

Sustainable Green Finance in India

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Abstract: *“The world is reaching the tipping point beyond which climate change may become irreversible. If this happens, we risk denying present and future generations the right to a healthy and sustainable planet - the whole of humanity stands to lose” - Kofi Anan* We have been warned of climate change and global warming by various scientists worldwide, and the development has continued at an unprecedented pace. The Global Risks Report 2022 published by the World Economic Forum highlights the risk associated with environmental degradation they are 1) Extreme weather 2) Climate action failure 3) Biodiversity loss 4) Pollution harms to human health. The India Meteorological Department (IMD) has reported that India has been the warmest since 1990; the rise in average temperatures could have a cascading effect on extreme weather events, crop patterns and urban disaster management. India recorded 756 instances of natural disasters like landslides, storms, earthquakes, floods, droughts etc. Thus, the need of the hour is sustainable development and not just development. We need to act to develop an environment-friendly ecosystem. Corporate Social responsibility activities are not enough to ensure sustainable growth. Its time to develop green index, which will measure the green and sustainability practices of an organization. Although green banks and green bonds are fostering suitable development and renewable resources, we find that the finance is flowing unabated to the development projects irrespective of their environmental impact or the carbon footprint. Prime Minister Narendra Modi has promised in Glasgow COP26 that India's non-fossil energy capacity will reach 500 GW by 2030; India will transition to net zero emissions by 2070. Carbon neutrality can be achieved by Restricting the flow of finance to the non-compliance of green and encouraging the flow of finance to Renewable energy. This research paper aims at developing a Green Index based on which the flow of finance is regulated at the Banks and Capital Markets. The green index can be based on Clean Transportation, Improved land usage, efficient waste management, water usage, and Green Buildings. The same parameters would be applicable to all types of industries. Even urban development, industrial development, and rural development can use the same parameters to achieve Carbon Neutrality.

Keywords: Green Index, green finance, sustainable development

1. Introduction

In this paper, a novel corporate sustainability performance index, termed "The Green Index," is introduced to gauge and evaluate the integrated sustainability performance of companies. The Green Index encompasses Environmental Performance, Green Innovativeness, and Financial Performance, integrating expert opinions to quantify their harmonious integration. This development of the Green Index takes a holistic approach to define and measure the "green" performance of companies within the context of their market performance. Significantly, the Green Index introduces Green Innovativeness for the first time in the literature, redefining and measuring the concept of "Green."

The Green Index uniquely captures the collective expert opinions of management researchers, executive managers of corporations, R&D managers of high-tech companies, financial managers, and corporate social responsibility managers. The development of the Green Index employs Hierarchical Decision Modeling based on the collective decisions of experts. The overarching goal of green growth is outlined as economic development that expands access to sustainable socioeconomic opportunities for a broader populace, regions, or countries, all while safeguarding the vulnerable and maintaining fairness and equal justice. Therefore, green growth strategies must be meticulously designed to minimize policies and actions with irreversible negative impacts.

Green finance emerges as a crucial means to augment financial flows from the public, private, and non-profit sectors to prioritize sustainable development goals. Green finance is instrumental in realizing the objectives of

sustainable development, particularly in the context of green growth. Consequently, green growth becomes attainable through the facilitation of green finance, which aids in mitigating and building resilience against the adverse impacts of climate change.

2. Literature Review

The Inclusive Green Growth Index comparison reveals that most developing Asian countries struggle to involve all citizens in the growth process, and achieving environmental sustainability remains challenging. Measuring growth quality through economic growth, social equity, and environmental sustainability pillars indicates a need for sound economic policies. The study underscores the importance of standardized, streamlined, and improved indices and parameters for measuring corporate sustainability, as highlighted by previous research.

The Green Index, as demonstrated by prior studies, provides a robust methodological approach to integrating Environmental Performance, Green Innovativeness, and Financial Performance. This integration is facilitated through the application of the Hierarchical Decision Model developed by Kocaoglu in 1976.

Environmental concerns addressed in the Green Index development encompass energy conservation, promotion of renewable energy, water conservation and recycling, waste and air pollution management, GHG emission reduction, and adaptation to climate risks. The study advocates for mandatory requirements for energy-efficient systems in programs using energy, alongside regulations on ground and recycled water use.

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Parameters such as Environmental Strategy, Internal and External Environmental Risks, and green opportunities contribute to the assessment and management of clients' environmental risks. The Green Index 3.0 aims to benefit various stakeholders, including financial service providers, investors, consulting companies, microfinance clients, IT providers, researchers, academia, microfinance networks, rating agencies, auditors, regulators, central banks, international agencies, and development banks.

The relationship between public and private capital is expected to evolve, necessitating discussions on sustainability. Significant resource controllers, including high-net-worth individuals, family offices, or conventional limited partners, bear a responsibility to demonstrate leadership in sustainability. The study posits that billionaires can play a crucial role in recovery, emphasizing their role in sustainable development.

A study examining policy implications identifies four latent variables of environmental regulation policy, green behavior or project policy, reward policy, and punishment policy. The theory of green behavior encompasses dimensions such as Green Habitability, Green Barrier, and Green Performance, highlighting their interconnectedness. The study underscores the importance of regulatory awareness and the financial sector's role in addressing environmental and climate risks.

However, the study reveals that a green financing gap persists due to factors such as low finance levels, poor green project selection, risk-return trade-offs, and a lack of analytical tools. Regulatory issues are identified as a significant challenge in enhancing green finance, suggesting the need for proper policies and regulations to bridge the green investment gap.

The Urban Neighborhood Green Index (UNGI) is introduced to assess greenness and identify critical areas for sustainable planning. Quantifiable information regarding green structures and their distribution is deemed essential for modeling and evaluating future scenarios for sustainable communities.

Financing for sustainable development and climate change mitigation emphasizes the significance of private sector involvement. Green finance, representing private finance capital, supports sustainable development objectives. The study discusses the need, limitations, and government initiatives for green finance, advocating for mixed financing to reduce the total cost of capital for private capital investors.

Green Index 1.0 and Green Index 2.0 are designed to provide a comprehensive view of the environmental engagement of Microfinance Institutions (MFIs) and other inclusive finance institutions. The indices cover dimensions such as formal environmental strategy, environmental risk management, and fostering green opportunities.

Objectives

This study aims to advance the Green Index concept by:

- 1) Developing criteria for the Green Index
- 2) Identifying indicators for green indexing of projects

- 3) Formulating Green Index Scoring

3. Research Methodology

The study adopts an exploratory approach, relying on secondary data from various sources such as published reports, online newspapers, articles, and websites. Literature studies in the field of Green Index contribute to the development of the concept, criteria, indicators, and scoring methodology for the Green Index.

4. Research Analysis and Findings:

4.1 Selection of Indicators for Index Development

A set of main indicators and sub-indicators were identified based on discussions and stakeholder consultations. It is always desirable to have fewer and a common set of indicators. The rationale for selecting a common set of indicators is as follows:

- Comparison across sectors on environmental performance is possible
- Standardization and large-scale application for all sectors and departments is feasible
- Easy for reporting by all departments
- Easy for public, media and policy makers to understand and appreciate.

4.2 Indicators and sub-Indicators for Green Index Development

Six major indicators have been selected during this phase of development of Green Index for ranking of the industrial, developmental and infrastructural programmes of India. The indicators include:

- Energy Use; Promotion of Renewable Energy and Energy Efficiency
- Water use; Conservation and Recycling
- Waste or air pollution management
- Land and biodiversity; Tree planting, Biodiversity conservation
- Carbon emissions; Emission Reduction and C-Sequestration
- Addressing climate risks – enhancing Resilience to Disasters

4.3 Indicators and rationale for inclusion in development of Green Index

- 1) **Energy Efficiency (EE) and Renewable Energy (RE)**
 - Most activities require energy
 - Energy efficiency opportunity exists for all activities and may lead to cost savings
 - Need to shift to RE as opportunities exist for shifting to RE and may be cost effective
 - Adoption of low efficient systems and use of fossil fuel-based energy leads to air pollution, land degradation and GHG / CO₂ emissions

2) Water Conservation and Recycling

- Most programmes or activities require use of water
- Water crisis and depleting ground water are major environmental concerns
- Technologies exist for water conservation, harvesting and Recycling

3) Waste Treatment and Recycling and Pollution Control

- Most processes and activities using natural resources, energy and materials lead to waste generation or pollution
- Waste minimization, waste recycling and reduction of air pollution are critical environment and health concerns

4) CO2 Emission Reduction and Carbon Sequestration

- CO2 or GHG emissions is a national and global environmental concern

- Paris Agreement and NDC require reduction of GHG emissions, estimation and reporting of GHG emissions and mitigation actions
- Need to avoid tree felling and promote tree planting and soil conservation leading to carbon sequestration

5) Biodiversity Conservation

- Biodiversity conservation opportunities exist and must be adopted for sustained flow of ecosystem services

6) Adaptation to Disasters and Climate Change

- Impact of climate change on infrastructure, agriculture, forest, water, health, and disasters needs to be addressed in the long term
- Opportunities and technologies exist for climate proofing or adaptation to climate risks and disasters

Green Matrix with indicators and sub-indicators and indicator scoring for development of Green Index for the proposed programmes

Green Indicators	Green Sub-Indicators	Indicator Score				
		1	2	3	4	5
1. Energy Conservation and Renewable Energy	1. Mandatory provision or requirement for adopting Energy Efficiency standards or measures or appliances 2. Mandatory provision or requirement for adopting Renewable Energy technologies or measures					
2. Water Conservation and Recycling	1. Mandatory provision or requirement for water conservation or water harvesting or water recycling measures					
3. Waste Treatment and Recycling and Pollution Control	1. Mandatory provision for wastewater treatment. 2. Mandatory provision for solid waste treatment and recycling measures. 3. Mandatory provision for air pollution control.					
4. Biodiversity Conservation	1. Mandatory provision for regulating tree felling and conservation of biodiversity (trees/fishes/wildlife/others) 2. Mandatory provision for promoting tree planting measures					
5. CO2 Emission Reduction and Carbon Sequestration	1. Mandatory provision for CO2 or GHG emission reduction measures or tree planting for carbon sequestration					
6. Adaptation to Disasters and Climate Change	1. Mandatory provision for adaptation to minimize damage or cope with any climate or weather related impacts and disasters.					

Green Index:

Developed by the e-MFP Green Inclusive and Climate Smart Finance Action Group (GICSF-AG) in 2014, the Green Index underwent an update (Green Index 2.0) in 2016. Since its initial launch, the Green Index has emerged as the primary framework for evaluating the environmental performance of financial services providers (FSP) in green inclusive finance, guiding the formulation of action plans for improvement. With versions 1.0, 2.0, and 3.0, the Green Index has been widely adopted by various stakeholders, including investors, microfinance networks, rating agencies, consultants, consulting companies, and FSPs, becoming an integral part of their product lines and governance. Over the years, the Green Index has evolved to maintain relevance and alignment with existing practices and experiences.

Purpose of the Green Index: Functioning as a core tool, the Green Index supports the inclusive finance sector in defining, implementing, and monitoring environmental practices, aiming to mainstream green inclusive finance. Beyond being an assessment tool, the Green Index offers a comprehensive framework to assist the inclusive finance sector in:

- Raising awareness and increasing commitment

- Assessing activities
- Supporting strategic planning
- Prioritizing activities
- Monitoring progress at institutional and sector levels

Green Index in India: In the context of India, for the period 2021-2030, specific targets have been established under the "Objective Contribution at the National Level":

Reduce GDP emissions by 33 to 35 percent from 2005 levels by 2030

Achieve approximately forty percent of the accumulated electrical installation capacity of non-fossil gas-based energy assets by 2030, with funding from the Green Climate Fund (GCF).

Create an additional carbon sink equivalent to 2.5 to 3 billion tons of CO2 by 2030 through additional forest and tree protection. Preliminary estimates suggest a requirement of around 6,206 billion (at 2014-15 prices) between 2015 and 2030 for implementing agriculture, forestry, fisheries infrastructure, water resources, and ecosystem adaptation.

5. Recommendations and Suggestions

Financial institutions and investors can leverage the Green Index to assess whether a business aligns with sustainable development. Proposals falling below the index standard could be rejected or subject to improvement. During IPOs, companies should seek approval from SEBI by submitting their applications. Financing for various projects, whether related to urban development or industry, should undergo scrutiny through the Green Index to achieve sustainable development.

The outcomes of the Green Index research provide a practical application of the Resource-Based View of the firm, offering a decision support tool for management teams in resource allocation decisions. The Green Index facilitates the computation of a 'Green Quotient' for a company, covering a broad range of sustainable indicators. It supports the establishment of 'green benchmarks' for specific industries, encouraging others to adopt and follow sustainable practices.

The index has to be reviewed, it has to be implemented in various institutions and necessary modifications are to be made. This study not covered the requirements of different types of organizations, may be this index could be implemented in different industries to understand the application of this index then they could suggest the necessary modifications for that particular industry. So, the future researchers can implement the same index to different industries and to different kind of organizations to understand the limitations of this index.

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