India’s Climate Finance Taxonomy

Mains Syllabus: GS II - Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

Why in the News?

Recently, the Finance Ministry has unveiled draft ‘climate taxonomy’ document to aid clean energy investment.

What is the need for Climate Finance Taxonomy?

- **India’s climate ambitions** - They are reflected through the Nationally Determined Contributions (NDCs) and the announcement of Net Zero emissions by 2070.
- **Climate finance need** - India requires around USD 2.5 trillion (at 2014-15 prices) to meet the NDC targets till 2030.
- As per NITI Aayog’s India Energy Security Scenarios (IESS) 2047, a scenario-building tool, the total investment required for energy transition is estimated at ~USD 250 billion per year till 2047.
- **Adaptation action finance** - It is vital for addressing climate change impacts, building resilience and achieving India’s development goals.
- Preliminary estimates indicated that about USD 206 billion (at 2014-15 prices) would be required from 2015 to 2030 to implement adaptation actions in agriculture, forestry, fisheries, infrastructure, water resources and ecosystems.
- According to the Initial Adaptation Communication submitted by the country in December 2023, the cumulative expenditure needed for adaptation in a Business as Usual (BAU) scenario is estimated to be Rs. 56.68 trillion (approx. USD 648.5 billion) till 2030.
- **India’s energy consumption** – At present, India’s energy consumption per capita is about one-fifth6 of the developed countries.
- **Energy need** - Estimates suggest that the minimum level of per capita final energy requirement for India to become a developed country with an HDI of 0.9 must be in the range of 45.7 to 75 gigajoules per year , which was 16.7 gigajoules only in FY23.
- **Lifestyle for Environment (LIFE)** – It is the mass movement to champion and cultivate a vibrant, sustainable lifestyle grounded in the rich traditions and core values of conservation and moderation.
- Given the size of resources required for financing India’s ambitious climate action, Union Budget 2024-25 announced that the taxonomy for Climate Finance would be developed for “enhancing the availability of capital for climate adaptation and mitigation.

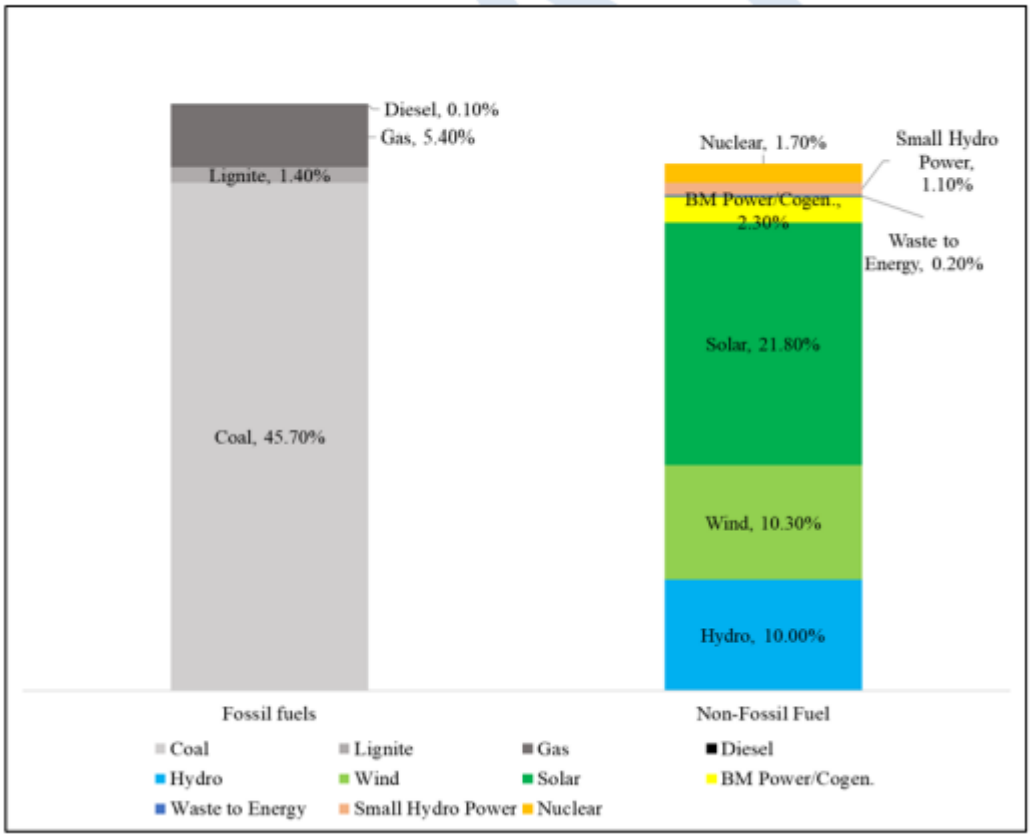
Historical responsibility of emissions

• **India's per capita GHG emissions** – It stood at approximately 2.9 tCO2e in 2023, significantly lower than the World average of 6.7 tCO2e.
• In comparison, the per capita emissions of the European Union stood at 6.9 tCO2e, Japan at 8.3 tCO2e, the United States at 17.2 tCO2e and Canada at 20.4 tCO2e for the same year.
• **High emission by developed countries** - Developed countries have been the predominant contributors to cumulative historical emissions and continue to have higher per capita emission levels.
• Developed nations peaked their emissions decades ago, the EU in the 1970s and the US in the early 2000s.

What is the present status of India's climate action?

- **NDC** - India's Climate Action is circumscribed by the commitments made through the NDC submitted to the United Nations Framework Convention on Climate Change (UNFCCC) in 2016 and its subsequent update in 2022.
- The NDC is focused on
    - Reducing the emission intensity of the GDP
    - Enhancing the non-fossil energy installed capacities in electric power generation
    - Creating additional carbon sinks.
- **National Action Plan on Climate Change (NAPCC)** – It is a mission mode approach to enhance the sustainability of India's development by integrating high economic growth and building resilience to climate change.
- It encompasses nine national missions, addressing critical areas such as solar energy, water, energy efficiency, forests, sustainable habitat, sustainable agriculture, the Himalayan ecosystem, strategic climate knowledge, and, more recently, human health.
- **Advancing a Diversified Energy Mix** - India is progressing towards a diversified energy mix, focusing on expanding renewable energy, bioenergy, nuclear, and storage solutions.
- As of February 2025, non-fossil fuel sources account for 47.4 per cent of the total installed electricity generation capacity.
- Within this, solar comprises 21.8 per cent, wind 10.3 per cent, hydro 10.0 per cent, and nuclear 1.7 per cent.

India's electricity mix in terms of installed capacity (as of February 2025)



Energy Diversification Initiatives of India

• The Solar Parks Scheme and Ultra-Mega Solar Power Projects aim to establish 40,000 MW capacity.
• **PM KUSUM scheme** – It aims at decentralised solar deployment as
  - Solar power plants on barren/fallow/pasture/marshy/ cultivable land of farmers
  - Stand-alone solar pumps in off-grid areas
  - Solarisation of agriculture pumps through individual and feeder level solarisation
• **PM Surya Ghar Muft Bijli Yojana** – It aims at supplying solar power to one crore households by March 2027.
• **Viability Gap Funding** - To promote offshore wind, the government has introduced a Viability Gap Funding (VGF) scheme.
• **National Bioenergy Programme** – It supports waste-to-energy, biomass cogeneration, and biogas plants.
• **Nuclear Energy Mission** – It aims to develop Small Modular Reactors (SMRs) indigenously and increase nuclear capacity to 100 GW by 2047.

- **Measures to enhance energy efficiency** - Enhancing energy efficiency has been at the core of India's strategy to reduce emission intensity.

Energy Efficiency Initiatives of India

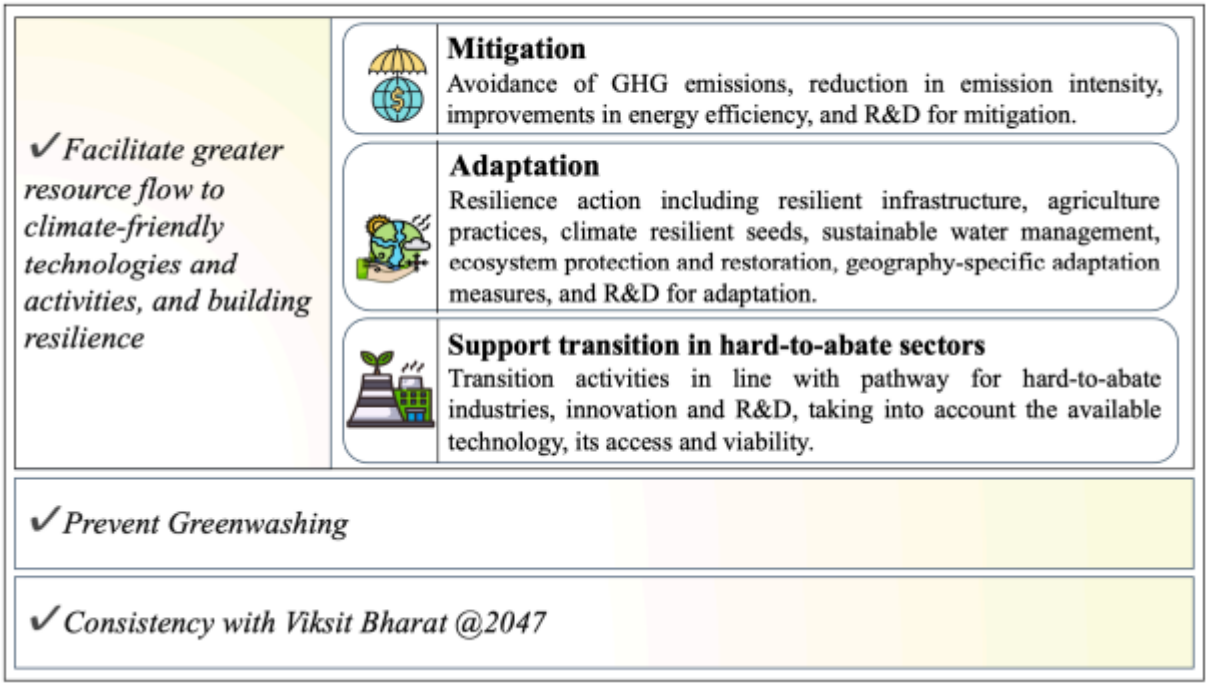
• **Perform Achieve and Trade (PAT) Scheme** – It was a market-driven initiative, launched in 2012, to improve energy efficiency in energy-intensive industries by setting reduction targets for Designated Consumers (DCs).
• As of March 2023, the scheme had saved approximately 26 million tonnes of oil equivalent (MTOE) and reduced over 70 million tonnes of CO_2 emissions.
• **Carbon Credit Trading Scheme (CCTS)** – It was introduced in 2022 by amending the Energy Conservation Act and covers the energy-intensive sectors that were earlier covered under PAT.
• Nine sectors, including Aluminium, Cement, and Steel, have been identified for inclusion under CCTS.
• **UJALA Scheme** - Unnat Jyoti by Affordable LEDs for All (UJALA) scheme has led to the widespread adoption of LED lighting and reduced household electricity consumption.
• **Energy efficiency in the building sector** - It is being driven by
- Energy Conservation Sustainable Building Code (ECSBC) for commercial buildings
- Eco Niwas Samhita for residential buildings
- Star ratings for commercial buildings, energy-efficient homes, and net zero energy buildings (Shunya Labelling).
• **GRIHA Ratings -** It has become mandatory for all new Government buildings to adhere to the Green Rating for Integrated Habitat Assessment (GRIHA) ratings.
• **BEE Star Labelling Programme for appliances** - The Bureau of Energy Efficiency (BEE) encourages the use of energy-efficient electrical appliances across residential and commercial sectors.

- **Policy and Investment Support** - Production-Linked Incentive (PLI) schemes are designed to promote the manufacturing of high-efficiency solar PV modules and enhance the production of electric and hydrogen fuel cell vehicles.
    - **Faster Adoption and Manufacturing of Electric Vehicles (FAME) Scheme** – It has encouraged the adoption of electric two-wheelers, three-wheelers, four-wheelers, and buses, along with the expansion of charging infrastructure.
    - **PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE) Scheme** – It was launched in September 2024 to accelerate EV adoption across various categories, including electric two-wheelers, three-wheelers, trucks, buses, and ambulances.

What are the objectives of the Climate Finance Taxonomy?

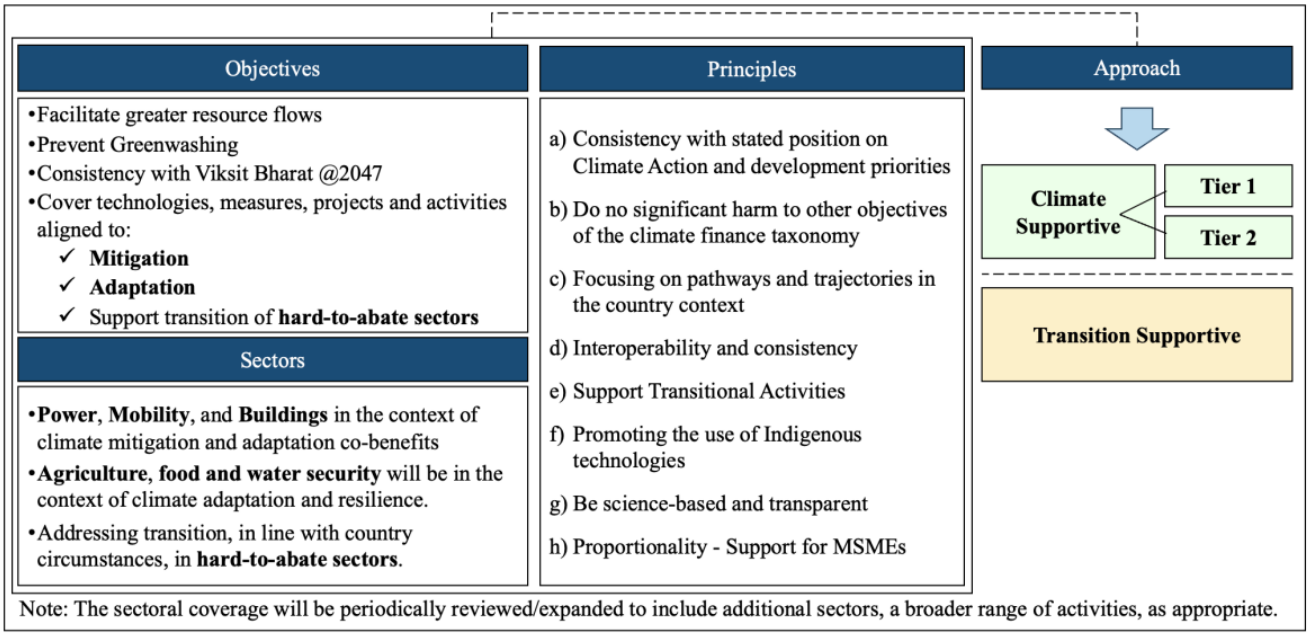
- Climate finance taxonomy is a tool to identify activities consistent with India's climate action goals and transition pathway.
- **Objectives**
    - To facilitate greater resource flow to climate-friendly technologies and activities
    - To enable achievement of the country's vision to be Net Zero by 2070
    - To ensure long-term access to reliable and affordable energy.
    - To prevent green-washing.
- The taxonomy shall be consistent with the developmental goal of 'Viksit Bharat' to be achieved by 2047.

Objectives of the Climate Finance Taxonomy



- **Coverage** - The taxonomy will cover technologies, measures, projects and activities that are aligned to
  - **Mitigation**- It includes improvements in energy efficiency or reduction in emission intensity, and avoidance of GHG emissions including through the expansion of non-fossil fuel energy, etc.,
  - **Adaptation**- These are action that enhances resilience, including sustainable water management, ecosystem protection and restoration, and geography-specific adaptation measures to lower the negative impacts of climate change.
  - **Support transition of hard-to-abate sectors** - Transition activities in line with the specific pathway for hard-to-abate industries, innovation and R&D facilitate low carbon pathways considering the available technology, its access and viability.

Structure of India's Climate Finance Taxonomy



What are the design features of India's climate finance taxonomy?

- **Hybrid approach** – It combines qualitative principles with quantitative metrics ensures that the taxonomy remains inclusive, addressing India's diverse industrial structure and responding to new targets, regulatory changes, and policy dynamics while promoting a science-based trajectory for climate transition.

Aspects of Taxonomy Framework	
There are broadly two aspects to framing a taxonomy - qualitative and quantitative.	
Qualitative	**Quantitative**
It consists of exposition of the objectives and principles that guide the identification of activities and projects as being climate-relevant.	It is reflected in the form of performance thresholds like the expected extent of GHG savings, best-in-class performance, and improvements in emission intensity.
Qualitative elements can define the core principles guiding green activities and align with India's NDCs and SDGs.	Quantitative elements, such as GHG intensity reduction thresholds and sustainability performance metrics, can provide measurable targets for transparency and accountability.

- **Living document** - India's taxonomy on climate finance will be periodically reviewed to capture the evolving requirements and to progressively cover sectors, projects and activities reflecting the dynamic landscape of investments for climate finance.
- **Phased implementation** – It will start with qualitative criteria to provide a broad framework that aligns with national priorities, such as inclusive growth, Net Zero goal by 2070, and sector-specific low-carbon pathways.
- Over time, quantitative thresholds and benchmarks will be incorporated, as appropriate, for greater precision.

What are the principles of the climate finance taxonomy?

- The Indian Climate Finance Taxonomy is based on eight principles that set down the wireframe of the classification guiding the identification and delineation of the criteria, activities, projects and/or technologies as applicable.
- **Consistency with climate action and development priorities** - Nationally Determined Contribution, Net Zero carbon emissions by 2070, India's Viksit Bharat@2047 and Energy Aecurity for All are the bases to the climate finance framework.
- **No significant harm to other objectives** – Measures and projects that prevent or minimise adverse effects on other climate objectives.
- Ensuring that efforts to address one issue do not disproportionately harm others.
- **Focusing on pathways and trajectories in the country context** – Recognition that immediate compliance with stringent standards may not be feasible in the short run or for all sectors.
- **Interoperability and consistency** - Aligning with international frameworks, the Indian taxonomy allow flexibility considering the country's context, development priorities and national climate goals.
- **Support Transition Activities** - Facilitate a dynamic and inclusive classification system that recognises and supports sectors crucial for transition, facilitating investment in critical sectors during their transition phase.
- **Promoting the use of Indigenous technologies** - Enhancing investments in Indigenous technologies by incentivising the adoption of such technologies and Research and Development (R&D) on a preferred basis.
- **Be science-based and transparent** - The approach should be objective, supported by clearly defined and disclosed metrics, and should rely on transparent and robust methodologies to identify investment opportunities.
- **Support for MSMEs** – Incorporation of specific provisions to ensure that resource flows to MSMEs are not adversely impacted.

Reflection of India's Climate Finance Taxonomy Principles in Global Taxonomies

Consistency with Global Taxonomies	
India's Principles	***Global Taxonomies reflecting consistency with India's principles***
Consistency with stated position on Climate Action and development priorities	EU, China, South Africa, ASEAN, Indonesia, Singapore, Egypt, Latin America, Malaysia, Sri Lanka, Brazil, EU-China Common Ground Taxonomy, IPSF-UNDESA G20 Sustainable Finance Working Group
Do no significant harm to other objectives of the climate finance taxonomy	EU, South Africa, ASEAN, Indonesia, Latin America, Malaysia, Sri Lanka, IPSF-UNDESA G20 Sustainable Finance Working Group
Focusing on pathways and trajectories in country context	EU, South Africa, ASEAN, Indonesia, Latin America, Malaysia, Sri Lanka, IPSF-UNDESA G20 Sustainable Finance Working Group
Interoperability and consistency	EU, ASEAN, Singapore, Indonesia, EU-China Common Ground Taxonomy
Support Transitional Activities	EU, ASEAN, Latin America, Malaysia, Singapore, Brazil
Promoting the use of Indigenous technologies	China, Brazil, Malaysia
Be science-based and transparent	EU, ASEAN, Indonesia, Malaysia, Sri Lanka, Brazil, IPSF-UNDESA G20 Sustainable Finance Working Group
Proportionality -Support for MSMEs	ASEAN, Indonesia, Malaysia, Brazil

Reference

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