

Green Economy and Sustainable Development in India-Challenges and Opportunities

Dr Swati Munot

Professor, K. G. College of Arts and Commerce, Ahmednagar, Maharashtra

Email: [swatimunot\[at\]yahoo.com](mailto:swatimunot[at]yahoo.com)

Abstract: India is one of the world's growing economies faces significant challenges in balancing economic development with environmental sustainability. This paper explores the concept of green economy and its implications for sustainable development in India. It examines the current state of Indian economy; analyzes the key challenges related to environmental degradation, resource depletion and climate change and discuss the potential benefits of transitioning to a green economy. This paper also evaluates various policies, initiatives and strategies adopted by the Indian Government and other stakeholders to promote sustainable development including renewable energy investment, environmental regulations and green technology innovations. Finally it identifies opportunities for further integration of green principles in to India's economic development agenda and suggest recommendations for policy makers, businesses and civil society to accelerate the transition towards a more sustainable and inclusive economy.

Keywords: Green Economy, Sustainable development, Environmental degradation, Renewable Energy, Climate change, Policies, Challenges, Opportunities

1. Introduction

A field of economics called "green economics" aims to develop strategies that encourage peaceful relationships between people and the natural world. It covers various topics, including ways to interact with nature and production processes. There are numerous ways to define a green economy. According to the International Chamber of Commerce's (ICC) 2011 report, "Ten Conditions for a Transition toward a Green Economy," a green economy is one "where economic growth and environmental responsibility work together in a mutually reinforcing manner while supporting progress and social development." Green economics has become more widely accepted through consumer-facing labels that describe a company's or product's level of sustainability. In other words, A green economy is defined as low carbon, resource efficient and socially inclusive. In a green economy, growth in employment and income are driven by public and private investment into such economic activities, infrastructure and assets that allow reduced carbon emissions and pollution, enhanced energy and resource efficiency, and prevention of the loss of biodiversity and ecosystem services.

These green investments need to be enabled and supported through targeted public expenditure, policy reforms and changes in taxation and regulation. UN Environment promotes a development path that understands natural capital as a critical economic asset and a source of public benefits, especially for poor people whose livelihoods depend on natural resources. The notion of green economy does not replace sustainable development, but creates a new focus on the economy, investment, capital and infrastructure, employment and skills and positive social and environmental outcomes across Asia and the Pacific.

Historical Background and Conceptual Evolution

While the concept of sustainable development has been interpreted in varied ways in a wide range of contexts of development policies and forums world-wide, most of these interpretations have taken their starting point as the

definition which was arrived by consensus at the World Commission on Environment and Development (WCED) in 1987. This definition states that sustainable development process is one which meets the needs of the present generation without compromising the ability of future generations to meet their own needs. This definition is rather broad, but its prime focus was on intergenerational equity. Its obvious implication in terms of resource use has been that the development process has to ensure such use of resources of man-made capital, human capital, and natural capital in the current period that the present generation leaves behind in quantity and composition such an endowment of resources for the next generation that the latter could have access to the same opportunities and amenities of the level of living.

So far as the content of development is concerned the development economists have elaborated the concept in different ways depending on the priorities among issues of the concerned area in such context of sustainability. However, it has also been agreed that the sustainability of a development process would require three basic conditions to be fulfilled

- 1) Macro-economic growth process should be strong and sustainable and policies based on sound macro-economic fundamentals.
- 2) The growth process should be socially sustainable, that is based on the principle of social inclusiveness and participation of all sections of people in the development process so that poverty, unemployment, illiteracy, hunger and diseases can be eradicated and certain norms of social equity and for a just society can be achieved.
- 3) The process of economic growth should involve such use of natural resources and capacity of the ecosystem to provide eco-services and natural resource supply that there is no net erosion of eco-capacity.

However, the above three kinds of consideration of economic efficiency in macroeconomic allocation of resources, social equity and environmental sustainability are very likely to be conflicting with each other whenever an

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actual agenda of development comes up for implementation. For example, as the geographical and geological map of coal and mineral resources and that of forests overlap to a large extent in India, the environmental clearance becomes a conflicting issue for mineral and energy development. It would be ideal if there exists such a strategy and a path of development which find the fulfillment of the above three objectives not to be competing or conflicting with each other, but have relations of complementarities. It is, however, not so easy for a country to find out such a strategy of development. It is therefore important to find a balance of considerations of the above objectives of macroeconomic growth, social equity and environmental sustainability of the development process while making a choice for the development strategy and policies. Such balancing is in fact a challenging task. The concept of Green Economy and green development has emerged out of such efforts of balancing alternative sustainability considerations for development.

In spite of the fact that considerations of social equity and environmental sustainability and the complementarily between the two figured importantly in the debates and discussions of the earth summits at Rio de Janeiro in 1992 and the Johannesburg in 2002, it remains the fact that the global economy based on the current patterns of consumption and production and use of natural resources in both the developed and the developing world have imposed heavy strain on the ecosystems of the different parts of the world resulting in the erosion of the bio-capacities and environmental degradation. On the other hand, extreme poverty still persists in many parts of the world in spite of the fact that the world GDP increased by more than 60% since 1992 and the process of globalization benefited some, but not all in the global development process. It should be noticed in this connection that the dominant ideology of the world as replicated in actions reveal the following:

- 1) The sustainability as defined by the world commission has been interpreted to be placing much greater emphasis on inter-generational equity than on intergenerational equity.
- 2) As a consequence of (1), in all discussions on global change, the climate change issue has dominated over other social cum environmental issues of national level importance having important global economic implications and policy ramifications.
- 3) The discussions on climate change related policy issues have been mostly carbon centric having serious constraining implications on the growth process of the developing world and social equity.
- 4) The sustainability as defined by the world commission has also been interpreted more in the spirit of weak sustainability than strong sustainability, presuming that effects of erosion of natural capital can be offset by the development of new kind of knowledge and man made capital and discovery of alternative resources so that the development of human well-being can be sustained over time. The tremendous technological progress of the twentieth century and the emergence of new (endogenous) growth economics has provided the basis for such optimistic faith.
- 5) The presumption of substitutability between man made and natural capital is valid only over a limited range of

erosion of natural capital. While natural capital has been abundant in some of the developing economies, the man made capital machinery, buildings and structure as well as human capital need often to be developed in most of the developing countries. However, this often has involved conversion of natural capital into these other forms of capital although there has remained substantive scope of conservation of natural resources through increasing efficiency gains due to technical progress. There is also at the same time now a growing recognition of the existence of environmental threshold which would constrain such conversion of natural capital as these are also needed for the development of human welfare for their critical role of life support.

- 6) It may further be noted in this connection that while ecosystems may be conceived like capital assets which depreciate if they are overused or misused, but unlike the reproducible assets, their depreciation beyond a level is irreversible or it may take a long time for the ecosystem to recover. It may even not be possible to replace a degraded ecosystem by a new one even with some human investment of energy and capital. Besides, there are risks for an ecosystem to collapse without giving any warning if the erosion of bio-capacity has exceeded some threshold which may not always be known prior its exact happening.
- 7) As the eco-capacity of ecosystems get eroded and irreversibly lost the ecoservices in the forms of supply of fresh water, soil conservation, water purification and waste treatment by nature, pollination and control of pests and natural hazards, genetic and other biochemical resource supply etc. most of which are non-marketed eco-services, become scarcer. As a result of such growing scarcity it is the poor and economically under-privileged class who would often suffer most from the deprivation of benefit from such ecoservices. As many of such eco-services are accessed by the poorer sections of the population through the common resources of the marginal or degraded land and forests, dry land or upland, land with water stress and vulnerable to climatic or ecological disruption, the growing eco-scarcity results in their erosion of income and affect their livelihood security. The poor then tend to overuse their already degraded common resources and further aggravate the problem of scarcity of eco-services resulting in serious problems for ensuring their sustainable livelihood in a highly populated country like India.

It is thus in the background of the relative neglect of the considerations of social equity and irreversibility of the loss in eco-capacity beyond a threshold level, that the concept of green economy has emerged further qualifying the concept of sustainable development to characterize an economy. The UNEP has defined green economy as one that results in an improved human well-being and social equity while significantly reducing environmental risks and ecological scarcities (see below for more details on the UNEP definition of the green economy). This would imply the development process to be low carbon, resource efficient and socially inclusive. Such development process would be driven by investment on both public and private account that would reduce carbon and other pollution emissions, improve

efficiency of resource use or resource conservation in production and consumption and significantly abate loss of bio-diversity and ecosystem services. These investment funds should be so deployed as to generate at the same time income and employment in the economy as to ensure eradication of poverty and an equitable sharing of the benefits of growth. A green growth process is thus to target such transition of an economy which will eliminate as far as possible the trade-offs between economic growth and gains in environmental quality or social inclusiveness so as to strike a balance among all these three aspects of the development process.

Environmental challenges in India

During last several years enormous efforts were made for environmental protection and also some attempts has already been taken up for sustainable development. Areas have been identified where priority action is needed.

- a) Population Stabilization- The current population of **India** is **1,438,089,779** as of Friday, March 22, 2024, based on Worldometer elaboration of the latest United Nations data whereas India 2023 population is estimated at **1,428,627,663** people at mid year. India population is equivalent to **17.76%** of the total world population. The crux of the matter is that future population growth has to be related to the resource base. Resources shrink as people multiply and demographic pressures lead to economic pressures. Thus our immediate task is to know the carrying capacity of our country. In any case a zero population growth holds the key to our prosperity, and to achieve this government must be prepared for a measure of unpopularity.
- b) Natural Resource Assessment and Management- Land is one of the important components of the life support system and has been overused and abused. There are a number of competing demands on land like agriculture, forestry, grassland, urban and industrial development. We will require a time bound base micro level land use survey, starting with the village indicating our long term requirements for competing land uses and land capability.
- c) Strategies for Environmental Pollution Monitoring and control- All kinds of environmental pollution are man made problems which arise from anthropogenic, industrial and agricultural sources. During last couple of decade's enormous amount of pollutants contaminated the land, water and air. The nature of pollutants and their quantifications were made by regular monitoring programmes. There is a great need for harvesting non polluting renewable energy system for major development activities. Thus a perspective in the energy science is yet to be developed though PM Surya Ghar: Muft Bijli Yojana is a government scheme that aims to provide free electricity to households in India. The scheme was launched by Prime Minister Narendra Modi on February 15, 2024. Under the scheme, households will be provided with a subsidy to install solar panels on their roofs. The subsidy will cover up to 40% of the cost of the solar panels. The scheme is expected to benefit 1 crore households across India. It is estimated that the scheme will save the government Rs. 75,000 crore per year in electricity

costs. In the immediate future the country will have to conserve to the maximum extent the commercial sources on the one hand and replace and supplement the same with non conventional sources on the other.

- d) Human Settling and Public Health- Due to the continued rise of population, the demand for housing, drinking, water, sewerage disposal and various other public health support system was increased enormously as a consequence there is rise of infectious diseases, continuous recurrence of mosquito borne diseases and gastroenteritis.
- e) Environmental Laws and Regulations- There is a plethora of central and state laws/enactments which have direct or indirect relevance to environment. In spite of these laws, the improvement of environment quality is not substantial. There are a lot of fallacies in the laws that have to be amended otherwise effective implementation could not be possible.

Opportunities for green growth

Green growth is not a replacement for sustainable development. Rather, it provides a practical and flexible approach for achieving concrete, measurable progress across its economic and environmental pillars, while taking full account of the social consequences of greening the growth dynamic of economies. The focus of green growth strategies is ensuring that natural assets can deliver their full economic potential on a sustainable basis. That potential includes the provision of critical life support services – clean air and water, and the resilient biodiversity needed to support food production and human health. Natural assets are not infinitely substitutable and green growth policies take account of that.

Green growth policies are an integral part of the structural reforms needed to foster strong, more sustainable and inclusive growth. They can unlock new growth engines by:

- **Enhancing productivity** by creating incentives for greater efficiency in the use of natural resources, reducing waste and energy consumption, unlocking opportunities for innovation and value creation, and allocating resources to the highest value use.
- **Boosting investor confidence** through greater predictability in how governments deal with environmental issue.
- **Opening up new markets** by stimulating demand for green goods, services and technologies.
- **Contributing to fiscal consolidation** by mobilizing revenues through green taxes and through the elimination of environmentally harmful subsidies. These measures can also help to generate or free up resources for anti-poverty programmes in such areas as water supply and sanitation or other pro poor investments.
- **Reducing risks of negative shocks to growth** due to resource bottlenecks, as well as damaging and potentially irreversible environmental impacts.

Strategies for greener growth need to be tailored to fit specific country circumstances. They will need to carefully consider how to manage any potential trade-offs and best exploit the synergies between green growth and poverty reduction. The latter include, for example, bringing more

efficient infrastructure to people (e.g. in energy, water and transport), tackling poor health associated with environmental degradation and introducing efficient technologies that can reduce costs and increase productivity, while easing environmental pressure. Given the centrality of natural assets in low-income countries, green growth policies can reduce vulnerability to environmental risks and increase the livelihood security of the poor.

Green growth strategies also recognise that focusing on GDP as the main measure of economic progress generally overlooks the contribution of natural assets to wealth, health and well-being. They therefore need to rely on a broader range of measures of progress, encompassing the quality and composition of growth, and how this affects people's wealth and welfare.

Successful green economy initiatives in India

The Sustainable Development Goals (SDGs) are a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity, though some of them are designed to end poverty, hunger and discrimination against women too.

However, India's trust with climate action goals began in 2009 when India announced its voluntary goal to reduce the emissions intensity of its GDP by 20-25% by 2020 in comparison to 2005 level, and achieved 24% of it in time.

In line with Paris Agreement, India submitted its Nationally Determined Contributions (NDCs) to UNFCCC in 2015 outlining eight targets for the period 2021-2030, reinforcing its commitment to fight climate change.

They include reducing the emissions intensity of its GDP by 33 to 35% by 2030 from the 2005 level; achieving about 40% cumulative electric power installed capacity from non-fossil fuel-based energy sources; to creating an additional carbon sink of 2.5 to 3 billion tonnes of CO₂ equivalent through additional forest and tree cover; and a mix of the other targets pertaining to sustainable lifestyles; climate-friendly growth paths; climate change adaptation; climate finance; and technology and capacity building. But the icing on the cake was to come from the target to achieve 'NET ZERO' emissions by 2070.

Lessons of green economy learned from other countries

Green growth is becoming an attractive opportunity for countries around the world to achieve poverty reduction, environmental protection, resource efficiency and economic growth in an integrated way. Green growth strategies can generate policies and programs that deliver these goals simultaneously, and can accelerate investment in resource efficient technologies and new industries, while managing costs and risks to domestic taxpayers, businesses, communities and consumers.

Green growth strategies are, in part, a response to the serious risk now posed to the global economy by increasing pressure on the environment. Resource scarcity is increasing and water, land, biodiversity, and other natural resources have become degraded. Therefore, transforming economic activity to improve efficiency and management of natural

resources is vital to the stability and sustainability of the future economy – a green economy. Reducing environmental liabilities and risks is critical as well. Pollution of the air, water and land, biodiversity losses, and climate-related hazards can endanger economic and social development if not proactively addressed. But this is not the only reason why green growth strategies are becoming increasingly popular among governments and reaching a new stage of maturity – green growth can unlock substantial economic, social and environmental benefits for societies and enable synergies between them.

Many of the stated benefits of green growth strategies are yet to be proven, but the findings presented here suggest that:

- **Green growth can enhance efficiency and productivity.** Green, resource efficient technologies and practices often save resources and money compared to conventional alternatives. They enhance competitiveness over the long term, and sometimes in the short term.
- **Green growth can underpin industrial policy and macroeconomic goals.** Growing demand for green technologies, products and services – domestically and internationally – offers countries opportunities for developing new industries and markets.
- **Green growth can improve quality of life and, if designed and implemented well, can address social equity issues.** By reducing environmental degradation and conserving vital natural resources, governments can enhance the quality of life for citizens, especially the poor who are particularly vulnerable to natural resource limits and environmental damage.
- **While further evaluation of long-term impacts is required, there is emerging evidence that green growth works.** Growing numbers of national and subnational governments in all regions are achieving results in implementing plans, policies, and programs that accelerate private sector green investment and changes in consumer behavior. These programs are most effective where they respond to trade-offs associated with green growth and invest in initiatives to mitigate the risks and costs of a transition to green development. Many of these and other countries have carried forward their visions into implementation programs that are achieving concrete results, while others are still at the early stages that have not yet realized impacts.

Challenges and barriers in green economy in India

There are several challenges and barriers in implementing green economy in India; following are some of the challenges.

- 1) **Policy Framework:** Developing and implementing comprehensive policies that incentivizes and promotes green technologies, renewable energy, sustainable agriculture, and efficient resource utilization is crucial. However, India faces challenges in creating a stable and consistent policy framework due to bureaucratic hurdles and tendencies, political considerations, and lack of coordination between different government agencies.
- 2) **Infrastructure:** Transitioning to a green economy requires significant investments in infrastructure such as renewable energy generation, electric vehicle

charging stations, waste management facilities, and public transportation. However, India's infrastructure development is often hindered by funding constraints, regulatory issues, and land acquisition challenges.

- 3) **Financial Resources:** Access to finance is a major barrier for green businesses and projects in India. While there is growing interest from investors in sustainable initiatives, there is still a lack of sufficient financial resources, especially for small and medium-sized enterprises (SMEs) and startups in the green sector. Additionally, high interest rates and perceived risks associated with green investments can deter potential investors.
- 4) **Technological Innovation:** The adoption of green technologies such as solar power, wind energy, energy-efficient appliances, and electric vehicles requires continuous innovation and research. India needs to invest more in research and development (R&D) to develop indigenous green technologies and improve existing ones. Additionally, technology transfer and collaboration with international partners can help accelerate the transition to a green economy.
- 5) **Awareness and Education:** Lack of awareness and understanding about the benefits of a green economy among the general public, businesses, and policymakers is a significant challenge. There is a need for extensive awareness campaigns, capacity building programs, and education initiatives to promote sustainable practices and encourage behavioral change.
- 6) **Institutional Capacity:** Strengthening the institutional capacity of government agencies responsible for environmental regulation, monitoring, and enforcement is essential for effective implementation of green policies and initiatives. This includes enhancing skills, expertise, and resources within these agencies to address emerging environmental challenges and ensure compliance with environmental standards.
- 7) **Social and Cultural Factors:** Socio-cultural factors such as cultural beliefs, consumption patterns, and attitudes towards environmental conservation can influence the adoption of green practices. Overcoming resistance to change and fostering a culture of sustainability requires targeted interventions and community engagement strategies tailored to the diverse socio-economic and cultural landscape of India.
- 8) **Data and Information Gap:** There is a lack of comprehensive and reliable data on various aspects of environmental degradation, resource depletion, and the economic impact of transitioning to a green economy. Improving data collection, analysis, and dissemination mechanisms is crucial for evidence-based decision-making and monitoring progress towards sustainability goals.

Addressing these challenges will require concerted efforts from the government, private sector, civil society, and international partners to create an enabling environment for the transition to a green economy in India.

Strengthening policy frameworks for a green economy typically involves a multi-faceted approach that includes

legislative, regulatory, and incentive-based measures. Here are some action plans that could be implemented:

- 1) **Establish Clear Goals and Targets:** Set specific, measurable targets for transitioning towards a green economy, such as reducing carbon emissions by a certain percentage or increasing the use of renewable energy sources.
- 2) **Develop Comprehensive Legislation:** Draft and implement comprehensive legislation that supports the transition to a green economy. This may include laws promoting renewable energy adoption, energy efficiency standards, waste reduction and recycling initiatives, sustainable agriculture practices, and emissions trading schemes.
- 3) **Enhance Regulatory Frameworks:** Strengthen regulations related to environmental protection, resource management, and sustainable development. This could involve stricter enforcement of existing regulations and the development of new regulations where necessary.
- 4) **Promote Green Innovation and Technology:** Implement policies to encourage research and development in green technologies and innovations. This may include providing funding support, tax incentives, and grants for businesses and research institutions engaged in developing sustainable solutions.
- 5) **Invest in Green Infrastructure:** Allocate resources for the development of green infrastructure projects, such as public transportation systems, renewable energy infrastructure, green buildings, and sustainable water management systems.
- 6) **Foster Public-Private Partnerships:** Encourage collaboration between government entities, businesses, academia, and civil society organizations to drive the transition to a green economy. Public-private partnerships can facilitate knowledge sharing, technology transfer, and resource mobilization.
- 7) **Promote Education and Awareness:** Launch public awareness campaigns to educate citizens about the importance of sustainable practices and the benefits of transitioning to a green economy. Education initiatives can help foster a culture of environmental responsibility and encourage widespread participation in green initiatives.
- 8) **Implement Economic Instruments:** Introduce economic instruments such as carbon pricing mechanisms, eco-taxes, and subsidies for green industries to incentivize sustainable practices and discourage environmentally harmful activities.
- 9) **Integrate Environmental Considerations into Decision Making:** Ensure that environmental considerations are integrated into all policy and decision-making processes across sectors such as energy, transportation, agriculture, and urban planning.
- 10) **Monitor Progress and Review Policies:** Establish mechanisms for monitoring progress towards green economy goals and regularly review policies to assess their effectiveness. Adapt policies as needed based on evaluation results and changing environmental, social, and economic conditions.

By implementing these action plans, policymakers can create a robust policy framework that supports the transition to a green economy, leading to sustainable development, environmental protection, and improved quality of life for present and future generations.

Summarizing the study, it can be inferred that a green economy is truly one of the most feasible solutions that can be used to combat the social and environmental issues of the 21st Century world. It presents a number of challenges as well as negative effects in the short run, but it is one of the most effective options we have. If we wish to achieve our target of a sustainably developed world, adopting a Green Economy may be the most viable option we have.

References

- [1] Aaron Cosbey, UNCTAD Advisor on Green Economy, Trade, sustainable development and a green economy: Benefits, challenges and risks Barbier, E. (2011).
- [2] The policy challenges for green economy and sustainable economic development.
- [3] Natural Resources Forum, 35(3), 233–245. doi:10.1111/j.1477-8947.2011. 01397.x Brown, L.R. (2012), *Eco-Economy. Building an Economy for the Earth*. 3rd ed. New York: Norton. p44-45
- [4] Burkart, K. (2012), How do you Define the ‘Green’ Economy? Available from: <http://www.mnn.com/greentech/research-innovations/blogs/how-do-you-define-the-green-economy>
- [5] Georgeson, L., Maslin, M., & Poessinouw, M. (2017). The global green economy: a review of concepts, definitions, measurement methodologies and their interactions. *Geo: Geography and Environment*, 4(1), e00036. doi:10.1002/geo.2.36 Green Economy, UNEP, <https://www.unenvironment.org/regions/asia-and-pacific/regionalinitiatives/supporting-resource-efficiency/green-economy>
- [6] Jacklyn Cock, 2014, University of the Witwatersrand, Johannesburg, South Africa, the ‘Green
- [7] Economy’: A Just and Sustainable Development Path or a ‘Wolf in Sheep’s Clothing’? *Global Labour Journal* VOL 5 NO 1: JANUARY 2014 , DOI: <https://doi.org/10.15173/glj.v5i1.1146>, José Antonio Ocampo, The macroeconomics of the green economy, Columbia University
- [8] José Antonio Ocampo, The Transition to a Green Economy: Benefits, Challenges and Risks from a
- [9] Sustainable Development Perspective Summary of Background Papers Karen Morrow, Rio+20, the Green Economy and Re-orienting Sustainable Development