



EFFECTIVENESS OF ENVIRONMENTAL IMPACT ASSESSMENT IN INDIA: EVIDENCE FROM SECONDARY DATA

MS. RITEEKA RAJESHWAR KAMBLE DR. SHIVAJI DHONDIKA TAKALKAR

Research Scholar

Gramonnati Mandal Arts Commerce &
Science College, Junnar, Pune
Affiliated to Savitribai Phule Pune
University. *Core Faculty* at M. L.

Dahanukar college of Commerce, Vile Parle

Research Guide

Gramonnati Mandal Arts Commerce &
Science College, Junnar, Pune
Affiliated to Savitribai Phule Pune
University.

DR. PRABHAKAR RAMJI MOKAL

Research Co-Guide

Annasaheb Waghire Arts, Science and Commerce College, Junnar, Pune
Affiliated to Savitribai Phule Pune University.

Abstract

Environmental Impact Assessment (EIA) is a key regulatory mechanism designed to ensure that development projects consider environmental consequences before approval. In India, the EIA framework has been in place for several decades; however, concerns remain regarding its actual effectiveness in achieving environmental protection and sustainable development goals. This study examines the performance of the EIA system in India using secondary data collected from government reports, corporate sustainability disclosures, and published academic studies. A review-based and descriptive research approach has been adopted to analyze implementation practices, compliance patterns, and monitoring mechanisms across selected high-impact sectors. The findings indicate that while regulatory provisions are well defined, variations exist in assessment quality, public participation, and post-clearance monitoring. Large corporations show relatively better compliance and reporting practices, whereas enforcement and independent verification remain weak in many cases. The study also identifies institutional and technical challenges that limit the overall impact of the EIA process. Based on the analysis, the paper suggests measures such as

strengthening monitoring systems, improving data quality, enhancing stakeholder engagement, and promoting digital compliance tools. The study contributes to the existing literature by providing updated evidence on EIA performance in the Indian context and offers practical recommendations for improving environmental governance.

Keywords

Environmental Impact Assessment, Sustainable Development, Environmental Governance, Regulatory Compliance, Corporate Environmental Reporting.

Introduction

Environmental Impact Assessment (EIA) has become an essential planning tool that helps decision-makers consider environmental concerns while approving development projects. In the Indian context, the EIA system functions under the Environment Protection Act, 1986, with operational guidance provided through the EIA Notification, 2006. The main objective of this mechanism is to assess potential environmental effects at an early stage and ensure that appropriate safeguards are incorporated before project implementation.

Over the past few decades, India has experienced rapid industrial growth and large-scale expansion of infrastructure, which has placed increasing stress on land, water, air, and ecological resources. Projects in sectors such as energy, mining, transportation, and urban development are often associated with high environmental risks. Even though EIA clearance is mandatory for many such activities, there is ongoing debate about how effectively the process contributes to environmental protection and sustainable development outcomes.

Existing research suggests that while the regulatory structure for EIA is well established, several operational challenges continue to limit its impact. Issues such as weak monitoring systems, administrative delays, and inconsistent implementation across regions have been frequently reported. Against this background, the present study seeks to evaluate the effectiveness of the EIA framework in India using secondary data drawn from government publications, corporate disclosures, and academic sources. The study also aims to identify key gaps and propose practical measures to strengthen the overall performance of the EIA system.

Objectives of the Study

The study has been undertaken with the following objectives:

1. To examine the existing Environmental Impact Assessment framework in India.

2. To evaluate the effectiveness of EIA practices based on secondary data evidence.
3. To analyze the contribution of EIA towards environmental protection and sustainable development.
4. To identify major challenges and operational gaps in the implementation of EIA.
5. To suggest measures for improving the performance and credibility of the EIA process.

Review of Literature

Jay et al. (2007) stated that Environmental Impact Assessment has evolved as a decision-support tool that helps policymakers consider environmental consequences during project planning. However, the authors also noted that the success of EIA depends largely on follow-up actions and monitoring practices.

Glasson, Therivel, and Chadwick (2012) observed that although many developing countries have adopted international EIA models, practical implementation often faces institutional and technical limitations. According to their study, weak coordination among regulatory agencies and lack of trained professionals reduce assessment quality.

Paliwal (2006) examined the Indian EIA system and highlighted transparency issues and limited public participation in project appraisal processes. The study emphasized that environmental clearance procedures sometimes focus more on administrative compliance than environmental performance.

Kumar and Chakrabarti (2018) analyzed infrastructure projects in India and found inconsistencies in impact prediction methods and mitigation planning. Their research suggested strengthening independent appraisal mechanisms and technical review committees.

Rani and Singh (2020) pointed out that post-clearance environmental monitoring remains one of the weakest components of the EIA framework in India. The authors stressed the need for stronger enforcement systems and real-time monitoring tools.

Overall, the literature indicates that while the regulatory structure exists, operational effectiveness remains uneven. This study builds upon previous research by reviewing updated secondary data and corporate disclosure practices.

Research Methodology

Research Design



The study adopts a descriptive and analytical research design based on secondary data. A review-based approach has been used to assess trends, patterns, and performance indicators related to Environmental Impact Assessment practices in India.

Data Sources

The study is based entirely on secondary data collected from a range of reliable and publicly available sources. These include reports and publications issued by the Ministry of Environment, Forest and Climate Change (MoEFCC), along with information obtained from environmental clearance portals and official government notifications. In addition, corporate annual reports, sustainability reports, and Business Responsibility and Sustainability Reports (BRSR) were reviewed to understand industry-level environmental practices. Relevant academic journal articles and policy-oriented research papers were also consulted to support the analysis. To strengthen the global perspective, reports published by international organizations such as the World Bank and the United Nations Environment Programme (UNEP) were included in the review.

Sample Companies

To gain insight into sector-level practices, the study reviewed a group of major Indian companies operating in environmentally sensitive industries. The selected sample includes NTPC Limited, Tata Power, ONGC, Reliance Industries Limited, Adani Green Energy, and Larsen & Toubro. These organizations were chosen primarily because of their active involvement in large-scale infrastructure and energy projects, as well as the availability of publicly accessible information related to environmental compliance and sustainability reporting. The selected companies are also subject to statutory environmental clearance requirements, making them suitable for evaluating the practical application of Environmental Impact Assessment procedures.

Method of Analysis

Content analysis and document review techniques were applied to examine EIA-related disclosures, compliance reports, and environmental management practices. Comparative analysis was also used to identify variations in reporting quality and implementation patterns.

Analysis of Environmental Impact Assessment Practices

The analysis of secondary data indicates that most large industrial and infrastructure projects comply with mandatory EIA requirements during the project approval stage. Major corporations generally publish environmental management plans, pollution control strategies, and sustainability initiatives as part of their public disclosures.

However, differences were observed in the quality and depth of assessment reports. While some companies provided detailed baseline data and impact mitigation strategies, others relied on generalized environmental statements with limited project-specific analysis.

Public consultation processes, which are a key component of the EIA framework, showed uneven implementation. In certain regions, community participation was actively documented, whereas in others, awareness gaps and procedural limitations restricted effective engagement.

Another critical issue relates to post-approval monitoring. Although periodic compliance reports are submitted to regulatory authorities, independent field-level verification remains limited. This weakens the long-term effectiveness of environmental safeguards prescribed during project clearance.

Findings of the study

The findings of the study reveal several important aspects related to the effectiveness of the Environmental Impact Assessment framework in India. The analysis indicates that India has developed a structured legal and institutional system to regulate EIA processes. However, the level of implementation differs across sectors and organizations. Large corporate entities generally demonstrate better environmental reporting practices and stronger compliance with regulatory requirements compared to smaller project proponents. Although provisions for public participation are formally included in the EIA process, their practical effectiveness remains inconsistent across different regions and project categories. Another significant observation is that post-approval monitoring and regulatory enforcement continue to be weak, which reduces the long-term effectiveness of environmental safeguards. Furthermore, the integration of EIA outcomes into broader environmental planning and policy formulation remains limited, restricting the strategic value of assessment results.

Challenges and Gaps



Despite continuous regulatory reforms, several operational challenges continue to affect the performance of the EIA system in India. One of the major concerns is the lack of reliable and comprehensive baseline environmental data in many project reports. In addition, limited technical expertise and human resource capacity at regional and local regulatory levels pose significant constraints on effective project appraisal and monitoring. Time pressures during the clearance and approval process often affect the depth and quality of environmental assessments. Weak post-clearance monitoring mechanisms and inadequate compliance verification further reduce accountability among project developers. Moreover, limited transparency in approval procedures and decision-making processes has raised concerns regarding public trust and institutional credibility. Collectively, these gaps weaken the overall effectiveness and practical impact of the EIA framework.

Conclusion and Suggestions

The study concludes that Environmental Impact Assessment continues to serve as a vital instrument of environmental governance in India. Although the regulatory framework is relatively comprehensive, its effectiveness is largely influenced by the quality of implementation, coordination among institutions, and enforcement mechanisms. Strengthening these operational aspects is essential for achieving meaningful environmental protection outcomes.

To enhance the effectiveness of the EIA system, the study suggests several practical measures. These include improving scientific data collection methods and impact assessment tools, introducing independent third-party evaluation and verification mechanisms, and strengthening public awareness and stakeholder engagement initiatives. The adoption of digital platforms for monitoring compliance and reporting environmental performance can further improve transparency and efficiency. In addition, regular training and capacity-building programs for regulatory authorities and project developers are necessary to ensure consistent application of standards. Implementing these measures can contribute to improved accountability, better environmental governance, and more sustainable development practices.

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