

Green Investment: A Roadmap for Sustainable Economic Development in India

Deeksha Srivastava¹, Dr. Priyanshi Gupta²

¹Research Scholar, Department of Humanities and Social Science, Integral University, Lucknow

²Assistant Professor (Economics), Department of Humanities and Social Science, Integral University, Lucknow

ABSTRACT

India is currently facing a decisive moment in which it must balance its fast-growing economy with the need to safeguard its environment. Challenges such as rising climate risks, pressure on natural resources, rapid urban growth, and increasing energy demand highlight the need for a development model that is both environmentally responsible and economically stable. This study examines green investment as a practical and sustainable pathway for India's future growth. This study is based on secondary data, policy documents, and existing scholarly work. It reviews India's progress in renewable energy, eco-friendly transportation, sustainable agriculture, waste management, and green infrastructure. It also highlights the challenges that continue to slow this transition, including policy inconsistencies, limited financial support, low awareness, and technological limitations. Research indicates that investing in green initiatives can create jobs, enhance rural livelihoods, and drive innovation, all while aiding India in meeting its climate obligations under global agreements. To fully harness these advantages, India must implement consistent policies, increase green financing, and encourage greater public participation. In summary, this study highlights that green investment is crucial for developing an economy that is resilient, inclusive, and environmentally sustainable, making it an essential part of India's long-term development plan.

KEYWORDS: Green investment, sustainable development, renewable energy, green economy, climate change

INTRODUCTION

The connection between economic growth and environmental conservation is becoming increasingly evident worldwide. Globally, there is an increasing awareness among nations that the swift pace of industrialization and the overutilization of natural resources have played a role in increased global temperatures, heightened pollution levels, and significant disturbances to the ecological balance. To address these issues, international frameworks, such as the Paris Climate Agreement and the United Nations Sustainable Development Goals, underscore the imperative for developmental strategies that reduce carbon emissions, optimize resource utilization, and foster inclusivity.

For India, this challenge is particularly significant. In a country where the demand for energy is significantly high due to its rapidly expanding economy and increasing energy needs. India faces growing pressure on its natural resources. Factors such as population growth, urbanization, and industrial expansion have resulted in issues like air and water pollution, deforestation, a high dependency on fossil fuels, and

frequent climate-related disasters. These challenges underscore the urgent need for India to transition towards a more sustainable development model.

Traditional growth models have contributed to GDP increases but have also caused environmental degradation and exacerbated inequality. In contrast, the Green Economy Approach prioritizes environmental protection while simultaneously supporting economic advancement and social equity. It advocates for investments that reduce carbon emissions, promote renewable energy, and support green technologies. For India, this approach is not merely an option but a necessity to ensure long-term stability and sustainable growth. The Government of India has already initiated measures in this direction through policies such as the National Action Plan on Climate Change (NAPCC), renewable energy targets, the promotion of electric mobility, and the utilization of green bonds to finance eco-friendly projects.

These initiatives underscore India's commitment to integrating economic progress with environmental responsibility. In this context, this paper examines the impact of green investment on advancing India's commitment to environmentally sustainable economic development.

It explains the idea of a green economy, reviews India's progress to date, and discusses the challenges impeding green growth. It also identifies the opportunities that green investment can create, such as job creation, development in rural areas, and technological progress, and ultimately proposes a practical roadmap for India to move toward long-lasting and sustainable growth.

OBJECTIVES OF THE STUDY

The ongoing research was initiated with the following objectives:

1. To examine the development and growth patterns of various installed renewable energy capacities in India from 2014-2023.
2. To examine the key trends and systemic challenges obstructing the growth of green investment in India.
3. To assess the socio-economic and innovative potential of green investment in fostering job creation, rural development, and foreign direct investment (FDI) in India
4. To develop a strategic framework and policy recommendations aimed at enhancing India's transition to a green economy through improved governance, financing and innovation.
5. To develop workable strategies for enhancing the productivity and efficiency of green investments in India, leveraging both institutional frameworks and technological advancements is essential.

HYPOTHESIS OF THE STUDY

- ◆ **H1:** There has been a statistically significant increase in installed renewable energy capacity in India during the period 2014–2023.
- ◆ **H2:** There is a significant positive relationship between green investment levels and growth in renewable energy capacity in India.
- ◆ **H3:** Regulatory, financial, and infrastructural challenges significantly limit green investment in India.
- ◆ **H4:** Renewable energy generation in India has shown a significant upward trend during the period 2014–2024.

LITERATURE REVIEW

In recent years, discourse on green investment and sustainable development has grown, with scholars examining their impact on future economic frameworks. Globally, there has been a shift from growth-

centric models to development strategies that integrate sustainability as a core component.

Rakesh Kumar, Richa Goel, Tilottamma Singh, S. Mohanty, and others (2024), in their study, 'Sustainable Finance Factors in the Indian Economy: Analysis of Climate Change Policy and the Energy Sector,' the authors broaden the discussion by linking Sustainable Development Goals (SDGs) with economic growth in developing countries. They utilized a systematic analytical approach employing a multi-criteria decision-making framework to evaluate the policy landscape of the energy sector in India. Their research illustrates how green investments can bridge developmental needs and fulfil global climate commitments. The findings indicate that aligning financial policies with climate goals significantly accelerates the adoption of renewable energy, which is essential for transitioning India to a sustainable future. The authors conclude that to maintain steady growth, developing economies must integrate sustainable finance factors into core economic planning to balance environmental and social welfare.

Sunil Kumar, Abhishek Chakraborty and Sheetal Sharma (2023) in their study titled "Green Investments: Implications on Sustainability," reveal a significant relationship between green initiatives and sustainable growth. The first study employs a quantitative approach, utilizing econometric techniques to demonstrate that green investments are crucial for job creation and ensuring environmental stability. The second study used a descriptive-analytical method to highlight the importance of green infrastructure. Together, these studies suggest that strategic investments in energy-efficient buildings, smart cities, and green initiatives not only boost economic development but also foster equity. The authors argue that transitioning from traditional industrial methods to a policy-driven 'smart' investment model is essential for achieving long-term carbon neutrality and ecological resilience without hindering economic progress.

P.S. Kamble's(2020), In their study, "Green Economy: A Design for Sustainable Development of India," Kamble describes how India's green economy is increasingly seen as a vital strategy for achieving inclusive development. Kamble employed a descriptive and evaluative research design, utilizing a theoretical framework to examine the intersection of economic policies and environmental conservation in India. The researcher emphasizes that India's long-term stability depends on integrating rapid economic growth with sustainable practice. The study's findings indicate that a well-structured green economy design can effectively reduce resource consumption, enhance social equity, and alleviate poverty. The author concludes that for India to achieve its 2030 sustainable goals, it is crucial to transition from a 'brown' economy to a 'green' design, focusing on low-carbon development and resource efficiency as the core of the national strategy.

Rajesh Kumar and Majid (2020), In their study titled "Advances and Development of Wind-Solar Hybrid Renewable Energy Technologies for Energy Transition and Sustainable Future in India," Kumar and Majid provide a comprehensive analysis of the evolution of hybrid energy systems in India. Utilizing a comparative and evaluative approach, this study examines the technical feasibility and efficiency of integrating wind and solar power to stabilize South Korea's national grid. It highlights significant advancements in hybrid technologies while critically addressing challenges such as financial constraints, policy inconsistencies, and inadequate infrastructure readiness. The findings revealed that hybrid systems deliver a more reliable power supply than standalone solar or wind units, significantly reducing intermittency issues in the Indian energy sector. The authors conclude that for a sustainable future, India must prioritize 'hybrid' policy frameworks and invest in smart-grid technologies to overcome the high initial costs and technical barriers currently hindering the energy transition.

Deepak Sangroya, Gaurav Kabra, Yatish Joshi, Mohit Yadav (MAY 6 2020), In their study "Green energy management in India for environmental benchmarking: from concept to practice," the authors

critically explore the shift from theoretical frameworks of energy management to practical implementation. This study adopts an exploratory and descriptive approach, utilizing a systematic benchmarking framework to assess environmental performance across various sectors in India. Researchers strive to move beyond theoretical discussions to identify tangible challenges in the adoption of green energy. The study revealed that despite a strong theoretical foundation in green energy, its practical application is often hindered by a lack of standardized benchmarks and inconsistent management practices. The authors concluded that for India to achieve true environmental benchmarking, it is essential to establish consistent energy management protocols and motivate organizations to incorporate green practices into their core operational strategies.

AR Keeley, Y Ikeda, Elsevier (2017), In their study titled "Determinants of Foreign Direct Investment in Wind Energy in Developing Countries," the authors investigated the reasons for the uneven distribution of foreign capital across developing nations. They utilized a sector-specific quantitative approach, employing an analytical framework to evaluate the influence of targeted energy policies compared to traditional institutional and macroeconomic factors. This study delves deeper than general economic indicators, focusing on the unique drivers of the renewable energy sector. The findings suggest that renewable energy support policies, such as regulatory frameworks and financial incentives, can attract FDI, equal to or even surpassing the impact of conventional factors such as GDP growth, corruption levels, and price stability. The authors recommend that to successfully attract global green investment, developing countries should prioritize sector-specific regulatory reforms, particularly by improving access to grid infrastructure and ensuring the stability of long-term policies.

Parvadavardini Soundarrajan , Nagarajan Vivek (2016), In their study "Green Finance for Sustainable Green Economic Growth in India," the authors contend that the shift to a green economy demands specialized financial resources. Using an exploratory framework, the researchers scrutinized India's financial landscape to identify obstacles to sustainable investment. This study illustrates that investments in renewable energy and sustainable agriculture can strengthen economic resilience in environmentally sustainable industries. The findings point to a "funding gap" in India's green sector and stress the significance of green bonds and climate funds in reducing risks associated with environmental projects. The authors concluded that achieving green growth necessitates a transformation in banking, where environmental health becomes a core component of financial viability and economic development.

Sylvia Lorek, Joachim H. Spangenberg, (15 January 2014), In their study, "Sustainable consumption within a sustainable economy beyond green growth and green economies," the authors evaluate the limitations of current economic strategies. Through a critical analysis, this study examines green economy frameworks to assess their ecological effectiveness. The analysis reveals that 'green growth' often represents 'weak sustainability,' overlooking the root causes of environmental degradation. These findings suggest that technological advancements cannot counterbalance the rising levels of global consumption. A sustainable economy necessitates a shift from 'efficient production' to 'sufficient consumption.' For countries such as India, achieving stability requires integrating sustainable consumption into the economic system and ensuring that growth remains within planetary boundaries.

Bhattacharya & Kojima, (2013), In their study, "Pricing Reform and Enhanced Investment in the Energy Sector in India," Bhattacharya and Kojima highlight the significant financial investment required to achieve renewable energy goals, which exceeds \$200 billion. This presents a major challenge in attracting private funding while ensuring its equitable growth. Their research employs an empirical and policy-oriented approach to examine how energy pricing affects investor confidence. The findings reveal that

India's subsidized pricing models often impede substantial private investments. The study indicates that without comprehensive pricing reforms, the energy sector will continue to face financial difficulties, making it challenging to bridge the \$200 billion investment gap in the next decade. The authors conclude that for India to successfully transition to sustainable energy, the government must align market-driven pricing with the social safety measures. This approach would create a stable environment that attracts international private capital while addressing the needs of low-income consumers in the region.

RESEARCH METHODOLOGY

This study is based on secondary data and employs a descriptive and analytical research framework to investigate the role of green investment in promoting sustainable economic growth in India. Data has been collected from reliable and authoritative secondary sources, including reports and publications from the Ministry of New and Renewable Energy (MNRE), the Government of India, Renewable Energy Statistics, policy documents, World Bank reports, United Nations publications, and peer-reviewed journal articles related to green investment, renewable energy, and sustainable development. This study mainly explores the period from 2014 to 2024, focusing on trends in renewable energy production and installed capacity in India. Data related to the solar, wind, bio, and small hydropower sectors were analyzed to uncover the growth patterns in each sector. To analyze and interpret the data, graphical representations, bar graphs, and sector-wise comparative charts were used. These visual aids help identify growth trends, sectoral differences, and the evolving composition of India's renewable energy portfolio. Additionally, a comprehensive review of the existing literature was conducted to highlight the challenges, opportunities, and policy gaps that influence green investment and economic growth in India.

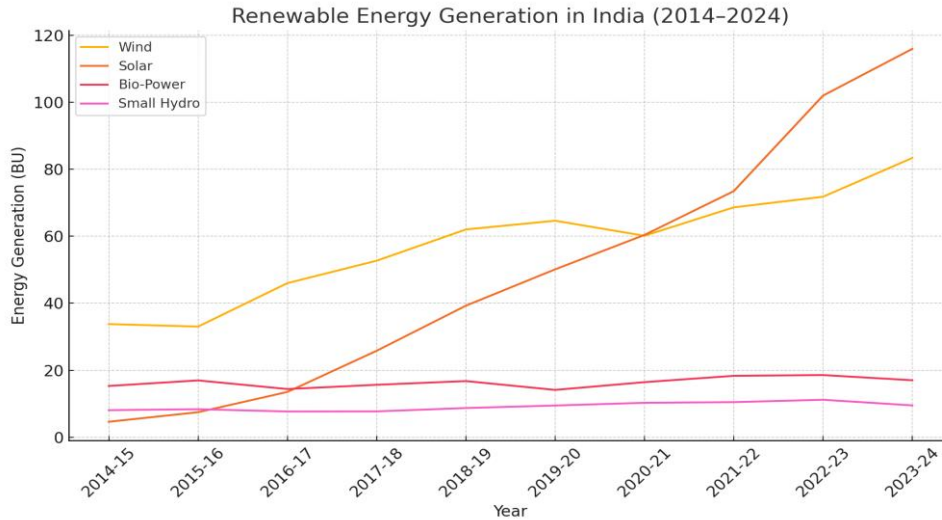
THE GROWTH OF GREEN ECONOMY

In the past few years, the idea of a green economy has attracted global attention as countries seek ways to respond to rising in reaction to the environmental and social issues created by older forms of economic development. According to UNEP, a green economy is one that improves people's well-being and promotes fairness in society while also cutting down environmental risks and ecological pressures. Similarly, the World Bank characterizes it as an economy that maximizes resource efficiency, employs clean production techniques, and creates opportunities in a more inclusive way.

In contrast to the conventional growth model, which primarily focuses on GDP and industrial expansion, the green economy seeks to integrate economic development with environmental sustainability and social justice. It encourages investments in renewable energy, clean technologies, waste reduction, sustainable agriculture, and **green infrastructure**. Through these initiatives, it aims to reduce carbon emissions, enhance resource efficiency, and protect ecosystems.

For India, the green economy is of particular relevance. The country's development strategy must not only generate income and employment but also address critical issues such as pollution, resource scarcity, and climate change. Adopting green growth ensures that economic development is inclusive, strengthens long-term resilience, and benefits both rural and urban populations. Consequently, green investment becomes an essential instrument for India in achieving long-term sustainable development and meeting global commitments.

Figure 1: Renewable Energy Generation in India (2014-2024)



Source: (MNRE) Renewable Energy Statistics 2014-2024

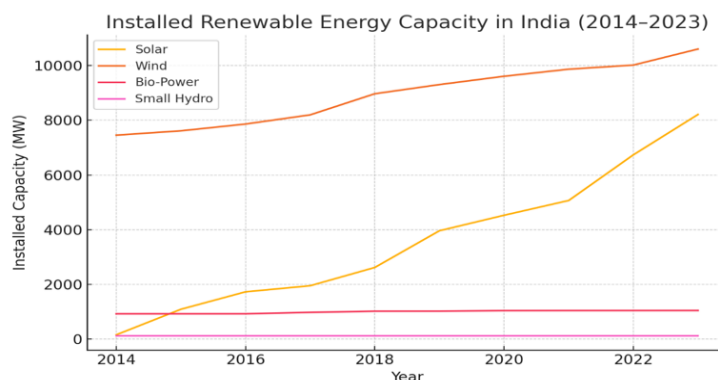
Using data from 2014–2024, the graph shows how wind, solar, biomass, and small hydro power have contributed to India's growing renewable energy generation. Wind power's consistent expansion over the past decade is proof of its dependable contribution to the renewable energy mix. Thanks to supportive government policies, falling technological prices, and widespread adoption of solar power, the solar energy industry is booming, especially after 2017. Biomass energy is marked by its steady state, with little fluctuations that indicate gradual growth. This identical situation occurs while using a tiny hydropower that is exhibiting a tiny and insignificant increase, highlighting the geographical and infrastructural constraints. After analyzing the data, it is evident that renewable solar power is the way to go.

CURRENT TRENDS IN INDIA’S GREEN INVESTMENT

The transportation sector is a critical focus area, with substantial efforts directed towards the advancement of electric vehicles (EVs) and the expansion of metro systems. Notably, the Delhi Metro has garnered international recognition for its energy efficiency, being the first metro system globally to receive carbon credits. The National Electric Mobility Mission

Plan aspires to establish India as a prominent hub for EV manufacturing, thereby contributing to emission reductions and economic advancement.

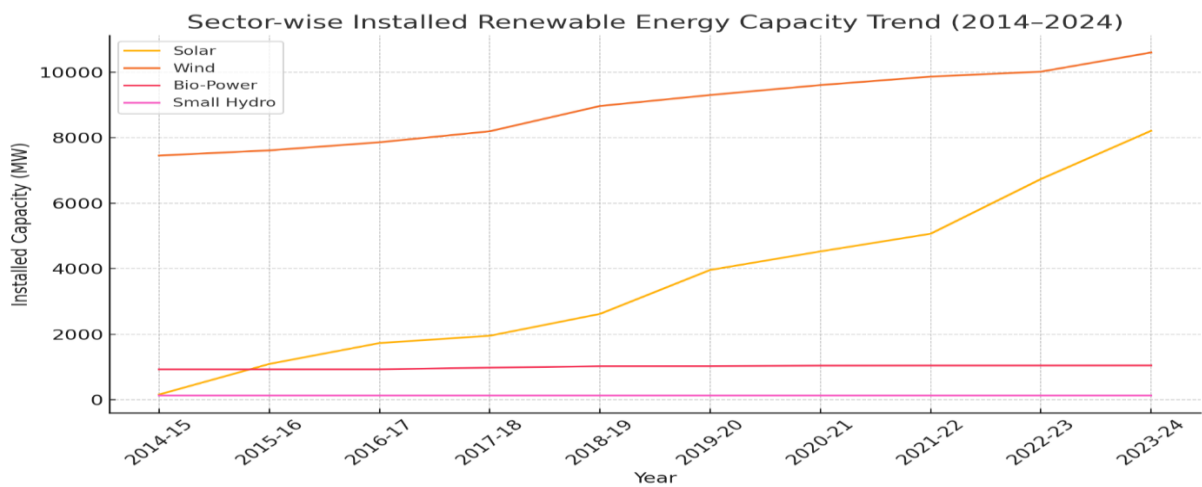
Figure 2: Installed Renewable Energy Capacity Trend (2014-2023)



Source: (MNRE) Renewable Energy Statistics 2023-24

From 2014 to 2023, the graphic shows that renewable energy sources, such as solar, wind, biopower, and small hydro, increased their installed capacity in India. The steep ascent on the graph represents the highest capacity of solar energy and is a result of the government's robust backing, the decline in the price of solar technology, and the infusion of private capital. In contrast, wind energy is already well-established as a renewable energy source in India, and it is steadily gaining ground. A mix of technological, financial, and site-specific factors likely contribute to the delayed adoption of bio-power and tiny hydro, whose capacities have remained mostly unchanged or have seen only modest expansion. The graph concludes by showing the potential outcome of India's pursuit of sustainable energy and economic development via the use of wind and solar power rather than other renewable energy sources.

Figure 3: Sector-wise Installed Capacity Trend



Source: (MNRE) Renewable Energy Statistics 2023-24

This figure shows the growth or decline of renewable energy capacity installations in India from 2014-15 to 2023-24, broken down by sector. These sectors include solar, wind, biopower, and small hydropower. Solar power has shown the most consistent and robust growth, particularly after 2017 and 2018. This bodes well for the future of solar power in the nation, thanks to factors such as increased investment, government backing, technological advancements, and so on. The steady expansion of wind power, on the other hand, is indicative of the reliability and maturity of this renewable energy source. However, due to variables including financial, technological, and geographical constraints, the growth pattern of bio-power and small hydro capacities gradually declines throughout the entire period. Finally, the graphic shows that solar and wind power are the focal points of India's plan to increase its use of renewable energy.

In the agricultural domain, there is a discernible shift towards sustainable methods like organic cultivation and improved irrigation systems, along with the utilization of solar-powered pumps. These strategies not only conserve essential resources but also enhance rural livelihoods, thereby strengthening the farming sector's ability to cope with climate change.

The industrial and infrastructure sectors are similarly embracing green initiatives. The Energy Efficiency Financing Platform and the Green Building Council of India play pivotal roles in encouraging industries and urban planners to adopt sustainable practices. The Smart Cities Mission integrates energy efficiency, green construction, and improved waste management systems into urban development strategies.

Waste management has emerged as a significant area of green investment, propelled by the Swachh Bharat Mission and the development of waste-to-energy plants across various states. These initiatives not only mitigate environmental pollution but also offer opportunities for generating clean energy.

India's progress towards Paris Agreement commitments and Net Zero 2070 target remains steady, with growing green investments building a foundation for sustainable economic growth despite challenges.

OPPORTUNITIES AND PROSPECTS OF GREEN INVESTMENT IN INDIA

Despite existing challenges, green investment offers significant potential to reshape India's economic and social landscape. A primary benefit is the creation of employment opportunities. The renewable energy sector, electric vehicle industry, and sustainable construction techniques are ready to generate millions of green jobs, particularly for young individuals and rural communities. These roles not only support environmental sustainability but also promote inclusive economic development.

Rural development represents another critical area of focus. Investments in solar-powered irrigation, biomass energy, and organic farming can substantially improve the livelihoods of farmers and alleviate rural poverty. These initiatives help to bridge the urban-rural divide and advance sustainable agricultural practices.

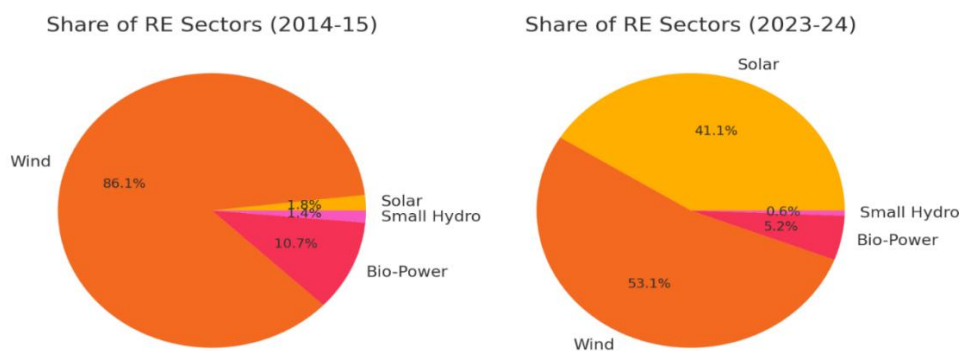
Green investment facilitates foreign direct investment (FDI) and international collaboration. India has emerged as a favourable destination for global investors in the renewable energy sector. Initiatives such as the International Solar Alliance underscore India's leadership in advocating for green energy on the international stage.

The rise of innovation and technology within the green sector presents additional opportunities. Indian start-ups and research institutions are increasingly involved in creating environmentally friendly technologies, energy-efficient solutions, and waste-recycling methods. This innovation not only fosters sustainability but also bolsters India's position in the global clean technology market.

Crucially, green investment will enable India to fulfill its global obligations outlined in the Paris Agreement and the UN's Sustainable Development Goals (SDGs) and its objective of achieving net-zero emissions by 2070. By reducing reliance on fossil fuels and enhancing renewable energy capacity, India can develop a more resilient and sustainable economy.

Green investment is not merely an environmental imperative but also an economic opportunity that can guide India towards long-term growth, social equity, and global leadership in sustainable development.

Figure 4: Sector-Wise Share Comparison (2014-2024)



Source: (MNRE) Renewable Energy Statistics 2014-2024

Renewable energy capacity in India broken down by sector for 2014–15 and 2023–24 is shown in the figure. In 2014–2015, wind power accounted for the lion's share of renewable energy, while solar power only accounted for a small fraction. But by 2023–24, everything has turned around, with solar power capturing the majority, quickly establishing a footing with official support, and the situation completely reversed. Although wind power is still significant, its market share has diminished due to Solar's faster expansion. During that time, there has been a little shift in the proportion of bio-power and small hydro. The graph summarizes India's progress toward a more diverse renewable energy mix, with solar power playing a starring role.

CHALLENGES HINDERING GREEN GROWTH

India has achieved notable advancements in promoting green growth in recent years; however, several persistent challenges continue to hinder its progress. A primary issue is the inconsistency and lack of clarity in policy frameworks. Despite the launch of numerous initiatives, gaps in coordination and frequent regulatory changes often deter long-term investments in green sectors.

Financial constraints also pose a significant challenge. Although instruments such as green bonds and climate funds have been introduced, the overall scale of green financing remains inadequate compared to the substantial investment required for renewable energy, sustainable transportation, and green infrastructure.

The private sector's hesitance to fully commit to green investments is another concern, arising from a lack of awareness, uncertainty about returns, and the high initial capital costs associated with these investments. Additionally, technological barriers, such as limited access to advanced and cost-effective clean technologies, impede the transition to sustainability.

Institutional challenges exacerbate these issues. Weak coordination among government agencies, regulatory delays, and administrative obstacles often hinder the effective implementation of green policies. Concurrently, limited public awareness of the benefits of sustainable practices hinders efforts to foster widespread social participation in green initiatives.

Implementation challenges, including corruption, bureaucratic delays, and a lack of accountability, undermine the effectiveness of existing policies. Systematically addressing these challenges is crucial for realizing the complete benefits of green investment in India.

FINDINGS

This study connects India's economic development with environmental responsibility. Green investment promotes environmental sustainability alongside economic progress. India has advanced in renewable energy, agriculture, and waste management, though challenges in resources, technology, and policy remain.

In parallel, the possible benefits of green investments are substantial. It can generate employment, enhance rural livelihoods, attract foreign capital, and stimulate innovation in clean technology. With the support of consistent policy frameworks, improved financial systems, and active public engagement, these opportunities can steer India towards sustainable development.

The future of India's economic growth depends on its ability to integrate development with environmental stewardship. A well-defined and strategic plan for green investment will not only facilitate the achievement of climate objectives but also ensure that future generations inherit a more sustainable and secure environment.

Therefore, green investment should be regarded not only as an environmental obligation but also as a transformative approach that strengthens India's economic resilience, fosters social inclusivity, and sustains environmental balance.

POLICY RECOMMENDATIONS AND ROADMAP FOR THE FUTURE

To establish green investment as a cornerstone of India's sustainable economic development, it is essential to formulate a comprehensive strategy with well-defined and actionable policies that are implemented effectively. Such an approach will equip India to address its current challenges effectively and harness the full potential of the green growth.

- 1. Strengthen Policy Stability and Articulate Long-Term Objectives:** A robust and predictable policy environment is crucial for promoting green investments. The government should ensure the stability of climate and energy policies while clearly articulating its long-term objectives. This approach incentivizes investors to commit to long-term projects.
- 2. Broaden green financing strategies:** Addressing the challenge of financing green growth is imperative in this regard. The government should support the expansion of green bonds, climate funds, and low-interest loans for renewable energy projects. Providing tax incentives and subsidies to businesses and individuals who adopt green technologies can significantly aid in this transition.
- 3. Promotion of Public-Private Partnerships (PPP):** Collaborative public-private partnership models (PPP) are essential to promote green investment activities. This collaborative framework not only facilitates the mobilization of financial resources but also augments technical expertise and innovation, thereby enhancing the effectiveness and efficiency of green projects in India. Achieving green development necessitates more than governmental efforts alone; public-private partnerships are indispensable for resource mobilization, technology transfer, and the development of extensive green infrastructure, including facilities like solar parks and wind-energy plants and electric vehicle charging networks across cities.
- 4. Enhancement of Technological Innovation and Research & Development:** India should prioritize enhancing innovation by supporting start-ups, research institutions, and universities engaged in creating clean technologies. Investment in innovation and research (R&D) is pivotal to lowering the overall cost of renewable energy, increasing energy efficiency, and devising new waste-management solutions.
- 5. Enhancing Public Awareness and Capacity Building:** Awareness among citizens, industries, and local communities is crucial. National campaigns and educational programs should highlight the benefits of adopting sustainable practices. Training and skill development programs can prepare workers for jobs in green industries.
- 6. Develop Sustainable Infrastructure:** Investment in infrastructure must be strategically aligned with the government's environmental sustainability goals. This encompasses the construction of energy-efficient buildings, the advancement of metro systems, and setting up EV charging points, as well as the implementation of smart grids that support the integration of renewable power sources.
- 7. Improve Governance and Implementation:** To ensure the success of policies, it is essential to strengthen governance and implementation frameworks. This requires the establishment of comprehensive monitoring systems, accountability structures, and anti-corruption strategies to guarantee that funds allocated for green projects are utilized effectively and efficiently.

REFERENCES

1. Gupta, P. (March 2025) Ensuring A Sustainable Future Through Advancements in Renewable Energy and Environmental Engineering. <https://www.researchgate.net/publication/391538169>
2. Gupta, P. (March 2025) Government Policies and Strategies: Leading to Business and Economic Growth. <https://www.researchgate.net/publication/391518579>
3. Bhattacharya, A., & Kojima, S. (2013). Power sector investment risk and renewable energy: A Japanese case study using the portfolio risk optimization method. *Energy Policy*, 61, 1051-1062 <https://doi.org/10.1016/j.enpol.2013.06.108>
4. Boyle, G. (2012). *Renewable energy: Power for a sustainable future* (3rd ed.). Oxford University Press.
5. AR Keeley, Y Ikeda, Elsevier 2017, Determinants of foreign direct investment in wind energy in developing countries <https://doi.org/10.1016/j.jclepro.2017.05.106>
6. Ghosh, A., & Kathuria, V. (2016). Renewable energy in India: Policies and performance. *Renewable and Sustainable Energy Reviews*, 62, 258-270. <https://doi.org/10.1016/j.rser.2016.04.034>
7. Goel, N., Singh, G., Kota, H. B., Mir, M., & Smark, C. (2021). Sustainable development goals and economic growth in emerging economies. *Australasian Accounting, Business and Finance Journal*, 15(6), 5-20. <https://doi.org/10.14453/aabfj.v15i6.2>
8. Kamble, P. S. (2020). Green economy: A design for sustainable development of India. *International Journal of Inclusive Development*, 6(1), 45-55. <https://doi.org/10.1177/ijid2020>
9. Khosla, R., & Roy, J. (2019). Decarbonizing India: Context, opportunities, and challenges *Climate Policy*, <https://doi.org/10.1080/14693062.2019.1568190>
10. Kumar, P. (2023). Green infrastructure: A roadmap towards sustainable development. *IOP Conference Series: Earth and Environmental Science*, 1121(1), 012034. <https://doi.org/10.1088/1755-1315/1121/1/012034>
11. Kumar, R., & Majid, M. A. (2020). Renewable energy for sustainability in India: Current status, future prospects, and challenges. *Energy, Sustainability and Society*, 10(2), 1-18. <https://doi.org/10.1186/s13705-020-00252-3>
12. Kumar, S., Chakraborty, A., & Sharma, S. (2023). Green investments: Implications on sustainability. *Indian Journal of Natural Products and Resources*, 14(1), 23-30. <https://www.researchgate.net/publication/377700589>
13. Lorek, S., & Spangenberg, J. H. (2014). Sustainable consumption within a sustainable economy: Beyond green growth and green economies. *Journal of Cleaner Production*, 63, 33-44. <https://doi.org/10.1016/j.jclepro.2013.08.045>
14. Painuly, J. P. (2001). Barriers to renewable energy penetration: A framework for analysis. *Renewable Energy*, 24(1), 73-89. [https://doi.org/10.1016/S0960-1481\(00\)00186-5](https://doi.org/10.1016/S0960-1481(00)00186-5)
15. Scheer, H. (2004). *The solar economy: Renewable energy for a sustainable global future*. Earthscan Publications.
16. Singh, R., & Jatav, M. (2019). Role of green investment in India's sustainable development: Opportunities and challenges. *International Journal of Economics and Management Studies*, 6(7), 34-40. <https://doi.org/10.14445/23939125/IJEMS-V6I7P105>
17. Soundarrajan, P., & Vivek, N. (2016). Green finance for sustainable green economic growth in India. *Agricultural Economics*, <https://doi.org/10.17221/268/2015-AGRICECON>
18. World Bank. (2012). *Inclusive green growth: The pathway to sustainable development*. Washington,

DC: World Bank. <https://doi.org/10.1596/978-0-8213-9551-6>.

19. Kumar, R., **Goel**, R, Singh, T., S. Mohanty, and others (2024). Sustainable Finance Factors in Indian Economy: Analysis on Policy of Climate Change and Energy Sector <https://doi.org/10.1142/S0219477524400042>
20. Sangroya, D., Kabra,G., Joshi, Y., Yadav,M.(2020) Green energy management in India for environmental benchmarking: from concept to practice <https://doi.org/10.1108/MEQ-11-2019-0237>