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ENVIRONMENTAL IMPACT ASSESSMENT IN INDIA: FROM PROCEDURAL CLEARANCE TO EFFECTIVE ENVIRONMENTAL GOVERNANCE

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Abstract

Environmental Impact Assessment (EIA) is intended to identify potential environmental harm before a project begins and to help decision-makers determine whether the project should proceed and under what conditions. India's framework, principally under the Environment (Protection) Act, 1986, and the EIA Notification, 2006, provides for prior environmental clearance, expert appraisal, public consultation, and compliance monitoring. Yet the existence of these procedures does not, by itself, ensure that environmental risks are identified or controlled. This article argues that accountability is often lost as information moves from the EIA report to public consultation, appraisal, clearance conditions, and monitoring. Drawing on legislation, audit findings, published studies, judicial decisions, and selected project examples, it develops a continuity-of-accountability approach: the risks identified at one stage must remain visible and actionable at every subsequent stage. It then considers how geospatial tools and climate assessment can improve this process and proposes reforms designed to connect evidence with reasoned decisions, enforceable conditions, and verified compliance.

Keywords: Environmental Impact Assessment; environmental clearance; public participation; environmental governance; precautionary principle; post-facto clearance; climate assessment.

1. Introduction and historical context

Environmental decisions in India must respond to competing demands for infrastructure, employment, energy and ecological protection. EIA provides a way to consider those demands before a project creates facts on the ground. It asks what may be harmed, how likely and serious the harm may be, whether a less damaging alternative exists, and what safeguards could reduce

the risk. A road proposed near a wetland, for example, should be assessed not only for construction impacts but also for changes to drainage, habitat, traffic, and the livelihoods of people who depend on the area. EIA cannot guarantee that every project will be harmless. Its purpose is to make likely consequences visible while the project's location and design can still be changed, and to ensure that any approval is accompanied by safeguards that can be checked later. The article examines whether India's legal and administrative processes fulfil that purpose.

The modern EIA approach is commonly associated with the United States National Environmental Policy Act of 1969 (NEPA), which established a formal process for considering environmental consequences in federal decision-making and took effect in 1970.¹ It reflected a broader shift from responding to damage after it occurred towards anticipating environmental consequences before public decisions were made. The idea gained international recognition in Principle 17 of the 1992 Rio Declaration, which called for environmental impact assessment, as a national instrument, for proposed activities likely to have a significant adverse impact and subject to a decision of a competent national authority.² These developments helped establish EIA as a means of informing decisions, rather than merely preparing a technical report for the file.

In India, the Environment (Protection) Act, 1986, provided the central statutory basis for the environmental clearance regime,³ and the first EIA Notification was issued in 1994.⁴ An amendment in April 1997 introduced public hearings for specified categories of projects. The EIA Notification, 2006, then reorganised the process and allocated appraisal responsibilities between central and state authorities. This history shows a gradual development from requiring prior clearance towards a more structured process for assessment and participation. At the same time, the regime continues to depend substantially on delegated legislation and administrative implementation. The central question is therefore whether its procedures operate early enough, rely on sound evidence, and genuinely influence the final decision.

Against this background, the central issue is not whether EIA is desirable in principle, but whether it works as a preventive system in practice. Timing is critical: once construction or operation has begun, changing a project may be more difficult, more expensive, and less

¹ National Environmental Policy Act of 1969, Pub. L. No. 91-190, § 102, 83 Stat. 852, 853 (1970) (codified as amended at 42 U.S.C. § 4332).

² Report of the United Nations Conference on Environment and Development, UN Doc. A/CONF.151/26 (Vol. I) (1992), Annex I, Rio Declaration on Environment and Development, Principle 17.

³ The Environment (Protection) Act, 1986 (29 of 1986), ss. 3, 6 and 25.

⁴ Ministry of Environment and Forests, Environmental Impact Assessment Notification, S.O. 60(E), dated 27 January 1994.

effective. Prior assessment, public participation and monitoring must therefore be understood as connected safeguards, not independent formalities.

India's general environmental clearance regime is based mainly on delegated legislation made under the Environment (Protection) Act, 1986, rather than a separate EIA statute. The 1994 and 2006 Notifications, together with subsequent amendments and related instruments, form the principal framework. This legal structure makes it especially important to distinguish a binding notification from a draft proposal or an administrative instruction. This distinction later became significant in disputes over post facto clearance.

The framework operates through a sequence of screening, scoping, public consultation, appraisal, clearance conditions and monitoring. Although each stage has its own legal function, the stages depend on one another. An omitted wetland in the report may never be discussed at the hearing; an unanswered objection may pass unexamined through appraisal; and a vague condition may be impossible to enforce. Responsibility is shared among project proponents, consultants, expert committees, regulatory authorities and monitoring bodies. Because proponents generally select and pay consultants, and because compliance may rely in part on reports submitted by the project itself, the system requires independent scrutiny, reasoned decisions, and public access to information. The article's central concern is how to keep responsibility visible across this sequence.

2. The statutory framework and its development

2.1 From the 1994 Notification to the 2006 framework

The 1994 Notification introduced prior clearance for listed new projects and certain expansions or modernisations. The 1997 amendment made public hearings mandatory for specified categories; they were not first introduced in 2006.⁵ The 2006 Notification reorganised the process and divided responsibilities between central and state authorities.⁶ These changes matter because a hearing can improve an assessment only if relevant information is disclosed in time and objections are considered before the decision is made.

For projects covered by the 2006 Notification, the proponent submits the documents required for the applicable assessment route, including an EIA report and, where required, an Environmental Management Plan. The relevant expert committee examines the proposal and

⁵ Ministry of Environment and Forests, Environmental Impact Assessment Notification (Amendment), S.O. 318(E), dated 10 April 1997.

⁶ Ministry of Environment and Forests, Environmental Impact Assessment Notification, S.O. 1533(E), dated 14 September 2006, paras. 2 and 7 and the Schedule, as amended.

recommends a course of action; the competent authority decides whether to grant clearance and, if so, under what conditions. Compliance reporting and monitoring follow. The legal sequence is designed to prevent harm, but that purpose can be achieved only if assessment precedes the activity and the later conditions are verified in practice.

2.2 The 2020 draft and later amendments

The Draft EIA Notification, 2020, proposed changes concerning violation cases, compliance reporting and public consultation.⁷ It remained a draft and did not replace the 2006 Notification, which has continued through amendments and related instruments. This distinction is more than technical: a draft does not, by itself, change the law, and an office memorandum cannot automatically displace a binding notification. Questions about the legal basis and limits of post facto clearance later came before the Supreme Court in *Vanashakti v. Union of India*.⁸

Post-facto clearance raises a deeper problem than late paperwork. Because EIA is intended to identify and prevent harm before work begins, an assessment undertaken after construction or operation may be unable to reconstruct the original baseline or restore alternatives that have already been lost. Whether any exception is legally available must therefore be assessed against the governing instrument and the regime's preventive purpose.

2.3 The procedural stages and why each matters

The stages of assessment explain why the quality of each step matters. Screening determines whether a proposal falls within the scheduled categories and which route applies. Scoping sets the terms of reference and should identify site-specific concerns involving air, water, land, biodiversity, social conditions and livelihoods, rather than relying on a generic template. Public consultation can add local knowledge; appraisal tests the evidence, alternatives and proposed Environmental Management Plan; the authority then decides whether to grant clearance and with what conditions. Monitoring compares actual performance with predictions and conditions. If any link is weak, later stages may inherit the error rather than correct it.

The applicable route also affects the depth of assessment. Category A projects are ordinarily appraised at the central level, while Category B projects are generally handled by State Environment Impact Assessment Authorities.⁹ B1 projects usually require a detailed EIA; B2

⁷ Ministry of Environment, Forest and Climate Change, Draft Environmental Impact Assessment Notification, 2020, S.O. 1199(E), Gazette of India, Extraordinary, Part II, Section 3(ii), dated 23 March 2020.

⁸ *Vanashakti v. Union of India*, 2026 INSC 761, W.P. (C) No. 1394 of 2023 and connected petitions, decided on 29 July 2026, paras. 80(i)–(x) and 81.

⁹ Environmental Impact Assessment Notification, *supra* note 6, paras. 2, 7 and the Schedule.

projects may be exempt from that study under applicable rules. These classifications determine the evidence expected before approval, but exemption from a detailed EIA does not eliminate other environmental obligations that continue to apply.

3. The Implementation Gap: From Evidence To Enforcement

3.1 The quality and independence of EIA reports

An EIA report is the main evidentiary basis for predicting a project's effects. Its value depends on reliable baseline data, appropriate seasonal coverage, transparent methods, and an honest account of uncertainty. A report that omits a wetland, understates water demand or ignores cumulative pollution can distort every later stage. Standardised formats may help comparison, but cannot replace site-specific investigation.

The proponent usually selects and pays the consultant who prepares the report. This creates a risk of conflict, even where no actual bias is proved. Accreditation, disclosure of interests, independent peer review for high-risk projects, and penalties for materially misleading reports can improve confidence. Regulators should be able to require supplementary fieldwork or reject reports that fail to meet the terms of reference.

The problem is not simply whether an impact appears somewhere in the report. It is whether the identified risk remains connected to a decision or action that can control it. A report may identify an impact without estimating its scale; a hearing may raise a concern without eliciting a reasoned response; and a clearance may list safeguards without explaining how compliance will be measured. When the record breaks at these points, accountability becomes difficult to locate.

Appraisal should test whether the report uses reliable data, explains uncertainty, considers the effects of nearby projects, compares realistic alternatives, and responds to significant objections. Conditions should be linked to the risks identified. For example, a requirement to monitor water quality should specify sampling locations, sampling frequency, parameters, applicable standards, reporting duties, and the action required if a limit is exceeded—a general direction to 'take adequate measures' leaves too much to later interpretation. The aim should be fewer, clearer and verifiable conditions, not longer clearance letters.

3.2 Public participation and environmental justice

Public consultation can reveal impacts that desk research or limited fieldwork may miss, including seasonal water shortages, access routes, livelihood dependence, and local ecological change. Its value depends on timely disclosure, accessible language, adequate notice, and a

genuine opportunity to respond. A hearing held after the project has effectively become inevitable cannot perform the same role as participation while alternatives remain open.

Where people are asked to comment only after a technical report is complete, they may lack the time or expertise to identify its omissions. Early engagement during scoping can help identify relevant issues; the formal hearing can then test the draft assessment. This should not become an excuse to bypass a hearing where the law requires one.

The test is not whether a hearing occurred, but whether local knowledge influenced the assessment. Submissions should be traceable through the final appraisal, which details which concerns were accepted or rejected and why, whether more evidence was required, and whether the design or conditions changed. Without that explanation, the authority cannot show that consultation informed its decision. Local knowledge is potentially relevant evidence, not merely an opinion to record.

3.3 Appraisal and clearance conditions

Expert Appraisal Committees and State Expert Appraisal Committees assess the technical record and advise the competent authority. Their effectiveness depends on relevant expertise, sufficient time, access to complete information, and a willingness to seek clarification where the record is inadequate. A committee's recommendation should not be treated as a substitute for the authority's own reasoned decision. Where important information is missing or a significant objection remains unanswered, the decision should explain why the proposal can nevertheless proceed or why it requires further assessment.

Clearance conditions should address identified risks and be verifiable. A condition to 'control pollution' is weaker than one specifying the parameter, location, standard, frequency of measurement, reporting duty and consequence of breach. Similar projects should be subject to consistent conditions unless the authority explains why site-specific risks justify a difference. The Environmental Management Plan should assign responsibility, timelines and resources for each safeguard.

3.4 Monitoring after clearance

EIA does not end when clearance is granted. Actual impacts must be compared with predictions and conditions, with inspections or independent sampling where risk warrants it. Compliance reports are useful, but cannot be the sole evidence where the proponent generates the data. Regulators need sufficient staff, access to monitoring information, and the power to require corrective action or impose consequences.

Weak monitoring also prevents learning. If authorities do not record whether conditions worked, later assessments cannot use that experience to improve predictions or standards. Public access to compliance reports, inspection findings and remedial directions can help communities and independent experts identify persistent problems.

Taken together, these weaknesses form a chain of failure: a poor report leaves a risk unidentified; inaccessible consultation fails to add local evidence; appraisal leaves important concerns unanswered; vague conditions cannot be measured; and weak monitoring allows harm to continue. The implementation gap is therefore not one isolated defect. It is the loss of information and responsibility as a project moves from assessment to operation. This diagnosis provides the basis for the continuity-of-accountability approach developed below.

3.5 A continuity-of-accountability approach

The proposed continuity-of-accountability approach assesses EIA by tracing each major risk through five connected links: reliable evidence, informed participation, reasoned appraisal, enforceable conditions, and verified monitoring. A risk identified in the report should be open to public scrutiny; the appraisal body should address objections; the final decision should explain the safeguard adopted or the reason for rejecting it; and monitoring should test whether the safeguard works. The approach does not add a new procedural stage. It asks whether the existing stages form a coherent record and produce a verifiable response.

Consider a hearing in which residents report seasonal water scarcity that the original report overlooked. Recording the objection is not enough. The appraisal body should test the claim against local and seasonal data; the clearance should set out an appropriate safeguard or explain why one is unnecessary; and later monitoring should determine whether the safeguard protects local access to water. A condition requiring water to be ‘adequately managed’ is difficult to enforce unless it identifies measurable limits, monitoring frequency, and responsibility for corrective action.

A regulator should therefore maintain a public record linking major risks to the evidence supporting them, objections received, the appraisal body’s response, final conditions and subsequent compliance findings. Such a record would make it easier to identify recurring failures across projects and sectors. The contribution of this article is to treat accountability as a continuous obligation throughout the life of a project, rather than as a checklist completed when clearance is issued.

3.6 Applying the test to published evidence

Published audits and studies provide an initial test of this approach. The Comptroller and Auditor General's 2016 performance audit identified weaknesses in EIA reports, public consultation, clearance conditions and monitoring.¹⁰ A Vidhi Centre for Legal Policy review of more than 550 environmental clearances reported poor appraisal quality in 58 per cent of the projects examined.¹¹ These findings are not proof that every project fails, but they indicate that procedural compliance and substantive environmental scrutiny must be evaluated separately.

The reported figures reinforce this concern: the CAG audit found that 55 of the 216 projects examined had EIA reports that did not comply with their terms of reference (reported as 25 per cent).¹² It also identified delays at different stages of the process. These findings point in two directions at once: assessments may be delayed without becoming more reliable, while incomplete reports can undermine the decision even when the process moves quickly. The relevant question is therefore not speed alone, but whether each stage produces the information and action needed for the next.

3.7 Case studies: what implementation looks like on the ground

The following examples illustrate different aspects of the accountability problem. They should be read as case-specific illustrations, not as conclusive proof of the performance of the entire EIA system.

Delhi Metro Rail Corporation's own reporting describes environmental measures used during construction and operation, including energy-saving systems, dust controls, noise barriers, wastewater treatment, and plantation.¹³ This is an example of reported safeguards, not independent proof of their effectiveness. It nevertheless illustrates why safeguards should influence project planning and remain part of implementation, rather than appearing only as conditions on paper.

The Sterlite copper plant controversy in Thoothukudi illustrates the difference between receiving a clearance and controlling impacts over time. In *Sterlite Industries (India) Ltd. v.*

¹⁰ Comptroller and Auditor General of India, Report No. 39 of 2016, Report of the Comptroller and Auditor General of India on Environmental Clearance and Post Clearance Monitoring (Performance Audit), Union Government, Ministry of Environment, Forest and Climate Change (2017), ch. 2.

¹¹ Debadityo Sinha and Dhvani Mehta, Environmental Clearances and Monitoring in India: Report Card for the Ministry of Environment, Forest and Climate Change (Vidhi Centre for Legal Policy, 30 June 2017), available at: <https://vidhilegalpolicy.in/research/environmental-clearances-and-monitoring-in-india-report-card-for-the-ministry-of-environment-forest-and-climate-change/> (last visited 11 October 2026).

¹² *Sterlite Industries (India) Ltd. v. Union of India*, (2013) 4 SCC 575, paras. 39 and 42–43.

Union of India, the Supreme Court directed the company to pay ₹100 crore as compensation for pollution in the vicinity of the plant and for operating without renewed statutory consents for an extended period.¹² The wider dispute also involved questions about compliance and the consequences of continuing operations. The case illustrates why approval cannot substitute for ongoing supervision and why regulators must be able to respond when actual performance departs from legal requirements.

Samaj Parivartana Samudaya v. State of Karnataka, concerning illegal mining,¹³ highlights the need for lawful authorisation and effective scrutiny where extraction causes wider environmental harm. *Narmada Bachao Andolan v. Union of India*¹⁴ presents a more contested balance between development, environmental assessment, and expert decision-making: the Court allowed the Sardar Sarovar project to proceed subject to directions. Read together, these cases show that environmental governance involves both preventing unlawful activity and ensuring that decisions about major development are reasoned, evidence-based and subject to safeguards.

Across these examples, the decisive issue is not the mere existence of a report or clearance. It is whether environmental evidence shaped project design and official reasoning, whether conditions were specific enough to enforce, and whether actual impacts were monitored after approval. That distinction leads to the role of courts, which review both the legal process and the principles governing environmental decisions.

4. Judicial principles and the limits of retrospective clearance

Indian environmental jurisprudence addresses two related questions: what principles should guide decisions under uncertainty, and what should happen when the statutory process has not been followed. Judicial principles can help clarify the duties of authorities, but they do not create a single outcome for every project. The legal requirements, the quality of the record, and the circumstances of the proposed activity remain important.

4.1 Environmental principles and judicial review

The cases discussed below are most useful when read for the specific principle each contributes to environmental decision-making, rather than as interchangeable statements that every project must be treated alike.

¹³ *Samaj Parivartana Samudaya v. State of Karnataka*, (2013) 8 SCC 154, paras. 3–4 and 27–30.

¹⁴ *Narmada Bachao Andolan v. Union of India*, (2000) 10 SCC 664.

In *Vellore Citizens' Welfare Forum v. Union of India*, the Supreme Court recognised the precautionary and polluter-pays principles as essential features of sustainable development.¹⁵ For EIA, uncertainty about possible harm is a reason for careful assessment, not for ignoring the risk. *A.P. Pollution Control Board v. Prof. M.V. Nayudu* also highlights the importance of scientific expertise in environmental decision-making.¹⁶

Narmada Bachao Andolan v. Union of India illustrates the difficulty of reviewing major infrastructure projects where development claims, environmental assessments, and expert advice intersect. The Court permitted the Sardar Sarovar project to proceed subject to directions.¹⁷ The decision is often discussed as a reminder that courts may defer to experts and policy choices in some circumstances. Still, it also underscores the importance of ensuring that assessment, rehabilitation, and compliance obligations are addressed in the record.

Lafarge Umiam Mining (P) Ltd. v. Union of India concerned environmental and forest clearances for limestone mining in Meghalaya.¹⁸ Its relevance lies in the Court's scrutiny of environmental decision-making, institutional responsibilities, and the accountable exercise of statutory power, rather than in any broad proposition that the case invalidated a clearance merely because the hearing was mechanical.

In *Hanuman Laxman Aroskar v. Union of India*, concerning the proposed Mopa airport in Goa, the Court examined whether the appraisal addressed material issues and whether the decision was reasoned.²¹ Environmental clearance is not merely a technical endorsement: the authority must engage with relevant information and explain its conclusion. This supports a transparent appraisal record and clear reasons in the final decision.

4.2 Clearance after work has begun: the Vanashakti ruling

Post-facto clearance means approval is sought after a project has begun, contrary to the preventive logic of prior assessment. In *Alembic Pharmaceuticals Ltd. v. Rohit Prajapati*, the Supreme Court described ex post facto clearance as 'alien to environmental jurisprudence',¹⁹ underscoring the difficulty of treating prior appraisal as a mere formality that can be completed later.

On 29 July 2026, a three-judge Bench decided *Vanashakti v. Union of India*.²³ The Court held that prior environmental clearance under the 2006 Notification is mandatory and considered

¹⁵ *Vellore Citizens' Welfare Forum v. Union of India*, (1996) 5 SCC 647, paras. 11 and 13–14.

¹⁶ *A.P. Pollution Control Board v. Prof. M.V. Nayudu*, (1999) 2 SCC 718, paras. 40–43.

¹⁷ *Narmada Bachao Andolan v. Union of India*, supra note 14.

¹⁸ *Lafarge Umiam Mining (P) Ltd. v. Union of India*, (2011) 7 SCC 338, para. 119.

¹⁹ *Alembic Pharmaceuticals Ltd. v. Rohit Prajapati*, (2020) 17 SCC 157, para. 23.

the legal status of the 2017 Notification, which had created a limited, time-bound route for certain violation cases, and of the 2021 Office Memorandum, which had created a continuing administrative mechanism. The judgment must be read carefully: it distinguishes the governing requirement of prior clearance from the treatment of instruments and clearances already issued under the earlier scheme.

The Court held that the 2017 Notification was valid, narrowly tailored, and time-bound delegated legislation; it quashed the 2021 Office Memorandum prospectively because an administrative instruction could not create a perpetual route to post-facto clearance. Clearances already granted under either instrument remain valid unless individually challenged, and pending applications must be dealt with under the Court's directions; no fresh applications under the instruments may be entertained. The Court also barred future administrative orders authorising post-facto clearances, while leaving room for a valid notification under section 3 of the 1986 Act and for orders under Article 142 in appropriate cases. The ruling addresses both the prior-clearance rule and the consequences of past administrative action; it should not be read as a general permission to regularise projects after they begin.

The broader principle is that retrospective approval cannot become the ordinary alternative to prior assessment. Once work has started, the original ecological conditions may have changed, and less damaging alternatives may no longer be practical. Any exception must have a clear legal basis, a defined scope and safeguards that reflect the limits of what can still be assessed. Even where an exceptional scheme is legally permissible, an authority may be unable to reconstruct conditions that existed before construction. Any narrowly confined response should use the best available pre-construction records, provide appropriate consultation, identify continuing and irreversible impacts, and require enforceable remedial measures. These steps cannot erase a prior violation, but they may help prevent further harm while preserving the distinction between lawful prior clearance and retrospective treatment.

Vanashakti strengthens the case for clear legislation that protects prior assessment, disclosure, participation, reasoned decisions and enforcement from ad hoc dilution. It also shows why the legal status of each notification or administrative instrument must be stated precisely. The judgment is therefore relevant not only to post-facto clearance but also to the larger question of how stable and accountable the EIA framework should be.

5. Comparative lessons for Indian EIA

5.1 Assessment before approval and public scrutiny

Comparative law helps identify safeguards, but no foreign system can simply be transplanted

into India. The United States' National Environmental Policy Act (NEPA) embeds environmental review in federal decision-making and requires alternatives to be considered for covered actions.²⁰ In England, the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 require decision-makers to take environmental information and consultation responses into account.²¹ Despite differences in institutional design and legal standards, both approaches underscore the value of a record demonstrating how environmental information affected the decision.

For India, the practical lessons are that assessment should inform a decision before it is taken; disclosure of a consultant's qualifications does not, by itself, remove the conflict created when the proponent pays for the report; and the final record should explain how public comments and reasonable alternatives were treated. Changes to regulatory arrangements in other jurisdictions also illustrate the risks of leaving core safeguards entirely to subordinate rules. Basic duties should be legally stable, while technical guidance remains open to transparent revision.

5.2 Regional and cross-border effects

The Espoo Convention offers a further lesson for activities with likely significant transboundary effects: affected states should be notified and consulted.²² The same underlying principle applies within India when a project affects connected watersheds, airsheds, coastlines, or ecosystems across state boundaries. Assessment should follow the geography of the impact, rather than stop at the administrative boundary of a project or state.

6. Climate risk and the use of technology

6.1 Climate change as part of project assessment

Climate change adds a further dimension to the preventive purpose of EIA. Assessment should consider both how a project contributes to climate change and how climate change may affect the project and surrounding communities. Depending on the activity, this may require estimating greenhouse gas emissions, considering feasible lower-emission alternatives, and examining exposure to flooding, heat, water stress, extreme rainfall, or coastal change. Adaptation measures should be considered while the location and design are still open to

²⁰ National Environmental Policy Act of 1969, 42 U.S.C. § 4332(2)(C).

²¹ The Town and Country Planning (Environmental Impact Assessment) Regulations 2017, S.I. 2017/571 (England).

²² Convention on Environmental Impact Assessment in a Transboundary Context, 1989 U.N.T.S. 309, adopted 25 February 1991, arts. 3 and 5.

alteration. Cumulative assessment is also important when several projects affect the same airshed, watershed, coastline, or sensitive region. The Paris Agreement does not prescribe a single project-level EIA method;²³ domestic rules and sectoral guidance must specify when and how climate considerations affect appraisal and approval.

A 2026 comparative study of EIA systems in Latin America and Asia found uneven and often limited integration of climate considerations, supporting the need for clearer requirements.²⁴ Carbon-footprinting tools and climate-risk data can assist, but tools alone do not determine the legal consequences of the information. Guidance should explain when emissions, vulnerability, resilience, and cumulative effects must be assessed, and how those findings should shape project design, conditions, or refusal.

6.2 Geospatial tools and digital traceability

Geographic Information Systems (GIS), satellite imagery and public monitoring data can improve the evidence on which EIA depends. GIS can combine layers showing land use and cover, drainage, watersheds, forests, wetlands, settlements, transport links, and ecologically sensitive areas.²⁵ Maps should be dated and georeferenced, identify their sources and scale, and show the project boundary, buffer area, sensitive receptors, hydrological links, and nearby projects. Seasonal gaps and uncertainty should be disclosed. When layered maps are publicly accessible, experts and affected communities can more readily identify omissions and test whether the likely impacts extend beyond the project site.²⁶

These tools are most useful when connected to the accountability record. A centralised EIA GIS database could link each mapped risk to its supporting evidence, public objections, appraisal response, clearance condition, and later monitoring results.²⁷ Remote sensing can help track land-cover change, deforestation, wetland degradation, and shoreline movement; drones can support targeted inspections; and sensors can contribute to air- and water-quality

²³ Paris Agreement, adopted 12 December 2015, arts. 2, 4 and 7.

²⁴ Emily Bradeen, Sam Bookman and Tiffanie Chan, *Integrating Climate Considerations into Environmental Impact Assessments: Lessons from Latin America and Asia* (Grantham Research Institute on Climate Change and the Environment, 30 March 2026), p. 4, DOI: 10.21953/researchonline.lse.ac.uk.00137799.

²⁵ National Informatics Centre, Ministry of Electronics and Information Technology, Government of India, “PARIVESH”, available at: <https://www.nic.gov.in/project/parivesh/> (last visited 11 October 2026).

²⁶ Terry Sohl et al., *An Interagency Perspective on Improving Consistency and Transparency of Land Use and Land Cover Mapping*, U.S. Geological Survey Circular 1549 (2025), available at: <https://pubs.usgs.gov/publication/cir1549/full> (last visited 11 October 2026).

²⁷ Ministry of Environment, Forest and Climate Change, Government of India, “PARIVESH Portal Provides a ‘Single Window’ Solution for an Expeditious, Transparent and Effective Decision Making without Compromising on Environmental Safeguards”, Press Information Bureau, 27 March 2023, available at: <https://www.pib.gov.in/Pressreleaseshare.aspx?PRID=1911130> (last visited 11 October 2026).

monitoring.²⁸ AI analytics may assist in screening for pollution dispersion or cumulative impacts, while tamper-evident logs may help preserve the history of compliance records.²⁹ None of these technologies should replace fieldwork, expert judgment or community knowledge. Their role is to make evidence more transparent, comparable and open to independent verification.³⁰

7. Reforming EIA around accountability

7.1 Improve the evidence and independence of review

The first reform should address the quality and independence of evidence. Proponents should disclose how consultants are selected, and any relevant interests; high-risk projects should receive independent peer review; and regulators should be able to require additional fieldwork or reject reports that fail to meet the terms of reference. Accreditation can establish minimum competence, but it cannot, by itself, remove the conflict created when the proponent pays for the assessment.

The appraisal record should then explain the material risks, alternatives and objections considered. Where information is missing, the committee should specify what must be supplied before it recommends a decision. Reasons should be project-specific rather than copied from earlier clearances. This explanation makes the decision open to scrutiny and provides a basis for checking whether the final conditions address the identified risks.

7.2 Make consultation meaningful and decisions clear

Public consultation should begin early enough to inform scoping and continue through the legally required process. Notices, reports and summaries should be accessible in relevant local languages, with sufficient time for communities to respond. The final decision should identify the principal objections, the authority's response, and any resulting changes to the project design or conditions. Participation is meaningful when it can influence the decision, not merely when attendance is recorded.

²⁸ Elijah W. Ramsey III, *Using Remote Sensing to Monitor Global Change*, U.S. Geological Survey Fact Sheet 096-97 (1997), available at: <https://doi.org/10.3133/fs09697> (last visited 11 October 2026).

²⁹ Meaghan Emory, "Monitoring the Retreat of Estuarine Shorelines", U.S. Geological Survey, 3 October 2023, available at: <https://eros.usgs.gov/doi-remote-sensing-activities/2022/usgs/monitoring-retreat-estuarine-shorelines> (last visited 11 October 2026).

³⁰ United Nations Environment Programme, *Guidelines for Conducting Integrated Environmental Assessments* (2017), available at: <https://wedocs.unep.org/handle/20.500.11822/33498> (last visited Oct. 11, 2026).

7.3 Enforce conditions and publish compliance information

Clearance conditions should be measurable, time-bound and linked to the risks identified in the assessment. They should specify the relevant parameters, locations, monitoring frequency, responsible bodies, and consequences of a breach. Independent sampling is particularly important where the potential harm is serious or previous compliance has been poor. These safeguards require regulators with adequate staff, technical capacity, and authority to demand corrective action.

A public record should follow the project throughout its life. GIS layers, consultation submissions, appraisal minutes, clearance conditions, and monitoring results should be linked rather than stored as disconnected files. Such a record would allow regulators and affected people to see whether a mapped risk led to a condition and whether later evidence shows that the condition worked. It would also help identify patterns of non-compliance and improve future assessments.

7.4 Answering the case for speed

A common objection is that stronger safeguards will delay infrastructure. The CAG's stage-wise table records that terms of reference were issued within the prescribed 60 days in 28 of the 180 cases tabulated for that stage (approximately 15.6 per cent). Environmental clearance was granted within 105 days in 23 of 208 cases (approximately 11 per cent).³¹ Yet the reported findings on appraisal quality suggest that faster processing does not necessarily produce better scrutiny. Speed and quality are separate questions: an incomplete clearance can shift costs to litigation, remediation, and harm to affected communities. The answer is not to add steps indiscriminately, but to identify missing evidence early and hold each stage accountable.

Many proposed reforms would organise existing responsibilities rather than create duplicate procedures. A public response record makes appraisal visible; a linked digital file makes existing information traceable; and early engagement improves scoping rather than requiring a second hearing. Independent review and sampling do add costs, so they should be proportionate to risk and focused on projects with potentially serious impacts. Regulators should publish data on processing times, reasons for delays, and environmental outcomes to assess the effects of reform. The objective is a process that is both timely and substantively reliable.

³¹ Comptroller and Auditor General of India, *Report No. 39 of 2016: Environmental Clearance and Post Clearance Monitoring* (Performance Audit, Union Government, Ministry of Environment, Forest and Climate Change, 2017), ch. 2, Table 2.3, p. 11.

7.5 *A statutory footing*

A dedicated EIA statute would provide a more stable foundation for these duties. Disputes over post-facto clearance illustrate the uncertainty that can arise when core requirements depend on notifications and office memoranda. Legislation should protect prior assessment, disclosure, public participation, reasoned decisions, monitoring, and enforcement from ad hoc dilution, while allowing technical standards to be updated through transparent rules. A separate Act would not guarantee better outcomes on its own, but it could clarify institutional authority, responsibilities, and minimum enforceable safeguards.

8. Conclusion

India's EIA framework contains important safeguards, but their value depends on whether assessment, participation, appraisal, conditions and monitoring remain connected. The evidence and cases discussed in this article show how a formally complete process can still fail when a report omits risks, public concerns disappear from the record, conditions are vague, or compliance is not independently checked. Environmental governance should therefore be judged not by the number of documents produced, but by whether information and obligations carry through the project's life.

Judicial review has reinforced the preventive purpose of environmental assessment, but litigation cannot substitute for capable administration. *Vanashakti* confirms the centrality of prior clearance under the 2006 Notification and rejects an open-ended administrative route to post-facto approval, while addressing the status of earlier instruments and existing clearances. It is not a general licence to regularise projects after they begin. Its wider lesson is that exceptions require lawful authority, defined limits, and attention to the purpose of prior assessment.

The continuity-of-accountability approach can be expressed through five linked questions: was the evidence reliable; could affected people contribute; did the authority explain its decision; do the conditions address the risks; and is compliance independently verified? A failure at one stage should prompt correction before it undermines the rest of the process.

Keeping these links visible would connect legal procedure to EIA's central purpose: identifying environmental harm early enough to prevent it, reduce it, or give clear reasons for refusing to do so.