



A Study on India's First Step in The Direction of Green Growth and Green Economy for Sustainable Development

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Abstract

The phrase "green economy" has gained significant global traction, prompting numerous nations to prioritise environmental concerns and embrace it as their principal economic framework. India is among the few countries undergoing swift economic expansion while prioritising sustainable development. "Green growth" denotes the advancement of economic development while safeguarding the sustainability of natural resources that are essential for environmental conservation. The Union Budget of India for 2023–2024 emphasises green growth, targeting a shift towards a green economy through environmentally friendly agriculture and renewable energy. The green economy concept prioritises environmental conservation alongside financial advantages to foster more resilient and sustainable economies. The green economy aims to eliminate or significantly reduce this development cost. The environment and natural resources must be preserved as they constitute our most important assets. Proponents of the green economy or low-carbon economy assert that environmental preservation must significantly influence the formulation and execution of all economic policies. Environmental hazards impede economic advancement due to their adverse impact on both society and the ecosystem. This study article elucidates the concepts of "green economy," "green growth," and "sustainable development." The text examines the transformation of significant economic sectors to a green economy, along with the opportunities and challenges confronting India. India has the potential to spearhead global green growth and economic advancement to achieve sustainable development.

Keywords: Green growth, green economy, sustainable development

Introduction

A green economy is an economic approach that promotes the harmonious coexistence of humanity and nature while striving to fulfil their needs. It utilises resources efficiently, promotes social inclusivity, and reduces carbon emissions. The concept of a green economy has gained significance in the national development strategies of countries globally (Bogovic & Grdic, 2020). A green economy must enhance resource utilisation, safeguard and augment the availability of natural resources, encourage sustainable consumption and production practices, and steer global efforts towards low-carbon growth within the framework of sustainable development. The rapid industrialisation has resulted in increased deforestation, leading to a reduction in atmospheric oxygen and exacerbating carbon emissions, which contribute to air pollution and global warming. The concept of a green economy was initially proposed by British environmentalist Pearce in his publication, Blueprint for a Green Economy. He asserts that a green economy is the most efficacious means of attaining economic development, in contrast to the conventional objective of economic growth. Pearce et al. (1989) underscore the intrinsic relationship between society progress and environmental conservation. Advocates of a green economy advocate for the establishment of finances and employment opportunities via private and public investments aimed at safeguarding biodiversity, reducing carbon emissions and other pollutants, and enhancing resource efficiency. The United Nations General Assembly provided guidance to member states by categorising the concepts of green economy and sustainable development into seven tracks: "eco-efficiency, greening markets and public procurement, investments in sustainable infrastructure, restoration and enhancement of natural capital, accurate pricing, and ecological tax reform." India aspires to transition to a green economy and may do this by allocating between 0.02% and 0.04% of the average annual GDP growth rate towards environmental protection initiatives.

In October 2008, the United Nations Environment Programme (UNEP) initiated the Green



Economy Initiative to stimulate investment in environmentally sustainable companies and promote sustainability. At the 2012 Rio+20 World Conference on Sustainable Development, the concept of an inclusive green economy was launched and has since evolved. The notion of an inclusive green economy, alongside green growth and sustainable development, has experienced considerable expansion and transformation.

The phrase "green growth" denotes a sustainable economic development that employs natural resources. This approach is increasingly recognised globally as a substitute for conventional industrial expansion. Thus, the "green economy" has arisen as a concept that advocates for environmental security and tangible advancement (Pollin et al. (2014); Albekov et al. (2018)). The perspectives offered by the green economy advocate for a comprehensive and integrated strategy for sustainable development, with environmental conservation as its foremost goal. This enhances a nation's resource efficiency and competitiveness. The birth of several sectors, expedited commercialisation, and other results of this economic expansion. Nonetheless, environmental pollution, ecological imbalance, water scarcity, and other challenges have highlighted India's remarkable economic progress. 'Green Growth' is expected to function as a facilitator in various capacities, such as promoting a cleaner transition, generating green employment, and fostering sustainable development, while the Indian economy is forecast to expand by approximately 6.5% in the fiscal year 2023-24.

Review of Literature

Kasztelan (2017) indicated that sustainable development is perceived as an enduring objective achievable through the implementation of green growth. The complementary and synergistic relationships among the three concepts—green economy, green growth, and sustainable development—support the conclusion that their cohabitation is justifiable. Sustainable innovation and technology transfer enhance green growth, subsequently positively influencing economic growth (Fernades, et al. 2021). Green investment seeks to enhance social equity and human welfare while mitigating environmental risks and safeguarding the ecosystem. Furthermore, it acknowledges the significance of the environment and its natural resources (Soundarrajan, 2016). Melnyk et al. (2020) assert that evaluating the dynamics of a nation's economic greening is essential, as it facilitates the analysis of the environmental repercussions of a new economic model by examining various contributing factors and identifying optimal strategies for mitigating environmental pressures stemming from economic activities. Various international reporting frameworks depend on energy indices and indicators to assess the condition of the green economy and the prospects for green growth. Chhaochharia (2021) examined global and Indian trends in green finance transactions. The study assesses public awareness and the accessibility of financial resources for green initiatives by employing various data sources. The findings reveal that although India has advanced in public awareness and finance alternatives, there remains potential for enhancement in information management systems and stakeholder cooperation. These enhancements may mitigate information asymmetry and promote ecologically responsible and sustainable economic development. Economic expansion propels economic advancement; yet, it also leads to pollution and depletion of natural resources, hence it should not occur at the environment's expense (Bholane KP, 2013). In the paper "Risks and Uses of the Green Economy Concept in the Context of Sustainable Development, Poverty, and Equity" (Khor, 2021), the author meticulously examines the perils of employing the concept in a limited fashion that elevates environmental considerations above all other aspects. Khor underscores the necessity of acknowledging the economic and social worth of environmental resources as a fundamental element of the green economy. The green economy emphasises the significance of environmental preservation alongside economic profitability to foster sustainable growth. The conservation and preservation of natural resources and the environment are essential, as they represent our most important assets. Advocates of the green or low-carbon economy contend that environmental protection must be the paramount consideration in the development and execution of all economic policies.



Objectives of Research

1. To understand the concepts of a green economy, green growth, and sustainable development.
2. To identify the transition to a green economy in major economic sectors.
3. To highlight the green initiatives taken in India.
4. To examine the opportunities and hurdles faced in the green economy.

Methodology

The secondary data used in this research paper was gathered from various books, journals, websites, publications, and annual reports from various governments and organisations. This is a theoretical paper attempting to add to the literature on green economies and green growth. The news articles that are related to the green economy, green growth, and ecological footprint have been reviewed for this research paper.

Green Economy: A green economy is a strategy of conducting business that seeks to simultaneously meet the needs of both humanity and nature while promoting peaceful coexistence. A green economy is one that conserves resources, is socially inclusive, and decreases carbon emissions.

Principles of the Green Economy

Principles of a green economy are based on five key principles.

1. The wellbeing principle aims to:

- Enable the society to create and enjoy prosperity.
- Increasing wealth to encourage well-being.
- Potential for sustainable and decent living.
- Established on the tenet of collective action for public goods.

2. Justice principle

- Equity within and between generations is encouraged.
- Supports the emancipation of women and opposes elite capture.
- Fair distribution of opportunity and result.
- Founded on compassion and social justice.

3. Planetary boundary principle

- Protects, restores, and funds the environment.
- Adopting the precautionary principle to prevent the depletion of natural resources and ecological boundaries.
- Make investments to safeguard, enhance, and revive the natural systems, including the land, water, and air.

4. Efficiency and Sufficiency principle

- Supporting sustainable consumption and production.
- A global move to sustainable resource consumption.
- Employ polluter pays principle or benefits to be accrued to those delivering inclusive green outcomes.

5. Good Governance principle

- Integrated, accountable and resilient institutions.
- Requires public participation, transparency, and social dialogue.
- Devolved decision- making.

Indian position as green economy

According to the 2022 Environmental Performance Index, nations are rated based on parameters such as air quality, environmental health, ecosystem services, climate change, biodiversity & habitat, fisheries, and waste management.

India is the fifth largest economy in the world, ranked lowest out of 180 countries, indicating its poor performance lags in green growth. Some of the indicators that contribute to India's ranking are as follows: Fisheries (42), Sanitation & Drinking Water (139), Waste Management (151), Climate Change (165), Environment health (178), Biodiversity & Habitat



(179), and Air Quality (179). India's poor performance is concerning, and quick action is needed to address these issues and protect people from major environmental health concerns.

Table 1: Shows Environmental Performance Index (EPI)

Country	Rank	EPI-Score	10-year change
Denmark	1	77.9	14.9
United Kingdom	2	77.7	23
Finland	3	76.5	21
Malta	4	75.2	25.4
Sweden	5	72.7	15.8
India	180	18.9	-0.6

Source: 2022 Environmental Performance Index (EPI).

India has committed to achieving net zero emissions by 2070. Presently, India's economy is the world's fifth largest and one of the fastest growing.

Table 2: KDI for India and some countries

Countries	GDP (Current US\$), (Billions (2021))	GDP growth (Annual %) (2021)	CO2 emissions (Metric tons per capita), (2020)
United States	23,315.08	5.9	14.67
China	17,734.06	8.1	7.61
Brazil	1,608.98	4.6	2.05
India	3,176.30	8.7	1.78
Japan	4,940.88	1.7	8.54

Source: World Bank Development Indicators

India's economy needs to grow more if it is to meet its development goals. Growth could, however, have severe adverse consequences for the environment due to the rapid depletion of natural resources. India's ability to eventually rely less on the resources required to support economic growth while enhancing social justice and creating jobs will determine how far India moves towards green growth. Green growth potential may help strike a balance between these needs. However, the management of the public debt and budget deficits, two major impediments to national planning, could halt the technological developments required for green growth.

Major Greening Economic Sector in India

Agriculture: Organic farming has the potential to improve food quality, preserve non-renewable resources, and benefit the environment. Since organic farming practises are thought to offer some solutions to the problems now affecting the agriculture business, interest in them has increased over the past 10 years (Charyulu et al., 2017). Sikkim was dubbed the nation's first entirely organic state in 2015. Many other state governments are being encouraged by this to take similar action. The government has implemented several initiatives to enhance and assist farmers' livelihoods, particularly those of small farmers. These include increasing the minimum support prices, enhancing loan availability, creating seeds resistant to climate change, and implementing some technical treatments like the Soil Health Card, which allows farmers to assess the condition of their soils. Additionally, the government has set a goal to double farmer incomes. However, the majority of our organic farmers continue to struggle as a result of subpar regulatory measures, a lack of knowledge, rising input costs, and an ignorance of the market.

Energy: India has vowed to use non-fossil fuel-based energy resources to generate about 50% of its total installed capacity by 2030. By December 31, 2022, 167.75 GW of renewable energy capacity has been installed throughout the nation. In addition, 78.75 GW worth of projects are currently in various stages of completion, while 32.60 GW worth of projects are in various stages of the bidding process. India ranks fourth globally for installed renewable energy capacity, wind power capacity, and solar power capacity, according to the REN21 Renewables 2022 Global Status Report. The country's renewable energy capacity (including



large-scale hydro) has increased from 76.37 GW in March 2014 to 167.75 GW in December 2022. During this period, India's total solar power capacity has increased 24.07 times, from 2.63 GW to 63.30 GW. Source: Annual Report 2022-23 Ministry of New and Renewable Energy.

Construction: The construction industry is highly resource intensive. It accounts for 30% of Indian electricity usage and has a large material footprint. India has secured the third position among the top ten countries for LEED (Leadership in Energy and Environmental Design). To further the cause, the Indian Green Building Council (IGBC) was established in 2001 by the Confederation of Indian Industry (CII) with the vision of enabling a sustainable built environment for all and elevating India to a global leader in sustainable infrastructure by 2025. The growth of green built-up area in India has been impressive, from a modest beginning of 20,000 square feet in 2003 to more than 10,698 green building projects currently under construction as of March 31, 2023, with a footprint of over 10.26 billion square feet registered with the Indian Green Building Council (IGBC). Out of these, 3,321 projects are already certified and fully operational in India. The collective efforts of all parties involved in the green construction movement have made this expansion feasible.

Manufacturing: The green manufacturing sector in India is in its nascent stages. Despite advancements in the manufacturing sector regarding green energy policies, significant opportunities remain for the development and implementation of policies related to green products and processes. Notwithstanding the nation's rising industrial exports, the manufacturing sector constitutes about 16% of India's GDP, far lower than the 55% produced by services. By 2025, if manufacturing attains its maximum capacity, it may account for 25 to 30 percent of the nation's GDP and generate 60 to 90 million new employment. Global climate change is a primary concern associated with worldwide industrialisation and economic development. Manufacturing significantly influences economic and sustainability concerns as it is a primary source of greenhouse gas and other pollutants. Green manufacturing is essential for long-term sustainability and for protecting the world from the emerging threats posed by climate change. The objective of green manufacturing is to diminish the industrial sector's impact on climate change and other environmental challenges by modifying business and production practices, along with stakeholder perspectives. Manufacturers can advocate for sustainable practices using tangible methods within their production facilities, across the supply chain, and within their consumer demographics. To mitigate the adverse environmental impacts, it is essential to standardise our production processes and goods.

Besides benefiting the environment, green manufacturing is also economically advantageous. According to a recent United Nations study, CO₂ emissions must be reduced by fifty percent by 2030. Green and sustainable manufacturing would be crucial for achieving this objective as India initiates an ambitious growth strategy. Green manufacturing employs renewable energy sources, minimises waste, promotes safe industrial practices, and mitigates environmental impact. Eco-friendly practices are no longer merely optional. They are essential, as investors evaluate a company's financial stability in conjunction with its long-term performance. Green manufacturing can be incorporated by businesses in a number of ways. They can develop and promote environmentally sustainable products or adopt manufacturing methods that minimise emissions, waste, and pollution, while prioritising recycling and reuse.

Transportation: The development of on-demand transportation and carpooling systems is now a developing trend in India's transportation industry. These are especially common in cities and are anticipated to experience exponential growth as Internet usage increases. Electricity sector decarbonization is a significant step that is required for the decarbonization of end use sectors. India has proven to be a leader in the advancement of renewable energy and, through its departure from coal consumption, has the potential to maintain this position. This transformation of the electricity sector could result in substantial benefits for



sustainable development and create opportunities for growth across various industries.

Government initiative towards green India

India has committed to achieving net zero emissions by 2070, released a low-carbon development strategy, and introduced the idea of "Life" (Lifestyle for Environment) to encourage ethical consumption in order to address the climate crisis. The first auction for the new Sovereign Green Bonds, which were introduced in the fiscal year 2022–23 budget as a new way to finance green initiatives, was recently a success. The government has accelerated green growth as India overtakes China as the most populous nation. The Indian government has made the following steps towards a green economy that promotes sustainable growth.

Hydrogen energy mission: The project involves producing hydrogen using environmentally friendly energy sources, which has the potential to revolutionise the transportation industry. The budget's allocation of funds towards green hydrogen is in line with the objective of decreasing reliance on minerals and rare earth elements for energy storage and encouraging the use of clean energy sources in India. The development of a national initiative for green hydrogen, supported by a budget of Rs 19,700 crore, will facilitate the shift towards a low-carbon economy and decrease the country's dependence on imported fossil fuels. The goal is to attain an annual production rate of 5 MMT by 2030. To aid in this energy transition, the Ministry of Petroleum and Natural Gas will invest Rs 35,000 crore in capital projects, furthering the objective of achieving net-zero emissions and enhancing energy security.

PM Kusum (Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan)

Introduced in 2019, this programme aims to provide Indian farmers with energy security while also aligning with the country's Intended Nationally Determined Contributions (INDCs). India has committed to achieving 40% of electric power generation from non-fossil fuel sources by 2030, and the Ministry of Petroleum and Natural Resources has identified energy security, transitioning to non-fossil fuel sources, and achieving a net-zero goal as their top priorities.

Public Transport: India's public transportation system is undergoing a significant overhaul, with the Indian government committing INR 18,000 crore (USD 2.43 billion) from private sources to acquire 20,000 buses. Additionally, the government is utilising innovative financing methods through public-private partnerships. The intent of the programme is to decrease reliance on private vehicles and reduce the carbon footprint. In India, the process of scrapping old vehicles plays a crucial role in promoting environmentally friendly practises. By removing older vehicles, it allows for the introduction of a newer and more sustainable fleet of vehicles. This law is anticipated to diminish emissions, enlarge job prospects, and escalate the need for new vehicles, all of which promote the development of an eco-friendly economy by upholding the three R's: reuse, recycle, and recover. This contributes to the overall goal of achieving a greener future for the country.

Deep Ocean Mission: The mission would carry out programmes to save deep marine biodiversity in addition to deep ocean survey and exploration. Within five years, this programme will receive a budget of more than INR 4,000 crore.

PM Pranam: The government's objective is to support and encourage one crore farmers to take up natural farming techniques via the PM Programme for Restoration, Awareness, Nourishment, and Amelioration of Mother Earth (PRANAM). The main focus of this initiative is to decrease reliance on chemical fertilisers and endorse a more balanced use of chemicals. Moreover, it promotes eco-friendly practises, like green growth, to diminish the adverse effects on the environment.

Green Credit Programme: The Environment (Protection) Act will be notified as a Green Credit programme to promote behaviour change. This would encourage ecologically responsible behaviour on the part of businesses, people, and local organisations while also assisting in the mobilisation of additional resources for such initiatives.

Urban Swachh Bharat Mission 2.0: Efficient waste management of building and demolition projects is a key focus for the government. Their strategy involves the bioremediation of all



previously used landfills, and a concentrated effort towards integrated management of manure, sludge, and sewage treatment. Waste sources will be categorised and a reduction in disposable plastic use will be implemented, leading to a decrease in air pollution.

Gobardhan Yojana: India has the potential to produce 150,000 cubic metres of gas and 10 billion cubic meters of biogas from cow dung, also known as Gobar. These resources can contribute up to 8% to the country's city gas distribution. The Gobardhan Yojana, which is an essential element of India's biofuel strategy, was introduced in 2018. As a part of the Gobardhan Yojana, the government has plans to construct 500 new wastes to wealth facilities.

Consumer preference for Greener Products: Consumers are aware of green products. Buyers favour companies that aid in reducing waste, decreasing carbon emissions, using recyclable packaging, maintaining ethical labour standards, and upholding human values and rights. The pandemic has heightened people's environmental consciousness, health considerations, and desire to preserve resources for future generations.

Potential hurdles for achieving green economy in India

It is commonly believed that environmental protection comes at the expense of economic development and progress. As a means of preserving the environment, The Government of Odisha put a halt to open cast mining.

- The majority of people think green technology is unreliable and prohibitively expensive. As an illustration, electric vehicle battery charging stations are limited in availability, and solar energy is initially pricey.
- Green investment financial markets are still in their infancy, and there are insufficient structures in place to allocate financing towards such ventures. For instance, because green bonds have a credit rating below AAA, investors are hesitant to purchase them.
- The idea that India cannot afford to pollute now and clean up later has not yet been accepted by the public.
- The widespread recognition of a green economy as a means to advance social development and environmental sustainability remains limited.

Accelerating the transition towards a green economy in India

The following recommendations are being provided to accelerate the shift to a green economy:

- Use public procurement procedures to generate sustained, high-volume demand for eco-friendly products and services, which will incentivize businesses to innovate and benefit from economies of scale.
- Redirect money into the environment by promoting livelihood models that protect and improve natural resources, including water and land systems.
- Use monetary and fiscal policy tools to encourage green economic activity.
- Encourage the growth of eco-friendly businesses, particularly within the micro, small, and medium enterprise realms, through the provision of benefits, protection against risk, proper regulation, technology, and modern infrastructure.
- Supporter for the adoption of environmentally friendly construction supplies for housing, smart agriculture for food production, and sustainable energy sources for electricity generation as effective, clean solutions for fulfilling essential demands.
- Increasing investor confidence by making significant environmental challenges more predictable from a government perspective
- Create favourable conditions for informed decision- making and the uptake of necessities like education, health care, and cleanliness, such as reasonable supply, adequate finance, and responsive products and services.
- Promote environmental social awareness via a variety of channels like radio and television.
- To conserve resources, use digital mode rather than physical mode. It opens great opportunities for digital media.



- Raising funds by implementing green taxes and discontinuing environmentally harmful subsidies can aid in budgetary consolidation.
- Increasing efficiency can be attained by providing incentives for environmentally friendly behaviours, reducing waste, promoting growth and innovation, and allocating resources towards high-yield investments.
- Expanding the market for eco-friendly products, services, and technologies can stimulate demand.

Conclusion

This study examines critical indicators in India's green economy, emphasising its advancements and possibilities. The results indicate favourable trends that endorse India's continuous endeavours to shift towards a green economy. Notwithstanding the challenges typically encountered by developing nations, India's sustainable development objectives can be realised via the implementation of more effective policies. The government can expedite this shift by employing economic instruments to formulate ecologically sustainable rules and legislation. While the Indian government has historically employed a command and control strategy to sanction environmental violators, the implementation of economic mechanisms may be more efficacious in fostering sustainable growth without compromising GDP expansion. The Union Budget 2023 prioritises green growth, emphasising the creation of green jobs, the promotion of sustainable energy, and the transition to a green industrial and economic model. This budget demonstrates the government's dedication to attaining Net Zero by 2070, accompanied by a definitive and objective-driven strategy. Nevertheless, other enhancements are necessary, and forthcoming budgets should incorporate green budgeting and green accounting to acknowledge the significance of biodiversity in ecosystem services.

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