Green Factory Standards for India

Mains: *GS III – Environment| Economy*

Why in News?

Recently there has been a demand to create green factory standards for India to make the manufacturing process more climate friendly.

What is the issue?

- **Changing Global Sustainability Landscape –** The global manufacturing ecosystem is undergoing a transformation driven by climate commitments, ESG (Environmental, Social, and Governance) norms, and carbon accountability.
- Today, supply chains are evaluated not just on cost and efficiency but also on their environmental footprint.
- Investors increasingly favor companies with credible sustainability disclosures, and global indices reward standardized certifications.
- **Case in developed nations** – In developed economies, green manufacturing achievements are often backed by widely recognized certifications, enabling industries to attract capital and enhance market credibility.
- In contrast, Indian manufacturing units, despite achieving comparable or even superior sustainability outcomes, often fail to receive similar recognition due to fragmented certification systems.
- This disparity highlights the importance of institutional frameworks in shaping global perception.
- **India's Industrial Growth and Climate Dilemma –** India contributes approximately 7–8% of global greenhouse gas emissions while aiming to expand its manufacturing sector significantly over the next decade.
- With industrial output projected to grow rapidly, the country must decouple economic growth from environmental degradation.
- **Dual obligation** – This creates a structural dual mandate:
    - Accelerate industrialization to sustain economic growth and employment.
    - Reduce emissions intensity in line with global climate commitments.
- Achieving this balance requires a structured and context-sensitive framework tailored to India's unique conditions.
- **Challenges** – Factors such as varying state-level energy tariffs, high levels of water stress across more than half of the country's land area.
- The dominance of MSMEs (Micro, Small, and Medium Enterprises) make it impractical to replicate Western green manufacturing models.

What are the Existing Green Certification Ecosystem in India?

- **Available certifications** – Several robust certification systems already exist, including:
  - Green building ratings
  - Energy efficiency programs
  - Industrial sustainability assessments
- These frameworks are scientifically sound and adapted to local conditions.
- **Other initiatives** – Measures such as rooftop solar adoption, waste heat recovery, and recycling practices are gaining momentum across manufacturing clusters.
- **Issues with the existing measures** – However, the issue lies in fragmentation.
- Multiple certifications operate independently without converging into a unified national standard.
- This leads to:
  - Lack of a single recognizable benchmark
  - Reduced global legibility
  - Difficulty in communicating sustainability achievements to international stakeholders
- **The Certification Paradox –** India faces a paradox where sustainability practices are advancing faster than their institutional recognition.
- Thousands of manufacturing units, especially among MSMEs, are adopting green practices such as renewable energy usage, water conservation, and waste management.
- Yet, these efforts often remain undervalued in global markets.
- **The consequences**:
  - Limited access to ESG-linked financing
  - Reduced export competitiveness
  - Inadequate integration into global green supply chains
- International investors and rating agencies often rely on familiar global standards, leading to under-recognition of India-specific certifications.
- This creates an uneven playing field despite genuine progress on the ground.

Why India Needs Its Own Green Factory Framework

- **Contextual Relevance –** India's environmental and economic conditions differ significantly from developed nations. A domestic framework can account for:
  - Water scarcity challenges
  - Energy cost variability
  - MSME constraints
  - Regional climatic diversity
- **Enhanced Global Competitiveness –** A unified certification can act as a credible signal to global investors and supply chains, improving India's position as a sustainable manufacturing hub.
- **MSME Inclusion –** With MSMEs contributing over 30% of GDP and employing millions, any sustainability framework must be scalable and accessible.
- A tailored system can ensure inclusivity rather than exclusion.
- **Capital Attraction –** Clear and standardized sustainability metrics can help industries

attract ESG-focused investments, which are increasingly shaping global capital flows.
- **Policy Alignment –** Such a framework can integrate seamlessly with national initiatives like production-linked incentives (PLI) and sustainability disclosure requirements, ensuring coherence across policies.

What are the Key Components of an Indian Green Factory Standard?

- **Energy Efficiency and Renewable Adoption –** Measurement of energy consumption intensity.
- Integration of renewable sources such as rooftop solar.
- Incentives for energy optimization technologies.
- **Water Stewardship –** Efficient water usage practices.
- Recycling and reuse systems.
- Adaptation strategies for water-stressed regions.
- **Waste and Circular Economy Practices –** Waste reduction and recycling
- Industrial symbiosis.
- Resource recovery mechanisms.
- **Carbon Footprint Reduction –** Emissions tracking and reporting.
- Transition pathways toward net-zero goals.
- **Digital and Technological Integration –** Use of smart monitoring systems.
- Data-driven sustainability reporting.
- **Financial and Market Linkages –** Alignment with ESG reporting standards.
- Facilitation of green financing opportunities.
- **MSME Scalability –** Simplified compliance mechanisms.
- Tiered certification levels to encourage gradual adoption.
- **Linking Sustainability with Strategic Growth –** Sustainability is no longer a peripheral concern, it is central to industrial strategy.
- A well-defined green factory framework can:
    - Strengthen India's export competitiveness by aligning with global environmental standards.
    - Reduce long-term energy and operational risks.
    - Enhance resilience against climate-induced disruptions.
    - Improve brand value and global reputation.
- Moreover, integrating sustainability into industrial identity can position India as a preferred destination for low-carbon manufacturing, especially as global supply chains diversify.

What should be done?

- **Policy Convergence** – Collaboration between ministries, industry bodies, and regulatory agencies to create a unified framework.
- **Global Alignment with Local Adaptation** – Ensuring compatibility with international standards while retaining Indian specificity.
- **Incentivization Mechanisms** – Financial and regulatory incentives to encourage adoption, particularly among MSMEs.
- **Capacity Building** – Training and awareness programs to facilitate implementation at scale.

- **Robust Monitoring and Verification:** Ensuring transparency and credibility in certification processes.

What lies ahead?

- India's journey toward becoming a global manufacturing powerhouse cannot be divorced from sustainability imperatives.
- While industries are increasingly adopting green practices, the absence of a unified and globally recognized certification system undermines their potential impact.
- Defining an Indian green factory standard is not merely an environmental necessity but an economic imperative.
- It will enable the country to communicate its sustainability achievements effectively, attract global capital, and integrate seamlessly into future-ready supply chains.
- An Indian green factory does not need to mirror Western models to be considered sustainable.
- Instead, it must reflect the country's unique realities, aspirations, and strengths.
- By defining green manufacturing on its own terms, India can lay the foundation for resilient, inclusive, and globally competitive industrial growth.

Reference

[The Hindu| Green Factory Standards of India.]

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