AGENDA 3: CHINA

RISE OF DRAGON NATION

By 2005, China's CO_2 emissions surpassed the US' and the country is currently the world's largest emitter

China says it will not build coal-fired power projects abroad but is silent about such plants at home

Despite its renewable energy plans, China will not be carbon neutral unless it curbs its coal power production

THERE IS a before-China and after-China period in climate change. Till the early 2000s, the US, EU, UK, Russia, Australia, Canada and Japan dominated global emissions. But this has changed significantly from the time China joined the World Trade Organization and became the factory of the world. By 2005, China's carbon dioxide (CO_2) emissions surpassed the US and the country is currently the world's largest emitter.

Between 1990 and 2019, China increased its share of global CO_2 emissions from 5.11 per cent to 20.72 per cent (see 'Chinese domination' on *p*35). In 2019 alone, it emitted roughly 28 per cent of the world's emissions—a whopping 10.17 gigatonnes (Gt) of CO_2. Because it has not set a quantifiable target for reduction—its Nationally Determined Contribution (NDC) is based on carbon intensity reduction—its emissions are expected to continue to grow in this decade.

According to an analysis by *Down To Earth* and the Centre for Science and Environment in Delhi, China will emit another 126 Gt of CO_2 and occupy 30 per cent of the remaining carbon budget for this decade (see 'The numbers behind climate change' on *p*8).

China's rapid growth is visible in terms of the fact that it has exceeded emissions of the other developed countries in a matter of two decades or so. By comparison, the historical emitters had over a century to reach this level. On cumulative terms, however, China's contribution is lower than the other historical polluters.

In terms of per capita emissions, China emitted 10.5 tonnes in 2019—five times that of India's meagre 1.9 tonnes of per capita CO_2 emission. This is despite the fact that both the countries have a comparable population.

This is also because China is the world's manufacturing hub, producing industrial and consumer goods used by most other countries. So, if the carbon accounting was done based on the consumption of goods then China's share in emissions would go down. This outsourcing of emissions is reflected in international trade—the import of consumer goods and services by the developed world. According to estimates of *Our World in Data*, an online data-based publication,

China in 2018 had the highest net exported CO_2 emissions (net value of -9.9 $GtCO_2$ derived from subtracting export-related emissions from those related to imports).

A more recent report by Lucas Chancel, a French economist, finds that if the carbon emissions embedded in goods and services imported and exported was accounted in carbon emission estimates, then EU emissions would be 25 per cent higher than reported. And China's emissions would go down in this way of carbon accounting—an inconvenient truth about the international trade.

HOLLOW GOALS

China's official NDC (Nationally Determined Contribution), submitted in Paris in 2016, is based on a carbon intensity target. In September 2020, President Xi Jinping announced that China will "aim to have CO_2 emissions peak before 2030 and achieve carbon neutrality before 2060". Xi Jinping also announced at the UN General Assembly in September 2021 that China will no longer build coal-fired power projects abroad. He did not, however, say anything about the coal-fired power plants in his country.

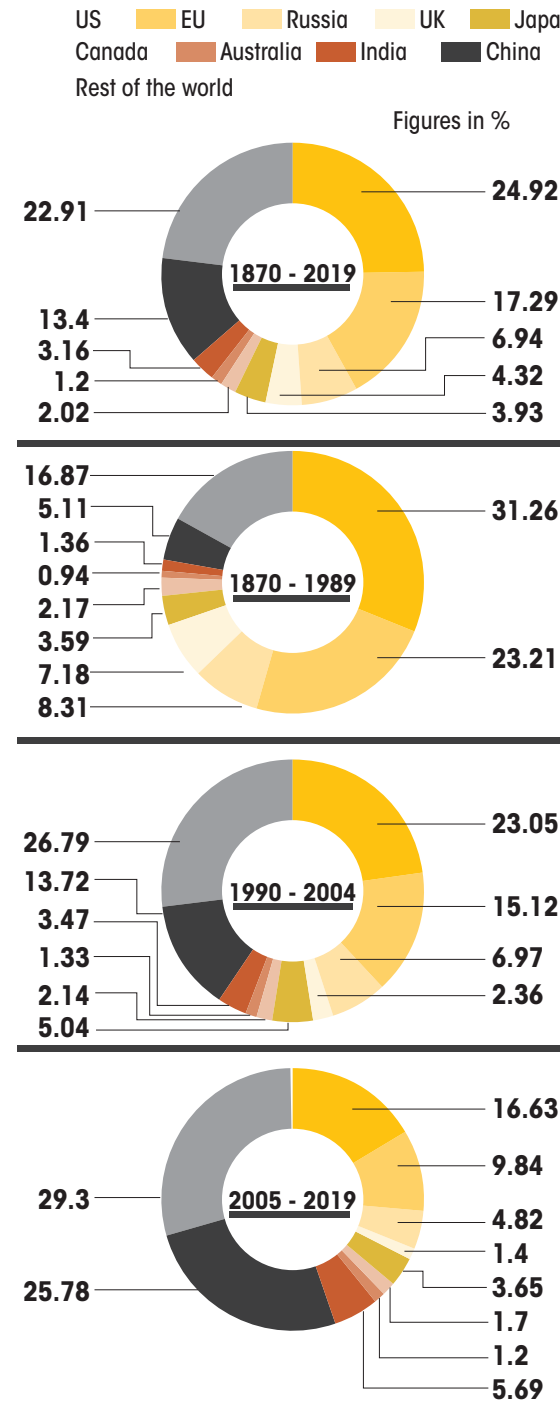
There is no doubt that China's announcement to halt the building of new coal power plants abroad is significant. More than 70 per cent of all coal plants built are reliant on Chinese funding, according to news outlet *Quartz*. China, mainly through its Belt and Road Initiative, has committed over US $50 billion in state finance to build 26.8 gigawatts (GW) of overseas coal facilities across 152 countries since 2013. These coal-based power plants were being built in energy-starved regions of the world.

But China's own domestic coal consumption is equally gargantuan. The country still runs over half of the world's operating coal fleet, which is growing. China's total installed coal capacity is estimated at 1,050 GW in 2020, half of the global total.

In 2020, China put another 38.4 GW of new coal-fired power capacity into operation—more than three times the amount that is being built elsewhere around the world. And so, despite all the talk about China's renewable energy, it is still dependent on coal for power—60.75 per cent of its electricity came from coal in 2020 while

CHINESE DOMINATION

From 5.1 per cent in 1870-1989, China's share in global CO_2 emissions has increased to over 25 per cent in 2005-2019



Source: Analysis by *Down To Earth* and Centre for Science and Environment, Delhi, based on data from Climate Watch and Our World in Data

If its current emissions continue, China could eat into one-third of the remaining carbon budget in this decade itself. This must be in the spotlight at the 26th session of the Conference of the Parties

20.02 per cent came from low-carbon sources like solar, wind and hydropower. India's non-fossil energy generation capacity is in fact higher than that of China.

This is when IPCC in its 2018 special report "Global Warming of 1.5°C" states that there must be a near-total reduction in coal use for electricity generation by 2050, with reductions of approximately two-thirds by 2030. Research by the Chinese Academy of Sciences in Beijing suggests that to achieve the Paris Agreement's goals, China would need to reduce its demand for coal to nearly zero by 2050, rather than increase it. The country will also need to cut its total CO_2 emissions and energy consumption by more than 90 per cent and 39 per cent by 2050. But all this suggests that China can continue to grow in this decade and contribute to the stock of greenhouse gas emissions in the atmosphere.

Given that the carbon budget is limited and given that the life span of CO_2 is long—it can stay in the atmosphere from 150 to 200 years—China must "front-load" its emission reduction in this decade itself.

RENEWABLES CAN'T OFFSET CARBON

Other than coal, China has made massive investments in renewable energy and electric vehicles, and surpasses all other countries in production capacity. This means, China will also be in the forefront to supply the world with clean energy technology, and in this way benefit from the climate mitigation efforts of the world.

China dominates every step of the global solar supply chain. For solar photovoltaic cells, Chinese companies have the lion's share of global manufacturing—it ranks first in the production of wafers, cells and modules globally. This market capture means that the world is heavily reliant on China for its ambitious renewable energy needs. Polysilicon, produced from silicon dioxide, is the key feedstock for solar cells. Xinjiang in Northwest China produces nearly half the world's polysilicon supply.

Business news network *Bloomberg* reports that these factories are also accused of using forced labour from the Uyghur community, an ethnic minority in China. In the lithium-ion battery supply chain, China controls 80 per cent of the world's raw material refining, 77 per cent of the world's cell capacity and 60 per cent of the world's component manufacturing, according to data from BloombergNEF, research service of the news network.

In terms of domestic renewable energy, China has an installed capacity of 253 GW of solar energy and 288 GW of wind energy by 2020. And as per its NDC, the plan is to augment the capacity to 1,200 GW by 2030, as against India's plan for 450 GW by 2030.

Despite its lofty renewable energy plans, China's goal for carbon neutrality will be unachievable unless it curbs its growing coal power production. To accelerate its efforts, it has announced massive tree planting initiatives—3.6 million hectares of new forest a year. But decarbonising its energy and industrial sectors must remain its top priority.

As the new global superpower and polluter, China's emissions will have a significant impact on the world's ability to achieve its climate goals. If its current emissions continue, it could eat into one-third of the remaining carbon budget in this decade itself. Clearly, this decade must belong to China and its drastic efforts to reduce greenhouse gas emissions. And this must be in the spotlight at the 26th session of the Conference of the Parties (COP26) to the UN Framework Convention on Climate Change meet at Glasgow, Scotland.