

GREEN ECONOMY - ECONOMY

NEWS: India's green economy is expanding at an unprecedented pace positioning India as a global leader in the green transition.

WHAT'S IN THE NEWS?

- The green economy is an economic framework that **integrates considerations for the environment and sustainability** into economic growth.
- It aims to generate economic development and job creation while ensuring that we don't deplete the planet's natural resources.
- The UN defines the green economy as **"low carbon, resource efficient and socially inclusive."**

Difference from Traditional Economy

- The traditional economies **prioritize short-term growth**, often at the expense of the environment.
- The green economy seeks **long-term sustainable development** by aligning economic, ecological, and social goals.

Key Features of the Green Economy

- **Low Carbon:** Emphasizes **reducing greenhouse gas emissions** through renewable energy, energy efficiency, and sustainable transport.
 - India is the **3rd largest renewable energy producer** globally with over **220 GW** of installed renewable capacity as of April 2025.
- **Resource Efficiency:** Promotes the efficient use of natural resources like water, energy, and raw materials to reduce waste and pollution.
 - Ban on single use plastics, **Extended Producer Responsibility** obligates companies to manage the lifecycle of their products.
- **Social Inclusion:** Ensures fair access to opportunities and benefits, aiming to eliminate poverty and inequality.
 - As per the **ILO**, transition to the green economy could create **24 million jobs** globally by **2030**
- **Sustainable Development:** Integrates environmental sustainability with economic growth and job creation.
 - Sustainable agriculture, like **Zero Budget Natural Farming**, reduces **chemical usage and boosts income**
- **Nature-based Solutions:** Uses ecosystem-based approaches (like afforestation, wetland conservation) to address climate and development challenges.
 - India has pledged to **restore 26 million hectares of degraded land by 2030** under **Bonn challenge**.

What is Green GDP?

- **Green Gross Domestic Product (Green GDP)** is an alternative economic metric that adjusts traditional GDP by **factoring in environmental costs** associated with economic growth.

- Unlike conventional GDP which measures only the total value of goods and services produced, **Green GDP subtracts the negative environmental impacts** of that production .
- **The formula for Green GDP is:**
 - **Green GDP = GDP – Environmental Costs – Social Costs**
- **Environmental costs typically include:**
 - Depletion of natural resources (oil, coal, natural gas, wood, metals)
 - Degradation of ecological systems (water pollution, soil erosion, biodiversity loss)
 - Restoration costs for damaged environments (waste recycling, wetland restoration)
- **Social costs include:**
 - Poverty resulting from environmental degradation
 - Increased healthcare expenditures due to pollution

Green National Accounts

- Green National Accounts expand traditional national accounting systems to include **environmental assets** and their **depletion**.
- Several countries have experimented with green accounting:
 - **China:** Pioneered Green accounting adoption in 2004 but later abandoned it.
 - **European Union:** Uses SEEA frameworks through its “Beyond GDP” initiative.

Global Green Economy Index

- The Global Green Economy Index (GGEI) measures the **green economy performance of 160 countries across 18 indicators**.
- The GGEI was the **first green economy index, launched in 2010**.
- It was developed by Dual **Citizen LLC**.
- The GGEI is defined by **four key dimensions:**
 - climate change & social equity,
 - sector decarbonization,
 - markets & ESG investment, and
 - environmental health.

Green Economy Growth in India

- India’s green economy is projected to reach **\$1 trillion by 2030 and \$15 trillion by 2070**.
- This growth is supported by **increased investment in renewable energy, EVs, sustainable infrastructure, and technology**.
- **Green Jobs:** India is expected to create **7.29 million green jobs by FY2027-28 and 35 million green jobs by 2047**.
 - Jobs are expanding beyond traditional roles into new-age green careers.

- A study by the **Council on Energy, Environment and Water (CEEW)** shows that **Odisha's green economy** alone has a **market potential of \$23 billion**.

Green Economy & Women Participation

- **Low Participation:** Only 18% of start-ups are led by women, limiting green innovation potential.
- **Finance Gaps:** Women entrepreneurs in green sectors face significant financing challenges. **79% of women-led enterprises were self-financed**, and only **1.1% accessed loans from financial institutions**.
- **Need for Inclusive Schemes:** Govt loans like the ₹2 crore scheme for SC/ST women are steps forward, but more such support is needed.
- **Mentorship Matters:** Women lack access to targeted mentorship and role models in green sectors.
 - Platforms like the **Women Entrepreneurship Platform (NITI Aayog)** and **Goldman Sachs–IIMB programmes** provide a foundation, but wider **corporate-backed training and boot camps** are necessary to scale impact.
- **Engineering Gap:** Women make up only 19.2% of engineering students, affecting entry into green tech roles.
- **Essential for 2047 Goals:** Empowering women in green businesses is **not just a matter of equity**—it is vital for India's goal of becoming a **sustainable, developed nation by 2047**.

Government Initiatives to boost Green Economy

- **National Green Hydrogen Mission:** Aims to make India a **global hub for green hydrogen production (5 MMT/year by 2030)** and cut fossil fuel import.
- **Green Credit Programme:** Incentivizes **eco-friendly actions by companies/individuals** under the Environment Act, mobilizing resources for sustainability projects .
- **PM-PRANAM & GOBARdhan Scheme:** PM-PRANAM promotes **alternative fertilizers**; GOBARdhan builds 500 **waste-to-wealth plants (₹10,000 crore)** for the circular economy .
- **FAME India & PM E-DRIVE Scheme:** Boosts **EV adoption via subsidies (FAME)** and a \$1.3B incentive pool (E-DRIVE) for cleaner mobility .
- **National Cooling Action Plan (NCAP):** Targets sustainable cooling via energy efficiency, refrigerant phase-down, and heat resilience (aligned with net-zero goals).

Geographic Spread of Green Jobs

- **Major green job hubs:** Mumbai, Bengaluru, Delhi
- **Emerging hubs in Tier II and III cities:** Jaipur, Indore, Vizag, Coimbatore, Bhubaneswar, Chandigarh, Ahmedabad
- These **smaller cities could account for 35–40% of green jobs by FY28**, driven by sustainable agriculture, logistics, and warehousing.

Sectors Driving the Green Economy

- Renewable energy (solar, wind, hydro)
- Electric vehicles and green transport
- Waste management and recycling
- Sustainable agriculture
- Green construction and urban planning
- Clean manufacturing and circular economy

Significance of the Green Economy

- **Reduces Pollution & Emissions:** Promotes clean energy, green mobility, and waste reduction, directly cutting greenhouse gas emissions.
 - The International Council on Clean Transportation (ICCT) found that **EVs produce 50-60% fewer** lifetime emissions than petrol cars.
- **Climate Change Mitigation and Adaptation:** The green economy aligns with global climate goals like the Paris Agreement, helping countries limit warming to below 2°C.
 - India's Action Plans on Climate Change integrate green economy principles.
- **Economic Growth and Innovation:** Drives sustainable industrialization and innovation in sectors like renewable energy, electric vehicles, sustainable agriculture, and green buildings.
 - India's green economy is projected to grow to \$1 trillion by 2030 and \$15 trillion by 2070.
- **Resource Efficiency and Circular Economy:** Reduces overuse and wastage of water, minerals, and energy through recycling, reuse, and sustainable production.
 - EU Circular Economy Action Plan aims to double circular material use rates by 2030, reducing virgin resource dependency.
- **Social Inclusion and Poverty Reduction:** Empowers rural and vulnerable communities through nature-based livelihoods and clean energy access.
 - **Solar microgrids** in rural India have **improved power access for millions of households**, enhancing education and livelihoods.

Challenges to the Green Economy

- **High Initial Investment Costs:** Transitioning to **green infrastructure (solar, wind, EVs, etc.)** requires **large upfront capital**.
- **Technological Gaps and Infrastructure Deficits:** Lack of access to advanced green technologies, especially in low-income nations.
 - Inadequate infrastructure (e.g., **EV charging stations, smart grids**) hinders adoption.
- **Resistance from Established Industries:** Traditional sectors like **coal, oil, and automobile manufacturing** resist the green shift due to fear of job losses and sunk investments.
 - Coal accounts for **~70% of India's electricity**—phasing it out affects millions of livelihoods.

- **Skilling and Employment Transition:** Green economy demands new skill sets (e.g., solar technicians, battery engineers), but workforce retraining is slow.
 - **ILO** estimates that **6 million jobs** could be lost in carbon-intensive sectors globally by **2030**.
- **Social and Equity Issues:** Risk of deepening inequality if green solutions are unaffordable for poor communities.
 - Rooftop solar adoption in **urban India is much higher than in rural** or marginalized regions.
- **Geopolitical and Trade Barriers:** Green technologies are caught in global trade politics—e.g., **anti-dumping duties, rare earth mineral dependencies**.
 - Renewable energy security now involves securing **lithium, cobalt, etc.**, largely controlled by a few countries (e.g., **China, DRC**).

Way Forward

- **Enhance Green Financing Mechanisms:** Establish dedicated **green banks, sovereign green bonds**, and blended finance models.
 - India issued its first **₹8,000 crore sovereign green bond in 2023**, supporting solar, wind, and green hydrogen projects.
- **Develop Robust Green Infrastructure:** Rapid expansion of EV charging stations, renewable energy grids, and waste-to-energy plants is essential.
 - India's **National Electric Mobility Mission** aims for **30% EV penetration** by 2030, requiring massive infrastructure scaling.
- **Support Just Transition for Workers:** Launch large-scale **retraining programs** for fossil fuel workers.
 - **ILO** recommends a “**just transition**” approach, India can adapt this by integrating green skills in schemes like **Skill India Mission**.
- **Build Domestic Supply Chains:** Invest in **domestic manufacturing of solar cells, batteries**, and wind components under **PLI (Production Linked Incentive)** schemes.
 - Reduce reliance on imports by securing minerals through partnerships (e.g., **India-Australia MoU on critical minerals, 2023**).
- **International Cooperation and Technology Transfer:** Leverage platforms like **International Solar Alliance** and **G20 green initiatives** to access climate finance and clean tech.

Conclusion

The green economy is not just about protecting the environment, it's a strategic imperative for **sustainable growth, job creation, poverty alleviation, and global competitiveness**. For India, it offers a vital framework to achieve **Viksit Bharat 2047**, meet climate targets, and ensure intergenerational equity.