

Green Transition: Importance and Effect in Reference to Indian Sustainable EconomyDr. Yogita Chandel¹ & Mr. Kshitij Khare²DOI: <https://doi.org/10.5281/zenodo.20725386>**Review: 09/05/2026****Acceptance: 14/05/2026****Publication: 17/06/2026****ABSTRACT**

The green transition has gained significant momentum across the World as countries strive to balanced economic growth with ecologically sustainable condition. In India, one of the fastest-growing economies, the green transition concept is most important given the challenges of rapid industrialization, growth of population, and environmental degradation. This paper explores the significant level of the green transition in India and analyse its effects on the sustainable economy. It emphasizes policy initiatives, challenges, and opportunities while analysing the socio-economic and environmental outcomes.

Keywords: -Green transition, sustainable economy, renewable energy, green hydrogen, Solar energy, natural resources.

INTRODUCTION -

The 21st century has witnessed aremarkable awareness of the limitations of conventional models of economic development that rely heavily on fossil fuels, speedily industrialization, and unnecessary exploitation of natural resources. Nations across the world are realizing that growth on the environmental degradationcost cannot be sustained in the long run. In this context, the concept of a **green transition**—a structural transfer towards an economy that is based on renewable energy, sustainable production, and eco-friendly practices—has become central to policy discussions. For India, one of the rapid -growing economies with a population exceeding 1.4 billion, the need of a transition is both essential and unavoidable.

India faces a self-contradictory situation. On the one hand, it is a speedily developing nation with rising energy needs, urbanization, and industrial enlargement. On the other hand, it is among the most climate-vulnerable countries, experiencing frequent floods, droughts, heat waves, and reduction of resource. The effects of not taking care of the balance are already clear in the bad air quality, lack of water cutting down of trees and increasing health problems. So the goal of growth must be in line with environmental sustainability. The green transition is a way to achieve this balance. This transition is not about energy systems it also includes farming, manufacturing, transportation and even financial systems. Things like India's goals for energy the push for electric vehicles promoting organic farming and green finance projects show a move towards sustainable growth. Also the green transition goes along with India's promises under the Paris Agreement and its goal of having no net emissions by 2070. So the green transition is not about the environment it is also very important for the economy and society. It can create jobs reduce dependence on imports improve health and make India a global leader, in sustainable development. The green transition can do a lot of things for India and it is very important for the country's future.

LITERATURE REVIEW -

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1. Sachs, J. (2015) – The Age of Sustainable Development ,Columbia University Press, ISBN: 978-0-231-17315-5

Sachs critiques the traditional model of economic progress measured solely through GDP, advocating instead for a sustainable paradigm that harmonizes economic development, environmental integrity, and social equity. He places significant emphasis on green infrastructure—such as renewable energy systems, sustainable transport, and eco-sensitive urban planning—as the linchpin for resilience and inclusive prosperity. He argues that these investments are not costs but pathways to long-term growth, health, and stability for communities. His global prescription underscores the need for unified policy efforts, technological innovation, and cross-border cooperation to address climate change and drive equitable development.

2. OECD (2017) – Green Growth Indicators 2017 OECD Publishing, Paris, ISBN: 978-9-264265-776

This comprehensive report introduces updated indicators to measure and assess green growth across OECD and G20 nations. It illustrates how policies focused on resource efficiency, clean technology, and sustainable practices can bolster economic resilience, foster innovation, and generate employment in emerging green sectors. The edition builds upon earlier publications, offering refined metrics for tracking environmental sustainability alongside economic performance. It underscores the strategic value of integrating green principles into national growth frameworks, emphasizing policy coherence, cross-sector collaboration, and long-term planning to secure both ecological health and socio-economic stability.

3. Ghosh, A. (2019) – India’s Energy Transition Council on Energy, Environment & Water

Ghosh presents a compelling argument that renewable energy is central to India’s future growth, energy security, and climate resilience. He highlights how fossil fuel dependence not only exacerbates environmental degradation but also poses economic risks due to market volatility. With India’s vast solar and wind potential, Ghosh asserts that clean energy offers a dual advantage: meeting rising electricity demand while reducing carbon emissions. He critically evaluates government incentives and structural reforms aimed at accelerating uptake. His analysis postulates that the green energy shift is an indispensable component of India’s long-term developmental strategy.

4. IRENA (2021) – World Energy Transitions Outlook, Pathway (International Renewable Energy Agency, ISBN: 978-92-9260-334-2

IRENA projects that India can become a global renewable energy leader through cost-competitive solar and wind technologies. This authoritative report outlines strategic investments and policy frameworks to accelerate renewable capacity expansion while aligning with the 1.5 °C global target. It emphasizes the role of clean energy in reducing emissions, creating green jobs, and addressing energy equity. IRENA also highlights the synergies between renewable deployment and socioeconomic development, especially in emerging economies. The study reinforces the premise that India’s energy transition holds global implications for sustainable development and climate leadership.

5. World Bank (2022) – India: Country Climate and Development Report (World Bank Publications.

This comprehensive report underscores the urgency of low-carbon pathways for India's sustainable growth. It analyzes risks posed by climate change to agriculture, health infrastructure, and urban resilience, and advocates for decarbonization and climate-resilient investments. The report recommends accelerating renewable energy adoption, energy efficiency programs, and inclusive policies to cushion vulnerable populations. By positioning climate action as an engine of sustainable development, the World Bank frames India's growth trajectory as intrinsically linked to environmental stewardship and equitable transition.

RESEARCH METHODOLOGY-

To study the need, feasibility, implementation and environmental impact of green economy in India. For this study, secondary data has been collected from various journals, research articles, websites, data published from various sources. Various studies on this subject available on the internet have also been mentioned in this paper.

IMPORTANCE OF GREEN TRANSITION IN INDIA-

1. **Climate Change Mitigation:** India is very vulnerable to climate change. Using solar, wind and hydropower of coal and oil helps reduce greenhouse gas emissions. India needs to focus on transition to fight climate change.
2. **Energy Security:** India buys a lot of oil from other countries. If India uses renewable energy it will need to import less oil and be more energy independent. This is very important for India's energy security.
3. **Economic Growth and Job Creation:** Investing in industries like making solar panels, electric vehicles, managing waste and eco-tourism creates jobs and helps India develop sustainably. Green transition is good for India's economy and jobs.
4. **Sustainable Agriculture:** Using farming methods, efficient irrigation systems and fewer chemical fertilizers helps ensure food security and protects the soil. Sustainable agriculture is key, to India's food security.
5. **Public Health Improvement:** Less pollution means air and water which improves people's health and reduces healthcare costs. Green transition helps improve health in India.

EFFECTS OF GREEN TRANSITION ON INDIA'S SUSTAINABLE ECONOMY -

1. **Renewable Energy Expansion:** India wants to be carbon neutral by 2070. For this India aims to have 500 GW of energy by 2030. This move will help India grow in a way and reduce its carbon footprint.
2. **Green Finance and Investment:** Green bonds and sustainable funds are being used to support eco-projects. This is helping India's green economy to grow strong.
3. **Industrial Innovation:** The "Make in India" and "Atmanirbhar Bharat" plans now focus on manufacturing and energy-efficient practices. This will make India a global leader in technology.
4. **Social Equity and Rural Development:** Rural areas are getting benefits from energy systems. This is helping rural areas grow and reducing differences between regions.
5. **Global Leadership:** India is now a leader in climate talks. The International Solar Alliance is one of its initiatives. This is boosting India's influence.

CHALLENGES IN THE GREEN TRANSITION -

1. The initial cost of technologies and infrastructure is high.
2. There are gaps in policies and issues in implementing rules.
3. India still relies heavily on fuels for its energy needs.
4. There are issues, like the lack of advanced storage solutions.
5. Some people are resistant to change because they might lose their jobs, in industries.
6. Many people are not aware of the economy. Till people do not take this issue seriously achieving success will be difficult.

OPPORTUNITIES AHEAD -

1. Expansion of green hydrogen technology.
2. Development of circular economy models focusing on recycling and resource efficiency.
3. Promotion of electric mobility supported by government incentives.
4. Strengthening public-private partnerships in green infrastructure projects.

CONCLUSION -

The green transition is a change for India to make sure that the country can grow economically and still take care of the environment. India is one of the countries that is growing fast and it is also one of the countries that will be affected a lot by climate change. So India has a problem to solve. It has to make sure that it can develop and grow without hurting the environment. When we look at what people have written and said about this and when we look at the policies that're in place it is clear that using more renewable energy doing agriculture in a sustainable way using green finance and making industries more eco-friendly can really change the way India's economy is going. These things can help stop climate change. They can also make sure that India has enough energy create jobs help develop rural areas and make people healthier. All of these things together can make Indias economy stronger and more sustainable.

However making this transition is not going to be easy. It will cost a lot of money there are a lot of problems to solve there are gaps in the policies and India still relies a lot on fossil fuels.. These problems can also be opportunities for India to innovate, work with other countries and make partnerships between the government and private companies stronger. If India can make policies that include everyone and take an approach then it can meet its goal of not adding more greenhouse gases to the environment by 2070 and it can also become a leader in sustainable development. The green transition is not something that India needs to do for the environment it is also something that it needs to do for its economy and for its people. If India can manage this transition well then it can keep growing and developing in a way that's good for everyone and that will last for a long time. The green transition is very important for India's future and for the future of the transition, in India.

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