

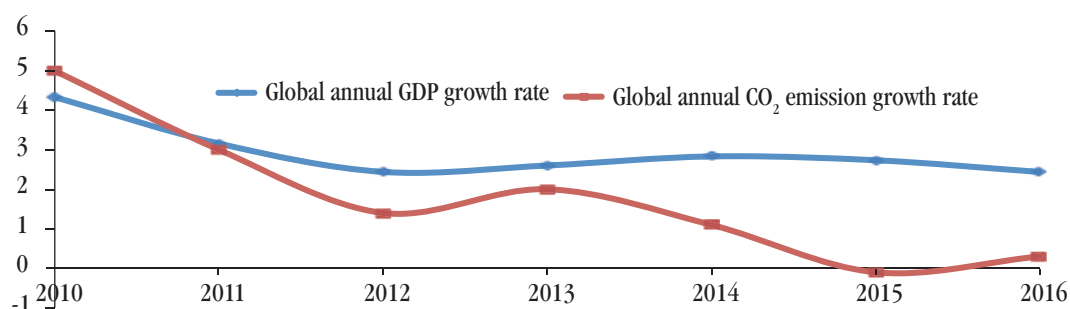
WHO IS EMITTING?

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In 2016, the total greenhouse gas (GHG) emissions globally was 49.3 billion tonne in CO₂ eq. This comprised of 35.8 billion tonne of CO₂ — out of which 32.1 billion tonne was fossil CO₂. It is estimated that the almost constant CO₂ emissions throughout 2016 was the result of a number of factors — such as a 9 per cent decrease in coal consumption, increase of 0.5 per cent in use of renewable energy, a 1.7 per cent increase in hydropower use, a 7.2 per cent rise in gas consumption, and a 1.8 per cent hike in oil consumption. Figure 1 shows that decoupling had become more pronounced between 2014-2016.

China, USA, EU-28, India, Russia and Japan stood in decreasing order in terms of CO₂ emissions. These six countries, accounting for 51 per cent of the world's population, emitted 68 per cent of global CO₂ and 65 per cent of global GHG emissions. China topped the CO₂ chart, emitting 29.2 per cent of the global emissions; its share of global population stood at 18.5 per cent. This was followed by the US and the EU with 14 per cent and 9.6 per cent of global emissions respectively. India accounted for 2.53 billion tonne of total global CO₂ emissions — 7.1 per cent (*see Tables 1 and 2 for country-wise CO₂ emissions and GHG emissions*).

Figure 1: Trend in global annual GDP growth rate vs global annual CO₂ emission growth rate



Source: World Development Indicators database, World Bank, 17 April 2017 and The EDGARv4.3.2 database, EC-JRC/PBL, 2017

Table 1: Share of global CO₂ emissions and population, 2016

Countries	Total CO ₂ emission (MT CO ₂ eq)	Share of world population	Share of global CO ₂ emission	Per capita emission (MT)
China	10,432	18.5	29.2	7.4
USA	5,011	4.3	14.0	15.6
EU-28	3,431	6.8	9.6	6.7
India	2,533	17.7	7.1	1.9
Russia	1,661	1.93	4.7	11.5
Japan	1,239	1.70	3.5	9.7
Germany	775	1.1	2.2	9.4
Canada	675	0.48	1.8	18.6
Iran	642	1.07	1.7	8
South Korea	604	0.68	1.6	11.8
Indonesia	530	3.50	1.5	2
Saudi Arabia	517	0.43	1.4	16
Mexico	441	1.71	1.2	3.4
Australia	441	0.32	1.2	18.3
Brazil	462	2.79	1.3	2.2
South Africa	390	0.75	1.1	6.9
United Kingdom	367	0.87	1.0	5.6
Italy	358	0.81	1.0	5.9
France	331	0.89	0.9	4.9
Poland	296	0.51	0.8	7.8
Spain	251	0.62	0.7	5.4
Ukraine	233	0.60	0.6	5.2
Netherlands	163	0.22	0.4	9.6
Rest of world	6,576	36.5	18.3	2.4

Source: The EDGARv4.3.2 database, EC-JRC/PBL, 2017; population source-World Bank, 2016

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2017



Table 2: Top 10 emitters — share of global GHG emissions (2014)

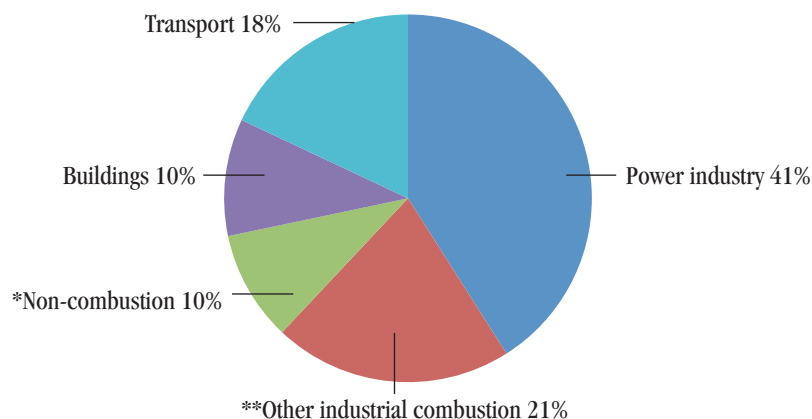
Countries	Share of global GHG emission (%)	Countries	Share of global GHG emission (%)
China	26.32	Japan	2.9
USA	14.07	Germany	1.8
EU-28	8.95	Indonesia	1.74
India	6.8	Canada	1.64
Russia	4.72	Iran	1.62

Source: Climate Analysis Indicators Tool (CAIT) Version 2.0 BETA (Washington, DC: World Resources Institute, 2015)

Where are the emissions coming from?

Over the past 10 years, the power sector has accounted for the highest emissions. Figure 2 gives the break-up in contribution from different sectors.

Figure 2: Global CO₂ emission from sectors in 2016



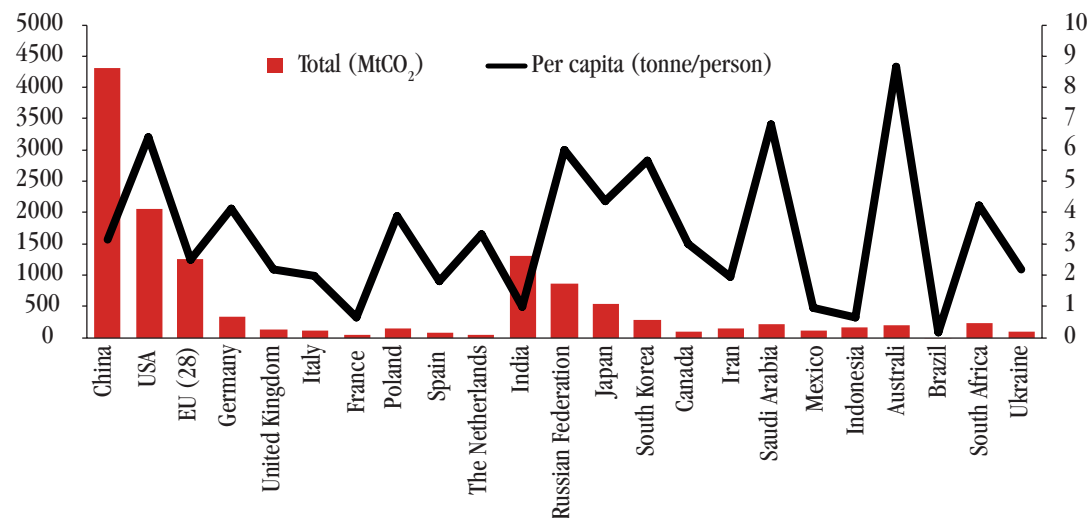
*Industrial process and agriculture and waste; **Industrial manufacturing and fuel production
 Source: The EDGARv4.3.2 database, EC-JRC/PBL, 2017

Power

The power sector is responsible for 41 per cent of the world's total emissions. India occupies the third slot among the biggest emitters in this sector, with a 10 per cent contribution. But despite a higher total contribution

(1.3 billion tonne), the per capita emission from this sector from India (0.98) is six times lower than that from USA (6.4) and two times lower than that from the EU (2.4) (Figure 3).

Figure 3: Total and per capita CO₂ emissions from the power sector, 2016



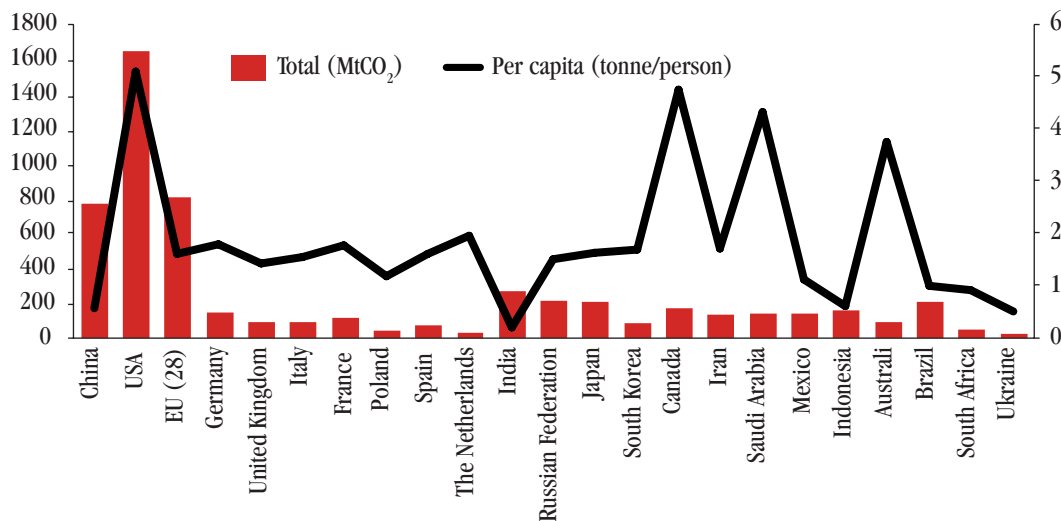
Source: The EDGARv4.3.2 database, EC-JRC/PBL, 2017

Transport

The transport sector contributed 18 per cent of total CO₂ emissions in 2016. This is expected to increase in future, especially with this sector accounting for consumption of over 90 per cent of petroleum-based

fuels in use. Figure 4 shows the per capita transport emissions of developed countries like USA (5), Canada (4.7), Australia (3.7) and EU (1.5), while China (0.5) and India (0.2) are characterised by relatively lower per capita emissions.

Figure 4: Total and Per capita CO₂ emission from transport, 2016



Source: The EDGARv4.3.2 database, EC-JRC/PBL, 2017

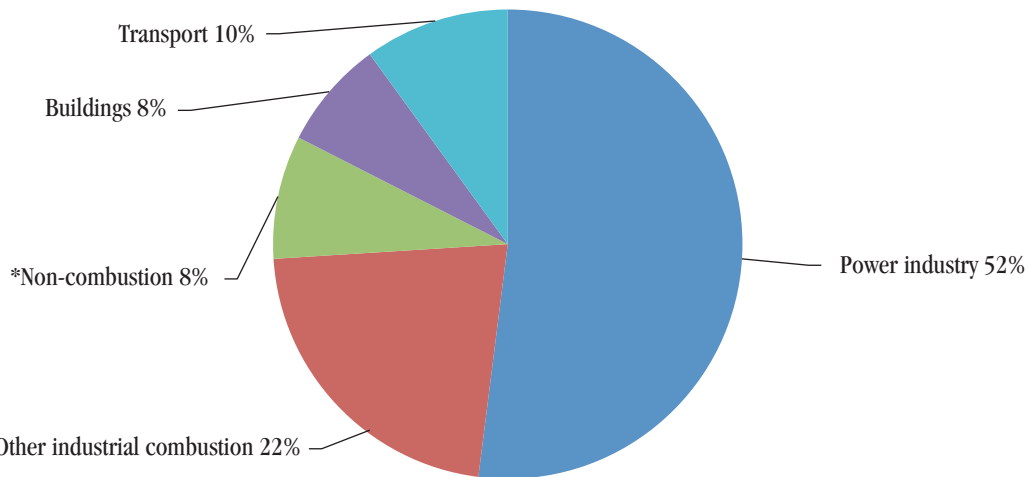
Emissions from India

While India ranks fourth in the world in terms of CO₂ emissions, it has a low per capita emission ranking of 140. In 2016, the power sector was responsible for a mammoth 52 per cent of India's national CO₂ emissions (see Figure 5 for sectoral emission contributions).

due to the 5.7 per cent per year increase in Total Primary Energy Supply (TPES) — 57 per cent of this is supplied by coal (see Figure 6 for contribution of fuel types to national CO₂ emissions). The country undergoes a 3.6 per cent hike in coal consumption annually: this has meant coal combustion has contributed 71 per cent of the nation's emissions. Besides power, manufacturing has also seen significant emission contribution.

India's continuous increment of CO₂ emissions to 2.53 billion tonne in 2016 from 2.47 billion tonne in 2015 is

Figure 5: Sector-wise CO₂ emissions in India, 2016

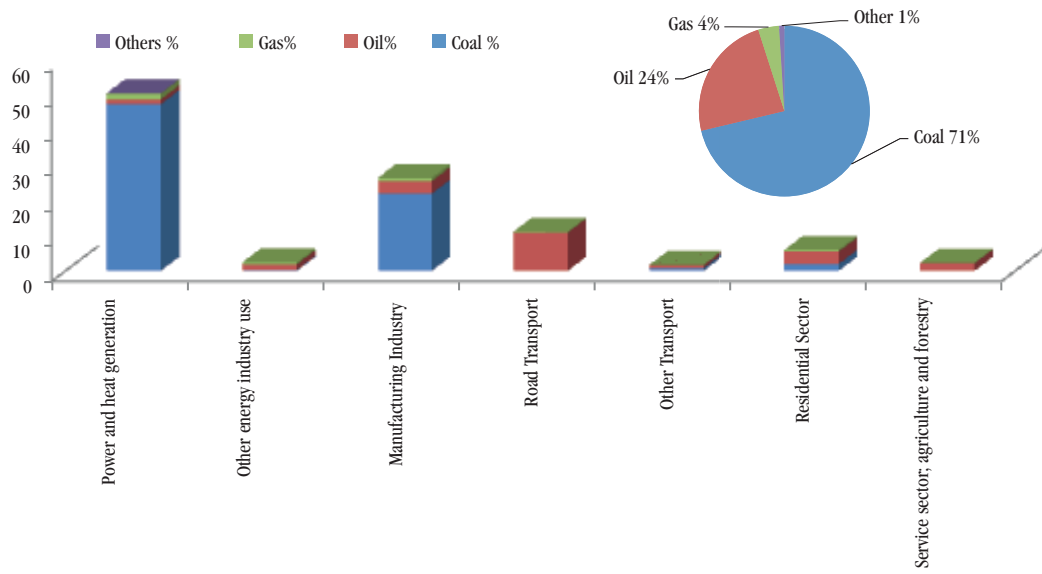


*Industrial process & agriculture & waste; **Industrial manufacturing & fuel production

Source: The EDGARv4.3.2 database, EC-JRC/PBL, 2017



Figure 6: Contribution of fuel types and sectors in CO₂ emissions in India, 2015



Source: The EDGARv4.3.2 database, EC-JRC/PBL, 2017