

Review of Opportunities and Challenges of Green Accounting in India

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Abstract

This thorough review of the literature explores the possibilities and obstacles of green accounting methods in India in the context of rapid industrialisation and environmental concerns. By examining 25 studies published between 1996 and 2025, this study shows that traditional Gross Domestic Product (GDP) assessments often overstate economic prosperity by disregarding the depletion of natural capital. The study identifies key regulatory advancements, such as the SEBI's Business Responsibility and Sustainability Reporting (BRSR) framework, the MoSPI's System of Environmental-Economic Accounting (SEEA), and the Companies Act 2013. Despite those accomplishments, significant obstacles remain, including expensive implementation expenses for Small and Medium Enterprises (SMEs), subjectivity in environmental assessment, and a lack of defined reporting guidelines. Emerging trends, including the integration of Artificial Intelligence (AI) and blockchain for ESG tracking, offer promising solutions. The paper concludes with recommendations for national standards, capacity building for SMEs, and the institutionalisation of green GDP pilots to support India's net-zero 2070 goals.

Keywords: Green Accounting, India, Sustainable Development, Environmental Disclosure, ESG Reporting, Natural Capital.

1. Introduction

The global environment is a confined and perishable resource. While rapid industrialisation has stimulated extraordinary prosperity, it has also put the planet's natural ecological balance in peril. As a result, players in both the public and private sectors increasingly realise the necessity of merging economic development with environmental preservation (Gupta, 2018). In India, policymakers have historically lacked the particular sustainability data required to conduct targeted analysis. To address this, in 2011, the Ministry of Statistics and Programme Implementation (MoSPI) organised a high-level expert panel, led by Professor Sir Partha Dasgupta, to create a framework for India's Green National Accounts. Their 2013 paper, "Green National Accounts in India: A Framework," recommended employing the United Nations System of Environmental-Economic Accounting (SEEA). (Savithri et al., 2022).

Recent amendments to the law, such as mandated Business Responsibility and Sustainability Reporting (BRSR) standards, are a significant development in establishing standardised sustainability disclosures. While the inclusion of "Green GDP" remains experimental, it reflects a shift away from solely quantitative growth indicators toward qualitative sustainability assessments. Furthermore, initiatives

such as the Green Credit Programme and the Reserve Bank of India's (RBI) sustainable finance rules demonstrate India's changing policy environment (Manne, 2025). However, fundamental issues remain, including the lack of a uniform accounting procedure and the inadequacy of present evaluation methods for environmental goods and services. Even in large, well-managed companies, tracking energy use, waste management expenditures, and resource inefficiencies is skewed.

2. Objectives of the Study

- To identify and analyse major research gaps within the existing body of literature on green accounting practices in India.
- To synthesise current findings regarding the opportunities and challenges of implementing green accounting.
- To propose future directions for sustainable accounting research and policy development in India.

3. Review of Literature

The conceptualisation and application of green accounting in India have been extensively debated. Traditional accounting systems have historically prioritized financial performance, often externalizing environmental costs (Mahadeo et al., n.d.). In contrast, green accounting integrates these externalities, allowing organizations to assess their true environmental impact. However, the adoption of these practices in India is hindered by a lack of specialized professional expertise (Stem, n.d.).

Incorporating environmental considerations into accounting frameworks enables policymakers to estimate the actual costs of economic activities. Yet, issues such as minimal institutional support and a lack of standardised policy performance metrics remain significant hurdles (Agarwal & Agarwal, n.d.). Venugopal et al. (2024) emphasize that environmental reporting enhances transparency and stakeholder trust, though the voluntary nature of these disclosures in India limits their effectiveness. Gola et al. (2022) further argue that green accounting is essential for the long-term sustainability of both the economy and the environment, facilitating more efficient resource management.

In the digital era, emerging technologies such as Artificial Intelligence (AI), blockchain, and big data are becoming instrumental in ensuring accurate and transparent environmental reporting (Sinaga et al., 2025). Despite these technological opportunities, green accounting faces limitations like fraudulent claims (greenwashing) and the absence of harmonized international standards.

Historical perspectives highlight that traditional Gross National Product (GNP) metrics neglect environmental costs. Proposed adjustments include physical accounts, such as the Netherlands' NAMEA, and environmental metrics like the Index of Sustainable Economic Welfare (ISEW) (Repetto et al., 1989). In India, studies have shown that forest depletion significantly impacts State Domestic Product (SDP), and water pollution costs the economy billions of dollars annually (Chopra & Kadekodi, 1997; Brandon & Hommann, 1995).

Table 1: Thematic Analysis of Literature

Theme	Key Studies	Core Concepts	Indian Context/Examples
Conceptual Foundations	Gupta (2018), Wood (1980)	Integration of environmental costs.	GIST's EASDP calculations.
Theoretical Drivers	Sinaga et al. (2025),	Stakeholder, legitimacy,	BRSR and PROPER

	Herny & Herawaty (2024)	signaling.	ratings.
Implementation Barriers	Shah et al. (2019), Sharma (2012)	SME costs, data gaps, and valuation.	Companies Act 2013 CSR gaps.
Policy Frameworks	Savithri et al. (2022), Manne (2025)	Regulatory ecosystems (SEBI, MoSPI).	Transition to mandatory BRSR.
Emerging Trends	Rohman (2025), Singh (2025)	Digital tracking, AI, blockchain.	Tata Renewables and Infosys.

4. Research Methodology

To address the necessity for a more comprehensive methodology, this study follows a Systematic Literature Review (SLR) approach, which offers a systematic, transparent, and repetitive technique for summarizing current research.

4.1 Search Strategy

The review was undertaken by reviewing academic databases such as Google Scholar, ResearchGate, etc. The time frame for the search was prolonged from 1996 to 2025 to encompass both foundational theories and current advances. The following keywords were put to use: "green accounting" AND "India"; "environmental accounting" AND "opportunities" AND "challenges"; and "ESG reporting" AND "sustainable development".

4.2 Inclusion and Exclusion Criteria

- Focus on green/environmental accounting.
- Context: Related to the Indian economic or administrative context.
- Peer-reviewed publication in journals, conference papers, or official government reports is necessary for quality review.
- English-only publications.

5. Discussion

Theoretical Maturity vs. Practical Gaps: While influential theories explain why firms should employ green accounting, practical implementation is fragmented. Reporting is often qualitative, rather than quantitative.

Regulatory Momentum: SEBI's BRSR has guided a clear transition from a voluntary CSR to compelled ESG disclosures. However, this is currently limited to the top 1,000 publicly traded companies.

Valuation Subjectivity: One of the most complex obstacles is quantifying environmental expenses. Without set valuation standards, reports are subjective and tough to compare.

Technological Integration: The development of AI and blockchain provides a chance to address reliability issues by providing real-time tracking of environmental indicators.

6. Conclusion and Recommendations

Strategic Imperative: Green accounting permits practical sustainability assessments that go beyond GDP illusions through the transformation of environmental costs from "soft externalities" to rigid financial liabilities.

Policy Progress: Mandatory ESG disclosure for listed enterprises indicates the shift from voluntary CSR to accountable sustainability, and BRSR signifies a milestone.

Prospect Landscape: India's path to SDG/net-zero alignment is facilitated by green finance (sustainable bonds/loans), digital traceability (AI/blockchain), and convergence of worldwide guidelines.

Triple Bottom Line: EMA (Environmental Management Accounting) offers competitiveness, regulatory compliance, and stakeholder trust via profit-earth-people integration.

Recommendations:

- Short-term: Establish a national green accounting guide specifically for SMEs, supported by government subsidies.
- Medium-term: Develop localized, SEEA-compliant valuation standards for Indian ecosystems.
- Long-term: Establish a National Green Accounting Authority to oversee environmental audits.

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