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DAILY EDITORIAL ANALYSIS

TOPIC

**INDIA'S NEXT INVESTMENT CYCLE
WILL SHAPE ITS CARBON FUTURE**

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INDIA'S NEXT INVESTMENT CYCLE WILL SHAPE ITS CARBON FUTURE

Context

- The United Nations Environment Programme (UNEP) warning about rising global temperatures highlights the need for India to align its next investment cycle with decarbonisation goals.

India's Emerging Infrastructure Demand

- NITI Aayog estimates that **86% of the building stock** that India will have in 2070 is yet to be built.
 - ♦ **Total floor space** will more than double, from about 18 billion square metres in 2020 to **42 billion square metres by 2070**.
- **India's crude-steel capacity**, at about 200 million tonnes in 2024-25, is targeted to reach **300 million tonnes by 2030-31**.
- **Cement output** is projected to rise from about 427 million tonnes in 2024 to **660 million tonnes by 2030**.
- These trends will increase energy demand and industrial emissions, but they also give India an **opportunity to adopt cleaner technologies and efficient infrastructure** from the outset.

The Advantage of Building Green from the Start

- **The International Energy Agency (IEA)** estimates that around **80%** of the building stock that advanced economies will use in **2050** already exists.
- Unlike advanced economies, where much of the future building stock already exists, India can avoid locking itself into energy-intensive infrastructure.
 - ♦ Retrofitting inefficient buildings and replacing carbon-intensive industrial assets later would involve substantial economic costs.

Infrastructure Gaps in the Power Sector

- India has expanded renewable energy capacity rapidly, but **inadequate transmission infrastructure** has constrained the utilisation of available renewable power.
- **The International Energy Agency (IEA)** estimates that transmission bottlenecks have held back around **60 GW** of renewable capacity.
- The Ministry of Power's plan envisages roughly **590 GW of generation additions between 2023 and 2032**. So, an unresolved transmission gap will become more serious as generation expands.
 - ♦ As transport, cooling and industrial activities increasingly shift towards electricity, reliable transmission and storage will become essential.

Initiatives taken by India

- **Energy Conservation and Sustainable Building Code (ECSBC), 2024** Promotes energy efficiency and sustainability in commercial buildings, while the Eco-Niwas Samhita (ENS), 2024, focuses on energy-efficient residential buildings.
- **Green Steel Taxonomy, 2024:** India introduced a framework to classify steel based on emissions intensity, encouraging investment in low-carbon steel production.
- **National Green Hydrogen Mission:** Promotes green hydrogen production and its use in hard-to-abate sectors such as steel, helping reduce dependence on fossil fuels.
- **Steel Scrap Recycling Policy, 2019:** Promotes the recovery and recycling of steel scrap, reducing demand for virgin raw materials and supporting a circular economy.
- **Carbon Credit Trading Scheme (CCTS), 2023:** Establishes a framework for India's carbon market, incentivising industries to reduce greenhouse gas emissions through carbon credit certificates.

- **Renewable Energy Expansion:** Schemes such as the **PM Surya Ghar Muft Bijli Yojana**, the **National Solar Mission** and the **Green Energy Corridor** initiative promote clean electricity generation and integration into the power grid.
- **Nationally Determined Contributions (NDCs):** India has committed to reducing the emissions intensity of its GDP by **47%** from 2005 levels by 2035 and achieving **net-zero emissions by 2070**.

What are the challenges?

- **Finance:** The IEA estimates that India's cost of capital for grid-scale renewables is about **80%** higher than in advanced economies.
 - ♦ Since clean infrastructure is front-loaded in cost, that gap can make an otherwise viable project uneconomic.
- **Steel and cement are difficult to decarbonise** because their production involves high energy consumption and, particularly in cement, process emissions.
- **Uneven Implementation of Energy-Efficiency Standards:** Adoption of building codes and energy-efficiency regulations varies across States.
- **Technology and Supply-Chain Dependence:** Clean-energy technologies require critical minerals, advanced components, batteries and specialised equipment.
 - ♦ Dependence on imported technologies and concentrated global supply chains can expose India to price volatility and supply disruptions.

Way Ahead

- **Green public procurement:** Government agencies, Indian Railways and the National Highways Authority of India (NHAI) can create demand for lower-emission steel and cement.
- **Competitive bidding:** Procurement tenders can establish emissions-intensity thresholds without prescribing specific production technologies, encouraging innovation and cost efficiency.
- **Policy alignment:** Procurement standards should be aligned with India's green-steel taxonomy and the Carbon Credit Trading Scheme (CCTS), where appropriate.
- **Gradual tightening:** Emissions standards can become progressively stricter as cleaner technologies mature and production costs decline.

Concluding remarks

- India's next investment cycle presents an opportunity to align economic growth with its long-term climate commitments.
- The focus must be on building efficiently where technologies are mature and preserving flexibility where they are still evolving, ensuring that development today does not become an environmental and economic burden tomorrow.

Source: TH

Daily Mains Practice Question

[Q] India's next investment cycle presents an opportunity to align economic growth with its decarbonisation goals. Discuss the challenges and measures required to ensure that infrastructure and industrial investments support India's long-term climate commitments.