
BALANCING DEVELOPMENT AND ECOLOGY: SOCIO-LEGAL REFLECTIONS ON ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

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ABSTRACT

Environmental Impact Assessment (EIA) serves as a crucial socio-legal instrument for reconciling the imperatives of economic development with ecological sustainability. In India, the EIA framework is governed primarily by the Environment (Protection) Act, 1986, supplemented by the EIA Notification, 2006, and subsequent amendments, which mandate prior assessment of environmental and social consequences for proposed projects. Examining the socio-legal aspects of EIA, this study highlights how it advances judicial oversight, participatory governance, and environmental justice. Few landmark Indian judicial pronouncements illustrate how courts have reinforced procedural compliance, ensured cumulative impact assessment, and safeguarded the rights of vulnerable communities affected by development projects.

Comparative insights from the United States, European Union, Brazil, and South Africa provide lessons on best practices, including mandatory public consultations, third-party auditing, free prior informed consent (FPIC) for indigenous communities, and integration of socio-economic and climate considerations in project approvals. The study also identifies issues with the Indian EIA system, including as post-facto clearances, little stakeholder engagement, regulatory fragmentation, and the possibility of corporate greenwashing. Strong judicial and administrative enforcement, gender and climate integration, public participation, and institutional harmonisation are among the policy recommendations put out.

By analysing EIA through a socio-legal lens, this study underscores its dual function as a procedural and substantive tool for sustainable development. It demonstrates that effective implementation of EIA is indispensable not only for ecological conservation but also for the protection of human rights, equitable social outcomes, and the realization of environmental justice. The

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paper contributes to academic discourse and policy-making by offering an integrated framework for improving EIA effectiveness in India, drawing upon comparative experiences to align national practices with global standards.

Keywords: Environment Impact Assessment, Post-facto clearance, Environmental justice, Sustainable Development, Ecological sustainability.

I. INTRODUCTION:

India's rapid industrialization and urbanization exert immense pressures on natural ecosystems. Infrastructure projects, mining operations, industrial plants, and urban expansion often lead to deforestation, biodiversity loss, soil erosion, water pollution, and displacement of communities.³ EIA emerged as a preventive legal instrument to anticipate such impacts, enforce mitigation measures, and enable informed decision-making.⁴ The Environment (Protection) Act, 1986 empowers the MoEFCC to regulate environmental standards, issue clearances, and implement EIA processes.⁵ The constitutional mandate under Articles 48A and 51A(g) reinforces the obligation of both State and citizens to protect the environment.⁶ Article 21 further guarantees the right to a healthy life, which has been interpreted expansively by the Supreme Court to include ecological protection.⁷

EIA thus functions as both a procedural mechanism, through disclosure, public hearings, and inter-agency consultation and a substantive safeguard, by requiring mitigation measures, social safeguards, and biodiversity protection. However, challenges remain, including regulatory fragmentation, tokenistic public participation, and post-facto approvals. This paper situates EIA within a socio-legal framework, drawing lessons from global practices.

II. Global Evolution of EIA:

A. United States:

NEPA (1969) laid the foundation for modern EIA, requiring federal agencies to prepare Environmental Impact Statements (EIS) for major projects.⁸ NEPA emphasizes procedural

³ Indian Constitution, arts. 21, 48A, 51A(g).

⁴ National Environmental Policy Act, 42 U.S.C. Ss. 4321–4370h (1969).

⁵ EIA Notification, S.O. 1533(E) (Aug. 14, 2006) (India).

⁶ Draft Environmental Impact Assessment Notification (2020) (India).

⁷ *Calvert Cliffs' Coordinating Comm. v. United States Atomic Energy Comm'n*, 449 F.2d 1109 (D.C. Cir. 1971).

⁸ Council Directive 2014/52/EU, 2014 O.J. (L 124) 1.

rights, public access to environmental information, and judicial enforceability. Judicial decisions, such as *Calvert Cliffs' Coordinating Committee v. United States Atomic Energy Commission*, reinforced that EIS documents must be accurate, transparent, and consider alternatives.⁹

Under NEPA, agencies are required to prepare an Environmental Assessment (EA) or a more comprehensive Environmental Impact Statement (EIS) for proposed projects. The EA determines whether significant environmental impacts exist, and if so, a full EIS is prepared. The EIS must analyse potential ecological, social, and health impacts, evaluate reasonable alternatives, and propose mitigation measures.¹⁰ Public participation is a cornerstone of NEPA: agencies must make the EIS publicly available and solicit comments from stakeholders, ensuring procedural transparency.¹¹

Judicial interpretations have further strengthened EIA implementation. In *Calvert Cliffs' Coordinating Committee v. United States Atomic Energy Commission* (1971), the court emphasized that federal agencies cannot approve projects without a thorough and accurate EIS, and must consider all reasonable alternatives.¹² Subsequent cases, such as *Baltimore Gas & Electric Co. v. Natural Resources Defense Council* (1983), reinforced the principle that the EIS is not merely advisory but an essential tool for informed decision-making.¹³

Over time, NEPA has evolved to incorporate cumulative impact assessment, consideration of climate change, and ecosystem services in project planning. While NEPA is procedural rather than substantive, meaning it does not prescribe specific environmental outcomes and it has become a global model for integrating environmental considerations into government decision-making and has influenced EIA regimes worldwide, including India.

B. European Union:

The concept of Environmental Impact Assessment (EIA) in the European Union (EU) developed in the late 20th century as part of broader environmental governance and sustainable

⁹ Aarhus Convention on Access to Information, Public Participation, and Access to Justice in Environmental Matters, June 25, 1998, 2161 U.N.T.S. 447.

¹⁰ National Environmental Policy Act, 42 U.S.C. S. 4332(C).

¹¹ Id. S. 4332(2)(C)(i).

¹² *Calvert Cliffs' Coordinating Committee v. United States Atomic Energy Comm'n*, 449 F.2d 1109 (D.C. Cir. 1971).

¹³ *Baltimore Gas & Electric Co. v. Natural Resources Defense Council*, 462 U.S. 87 (1983).

development policies. The EU formally introduced EIA through Council Directive 85/337/EEC of 27 June 1985, which required member states to evaluate the environmental consequences of certain public and private projects before granting development consent.¹⁴ This directive marked a significant shift towards preventive environmental regulation, emphasizing procedural safeguards, transparency, and public participation. The EU implemented the EIA Directive 85/337/EEC, later updated by Directive 2014/52/EU, mandating early environmental integration in planning.¹⁵ The Aarhus Convention (1998) institutionalized public access, participation, and legal remedies.¹⁶ Independent reviews, mandatory scoping, and cross-border consultations ensure accountability and procedural rigor.

Directive 85/337/EEC mandated that projects likely to have significant environmental effects, such as major infrastructure, industrial installations, and energy projects—undergo environmental assessment. Key procedural elements included:

- **Screening** to determine which projects required full assessment
- **Scoping** to identify relevant environmental issues
- **Preparation of an Environmental Impact Statement (EIS)** detailing potential impacts and alternatives
- **Consultation and public participation**, requiring member states to provide opportunities for affected communities to comment.¹⁷

The EU EIA framework evolved over subsequent decades to incorporate lessons from practice and international agreements. The EIA Directive 97/11/EC (1997) clarified procedures, strengthened public participation requirements, and emphasized consideration of cumulative effects.¹⁸ The most recent update, Directive 2014/52/EU, further enhanced EIA effectiveness by:

¹⁴ Council Directive 85/337/EEC of 27 June 1985 on the Assessment of the Effects of Certain Public and Private Projects on the Environment, 1985 O.J. (L 175) 40.

¹⁵ Aarhus Convention on Access to Information, Public Participation, and Access to Justice in Environmental Matters, June 25, 1998, 2161 U.N.T.S. 447.

¹⁶ *Sterlite Industries (India) Ltd. v. Union of India*, (2013) 4 SCC 575.

¹⁷ Council Directive 85/337/EEC of 27 June 1985 on the Assessment of the Effects of Certain Public and Private Projects on the Environment, 1985 O.J. (L 175) 40, arts. 2-5.

¹⁸ Council Directive 97/11/EC of 3 March 1997 Amending Directive 85/337/EEC, 1997 O.J. (L 073) 5.

- Requiring early integration of environmental considerations into project planning,
- Ensuring assessment of biodiversity, climate change, and resource efficiency,
- Strengthening public participation, accessibility of information, and legal remedies,
- Improving transboundary consultation for projects with cross-border environmental impacts.¹⁹

The EU EIA system is procedural rather than prescriptive, emphasizing informed decision-making rather than mandating specific outcomes. However, it has played a pivotal role in fostering sustainable development, promoting transparency, and aligning national environmental regulations across member states. The EU model also influenced the development of EIA regimes worldwide, including India's EIA Notification, 2006.²⁰

C. Brazil and South Africa:

Brazil's National Environmental Policy (1981) integrates social and environmental assessment, requiring projects affecting forests and indigenous lands to obtain consent and conduct impact studies.²¹ South Africa's National Environmental Management Act (1998) mandates assessments incorporating socio-economic, cultural, and ecological impacts.²² These frameworks illustrate that effective EIA integrates social justice, ecological protection, and community participation. In reaction to challenges from development, deforestation, and fast industrialisation in the late 20th century, Brazil created its own EIA framework. The underlying law, the National Environmental Policy Act (Política Nacional do Meio Ambiente), 1981, mandated environmental licensing for projects that might have major effects on the environment and society.²³

Key developments in Brazil's EIA evolution include:

¹⁹ Council Directive 2014/52/EU of 16 April 2014 Amending Directive 2011/92/EU on the Assessment of the Effects of Certain Public and Private Projects on the Environment, 2014 O.J. (L 124) 1.

²⁰ M. Faure & T. Skou Andersen, *Environmental Impact Assessment in the European Union: An Overview*, 23 Eur. Env'tl. L. Rev. 79 (2014).

²¹ Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, No. 2 of 2006 (India).

²² Hanuman Laxman Aroskar v. Union of India, (2019) 15 SCC 401.

²³ Lei No. 6.938, de 31 de Agosto de 1981, Política Nacional do Meio Ambiente (Braz.).

- **Environmental Licensing System (Sistema de Licenciamento Ambiental):** This system mandates a three-stage licensing process, preliminary license, installation license, and operation license. Each stage requires an assessment of environmental, social, and economic impacts.²⁴
- **Mandatory Public Participation:** Brazilian legislation places a strong emphasis on public hearings and community involvement, particularly for projects that impact protected areas and indigenous territory. Both Brazilian national law and its commitments under international human rights treaties incorporate the principle of Free, Prior, and Informed Consent (FPIC) for indigenous populations.²⁵
- **Judicial Enforcement:** Strict EIA compliance has been reinforced by Brazilian courts, as demonstrated in the case of *Fundação SOS Mata Atlântica v. Brazil Ministry of Environment*, guaranteeing the enforcement of social and environmental safeguards.²⁶

Brazilian EIA integrates social, cultural, and ecological considerations, making it one of the most inclusive systems globally. Its emphasis on community consent and ecological preservation has influenced other Latin American countries.

Following apartheid, South Africa created its EIA framework, which reflected a dedication to social justice, sustainable development, and public involvement. The National Environmental Management Act (NEMA), 1998, is the main piece of legislation that made EIA a prerequisite for specified activities.²⁷

Key elements of South Africa's EIA evolution include:

- **Integrated Environmental and Social Assessment:** NEMA mandates that evaluations take into account the effects on the environment, society, culture, and economy. Scoping, detailed assessment, and public involvement are all steps in the EIA process.²⁸
- **Public Participation and Access to Justice:** Notification, consultation, and opportunity for stakeholders to comment are required steps in the EIA process. As demonstrated in

²⁴ Id.; Ricardo S. Amaral, *Environmental Licensing in Brazil*, 42 *Envtl. Impact Assessment Rev.* 1 (2013).

²⁵ Id.

²⁶ *Fundação SOS Mata Atlântica v. Brazil Ministry of Environment*, (2010, Braz.).

²⁷ National Environmental Management Act 107 of 1998, South Africa.

²⁸ Id. Ss. 23–24.

Minister of Environmental Affairs v. Earthlife Africa, judicial review guarantees that both substantive and procedural standards are met.²⁹

- **Environmental Governance:** South Africa links EIA to more general environmental management goals by highlighting the precautionary principle, sustainable development, and rehabilitation requirements.³⁰

III. INDIAN LEGAL AND REGULATORY FRAMEWORK ON EIA:

Based on the constitutional requirement to promote sustainable development, India's Environmental Impact Assessment (EIA) framework serves as the foundation for its preventative environmental governance. Judicial activism, policy reform, and statutory recognition led to the development of the framework, which culminated in the 2006 EIA Notification under the 1986 Environment (Protection) Act.³¹ By demanding previous environmental approval for activities expected to have major environmental repercussions, it aims to strike a balance between ecological integrity and developmental imperatives.

Articles 48A and 51A(g) of the Constitution serve as the cornerstones of EIA in India. The 42nd Amendment's (1976) introduction of Article 48A mandates that the State "protect and improve the environment and to safeguard the forests and wildlife of the country."³² A related fundamental duty to "protect and improve the natural environment" is imposed on citizens under Article 51A(g).³³

According to the rulings in *Subhash Kumar v. State of Bihar*,³⁴ *M.C. Mehta v. Union of India*,³⁵ and *Vellore Citizens' Welfare Forum v. Union of India*,³⁶ judicial interpretation has further incorporated these clauses into the right to life under Article 21. The Supreme Court recognized environmental protection as an essential facet of the right to life, providing the constitutional legitimacy for statutory environmental assessment procedures.

²⁹ *Minister of Environmental Affairs v. Earthlife Africa*, 2017 (2) SA 1 (CC) (S. Afr.).

³⁰ *Id.*; C. Turpie et al., *Environmental Impact Assessment in South Africa*, 20 *Envl. Planning & Mgmt* 647 (2007).

³¹ The Environment (Protection) Act, No. 29 of 1986, INDIA CODE (1986).

³² Indian Constitution, art. 48A.

³³ *Id.* art. 51A(g).

³⁴ *Subhash Kumar v. State of Bihar*, (1991) 1 S.C.C. 598 (India).

³⁵ *M.C. Mehta v. Union of India*, (1987) 1 S.C.C. 395 (India).

³⁶ *Vellore Citizens' Welfare Forum v. Union of India*, (1996) 5 S.C.C. 647 (India).

Legislative Foundations:

The main piece of legislation that gives the federal government the authority to take action to protect the environment is the Environment (Protection) Act, 1986 (EPA).³⁷ The Central Government is authorised by Section 3 of the EPA to develop guidelines and protocols for environmental clearances, among other rules and notifications. This law is the source of authority for the Environment (Protection) Rules, 1986 and later EIA Notifications.

Other complementary legislations supporting the EIA framework include:

- The Water (Prevention and Control of Pollution) Act, 1974³⁸,
- The Air (Prevention and Control of Pollution) Act, 1981³⁹ and
- The Biological Diversity Act, 2002 which integrates biodiversity concerns into environmental decision-making.⁴⁰

Evolution of the EIA Framework in India:

a. Early Administrative Initiatives (1978–1993):

When the Department of Science and Technology implemented project appraisal for river valley projects in 1978, the Indian EIA process got its start informally.⁴¹ Through an Office Memorandum (1982), the Ministry of Environment and Forests (MoEF) formalised EIA by mandating that project proponents provide environmental data for approval.

b. The 1994 EIA Notification:

In 1994, the Environment (Protection) Act of 1986 was used to issue the first comprehensive statutory notification.⁴² It made environmental clearance mandatory for 29 categories of developmental projects. Although the 1994 framework included screening, scoping, and

³⁷ Environment (Protection) Act, No. 29 of 1986, S. 3.

³⁸ The Water (Prevention and Control of Pollution) Act, No. 6 of 1974.

³⁹ The Air (Prevention and Control of Pollution) Act, No. 14 of 1981.

⁴⁰ The Biological Diversity Act, No. 18 of 2002.

⁴¹ Ministry of Environment & Forests, *Manual on EIA Guidelines* (1982).

⁴² Notification S.O. 60(E), Gazette of India, Jan. 27, 1994.

appraisal procedures, it was criticised for having little transparency and insufficient public involvement.⁴³

c. The 2006 EIA Notification:

The 1994 edition of the EIA Notification was superseded by the 2006 version, which adhered to decentralised governance principles and international best practices.⁴⁴ It categorizes projects into:

- **Category A:** Projects requiring clearance from the Central Government (MoEFCC), and
- **Category B:** Projects requiring clearance from the State Level Environmental Impact Assessment Authorities (SEIAAs).

The 2006 Notification strengthened provisions for:

- Public consultation (including public hearing and written submissions);
- Environmental Management Plans (EMP);
- Cumulative Impact Assessments; and
- Post-clearance monitoring mechanisms.

Despite these advancements, implementation remains challenged by procedural delays, weak enforcement, and inadequate capacity at state levels.⁴⁵

The EIA process involves several institutional actors:

- Project Proponent is the one who is responsible for preparing the EIA Report and Environmental Management Plan.
- Expert Appraisal Committee (EAC) evaluates Category A projects at the national level.

⁴³ Id.

⁴⁴ Notification S.O. 1533(E), Gazette of India, Sept. 14, 2006.

⁴⁵ Centre for Science and Environment, *Analysis of the EIA Notification 2006* (2007).

- State Level Expert Appraisal Committees (SEACs) and SEIAAs review Category B projects at the state level.
- Public Authorities ensure dissemination of information and public hearings under Rule 7(iii) of the 2006 Notification.⁴⁶

The public consultation process is pivotal, ensuring procedural fairness and transparency. Judicial scrutiny, as in *Samarth Trust v. Union of India*,⁴⁷ has underscored the requirement of meaningful public participation and the right to environmental information.

The features of EIA regime have been greatly influenced by judicial rulings. In *Lafarge Umiam Mining Pvt. Ltd. v. Union of India*, the Supreme Court ruled that environmental clearance must be predicated on a comprehensive evaluation that strikes a balance between ecological and developmental needs.⁴⁸ The necessity of post-clearance monitoring and compliance was reaffirmed by the case of *Sterlite Industries (India) Ltd. v. Union of India*.⁴⁹

One of the most important key forums for ensuring procedural compliance is the National Green Tribunal (NGT). The precautionary concept and the polluter-pays principle were highlighted by the Tribunal in *Sterlite Industries (Thoothukudi District) v. Tamil Nadu Pollution Control Board* as essential components of the EIA procedure.⁵⁰

Policy changes like the Draft EIA Notification, 2020, which aims to expedite clearances and implement post-facto approvals, have sparked debate because they may weaken environmental protections and limit public involvement.⁵¹

International and Comparative Context:

The Rio Declaration's (1992) international principles of sustainable development, especially Principle 17, which requires environmental assessment as a national tool, are in line with India's EIA system.⁵² It also reflects commitments made under Agenda 21 and the 1992 Convention

⁴⁶ Id. Rule 7(iii).

⁴⁷ *Samarth Trust v. Union of India*, 2010 SCC Online Del 1422 (India).

⁴⁸ *Lafarge Umiam Mining Pvt. Ltd. v. Union of India*, (2011) 7 S.C.C. 338 (India).

⁴⁹ *Sterlite Industries (India) Ltd. v. Union of India*, (2013) 4 S.C.C. 575 (India).

⁵⁰ *Sterlite Industries (Thoothukudi District) v. Tamil Nadu Pollution Control Board*, 2019 SCC OnLine NGT 81.

⁵¹ Draft EIA Notification, 2020, Ministry of Environment, Forest and Climate Change.

⁵² Rio Declaration on Environment and Development, June 14, 1992, U.N. Doc. A/CONF.151/26 (Vol. I).

on Biological Diversity.

In contrast to the United States' NEPA (1969) and the European Union's Directive 2014/52/EU, India's system is strong in terms of statutory design but relatively poor in terms of enforcement and transparency.⁵³ India's EIA governance might be improved by incorporating insights from Brazil's licensing procedure and South Africa's participatory model.

IV. CONCLUSION AND RECOMMENDATIONS:

The Recommendations shall include:

1. **Strengthening Institutional Autonomy:** It is recommended that the State Environmental Impact Assessment Authorities (SEIAAs) and Expert Appraisal Committees (EACs) be reorganised as autonomous statutory organisations with fixed tenure, transparent appointment processes, and professional expertise.⁵⁴ This independence will reduce political and administrative meddling in environmental decision-making.
2. **Enhancing Public Participation:** Instead of just holding public hearings once, the EIA process should institutionalise ongoing stakeholder interaction.⁵⁵ To guarantee inclusivity, particularly for marginalised and indigenous people, measures including community monitoring committees, bilingual information access, and digital disclosure of EIA reports must be required.
3. **Mandatory Third-Party Audits and Post-Clearance Monitoring:** Independent third-party environmental audits ought to be mandated by the MoEFCC for Category A and high-impact Category B projects. ⁵⁶In order to improve accountability and compliance with mitigating measures, post-clearance monitoring reports must be posted online on a regular basis.
4. **Capacity Building and Technical Expertise:** Institutions at the state and district levels ought to be provided with specialised training and materials for the technical assessment of

⁵³ Council Directive 2014/52/EU, 2014 O.J. (L 124) 1; National Environmental Policy Act, 42 U.S.C. § 4321 (1969).

⁵⁴ Centre for Policy Research, *Strengthening Institutional Autonomy in Environmental Governance* (2022).

⁵⁵ *Samarth Trust v. Union of India*, 2010 SCC Online Del 1422 (India).

⁵⁶ MoEFCC, *Standard Operating Procedure for Post-Clearance Monitoring* (2021).

intricate projects.⁵⁷ Programs for collaboration with universities and foreign organisations could improve proficiency in fields like social effect assessment, hydrological modelling, and geographic analysis.

5. **Judicial and Policy Synergy:** To create an Environmental Rule of Law Index that assesses public trust, transparency, and procedural compliance, the legislative and courts must collaborate.⁵⁸ This would act as a standard by which to measure the efficacy of environmental governance institutions.

EIA is not an end in itself but a means of operationalizing environmental democracy. A socio-legal approach that links human rights, procedural fairness, and ecological ethics and ensures that environmental assessments transcend mere bureaucratic formality. India's challenge lies in transforming its EIA process from a documentary ritual to a deliberative tool of sustainable governance. By adopting comparative best practices and ensuring effective institutional reform, India can truly achieve a balance between developmental growth and ecological preservation, fulfilling both domestic constitutional duties and international environmental obligations.

⁵⁷ NITI Aayog, *Capacity Development for Environmental Management*, Policy Paper (2020).

⁵⁸ UNEP, *Environmental Rule of Law: First Global Report* (2019).