

7. Viksit Bharat And Net Zero- Environment

NITI Aayog releases study outlining pathways to Viksit Bharat 2047 and Net Zero by 2070

NITI Aayog's report outlines India's roadmap to becoming a developed economy by 2047 and achieving Net Zero by 2070, highlighting a critical \$6.53 trillion financing gap that necessitates a dedicated Green Finance Institution and massive international climate funding.

The Dual Ambition

Report Title- The insights are based on NITI Aayog's report titled "Scenarios Towards Viksit Bharat and Net Zero".

Core Goals- The report outlines a pathway for India to achieve two monumental milestones-

- Becoming a developed economy (Viksit Bharat) by 2047.
- Achieving net-zero emissions by 2070.

The Challenge- While achievable, this transition requires massive financial and structural shifts across all sectors of the economy.

Understanding Net Zero

Definition- Net Zero refers to a state where the amount of Greenhouse Gases (GHGs) released into the atmosphere is balanced by the amount removed over a specific period.

Mechanisms for Achievement

Emissions Reduction- Shifting from fossil fuels to renewable energy, improving energy efficiency, electrifying transport and industry, and adopting cleaner technologies.

Emissions Removal- Utilizing natural sinks (forests, soils, wetlands) and deploying technological solutions like Carbon Capture, Utilisation, and Storage (CCUS).

Scope- It covers all greenhouse gases (including CO₂, methane, and nitrous oxide) and focuses on deep, economy-wide decarbonisation rather than just the energy sector.

Why Net Zero Matters?

Global Climate Goals- It is essential to limit global warming to 1.5–2°C, as outlined in the Paris Agreement.

Risk Mitigation- It helps reduce severe climate risks such as extreme weather events, sea-level rise, and biodiversity loss.

Economic Opportunity- The transition encourages a clean energy shift, fosters technological innovation, and promotes sustainable economic growth.

Key Concerns Highlighted in NITI Aayog's Report

Financial Challenges

Large Financing Gap- Achieving net zero by 2070 is estimated to cost \$22.7 trillion. Even after aggressive domestic resource mobilisation, there remains a \$6.53 trillion gap. This creates a heavy dependence on international climate finance, raising risks regarding availability, timing, and attached conditionalities.

Insufficient Current Investment- Present climate investment flows are approximately \$135 billion annually, which is far below what is required for long-term decarbonisation. Funding for clean energy remains inadequate relative to the projected growth in future demand.

Financial System Constraints- India's corporate bond market is currently too shallow (approx. 16% of GDP) to support the scale of investment needed. The financialization of household savings is insufficient to provide long-term capital. The absence of a dedicated green finance institution limits coordinated capital deployment.

Energy and Technological Risks

Power Sector Transition Risks- Scaling renewable energy capacity to 6,500–7,000 GW poses immense challenges related to grid stability, energy storage, and transmission infrastructure. The continued reliance on coal as a transitional fuel creates a persistent tension between maintaining energy security and achieving emissions reduction.

Rising Energy Demand- Rapid growth in cooling systems, industrial activity, and data centres could offset efficiency gains.

Cooling demands alone have emerged as a major driver of future residential electricity consumption.

Technology Uncertainty

Hard-to-abate sectors (like steel and cement) depend on green hydrogen and carbon capture (CCUS). These emerging technologies are still cost-prohibitive and have not yet been deployed at scale.

Supply Chain and Policy Issues

Dependence on Critical Minerals- The transition to clean energy significantly increases reliance on lithium, copper, nickel, and other critical minerals. This exposes India to risks linked to import dependence, supply chain concentration in specific countries, and global price volatility.

Policy and Implementation Challenges- Achieving net zero requires long-term policy consistency, seamless cross-sector coordination, and strong enforcement mechanisms. Any delays in structural reforms could significantly raise the overall cost of the transition.

Key Suggestions Made in NITI Aayog's Report

Financial Reforms

Establish a National Green Finance Institution- Create a dedicated institution to mobilise, aggregate, and deploy large-scale capital. This body would help de-risk projects to attract private and international investment.

Mobilise International Climate Finance- Developed countries must provide the \$6.53 trillion needed to bridge India's funding gap. Strengthen India's integration with global capital markets to increase the inflow of international finance.

Deepen Domestic Financial Markets- Expand the corporate bond market from ~16% of GDP to ~30% by 2070. Increase the financialization of household savings from ~60% to 75% to unlock long-term domestic capital.

Energy and Industrial Strategy

Accelerate Renewable Energy Expansion- Aggressively scale solar and wind capacity to reach 6,500–7,000 GW by 2070. Invest heavily in battery storage and pumped hydro projects to ensure grid stability.

Promote Electrification- Make electrification the backbone of decarbonisation, particularly in transport and industry. Target over 70% electrification of road transport under the net-zero pathway.

Support Industrial Decarbonisation- Improve energy efficiency norms and promote circular economy practices to reduce waste. Accelerate the adoption of green hydrogen and carbon capture technologies for hard-to-abate sectors.

Strategic Policy Measures

Strengthen Demand-Side Management- Implement stricter appliance efficiency standards and enforced building energy codes. Encourage behavioural changes to manage rising energy demand, especially for cooling.

Ensure Critical Mineral Security- Boost domestic exploration and recycling capabilities. Secure diversified import sources for critical minerals to prevent supply shocks.

Maintain Energy Security- Use coal as a transitional fuel while simultaneously expanding nuclear energy and renewables to ensure a reliable baseline power supply.

Conclusion

NITI Aayog's analysis underscores that India's net-zero ambition is achievable, but it is contingent upon bold domestic reforms and substantial financial support from developed nations. Coordinated action across finance, energy, and global cooperation will be the determining factor in whether India can successfully align global climate leadership with its national economic development goals.

Source- <https://ddnews.gov.in/en/niti-aayog-releases-study-outlining-pathways-to-viksit-bharat-2047-and-net-zero-by-2070/>