
CO_2
EMISSIONS

N° 1 Despite the adoption of the Paris Agreement and the Covid-19 pandemic, global CO_2 emissions continue to grow

- Global CO_2 emissions hit a new record in 2022, despite the drop observed in 2020 during the Covid-19 pandemic.
- Emissions have plateaued in the OECD. The EU and the UK have embarked on a sustained reduction in their territorial emissions. The trend has been more erratic in the United States since 2000. Japan reached its peak in 2013, as did Australia in 2017 and South Korea in 2018, more as a result of weak GDP growth than a real shift in the energy mix.
- Emissions are growing mainly in non-OECD countries, which now account for 60% of global emissions. More than 70% of the growth in global emissions since 2000 has taken place in China, where per capita emissions even exceed those of the EU. Despite strong growth, per capita emissions in India and Indonesia remain well below those of the industrialised countries.
- Carbon inequalities are increasingly well measured, and can now be observed both between nations and between income levels within countries. For example, the carbon footprint of China's middle and upper classes is converging with that of industrialised countries, and increasing the gap with the lowest incomes.

KEY FIGURES

Global emissions have not dropped since the Paris Agreement

- **52.8 Gt** of greenhouse gases emissions (excluding land-use) in 2021, vs. 49.2 $GtCO_2e$ in 2016 (UNEP, 2022).
- **+7.2% CO_2 emitted** between 2015 (35.6 $GtCO_2$) and 2022 (38.2 $GtCO_2$), in cumulative annual growth. 88% of these emissions were from fossil fuel combustion (Enerdata, 2023).
- **48% of global CO_2 emissions** are linked to energy production, ahead of industry (23%), transport (20%), buildings (8%), and agriculture (1%) (*ibid.*).

The intersecting trajectories of territorial emissions in emerging and industrialised economies

- **84% of global emissions are from the G20**, a constant share since 2000. But 49% from BRICS in 2022, vs. 28% in 2000. China's, India's and Indonesia's emissions have grown fivefold (*ibid.*).
- **The European Union (-25,6%)**, the United Kingdom (-42.6%), Japan (-9.1%), the Unites States (-1,9%) have reduced their emissions from 1990 to 2022.
- **-0,13 tCO_2 per capita** between the peak in 2013 (4.4 tCO_2 per capita) and 2022 (4.27 tCO_2 per capita) at the global level (*ibid.*).

The carbon footprint of the middle and upper classes widens inequalities in emissions

- **The world's leading emitter**, China's carbon footprint (8.3 tCO_2 per capita) is still smaller than that of the EU (11 tCO_2 per capita) and the United States (21 tCO_2 per capita) (INSEE, 2023).
- **1/3 of the carbon footprint of the EU** stems from its imports, vs. 26% in case of the US and 14% in China (*ibid.*).
- **The richest 10% emit 48% of global emissions** (IEA, 2023). 2/3 of carbon footprint inequalities stem from within countries, rather than between them, as the upper-middle classes of emerging economies expand (Chancel, 2022).

FURTHER READING

- Global Synthesis Report on Climate Action by Sector – 2018, 2019, 2020, 2021, 2022
- Global Synthesis Report on Climate Finance – 2018, 2019, 2020, 2022
- Global Synthesis Report on Local Climate Action – 2018, 2019, 2021, 2022
- Global Energy Trends 2023 (Enerdata)

TRENDS
EMISSIONS

Since the Paris Agreement, emissions have reached a record high despite transitions underway in some sectors

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Global CO_2 emissions reached a new record in 2022. At a time when most of the negotiation items under the Paris Agreement are stumbling over the issue of financing and North-South solidarity, the intersecting emission trajectories of the industrialised countries and the major emerging economies are redrawing the divisions between past, present and future responsibilities. Nevertheless, territorial emissions, fruit of the international division of economic activities, mask major inequalities in carbon footprints between nations, reflecting the general level of consumption of their inhabitants. Carbon footprint inequalities are now widening as much between income levels within countries as between countries: the middle and affluent classes in the major emerging economies, especially in China, are adopting lifestyles that are just as carbon-intensive as those in industrialised countries. Public support for coal-fired power stations in the countries of the South and the inability of the countries of the North to embark on in-depth decarbonisation of their end-uses (transport, buildings, etc.) have led to the trends of transition identified in some industrial sectors.

Record concentrations of greenhouse gases are accelerating the rise in temperatures

In 2022, global surface temperatures were 1.15 [1.02 to 1.28] °C higher than pre-industrial temperatures recorded between 1850 and 1900, according to observations by the World Meteorological Organisation (WMO).[1] This warming is the result of the increase in the concentration of greenhouse gases (GHGs) in the atmosphere from the pre-industrial period (1750) to the present day: +149% in carbon dioxide (CO_2), +262% in methane (CH_4) and +124% in nitrous oxide (N_2O). These levels of concentration had not been observed for hundreds of thousands of years. The concentration of CO_2, which had never exceeded 300 ppm for 800,000 years,[2] rose from 278.3 ppm in 1750 to 285.5 ppm in 1850, then to 400 ppm in 2015, peaking at 415.7 ppm in 2021, the last year for which consolidated figures are available.[3]

As early as 1896, the Swedish chemist and physicist Svante Arrehnius identified the link between CO_2 emissions linked to human activities and the possibility of global warming. Since it was set up in 1988, the Intergovernmental Panel on Climate Change (IPCC) has consistently confirmed the influence of human activities on the climate system in its publications, going so far as to state in its sixth assessment report that the human origin of global warming is now "unequivocal".[4] For the past six years, the Observatory has therefore been looking at anthropogenic emissions, in order to tell the complex story of on-the-ground action that underlies the changes in emissions.

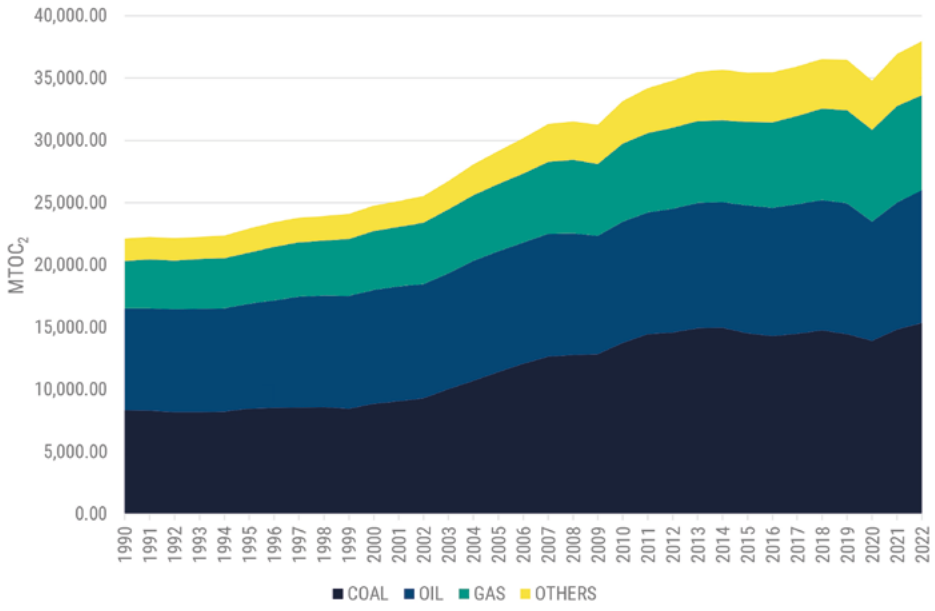
Since the Paris Agreement, global emissions continue to break records

Global greenhouse gas (GHG) emissions excluding land use, land-use change and forestry (LULUCF) amounted to 52.8 gigatonnes of CO_2-equivalent ($GtCO_2e$) in 2021, according to the 2022 edition of the United Nations Environment Programme's (UNEP) "Emissions Gap" report.[5] This is lower than the peak of 56.4 $GtCO_2e$ reached in 2019, due to the pandemic-driven fall in emissions in 2020, but already much higher than the 51 $GtCO_2e$ recorded in 2010 and the 42 $GtCO_2e$ measured in 2000. These figures include all greenhouse gases, the main ones being carbon dioxide (around 75%) and methane (around 16%), followed by other gases such as nitrous oxide, sulphur hexafluoride (SF_6) and fluorinated gases (F-gases).

FIGURE 1

GLOBAL CO_2 EMISSIONS BY FUEL, 1990-2022 ($MTCO_2$)

Source: Climate Chance, based on data from Enerdata



Global CO_2 emissions excluding LULUCF rose from 35.6 $GtCO_2$ in 2015 to 38.2 $GtCO_2$ in 2022, according to Enerdata figures, a growth of 7.2%. The annual growth rate of CO_2 emissions between 2010 and 2022 (1%) is lower than that observed during the decades 2000-2010 (2.7%) and 1990-2000 (1.1%). **88% (33.9 $GtCO_2$) of these CO_2 emissions were attributable to the combustion of fossil fuels** (FIGURE 1): coal (46%), oil (29%) and gas (24%). The remaining 12% came from industrial processes. Emissions associated with forests, agriculture and land use change are examined later in this report (CF. "LAND USE" TRENDS).

The global energy mix is still heavily dependent on fossil fuels (CF. "ELECTRICITY" TRENDS). Between 2015 and 2022, the annual consumption of petrol, gas and coal in absolute terms has increased by 4%, 16.5% and 8% respectively. **While the use of fossil fuels to generate electricity has fallen slightly since 2015, their share of the global energy mix has remained stable at around 80% for decades**.[6] Investment in renewable energies has only partially offset the structural decline in coal, which has also increased the share of gas, though this has been hindered by geopolitical events since 2020. The Observatory has analysed this duality in the transition of power generation away from coal in a number of countries that have recently fully or partially phased out coal, such as the United Kingdom,[7] the United States[8] or Spain.[9]

The sectoral breakdown of emissions has stayed stable

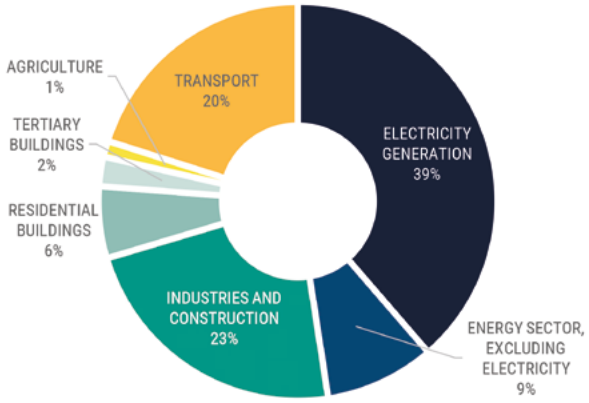
CO_2 emissions from combustion originate from the consumption of hydrocarbon-based and mineral solid fuels used in the various energy production and consumption activities (FIGURE 2). Energy industries, such as power generation and refining, were responsible for almost half (48%) of global CO_2 emissions in 2022. Manufacturing and construction industries, such as iron and steel and chemicals, accounted for 23% of emissions, followed by transport (20%), residential and tertiary buildings (8%) and agriculture (1%). This breakdown has not changed much since the signing of the Paris Agreement, or since 1990, except that emissions linked to energy production are taking up a little more space, mainly due to efficiency gains in other sectors.

On the other hand, the sectoral composition of emissions can vary more significantly from country to country. In France, for example, where electricity production is relatively low-carbon due to the country's nuclear fleet, the share of emissions linked to energy production is much lower (14%), and that of transport much higher (43%). Thus, each country is in a position to determine its priorities for action according to the origin of its emissions.

FIGURE 2

GLOBAL CO_2 EMISSIONS BY SECTOR, 2022 ($MTCO_2$)

Source: Climate Chance, based on data from Enerdata

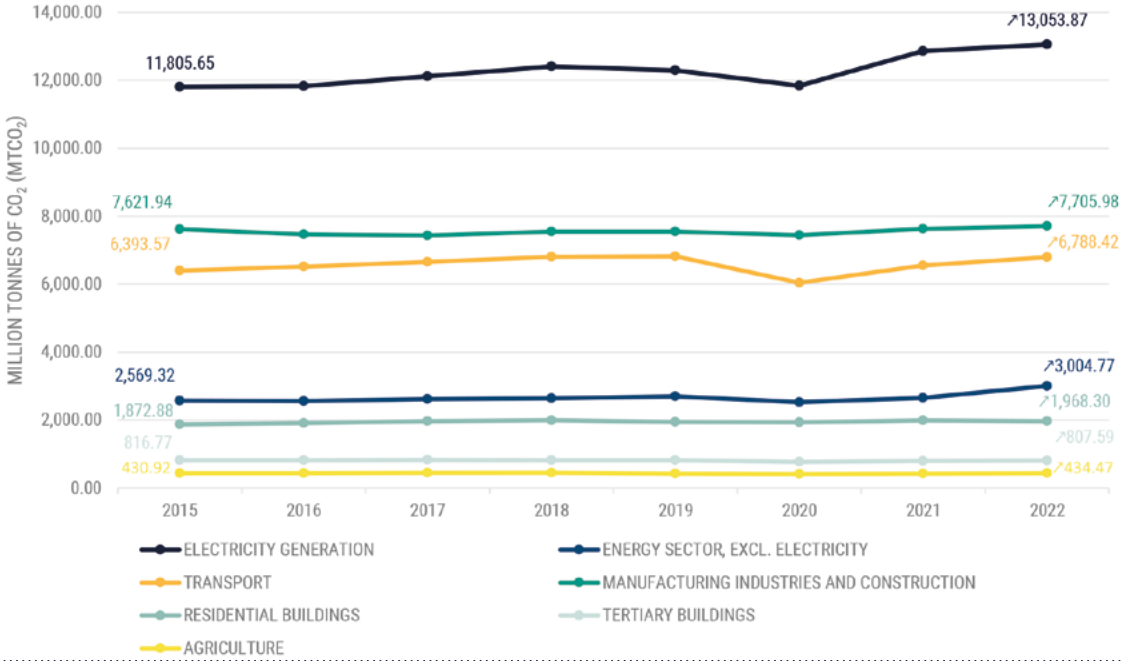


Since the Paris Agreement, not a single sector has escaped the general trend of increasing CO_2 emissions (FIGURE 3). The only blip in this trend has been the Covid-19 pandemic and the lockdown decisions by countries, which slowed the economy to the point of generating the biggest drop in emissions (-4.8%) since the 2009 economic crisis (-1.1%), particularly affecting the transport sector (-11.4%). However, after a spectacular rebound in 2021 under the effect of economic stimulus policies when the lockdowns were gradually lifted, emissions have very quickly returned to their growth rate and are already above their pre-pandemic levels (2019), except for transport and tertiary buildings. The various sectoral "Trends" in this report take a more in-depth look at the trajectories of each emissions sector (CF. "TRANSPORT" AND "BUILDINGS" TRENDS).

FIGURE 3

GLOBAL CO_2 EMISSIONS BY SECTOR, 2015-2022 ($MTCO_2$)

Source: Climate Chance, based on data from Enerdata



While stagnating in the OECD, emissions growth is concentrated in emerging countries

There are two approaches to measuring and tracking the greenhouse gas emissions of a country, city or region. The inventory approach accounts for emissions produced within the administrative and geographical boundaries of the jurisdiction studied, while the "footprint" approach, which incorporates emissions embodied in imports and exports, is more reflective of consumption behaviour in a globalized economy. **Going by the inventory approach, the emissions of G20 countries[a] accounted for 84% global CO_2 emissions. This ratio has remained virtually unchanged since 1990, but this group covers very different dynamics over the period.** The share of the BRICS (Brazil, Russia, India, China, South Africa) in global CO_2 emissions was only 28% in 2000, but rose to 49% in 2022. China, which increased its territorial emissions fivefold between 1990 and 2022, now accounts for over a third (34%) of global CO_2 emissions, as against 11% thirty years earlier. Even India, now the world's most populous country, still only emits 7% of emissions, compared to 3% in 1990 (**FIGURE 4**).

Conversely, the European Union (EU-27), whose territorial emissions fell by a quarter (-25.6%) over the period, now accounts for just 7% of global emissions, compared with 18% in 1990. The United States, which emitted 23% of CO_2 in 1990, accounts for just 13% by 2022, having reduced its emissions by only 1.9%. Downward trends can also be seen in Japan (-9.1%) and, above all, in the UK (-42.6%), which the Observatory's 2019 analysis showed to be almost entirely coal-free.[10] On the African continent, emissions rose by 122% between 1990 and 2022, but its share of global emissions only increased from 2.9% to 3.8%.

Since the Paris Agreement, territorial emissions from OECD countries have globally decreased by 6.5%, while they were rising by 15% in non-OECD countries. The European Union (-9.6%), Japan (-11.7%) recorded a much deeper drop than in North America (-5.3%) or Australia (-5.8%). Conversely CO_2 emissions rose by 17% in China, 23% in India and more than 56% in Indonesia. Emissions from the African continent grew by 8.7% over the period.

a G20 countries include Argentina, Australia, Brazil, Canada, China including Hong Kong, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, the United Kingdom, the United States and the European Union.

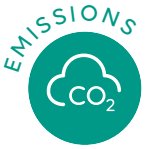
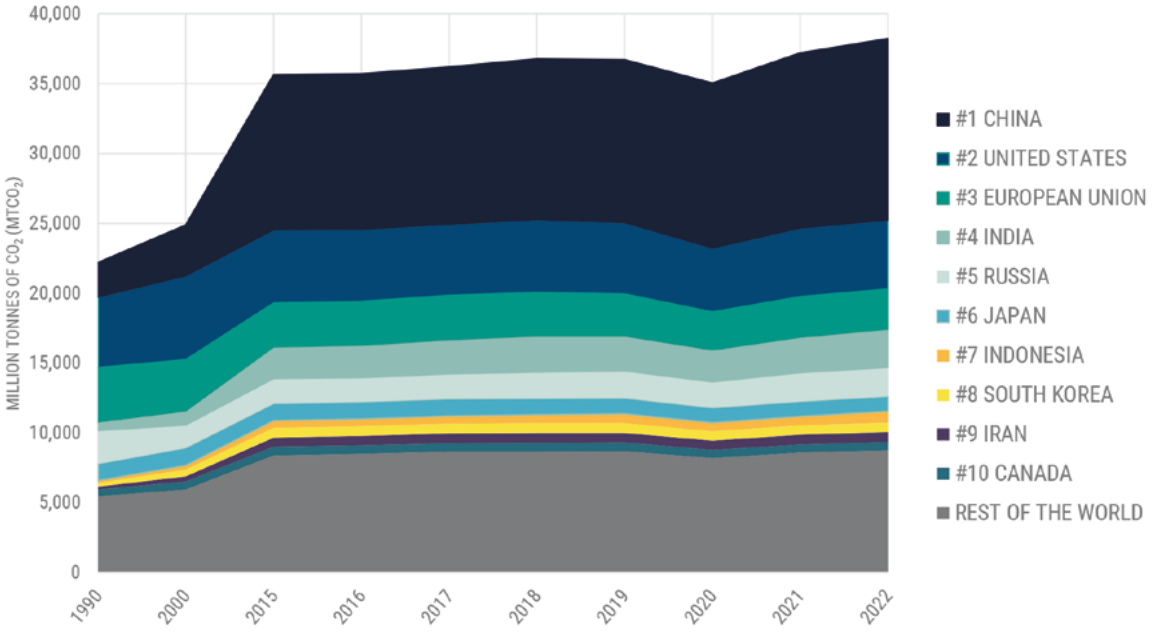


FIGURE 4

CO_2 EMISSIONS OF THE 10 HIGHEST EMITTERS AND OTHERS, 2015-2022 ($MTCO_2$)

Source: Climate Chance, based on data from Enerdata

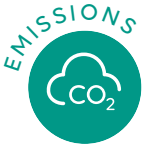


The Covid-19 pandemic in early 2020, followed by the war in Ukraine in February 2022, were two exogenous factors that broke with the trends of the past two decades. All regions of the world were affected, to varying degrees, by the economic impact of travel and activity restrictions imposed by governments during the pandemic. All continents saw an exceptional drop in CO_2 emissions that year: North America (-10.3% CO_2 emissions), Europe (-7.8%), Africa (-7.3%), the Pacific nations (-4.8%), the Middle East (-3.4%)... Only China saw a steady rise in CO_2 emissions (+1.5%) in 2020, mitigating the effect perceived on the Asian continent (-1.3%).

The effect was short-lived, although the pandemic had major economic and political implications, as we analysed in our 2020 and 2021 Global Synthesis Reports. **By 2021, global CO_2 emissions had exceeded their pre-pandemic level (2019) by 1.3%, and by 4.1% in 2022.** But trajectories diverge according to the economic areas observed. OECD countries[b], where CO_2 emissions fell by 8.9% in 2020, saw a rebound in 2021 as elsewhere, but returned to the downward trajectory observed since 2005: emissions in 2022 remained 3.4% lower than in 2019. Only Mexico, Sweden and Turkey overshot their pre-pandemic emission levels – with Turkey already having returned to a trajectory of falling emissions.

Outside the OECD, emissions fell by a smaller proportion during the lock-downs (-2.3%). The rebound observed was all the more spectacular in 2021 (+6.3%), as it considerably accelerated the annual growth rate of emissions in 2022 (+4%) compared to the 2010-2019 decade (+2% on average each year). This trend is particularly striking in the BRICS. There, the effect of the pandemic was even weaker (-1.2%), and the rebound was even more pronounced in 2021 (+7%), although the preponderance of Chinese emissions should not be overlooked. A singular case, South Africa's emissions peaked in 2019, due to the difficulties encountered by Eskom, the state-owned company that supplies 90% of the country's electricity. Dilapidated infrastructure and corruption-ridden governance have led to a drop in national electricity production of almost 10% since 2018. While coal still

b OECD countries here include the USA, Canada, South Korea, Australia, New Zealand, Mexico and the following European countries: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Iceland, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Turkey, United Kingdom. The most recent members from Latin America (Chile, Colombia, Costa Rica) are not included.



accounts for more than 85% of the electricity mix, this phenomenon has considerably reduced emissions from the sector, which is responsible for half of South Africa's CO_2 emissions.

Other major emerging countries are posting spectacular growth in emissions. Indonesia has become the world's sixth largest emitter, while its CO_2 emissions excluding LULUCF in 2022 (823 $MtCO_2$) were already more than a quarter higher than in 2019 (653 $MtCO_2$). The reason: coal and oil consumption growing by 33% and 12% respectively between 2021 and 2022, as analyzed by the Global Carbon Project.[11] Part of this record demand can be explained by efforts to restore post-pandemic industrial production, but it is not the only reason: the installed capacity of coal-fired power plants has risen from 25.4 GW in 2015 to 40.6 GW in 2022. The opening of new power plants is in line with Indonesian President Joko Widodo's plans to increase the country's capacity to extract and process nickel, a strategic metal that is crucial to the manufacture of lithium-ion batteries, which contribute to the electrification of road transport (**CF. "TRANSPORT" AND "INDUSTRY" TRENDS**). Numerous nickel smelters opened in Indonesia in 2019, which explains the jump in emissions from the industrial sector of almost 66% in just three years. In January 2023, Indonesia introduced a new mandatory emissions trading scheme for coal-fired power plants over 25 MW.[12]

The effects of the war in Ukraine on gas demand have been more concentrated on the European continent and have prolonged a trend that had already begun. In reality, the first tensions on the gas market appeared in the second half of 2021, due to a combination of economic and climatic effects. Against the backdrop of a cold winter in 2021 in the northern hemisphere and a global economic recovery, strong demand from Asian markets for liquefied natural gas (LNG) competed with European its demand, combined with a fall in European gas production and low gas stocks. A drought in Brazil during the summer also increased demand for LNG to make up for shortfalls in hydroelectric power generation. At the end of 2021, tankers loaded with LNG initially destined for Asia were finally rerouted to Europe, where the shortage of gas had led to an explosion in the price of FFT-future contracts and where suppliers were prepared to pay a higher price. Throughout the year, the Chinese, Japanese and Korean markets outbid European demand, generating spectacular inflation from early spring 2021.[13]

Russia's invasion of Ukraine in February 2022 has prolonged and accentuated this tension on the European continent. Russia's share in EU gas imports fell from 39% in the second quarter of 2021 to 13% in 2023.[14] To make up for this, the European Union has resorted to other trading partners, with whom it has contracted long-term LNG imports (Qatar, the United States, etc.). The RePowerEU strategy adopted in May 2022 has strengthened the objectives set by the European Green Deal and the Fit-for-55 strategy, with the aim of reinforcing energy independence by focusing on electrification and the deployment of renewable energies. Energy sufficiency has also entered the public debate in France, Spain, Italy and many other European countries, in the form of calls for individual and collective responsibility to reduce energy consumption against a backdrop of tensions over gas supplies. While an effective drop in electricity consumption has been observed energy-intensive industries in France in 2022 for example, there are many explanatory factors, which will require in-depth monitoring over time.[15] As a result, gas consumption in the European Union fell by 16.5% between 2021 and 2022: while it had rebounded in 2021 above its pre-pandemic level, emissions linked to gas combustion fell by almost 13%, falling below their 2015 levels.

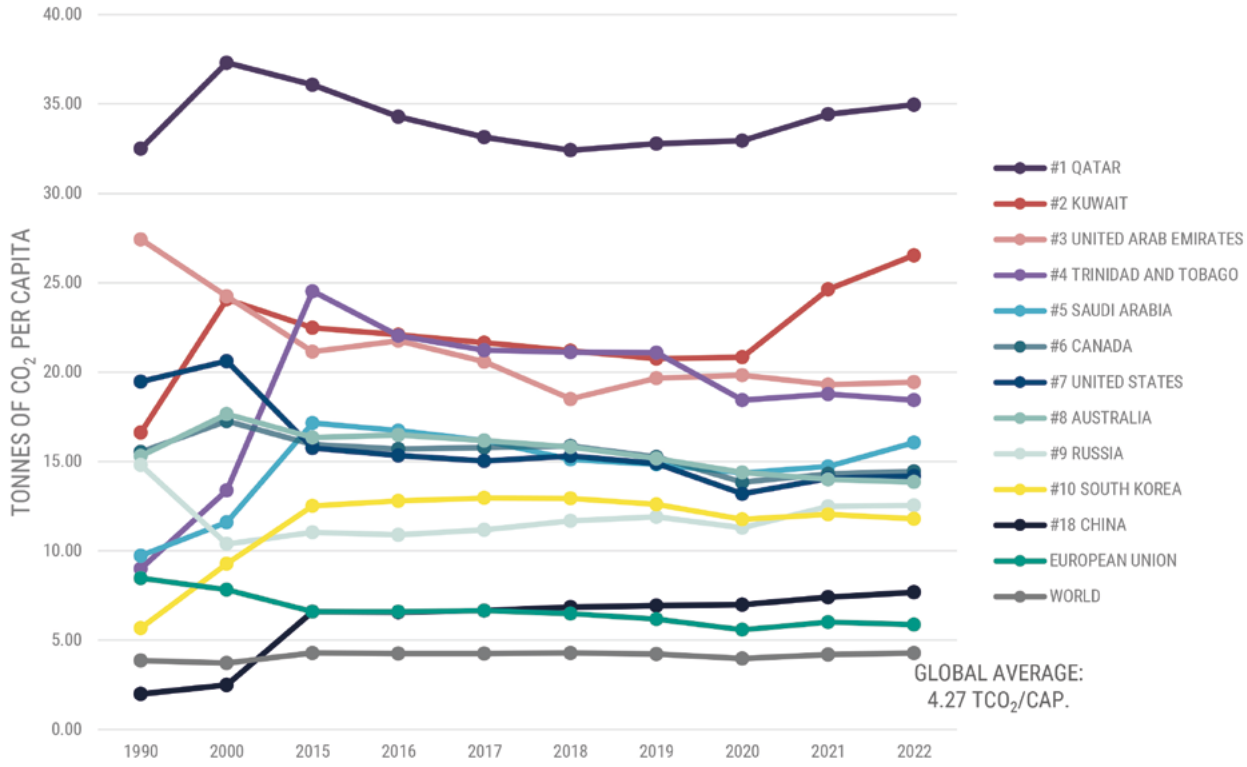
The carbon footprint, a marker of international as well as domestic inequalities

Global per capita emissions in 2022 (4.27 tCO_2 per capita) are down from 2015 levels (4.29 tCO_2/cap), and especially below the peak reached in 2013 (4.4 tCO_2/cap). On a per capita basis, territorial emissions remain more than twice as high in the OECD (8.17 tCO_2/cap) as in other countries (3.45). They are high as 34.4 tCO_2 per capita in Qatar, 14.1 tCO_2/cap in the United States, 8 tCO_2/cap in Japan, 7.7 $MtCO_2$/cap in China and 5.88 tCO_2/cap in the European Union. Territorial per capita emissions are also following intersecting trajectories; they peaked in 2000 in OECD countries (10.71 tCO_2/cap), while they tripled in China over the same period, overtaking the European Union. Despite the impressive growth in its national emissions over the last two years, Indonesia's per capita emissions (2.8 tCO_2/cap) remain well below those of most industrialised economies (**FIGURE 5**).

FIGURE 5

PER CAPITA CO_2 EMISSIONS OF THE TEN HIGHEST EMITTERS, 2015-2022

Source: Climate Chance, based on data from Enerdata



While territorial accounting of national emissions does reflect the political choices and orientations of governments, it is biased against countries that host natural resources or industrial activities that benefit the global economy as a whole. This is true of oil-exporting countries: the Gulf States, of course, but also Trinidad and Tobago, which has the world's fourth-largest per capita territorial footprint due to its status as the world's fifth-largest oil producer and the largest supplier of liquefied natural gas (LNG) to the United States. This is also the case for the new industrial and manufacturing powers that have emerged since the early 2000s, such as China, where industries account for 40% of GDP – against about 20% in the US and the EU. China's trade surplus has increased 28-fold between 2000 and 2021.

The carbon footprint, which takes into account the emissions embodied in the goods and services consumed by a country's inhabitants, offers a more refined indicator for measuring the economic distribution of emissions. The French National Institute for Statistics recently published a comparative study on this subject, using the example of the European Union, the United States and China.[16] The EU appears first and foremost as a 'net importer' of emissions: its per capita carbon footprint (11 tCO_2e) exceeds the per capita emissions calculated using the territorial approach (9.2 tCO_2e). In the United States, an even greater gap separates the per capita carbon footprint (21.3 tCO_2e) from per capita emissions measured by inventory (17.5 tCO_2e). Conversely, in China, per capita GHG emissions calculated using the territorial inventory approach (8.5 tCO_2e in 2018) are slightly higher than the carbon footprint per inhabitant (8.3 tCO_2e). In absolute terms, these carbon footprint levels reflect differences in purchasing power, demographic dynamics and economic growth. But breaking down these footprints also reveals uneven progress in local efforts to decarbonise. In each of these three economic zones, 85% of final demand for goods and services is met by domestic production, and 15% by imports. Yet imports account for 33% of the carbon footprint in the EU, 26% in the US and 14% in China. This difference results from EU and US domestic production being both more tertiarised and more advanced in its decarbonisation. The opposite is true in China, where domestic production, which is more industrial, is also highly carbon-intensive due to an electricity mix that is 62% coal-based.

It can be argued that the global distribution of industrial activities, and therefore emissions, has shifted in recent decades towards more carbon-intensive

countries, as value chains have become more international. China's entry into the World Trade Organisation (WTO) in 2001 seems to have marked a real turning point in this respect. The average annual growth rate in global CO_2 emissions from industry rose from 0.6% between 1990 and 2000 to 4.5% over the following decade. However, 80% of this increase in industrial emissions between 2000 and 2010 took place in China, while they fell by 15% in the European Union and 22% in the United States over the same period. As a result, while China accounts for a larger share of global industrial emissions – going from around 20% between 1990 and 2000 to 40.3% in 2018 – it is also driving absolute growth in global production, driven by the growing purchasing power of its middle classes.

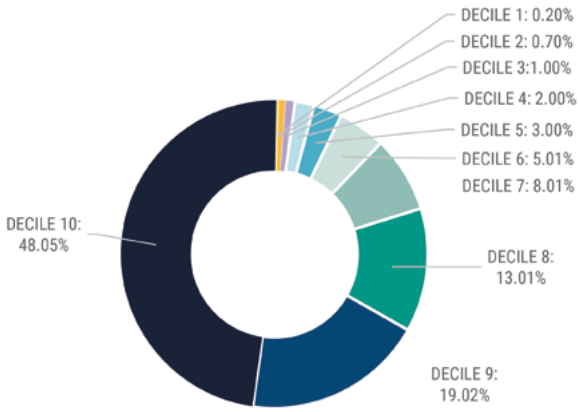
The transformation in the geographical distribution of global emissions also reflects the internal development trajectories of the major emerging countries, and not just the relocation of polluting activities away from industrialised countries, and cannot be summed up by the demographic growth of emerging countries alone. China's GDP per capita, measured in purchasing power parity, which was just $2.92 per capita in 2000 – compared with an OECD average of $24.6 per capita – increased sevenfold by 2022, and that of the BRICS as a whole by almost fivefold. This economic development is also reflected in infrastructure investment and the population's consumption. For example, while China is a net exporter of crude steel, accounting for 54% of global production, it is also by far the world's second largest consumer of finished steel, behind South Korea.[17] It has also become the world's leading car market, with the car ownership rate rising from 93 vehicles per 1,000 inhabitants in 2015[18] to 221 per 1,000 in 2022[19] (compared to 651 in Europe and 831 in the United States). Studies have shown that changes in consumption patterns by the middle and high-income classes are increasing the carbon footprint and emissions of Chinese households, as well as inequalities between urban and rural populations.[20,21]

Another change indicates that the differences in carbon footprints between income levels within countries are as important as the differences between countries. In a study published in Nature Sustainability at the end of 2022, the economist Lucas Chancel identifies two forces driving the increase in individual carbon footprint inequalities around the world: changes in average emission levels between countries, and changes in emission inequalities within countries. In 1990, 62% of carbon footprint inequalities were explained by differences in wealth between countries: the average citizen of a rich country almost invariably emitted more than the rest of the world. The situation has been completely reversed: it is now inequalities within countries themselves, between rich and poor, that explain almost two-thirds of global inequalities in emissions.[22]

FIGURE 6

ENERGY-RELATED CO_2 EMISSIONS BY INCOME DECILE, 2021

Source: International Energy Agency, 2023

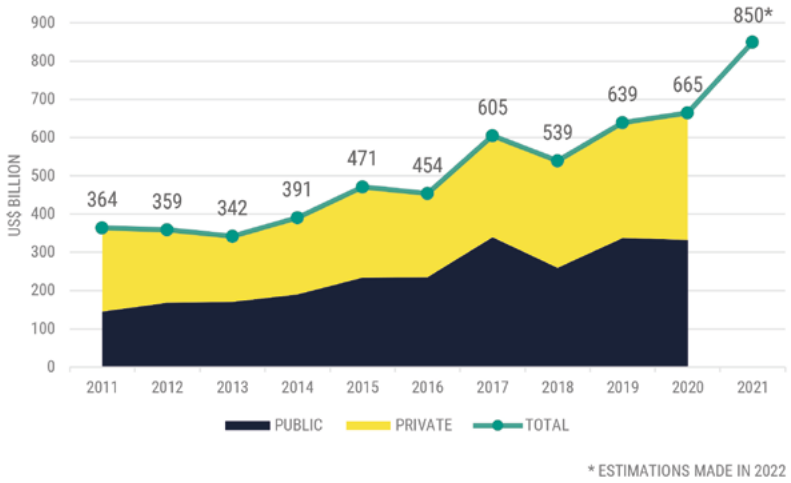


On a global scale, the International Energy Agency estimates that the richest 10% are responsible for almost half of the world's CO_2 emissions, while the poorest 10% emit just 0.2% (FIGURE 6).[23] These disparities can now be seen in both developed and emerging economies. In the United States and Europe, the top deciles emit three to five times more than the median level; in China and India, the ratio is five to eight. Inequalities persist between countries at all levels. In the United States, the 33 million people belonging to the richest 10% emit up to 55 tCO_2 per person per year, compared with just 7 tCO_2 per capita for the richest 10% in India. Similarly, says the IEA, the lowest deciles in the United States, Canada, Japan and South Korea always emit more than the global median. For example, the poorest 10% in the United States emit 3.5 tCO_2 per capita, compared with 0.2 tCO_2 per capita for the poorest 149 million in India. The gaps between the middle classes are narrower, particularly between the European Union and China.

FIGURE 7

GLOBAL CLIMATE FINANCE FLOWS, 2011-2020 ($ BILLION)

Source: Climate Policy Initiative, 2022



The ambition level of commitments remains too low to bring about a real reduction in global emissions

In 2015, the Parties to the Paris Agreement pledged to limit global warming to 2 °C or even 1.5 °C above pre-industrial averages. A veritable compass for climate action since the Paris Agreement and the publication of the IPCC's special report in 2019, the goal of "carbon neutrality" is now enshrined in many NDCs. According to the latest count by Net Zero Tracker, 151 countries covering 88% of emissions, 92% of GDP and 89% of the world's population have formulated a carbon neutrality objective.[24] **However, while global emissions need to fall by 43% between 2019 and 2030 to stay below the 1.5 °C threshold, according to the IPCC [25] the current plans of the 193 Parties to the Paris Agreement only commit to reducing emissions by 2% over the period,** according to a UNFCCC study.[26] UNEP, in its 2022 "Emissions Gap" report, concludes that full implementation of these so-called Nationally Determined Contributions (NDCs) would, at best, only limit global warming to 2.4~2.6 °C above pre-industrial averages. According to analyses by the Climate Action Tracker, out of 39 countries + the European Union covering 85% of global emissions,[c] no government action is compatible with a trajectory of limiting global warming to 1.5 °C. Only a handful of countries – Ethiopia, Kenya, Morocco, Nepal, Nigeria, Norway, Bhutan, Costa Rica and the Gambia – are considered "almost sufficient".

Climate finance is making progress, but flows are still insufficient to meet the needs of the transition. According to the latest findings of the Climate Policy Initiative (CPI), published in 2022, an average of $653 billion in climate finance flows was mobilised in 2019-20, 15% more than in the previous two years. Initial estimates put the figure at $850-940bn in 2021, an increase of 28-43%, which would be a new record (**FIGURE 7**). Renewable energies, which are seven times more profitable than fossil fuels, account for more than half of these flows. However, public subsidies for fossil fuels exceeded all the climate finance mobilised between 2011 and 2020 by 40%. CPI estimates that the annual growth in flows is not in line with a 1.5 °C trajectory, which would require $4,300 billion a year by 2030. CPI points in particular to the weakness of the mobilisation of private finance.[27] **To maintain a 50% chance of keeping global warming below 1.5 °C, the world cannot emit more than 380 $GtCO_2$ between 2022 and 2030; in the light of all the above analyses, the 1.5 °C objective now seems more doomed than ever[28].**

Eight years after the signing of the Paris Agreement, Climate Chance intends to contribute to the debates leading up to the first Global Stocktake of collective progress by governments, by offering an extensive analysis of trends in climate action around the world. The aim of this sixth edition of the Global Synthesis Report on Climate Action is to identify and analyse the public policies, private initiatives and civil society movements that, against this gloomy global backdrop, are showing signs of transition.

c Climate Action Tracker assesses government climate action in terms of the impact of policies implemented, commitments, NDCs and the fair share of each in the global effort to reduce emissions.

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