

## GS III & ESSAY

SYLLABUS: CONSERVATION, ENVIRONMENTAL POLLUTION AND DEGRADATION.

### COP 29 & CLIMATE FINANCING

THE HINDU, PG.NO: 8, 9.

**News:** "Reflections on Baku's 'NCQG outcome'."

**News:** "Rethinking 'representation' for a meaningful COP30."

**News:** "Local action amidst global inertia."

**News:** "Takeaways from COP29."

"World was already 1.49°C warmer than pre-industrial levels by the end of 2023. Current policies, if continued globally, are expected to lead to a temperature rise of up to 3.1°C—IPCC COP 29.

"Climate change has no geographical boundaries. Thus, it is imperative that the international community cooperates towards the global good, keeping climate justice at the core and respecting the principles of the Common but Differentiated Responsibilities and Respective Capabilities (CBDR and RC)."

#### New Collective Quantified Goal (NCQG):

- Which refers to **developed countries (Annex I of UNFCCC) give money to developing countries to help them meet their goals of transitioning away from fossil fuels and reducing GHGs.**
- **Before COP 29:**
  - At Cancun, in 2010, developed countries had pledged to provide \$100 billion annually upto 2020.
  - At COP21 in Paris, the parties decided to establish an NCQG prior to 2025.
- **At COP 29:**
  - Developing countries had stated that **at least a trillion dollars per year from 2025-35** would be necessary to meet emission targets.
  - However, the developed world has in the NCQG agreed to provide an abysmal figure of just **\$300 billion annually till 2035.**
    - **The biggest disappointment** is \$300 billion per year doesn't solely come from public finance, but also from Multilateral Development Banks, carbon markets, and private finance.
    - NCQG is not legally binding.
- **A positive aspect of COP 29:**
  - Decision to **triple the flow of public resources** through various operating entities of the Financial Mechanism, **the Adaptation Fund, the Least Developed Countries Fund, and the Special Climate Change Fund** from the 2023 level by 2035.

#### Major Climate Change Goals:

- Commitments to limit global warming to **1.5°C** above pre-industrial levels.
- Phasing out **fossil fuels and reaching net zero emissions** faster.
- Achieving **Nationally Determined Contributions.**

#### Why are developing countries more vulnerable to climate change?

- **Economic Conditions:**
  - **Mostly agriculture based nations** (contributing more than 25% of GDP), Eg. rising temperatures and changing rainfall patterns could **reduce India's crop yields by 10-30%** by 2050 endangering food security—**IPCC 6th Assessment Report 2022.**

- **Smaller GDPs and higher debt burdens (above 50% of GDP)** compromise the adoption of new renewable energy technologies—**UNEP reports.**
- **High upfront costs with new technologies:** Eg. Renewables, Green Technologies.
- **Inequality:** Developing countries attract much higher lending rates as compared to developed countries.
- **Emerging challenges in developing nations:**
  - **Urbanisation:** by 2050, 70% of the global population is expected to live in cities, with a significant increase in developing nations.
  - **India's Financial Losses: From 2019 to 2023,** India suffered **over \$56 billion** in damages from climate-related disasters.
- **Immediate effects of climate change:**
  - **About 40% of Indian districts face alternating climatic hazards,** with flood-prone regions experiencing droughts during the dry season and vice versa—**CEEW report 2021.**
  - **Small island developing states (SIDS)** like the Maldives and Tuvalu face existential threats from sea-level rise.
  - **Coastal nations** like India, Bangladesh are highly susceptible to flooding and cyclones.
- **Vicious cycle** of extreme poverty, rising inequalities, weak health care systems and climate change on top, making developing countries more vulnerable.

#### India contribution to Climate Financing:

- Being a developing country with several challenges, assuming that international climate finance contribution will be minimal.
- **Investments till now:**
  - **MoNRE** received its highest ever allocation of **₹19,100 crore in the Budget 2024-25.**
  - National and State Action Plans on Climate Change support adaptation strategies.
- **Transport Sector:**
  - In the transport sector, a subsidy of ₹6,000 crore has been provided to electric vehicle manufacturers under **phase-II FAME scheme.**
  - **PM E-DRIVE:** promotes the **adoption of zero-emission vehicles,** including two-three-four-wheelers, offering purchase subsidies and supporting essential charging infrastructure.
- **Energy Security:**
  - **PM Surya Ghar Muft Bijli Yojana:** provides households with subsidies to install rooftop solar panels, thereby also addressing energy poverty and access.
  - **About ₹40 crore** being allocated for enhancing energy efficiency.
- **Emission Trading:**
  - The **Perform, Achieve, and Trade (PAT) scheme,** soon replaced by the Indian Carbon Market, mobilizes investments for energy efficiency and emissions reduction in industries.
  - India has been **diligently working towards reducing its emissions intensity** (CO<sub>2</sub> per unit of GDP) in accordance with its commitment to the Paris Agreement.

#### Are COPs failing?

- **Issues with COPs:**
  - **Powerful fossil fuel lobby:** particularly developed world heavy reliance on oil and gas.
  - **Not Legal binding agreements:**
    - Mobilising \$100 billion goal is **voluntary** (Copenhagen Accord 2009).
    - Parties are legally obligated to have an NDC but their achievement is **non-binding.**



- **Developing countries losing faith in multilateralism:**
  - **Extension** of \$100 billion annual climate finance pledge to 2025.
  - **NCGG failure** in COP 29 and it is not legally binding.
  - Adaptation funding **shortfalls**.
- **Procedural Complexities:** COP25, COP29, extended two days beyond scheduled conclusion.
- **Declaration of Climate Change a Hoax:** Despite being a significant contributor in 2022, a former US President made such a statement.
- **Disagreements with the principle of common but differentiated responsibilities.** Eg. Developed countries seek inclusion of few developing countries to contribute NCGG.
- **The differential impacts of climate change:** across the globe (with the developing world more likely to be impacted than others).

• **COP negotiations are not useless. On the contrary, they are extremely important:**

• **For instance:**

- **Montreal Protocol 1989:** Successfully helped protect the ozone layer and eliminate certain chemicals used in refrigeration (CFCs).
- **Kyoto Protocol:** first global accord on reducing greenhouse gas emissions.
- **Paris Agreement 2015:** a consensus on limiting global warming to below 2°C with revised national targets every five years.
- **Glasgow 2021 Climate Pact:** introduced a loss and damage fund, declared of respective net-zero dates by countries.

**India's need for Climate Financing support:**

- India has both short-term and long-term climate targets.
- **By 2030:**
  - India aims to **install 500 GW** of generating capacity from **non-fossil-fuel sources**.
  - It is estimated **India will require an additional ₹17 lakh crore investment to achieve 450GW** of renewable energy by 2030.
  - Five million metric tonnes per annum of **green hydrogen** (GH<sub>2</sub>) production capacity.
    - Here, **India will need ₹8 lakh crore**.
  - Penetration for various **Electric Vehicle (EV)** categories.
    - Consumers **need to spend around ₹16 lakh crore to achieve this vision**.
- **By 2070:**
  - **₹850 lakh crore in investments** between 2020 and 2070 to achieve **net-zero emissions**.

**Anecdote:**

*"When American colonists famously rebelled against the practice of 'taxation without representation,' [how] is environmental devastation without representation any different? Even if carbon emissions were thoroughly democratically determined — which they are not — why should voters in the world's richest countries have the right to poison the air, sea, soil, and rivers for the entire population of Earth?" People living on Polynesian islands or in Africa have no right to vote in American or European elections. Yet, they often bear the brunt of the resulting environmental damage—Irish author Sally Rooney.*

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**PYQs: CSE (M).**

**Essay 2022:** Just because you have a choice, it does not mean that any of them has to be right.

**Essay 2022:** The time to repair the roof is when the sun is shining.

**Essay 2014:** With greater power comes greater responsibility.

## ENVIRONMENT

PRE-CONTEXT

### COP 29 & CARBON MARKETS

THE HINDU, PG.NO: 9.

**News:** "Takeaways from COP29."

• **Baku COP29 Summit: Carbon Markets.**

- **Accepted common global standards for carbon credit market.**
- Agreement on **carbon markets to be supervised by the UN.**
- Such a market would allow countries to trade **carbon credits — certified reductions of carbon emissions** — among themselves and whose **prices are determined as a consequence of emission caps imposed by countries.**

• **About Carbon Markets:**

- Carbon markets promote climate action by enabling the **trading of carbon credits**, which are earned through reducing or removing GHGs from the atmosphere.
- Credits are achieved by actions like shifting from **fossil fuels to renewable energy sources and enhancing or conserving carbon-rich ecosystems** such as **forests, planting trees, protecting existing carbon sinks.**

• **Emission control mechanisms:**

- **2 methods:**
  - Perform, Achieve, Trade (**PAT**) method, setting targets for efficient use of energy to reduce emissions.
  - Carbon Market System.
- **India currently follows PAT method.**
- **Now India is making its transition from PAT** to its own carbon market system similar to European Union Emission Trading System (ETS).

• **PAT method:**

- India launched this in 2012 as one of its eight missions comprising the **National Action Plan on Climate Change**.
- **Bureau of Energy Efficiency is the regulator** to reduce specific energy consumption in energy-intensive industries.
- It **uses market-based mechanism** where excess energy savings can be certified and traded.

• **Emission Trading (Cap and Trade):**

- Market based approach to controlling emissions by setting emission caps for polluters.
- **Focus solely on emission ceilings**, no energy efficiency standards are considered.
- **Provides economic incentives** for reduction of emissions to polluters.
- **Energy Conservation (Amendment) Act of 2022** provided a statutory mandate for such a **Carbon Credit Trading Scheme (CCTS)**.
  - Through this, India aims to align its climate commitments under the Paris Agreement with broader economic goals.
- **United Nations Carbon Offset Platform:** e-commerce platform where a company, an organization or a regular citizen can purchase units (carbon credits) to compensate greenhouse gas emissions.

• **Issues associated with Carbon Markets:**

- **No common global standards** for carbon credit market.
- **Inadequate accountability in credit generation**, leading to instances of greenwashing.

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- **Authenticity of generated carbon credits concern** Eg. Double counting of carbon credits.
- **Absence of independent third-party verifiers** to assess the quality of carbon reduction projects.
- **High costs of establishing monitoring, reporting, and verification systems.**
- **Carbon Leakage:** product is cheaper in nature due to its country owing to less strict emission norms. This hurts the other nations export competitiveness for following strict emission norms.
- **Clean Development Mechanism:**
  - One of the flexible mechanisms *Kyoto Protocol*.
  - CDM allows *industrialised (Developed) countries* to carry out *climate-friendly projects in developing countries*.
  - *Certified Emission Reduction (CER) units* are awarded in return to industrialised nations.
  - These *CER units can be traded* or used to meet their own emission reduction goals.
  - By 2011, *India had become the world's second-largest supplier of these CER units*, following China.
- **India Nationally Determined Contributions: related to energy**
  - *Reduce emissions intensity* by 45% by 2030 from 2005 level.
  - Generation of *50% of total electricity from non-fossil fuel sources* by 2030.
- **Bureau of Energy Efficiency (BEE)**
  - Statutory body under **Energy Conservation Act 2001**.
  - Works under *Ministry of Power*.
  - Primary objective of reducing energy intensity of the Indian economy.
  - **Assigns Energy codes for Commercial buildings.**
  - Develops *minimum energy performance standards* for equipment and appliances under Standards and Labelling.

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## POLITY

PRE-CONTEXT

## PARDON

THE HINDU, PG.NO: 10.

**News:** "What are the controversies around pardoning power?"

**Context:** President Joe Biden has granted an unconditional pardon to his son Hunter Biden who faced sentencing for federal tax and gun convictions.

### System Pardoning Powers USA vs Indian:

#### • USA Constitution:

- U.S. President has *absolute power of pardon for federal criminal offences*. Such as:
  - Pardon may be *issued prior to the start of a legal case as well as prior to or after* a conviction for a crime.
  - Once accepted, the pardon grants relief from punishment and associated disqualifications but does not erase the conviction record.
  - President can grant pardon *except* in cases of *impeachment*.

#### • Indian Constitution:

- **Art. 72:** empowers the *President to grant pardons* to persons who have been tried and convicted of any offence in cases where:
  - Punishment or sentence is for an offence against a *Union Law*.
  - Punishment or sentence is by a *Court Martial*.
  - A sentence is a sentence of *death*.
- **Art. 161:** pardoning powers of *Governor*.
  - Governor of a State shall have the power to grant pardons of any person convicted of any offence in cases where:
    - Punishment or sentence is for an offence against a *State Law*.
    - Against any law relating to a matter to which the *executive power of the State extends*.

#### Differences:

- Pardoning power of the President under Art. 72 is wider.
- *Governor cannot pardon* punishment or sentence is by a *Court Martial and death sentences*

#### Note:

- The pardoning power of the President of India and Governor of State *includes the power to grant a pardons, reprieves, respites or remissions of punishment or to suspend, remit or commute*.
- Pardoning powers are exercised on the *advice of the their Council of Ministers*.
- Pardoning powers are subjected to *judicial review*.

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## GS II

SYLLABUS: BILATERAL, REGIONAL AND GLOBAL GROUPINGS AND AGREEMENTS INVOLVING INDIA.

### INDIA-CHINA

THE HINDU, PG.NO: 1.

**News:** "India, China have set ties on right track: External Affairs Minister".

#### Boarder Disputes reasons:

- **Sino-Indian War 1962** over disputed Himalayan borders.
- **No clear demarcation of LAC spanning 3,488km:**
  - *Doklam standoff 2017, Galway Valley clash 2020.*
- **Cabbage strategy or salami Slicing tactic:** Acquiring new territories at expense of its neighbours.
- **Growing Power imbalance:** Eg. China-Indian Ocean Region forum for marine disaster prevention and cooperation with Indian Ocean countries except India.
- **Geopolitical Interests:** Eg. India's closer ties with USA and allies; Neighbourhood first policy.

#### Security Concerns between Both Countries:

- **China-Pakistan Nexus under China-Pakistan Economic Corridor (CPEC),** which passes through Pakistan-occupied Kashmir, raises sovereignty concerns for India.
- **String of Pearls:** China's strategy of developing ports and facilities in the Indian Ocean region is perceived by India as encirclement. Eg. *Hambantota* (Srilanka), *Gwadar* (Pakistan).
- **Quad Alliance:** India's engagement with the Quadrilateral Security Dialogue (India, US, Japan, Australia) is viewed cautiously by China.
- **Border Infrastructure:** India has accelerated infrastructure projects along the LAC, including the construction of the *Darbuk-Shyok-DBO road*.

#### Economic relations with China:

- **Rapid Growth in Bilateral Trade:** USD 3 billion in 2000 to USD 130 billion in 2022, making China one of India's largest trading partners — *MoC&I Trade Data 2022*.
- **India faces significant trade deficit:** as of USD 140 billion in 2022 — *MoC&I Trade Data 2022*.
  - **Indian exports to China:** stood at USD 20 billion in 2022.
  - **Indian imports from China:** stood at USD 120 billion in 2022.

#### Impacts on Indian Economy:

- **Pressure on Domestic Industries:** due to competition from cheap imports Eg. between 2015-20 due to Chinese imports captured 70% of the Indian market — *CAIT report 2021*.
- **Dependence on critical goods:** of total Indian imports from China:
  - **Pharmaceuticals (APIs)** account for 70%, solar components 80% — *MoC&I Trade Data 2022*.
  - **Electronics:** India imports 80% of its mobile phone components from China.
- **Widening of Indian Current Account Deficit (CAD):** due to trade imbalances with China.
- **Supply chain vulnerabilities:** exposed by pandemic Eg. shortage of APIs and price hikes of medical supplies and electronics in 2020-21.
- **Job losses in manufacturing sector:** ~2 million jobs were lost in the textile and toy industries between 2015 and 2020 — *FICCI 2021*.

- **India's R&D expenditure is 0.7% of GDP,** compared to China's 2.4%, affecting innovation.

#### Economic measures taken by India:

- **Atmanirbhar Bharat Abhiyan Rs. 20 lakh crore package:** to reduce dependence on imports by boosting domestic production.
- **Production-Linked Incentive (PLI) Schemes of Rs. 2 lakh crore in 14 sectors:** to encourage domestic manufacturing in electronics, pharmaceuticals, and textiles etc.
- **Imposition of Anti-Dumping Duties:** to protect domestic industries from unfair trade practices.
- **Amendment of FDI Regulations:** requiring prior government approval for investments from neighbouring countries.
- **Banning of Chinese Apps:** India banned nearly 300 Chinese apps, including TikTok and WeChat, citing data security risks.

#### Belt and Road Initiative impact on India:

- As of 2023, China had **invested over \$1 trillion in BRI projects** globally.
- BRI comprises the Silk Road Economic Belt (*land routes*) and 21st Century Maritime Silk Road (*sea routes*), covering **Asia, Africa, Europe, and beyond**.
- Its objectives include promoting regional integration, increasing trade, and stimulating economic growth through infrastructure development.

#### Role of BRI in India-China Relations:

- **Expansion of China's geopolitical influence** in areas that are traditionally under India's sphere of influence Eg. Investments of over 100 billion USD in South Asian and IOR regions — *WorldBank estimates 2020*.
- **Strategic encirclement of India ("String of Pearls"):** Gwadar (Pakistan), Hambantota (Sri Lanka), Chittagong (Bangladesh).
- **China-Pakistan Economic Corridor (CPEC):** a flagship BRI project passes through Pakistan-occupied Kashmir (PoK), which India claims as its territory.
- **India's strategic isolation in the region:** Countries like Nepal, Sri Lanka, Maldives, and Bangladesh have signed BRI agreements.

#### India's Opposition to BRI:

- "No country can accept a project that ignores its core concerns on **sovereignty and territorial integrity** (PoK) — MEA Spokesperson 2017.
- **Debt Trap Diplomacy** Eg. Sri Lanka leasing Hambantota Port to China on a 99-year lease due to inability to repay loans.
- **Balance of Power:** BRI could shift the regional balance of power in China's favour, undermining India's strategic interests.
- **India Prefers alternative Connectivity Initiatives:**
  - **INSTC,** connecting India with Central Asia and Europe through Iran and Russia.
  - **BIMSTEC:** Strengthening regional cooperation without including China.
- **BRI could exacerbate trade imbalances:** with Chinese goods flooding markets and undermining local industries.



## ENVIRONMENT

PRE-CONTEXT

### TOXINS OF BHOPAL DISASTER

THE HINDU, PG.NO: 11.

**News:** "What are the toxins of the 1984 Bhopal disaster?"

**Context:** Forty years after the Bhopal disaster on December 2-3, 1984, several hundred tonnes of toxic waste still remain around the ill fated Union Carbide plant. 11 lakh tonnes of contaminated soil, one tonne of mercury, and nearly 150 tonnes of underground dumps" etc.

• **Toxins:**

- **Methylisocyanate (MIC):** doesn't have a particular smell at concentrations at which other gases may become noticeable but it can irritate the eyes.
- **Arsenic, Chromium, Nickel:** cancers of the urinary bladder and lungs etc.
- **Mercury:** Mercury has been known to damage multiple organs even at low concentrations.
- **Persistent Organic Pollutants(POPs):** refer to organic compounds that don't break down easily, cancer, allergies and hypersensitivity, damage

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- **Kashmir stag or Hangul:**
  - **Habitat:** Temperate forests in the Kashmir Valley
  - **Dedicated Protected Area:** Dachigam National Park.



- **Great Indian Bustard.**
  - **Habitat:** Once common on the dry grasslands and shrubland.
  - Can be found across West and South India.



- **Namdapha Flying squirrel:**
  - **Habitat:** Tropical forests in Arunachal Pradesh
  - **Protected Area:** Namdapha National Park.

**Critically Endangered Species (Endemic)**

THE HINDU, PG.NO: 14.



- **Malabar large-spotted civet:**
  - **Habitat:** Lowland forests and plantations in the Western Ghats



- **Large rockrat:**
  - **Habitat:** Rocky areas in the Eastern Ghats



- **Leafletted leaf-nosed bat:**
  - **Habitat:** Limestone caves in Andhra Pradesh



- **Andaman Shrew, Jenkin's Shrew, Nicobar Shrew:**
  - All three are CR (IUCN).
  - **Habitat:** Tropical moist forests of the A&N Islands.

