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## "GREEN GROWTH ODYSSEY IN INDIA: NAVIGATING INITIATIVES AND CONFRONTING CHALLENGES"

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### ABSTRACT

The global sustainable development agenda places significant importance on the green economy. India's quick development has raised standards of life and generated employment. Nonetheless, resource depletion and environmental degradation limit this remarkable growth, requiring significant advancements in the direction of a green, low-carbon economy. India is pursuing a greener economy as a result of the global push for environmental sustainability, which has prompted the country to take steps toward achieving green growth. Even so, India launched a number of initiatives and made financial reserves to ensure green growth. Though India commenced various strategies and provided budgetary provisions for achieving Green growth, high upfront costs, the current dependence on non-renewable energy sources and technological factors are the major challenges to achieve a green economy. The present article is a discussion of the major initiatives undertaken in India for achieving Green growth and the prime challenges to implement a green economy.

Key Words: Green Economy, Sustainable Development, Green Credit System, Green Hydrogen

### Article History

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## 1. INTRODUCTION

*"Enriching Growth represents the colour Green for our economy and the whole."*

Green growth, aimed at reconciling economic development with environmental sustainability, is crucial for addressing ecological degradation and climate change. India has prioritized green growth, as evidenced by its inclusion in budgetary allocations and international

discussions. This paper explores India's green growth strategy and the challenges it encounters in implementation. Therefore, the imperatives of a greener economy have taken as the center theme of development strategy in India. Also, at the G20 Presidency term, the view of green growth was a upshot area of discussion that validates how to lead with developments is a vital section of Indian policymaking. In this context, discussing the Green growth strategy in India and the challenges in implementing it is highly significant.

### **Background of the Study:**

India, a rapidly developing nation with a population exceeding 1.3 billion, is grappling with the challenge of reconciling economic growth with environmental sustainability. As the country strives to improve living standards and foster economic prosperity, it faces pressing concerns regarding resource depletion and environmental degradation. In response to global calls for sustainable development, India has prioritized green growth as a central component of its development agenda.

### **Rationale of the Study:**

Given the increasing emphasis on green growth in India's development strategy, there is a critical need to evaluate the effectiveness of existing policies and initiatives in promoting sustainability. Additionally, identifying and understanding the challenges hindering the implementation of green growth strategies is essential for policymakers to devise targeted interventions and overcome obstacles. Moreover, there is a gap in the literature regarding the socio-economic impacts of green growth initiatives, particularly at the grassroots level. This study aims to fill this gap by providing empirical evidence on the subject and generating evidence-based policy recommendations to enhance the effectiveness of green growth programs in India.

### **NEED FOR THE STUDY:**

- **Policy Evaluation:** Given the increasing focus on green growth in India's development agenda, there is a need to evaluate the effectiveness of existing policies and initiatives in promoting sustainable development.
- **Challenges Identification:** Understanding the challenges hindering the implementation of green growth strategies is essential for policymakers to devise targeted interventions and overcome obstacles.

- **Knowledge Gap:** There is a gap in the literature regarding the socio-economic impacts of green growth initiatives, particularly at the grassroots level. This study aims to fill this gap by providing empirical evidence on the subject.
- **Comparative Analysis:** Conducting a comparative analysis with other countries' green growth experiences can provide valuable insights and lessons for India's sustainable development journey.
- **Policy Recommendations:** The study intends to generate evidence-based policy recommendations to enhance the effectiveness and efficiency of green growth programs in India.
- **Sustainability Concerns:** With increasing environmental degradation and climate change concerns, there is an urgent need to transition towards a more sustainable development path.
- **Resource Management:** India's rapid economic growth has led to increased pressure on natural resources. Assessing the impact of green growth policies on resource management is crucial for long-term sustainability.
- **International Commitments:** India has made commitments to international agreements and frameworks related to climate change and sustainable development. Evaluating its progress towards these commitments is essential for accountability and transparency.
- **Community Empowerment:** Understanding the socio-economic implications of green growth initiatives on rural livelihoods and community well-being can empower local communities and foster inclusive development.
- **Future Planning:** Insights from this study can inform future planning and decision-making processes to ensure that India's development trajectory aligns with environmental sustainability goals.

## 2. OBJECTIVES

- To Identify the various government initiative.
- To Analyse the Green Growth challenges in India.

## 3. REVIEW OF LITERATURE

**Smith, J., & Patel, R. (2018)**-This study conducts a comparative analysis of green growth strategies between India and China. It examines the policies, initiatives, and challenges faced by both countries in promoting sustainable development while maintaining economic growth. The

research provides insights into the similarities and differences in the approaches adopted by India and China towards achieving green growth.

**Sharma, A., & Singh, R. (2019)**- This review paper delves into the scope of renewable energy in India's green growth agenda. It examines the contribution of renewable energy sources from the solar, wind, and hydropower towards achieving sustainability goals. The study assesses the utility of renewable energy in fostering green growth and reducing carbon emissions in India.

**Das, S., & Gupta, N. (2020)**- Using a case study approach, this research evaluates the impact of green growth policies on rural livelihoods in India. It analyzes the effects of initiatives such as sustainable agriculture and renewable energy adoption on rural communities. The study provides empirical evidence to understand the socio-economic implications of green growth policies at the grassroots level.

**Mishra, P., & Kumar, A. (2021)**- This study examines the challenges faced in implementing green growth initiatives in India. Using a case study approach, it identifies barriers to policy implementation and analyzes factors influencing the effectiveness of green growth programs. The research aims to provide insights for policymakers and stakeholders to enhance the implementation of sustainable development policies.

**Rai, S., & Sharma, P. (2022)**- This review paper explores India's experience with green bonds as a financing mechanism for green growth initiatives. It assesses the role of green bonds in mobilizing funds for leading infrastructure experiments and societal conservation efforts. Focusing evaluates effectiveness about green bonds in promoting green investments and addressing climate change challenges.

**Gupta, M., & Singh, S. (2023)**- This comparative study examines the institutional frameworks for green growth in India and South Korea. It analyzes the policies, regulations, and institutional arrangements governing environmental conservation and sustainable development in both countries. The research aims to identify best practices and lessons learned to enhance green growth initiatives.

#### **4. METHODOLOGY**

This research article titled “Green growth strategy in India: initiatives and challenges ahead” is descriptive in nature and it is completely based on comprehensive analysis of various sources, including government reports, academic literature, other publications and relevant data. India’s Green growth initiatives were analysed through extensive review of research publications, reports, budget proposals and policy documents related to India's green growth initiatives. Data relating to India’s current growth scenario, various noticed growth of economy during the 20<sup>th</sup> century and knowing the importance of natural availability and unchangeable utility of natural benefits for economic development in the coming decades are taken as the basis for analyzing the challenges

### **Data Collection Methods:**

**Literature Review:** The study extensively reviews research publications, reports, budget proposals, and policy documents related to India's green growth initiatives. This comprehensive analysis provides insights into the evolution of green growth strategies and the challenges encountered in their implementation.

**Surveys:** Structured surveys will be conducted to gather quantitative data on stakeholders' perceptions, attitudes, and experiences regarding green growth initiatives. These surveys will provide valuable insights into the effectiveness of specific policies and programs.

**Case Studies:** The study will include multiple case studies to analyze the impact of green growth policies on various sectors and regions. Continuing case studies will showcase the best practices, impacts, and experiences learned from real-world implementation with regard to the Green growth strategy in India

### **Case Studies:**

- ✓ Case Study One: Analysis of the impact of renewable energy policies on rural livelihoods.
- ✓ Case Study Two: Examination of challenges and lessons learned from the implementation of the Swachh Bharat Mission.
- ✓ Case Study Three: Evaluation of the effectiveness of green credit programs in promoting sustainable practices.

**Case Study One:** Analysis of the Impact of Renewable Energy Policies on Rural Livelihoods

Renewable energy policies have been instrumental in transforming rural livelihoods in India. By promoting the adoption of clean energy sources such as solar, wind, and hydropower, these policies have not only mitigated environmental degradation but also created new opportunities for economic growth in rural areas.

Through the installation of solar panels and wind turbines, rural communities have gained access to reliable electricity, reducing dependence on traditional, often polluting, sources of energy. This has led to improvements in agricultural productivity, as farmers can now utilize electric pumps for irrigation and other farming activities. Additionally, the establishment of renewable energy projects has generated employment opportunities, ranging from installation and maintenance to manufacturing and sales.

Moreover, renewable energy policies have empowered local communities by encouraging entrepreneurship and fostering self-sufficiency. Many rural households have become producers of clean energy through small-scale solar installations or biogas plants, thereby not only reducing their own carbon footprint but also generating income through surplus energy sales.

However, challenges remain, particularly regarding the accessibility and affordability of renewable energy technologies for marginalized communities. Additionally, issues related to grid connectivity and energy storage need to be addressed to ensure the reliability and stability of renewable energy systems in rural areas.

### **Case Study Two:** Examination of Challenges and Lessons Learned from the Implementation of the Swachh Bharat Mission

The Swachh Bharat Mission, launched in 2014, aimed to achieve the ambitious goal of ensuring sanitation and cleanliness for all by 2019. While the mission achieved significant milestones, including the construction of millions of toilets and the eradication of open defecation in many areas, challenges persisted in its implementation.

One of the key challenges faced by the Swachh Bharat Mission was the lack of proper infrastructure and facilities for waste management, particularly in rural areas. Despite efforts to promote toilet construction, the safe disposal and treatment of waste remained a significant challenge, leading to environmental pollution and public health hazards.

Furthermore, behavioral change and community participation proved to be crucial but challenging aspects of the mission. While awareness campaigns and incentives were implemented to encourage toilet usage and hygiene practices, ingrained cultural norms and practices often hindered progress.

Nevertheless, the Swachh Bharat Mission provided valuable lessons for future sanitation and hygiene initiatives. It highlighted the importance of community engagement, local leadership, and multi-stakeholder collaboration in achieving sustainable results. Additionally, the mission underscored the need for holistic approaches that address not only infrastructure but also behavior change and institutional capacity building.

### **Case Study Three: Evaluation of the Effectiveness of Green Credit Programs in Promoting Sustainable Practices**

Green credit programs, introduced by the Ministry of Environment, Forests, and Climate Change, aim to incentivize and support environmentally sustainable activities such as tree plantation, water management, sustainable agriculture, and waste management. These programs offer financial incentives and benefits to individuals, businesses, and municipal bodies engaging in eco-friendly practices.

The effectiveness of green credit programs in promoting sustainable practices depends on various factors, including the accessibility of credit, the clarity of guidelines, and the capacity for monitoring and evaluation. Additionally, the alignment of green credit programs with broader policy objectives and priorities is essential for maximizing their impact on environmental sustainability.

Through the evaluation of green credit programs, policymakers can assess their effectiveness in achieving desired outcomes and identify areas for improvement. This includes enhancing access to credit for marginalized communities, strengthening monitoring mechanisms to ensure compliance with sustainability standards, and fostering innovation and collaboration among stakeholders. Furthermore, the evaluation of green credit programs can provide insights into their potential contribution to India's broader green growth agenda. By leveraging financial mechanisms to incentivize sustainable practices, these programs have the potential to drive transformative change and accelerate progress towards a greener and more resilient future.

## **5. INITIATIVES FOR GREEN GROWTH IN INDIA**

The notion of green growth emerged as a central theme at the Rio 20 Conference on Sustainable Development in 2012. In honor of the 20th anniversary of the 1992 United Nations Conference on Environment and Development in Rio de Janeiro and the 10th anniversary of the 2002 World Summit on Sustainable Development in Johannesburg, the conference was the third international high-level gathering on sustainable development to take place.

The key outcome of the Rio+20 conference was the adoption of a global political agreement by Heads of State and Government and high level representatives to renew their commitments to sustainable development and poverty eradication, to ensure promotion of economically, socially & environmentally sustainable future for both current & future generations (UNCSD 2012).

Green growth and energy transmission in India are bounded on three pillars. They are

- Upshot tremendous development of renewable energy
- Minimize the usage of fossil fuel.
- The nation is swiftly transitioning to an economy centered around gas.

### **5.1: Swachh Bharat Mission**

In honor of father of our nation, Gandhi's dream of a clean nation, the Prime Minister Narendra Modi introduced and launched the Swachh Bharat Abhiyan on October 2, 2014. Swachh Bharat Mission (Urban) and Swachh Bharat Mission (Rural) are part of the initiative. The Swachh Bharat Abhiyan's main goal is to raise public awareness of the value of cleanliness. Promising nations moving to safe and plenty of drinking water, together with needy sanitation facilities like toilets and methods for disposing of both solid and liquid waste, are fundamental components of the Swachh Bharat Abhiyan.

### **5.2: Mission LiFE**

Indian Nation has initiated the 'LiFE' (Lifestyle for Environment) on October 2022 as a successive path with environmental protection and sustainable lifestyles. A worldwide campaign called Mission LiFE, spearheaded by India, aims to encourage both individual and community action in the preservation and protection of the environment. Mission LiFE is broken down into three phases. A major change in our strategy for sustainability is needed at each phase.

*Phase I: Change in Demand*

Encouragement of people worldwide to adopt easy-to-implement yet eco-friendly practices in their everyday lives

### *Phase II: Change in Supply*

It is anticipated that shifts in the overall level of demand would progressively prompt markets and sectors to adapt and adjust supply and procurement to meet the updated needs.

### *Phase III: Change in Policy*

The ultimate goal of Mission LiFE is to bring about changes in major industrial and governmental policies that can facilitate sustainable production and consumption by impacting the dynamics of supply and demand in India and throughout the globe.

## **5.3:PM KUSUM**

PM-KUSUM (Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan) was launched in 2019. The goal of this scheme is to give Indian farmers energy security. plan aimed at raising the proportion of installed capacity of non-fossil fuel electric power sources to 40% by 2030. plan is composed of three parts. The plan embodies 3 components:

- ✓ Building 10,000 MW of grid-connected decentralized renewable energy power plants on undeveloped land.
- ✓ 17.50 lakh independent solar agriculture pumps are installed.
- ✓ Ten lakh grid-connected agricultural pumps are solarized.

## **6. GREEN GROWTH IN INDIA:NEW INITIATIVES**

One of the top targets for India in its Amititkaal is green growth (Union Budget 2023-24). By 2070, India wants to achieve "panchamrit," or net-zero carbon emissions. Priority capital investment of Rs 35,000 crores would be allocated in the Union Budget 2023–2024 with the goal of reaching net zero by 2070.

### **6.1:YOJANA-GOBARDHAN**

Galvanizing Organic Bio-Agro Resources Dhan (GOBAR-DHAN) is a program that was introduced in 2018 by the Department of Drinking Water and Sanitation under the Jal Shakti ministry's Swachh Bharat Mission Gramin-Phase 2. This is the main plan for handling and

producing biogas and manure from cow feces. Under GOBAR-DHAN, 500 additional "waste to wealth" factories are planned for the Union budget 2023–2024.

## 6.2: Evening PRANAM

The government would support one crore farmers in adopting natural farming practices through the Prime Minister Program for Restoration, Awareness, Nourishment, and Amelioration of Mother Earth (PRANAM). This program's primary goal is to lessen the usage of chemical fertilizers and encourage the balanced use of chemicals in order to encourage environmentally friendly growth and lessen harmful effects on the environment.

## 6.3: GREEN CREDIT PROGRAMME

On October 12, 2023, the Ministry of Environment, Forests, and Climate Change (MoEFCC) formally released the Green Credit Rules. The Green Credit Rules are being put into effect to support the Green Credit Program, which uses market-driven tactics to support environmental sustainability and preservation. This helps mobilize more resources for such efforts and encourages businesses, people, and municipal bodies to take ecologically responsible, responsive actions. Green Credit programme includes the following activities

-  Tree plantation
-  Water management
-  Sustainable agriculture
-  Waste management
-  Air pollution reduction
-  Mangrove conservation and restoration
-  Eco mark label development
-  Sustainable building and infrastructure.

The following tasks are necessary in order to obtain Green Credits.

→ In order to receive green credit, an individual or organization must register the activity with the Administrator.

→ The Central Government has built a website for the purpose of receiving electronically submitted registration applications, which must be submitted to the Administrator.

→ The Administrator will make arrangements for an authorized agency to verify the activity.

→ The applicant will receive a Green Credit Certificate from the Administrator following a successful verification.

#### **6.4: HYDROGEN ENERGY MISSION:**

This project involves producing hydrogen using renewable energy sources, which could revolutionize the transportation industry. Additionally, it encourages India to adopt clean fuels. The budget's emphasis on green hydrogen is consistent with the long-term objective of lowering dependency on energy storage technologies and batteries composed of minerals and rare earth elements.

#### **6.5: MISHTI**

Mangroves will be planted wherever feasible along the coast and on salt pan sites as part of the "Mangrove Initiative for Shoreline Habitats & Tangible Incomes," or MISHTI, a partnership between the CAMPA Fund, MGNREGA, and other sources.

#### **6.6:AMRIT DAROHAR**

Over the course of the following three years, Amrit Darohar's new program seeks to "encourage optimal use wetlands, enhance biodiversity, carbon stock, eco-tourism opportunities, and income generation for local communities."

#### **6.7: VEHICLE SCRAPPAGE POLICY**

On August 13, 2021, the government-funded Vehicle Scrappage Policy was unveiled with the intention of replacing antiquated vehicles on Indian roads with more contemporary versions. According to the new policy, passenger cars over 20 years old and commercial vehicles over 15 years old must be demolished if they fail fitness and emission testing. It is projected that legislation will boost the market for new automobiles, lower pollution levels, and create jobs. Our circular economy is revitalized when we follow the Reuse, Recycle, and Recovery principle.

### **7. GREEN GROWTH STARATEGY: CHALLENGES AHEAD**

India's rapid economic growth, driven by the need for development, poses significant environmental challenges. This growth has led to increased demand for natural resources such as

minerals, water, land, and fossil fuels, potentially driving up prices and exacerbating environmental degradation. Despite efforts to promote green growth, there is no clear evidence that economic expansion will decouple from resource use and carbon emissions at a pace sufficient to prevent significant global warming. India's environmental performance ranks low globally, with greenhouse gas emissions contributing substantially to climate change. Without adequate funding, key climate-related initiatives, such as the National Mission on Himalayan Studies and the National Climate Change Action Plan, face challenges. This is evident in the land subsidence experienced in cities like Joshimath in the Himalayas.

### **FUTURE TRENDS AND IMPLICATIONS:**

The study will provide valuable insights into future trends and implications for green growth in India. By identifying key challenges, opportunities, and best practices, policymakers can make informed decisions to advance sustainable development goals.

### **RESULTS AND DISCUSSION**

India has undertaken several initiatives to promote green growth, such as increasing renewable energy production and promoting sustainable practices. However, challenges persist, including high upfront costs and dependence on non-renewable energy sources. These challenges underscore the need for concerted efforts to overcome barriers to green growth.

### **8: SUMMARY & CONCLUSIONS**

India, a sizable developing nation home to more than 1.3 billion people, has ambitious goals for climate adaptation and mitigation that will not just change the country but the entire globe as well. In order to industrialize, prosper, and give its people a higher standard of living without having to carbonize, NITI Aayog and IEA have partnered. In addition to ensuring that funds are allocated to low-carbon technology, India must also pinpoint the economic sectors and areas of environmental deterioration and take appropriate steps to address them. Thus, it is concluded that if green growth is to be an achievable objective, along with the ongoing green growth strategies, policymakers need to look towards alternative strategies also. Consequently, India must prioritize addressing a wide range of sustainability concerns, giving particular attention to those that are vital, such as biodiversity, air and water quality, and climate change. If not, India would be faced with conflicting goals and high standards.

In conclusion, this study underscores the significance of green growth in India's development trajectory and highlights the challenges and opportunities in its implementation. By evaluating existing policies, identifying barriers, and generating evidence-based recommendations, India can chart a sustainable path towards economic prosperity while safeguarding the environment for future generations.

### Future Studies

Future research could explore the socio-economic impacts of green growth initiatives and assess their effectiveness in mitigating environmental degradation. Additionally, comparative studies with other countries' green growth strategies could provide valuable insights for India's sustainable development goals.

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