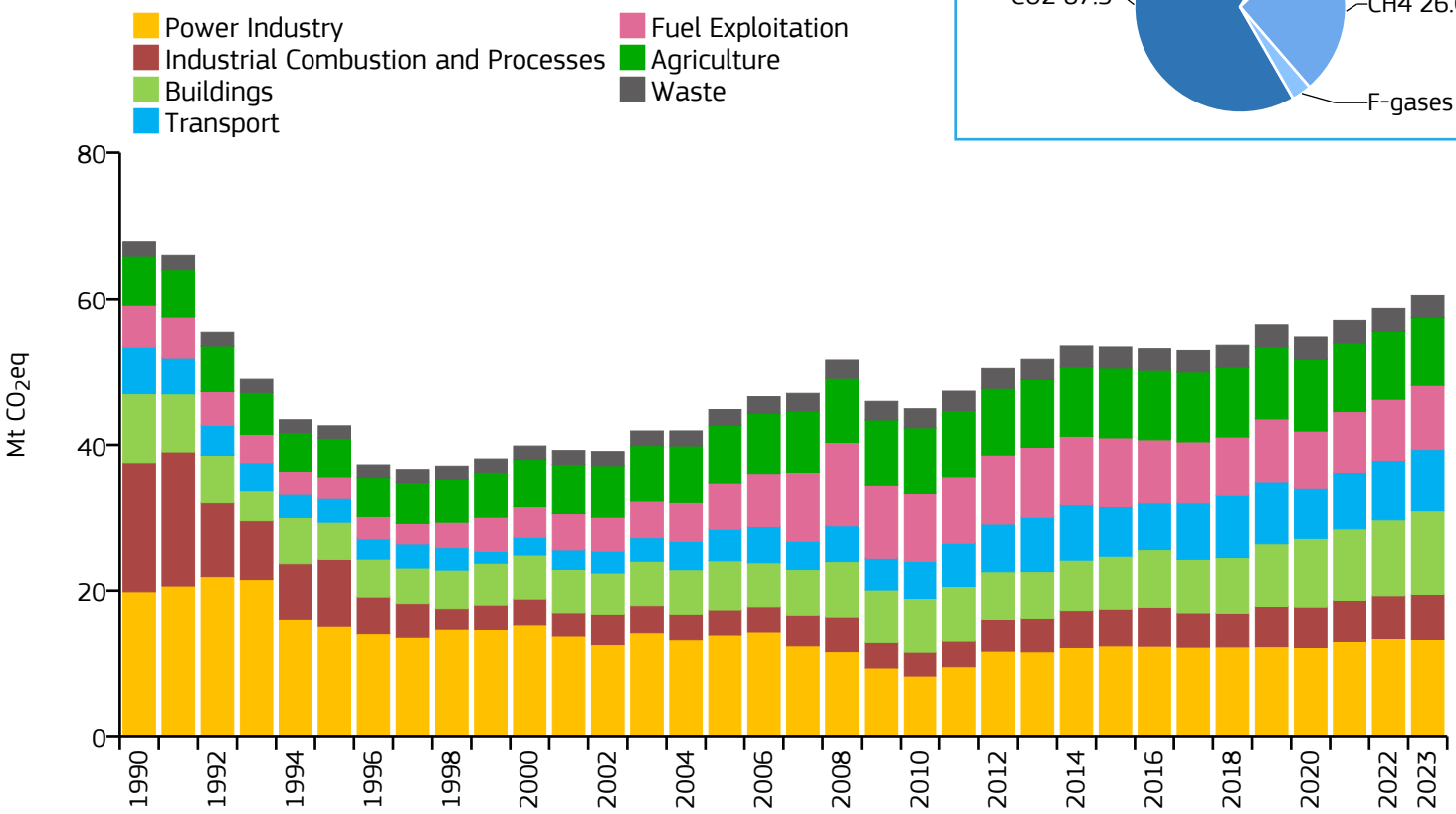
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	73.612	8.326	0.125	8.841M
2015	82.169	9.468	0.153	8.679M
2005	96.201	11.656	0.201	8.254M
1990	80.456	10.416	0.237	7.724M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-27%	-43%	-17%
Industrial Combustion and Processes	-2%	-15%	-6%
Buildings	-35%	-35%	-6%
Transport	+56%	-13%	0%
Fuel Exploitation	-13%	-30%	-1%
Agriculture	-21%	-3%	0%
Waste	-50%	-22%	+2%
All sectors	-9%	-23%	-5%

Azerbaijan



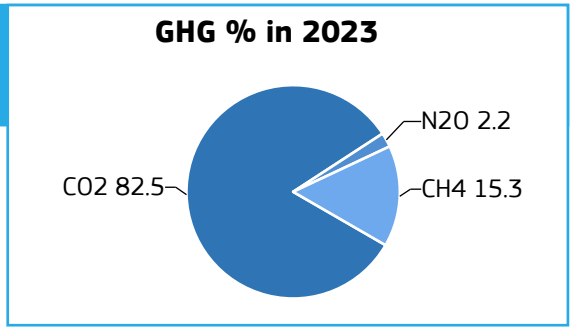
GHG emissions by sector



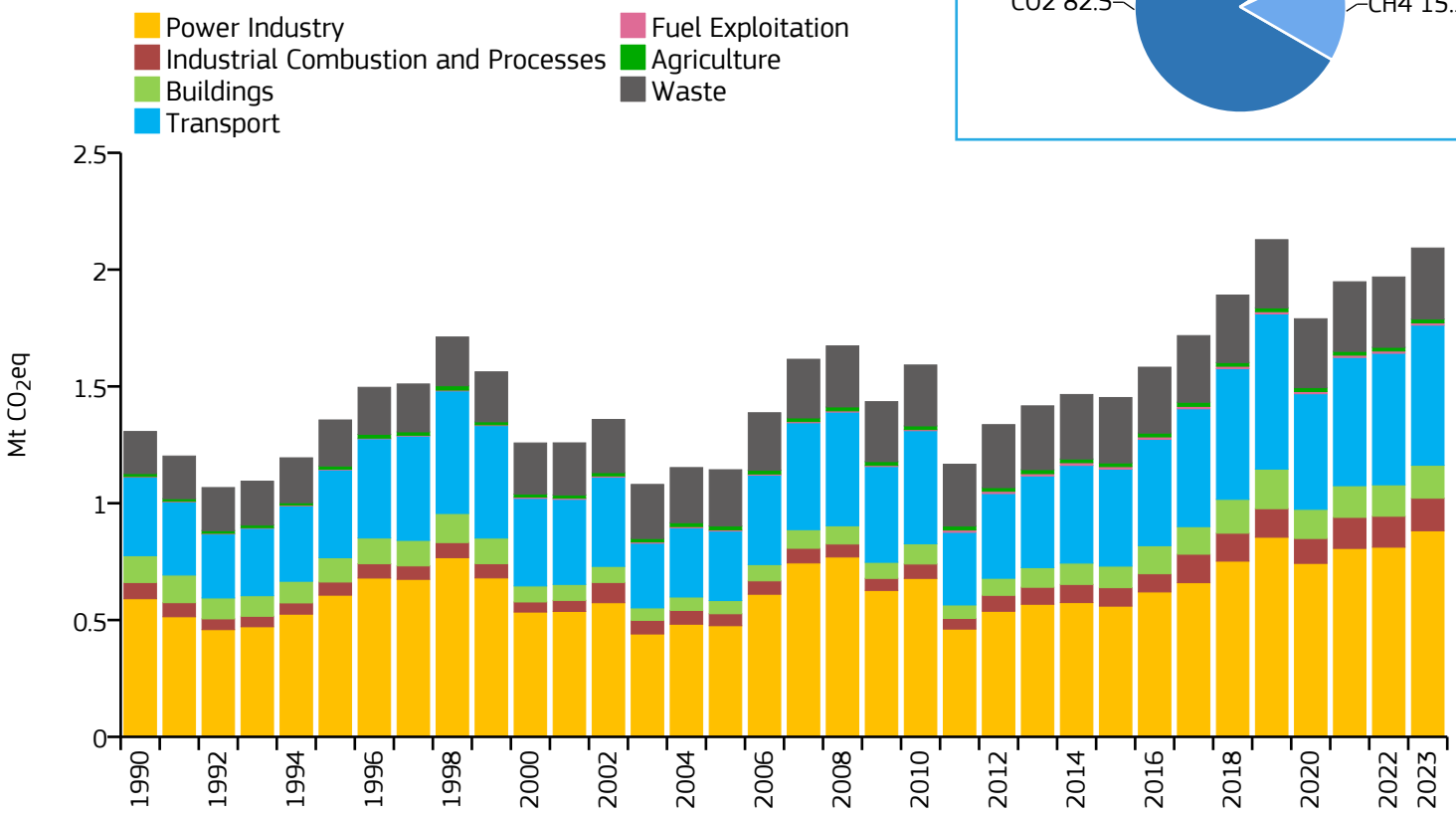
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	60.526	5.865	0.280	10.320M
2015	53.365	5.549	0.267	9.617M
2005	44.836	5.251	0.540	8.539M
1990	67.842	9.367	0.891	7.243M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-33%	-4%	-1%
Industrial Combustion and Processes	-65%	+80%	+6%
Buildings	+21%	+70%	+10%
Transport	+34%	+96%	+3%
Fuel Exploitation	+54%	+37%	+5%
Agriculture	+35%	+17%	0%
Waste	+61%	+45%	+1%
All sectors	-11%	+35%	+3%

Bahamas



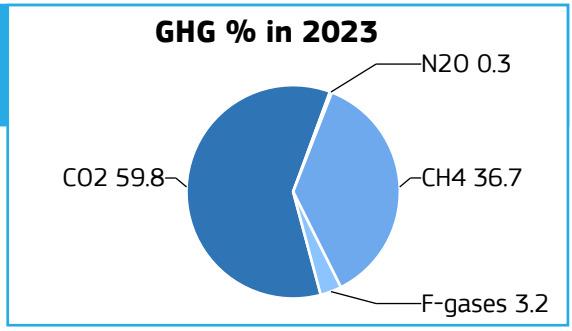
GHG emissions by sector



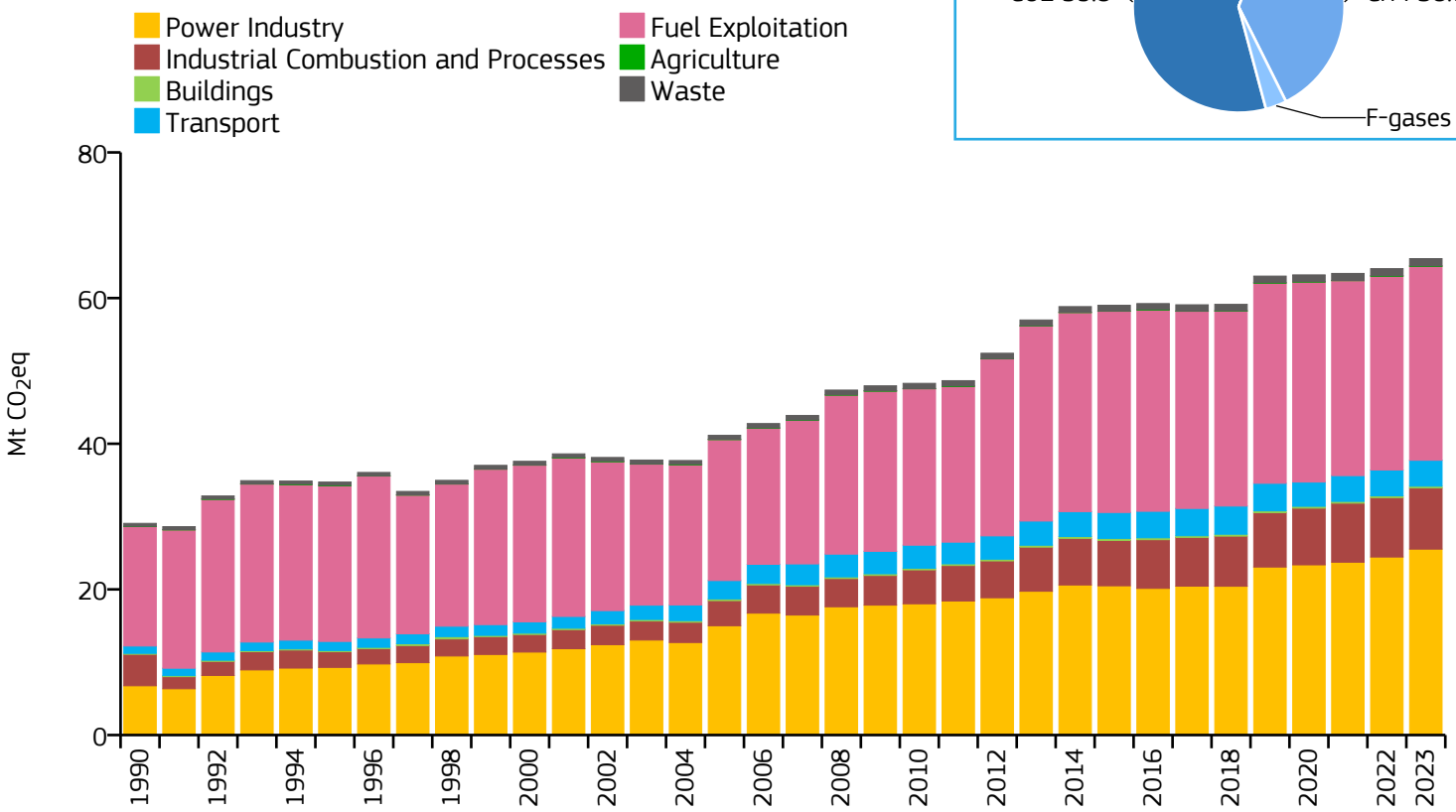
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	2.092	5.018	0.158	417.000k
2015	1.452	3.755	0.117	386.838k
2005	1.143	3.473	0.094	329.249k
1990	1.307	5.099	0.143	256.336k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+49%	+85%	+9%
Industrial Combustion and Processes	+100%	+172%	+5%
Buildings	+23%	+150%	+5%
Transport	+78%	+102%	+7%
Fuel Exploitation	+245%	+84%	0%
Agriculture	+30%	0%	+2%
Waste	+69%	+26%	+1%
All sectors	+60%	+83%	+6%

Bahrain



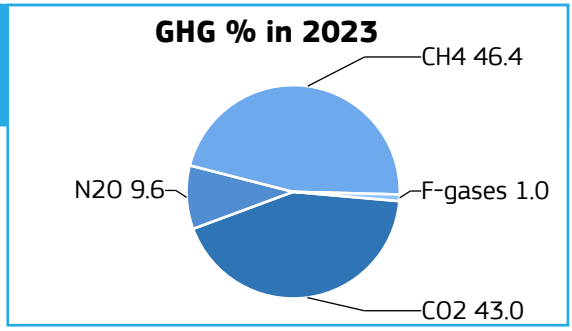
GHG emissions by sector



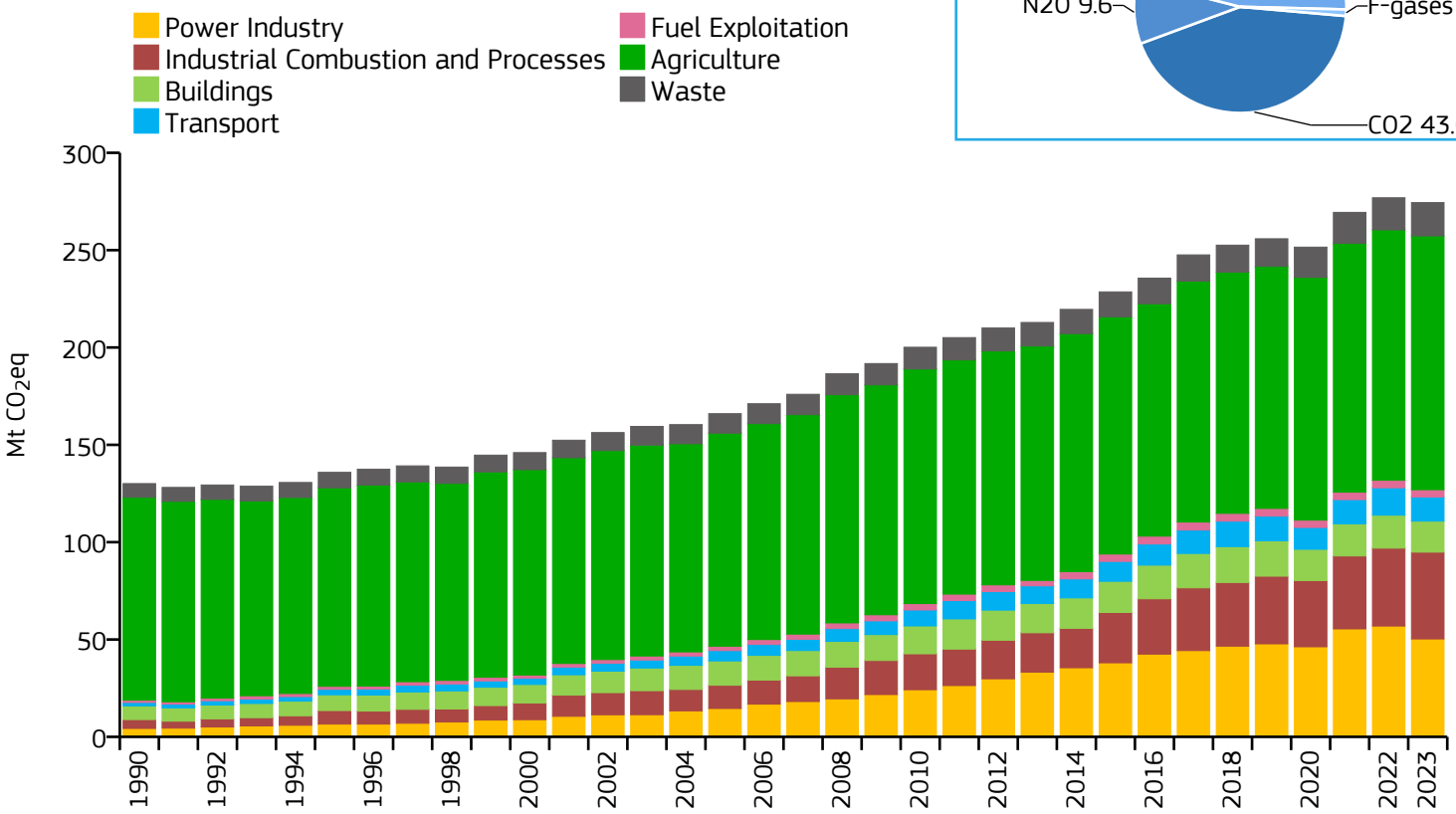
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	65.420	36.184	0.765	1.808M
2015	59.011	43.015	0.815	1.372M
2005	41.152	46.281	0.891	889.168k
1990	29.066	58.610	1.389	495.931k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+277%	+70%	+4%
Industrial Combustion and Processes	+94%	+144%	+3%
Buildings	+92%	+2%	0%
Transport	+253%	+41%	0%
Fuel Exploitation	+62%	+38%	0%
Agriculture	+11%	+17%	+2%
Waste	+152%	+84%	+2%
All sectors	+125%	+59%	+2%

Bangladesh



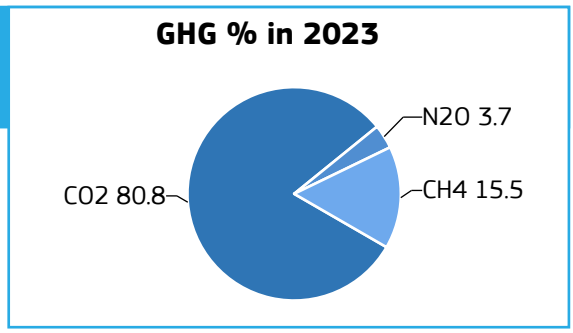
GHG emissions by sector



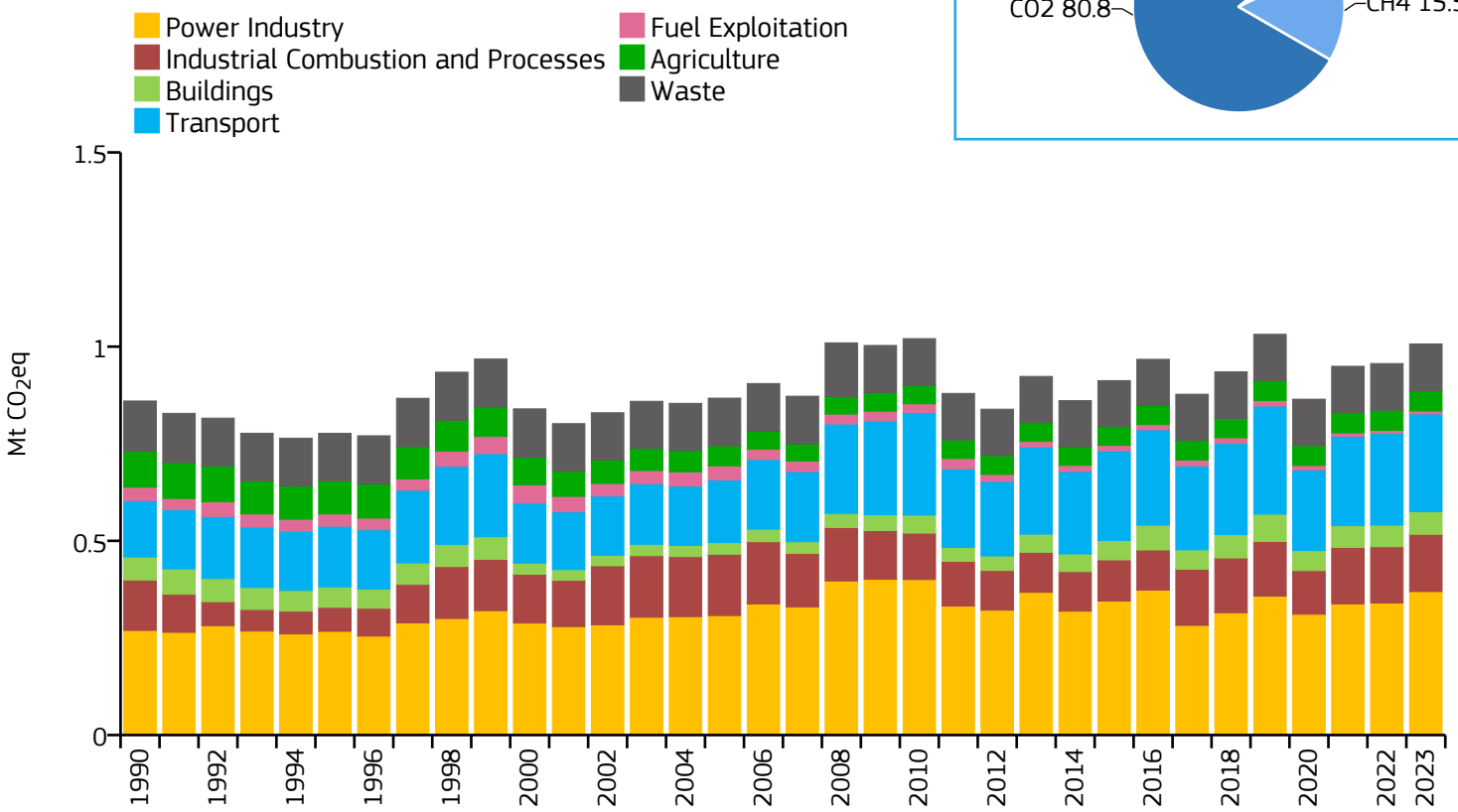
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	274.421	1.569	0.194	174.948M
2015	228.563	1.418	0.268	161.201M
2005	166.006	1.157	0.355	143.431M
1990	130.092	1.225	0.563	106.189M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+245%	-12%
Industrial Combustion and Processes	> +300%	+273%	+11%
Buildings	+126%	+28%	-6%
Transport	> +300%	+133%	-12%
Fuel Exploitation	+212%	+65%	-4%
Agriculture	+25%	+19%	+1%
Waste	+143%	+71%	+4%
All sectors	+111%	+65%	-1%

Barbados



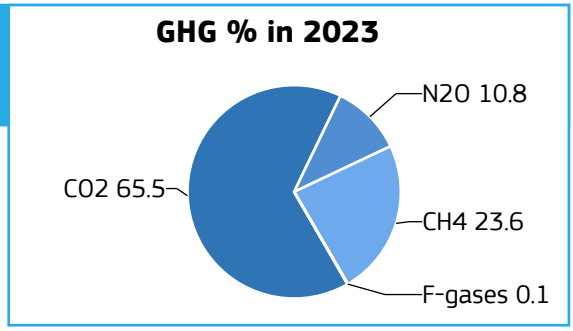
GHG emissions by sector



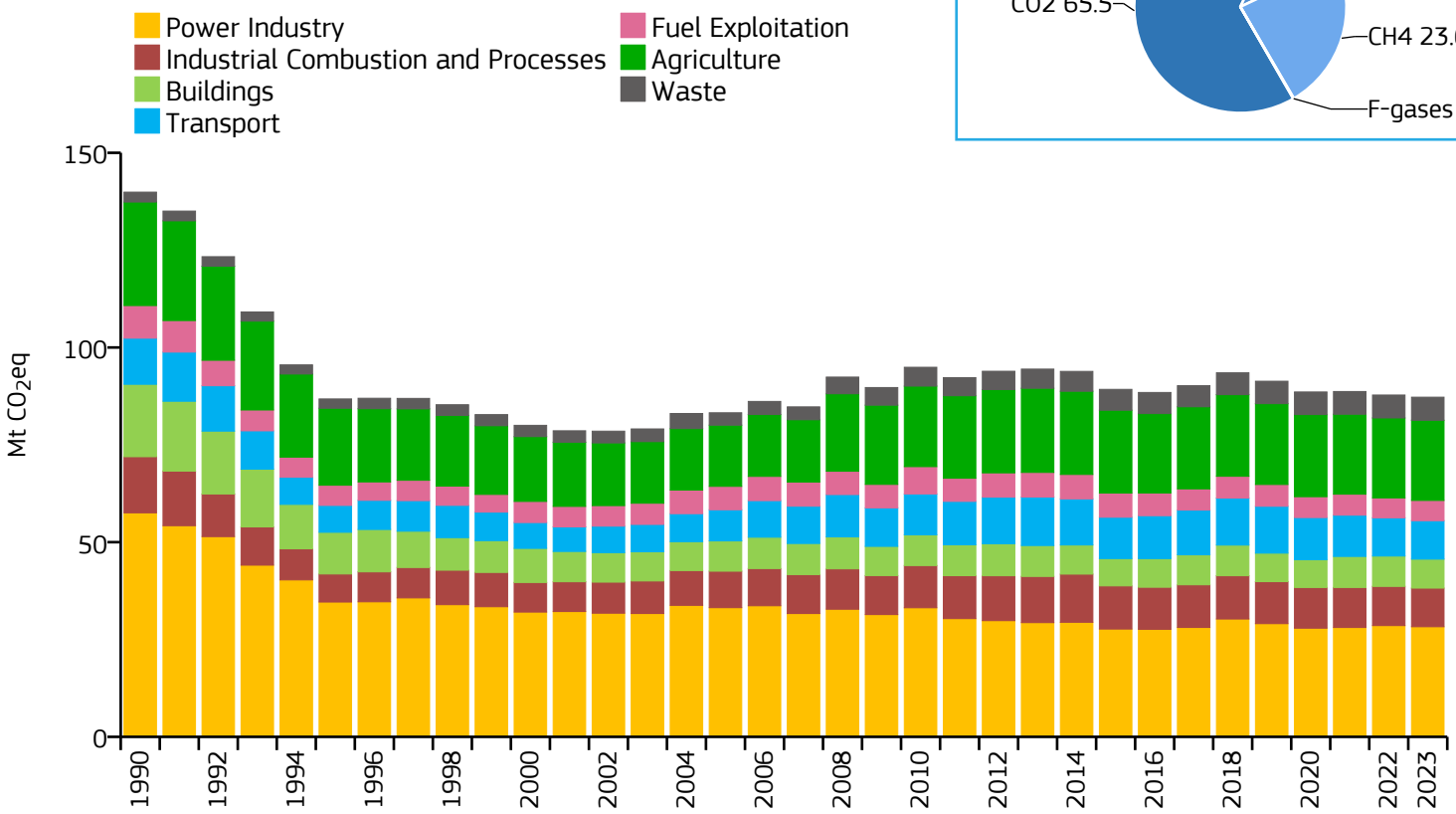
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	1.007	3.484	0.205	289.000k
2015	0.912	3.211	0.195	284.217k
2005	0.867	3.166	0.188	274.009k
1990	0.860	3.303	0.222	260.374k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+37%	+20%	+9%
Industrial Combustion and Processes	+14%	-7%	+2%
Buildings	-1%	+95%	+5%
Transport	+73%	+56%	+7%
Fuel Exploitation	-78%	-79%	-5%
Agriculture	-44%	+1%	+1%
Waste	-7%	-2%	0%
All sectors	+17%	+16%	+5%

Belarus



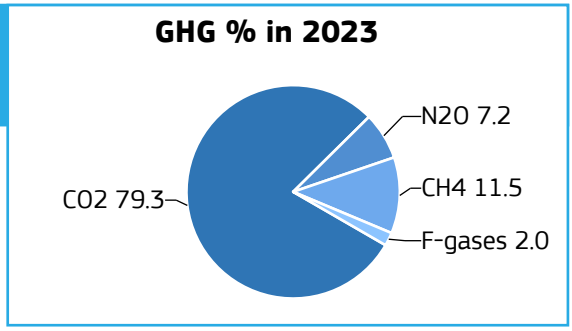
GHG emissions by sector



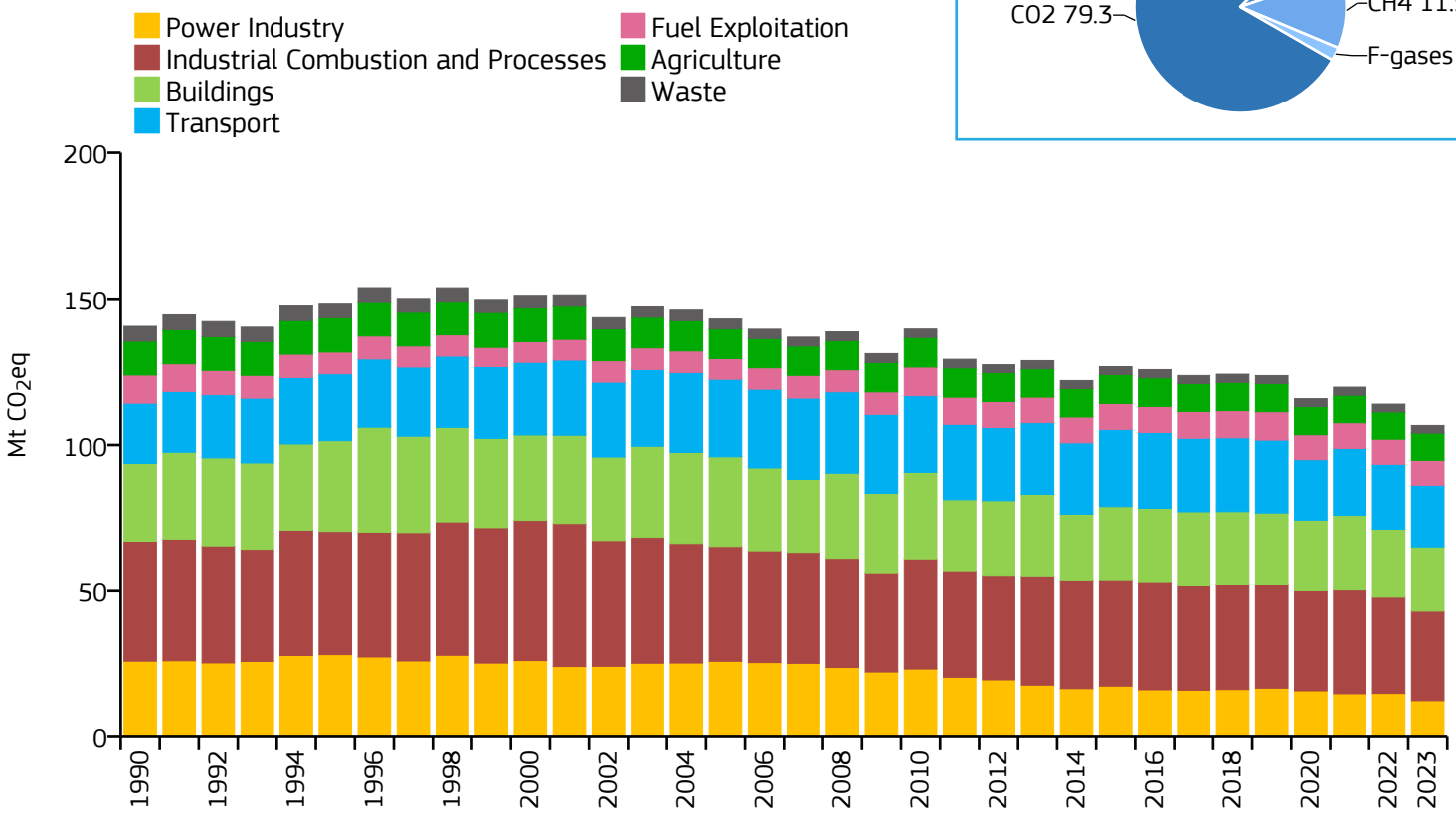
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	87.240	9.323	0.343	9.358M
2015	89.249	9.409	0.370	9.486M
2005	83.232	8.651	0.519	9.622M
1990	139.901	13.693	1.111	10.217M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-51%	-15%	-1%
Industrial Combustion and Processes	-31%	+6%	-2%
Buildings	-60%	-4%	-4%
Transport	-17%	+23%	+1%
Fuel Exploitation	-38%	-13%	+2%
Agriculture	-23%	+31%	0%
Waste	+133%	+87%	+1%
All sectors	-38%	+5%	-1%

Belgium



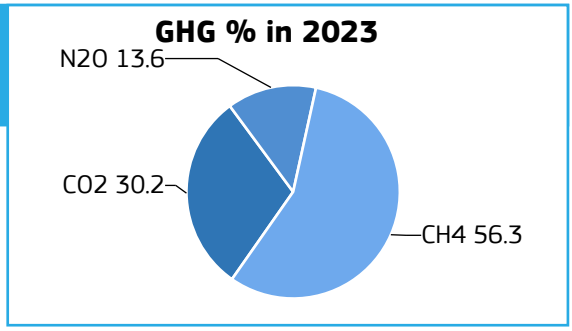
GHG emissions by sector



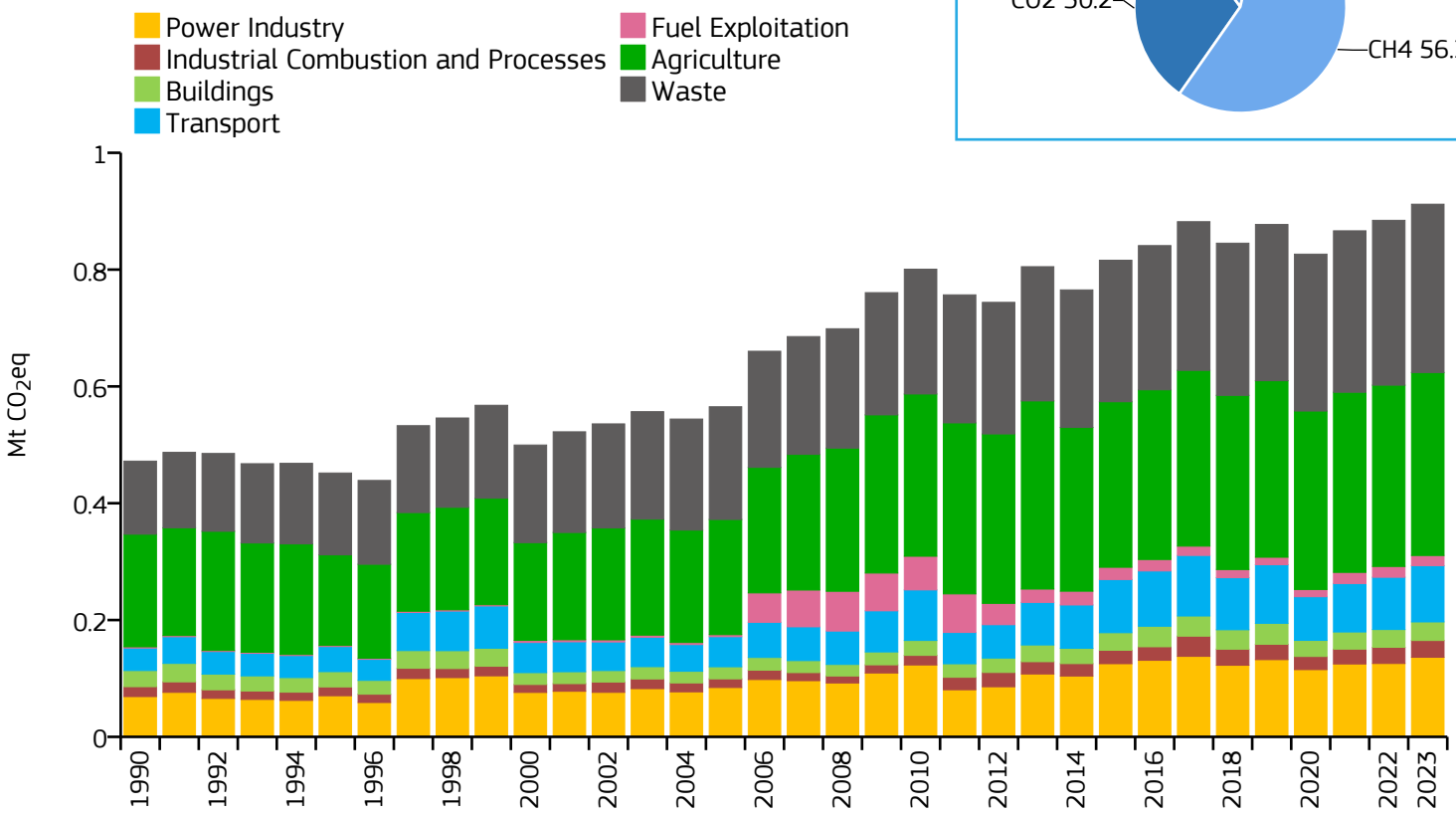
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	106.675	9.080	0.142	11.749M
2015	126.735	11.227	0.191	11.288M
2005	143.065	13.565	0.247	10.547M
1990	140.550	14.046	0.334	10.006M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-52%	-52%	-17%
Industrial Combustion and Processes	-25%	-21%	-7%
Buildings	-19%	-30%	-5%
Transport	+4%	-19%	-5%
Fuel Exploitation	-11%	+21%	-1%
Agriculture	-20%	-9%	0%
Waste	-49%	-23%	-2%
All sectors	-24%	-25%	-6%

Belize



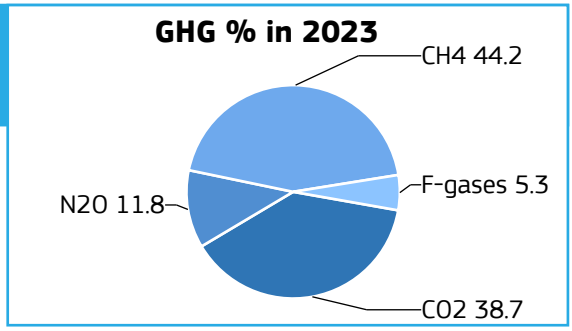
GHG emissions by sector



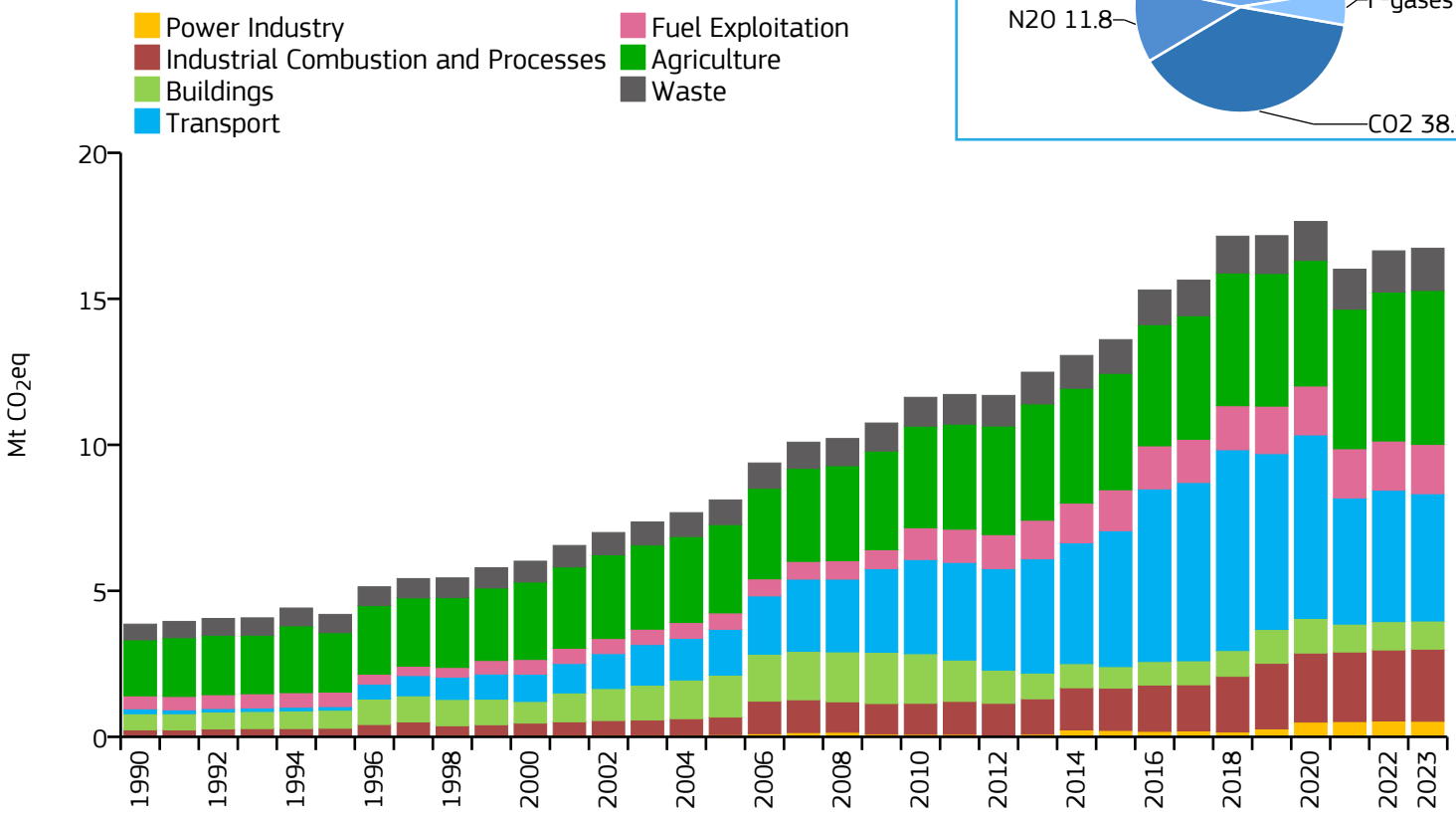
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.912	2.166	0.174	421.000k
2015	0.816	2.271	0.186	359.288k
2005	0.565	1.995	0.160	283.277k
1990	0.472	2.517	0.314	187.552k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+98%	+61%	+8%
Industrial Combustion and Processes	+69%	+93%	+4%
Buildings	+15%	+54%	+4%
Transport	+150%	+87%	+8%
Fuel Exploitation	> +300%	> +300%	-6%
Agriculture	+62%	+59%	+1%
Waste	+130%	+49%	+2%
All sectors	+93%	+61%	+3%

Benin



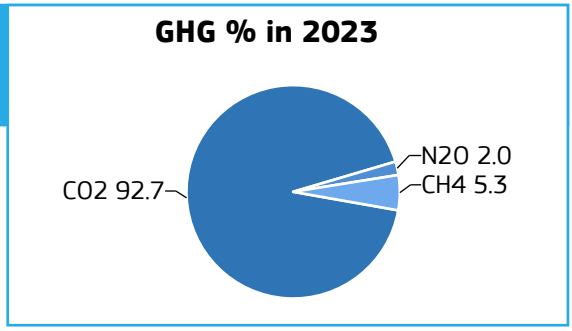
GHG emissions by sector



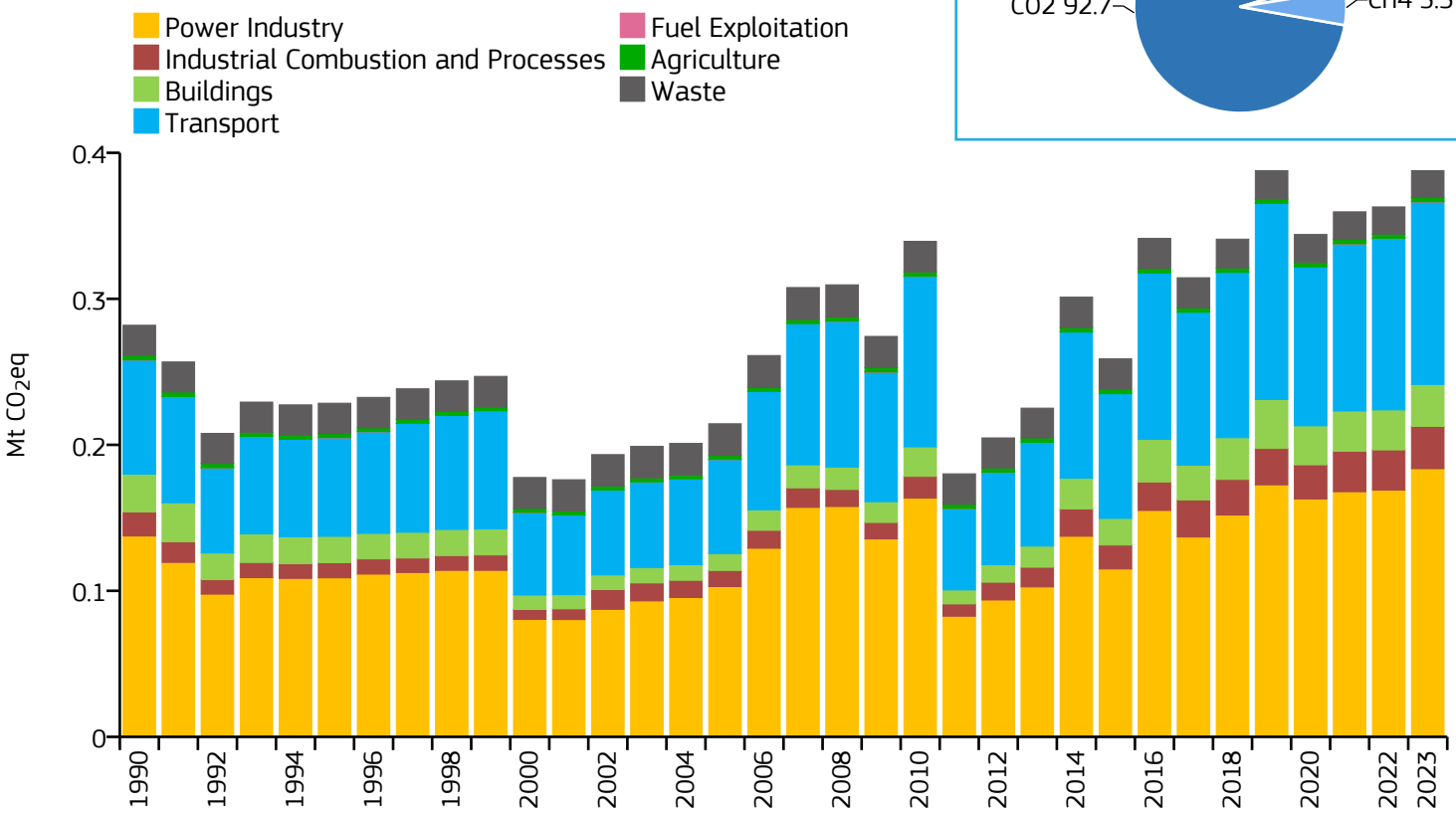
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	16.733	1.276	0.319	13.118M
2015	13.603	1.286	0.406	10.576M
2005	8.113	1.016	0.366	7.982M
1990	3.860	0.775	0.331	4.979M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	> +300%	-2%
Industrial Combustion and Processes	> +300%	> +300%	+2%
Buildings	+75%	-33%	-1%
Transport	> +300%	+178%	-3%
Fuel Exploitation	+278%	+200%	0%
Agriculture	+175%	+74%	+3%
Waste	+168%	+72%	+3%
All sectors	> +300%	+106%	+1%

Bermuda



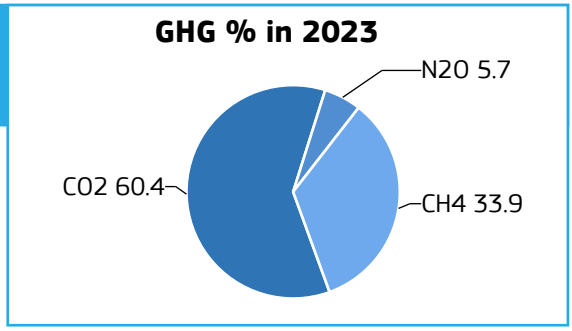
GHG emissions by sector



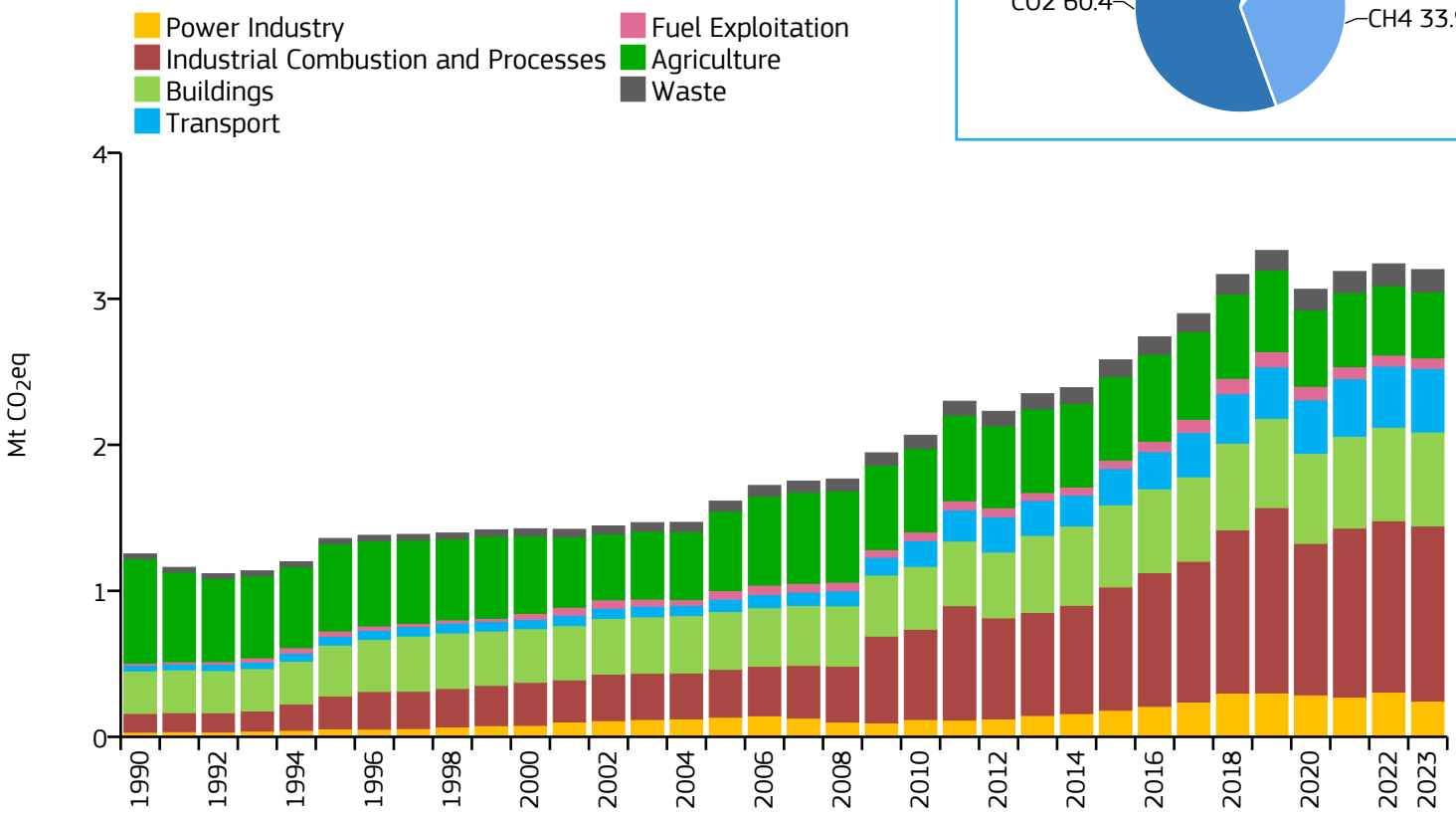
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.388	6.463	0.054	60.000k
2015	0.259	4.175	0.044	62.003k
2005	0.214	3.292	0.032	65.130k
1990	0.282	4.627	0.062	60.930k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +34%	↗ +78%	↗ +9%
Industrial Combustion and Processes	↗ +76%	↗ +162%	→ +5%
Buildings	↗ +11%	↗ +149%	→ +5%
Transport	↗ +60%	↗ +94%	↗ +7%
Fuel Exploitation	↗ > +300%	↗ +191%	→ 0%
Agriculture	↘ -7%	↗ +9%	→ 0%
Waste	↘ -11%	↘ -15%	→ -1%
All sectors	↗ +38%	↗ +81%	↗ +7%

Bhutan



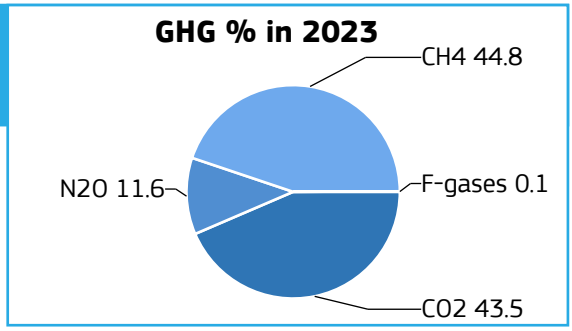
GHG emissions by sector



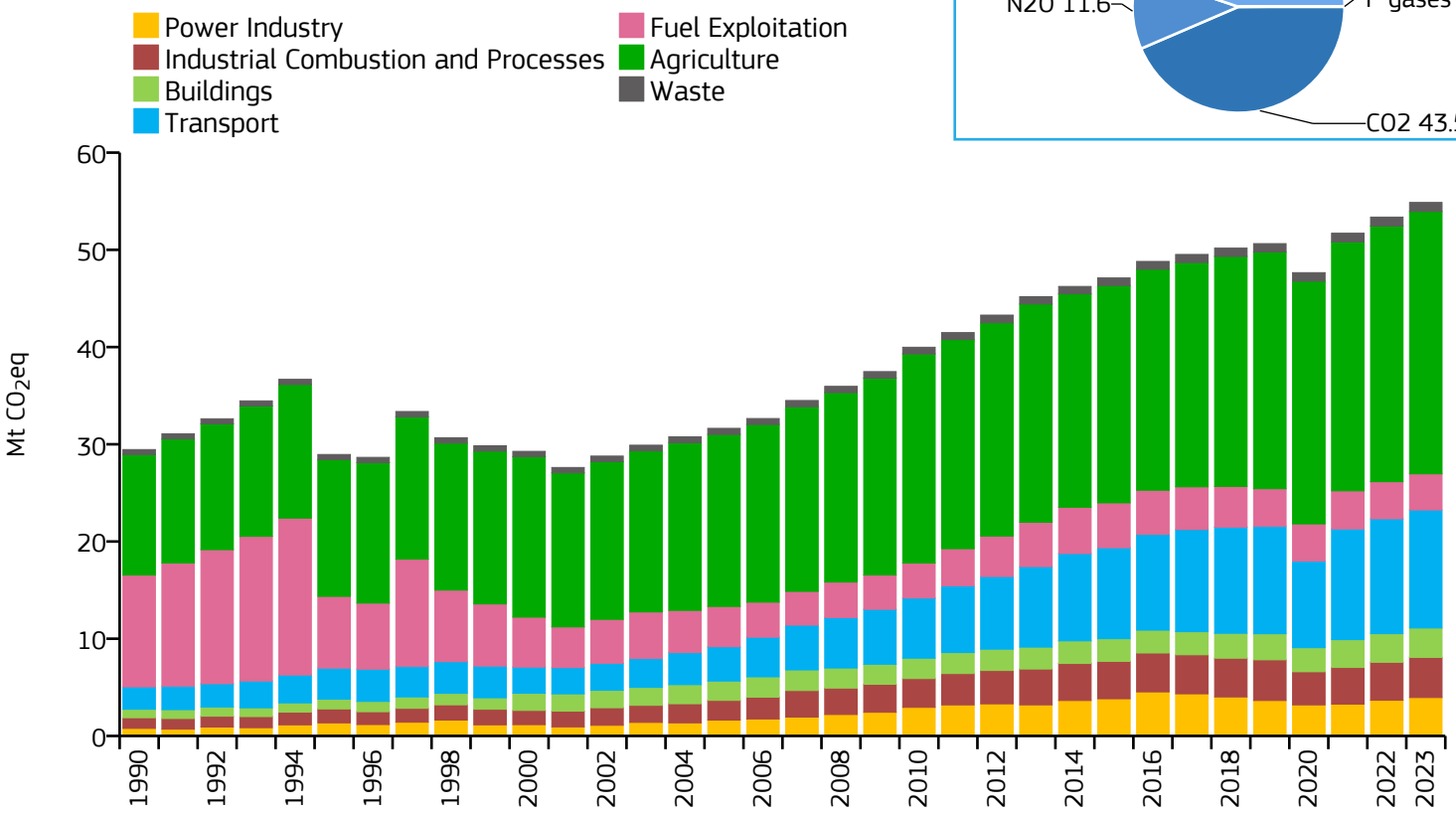
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	3.200	3.717	0.278	861.000k
2015	2.582	3.279	0.285	787.386k
2005	1.614	2.458	0.359	656.639k
1990	1.253	2.331	0.628	537.280k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ > +300%	↗ +82%	↘ -20%
Industrial Combustion and Processes	↗ > +300%	↗ +266%	→ +2%
Buildings	↗ +121%	↗ +63%	→ 0%
Transport	↗ > +300%	↗ > +300%	→ +4%
Fuel Exploitation	↗ > +300%	↗ +22%	→ -5%
Agriculture	↘ -37%	↘ -17%	→ -5%
Waste	↗ > +300%	↗ +126%	→ +3%
All sectors	↗ +155%	↗ +98%	→ -1%

Bolivia



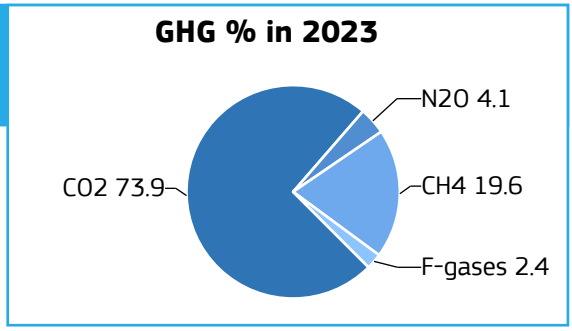
GHG emissions by sector



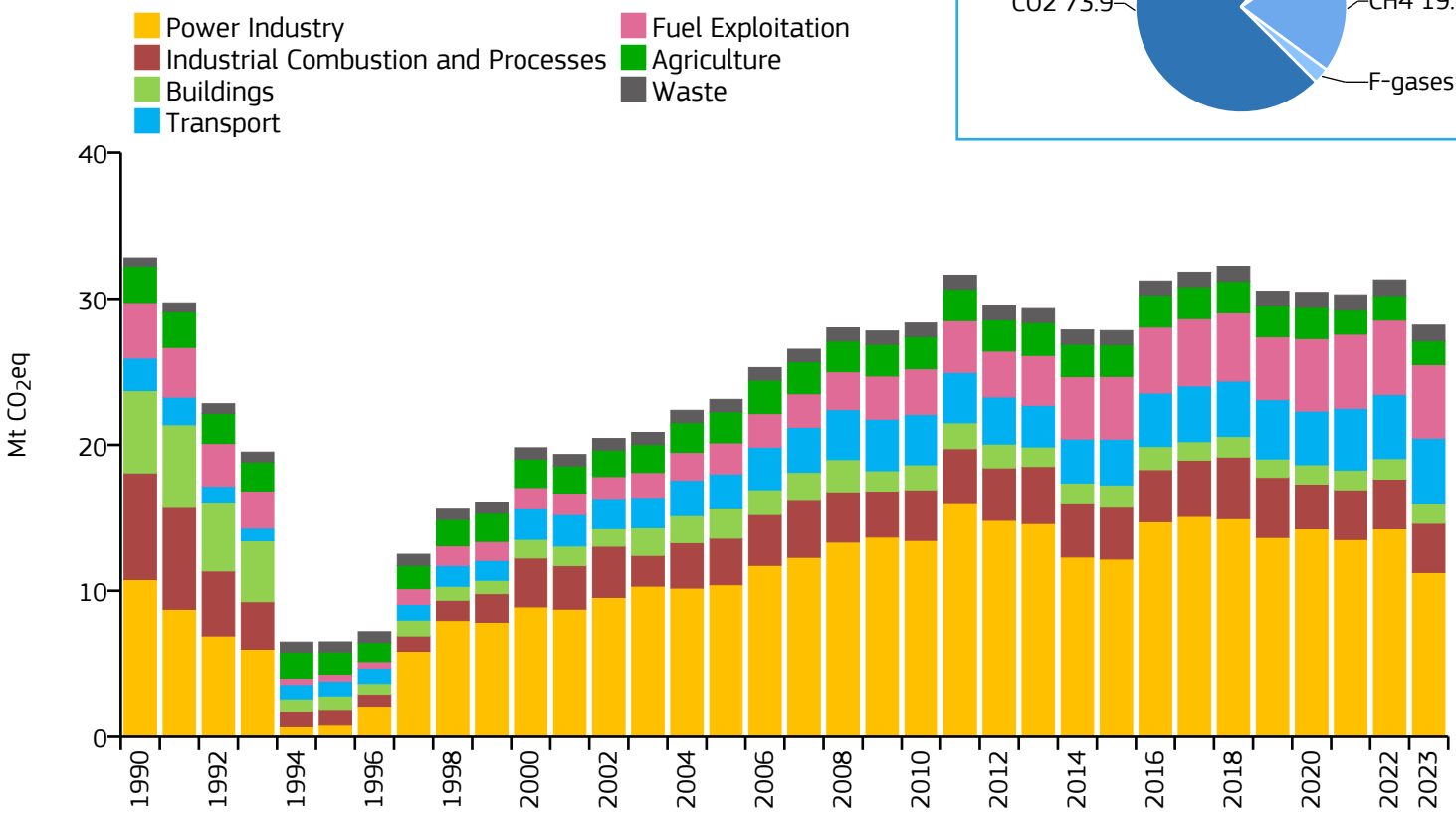
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	54.875	4.560	0.458	12.035M
2015	47.110	4.393	0.468	10.725M
2005	31.639	3.467	0.514	9.125M
1990	29.458	4.297	0.806	6.856M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ > +300%	↗ +143%	↗ +8%
Industrial Combustion and Processes	↗ +276%	↗ +103%	↗ +6%
Buildings	↗ +247%	↗ +52%	→ +3%
Transport	↗ > +300%	↗ +244%	→ +3%
Fuel Exploitation	↘ -68%	↘ -11%	→ -3%
Agriculture	↗ +118%	↗ +53%	→ +3%
Waste	↗ +80%	↗ +48%	→ +2%
All sectors	↗ +86%	↗ +73%	→ +3%

Bosnia and Herzegovina



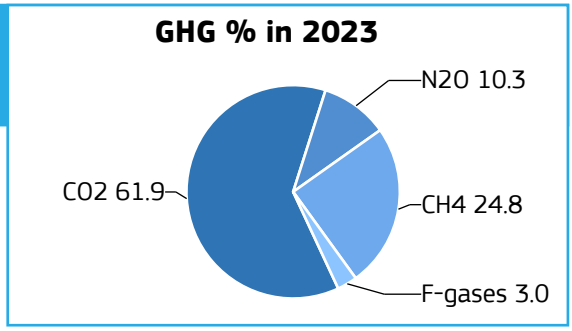
GHG emissions by sector



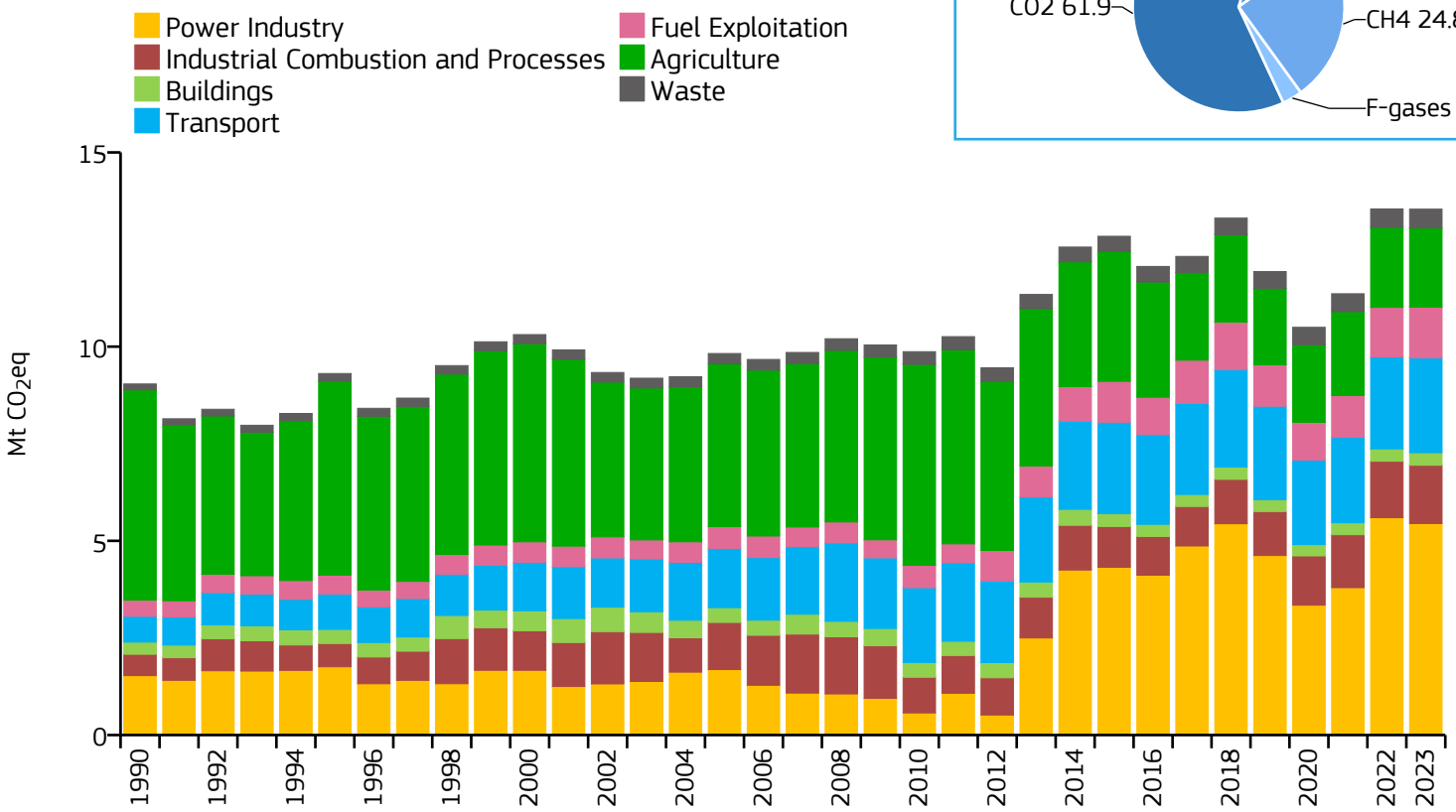
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	28.194	8.113	0.442	3.475M
2015	27.819	7.867	0.548	3.536M
2005	23.113	6.112	0.567	3.782M
1990	32.808	7.350	3.014	4.463M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+5%	+8%	-21%
Industrial Combustion and Processes	-54%	+6%	-1%
Buildings	-75%	-33%	-1%
Transport	+100%	+90%	+2%
Fuel Exploitation	+32%	+137%	-1%
Agriculture	-36%	-24%	-4%
Waste	+97%	+27%	+1%
All sectors	-14%	+22%	-10%

Botswana



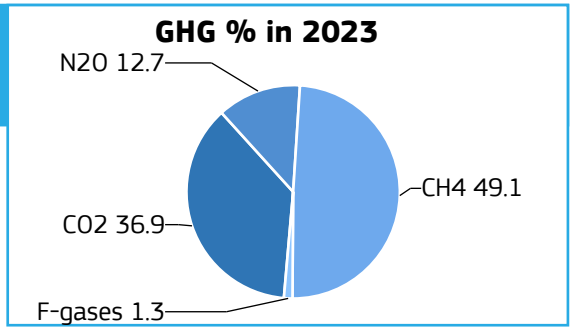
GHG emissions by sector



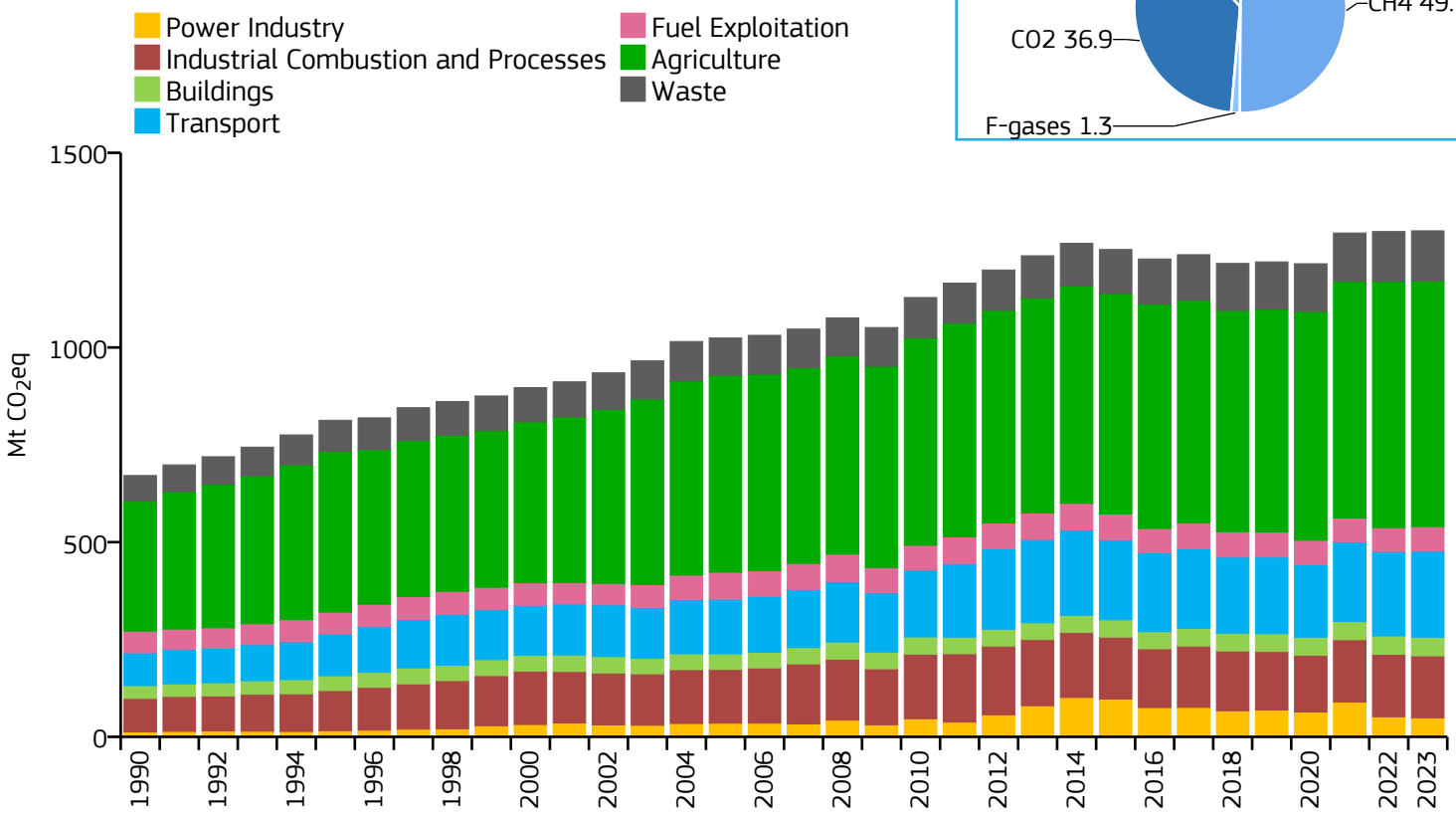
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	13.539	5.339	0.290	2.536M
2015	12.842	5.813	0.364	2.209M
2005	9.823	5.293	0.372	1.856M
1990	9.039	6.560	0.658	1.378M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +256%	↗ +223%	→ -3%
Industrial Combustion and Processes	↗ +172%	↗ +24%	→ +3%
Buildings	→ +3%	↘ -15%	→ +1%
Transport	↗ +269%	↗ +60%	→ +3%
Fuel Exploitation	↗ +212%	↗ +131%	→ +2%
Agriculture	↘ -62%	↘ -51%	→ -1%
Waste	↗ +217%	↗ +82%	→ +3%
All sectors	↗ +50%	↗ +38%	→ 0%

Brazil



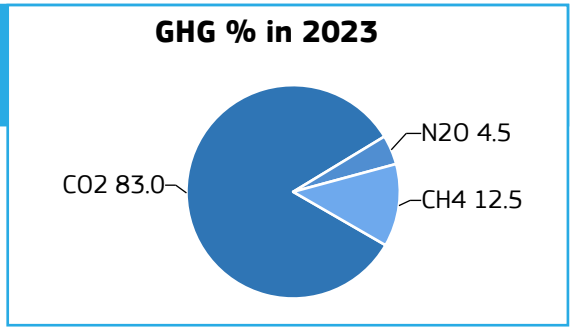
GHG emissions by sector



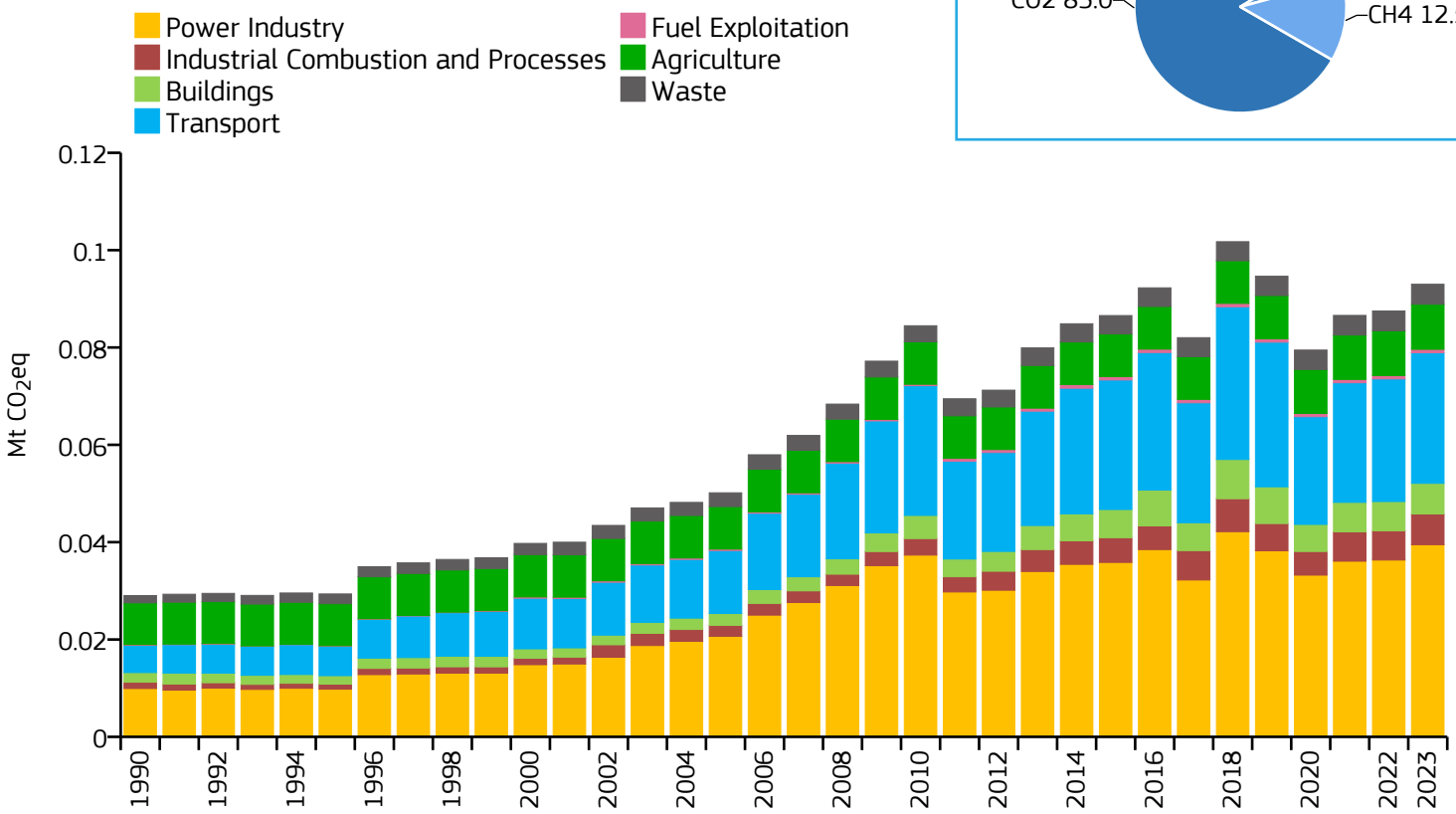
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	1299.627	5.963	0.324	217.937M
2015	1251.645	6.077	0.338	205.962M
2005	1024.400	5.481	0.364	186.917M
1990	671.162	4.494	0.356	149.352M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+280%	+39%	-5%
Industrial Combustion and Processes	+85%	+15%	-1%
Buildings	+46%	+19%	+2%
Transport	+163%	+57%	+2%
Fuel Exploitation	+12%	-9%	+2%
Agriculture	+89%	+25%	0%
Waste	+95%	+34%	0%
All sectors	+94%	+27%	0%

British Virgin Islands



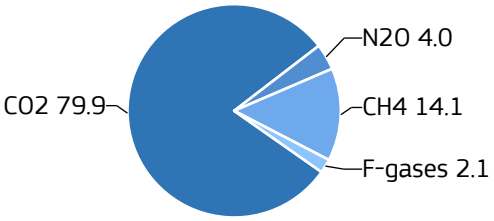
GHG emissions by sector



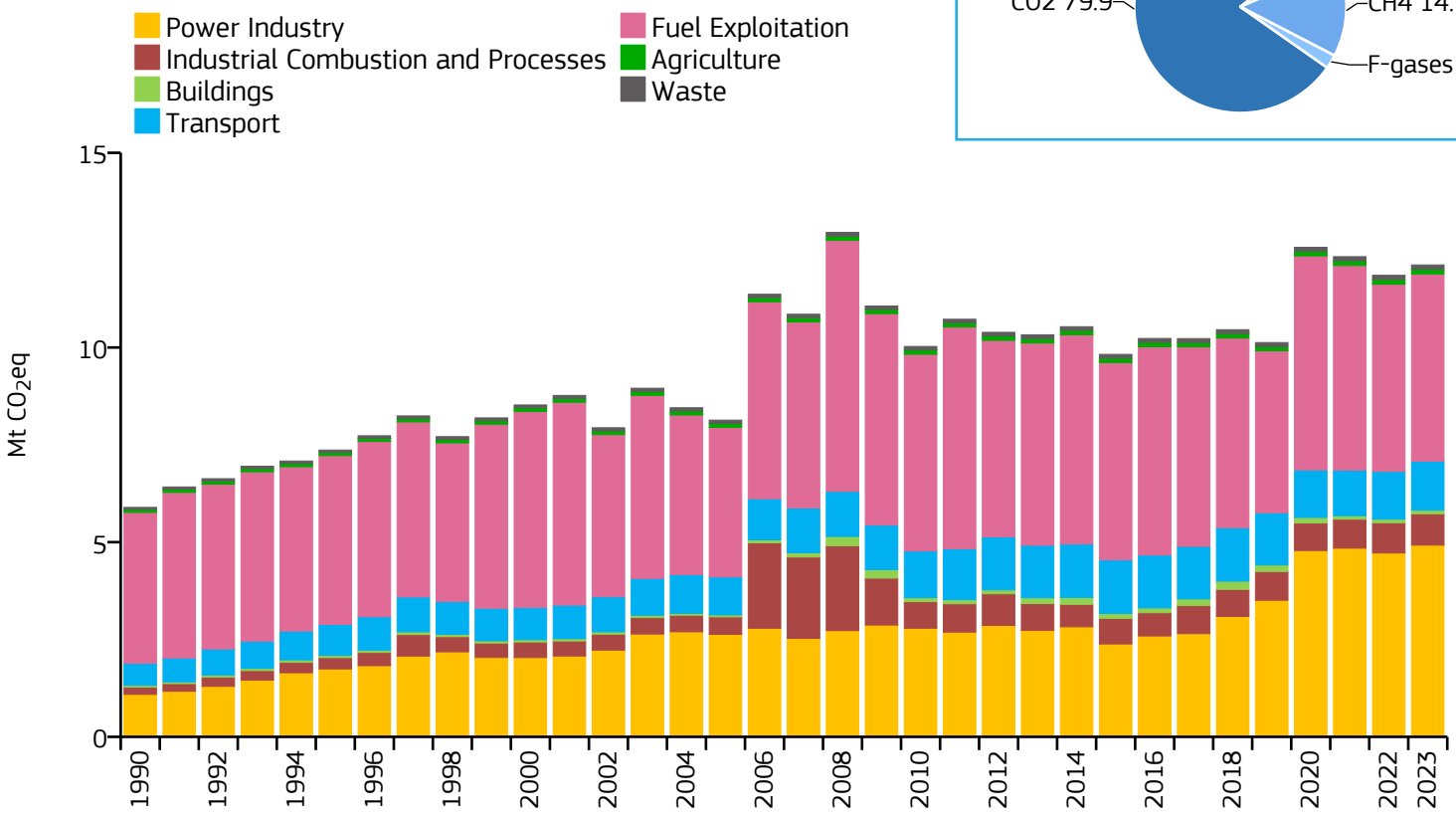
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.093	2.735	0.060	34.000k
2015	0.087	2.874	0.077	30.113k
2005	0.050	2.164	0.044	23.168k
1990	0.029	1.764	0.131	16.461k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+298%	+91%	+9%
Industrial Combustion and Processes	> +300%	+181%	+5%
Buildings	+218%	+157%	+5%
Transport	> +300%	+108%	+7%
Fuel Exploitation	> +300%	+138%	0%
Agriculture	+8%	+6%	+1%
Waste	+174%	+45%	+1%
All sectors	+220%	+85%	+6%

Brunei



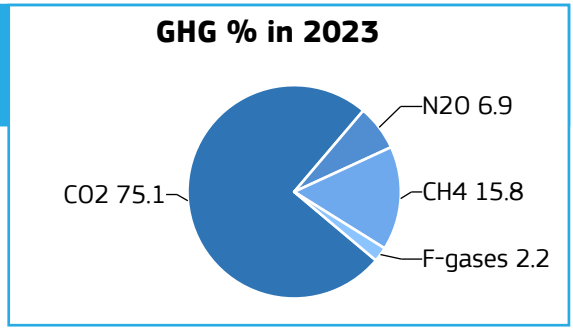
GHG emissions by sector



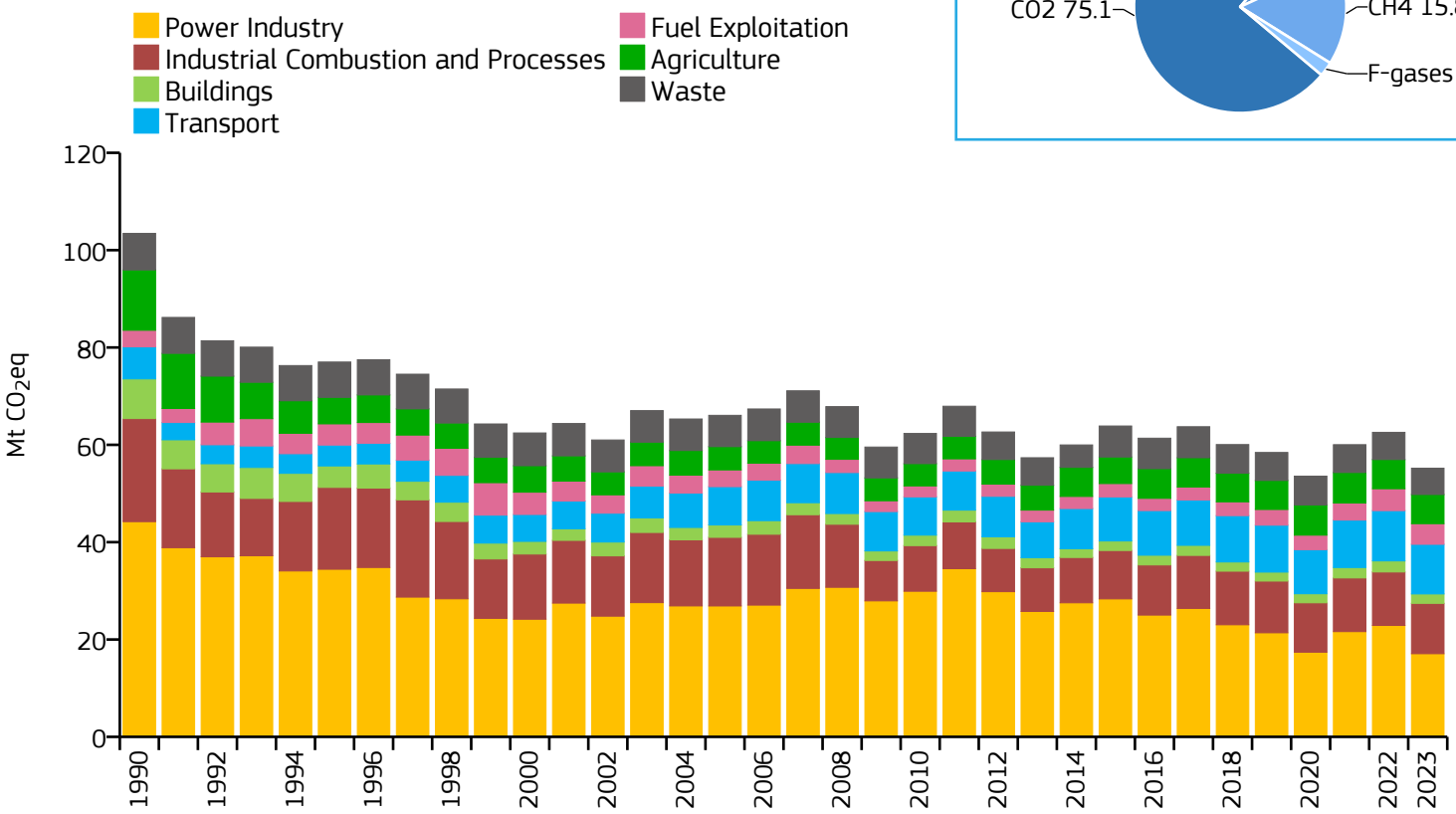
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	12.120	26.347	0.344	460.000k
2015	9.823	23.525	0.284	417.542k
2005	8.135	22.278	0.242	365.158k
1990	5.893	22.773	0.242	258.785k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+87%	+4%
Industrial Combustion and Processes	> +300%	+80%	+3%
Buildings	+95%	+78%	+2%
Transport	+122%	+29%	+3%
Fuel Exploitation	+24%	+25%	0%
Agriculture	+61%	+19%	+1%
Waste	+108%	+30%	+1%
All sectors	+106%	+49%	+2%

Bulgaria



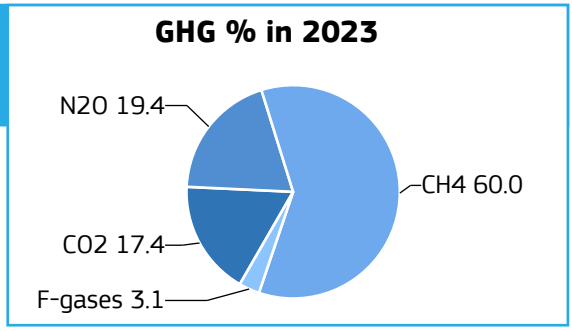
GHG emissions by sector



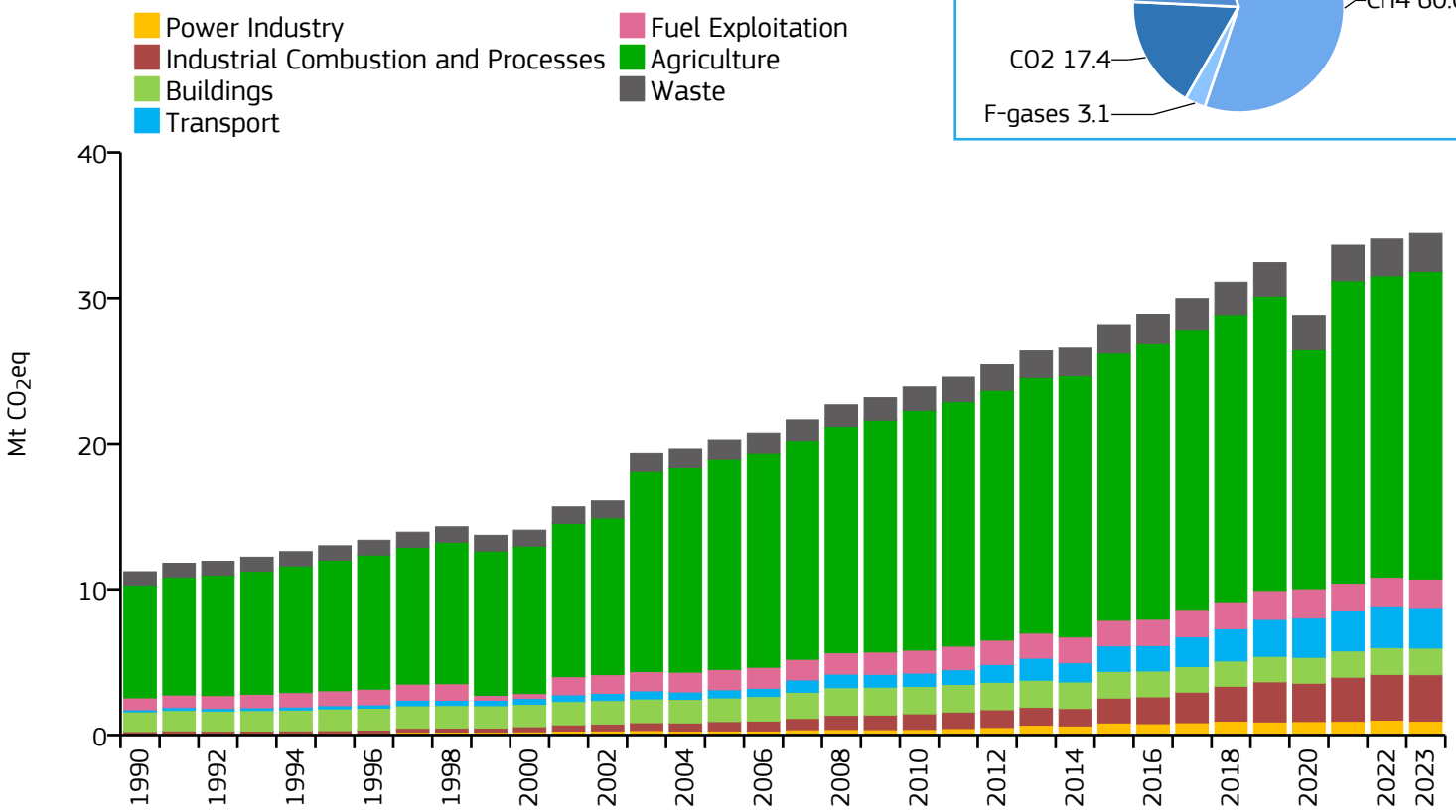
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	55.202	8.125	0.258	6.794M
2015	63.871	8.899	0.369	7.177M
2005	66.063	8.598	0.484	7.684M
1990	103.440	11.700	0.787	8.841M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-61%	-36%	-25%
Industrial Combustion and Processes	-51%	-27%	-6%
Buildings	-76%	-24%	-15%
Transport	+55%	+29%	-1%
Fuel Exploitation	+25%	+23%	-6%
Agriculture	-52%	+25%	0%
Waste	-28%	-16%	-3%
All sectors	-47%	-16%	-12%

Burkina Faso



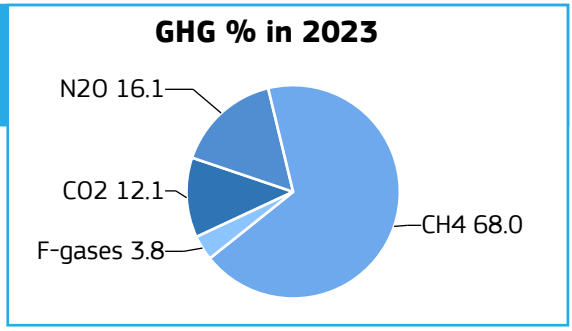
GHG emissions by sector



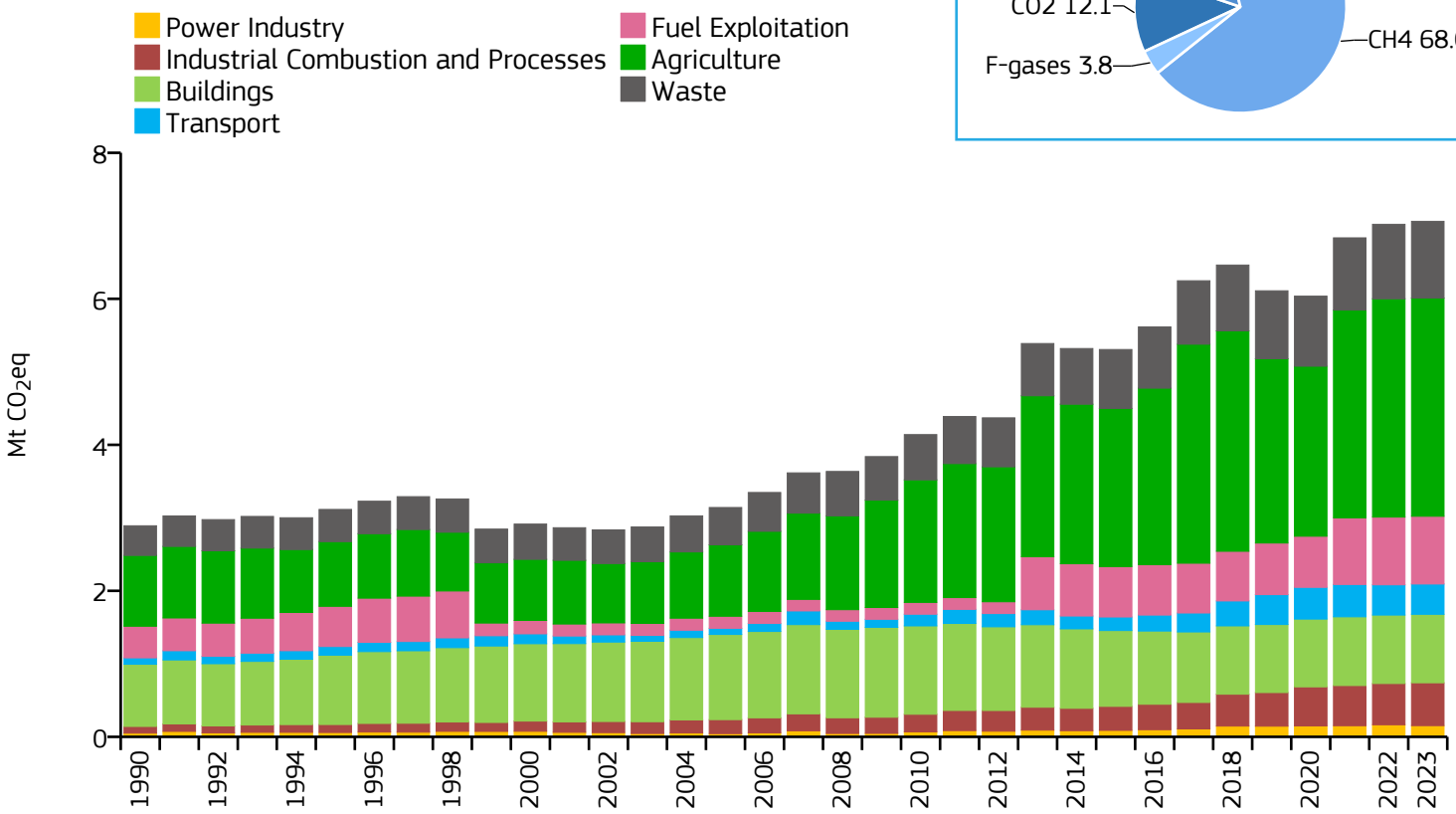
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	34.437	1.516	0.603	22.719M
2015	28.178	1.556	0.716	18.111M
2005	20.270	1.510	0.876	13.422M
1990	11.207	1.272	1.107	8.811M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ > +300%	↗ +235%	↘ -7%
Industrial Combustion and Processes	↗ > +300%	↗ > +300%	→ +2%
Buildings	↗ +35%	↗ +12%	→ -1%
Transport	↗ > +300%	↗ > +300%	→ -3%
Fuel Exploitation	↗ +138%	↗ +40%	→ 0%
Agriculture	↗ +173%	↗ +46%	→ +2%
Waste	↗ +187%	↗ +101%	→ +3%
All sectors	↗ +207%	↗ +70%	→ +1%

Burundi



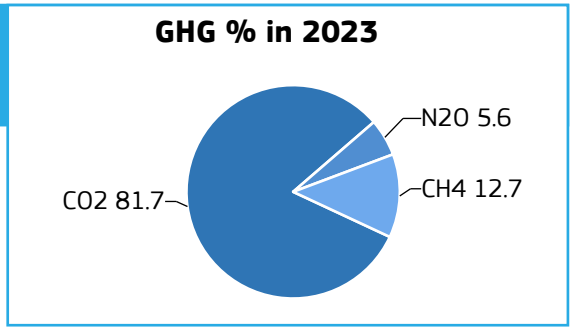
GHG emissions by sector



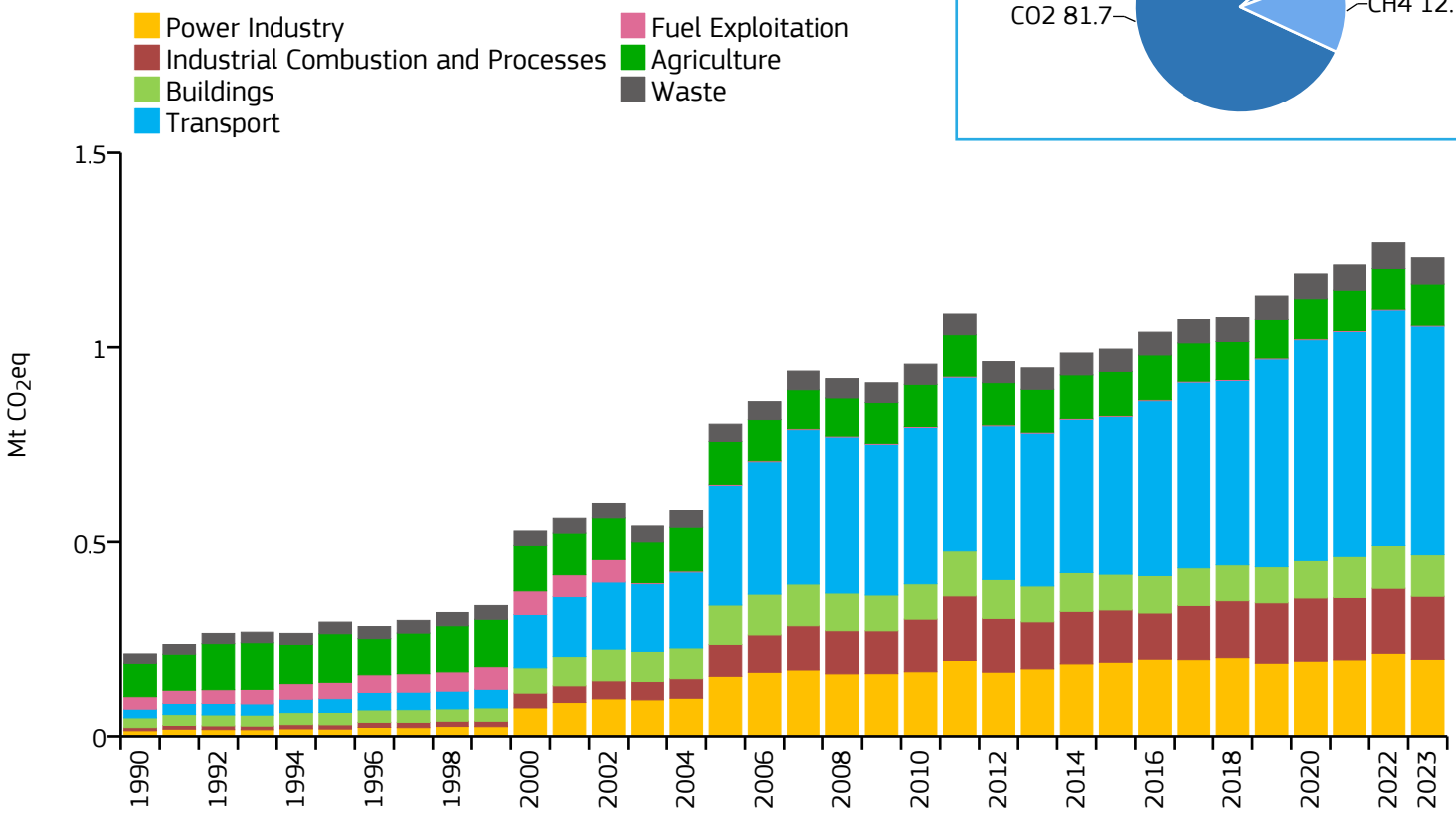
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	7.061	0.541	0.622	13.049M
2015	5.306	0.520	0.523	10.199M
2005	3.142	0.423	0.441	7.423M
1990	2.891	0.534	0.371	5.415M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +202%	↗ +248%	↘ -7%
Industrial Combustion and Processes	↗ > +300%	↗ +206%	→ +4%
Buildings	↗ +10%	↘ -20%	→ 0%
Transport	↗ > +300%	↗ > +300%	→ 0%
Fuel Exploitation	↗ +114%	↗ > +300%	→ 0%
Agriculture	↗ +208%	↗ +205%	→ 0%
Waste	↗ +159%	↗ +106%	→ +3%
All sectors	↗ +144%	↗ +125%	→ +1%

Cabo Verde



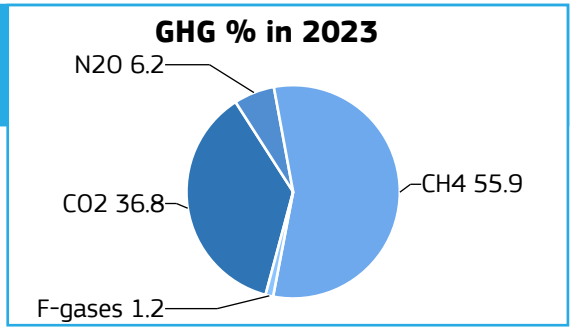
GHG emissions by sector



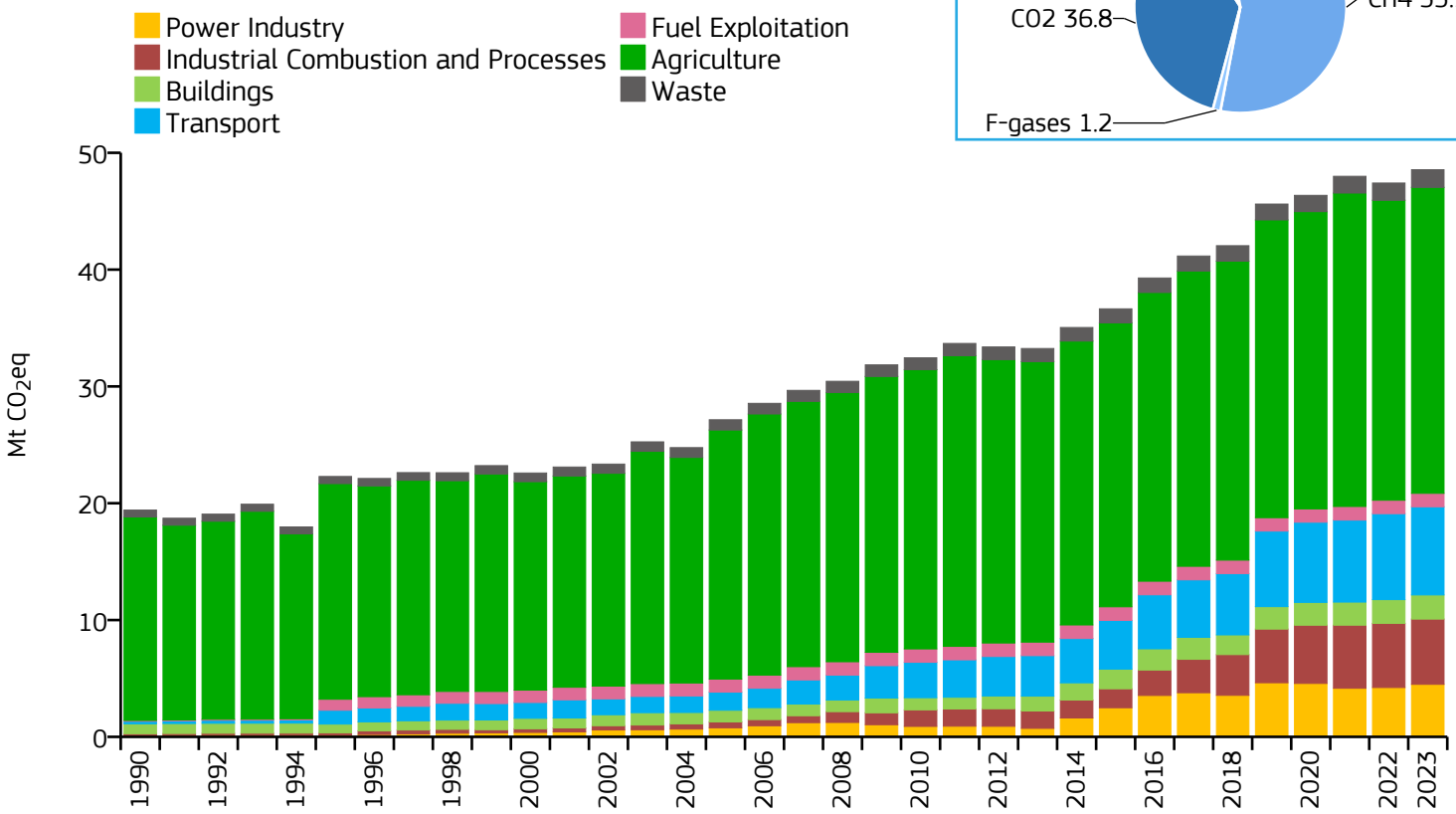
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	1.231	2.094	0.251	588.000k
2015	0.995	1.868	0.257	532.913k
2005	0.803	1.693	0.298	474.567k
1990	0.213	0.624	0.308	341.883k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+28%	-7%
Industrial Combustion and Processes	> +300%	+98%	-3%
Buildings	> +300%	+5%	-3%
Transport	> +300%	+90%	-3%
Fuel Exploitation	-93%	-11%	0%
Agriculture	+26%	-2%	+1%
Waste	+179%	+52%	+2%
All sectors	> +300%	+53%	-3%

Cambodia



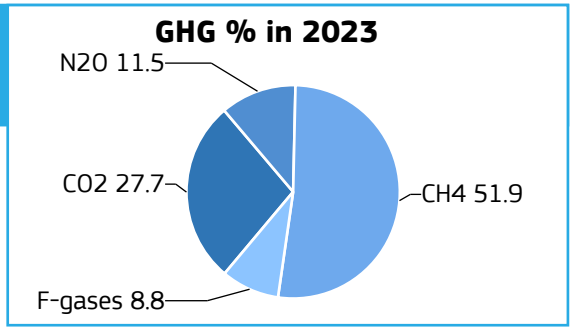
GHG emissions by sector



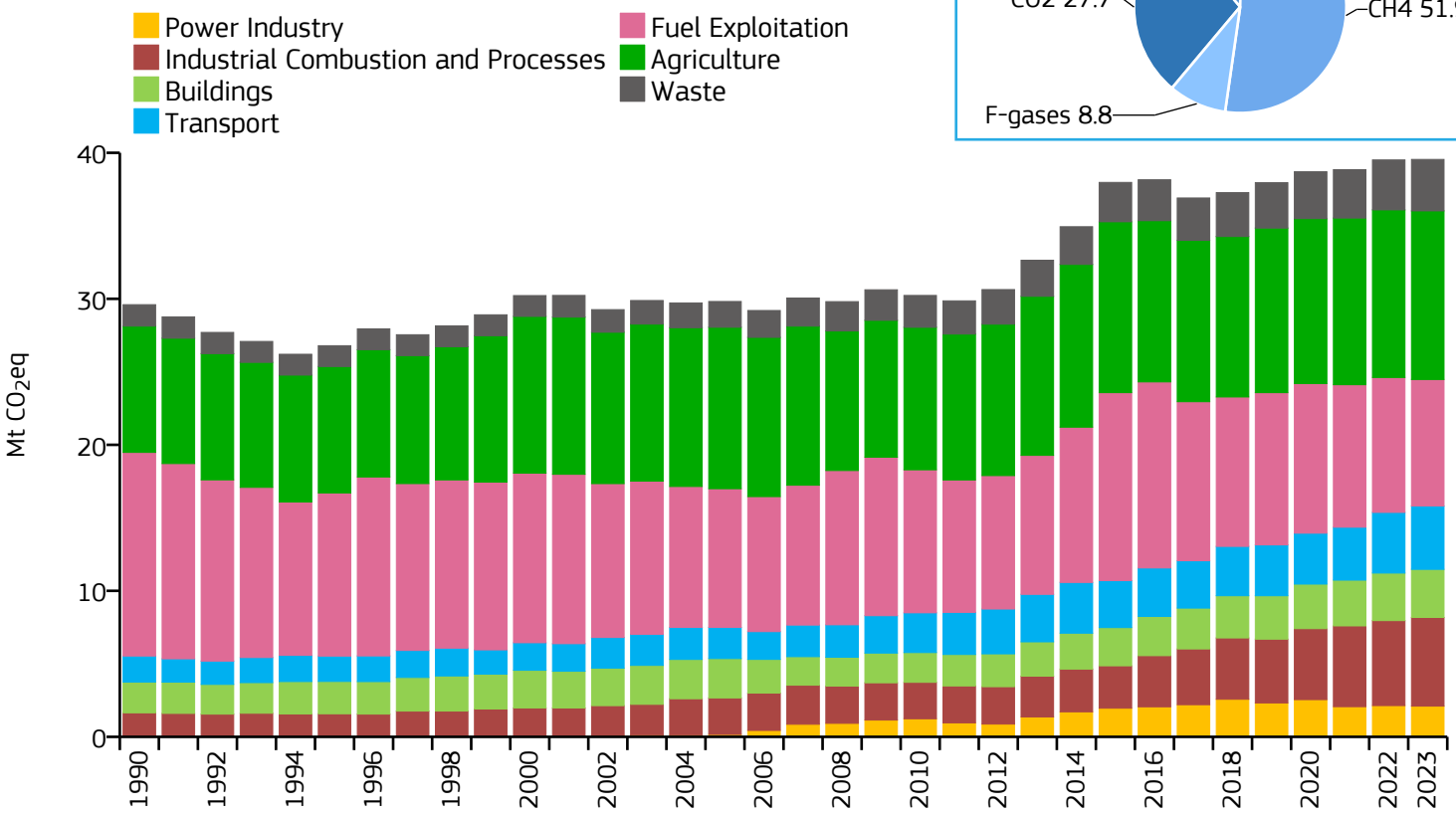
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	48.553	2.793	0.565	17.385M
2015	36.643	2.361	0.622	15.518M
2005	27.147	2.046	0.900	13.270M
1990	19.414	2.164	1.234	8.973M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	> +300%	+6%
Industrial Combustion and Processes	> +300%	> +300%	+2%
Buildings	+142%	+106%	+2%
Transport	> +300%	> +300%	+3%
Fuel Exploitation	> +300%	+3%	0%
Agriculture	+50%	+23%	+2%
Waste	+157%	+73%	+3%
All sectors	+150%	+79%	+2%

Cameroon



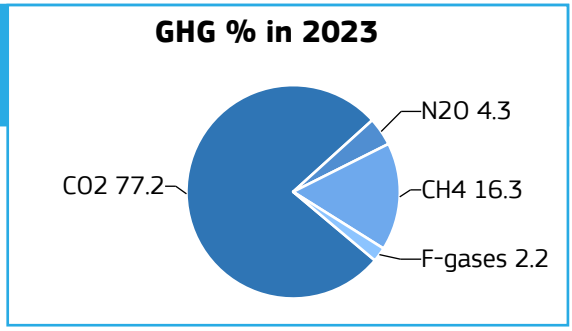
GHG emissions by sector



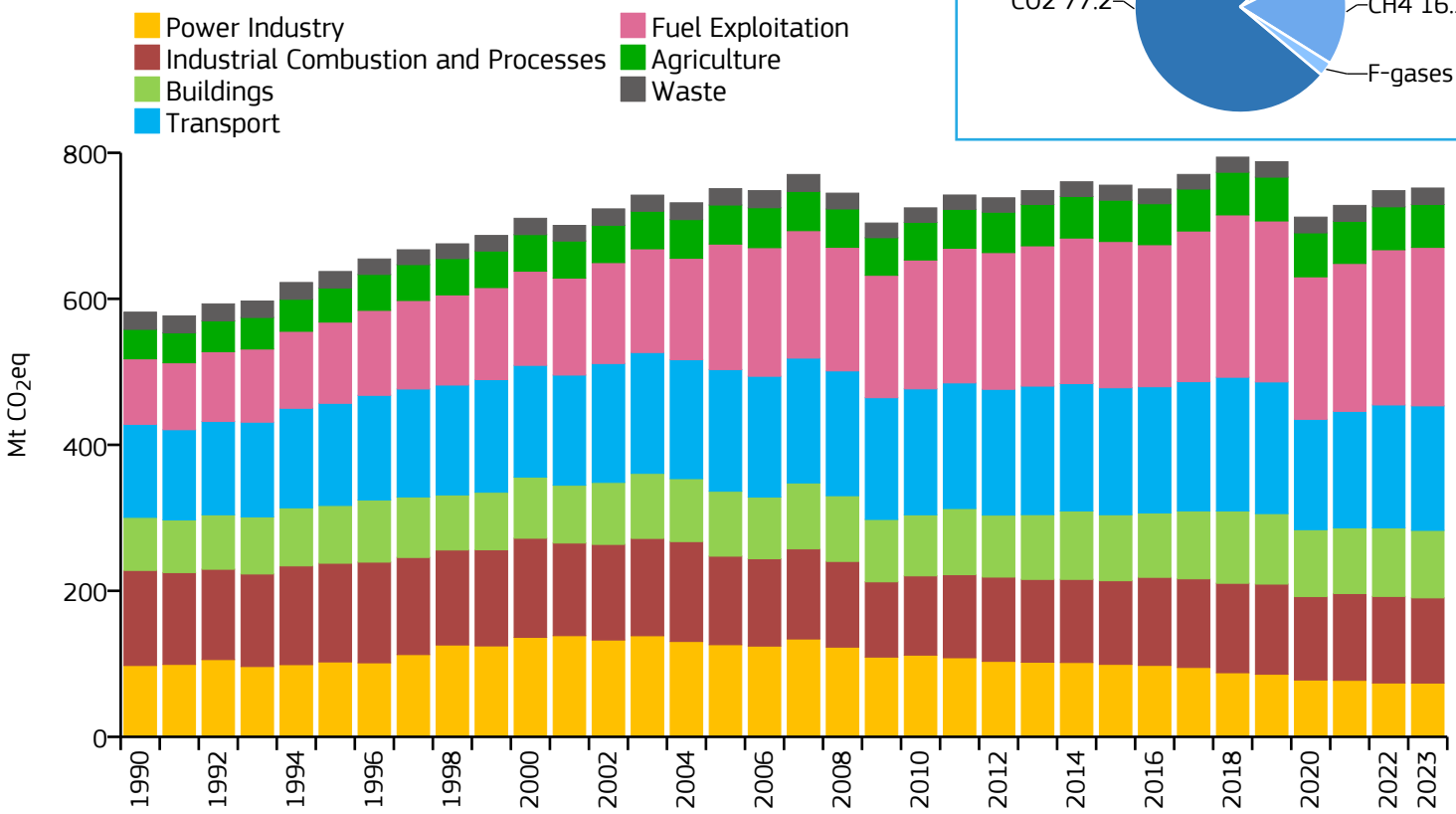
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	39.547	1.415	0.285	27.956M
2015	37.973	1.663	0.355	22.834M
2005	29.817	1.712	0.416	17.421M
1990	29.599	2.527	0.578	11.715M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	> +300%	-2%
Industrial Combustion and Processes	+277%	+143%	+4%
Buildings	+56%	+22%	+1%
Transport	+143%	+103%	+5%
Fuel Exploitation	-38%	-9%	-6%
Agriculture	+34%	+4%	+1%
Waste	+140%	+100%	+3%
All sectors	+34%	+33%	0%

Canada



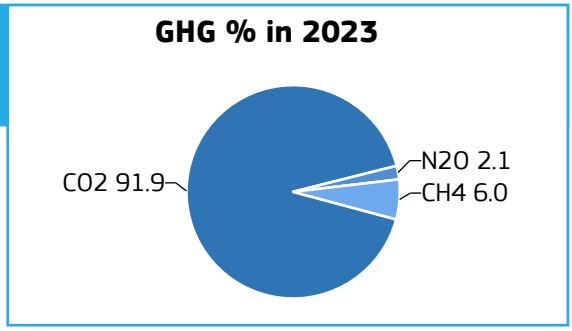
GHG emissions by sector



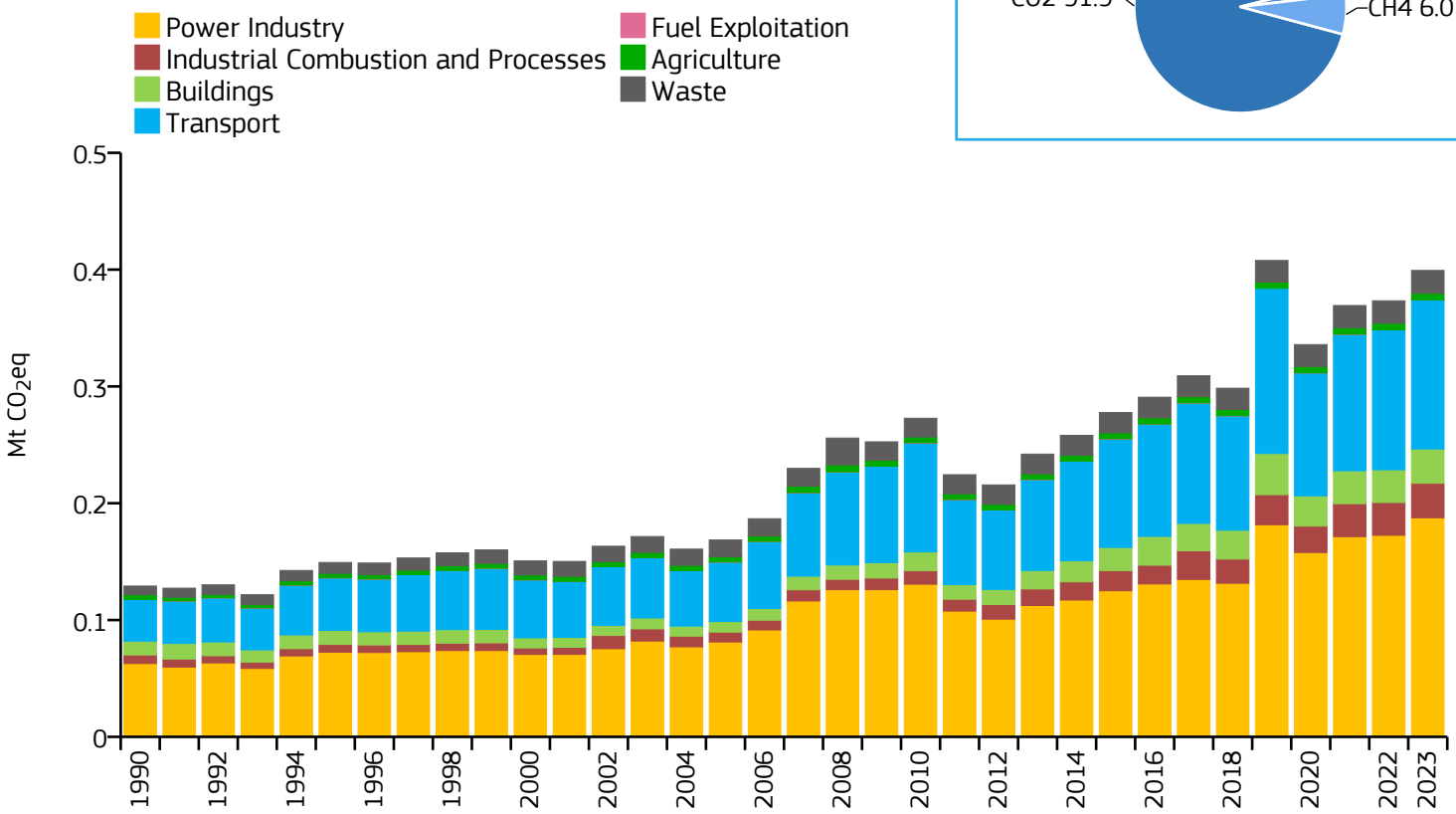
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	751.726	19.496	0.336	38.557M
2015	755.679	21.020	0.386	35.950M
2005	750.843	23.255	0.452	32.288M
1990	581.743	21.007	0.527	27.693M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-25%	-42%	0%
Industrial Combustion and Processes	-10%	-4%	-2%
Buildings	+27%	+4%	-2%
Transport	+34%	+2%	+1%
Fuel Exploitation	+142%	+26%	+2%
Agriculture	+46%	+10%	0%
Waste	-5%	+1%	+2%
All sectors	+29%	0%	0%

Cayman Islands



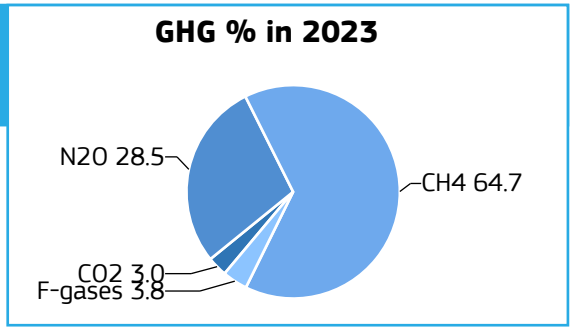
GHG emissions by sector



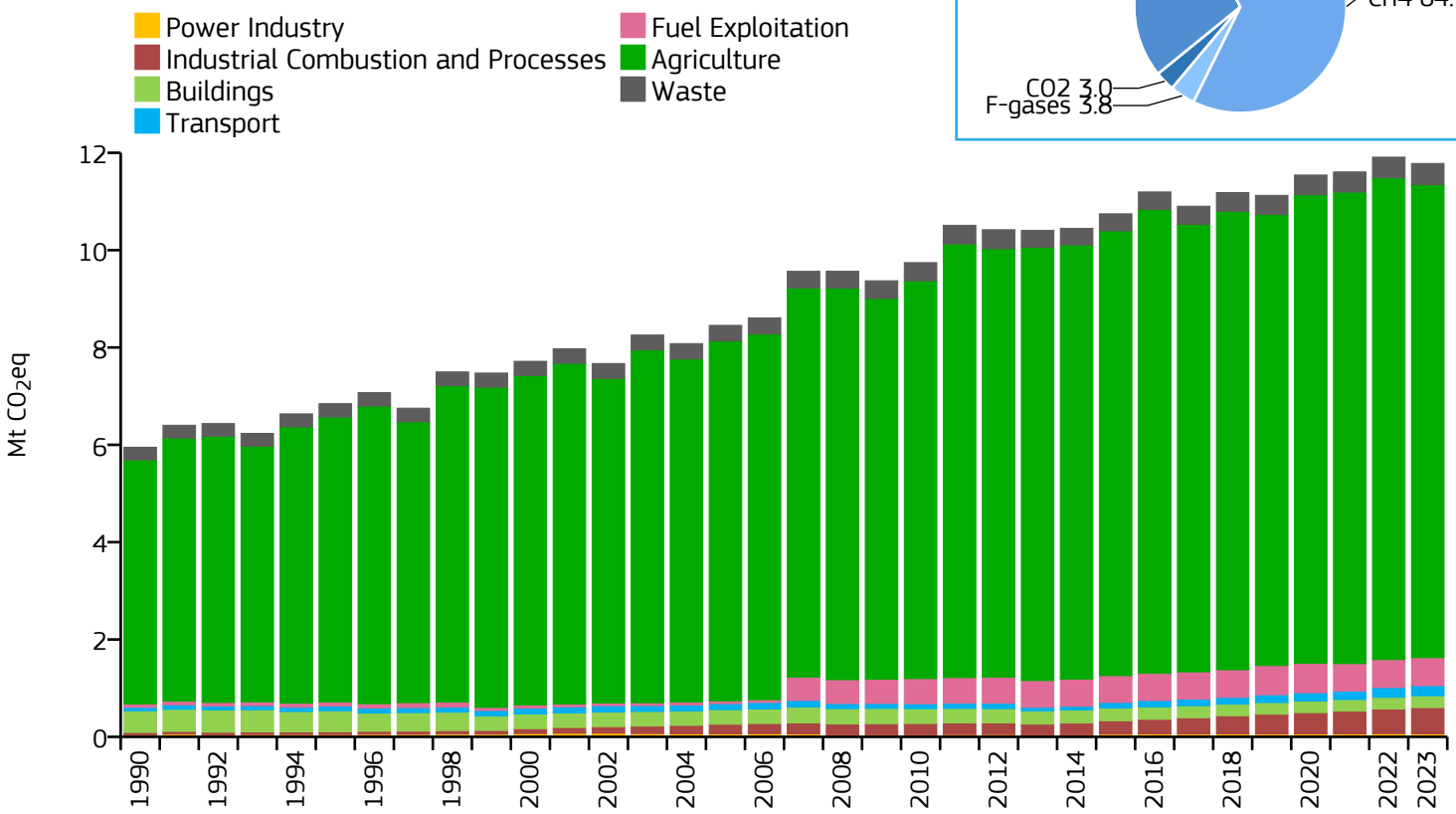
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.399	6.050	0.065	66.000k
2015	0.278	4.630	0.061	59.963k
2005	0.169	3.466	0.042	48.622k
1990	0.129	5.162	0.052	25.010k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +199%	↗ +131%	↗ +9%
Industrial Combustion and Processes	↗ > +300%	↗ +251%	→ +5%
Buildings	↗ +149%	↗ +222%	→ +5%
Transport	↗ +258%	↗ +151%	↗ +7%
Fuel Exploitation	↗ > +300%	↘ -48%	↘ -27%
Agriculture	↗ +39%	↗ +24%	→ +1%
Waste	↗ +164%	↗ +36%	→ +1%
All sectors	↗ +209%	↗ +137%	↗ +7%

Central African Republic



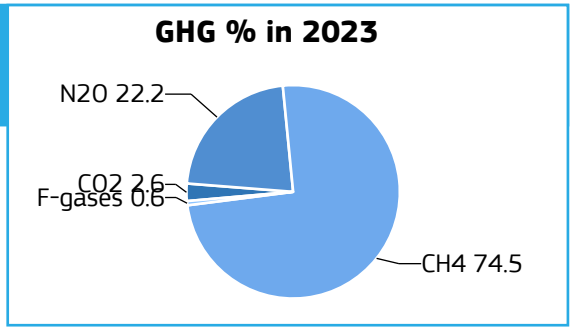
GHG emissions by sector



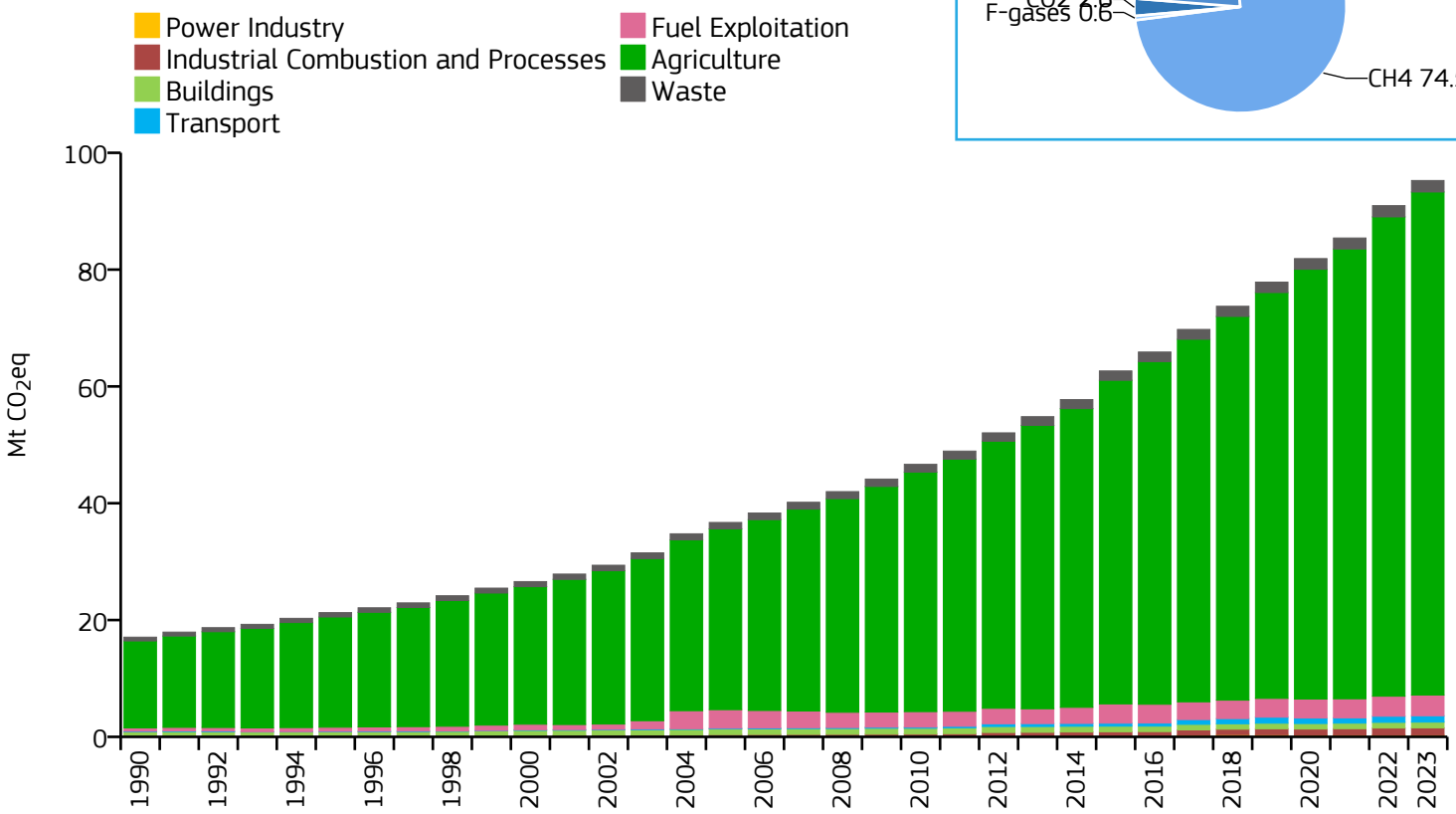
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	11.781	2.245	2.014	5.248M
2015	10.746	2.364	2.224	4.546M
2005	8.454	2.048	1.616	4.128M
1990	5.950	2.024	1.399	2.940M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+46%	-4%	-7%
Industrial Combustion and Processes	> +300%	+176%	+7%
Buildings	-45%	-19%	+1%
Transport	+192%	+69%	+4%
Fuel Exploitation	> +300%	> +300%	0%
Agriculture	+94%	+31%	-2%
Waste	+68%	+36%	+3%
All sectors	+98%	+39%	-1%

Chad



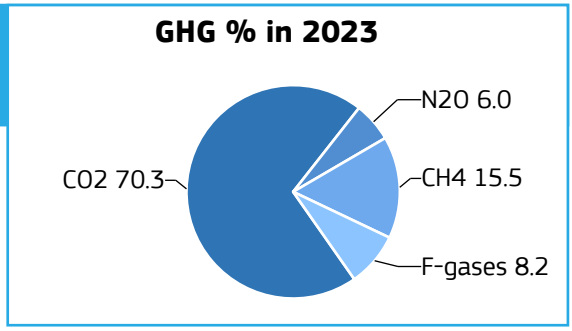
GHG emissions by sector



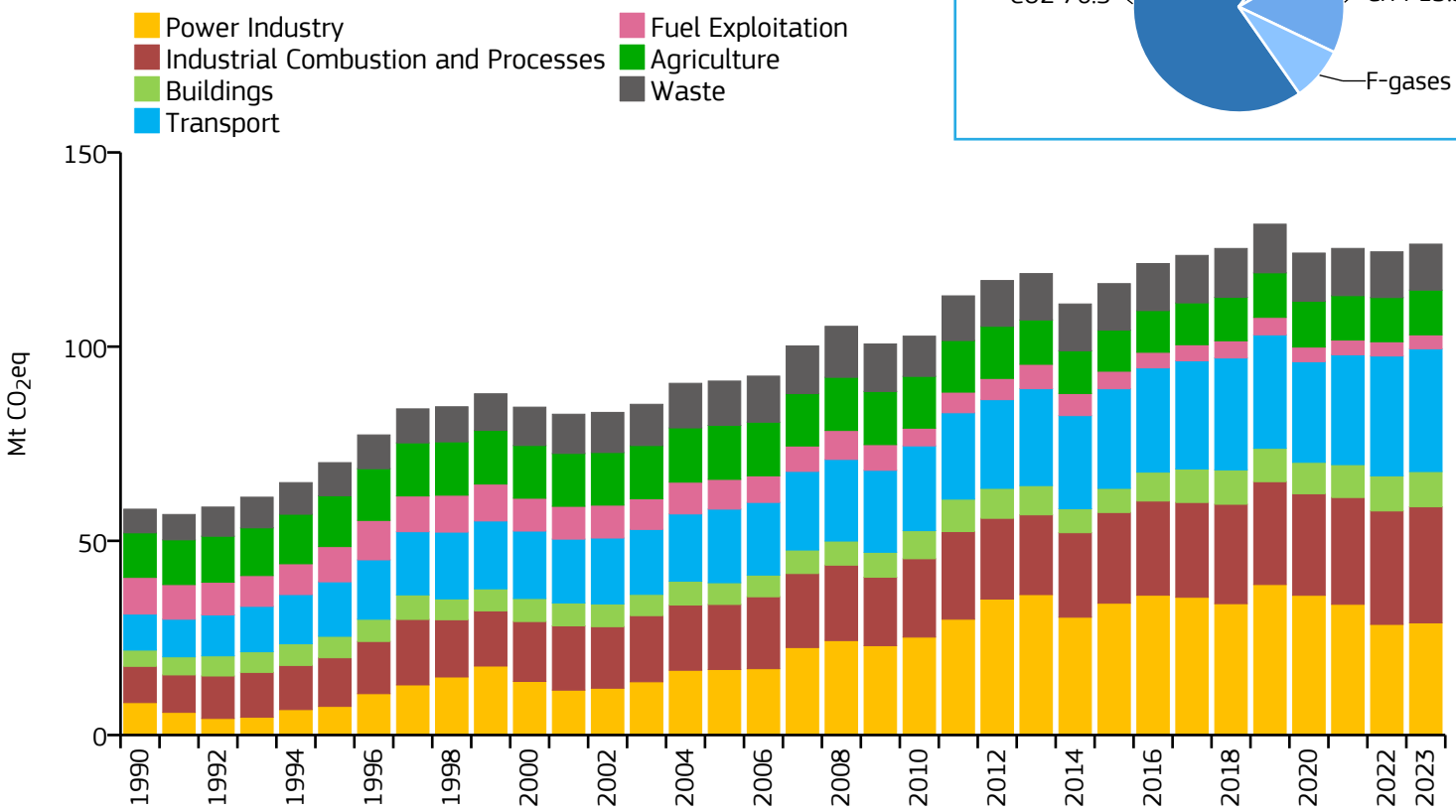
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	95.262	5.366	2.936	17.754M
2015	62.650	4.472	1.932	14.009M
2005	36.710	3.647	1.816	10.067M
1990	17.070	2.866	2.305	5.957M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	> +300%	-7%
Industrial Combustion and Processes	> +300%	+274%	+5%
Buildings	+40%	+3%	+1%
Transport	> +300%	> +300%	+4%
Fuel Exploitation	> +300%	+11%	+3%
Agriculture	> +300%	+178%	+5%
Waste	+205%	+80%	+3%
All sectors	> +300%	+160%	+5%

Chile



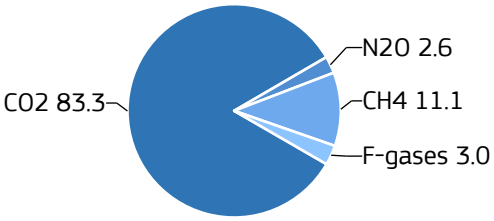
GHG emissions by sector



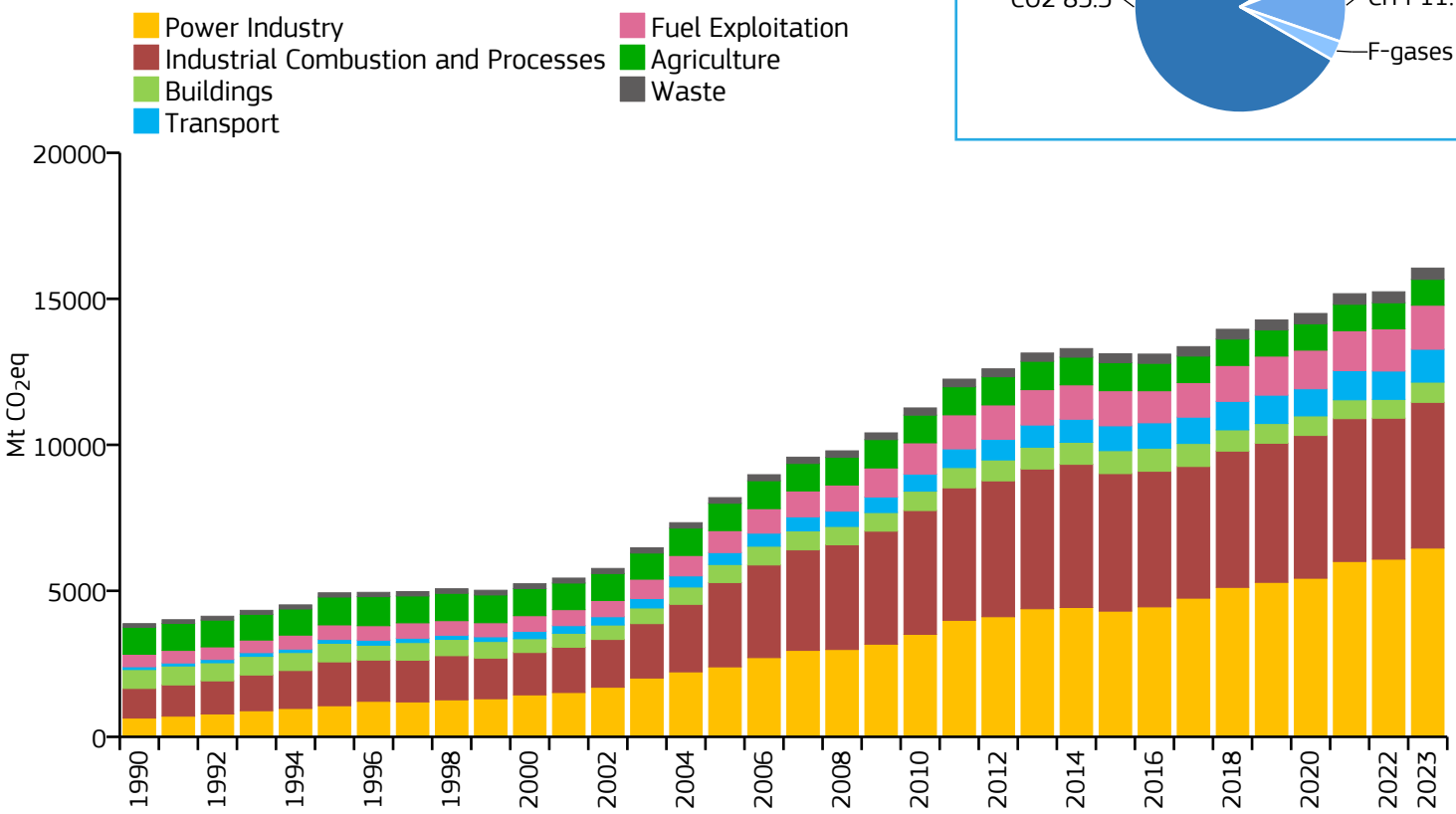
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	126.386	6.702	0.218	18.859M
2015	116.215	6.543	0.231	17.763M
2005	91.132	5.644	0.266	16.147M
1990	58.152	4.391	0.391	13.242M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +246%	↗ +71%	→ +1%
Industrial Combustion and Processes	↗ +220%	↗ +78%	→ +2%
Buildings	↗ +117%	↗ +62%	→ 0%
Transport	↗ +241%	↗ +67%	→ +2%
Fuel Exploitation	↘ -62%	↘ -53%	→ -2%
Agriculture	→ 0%	↘ -17%	→ +1%
Waste	↗ +94%	→ +4%	→ 0%
All sectors	↗ +117%	↗ +39%	→ +2%

China



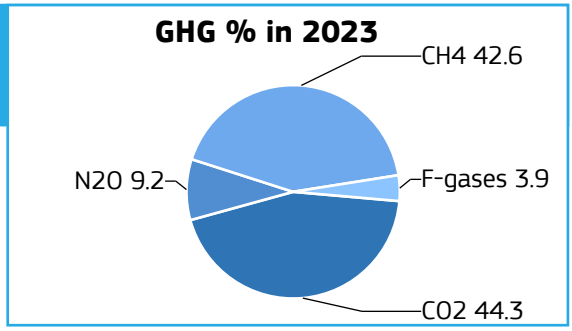
GHG emissions by sector



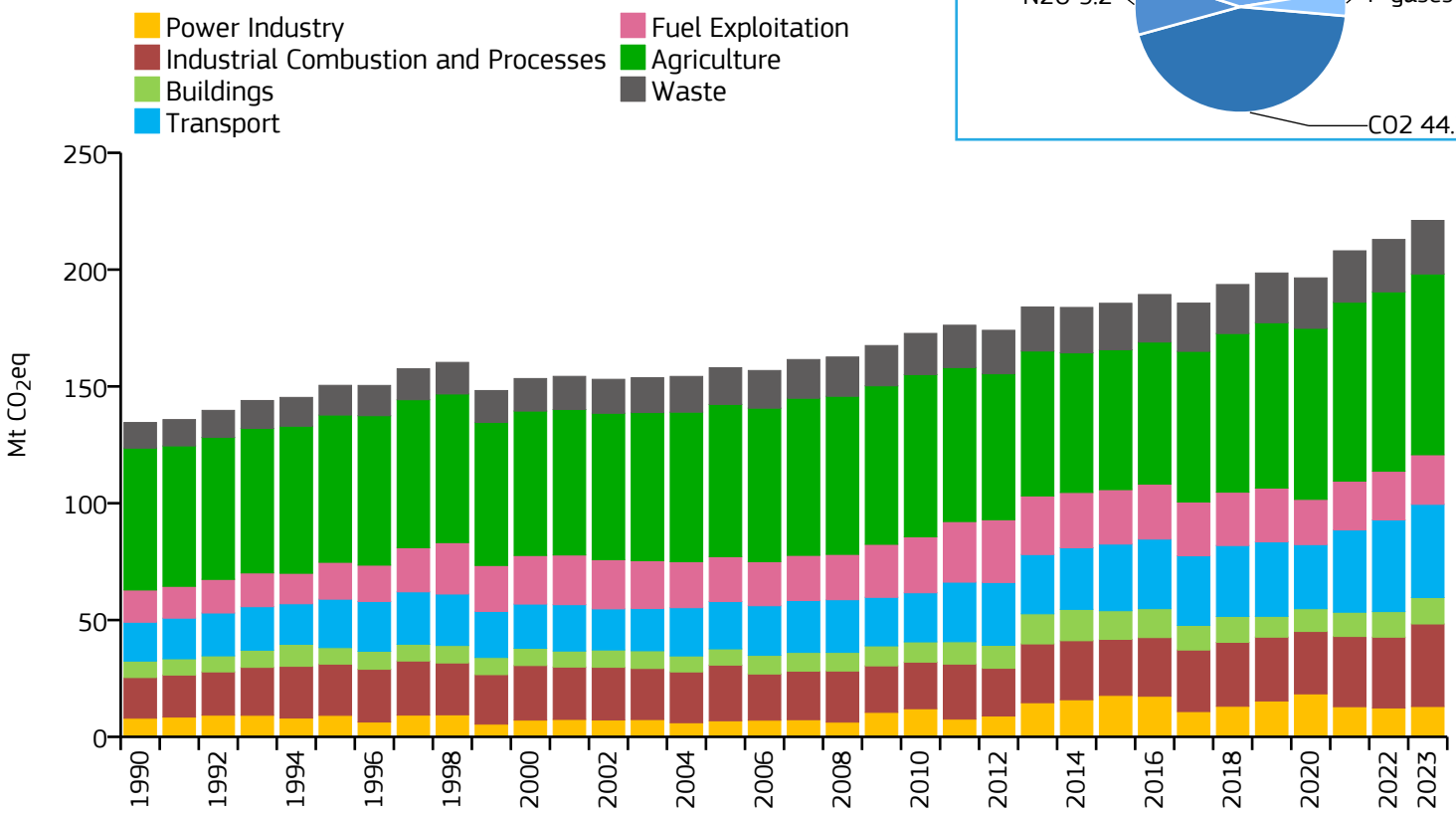
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	16052.817	11.189	0.514	1.435G
2015	13118.940	9.391	0.652	1.397G
2005	8191.110	6.198	1.019	1.322G
1990	3876.183	3.306	2.075	1.172G

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ > +300%	↗ +170%	↗ +6%
Industrial Combustion and Processes	↗ > +300%	↗ +73%	→ +3%
Buildings	↗ +7%	↗ +12%	↗ +7%
Transport	↗ > +300%	↗ +176%	↗ +16%
Fuel Exploitation	↗ +251%	↗ +100%	→ +4%
Agriculture	→ -4%	→ -5%	→ -1%
Waste	↗ +212%	↗ +100%	→ +3%
All sectors	↗ > +300%	↗ +96%	→ +5%

Colombia



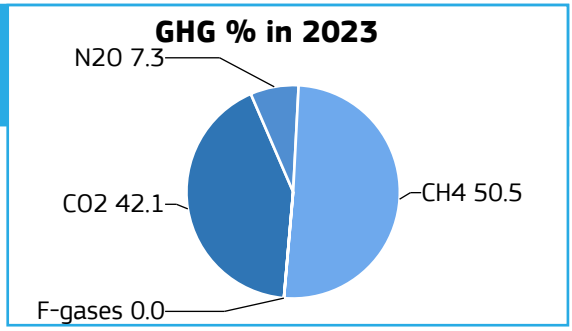
GHG emissions by sector



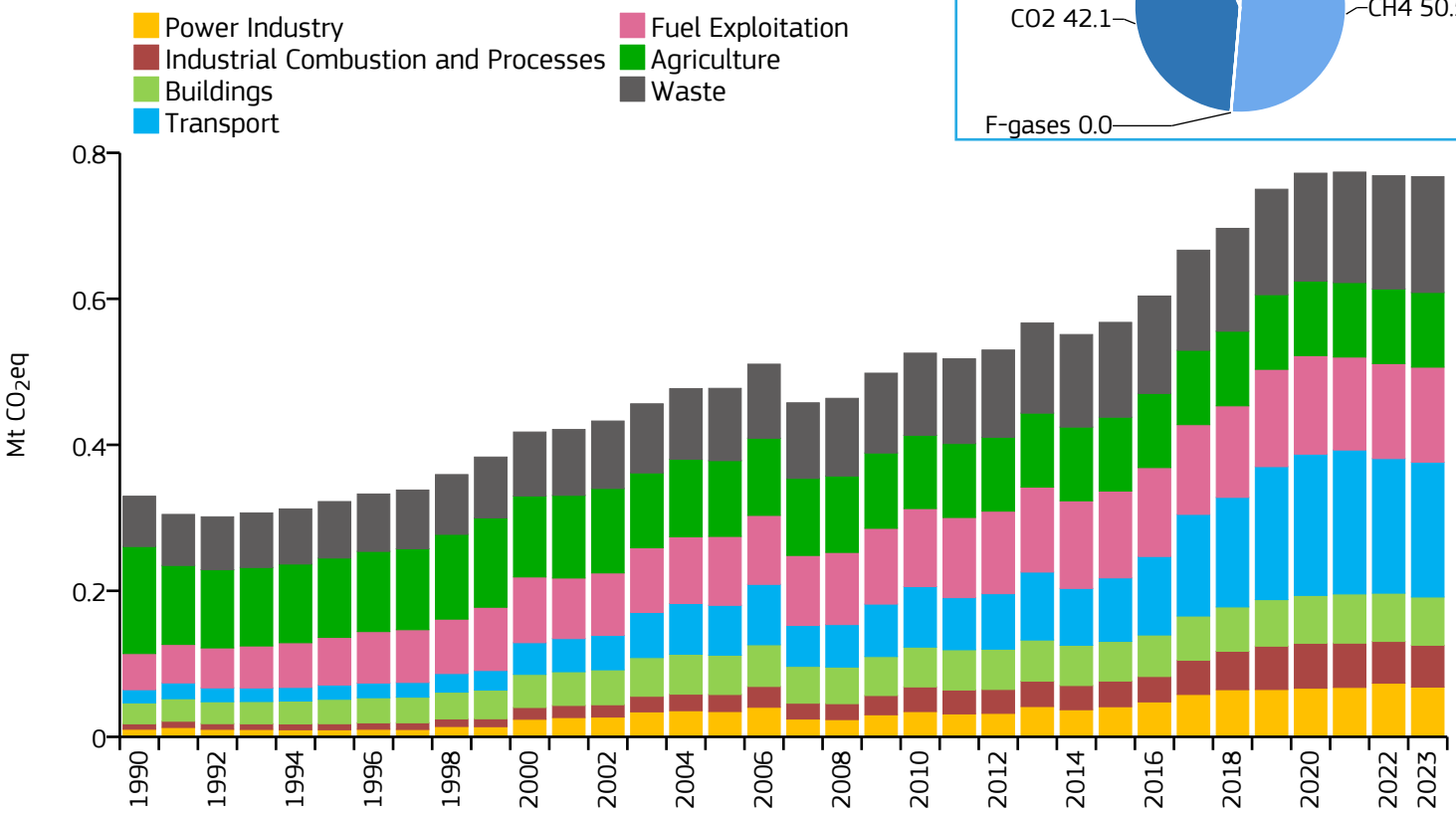
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	221.056	4.314	0.226	51.243M
2015	185.583	3.848	0.231	48.229M
2005	157.989	3.650	0.307	43.286M
1990	134.560	3.926	0.407	34.272M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+63%	+88%	+5%
Industrial Combustion and Processes	+103%	+48%	+17%
Buildings	+60%	+62%	+3%
Transport	+140%	+97%	+2%
Fuel Exploitation	+54%	+10%	+2%
Agriculture	+27%	+19%	+1%
Waste	+109%	+46%	+2%
All sectors	+64%	+40%	+4%

Comoros



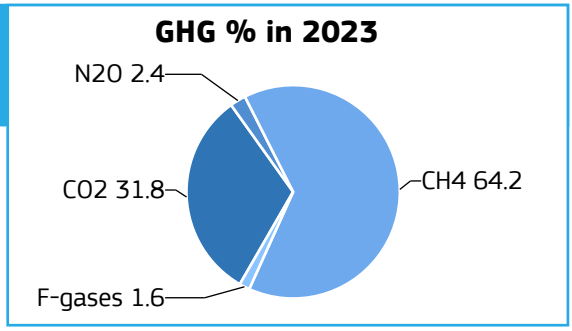
GHG emissions by sector



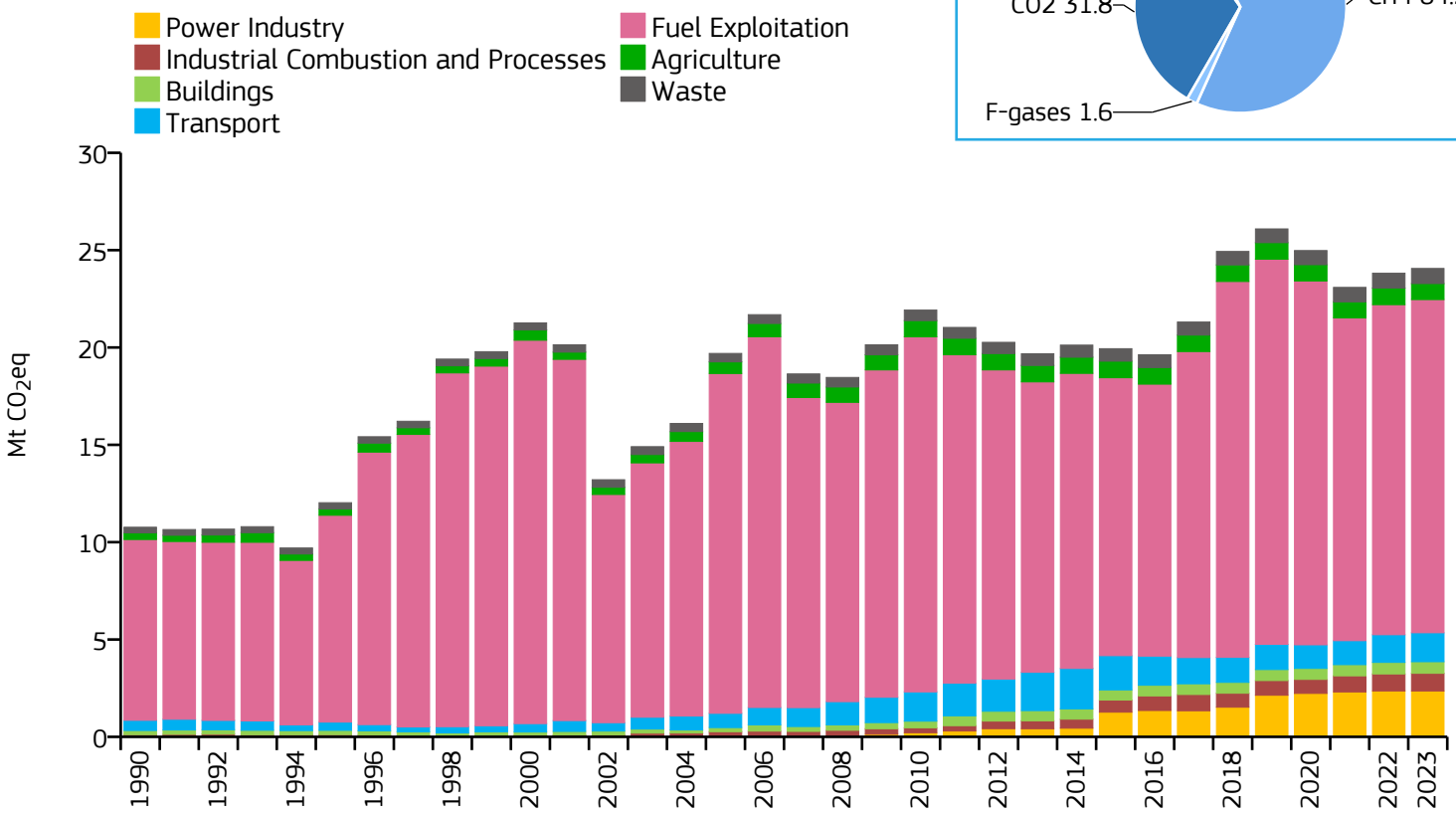
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.767	0.829	0.259	926.000k
2015	0.568	0.730	0.232	777.424k
2005	0.477	0.780	0.261	611.627k
1990	0.330	0.801	0.246	411.594k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ > +300%	↗ +97%	↘ -7%
Industrial Combustion and Processes	↗ > +300%	↗ +145%	→ 0%
Buildings	↗ +131%	↗ +23%	→ 0%
Transport	↗ > +300%	↗ +170%	→ 0%
Fuel Exploitation	↗ +163%	↗ +38%	→ 0%
Agriculture	↘ -30%	→ -1%	→ 0%
Waste	↗ +130%	↗ +60%	→ +2%
All sectors	↗ +133%	↗ +61%	→ 0%

Congo



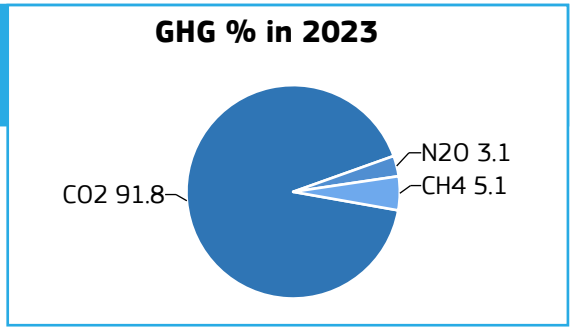
GHG emissions by sector



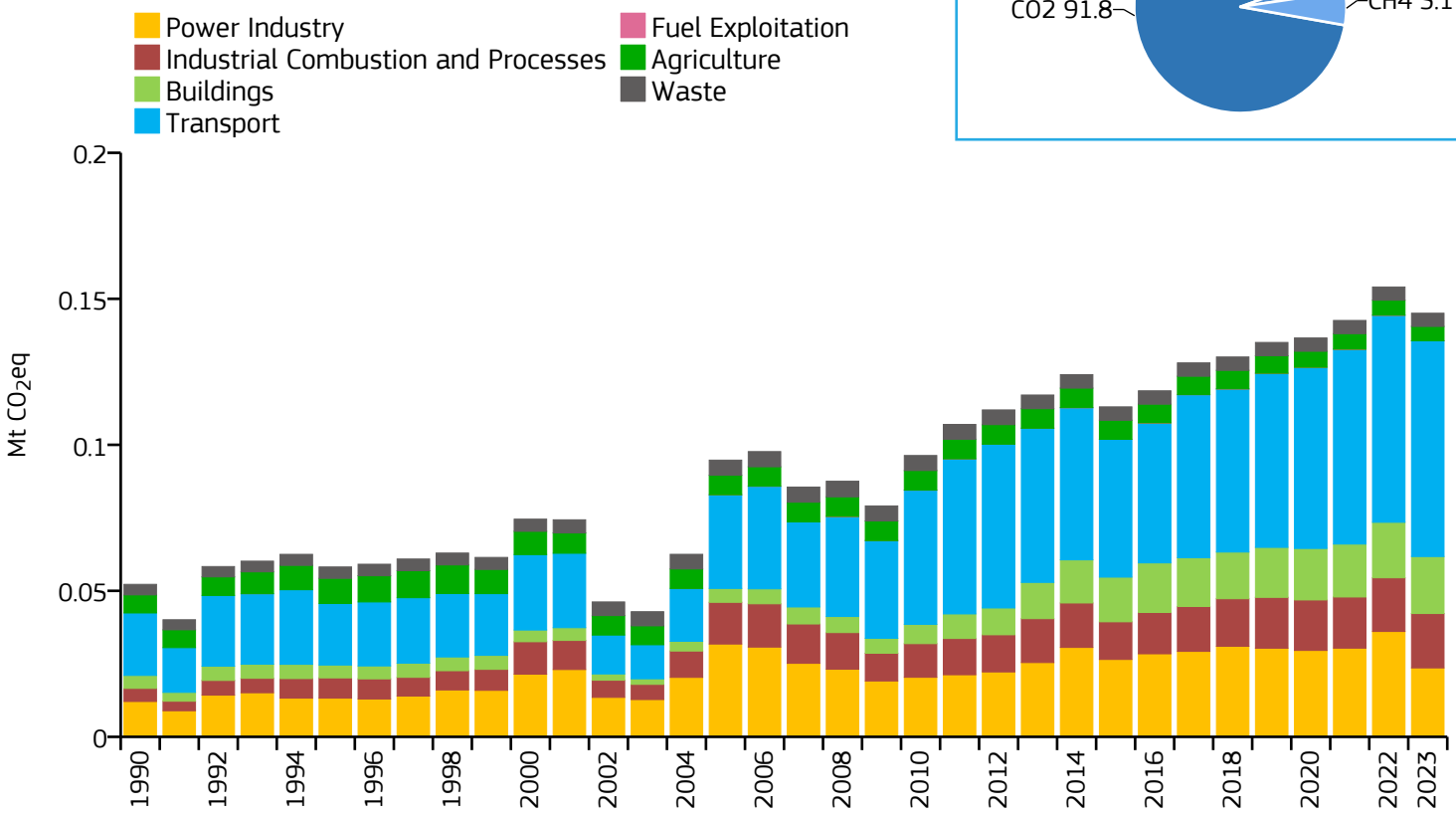
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	24.059	3.920	0.630	6.137M
2015	19.939	3.991	0.436	4.996M
2005	19.695	5.297	0.677	3.718M
1990	10.767	4.412	0.520	2.440M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	> +300%	0%
Industrial Combustion and Processes	> +300%	> +300%	+4%
Buildings	+182%	+183%	+1%
Transport	+185%	+104%	+5%
Fuel Exploitation	+84%	-2%	+1%
Agriculture	+139%	+37%	-4%
Waste	+171%	+79%	+2%
All sectors	+123%	+22%	+1%

Cook Islands



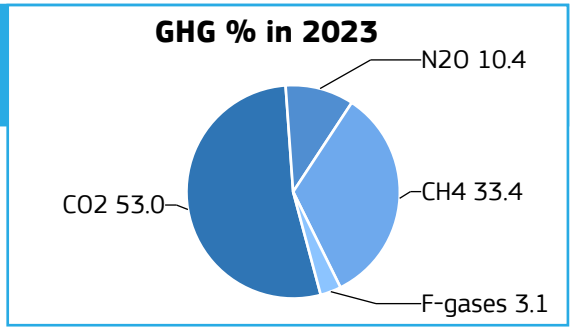
GHG emissions by sector



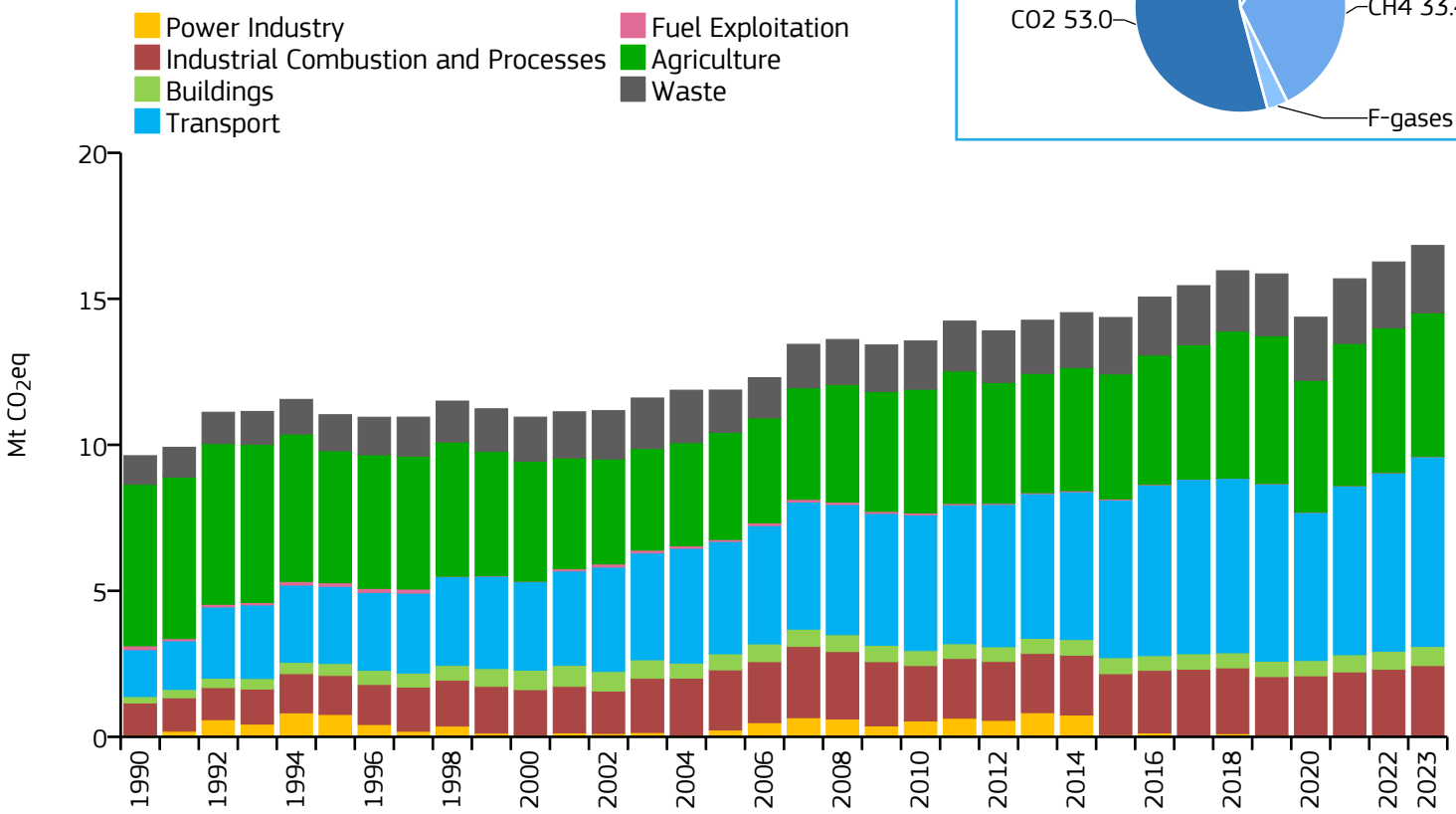
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.145	8.533	n/a	17.000k
2015	0.113	6.476	n/a	17.449k
2005	0.095	4.808	n/a	19.710k
1990	0.052	2.845	n/a	18.356k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+95%	-26%	-35%
Industrial Combustion and Processes	> +300%	+30%	+1%
Buildings	> +300%	> +300%	+3%
Transport	+245%	+130%	+4%
Fuel Exploitation	n/a	+49%	+2%
Agriculture	-20%	-26%	-4%
Waste	+25%	-13%	0%
All sectors	+178%	+53%	-6%

Costa Rica



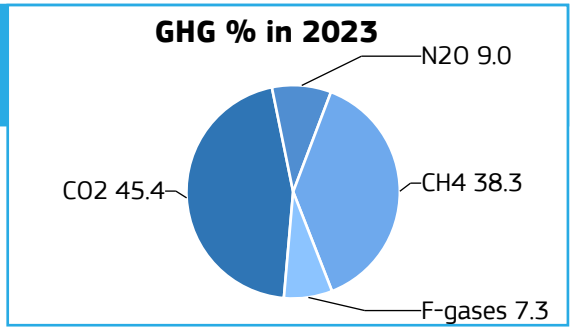
GHG emissions by sector



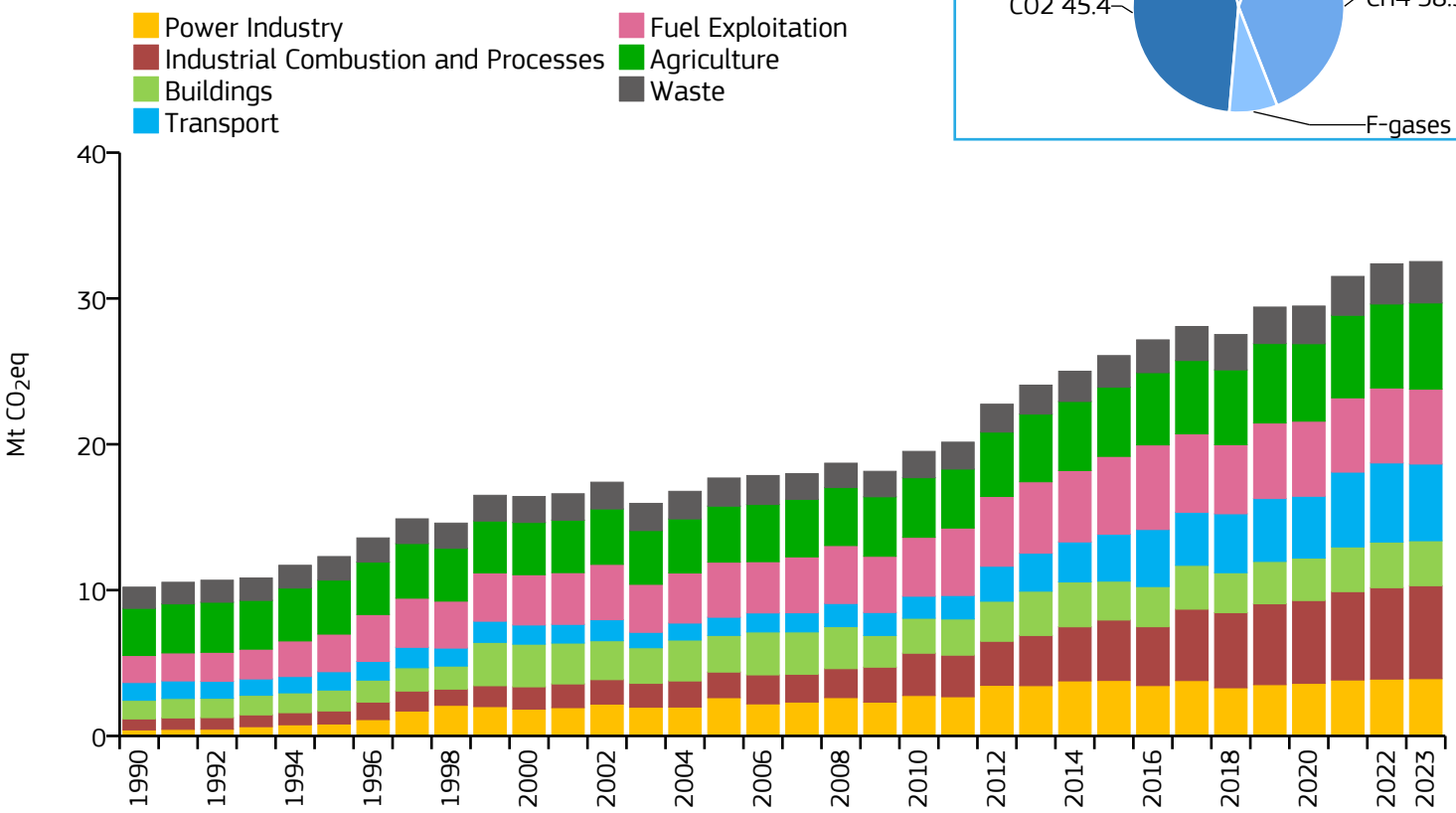
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	16.827	3.255	0.125	5.170M
2015	14.361	2.987	0.139	4.808M
2005	11.875	2.796	0.175	4.248M
1990	9.628	3.110	0.278	3.096M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-86%	-96%	+5%
Industrial Combustion and Processes	+123%	+18%	+5%
Buildings	+199%	+19%	+6%
Transport	> +300%	+69%	+6%
Fuel Exploitation	-97%	-95%	0%
Agriculture	-11%	+34%	-1%
Waste	+136%	+59%	+2%
All sectors	+75%	+42%	+3%

Côte d'Ivoire



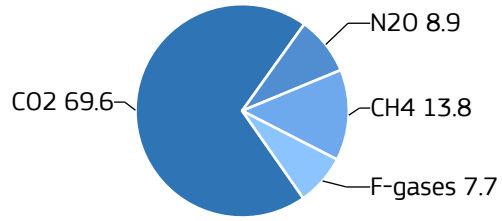
GHG emissions by sector



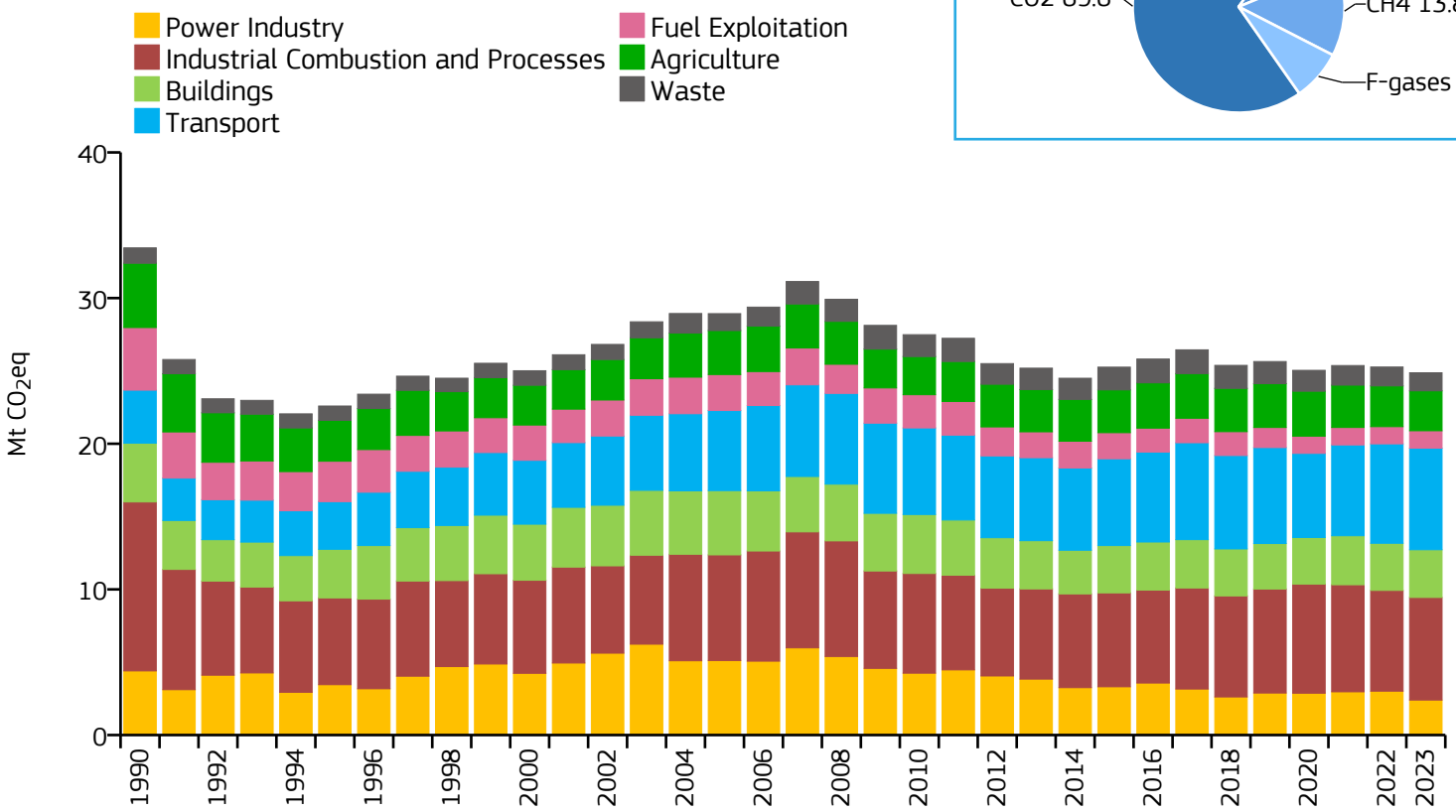
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	32.531	1.154	0.160	28.183M
2015	26.081	1.129	0.202	23.108M
2005	17.687	0.965	0.219	18.336M
1990	10.204	0.832	0.159	12.268M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+50%	+1%
Industrial Combustion and Processes	> +300%	+262%	+2%
Buildings	+142%	+23%	-2%
Transport	> +300%	> +300%	-3%
Fuel Exploitation	+177%	+36%	0%
Agriculture	+83%	+54%	+3%
Waste	+95%	+47%	+3%
All sectors	+219%	+84%	0%

Croatia



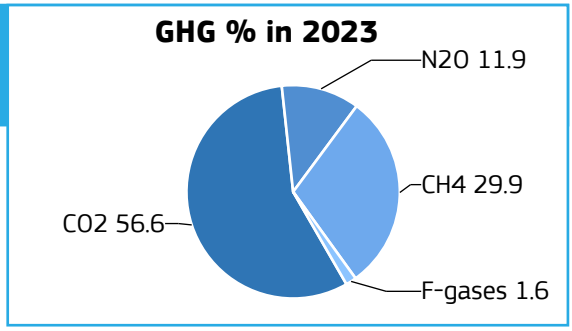
GHG emissions by sector



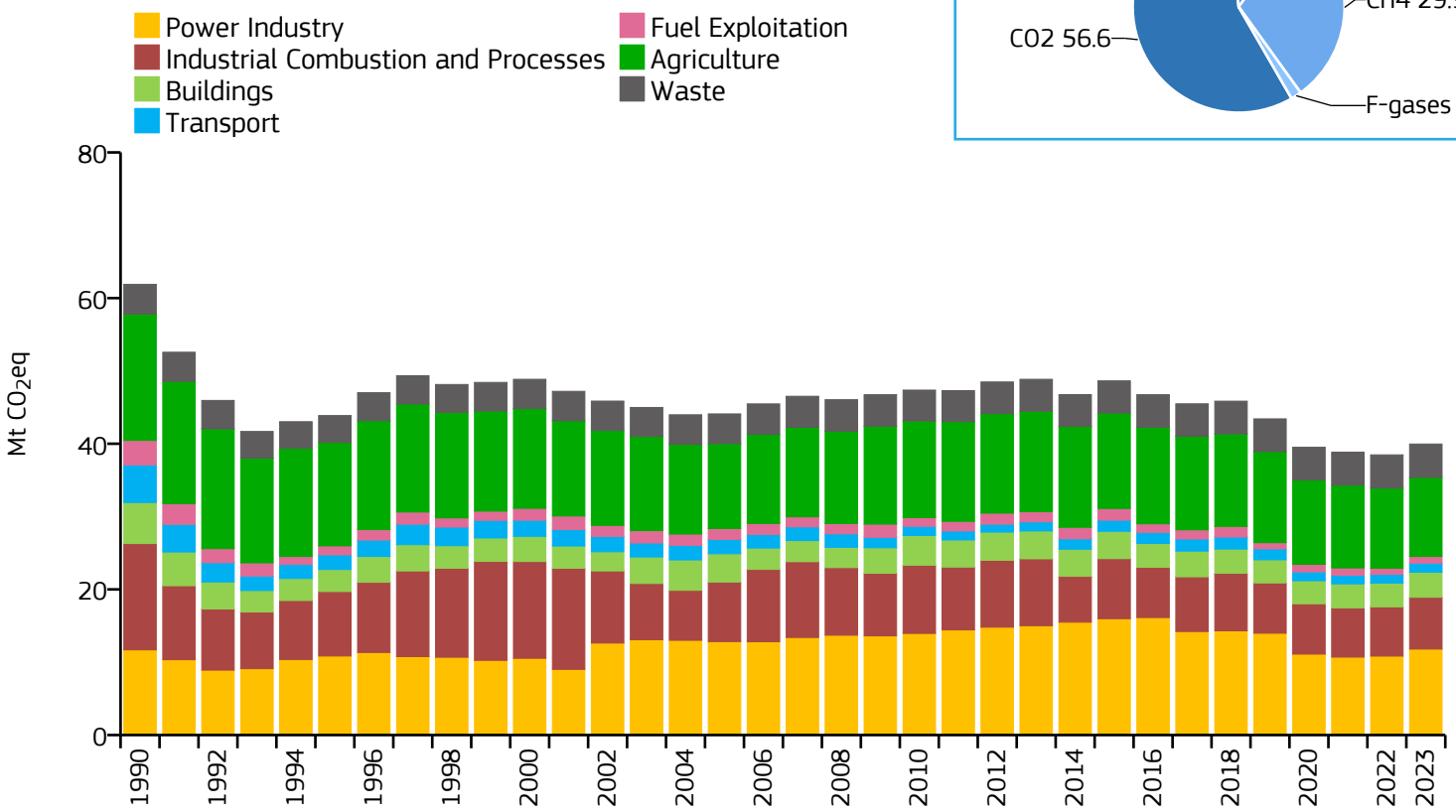
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	24.874	6.146	0.156	4.047M
2015	25.258	5.963	0.206	4.236M
2005	28.931	6.608	0.243	4.378M
1990	33.447	7.003	0.299	4.776M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-45%	-53%	-20%
Industrial Combustion and Processes	-39%	-3%	+2%
Buildings	-19%	-26%	+1%
Transport	+92%	+27%	+2%
Fuel Exploitation	-72%	-52%	+1%
Agriculture	-38%	-9%	-2%
Waste	+18%	+7%	-4%
All sectors	-26%	-14%	-2%

Cuba



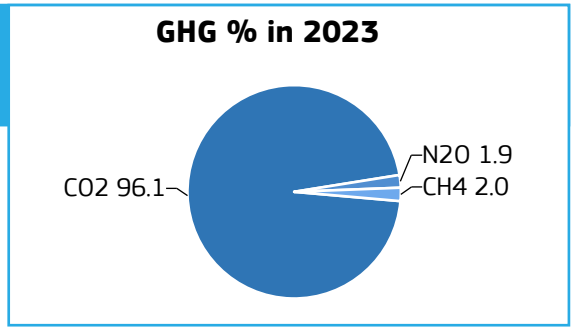
GHG emissions by sector



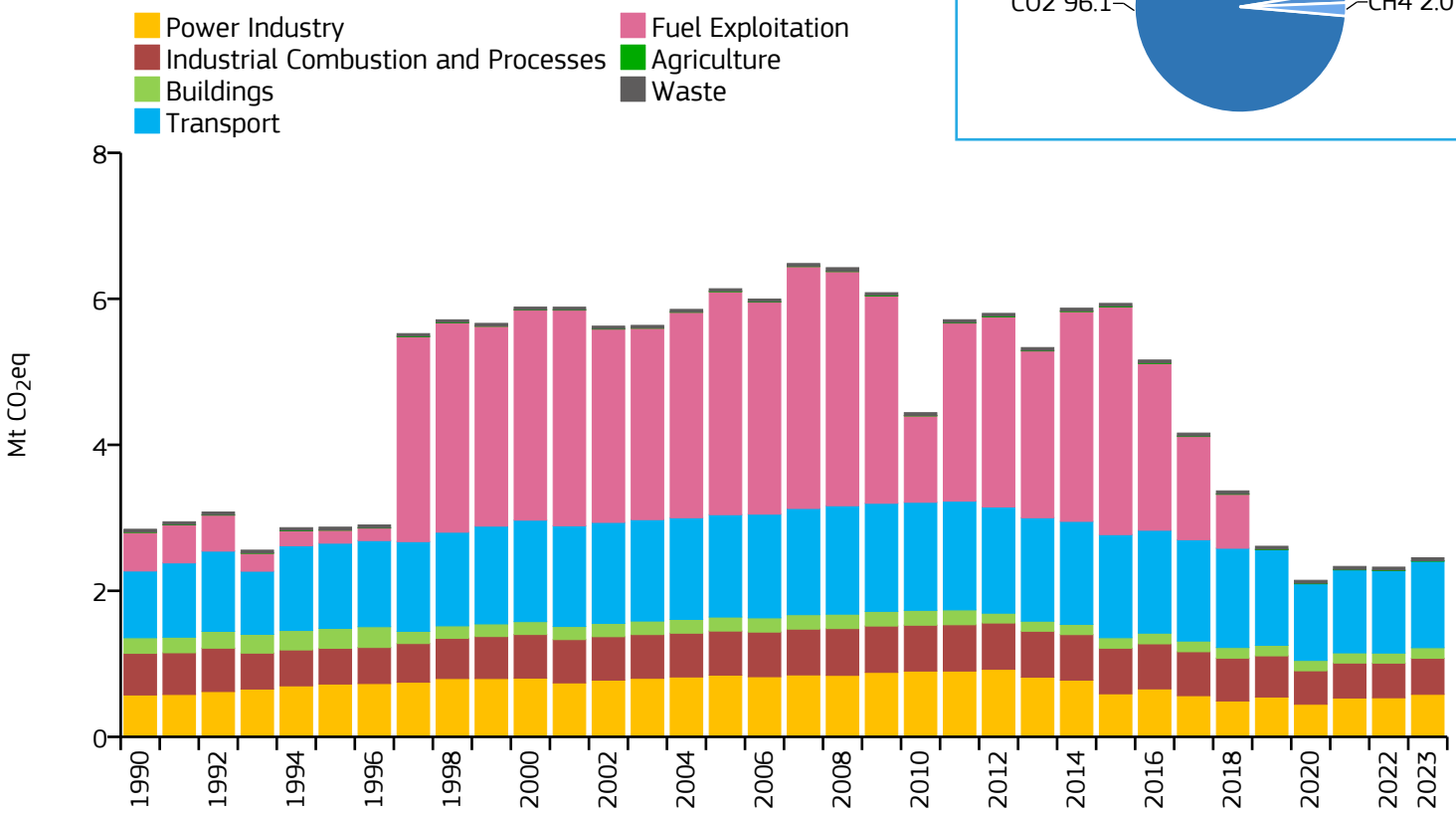
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	39.961	3.472	0.124	11.508M
2015	48.634	4.243	0.159	11.461M
2005	44.096	3.908	0.215	11.284M
1990	61.888	5.848	0.334	10.582M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+1%	-8%	+9%
Industrial Combustion and Processes	-51%	-13%	+5%
Buildings	-39%	-11%	+5%
Transport	-76%	-36%	+5%
Fuel Exploitation	-73%	-39%	+7%
Agriculture	-37%	-7%	-1%
Waste	+13%	+12%	+1%
All sectors	-35%	-9%	+4%

Curaçao



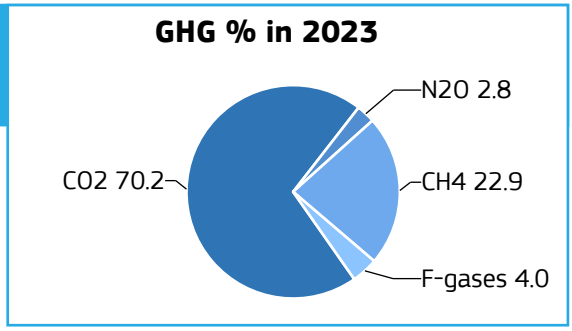
GHG emissions by sector



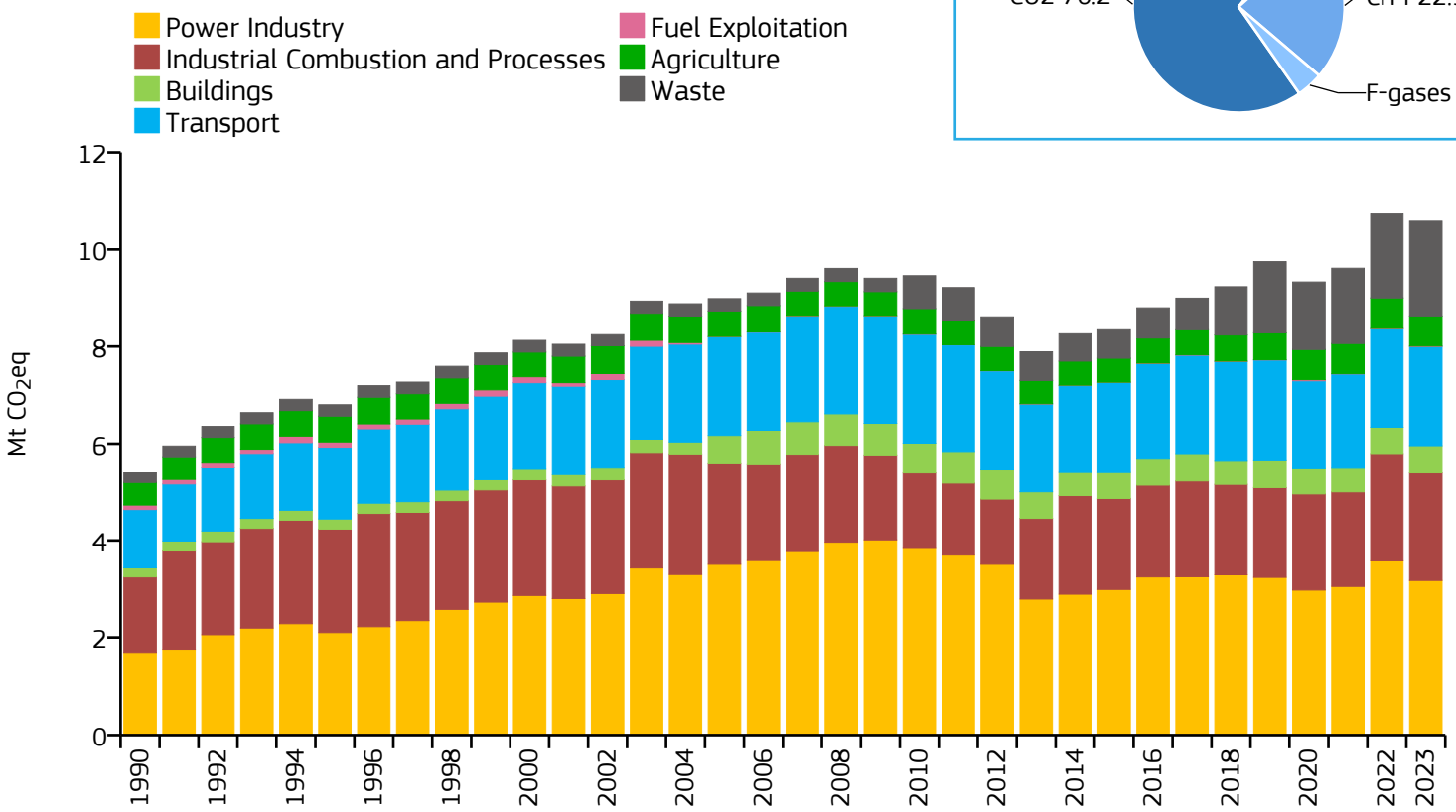
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	2.453	14.777	0.524	166.000k
2015	5.937	37.573	1.224	158.010k
2005	6.138	47.436	1.332	129.394k
1990	2.843	19.386	0.840	146.671k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+1%	-31%	+9%
Industrial Combustion and Processes	-13%	-18%	+4%
Buildings	-32%	-24%	+5%
Transport	+29%	-16%	+5%
Fuel Exploitation	n/a	n/a	n/a
Agriculture	+11%	+7%	0%
Waste	+11%	+24%	+1%
All sectors	-14%	-60%	+6%

Cyprus



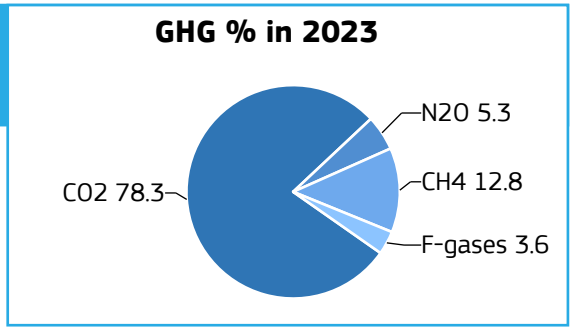
GHG emissions by sector



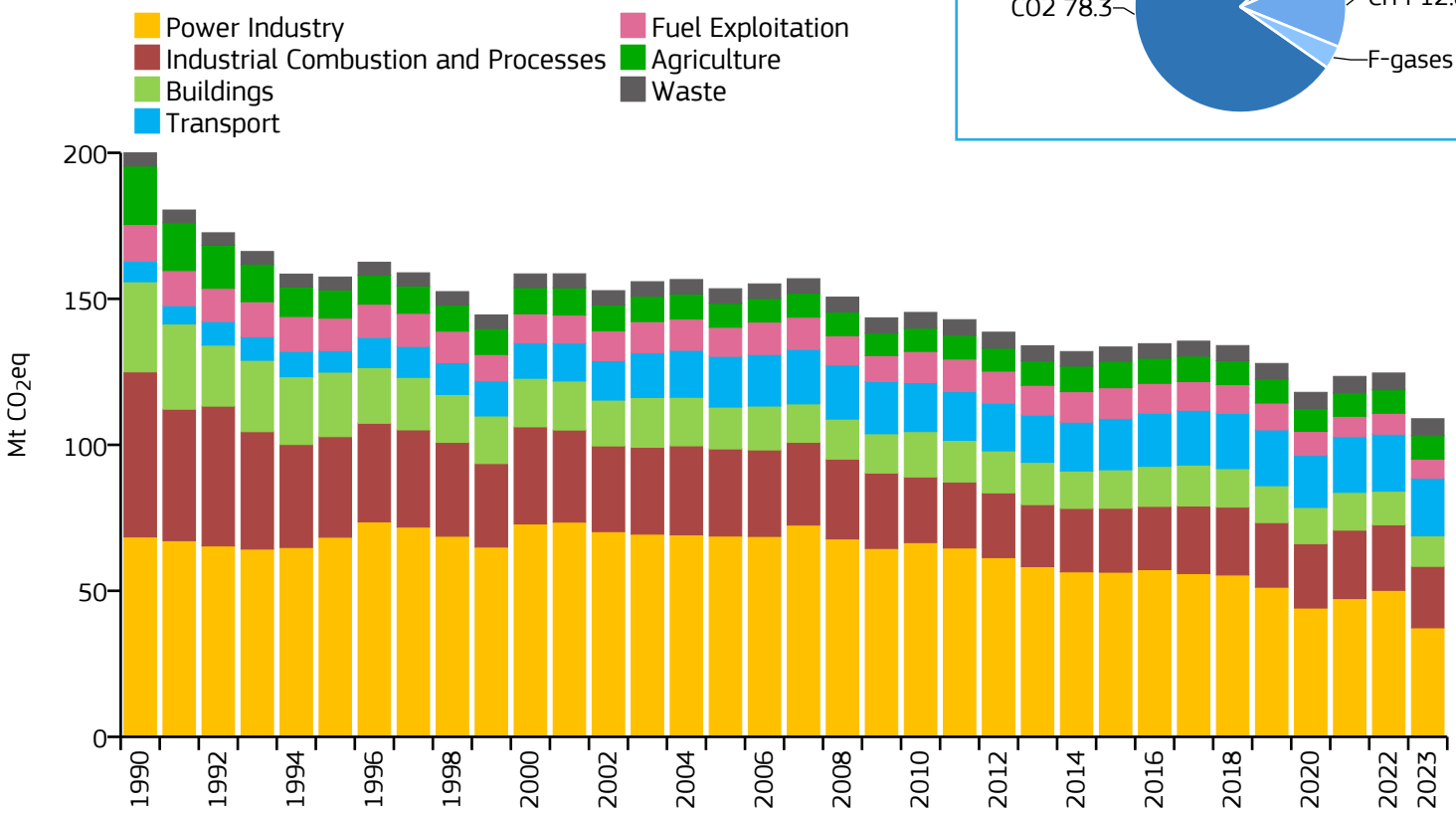
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	10.583	8.590	0.225	1.232M
2015	8.366	7.206	0.256	1.161M
2005	8.987	8.745	0.289	1.028M
1990	5.417	7.067	0.331	766.614k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+89%	-9%	-11%
Industrial Combustion and Processes	+41%	+7%	+1%
Buildings	+191%	-4%	0%
Transport	+73%	0%	0%
Fuel Exploitation	-94%	-2%	-22%
Agriculture	+33%	+23%	+2%
Waste	> +300%	> +300%	+13%
All sectors	+95%	+18%	-1%

Czechia



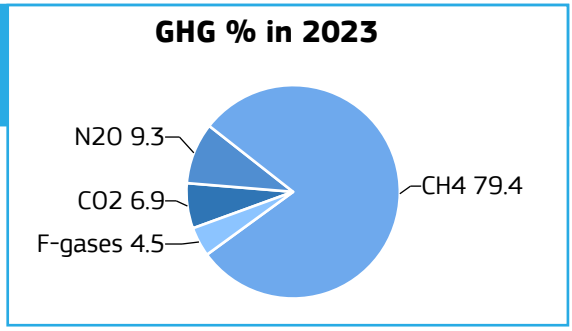
GHG emissions by sector



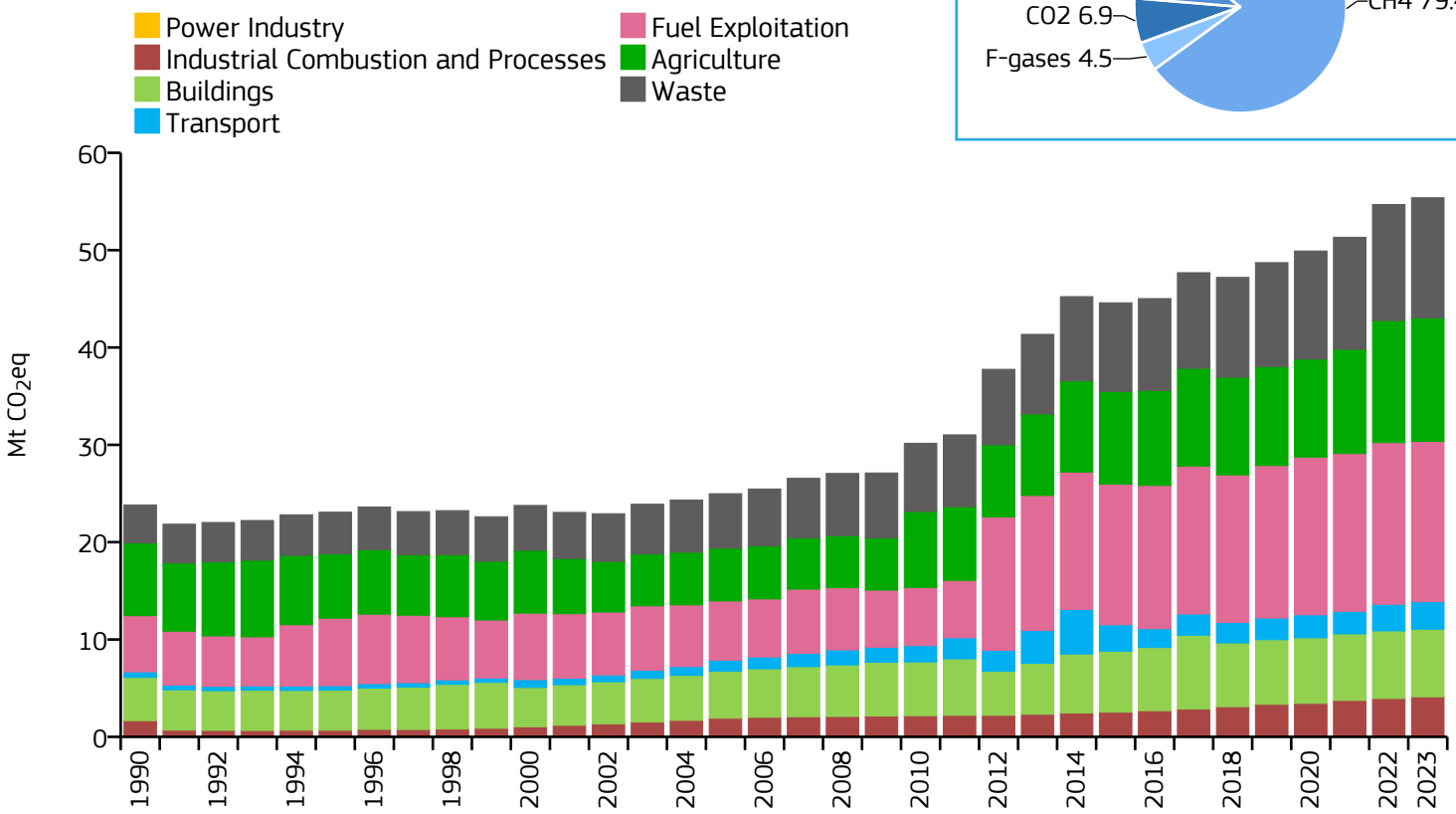
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	108.929	10.248	0.210	10.629M
2015	133.500	12.590	0.295	10.604M
2005	153.452	14.959	0.416	10.258M
1990	199.978	19.338	0.690	10.341M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↘ -45%	↘ -46%	↘ -26%
Industrial Combustion and Processes	↘ -63%	↘ -29%	↘ -6%
Buildings	↘ -66%	↘ -27%	↘ -9%
Transport	↗ +178%	↗ +13%	→ 0%
Fuel Exploitation	↘ -47%	↘ -33%	↘ -7%
Agriculture	↘ -60%	→ -2%	→ 0%
Waste	↗ +28%	↗ +15%	→ +1%
All sectors	↘ -46%	↘ -29%	↘ -13%

Democratic Republic of the Congo



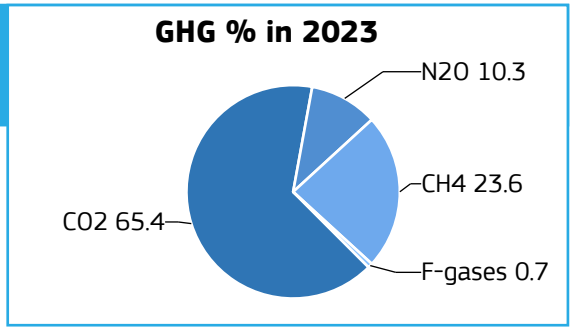
GHG emissions by sector



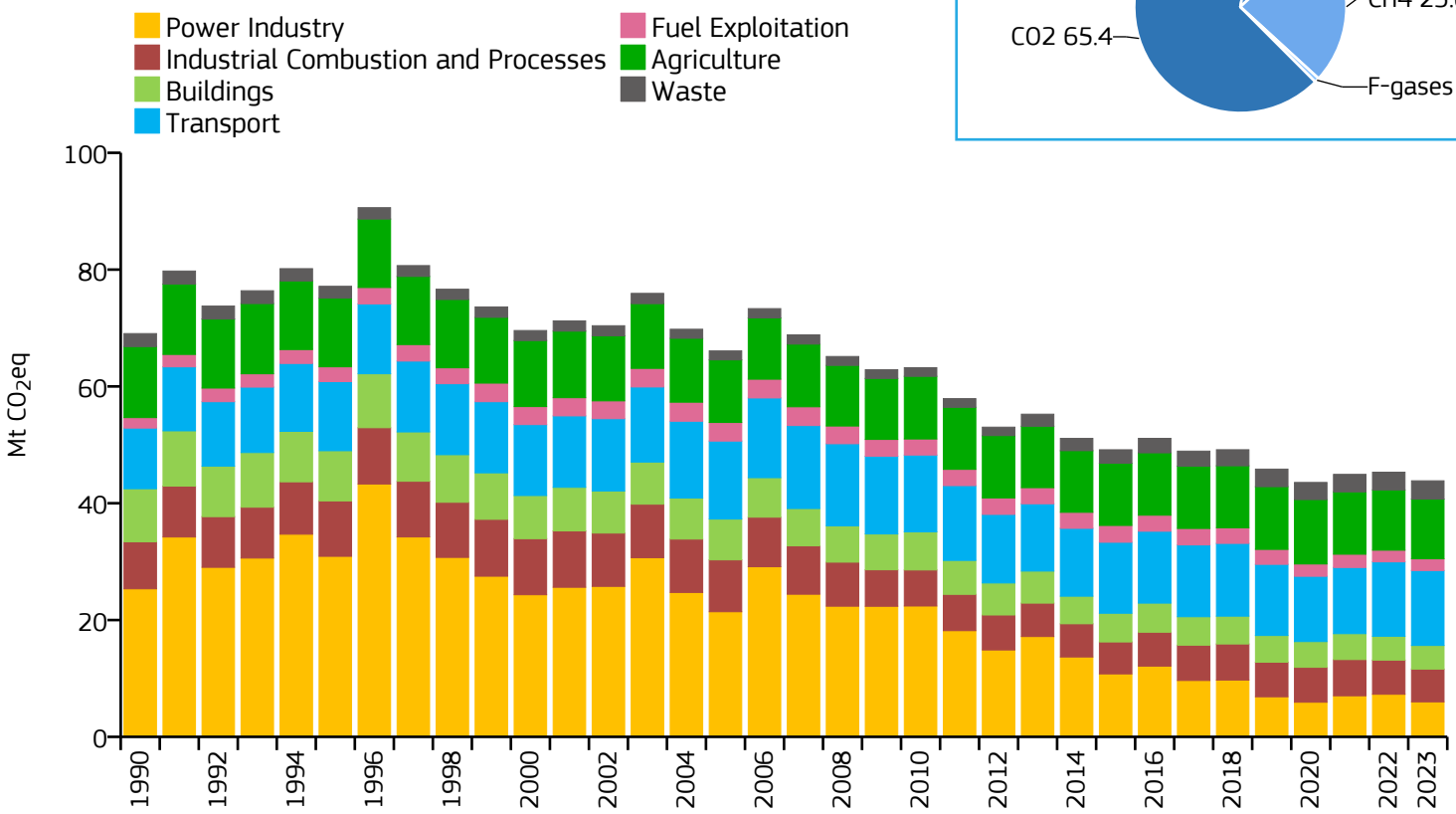
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	55.383	0.564	0.360	98.160M
2015	44.592	0.585	0.434	76.197M
2005	24.979	0.456	0.463	54.752M
1990	23.824	0.688	0.299	34.615M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-62%	+52%	-1%
Industrial Combustion and Processes	+151%	+115%	+5%
Buildings	+56%	+44%	0%
Transport	> +300%	+150%	+3%
Fuel Exploitation	+186%	+170%	-1%
Agriculture	+70%	+134%	+1%
Waste	+217%	+121%	+4%
All sectors	+132%	+122%	+1%

Denmark



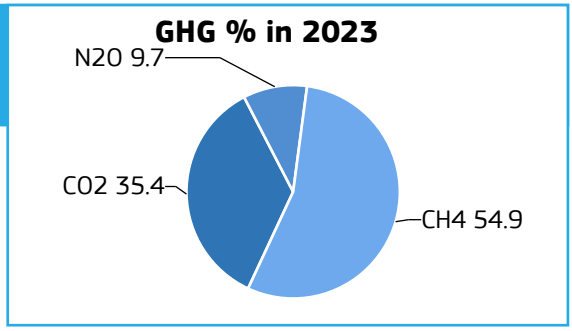
GHG emissions by sector



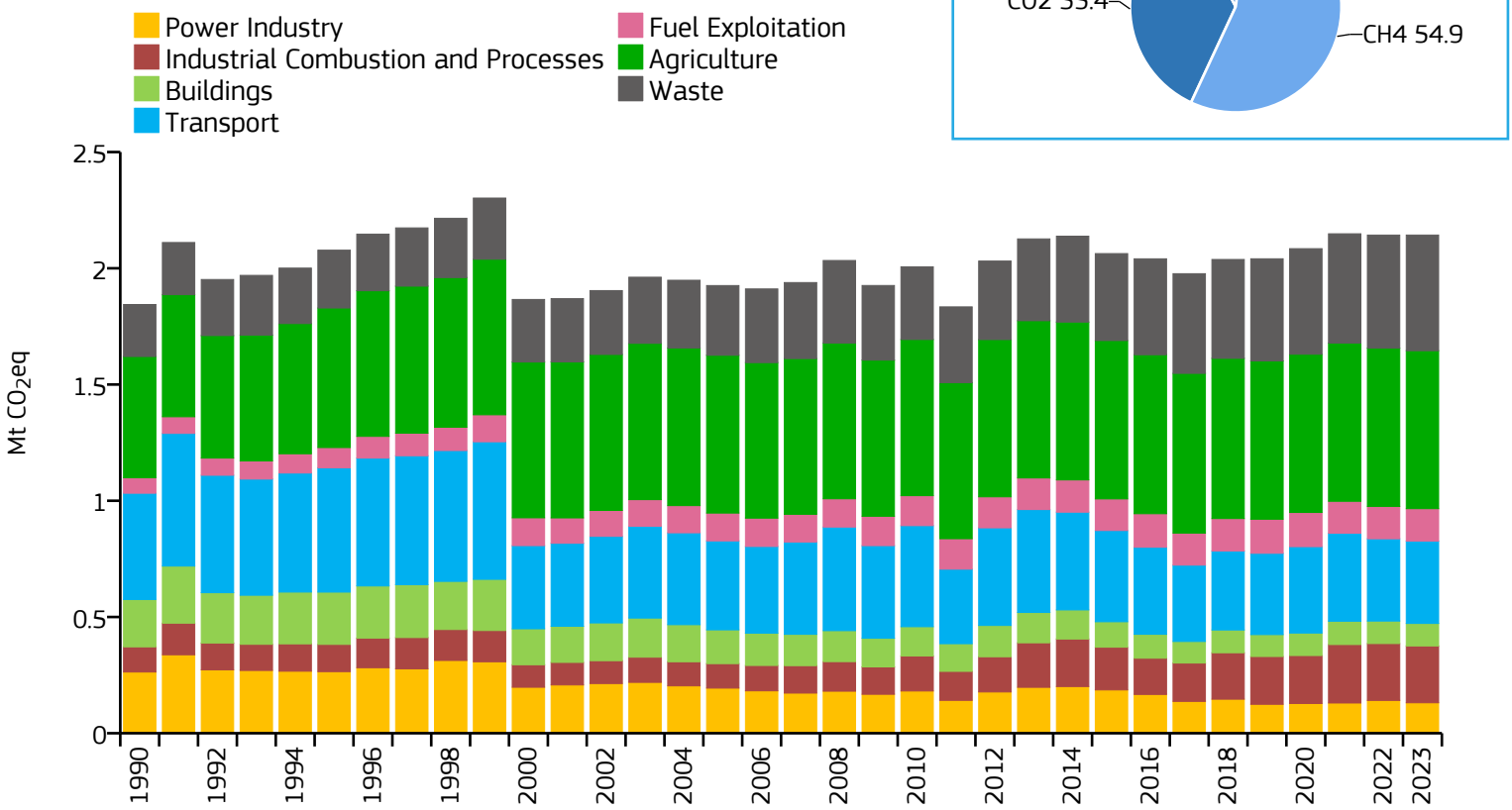
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	43.842	7.474	0.102	5.866M
2015	49.155	8.641	0.138	5.689M
2005	66.078	12.188	0.199	5.422M
1990	69.048	13.431	0.290	5.141M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-76%	-72%	-18%
Industrial Combustion and Processes	-30%	-37%	-4%
Buildings	-55%	-42%	-1%
Transport	+24%	-4%	+1%
Fuel Exploitation	+12%	-37%	0%
Agriculture	-16%	-5%	-1%
Waste	+41%	+104%	+3%
All sectors	-37%	-34%	-3%

Djibouti



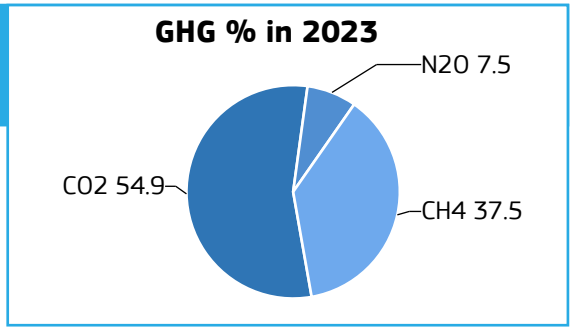
GHG emissions by sector



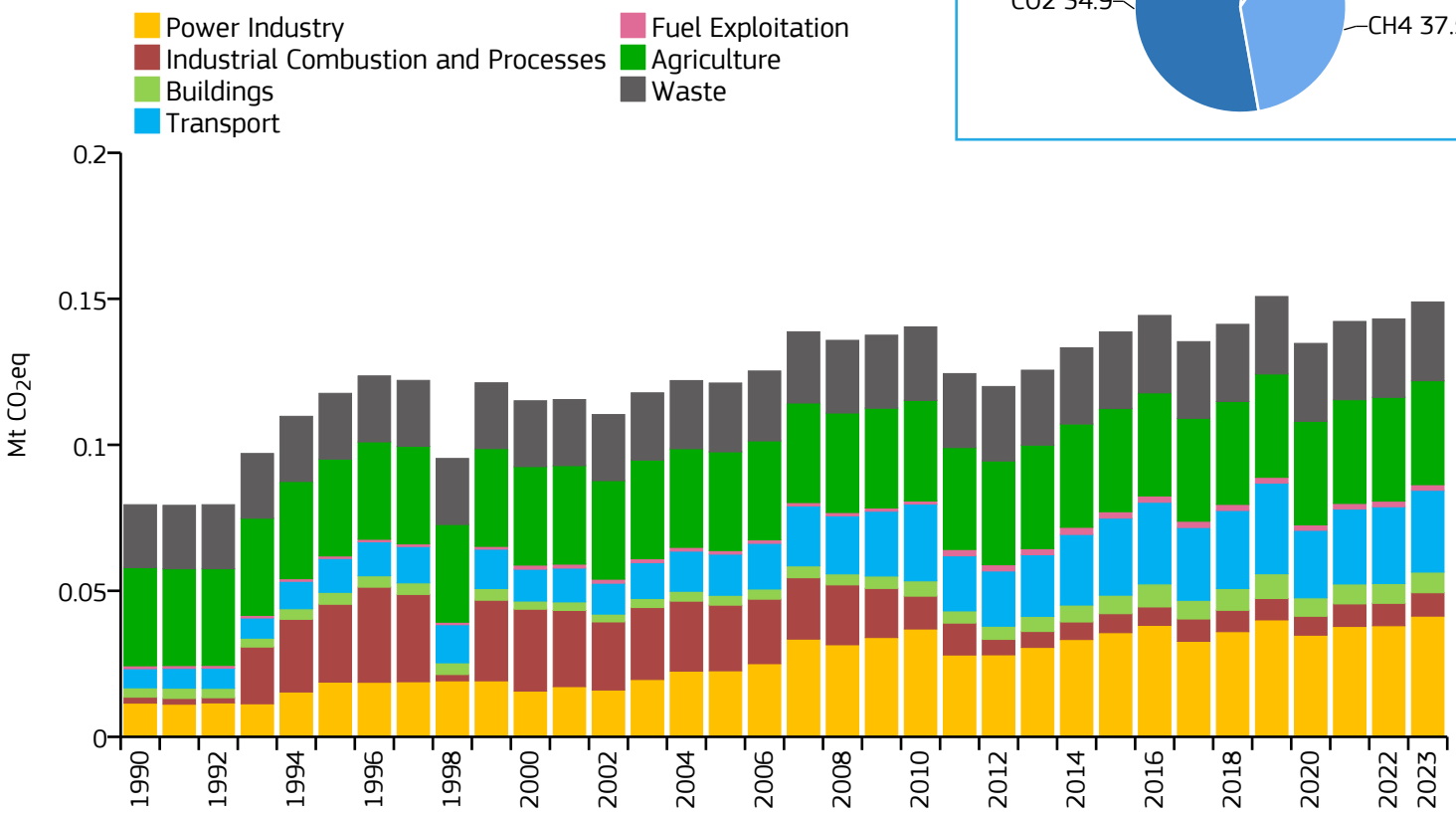
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	2.143	2.059	0.290	1.041M
2015	2.063	2.225	0.409	927.414k
2005	1.926	2.459	0.519	783.254k
1990	1.844	3.124	0.742	590.398k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-50%	-33%	-7%
Industrial Combustion and Processes	+126%	+132%	0%
Buildings	-52%	-33%	0%
Transport	-22%	-7%	0%
Fuel Exploitation	+109%	+16%	0%
Agriculture	+30%	0%	0%
Waste	+122%	+66%	+2%
All sectors	+16%	+11%	0%

Dominica



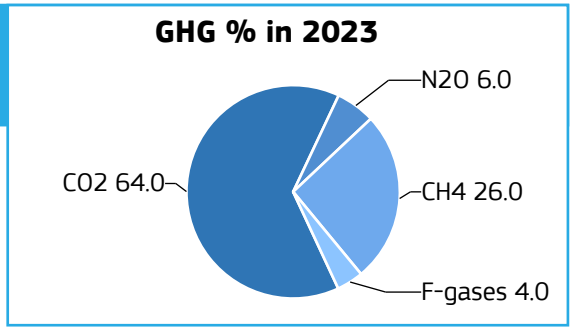
GHG emissions by sector



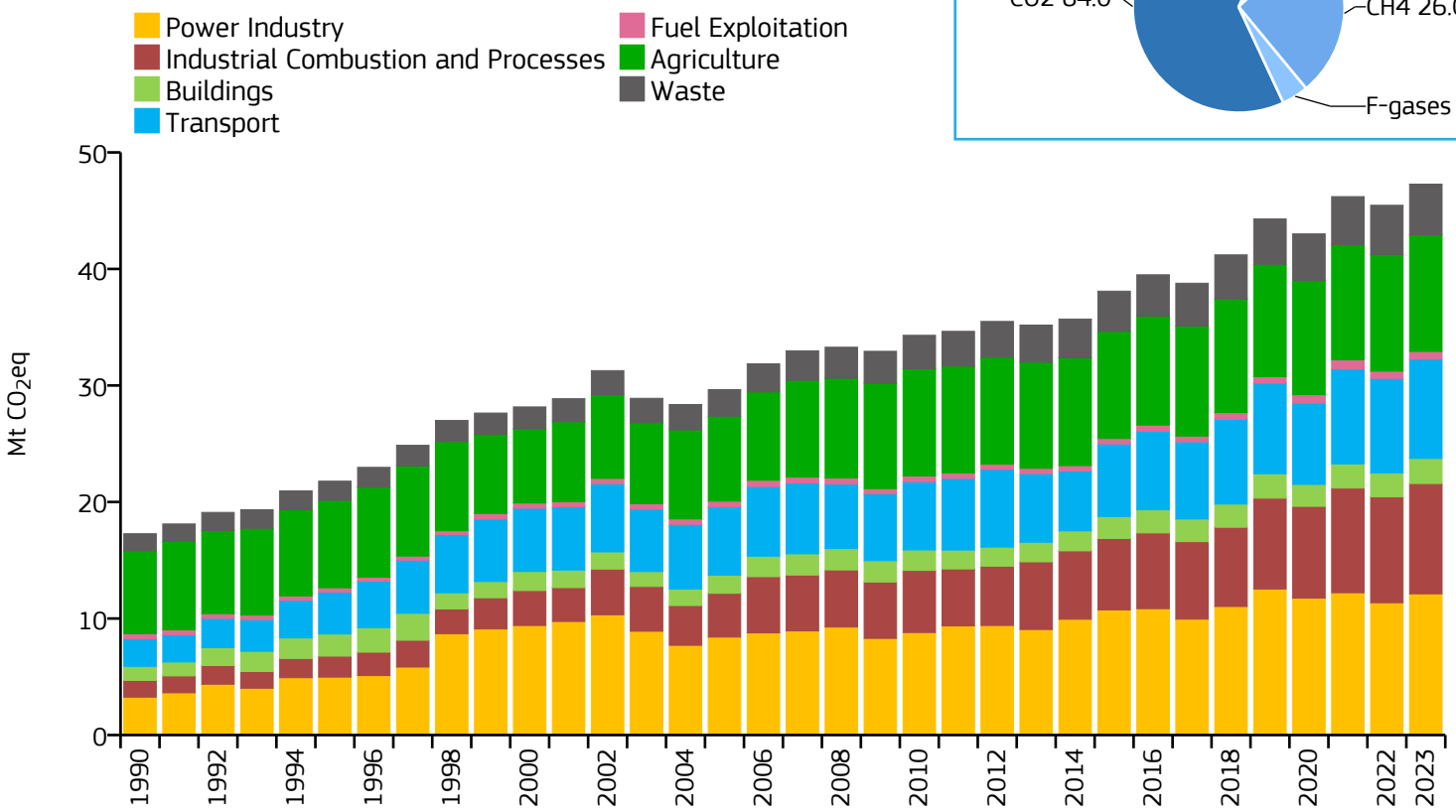
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.149	1.960	0.129	76.000k
2015	0.139	1.895	0.124	73.162k
2005	0.121	1.715	0.128	70.627k
1990	0.079	1.121	0.110	70.926k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+258%	+83%	+9%
Industrial Combustion and Processes	+294%	-64%	+4%
Buildings	+119%	+110%	+4%
Transport	> +300%	+99%	+7%
Fuel Exploitation	+91%	+55%	0%
Agriculture	+6%	+5%	0%
Waste	+25%	+15%	+1%
All sectors	+87%	+23%	+4%

Dominican Republic



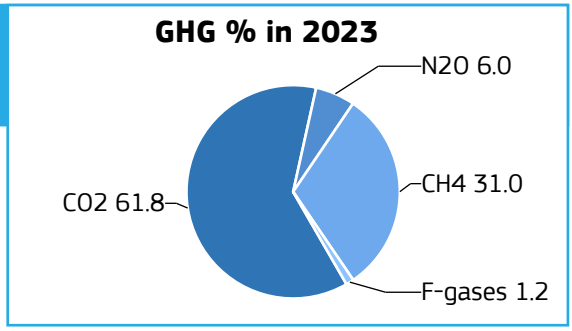
GHG emissions by sector



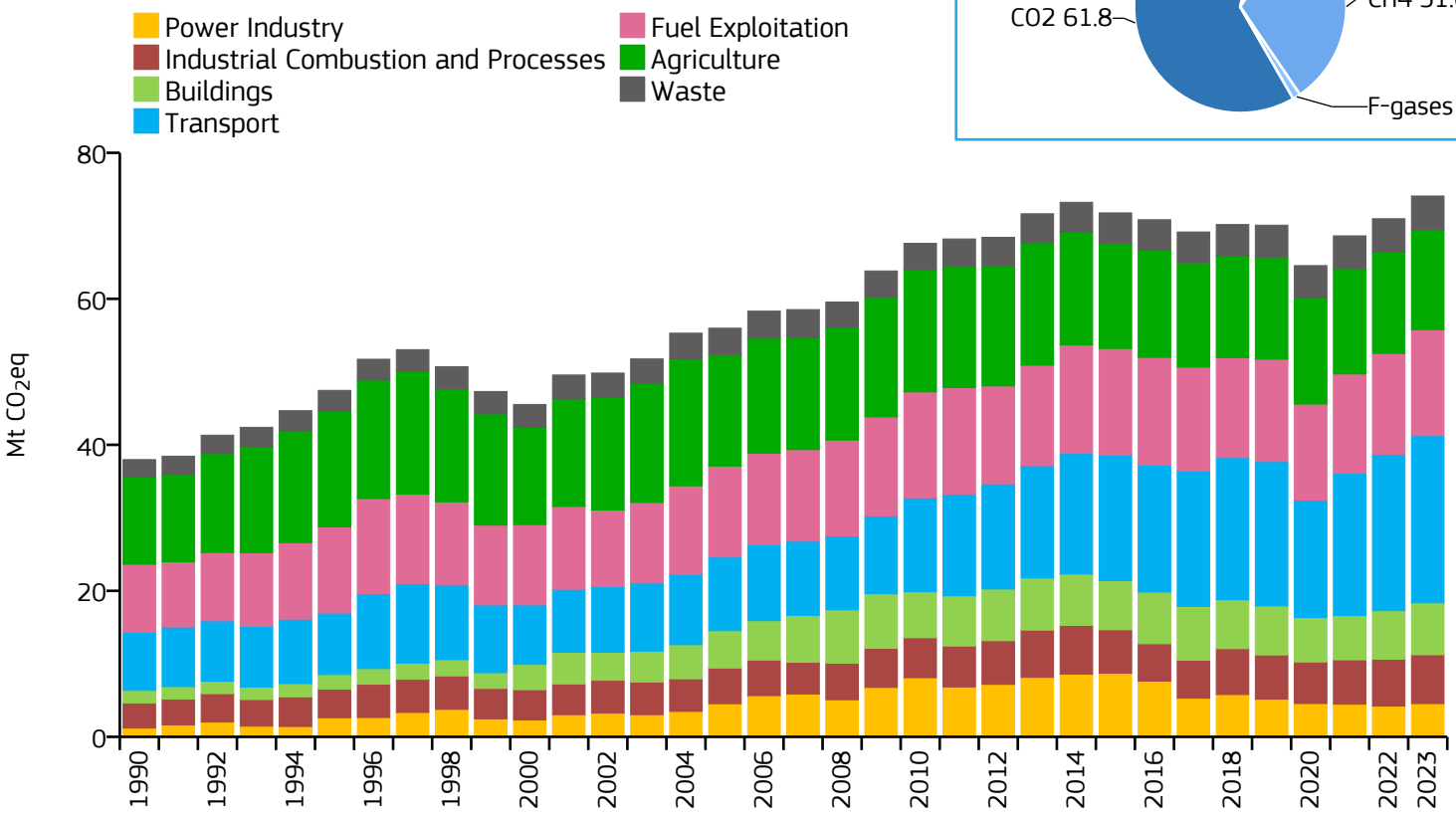
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	47.279	4.136	0.181	11.430M
2015	38.093	3.618	0.205	10.528M
2005	29.646	3.209	0.269	9.238M
1990	17.276	2.405	0.332	7.184M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+273%	+44%	+7%
Industrial Combustion and Processes	> +300%	+152%	+4%
Buildings	+78%	+38%	+4%
Transport	+262%	+45%	+5%
Fuel Exploitation	+51%	+37%	+6%
Agriculture	+41%	+38%	0%
Waste	+195%	+90%	+3%
All sectors	+174%	+59%	+4%

Ecuador



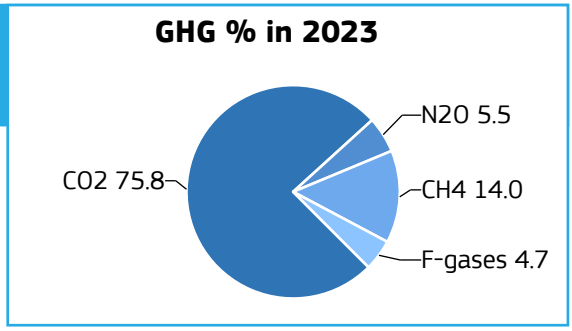
GHG emissions by sector



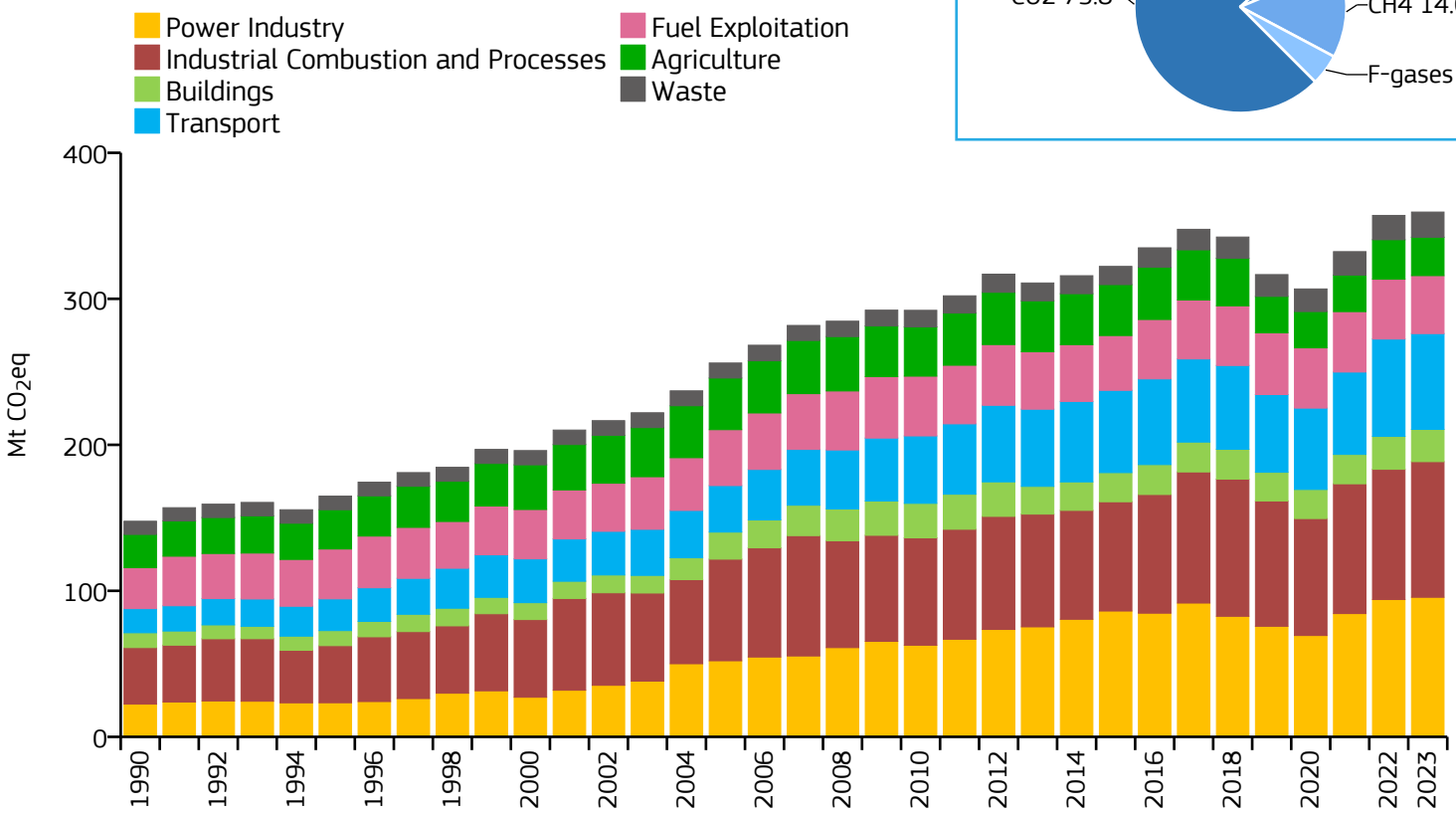
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	74.083	4.109	0.285	18.028M
2015	71.770	4.445	0.318	16.144M
2005	55.973	4.075	0.380	13.735M
1990	37.976	3.717	0.399	10.218M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+278%	0%	+8%
Industrial Combustion and Processes	+96%	+37%	+4%
Buildings	> +300%	+39%	+7%
Transport	+188%	+127%	+7%
Fuel Exploitation	+56%	+17%	+5%
Agriculture	+14%	-10%	-1%
Waste	+96%	+28%	+1%
All sectors	+95%	+32%	+4%

Egypt



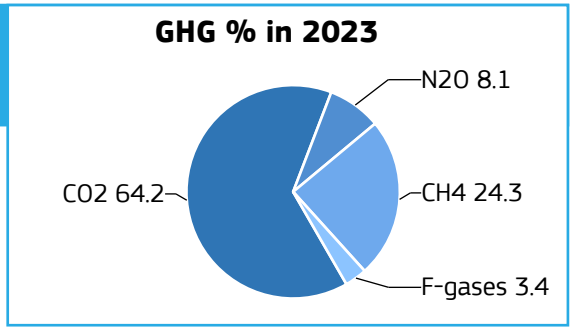
GHG emissions by sector



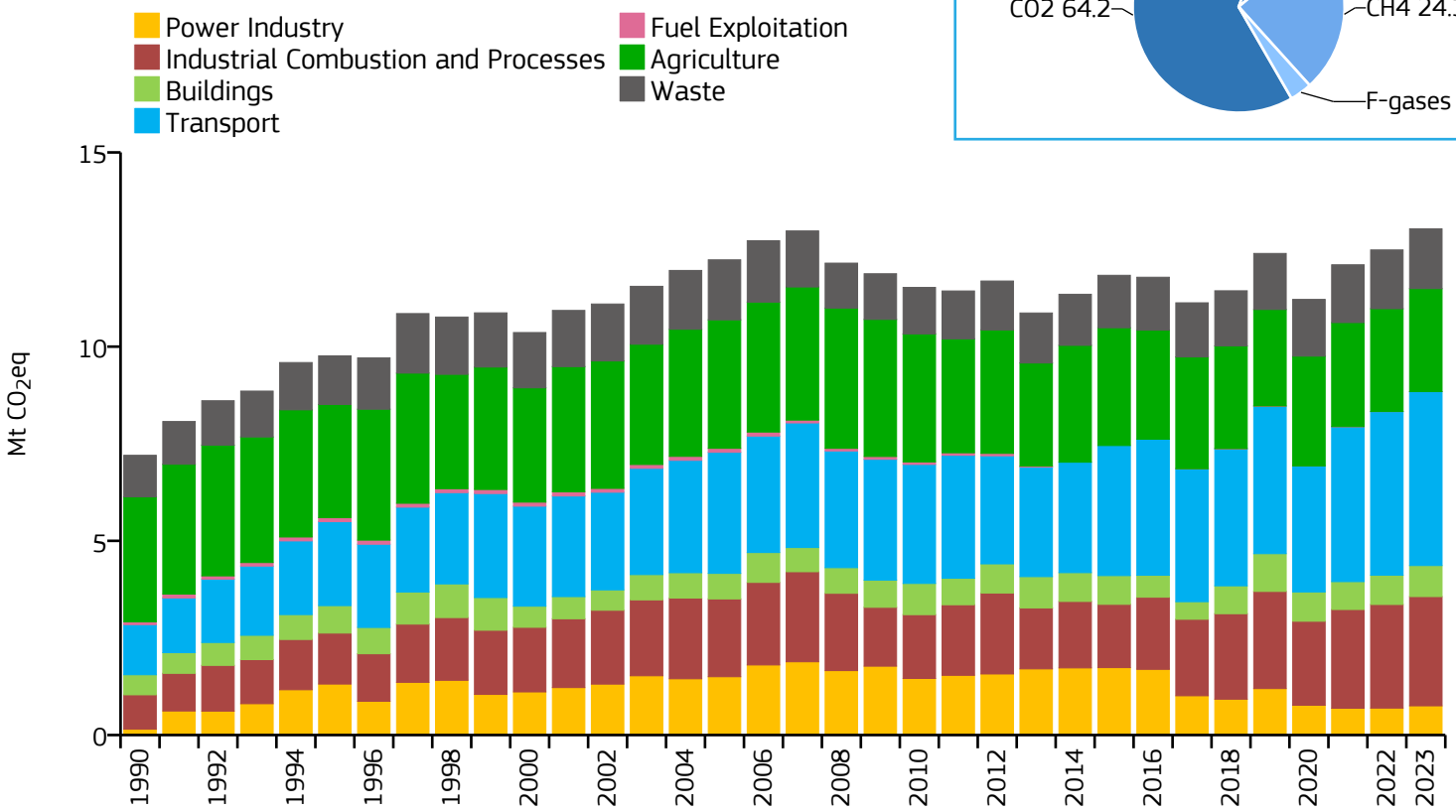
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	359.417	3.324	0.188	108.117M
2015	322.198	3.436	0.241	93.778M
2005	256.036	3.335	0.295	76.778M
1990	147.663	2.572	0.316	57.412M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+83%	+2%
Industrial Combustion and Processes	+140%	+33%	+4%
Buildings	+117%	+19%	-2%
Transport	+297%	+106%	-2%
Fuel Exploitation	+42%	+4%	-3%
Agriculture	+16%	-26%	-3%
Waste	+91%	+68%	+4%
All sectors	+143%	+40%	+1%

El Salvador



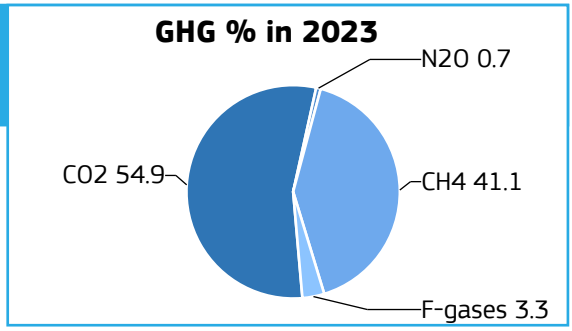
GHG emissions by sector



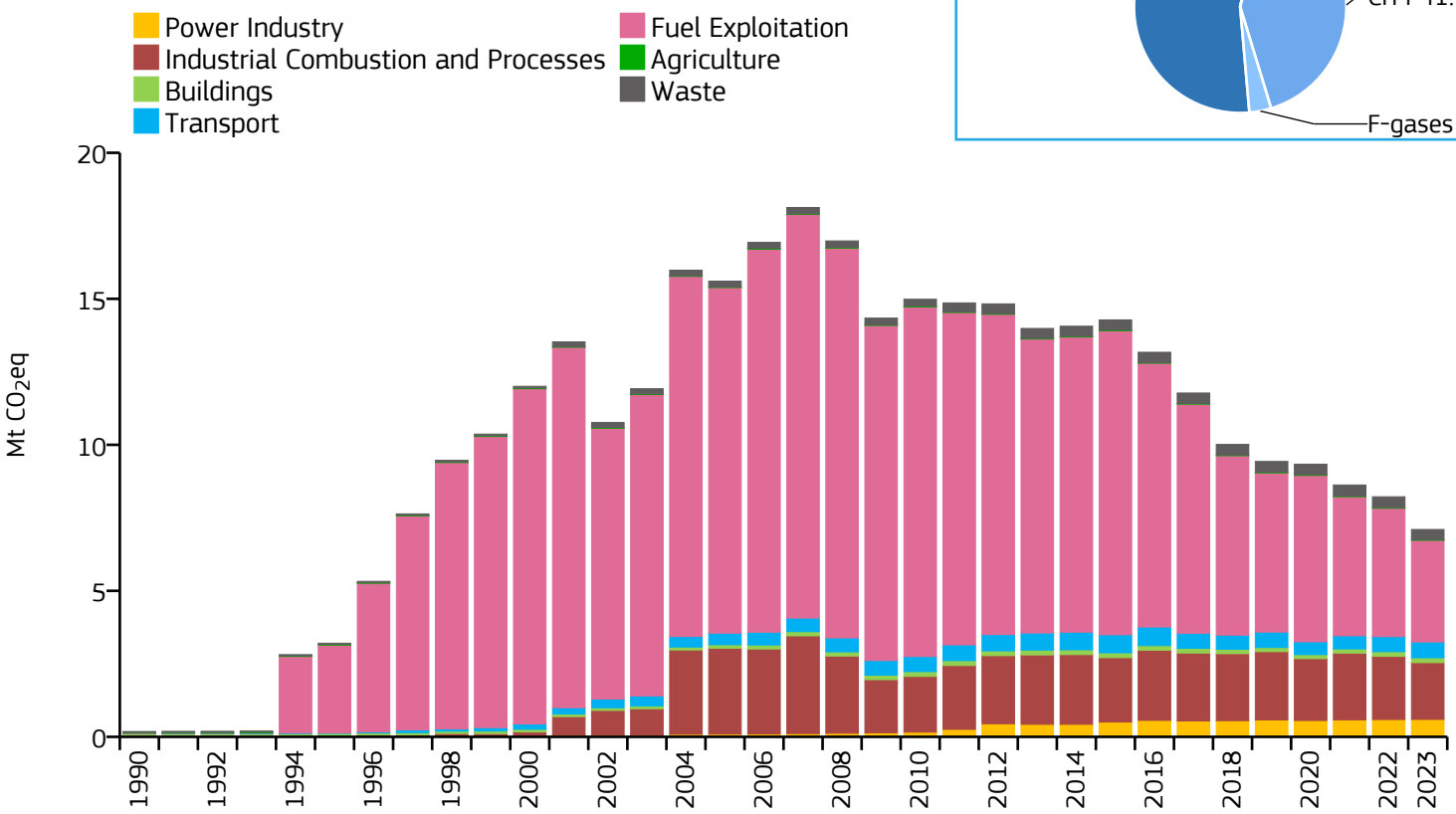
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	13.032	1.981	0.181	6.578M
2015	11.837	1.875	0.198	6.312M
2005	12.235	2.029	0.253	6.029M
1990	7.202	1.371	0.223	5.255M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	-50%	+8%
Industrial Combustion and Processes	+218%	+40%	+5%
Buildings	+55%	+22%	+6%
Transport	+247%	+44%	+6%
Fuel Exploitation	-99%	-99%	0%
Agriculture	-18%	-20%	0%
Waste	+44%	0%	+2%
All sectors	+81%	+7%	+4%

Equatorial Guinea



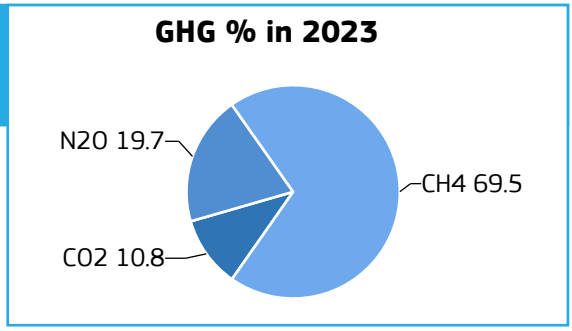
GHG emissions by sector



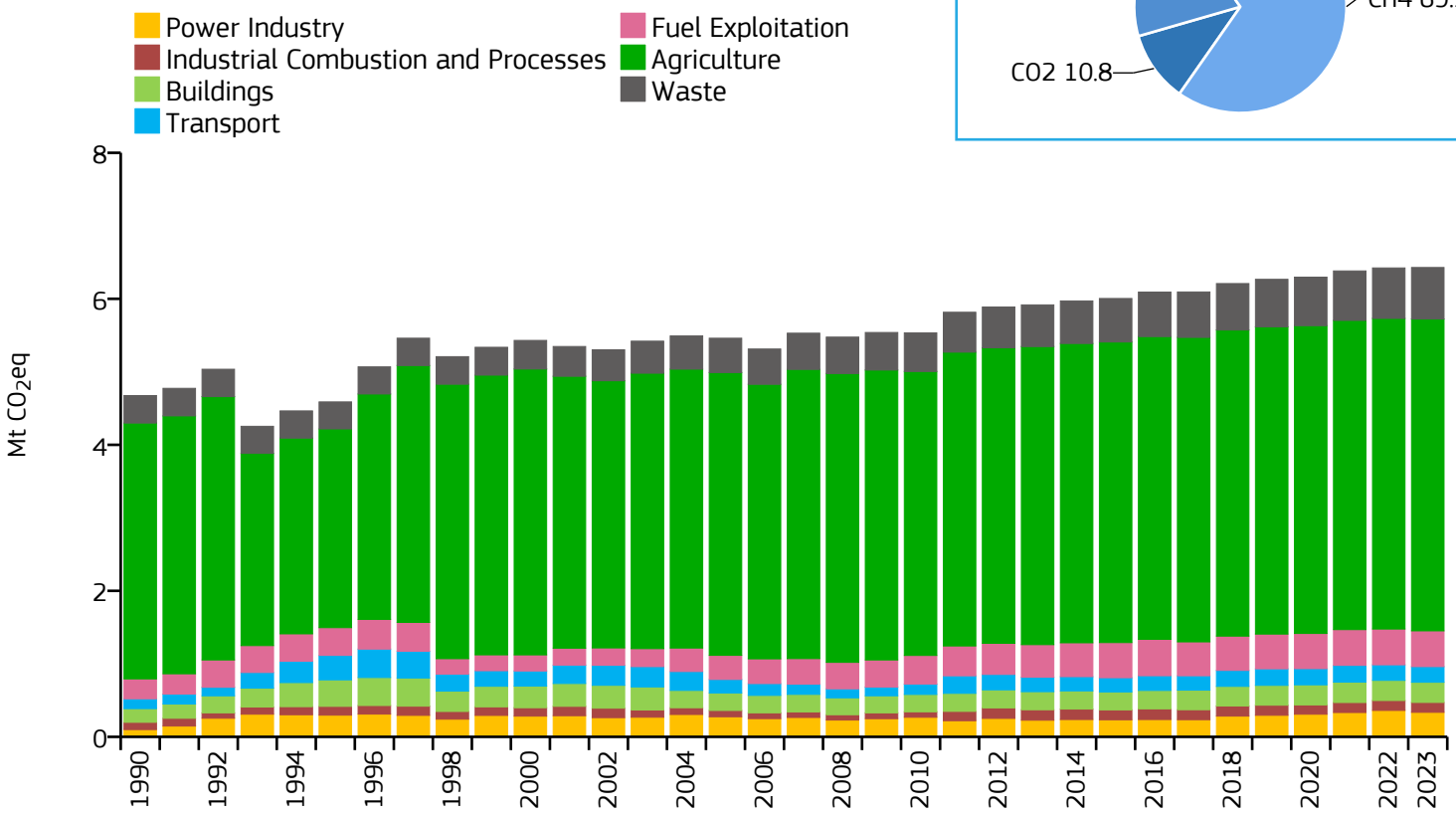
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	7.102	4.597	0.245	1.545M
2015	14.278	12.148	0.353	1.175M
2005	15.606	20.607	0.526	757.317k
1990	0.183	0.429	0.344	426.846k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	> +300%	+1%
Industrial Combustion and Processes	> +300%	-34%	-10%
Buildings	+160%	+41%	+3%
Transport	> +300%	+36%	+5%
Fuel Exploitation	> +300%	-71%	-21%
Agriculture	+27%	+15%	+1%
Waste	> +300%	+73%	-6%
All sectors	> +300%	-54%	-14%

Eritrea



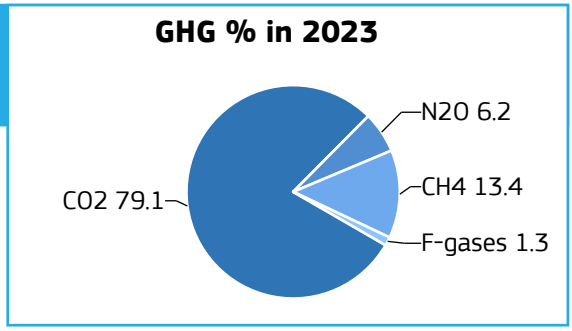
GHG emissions by sector



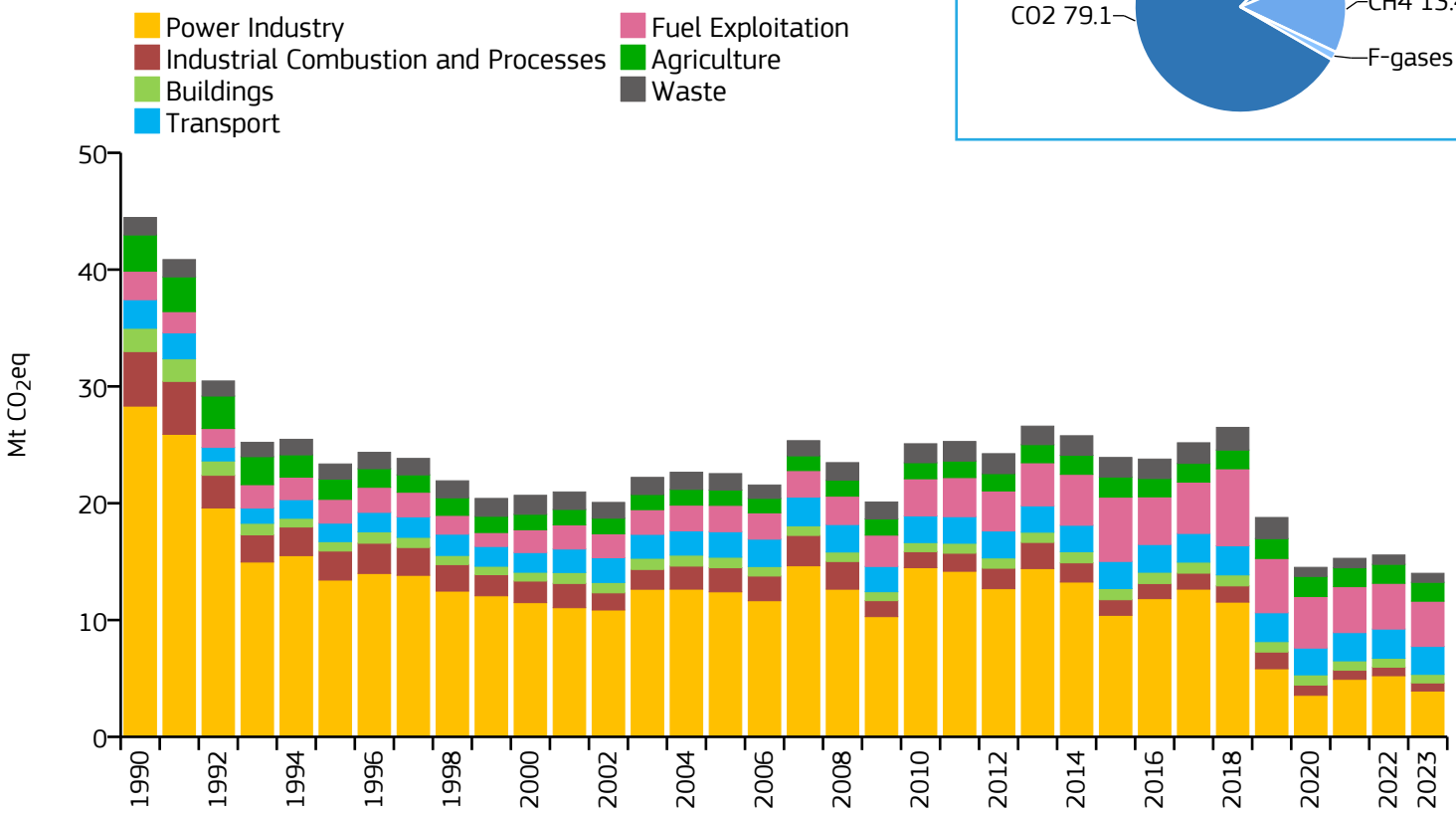
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	6.429	1.108	0.872	5.803M
2015	6.005	1.239	0.998	4.847M
2005	5.460	1.376	1.089	3.969M
1990	4.675	1.502	1.316	3.113M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+237%	+22%	-7%
Industrial Combustion and Processes	+36%	+57%	0%
Buildings	+47%	+15%	0%
Transport	+59%	+16%	0%
Fuel Exploitation	+80%	+48%	0%
Agriculture	+22%	+10%	0%
Waste	+87%	+50%	+2%
All sectors	+38%	+18%	0%

Estonia



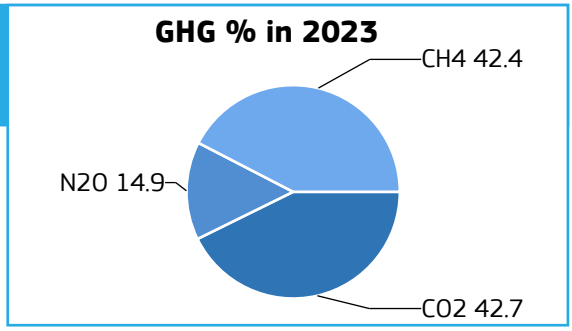
GHG emissions by sector



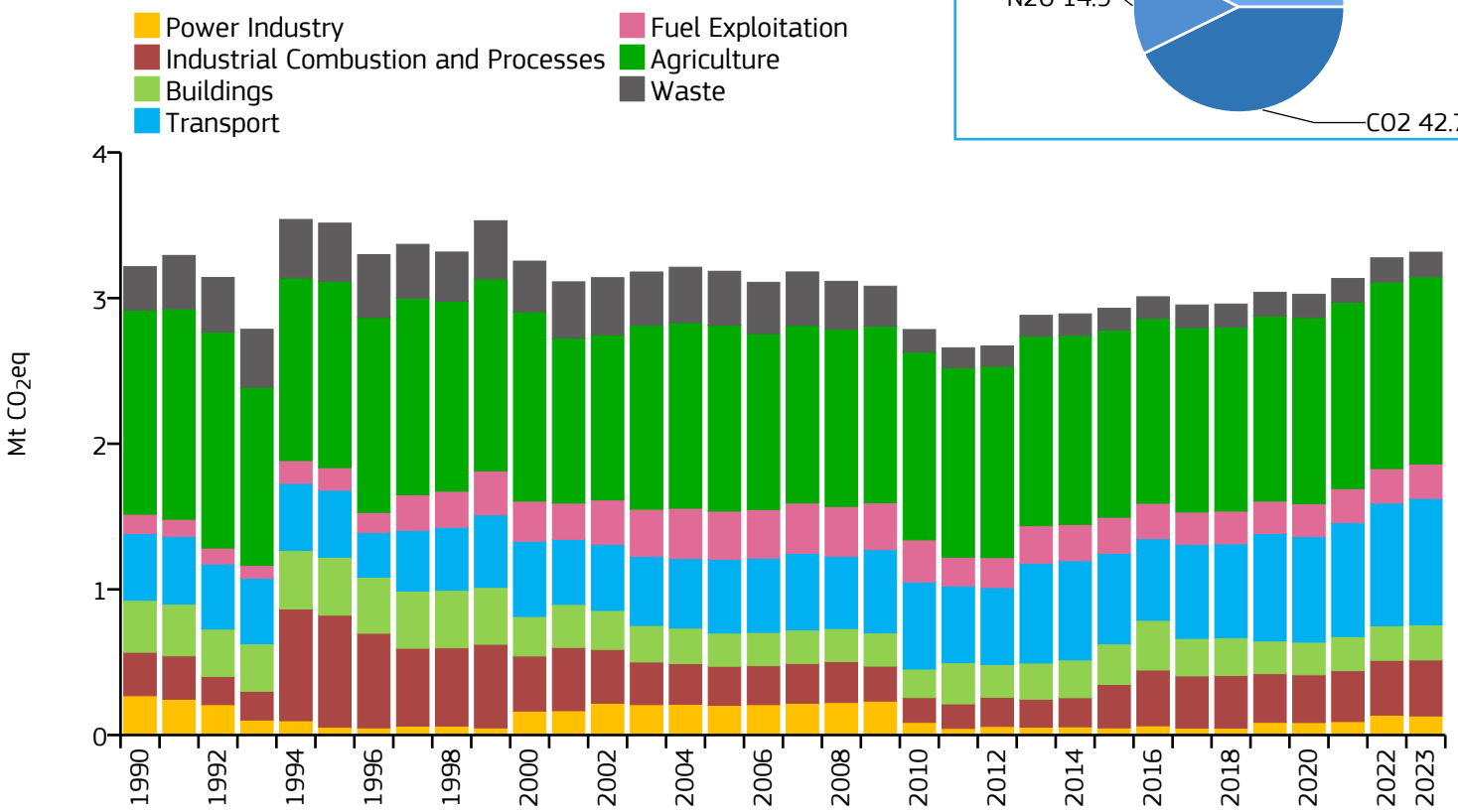
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	14.001	10.862	0.244	1.289M
2015	23.918	18.184	0.504	1.315M
2005	22.536	16.624	0.548	1.356M
1990	44.463	28.406	1.469	1.565M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-86%	-68%	-25%
Industrial Combustion and Processes	-85%	-66%	-5%
Buildings	-63%	-19%	-5%
Transport	-2%	+9%	-4%
Fuel Exploitation	+59%	+72%	-1%
Agriculture	-48%	+23%	-1%
Waste	-48%	-45%	-3%
All sectors	-69%	-38%	-10%

Eswatini



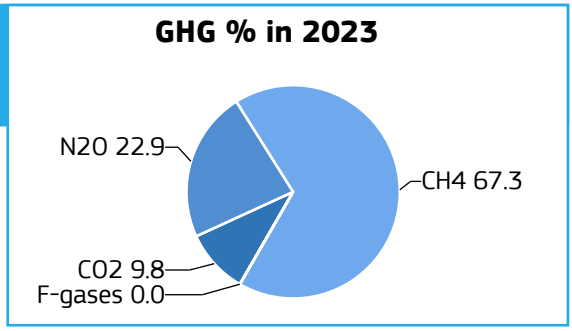
GHG emissions by sector



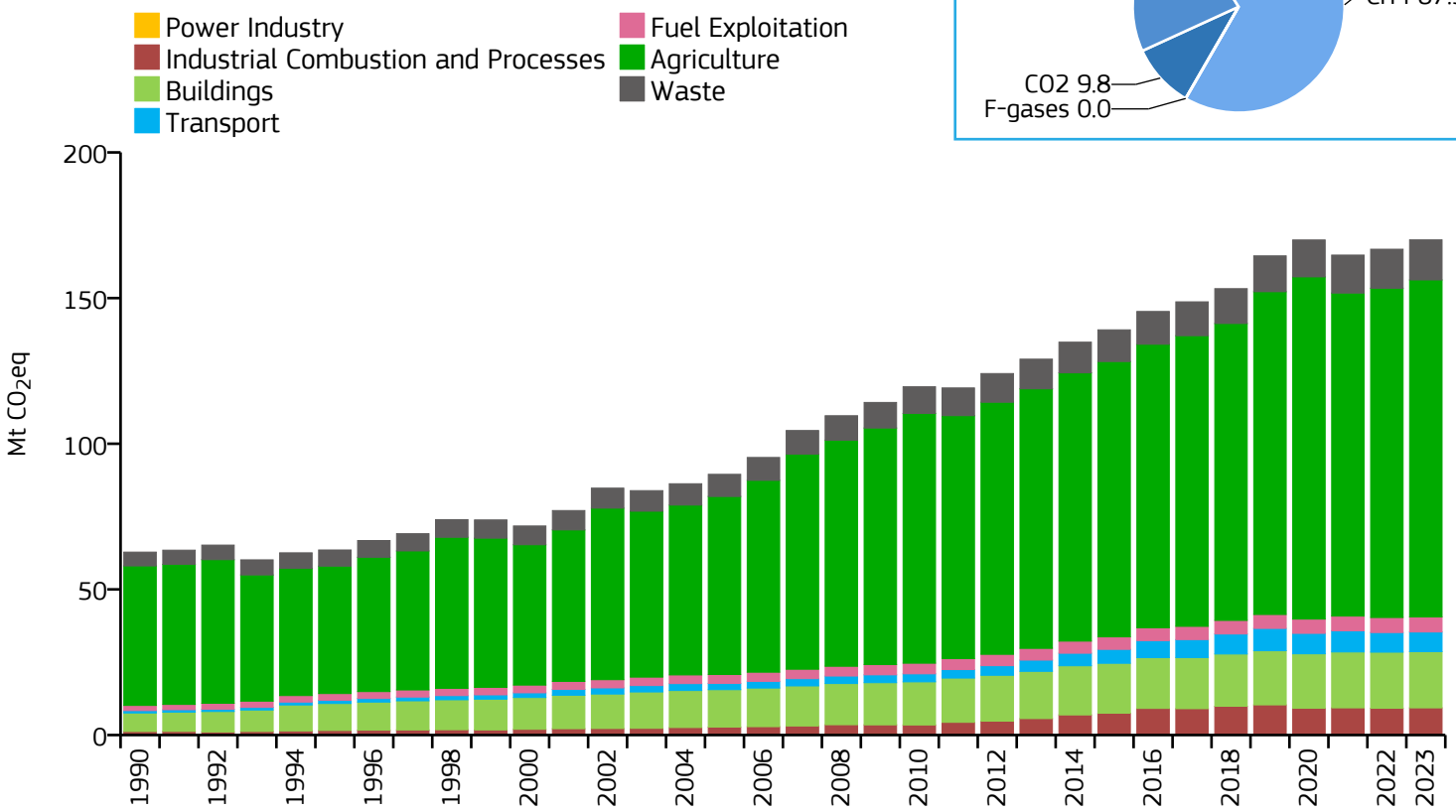
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	3.315	2.197	0.259	1.509M
2015	2.930	2.222	0.285	1.319M
2005	3.184	2.879	0.420	1.106M
1990	3.216	3.733	0.683	861.373k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-51%	-36%	-4%
Industrial Combustion and Processes	+29%	+43%	+2%
Buildings	-33%	+6%	+2%
Transport	+90%	+71%	+3%
Fuel Exploitation	+78%	-28%	0%
Agriculture	-8%	+1%	0%
Waste	-43%	-54%	+2%
All sectors	+3%	+4%	+1%

Ethiopia



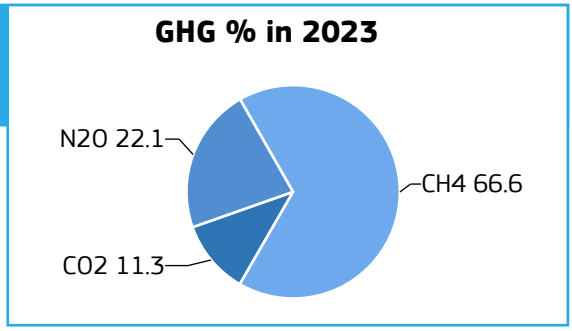
GHG emissions by sector



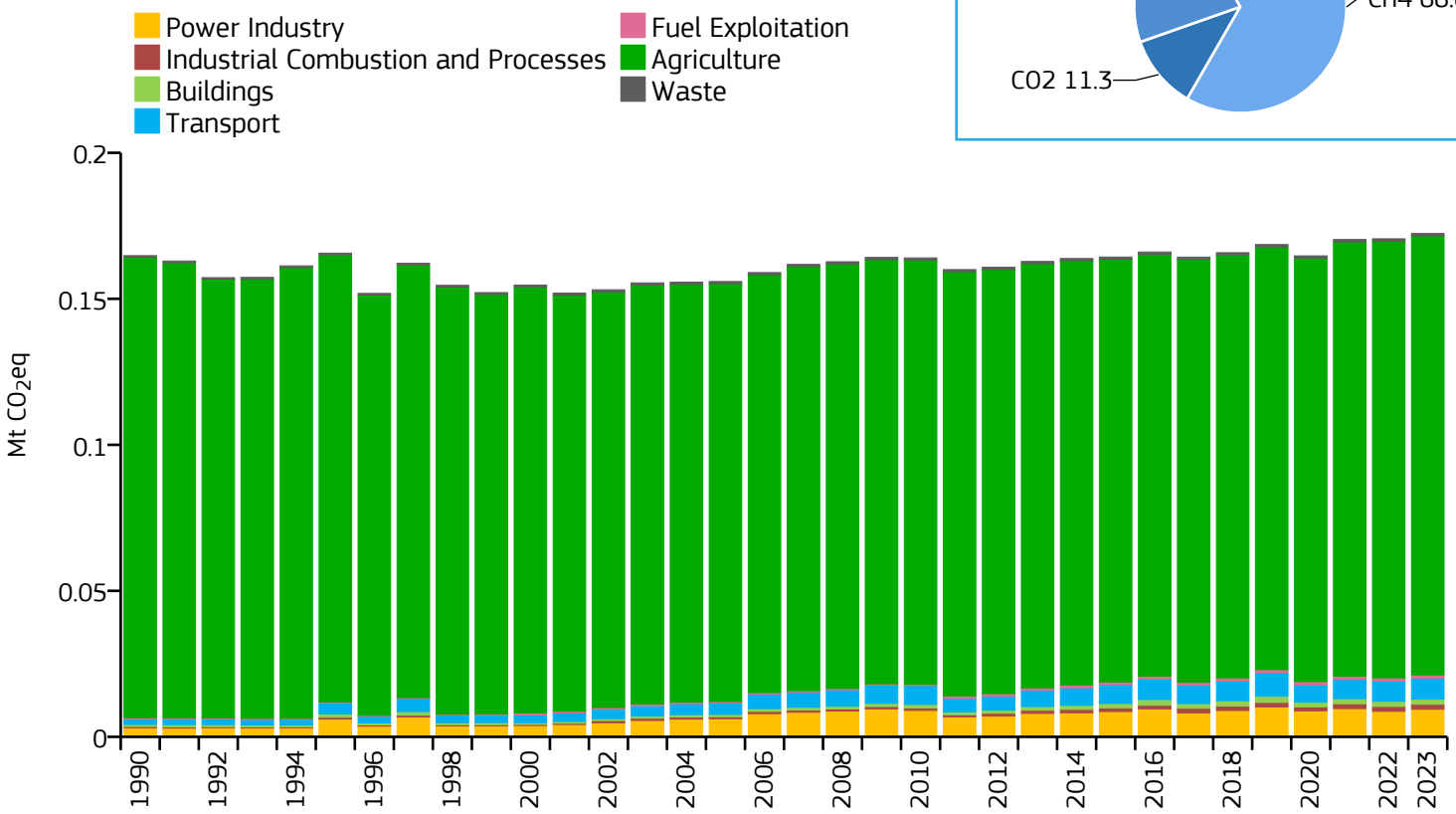
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	169.986	1.408	0.479	120.741M
2015	139.102	1.393	0.684	99.873M
2005	89.494	1.166	1.199	76.727M
1990	62.803	1.306	1.509	48.087M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-93%	-51%	-7%
Industrial Combustion and Processes	> +300%	+243%	+1%
Buildings	+203%	+50%	0%
Transport	> +300%	+215%	0%
Fuel Exploitation	+190%	+68%	0%
Agriculture	+142%	+89%	+2%
Waste	+190%	+81%	+3%
All sectors	+171%	+90%	+2%

Falkland Islands



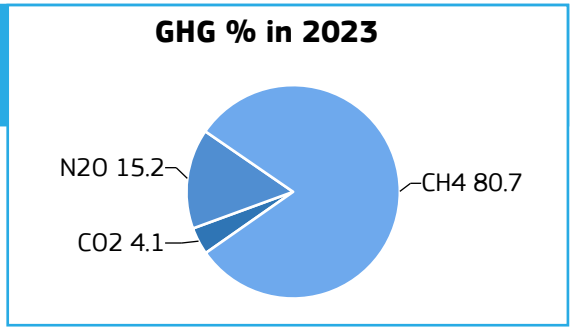
GHG emissions by sector



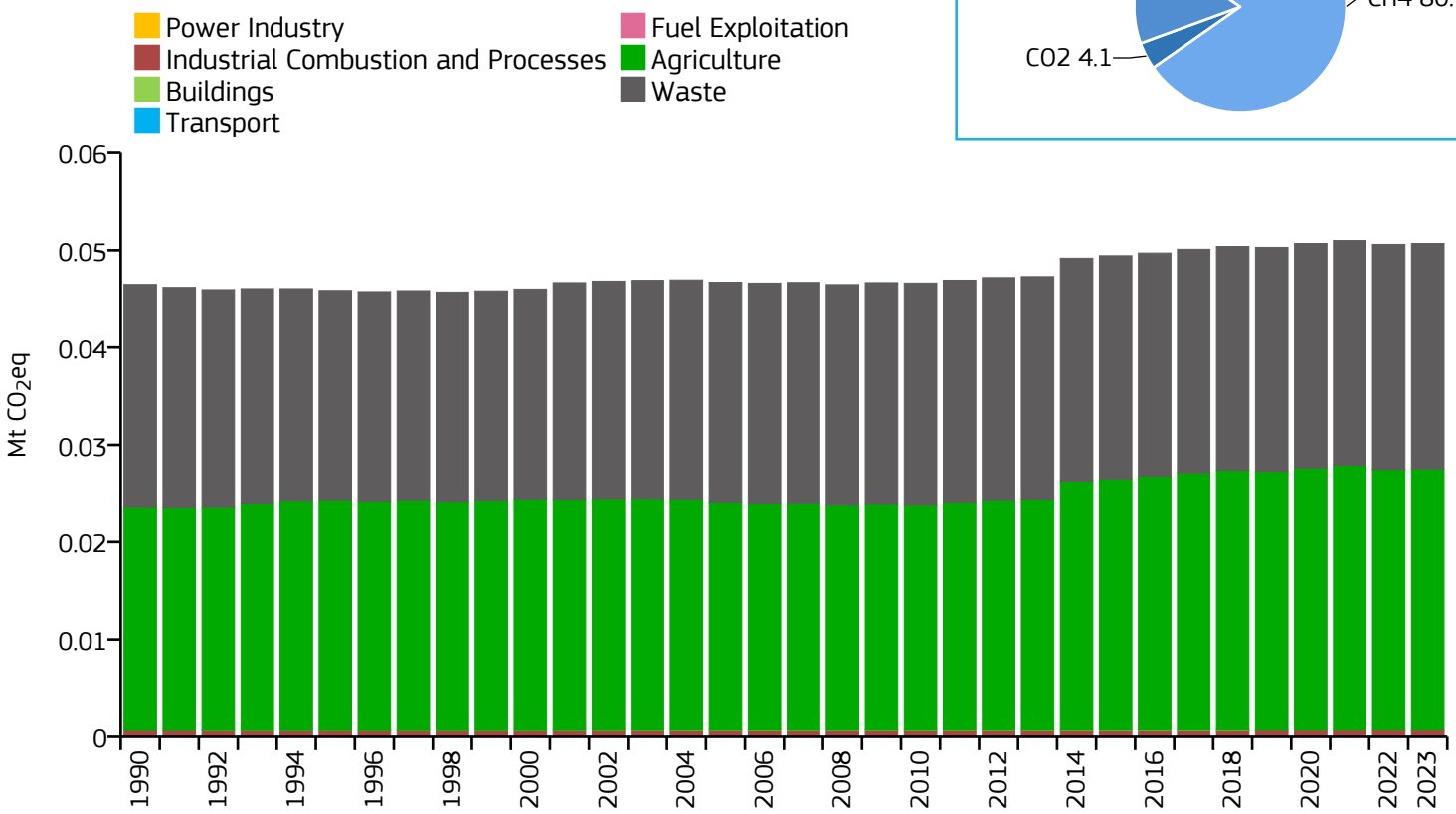
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.172	57.460	n/a	3.000k
2015	0.164	56.697	n/a	2.898k
2005	0.156	53.053	n/a	2.939k
1990	0.165	82.850	n/a	1.989k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +205%	↗ +53%	↗ +8%
Industrial Combustion and Processes	↗ +286%	↗ +145%	→ +2%
Buildings	↗ +145%	↗ +122%	→ +1%
Transport	↗ > +300%	↗ +84%	→ +3%
Fuel Exploitation	↗ +111%	↗ +110%	→ 0%
Agriculture	→ -5%	→ +5%	→ +1%
Waste	↗ +59%	↗ +16%	→ +1%
All sectors	→ +5%	↗ +11%	→ +1%

Faroes



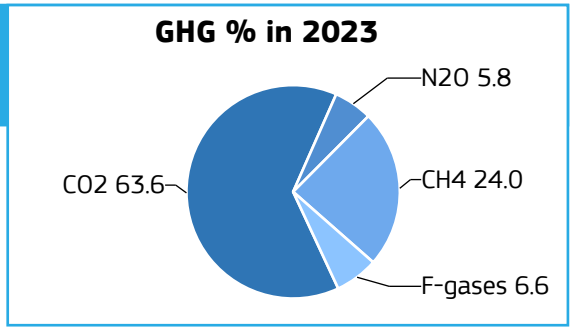
GHG emissions by sector



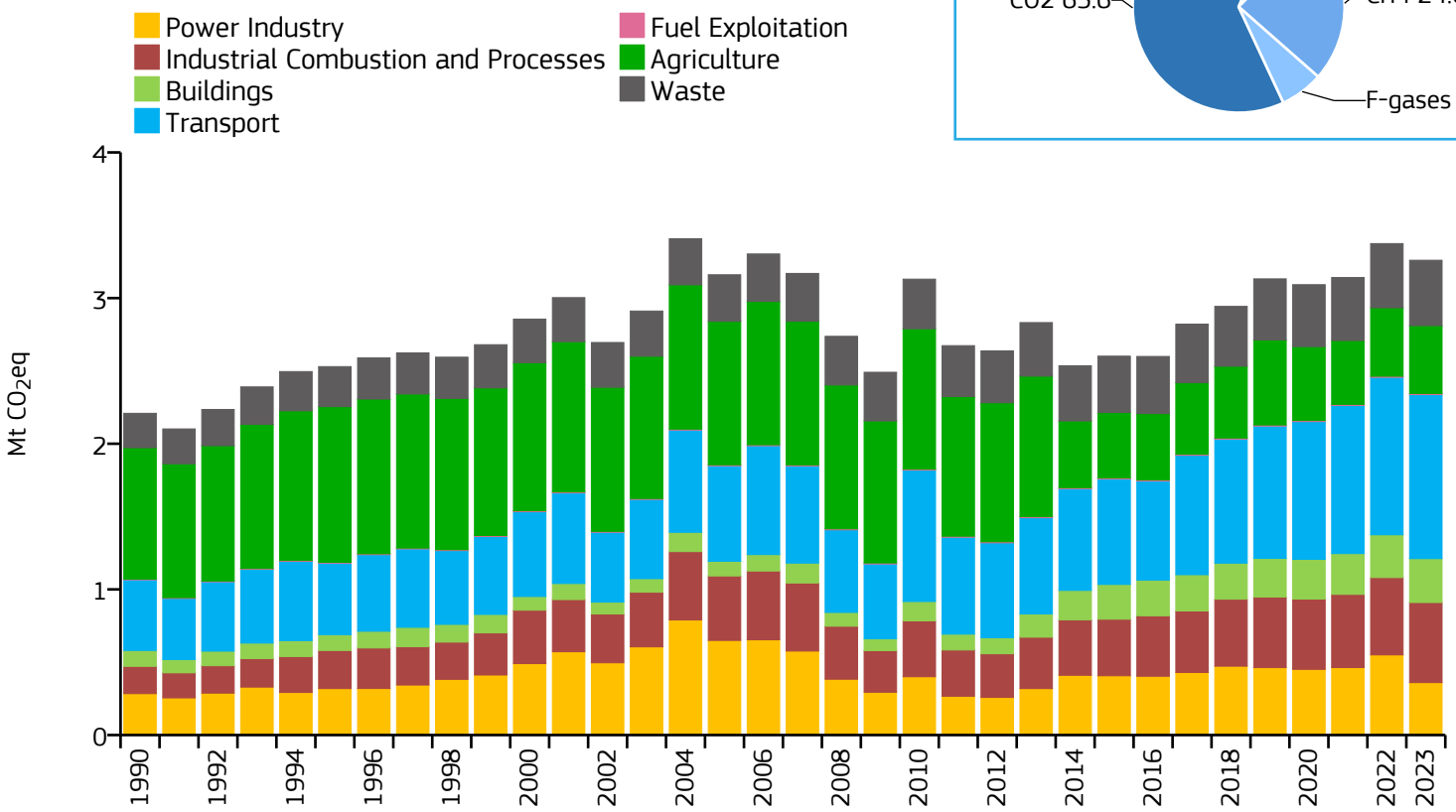
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.051	0.994	n/a	51.000k
2015	0.049	1.010	n/a	48.965k
2005	0.047	0.967	n/a	48.285k
1990	0.046	0.977	n/a	47.594k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	n/a	n/a	n/a
Industrial Combustion and Processes	+6%	+5%	0%
Buildings	n/a	n/a	n/a
Transport	n/a	n/a	n/a
Fuel Exploitation	n/a	n/a	n/a
Agriculture	+17%	+14%	0%
Waste	+1%	+3%	0%
All sectors	+9%	+9%	0%

Fiji



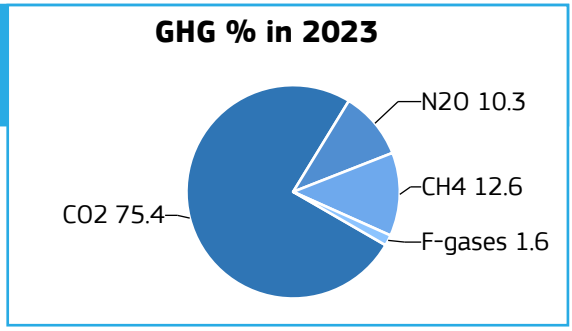
GHG emissions by sector



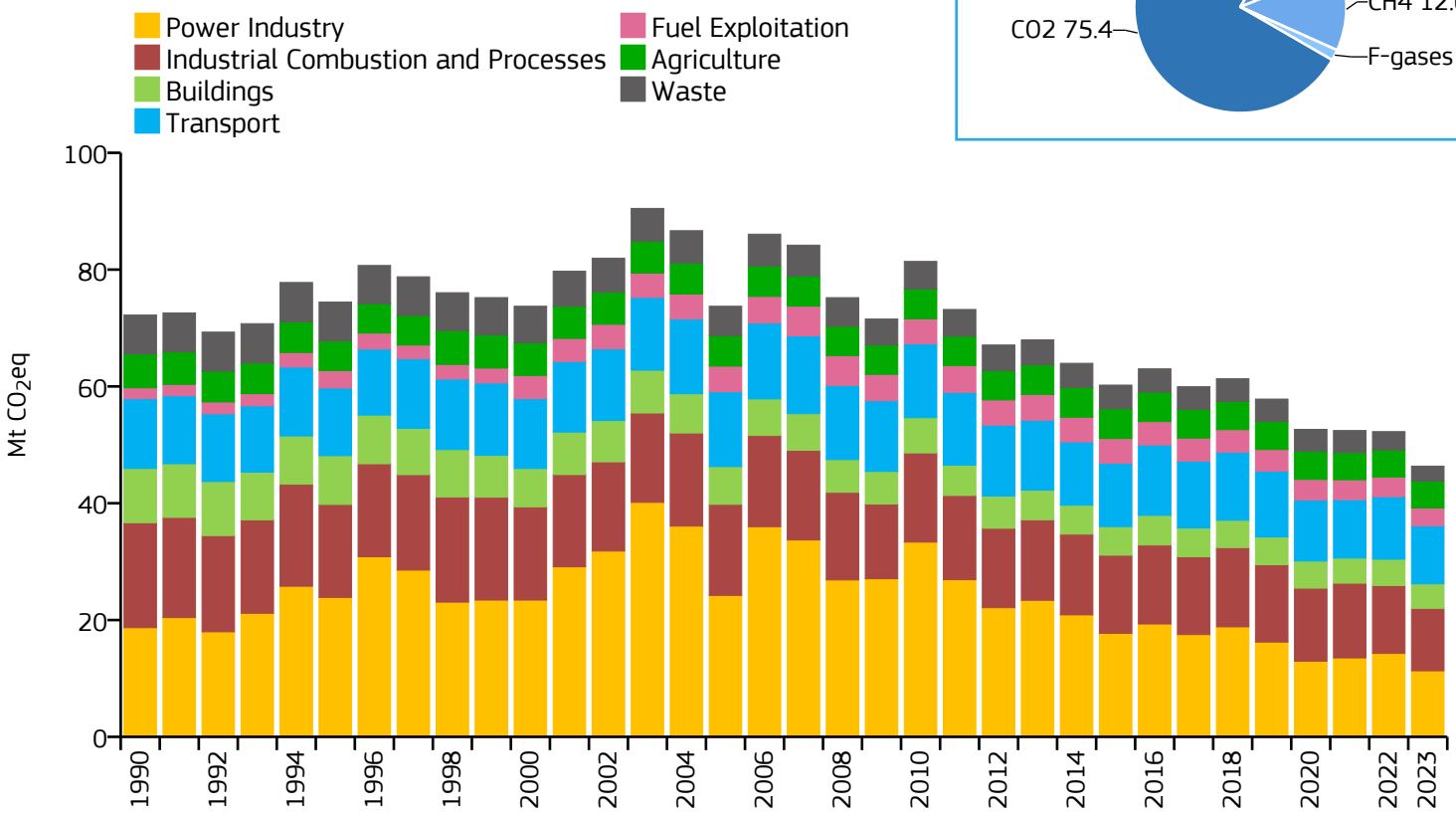
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	3.260	3.461	0.257	942.000k
2015	2.601	2.916	0.233	892.149k
2005	3.160	3.845	0.354	821.817k
1990	2.209	3.032	0.351	728.628k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+27%	-45%	-35%
Industrial Combustion and Processes	+193%	+24%	+3%
Buildings	+176%	+200%	+3%
Transport	+132%	+72%	+4%
Fuel Exploitation	+44%	+12%	0%
Agriculture	-48%	-53%	-1%
Waste	+90%	+40%	+2%
All sectors	+48%	+3%	-3%

Finland



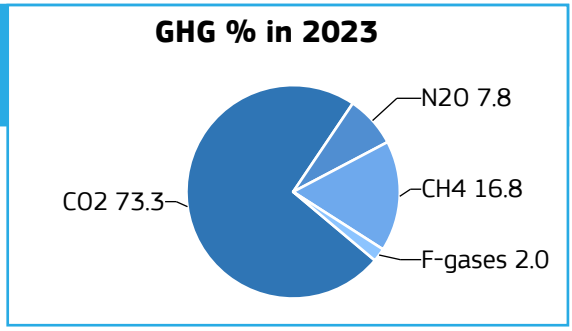
GHG emissions by sector



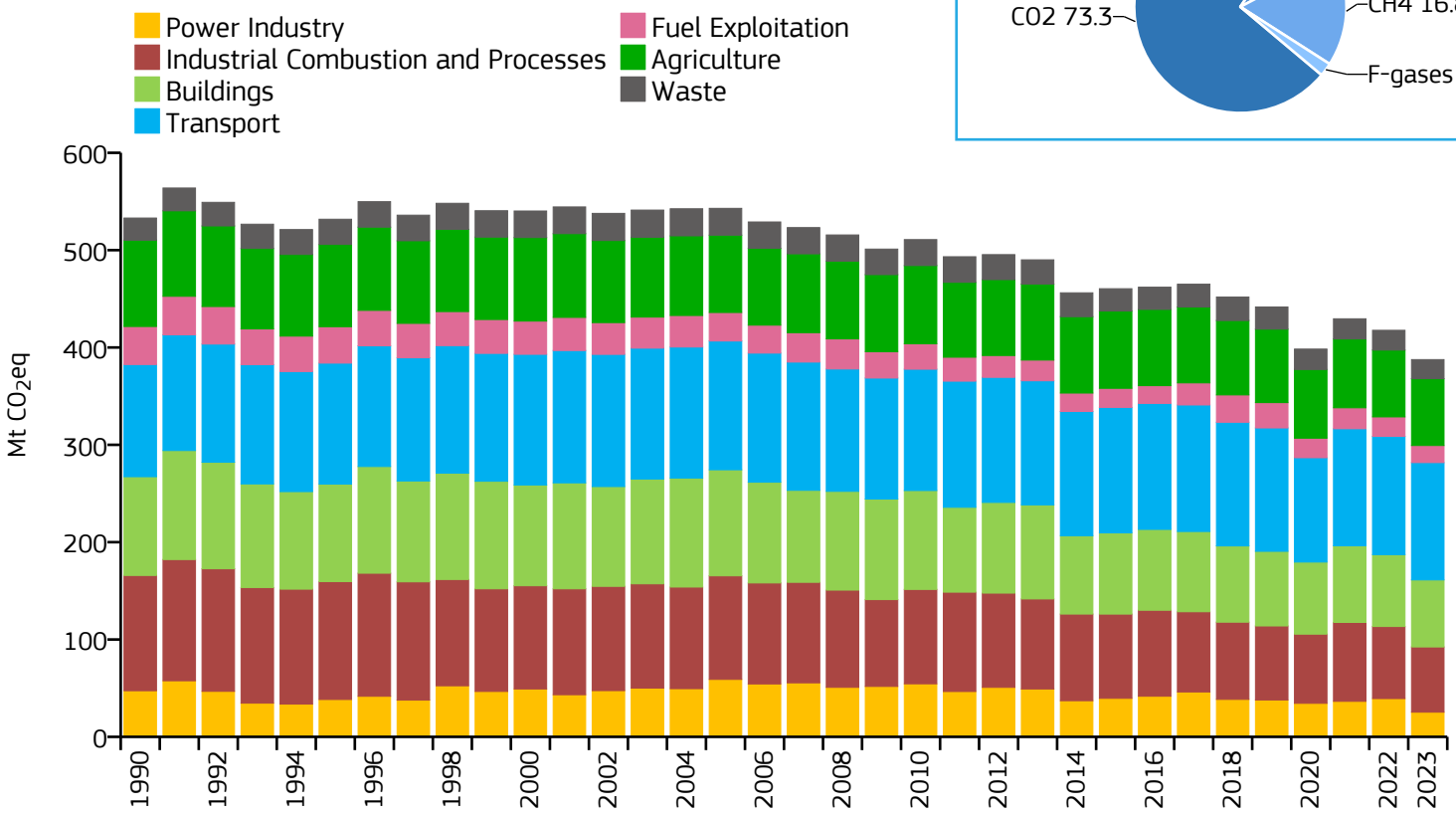
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	46.354	8.226	0.144	5.635M
2015	60.222	10.986	0.205	5.482M
2005	73.725	14.019	0.264	5.259M
1990	72.220	14.455	0.370	4.996M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-39%	-53%	-21%
Industrial Combustion and Processes	-40%	-31%	-8%
Buildings	-55%	-35%	-7%
Transport	-17%	-22%	-7%
Fuel Exploitation	+64%	-30%	-9%
Agriculture	-21%	-12%	-1%
Waste	-61%	-49%	-18%
All sectors	-36%	-37%	-11%

France and Monaco



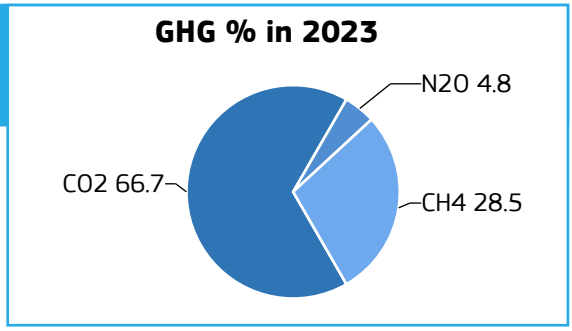
GHG emissions by sector



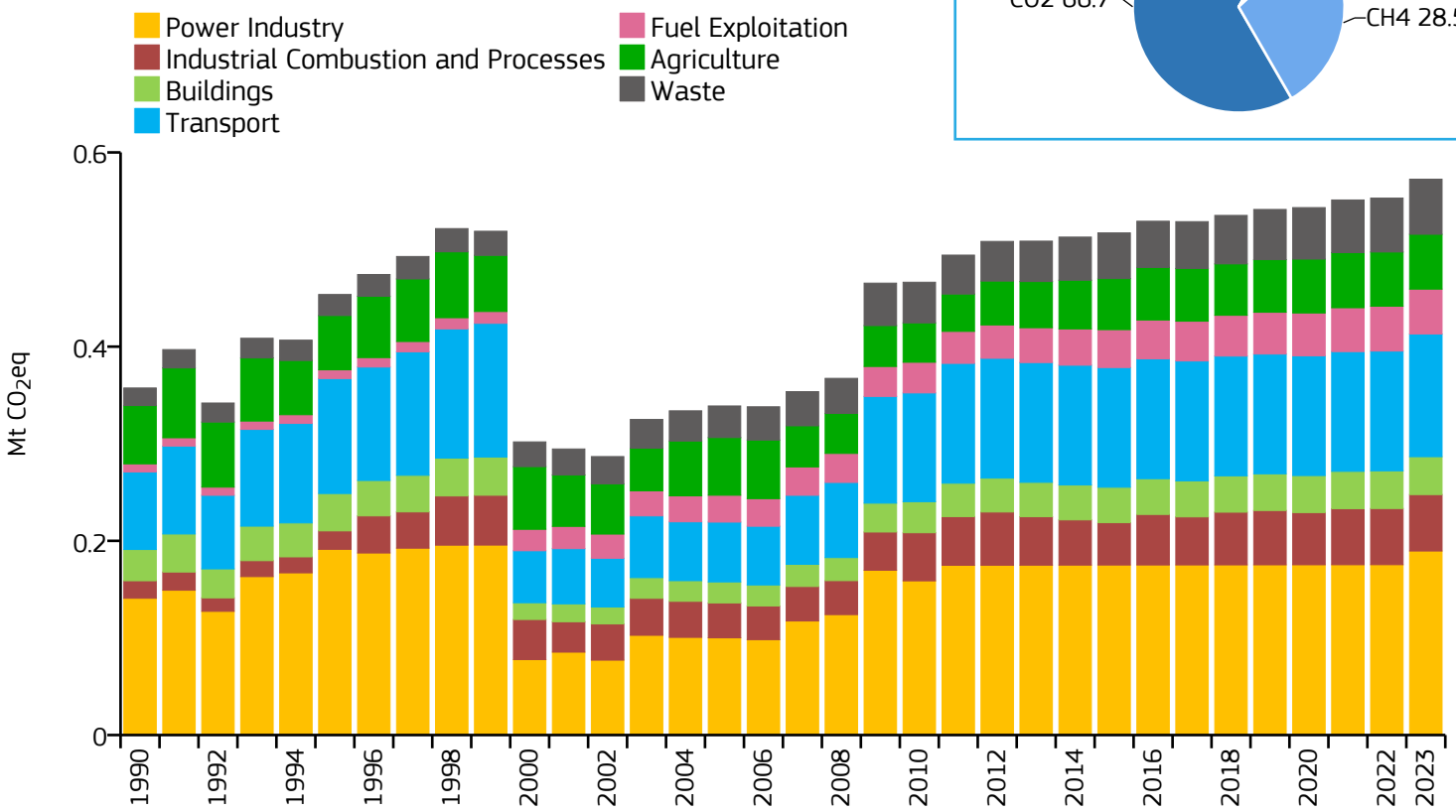
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	387.575	5.837	0.103	66.405M
2015	460.380	7.142	0.133	64.457M
2005	542.966	8.867	0.172	61.234M
1990	533.010	9.357	0.227	56.961M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↘ -47%	↘ -57%	↘ -36%
Industrial Combustion and Processes	↘ -43%	↘ -37%	↘ -9%
Buildings	↘ -32%	↘ -37%	↘ -7%
Transport	→ +5%	↘ -9%	→ -1%
Fuel Exploitation	↘ -55%	↘ -40%	↘ -12%
Agriculture	↘ -23%	↘ -14%	→ 0%
Waste	↘ -14%	↘ -29%	→ -3%
All sectors	↘ -27%	↘ -29%	↘ -7%

French Guiana



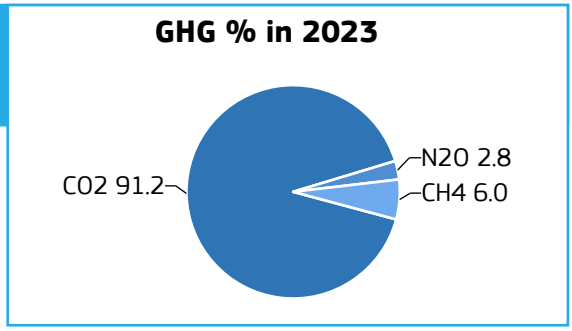
GHG emissions by sector



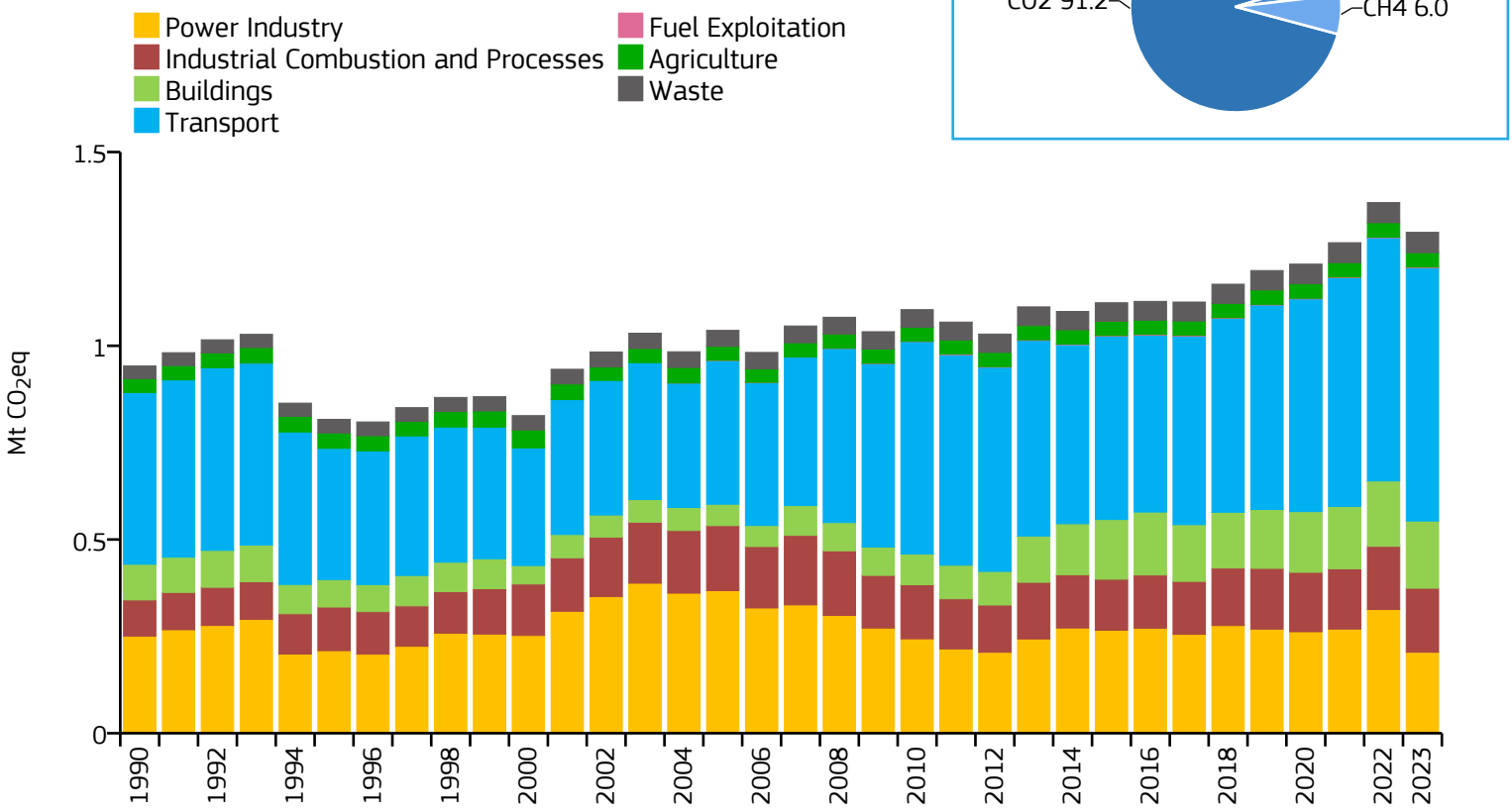
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.572	1.756	n/a	326.000k
2015	0.517	1.925	n/a	268.691k
2005	0.339	1.663	n/a	203.826k
1990	0.357	3.087	n/a	115.784k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+35%	+89%	+8%
Industrial Combustion and Processes	+222%	+62%	0%
Buildings	+21%	+80%	+1%
Transport	+58%	+105%	+2%
Fuel Exploitation	> +300%	+67%	0%
Agriculture	-6%	-5%	+1%
Waste	+213%	+74%	+2%
All sectors	+60%	+69%	+4%

French Polynesia



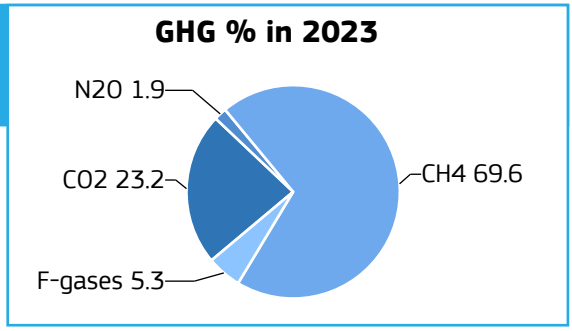
GHG emissions by sector



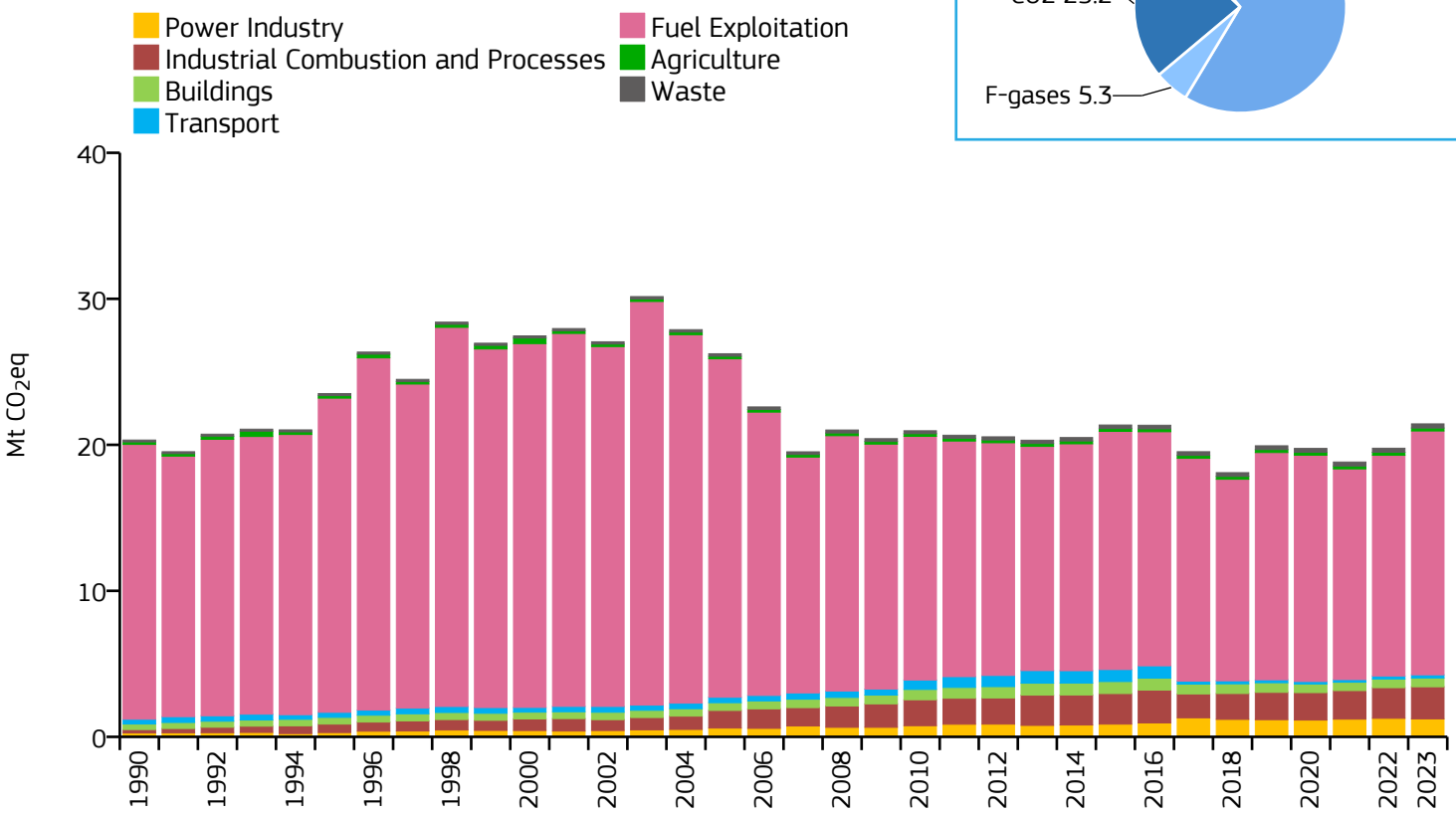
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	1.293	4.382	0.196	295.000k
2015	1.111	4.001	0.184	277.690k
2005	1.040	4.079	0.163	254.886k
1990	0.948	4.778	0.205	198.375k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-17%	-43%	-35%
Industrial Combustion and Processes	+77%	-1%	+1%
Buildings	+88%	+213%	+3%
Transport	+48%	+76%	+4%
Fuel Exploitation	n/a	> +300%	0%
Agriculture	+3%	+4%	0%
Waste	+61%	+27%	+1%
All sectors	+36%	+24%	-6%

Gabon



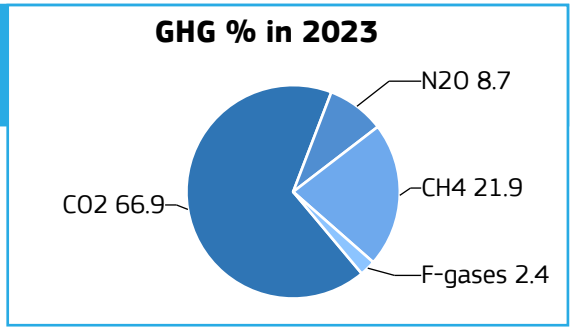
GHG emissions by sector



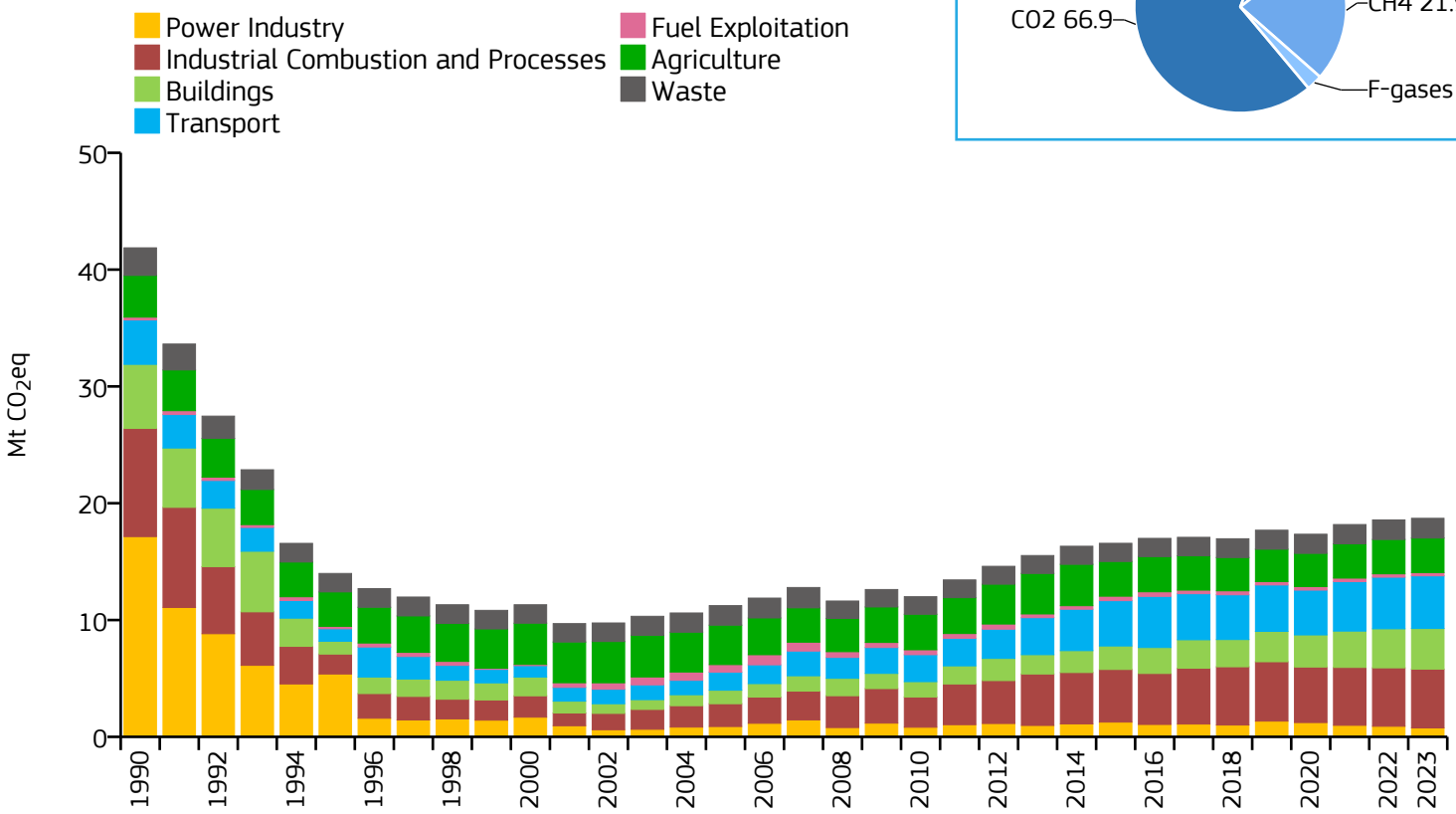
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	21.435	9.389	0.445	2.283M
2015	21.358	11.065	0.500	1.930M
2005	26.239	18.700	0.846	1.403M
1990	20.328	21.348	0.832	952.212k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+104%	-3%
Industrial Combustion and Processes	> +300%	+83%	+5%
Buildings	+59%	+13%	+1%
Transport	-34%	-42%	+5%
Fuel Exploitation	-11%	-28%	+10%
Agriculture	+18%	+16%	-2%
Waste	+121%	+64%	+2%
All sectors	+5%	-18%	+8%

Georgia



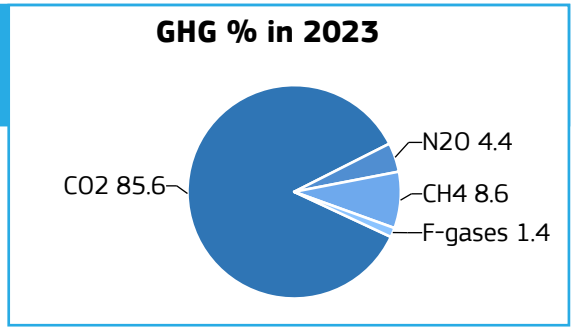
GHG emissions by sector



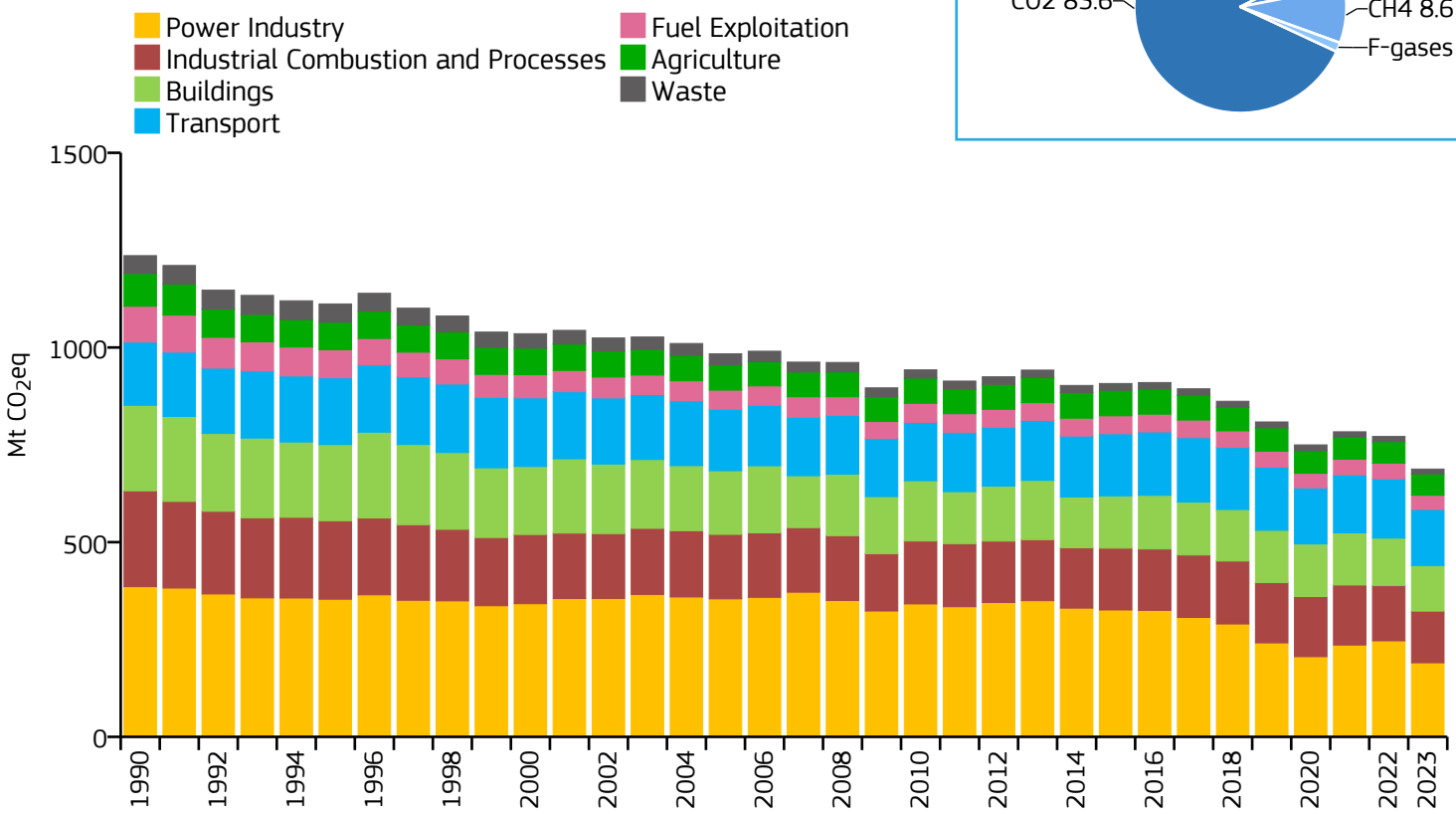
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	18.708	4.845	0.224	3.861M
2015	16.570	4.193	0.298	3.952M
2005	11.233	2.504	0.339	4.487M
1990	41.865	7.738	0.675	5.410M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↘ -96%	↘ -13%	↘ -15%
Industrial Combustion and Processes	↘ -46%	↗ +157%	→ +1%
Buildings	↘ -37%	↗ +201%	→ +4%
Transport	↗ +19%	↗ +191%	→ +2%
Fuel Exploitation	↗ +13%	↘ -58%	↘ -6%
Agriculture	↘ -17%	↘ -12%	→ +1%
Waste	↘ -28%	→ +1%	→ +1%
All sectors	↘ -55%	↗ +67%	→ +1%

Germany



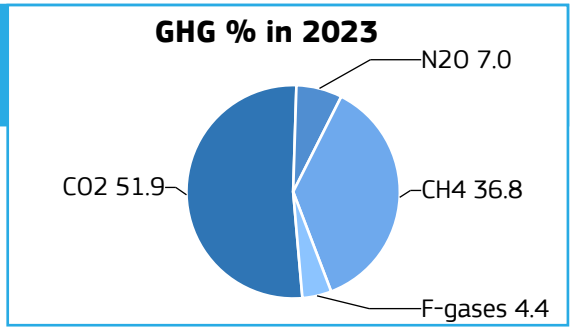
GHG emissions by sector



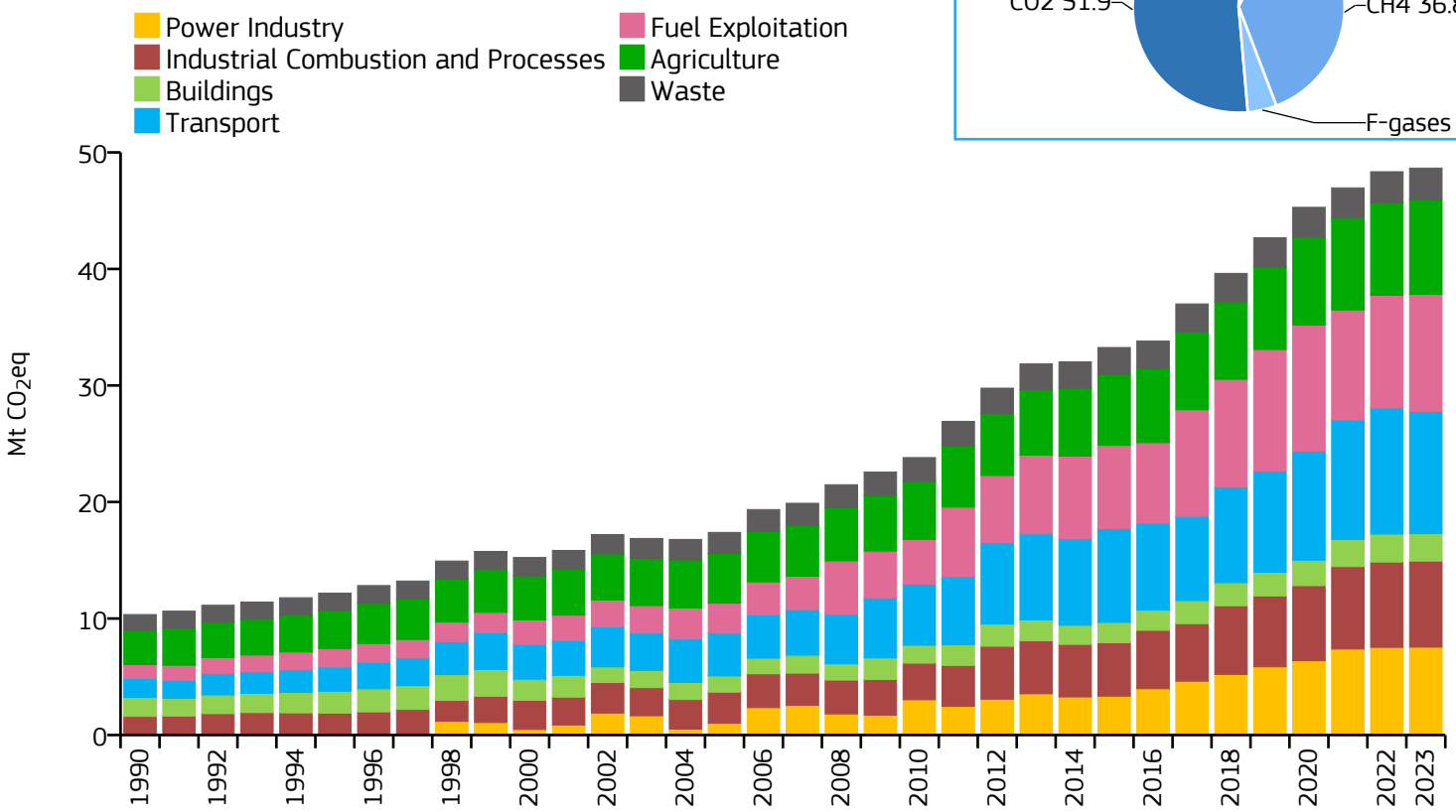
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	687.762	8.331	0.131	82.556M
2015	907.520	11.107	0.187	81.708M
2005	983.698	12.045	0.234	81.671M
1990	1235.871	15.621	0.365	79.118M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↘ -51%	↘ -46%	↘ -23%
Industrial Combustion and Processes	↘ -46%	↘ -20%	↘ -7%
Buildings	↘ -47%	↘ -28%	→ -4%
Transport	↘ -11%	↘ -9%	→ -5%
Fuel Exploitation	↘ -60%	↘ -26%	↘ -10%
Agriculture	↘ -35%	↘ -15%	→ -1%
Waste	↘ -73%	↘ -56%	→ -5%
All sectors	↘ -44%	↘ -30%	↘ -11%

Ghana



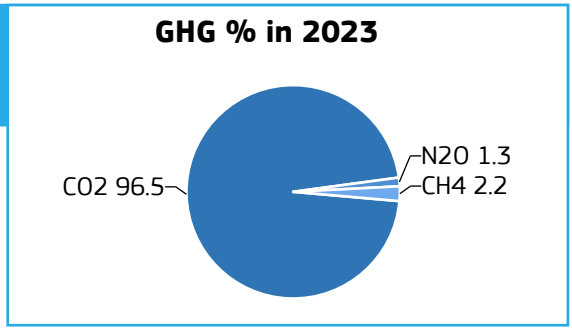
GHG emissions by sector



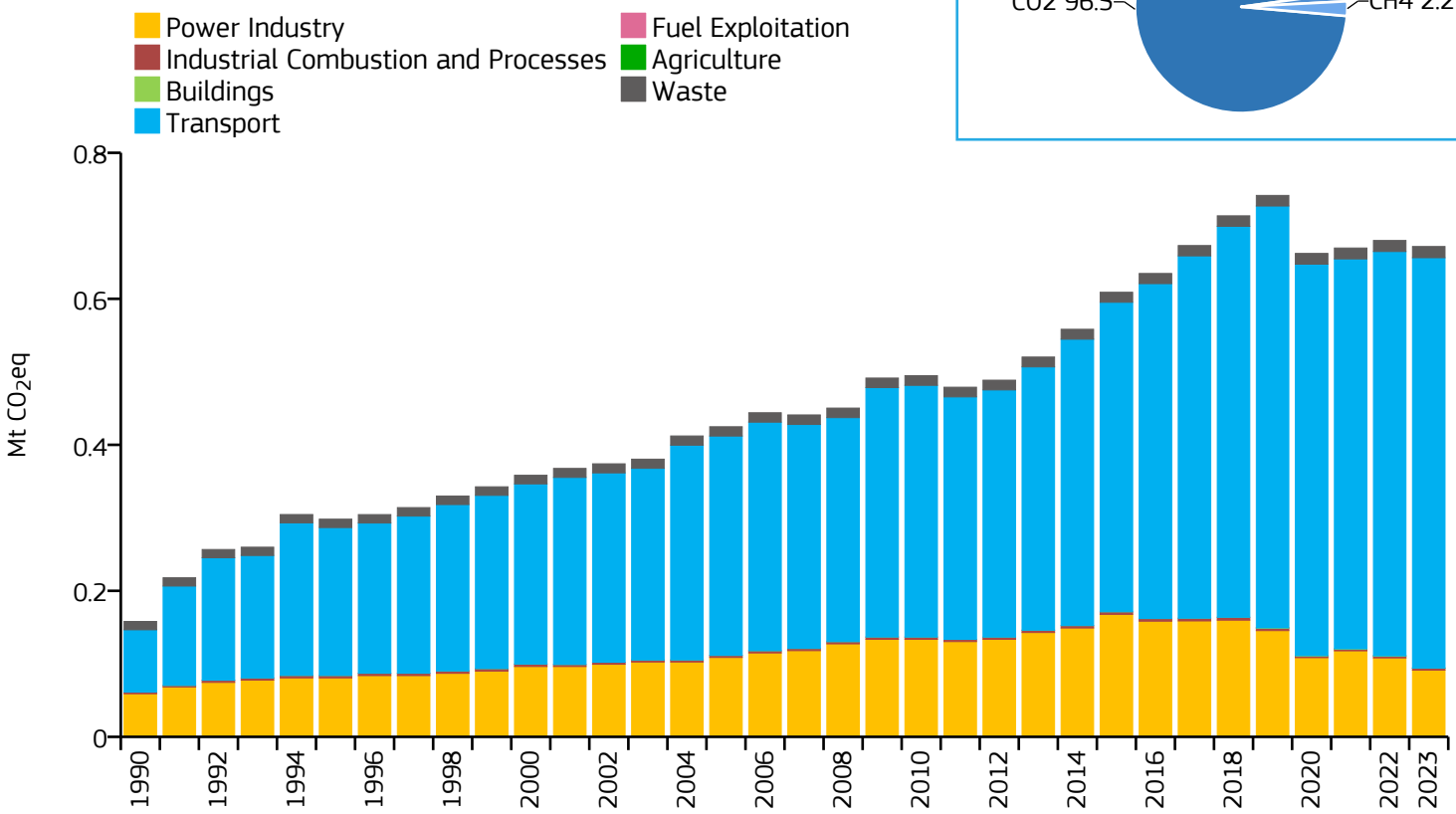
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	48.656	1.490	0.212	32.665M
2015	33.259	1.206	0.207	27.583M
2005	17.391	0.807	0.208	21.542M
1990	10.341	0.707	0.241	14.628M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	n/a	↗ > +300%	→ 0%
Industrial Combustion and Processes	↗ > +300%	↗ +176%	→ +1%
Buildings	↗ +45%	↗ +70%	→ -2%
Transport	↗ > +300%	↗ +186%	→ -3%
Fuel Exploitation	↗ > +300%	↗ +290%	→ +4%
Agriculture	↗ +182%	↗ +91%	→ +2%
Waste	↗ +93%	↗ +50%	→ +2%
All sectors	↗ > +300%	↗ +180%	→ +1%

Gibraltar



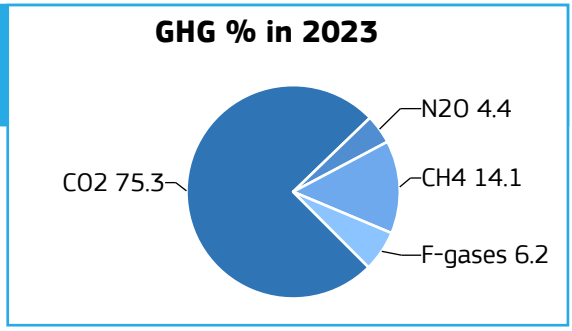
GHG emissions by sector



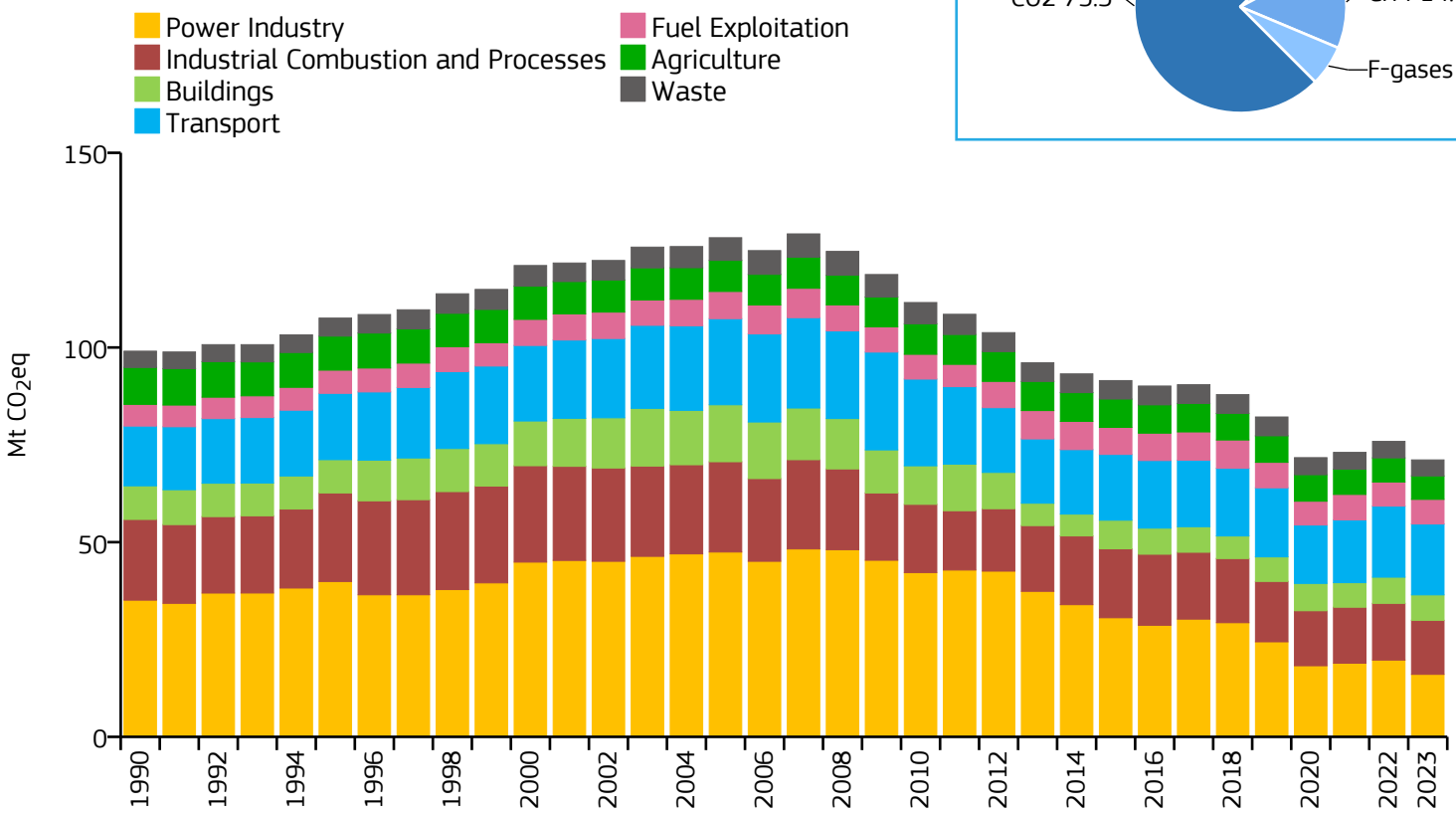
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.672	19.189	0.485	35.000k
2015	0.609	17.791	0.538	34.228k
2005	0.425	13.239	0.420	32.085k
1990	0.158	5.419	0.240	29.164k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +55%	↘ -16%	↘ -15%
Industrial Combustion and Processes	↗ +23%	→ 0%	→ 0%
Buildings	↗ > +300%	↗ > +300%	→ 0%
Transport	↗ > +300%	↗ +87%	→ +1%
Fuel Exploitation	n/a	n/a	n/a
Agriculture	n/a	n/a	n/a
Waste	↗ +34%	↗ +20%	→ +1%
All sectors	↗ > +300%	↗ +58%	→ -1%

Greece



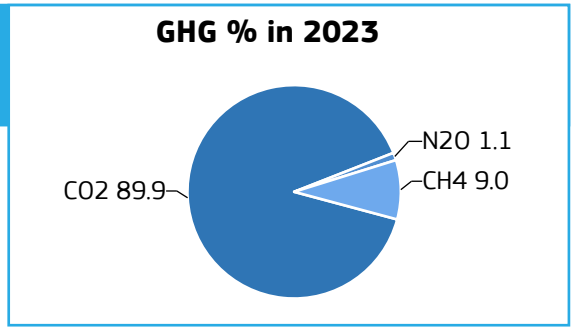
GHG emissions by sector



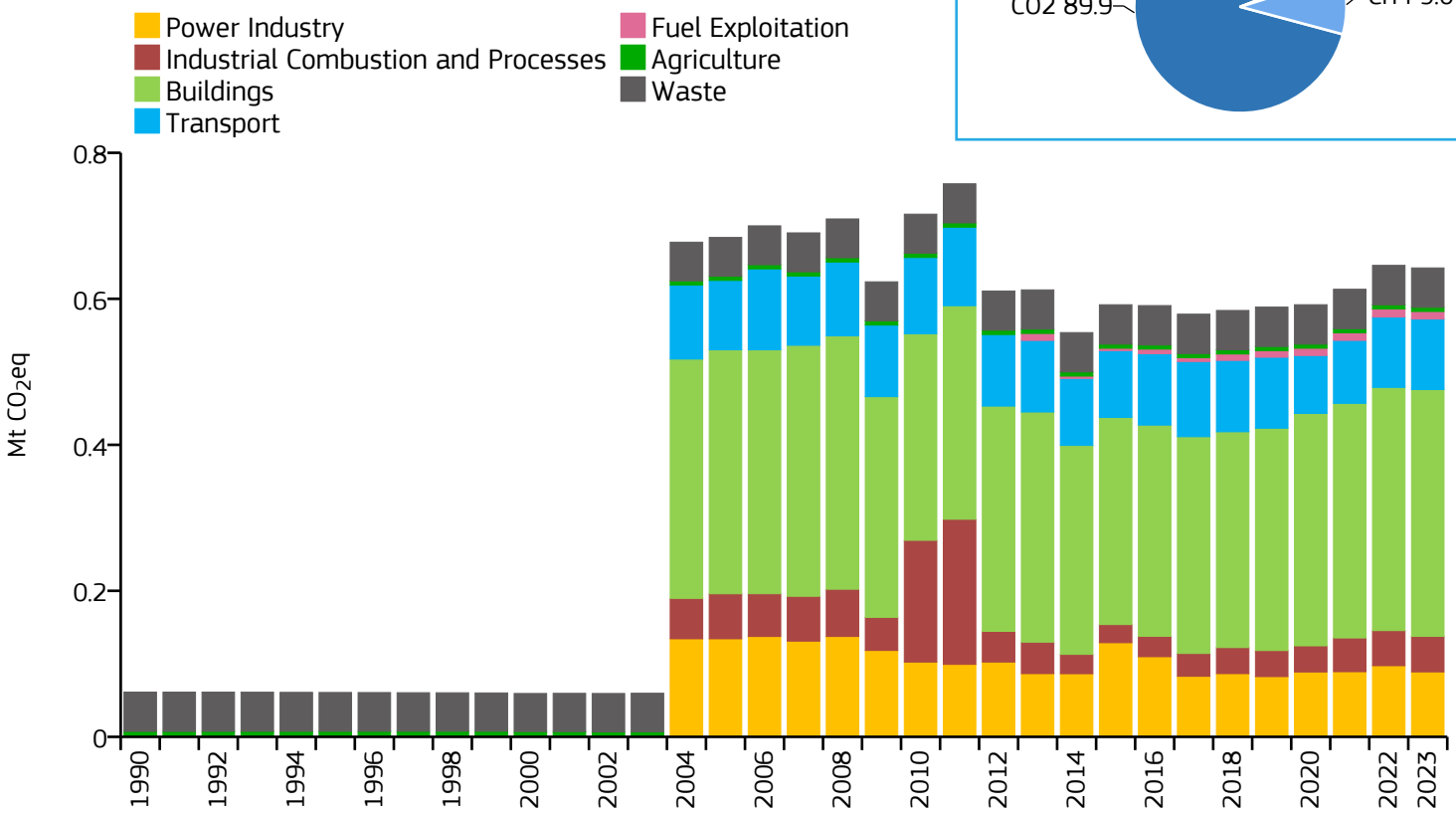
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	71.130	6.460	0.189	11.011M
2015	91.504	8.157	0.269	11.218M
2005	128.193	11.343	0.302	11.301M
1990	99.053	9.665	0.359	10.248M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↘ -54%	↘ -66%	↘ -19%
Industrial Combustion and Processes	↘ -33%	↘ -40%	→ -5%
Buildings	↘ -24%	↘ -55%	→ -3%
Transport	↗ +19%	↘ -18%	→ 0%
Fuel Exploitation	↗ +14%	↘ -9%	→ +2%
Agriculture	↘ -36%	↘ -24%	→ -3%
Waste	→ -2%	↘ -29%	→ -3%
All sectors	↘ -28%	↘ -45%	↘ -6%

Greenland



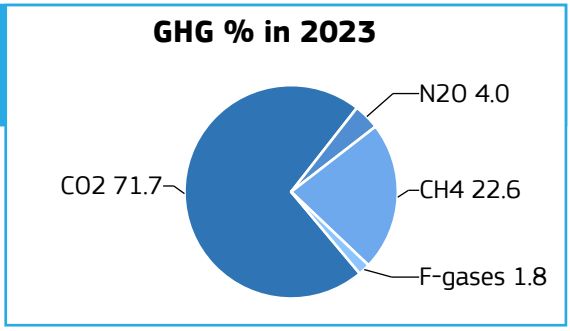
GHG emissions by sector



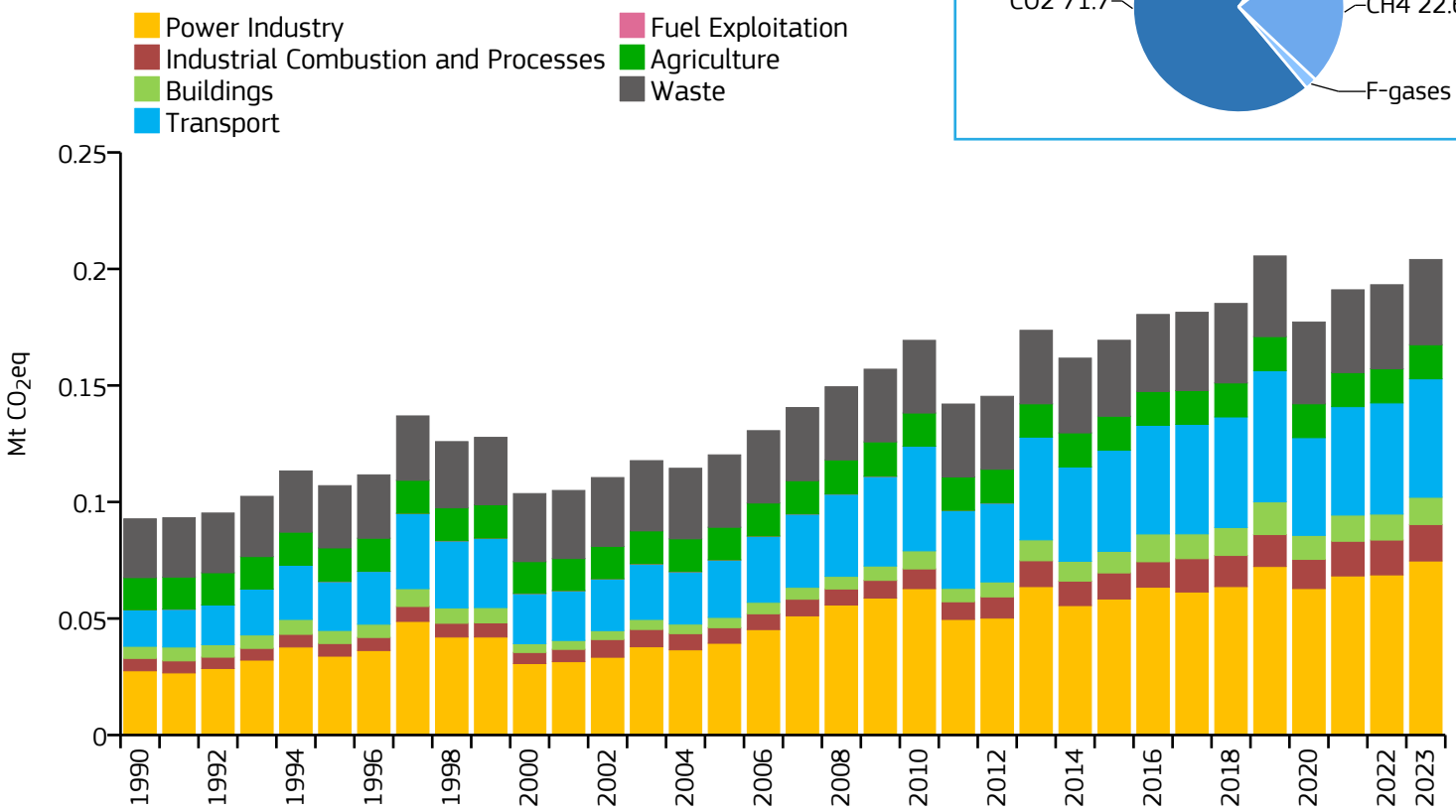
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.642	11.269	0.167	57.000k
2015	0.592	10.499	0.169	56.377k
2005	0.684	12.011	0.233	56.951k
1990	0.061	1.103	0.029	55.604k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	n/a	-34%	-9%
Industrial Combustion and Processes	n/a	-21%	+1%
Buildings	n/a	+1%	+1%
Transport	n/a	+2%	0%
Fuel Exploitation	n/a	n/a	-7%
Agriculture	-9%	0%	0%
Waste	0%	+1%	0%
All sectors	n/a	-6%	-1%

Grenada



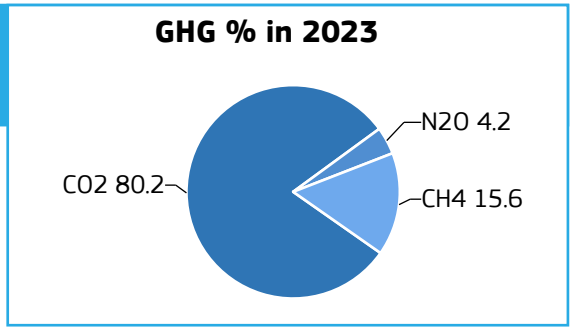
GHG emissions by sector



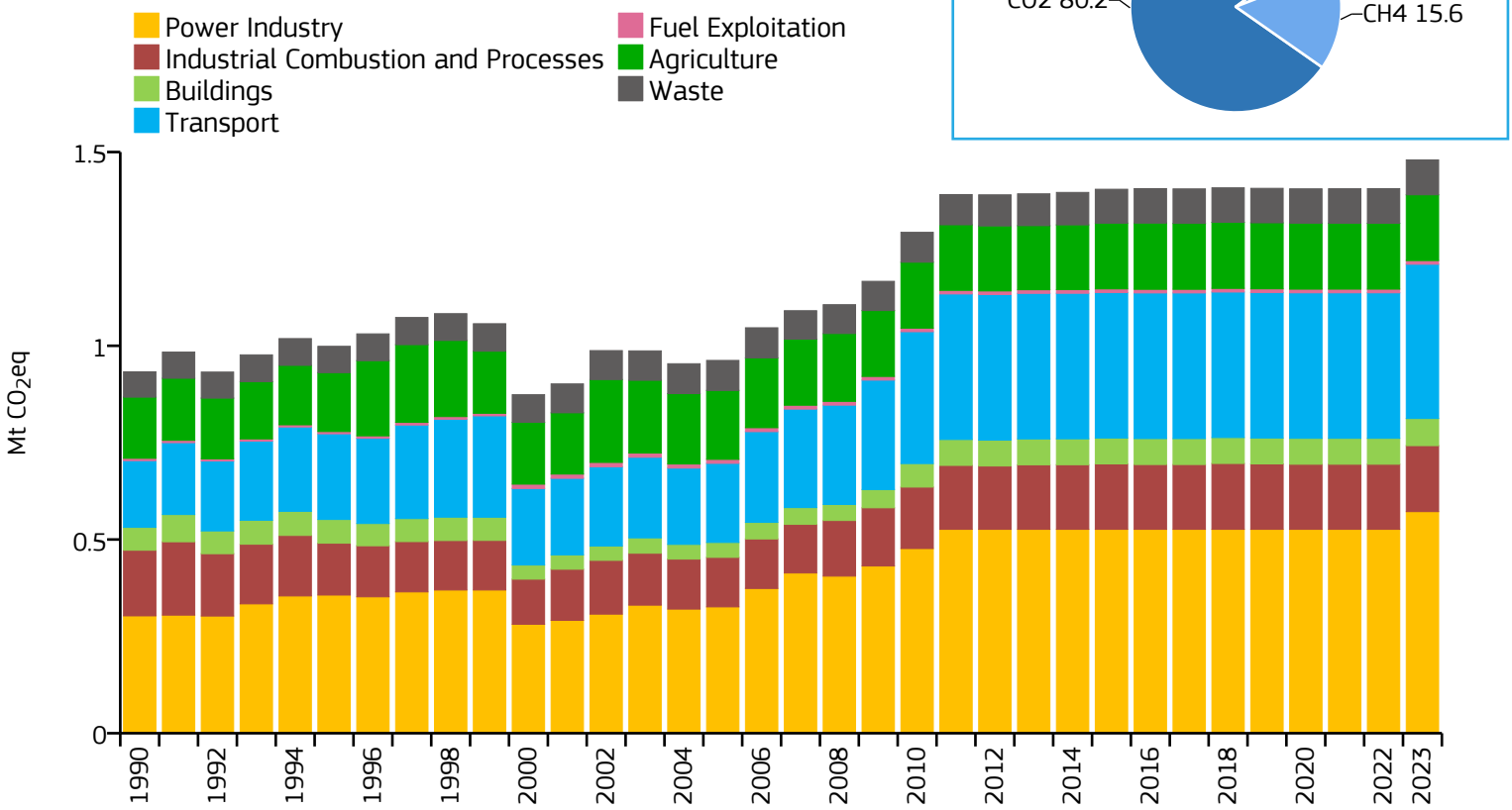
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.204	1.838	0.102	111.000k
2015	0.169	1.586	0.098	106.823k
2005	0.120	1.168	0.077	102.949k
1990	0.093	0.963	0.104	96.283k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +171%	↗ +90%	↗ +9%
Industrial Combustion and Processes	↗ +194%	↗ +134%	→ +5%
Buildings	↗ +125%	↗ +165%	→ +5%
Transport	↗ +224%	↗ +106%	↗ +7%
Fuel Exploitation	n/a	n/a	n/a
Agriculture	↗ +6%	→ +5%	→ 0%
Waste	↗ +45%	↗ +18%	→ +1%
All sectors	↗ +120%	↗ +70%	↗ +6%

Guadeloupe



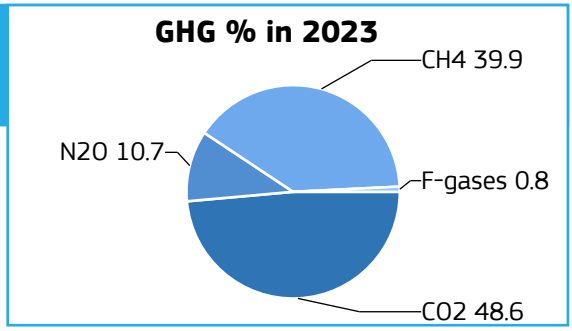
GHG emissions by sector



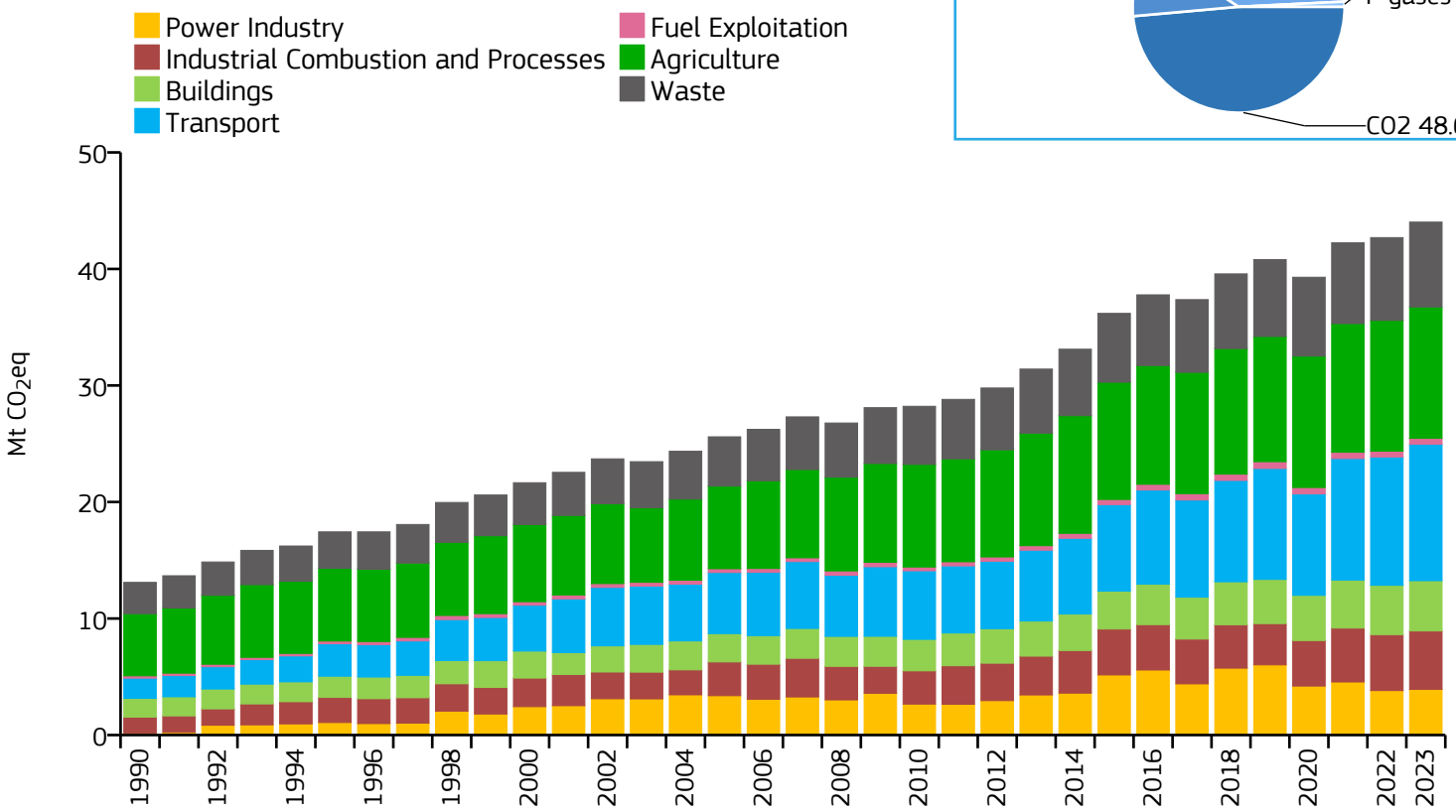
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	1.480	3.303	n/a	448.000k
2015	1.404	3.117	n/a	450.418k
2005	0.962	2.189	n/a	439.552k
1990	0.933	2.417	n/a	385.878k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+89%	+75%	+9%
Industrial Combustion and Processes	+1%	+33%	+1%
Buildings	+18%	+82%	+5%
Transport	+131%	+95%	+6%
Fuel Exploitation	+59%	-8%	0%
Agriculture	+8%	-5%	0%
Waste	+38%	+16%	+1%
All sectors	+59%	+54%	+5%

Guatemala



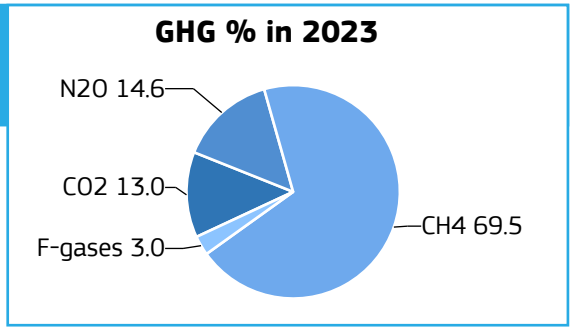
GHG emissions by sector



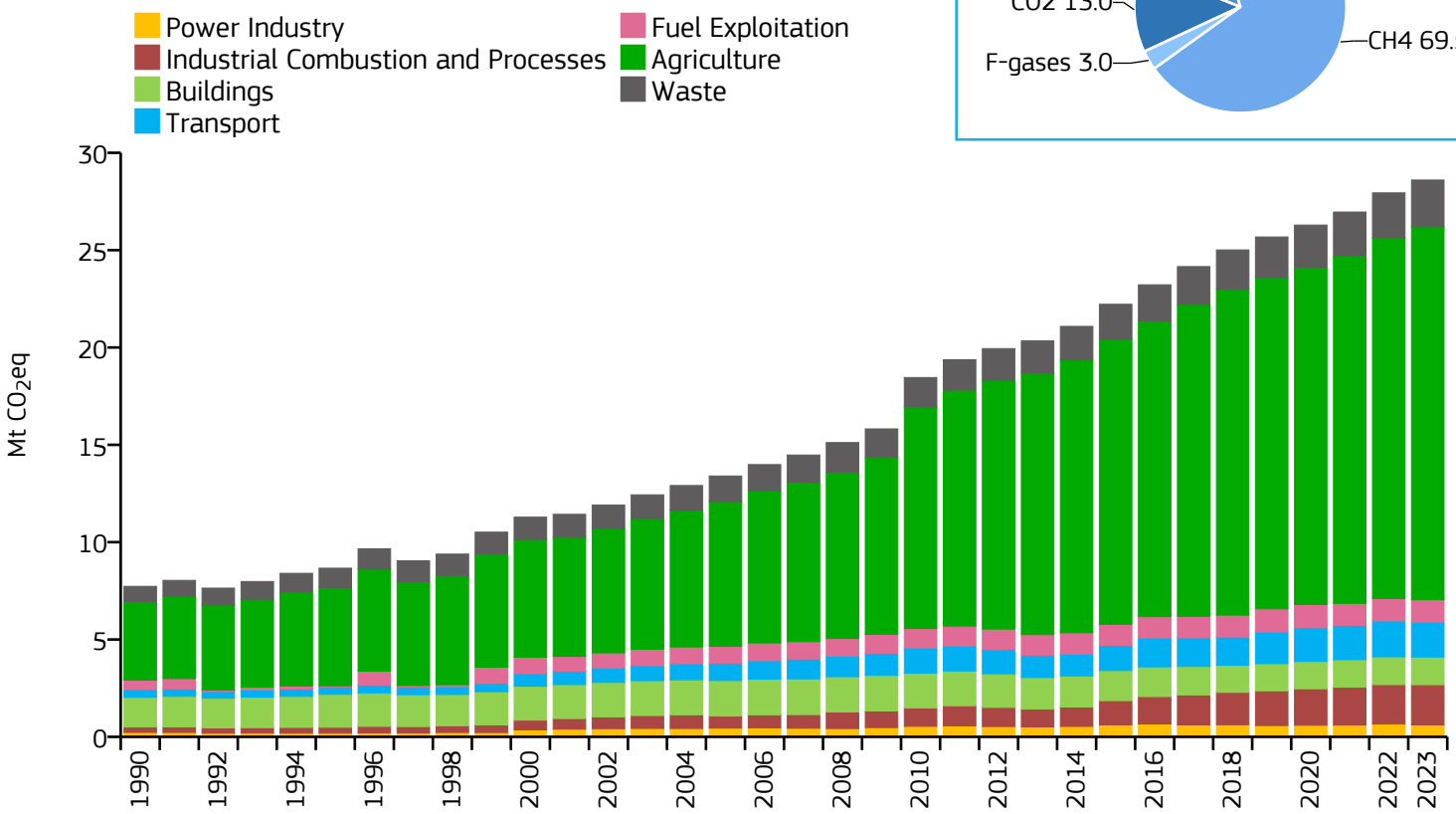
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	44.020	2.328	0.197	18.910M
2015	36.187	2.227	0.211	16.252M
2005	25.594	1.954	0.216	13.096M
1990	13.101	1.414	0.192	9.264M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+16%	+3%
Industrial Combustion and Processes	+268%	+73%	+4%
Buildings	+168%	+78%	+2%
Transport	> +300%	+123%	+6%
Fuel Exploitation	+158%	+59%	+3%
Agriculture	+111%	+59%	0%
Waste	+171%	+72%	+2%
All sectors	+236%	+72%	+3%

Guinea



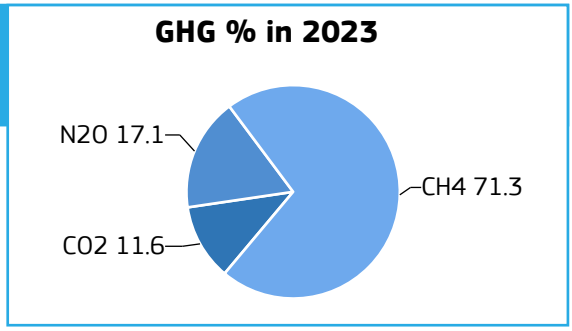
GHG emissions by sector



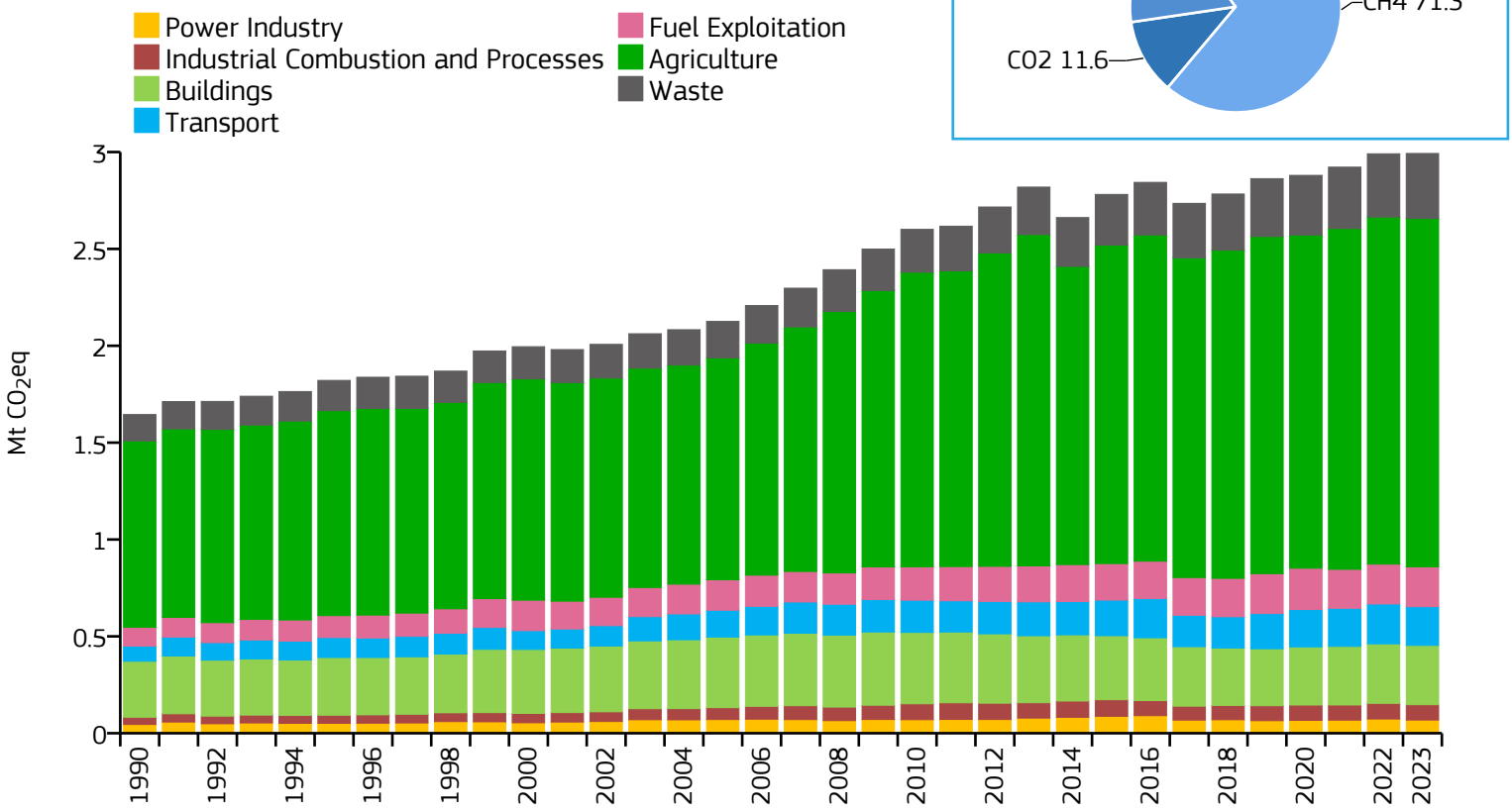
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	28.602	1.926	0.505	14.848M
2015	22.220	1.838	0.658	12.091M
2005	13.399	1.384	0.579	9.680M
1990	7.731	1.280	0.571	6.041M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +166%	↗ +36%	↘ -7%
Industrial Combustion and Processes	↗ > +300%	↗ +233%	→ +2%
Buildings	↘ -6%	↘ -22%	→ -1%
Transport	↗ > +300%	↗ +104%	→ -3%
Fuel Exploitation	↗ +137%	↗ +31%	→ 0%
Agriculture	↗ > +300%	↗ +158%	→ +3%
Waste	↗ +208%	↗ +83%	→ +3%
All sectors	↗ +270%	↗ +113%	→ +2%

Guinea-Bissau



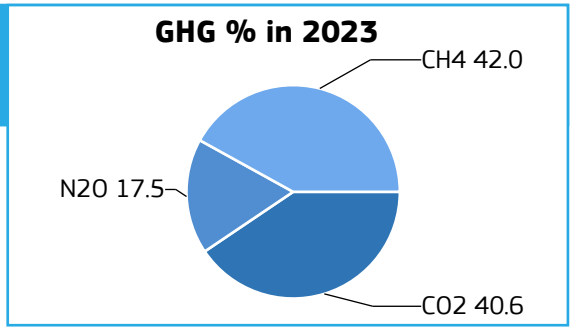
GHG emissions by sector



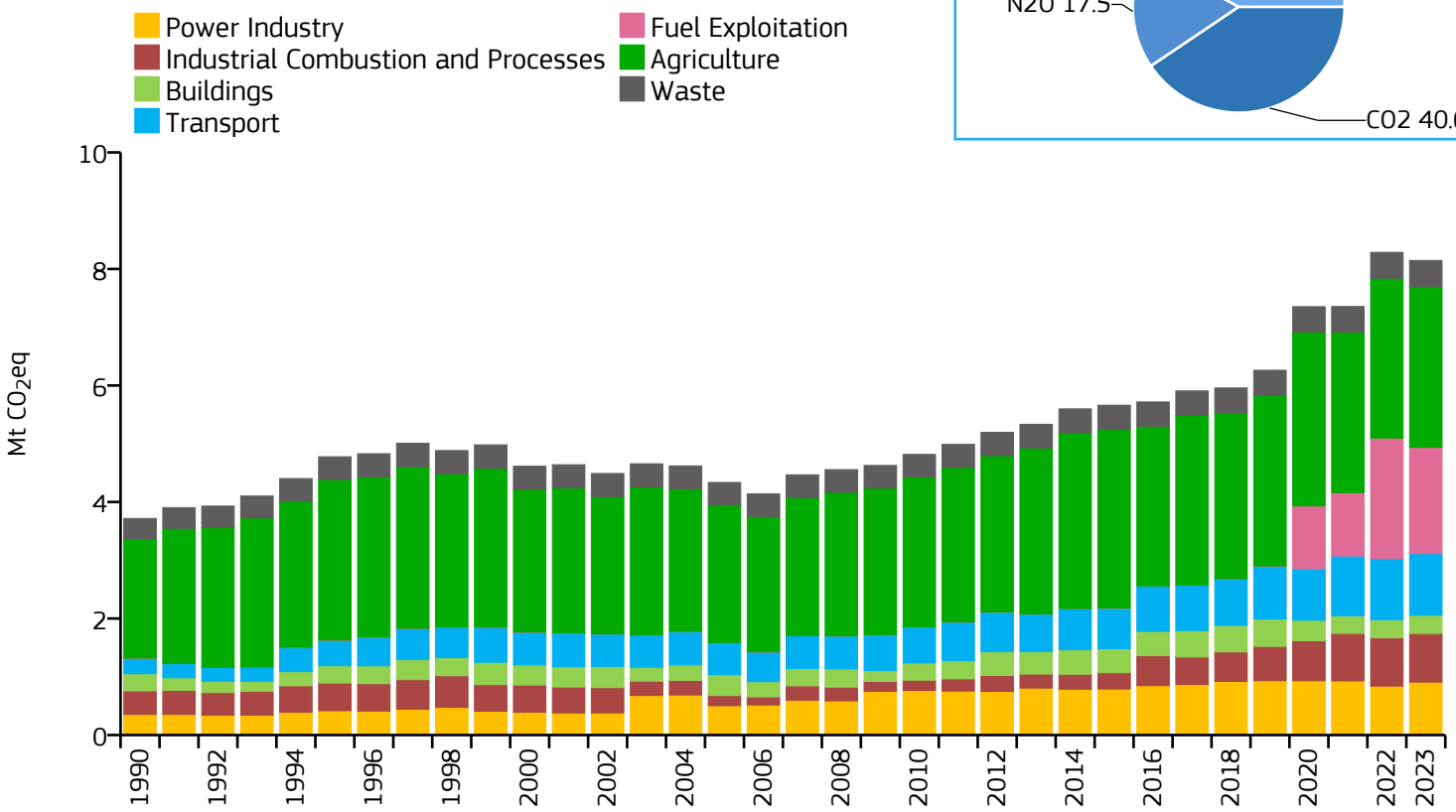
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	2.993	1.396	0.587	2.144M
2015	2.781	1.571	0.766	1.771M
2005	2.126	1.539	0.819	1.381M
1990	1.645	1.625	0.942	1.012M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+51%	-3%	-7%
Industrial Combustion and Processes	+111%	+29%	-2%
Buildings	+6%	-16%	0%
Transport	+155%	+44%	-3%
Fuel Exploitation	+112%	+31%	0%
Agriculture	+87%	+57%	0%
Waste	+147%	+78%	+3%
All sectors	+82%	+41%	0%

Guyana



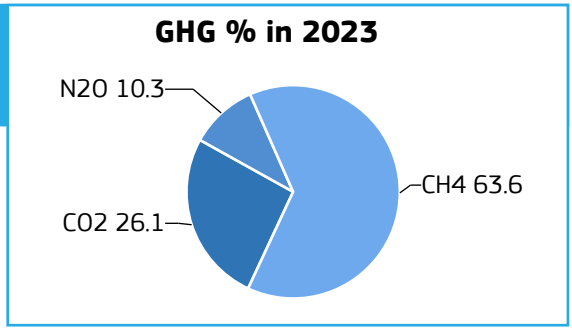
GHG emissions by sector



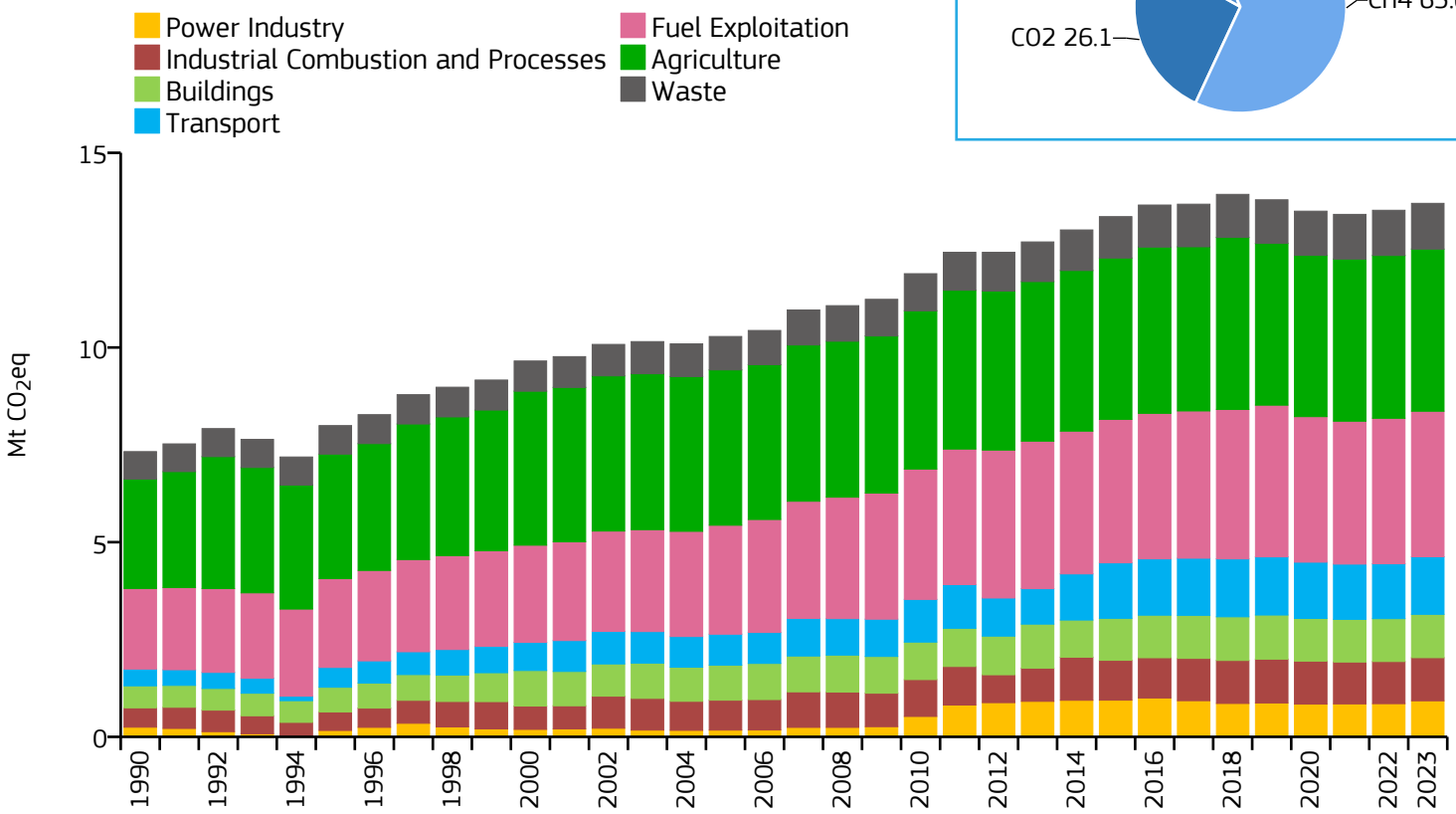
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	8.147	10.145	0.201	803.000k
2015	5.661	7.367	0.619	768.514k
2005	4.335	5.773	0.690	750.946k
1990	3.717	5.001	0.976	743.309k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +157%	↗ +81%	↗ +8%
Industrial Combustion and Processes	↗ +106%	↗ > +300%	→ +1%
Buildings	↗ +6%	↘ -13%	→ +1%
Transport	↗ +300%	↗ +93%	→ +1%
Fuel Exploitation	↗ > +300%	↗ > +300%	↘ -12%
Agriculture	↗ +35%	↗ +17%	→ +1%
Waste	↗ +28%	↗ +16%	→ +1%
All sectors	↗ +119%	↗ +88%	→ -2%

Haiti



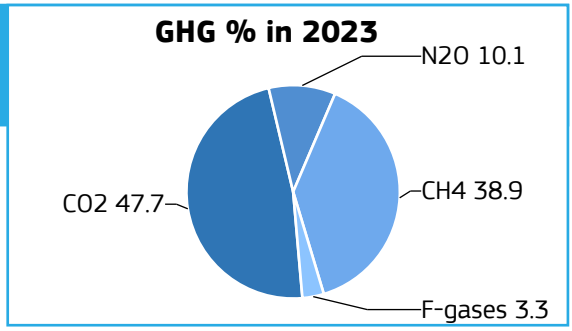
GHG emissions by sector



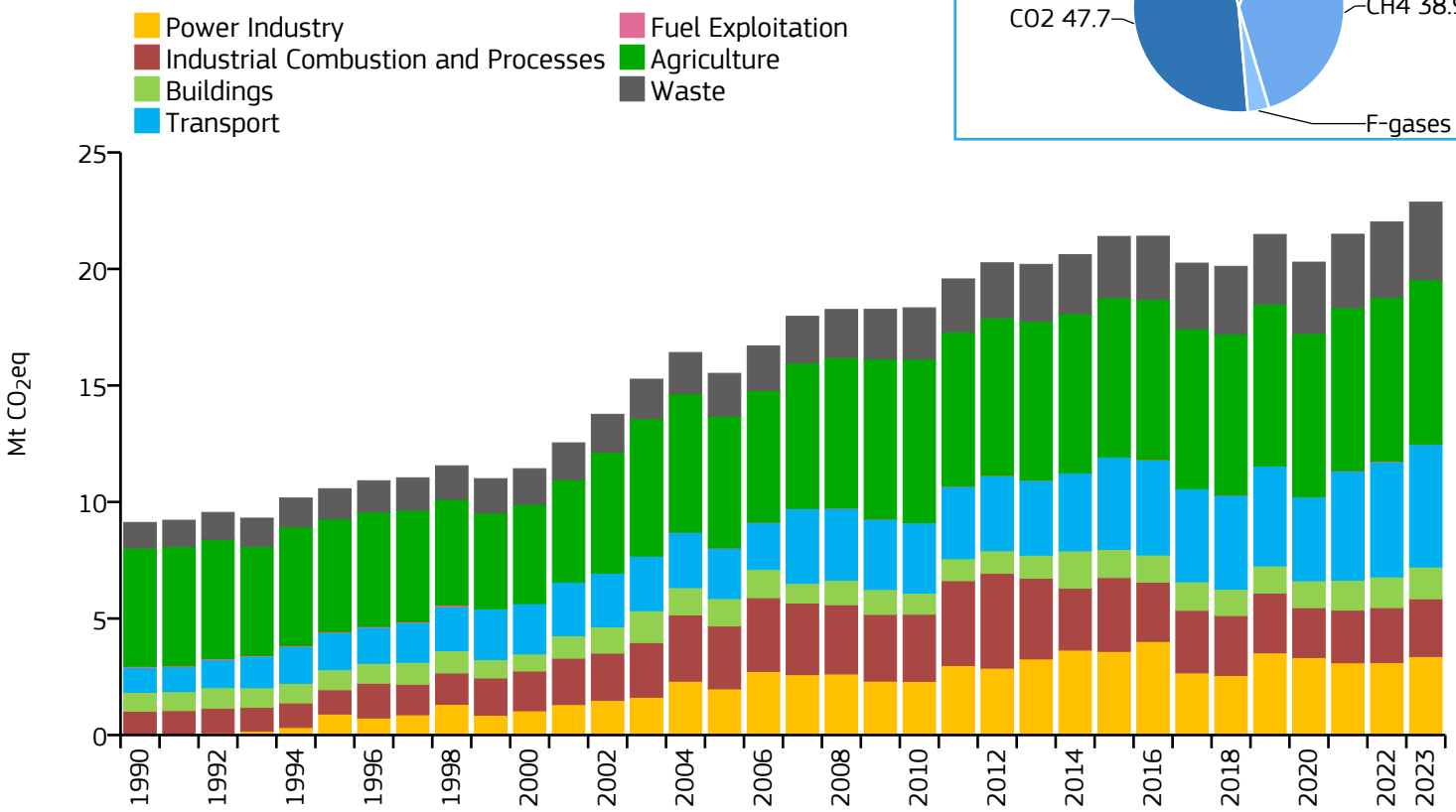
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	13.702	1.167	0.398	11.746M
2015	13.360	1.247	0.371	10.711M
2005	10.282	1.110	0.359	9.263M
1990	7.325	1.032	0.271	7.100M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +274%	↗ > +300%	↗ +9%
Industrial Combustion and Processes	↗ +122%	↗ +44%	→ +2%
Buildings	↗ +97%	↗ +24%	→ +1%
Transport	↗ +243%	↗ +86%	→ +5%
Fuel Exploitation	↗ +81%	↗ +34%	→ 0%
Agriculture	↗ +48%	→ +4%	→ 0%
Waste	↗ +67%	↗ +37%	→ +1%
All sectors	↗ +87%	↗ +33%	→ +1%

Honduras



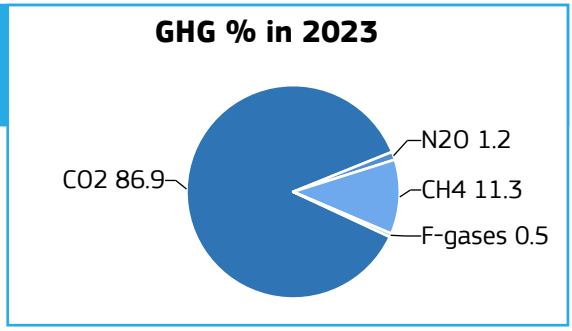
GHG emissions by sector



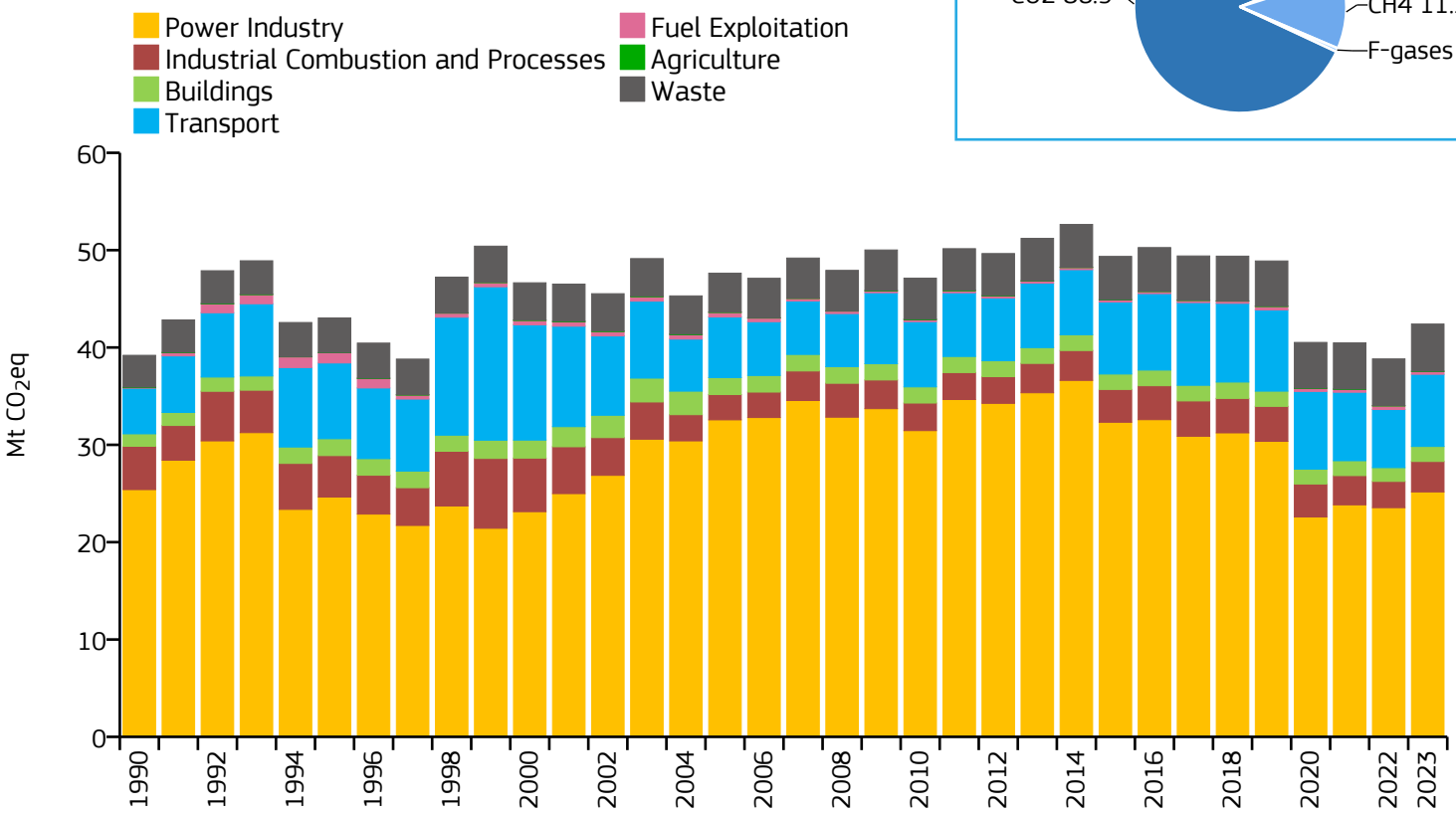
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	22.866	2.250	0.332	10.164M
2015	21.396	2.388	0.398	8.961M
2005	15.519	2.105	0.410	7.373M
1990	9.123	1.841	0.414	4.955M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ > +300%	↗ +70%	↗ +8%
Industrial Combustion and Processes	↗ +148%	↘ -8%	→ +5%
Buildings	↗ +68%	↗ +16%	→ +4%
Transport	↗ > +300%	↗ +142%	↗ +6%
Fuel Exploitation	↘ -55%	↗ > +300%	→ +3%
Agriculture	↗ +39%	↗ +25%	→ 0%
Waste	↗ +203%	↗ +82%	→ +3%
All sectors	↗ +151%	↗ +47%	→ +4%

Hong Kong



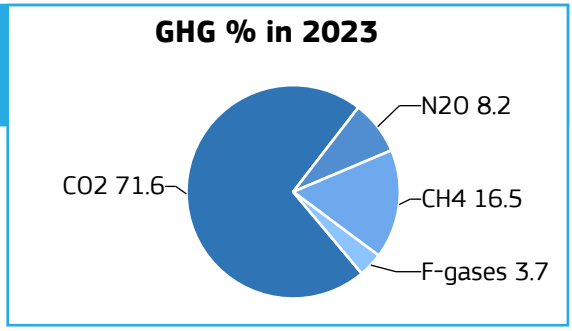
GHG emissions by sector



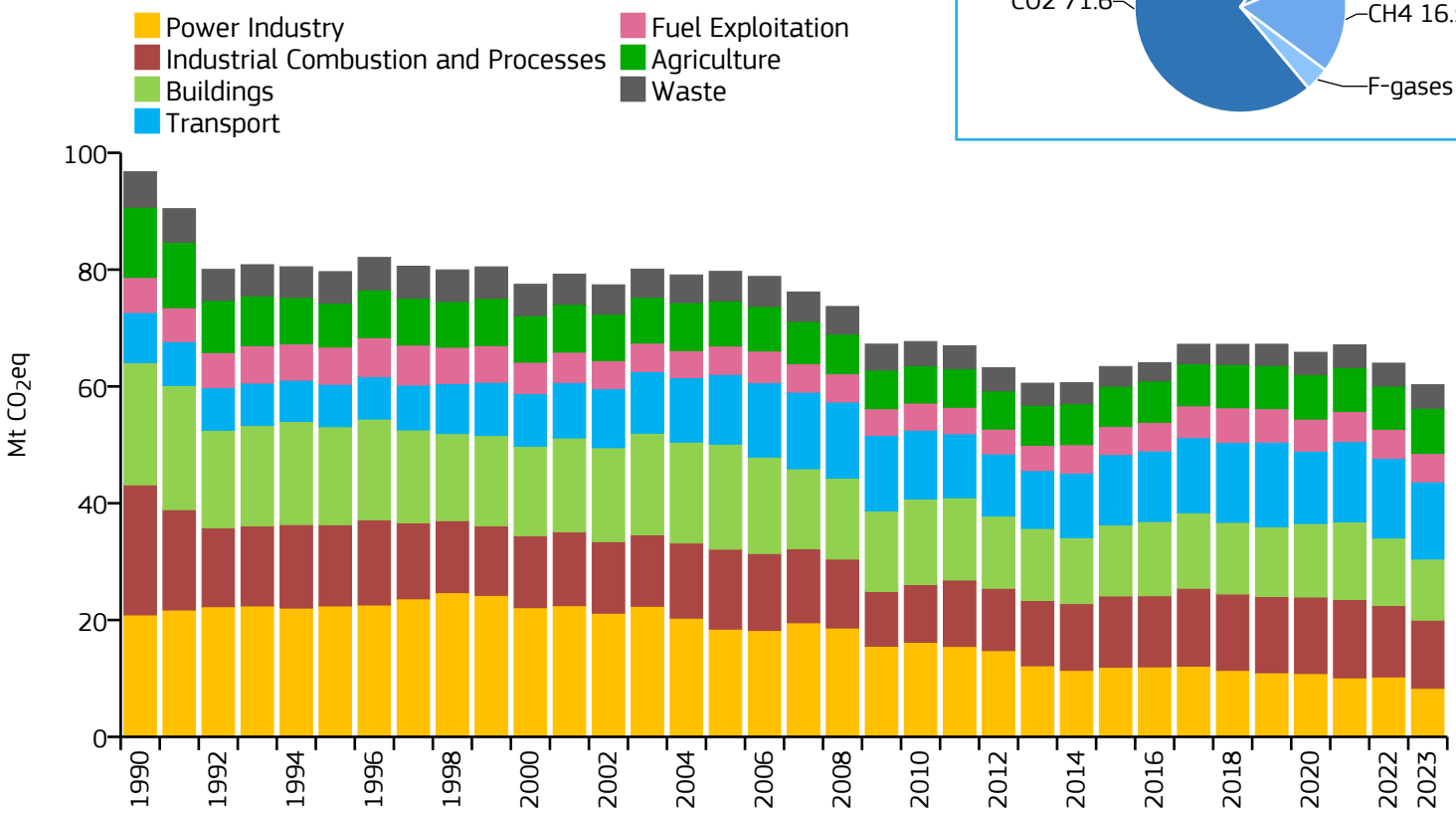
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	42.408	5.518	0.087	7.685M
2015	49.357	6.812	0.108	7.246M
2005	47.630	6.976	0.146	6.828M
1990	39.196	6.780	0.217	5.781M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-1%	-23%	+7%
Industrial Combustion and Processes	-30%	+20%	+16%
Buildings	+21%	-11%	+9%
Transport	+58%	+19%	+24%
Fuel Exploitation	> +300%	-40%	-24%
Agriculture	-48%	-7%	0%
Waste	+48%	+21%	+1%
All sectors	+8%	-11%	+9%

Hungary



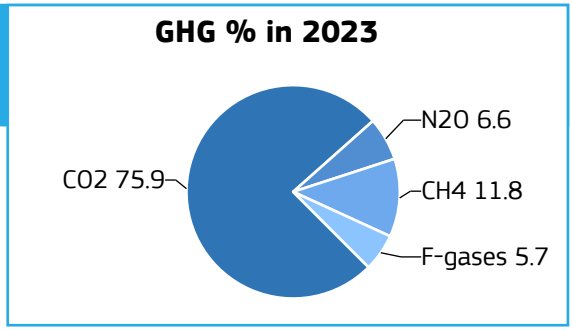
GHG emissions by sector



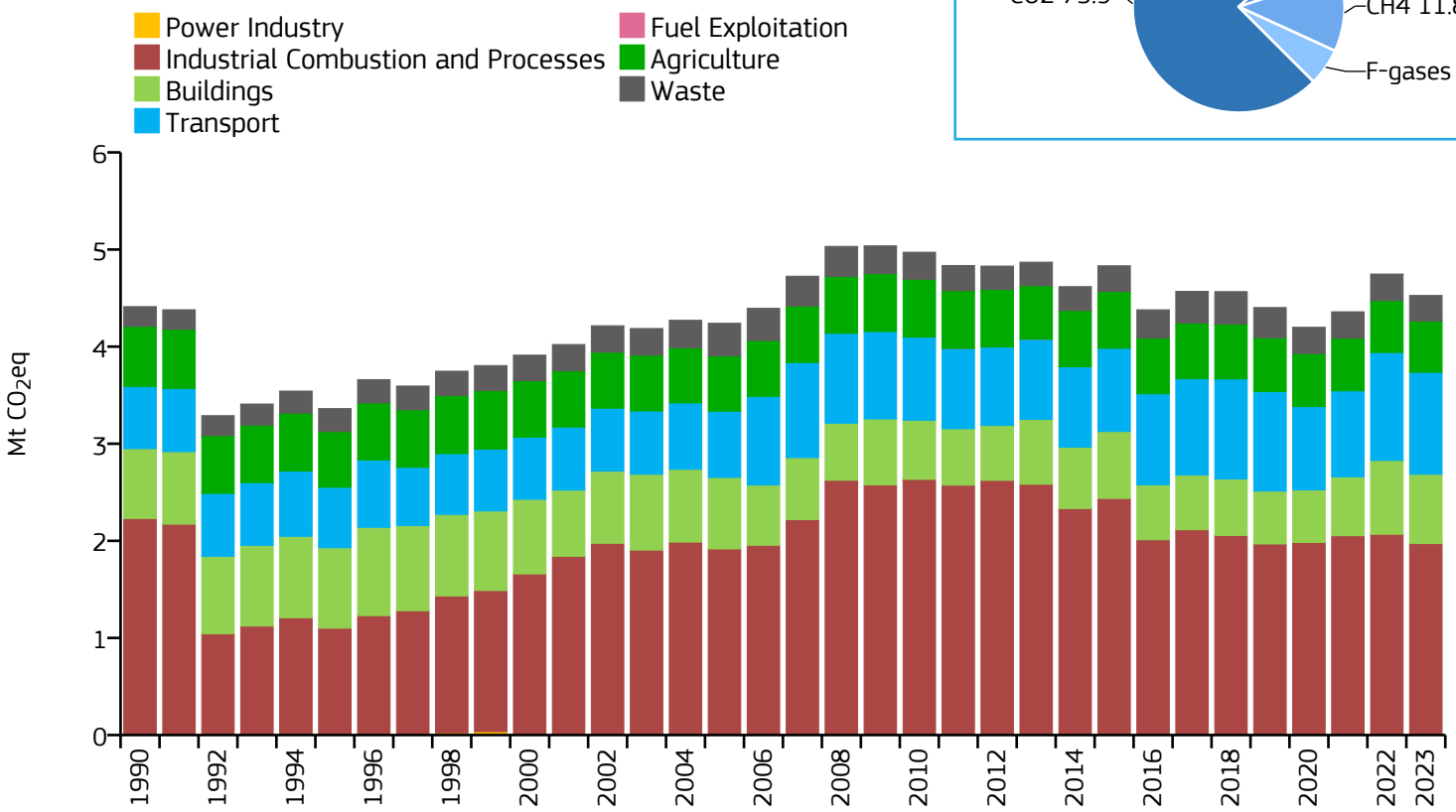
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	60.293	6.337	0.155	9.515M
2015	63.408	6.481	0.203	9.784M
2005	79.698	7.901	0.281	10.086M
1990	96.750	9.323	0.435	10.378M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-60%	-55%	-19%
Industrial Combustion and Processes	-48%	-15%	-4%
Buildings	-50%	-42%	-10%
Transport	+54%	+11%	-3%
Fuel Exploitation	-19%	0%	-2%
Agriculture	-36%	0%	+5%
Waste	-34%	-21%	+2%
All sectors	-38%	-24%	-6%

Iceland



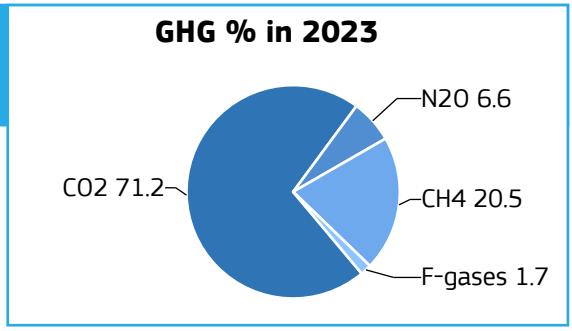
GHG emissions by sector



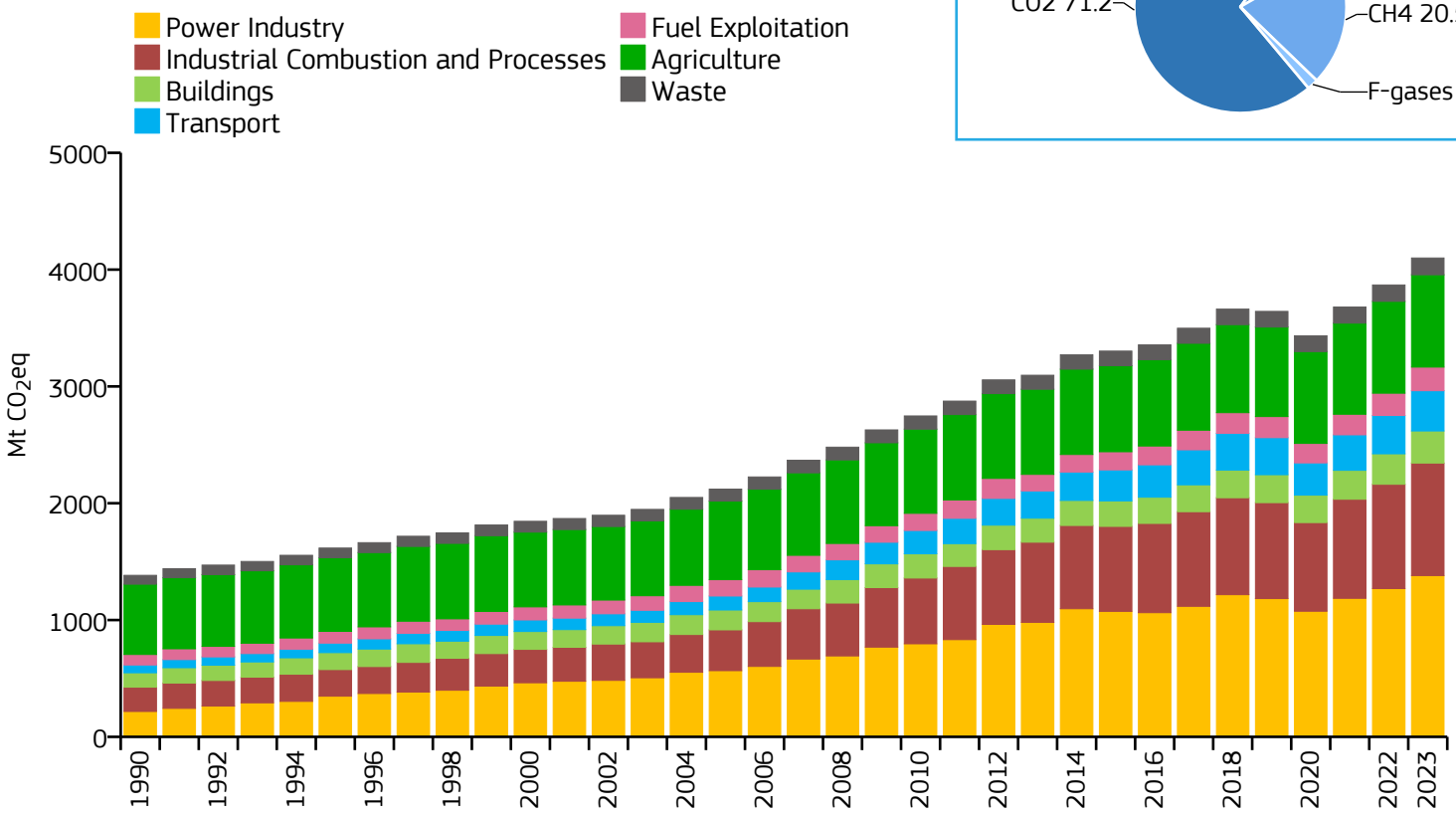
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	4.527	12.897	0.173	351.000k
2015	4.832	14.632	0.242	330.243k
2005	4.240	14.375	0.257	294.979k
1990	4.412	17.298	0.430	255.043k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-19%	-37%	-9%
Industrial Combustion and Processes	-12%	+3%	-5%
Buildings	-1%	-3%	-6%
Transport	+64%	+54%	-6%
Fuel Exploitation	n/a	n/a	n/a
Agriculture	-15%	-7%	-1%
Waste	+29%	-22%	-4%
All sectors	+3%	+7%	-5%

India



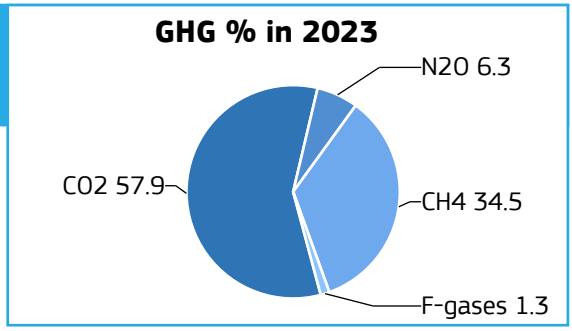
GHG emissions by sector



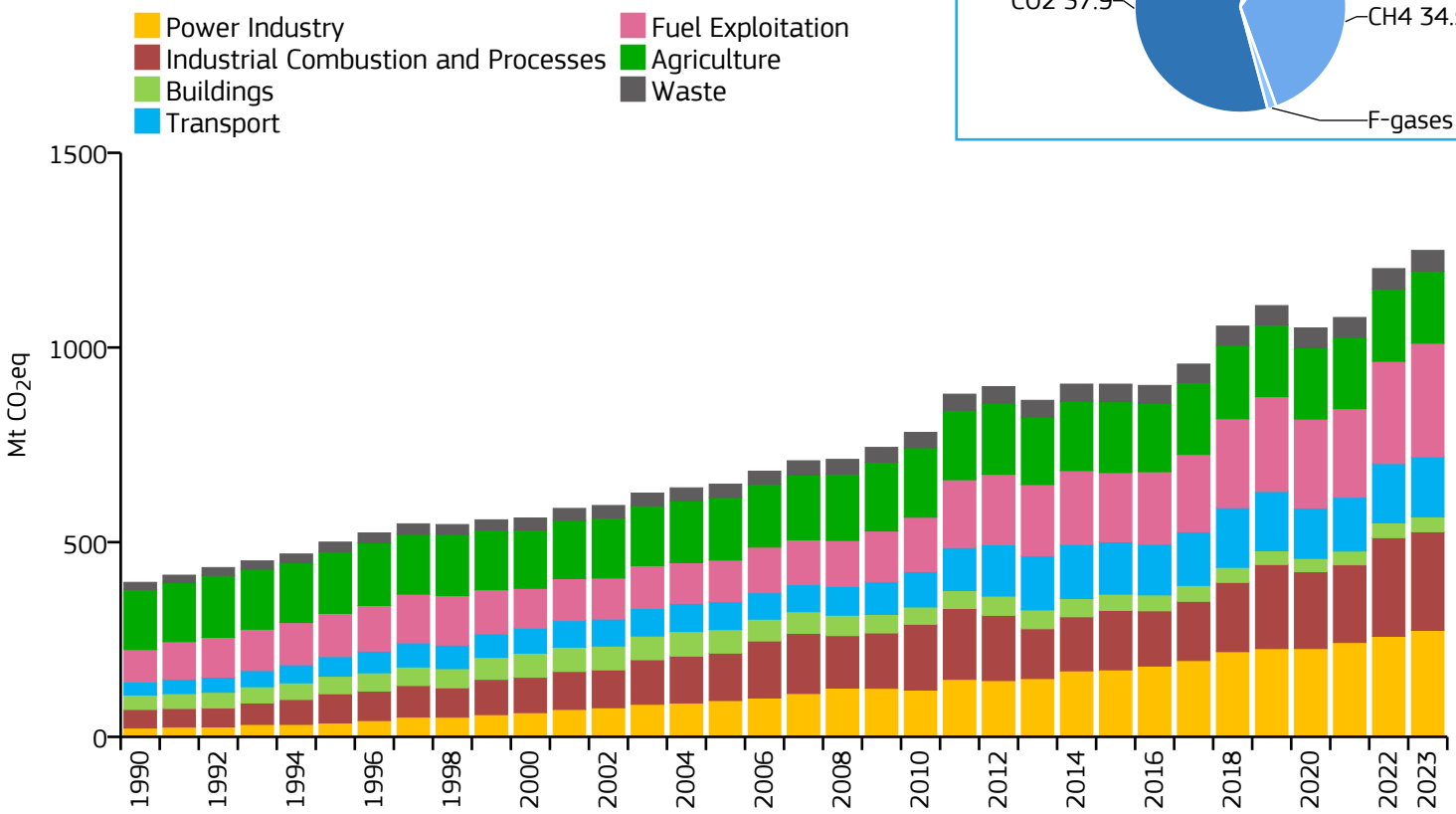
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	4099.582	2.877	0.313	1.425G
2015	3302.407	2.523	0.383	1.309G
2005	2120.810	1.854	0.473	1.144G
1990	1382.823	1.589	0.726	870.133M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ > +300%	↗ +144%	↗ +9%
Industrial Combustion and Processes	↗ > +300%	↗ +176%	↗ +8%
Buildings	↗ +123%	↗ +61%	→ +5%
Transport	↗ > +300%	↗ +188%	→ +5%
Fuel Exploitation	↗ +126%	↗ +44%	↗ +6%
Agriculture	↗ +31%	↗ +18%	→ +1%
Waste	↗ +89%	↗ +40%	→ +2%
All sectors	↗ +196%	↗ +93%	↗ +6%

Indonesia



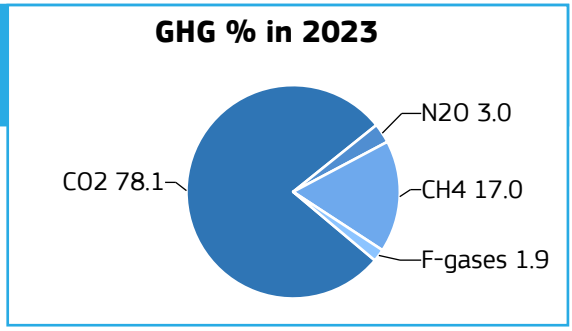
GHG emissions by sector



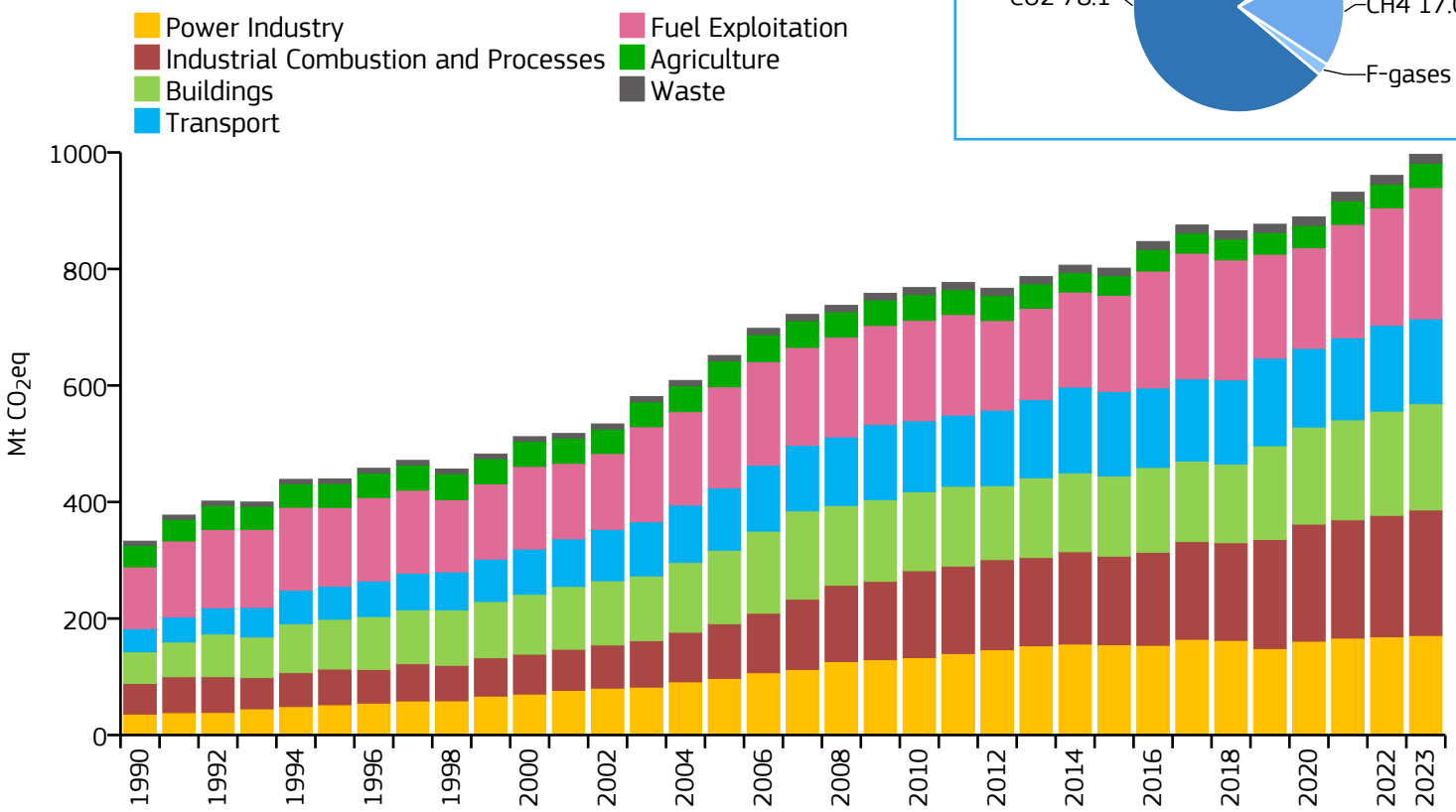
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	1249.235	4.463	0.320	279.934M
2015	905.840	3.509	0.318	258.162M
2005	648.938	2.862	0.394	226.713M
1990	396.818	2.187	0.443	181.437M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ > +300%	↗ +193%	↗ +6%
Industrial Combustion and Processes	↗ > +300%	↗ +108%	→ 0%
Buildings	→ +3%	↘ -36%	→ 0%
Transport	↗ > +300%	↗ +116%	→ +1%
Fuel Exploitation	↗ +249%	↗ +172%	↗ +11%
Agriculture	↗ +20%	↗ +15%	→ 0%
Waste	↗ +185%	↗ +54%	→ +1%
All sectors	↗ +215%	↗ +93%	→ +4%

Iran



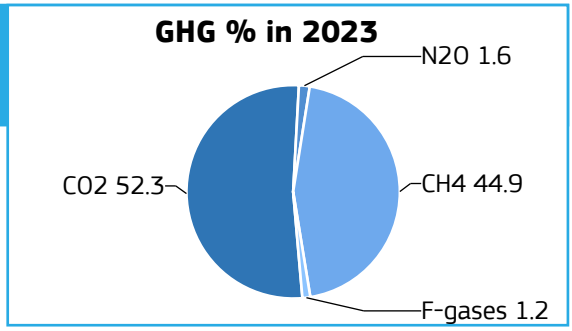
GHG emissions by sector



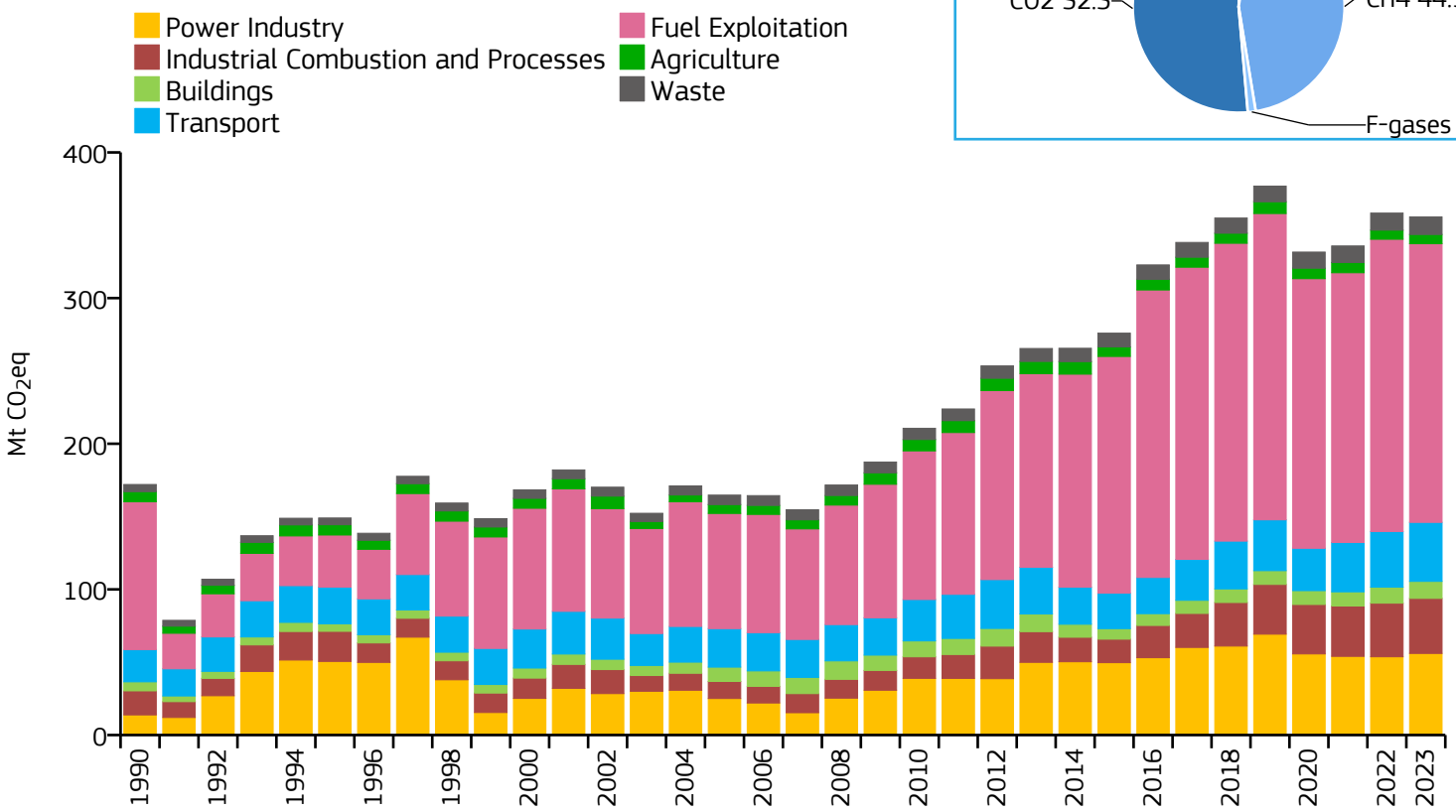
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	996.756	11.643	0.692	85.609M
2015	801.405	10.098	0.698	79.361M
2005	651.448	9.251	0.695	70.422M
1990	332.714	5.917	0.630	56.226M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+76%	+1%
Industrial Combustion and Processes	> +300%	+130%	+3%
Buildings	+236%	+45%	+2%
Transport	+266%	+37%	-1%
Fuel Exploitation	+112%	+30%	+12%
Agriculture	+13%	-6%	+2%
Waste	+119%	+64%	+1%
All sectors	+200%	+53%	+4%

Iraq



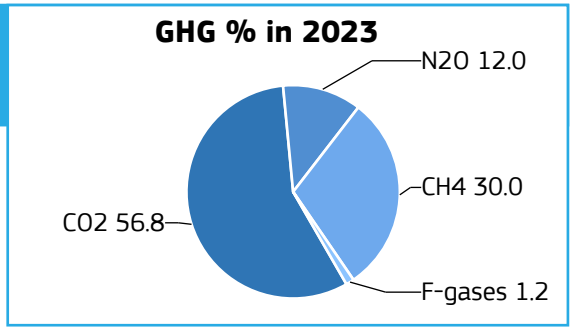
GHG emissions by sector



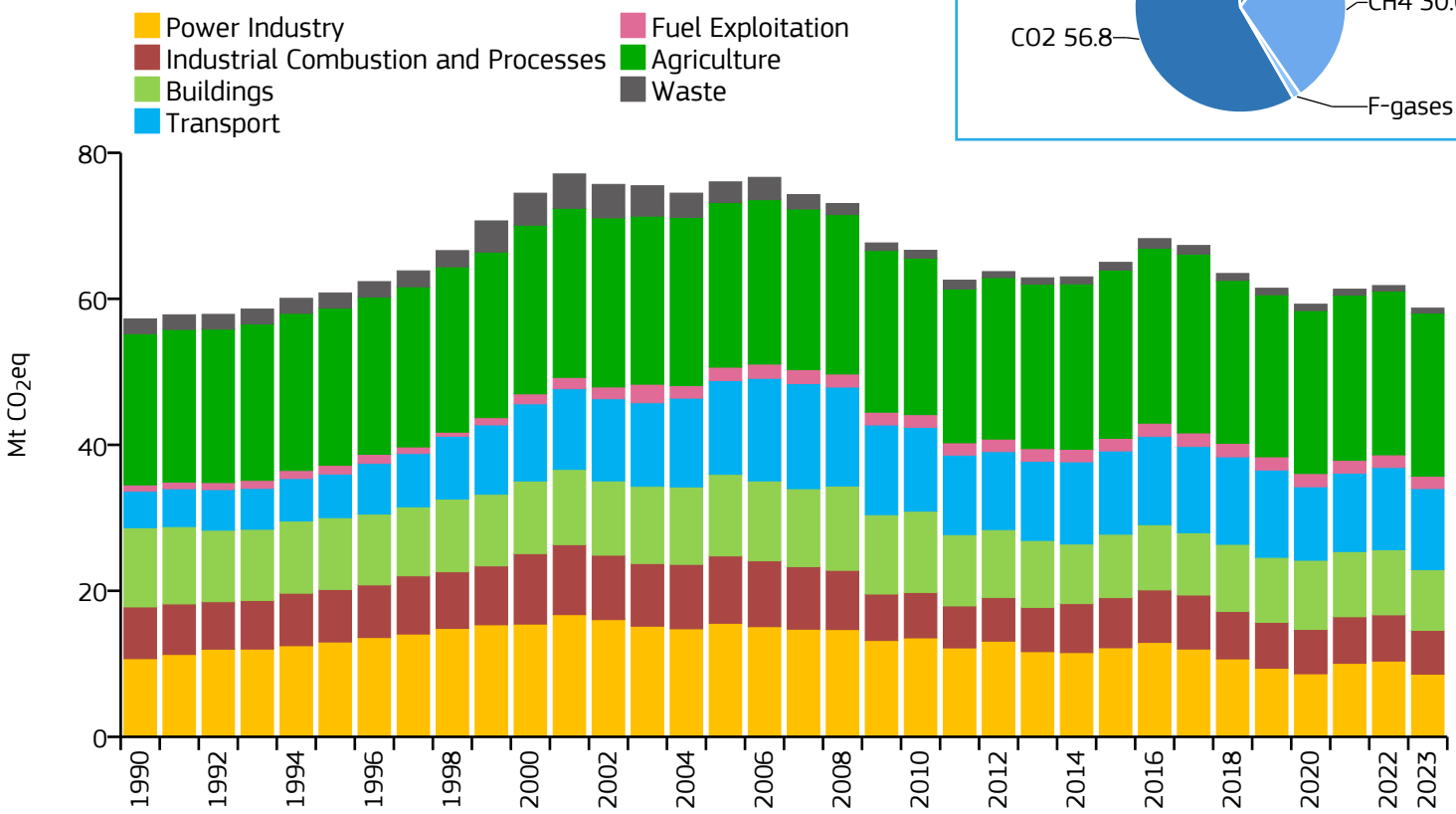
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	355.699	7.926	0.621	44.875M
2015	275.920	7.640	0.544	36.116M
2005	164.720	6.099	0.575	27.008M
1990	172.020	9.847	0.911	17.469M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+123%	+4%
Industrial Combustion and Processes	+129%	+223%	+3%
Buildings	+88%	+19%	+6%
Transport	+83%	+53%	+6%
Fuel Exploitation	+88%	+142%	-5%
Agriculture	-9%	+4%	+2%
Waste	+145%	+85%	+3%
All sectors	+107%	+116%	-1%

Ireland



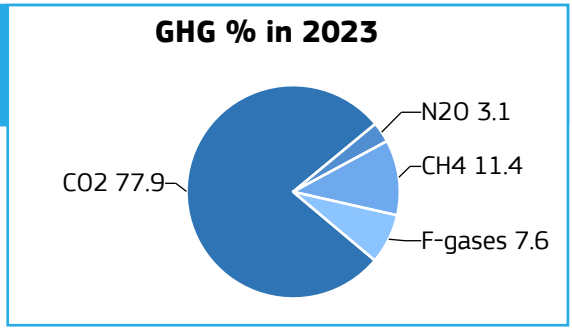
GHG emissions by sector



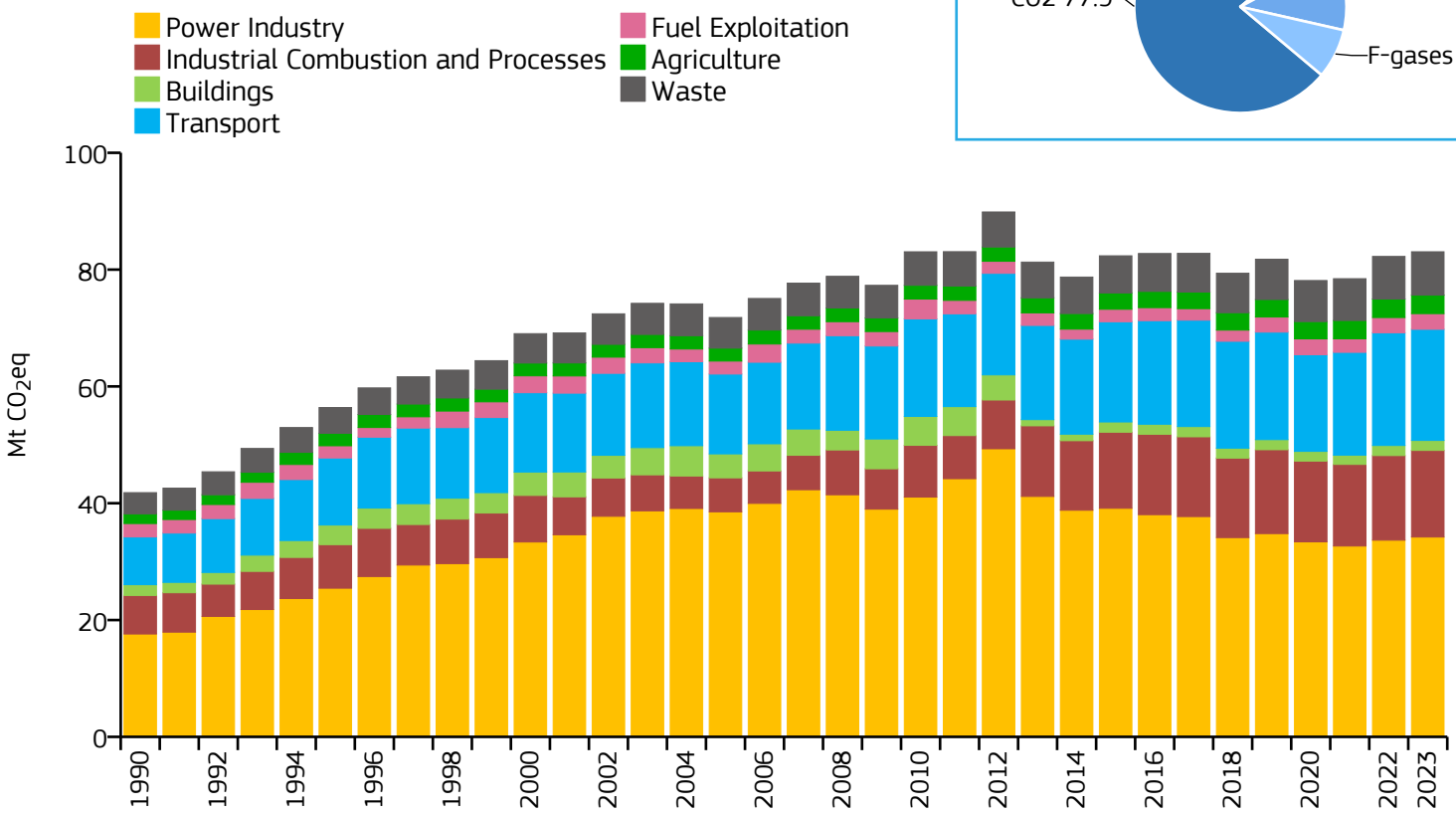
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	58.721	11.751	0.097	4.997M
2015	64.994	13.828	0.176	4.700M
2005	76.015	18.043	0.292	4.213M
1990	57.250	16.040	0.560	3.569M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-20%	-45%	-17%
Industrial Combustion and Processes	-15%	-35%	-5%
Buildings	-23%	-26%	-7%
Transport	+123%	-14%	-1%
Fuel Exploitation	+94%	-8%	-3%
Agriculture	+8%	-1%	0%
Waste	-67%	-76%	-11%
All sectors	+3%	-23%	-5%

Israel and Palestine, State of



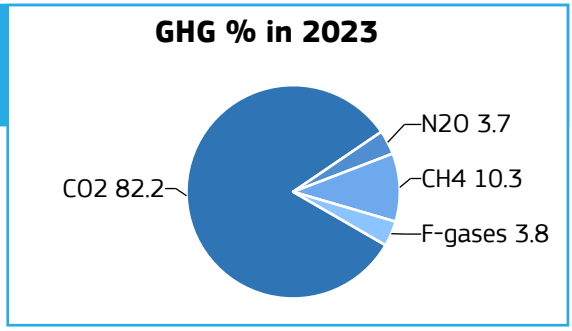
GHG emissions by sector



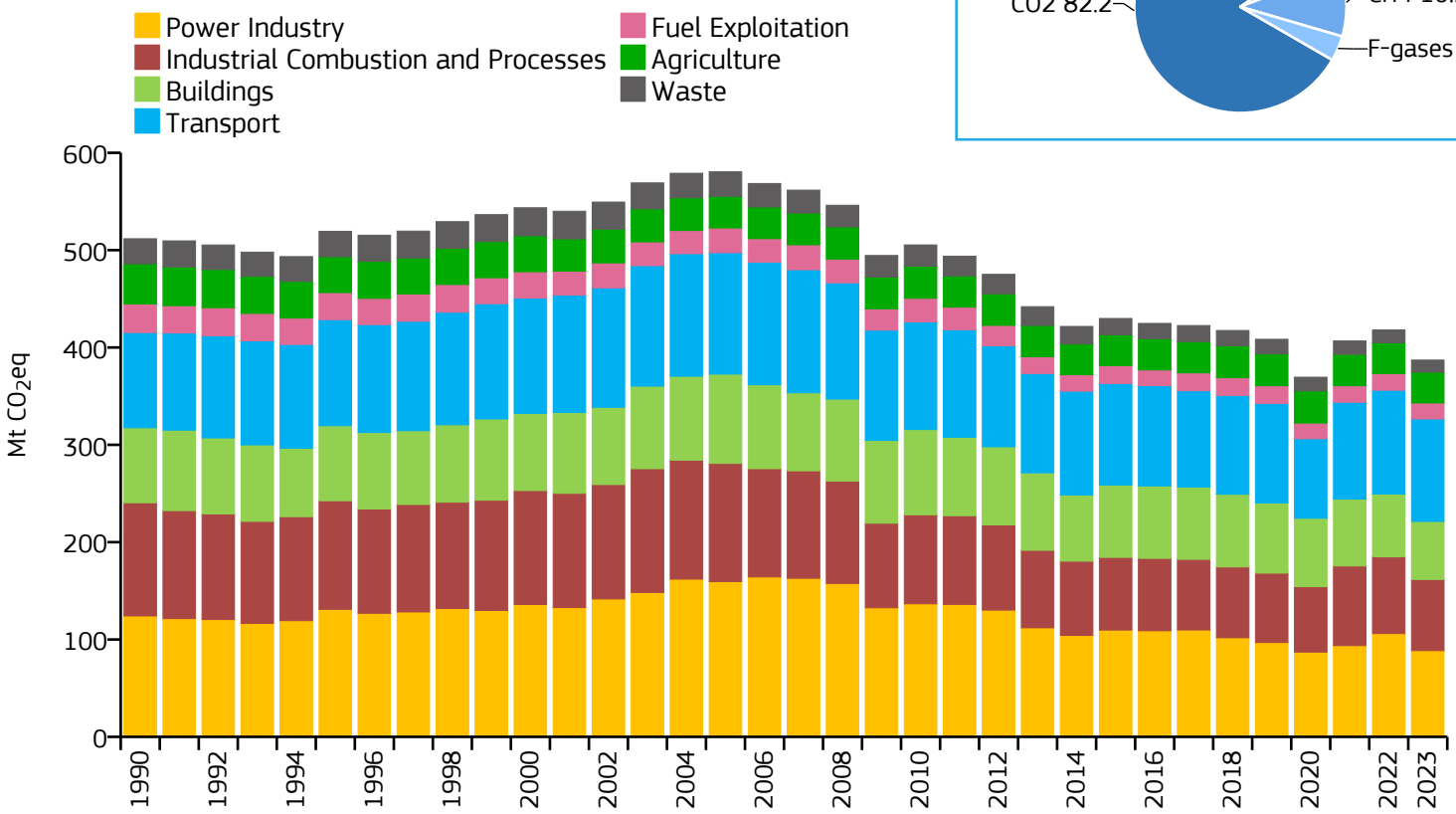
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	83.056	5.599	0.167	14.835M
2015	82.365	6.471	0.223	12.727M
2005	71.799	7.054	0.290	10.179M
1990	41.813	6.334	0.366	6.601M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+94%	-11%	+2%
Industrial Combustion and Processes	+125%	+155%	+2%
Buildings	-7%	-58%	-1%
Transport	+133%	+39%	-1%
Fuel Exploitation	+17%	+21%	+3%
Agriculture	+91%	+44%	0%
Waste	+104%	+41%	+2%
All sectors	+99%	+16%	+1%

Italy, San Marino and the Holy See



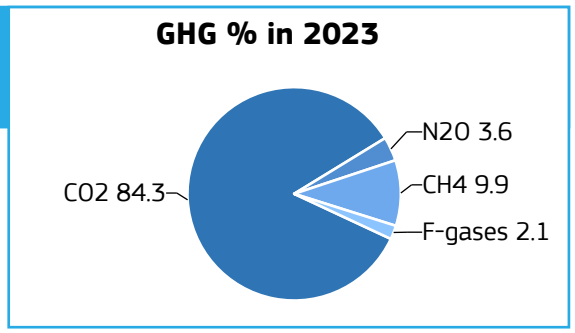
GHG emissions by sector



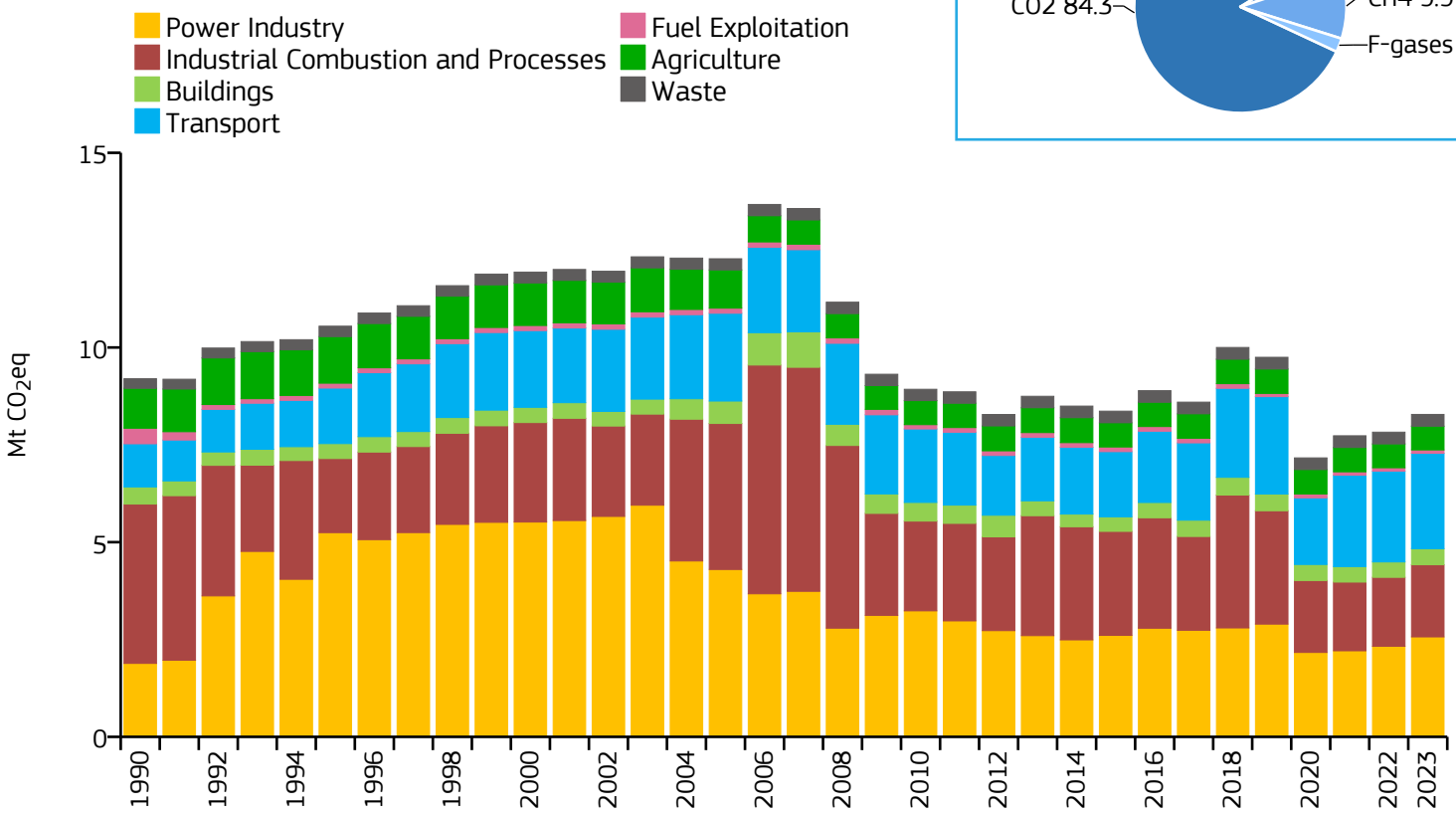
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	387.059	6.579	0.125	58.833M
2015	429.805	7.223	0.150	59.504M
2005	580.459	9.870	0.193	58.809M
1990	511.705	8.957	0.210	57.127M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-29%	-44%	-17%
Industrial Combustion and Processes	-37%	-40%	-7%
Buildings	-23%	-35%	-8%
Transport	+8%	-16%	-1%
Fuel Exploitation	-44%	-35%	-4%
Agriculture	-23%	-3%	0%
Waste	-52%	-51%	-6%
All sectors	-24%	-33%	-7%

Jamaica



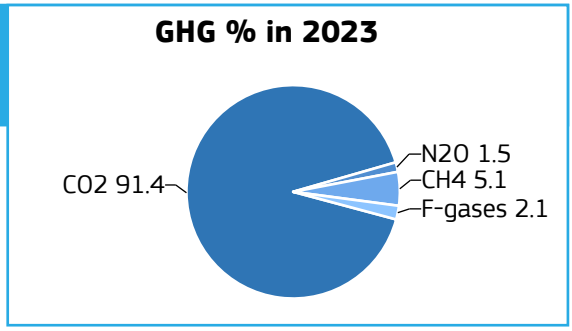
GHG emissions by sector



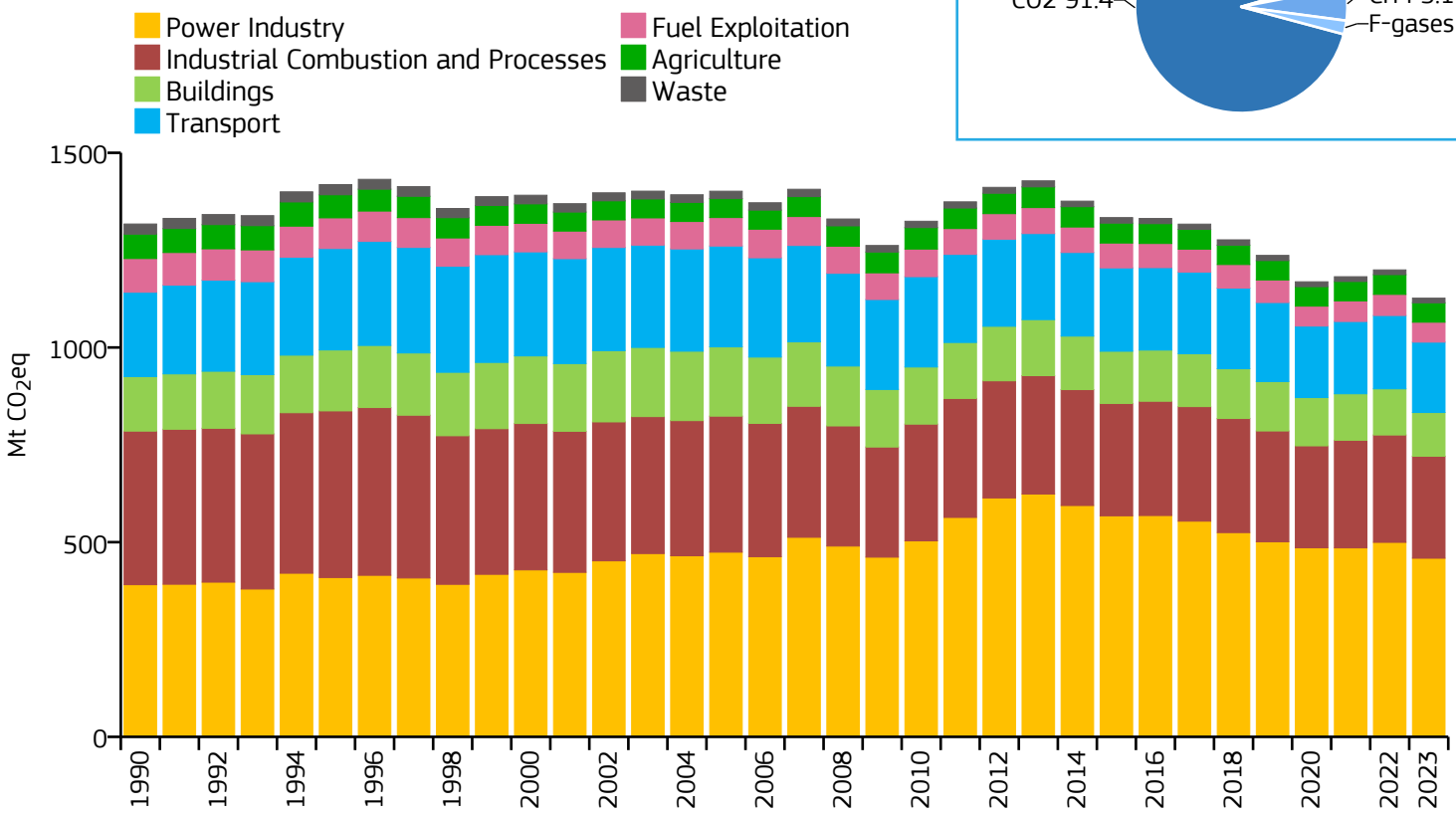
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	8.281	2.828	0.283	2.928M
2015	8.365	2.913	0.305	2.872M
2005	12.279	4.474	0.452	2.745M
1990	9.198	3.794	0.442	2.424M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+36%	-40%	+10%
Industrial Combustion and Processes	-55%	-51%	+5%
Buildings	-6%	-28%	+4%
Transport	+121%	+9%	+5%
Fuel Exploitation	-78%	-34%	+1%
Agriculture	-41%	-38%	0%
Waste	+23%	+5%	0%
All sectors	-10%	-33%	+6%

Japan



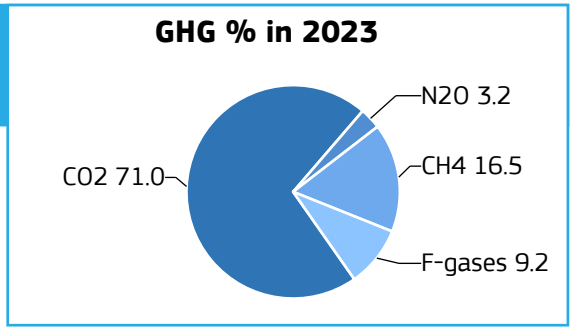
GHG emissions by sector



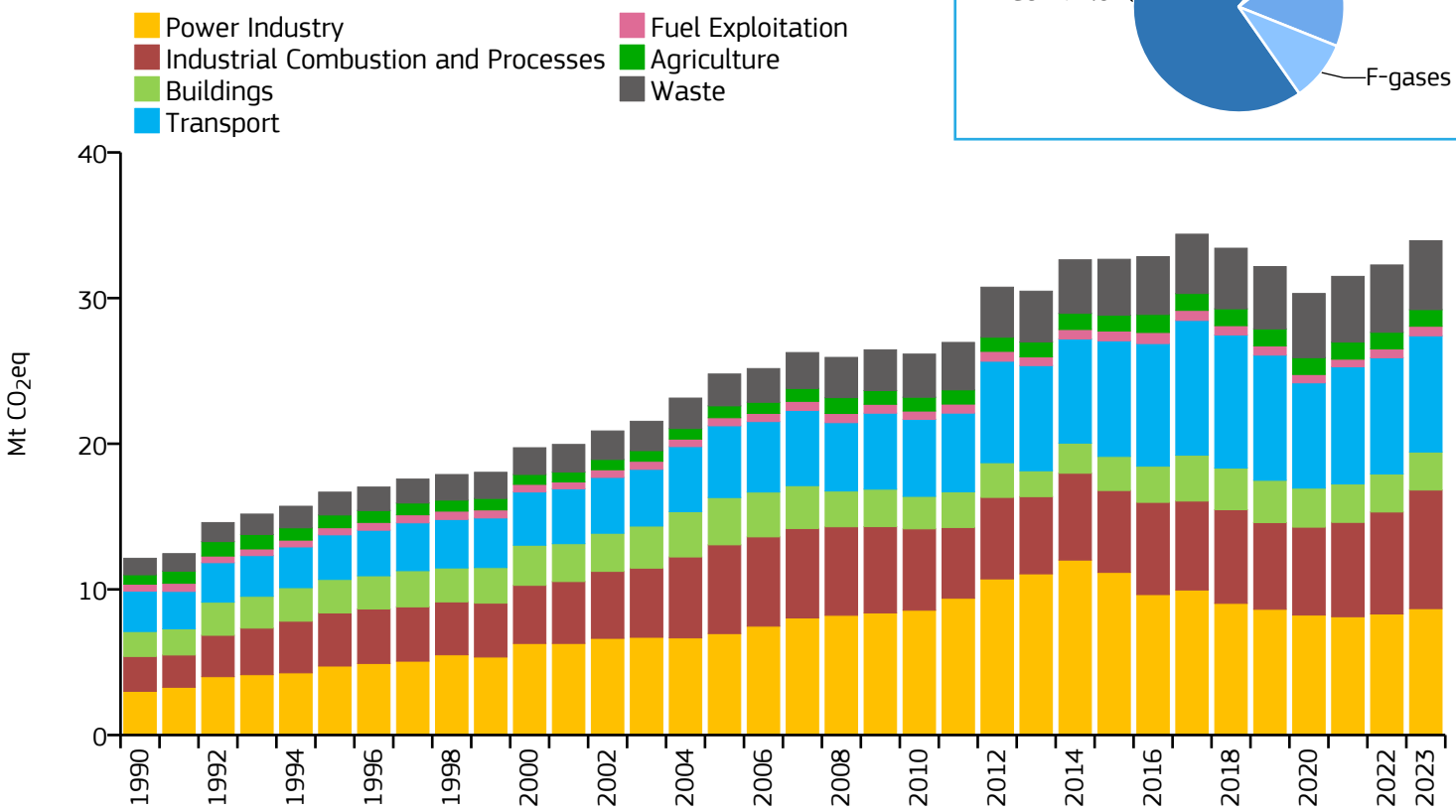
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	1126.690	8.995	0.196	125.258M
2015	1333.584	10.421	0.240	127.975M
2005	1401.408	10.920	0.266	128.336M
1990	1317.145	10.578	0.301	124.516M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+17%	-3%	-8%
Industrial Combustion and Processes	-34%	-25%	-5%
Buildings	-20%	-37%	-5%
Transport	-17%	-30%	-4%
Fuel Exploitation	-41%	-30%	-6%
Agriculture	-20%	+3%	-2%
Waste	-54%	-38%	-2%
All sectors	-14%	-20%	-6%

Jordan



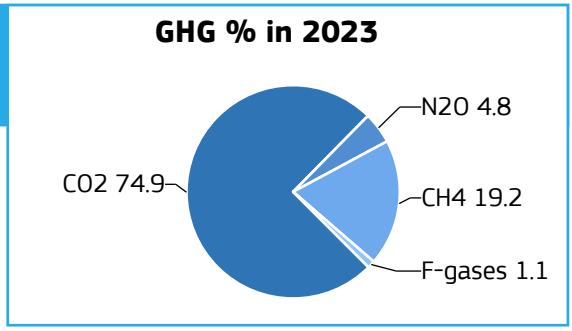
GHG emissions by sector



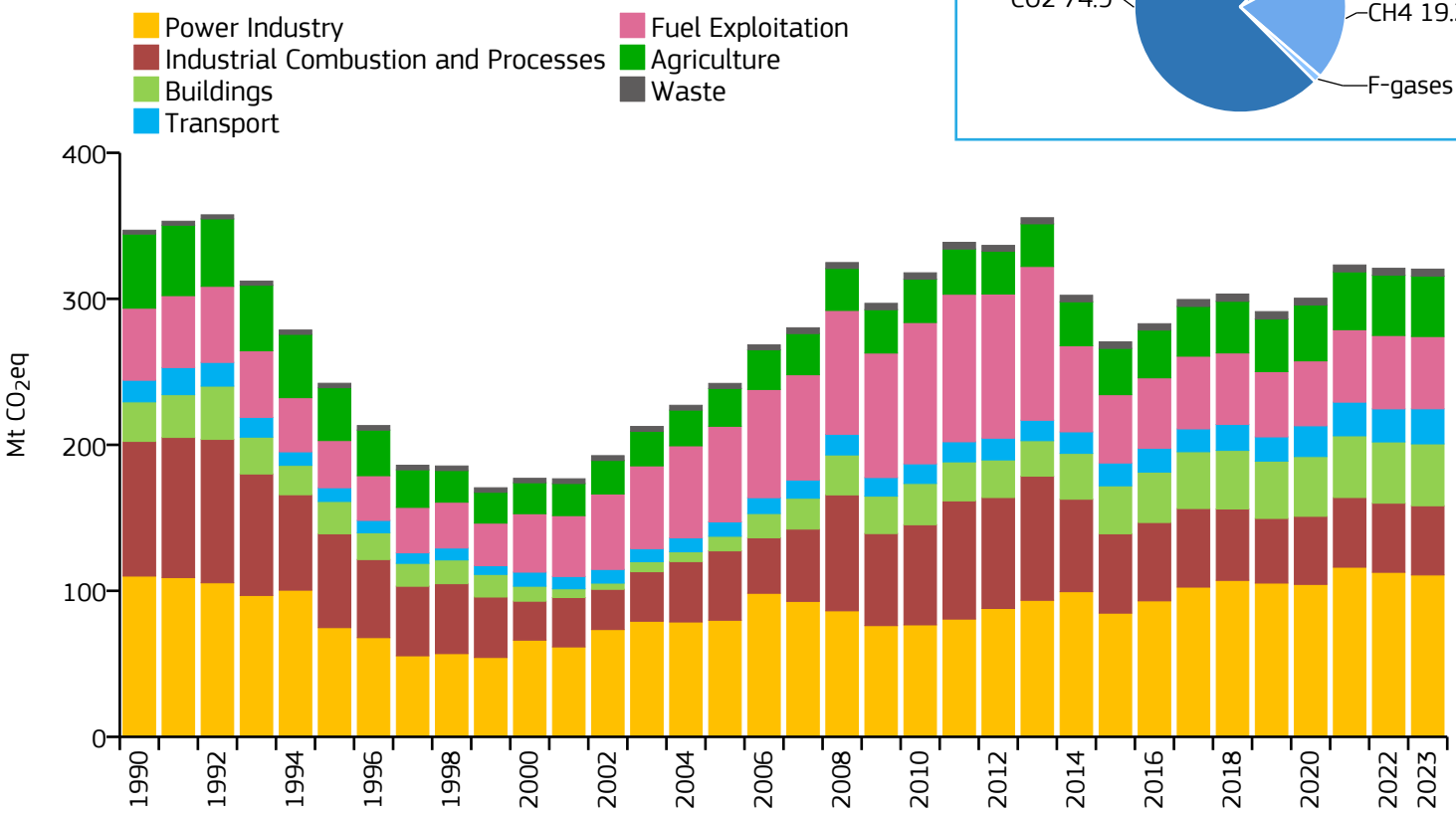
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	33.936	3.240	0.318	10.474M
2015	32.665	3.566	0.357	9.159M
2005	24.787	4.338	0.418	5.714M
1990	12.136	3.408	0.441	3.561M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+189%	+25%	+4%
Industrial Combustion and Processes	+240%	+34%	+16%
Buildings	+52%	-20%	0%
Transport	+188%	+62%	0%
Fuel Exploitation	+37%	+18%	+8%
Agriculture	+77%	+40%	0%
Waste	> +300%	+116%	+2%
All sectors	+180%	+37%	+5%

Kazakhstan



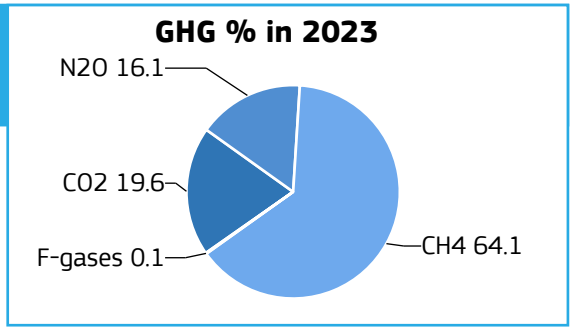
GHG emissions by sector



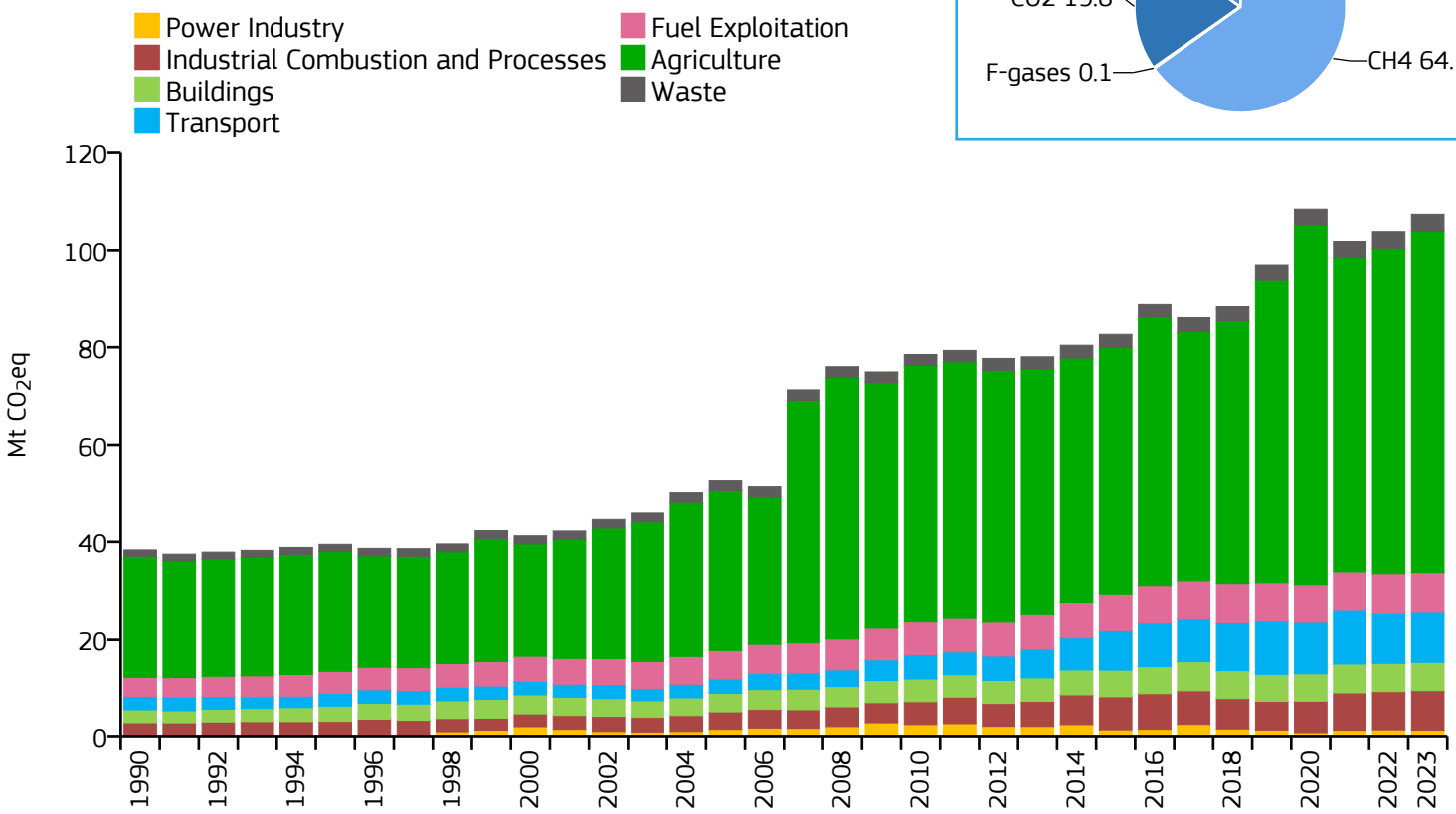
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	320.344	16.601	0.454	19.297M
2015	270.521	15.241	0.484	17.750M
2005	242.074	15.576	0.737	15.541M
1990	347.004	20.979	1.201	16.540M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+1%	+39%	-2%
Industrial Combustion and Processes	-49%	0%	0%
Buildings	+56%	> +300%	+1%
Transport	+62%	+144%	+6%
Fuel Exploitation	0%	-24%	-1%
Agriculture	-18%	+60%	0%
Waste	+79%	+37%	0%
All sectors	-8%	+32%	0%

Kenya



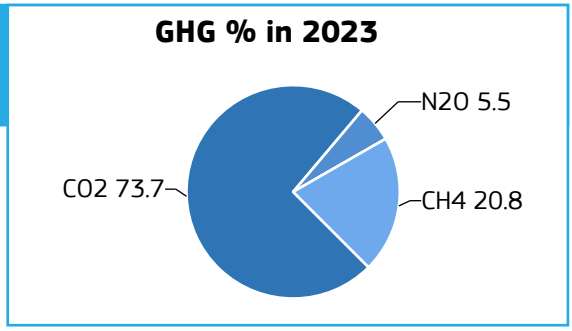
GHG emissions by sector



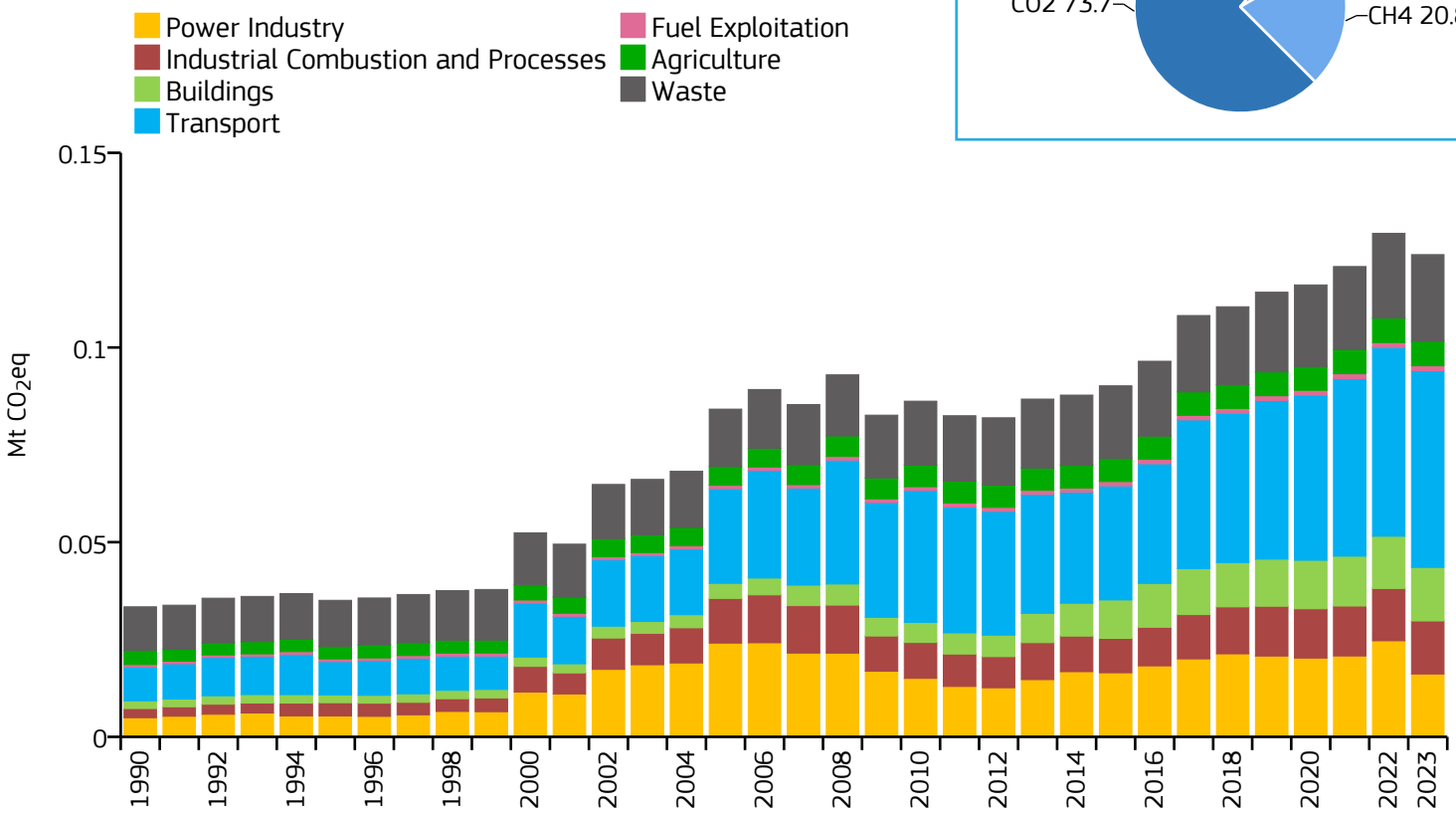
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	107.371	1.871	0.342	57.395M
2015	82.645	1.750	0.375	47.236M
2005	52.717	1.462	0.383	36.048M
1990	38.347	1.639	0.401	23.402M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ > +300%	↘ -13%	↘ -7%
Industrial Combustion and Processes	↗ +224%	↗ +132%	→ +4%
Buildings	↗ +103%	↗ +45%	→ 0%
Transport	↗ +274%	↗ +250%	→ 0%
Fuel Exploitation	↗ +104%	↗ +37%	→ 0%
Agriculture	↗ +184%	↗ +114%	→ +5%
Waste	↗ +166%	↗ +73%	→ +3%
All sectors	↗ +180%	↗ +104%	→ +3%

Kiribati



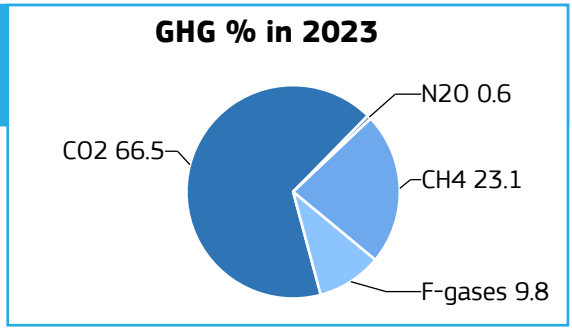
GHG emissions by sector



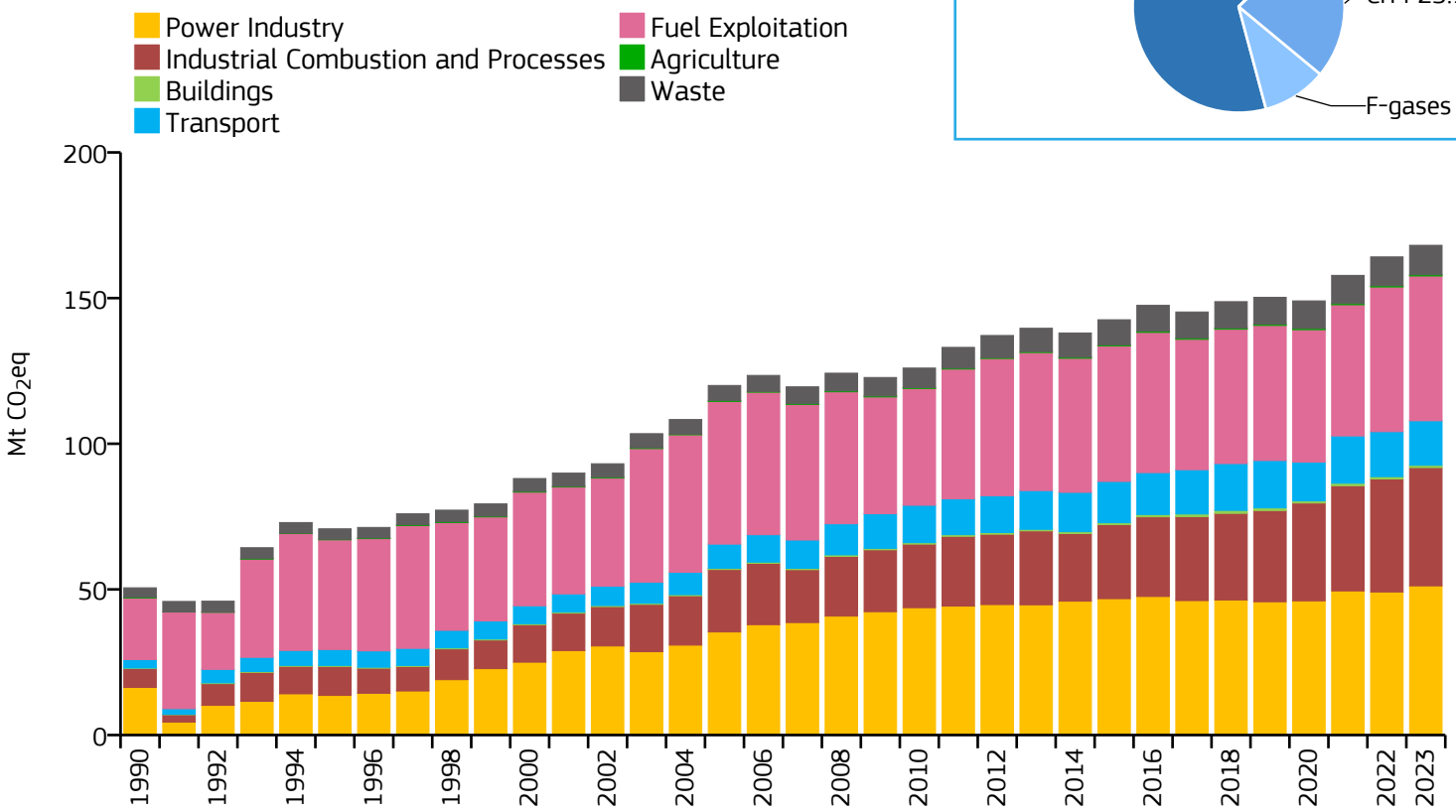
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.124	0.968	0.292	128.000k
2015	0.090	0.802	0.295	112.407k
2005	0.084	0.912	0.394	92.325k
1990	0.033	0.461	0.201	72.412k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+229%	-33%	-35%
Industrial Combustion and Processes	> +300%	+19%	+1%
Buildings	> +300%	+255%	+3%
Transport	> +300%	+108%	+4%
Fuel Exploitation	+98%	+44%	0%
Agriculture	+74%	+32%	+1%
Waste	+99%	+50%	+2%
All sectors	+271%	+47%	-4%

Kuwait



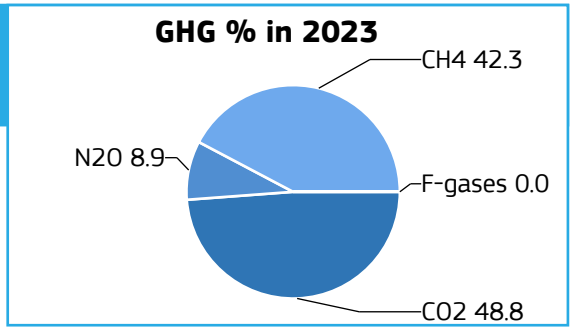
GHG emissions by sector



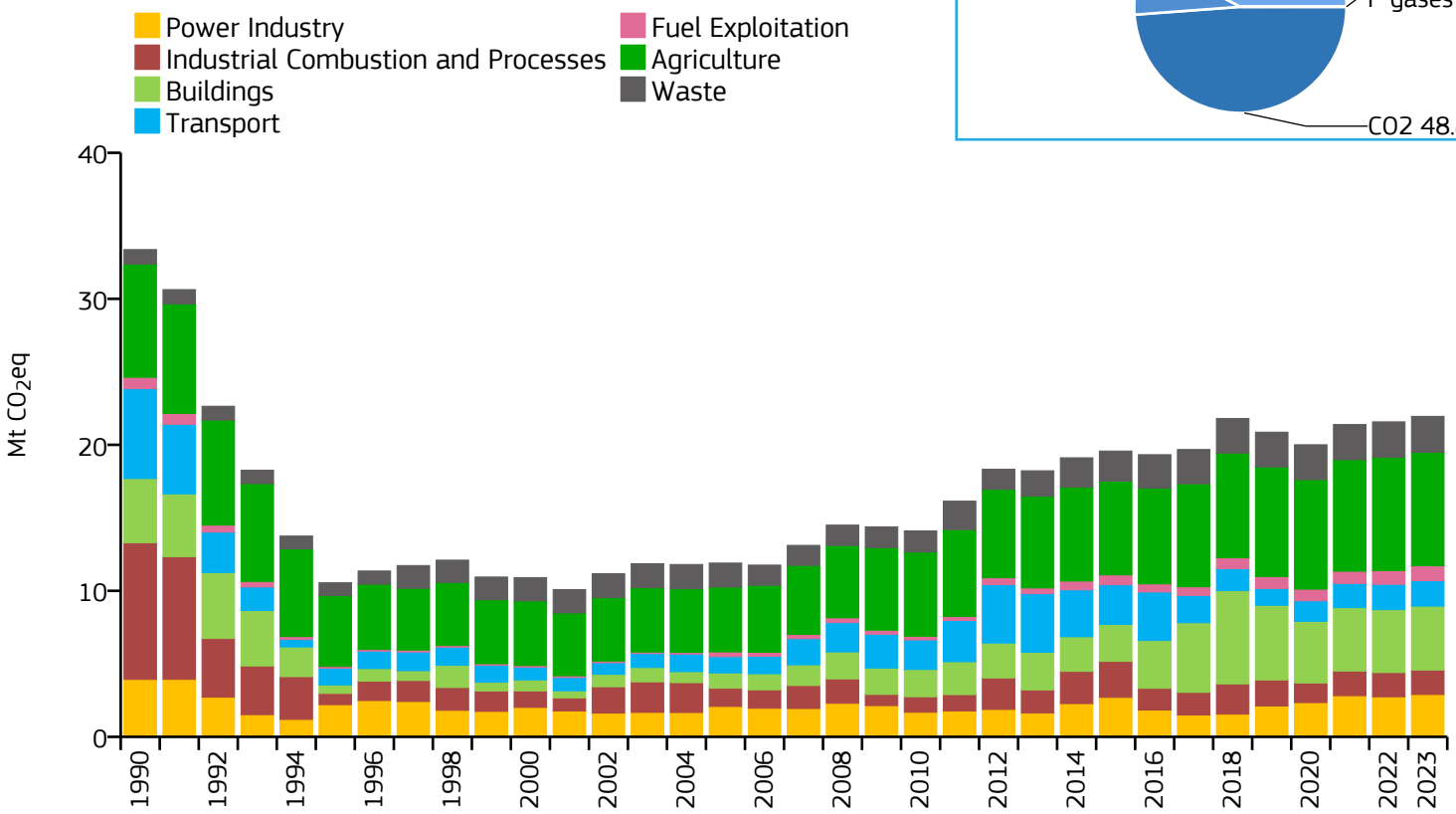
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	168.122	37.494	0.767	4.484M
2015	142.560	36.221	0.663	3.936M
2005	120.001	52.710	0.706	2.277M
1990	50.543	24.073	0.793	2.100M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +213%	↗ +45%	→ +4%
Industrial Combustion and Processes	↗ > +300%	↗ +89%	→ +5%
Buildings	↗ > +300%	↗ +83%	→ -1%
Transport	↗ > +300%	↗ +84%	→ -1%
Fuel Exploitation	↗ +134%	→ +2%	→ 0%
Agriculture	↗ +189%	↗ +75%	→ +2%
Waste	↗ +206%	↗ +93%	→ +2%
All sectors	↗ +233%	↗ +40%	→ +2%

Kyrgyzstan



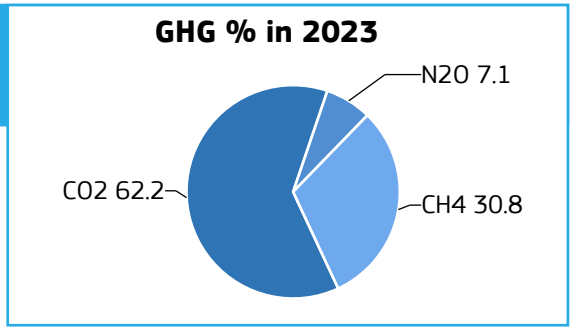
GHG emissions by sector



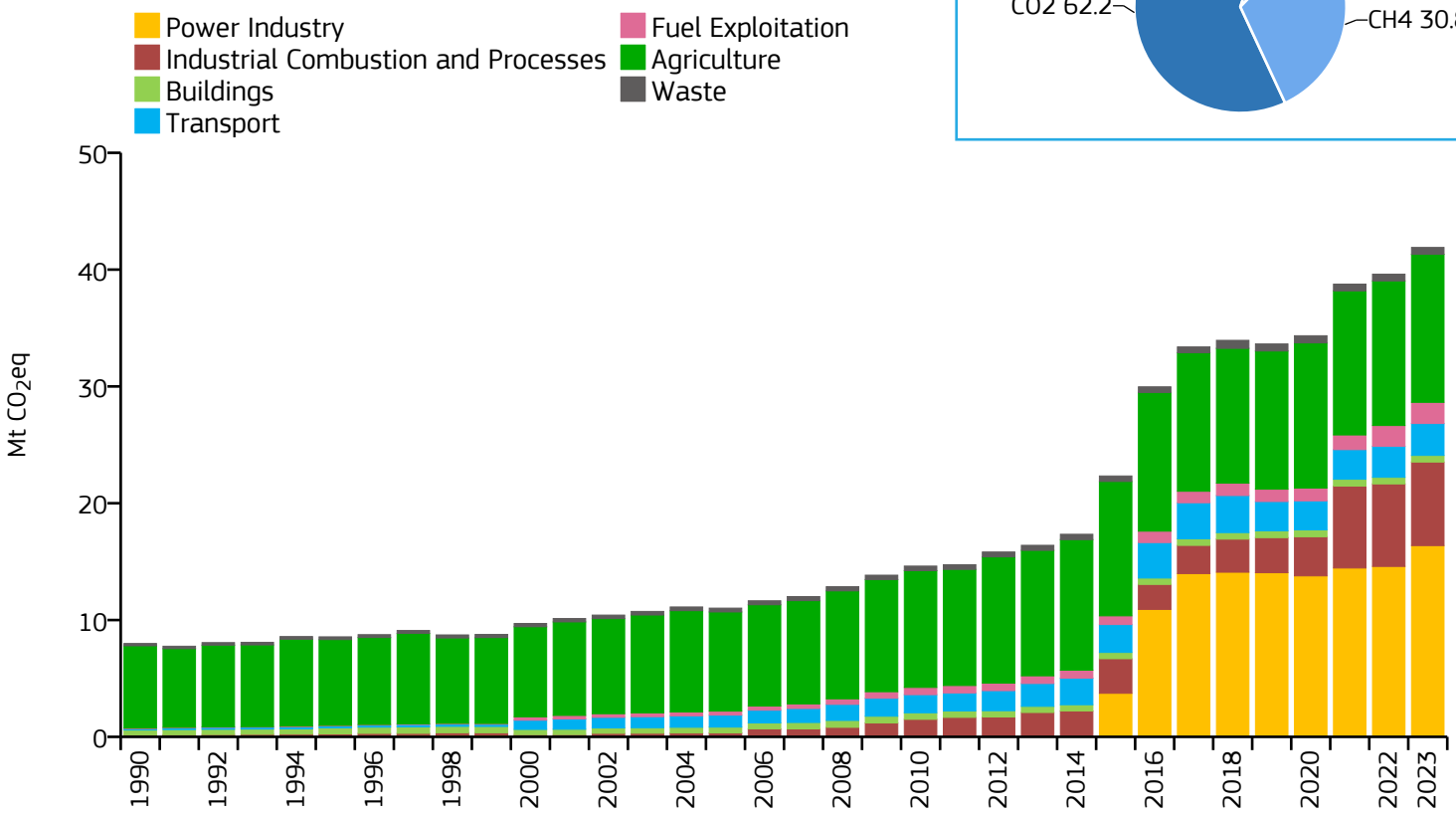
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	21.950	3.359	0.483	6.534M
2015	19.574	3.337	0.579	5.865M
2005	11.900	2.345	0.555	5.075M
1990	33.371	7.631	1.247	4.373M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-26%	+39%	+6%
Industrial Combustion and Processes	-82%	+34%	+1%
Buildings	0%	> +300%	+2%
Transport	-72%	+57%	+1%
Fuel Exploitation	+30%	+208%	+8%
Agriculture	0%	+75%	0%
Waste	+149%	+49%	+1%
All sectors	-34%	+84%	+2%

Laos



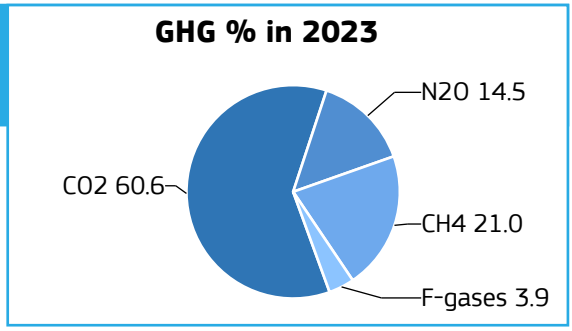
GHG emissions by sector



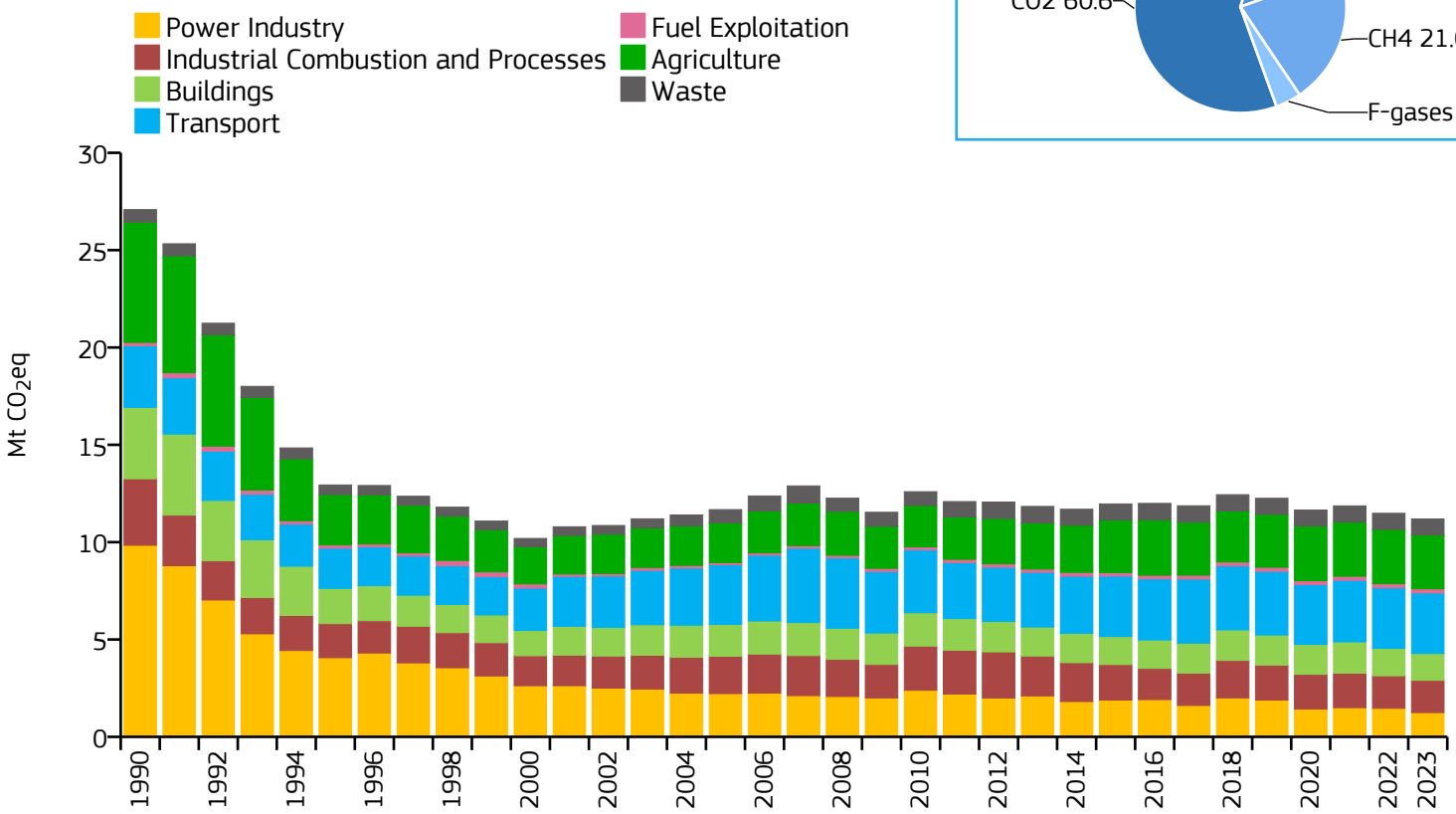
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	41.898	5.625	0.653	7.449M
2015	22.335	3.352	0.490	6.664M
2005	11.021	1.915	0.517	5.754M
1990	7.993	1.877	0.924	4.258M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	n/a	+12%
Industrial Combustion and Processes	> +300%	> +300%	+1%
Buildings	+31%	+14%	0%
Transport	> +300%	+166%	+3%
Fuel Exploitation	> +300%	> +300%	+2%
Agriculture	+80%	+49%	+2%
Waste	+193%	+79%	+2%
All sectors	> +300%	+280%	+6%

Latvia



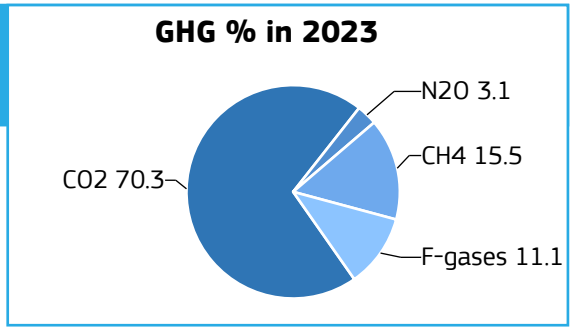
GHG emissions by sector



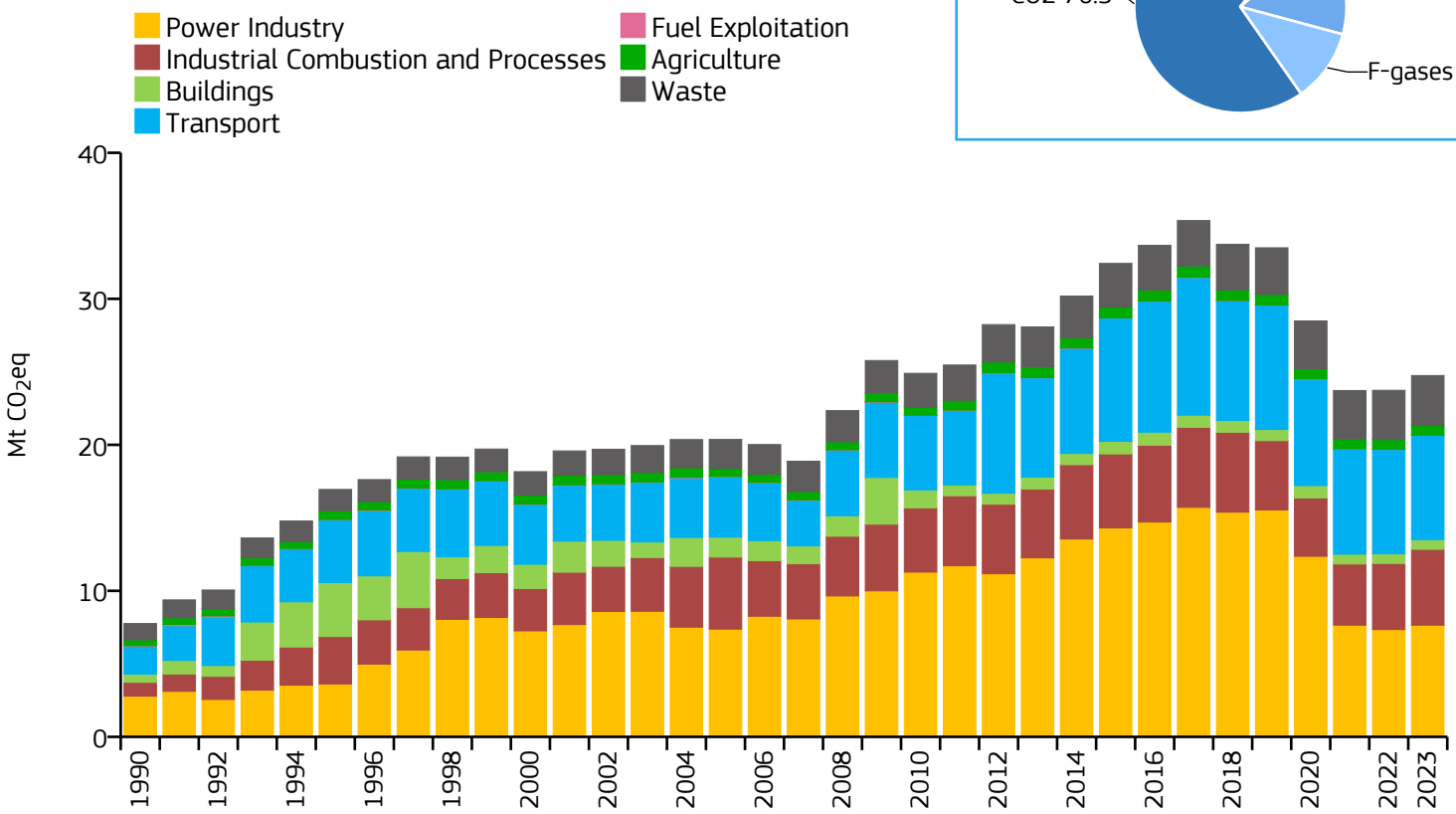
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	11.192	6.076	0.157	1.842M
2015	11.964	6.004	0.197	1.993M
2005	11.672	5.183	0.222	2.252M
1990	27.081	10.164	0.561	2.664M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↘ -87%	↘ -44%	↘ -15%
Industrial Combustion and Processes	↘ -52%	↘ -14%	→ -1%
Buildings	↘ -62%	↘ -16%	→ -2%
Transport	→ -2%	→ +1%	→ 0%
Fuel Exploitation	↗ +25%	↗ +97%	→ +2%
Agriculture	↘ -55%	↗ +35%	→ -1%
Waste	↗ +30%	↗ +22%	→ -1%
All sectors	↘ -59%	→ -4%	→ -3%

Lebanon



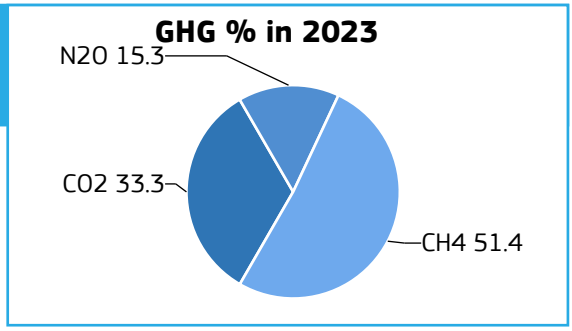
GHG emissions by sector



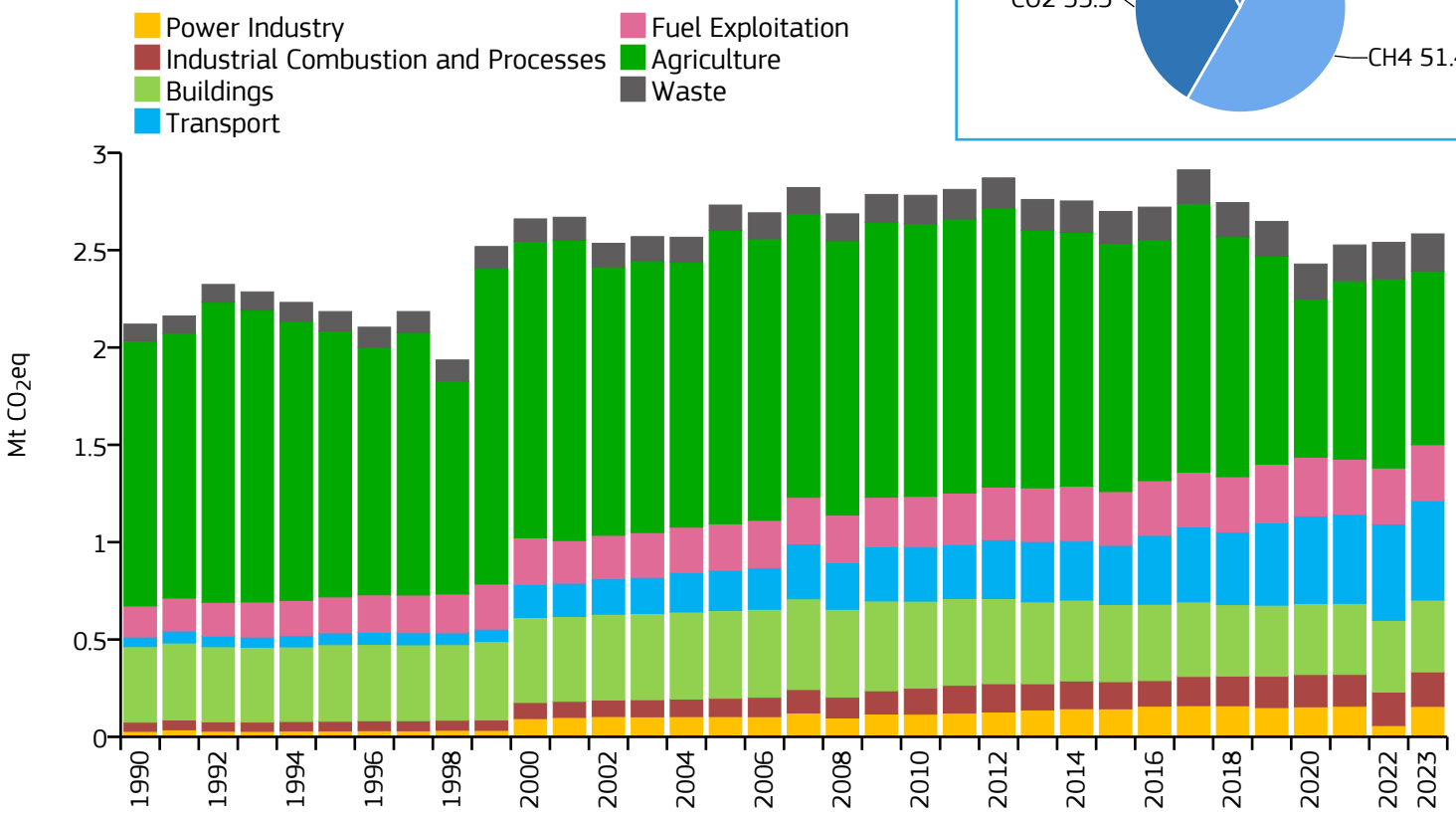
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	24.746	4.279	0.376	5.783M
2015	32.425	5.541	0.334	5.851M
2005	20.368	5.109	0.335	3.987M
1990	7.762	2.871	0.404	2.703M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+175%	+4%	+4%
Industrial Combustion and Processes	> +300%	+5%	+15%
Buildings	+19%	-51%	0%
Transport	+275%	+74%	0%
Fuel Exploitation	-64%	-58%	0%
Agriculture	+63%	+21%	0%
Waste	+207%	+72%	+2%
All sectors	+219%	+21%	+4%

Lesotho



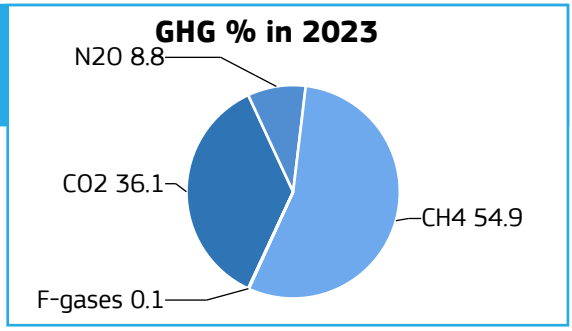
GHG emissions by sector



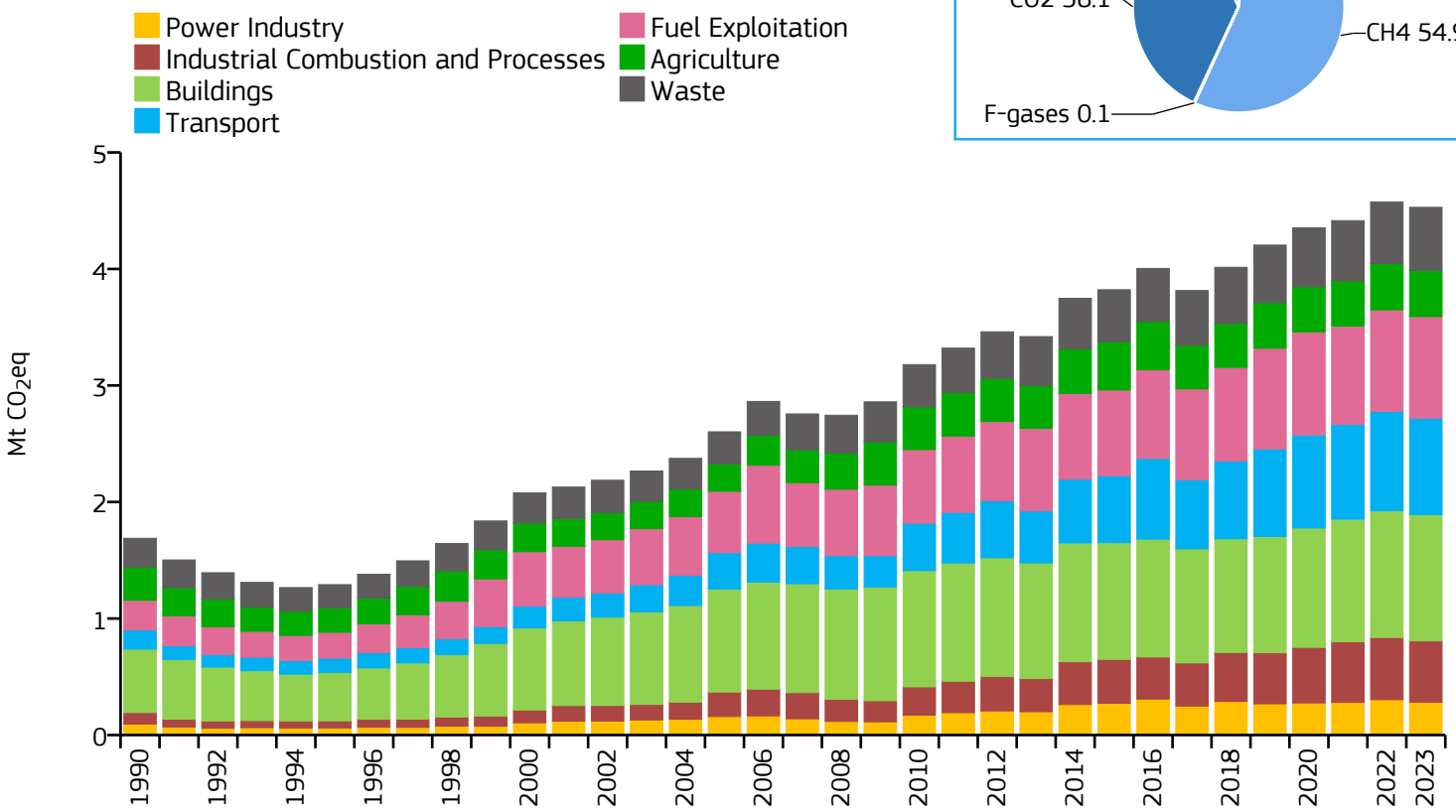
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	2.584	1.072	0.440	2.409M
2015	2.699	1.241	0.432	2.175M
2005	2.732	1.401	0.618	1.950M
1990	2.120	1.322	0.828	1.604M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ > +300%	↗ +50%	↗ +169%
Industrial Combustion and Processes	↗ +279%	↗ +89%	→ +3%
Buildings	→ -5%	↘ -18%	→ 0%
Transport	↗ > +300%	↗ +148%	→ +3%
Fuel Exploitation	↗ +81%	↗ +20%	→ 0%
Agriculture	↘ -34%	↘ -41%	↘ -8%
Waste	↗ +122%	↗ +46%	→ +2%
All sectors	↗ +22%	→ -5%	→ +2%

Liberia



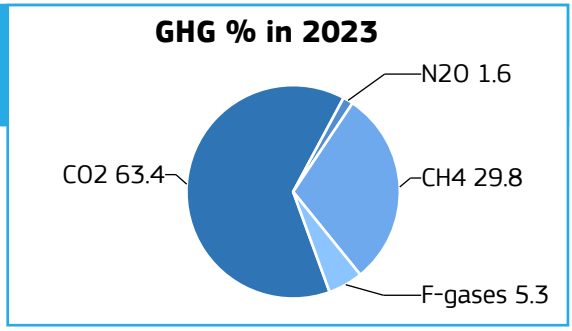
GHG emissions by sector



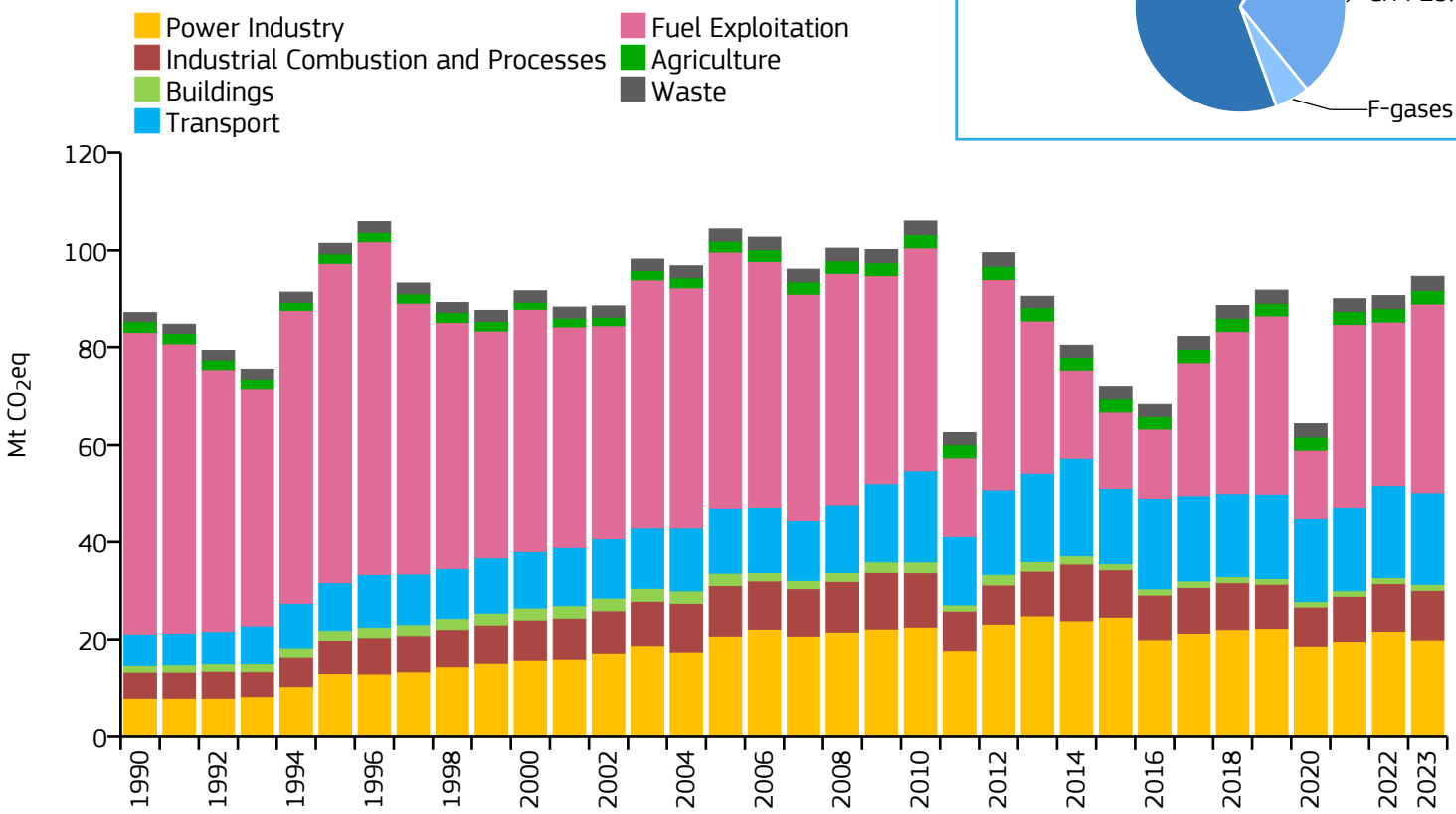
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	4.529	0.824	0.510	5.496M
2015	3.822	0.849	0.479	4.500M
2005	2.602	0.798	0.590	3.261M
1990	1.688	0.805	0.407	2.097M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +199%	↗ +77%	↘ -7%
Industrial Combustion and Processes	↗ > +300%	↗ +151%	→ -1%
Buildings	↗ +99%	↗ +23%	→ 0%
Transport	↗ > +300%	↗ +165%	→ -3%
Fuel Exploitation	↗ +241%	↗ +65%	→ 0%
Agriculture	↗ +39%	↗ +68%	→ 0%
Waste	↗ +120%	↗ +97%	→ +2%
All sectors	↗ +168%	↗ +74%	→ -1%

Libya



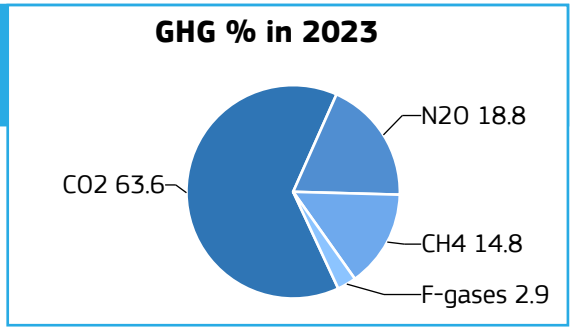
GHG emissions by sector



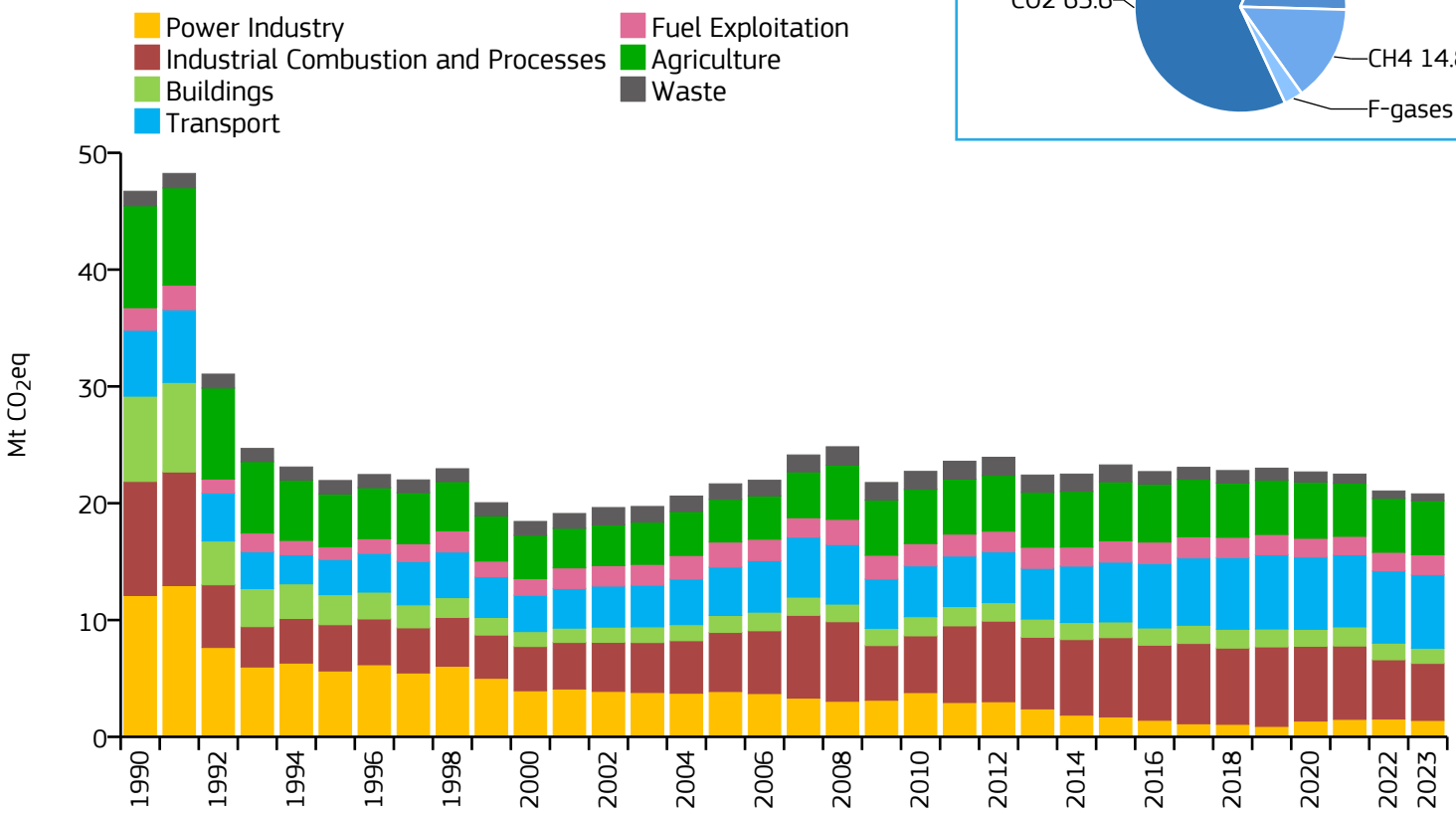
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	94.699	13.735	0.777	6.895M
2015	71.917	11.535	0.822	6.235M
2005	104.392	18.021	0.786	5.793M
1990	87.055	19.622	0.984	4.437M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+148%	-4%	-8%
Industrial Combustion and Processes	+90%	-2%	+4%
Buildings	-9%	-51%	-1%
Transport	+197%	+41%	-1%
Fuel Exploitation	-37%	-26%	+16%
Agriculture	+25%	+25%	+1%
Waste	+58%	+16%	+2%
All sectors	+9%	-9%	+4%

Lithuania



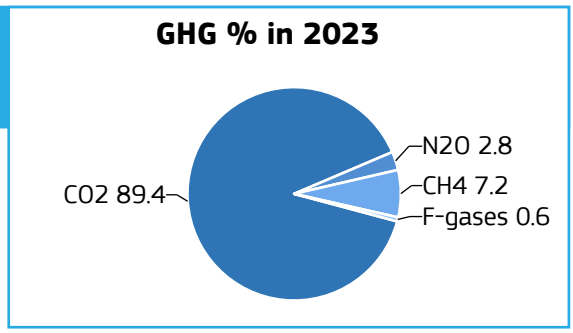
GHG emissions by sector



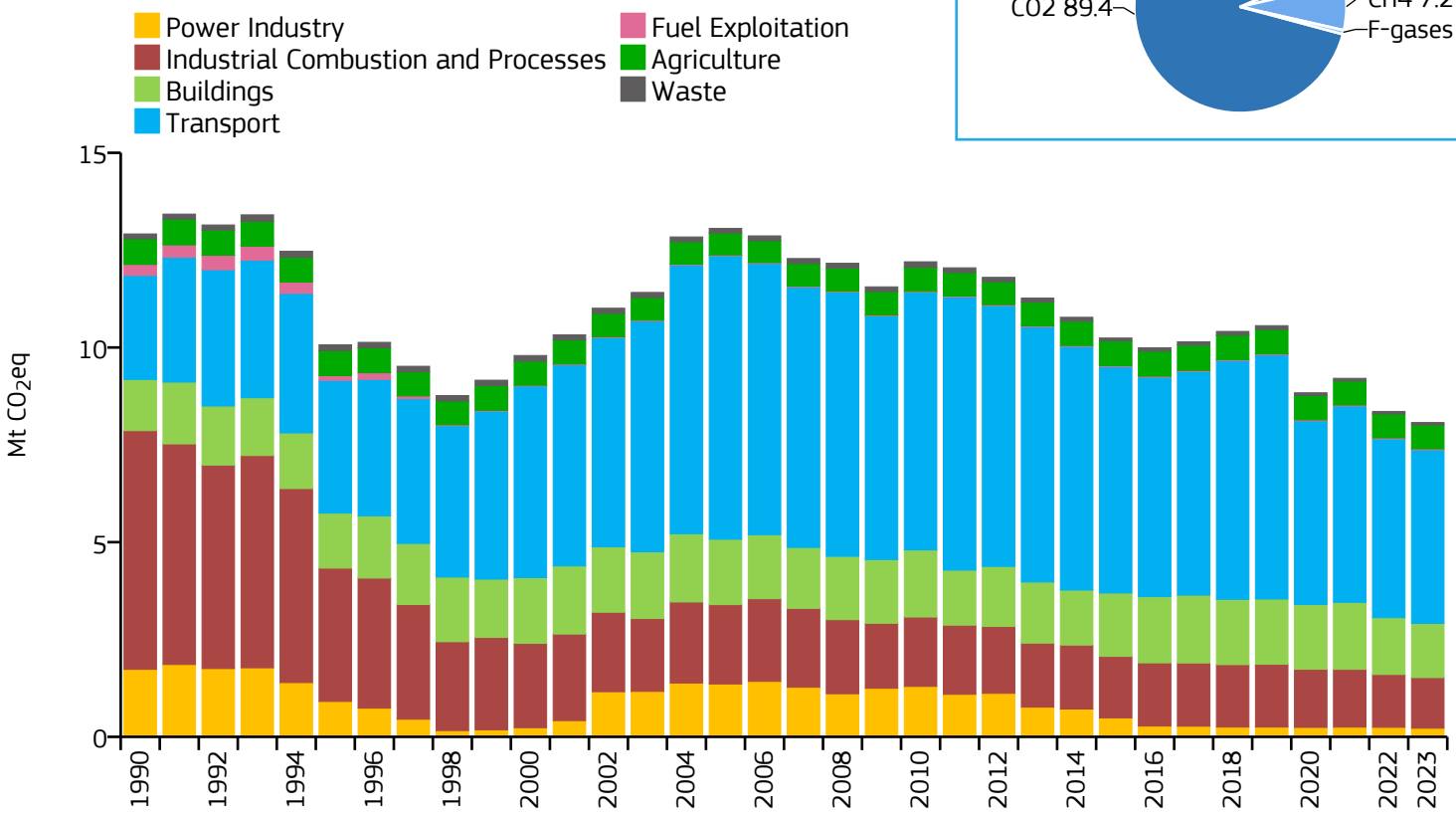
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	20.801	7.392	0.157	2.814M
2015	23.280	7.940	0.221	2.932M
2005	21.661	6.477	0.263	3.344M
1990	46.708	12.637	0.596	3.696M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-88%	-64%	-8%
Industrial Combustion and Processes	-50%	-3%	-4%
Buildings	-82%	-10%	-9%
Transport	+12%	+52%	+2%
Fuel Exploitation	-11%	-20%	+8%
Agriculture	-47%	+26%	0%
Waste	-53%	-56%	-8%
All sectors	-55%	-4%	-1%

Luxembourg



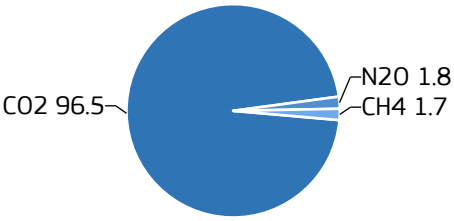
GHG emissions by sector



Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	8.073	12.875	0.091	627.000k
2015	10.242	18.072	0.136	566.741k
2005	13.059	28.524	0.222	457.842k
1990	12.916	33.831	0.410	381.791k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-87%	-84%	-10%
Industrial Combustion and Processes	-79%	-36%	-4%
Buildings	+6%	-17%	-5%
Transport	+67%	-39%	-3%
Fuel Exploitation	-90%	+23%	+1%
Agriculture	-7%	+9%	0%
Waste	-51%	-48%	-5%
All sectors	-37%	-38%	-3%

Macao

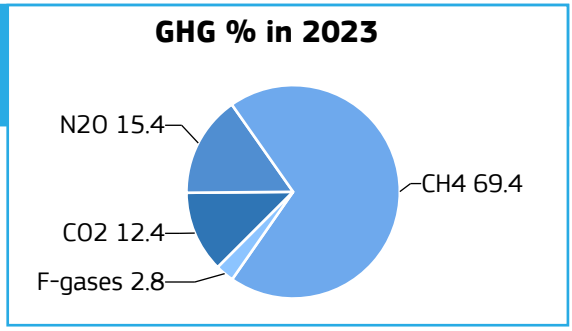


GHG emissions by sector

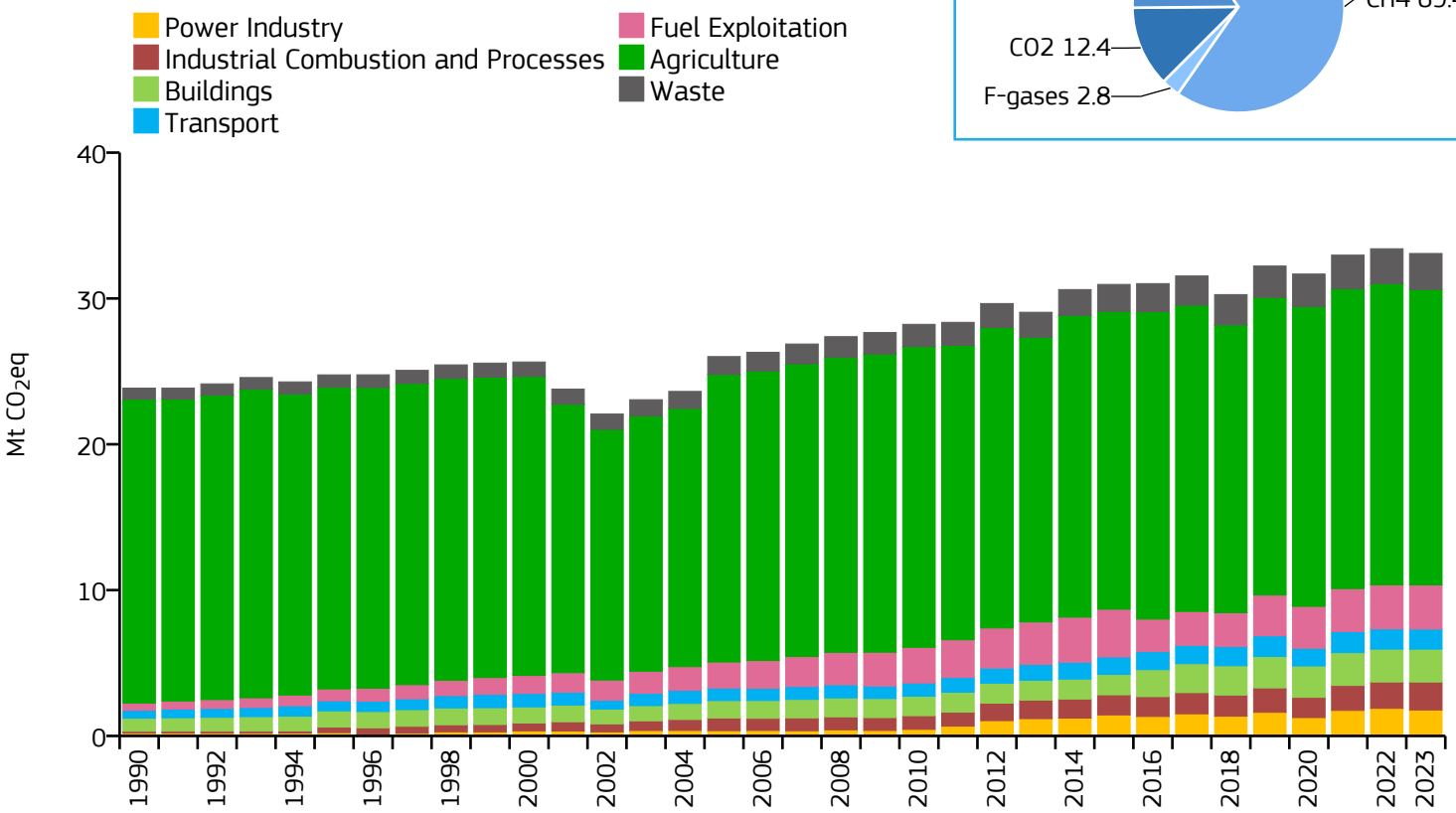
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	2.943	4.315	0.041	682.000k
2015	2.858	4.755	0.036	600.942k
2005	2.128	4.411	0.052	482.559k
1990	1.007	2.928	0.054	343.935k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+105%	-29%	-29%
Industrial Combustion and Processes	+267%	+8%	+1%
Buildings	+265%	+212%	+3%
Transport	+187%	+74%	+4%
Fuel Exploitation	> +300%	> +300%	+1%
Agriculture	+76%	+14%	+1%
Waste	+104%	+52%	+1%
All sectors	+192%	+38%	-5%

Madagascar



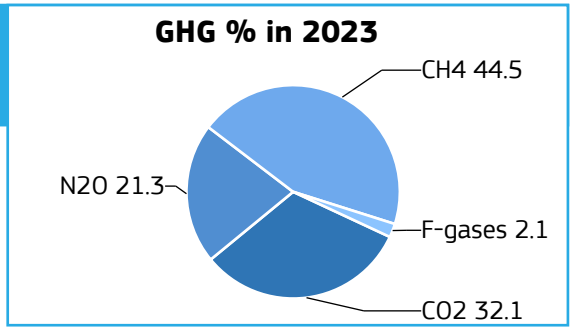
GHG emissions by sector



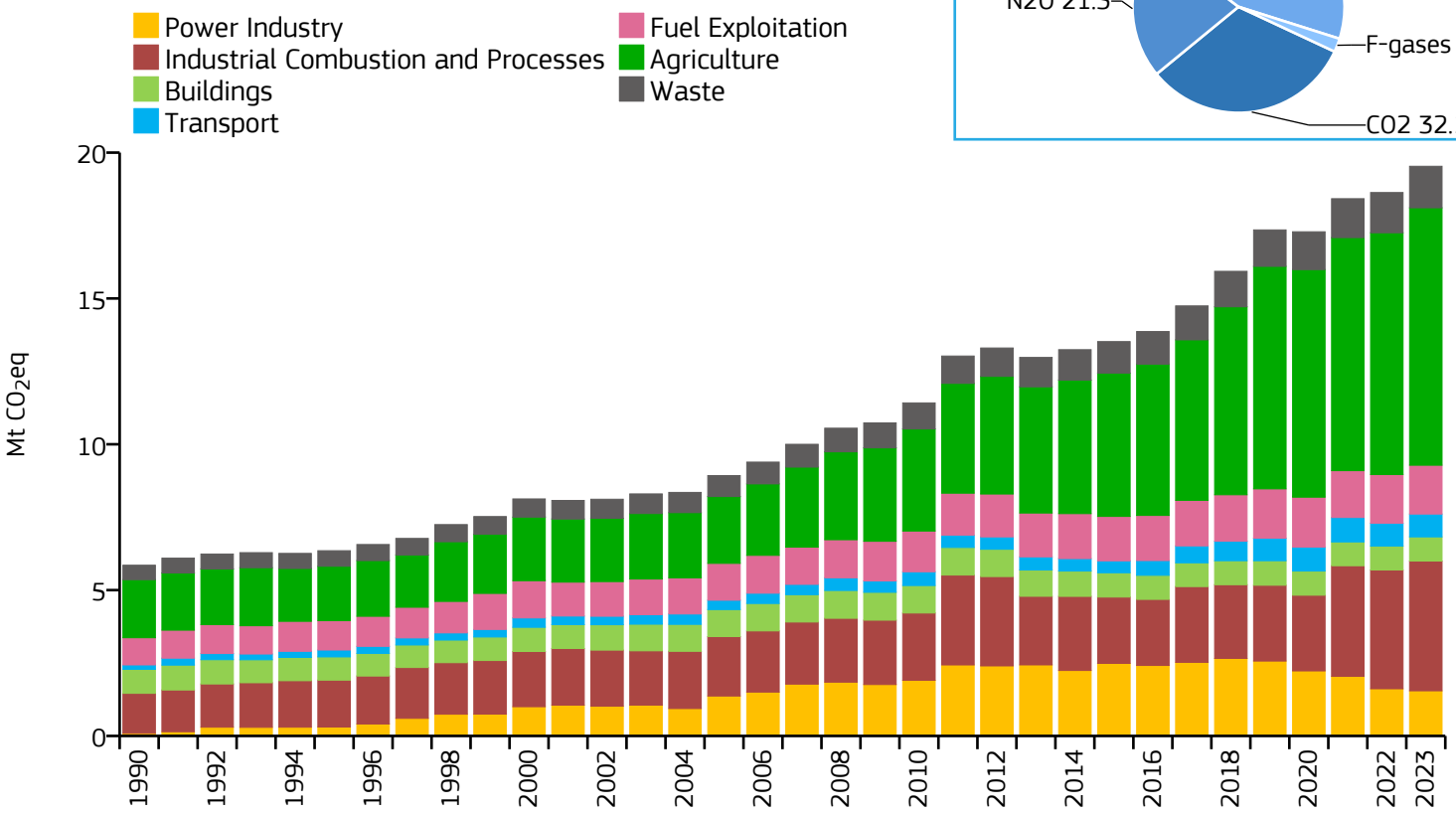
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	33.085	1.105	0.645	29.938M
2015	30.962	1.278	0.746	24.234M
2005	26.013	1.419	0.821	18.337M
1990	23.850	2.056	1.002	11.599M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	> +300%	-6%
Industrial Combustion and Processes	> +300%	+121%	+6%
Buildings	+151%	+88%	0%
Transport	+155%	+61%	0%
Fuel Exploitation	> +300%	+70%	0%
Agriculture	-3%	+3%	-2%
Waste	+227%	+102%	+3%
All sectors	+39%	+27%	-1%

Malawi



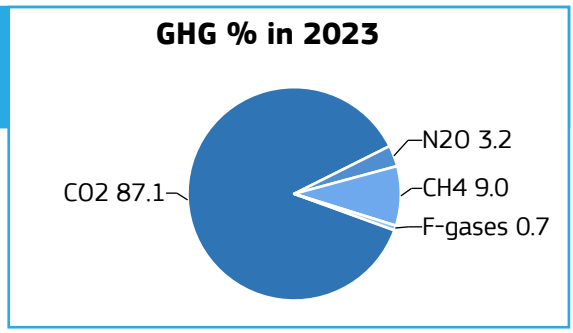
GHG emissions by sector



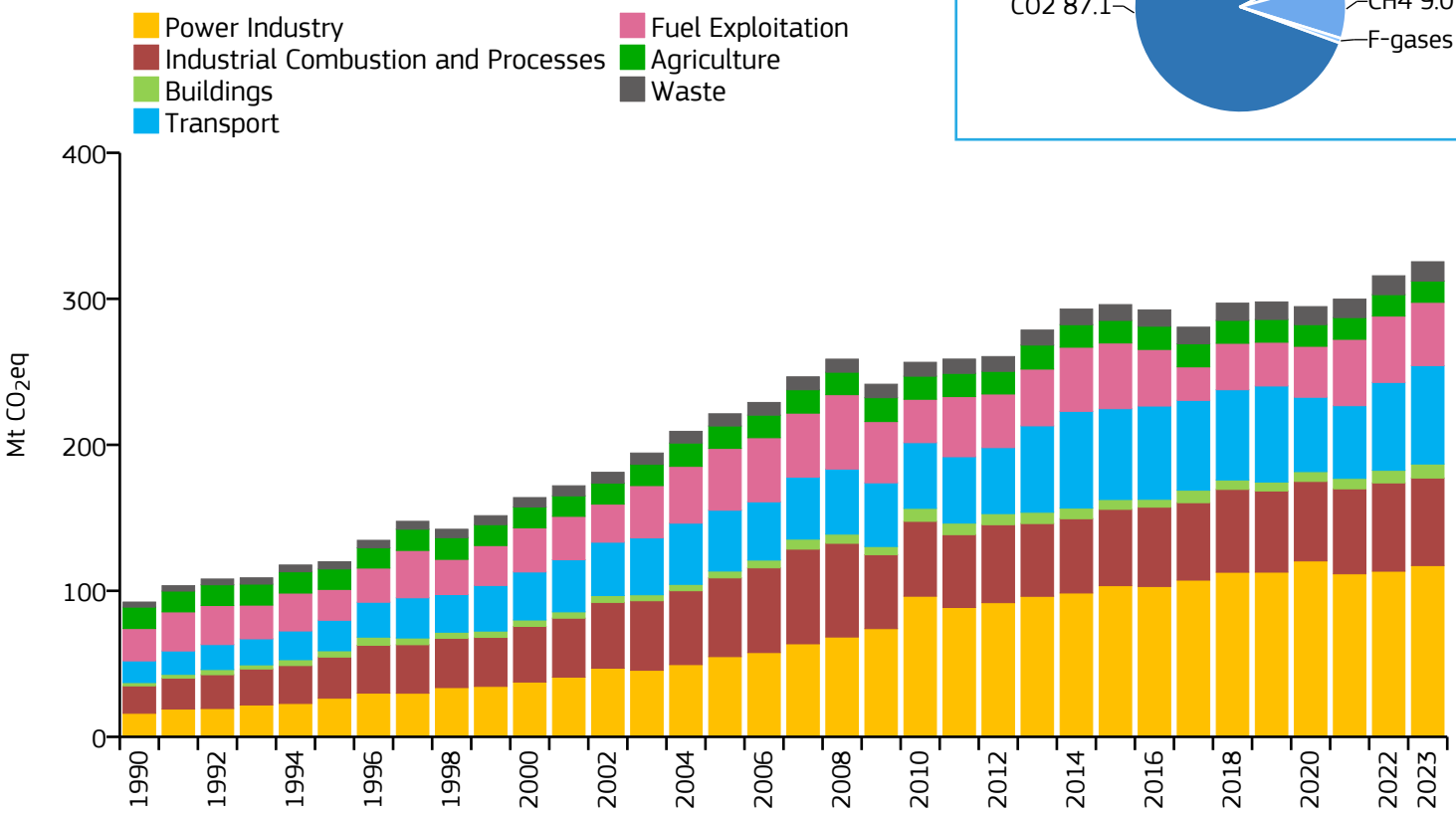
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	19.532	0.886	0.554	22.044M
2015	13.520	0.769	0.478	17.574M
2005	8.928	0.685	0.552	13.040M
1990	5.854	0.620	0.565	9.438M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+13%	-4%
Industrial Combustion and Processes	+225%	+118%	+9%
Buildings	+1%	-11%	+1%
Transport	> +300%	+144%	0%
Fuel Exploitation	+80%	+32%	0%
Agriculture	> +300%	+285%	+6%
Waste	+188%	+98%	+3%
All sectors	+234%	+119%	+5%

Malaysia



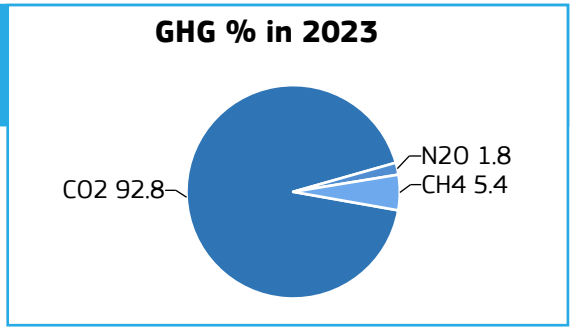
GHG emissions by sector



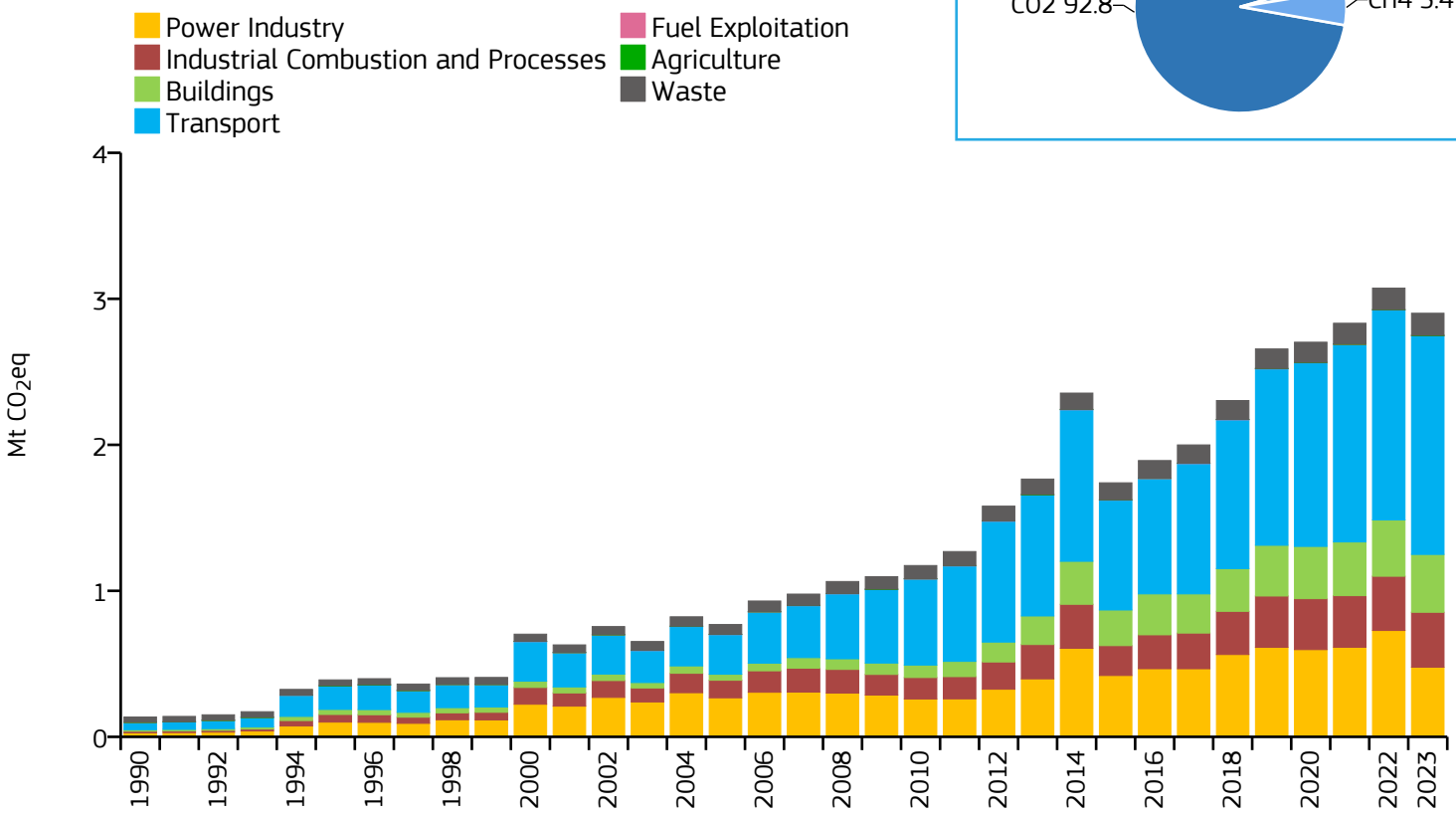
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	325.405	9.534	0.283	34.131M
2015	296.033	9.635	0.342	30.723M
2005	221.264	8.623	0.412	25.659M
1990	92.322	5.118	0.431	18.038M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+114%	+3%
Industrial Combustion and Processes	+219%	+11%	-1%
Buildings	> +300%	+104%	+12%
Transport	> +300%	+62%	+12%
Fuel Exploitation	+96%	+2%	-5%
Agriculture	-1%	-5%	-1%
Waste	+282%	+58%	+2%
All sectors	+252%	+47%	+3%

Maldives



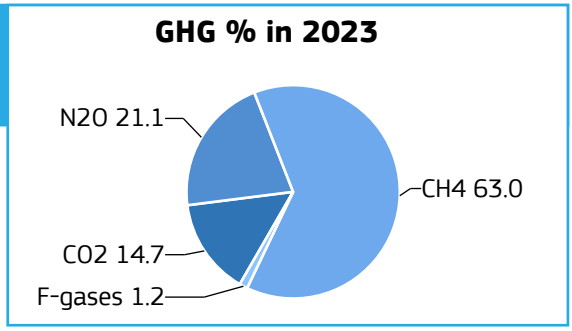
GHG emissions by sector



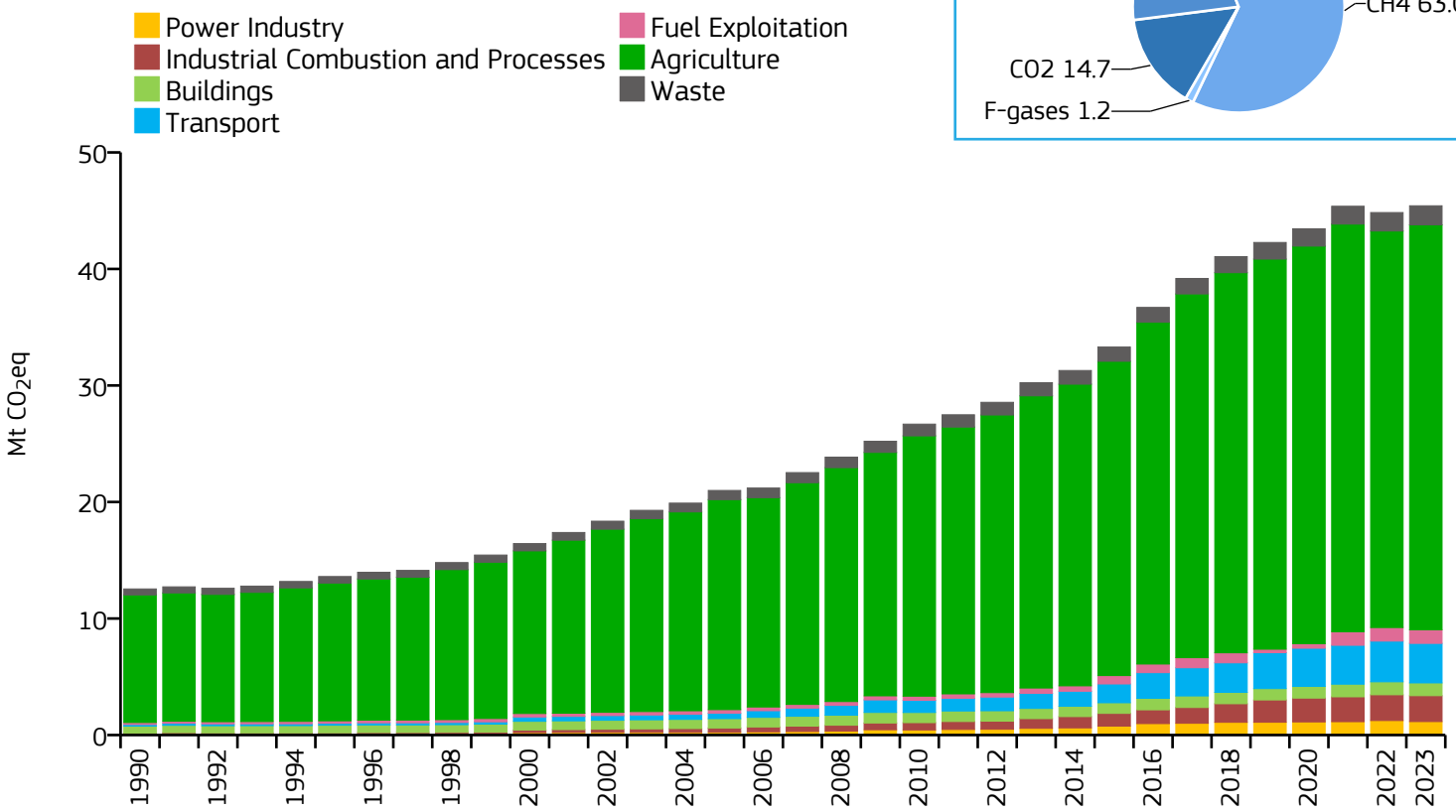
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	2.901	6.056	0.249	479.000k
2015	1.740	4.159	0.217	418.403k
2005	0.769	2.413	0.181	318.836k
1990	0.136	0.608	0.068	223.215k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+78%	-35%
Industrial Combustion and Processes	> +300%	+214%	+1%
Buildings	> +300%	> +300%	+3%
Transport	> +300%	> +300%	+4%
Fuel Exploitation	+94%	+36%	0%
Agriculture	-97%	-12%	0%
Waste	> +300%	+126%	+3%
All sectors	> +300%	+277%	-6%

Mali



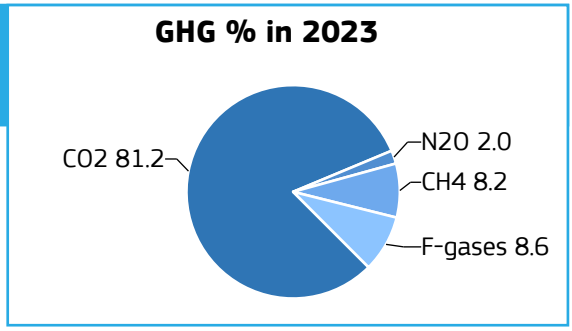
GHG emissions by sector



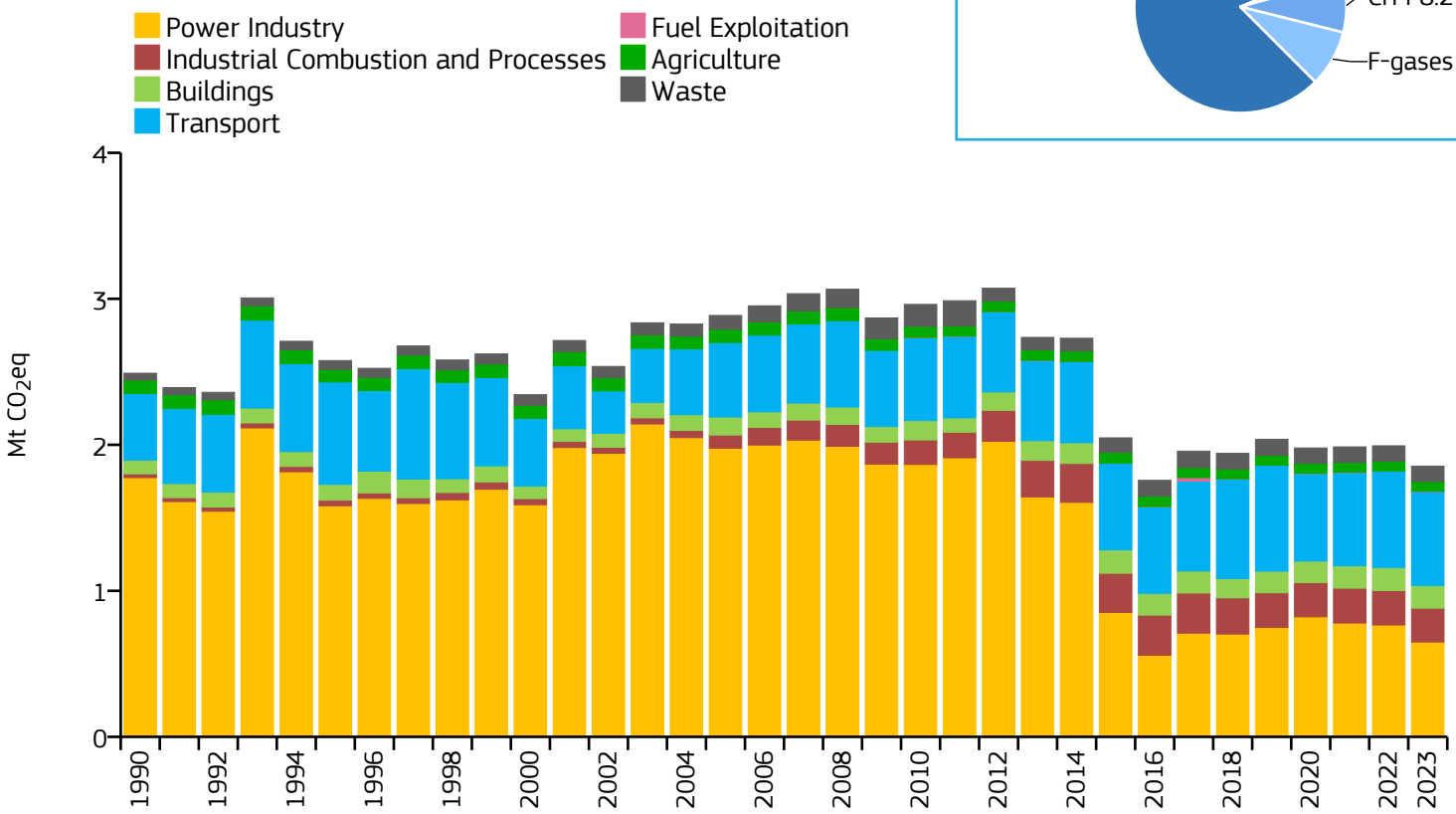
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	45.421	2.050	0.794	22.153M
2015	33.299	1.906	0.789	17.468M
2005	20.992	1.640	0.741	12.799M
1990	12.539	1.481	0.927	8.465M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ > +300%	↗ > +300%	↘ -7%
Industrial Combustion and Processes	↗ > +300%	↗ > +300%	→ 0%
Buildings	↗ +84%	↗ +37%	→ -1%
Transport	↗ > +300%	↗ > +300%	→ -3%
Fuel Exploitation	↗ > +300%	↗ +273%	→ 0%
Agriculture	↗ +217%	↗ +93%	→ +2%
Waste	↗ +220%	↗ +107%	→ +3%
All sectors	↗ +262%	↗ +116%	→ +1%

Malta



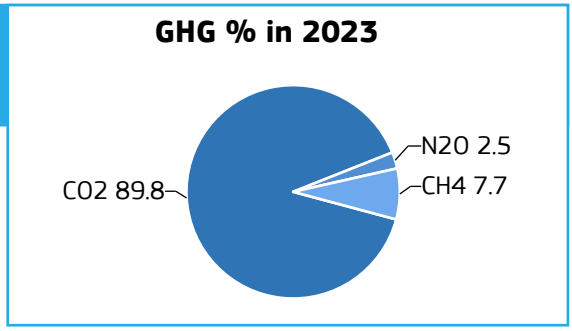
GHG emissions by sector



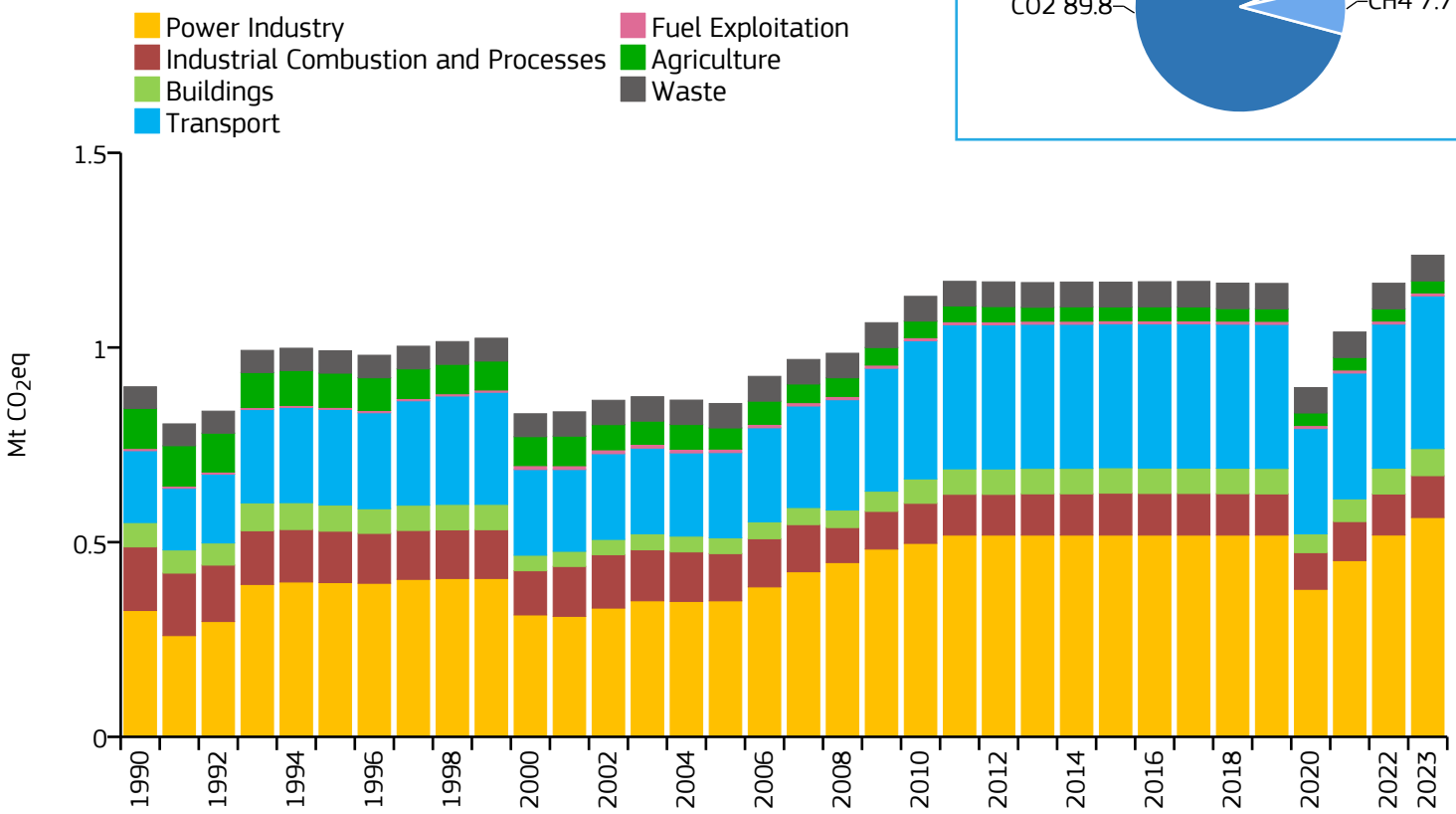
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	1.854	4.243	0.059	437.000k
2015	2.048	4.789	0.101	427.616k
2005	2.886	7.095	0.215	406.787k
1990	2.491	6.834	0.380	364.431k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-63%	-67%	-15%
Industrial Combustion and Processes	> +300%	+157%	-2%
Buildings	+66%	+26%	-2%
Transport	+41%	+26%	-2%
Fuel Exploitation	n/a	n/a	0%
Agriculture	-27%	-26%	0%
Waste	+124%	+11%	0%
All sectors	-26%	-36%	-7%

Martinique



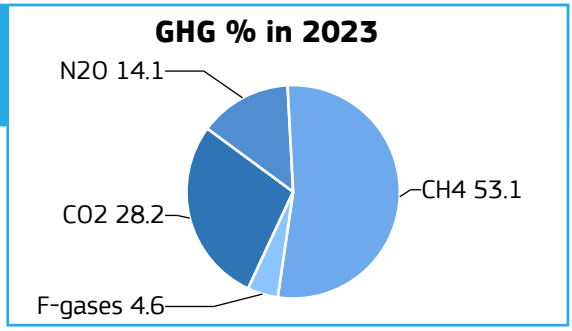
GHG emissions by sector



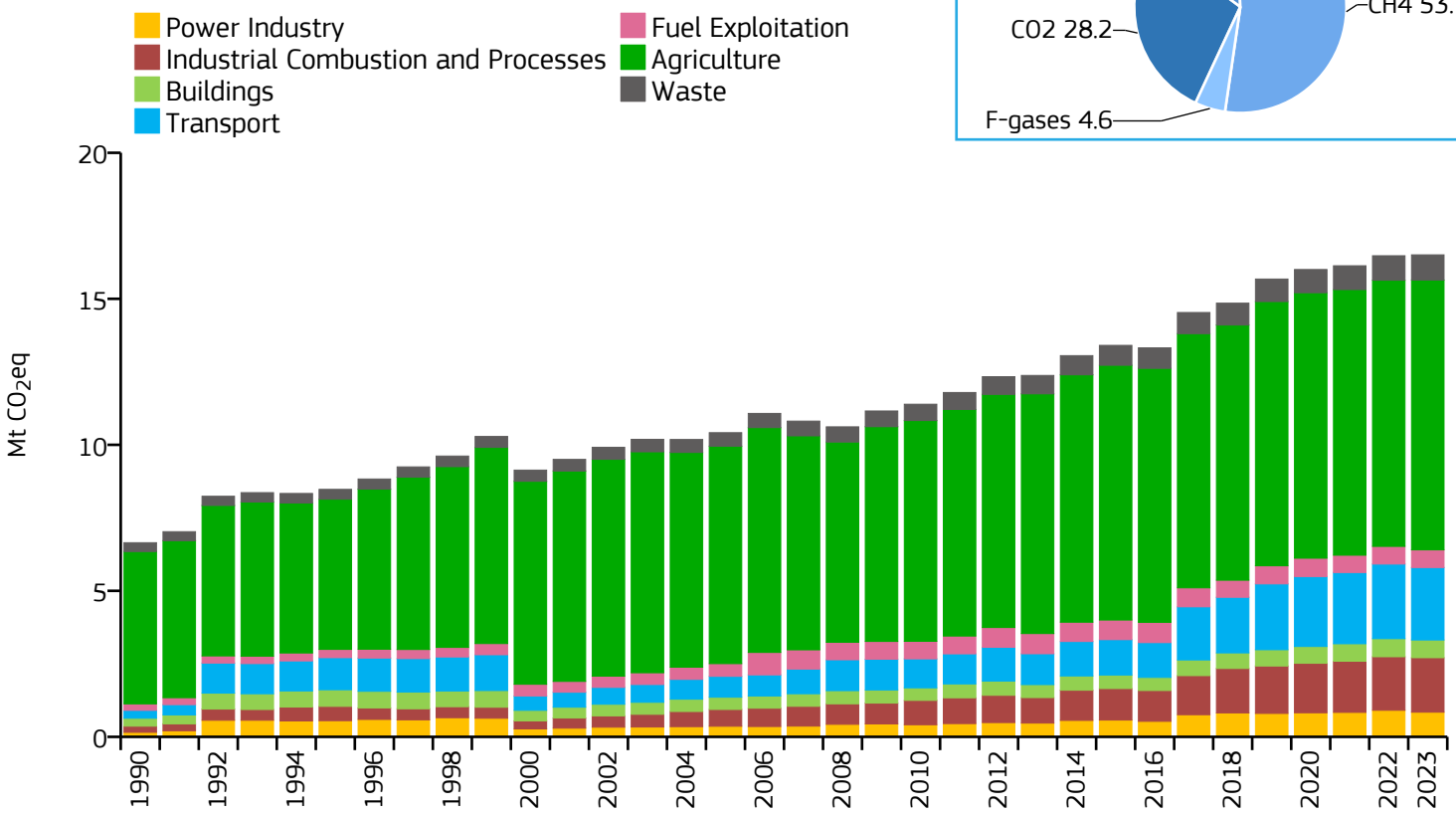
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	1.237	3.213	n/a	385.000k
2015	1.168	3.027	n/a	385.842k
2005	0.856	2.156	n/a	397.047k
1990	0.899	2.508	n/a	358.449k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+74%	+61%	+9%
Industrial Combustion and Processes	-34%	-11%	+2%
Buildings	+11%	+71%	+5%
Transport	+113%	+79%	+6%
Fuel Exploitation	+34%	-14%	0%
Agriculture	-70%	-43%	-2%
Waste	+19%	+5%	0%
All sectors	+38%	+44%	+6%

Mauritania



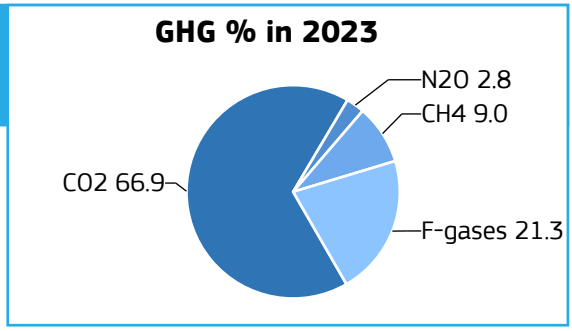
GHG emissions by sector



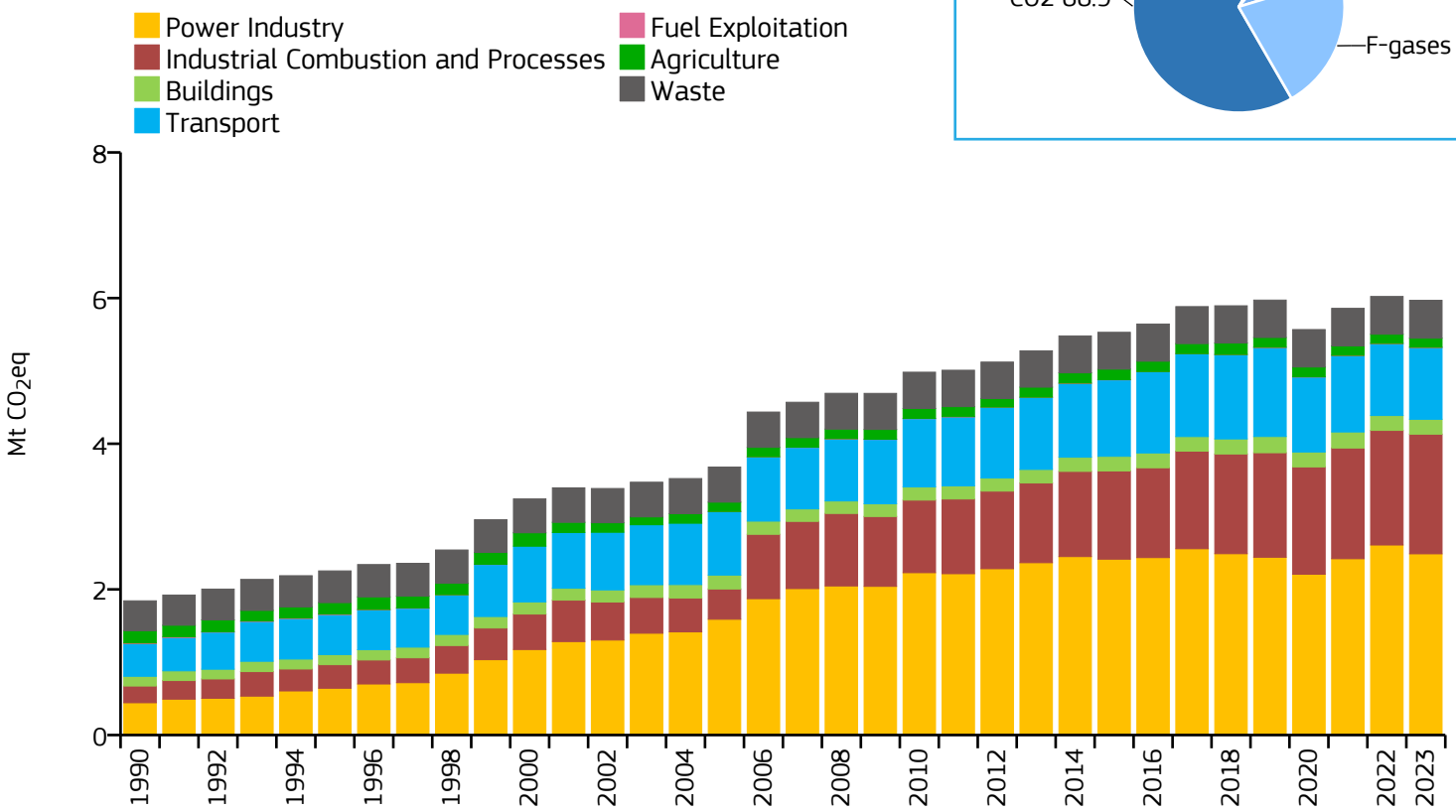
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	16.506	3.199	0.543	5.160M
2015	13.406	3.205	0.566	4.182M
2005	10.416	3.327	0.651	3.131M
1990	6.649	3.275	0.617	2.030M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+133%	-7%
Industrial Combustion and Processes	> +300%	+224%	+2%
Buildings	+123%	+45%	-2%
Transport	> +300%	+247%	-3%
Fuel Exploitation	+172%	+39%	0%
Agriculture	+77%	+24%	+1%
Waste	+185%	+86%	+3%
All sectors	+148%	+58%	0%

Mauritius



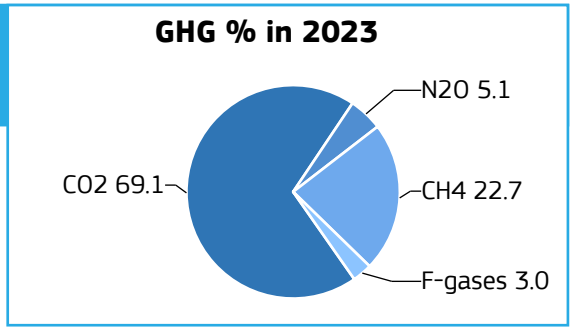
GHG emissions by sector



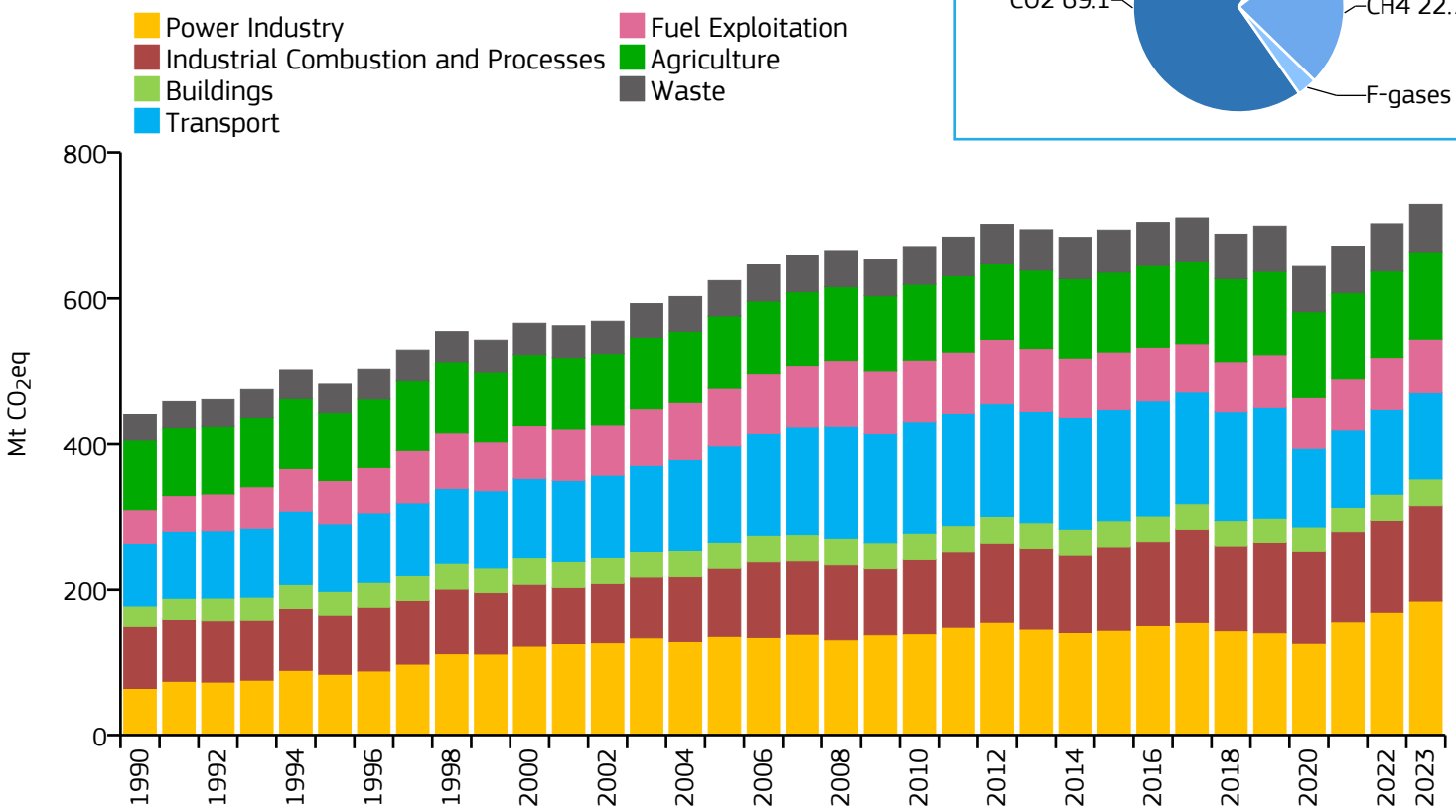
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	5.969	4.663	0.178	1.280M
2015	5.530	4.391	0.196	1.259M
2005	3.679	3.011	0.197	1.222M
1990	1.843	1.745	0.194	1.056M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+57%	-5%
Industrial Combustion and Processes	> +300%	+295%	+4%
Buildings	+53%	+7%	0%
Transport	+120%	+13%	0%
Fuel Exploitation	-90%	-71%	0%
Agriculture	-26%	-2%	-1%
Waste	+27%	+8%	0%
All sectors	+224%	+62%	-1%

Mexico



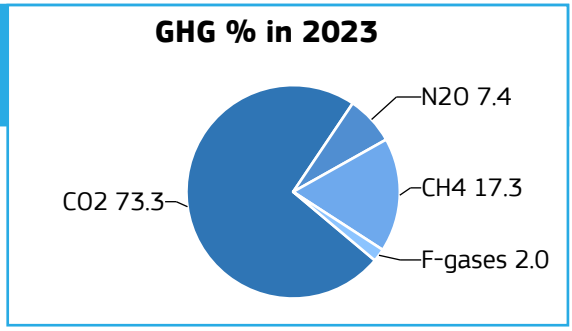
GHG emissions by sector



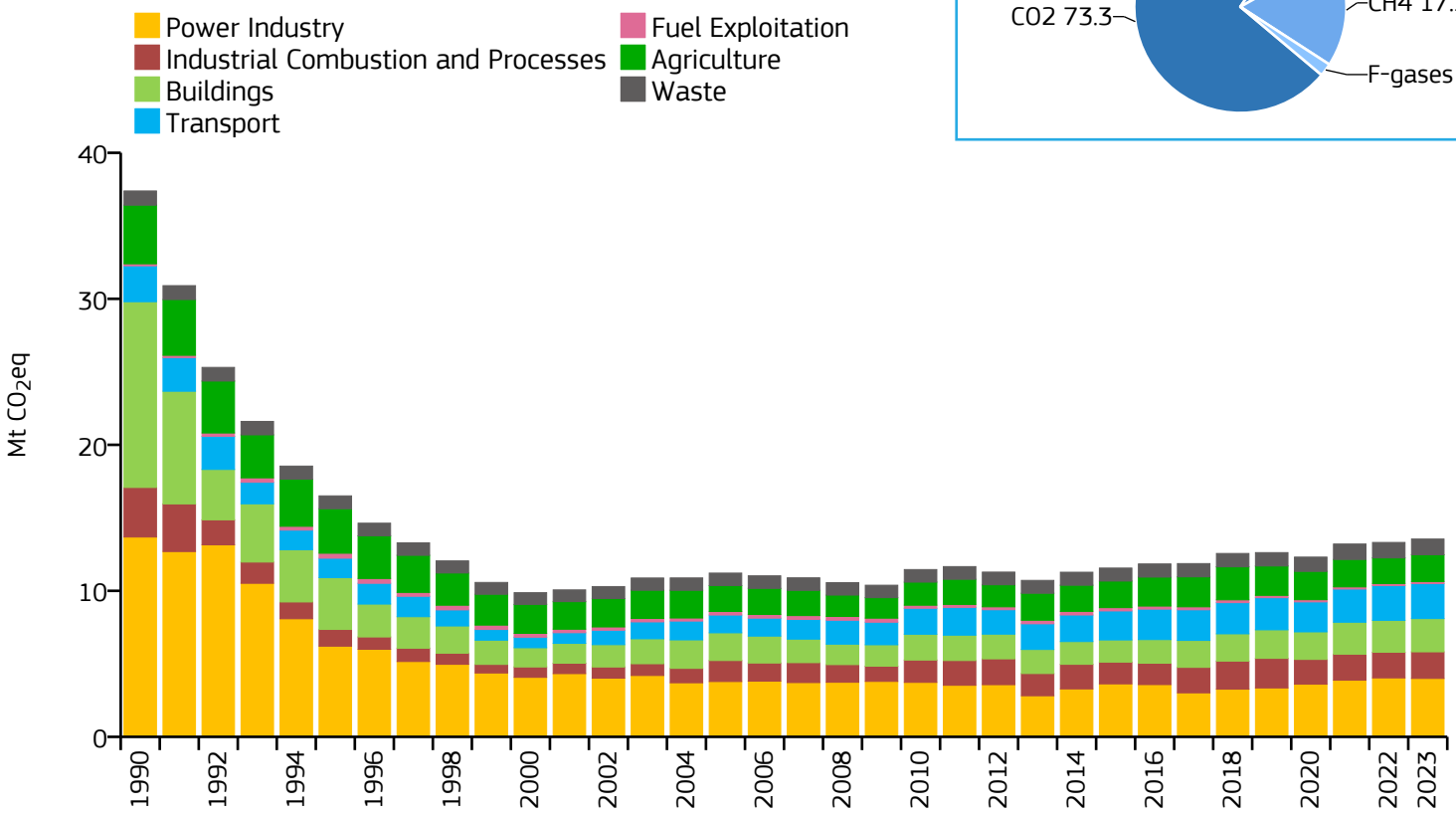
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	727.956	5.263	0.253	138.323M
2015	692.685	5.502	0.264	125.891M
2005	624.422	5.757	0.287	108.472M
1990	440.246	5.158	0.305	85.358M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+188%	+37%	+10%
Industrial Combustion and Processes	+53%	+38%	+3%
Buildings	+26%	+4%	+2%
Transport	+40%	-10%	+2%
Fuel Exploitation	+58%	-8%	+3%
Agriculture	+25%	+21%	0%
Waste	+87%	+34%	+2%
All sectors	+65%	+17%	+4%

Moldova



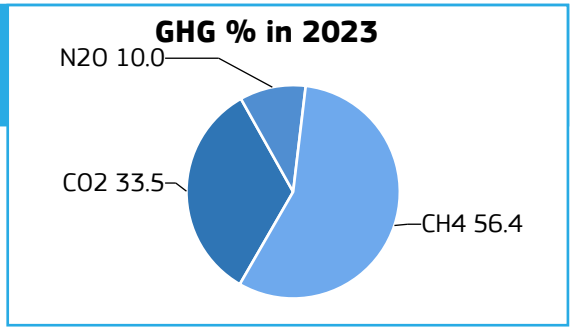
GHG emissions by sector



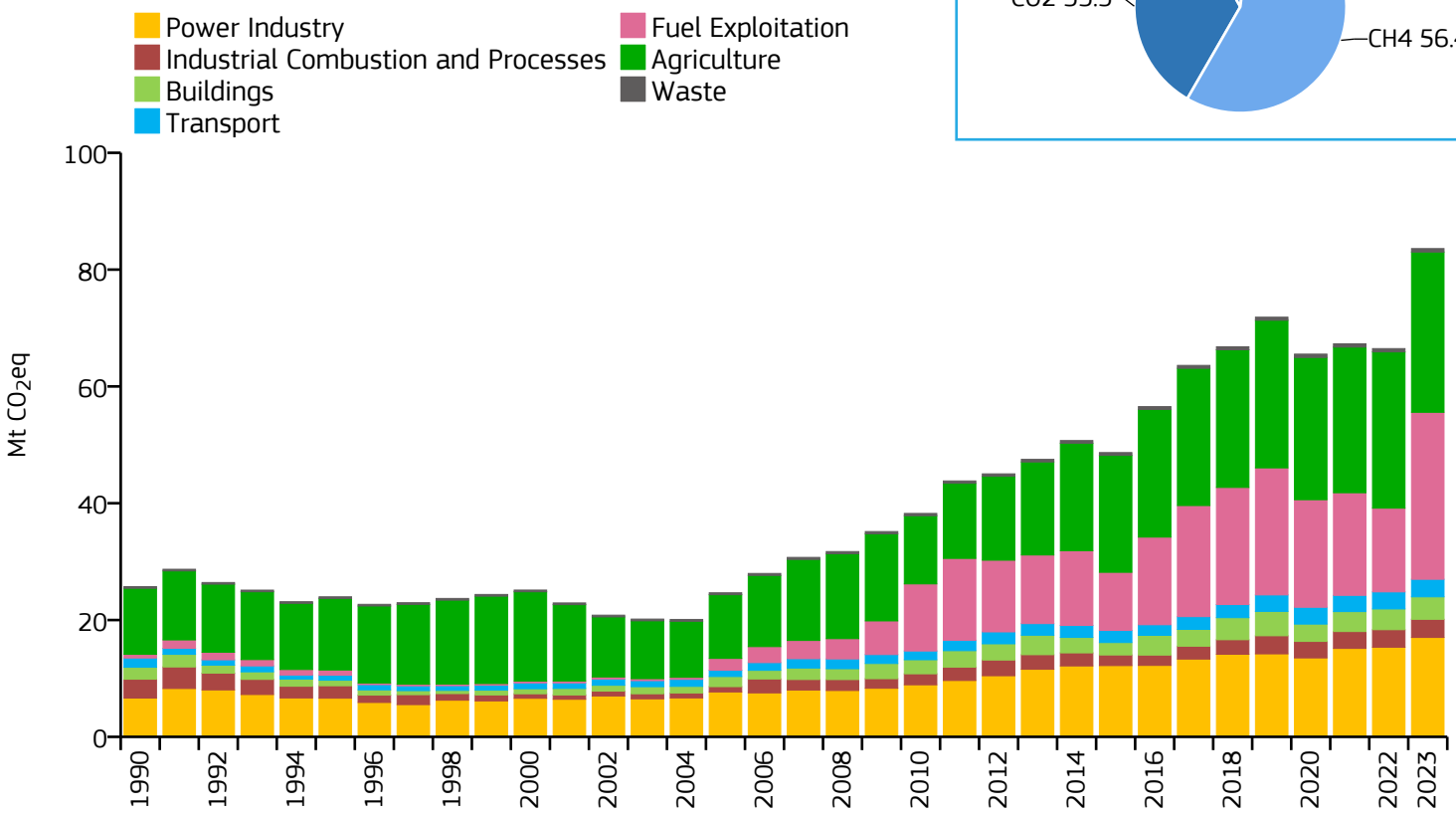
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	13.546	3.406	0.348	3.977M
2015	11.560	2.843	0.349	4.066M
2005	11.215	2.697	0.476	4.158M
1990	37.385	8.567	0.789	4.364M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-71%	+6%	-1%
Industrial Combustion and Processes	-46%	+27%	+4%
Buildings	-82%	+20%	+4%
Transport	-2%	+97%	+1%
Fuel Exploitation	-7%	-47%	-6%
Agriculture	-54%	+4%	+5%
Waste	+11%	+26%	+1%
All sectors	-64%	+21%	+2%

Mongolia



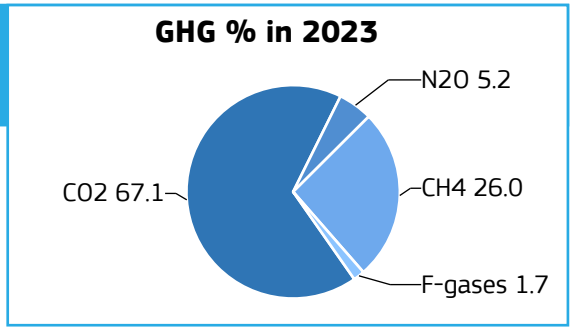
GHG emissions by sector



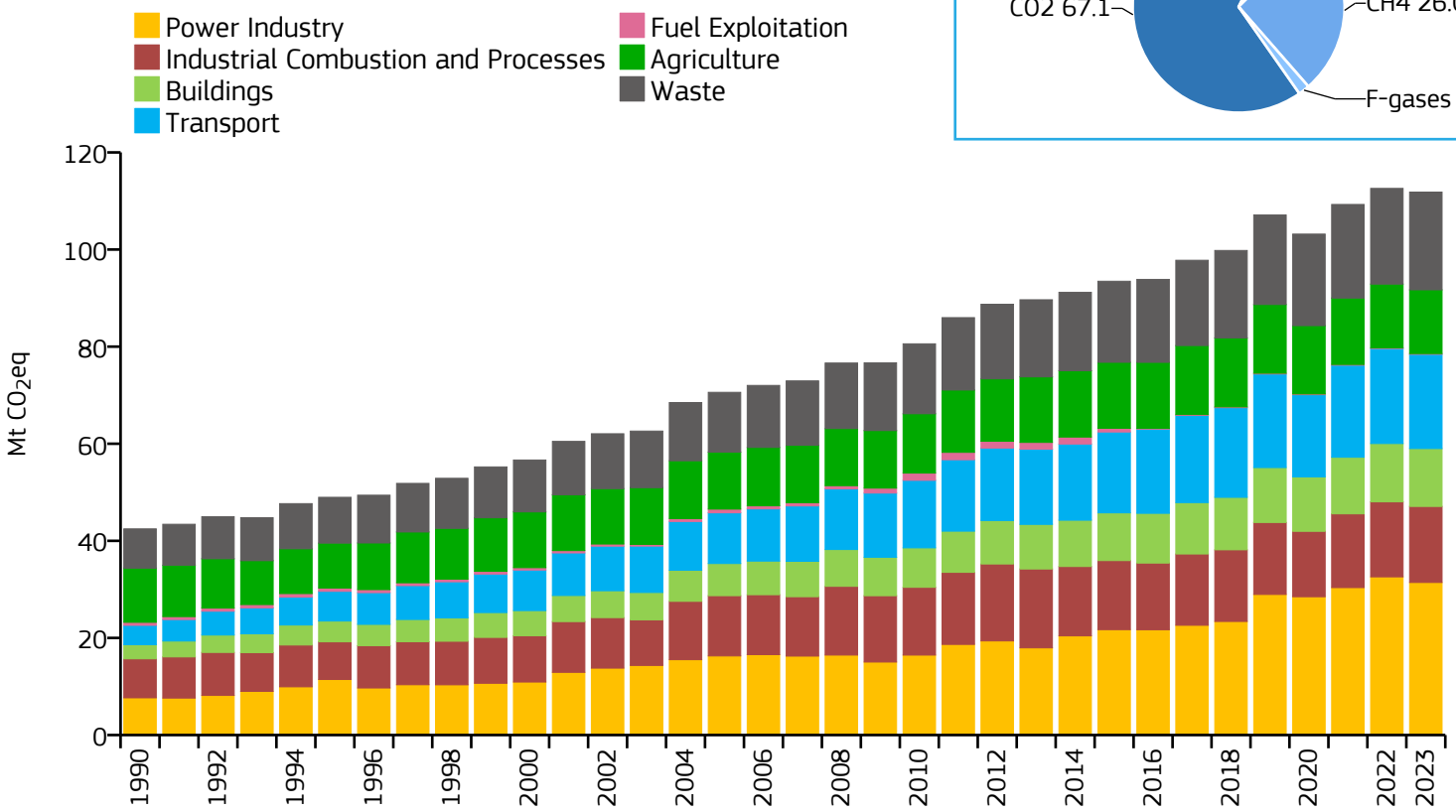
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	83.600	25.113	1.486	3.329M
2015	48.672	16.350	1.151	2.977M
2005	24.665	9.763	1.297	2.526M
1990	25.729	11.780	1.847	2.184M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +156%	↗ +121%	↗ +11%
Industrial Combustion and Processes	→ -4%	↗ +243%	→ +4%
Buildings	↗ +88%	↗ +122%	↗ +8%
Transport	↗ +89%	↗ +180%	→ +3%
Fuel Exploitation	↗ > +300%	↗ > +300%	↗ +99%
Agriculture	↗ +143%	↗ +152%	→ +3%
Waste	↗ +102%	↗ +78%	→ +2%
All sectors	↗ +225%	↗ +239%	↗ +26%

Morocco



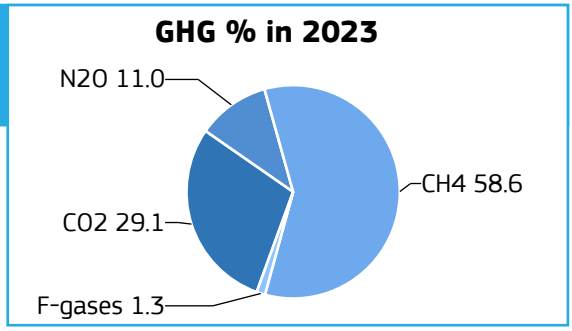
GHG emissions by sector



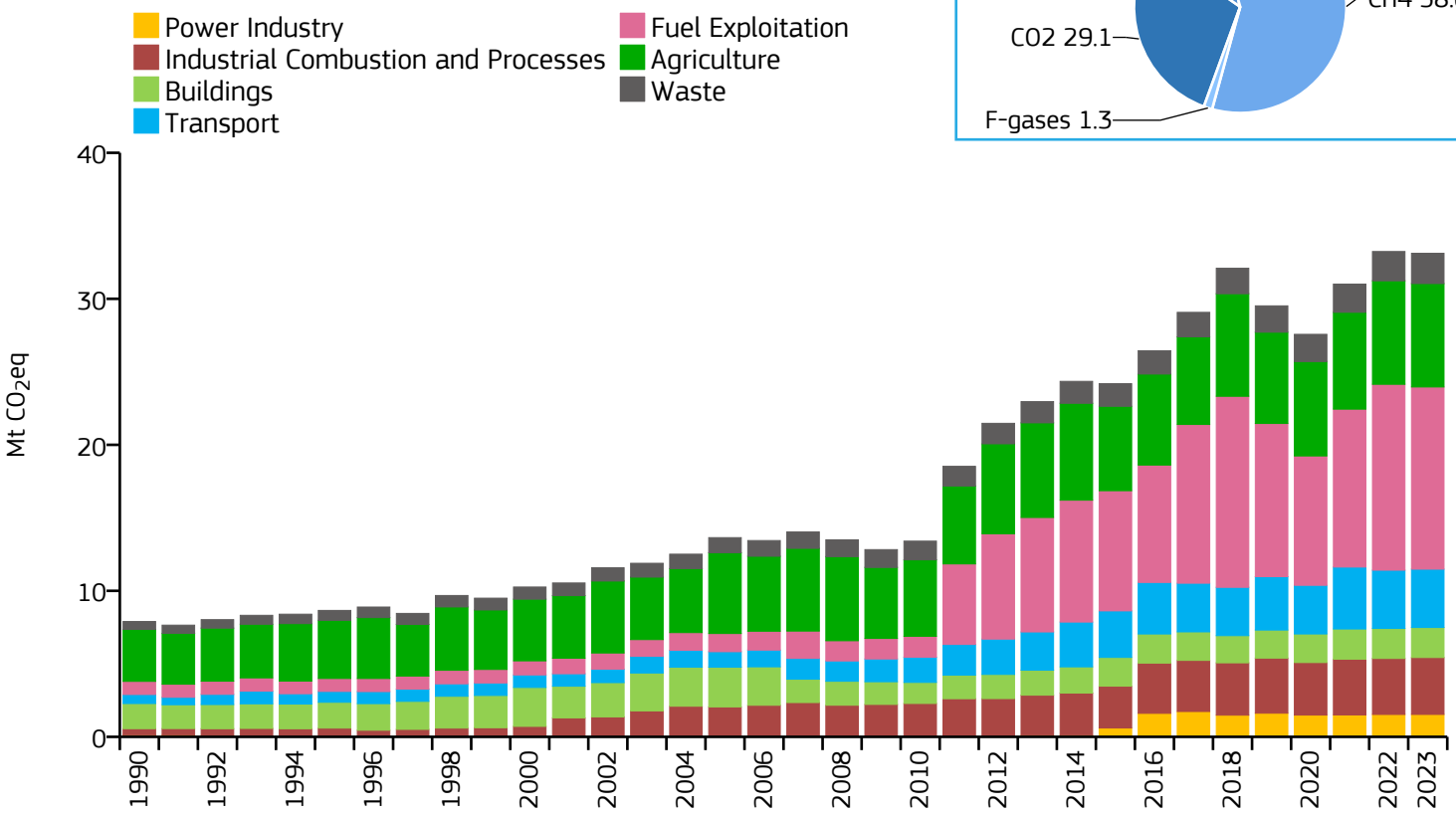
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	111.832	2.918	0.331	38.319M
2015	93.470	2.686	0.325	34.803M
2005	70.591	2.313	0.377	30.521M
1990	42.462	1.707	0.391	24.879M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ > +300%	↗ +93%	→ -4%
Industrial Combustion and Processes	↗ +95%	↗ +26%	→ +1%
Buildings	↗ > +300%	↗ +80%	→ -1%
Transport	↗ > +300%	↗ +86%	→ -1%
Fuel Exploitation	↘ -76%	↘ -80%	→ 0%
Agriculture	↗ +18%	↗ +12%	→ 0%
Waste	↗ +149%	↗ +63%	→ +2%
All sectors	↗ +163%	↗ +58%	→ -1%

Mozambique



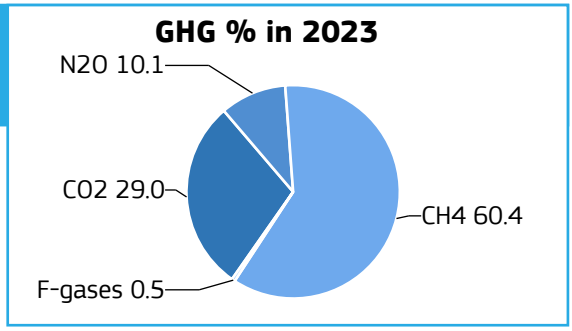
GHG emissions by sector



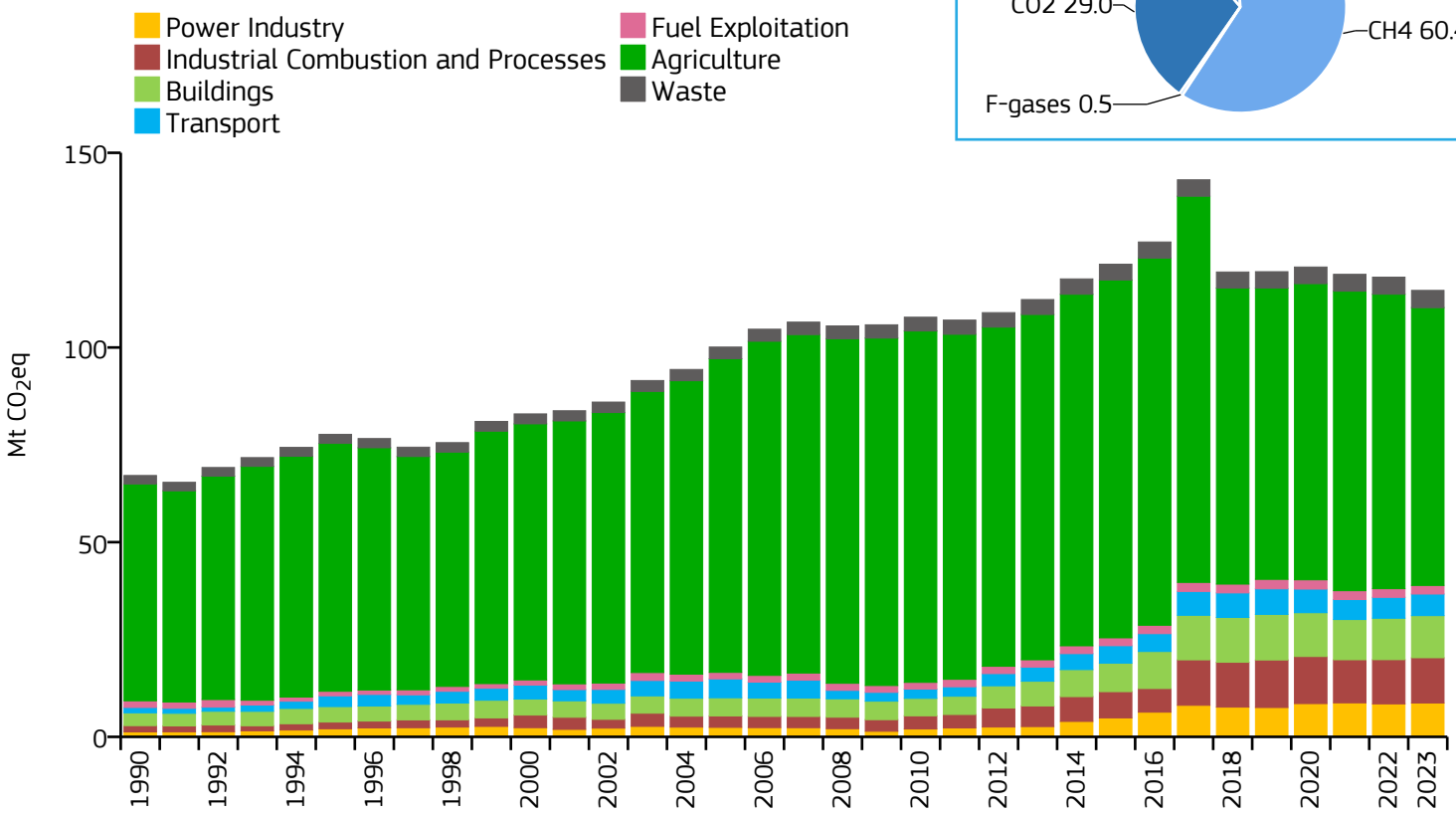
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	33.118	0.943	0.654	35.132M
2015	24.188	0.864	0.602	28.011M
2005	13.644	0.652	0.692	20.923M
1990	7.899	0.596	1.102	13.248M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ > +300%	↗ > +300%	→ 0%
Industrial Combustion and Processes	↗ > +300%	↗ +92%	→ +2%
Buildings	↗ +20%	↘ -24%	→ 0%
Transport	↗ > +300%	↗ +277%	→ 0%
Fuel Exploitation	↗ > +300%	↗ > +300%	→ -2%
Agriculture	↗ +99%	↗ +28%	→ 0%
Waste	↗ +282%	↗ +101%	→ +4%
All sectors	↗ > +300%	↗ +143%	→ 0%

Myanmar/Burma



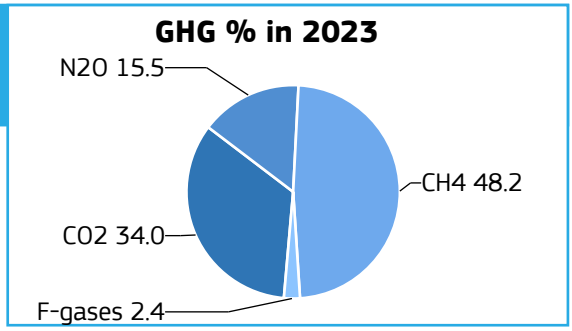
GHG emissions by sector



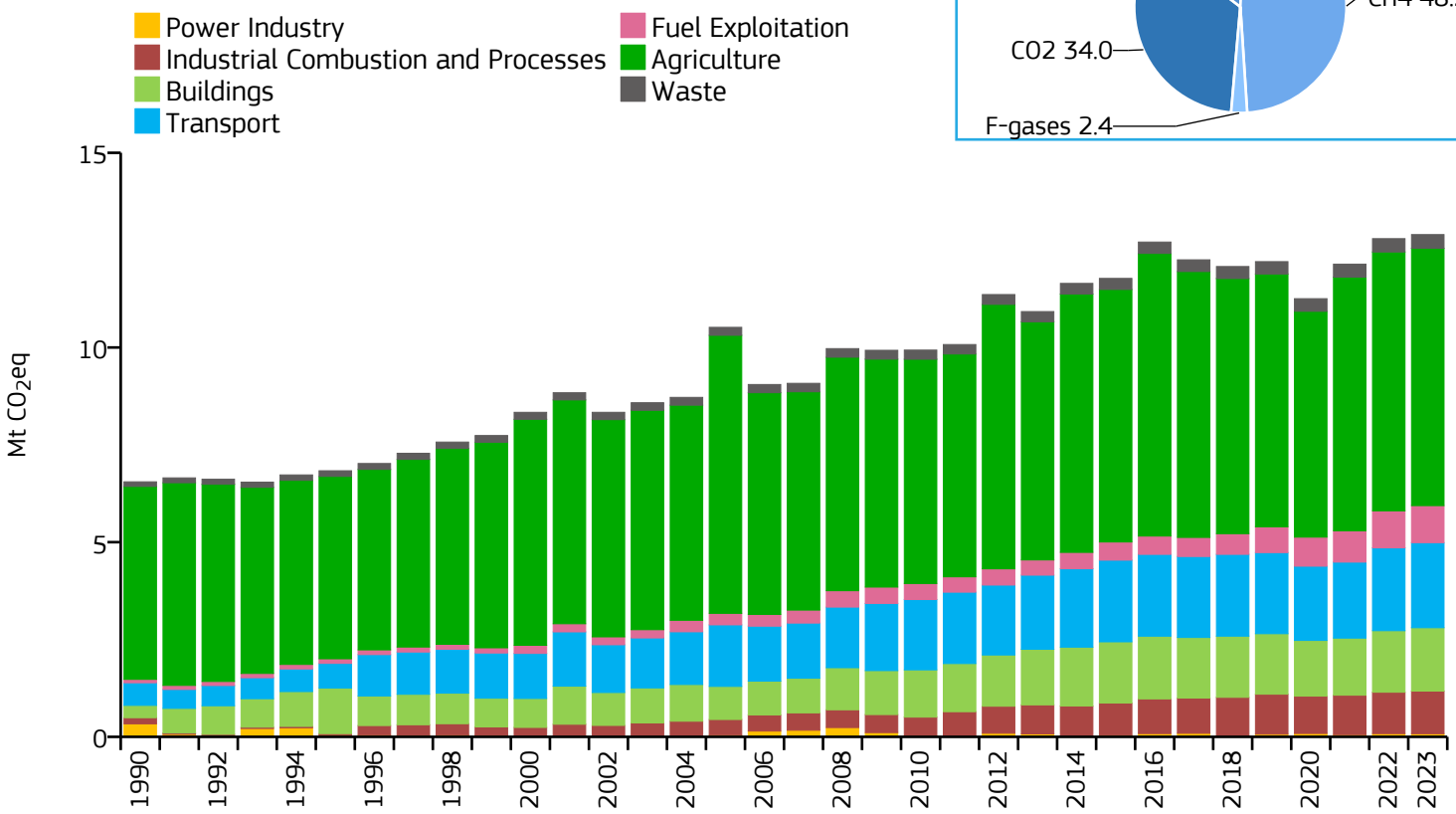
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	114.661	2.042	0.395	56.156M
2015	121.392	2.316	0.447	52.404M
2005	100.108	2.065	0.887	48.483M
1990	67.124	1.652	2.174	40.626M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+257%	+3%
Industrial Combustion and Processes	> +300%	+296%	+2%
Buildings	+229%	+132%	+2%
Transport	> +300%	+14%	+3%
Fuel Exploitation	+29%	+32%	0%
Agriculture	+28%	-11%	-6%
Waste	+104%	+48%	+1%
All sectors	+71%	+15%	-3%

Namibia



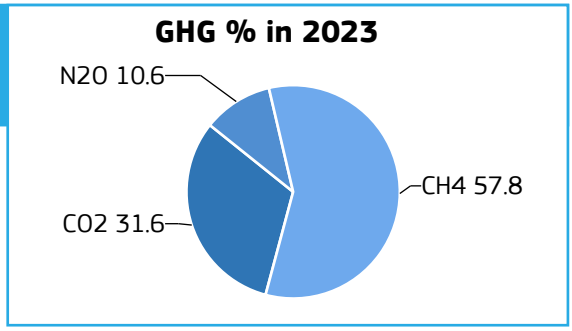
GHG emissions by sector



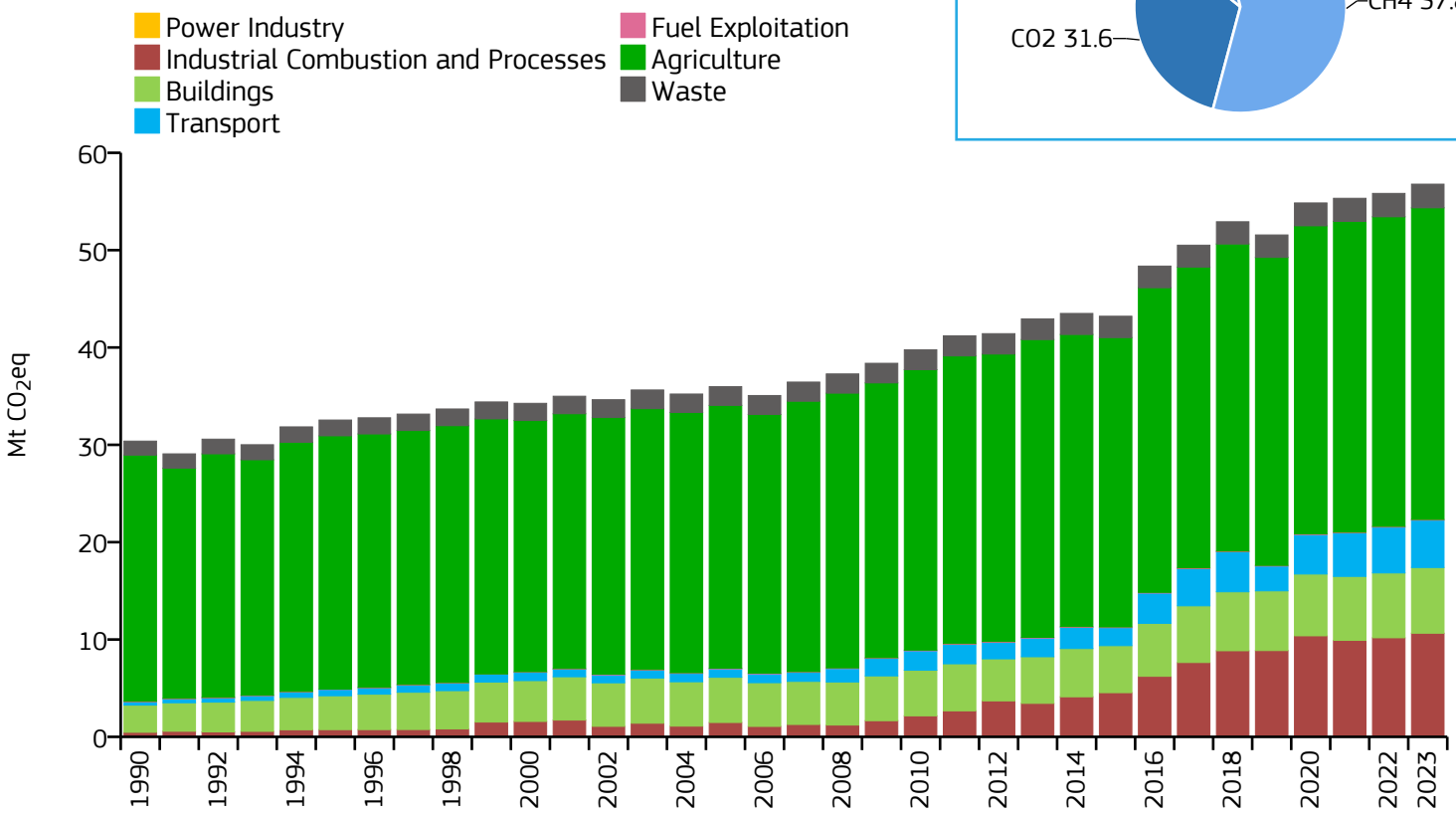
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	12.899	4.509	0.431	2.861M
2015	11.774	4.854	0.408	2.426M
2005	10.518	5.175	0.578	2.032M
1990	6.550	4.630	0.657	1.415M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-76%	+86%	-3%
Industrial Combustion and Processes	> +300%	+172%	+3%
Buildings	> +300%	+92%	+3%
Transport	+276%	+38%	+3%
Fuel Exploitation	> +300%	+222%	0%
Agriculture	+33%	-7%	-1%
Waste	+195%	+71%	+2%
All sectors	+97%	+23%	+1%

Nepal



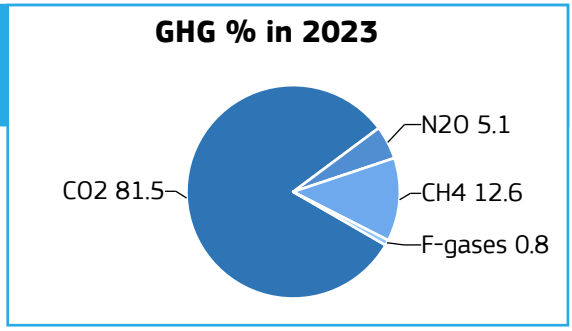
GHG emissions by sector



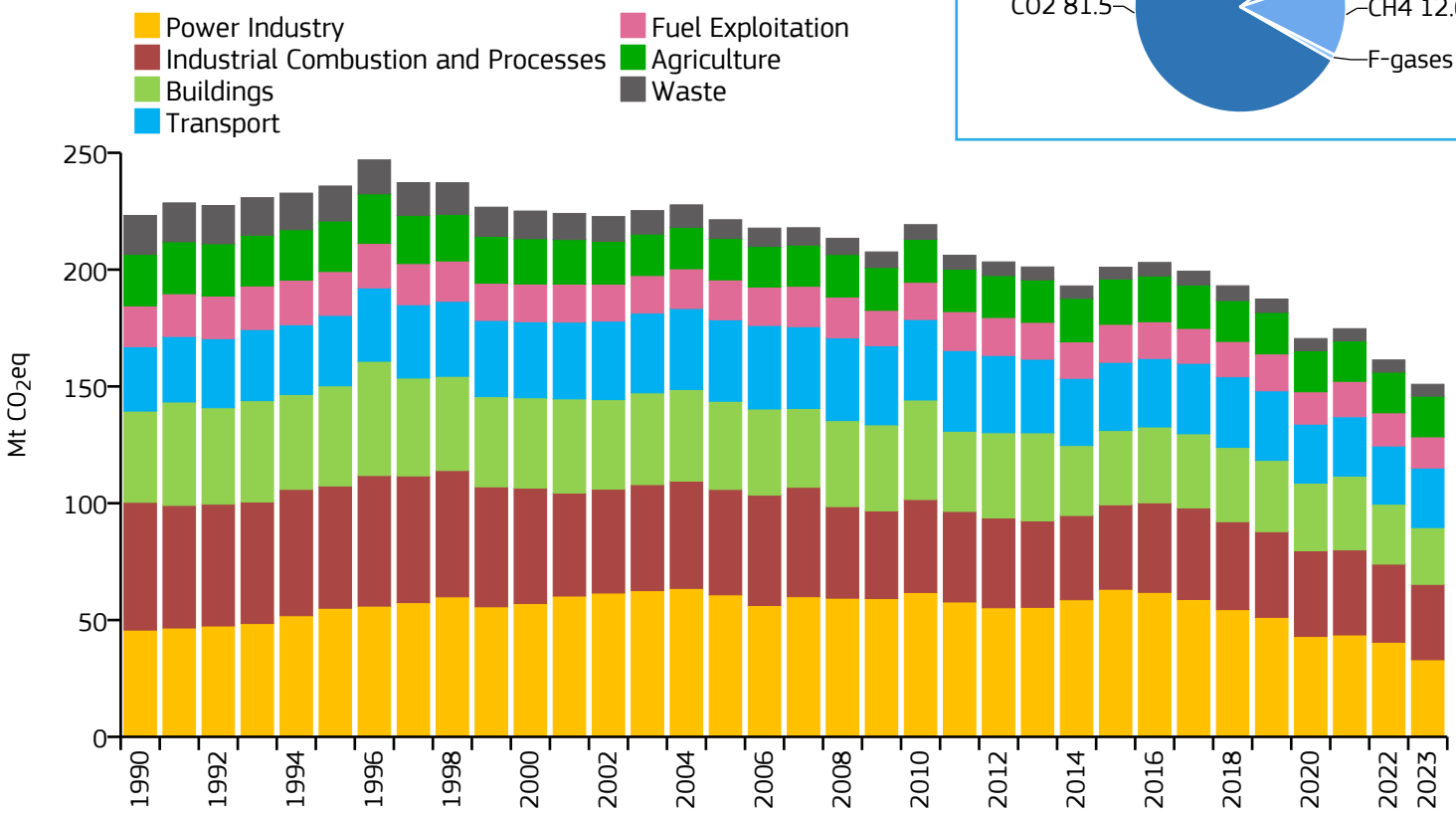
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	56.780	1.819	0.393	31.207M
2015	43.210	1.508	0.415	28.656M
2005	35.974	1.403	0.530	25.640M
1990	30.383	1.620	0.861	18.749M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	n/a	-100%	-35%
Industrial Combustion and Processes	> +300%	> +300%	+5%
Buildings	+142%	+45%	+1%
Transport	> +300%	> +300%	+3%
Fuel Exploitation	+111%	+8%	-1%
Agriculture	+27%	+19%	+1%
Waste	+69%	+27%	+1%
All sectors	+87%	+58%	+2%

Netherlands



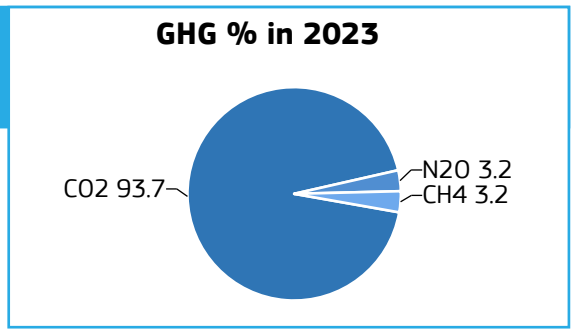
GHG emissions by sector



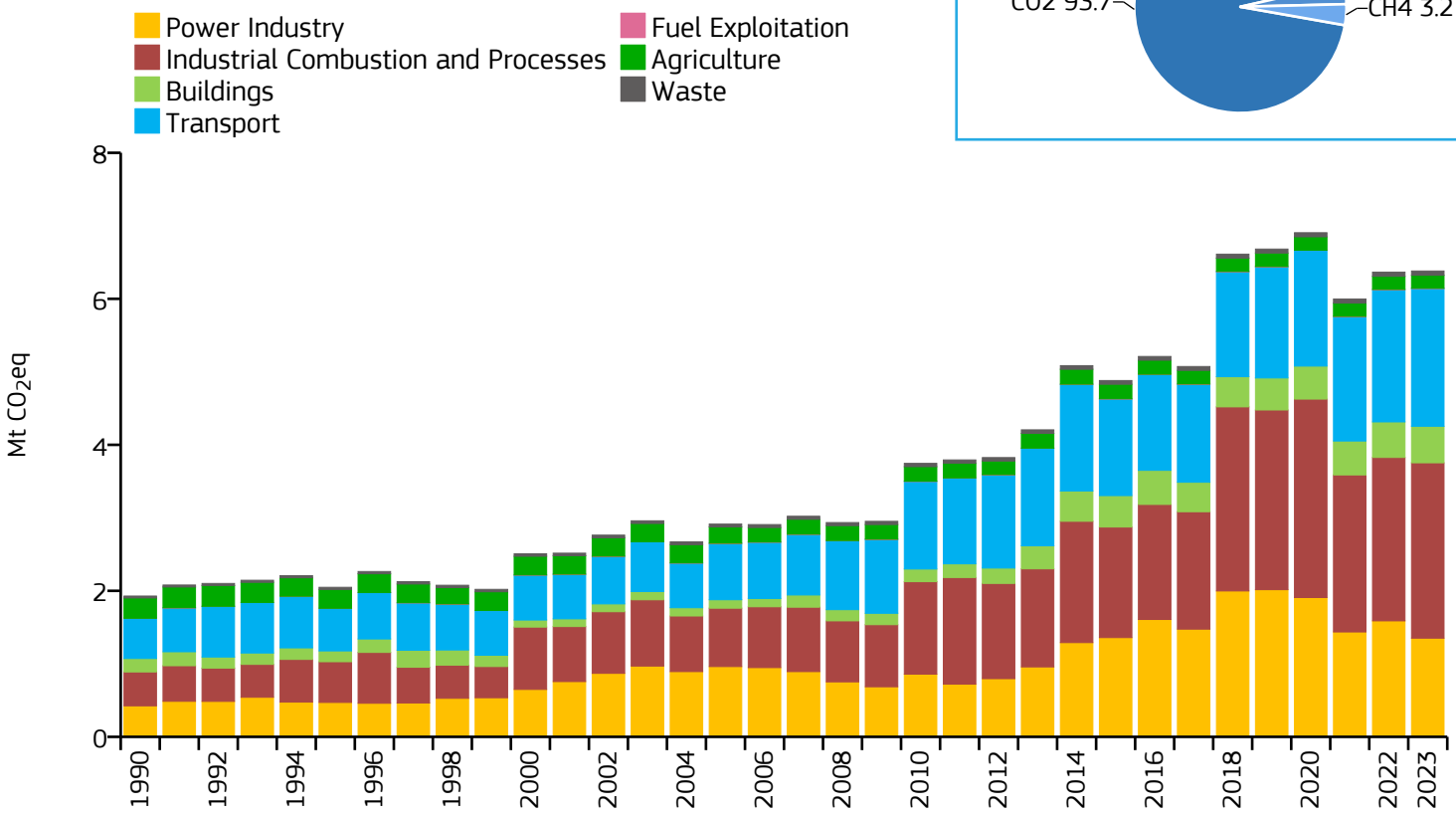
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	150.919	8.711	0.122	17.325M
2015	201.011	11.867	0.190	16.938M
2005	221.349	13.524	0.232	16.367M
1990	223.186	14.913	0.347	14.965M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-28%	-46%	-19%
Industrial Combustion and Processes	-41%	-28%	-3%
Buildings	-38%	-36%	-5%
Transport	-8%	-27%	+2%
Fuel Exploitation	-23%	-22%	-6%
Agriculture	-21%	-2%	0%
Waste	-69%	-36%	-2%
All sectors	-32%	-32%	-6%

New Caledonia



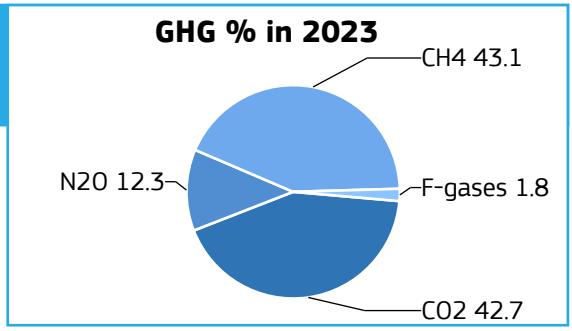
GHG emissions by sector



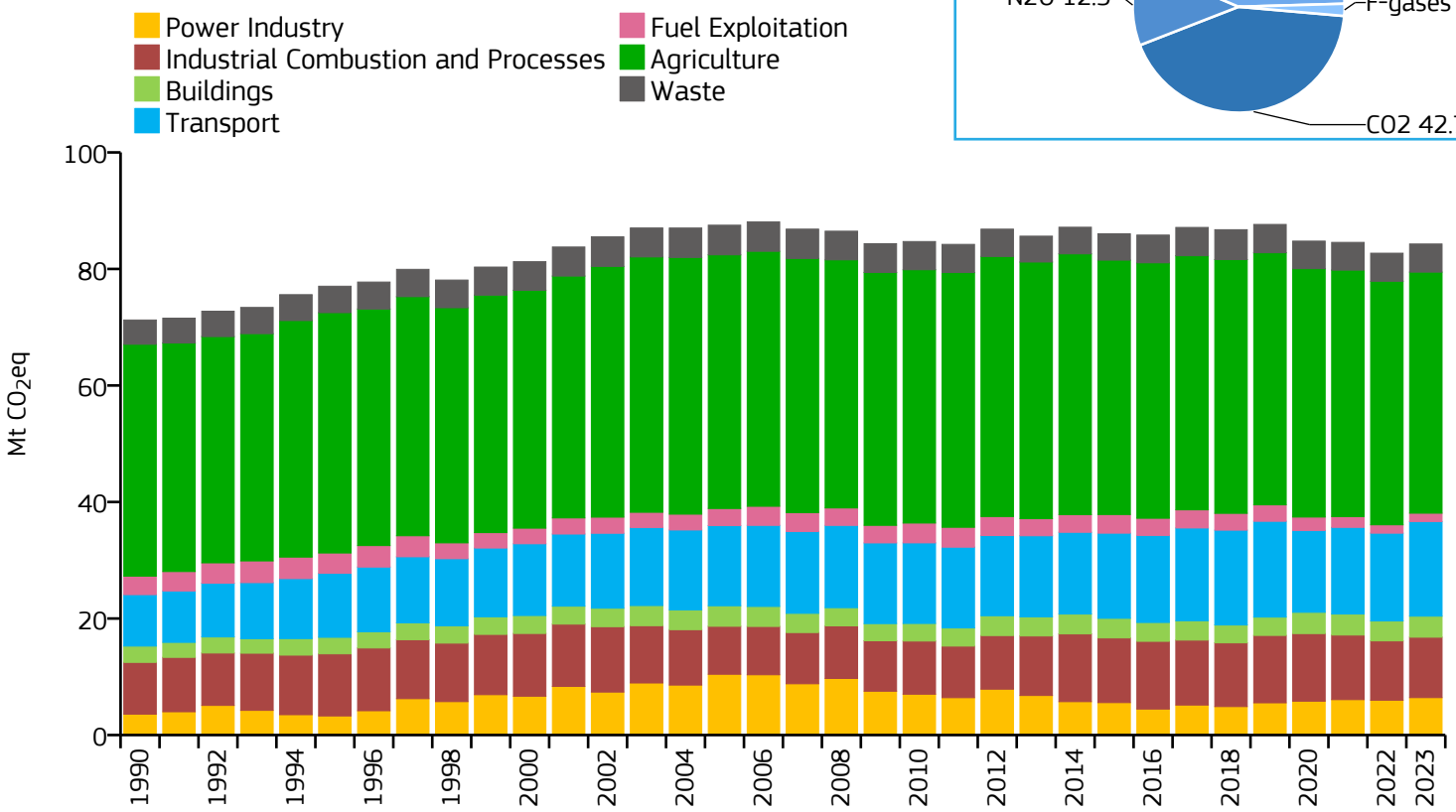
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	6.381	21.486	0.634	297.000k
2015	4.881	18.139	0.490	269.091k
2005	2.914	12.524	0.394	232.686k
1990	1.929	11.359	0.376	169.787k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +218%	↗ +40%	↘ -15%
Industrial Combustion and Processes	↗ > +300%	↗ +200%	↗ +7%
Buildings	↗ +172%	↗ > +300%	→ +3%
Transport	↗ +243%	↗ +144%	→ +4%
Fuel Exploitation	↗ +100%	↗ +36%	→ 0%
Agriculture	↘ -36%	↘ -20%	→ -1%
Waste	↗ +123%	↗ +51%	→ +2%
All sectors	↗ +231%	↗ +119%	→ 0%

New Zealand



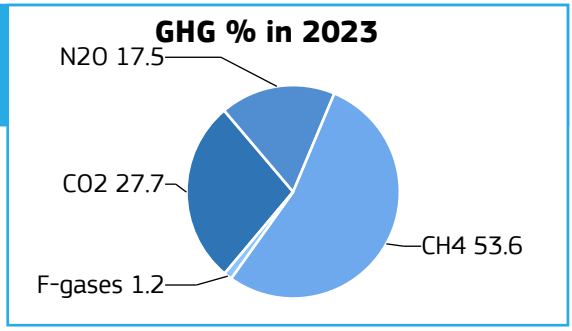
GHG emissions by sector



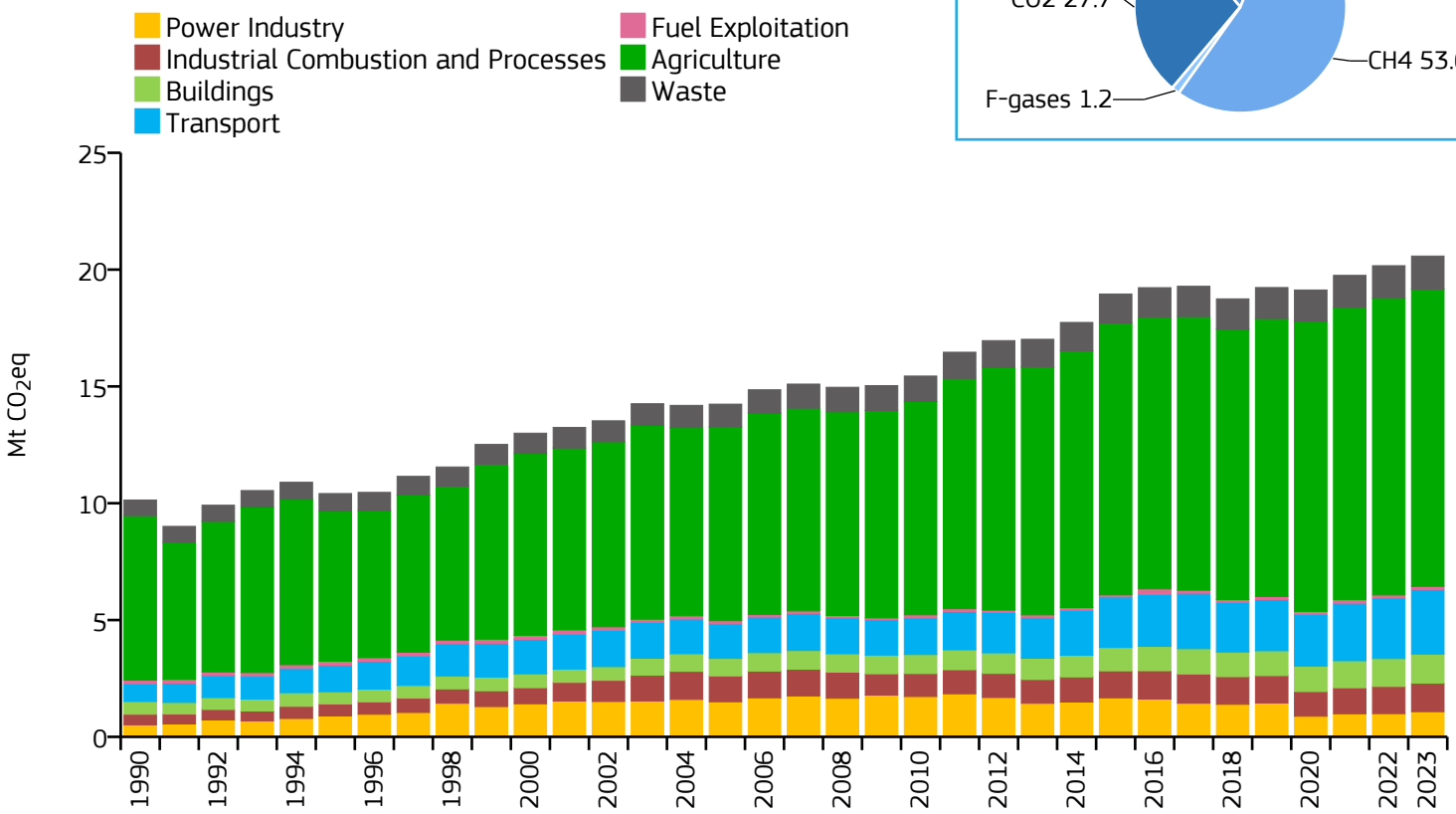
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	84.283	17.010	0.331	4.955M
2015	86.030	18.643	0.413	4.615M
2005	87.509	21.161	0.516	4.135M
1990	71.240	20.964	0.693	3.398M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+79%	-38%	+7%
Industrial Combustion and Processes	+17%	+26%	+2%
Buildings	+29%	+2%	+6%
Transport	+84%	+18%	+8%
Fuel Exploitation	-55%	-51%	0%
Agriculture	+4%	-5%	-1%
Waste	+16%	-5%	0%
All sectors	+18%	-4%	+2%

Nicaragua



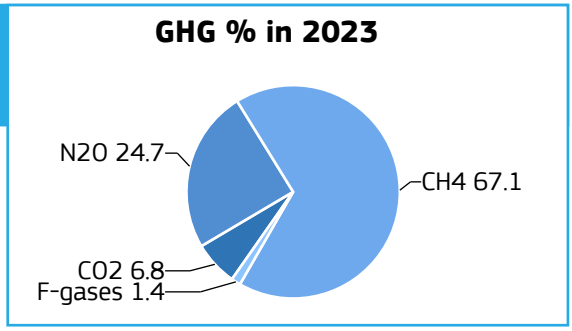
GHG emissions by sector



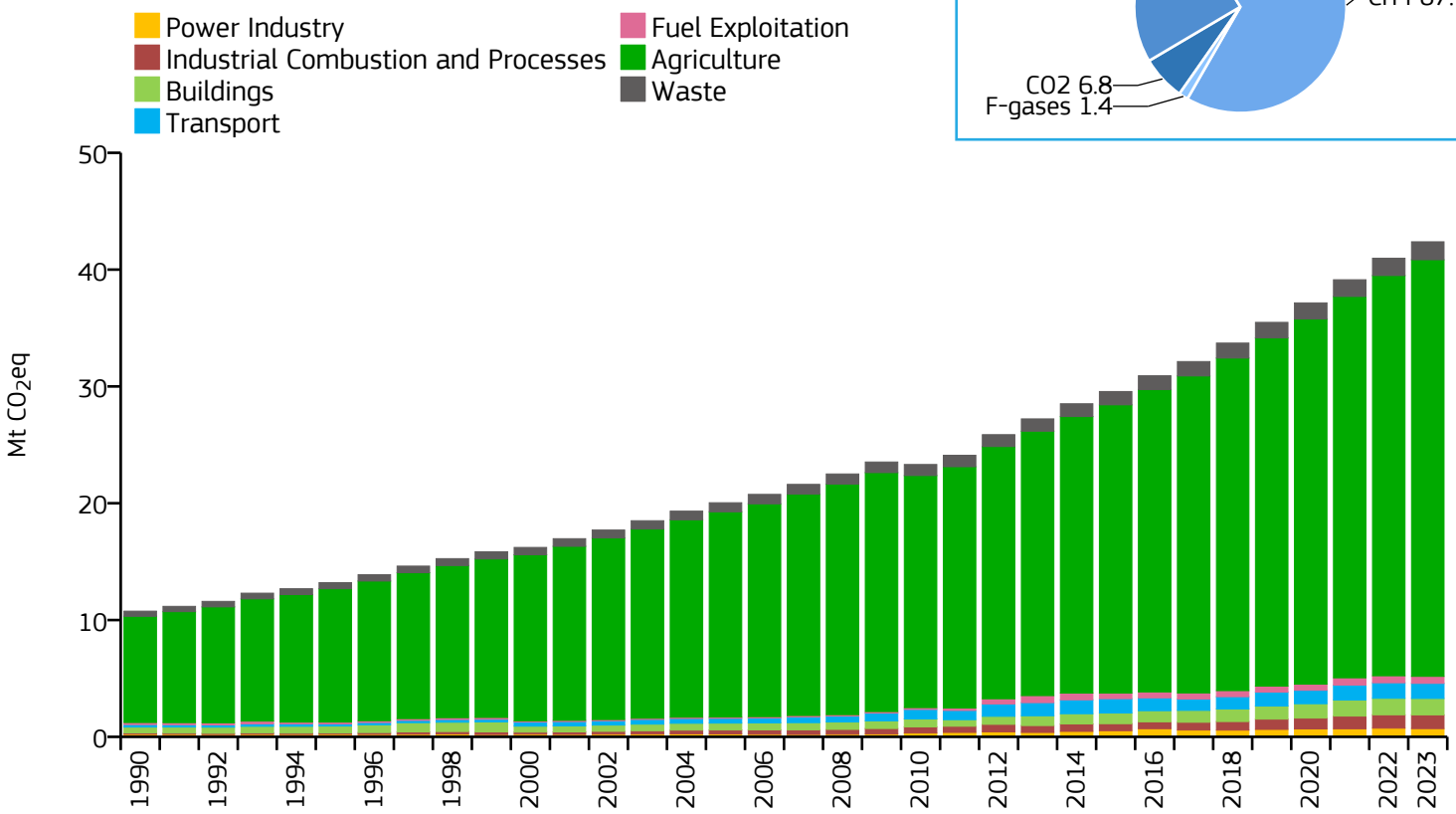
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	20.581	3.115	0.403	6.607M
2015	18.956	3.117	0.448	6.082M
2005	14.242	2.647	0.502	5.379M
1990	10.138	2.446	0.582	4.145M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+110%	-28%	+8%
Industrial Combustion and Processes	+169%	+10%	+5%
Buildings	+128%	+66%	+4%
Transport	+265%	+87%	+7%
Fuel Exploitation	-15%	-5%	+2%
Agriculture	+81%	+53%	0%
Waste	+111%	+45%	+1%
All sectors	+103%	+45%	+2%

Niger



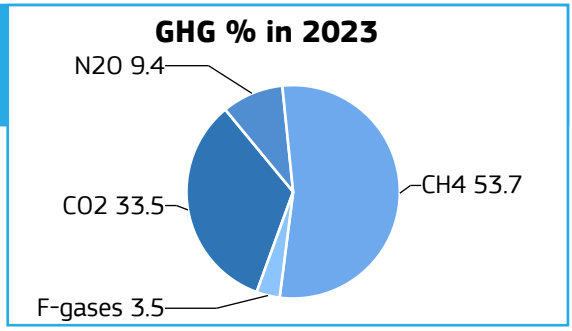
GHG emissions by sector



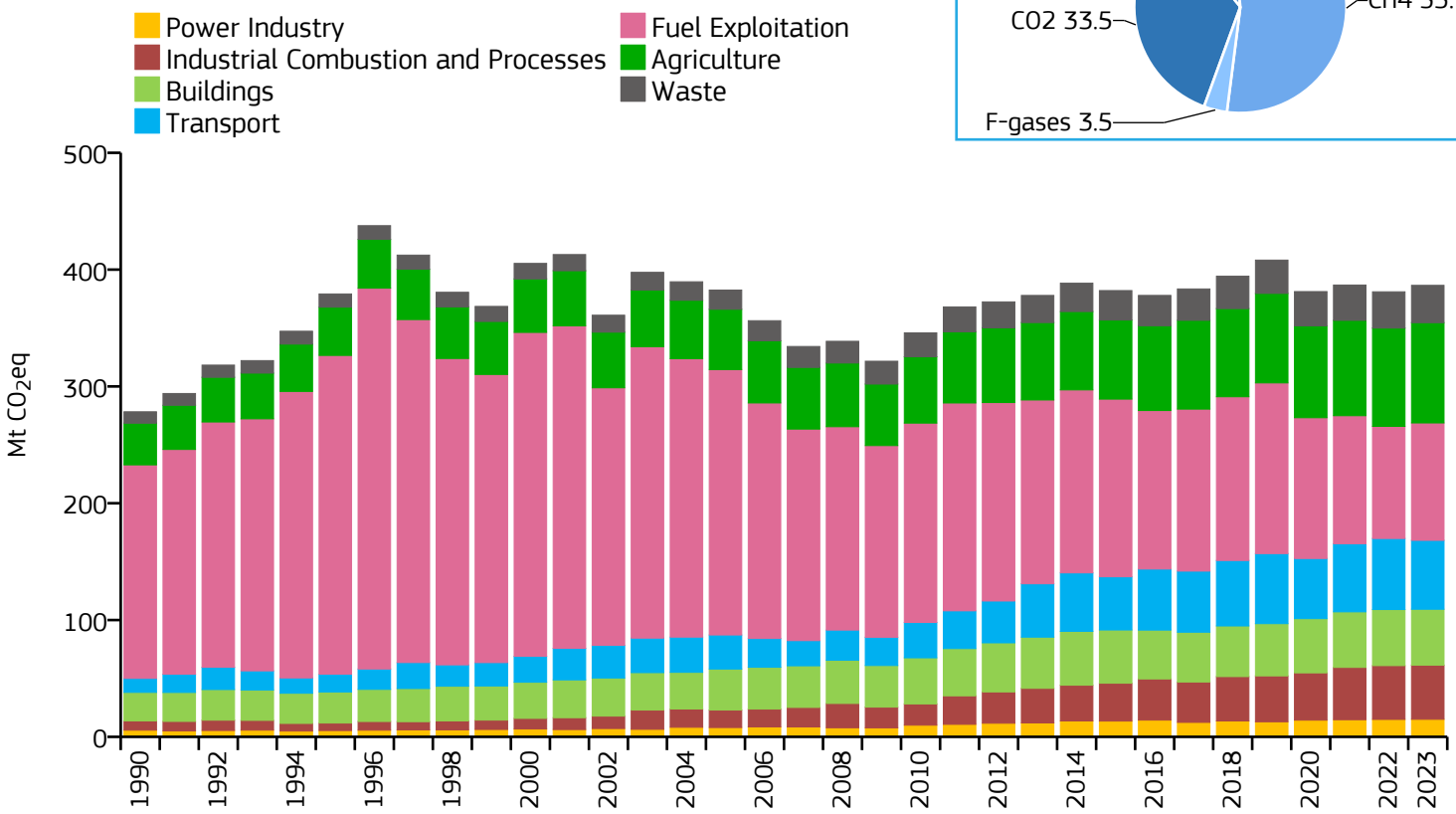
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	42.382	1.571	0.951	26.972M
2015	29.564	1.486	1.007	19.897M
2005	20.043	1.472	1.181	13.618M
1990	10.762	1.343	0.920	8.013M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+215%	+183%	-5%
Industrial Combustion and Processes	> +300%	+247%	+3%
Buildings	+182%	+138%	-1%
Transport	> +300%	+215%	-3%
Fuel Exploitation	+249%	> +300%	0%
Agriculture	+292%	+103%	+4%
Waste	+248%	+98%	+4%
All sectors	+294%	+111%	+3%

Nigeria



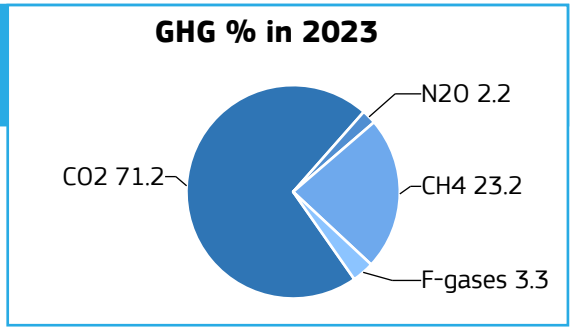
GHG emissions by sector



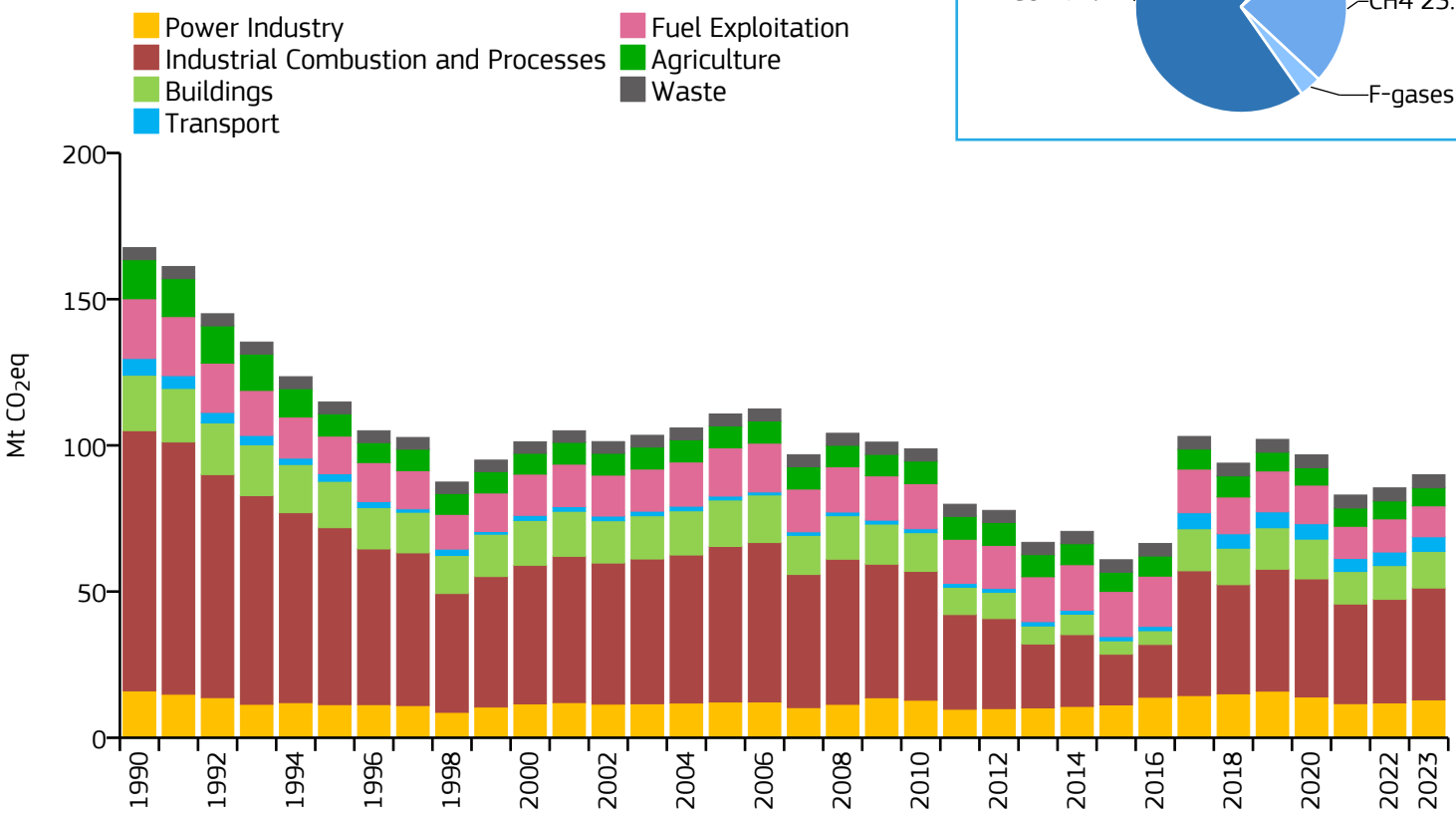
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	386.521	1.738	0.303	222.349M
2015	382.059	2.109	0.335	181.182M
2005	382.497	2.753	0.603	138.939M
1990	278.276	2.921	0.785	95.270M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +163%	↗ +88%	→ +1%
Industrial Combustion and Processes	↗ > +300%	↗ +210%	→ +1%
Buildings	↗ +96%	↗ +36%	→ 0%
Transport	↗ > +300%	↗ +102%	→ -3%
Fuel Exploitation	↘ -45%	↘ -56%	→ +5%
Agriculture	↗ +141%	↗ +66%	→ +2%
Waste	↗ +227%	↗ +94%	→ +3%
All sectors	↗ +39%	→ +1%	→ +1%

North Korea



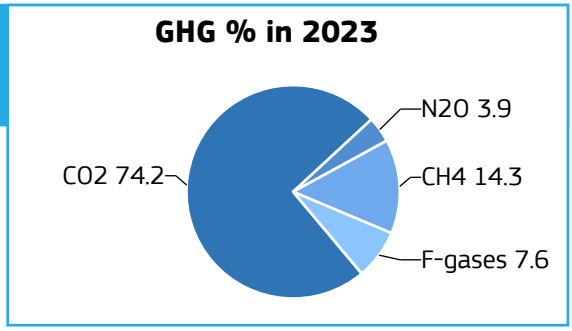
GHG emissions by sector



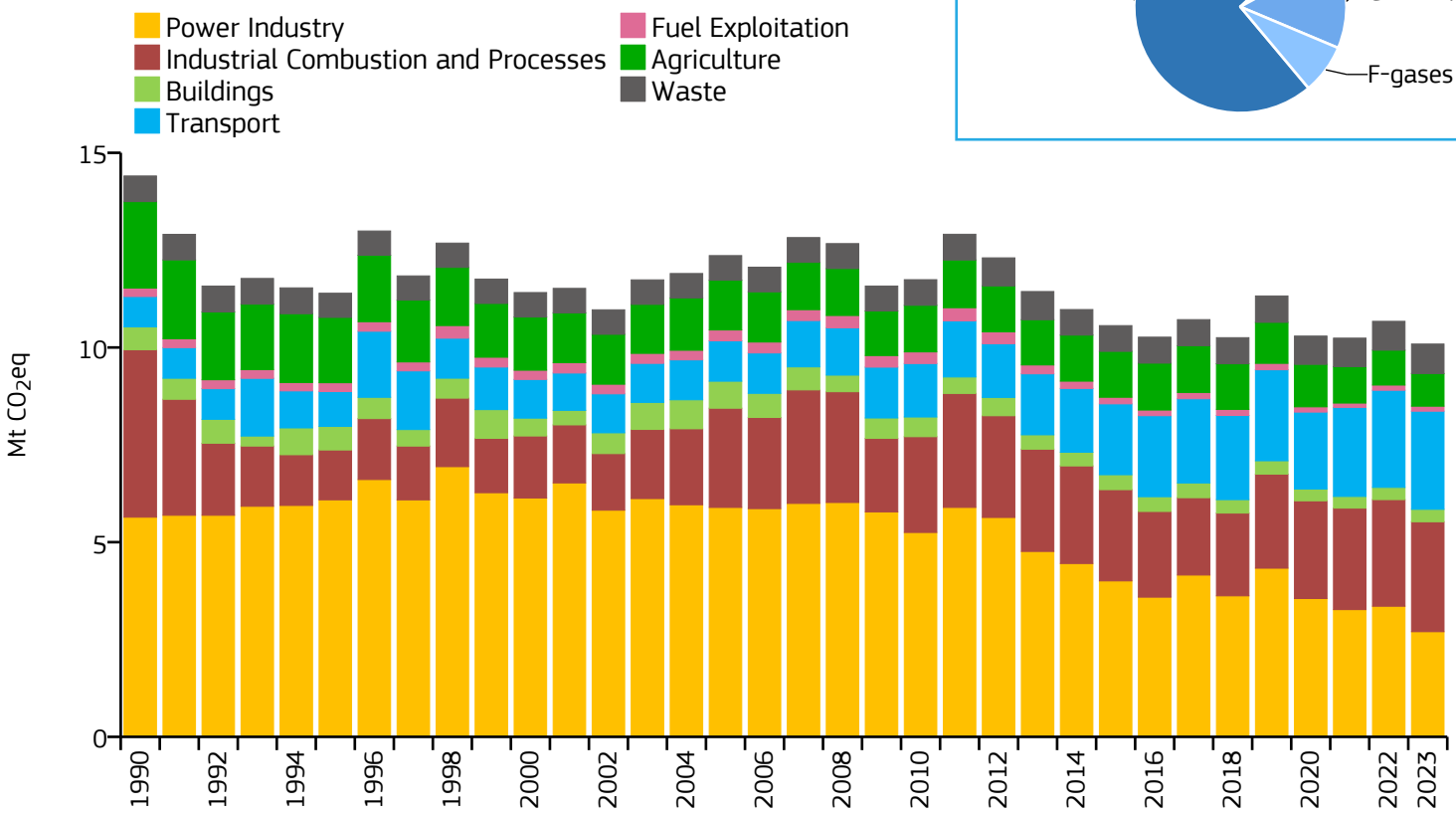
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	89.951	3.439	0.769	26.159M
2015	60.871	2.411	0.531	25.244M
2005	110.735	4.632	0.900	23.904M
1990	167.631	8.260	0.921	20.293M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-19%	+6%	+9%
Industrial Combustion and Processes	-57%	-28%	+8%
Buildings	-34%	-21%	+8%
Transport	-13%	+273%	+7%
Fuel Exploitation	-48%	-36%	-6%
Agriculture	-54%	-18%	0%
Waste	+8%	+10%	+1%
All sectors	-46%	-19%	+5%

North Macedonia



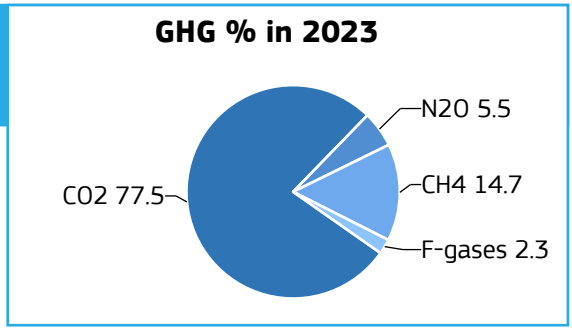
GHG emissions by sector



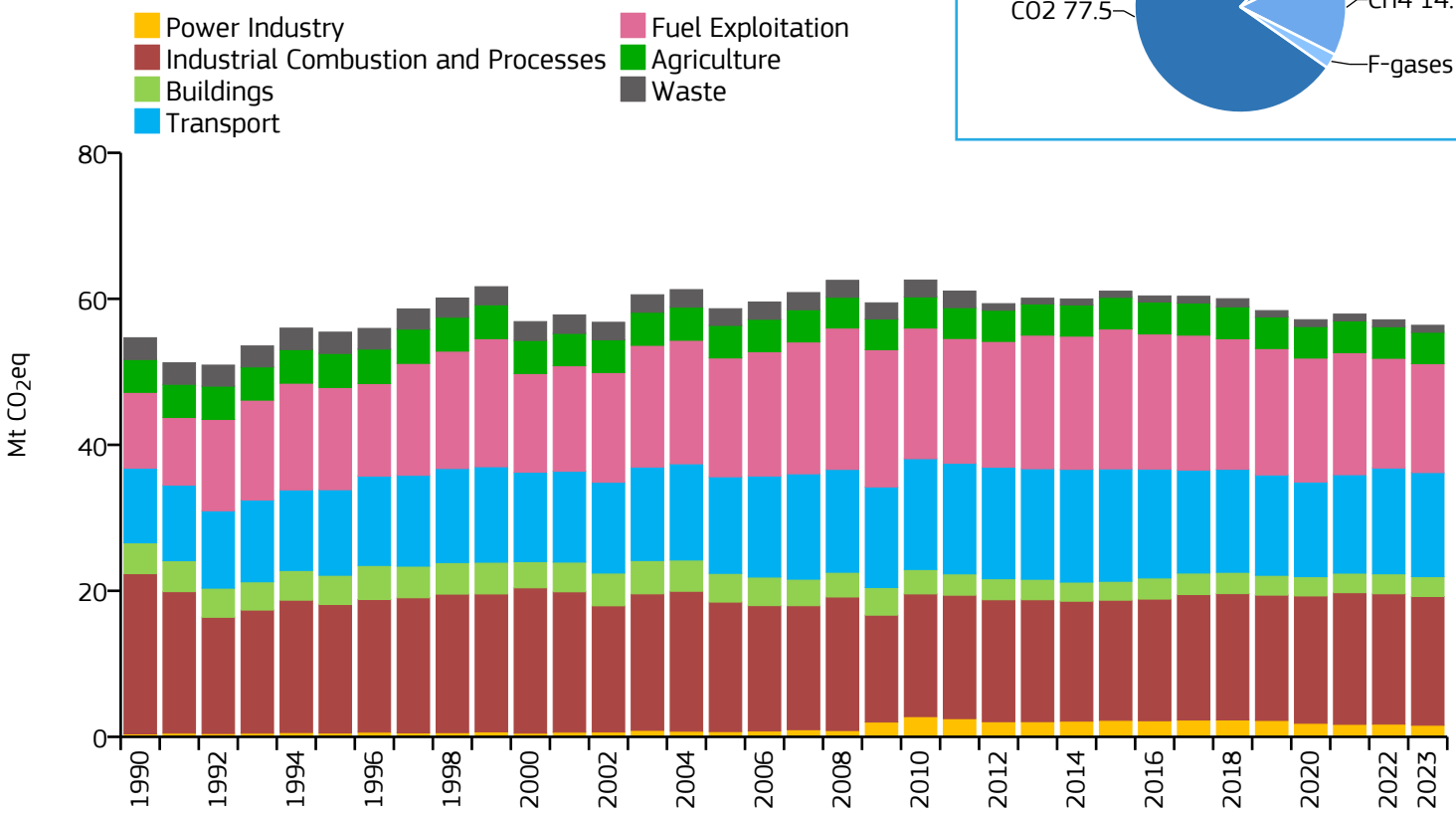
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	10.088	4.827	0.238	2.090M
2015	10.562	5.079	0.284	2.079M
2005	12.360	5.999	0.457	2.060M
1990	14.405	7.216	0.535	1.996M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-52%	-54%	-20%
Industrial Combustion and Processes	-34%	+11%	+3%
Buildings	-46%	-54%	+2%
Transport	+223%	+143%	+1%
Fuel Exploitation	-41%	-54%	-4%
Agriculture	-62%	-34%	-6%
Waste	+15%	+20%	+2%
All sectors	-30%	-18%	-5%

Norway



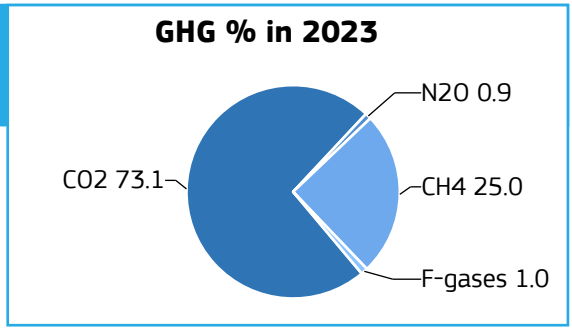
GHG emissions by sector



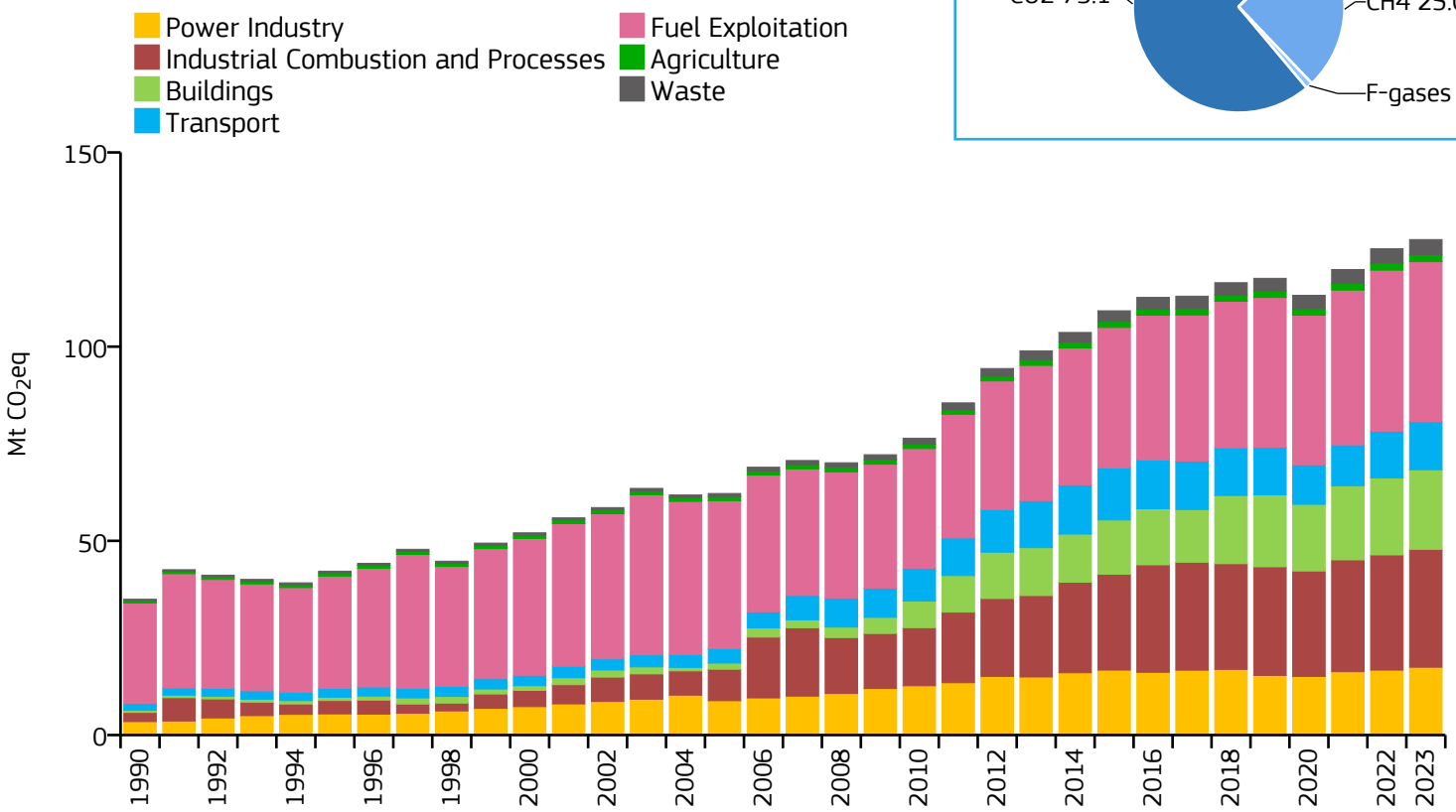
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	56.371	10.059	0.113	5.604M
2015	61.050	11.741	0.137	5.200M
2005	58.644	12.660	0.150	4.632M
1990	54.671	12.872	0.225	4.247M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +293%	↗ +119%	↘ -9%
Industrial Combustion and Processes	↘ -20%	→ -1%	→ -1%
Buildings	↘ -35%	↘ -31%	→ 0%
Transport	↗ +39%	↗ +8%	→ -2%
Fuel Exploitation	↗ +44%	↘ -8%	→ -1%
Agriculture	→ -4%	→ -3%	→ 0%
Waste	↘ -68%	↘ -58%	→ 0%
All sectors	→ +3%	→ -4%	→ -1%

Oman



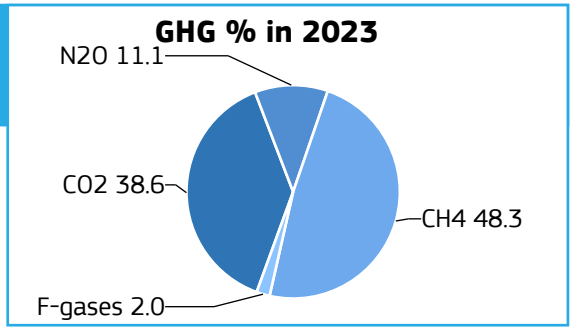
GHG emissions by sector



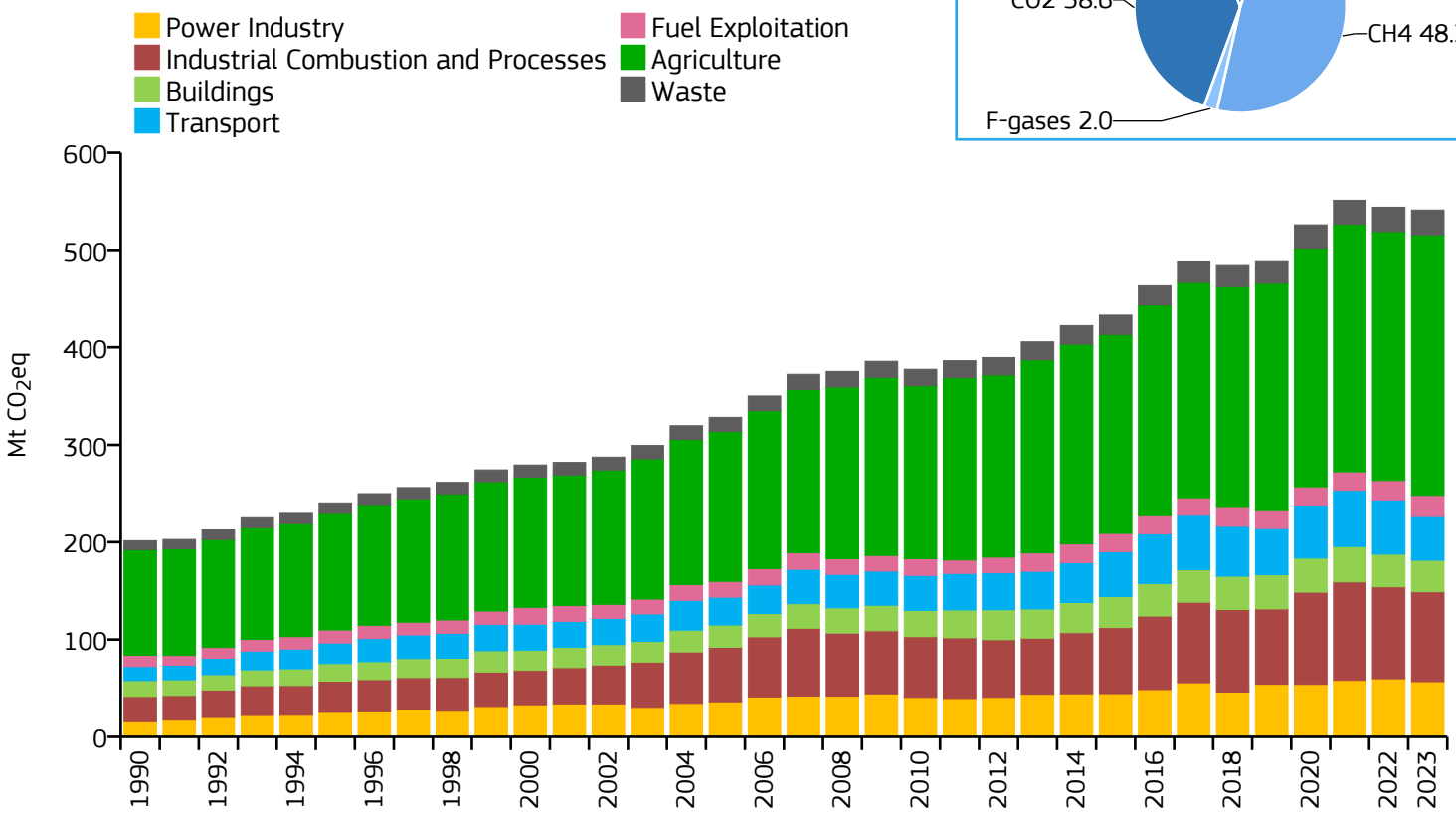
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	127.572	23.451	0.686	5.440M
2015	109.232	26.009	0.652	4.200M
2005	62.191	24.765	0.599	2.511M
1990	34.959	19.292	0.560	1.812M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+97%	+4%
Industrial Combustion and Processes	> +300%	+274%	+2%
Buildings	> +300%	> +300%	+3%
Transport	> +300%	+231%	+3%
Fuel Exploitation	+59%	+8%	-1%
Agriculture	+226%	+73%	+2%
Waste	> +300%	> +300%	+4%
All sectors	+265%	+105%	+2%

Pakistan



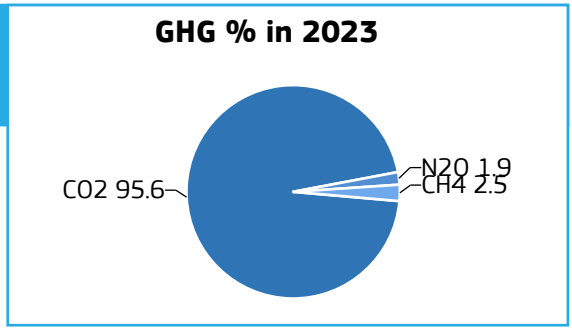
GHG emissions by sector



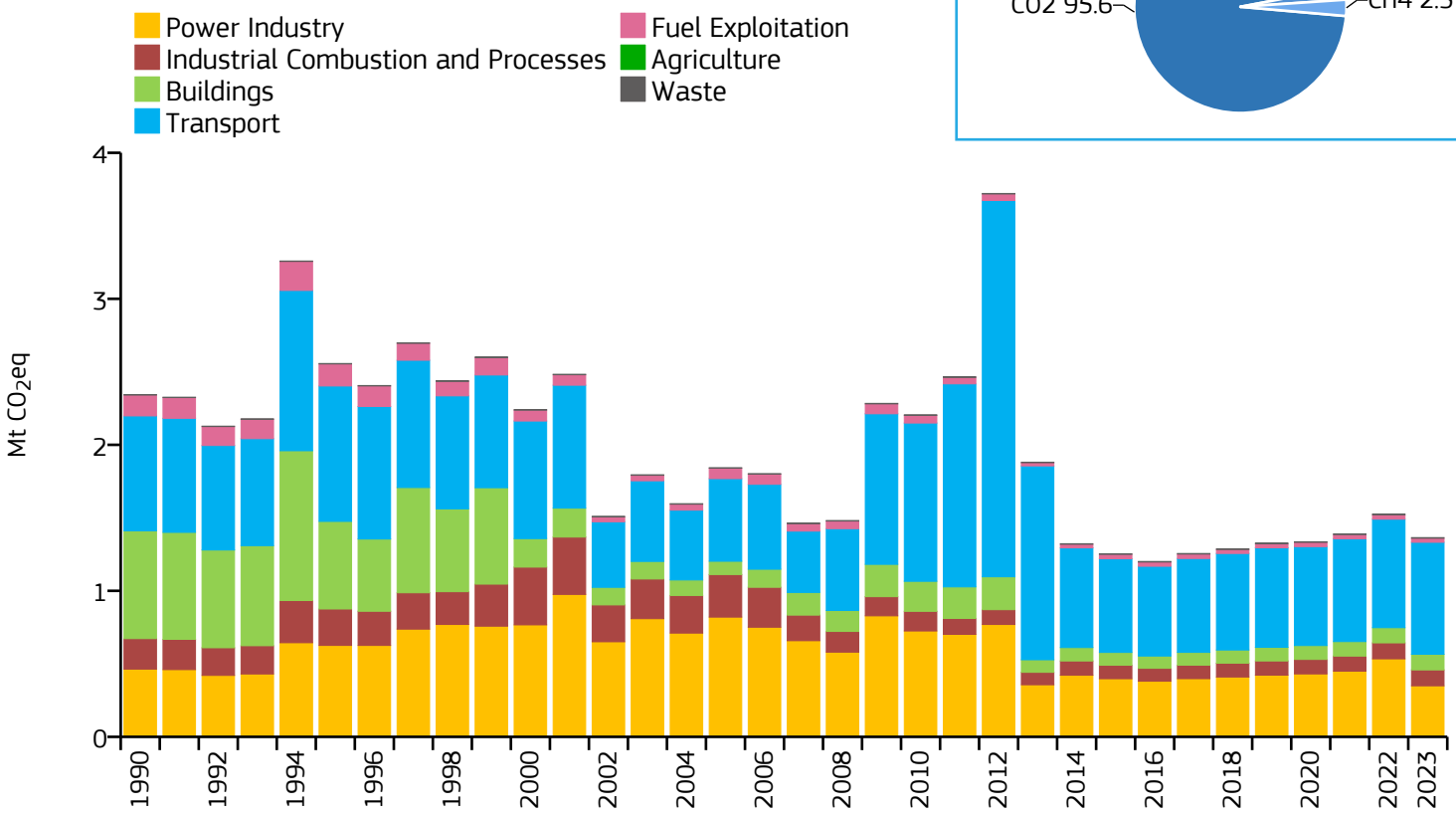
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	540.999	2.465	0.402	219.510M
2015	433.008	2.286	0.429	189.381M
2005	328.259	2.133	0.463	153.910M
1990	201.492	1.871	0.542	107.679M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+265%	+57%	-5%
Industrial Combustion and Processes	+256%	+65%	-2%
Buildings	+98%	+41%	-3%
Transport	+211%	+57%	-20%
Fuel Exploitation	+88%	+34%	+9%
Agriculture	+147%	+74%	+5%
Waste	+176%	+75%	+2%
All sectors	+168%	+65%	-1%

Palau



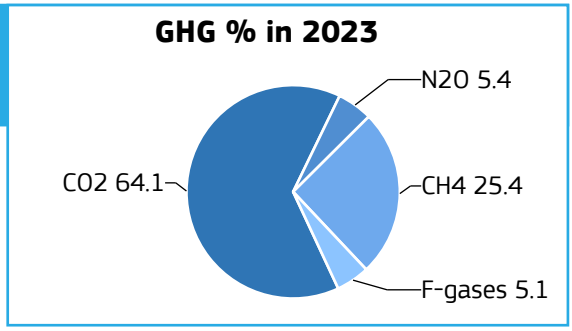
GHG emissions by sector



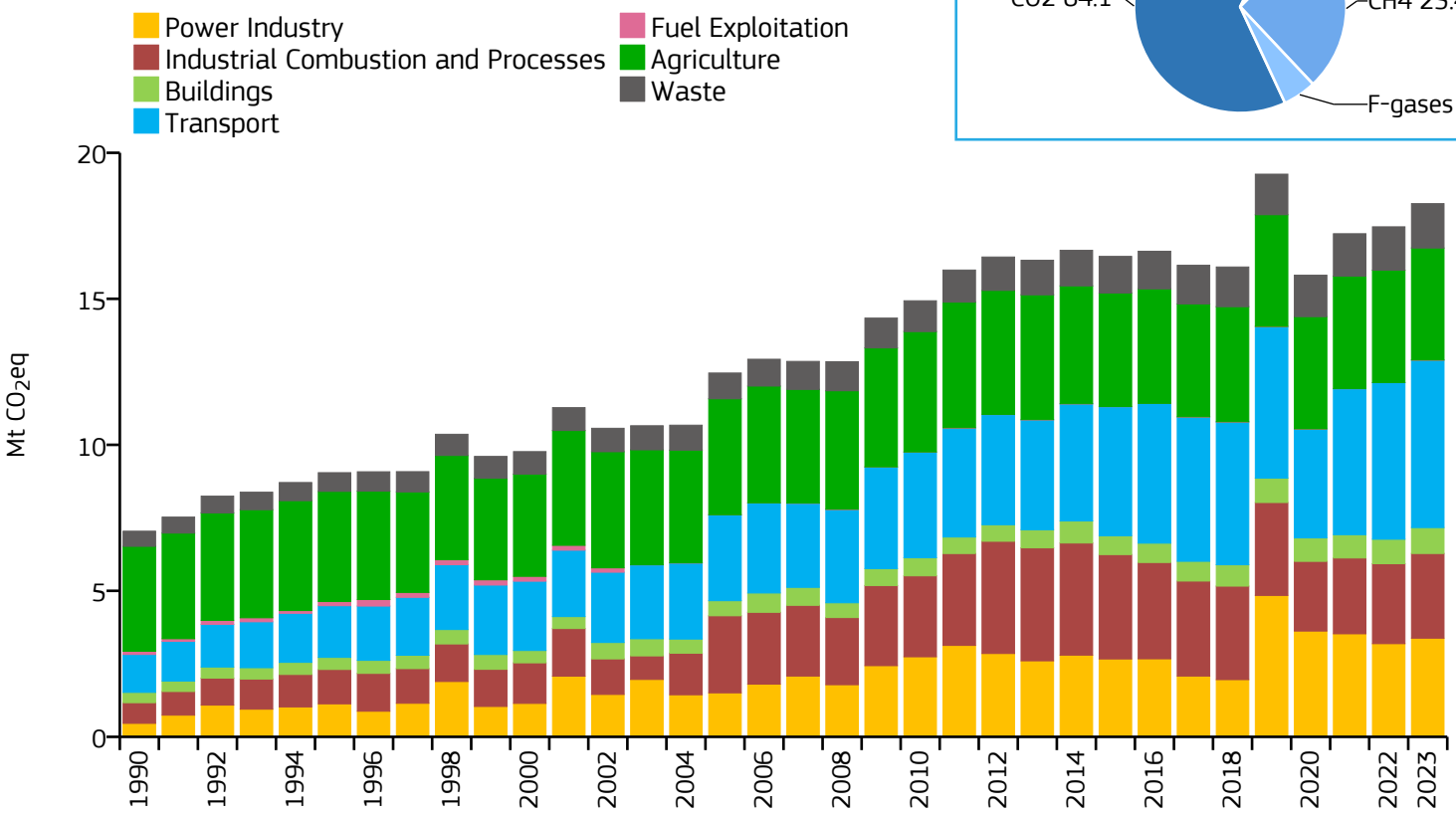
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	1.365	59.330	4.793	23.000k
2015	1.254	58.893	3.456	21.288k
2005	1.843	92.606	5.349	19.906k
1990	2.344	155.331	8.605	15.088k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↘ -25%	↘ -57%	↘ -35%
Industrial Combustion and Processes	↘ -48%	↘ -63%	→ 0%
Buildings	↘ -86%	↗ +17%	→ +3%
Transport	→ -3%	↗ +36%	→ +3%
Fuel Exploitation	↘ -81%	↘ -61%	↘ -9%
Agriculture	n/a	n/a	n/a
Waste	↗ +66%	↗ +25%	→ +1%
All sectors	↘ -42%	↘ -26%	↘ -11%

Panama



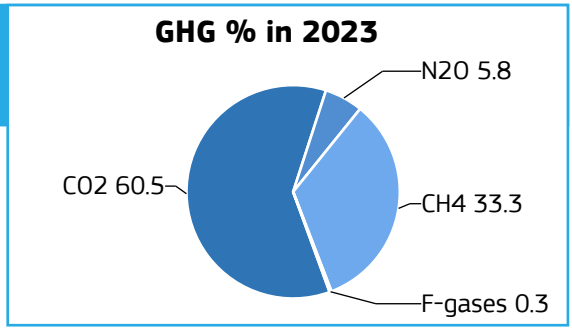
GHG emissions by sector



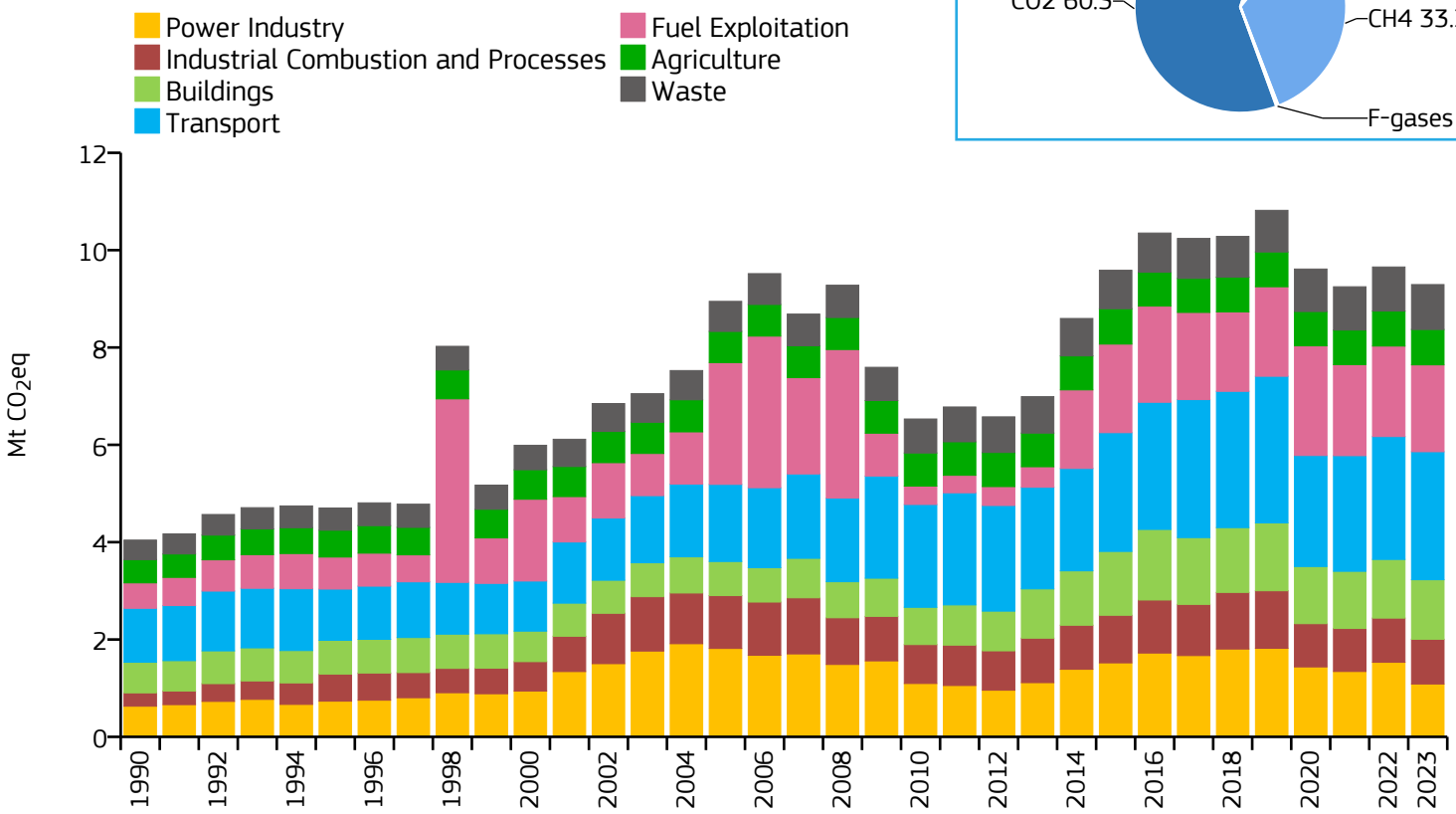
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	18.259	4.080	0.114	4.475M
2015	16.453	4.145	0.139	3.969M
2005	12.459	3.741	0.218	3.330M
1990	7.042	2.850	0.252	2.471M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ > +300%	↗ +124%	↗ +6%
Industrial Combustion and Processes	↗ > +300%	↗ +10%	↗ +6%
Buildings	↗ +152%	↗ +72%	↗ +6%
Transport	↗ > +300%	↗ +95%	↗ +7%
Fuel Exploitation	↘ -97%	↘ -50%	→ 0%
Agriculture	↗ +7%	→ -3%	→ 0%
Waste	↗ +193%	↗ +72%	→ +2%
All sectors	↗ +159%	↗ +47%	→ +5%

Papua New Guinea



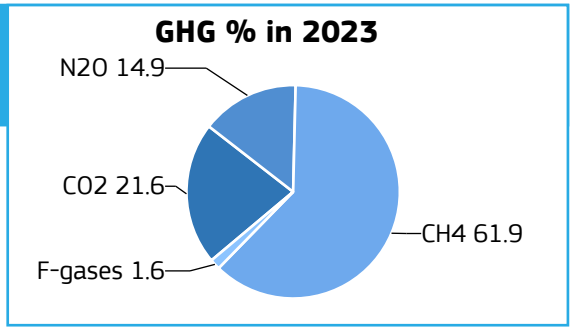
GHG emissions by sector



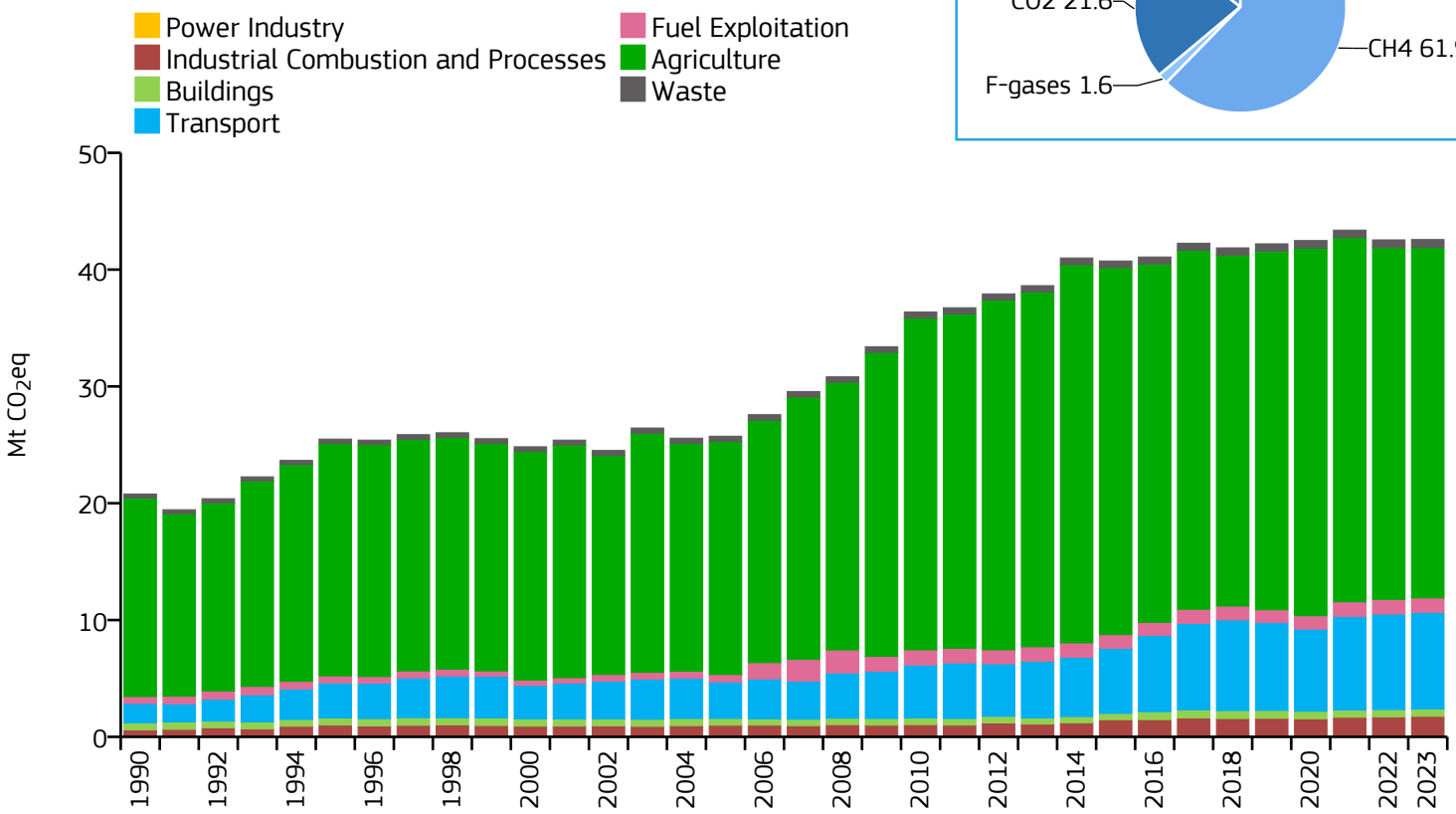
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	9.293	1.003	0.217	9.269M
2015	9.587	1.210	0.264	7.920M
2005	8.948	1.417	0.436	6.315M
1990	4.043	0.937	0.328	4.313M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+73%	-40%	-29%
Industrial Combustion and Processes	+235%	-15%	+1%
Buildings	+95%	+75%	+2%
Transport	+137%	+66%	+4%
Fuel Exploitation	+242%	-29%	-4%
Agriculture	+52%	+14%	+1%
Waste	+130%	+49%	+2%
All sectors	+130%	+4%	-4%

Paraguay



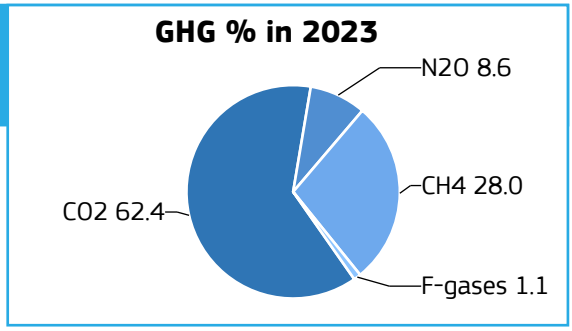
GHG emissions by sector



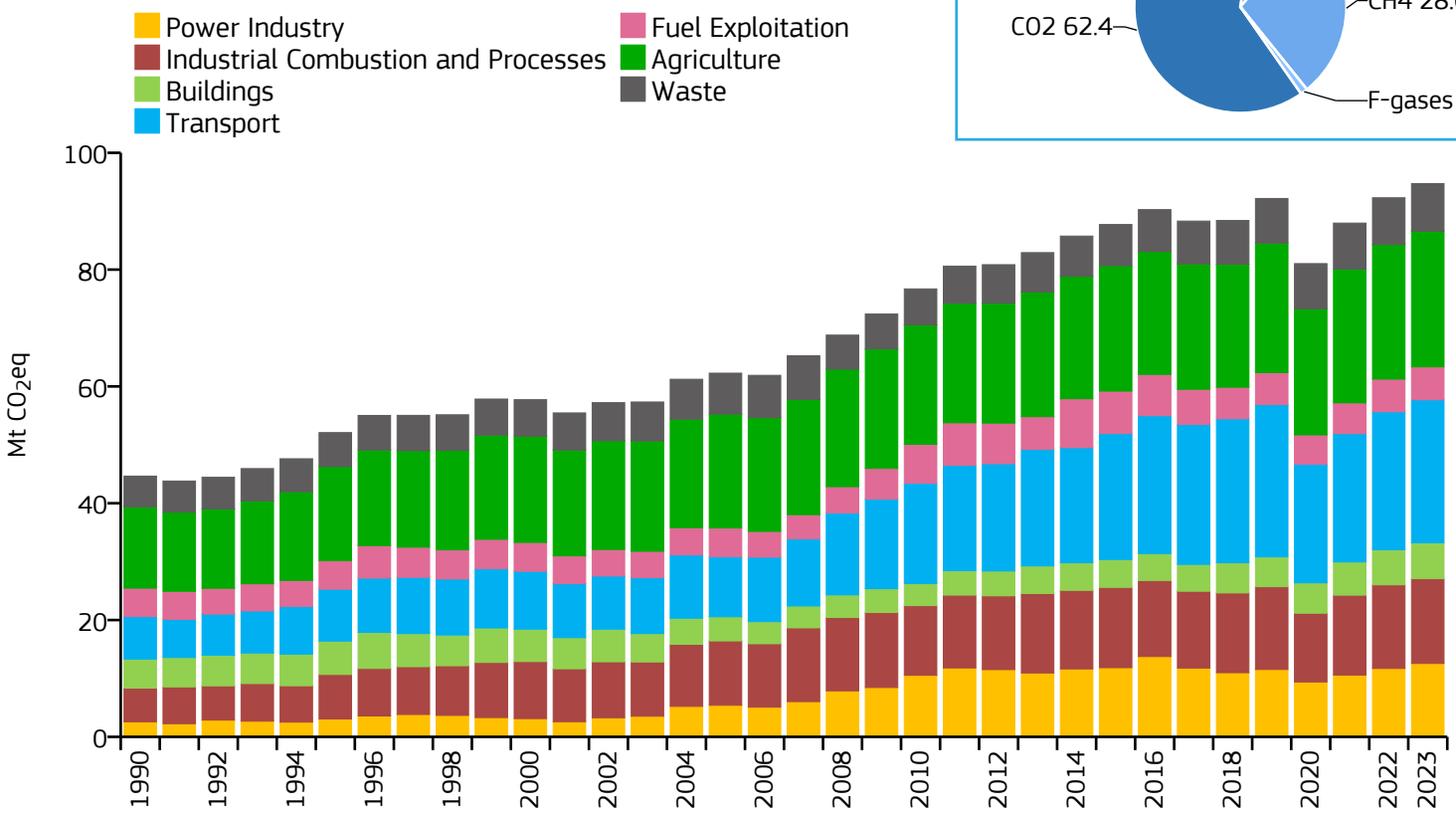
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	42.576	5.821	0.394	7.314M
2015	40.740	6.136	0.458	6.639M
2005	25.739	4.441	0.459	5.795M
1990	20.791	4.934	0.517	4.214M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-83%	n/a	+8%
Industrial Combustion and Processes	+202%	+77%	+3%
Buildings	+4%	+8%	0%
Transport	> +300%	+165%	+1%
Fuel Exploitation	+109%	+97%	0%
Agriculture	+76%	+50%	0%
Waste	+106%	+47%	+2%
All sectors	+105%	+65%	0%

Peru



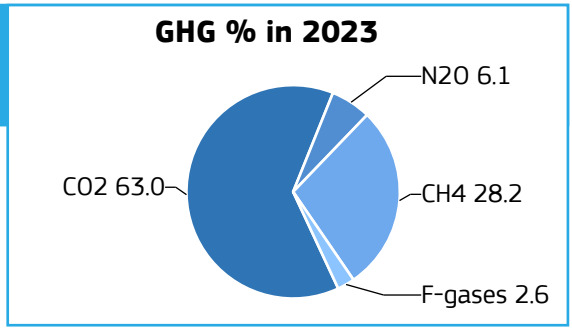
GHG emissions by sector



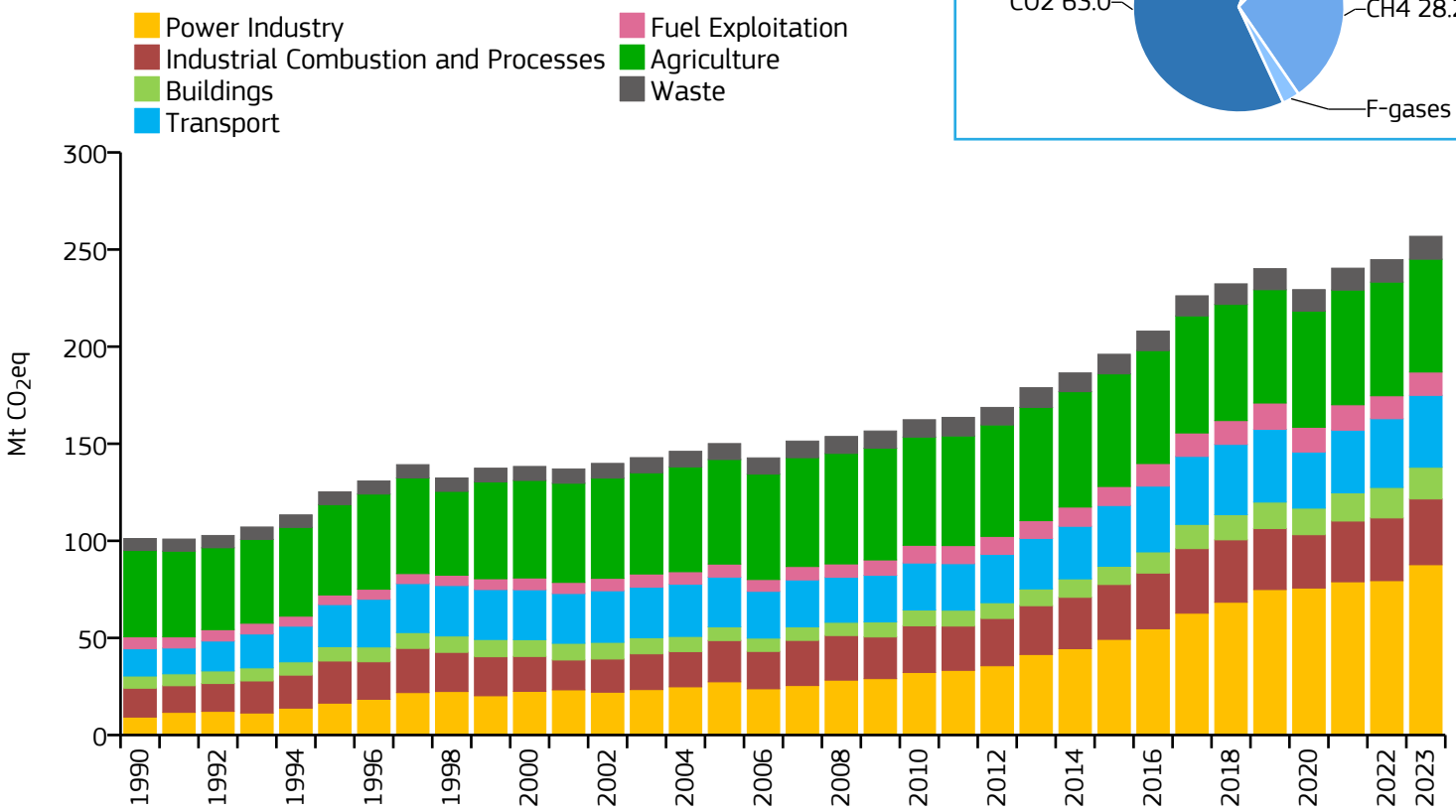
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	94.727	2.752	0.183	34.419M
2015	87.726	2.796	0.198	31.377M
2005	62.271	2.255	0.248	27.610M
1990	44.644	2.045	0.321	21.827M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+133%	+7%
Industrial Combustion and Processes	+152%	+32%	+1%
Buildings	+23%	+48%	+2%
Transport	+237%	+138%	+4%
Fuel Exploitation	+16%	+15%	+1%
Agriculture	+67%	+19%	+1%
Waste	+55%	+16%	+2%
All sectors	+112%	+52%	+3%

Philippines



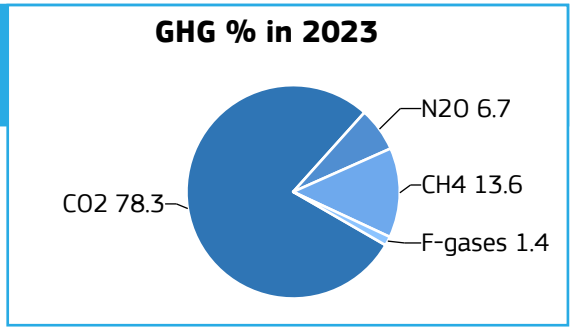
GHG emissions by sector



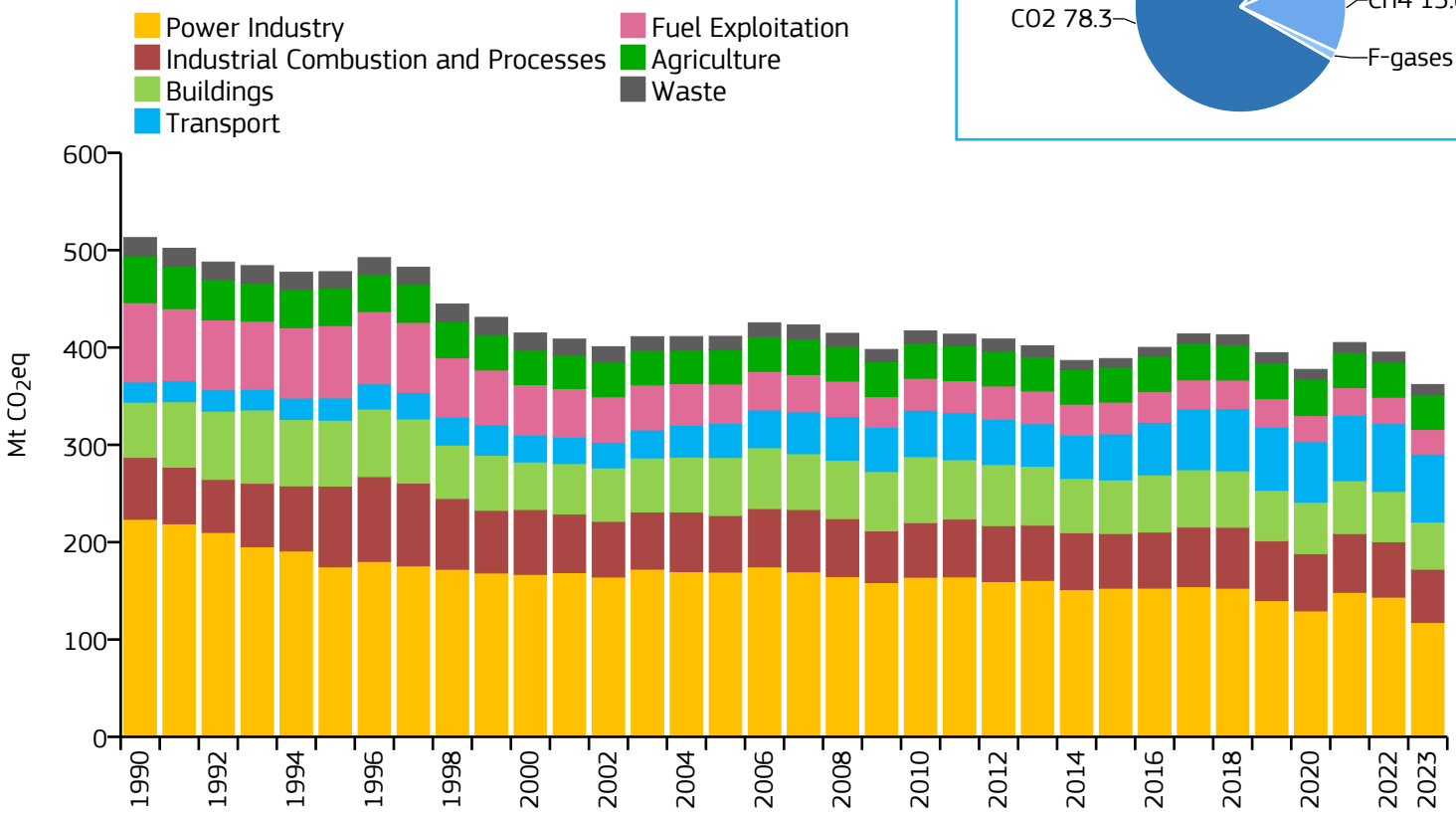
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	256.817	2.243	0.226	114.497M
2015	196.064	1.928	0.242	101.716M
2005	150.078	1.740	0.317	86.274M
1990	101.189	1.633	0.357	61.947M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ > +300%	↗ +220%	↗ +10%
Industrial Combustion and Processes	↗ +128%	↗ +59%	→ +5%
Buildings	↗ +161%	↗ +132%	→ +4%
Transport	↗ +164%	↗ +44%	→ +5%
Fuel Exploitation	↗ +95%	↗ +79%	→ +2%
Agriculture	↗ +31%	↗ +8%	→ -1%
Waste	↗ +91%	↗ +44%	→ +2%
All sectors	↗ +154%	↗ +71%	→ +5%

Poland



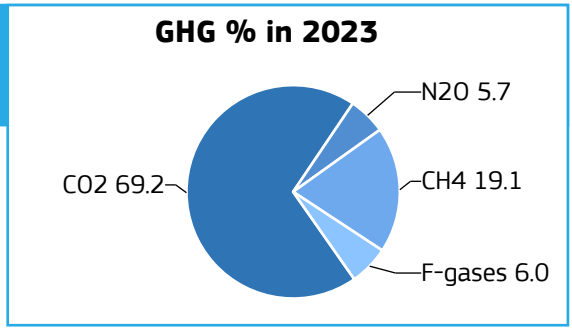
GHG emissions by sector



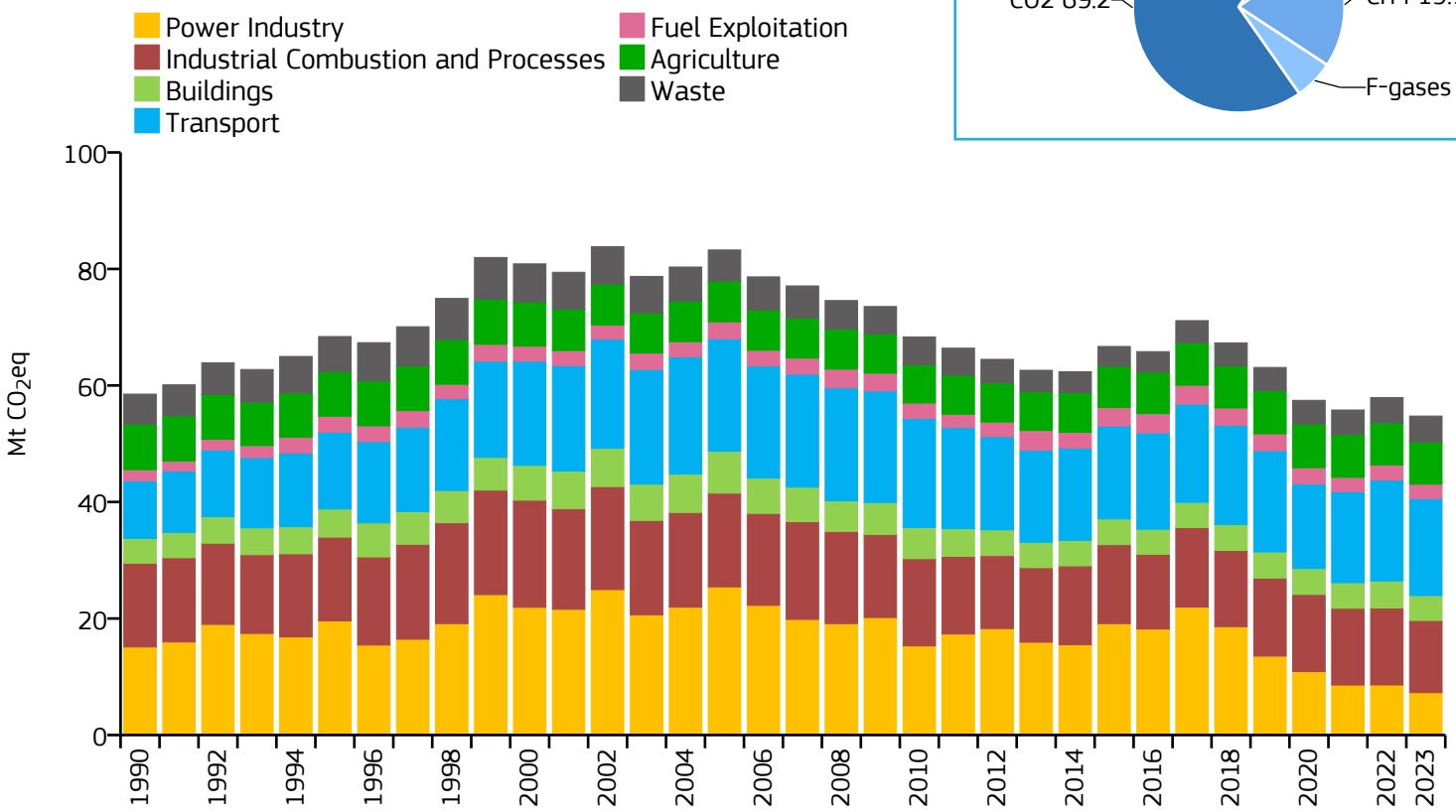
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	361.967	9.620	0.224	37.626M
2015	388.630	10.156	0.319	38.265M
2005	411.427	10.725	0.494	38.363M
1990	512.851	13.512	1.032	37.955M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-47%	-31%	-18%
Industrial Combustion and Processes	-14%	-6%	-4%
Buildings	-14%	-19%	-6%
Transport	+239%	+99%	0%
Fuel Exploitation	-69%	-38%	-7%
Agriculture	-25%	+2%	-1%
Waste	-47%	-26%	0%
All sectors	-29%	-12%	-8%

Portugal



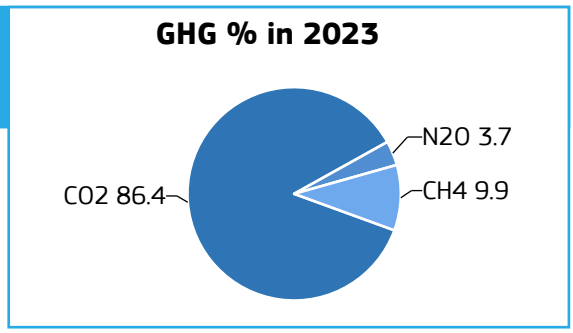
GHG emissions by sector



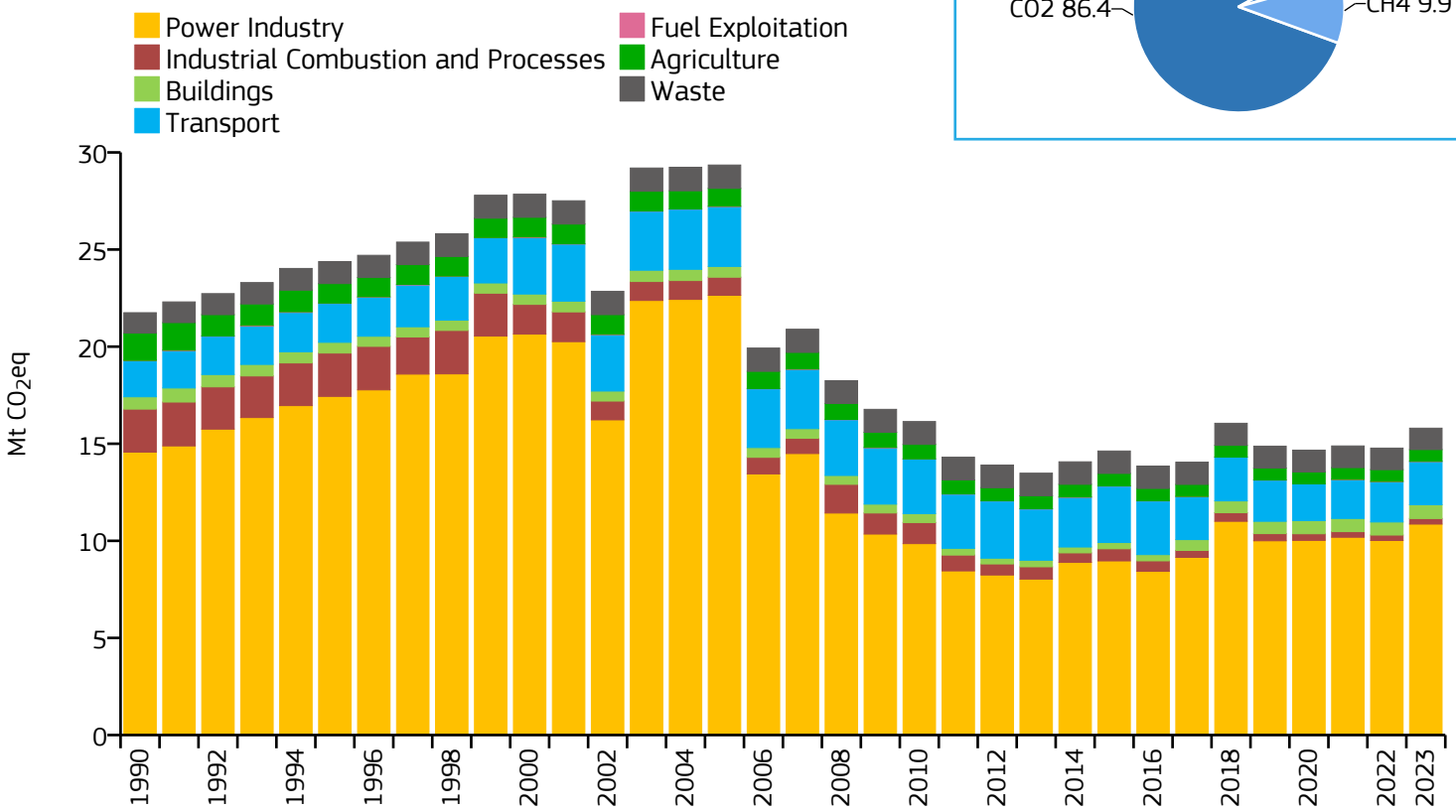
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	54.748	5.413	0.125	10.114M
2015	66.699	6.402	0.179	10.418M
2005	83.254	7.880	0.221	10.566M
1990	58.515	5.879	0.216	9.953M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-52%	-71%	-15%
Industrial Combustion and Processes	-14%	-23%	-6%
Buildings	0%	-41%	-8%
Transport	+69%	-14%	-4%
Fuel Exploitation	+28%	-15%	-5%
Agriculture	-8%	+4%	0%
Waste	-13%	-17%	+2%
All sectors	-6%	-34%	-5%

Puerto Rico



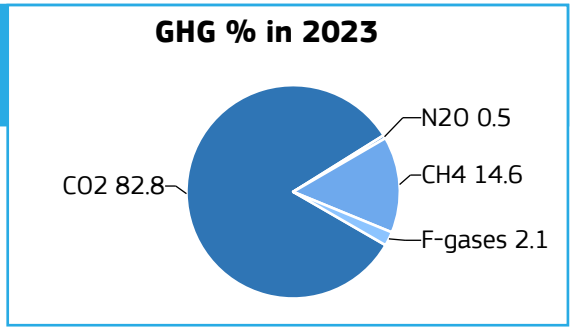
GHG emissions by sector



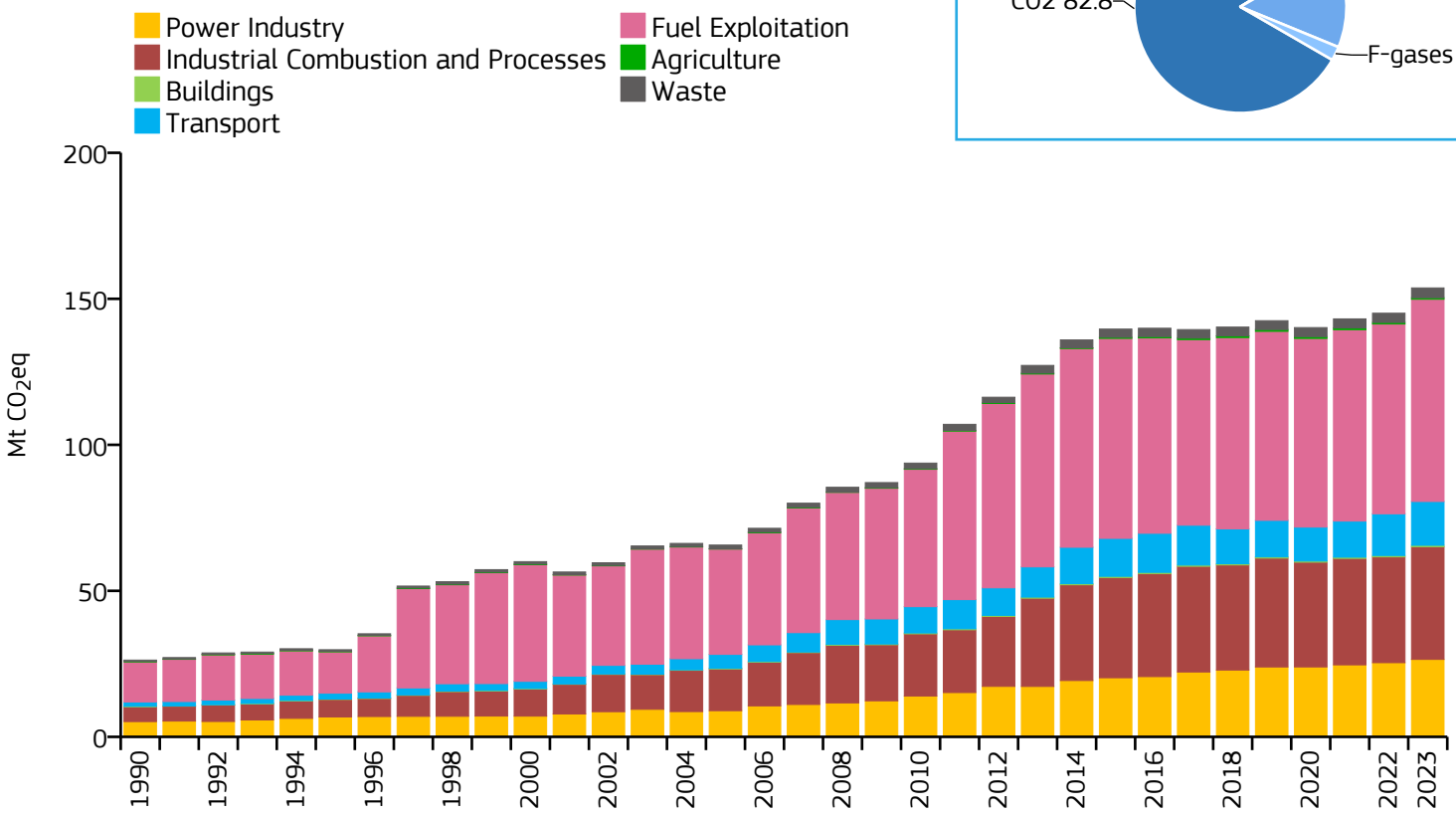
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	15.801	4.348	0.115	3.634M
2015	14.626	3.981	0.099	3.674M
2005	29.352	7.795	0.180	3.765M
1990	21.748	6.182	0.230	3.518M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-25%	-52%	+8%
Industrial Combustion and Processes	-87%	-69%	+3%
Buildings	+12%	+28%	+5%
Transport	+20%	-28%	+7%
Fuel Exploitation	-49%	-64%	+13%
Agriculture	-57%	-34%	0%
Waste	+5%	-8%	-1%
All sectors	-27%	-46%	+7%

Qatar



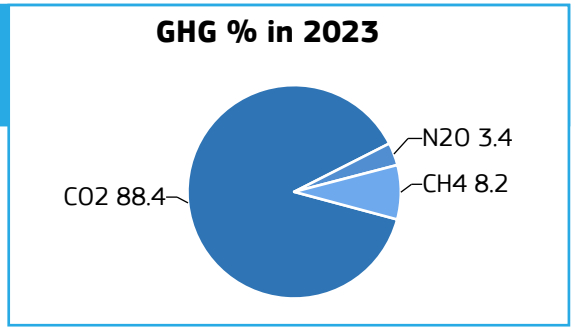
GHG emissions by sector



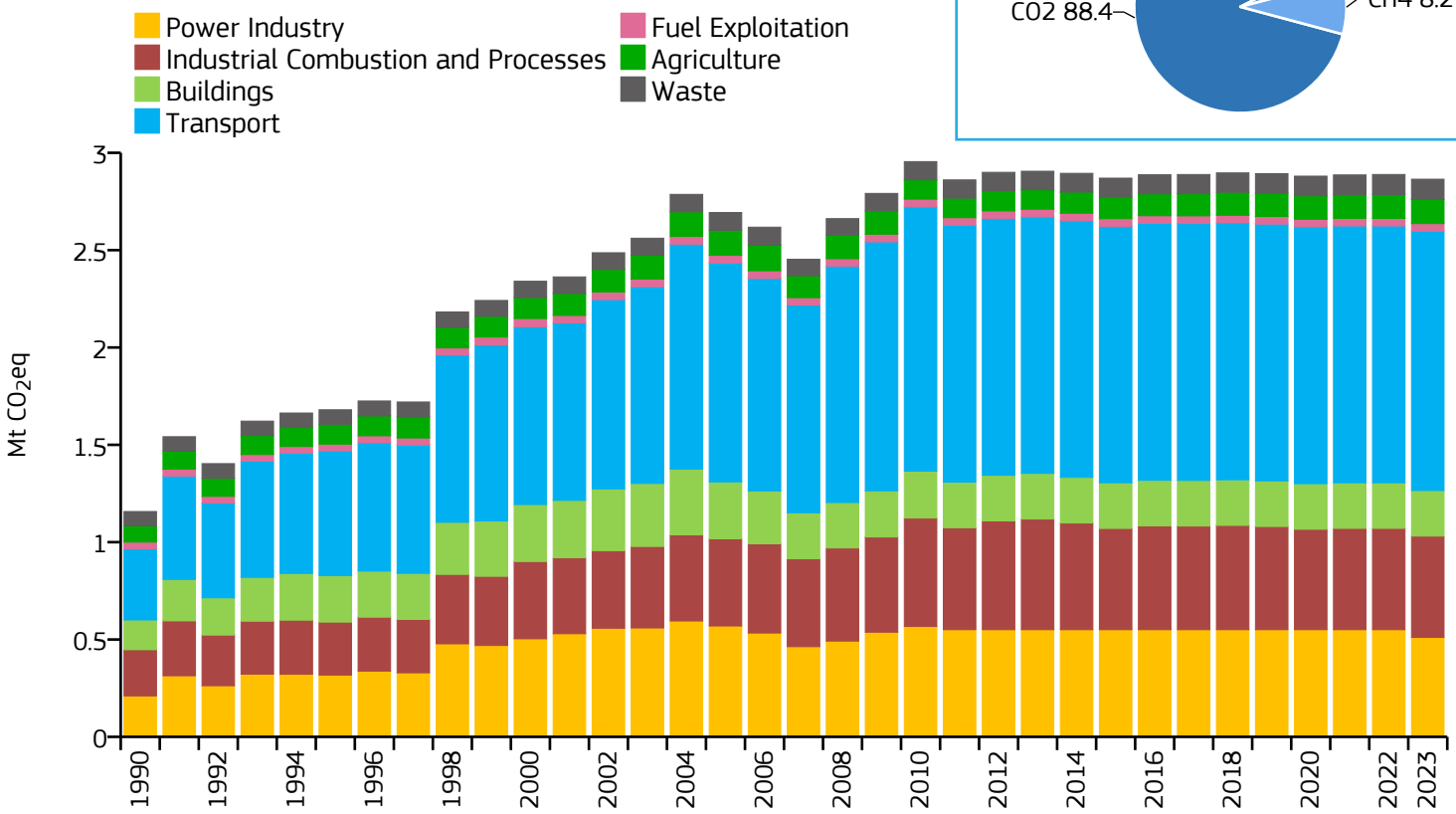
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	153.734	52.344	0.496	2.937M
2015	139.637	56.270	0.484	2.482M
2005	65.674	75.935	0.738	864.863k
1990	26.287	55.172	0.834	476.445k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ > +300%	↗ +196%	→ +4%
Industrial Combustion and Processes	↗ > +300%	↗ +170%	↗ +6%
Buildings	↗ > +300%	↗ +195%	→ +5%
Transport	↗ > +300%	↗ +213%	→ +5%
Fuel Exploitation	↗ > +300%	↗ +92%	↗ +7%
Agriculture	↗ > +300%	↗ > +300%	→ +1%
Waste	↗ > +300%	↗ +165%	↗ +6%
All sectors	↗ > +300%	↗ +134%	↗ +6%

Réunion



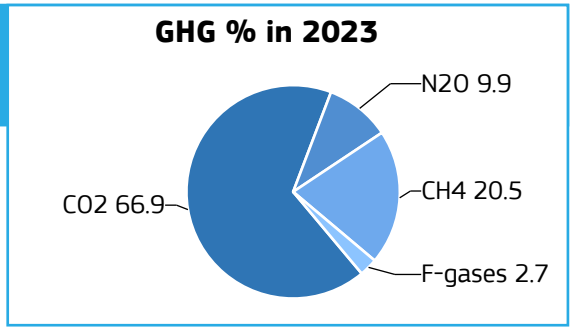
GHG emissions by sector



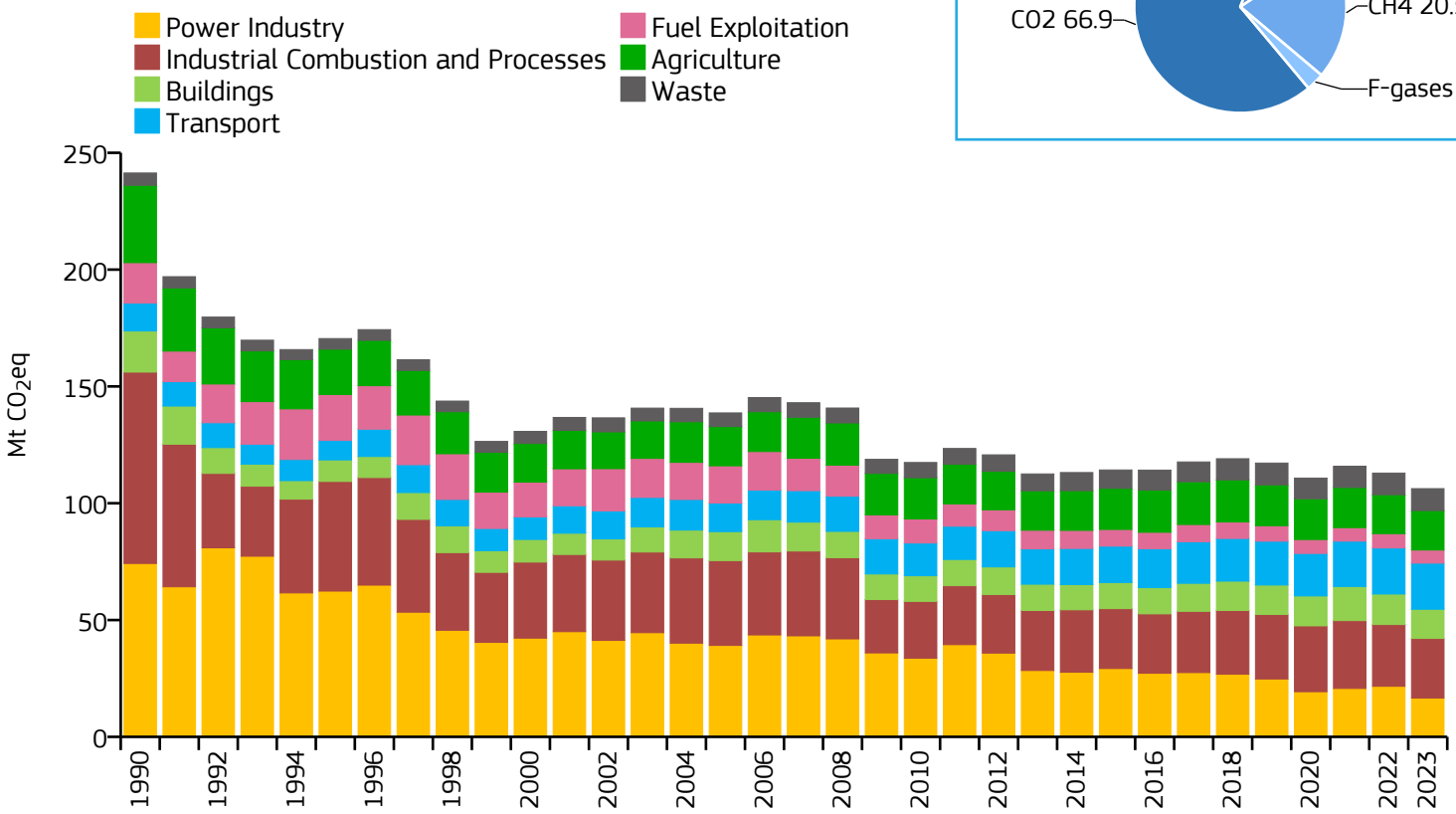
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	2.864	3.127	n/a	916.000k
2015	2.870	3.324	n/a	863.363k
2005	2.693	3.402	n/a	791.598k
1990	1.157	1.896	n/a	610.582k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+143%	-10%	-7%
Industrial Combustion and Processes	+119%	+16%	0%
Buildings	+53%	-20%	0%
Transport	+265%	+19%	+1%
Fuel Exploitation	+11%	-3%	0%
Agriculture	+50%	-3%	+2%
Waste	+41%	+14%	+1%
All sectors	+147%	+6%	-1%

Romania



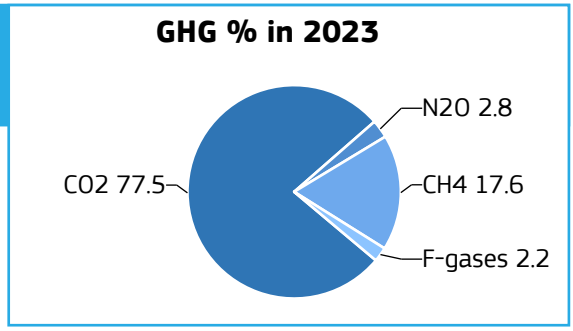
GHG emissions by sector



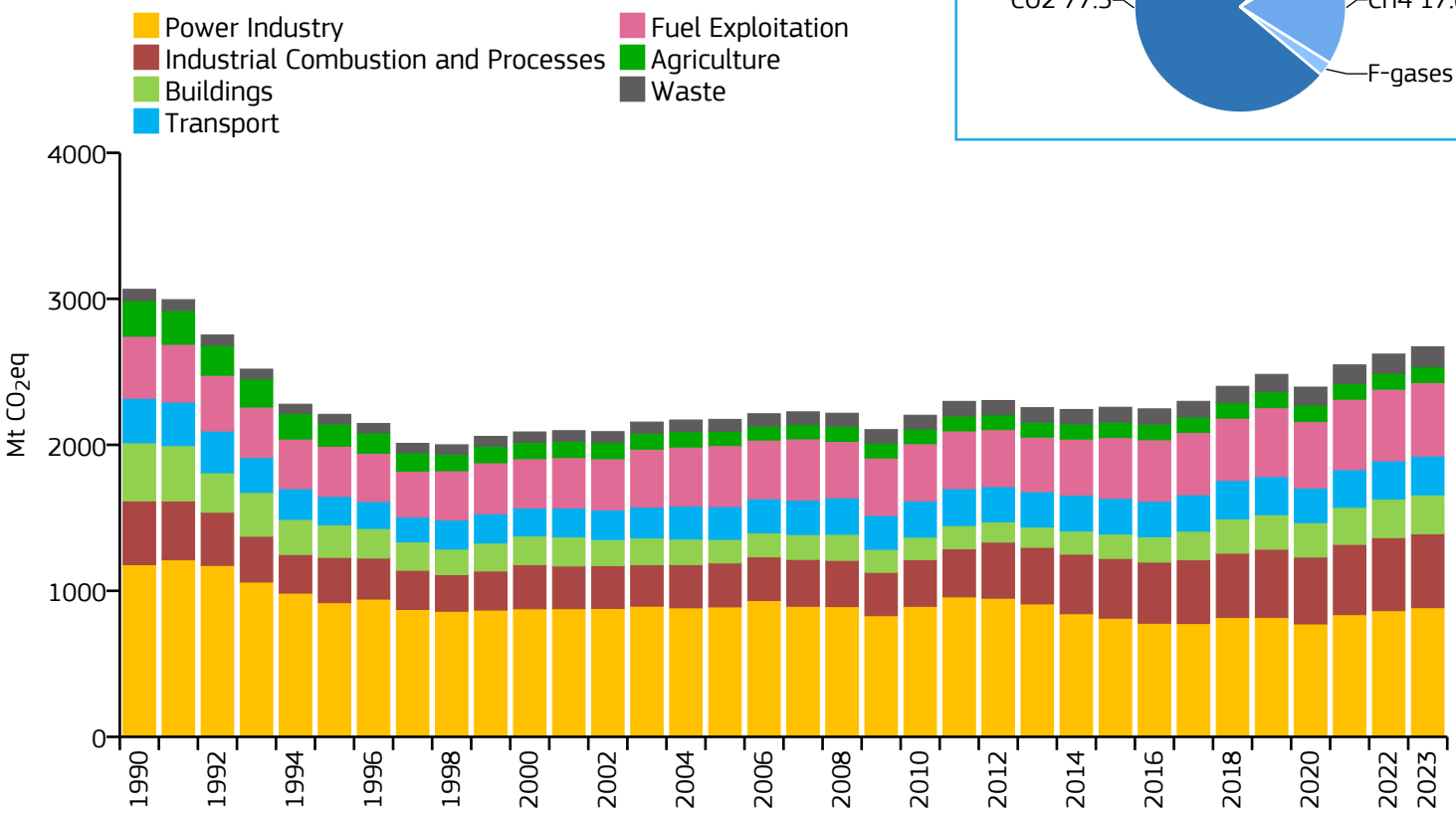
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	106.241	5.559	0.138	19.110M
2015	114.242	5.748	0.196	19.877M
2005	138.662	6.470	0.314	21.431M
1990	241.350	10.275	0.634	23.489M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-78%	-58%	-23%
Industrial Combustion and Processes	-69%	-30%	-4%
Buildings	-29%	+1%	-4%
Transport	+66%	+61%	0%
Fuel Exploitation	-68%	-65%	-9%
Agriculture	-49%	0%	+1%
Waste	+79%	+60%	+1%
All sectors	-56%	-23%	-6%

Russia



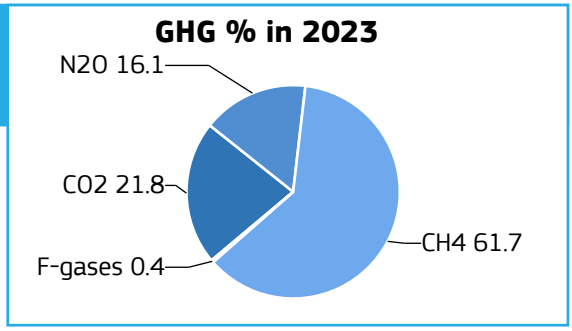
GHG emissions by sector



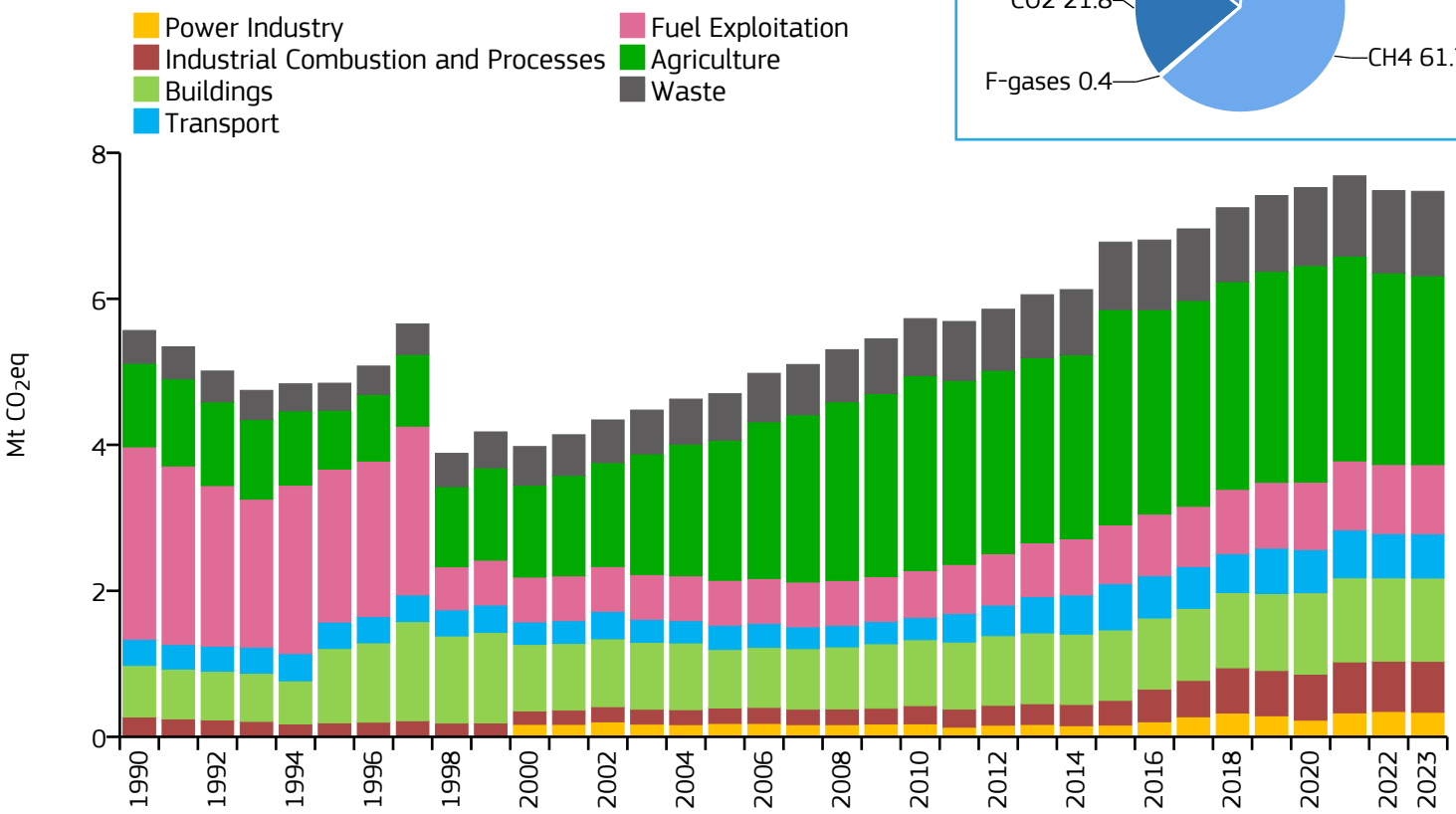
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	2671.709	18.657	0.459	143.204M
2015	2257.460	15.689	0.434	143.888M
2005	2174.456	15.141	0.542	143.618M
1990	3065.002	20.771	0.692	147.564M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-25%	-1%	+2%
Industrial Combustion and Processes	+16%	+68%	+1%
Buildings	-33%	+65%	+1%
Transport	-13%	+18%	+1%
Fuel Exploitation	+19%	+20%	+3%
Agriculture	-55%	+11%	0%
Waste	+75%	+67%	+4%
All sectors	-13%	+23%	+2%

Rwanda



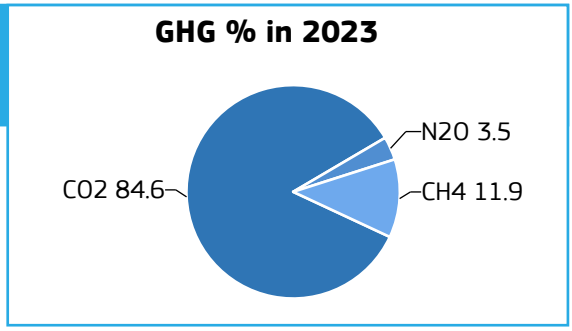
GHG emissions by sector



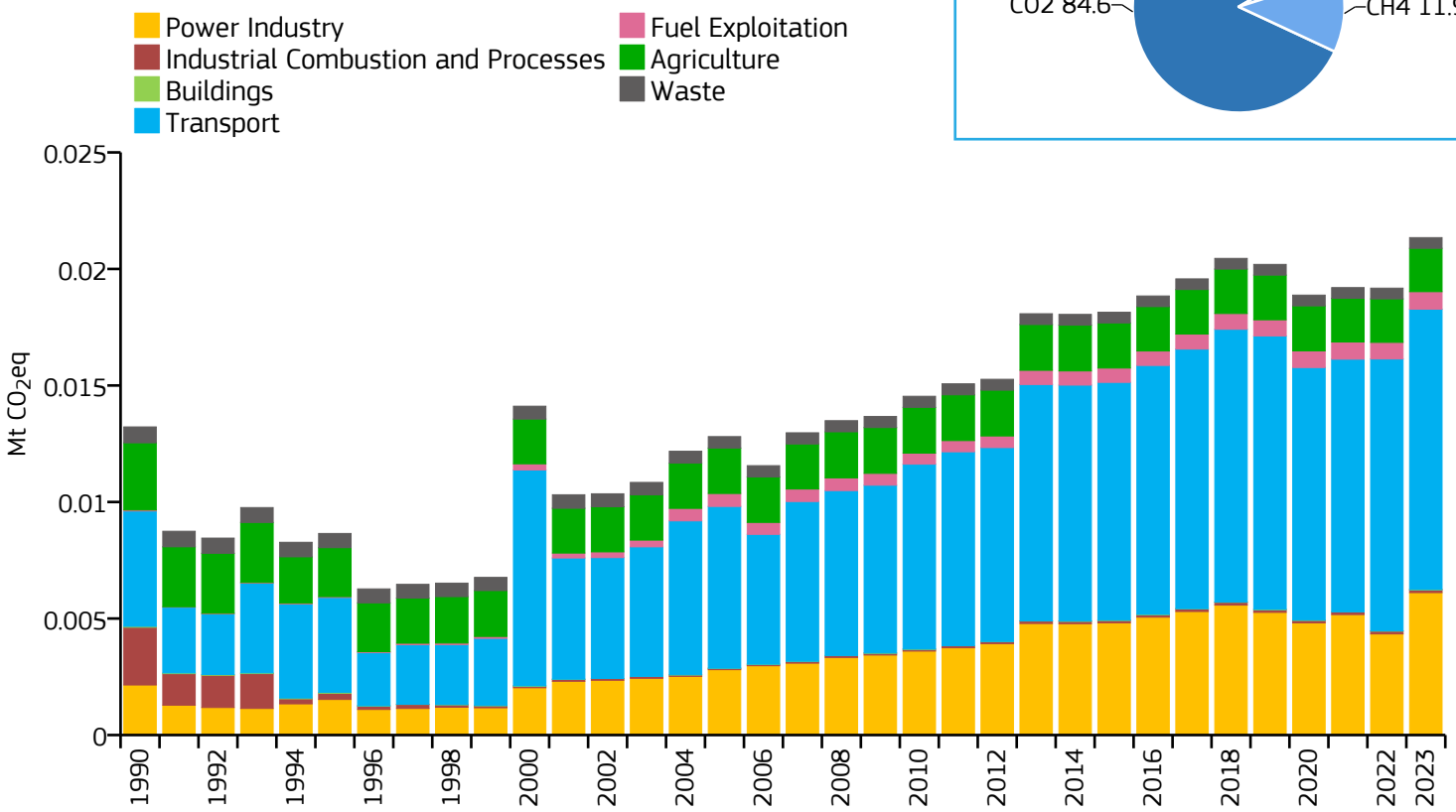
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	7.472	0.535	0.175	13.961M
2015	6.777	0.583	0.260	11.630M
2005	4.700	0.523	0.382	8.992M
1990	5.566	0.769	0.673	7.236M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	n/a	+83%	-3%
Industrial Combustion and Processes	+157%	+232%	+1%
Buildings	+61%	+42%	0%
Transport	+69%	+83%	0%
Fuel Exploitation	-64%	+54%	0%
Agriculture	+126%	+35%	-1%
Waste	+157%	+81%	+3%
All sectors	+34%	+59%	0%

Saint Helena, Ascension and Tristan



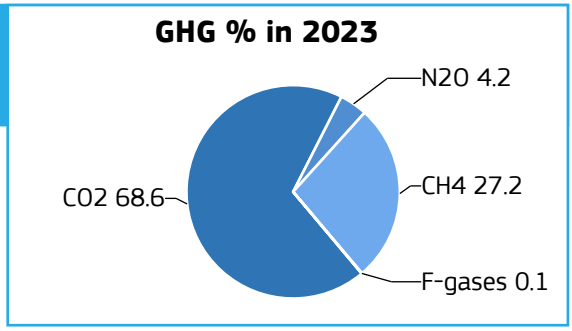
GHG emissions by sector



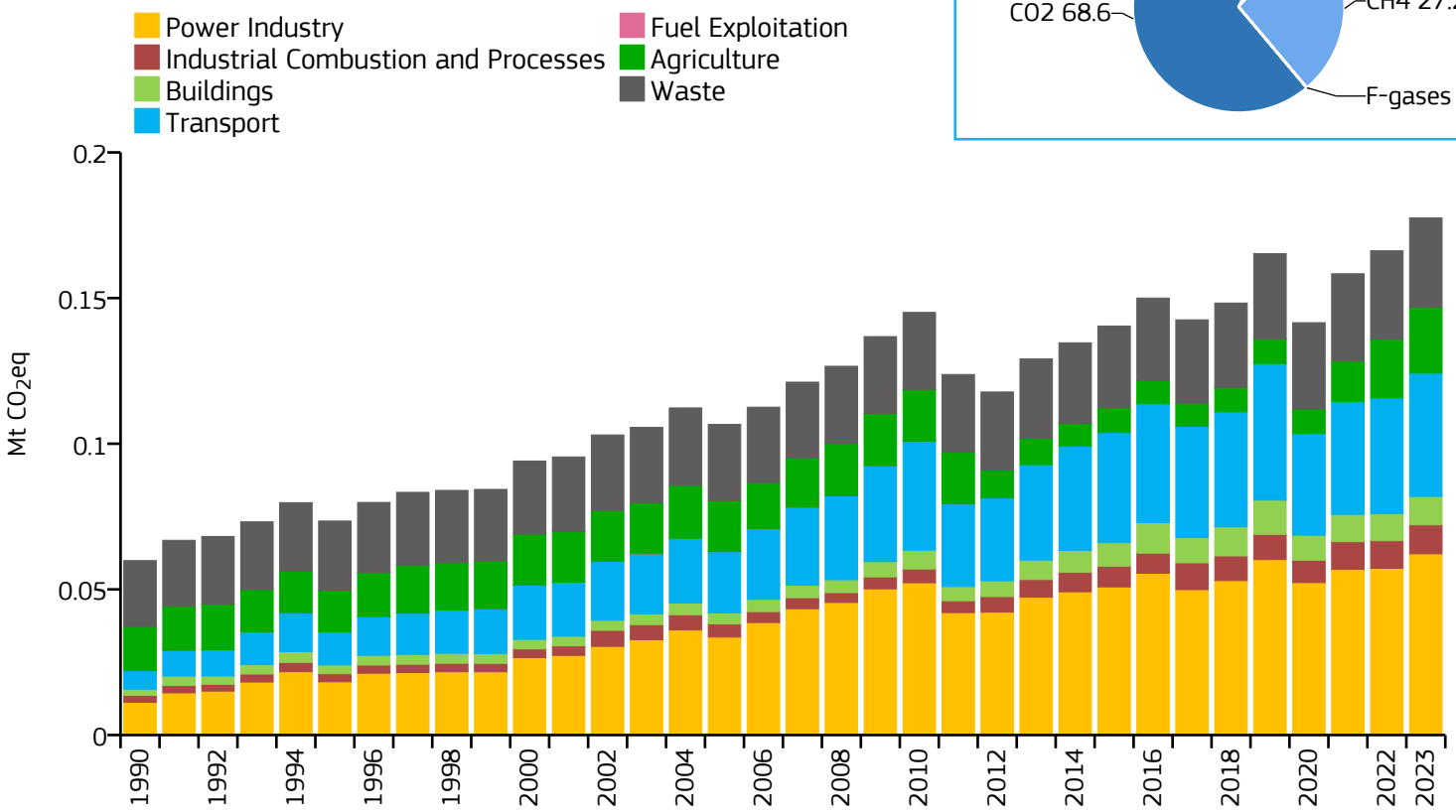
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.021	5.336	n/a	4.000k
2015	0.018	4.497	n/a	4.034k
2005	0.013	2.995	n/a	4.275k
1990	0.013	2.389	n/a	5.535k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +185%	↗ +118%	↗ +41%
Industrial Combustion and Processes	↘ -95%	↗ +117%	→ +3%
Buildings	↘ -91%	↗ +25%	→ +3%
Transport	↗ +143%	↗ +73%	→ +3%
Fuel Exploitation	↗ > +300%	↗ +35%	→ +5%
Agriculture	↘ -35%	→ -5%	→ 0%
Waste	↘ -33%	↘ -6%	→ 0%
All sectors	↗ +61%	↗ +67%	↗ +11%

Saint Kitts and Nevis



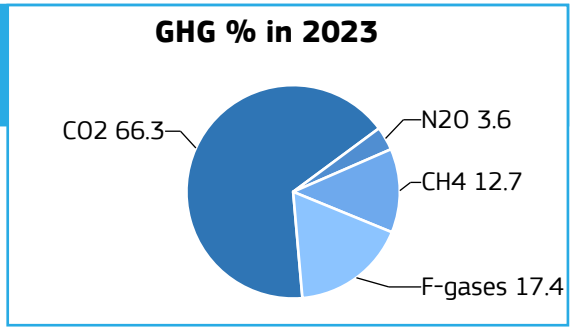
GHG emissions by sector



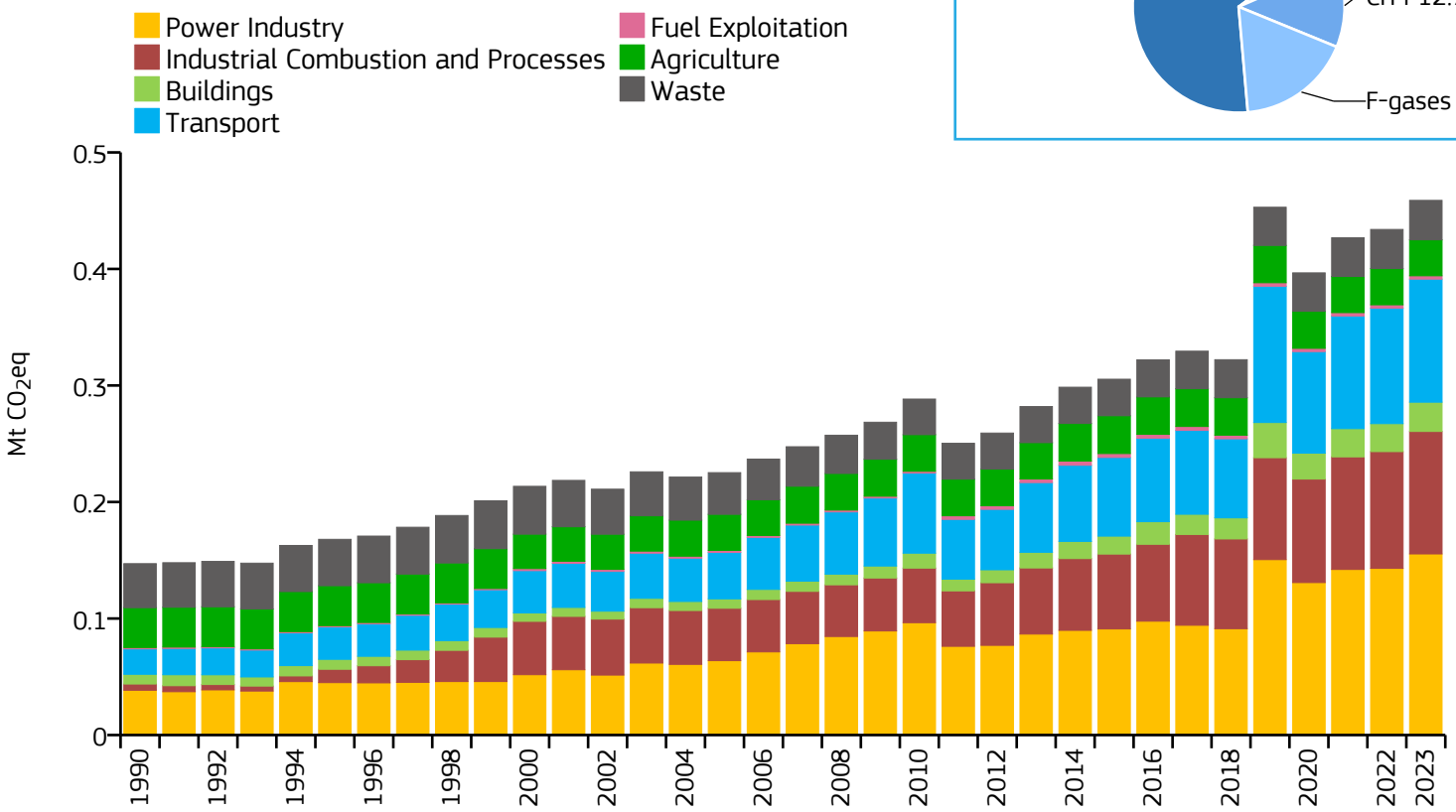
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.178	3.060	0.123	58.000k
2015	0.140	2.586	0.104	54.288k
2005	0.107	2.194	0.102	48.611k
1990	0.060	1.466	0.103	40.834k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ > +300%	↗ +85%	↗ +9%
Industrial Combustion and Processes	↗ > +300%	↗ +122%	→ +5%
Buildings	↗ > +300%	↗ +158%	→ +5%
Transport	↗ > +300%	↗ +101%	↗ +7%
Fuel Exploitation	n/a	n/a	n/a
Agriculture	↗ +50%	↗ +29%	↗ +12%
Waste	↗ +35%	↗ +17%	→ +1%
All sectors	↗ +196%	↗ +66%	↗ +7%

Saint Lucia



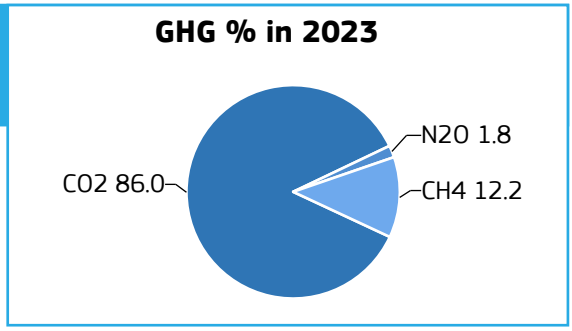
GHG emissions by sector



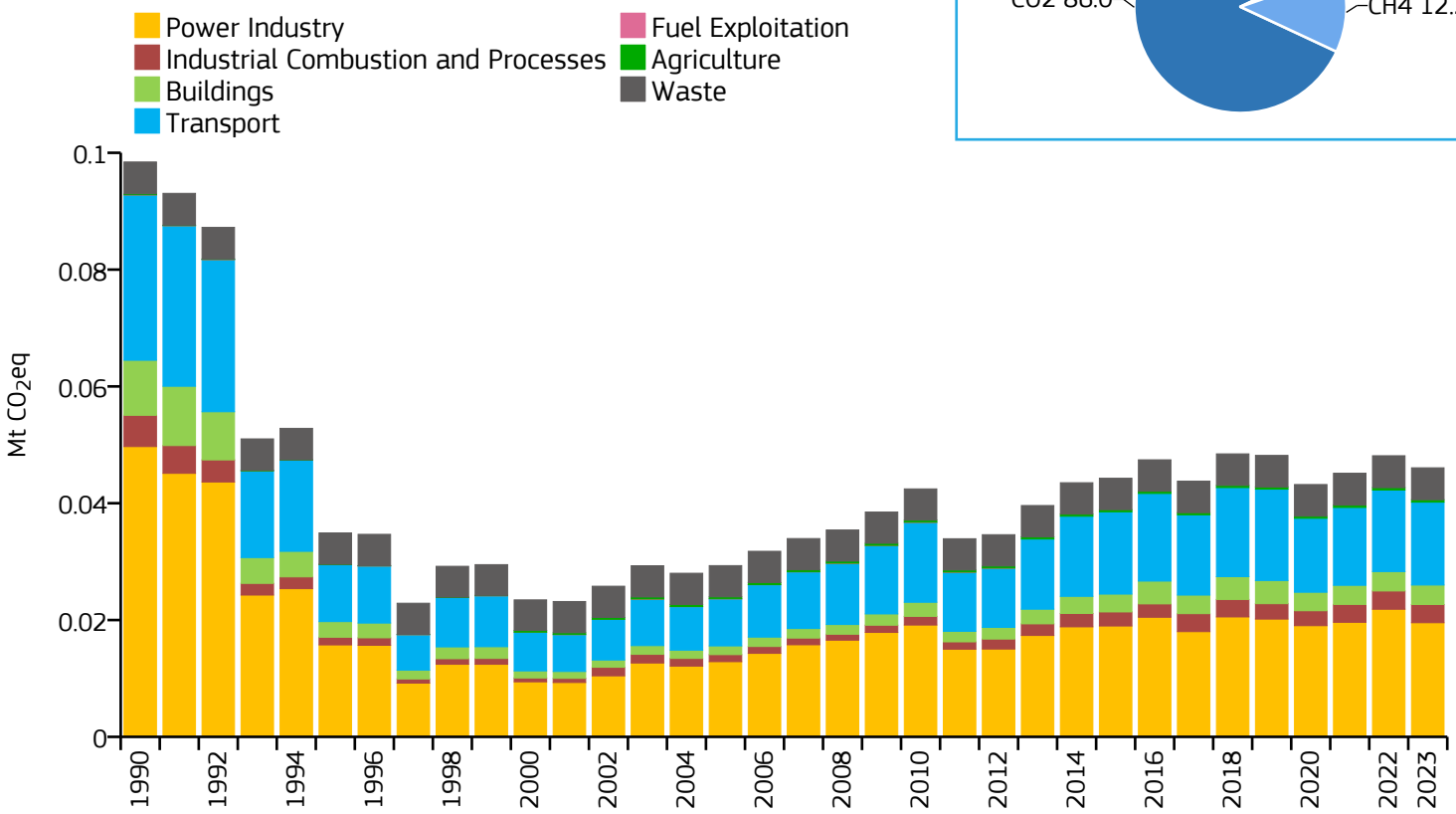
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.459	2.507	0.112	183.000k
2015	0.305	1.723	0.084	177.206k
2005	0.225	1.376	0.071	163.714k
1990	0.147	1.064	0.063	138.185k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ > +300%	↗ +144%	↗ +9%
Industrial Combustion and Processes	↗ > +300%	↗ +134%	→ +5%
Buildings	↗ +201%	↗ +210%	→ +5%
Transport	↗ > +300%	↗ +165%	↗ +7%
Fuel Exploitation	↗ +147%	↗ +72%	→ 0%
Agriculture	↘ -10%	→ 0%	→ -1%
Waste	↘ -10%	→ -5%	→ +1%
All sectors	↗ +212%	↗ +104%	↗ +6%

Saint Pierre and Miquelon



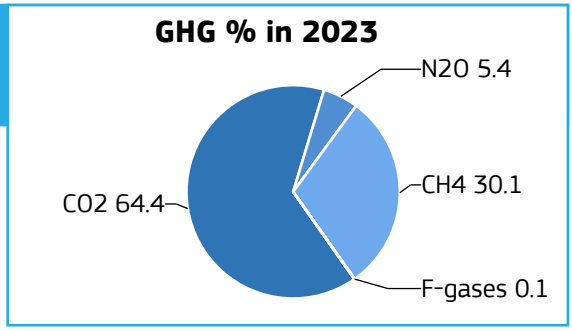
GHG emissions by sector



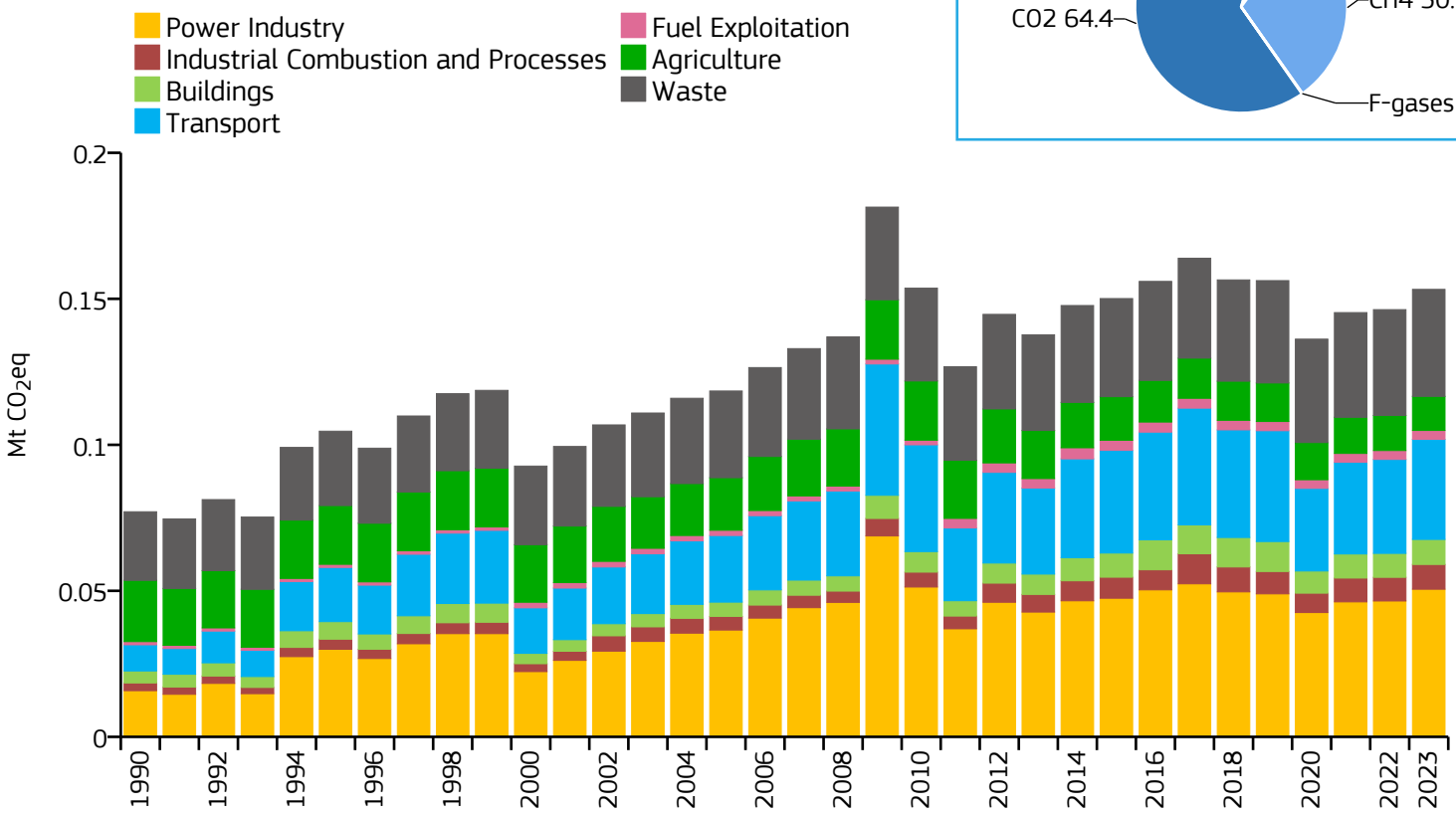
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.046	6.581	n/a	7.000k
2015	0.044	7.040	n/a	6.290k
2005	0.029	4.683	n/a	6.261k
1990	0.098	15.683	n/a	6.276k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-61%	+52%	-11%
Industrial Combustion and Processes	-42%	+159%	0%
Buildings	-65%	+123%	0%
Transport	-50%	+76%	+2%
Fuel Exploitation	n/a	n/a	n/a
Agriculture	+154%	+28%	+2%
Waste	0%	+2%	0%
All sectors	-53%	+57%	-4%

Saint Vincent and the Grenadines



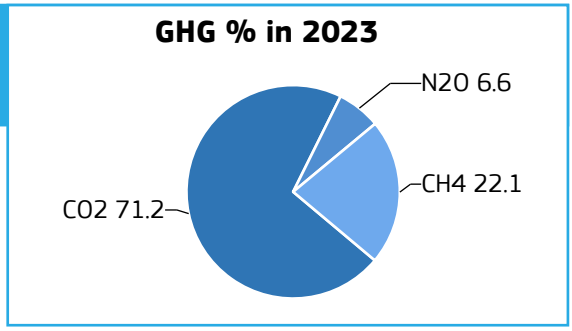
GHG emissions by sector



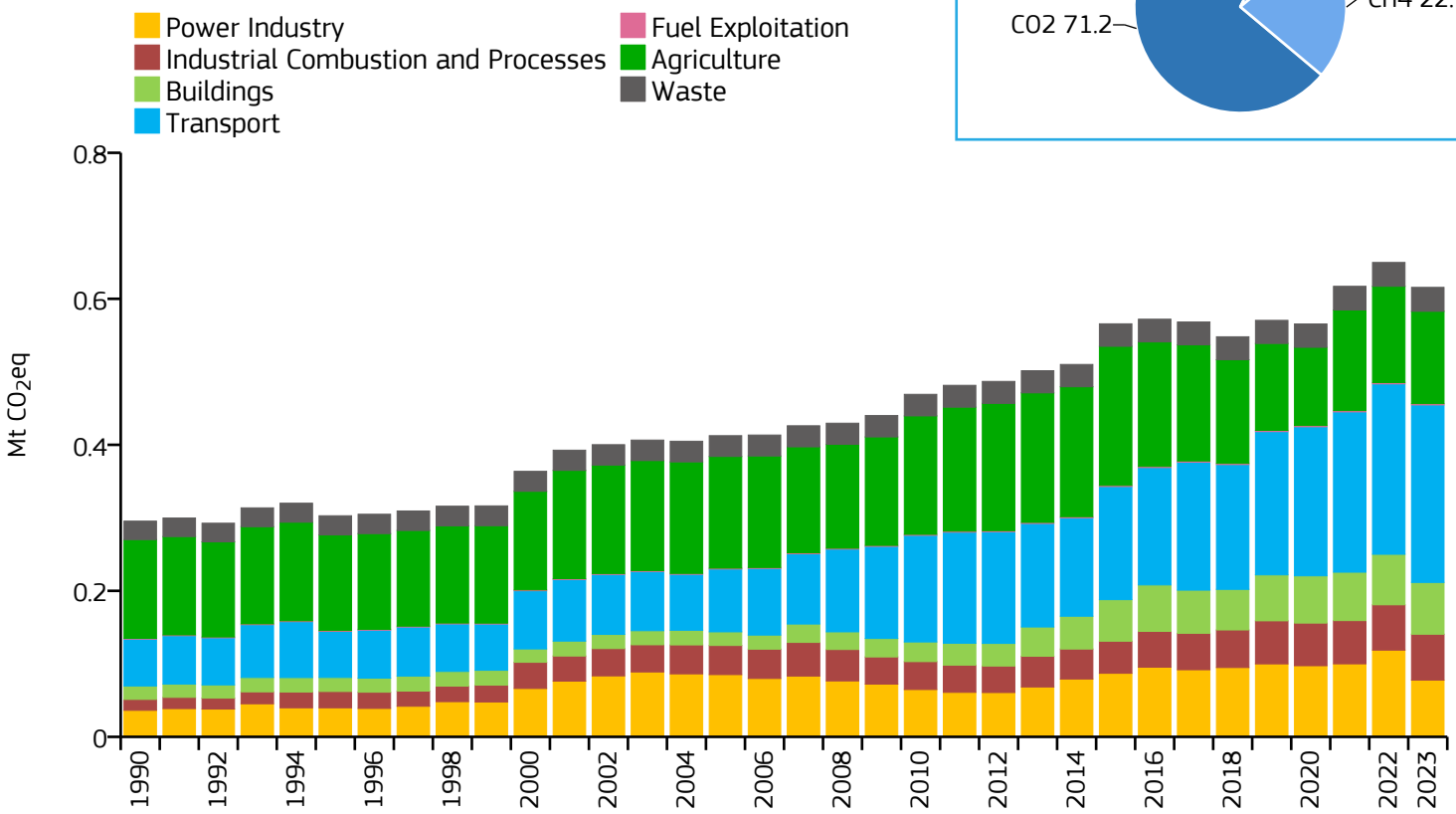
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.153	1.380	0.082	111.000k
2015	0.150	1.371	0.098	109.455k
2005	0.118	1.089	0.086	108.744k
1990	0.077	0.717	0.093	107.505k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+220%	+38%	+9%
Industrial Combustion and Processes	+220%	+82%	+5%
Buildings	+108%	+75%	+4%
Transport	+283%	+50%	+7%
Fuel Exploitation	+178%	+70%	0%
Agriculture	-44%	-35%	-3%
Waste	+56%	+23%	+1%
All sectors	+99%	+29%	+5%

Samoa



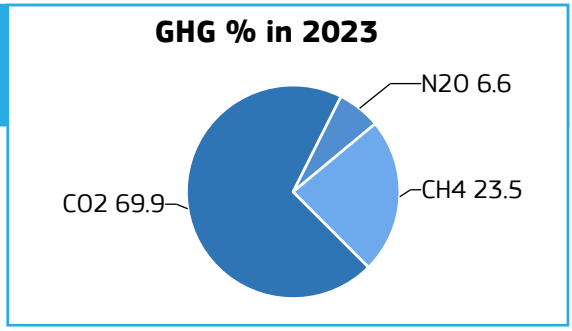
GHG emissions by sector



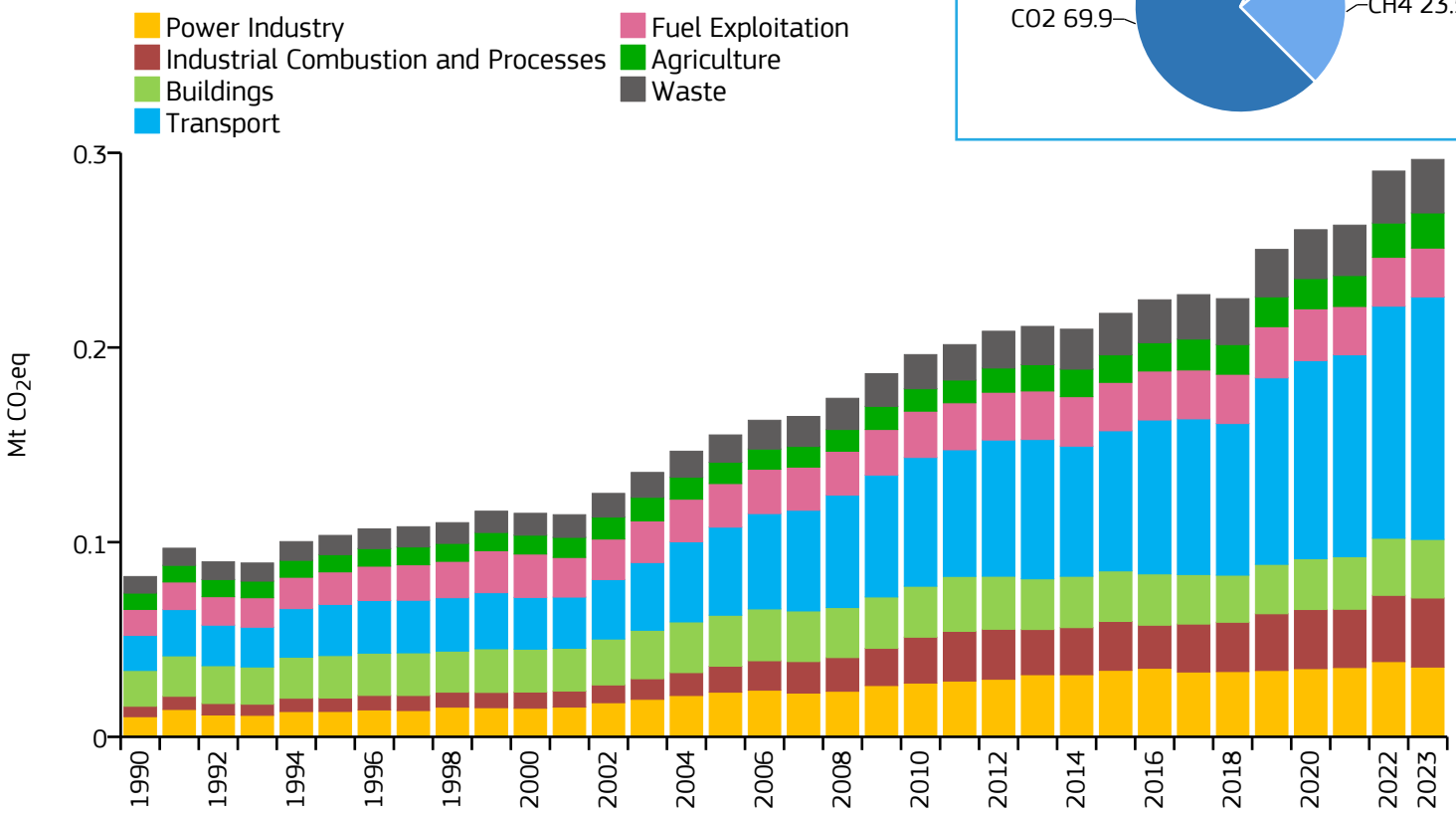
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.616	3.018	0.453	204.000k
2015	0.566	2.920	0.436	193.759k
2005	0.413	2.293	0.373	179.929k
1990	0.295	1.814	0.438	162.866k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+114%	-9%	-35%
Industrial Combustion and Processes	> +300%	+58%	+1%
Buildings	+286%	+279%	+2%
Transport	+279%	+183%	+4%
Fuel Exploitation	+68%	+49%	0%
Agriculture	-7%	-17%	-4%
Waste	+30%	+15%	+1%
All sectors	+108%	+49%	-5%

São Tomé and Príncipe



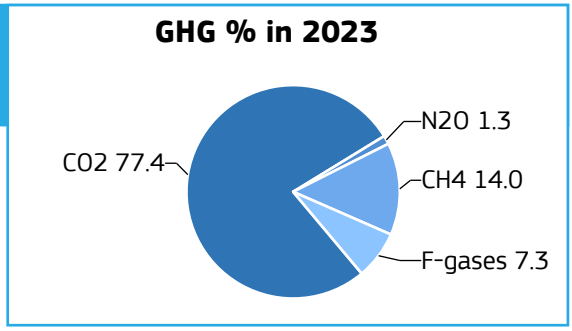
GHG emissions by sector



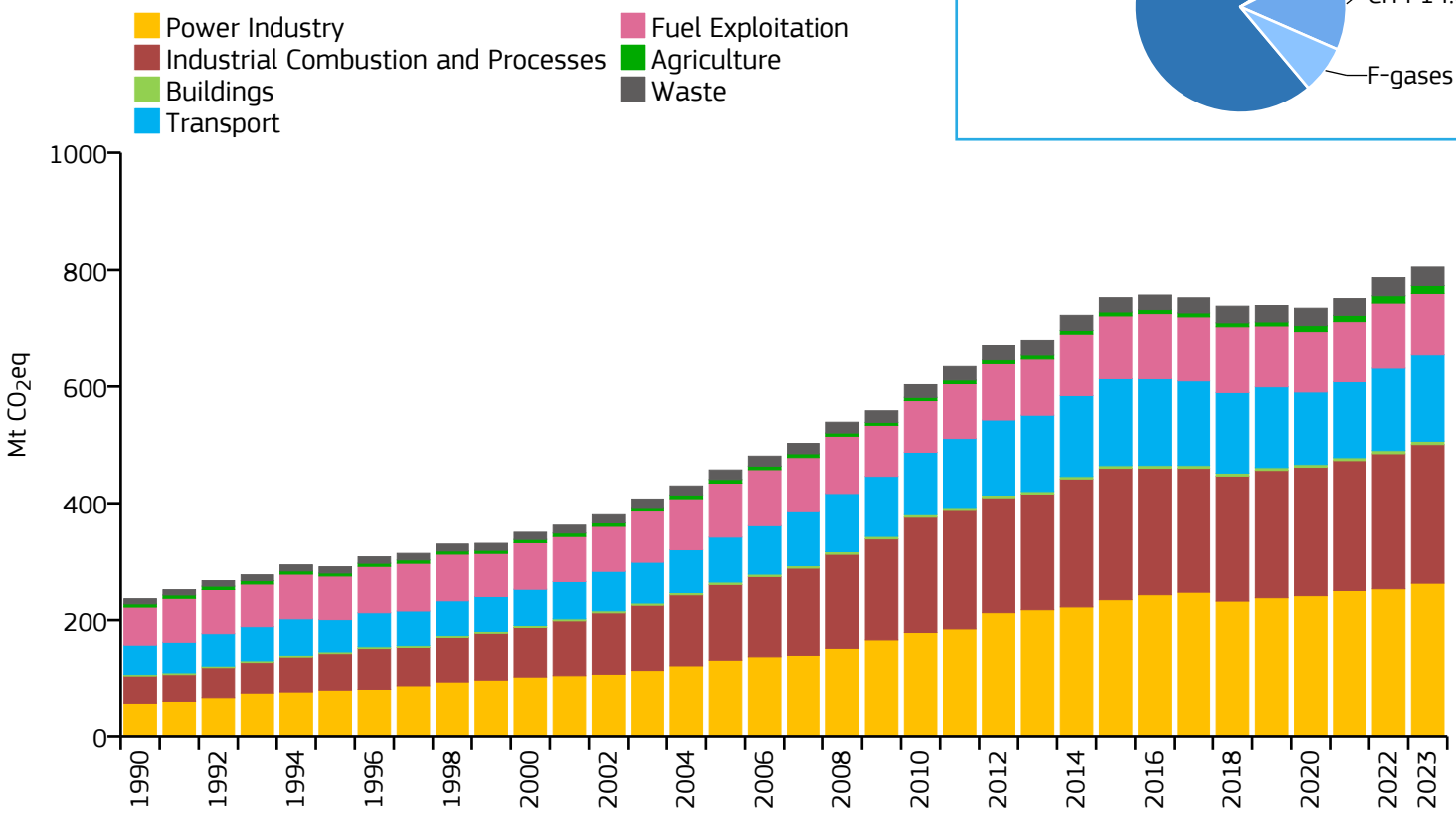
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.297	1.273	0.234	233.000k
2015	0.218	1.112	0.208	195.553k
2005	0.155	0.996	0.219	155.630k
1990	0.082	0.723	0.172	113.893k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +246%	↗ +56%	↘ -7%
Industrial Combustion and Processes	↗ > +300%	↗ +166%	→ +4%
Buildings	↗ +64%	↗ +15%	→ +3%
Transport	↗ > +300%	↗ +175%	→ +4%
Fuel Exploitation	↗ +88%	↗ +12%	→ 0%
Agriculture	↗ +115%	↗ +65%	→ +2%
Waste	↗ +223%	↗ +96%	→ +3%
All sectors	↗ +260%	↗ +91%	→ +2%

Saudi Arabia



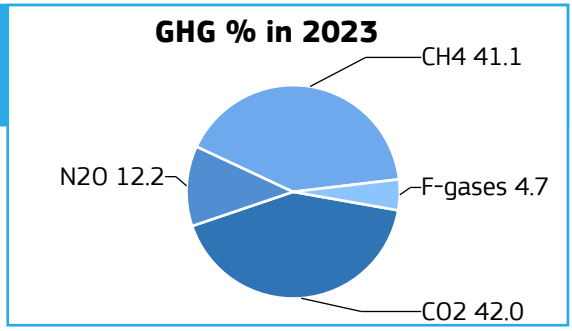
GHG emissions by sector



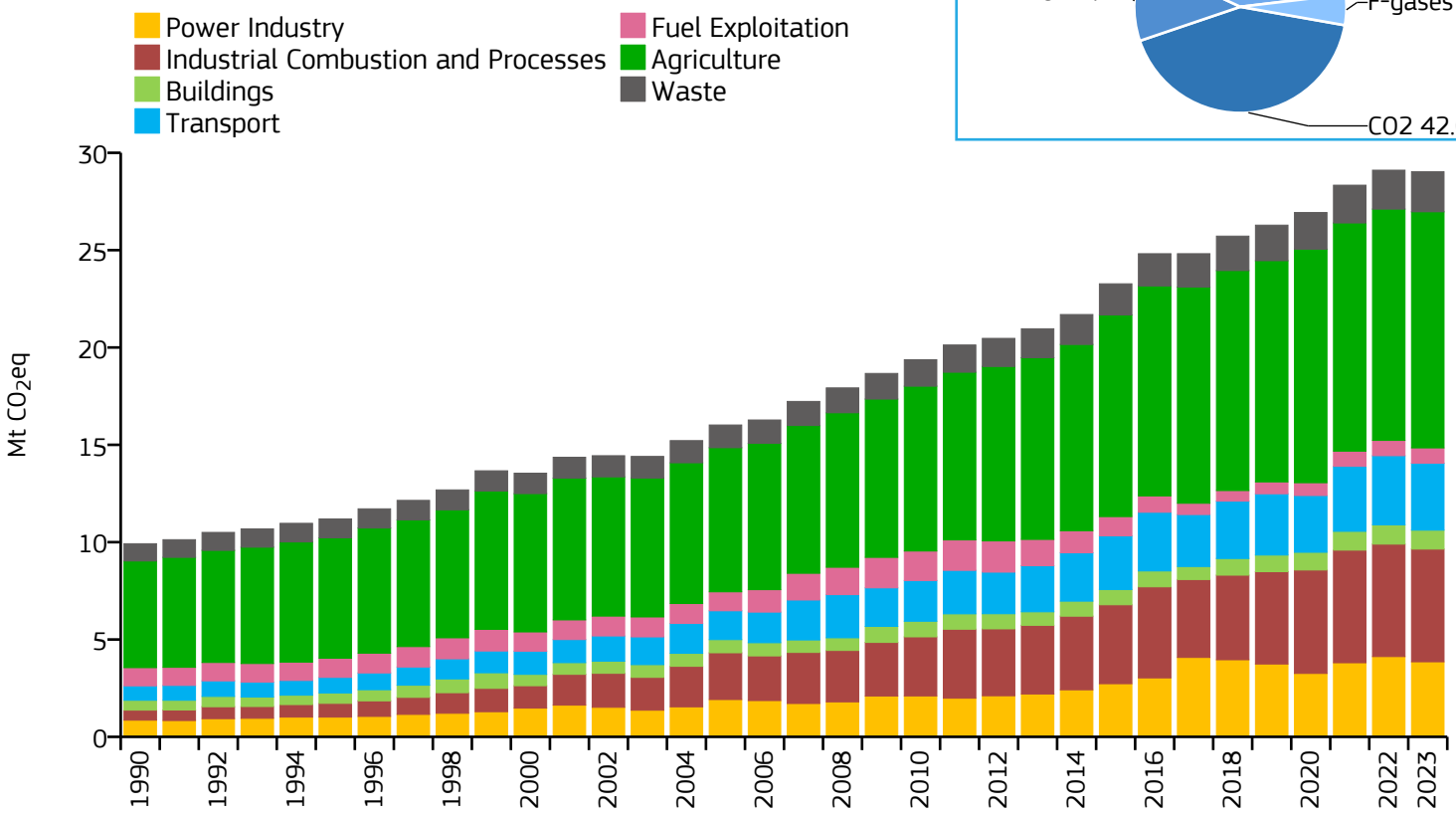
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	805.158	22.174	0.440	36.311M
2015	752.734	23.853	0.476	31.557M
2005	457.065	19.119	0.431	23.906M
1990	236.538	14.488	0.350	16.327M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+100%	+4%
Industrial Combustion and Processes	> +300%	+84%	+3%
Buildings	+124%	+41%	+4%
Transport	+194%	+92%	+5%
Fuel Exploitation	+63%	+15%	-5%
Agriculture	+150%	+119%	+9%
Waste	+255%	+92%	+2%
All sectors	+240%	+76%	+2%

Senegal



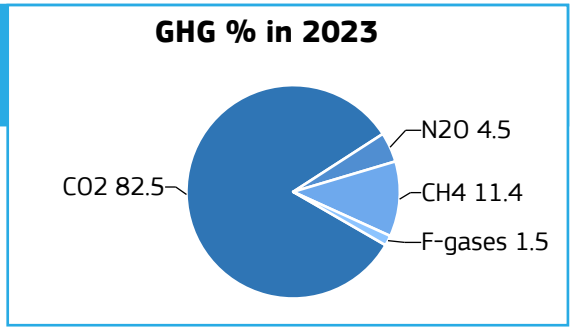
GHG emissions by sector



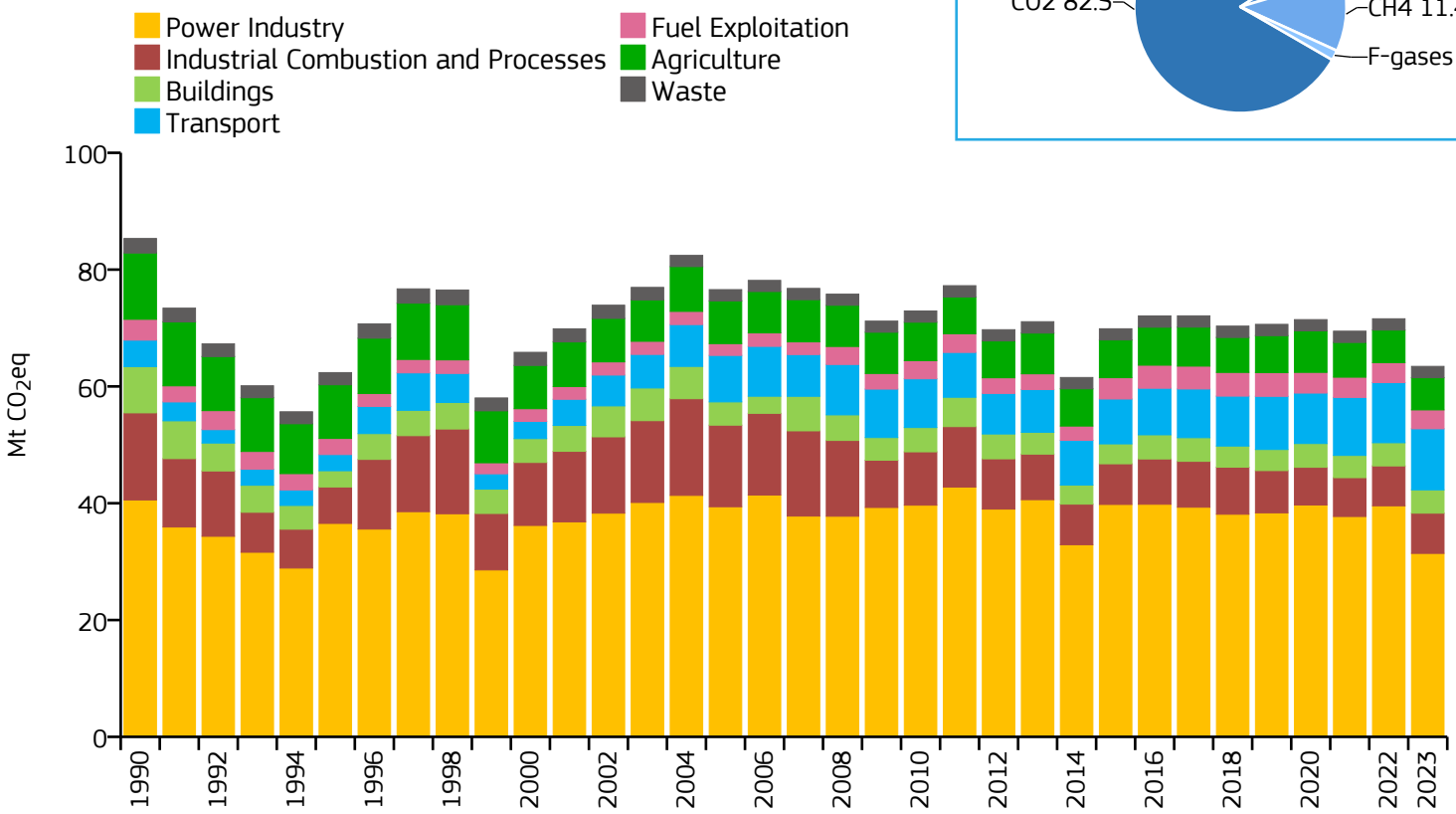
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	29.026	1.560	0.375	18.607M
2015	23.271	1.554	0.444	14.977M
2005	16.019	1.424	0.432	11.251M
1990	9.921	1.313	0.440	7.556M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ > +300%	↗ +101%	↘ -7%
Industrial Combustion and Processes	↗ > +300%	↗ +141%	→ 0%
Buildings	↗ +92%	↗ +44%	→ -2%
Transport	↗ > +300%	↗ +132%	→ -3%
Fuel Exploitation	↘ -16%	↘ -19%	→ 0%
Agriculture	↗ +121%	↗ +64%	→ +2%
Waste	↗ +131%	↗ +76%	→ +3%
All sectors	↗ +193%	↗ +81%	→ 0%

Serbia and Montenegro



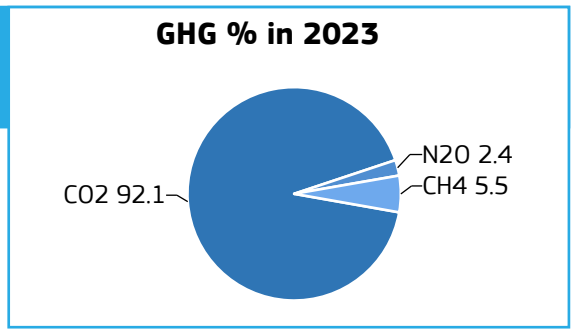
GHG emissions by sector



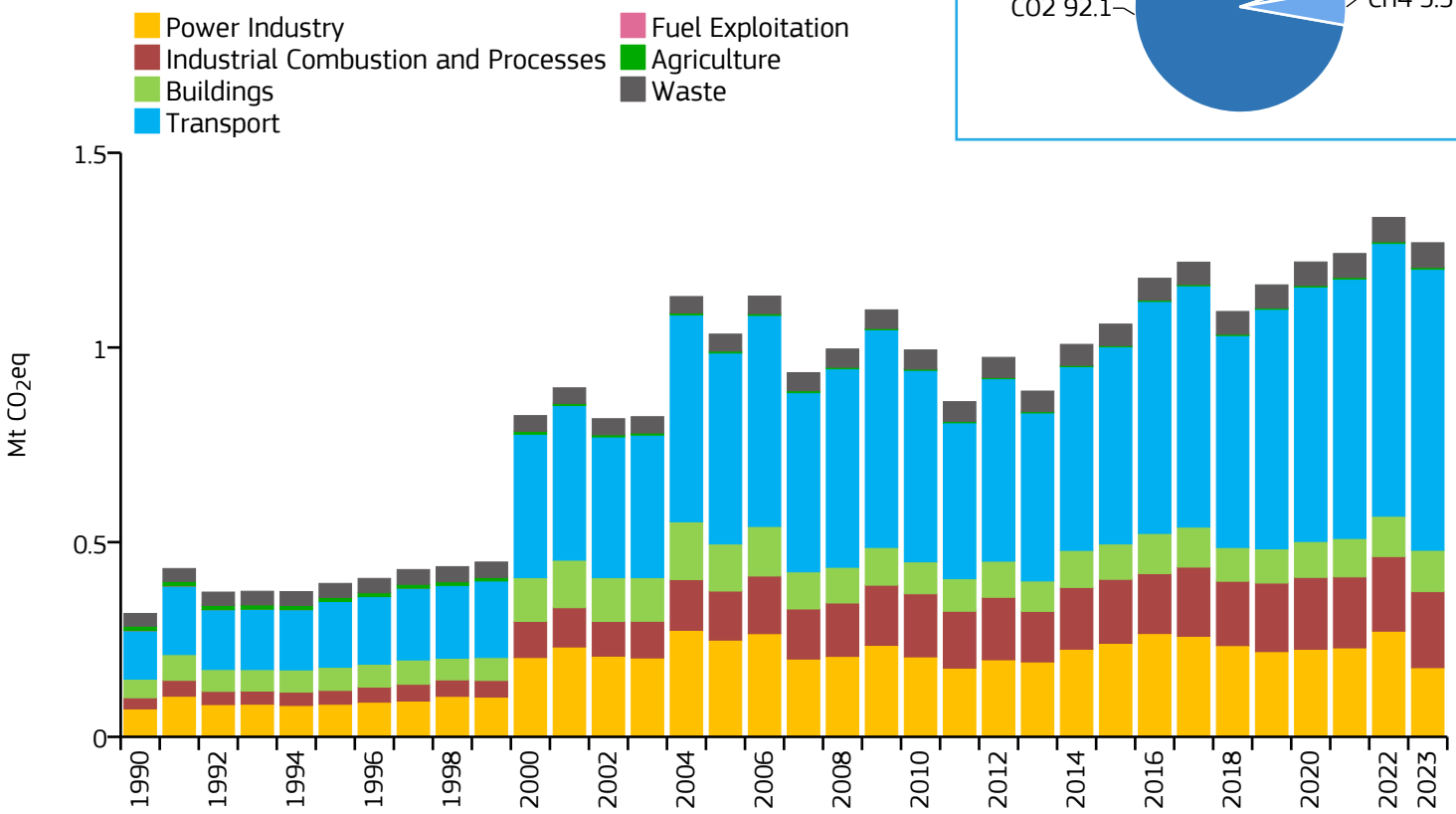
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	63.432	6.866	0.312	9.238M
2015	69.872	7.371	0.446	9.479M
2005	76.575	7.789	0.671	9.831M
1990	85.330	8.422	0.942	10.132M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-23%	-20%	-21%
Industrial Combustion and Processes	-54%	-51%	+1%
Buildings	-50%	0%	+1%
Transport	+131%	+31%	+1%
Fuel Exploitation	-9%	+60%	-5%
Agriculture	-51%	-25%	-1%
Waste	-22%	+1%	0%
All sectors	-26%	-17%	-11%

Seychelles



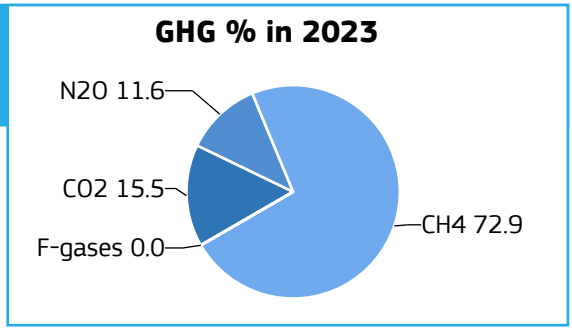
GHG emissions by sector



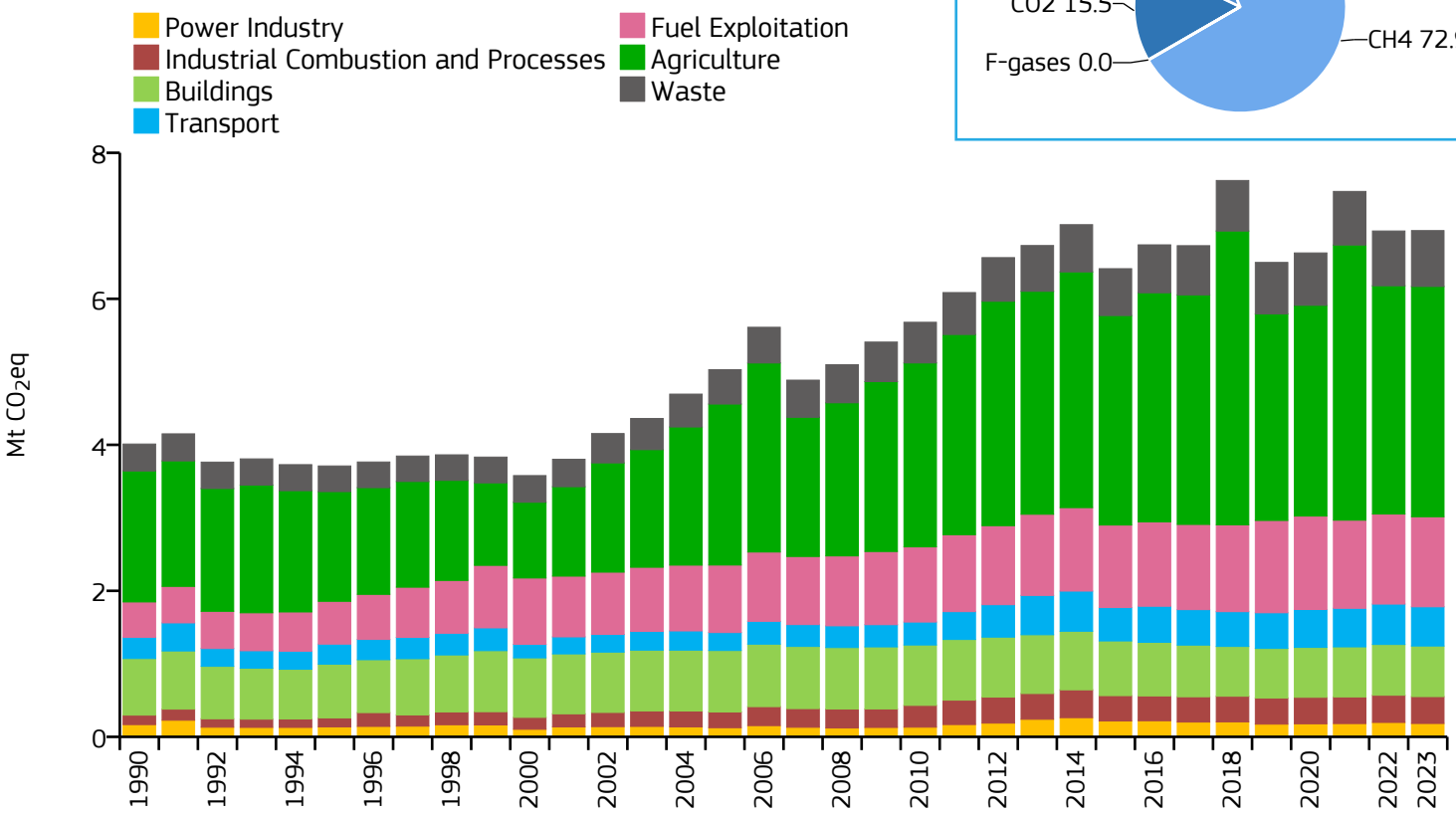
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	1.269	13.083	0.360	97.000k
2015	1.060	11.308	0.420	93.742k
2005	1.034	11.656	0.627	88.744k
1990	0.317	4.488	0.295	70.624k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+147%	-29%	-35%
Industrial Combustion and Processes	> +300%	+55%	+2%
Buildings	+123%	-12%	+3%
Transport	> +300%	+47%	+3%
Fuel Exploitation	n/a	n/a	n/a
Agriculture	-61%	-9%	+5%
Waste	+95%	+46%	+2%
All sectors	+300%	+23%	-5%

Sierra Leone



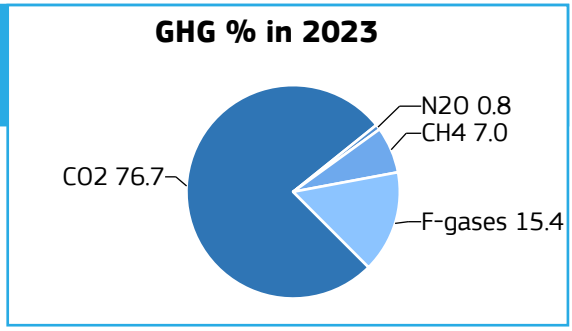
GHG emissions by sector



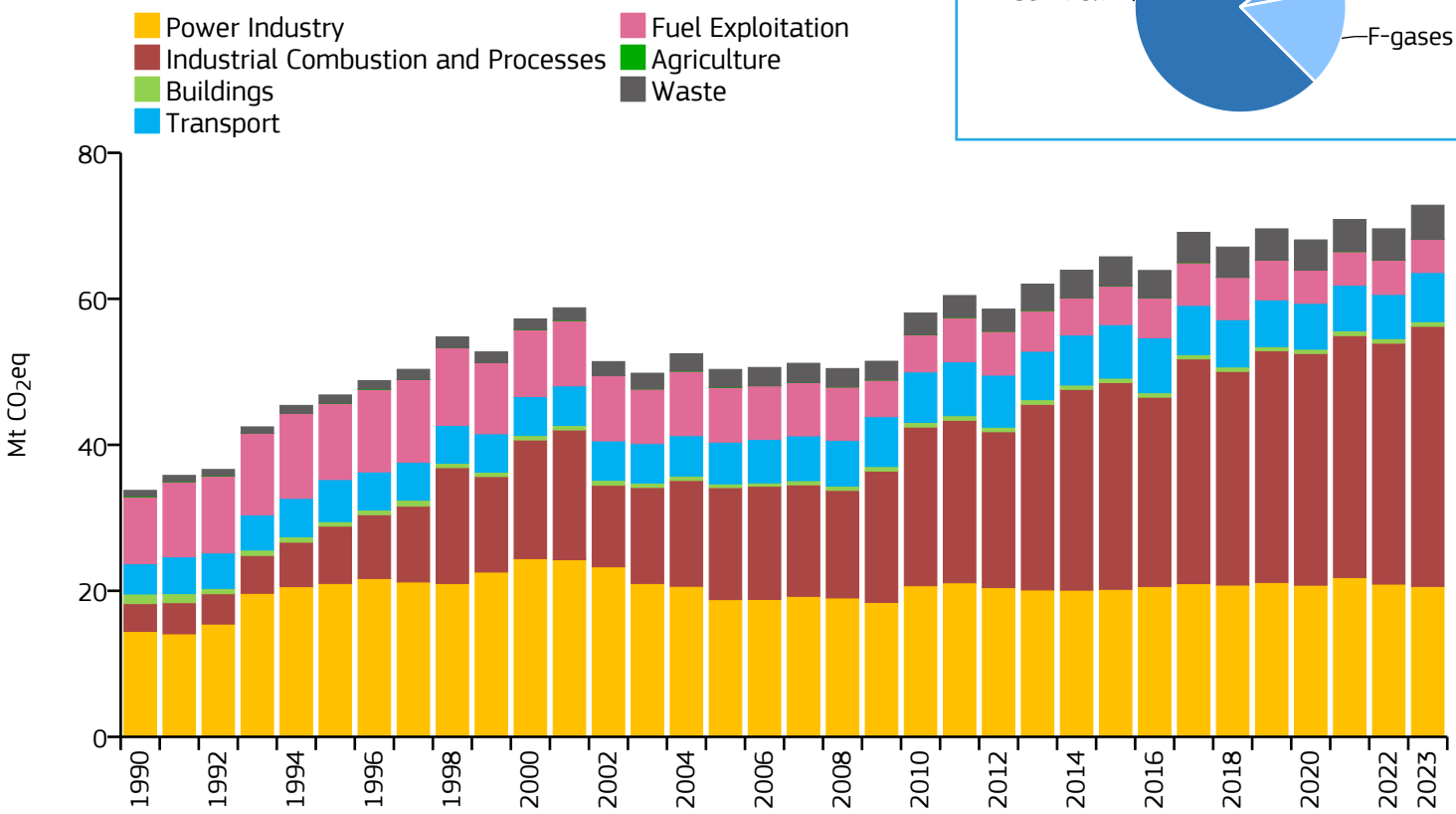
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	6.934	0.812	0.474	8.541M
2015	6.413	0.886	0.575	7.237M
2005	5.030	0.889	0.725	5.658M
1990	4.011	0.930	0.643	4.312M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+9%	+46%	-7%
Industrial Combustion and Processes	+183%	+71%	-1%
Buildings	-11%	-18%	0%
Transport	+85%	+119%	-3%
Fuel Exploitation	+155%	+33%	0%
Agriculture	+76%	+43%	+1%
Waste	+107%	+62%	+2%
All sectors	+73%	+38%	0%

Singapore



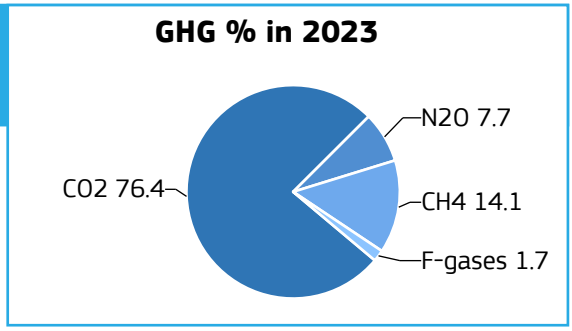
GHG emissions by sector



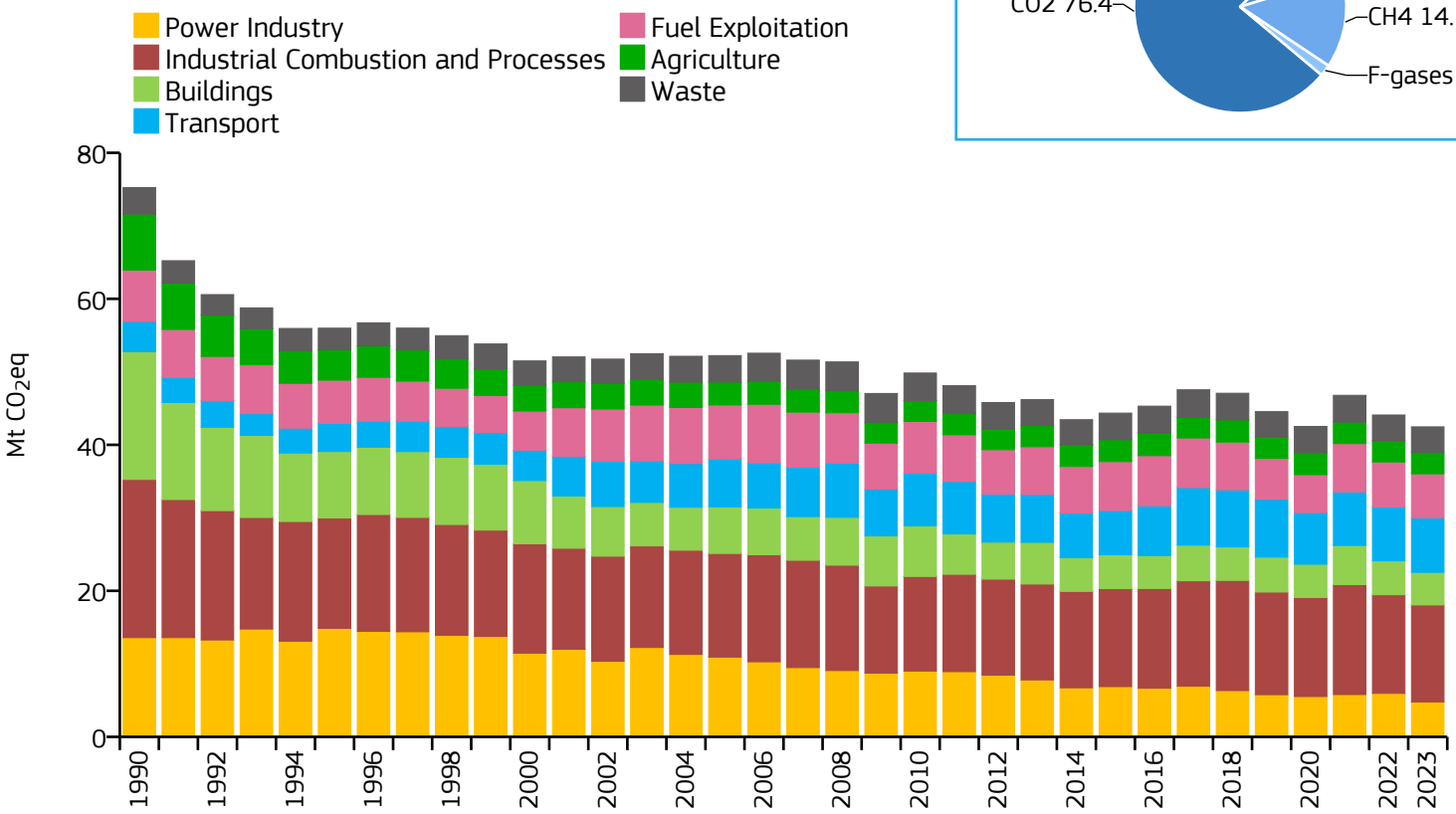
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	72.825	11.976	0.096	6.081M
2015	65.752	11.879	0.110	5.535M
2005	50.329	11.207	0.145	4.491M
1990	33.756	11.204	0.244	3.013M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+43%	+10%	-1%
Industrial Combustion and Processes	> +300%	+132%	+8%
Buildings	-51%	+25%	+2%
Transport	+62%	+18%	+11%
Fuel Exploitation	-50%	-40%	-3%
Agriculture	-76%	+4%	-4%
Waste	> +300%	+93%	+9%
All sectors	+116%	+45%	+5%

Slovakia



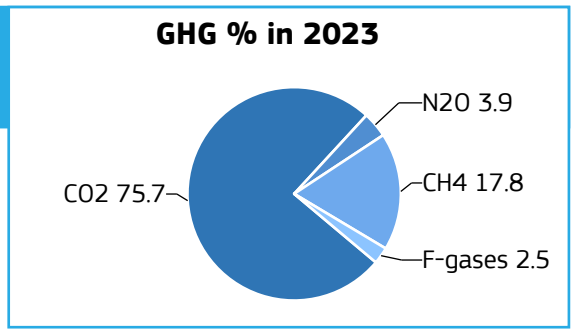
GHG emissions by sector



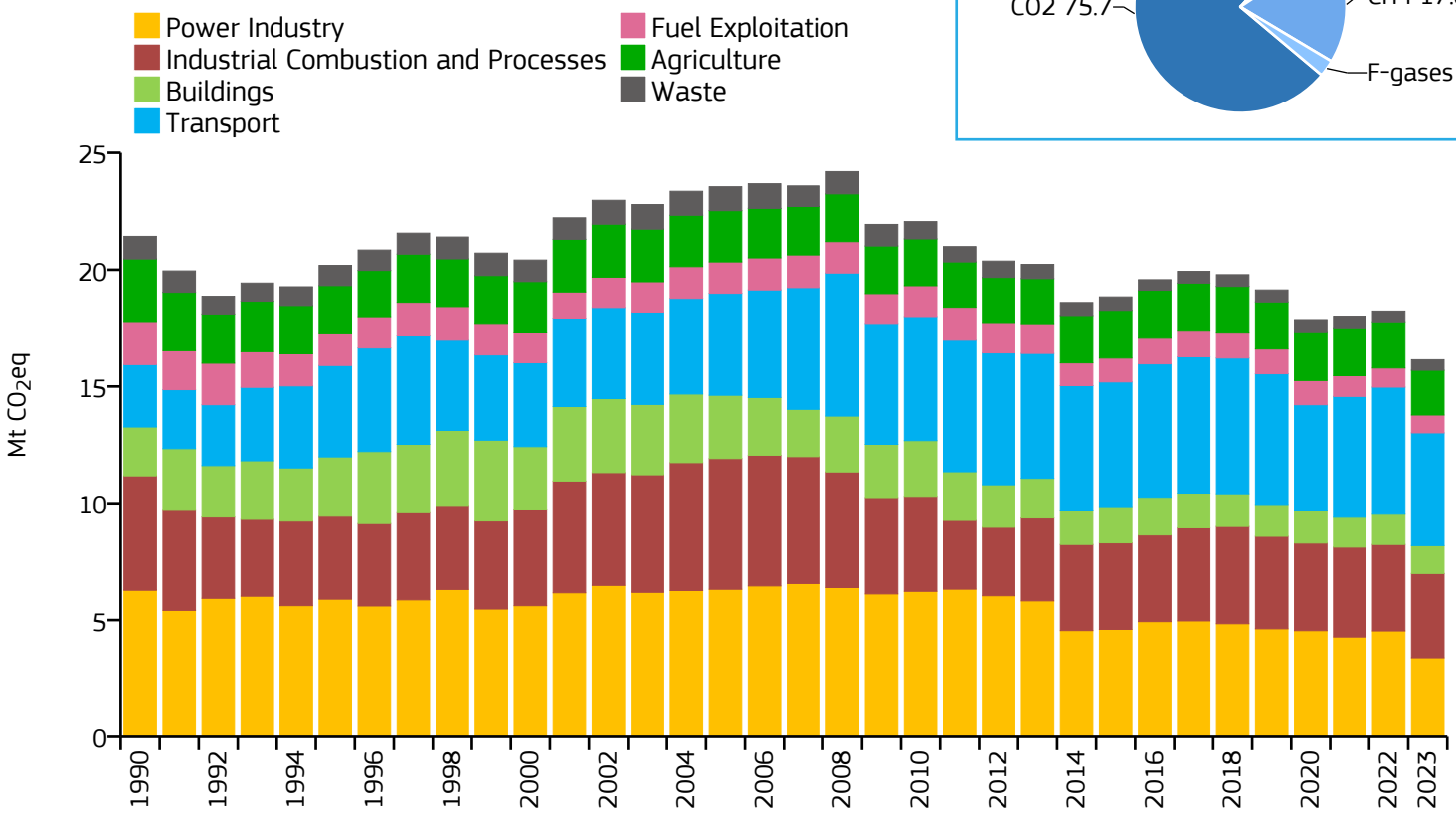
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	42.464	7.796	0.199	5.447M
2015	44.345	8.153	0.244	5.439M
2005	52.223	9.673	0.416	5.399M
1990	75.242	14.228	0.831	5.288M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↘ -65%	↘ -56%	↘ -20%
Industrial Combustion and Processes	↘ -39%	↘ -6%	→ -2%
Buildings	↘ -74%	↘ -30%	→ -4%
Transport	↗ +80%	↗ +13%	→ +1%
Fuel Exploitation	↘ -14%	↘ -18%	→ -1%
Agriculture	↘ -62%	↘ -7%	→ +2%
Waste	→ -3%	→ -3%	→ -1%
All sectors	↘ -44%	↘ -19%	→ -4%

Slovenia



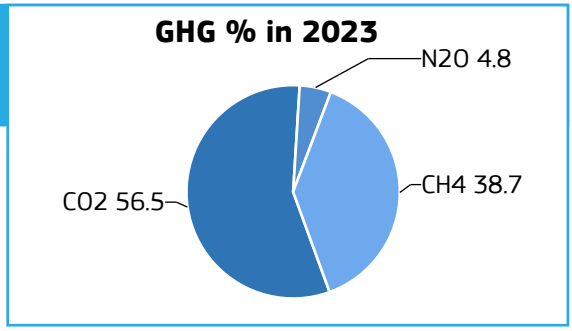
GHG emissions by sector



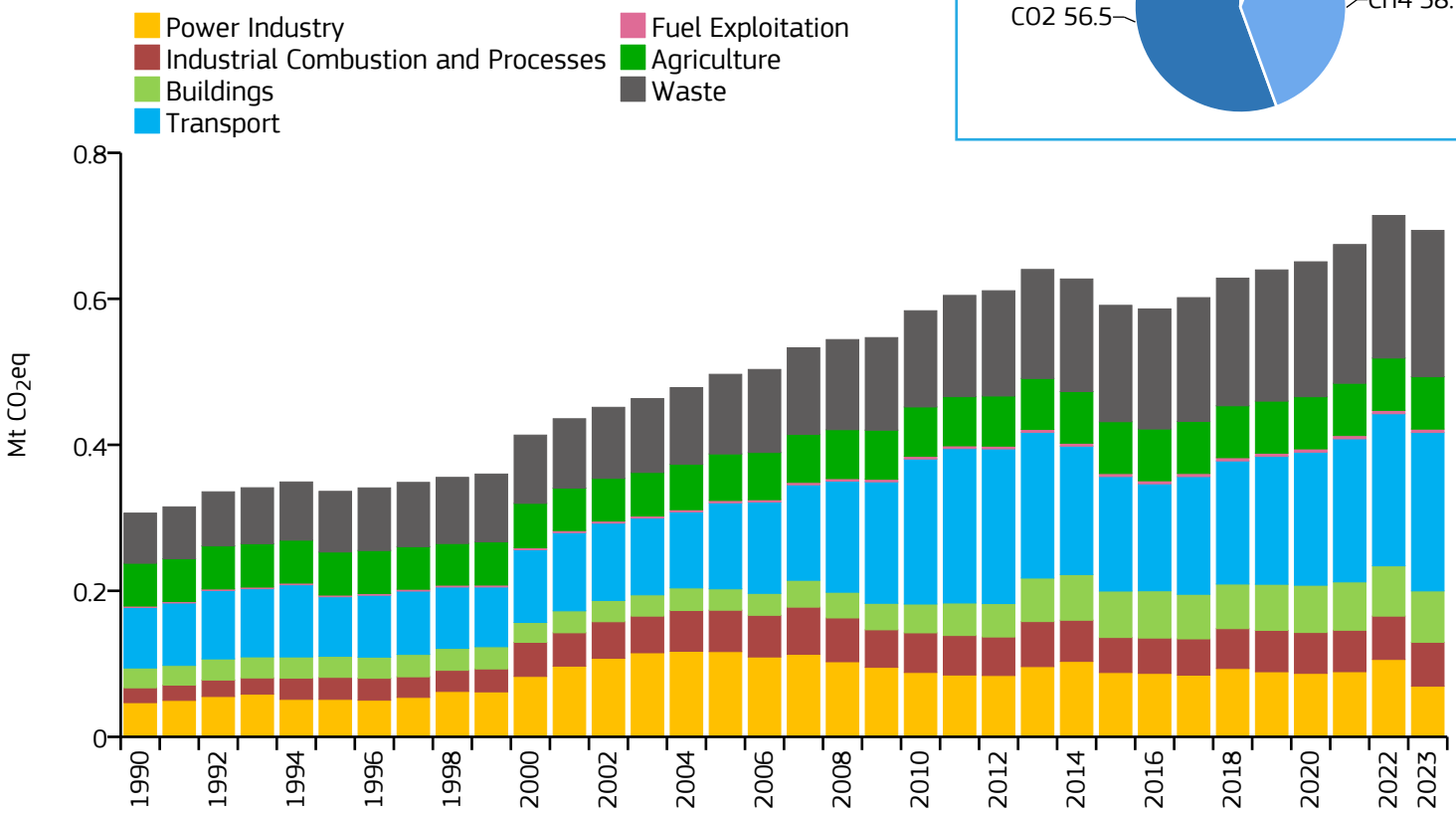
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	16.146	7.763	0.158	2.080M
2015	18.839	9.080	0.233	2.075M
2005	23.547	11.795	0.326	1.996M
1990	21.427	10.679	0.420	2.006M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-46%	-46%	-25%
Industrial Combustion and Processes	-26%	-36%	-2%
Buildings	-43%	-56%	-8%
Transport	+81%	+11%	-11%
Fuel Exploitation	-58%	-43%	-7%
Agriculture	-30%	-12%	-1%
Waste	-53%	-56%	-2%
All sectors	-25%	-31%	-11%

Solomon Islands



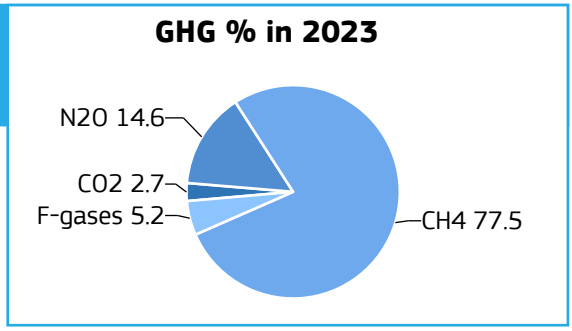
GHG emissions by sector



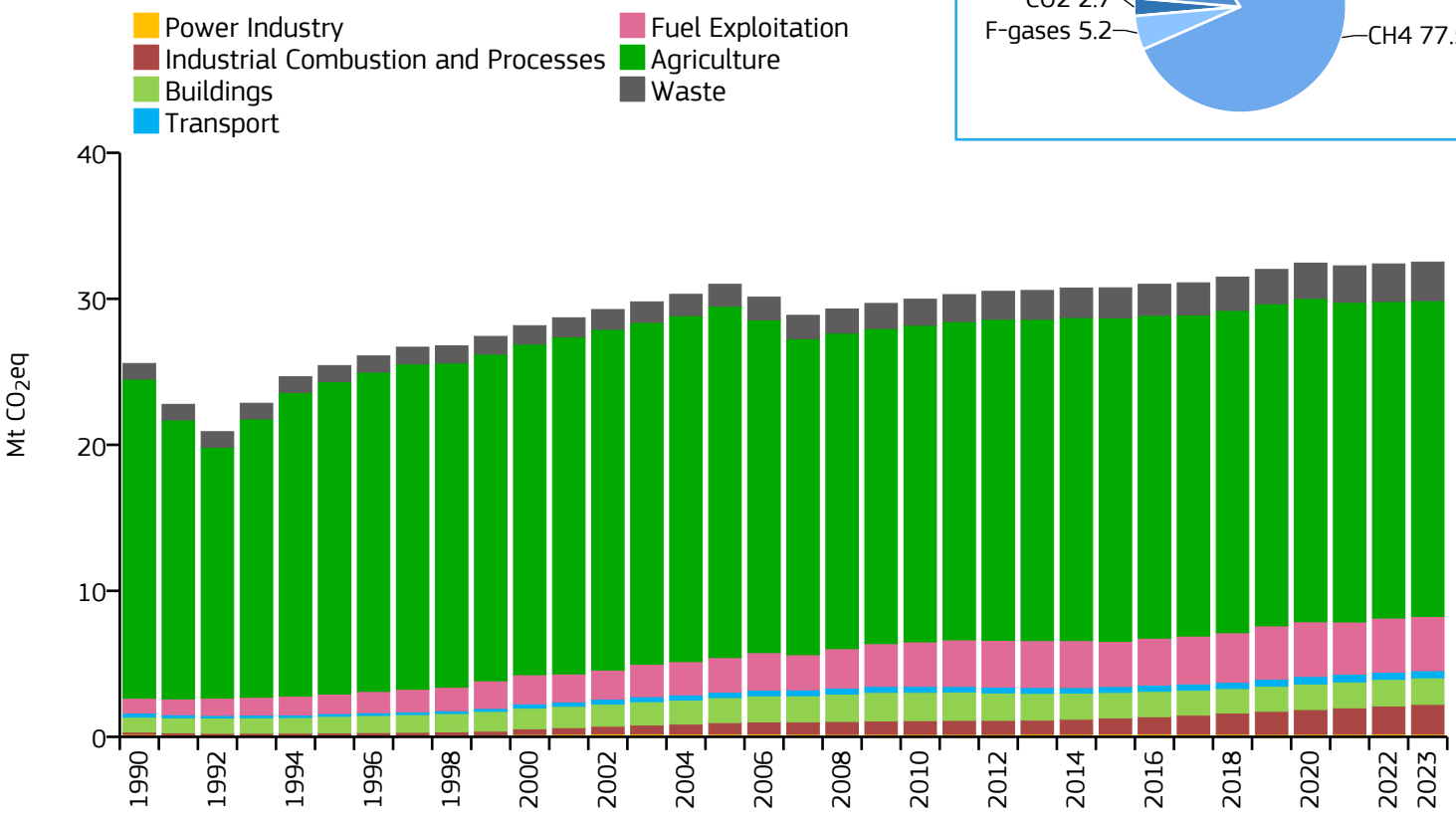
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.694	1.014	0.342	684.000k
2015	0.591	1.006	0.347	587.482k
2005	0.497	1.057	0.449	469.885k
1990	0.306	0.983	0.393	311.840k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +48%	↘ -41%	↘ -35%
Industrial Combustion and Processes	↗ +196%	↗ +6%	→ +1%
Buildings	↗ +159%	↗ +141%	→ +2%
Transport	↗ +162%	↗ +84%	→ +4%
Fuel Exploitation	↗ +134%	↗ +46%	→ 0%
Agriculture	↗ +22%	↗ +12%	→ 0%
Waste	↗ +191%	↗ +84%	→ +3%
All sectors	↗ +126%	↗ +40%	→ -3%

Somalia



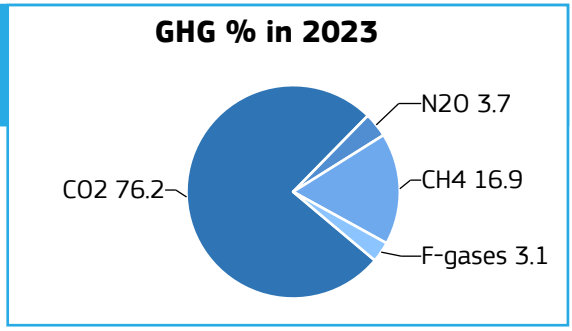
GHG emissions by sector



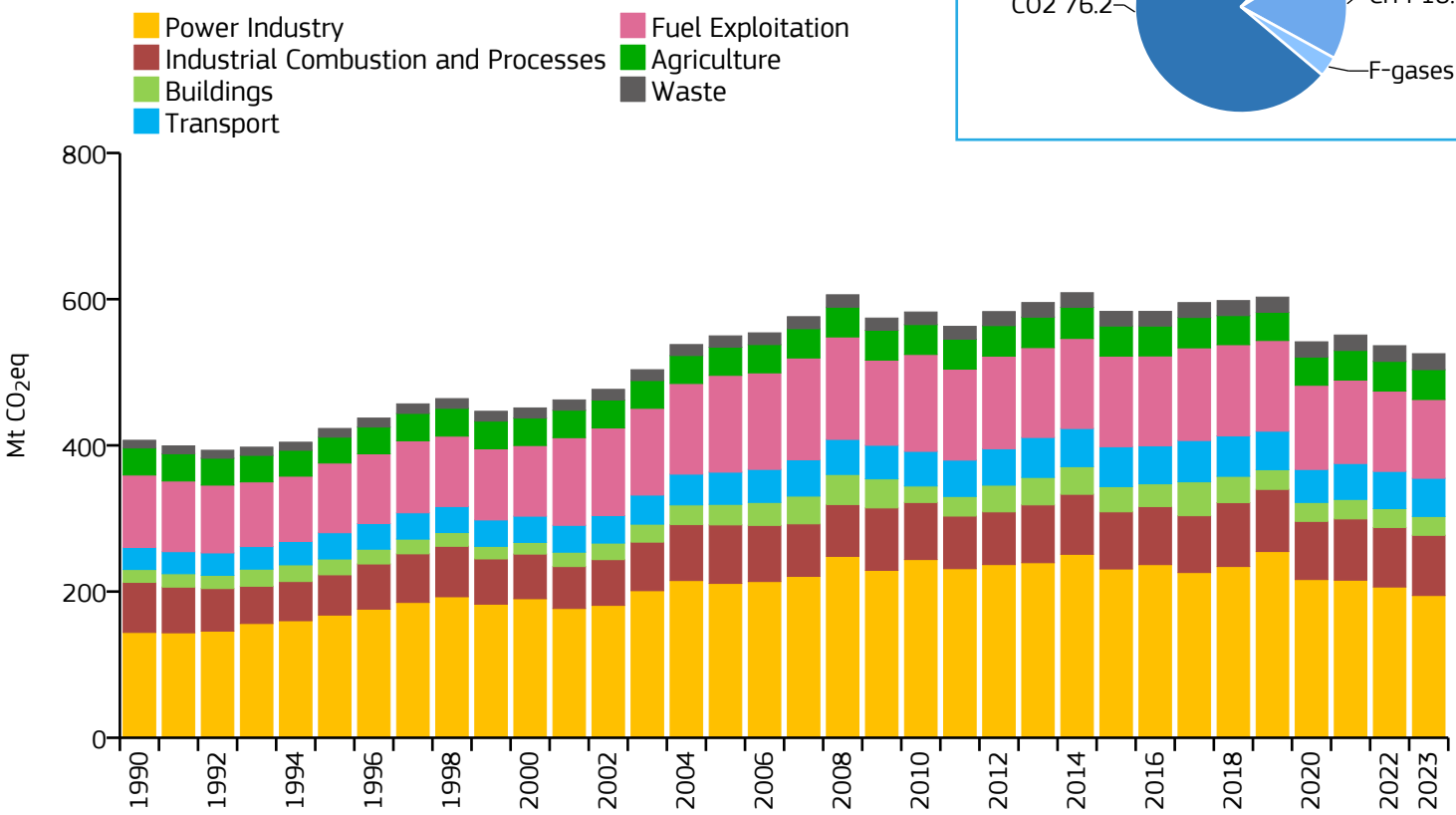
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	32.514	1.847	1.234	17.602M
2015	30.754	2.211	1.543	13.908M
2005	30.992	2.977	2.810	10.410M
1990	25.571	3.457	3.600	7.397M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+10%	-4%	-7%
Industrial Combustion and Processes	> +300%	+159%	+6%
Buildings	+78%	+6%	0%
Transport	+71%	+32%	0%
Fuel Exploitation	+267%	+57%	0%
Agriculture	-1%	-10%	0%
Waste	+148%	+76%	+3%
All sectors	+27%	+5%	0%

South Africa



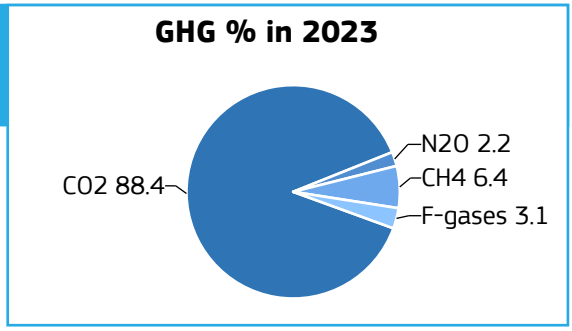
GHG emissions by sector



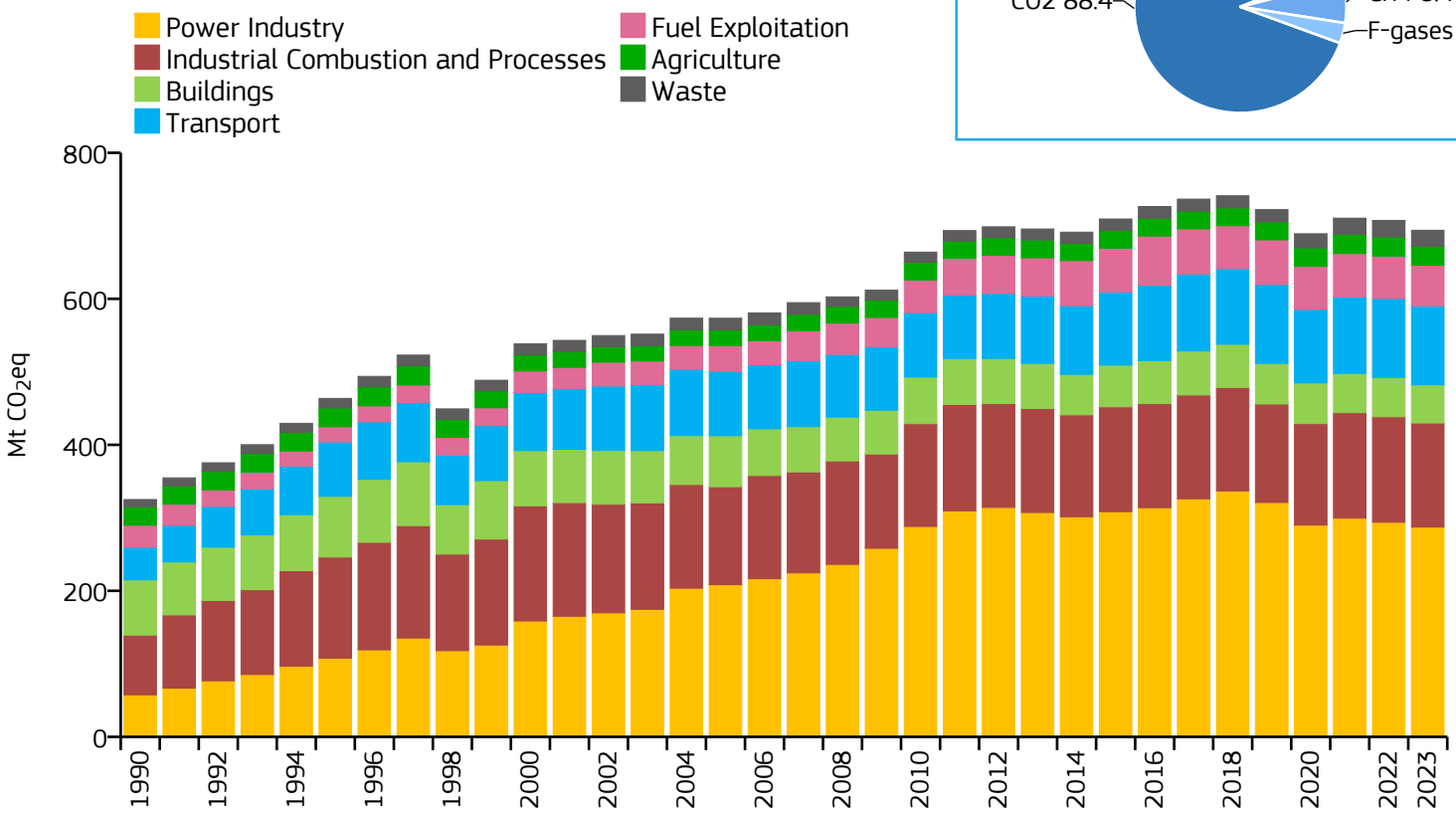
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	525.405	8.668	0.609	60.611M
2015	583.276	10.549	0.707	55.291M
2005	549.787	11.261	0.864	48.821M
1990	406.963	10.835	0.924	37.560M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+35%	-8%	-6%
Industrial Combustion and Processes	+20%	+3%	+1%
Buildings	+46%	-8%	0%
Transport	+73%	+19%	+3%
Fuel Exploitation	+9%	-19%	-2%
Agriculture	+10%	+6%	+1%
Waste	+107%	+41%	+2%
All sectors	+29%	-4%	-2%

South Korea



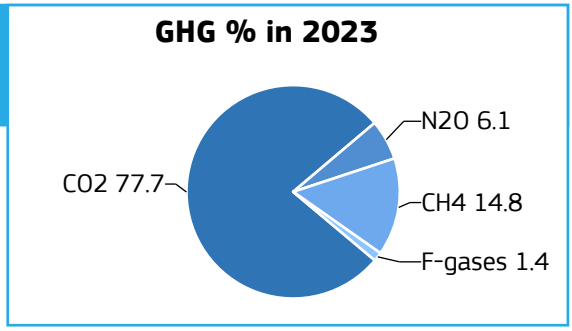
GHG emissions by sector



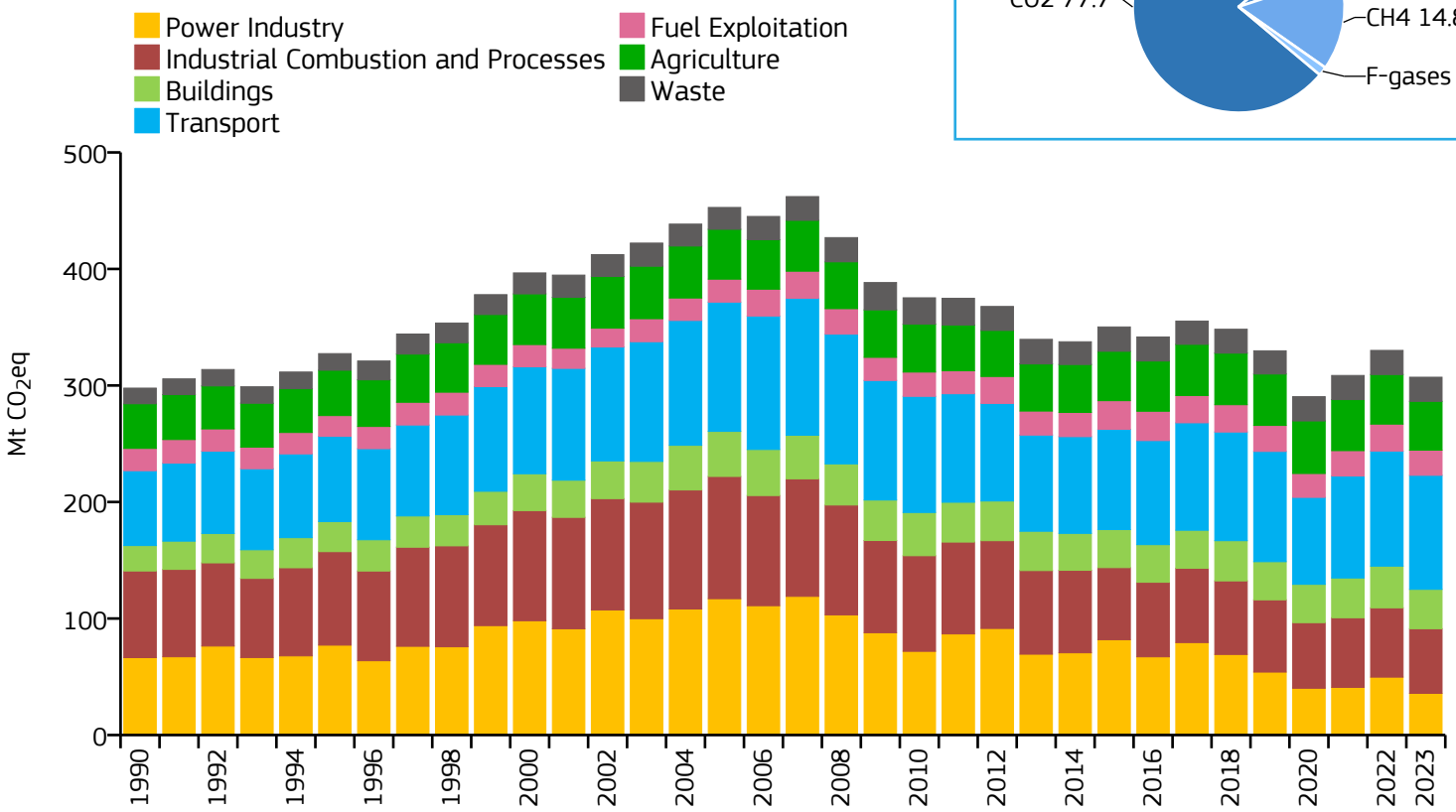
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	693.907	13.355	0.265	51.960M
2015	709.361	14.021	0.326	50.594M
2005	573.387	11.772	0.379	48.709M
1990	325.070	7.573	0.546	42.923M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+38%	-2%
Industrial Combustion and Processes	+74%	+6%	-1%
Buildings	-31%	-25%	-3%
Transport	+142%	+23%	0%
Fuel Exploitation	+84%	+56%	-4%
Agriculture	+2%	+20%	-2%
Waste	+123%	+39%	-1%
All sectors	+113%	+21%	-2%

Spain and Andorra



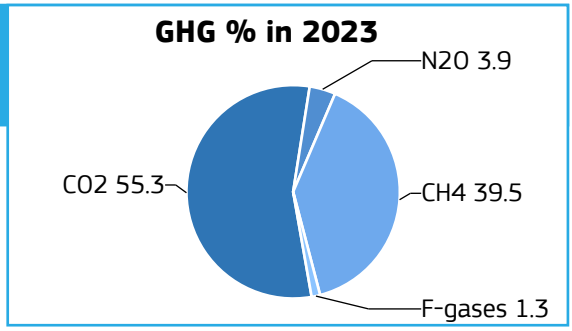
GHG emissions by sector



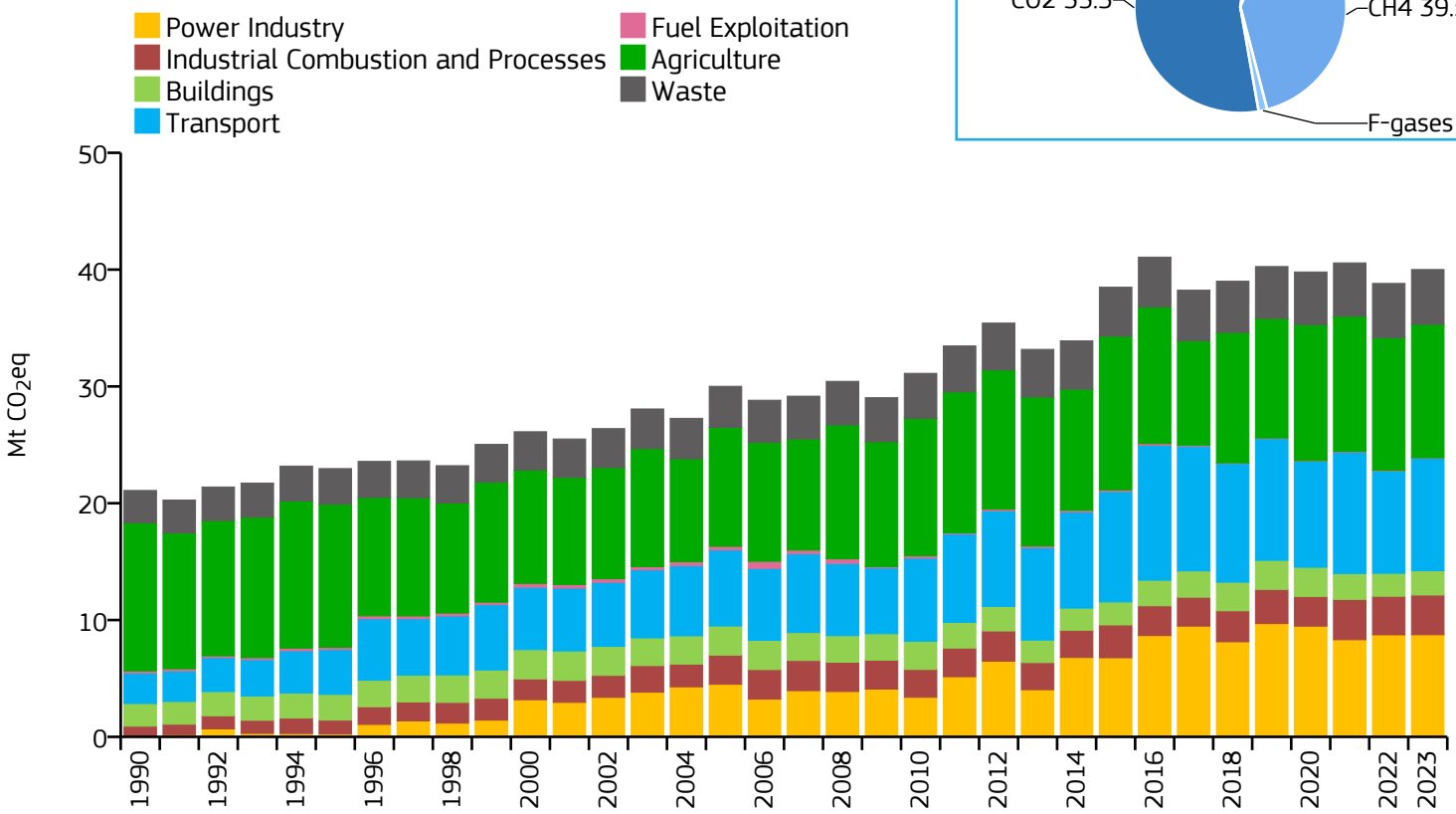
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	307.095	6.620	0.137	46.387M
2015	350.234	7.549	0.177	46.398M
2005	452.779	10.280	0.240	44.043M
1990	297.729	7.575	0.244	39.306M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↘ -46%	↘ -69%	↘ -28%
Industrial Combustion and Processes	↘ -25%	↘ -47%	↘ -7%
Buildings	↗ +55%	↘ -13%	↘ -6%
Transport	↗ +52%	↘ -12%	→ -1%
Fuel Exploitation	↗ +13%	↗ +10%	↘ -7%
Agriculture	↗ +9%	→ -2%	→ -2%
Waste	↗ +54%	↗ +10%	→ 0%
All sectors	→ +3%	↘ -32%	↘ -7%

Sri Lanka



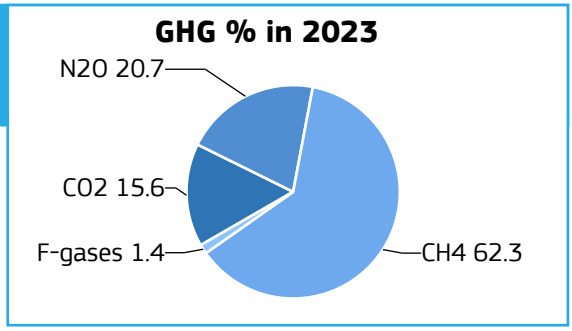
GHG emissions by sector



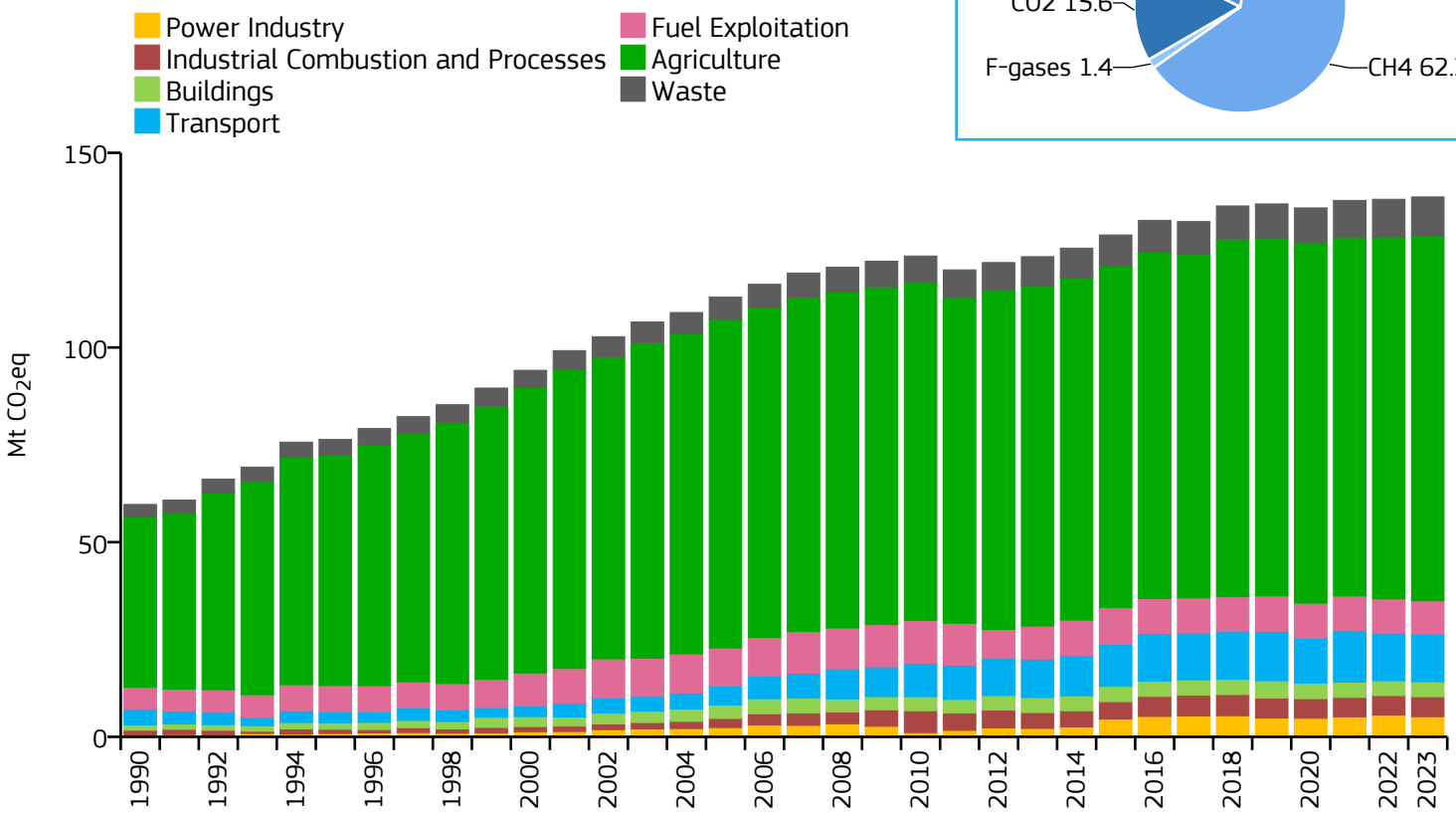
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	40.006	1.882	0.139	21.259M
2015	38.494	1.858	0.138	20.714M
2005	30.010	1.537	0.199	19.525M
1990	21.092	1.217	0.283	17.330M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+94%	0%
Industrial Combustion and Processes	+275%	+36%	+3%
Buildings	+7%	-17%	+6%
Transport	+271%	+48%	+10%
Fuel Exploitation	-80%	-88%	-12%
Agriculture	-10%	+12%	0%
Waste	+70%	+33%	+1%
All sectors	+90%	+33%	+3%

Sudan and South Sudan



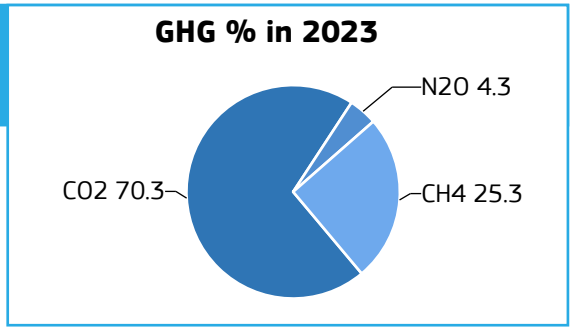
GHG emissions by sector



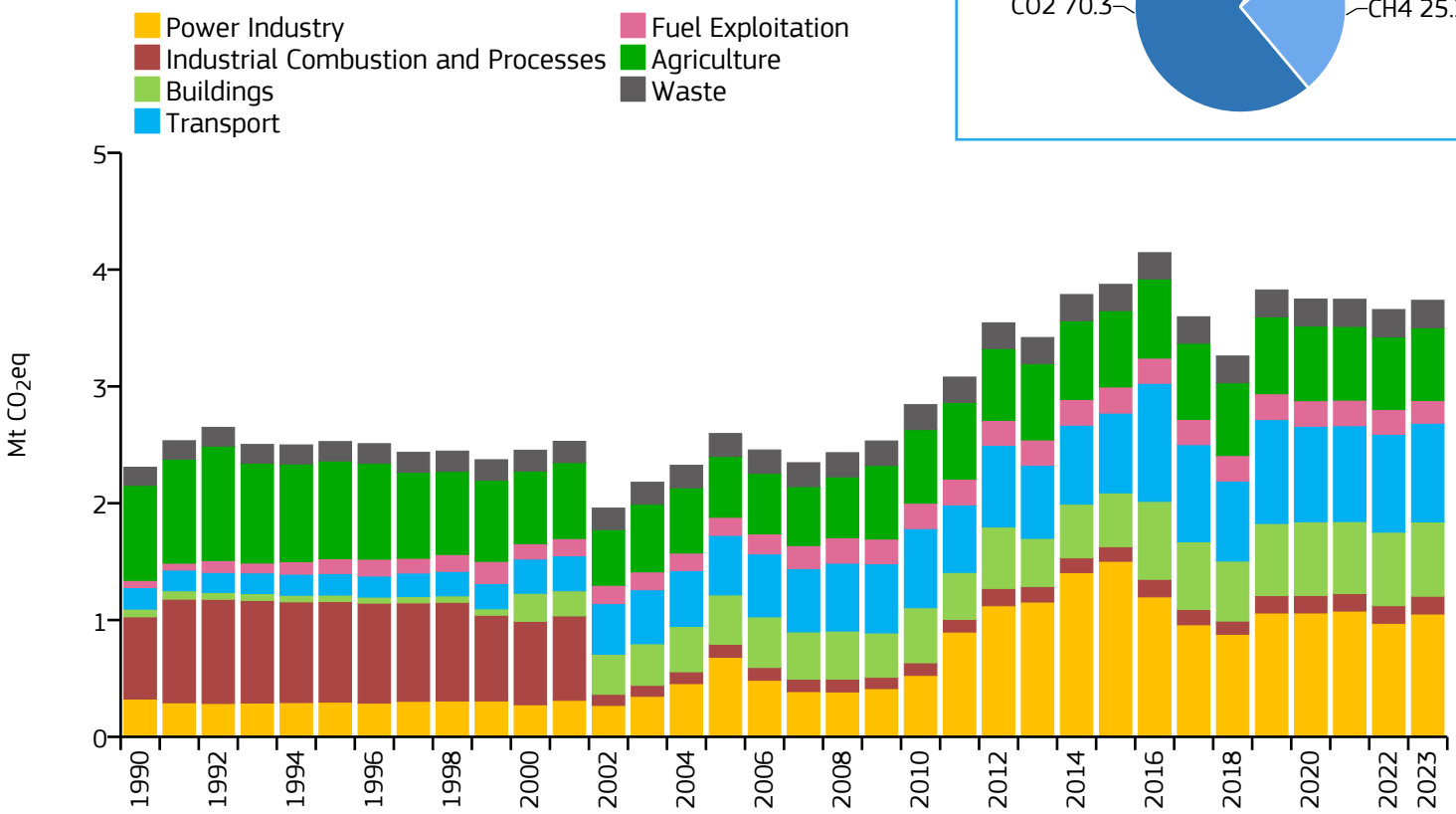
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	138.669	2.230	0.912	62.174M
2015	128.901	2.586	0.695	49.838M
2005	112.923	2.927	0.700	38.584M
1990	59.683	2.324	0.907	25.677M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+117%	-7%
Industrial Combustion and Processes	> +300%	+120%	+3%
Buildings	+176%	+11%	0%
Transport	+205%	+151%	0%
Fuel Exploitation	+51%	-13%	-3%
Agriculture	+115%	+11%	+1%
Waste	+205%	+75%	+2%
All sectors	+132%	+23%	0%

Suriname



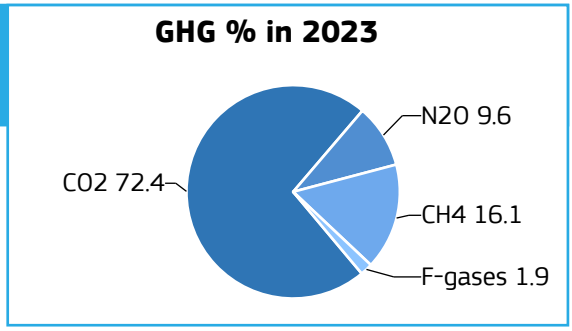
GHG emissions by sector



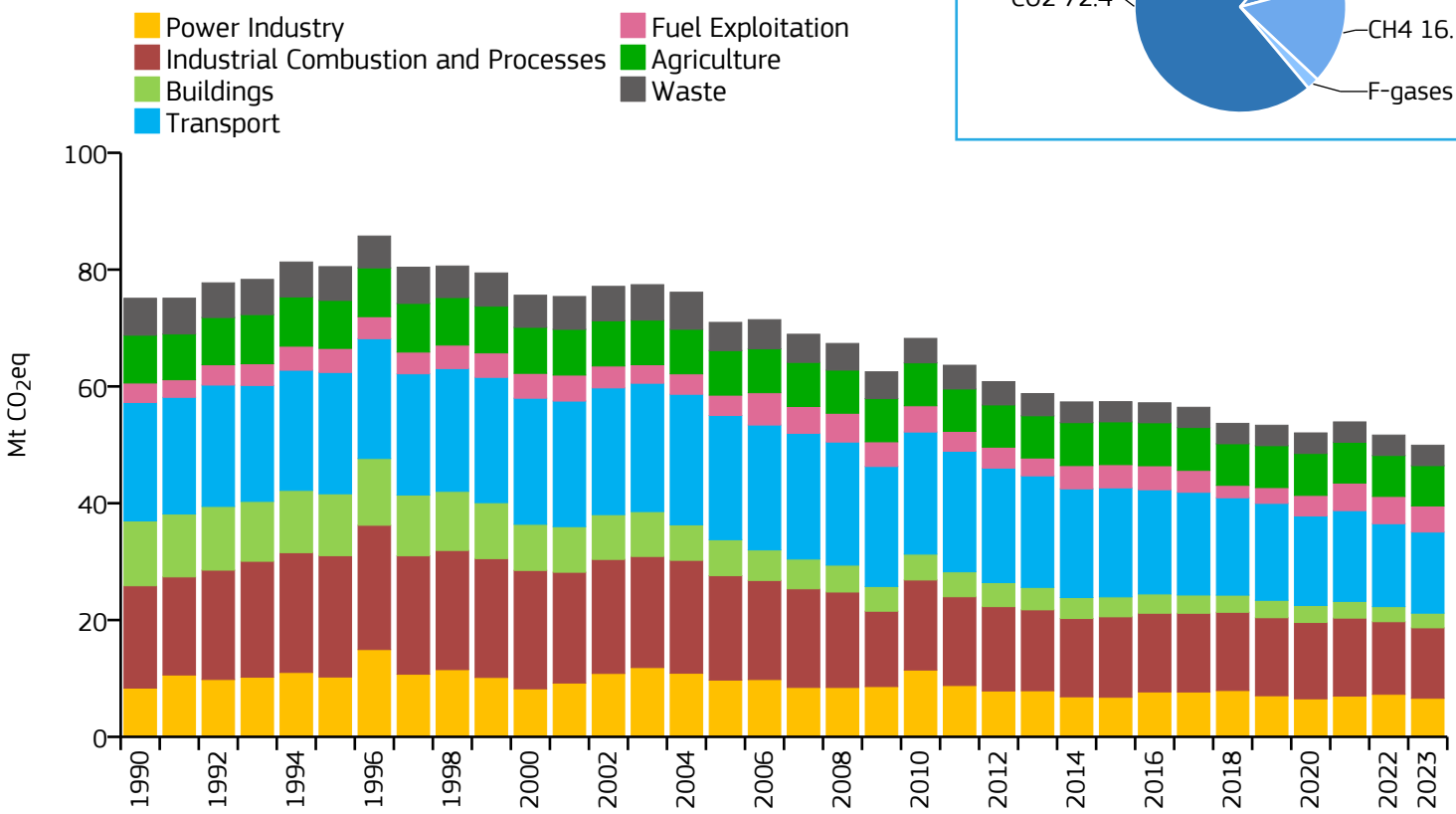
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	3.737	6.324	0.316	591.000k
2015	3.873	7.002	0.288	553.208k
2005	2.597	5.204	0.262	498.946k
1990	2.308	5.664	0.329	407.472k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+225%	+54%	+8%
Industrial Combustion and Processes	-78%	+37%	+1%
Buildings	> +300%	+50%	+1%
Transport	> +300%	+66%	+1%
Fuel Exploitation	+214%	+25%	-9%
Agriculture	-24%	+20%	0%
Waste	+52%	+20%	+1%
All sectors	+62%	+44%	+2%

Sweden



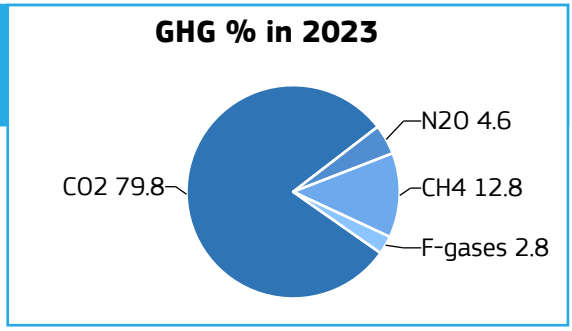
GHG emissions by sector



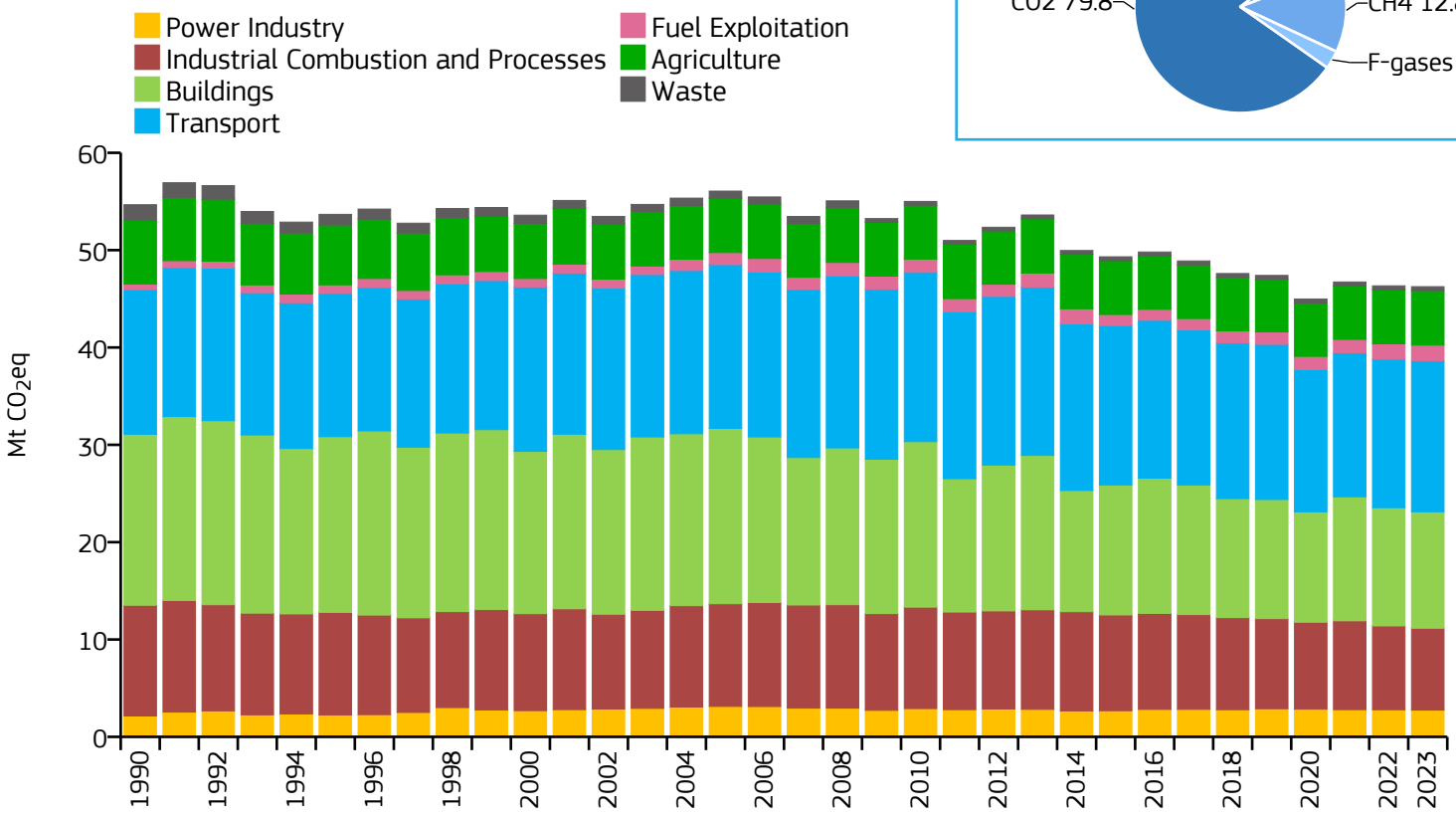
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	49.936	4.841	0.074	10.315M
2015	57.390	5.878	0.098	9.764M
2005	70.963	7.851	0.148	9.039M
1990	75.092	8.765	0.220	8.567M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-21%	-32%	-9%
Industrial Combustion and Processes	-31%	-33%	-3%
Buildings	-77%	-59%	-3%
Transport	-32%	-35%	-2%
Fuel Exploitation	+34%	+29%	-4%
Agriculture	-16%	-10%	-2%
Waste	-45%	-28%	0%
All sectors	-33%	-30%	-3%

Switzerland and Liechtenstein



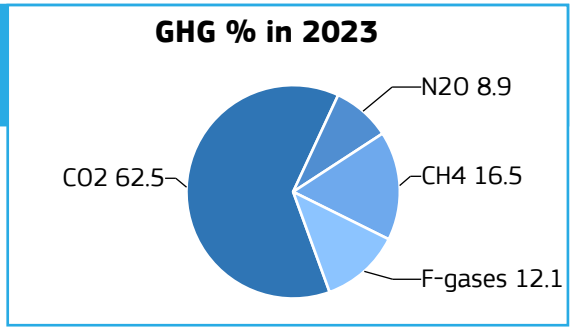
GHG emissions by sector



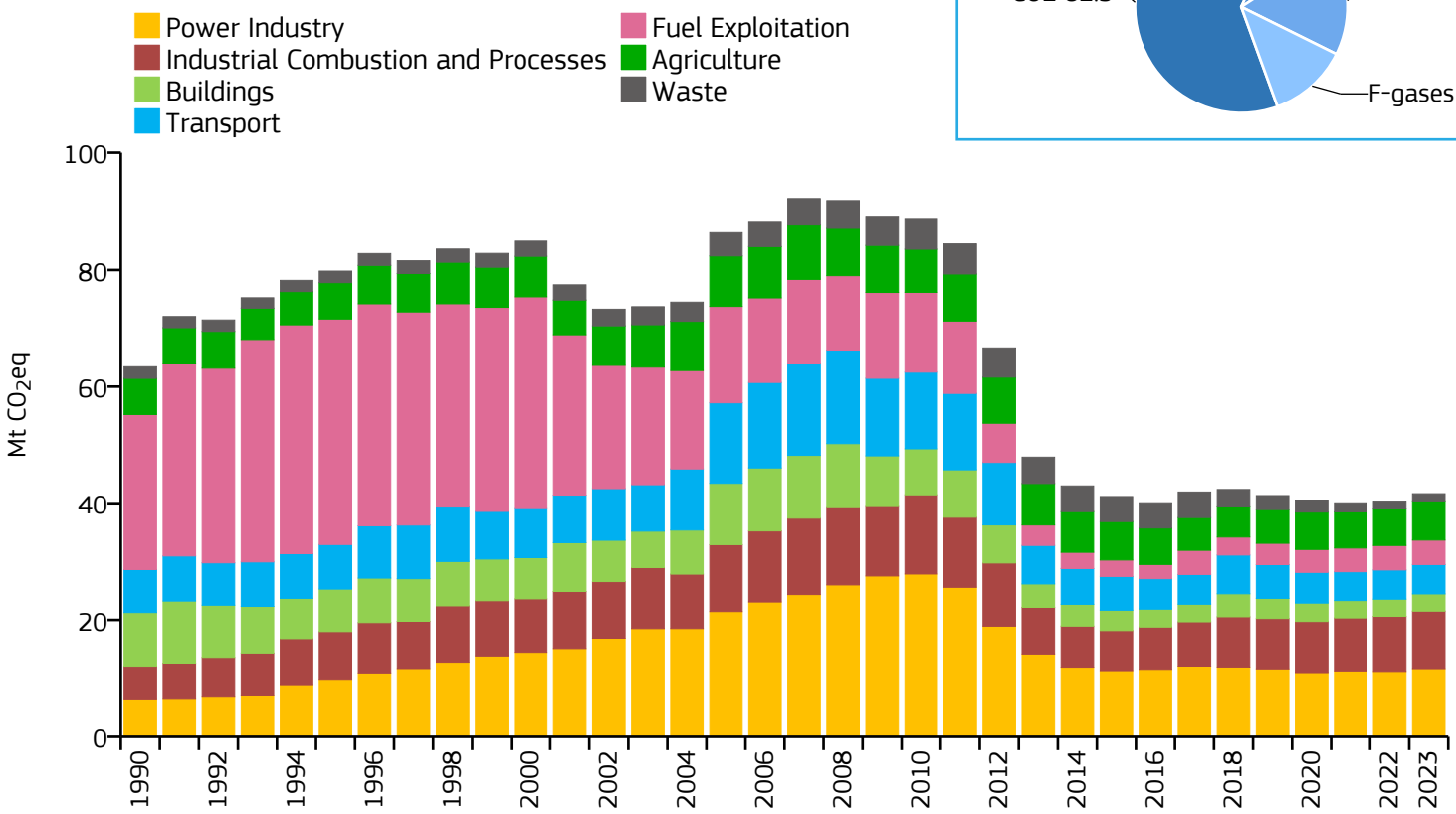
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	46.248	5.228	0.063	8.846M
2015	49.318	5.928	0.077	8.320M
2005	56.067	7.566	0.107	7.410M
1990	54.666	8.190	0.126	6.675M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+28%	-12%	-1%
Industrial Combustion and Processes	-26%	-20%	-2%
Buildings	-32%	-34%	-1%
Transport	+4%	-8%	+2%
Fuel Exploitation	+175%	+30%	+3%
Agriculture	-15%	0%	+1%
Waste	-73%	-44%	0%
All sectors	-15%	-18%	0%

Syria



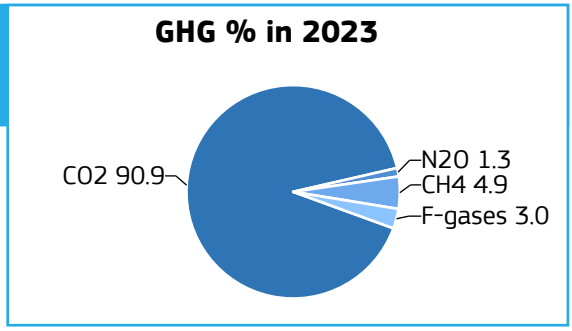
GHG emissions by sector



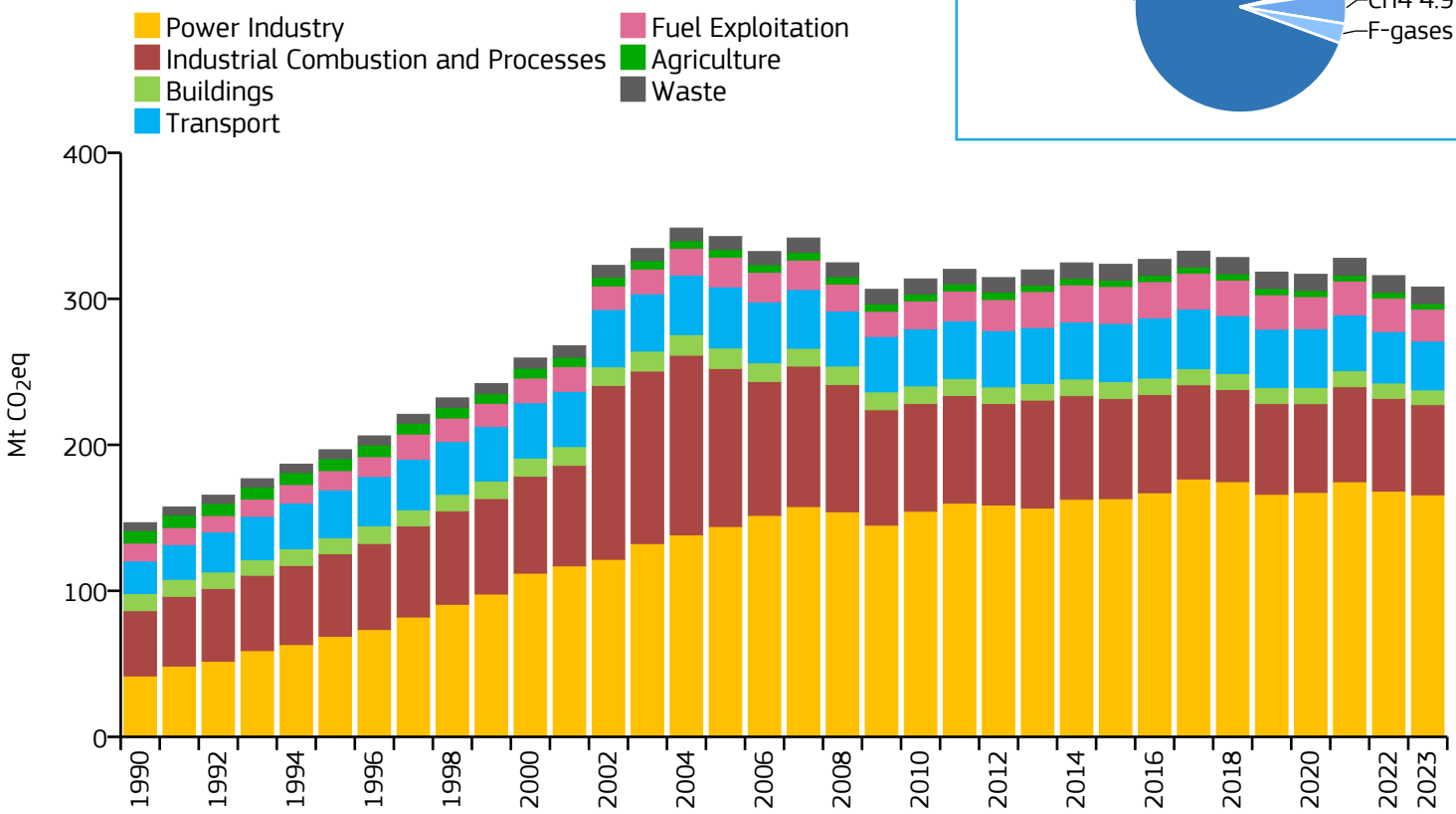
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	41.636	1.939	0.670	21.475M
2015	41.149	2.196	0.638	18.735M
2005	86.411	4.723	0.831	18.295M
1990	63.409	5.095	1.382	12.446M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+80%	-46%	+4%
Industrial Combustion and Processes	+76%	-14%	+4%
Buildings	-68%	-72%	0%
Transport	-32%	-64%	+1%
Fuel Exploitation	-84%	-74%	0%
Agriculture	+8%	-24%	+5%
Waste	-38%	-69%	+1%
All sectors	-34%	-52%	+3%

Taiwan



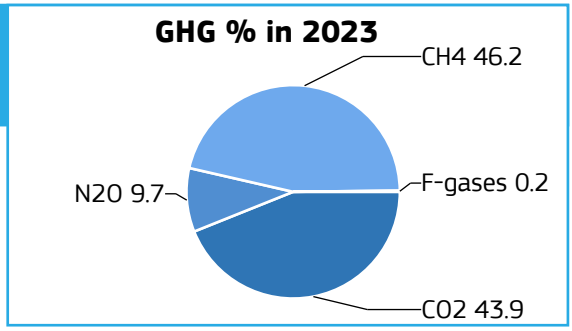
GHG emissions by sector



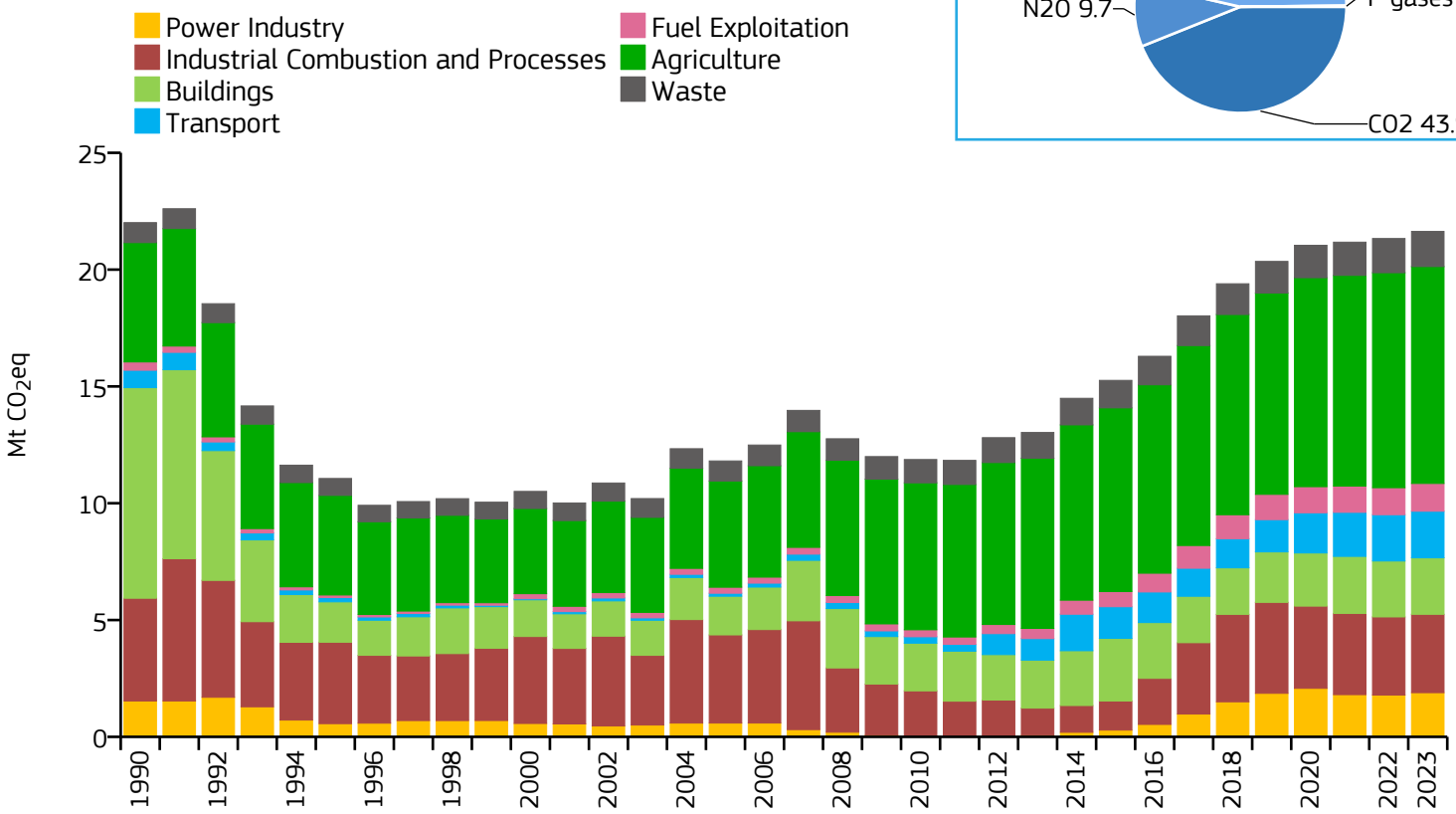
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	308.000	12.850	0.193	23.968M
2015	323.574	13.777	0.259	23.486M
2005	342.597	15.157	0.391	22.603M
1990	146.681	7.221	0.391	20.312M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+297%	+15%	-1%
Industrial Combustion and Processes	+38%	-43%	-3%
Buildings	-14%	-28%	-4%
Transport	+50%	-20%	-5%
Fuel Exploitation	+78%	+7%	-4%
Agriculture	-55%	-27%	-3%
Waste	+107%	+28%	-1%
All sectors	+110%	-10%	-2%

Tajikistan



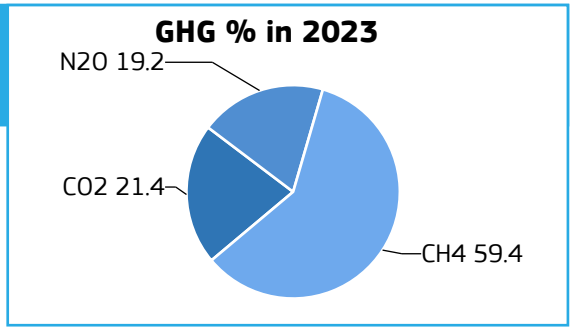
GHG emissions by sector



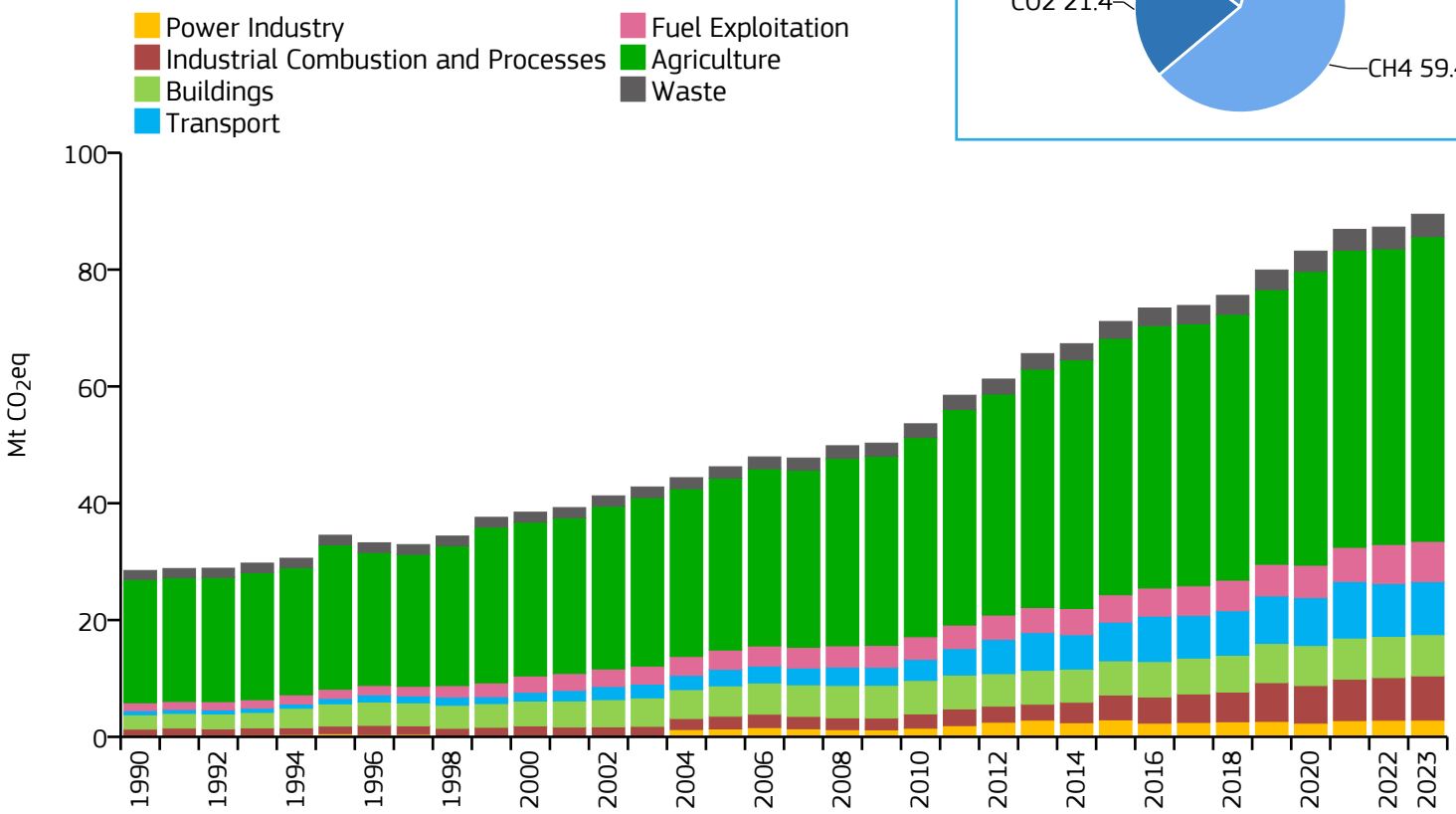
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	21.635	2.161	0.466	10.013M
2015	15.260	1.785	0.580	8.549M
2005	11.810	1.723	0.868	6.854M
1990	22.011	4.166	0.977	5.284M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+23%	+220%	+6%
Industrial Combustion and Processes	-24%	-11%	0%
Buildings	-73%	+46%	+1%
Transport	+168%	> +300%	+1%
Fuel Exploitation	+235%	> +300%	+3%
Agriculture	+82%	+104%	+1%
Waste	+76%	+75%	+3%
All sectors	-2%	+83%	+1%

Tanzania



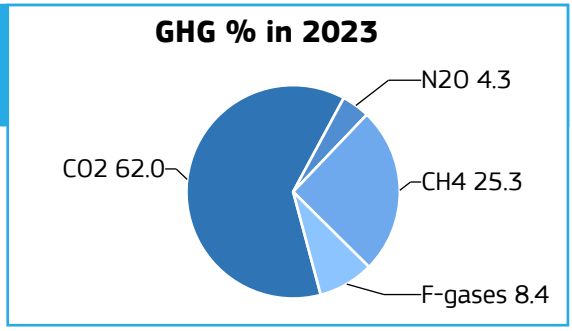
GHG emissions by sector



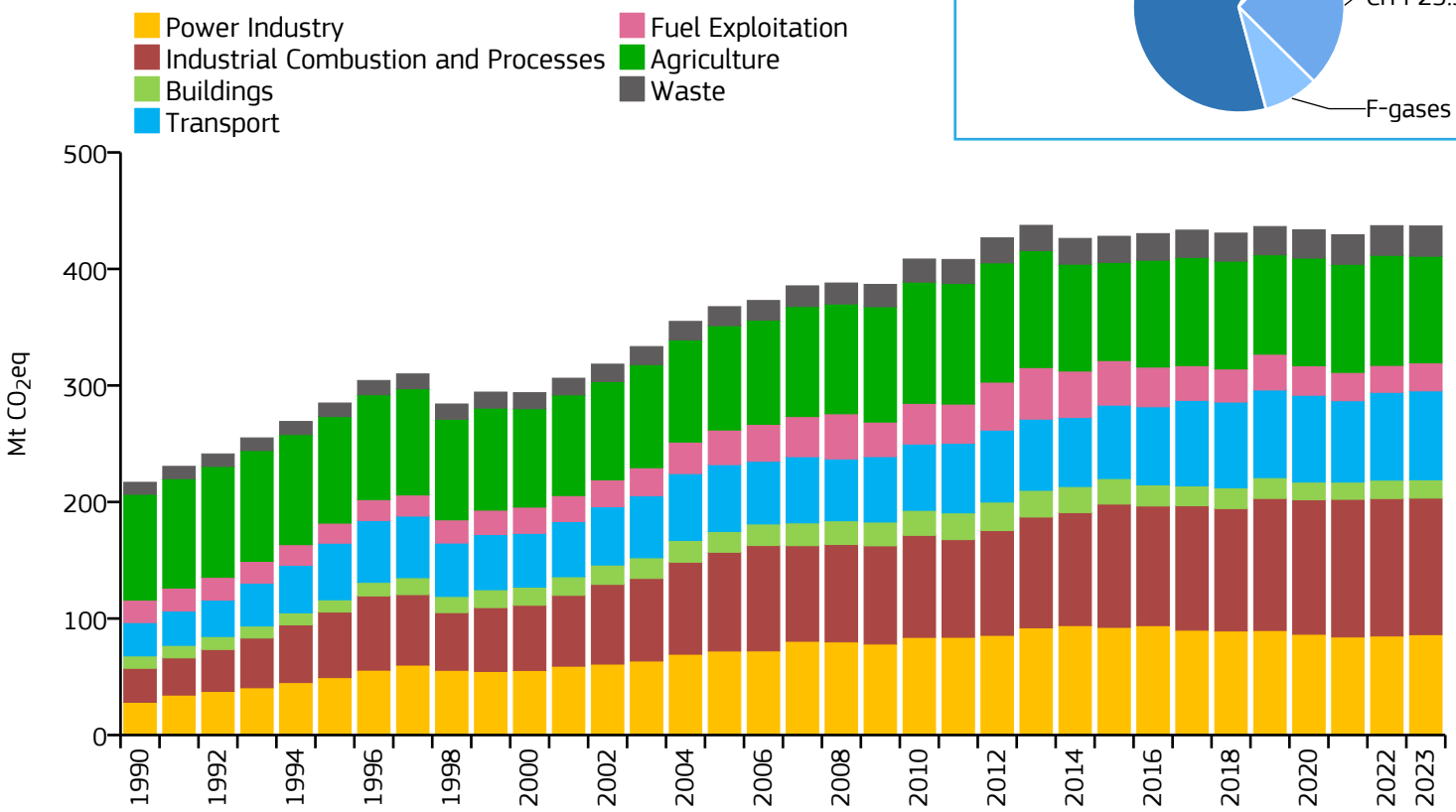
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	89.485	1.305	0.382	68.591M
2015	71.120	1.320	0.453	53.880M
2005	46.244	1.173	0.539	39.410M
1990	28.490	1.119	0.625	25.460M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+110%	+1%
Industrial Combustion and Processes	> +300%	+250%	+4%
Buildings	+187%	+35%	0%
Transport	> +300%	+224%	0%
Fuel Exploitation	> +300%	+107%	+3%
Agriculture	+147%	+77%	+3%
Waste	+149%	+98%	+3%
All sectors	+214%	+94%	+3%

Thailand



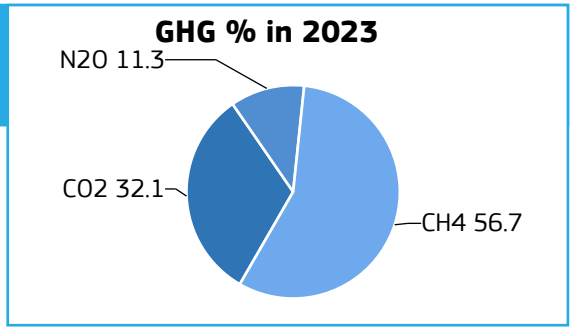
GHG emissions by sector



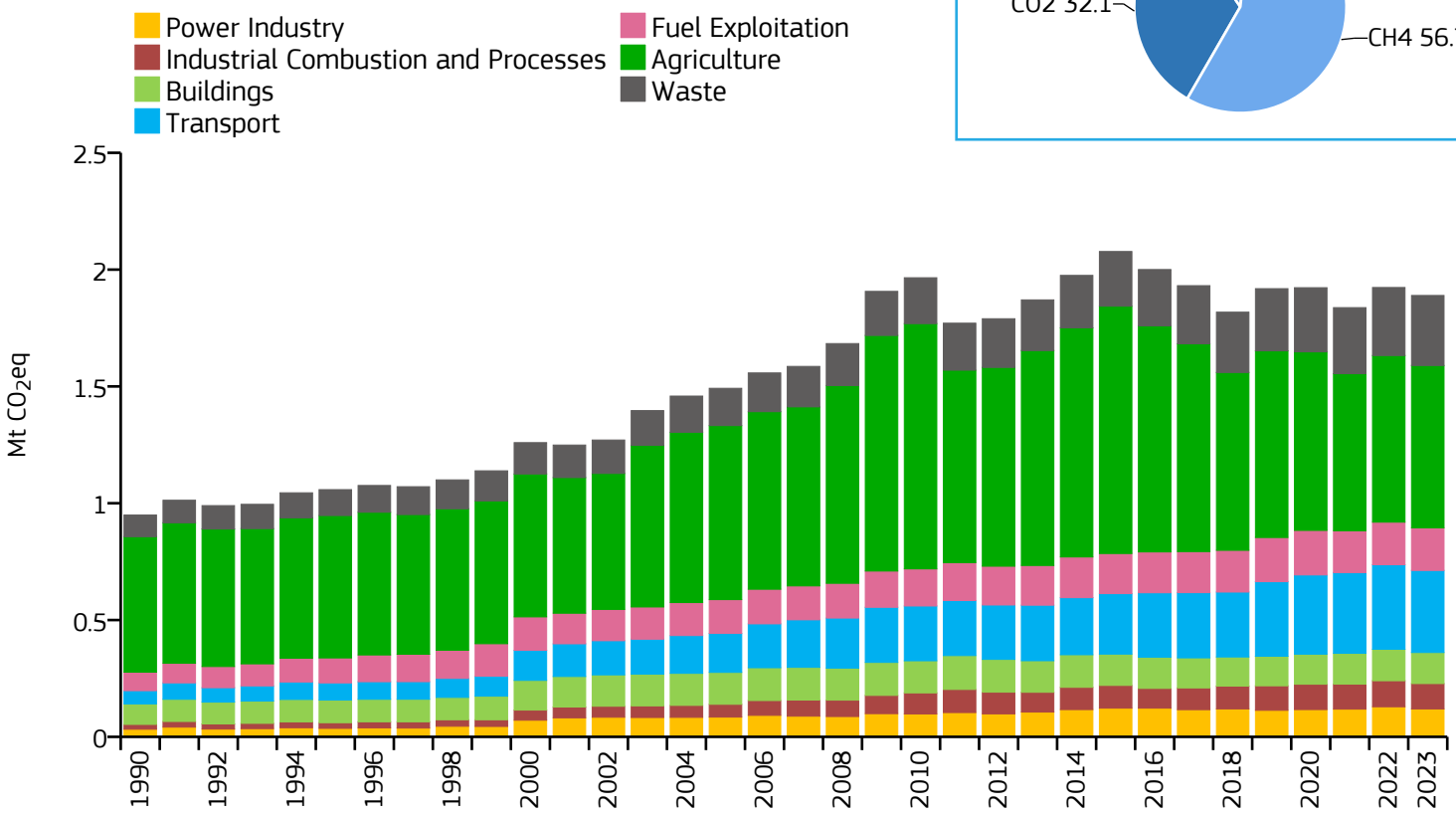
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	436.844	6.275	0.288	69.621M
2015	428.019	6.234	0.323	68.658M
2005	367.615	5.619	0.385	65.425M
1990	216.871	3.833	0.455	56.583M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+207%	+20%	+1%
Industrial Combustion and Processes	> +300%	+38%	-1%
Buildings	+49%	-11%	0%
Transport	+167%	+33%	+1%
Fuel Exploitation	+25%	-19%	+4%
Agriculture	+1%	+2%	-3%
Waste	+153%	+59%	+2%
All sectors	+101%	+19%	0%

The Gambia



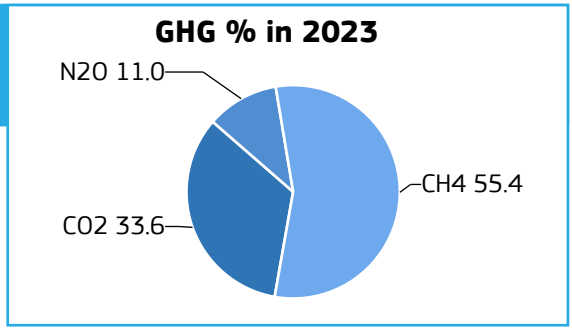
GHG emissions by sector



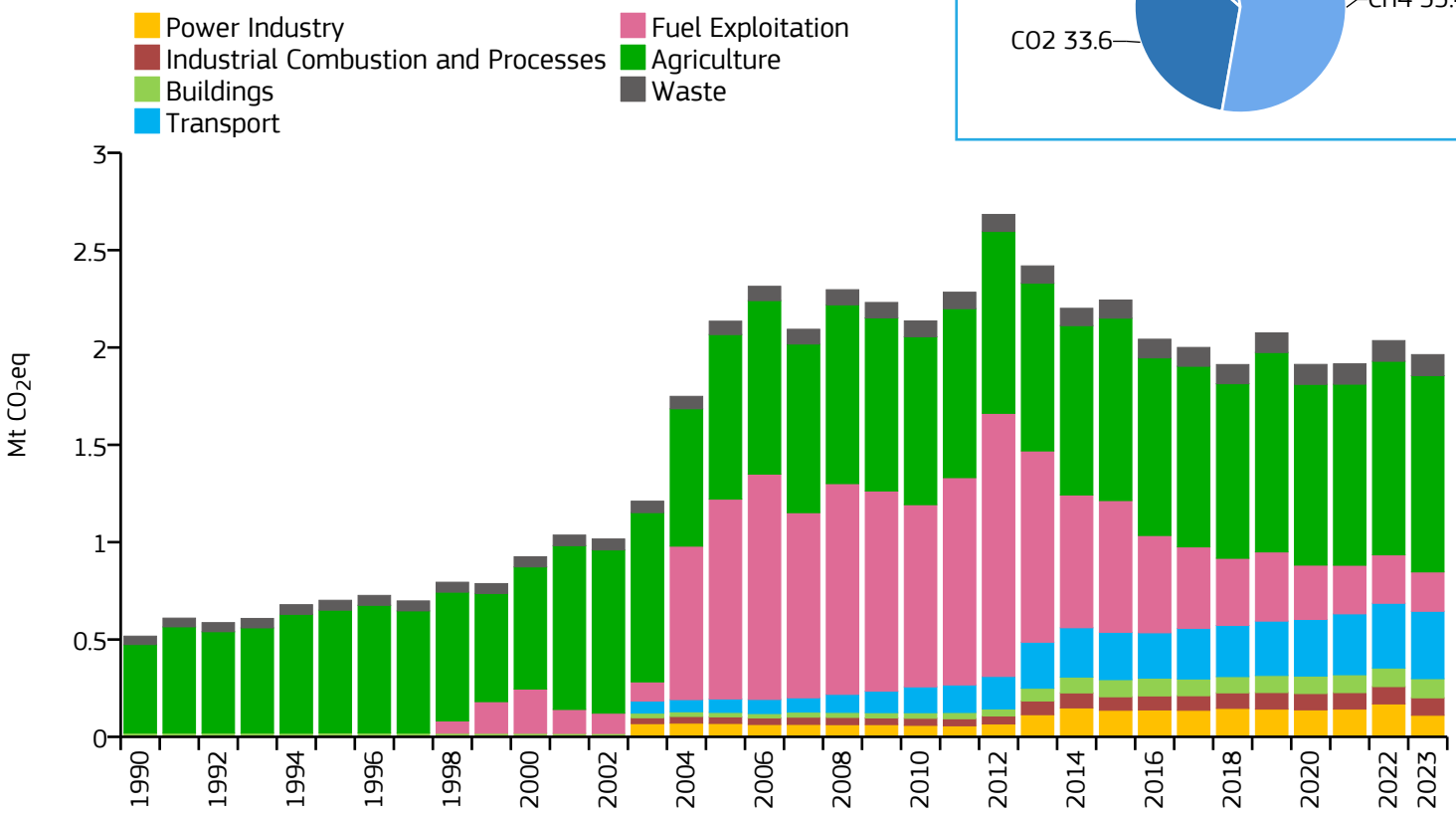
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	1.889	0.757	0.239	2.496M
2015	2.078	1.051	0.374	1.978M
2005	1.492	1.033	0.337	1.444M
1990	0.949	1.036	0.339	916.808k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +267%	↗ +41%	↘ -7%
Industrial Combustion and Processes	↗ > +300%	↗ +98%	→ -3%
Buildings	↗ +51%	→ -3%	→ -1%
Transport	↗ > +300%	↗ +111%	→ -3%
Fuel Exploitation	↗ +131%	↗ +26%	→ 0%
Agriculture	↗ +20%	↘ -7%	→ -3%
Waste	↗ +224%	↗ +88%	→ +3%
All sectors	↗ +99%	↗ +27%	→ -2%

Timor-Leste



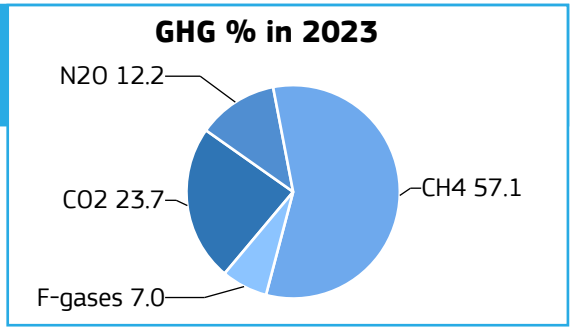
GHG emissions by sector



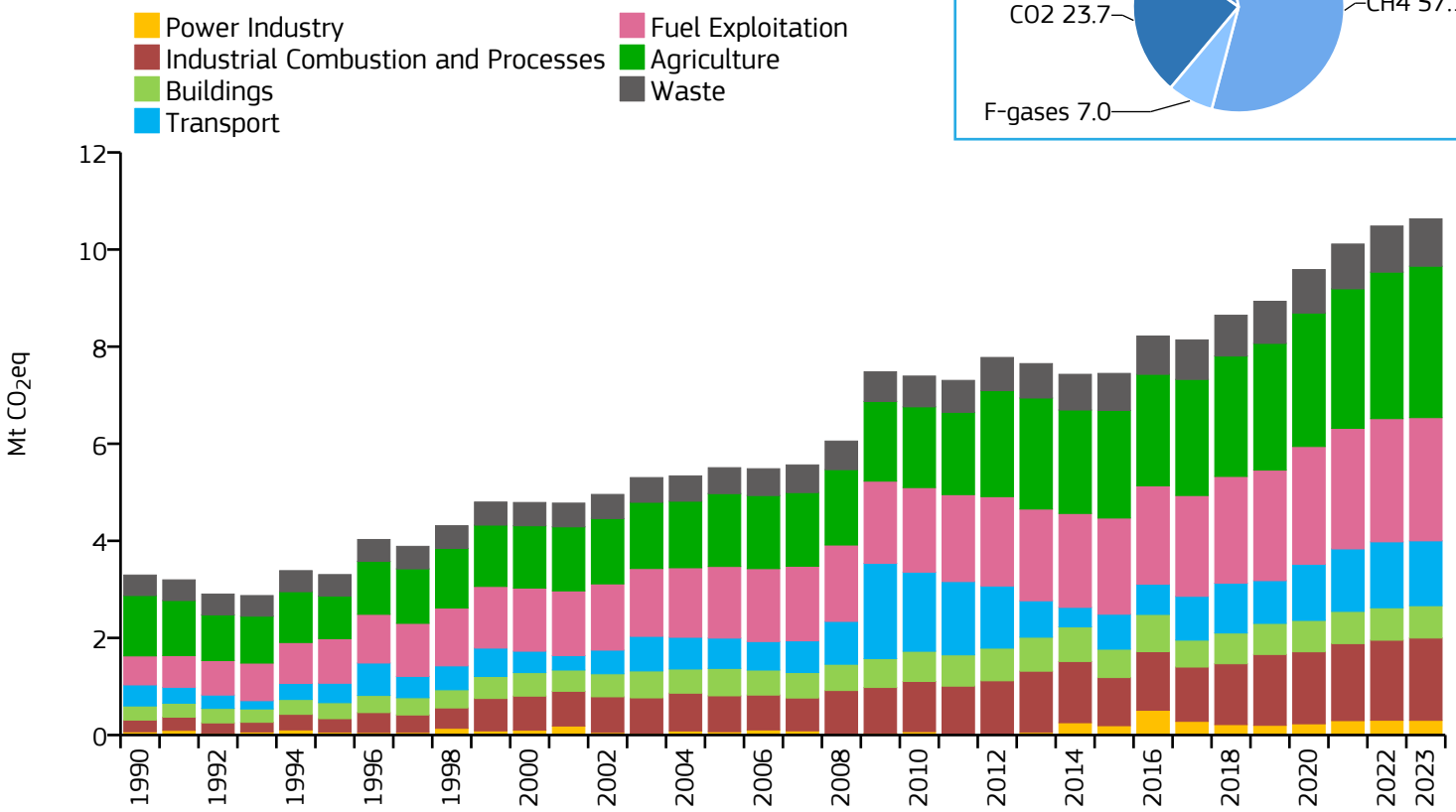
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	1.963	1.333	0.313	1.473M
2015	2.244	1.808	0.416	1.241M
2005	2.135	2.080	0.690	1.026M
1990	0.517	0.688	0.317	751.933k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ > +300%	↗ +61%	↘ -35%
Industrial Combustion and Processes	↗ > +300%	↗ +165%	→ +1%
Buildings	↗ > +300%	↗ > +300%	→ +3%
Transport	n/a	↗ > +300%	→ +4%
Fuel Exploitation	n/a	↘ -80%	↘ -19%
Agriculture	↗ +122%	↗ +19%	→ +1%
Waste	↗ +151%	↗ +58%	→ +2%
All sectors	↗ +280%	↘ -8%	→ -4%

Togo



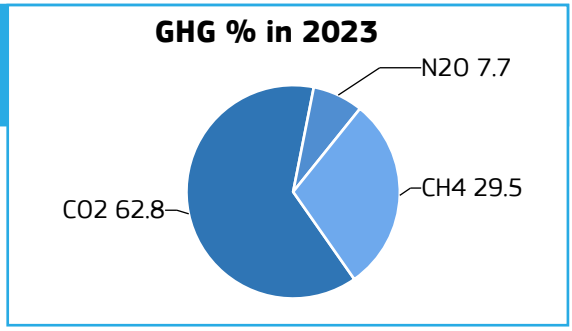
GHG emissions by sector



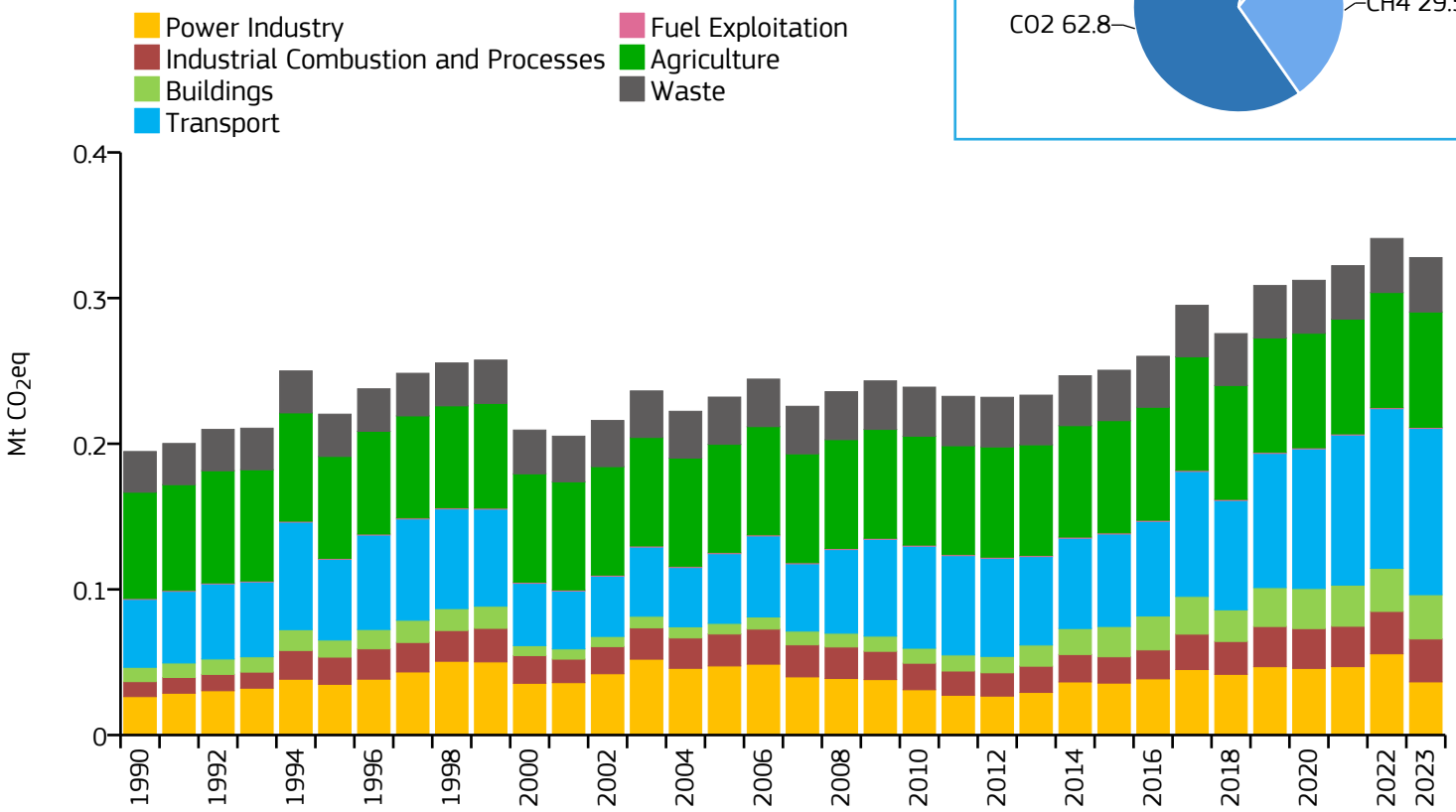
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	10.633	1.182	0.413	8.993M
2015	7.449	1.004	0.419	7.417M
2005	5.507	0.969	0.484	5.683M
1990	3.296	0.870	0.380	3.787M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	> +300%	0%
Industrial Combustion and Processes	> +300%	+129%	+3%
Buildings	+129%	+18%	0%
Transport	+208%	+114%	-2%
Fuel Exploitation	> +300%	+72%	0%
Agriculture	+151%	+108%	+3%
Waste	+131%	+83%	+3%
All sectors	+223%	+93%	+1%

Tonga



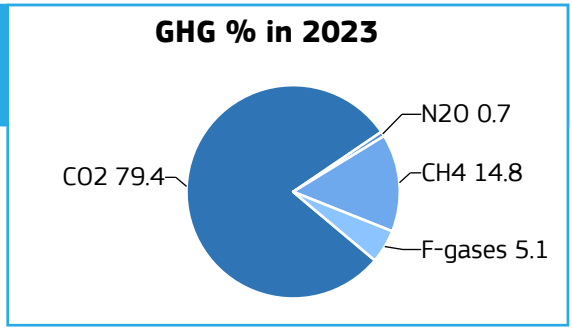
GHG emissions by sector



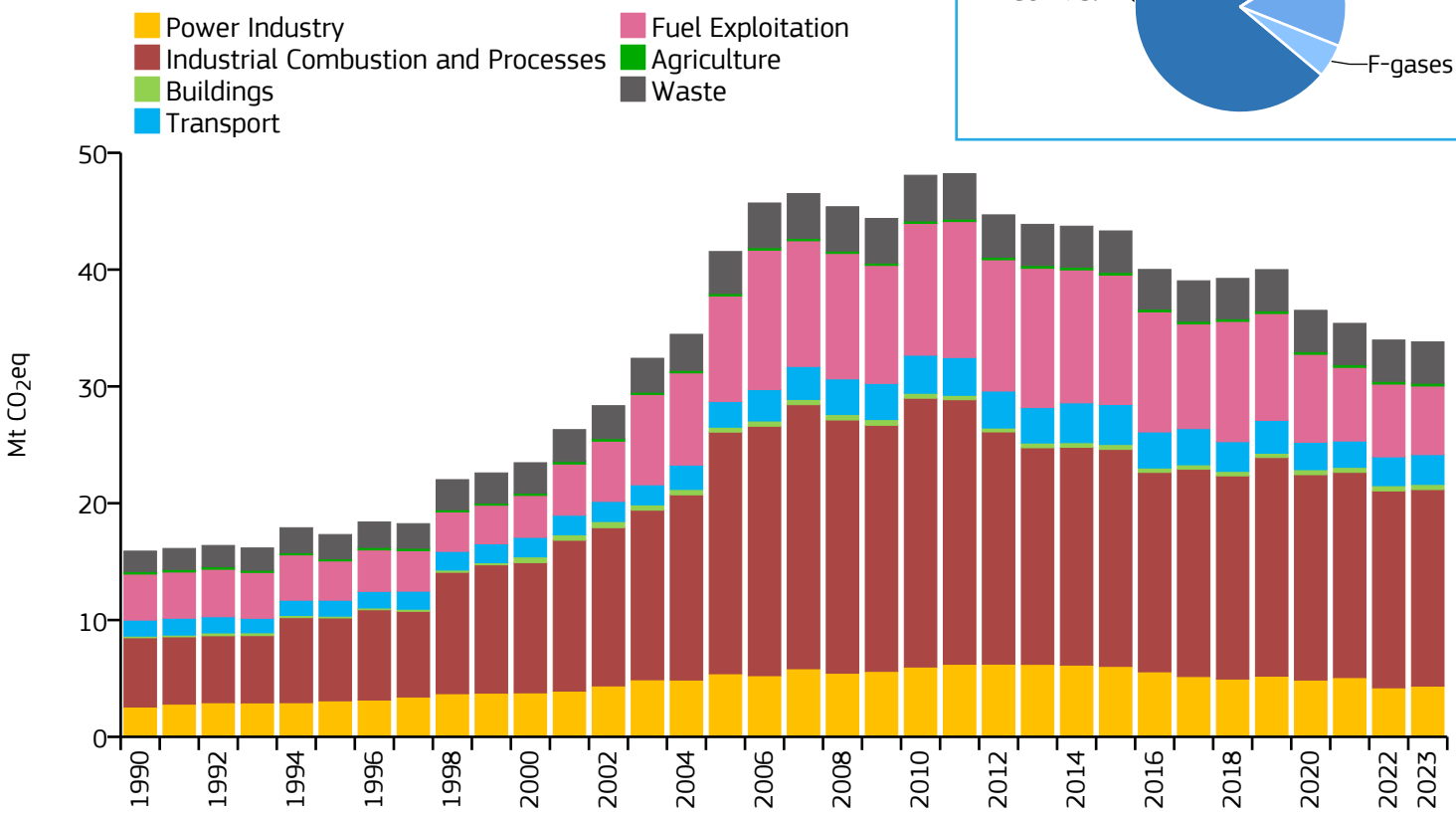
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.328	2.901	0.456	113.000k
2015	0.250	2.355	0.381	106.364k
2005	0.232	2.296	0.394	101.041k
1990	0.195	2.046	0.495	95.153k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +38%	↘ -23%	↘ -35%
Industrial Combustion and Processes	↗ +187%	↗ +34%	→ +1%
Buildings	↗ +209%	↗ > +300%	→ +3%
Transport	↗ +145%	↗ +139%	→ +4%
Fuel Exploitation	↗ +16%	→ -1%	→ 0%
Agriculture	↗ +9%	↗ +7%	→ 0%
Waste	↗ +34%	↗ +15%	→ +1%
All sectors	↗ +68%	↗ +41%	→ -4%

Trinidad and Tobago



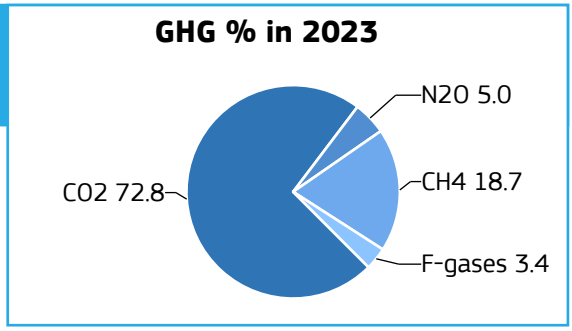
GHG emissions by sector



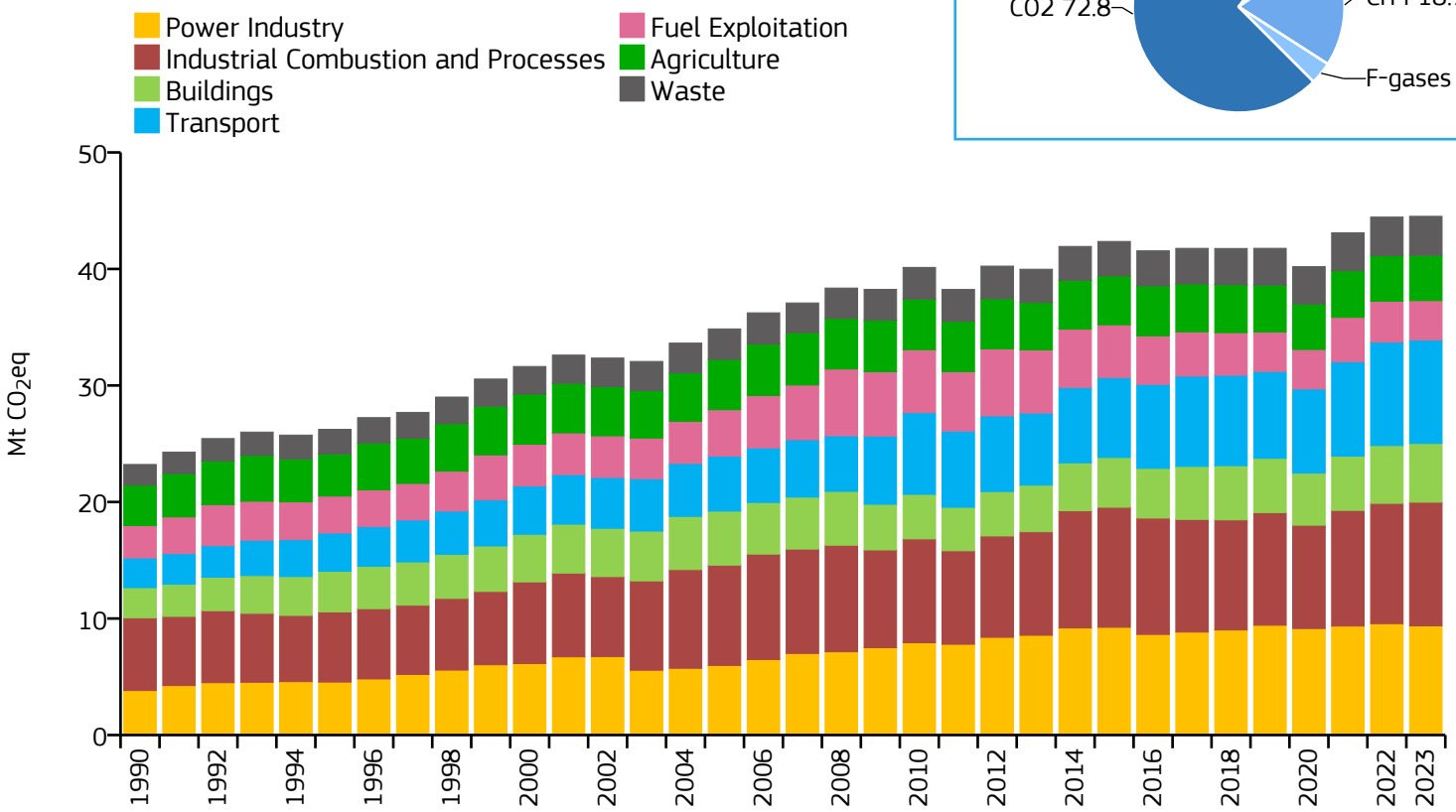
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	33.812	24.484	0.774	1.381M
2015	43.313	31.846	0.812	1.360M
2005	41.546	32.034	1.078	1.297M
1990	15.900	13.012	1.061	1.222M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+70%	-20%	+3%
Industrial Combustion and Processes	+184%	-19%	0%
Buildings	+203%	+5%	-1%
Transport	+86%	+16%	+3%
Fuel Exploitation	+49%	-35%	-6%
Agriculture	+9%	+13%	+1%
Waste	+103%	-1%	0%
All sectors	+113%	-19%	0%

Tunisia



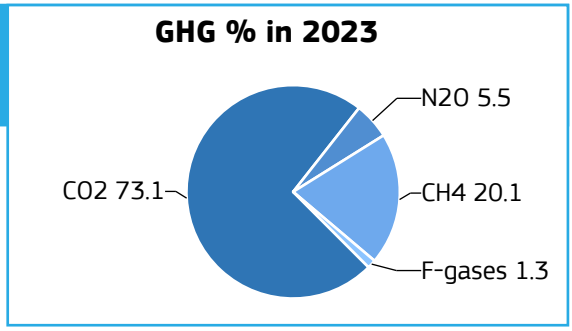
GHG emissions by sector



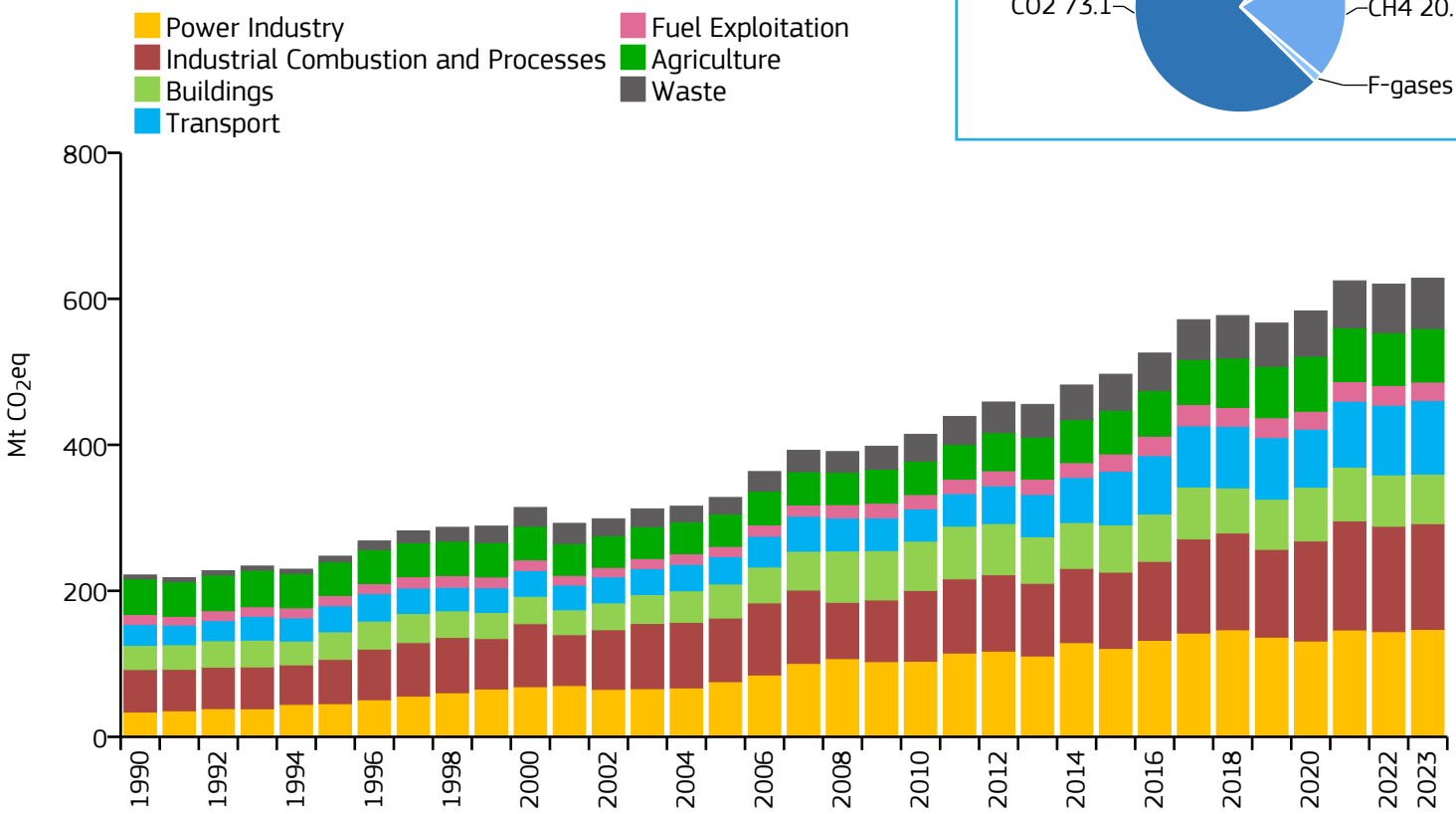
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	44.516	3.638	0.290	12.235M
2015	42.359	3.757	0.293	11.274M
2005	34.852	3.450	0.326	10.102M
1990	23.220	2.820	0.417	8.233M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+145%	+57%	-2%
Industrial Combustion and Processes	+70%	+23%	+3%
Buildings	+95%	+9%	+2%
Transport	+248%	+88%	0%
Fuel Exploitation	+22%	-15%	-4%
Agriculture	+12%	-10%	-1%
Waste	+89%	+28%	+1%
All sectors	+92%	+28%	0%

Türkiye



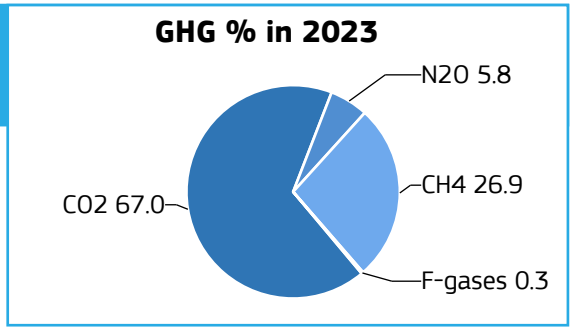
GHG emissions by sector



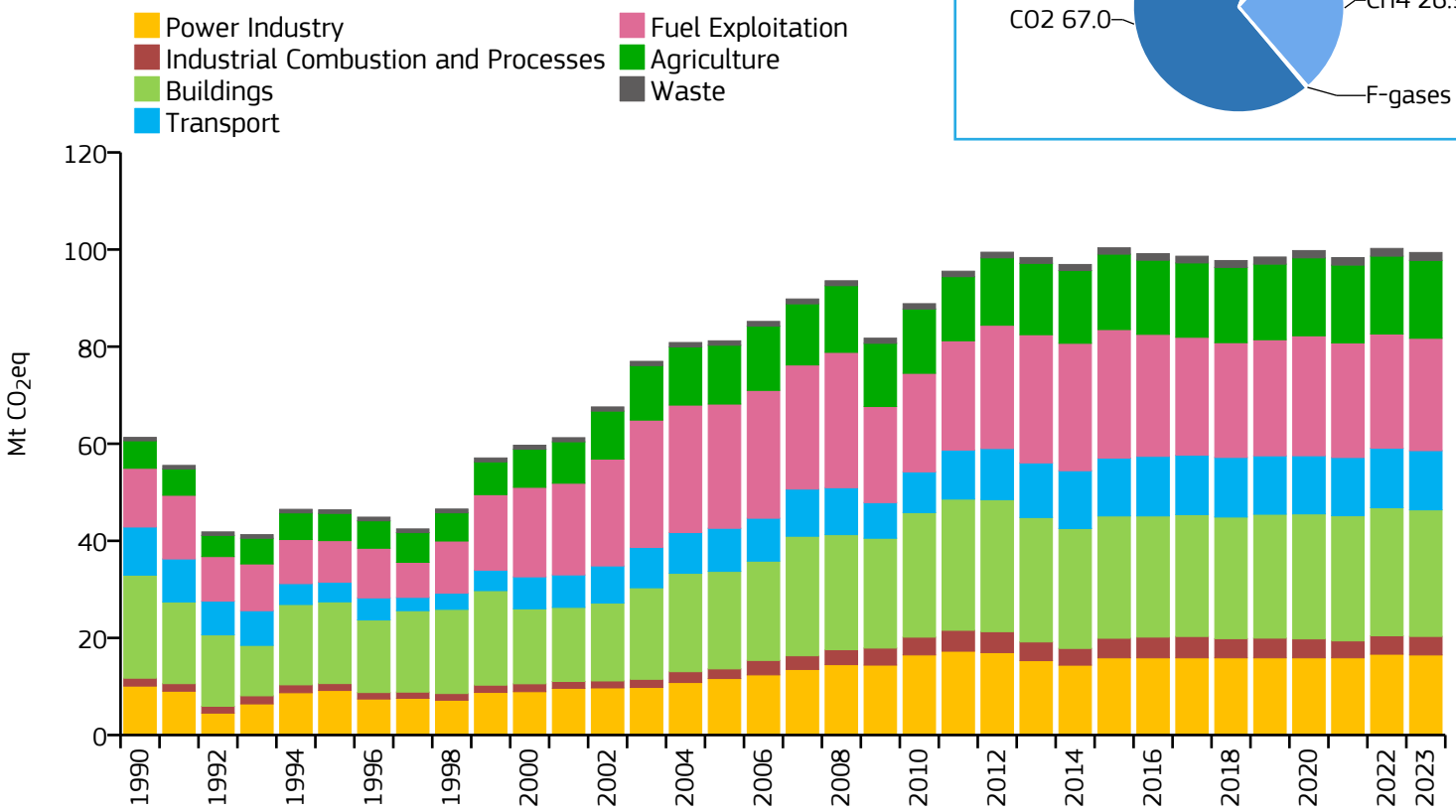
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	628.206	7.356	0.214	85.404M
2015	496.664	6.345	0.244	78.272M
2005	327.858	4.828	0.265	67.903M
1990	221.687	4.111	0.326	53.922M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+95%	+2%
Industrial Combustion and Processes	+149%	+66%	0%
Buildings	+104%	+45%	-4%
Transport	+257%	+169%	+6%
Fuel Exploitation	+82%	+81%	-6%
Agriculture	+50%	+65%	+1%
Waste	> +300%	+206%	+4%
All sectors	+183%	+92%	+1%

Turkmenistan



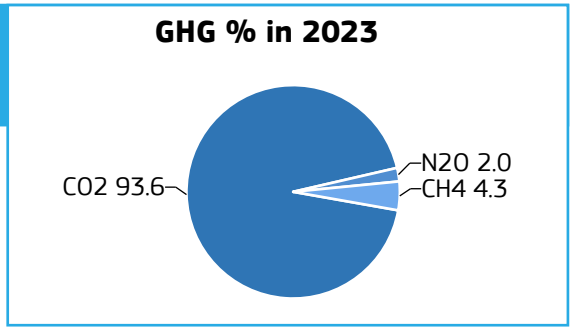
GHG emissions by sector



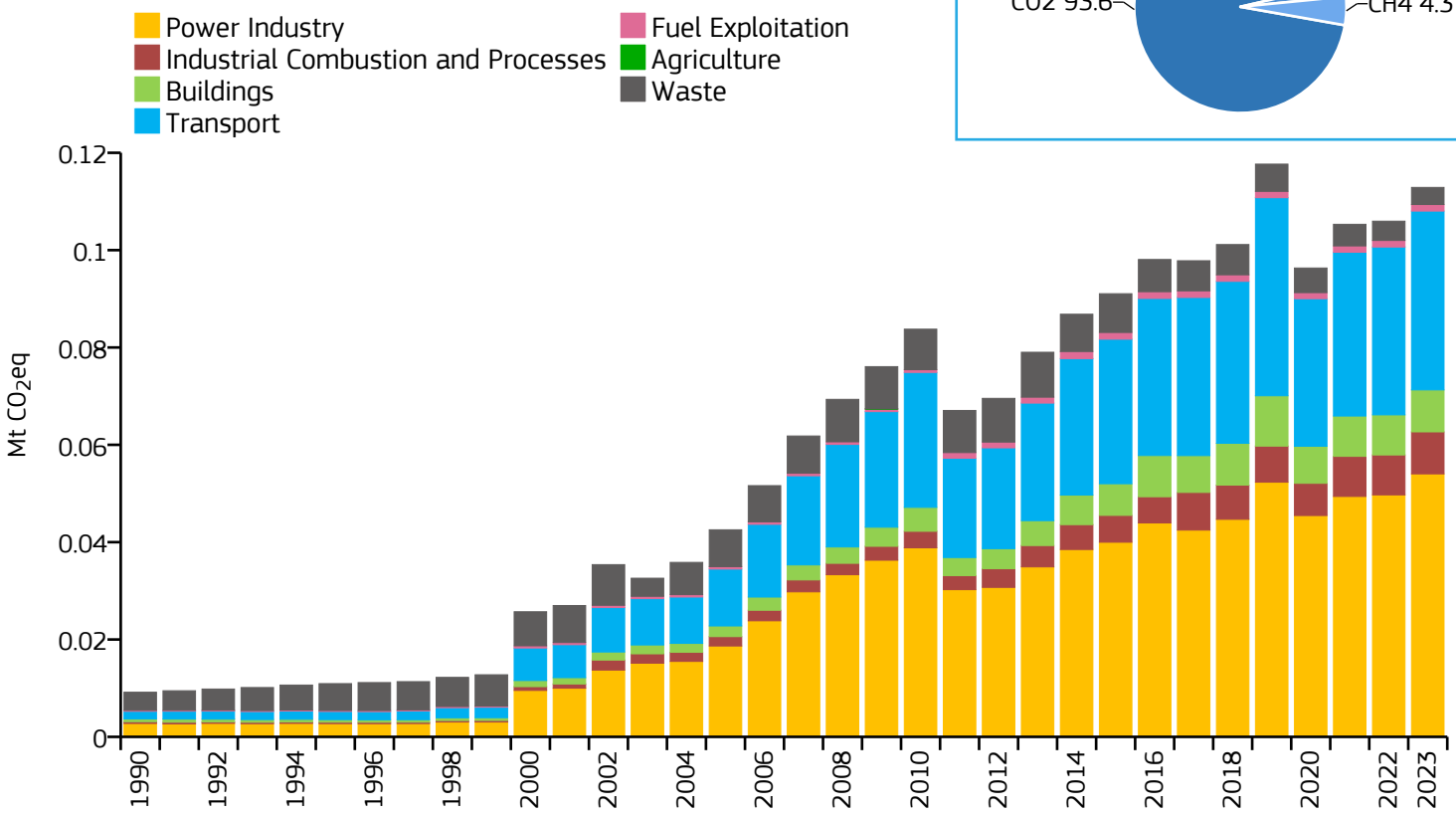
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	99.391	15.829	0.879	6.279M
2015	100.354	18.032	0.945	5.565M
2005	81.198	17.078	1.703	4.755M
1990	61.306	16.641	2.248	3.684M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+64%	+42%	-1%
Industrial Combustion and Processes	+134%	+92%	+1%
Buildings	+23%	+30%	-1%
Transport	+23%	+37%	-1%
Fuel Exploitation	+91%	-10%	-2%
Agriculture	+183%	+33%	0%
Waste	+133%	+78%	+3%
All sectors	+62%	+22%	-1%

Turks and Caicos Islands



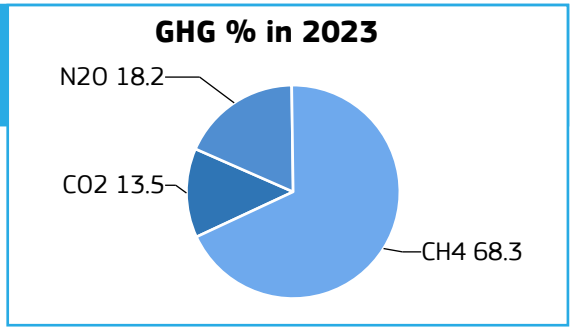
GHG emissions by sector



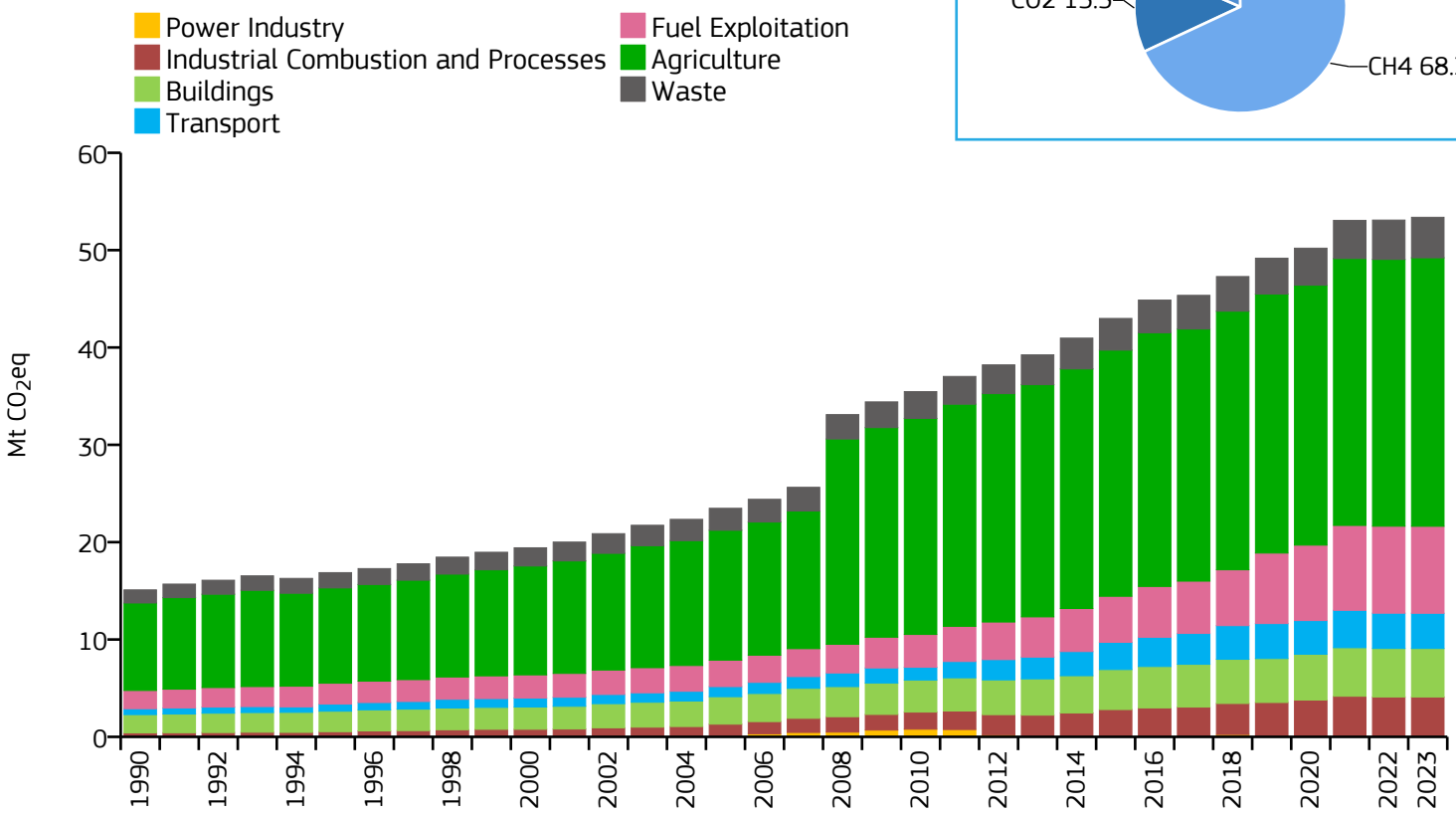
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.113	2.971	0.110	38.000k
2015	0.091	2.652	0.088	34.339k
2005	0.043	1.609	0.058	26.448k
1990	0.009	0.794	0.046	11.552k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ > +300%	↗ +189%	↗ +9%
Industrial Combustion and Processes	↗ > +300%	↗ > +300%	→ +5%
Buildings	↗ > +300%	↗ +293%	→ +5%
Transport	↗ > +300%	↗ +214%	↗ +7%
Fuel Exploitation	↗ > +300%	↗ +172%	→ 0%
Agriculture	n/a	n/a	n/a
Waste	↘ -6%	↘ -54%	↘ -11%
All sectors	↗ > +300%	↗ +165%	↗ +7%

Uganda



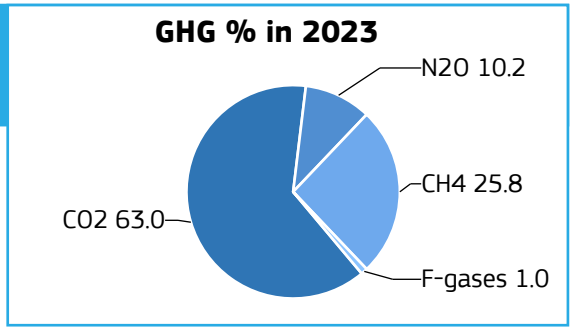
GHG emissions by sector



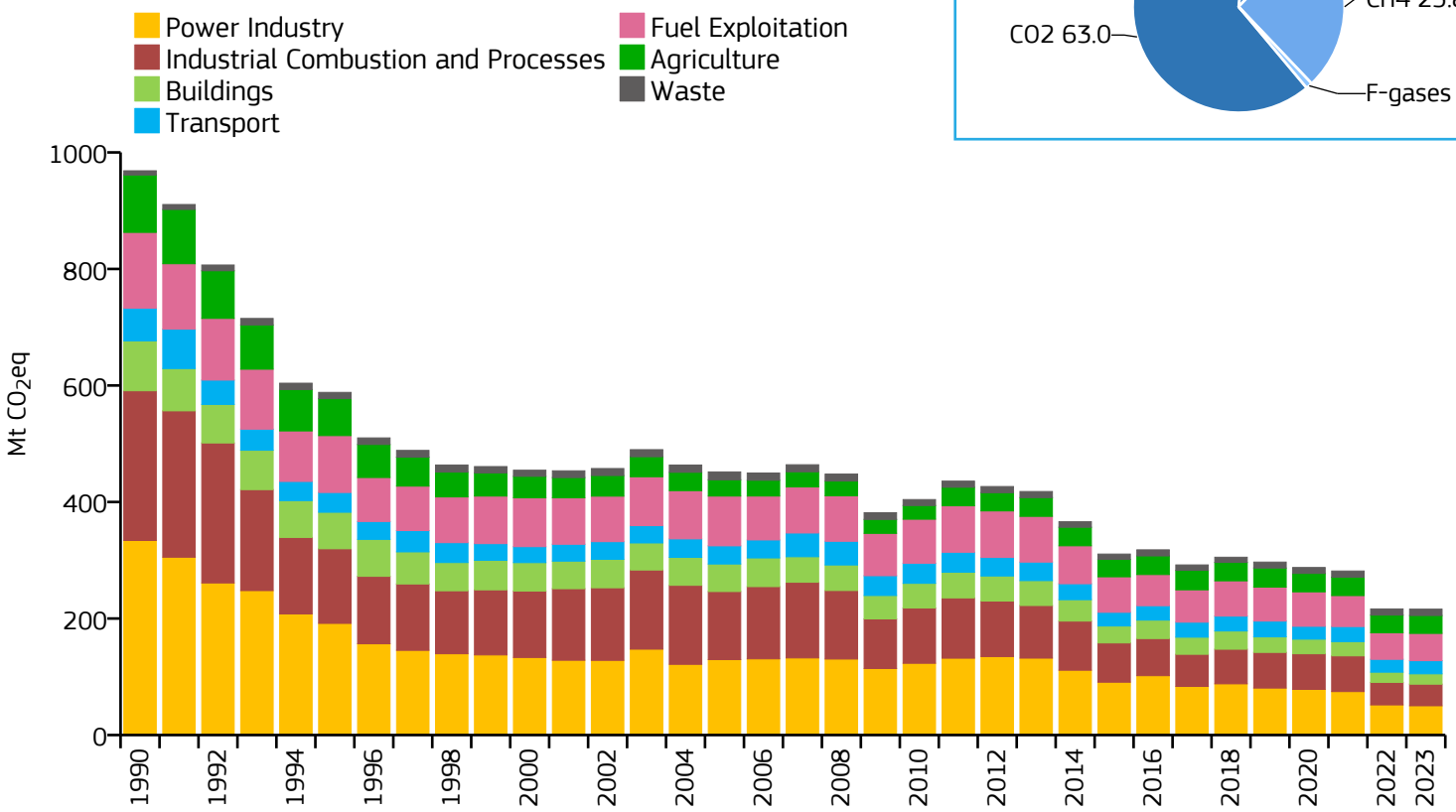
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	53.376	1.030	0.393	51.823M
2015	42.985	1.071	0.454	40.145M
2005	23.479	0.823	0.476	28.544M
1990	15.097	0.866	0.796	17.439M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	-8%	-6%
Industrial Combustion and Processes	> +300%	+224%	0%
Buildings	+166%	+77%	0%
Transport	> +300%	+249%	0%
Fuel Exploitation	> +300%	+229%	0%
Agriculture	+207%	+107%	+1%
Waste	+209%	+84%	+3%
All sectors	+254%	+127%	+1%

Ukraine



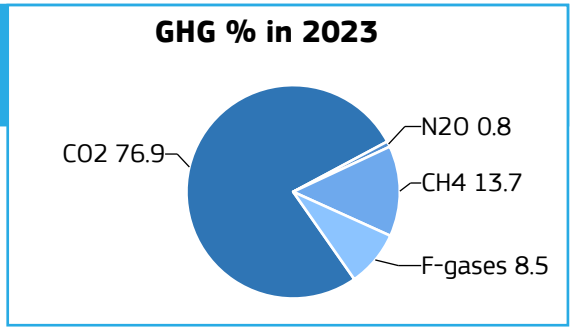
GHG emissions by sector



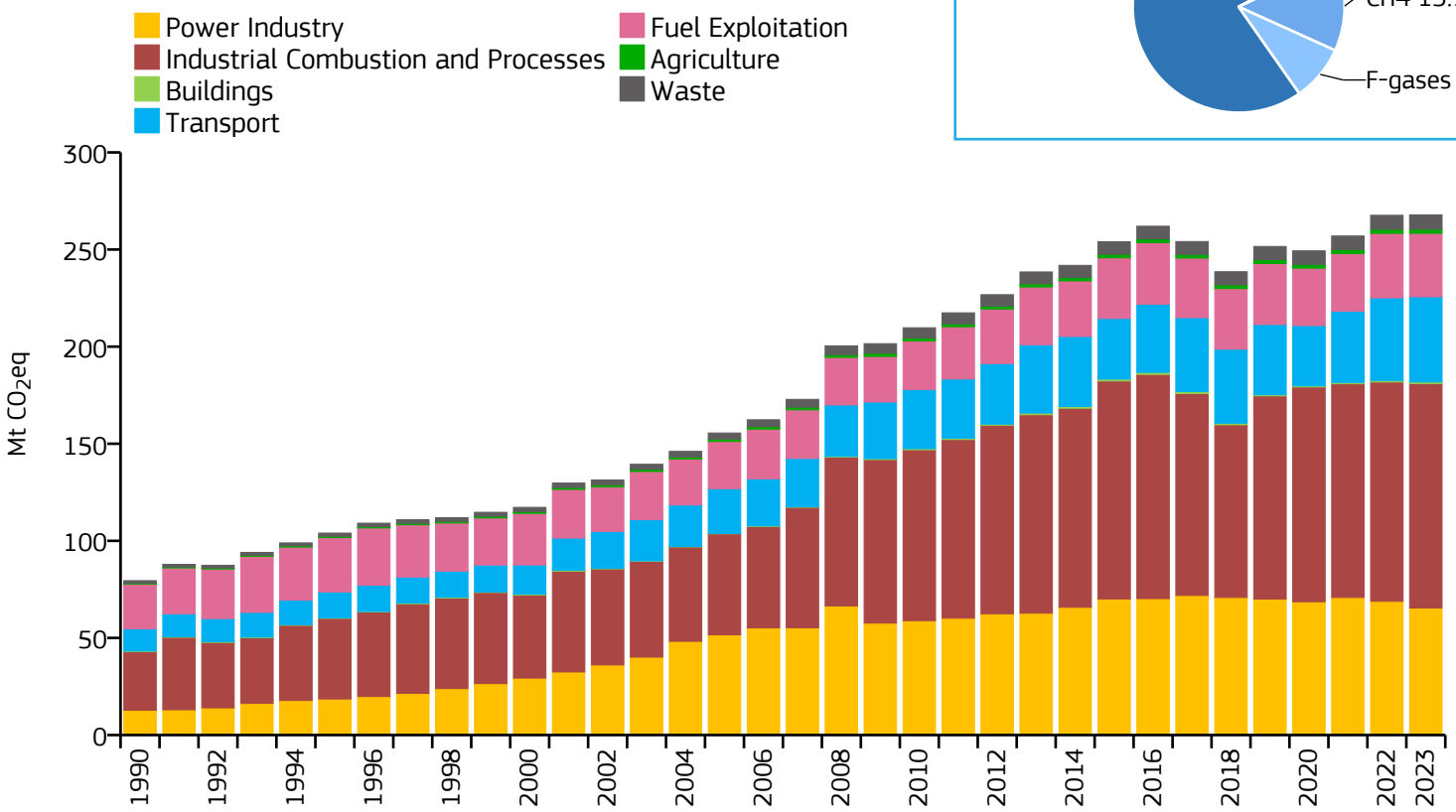
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	216.100	5.035	0.386	42.916M
2015	310.632	6.956	0.464	44.658M
2005	451.647	9.632	0.608	46.892M
1990	968.532	18.819	0.815	51.464M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-85%	-61%	-3%
Industrial Combustion and Processes	-86%	-68%	-4%
Buildings	-79%	-62%	+1%
Transport	-60%	-28%	+2%
Fuel Exploitation	-64%	-45%	+3%
Agriculture	-69%	+10%	+1%
Waste	+51%	-19%	+3%
All sectors	-78%	-52%	0%

United Arab Emirates



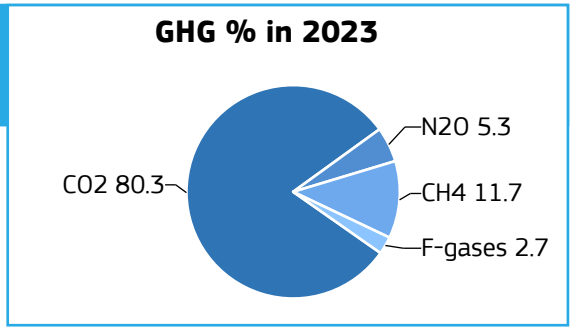
GHG emissions by sector



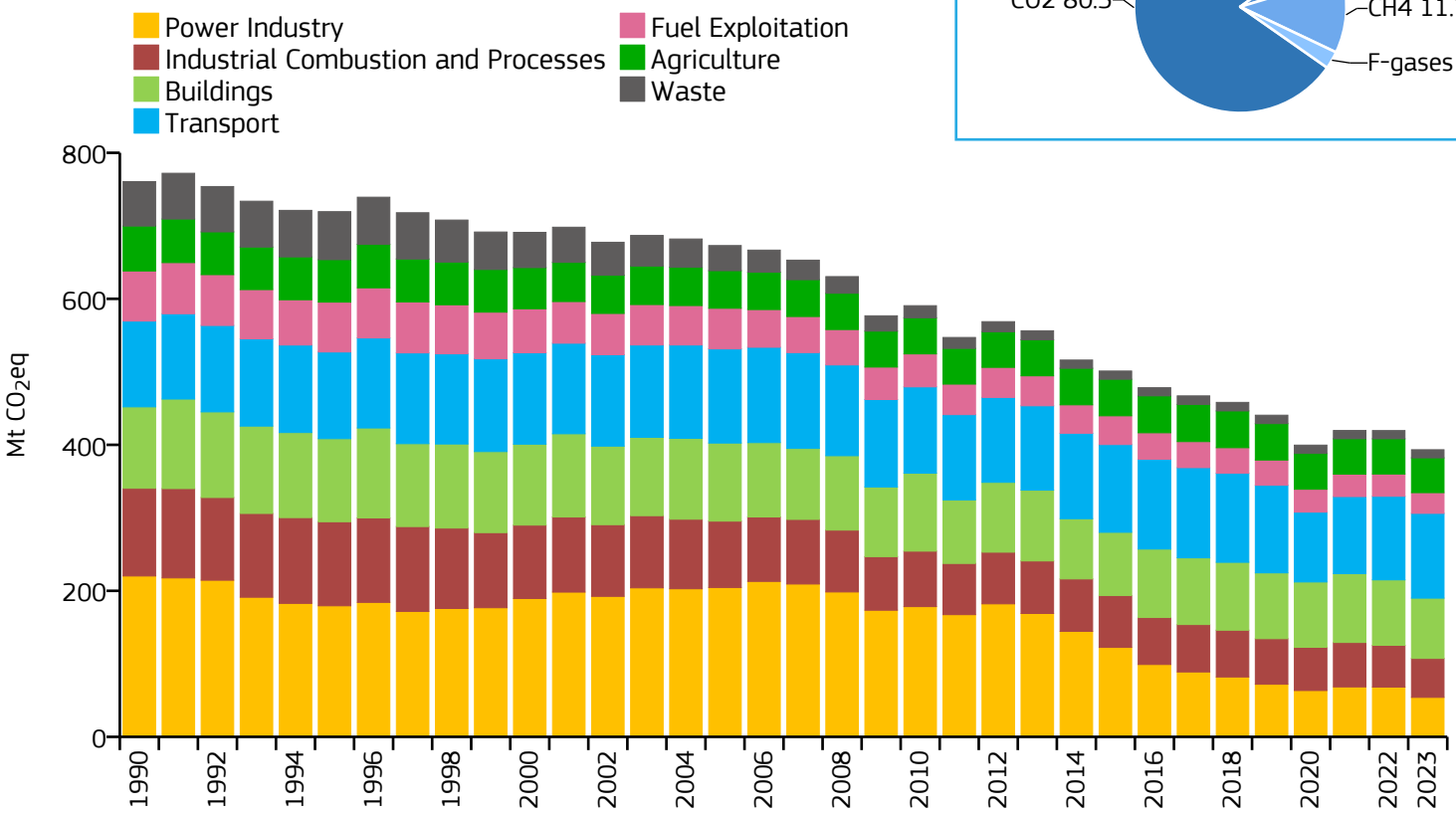
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	267.823	26.291	0.372	10.187M
2015	253.989	27.745	0.425	9.154M
2005	155.534	33.963	0.371	4.580M
1990	79.495	42.736	0.388	1.860M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+27%	-5%
Industrial Combustion and Processes	+283%	+122%	+2%
Buildings	+167%	> +300%	+3%
Transport	+283%	+90%	+3%
Fuel Exploitation	+42%	+34%	-2%
Agriculture	> +300%	+77%	+2%
Waste	> +300%	+134%	+2%
All sectors	+237%	+72%	0%

United Kingdom



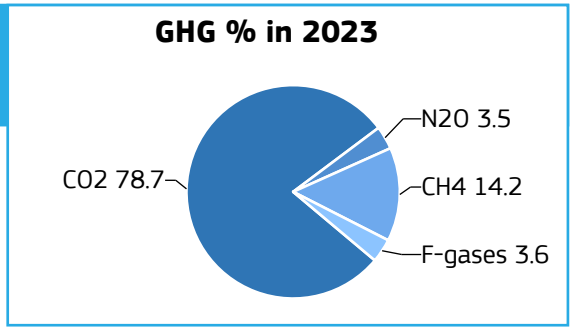
GHG emissions by sector



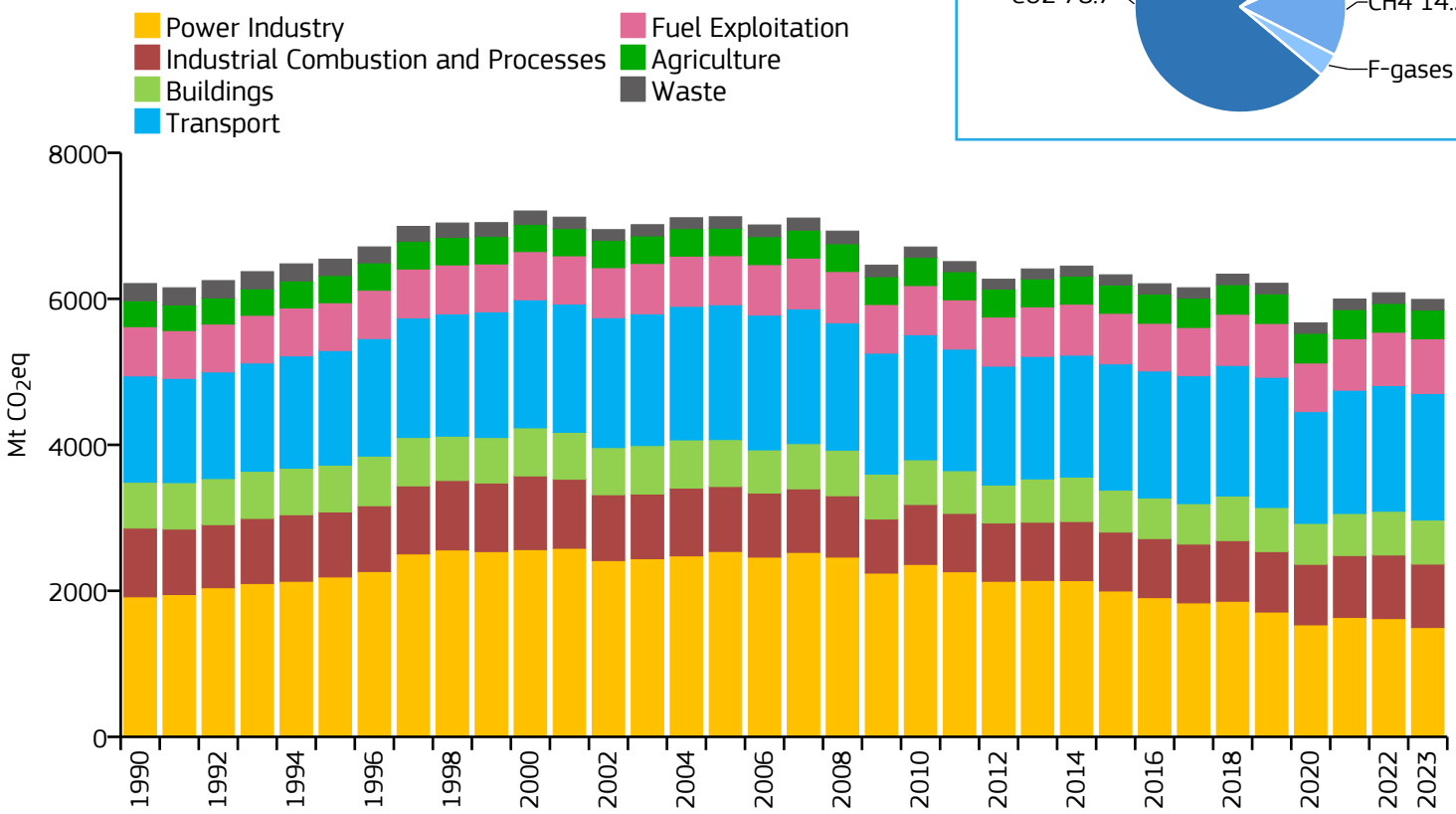
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	393.298	5.750	0.106	68.405M
2015	501.078	7.662	0.149	65.397M
2005	672.943	11.162	0.225	60.287M
1990	760.608	13.301	0.374	57.183M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↘ -75%	↘ -74%	↘ -21%
Industrial Combustion and Processes	↘ -56%	↘ -41%	↘ -7%
Buildings	↘ -26%	↘ -23%	↘ -8%
Transport	→ -1%	↘ -10%	→ +1%
Fuel Exploitation	↘ -59%	↘ -49%	↘ -7%
Agriculture	↘ -23%	↘ -7%	→ -1%
Waste	↘ -82%	↘ -68%	→ -1%
All sectors	↘ -48%	↘ -42%	↘ -6%

United States



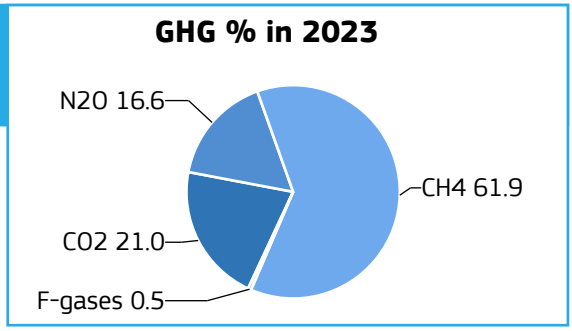
GHG emissions by sector



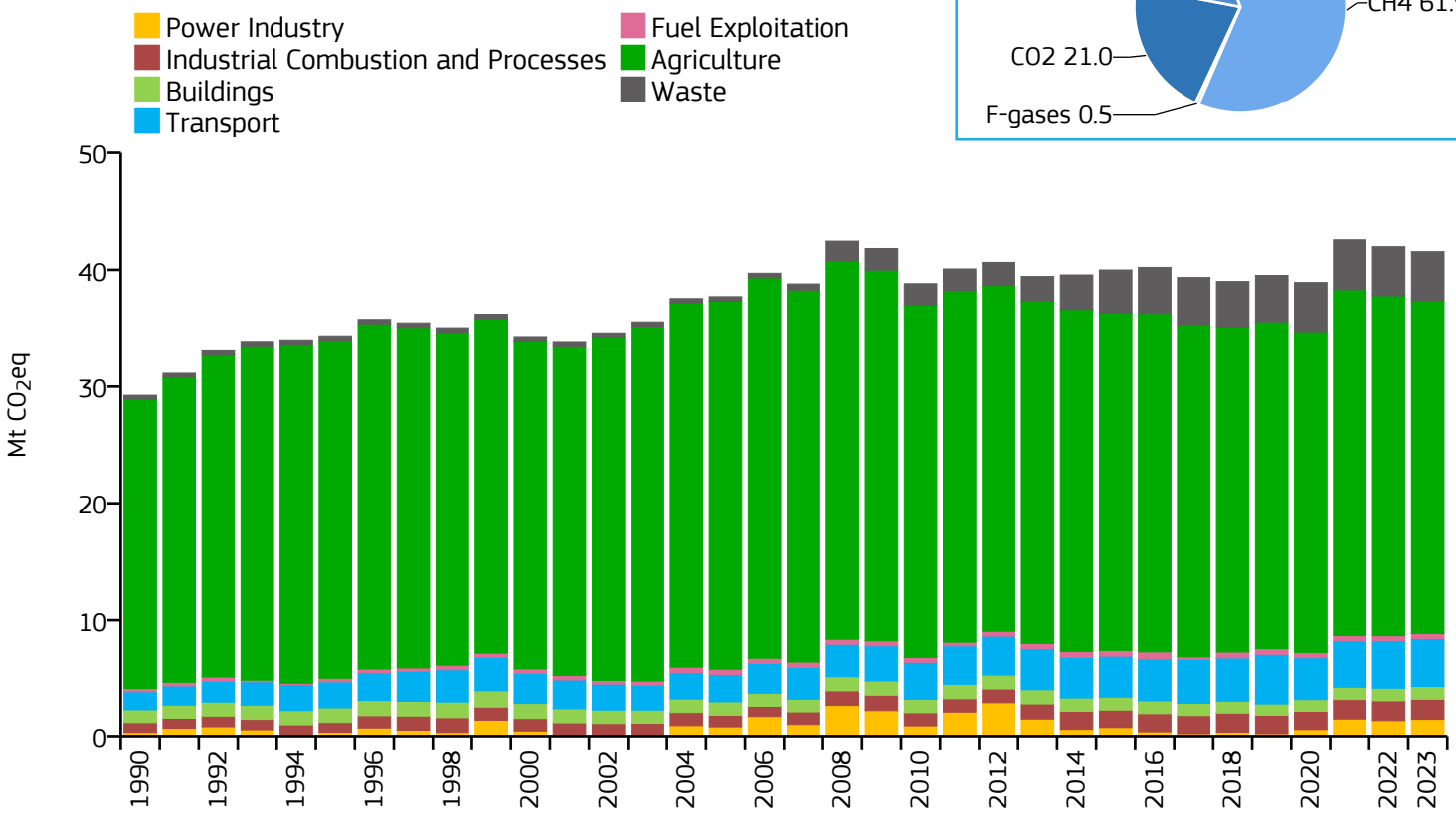
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	5991.362	17.698	0.243	338.524M
2015	6328.883	19.782	0.305	319.929M
2005	7123.548	24.137	0.404	295.130M
1990	6209.001	24.587	0.560	252.530M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-22%	-41%	-8%
Industrial Combustion and Processes	-8%	-2%	0%
Buildings	-4%	-6%	+1%
Transport	+19%	-6%	+1%
Fuel Exploitation	+11%	+11%	+3%
Agriculture	+11%	+5%	0%
Waste	-38%	-7%	+1%
All sectors	-4%	-16%	-2%

Uruguay



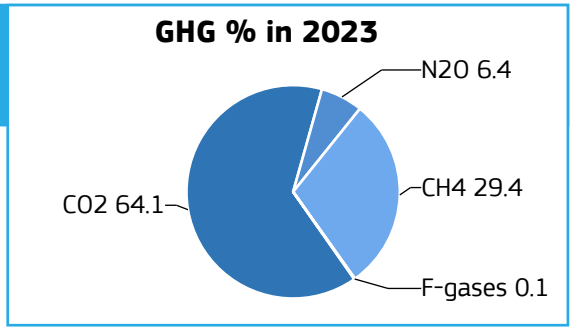
GHG emissions by sector



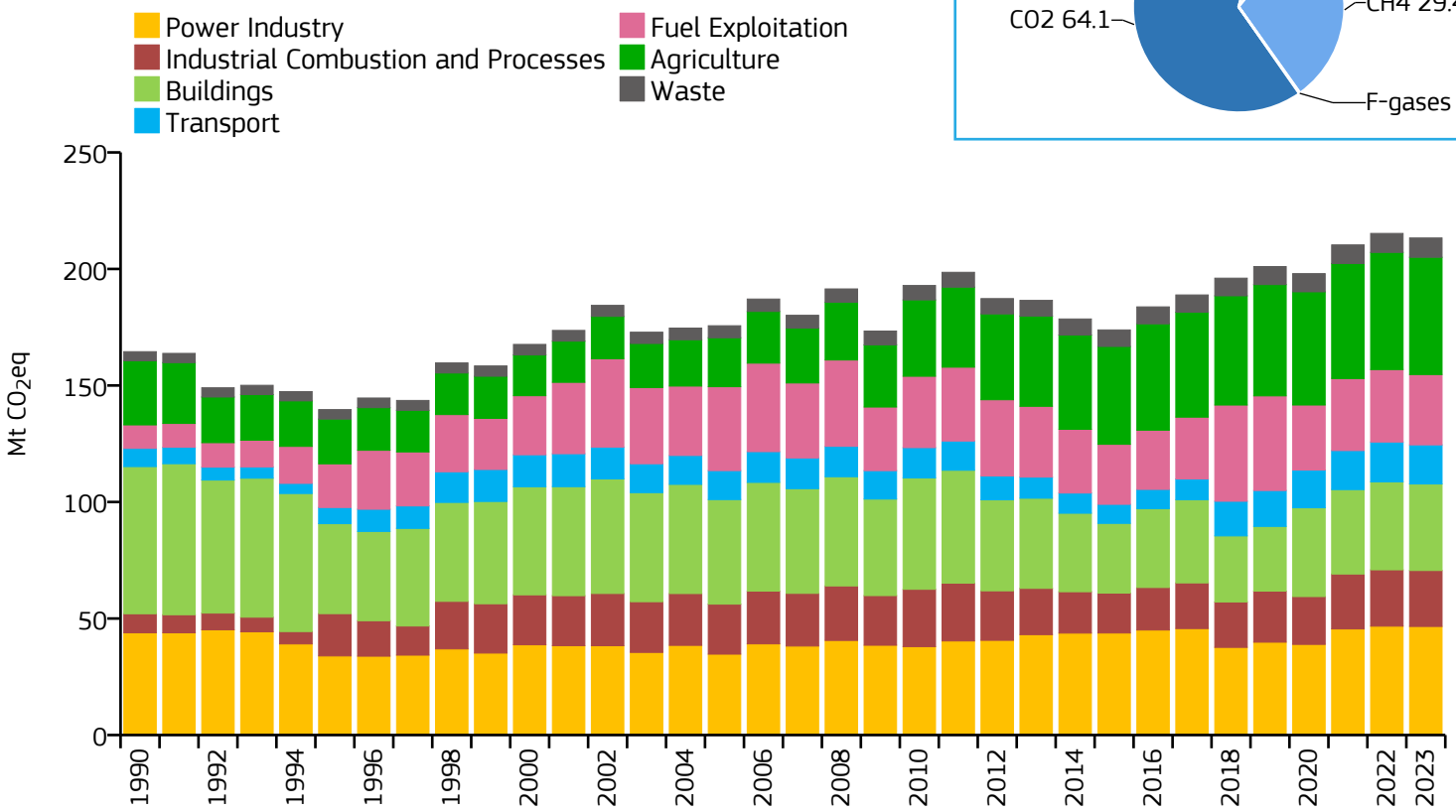
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	41.556	11.779	0.395	3.528M
2015	39.994	11.655	0.409	3.432M
2005	37.703	11.337	0.608	3.326M
1990	29.253	9.406	0.668	3.110M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	+80%	+8%
Industrial Combustion and Processes	+114%	+82%	+1%
Buildings	-7%	-11%	+2%
Transport	+164%	+76%	+1%
Fuel Exploitation	+55%	-9%	-3%
Agriculture	+15%	-10%	-2%
Waste	> +300%	> +300%	0%
All sectors	+42%	+10%	-1%

Uzbekistan



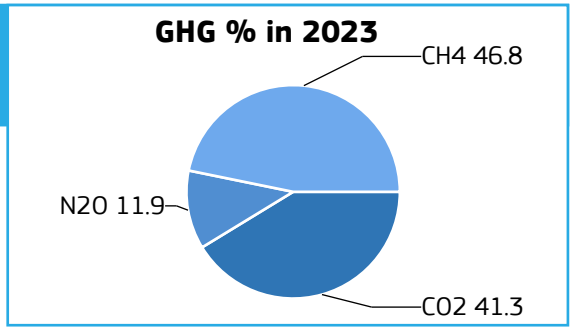
GHG emissions by sector



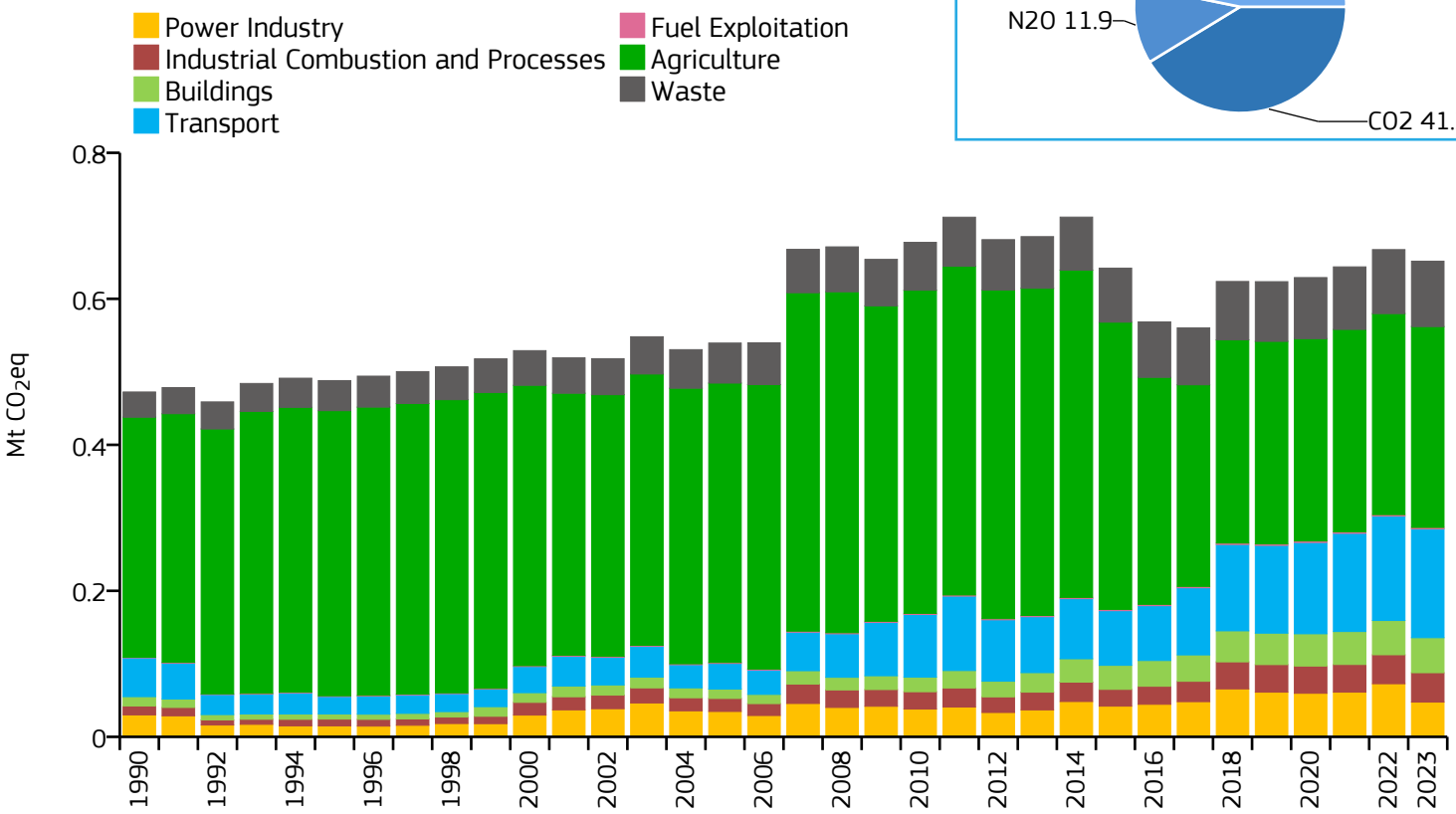
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	213.292	6.195	0.668	34.428M
2015	173.843	5.612	0.829	30.976M
2005	175.634	6.625	1.769	26.512M
1990	164.504	8.039	2.106	20.462M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+6%	+34%	0%
Industrial Combustion and Processes	+194%	+12%	-1%
Buildings	-41%	-17%	-2%
Transport	+115%	+35%	-2%
Fuel Exploitation	+199%	-16%	-3%
Agriculture	+83%	+140%	0%
Waste	+112%	+61%	+2%
All sectors	+30%	+21%	-1%

Vanuatu



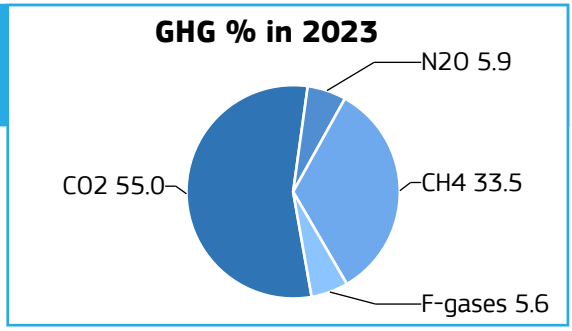
GHG emissions by sector



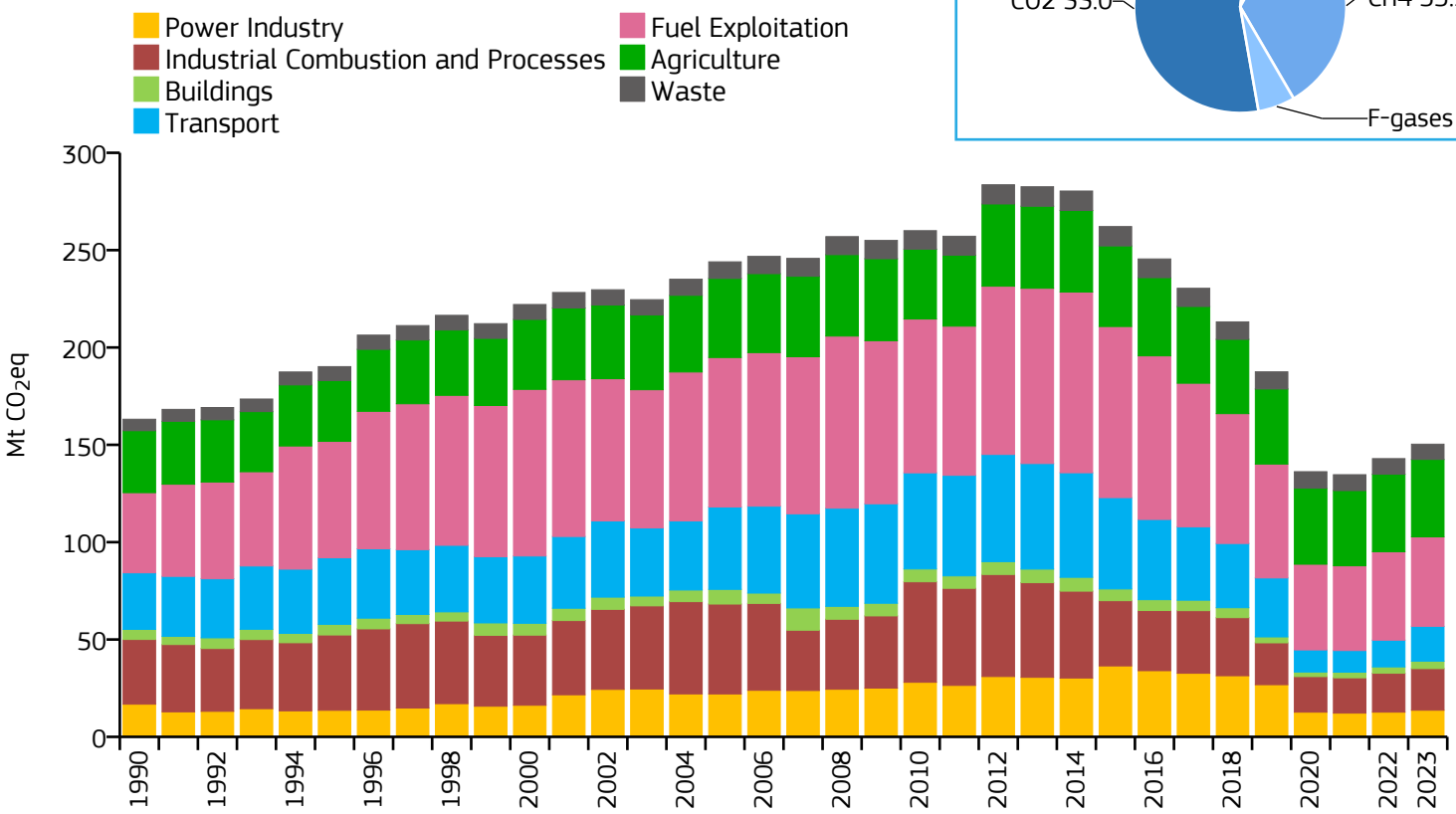
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.652	2.088	0.652	312.000k
2015	0.642	2.426	0.740	264.603k
2005	0.539	2.576	0.828	209.370k
1990	0.472	3.221	1.028	146.634k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ +58%	↗ +37%	↘ -35%
Industrial Combustion and Processes	↗ +230%	↗ +126%	→ +1%
Buildings	↗ +275%	↗ +271%	→ +2%
Transport	↗ +180%	↗ > +300%	→ +4%
Fuel Exploitation	↗ +157%	↗ +62%	→ 0%
Agriculture	↘ -16%	↘ -28%	→ 0%
Waste	↗ +159%	↗ +63%	→ +2%
All sectors	↗ +38%	↗ +21%	→ -2%

Venezuela



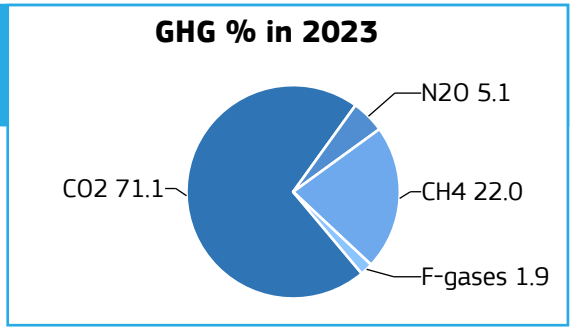
GHG emissions by sector



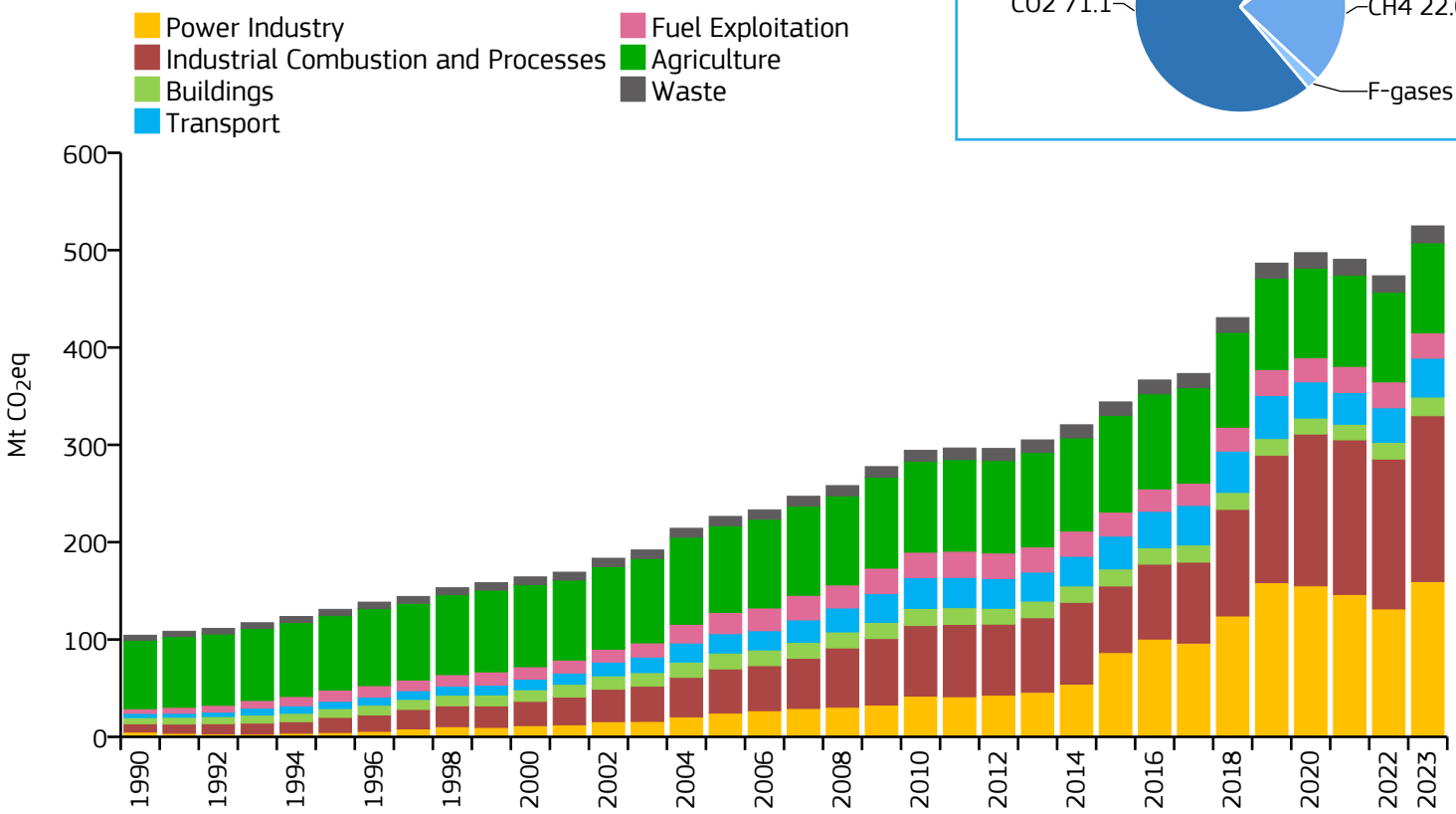
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	150.335	4.382	0.572	34.311M
2015	262.110	8.413	0.320	31.155M
2005	243.996	9.110	0.359	26.784M
1990	163.160	8.215	0.335	19.862M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↘ -18%	↘ -38%	↗ +8%
Industrial Combustion and Processes	↘ -36%	↘ -54%	↗ +7%
Buildings	↘ -26%	↘ -49%	↗ +18%
Transport	↘ -38%	↘ -58%	↗ +30%
Fuel Exploitation	↗ +12%	↘ -40%	→ +1%
Agriculture	↗ +25%	→ -2%	→ 0%
Waste	↗ +33%	↘ -8%	→ -2%
All sectors	↘ -8%	↘ -38%	→ +5%

Viet Nam



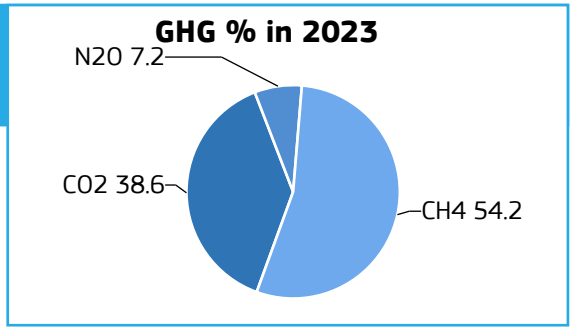
GHG emissions by sector



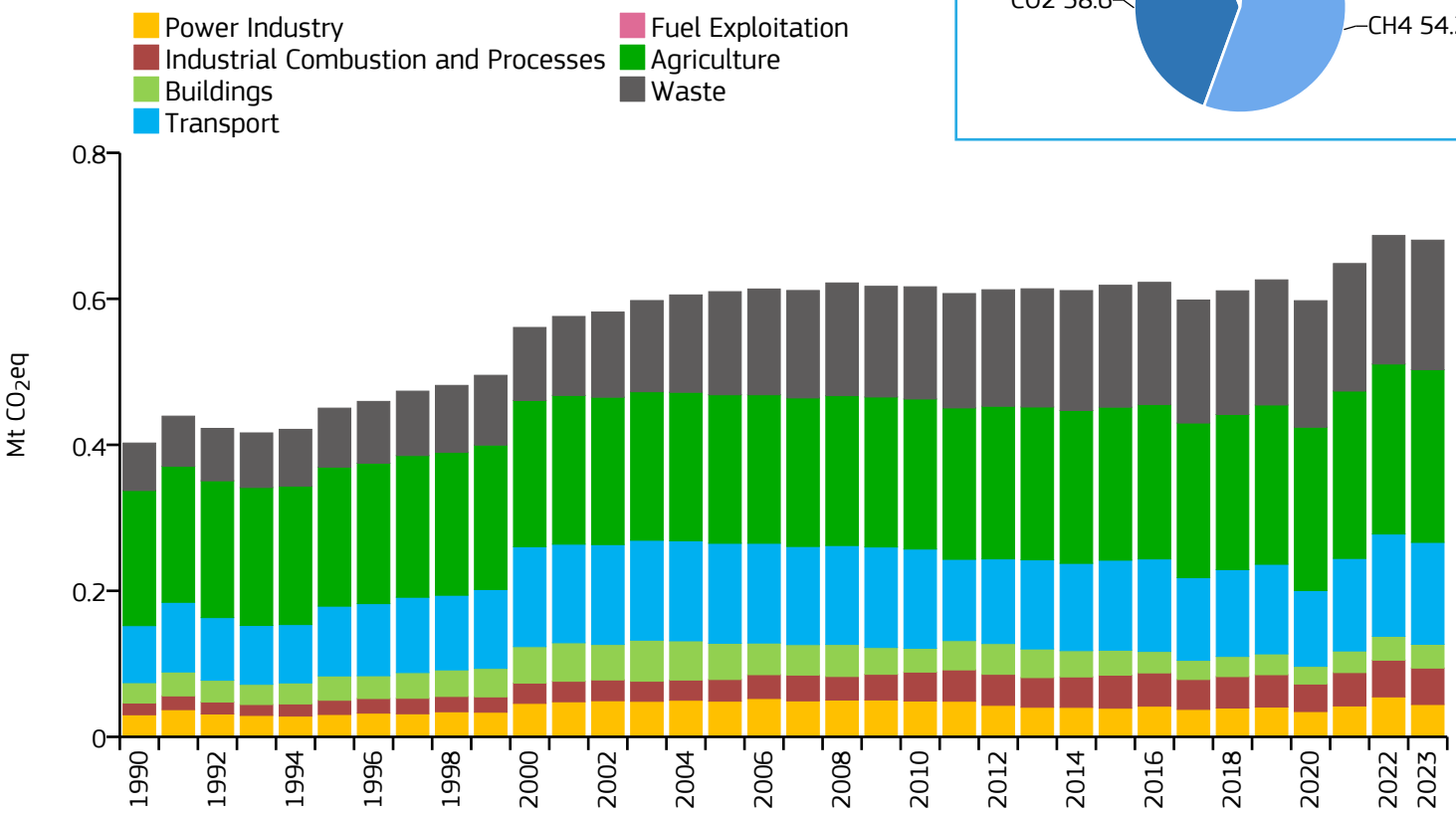
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	524.891	5.193	0.388	101.085M
2015	344.054	3.677	0.401	93.572M
2005	226.449	2.686	0.483	84.309M
1990	104.391	1.530	0.646	68.210M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	↗ > +300%	↗ > +300%	↗ +21%
Industrial Combustion and Processes	↗ > +300%	↗ +275%	↗ +11%
Buildings	↗ +203%	↗ +18%	↗ +12%
Transport	↗ > +300%	↗ +102%	↗ +12%
Fuel Exploitation	↗ > +300%	↗ +18%	→ -2%
Agriculture	↗ +32%	→ +4%	→ 0%
Waste	↗ +224%	↗ +82%	→ +3%
All sectors	↗ > +300%	↗ +132%	↗ +11%

Western Sahara



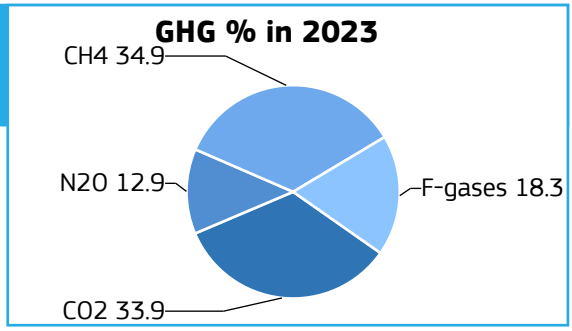
GHG emissions by sector



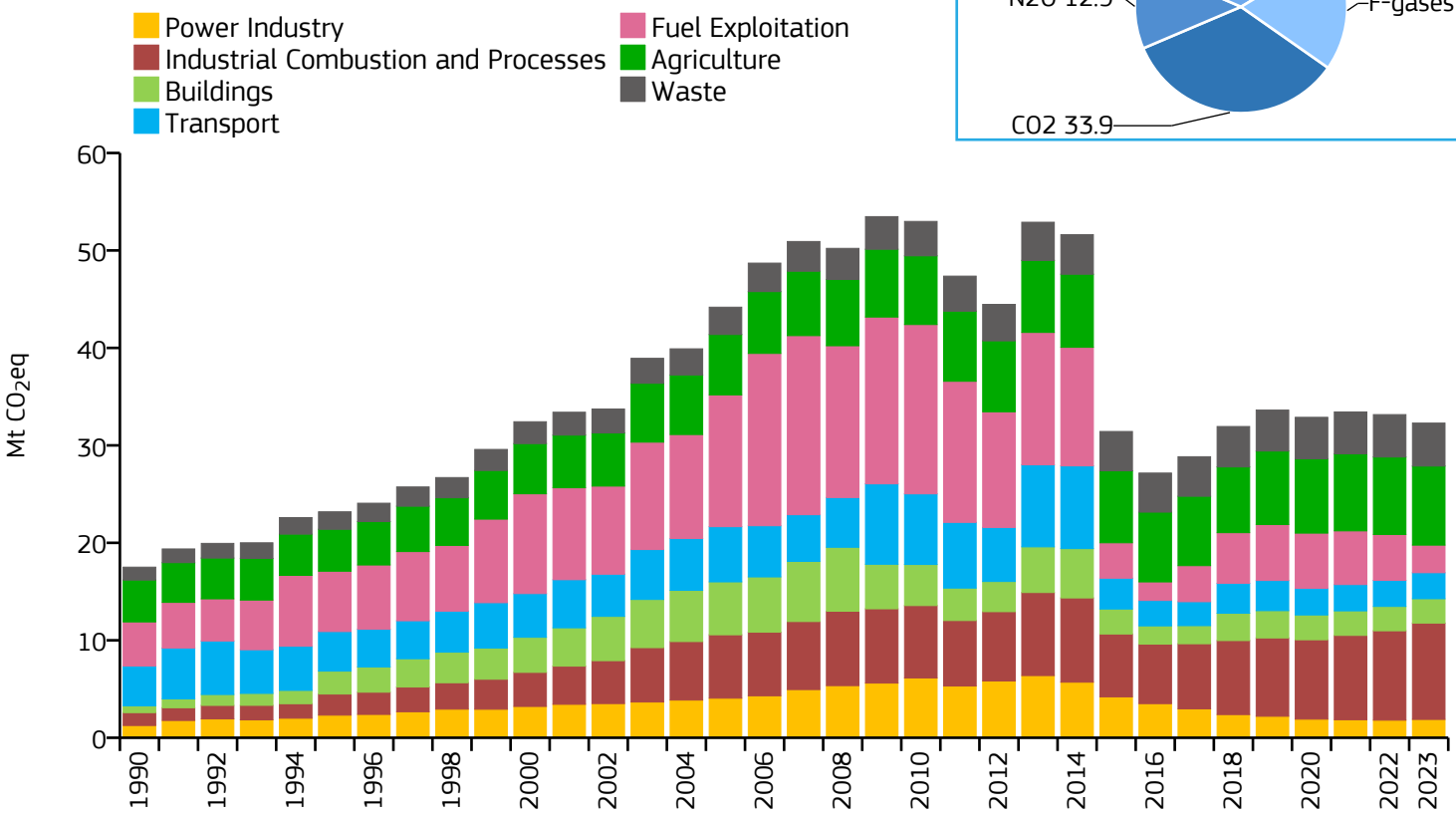
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	0.680	1.063	n/a	640.000k
2015	0.619	1.175	n/a	526.216k
2005	0.610	1.394	n/a	437.515k
1990	0.402	1.852	n/a	217.258k

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+46%	-9%	-19%
Industrial Combustion and Processes	+210%	+68%	-1%
Buildings	+17%	-34%	-1%
Transport	+79%	+2%	0%
Fuel Exploitation	n/a	n/a	n/a
Agriculture	+28%	+16%	+2%
Waste	+173%	+26%	+1%
All sectors	+69%	+12%	-1%

Yemen



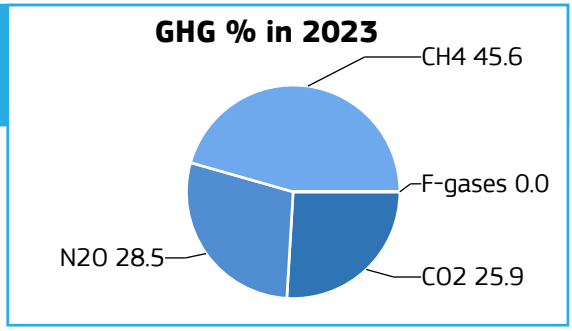
GHG emissions by sector



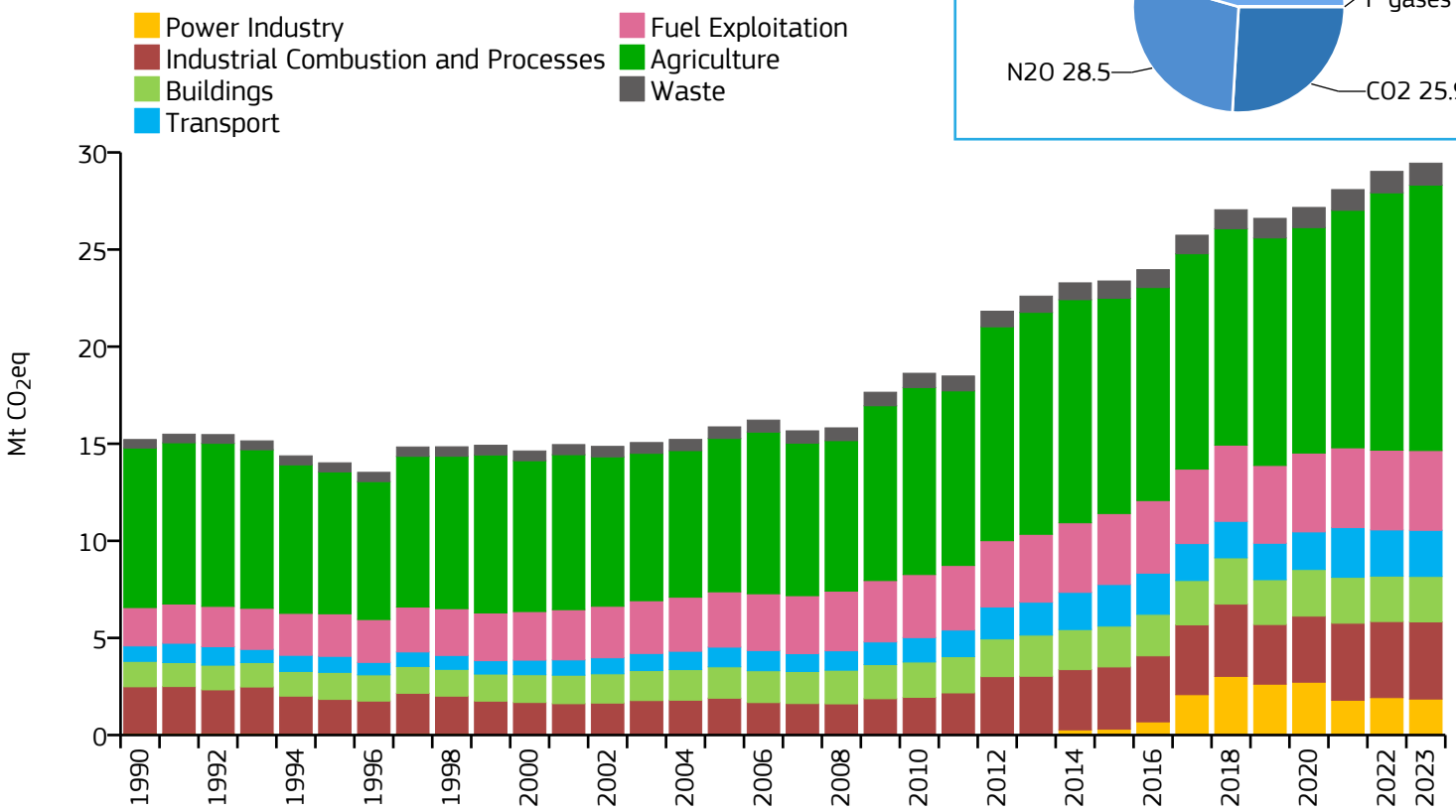
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	32.286	1.001	0.525	32.239M
2015	31.426	1.168	0.405	26.916M
2005	44.180	2.146	0.473	20.583M
1990	17.505	1.452	0.400	12.057M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	+50%	-54%	+4%
Industrial Combustion and Processes	> +300%	+52%	+8%
Buildings	+258%	-54%	0%
Transport	-35%	-53%	0%
Fuel Exploitation	-37%	-79%	-40%
Agriculture	+89%	+31%	+2%
Waste	+234%	+57%	+1%
All sectors	+84%	-27%	-3%

Zambia



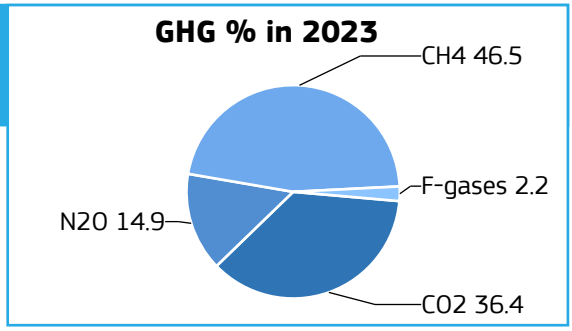
GHG emissions by sector



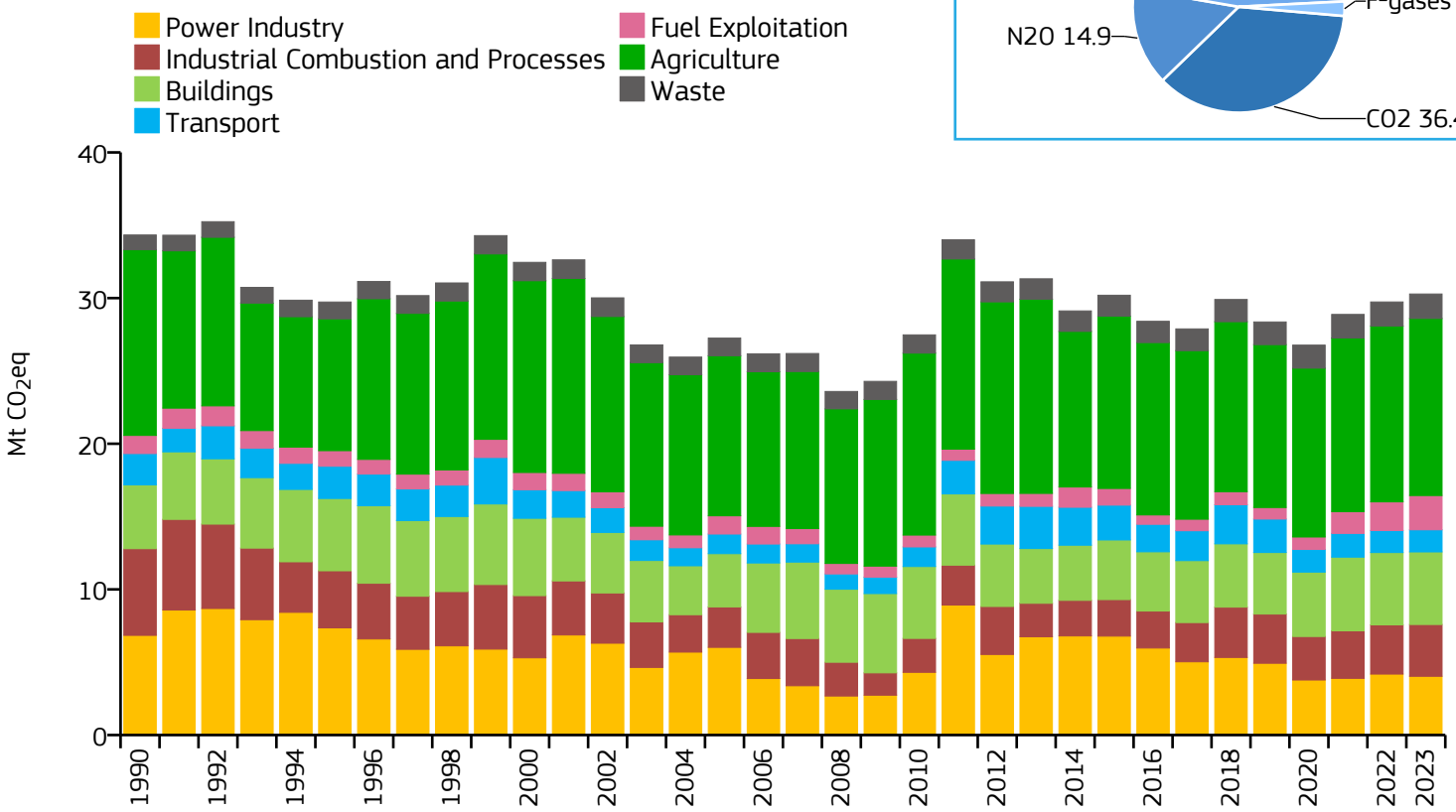
Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	29.448	1.445	0.385	20.386M
2015	23.380	1.452	0.399	16.100M
2005	15.868	1.317	0.528	12.053M
1990	15.217	1.896	0.806	8.027M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	> +300%	> +300%	-4%
Industrial Combustion and Processes	+66%	+116%	+1%
Buildings	+79%	+45%	0%
Transport	+199%	+134%	0%
Fuel Exploitation	+108%	+44%	0%
Agriculture	+66%	+73%	+3%
Waste	+158%	+89%	+3%
All sectors	+94%	+86%	+1%

Zimbabwe



GHG emissions by sector



Year	GHG emissions Mt CO_2eq/yr	GHG emissions per capita t CO_2eq/cap/yr	GHG emissions per unit of GDP PPP t CO_2eq/kUSD/yr	Population
2023	30.280	1.609	0.517	18.814M
2015	30.196	1.914	0.595	15.777M
2005	27.251	2.106	0.793	12.940M
1990	34.332	3.371	0.810	10.183M

	2023 vs 1990	2023 vs 2005	2023 vs 2022
Power Industry	-41%	-33%	-4%
Industrial Combustion and Processes	-40%	+28%	+5%
Buildings	+14%	+36%	0%
Transport	-29%	+13%	0%
Fuel Exploitation	+89%	+88%	+20%
Agriculture	-5%	+11%	+1%
Waste	+66%	+39%	+2%
All sectors	-12%	+11%	+2%

Annex 7. GHG emissions and removals from LULUCF sector by macro-regions

The following ten macro-regions[42] are presented:

Africa, Asia-Pacific Developed, Eastern Asia, Eurasia, Europe, Latin America and Caribbean, Middle East, North America, South-East Asia and developing Pacific, Southern Asia.

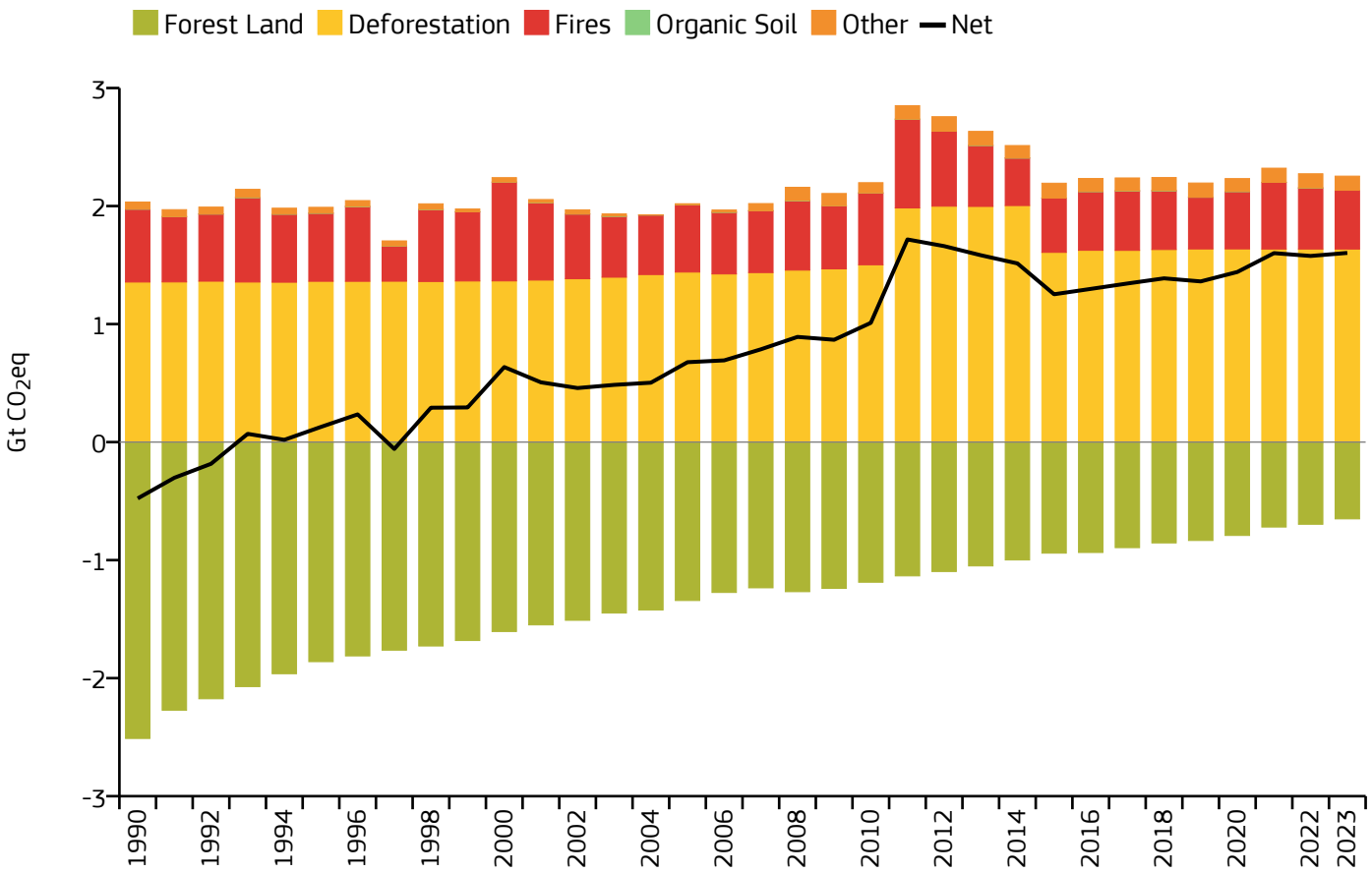
The following LULUCF sectors are included:

Forest Land, Deforestation, Organic Soil, Other and Fires.

([42]) Macro regions classification follows the definition used in the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC AR6).

Africa

GHG emissions and removals from LULUCF sector

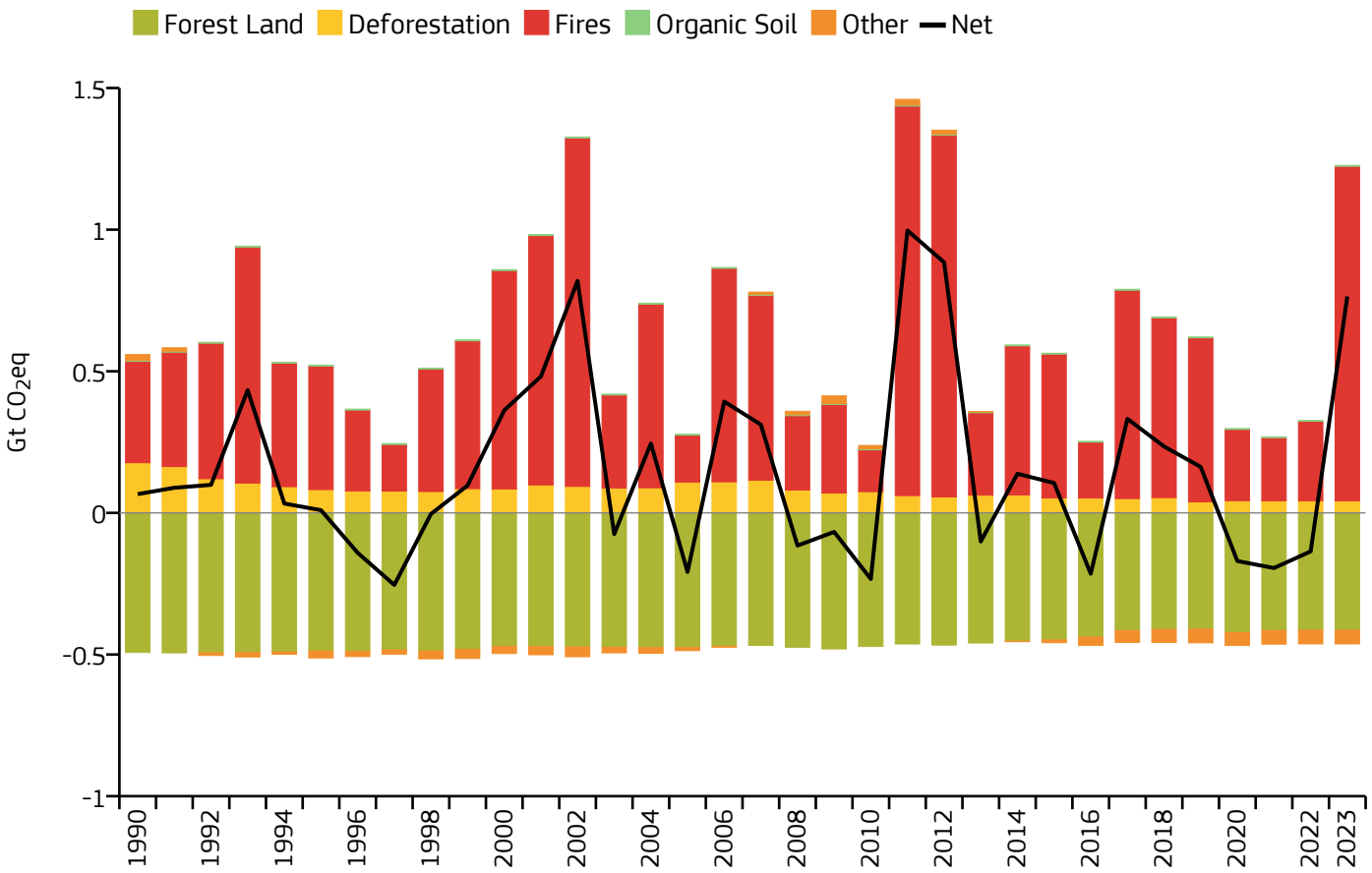


Year	1990	2000	2015	2023
Net flux (Gt CO_2eq /yr)	-0.477	0.636	1.252	1.603

Countries included in Africa:
Algeria; Angola; Benin; Botswana; Burkina Faso; Burundi; Cabo Verde; Cameroon; Central African Republic; Chad; Comoros; Congo; Côte d'Ivoire; Democratic Republic of the Congo; Djibouti; Egypt; Equatorial Guinea; Eritrea; Eswatini; Ethiopia; Gabon; Ghana; Guinea; Guinea-Bissau; Kenya; Lesotho; Liberia; Libya; Madagascar; Malawi; Mali; Mauritania; Mauritius; Morocco; Mozambique; Namibia; Niger; Nigeria; Rwanda; Réunion; Saint Helena, Ascension and Tristan da Cunha; Senegal; Seychelles; Sierra Leone; Somalia; South Africa; Sudan and South Sudan; São Tomé and Príncipe; Tanzania; The Gambia; Togo; Tunisia; Uganda; Western Sahara; Zambia; Zimbabwe.

Asia-Pacific Developed

GHG emissions and removals from LULUCF sector

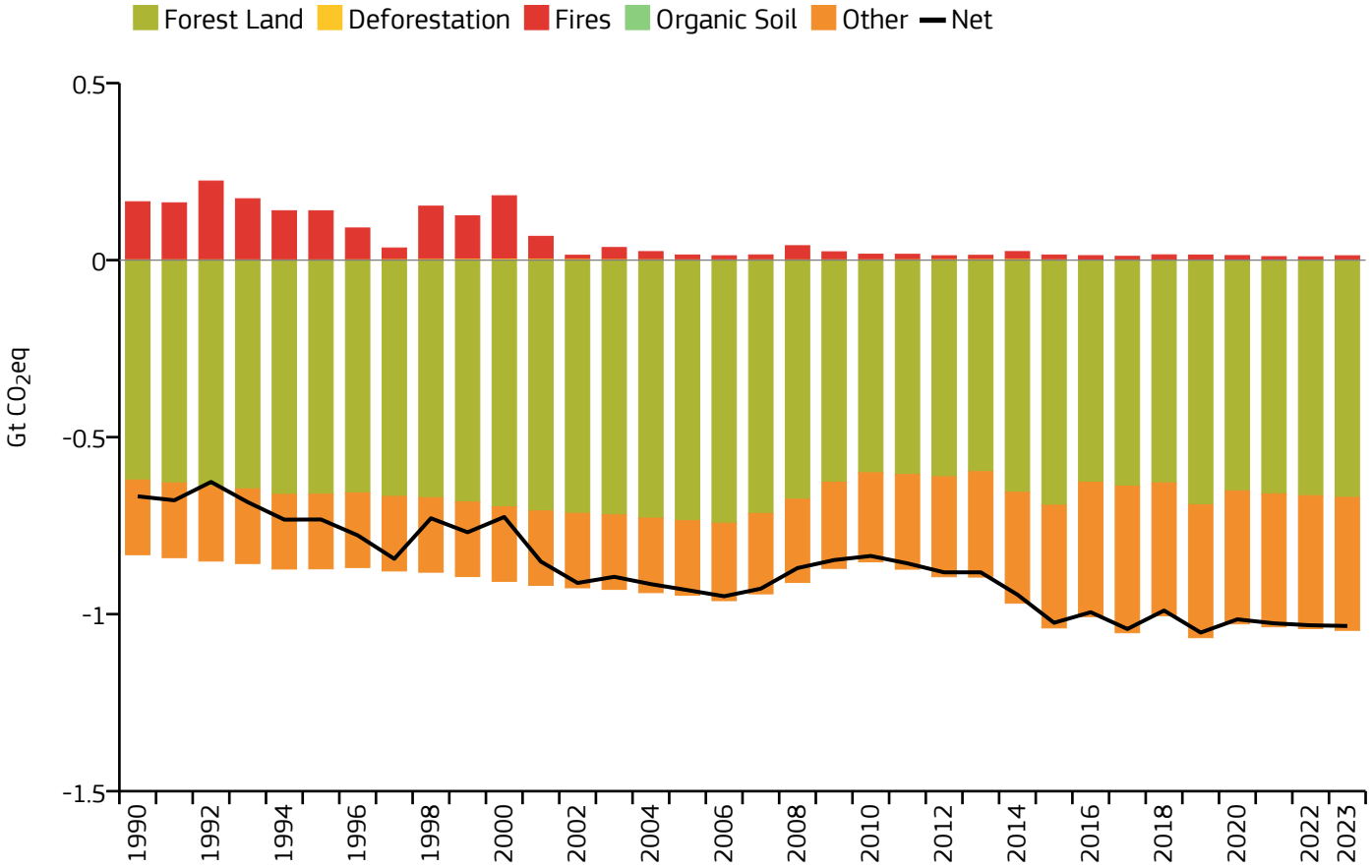


Year	1990	2000	2015	2023
Net flux (Gt CO_2eq /yr)	0.066	0.362	0.106	0.764

Countries included in Asia-Pacific Developed:
Australia; Japan; New Zealand.

Eastern Asia

GHG emissions and removals from LULUCF sector

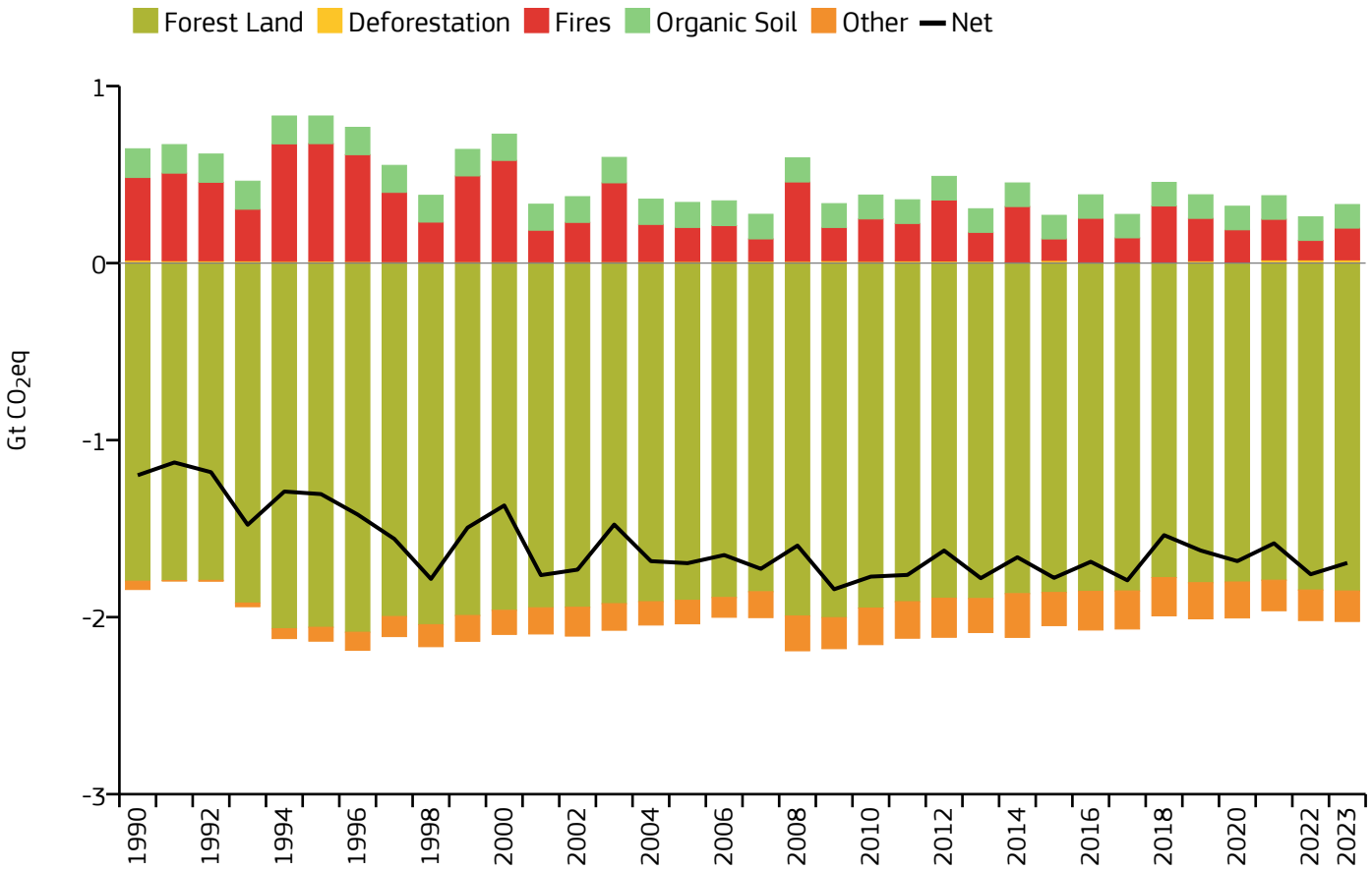


Year	1990	2000	2015	2023
Net flux (Gt CO_2eq /yr)	-0.667	-0.726	-1.024	-1.033

Countries included in Eastern Asia:
China; Hong Kong; Macao; Mongolia; North Korea; South Korea; Taiwan.

Eurasia

GHG emissions and removals from LULUCF sector

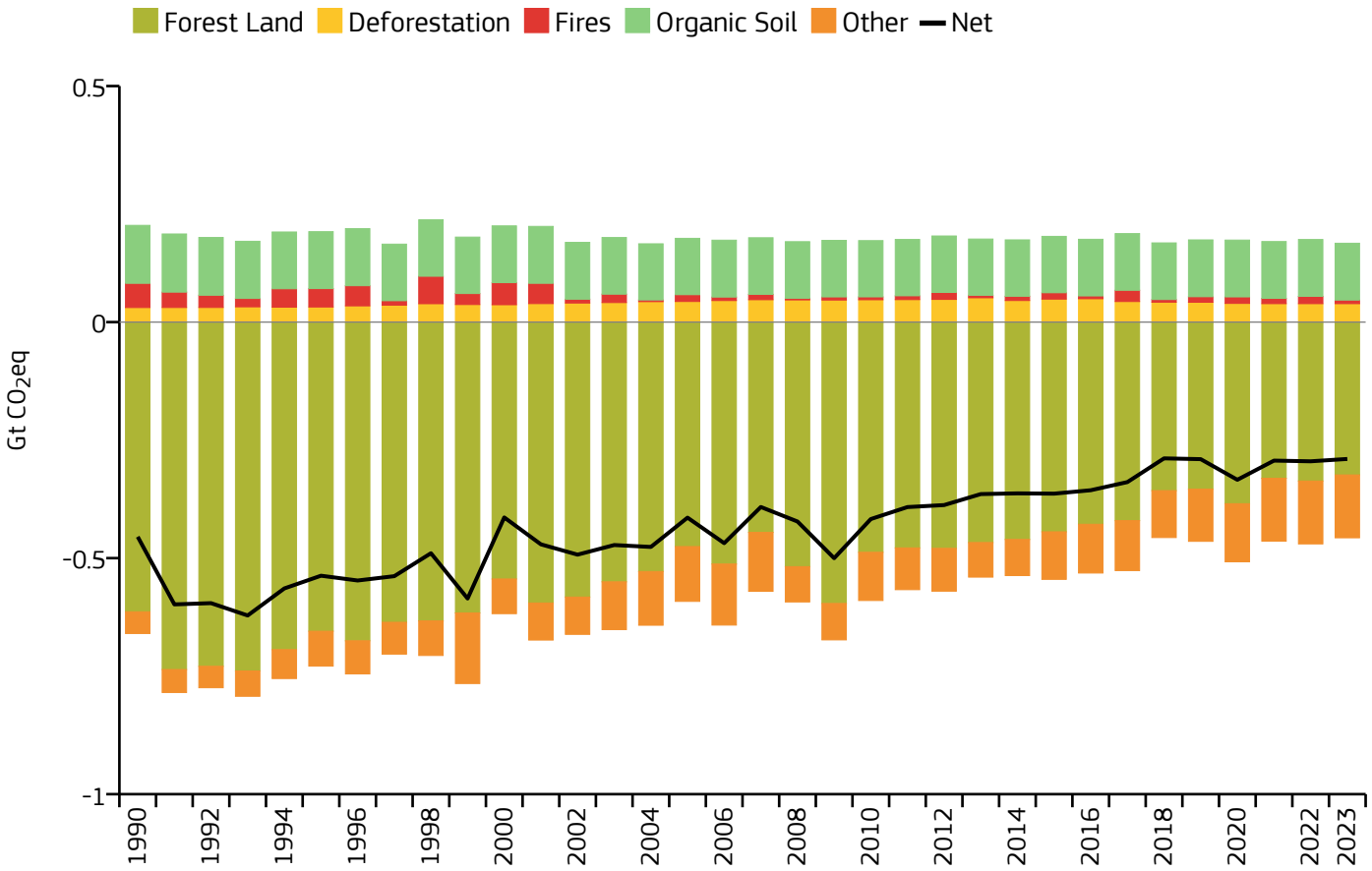


Year	1990	2000	2015	2023
Net flux (Gt CO_2eq /yr)	-1.198	-1.369	-1.778	-1.694

Countries included in Eurasia:
Armenia; Azerbaijan; Belarus; Georgia; Kazakhstan; Kyrgyzstan; Moldova; North Macedonia; Russia; Serbia and Montenegro; Tajikistan; Turkmenistan; Uzbekistan.

Europe

GHG emissions and removals from LULUCF sector

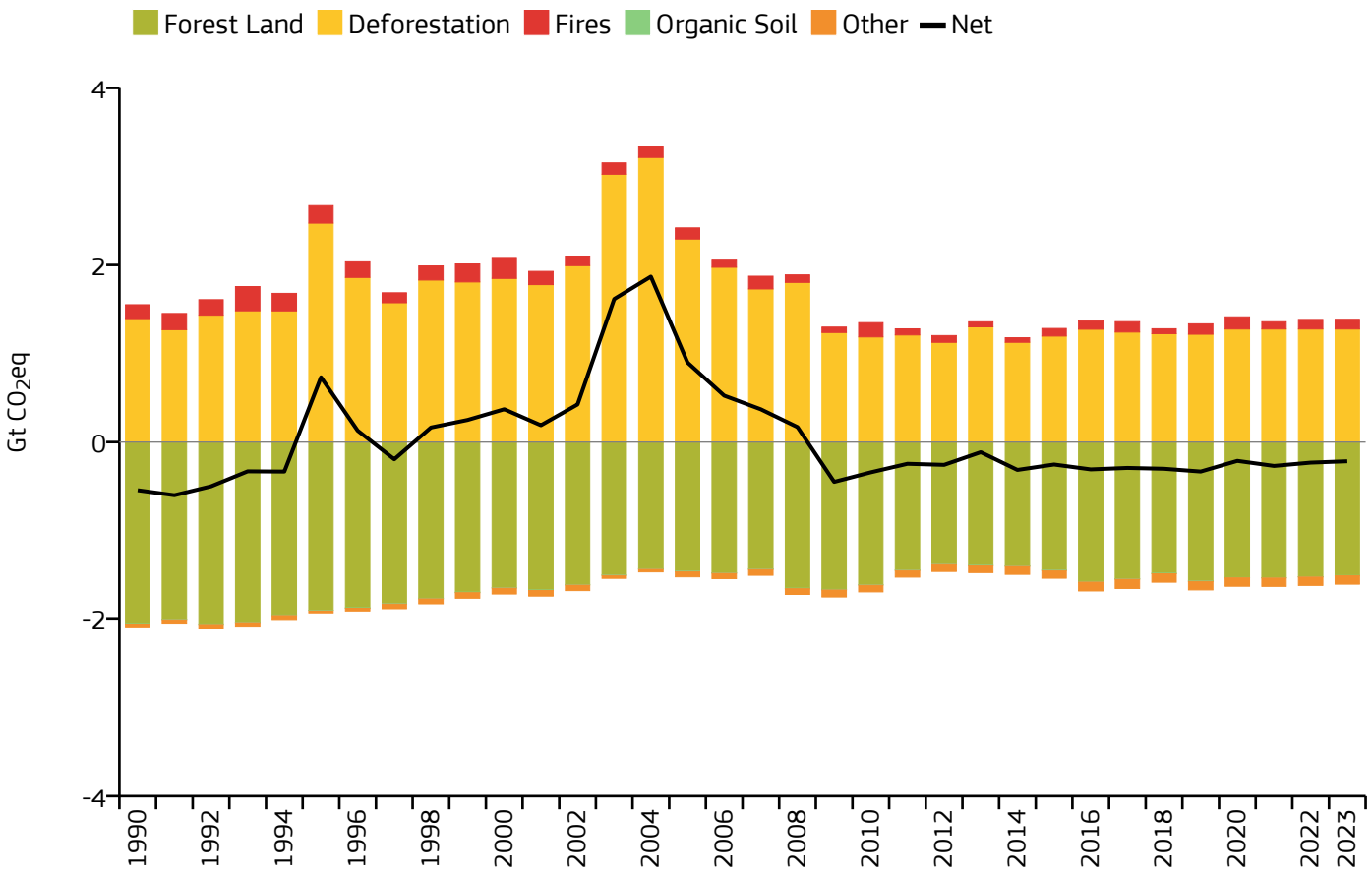


Year	1990	2000	2015	2023
Net flux (Gt CO_2eq /yr)	-0.455	-0.414	-0.363	-0.290

Countries included in Europe:
Albania; Austria; Belgium; Bosnia and Herzegovina; Bulgaria; Croatia; Cyprus; Czechia; Denmark; Estonia; Faroes; Finland; France and Monaco; Germany; Gibraltar; Greece; Hungary; Iceland; Ireland; Italy, San Marino and the Holy See; Latvia; Lithuania; Luxembourg; Malta; Netherlands; Norway; Poland; Portugal; Romania; Slovakia; Slovenia; Spain and Andorra; Sweden; Switzerland and Liechtenstein; Türkiye; Ukraine; United Kingdom.

Latin America and Caribbean

GHG emissions and removals from LULUCF sector

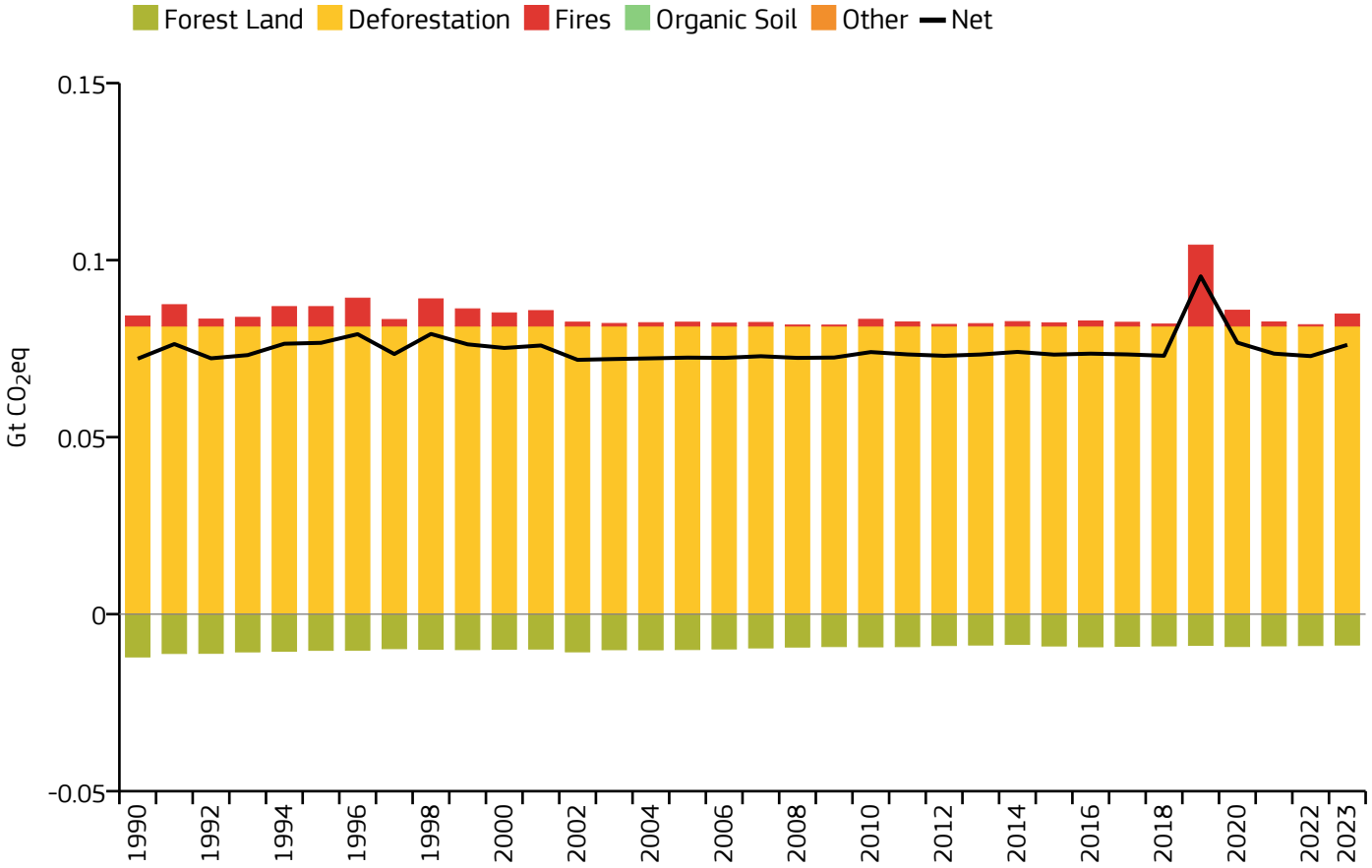


Year	1990	2000	2015	2023
Net flux (Gt CO_2eq /yr)	-0.543	0.371	-0.253	-0.216

Countries included in Latin America and Caribbean:
Anguilla; Antigua and Barbuda; Argentina; Aruba; Bahamas; Barbados; Belize; Bolivia; Brazil; British Virgin Islands; Cayman Islands; Chile; Colombia; Costa Rica; Cuba; Curaçao; Dominica; Dominican Republic; Ecuador; El Salvador; Falkland Islands; French Guiana; Grenada; Guadeloupe; Guatemala; Guyana; Haiti; Honduras; Jamaica; Martinique; Mexico; Nicaragua; Panama; Paraguay; Peru; Puerto Rico; Saint Kitts and Nevis; Saint Lucia; Saint Vincent and the Grenadines; Suriname; Trinidad and Tobago; Turks and Caicos Islands; Uruguay; Venezuela.

Middle East

GHG emissions and removals from LULUCF sector

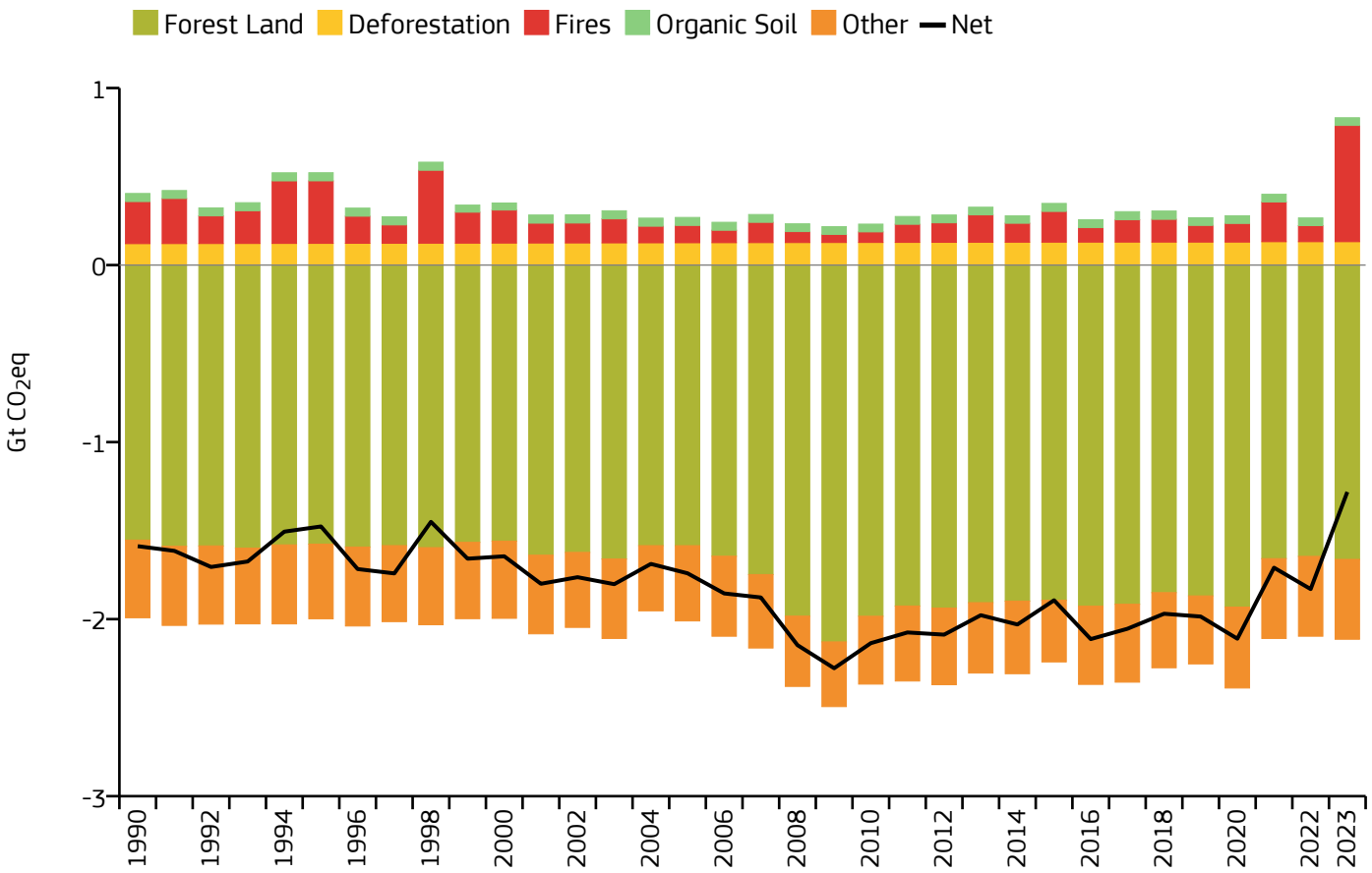


Year	1990	2000	2015	2023
Net flux (Gt CO_2eq /yr)	0.072	0.075	0.073	0.076

Countries included in Middle East:
Bahrain; Iran; Iraq; Israel and Palestine, State of; Jordan; Kuwait; Lebanon; Oman; Qatar; Saudi Arabia; Syria; United Arab Emirates; Yemen.

North America

GHG emissions and removals from LULUCF sector

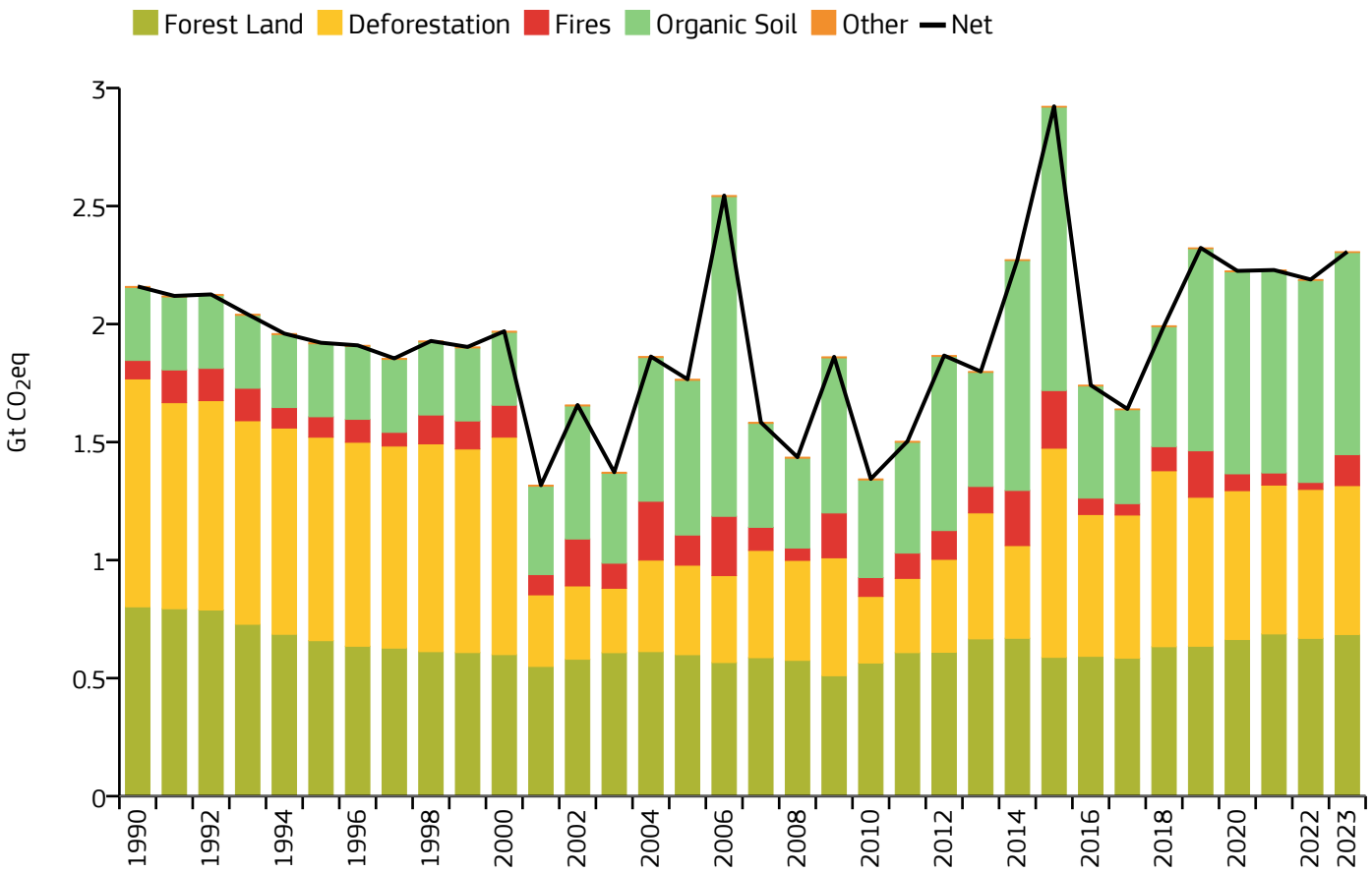


Year	1990	2000	2015	2023
Net flux (Gt CO_2eq /yr)	-1.588	-1.645	-1.894	-1.282

Countries included in North America:
Bermuda; Canada; Greenland; Saint Pierre and Miquelon; United States.

South-East Asia and developing Pacific

GHG emissions and removals from LULUCF sector

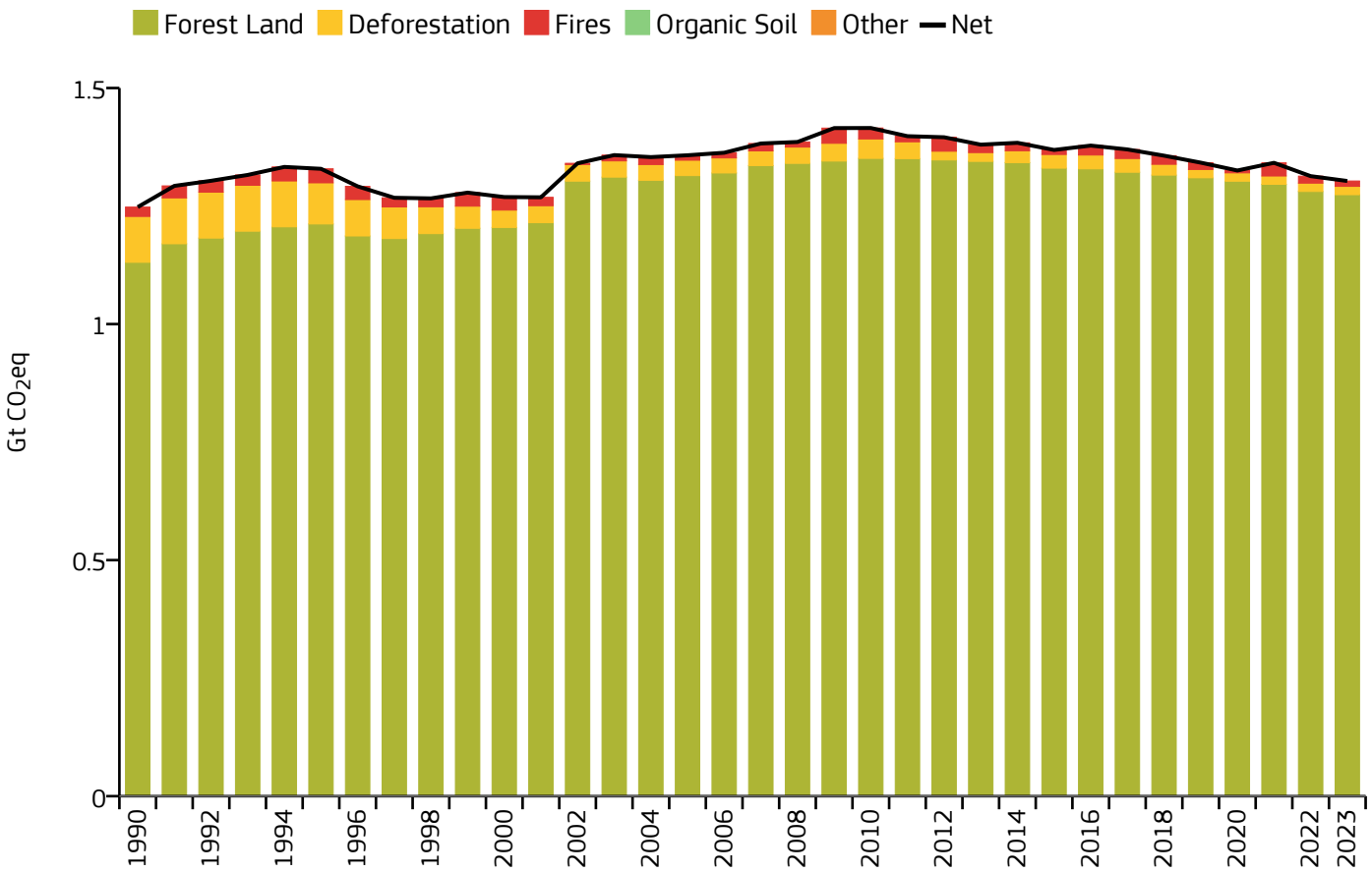


Year	1990	2000	2015	2023
Net flux (Gt CO_2eq /yr)	2.159	1.970	2.922	2.307

Countries included in South-East Asia and developing Pacific:
Brunei; Cambodia; Cook Islands; Fiji; French Polynesia; Indonesia; Kiribati; Laos; Malaysia; Myanmar/Burma; New Caledonia; Palau; Papua New Guinea; Philippines; Samoa; Singapore; Solomon Islands; Thailand; Timor-Leste; Tonga; Vanuatu; Viet Nam.

Southern Asia

GHG emissions and removals from LULUCF sector



Year	1990	2000	2015	2023
Net flux (Gt CO_2eq /yr)	1.248	1.269	1.369	1.303

Countries included in Southern Asia:
Afghanistan; Bangladesh; Bhutan; India; Maldives; Nepal; Pakistan; Sri Lanka.

Disclaimer

This publication presents GHG emissions from all countries, while GHG emissions from LULUCF are presented for the EU27 and by macro-regions.

Throughout this report, the term 'country' or 'countries' is used to refer to entities that include countries and/or territories in accordance with the list available at the Interinstitutional Style Guide of the European Union and the "Short name" definition listed in the "List of countries, territories and currencies" table at https://style-guide.europa.eu/en/content/-/isg/topic?identifier=annex-a5-list-countries-territories-currencies has been used (updated on 30/06/2024). This list does not represent the official position of the European institutions with regard to the legal status or policy of the entities mentioned. It is a harmonisation of often divergent lists and practices.

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