Emission Intensity - India

What is the issue?

- India is largely doing well in reducing emissions-intensity of its GDP as per the international commitments it has made.
- In this context, here is an assessment of India's emission scenario and the gaps to be filled.

How is India's emission scenario?

- As an emerging economy, India's greenhouse gas (GHG) emissions continue to rise.
- But it has also committed to reducing the emissions-intensity of its GDP by 33-35% over 2005 levels by 2030.
- It wants economic growth with lower emission.
- Between 2011 and 2016, while its GDP (current prices) rose at 12% CAGR, emissions increased at 4% CAGR.
    - [CAGR (Compound Annual Growth Rate) is a measure of the average yearly growth of investments over a certain time period.]
- This is revealed in India's latest Biennial Update Report (BUR) submitted to the UN Framework Convention on Climate Change.

What is the BUR and how about India's BUR?

- BURs are the foundation of transparency in the international climate regime.
- It works as a mechanism to check how countries are doing against stated goals.
- Here, India has done better.
- Its measurement, reporting and verification have sound foundations.
- They comprise dashboards/portals, apps, data repositories and initiatives by non-governmental institutions.
- 63 countries have submitted BUR-1 and 31 have submitted BUR-2.
- India is one of the only 13 countries to have published BUR-3 (three countries have submitted BUR-4).
- China and the US, the largest current and historical polluters, respectively, have submitted two reports.

How significant is energy intensity in emission reduction?

- During 2012-16, emissions intensity of GDP reduced by 11% at constant 2011 prices (24% reduction since 2005).
    - By contrast, energy intensity of GDP decreased 7% at constant prices.
    - While the share of agriculture emissions fell, energy-use emissions increased to three-fourths of all emissions.
    - Emissions from residential and commercial energy use grew the fastest (12% CAGR, signalling rapid urbanisation).
    - This was followed by energy industries, manufacturing and transport (CAGRs of 5%, 3% and 4%, respectively).
- Thus, bulk of India's achievement in reducing emissions intensity after 2016 has been due to energy efficiency.
- The programmes in this regard include -
    i. Ujala scheme for LED light bulbs - 180 million tonnes of CO2, or mtCO2, saved between 2014-15 and 2019-20
    ii. Perform, Achieve and Trade scheme for industries - 31 mtCO2 saved during 2012-15 and 61 mtCO2 during 2016-19
    iii. Efficient street lighting - 14.82 mtCO2 saved between 2015-16 and 2019-20
    iv. the Krishi Sinchayee Yojana for agriculture - 11.979 mtCO2 saved during 2017-19
    v. supercritical coal power plants (avoiding sub-critical units) - 20.69 mtCO2 avoided by March 2017
- Smaller savings have come from –
    i. fuel efficiency norms for passenger cars, support for EVs
    ii. energy efficiency schemes for small industries
    iii. efficient water pumping in cities, and building retrofits
- Together, these resulted in a net reduction of more than 23 million tonnes of oil equivalent in 2018-19.
- This is roughly 6% of total energy consumption that year.
- So, broadly, emissions can be lowered by reducing energy used or the carbon content of the energy mix.

How will it be in the future?

- In future, too, energy-use sectors will determine how quickly India's decarbonisation unfolds.
- Across energy-intensive industries, cement and non-ferrous metals had the highest reduction in energy intensity (21% and 14%, respectively).
- But iron and steel increased energy intensity of output.
- These heavy industries will continue to pose a challenge.

How does India compare with other countries?

- Compared to other countries, India does better.
- Barring China, India outperforms many major emitters (the US, EU-4, Japan, Russia and Brazil) in reducing energy intensity of GDP during 2011-17.
    - This is according to the International Energy Agency data.
- The BUR calculates a carbon budget based on equal per capita allocation.
    - India's per capita cumulative emissions during 1990-2017 was only 27% of its fair share of emissions.
    - This contrasts with emissions exceeding the fair share in the US (417%), Germany (242%), Japan (211%), or China (109%).
- Moreover, rich countries have failed to redeem past commitments to cut emissions.
- Under the Kyoto Protocol, they were meant to cut these to 5% below 1990 levels during 2008-12.
- Not all rich countries participated, the US being the most notable case.
- Thereafter, the Doha Amendment to the Protocol set out a second commitment period (2013-20).
- Participating countries were nudged to reduce emission by at least 25-40% below 1990 levels by 2020.
- This time, several more major emitters (Canada, Japan, and Russia) did not participate.
- Net of economies in transition, aggregate emissions of developed countries decreased only by 1.6% during 1990-2018.
- India is going to meet its emissions intensity targets. But that is not the same as emissions reductions.
- Its transformation to a prosperous yet low-carbon economy needs reforms on technology for industry, transport and cities.
- Better performance compared to developed countries positions India as a reliable climate stakeholder.
- International climate discussions must recognise it as such.

What are the shortfalls to be addressed?

- Despite massive deployment, the share of renewables in India's primary energy mix has increased from 0.1% to merely 2% during 2011-19.
- Electricity still accounts for only about 26% of India's final energy consumption and renewables have only a 9% share in power generation.
- So, for faster decarbonisation, there must be a double transition:
    - faster electrification of sectors
    - rapidly rising share of renewables in power generation
- The Railways, for instance, will become the first major system to be fully electrified and seeks to become a net-zero emitter by 2030.
- For heavy industry, the recently announced National Hydrogen Mission

could be fundamental in switching to renewables-derived hydrogen instead of coal.

Source: Financial Express

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