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ARTICLE

Precautionary Principles of Sustainability versus Promotion of the Ease of Doing Business in the Proposed EIA Regulation in India: A Critical Analysis and Application of an Ex-Ante Framework to Review the Regulation

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ABSTRACT

The tenets of environmental policy evolved in India and how precautionary principles of sustainability are sidelined in the draft EIA regulation 2020 are analyzed. The emphasis on exempting several categories of projects from the EIA requirements and public consultation, standardization of sector-specific terms of reference and environmental clearance conditions, and decentralization of the decision-making to simplify and fast-track the environmental clearance procedure for development projects is apparent. The list of projects/activities requiring prior environmental clearance and the procedures reveal that promoting the ease of doing business scores over precautionary principles. Efforts to increase the effectiveness and improve transparency in monitoring the implementation of environmental clearance conditions are visible. Still, the prime issues of improving the efficiency and efficacy of the EIA framework and institutional reforms in the EIA system need to be earnestly addressed. The evaluation using an ex-ante framework unveils the areas needing meticulous attention to revamp the EIA regulation.

Keywords: EIA effectiveness; EIA follow-up; EIA framework; EIA policy; EIA system; Scoping

1. Introduction

Environmental impact assessment (EIA) is a dynamic process because the experience of its implementation is often used along with new knowledge to mold the future framework of the EIA for sustaina-

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bility. Legal reform processes periodically target EIA systems to strengthen and improve them further [1]. The issue of development is always at the core of a country's policy with low- or moderate-income levels, and EIA is generally considered a stumbling block to investments in development projects, even though the *ex-ante* evaluation of environmental issues helps ensure that the economic growth is environmentally sustainable [2-4]. A declared goal of many governments internationally appears to make environmental and other impact assessments faster and more straightforward and put them 'on a fast track' [5]. However, EIA scholars apprehend that such changes and so-called "refinements", "reforms", or "simplification" affect accomplishing goals and benefits of the EIA [6-8]. Strategic environmental assessment is generally recommended to address developmental concerns at the levels of policy, plan, and program to determine the available resources and options and to assess environmental and social impacts [9-14]. Environmental policies, including EIA-related regulations in developing countries, are primarily driven by international environmental organizations, globalization, international development banks, and the international scientific community [15,16], irrespective of the level of backing from the domestic players and the scale of environmental degradation taking place. An exhaustive review of the origin and development of EIA and current issues in EIA, viz. theory, practice, and effectiveness [17], are documented. Earlier, a detailed review of the literature on the evaluation of EIA systems [18] was also reported. The key areas identified [19] to improve the project-level EIA process, viz. scoping, determination of the significance of impacts, EIA review, and monitoring and follow-up, are discussed [20] in the Indian context. EIA practices in India and weaknesses in the regulatory framework and its implementation are reported [20-23].

The Directive Principles of the State Policy under the Indian Constitution [24], Article 48A states that "the state shall endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country", and Article 51(A)(g) states that "it shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers, and wildlife and to have compassion for living creatures." The Environment (Protection) Act 1986, an 'umbrella' legislation, was enacted in the aftermath of the Bhopal disaster to implement the decisions of the United Nations Conference on the Human Environment related to the protection and improvement of the human environment and the prevention of hazards to human beings, other living creatures, plants, and property. The Act empowers the Federal Government to issue directions and notify regulations from time to time to achieve the objective. The principal objectives of the National Environmental Policy [25] are the conservation of critical environmental resources, intra-generational equity-livelihood security for the poor, inter-generational equity, integration of environmental concerns in economic and social development, efficiency in environmental resource use, environmental governance, and enhancement of resources for environmental conservation.

In the case of Vellore Citizens Forum [26], the Supreme Court of India observed that the "precautionary principle" and the "polluter pays principle" are part of the environmental law of the country. These principles are essential features of sustainable development. The principles, viz. "environmental protection is an integral part of the development process" and "the precautionary approach", among others, guided the EIA framework in India, which has evolved over the last three decades. While river valley projects came under the ambit of examination from an environmental angle in 1977, followed by major public sector projects, environmental approval in India was mandated [27] for the specified projects exceeding specific investment thresholds. The EIA regulation is not a full-fledged Act passed by the Indian parliament. Instead, it is notified by the Ministry, drawing powers under the Environmental (Protection) Act, 1986. It is a federal regulation and a two-tier mechanism is followed for its implementation at the federal and state levels. Based on the experience gained in implementing the EIA framework, the notification was reengineered in the form of a more

comprehensive regulation [28] having distinct features such as a) introduction of screening and scoping for the preparation of EIA reports, b) prescribing timeframe for public consultation and the entire EIA process, c) preparation of rapid EIA reports using the primary baseline data generated over one season or comprehensive EIA reports using the data generated over all the seasons over the year as decided by the authority prescribing terms of reference (TOR) to conduct EIA, and d) a two-tier mechanism for appraisal of EIA reports—category A projects at the federal level and category B projects at the state level and the concomitant decision-making.

2. The objective of the study and methodology

There has been widespread criticism of the draft EIA regulation [29], henceforth referred to as a draft. The concerns include policy weakening for environmental protection [30], diluting the EIA process and encouraging violations [31], reduced regulations and increased exemptions [32], institutionalizing ex post facto clearance [33], reduced space for public consultation, and exemption from public consultation to transboundary projects [34], etc. Environmentalists thus consider it a rubber stamp that legitimizes environmentally degrading projects, given that the rejection rate under the current EIA regime has been almost zero. The principle of the doctrine of non-regression is not adhered to even though the present status of the draft is not known after its validity was extended due to the pandemic. It was translated into regional languages as per the directions of the Delhi High Court. Given that the draft reflects the thinking of the political leadership in the country, an exhaustive and comprehensive investigation was considered necessary to comprehend the tenets of the environmental policy evolved in India and how the precautionary principle is imbibed into the draft vis-a-vis the prevailing regulation [28], which is proposed to be superseded, for environmental protection for next-generation EIA [35].

The methodology used is based on a broad literature review, the comparison and in-depth analysis of the regulatory provisions for the standard stages [36] in the project-level EIA process, viz. screening, scoping, EIA report preparation, public participation, EIA review, decision-making, and EIA follow-up in the draft and the earlier regulations. **Table 1** compares the categorization of projects listed in the schedule of the three EIA notifications issued so far in India—the earlier [27], the prevailing [28], and the draft [29] ones for mandatory environmental clearance. Further, the prevailing and the draft EIA regulations are evaluated using the *ex-ante* framework [35] that was employed to evaluate the impact assessment laws proposed in Canada [37] and Brazil [38]. The original framework consisting of 10 themes is used, but 50 good practice elements, reflecting the breadth of the EIA, are increased to 55 good practices to suit the Indian context. Three good practices are added under scoping- differentiating greenfield and brownfield projects, specifying cumulative effects assessment and meaningful risk assessment integrated with the environmental management program (EMPg). A good practice is modified to integrate biophysical and social impacts. Two good practices are added under impact assessment, and EIA report preparation-justification of criteria to select impact identification methods and implementable EMPg. The need for additional good practices arose from the SWOT analysis of the Indian EIA system. The findings and evaluation of the good practice elements in the EIA practice are summarized in **Table 2**. The 0-3 scale is used to evaluate the extent to which the good practice criteria are met in the regulations; 0: not addressed, 1: addressed with major inadequacies, 2: addressed with minor adequacies, and 3: strongly addressed.

3. Findings from the critical examination of the draft EIA regulation and discussion

The draft EIA regulation was framed to consolidate numerous amendments issued from time to time to the prevailing notification, and directions and orders of the High Courts, National Green Tribunal, and Supreme Court besides incorporating the imple-

mentation experience. The distinct features of the draft regulation include a) defining the terms used, b) introducing a third-tier mechanism at the district level for the specified mining projects, and empowering the local bodies, viz. municipalities, development authorities, and district panchayats to examine the specified projects of buildings and construction; c) increasing the threshold limits of some projects of category A; d) carving out a new category of projects, B2 from the earlier category B and encompassing some medium-scale enterprises into it; e) removing several projects including specific small- and micro-scale industries from the purview of mandatory EIA clearance; f) exempting some projects including expansion/modernization of the existing projects, especially those not requiring any additional land acquisition, from the mandatory public consultation; g) more transparent and improved mechanism of post-environmental clearance (EIA follow-up); etc. Like the prevailing regulation, there is reliance on the pre-feasibility reports for project-related information. The EIA consultants also rely on the pre-feasibility reports for the project description, mass balance, water balance, etc. even though the students of project management understand that the pre-feasibility report of a project contains broader aspects of the project and financials and detailed and precise information is generally not captured at that early stage of the project lifecycle. The draft overlooks that legal instrument is the main influencing factor for the EIA effectiveness, and there exists a complex interaction between the elements related to the EIA system itself, such as the mandatory requirement of conducting EIA, and governance mechanism and its application in practice, i.e. the quality of the environmental assessment, appraisal mechanism, and follow-up [39]. The standard stages of the EIA process are discussed below concerning the distinct features of the draft.

3.1 Screening

The findings on the unique features of the screening process in the draft are discussed below:

Schedule of projects requiring prior environmental clearance

1) Threshold limits for category A projects of mining, river valley hydroelectric power generation, irrigation, thermal power plants using petroleum coke, diesel, and other fuels, mineral beneficiation, and distilleries are increased.

2) Slurry pipelines for transporting ores, including coal and lignite, are added as category A projects, and lead-acid batteries, excluding assembling and charging of lead-acid batteries and coal tar processing, are treated as category B projects.

3) A new project classification, viz. pelleting, briquetting, and agglomeration, is added under mineral beneficiation. Some activities are added in the existing classification, viz. a) 'cement grinding' to cement, b) 'calcination plants' to coke oven plants, c) 'molasses-based manufacturing and biofuels' to molasses, d) 'expressways' and 'elevated roads' to highways, and e) 'common bio-medical waste treatment' to common hazardous waste treatment, storage and disposal facilities.

4) The aerial ropeway projects are removed from category B projects and split into projects at high altitudes and in the notified ecologically sensitive areas as category A and the others as category B2 projects.

5) Some projects are carved out from category A as category B projects, viz. i) single super phosphate without sulfuric acid manufacture from the chemical fertilizers sector, ii) leather/skin/hide processing without tanning and located within an approved industrial estate, and iii) pesticides (technical) and pesticide-specific intermediates located in the notified industrial estate.

6) Construction and building projects having 20,000-50,000 sq m built-up areas for residential and commercial purposes and 50,000-150,000 sq m for industrial sheds, educational institutions, hostels, and hospitals are reclassified as category B2 projects.

7) Category B2 is carved out from category B1 for specific projects, viz. a) mining in the lease area of less than 25 hectare for minor minerals; b) irrigation for 2,000-10,000 hectare of culturable command area; c) non-toxic secondary metallurgical processing

involving operation of furnaces only having capacity 30,000-60,000 mtpa and located within approved industrial estates, and the medium scale units; d) standalone cement grinding/blending having less than 1million mtpa capacity, all standalone grinding units transporting raw materials and products through rail mode, and the medium scale units; e) chlor-alkali having less than 300 mtpd capacity located within the approved industrial estate; f) petroleum products and petrochemical-based processing medium scale units; g) medium scale units manufacturing synthetic organic chemicals; h) distilleries- country liquor based on Mahuwa flower less than 5 KLD, and the medium scale units; i) integrated paints manufacturing medium scale units; and j) paper manufacturing from waste paper, recovered paper and ready pulp involving processes like deinking, bleaching, decolorizing, and the medium scale units.

8) Several projects get exempted from the provisions of seeking prior environmental clearance, viz.: a) minor irrigation for less than 2,000 hectares; b) micro and small scale units of i) mineral beneficiation, pelleting, briquetting and agglomeration, ii) metallurgical (ferrous and non-ferrous), iii) cement and cement grinding, iv) petroleum products and petrochemical-based processing, v) synthetic organic chemicals, vi) integrated paints manufacturing, and vi) pulp and paper manufacturing; c) authorized recycling units, having furnace capacity less than 30,000 mtpa, standalone rolling mills and forging units of less than 500 mtpd capacity, and secondary processing of all non-toxic metals having capacity less than 5000 mtpa; d) standalone granulation of SSP, neem coating and fortification of fertilizers within the sanctioned capacity; e) products from polymer granules; f) projects/activities involving only a single-stage unit process such as sulfonation, sulfation, or chlorination except nitration; f) paper manufacturing from waste paper, recovered paper and ready pulp not involving deinking, bleaching and decolorizing; g) airstrips not involving bunkering/refueling facility and air traffic control; h) expansion of state highways except in hilly terrain at more than 1000 m above mean sea level, i) maintenance dredging if it formed part of the original project; and j) isolated storage and handling of hazardous chemicals.

9) The provision of maintaining a buffer zone of 10 km from the boundary of the protected areas, critically polluted areas, eco-sensitive areas, and interstate and international borders that were mandated earlier will not apply to locate the projects exempted from the EIA provisions.

10) The projects concerning national defense and security or *involving other strategic considerations* "as determined by the Federal Government will not be treated as category 'A' projects, and information relating to such projects shall not be placed in the public domain".

Project categorization

Like the current regulation, the categorization of projects is based on the project size criteria, not the potentially significant impacts or risks criteria. A large number of projects/activities are exempted from the provisions of the EIA regulation. However, including some new projects, such as slurry pipelines and lead acid batteries, in the list of projects requiring prior environmental clearance, and adding some related activities/projects, such as pelleting, calcination, and common biomedical waste treatment, is a positive sign of adhering to a precautionary approach for environmental protection and should help strengthen the screening stage of the EIA process. But the removal of isolated storage of hazardous chemicals from the purview of environmental clearance appears to be an environmentally retrograde step as the storage of large quantities of petroleum products and other hazardous substances at depots and locations other than the industry and port, especially at isolated locations to facilitate distribution to the consumers has environmental risk potential. Given the incidents of disasters due to major fires at such installations and the transport of toxic emissions over long distances, such projects should be under the mandatory environmental clearance process. Further, the rationale for reclassifying some projects, such as pesticides from category A to B1 and chlor-alkali from category B1 to B2 for the

projects proposed in the notified industrial areas, is difficult to comprehend.

Carving out specific projects, including medium-scale units from category B to B2, and exempting micro- and small-scale projects from seeking mandatory environmental clearance appears to be based on a misplaced premise that there exists a direct correlation between the capital investment in a project, irrespective of project typology, and the potential environmental consequences. Using such a criterion for screening the projects returns the clock to the previous regulation, which mandated environmental clearance based on the investment criterion with some exceptions, as observed in **Table 1**. Many small-scale industries use as well as produce a variety of hazardous and toxic organic chemicals [40,41]. These industries have the potential to cause environmental impacts such as contamination of soil and water resources, air pollution, and environmental risks due to hazardous substances, work practices, improper treatment of wastes, and uncertainties on the ultimate fate of the pollutants in addition to unknown health effects of the chemicals, more so, when a large number of projects are located in a cluster. Moreover, a large number of industries are brought under the folds of micro-, small-, and medium-scale sectors by enhancing the capital investment thresholds and adding the annual sales earnings criteria [42]. There are instances of small-scale and medium-scale organic chemical units producing dyes and intermediates, contaminating hundreds of hectares of land, and polluting the wells even at a distance of 10 km [43]. A project involving a single-stage unit process like sulfonation or chlorination, exempted from the EIA provisions, can pose a significant environmental risk from leakage of hazardous and toxic oleum or chlorine gas from the process, handling, storage, or transportation. There is a well-known disastrous incident of leakage of oleum [44] from a large industry having a sulfonation facility. There are several incidents of chlorine gas leakage and consequences to environmental health even at long distances [45-47]. Thus, exempting projects involving transportation, handling, storage, and manufacture of hazardous chemicals from mandatory environmental clearance, merely based on the scale criteria, disregarding the project typology, defies the precautionary principle approach.

Table 1. Indian EIA regulations on prior environmental clearance.

S No.		1994	2006	2020 (draft)
Extraction of natural resources and power generation				
1a i.	Mining of minerals	√ Major minerals > 5 ha	A: Asbestos mining, >= 50 ha of the mining lease area, asbestos mining B: 5- < 50 ha	A: Asbestos mining, > 150 ha for coal mining, >100 ha for other major and minor minerals B1: <= 150 ha for coal, <= 100 ha for major minerals, > 25-100 ha for minor minerals B2: < 25 ha for mining and clusters of minor minerals
1a ii.	Slurry pipelines for ores, including coal	x	Not specified	A: All projects
1b	Offshore and onshore oil and gas dev and production, including the required infrastructure	√√	A: All projects	A: All projects
1c i.	River valley power generation	√√	A: >= 50 MW hydroelectric power B: >= 25- < 50 MW	A: >= 75MW B1: >= 25- < 75
1c ii.	Irrigation	√√	A: >= 10,000 ha culturable command area B: < 10,000 ha	A: >= 50,000 ha B1: >= 10,000- < 50,000 ha B2: >= 2000- < 10,000 ha

Table 1 continued

S No.		1994	2006	2020 (draft)
1d	Thermal Power generation	√√	A: >= 500 MW coal, lignite, naphtha-based >= 50 MW pet coke, diesel, other fuel-based B: < 500 MW coal, lignite, naphtha-based >= 5- < 50 MW pet coke, diesel, other fuel-based	A: >= 500 MW coal, lignite, naphtha, gas-based >= 100 MW all other fuel-based B1: >= 5- < 500 MW coal, lignite, naphtha, gas-based >= 5- < 100 MW all other fuel-based except biomass and municipal solid non-hazardous waste > 15- < 100 MW biomass and municipal solid non-hazardous waste-based
1e	Nuclear projects and processing of nuclear fuel	√√	A: All projects	A: All projects
Primary processing				
2a	Coal washeries	x	A: >= 1 million tpa coal throughput B: < 1 million tpa coal throughput	A: >= 1 million tpa coal throughput B: < 1 million tpa coal throughput
2b	*Mineral beneficiation	x	A: >= 0.1 million tpa mineral throughput B: < 0.1 million tpa mineral throughput	A: >= 1 million tpa mineral throughput B1: < 1 million tpa mineral throughput *includes chemical processing of ores
2c	*Pelleting, briquetting, agglomeration	x	No separate classification	A: >= 1 million tpa mineral throughput B1: < 1 million tpa mineral throughput
Materials production				
3a	Metallurgical (ferrous and non-ferrous)	√√ Primary metallurgy, mini steel	A: All projects of primary metallurgy, Sponge iron >= 200 tpd, secondary metallurgical processing-all toxic and heavy metals >= 20,000 tpa B: Sponge iron < 200 tpd, secondary metallurgical processing- all toxic and heavy metals < 20,000 tpa, all other non-toxic metals > 5,000 tpa, induction/arc furnaces, cupola furnaces >= 5tph	A: All projects of primary metallurgy, Sponge iron >= 200 tpd, Secondary metallurgical processing- all toxic and heavy metals >= 20,000 tpa B1: Sponge iron < 200 tpd, Secondary metallurgical processing: all toxic and heavy metals < 20,000 tpa, all other non-toxic metals > 5,000 tpa B2: All non-toxic secondary metallurgical processing involving the operation of furnaces only like induction, electric arc, submerged, and cupola with capacity > 30,000- < 60,000 tpa and located within approved industrial estates and medium units.
3b	Cement and *cement grinding	√√	A: >= 1 million tpa capacity B: < 1 million tpa capacity, All standalone grinding	A: >= 1 million tpa capacity B1: < 1 million tpa capacity, > 1 million tpa standalone grinding B2: < 1 million tpa standalone grinding/ blending, all standalone grinding units transporting raw materials and products through rail mode, and medium units
3c	*Lead acid batteries excluding assembling and charging	√√	-	A: none B1: All projects
4a	Petroleum refining	√√	A: all projects	A: all projects
4b i.	Coke oven, *calcination plants	x	A: >= 250,000 tpa B: >= 25,000- < 250,000 tpa	A: >= 250,000 tpa B: >= 25,000- < 250,000 tpa

Table 1 continued

S No.		1994	2006	2020 (draft)
4b ii.	*Coal tar processing	x	-	A: none B1: all projects
4c	Asbestos milling and asbestos-based products	√	A: all projects	A: all projects
4d	Chlor-alkali	√√	A: >= 300 tpd capacity if located outside the notified industrial estate B: < 300 tpd capacity and for location outside the notified industrial estate	A: >= 300 tpd capacity if located outside the approved industrial estate B1: >= 300 tpd capacity if located within the approved industrial estate, < 300 tpd capacity and if located outside the approved industrial estate B2: < 300 tpd capacity if located within the approved industrial estate
4e	Soda ash	x	A: all projects	A: all projects
4f	Leather/ skin/ hide processing	√	A: projects located outside the industrial estate B: projects located within indl estate	A: projects located outside industrial estate B1: projects located within industrial estate B2: projects without tanning if located within an approved industrial estate
Manufacturing/fabrication				
5a	Chemical fertilizers	√√ Except SSP	A: all projects	A: all projects except single super phosphate without sulfuric acid production B1: single super phosphate without sulfuric acid production
5b	Pesticides and pesticide-specific intermediates, excluding formulations	√ Pesticides (Tech)	A: all projects of technical-grade pesticides	A: all projects located outside the approved industrial estate B: all projects located in the approved industrial estate
5c	Petrochemical complex, based on the processing of petroleum and natural gas	√√	A: all projects	A: all projects
5d	Manmade fibers	√√ Rayon	A: rayon B: all others	A: rayon B1: all others
5e	Petroleum products, and petrochemical-based processing, and processes other than cracking and reforming	√√	A: projects located outside notified industrial estate B: projects located in notified industrial estate	A: projects located outside an approved industrial estate B1: projects located in an approved industrial estate B2: medium scale units
5f	Synthetic organic chemicals like dyes and bulk drugs and their intermediates, excluding drug formulations, synthetic rubbers, synthetic organic chemicals, and intermediates	√ Bulk drugs, dyes, MAP, hydrocyanic acid. √√ synthetic rubbers	A: projects located outside notified industrial estate B: projects located in notified industrial estate	A: projects located outside notified industrial estate B1: projects located in a notified industrial estate B2: medium scale units

Table 1 continued

S No.		1994	2006	2020 (draft)
5g	*Distilleries, molasses-based manufacturing, and biofuels	√	A: all molasses-based distilleries, All cane juice/non-molasses-based distilleries >= 30 KLD B: All cane juice/non-molasses-based distilleries < 30 KLD	A: molasses-based distilleries >= 100 KLD, Molasses-based manufacturing like yeast >= 100 tpd, Non-molasses-based distilleries >= 200 KLD B1: molasses-based distilleries < 100 KLD, Molasses-based manufacturing like yeast < 100 tpd, Non-molasses-based distilleries < 200 KLD B2: country liquor based on Mahuwa flower <= 5 KLD, medium scale units
5h	Integrated paints manufacturing	√	A: - B: all projects	A: - B1: all projects B2: medium scale units
5i	Pulp and paper	√√	A: pulp manufacturing, Pulp and paper manufacturing B: paper manufacturing without pulp manufacturing	A: pulp manufacturing, Pulp and paper manufacturing except from waste paper, recovered paper B1: paper manufacturing from waste and recovered paper B2: paper manufacturing from waste paper, recovered paper, ready pulp involving deinking, bleaching, decolorizing, medium-scale units
5j	Sugar	x	A: - B: >= 5,000 tcd cane	A: - B: >= 5,000 tcd cane
Service sectors				
6a	i. LNG terminal involving processing and transportation ii. Oil and gas transportation pipelines passing through national parks, ecologically sensitive areas	√	A: all projects	A: all projects
6b	*Isolated storage and handling of hazardous chemicals	x	A: - B: all projects	Not specified
Physical infrastructure including environmental services				
7a	Airports	√	A: all projects	A: all projects of terrestrial airstrips and water aerodromes for commercial use. Airstrips not involving bunkering/refueling facility, air traffic control exempted.
7b	Shipbreaking and yards	x	A: all projects	A: all projects
7c	Industrial estates/ parks/ complexes/ areas, export promotion zones, special economic zones, etc.	x	A: projects having at least one category A project, projects with > 500 ha area, and housing at least one category B project B: Projects with < 500 ha area and housing at least one category B project, projects with > 500 ha and not housing any project of category A or B	A: projects having at least one category A project, Projects with > 500 ha area and housing at least one category B project B: Projects with < 500 ha area and housing at least one category B project, Projects with > 500 ha and not housing any project of category A or B

Table 1 continued

S No.		1994	2006	2020 (draft)
7d	Common hazardous waste treatment, storage, and disposal facilities	x	A: all integrated facilities having incineration and landfill or incineration alone B: all facilities having landfill only	A: all integrated facilities having incineration and landfill or incineration alone B: all facilities having landfill only, All projects of common bio-medical waste treatment facilities
7e	Ports, harbors, breakwaters, dredging	√√	A: >= 5 million tpa of cargo handling capacity, excluding fishing harbors B: < 5 million tpa of cargo handling capacity and/ or >= 10,000 tpa fish handling capacity	A: >= 5 million tpa of cargo handling capacity (excluding fishing harbors) B: < 5 million tpa of cargo handling capacity and/ or >= 10,000 tpa fish handling capacity
7f	*Highways, Expressways, Elevated roads	√√	A: new national highways, expansion of NH > 30 km, involving the additional right of way > 20 m, involving land acquisition and passing through more than one state B: new state highways, expansion of NH/SH > 30 km, involving the additional right of way > 20 m involving land acquisition	A: new national highways, expressways, and elevated roads, expansion/ widening of NH > 100 km, involving the additional right of way or land acquisition if > 40 m on existing alignments or 60 m on re-alignment/bypasses B1: state highway expansion projects in hilly terrain, above 1000 m AMSL and/or ecologically sensitive areas
7g	Aerial ropeways	x	A: - B: all projects	A: all projects located at an altitude of >= 1000 m, All projects located in notified ecologically sensitive areas B1: - B2: all projects not considered as category A
7h	Common effluent treatment plants	x	A: - B: all projects	A: - B1: all projects
7i	Common municipal solid waste management facility involving landfilling and/or incineration	x	A: - B: all projects	A: - B1: all projects
8a	Building and construction	x	A: - B: >= 20,000 sq m- < 150,000 sq m built-up area/activity area	A: - B1: - B2: >= 50,000 sq m- < 150,000 sq m built-up area/ activity area. Local bodies to stipulate env conditions for projects of built-up of 20-50,000 sq m, and for 50-150,000 sq m built-up industrial sheds, educational institutions and their hostels, and hospitals
8b	Township and area development	x	A: - B: covering an area >= 50 ha and/or >= 150,000 sq m built-up area	A: - B1: Covering area >= 50 ha >= 150,000 sq m built-up area,

Note: √: all projects irrespective of the investment involved, √√: projects involving an investment of more than Rs. 1 billion for new projects and Rs. 500 million for expansion/modernization projects, and x: projects not specified.

It is difficult to understand different built-up area thresholds prescribed for building and construction projects such as residential, commercial, educational, and hospital when the potential impacts of construction are not likely to be much different. The exemption given to the expansion of state highway projects in plains seems to be on a presumption that environmental impacts do not arise from the widening of an existing state highway, even to make it a 4-lane or 6-lane road, and on par with a national highway, overlooking the precautionary principle. While the re-classification of category B ropeway projects proposed at higher altitudes and those in the notified ecological areas as category A projects is in line with the precautionary principle, categorizing other ropeway projects under category B2 appears to be negating it because all the ecologically sensitive areas might not have been notified and even the unnotified areas may be environmentally rich. Moreover, a large number of tourists have the potential to stress local natural resources and pose risks to the environmental health of such sparsely accessed locations. Given that the threshold method used for screening has inherent limitations [36], exempting such projects from the purview of the EIA weakens the EIA regime further. Understandably, the projects involving strategic considerations, as determined by the Federal Government, are exempted from the purview of the EIA regulation. However, defining "strategic considerations" would make the EIA system transparent [31].

3.2 Scoping for EIA reports preparation

Sector-wise standard TOR are proposed to be prescribed for scoping in place of the case-by-case TOR by the appraisal committee. At its discretion, the regulatory authority can refer a project proposal to the appraisal committee within 30 days of its online registration for recommending additional TOR. The appraisal of the EIA reports is to be done strictly as per the TOR issued, and the appraisal committee can only seek fresh studies at the time of the appraisal if it notices new facts.

Exemption from preparing EIA reports

Unlike category A and B1 projects, category B2 projects are not required to prepare EIA reports and are exempted from public consultation. Based on the details submitted in the prescribed format and the environmental management plan, the state-level regulator will take the decision and convey it through system-generated environmental permission with standard conditions for such projects. It needs to be noticed that a meaningful environmental management plan needs mitigation and monitoring measures based on the identified and evaluated impacts and an action plan to implement the same. A good EIA framework would provide for subjecting certain types of B2 category projects, such as chemical handling, storage, and manufacture, to an initial environmental evaluation.

Standard terms of reference

The scoping could provide for examining the information given by the project proponent in the prescribed format and also on the collection of the requisite information, wherever necessary, to prescribe the TOR to prepare the EIA report for each proposal rather than standardize the TOR based on the type of project, or system-generated instant TOR for B2 category construction projects, just to expedite the commencement of EIA report preparation immediately after the online registration to seek environmental clearance. It must be appreciated that standard TOR have limitations because of the lack of consideration given to the project size and location and greenfield and brown-field projects. The standard TOR cannot facilitate conducting environmental assessments to serve sustainability-based objectives [35]. Given that the non-comprehensive scoping leads to generic EIA reports, defeating the purpose of EIA [48], the shortcomings in the scoping process, such as the consideration of critical environmental issues and valued environmental components in the study area and methodologies for impact identification and predictions [20], could have been offset. The involvement of the concerned public, civil society groups, community-based organizations, and NGOs in the

formulation of TOR for at least mega projects could help make the decision-making process transparent and democratic [49] and provide for a) recognizing uncertainties [50] in the prediction of impacts, e.g., those arising as a result of lack of complete knowledge of the complex ecosystems and the processes, lack of long-term data, reliability of data, limitations of the prediction models used, abnormal conditions, etc., and b) integration of risk assessment into EIA, given that all the impacts do not get assessed adequately in EIA [51,52].

Scoping for industrial areas

Developing industrial areas/estates/parks has been a popular means to promote industrial development, especially the medium and small enterprises in several countries. But the requisite environmental infrastructure and effective institutional mechanism for comprehensive environmental management of such industrial areas still need to be improved in several places. The factors responsible for this situation include a need for specific TOR for divergent industries in size, capital base, product mix, resource availability, and workforce employed. As a result, the EIAs for industrial estates are generally based on several assumptions about the number and types of industries that are likely to be set up, their size, product mix, resource requirement, pollution load, common environmental infrastructure to manage wastewater and hazardous waste, environmental risk management infrastructure including off-site emergency management program, synchronization of the commencement of individual industrial projects and the common facilities, etc. The limitations of common wastewater treatment facilities in ten prominent industrial areas are discussed, and the operating efficiencies of the treatment methods employed to reduce organic pollution load are reported to be 75-85% [53], causing contamination of water resources by the discharge of improperly/partially treated wastewater. The TOR does not prescribe environmental risk assessment studies to consider uncertainty about the characteristics of the incoming wastewater from different sources to the common wastewater treatment facilities and the ultimate fate of the pollutants. Central Pollution Control Board conducts a comprehensive environmental assessment of industrial clusters periodically. It categorizes these clusters as critically polluted areas, severely polluted areas, and other polluted areas based upon the comprehensive environmental pollution index [54], a rational number to characterize the environmental quality at a given location by following the algorithm of source, pathway, and receptor in addition to the variables like the scale of industrial activity, scale of exceedance of the prescribed environmental quality, health-related statistics, and compliance status of industries. Based on a nationwide environmental assessment [54], 43 industrial clusters were identified as critically polluted. The National Green Tribunal took up *suo moto* cognizance of pollution in industrial clusters and ordered the closure of 69 polluted industrial areas [55]. Thus, locating industries in approved industrial areas does not assure environmental protection though it facilitates industrial development.

Baseline environmental information

The reduction of the study area for B1 category projects from 10 to 5 km while increasing thresholds for many B1 category projects implies that the projects that are presently considered to have the potential of causing impacts to as far as 10 km distance, i.e. in an area of 314 sq km around the project location, will have impacts limited to 5 km distance, i.e. in an area of 78.5 sq km around the project location. There is no evidence that this reduction has any scientific basis. Further, in the absence of TOR prescribing establishing the significance of the impacts, generic impact mitigation measures would continue to be suggested in the EIAs [20,56]. For the preparation of the EIA reports, the generation of primary baseline environmental information over one season (except for river valley projects for which it is over a year) is prescribed even though India experiences three distinct seasons, viz. summer, monsoon, and winter with a wide variation in temperatures, humidity, wind velocities, cloud cover, precipitation, etc. Moreover, TOR does not prescribe collection and rigorous analysis of trends of historical information for the environmental parameters related to valued

environmental components. The baseline conditions could ideally be established [57] for different environmental components in different seasons to capture the information when these components are under maximum stress, e.g. a) *air environment* in the winter season when the dispersion is the least, b) *water* and *soil environment* and *ecology* in the summer season when water availability is scarce, water quality is relatively poor except in the regions getting water from snow melting, and soil has a low moisture content, putting stress on the growth and survival of flora and fauna, and c) *land use/land cover*, and *flora* in the pre-and post-monsoon periods when the maximum variations could be captured, compared and analyzed. The draft could have recognized, at least for certain mega projects, that under different seasonal conditions, the baseline scenario [20] will reflect a kind of worst-case scenario for each environmental component and form a realistic basis for impact assessment and determining the significance of the impacts.

3.3 Public participation

Several projects, including the expansion of up to 50% of the existing capacity, are exempted from the mandatory public hearing process, which is a retrograde step. Further, the time provided to the public to submit their responses is reduced from 30 to 20 days. For river valley and hydroelectric projects, the public hearing is at the discretion of the competent authority. As a result, the local population could be denied the right to the project information and the opportunity to express their views on the proposed development. The EIA regime thus fails to embody the insights of deliberative democracy, collaborative rationality, and environmental justice [17], ridiculing the EIA serving as the instrument of good environmental governance [58].

3.4 EIA review and decision-making

With the increase in thresholds for certain category A projects, the workload at the federal level for EIA review and decision-making is expected to reduce substantially from the current level. This offers an excellent opportunity to conduct EIA reviews rigorously rather than superficially, and hence strengthen the EIA review process, key areas identified [19] to improve the EIA process and enhance the overall quality of the EIA reports in the long run. While this could be a positive development at the federal level, the workload at the state level, where the already burdened pollution control boards act as temporary secretariats for EIA review of category B1 projects, would increase substantially. To discharge the increased responsibilities effectively and ensure independence for decision-making, there is a need for capacity augmentation at the state level, both for the state expert appraisal committees and state environmental impact assessment authorities. At the same time, the task at the state level would ease to some extent due to: a) delegation of authority for a large number of category B2 mining of minor minerals' projects to the district level mechanism, and the specified building and construction projects to the local bodies for issuing environmental permissions, and b) exemption granted to several projects such as isolated storages of hazardous chemicals, and construction from the mandatory environmental clearance. In turn, this would necessitate increasing environmental awareness, appreciation of environmental impacts, and capacity building at the third tier of decision-making. The functioning at tier 2 and tier 3 levels is a major challenge to the EIA system due to numerous projects seeking environmental clearance or environmental permission, and the effectiveness of the EIA process would largely depend upon how the authorities at these levels manage local pressures, given the different administrative and political cultures at different tiers.

Even though the qualifications and experience of EIA appraisal committee members are broadly specified, the selection process of members is not transparent, even in the draft. A rigorous and transparent selection process can only help ensure that competent and independent EIA professionals are nominated for effective EIA appraisal, an essential step in the EIA system [19,59].

3.5 EIA follow-up

Environmental clearance conditions for EIA follow-up

The post-project implementation mechanism mandates that the project proponent gives prominent advertisements, highlighting project environmental clearance in at least two local newspapers and details of the websites of the regulatory authorities and other specified agencies, and permanently displays the environmental clearance letter on its website. The regulatory authorities and other agencies are also required to make the environmental clearance letters available in the public domain. The submission of annual (half-yearly at present) reports by the project management for compliance with the stipulated environmental clearance conditions is also mandated, and the concerned regulatory authority is required to make these available in the public domain. To complement the existing institutional mechanism for compliance monitoring, viz. federal agencies for category A projects and state pollution control boards for category B projects (even though the state pollution control boards generally focus on the monitoring and control of pollution), the draft provides for roping in impaneled government institutions for the compliance monitoring of the stipulated environmental clearance conditions against baseline information given in EIA reports and environmental management plan, and the project activities randomly. But, there is a lack of clarity about when this provision would be used and who would bear the expenses. Monitoring the implementation of the terms and conditions of the environmental clearance built into the draft will increase its effectiveness and improve transparency. The Indian Union, Environment and Forests Minister stated [60] that "our priority is both environmental protection and development; only then can our country become a 5-trillion-dollar economy. We are bringing about a regime change. We will introduce fewer conditions but ensure their fullest implementation. If need be, we will amend the law so that you get the ease of doing responsible business. Because freedom is never a one-way street."

EIA follow-up framework

It is observed that the non-compliant projects could get away with monetary fines, and no role is envisaged for NGOs and citizen groups who could otherwise play the role of watchdogs in monitoring the environmental clearance conditions by examining the periodic compliance reports available in the publicly accessible database, and reporting the actual impacts felt. The objective design for EIA follow-up, its objective review, and an independent third-party audit of the environmental management program [56], right through the project implementation lifecycle phase of the project, and availability of the periodic audit reports in the public domain to help make the EIA follow-up transparent and effective continue to elude the draft also. Likewise, a lack of clarity continues on the core values for EIA follow-up [61], viz. need for follow-up, the scale of follow-up, the application of EIA follow-up, and EIA follow-up outcomes on the part of regulators for a more objective EIA follow-up. Strong regulation is a prerequisite [61,62] to increasing transparency, outlining stakeholder expectations, and establishing structured and systematic procedures. However, it may not be sufficient to guarantee successful EIA follow-up outcomes. Devising an appropriate format for EIA follow-up reporting to encompass the entire scope of EIA follow-up, viz. evaluation of the accuracy of predictions, residual impact management, concerns of affected persons, environmental performance, the effectiveness of the follow-up system, etc., and clarity on the critical drivers to achieve constructive outcomes of EIA follow-up, viz. the commitment of regulators, self-regulation by the project proponent, and public pressure to add value to EIA follow-up and hence the EIA system are not evidenced in the draft also.

3.6 Other aspects

The very foundation of the EIA system needs to be stronger, given that EIA is conducted after the project proponent acquires land for the proposed project. Unlike the prevailing regulation, the draft

permits the project proponent to carry out some activities at the site, viz. fencing or compound wall to secure land, construction of temporary sheds for security personnel, leveling of land without felling any trees, and geotechnical investigations, even before obtaining the environmental clearance. This contradicts the provisions under the Forest Act that necessitate approval before initiating any activity in the forest area. Harmonizing the approval requirements from different agencies could speed up the project implementation. Further, there is a provision for granting *post facto* environmental clearance to the projects operating without obtaining prior environmental clearance [34], albeit with a penalty to be determined by the regulatory authority. "This is a fait accompli situation, which leans more heavily towards continuing operations rather than shutting them down" [33]. The Supreme Court of India ruled: "The concept of an *ex-post facto* environmental clearance is in derogation of the fundamental principles of environmental jurisprudence", "detrimental to the environment, and could lead to irreparable degradation", and is considered *alien to environmental jurisprudence* [63]. It is difficult to discern why cognizance of such violations will not be taken if reported by the local people, project-affected persons, civil society, or media!

4. Evaluation of the EIA regulations using an ex-ante framework

The performance of EIA systems in different countries is evaluated by researchers [35,37,38] using specific criteria and principles. There has been an increasing interest in understanding the potential effects of the reforms proposed in environmental legislation/regulations. The proposed changes in EIA regulations may have intended as well as unintended ramifications, positive or negative. Such reforms can potentially threaten EIA if they are driven by the objectives of "simplifying" and increasing the efficiency of the approval mechanism for development [8,17]. The reforms driven by the goals of public interest, sustainability, transparency, and adoption of good practices in the EIA systems [35,48,64] offer opportunities for advancements. Next-generation assessment [35] emphasizes sustainability-based assessments for policies, programs, plans, and development projects and activities that might significantly affect sustainability prospects. The sustainability-based framework applies to the EIA regime- design as well as evaluation.

The prevailing and the draft EIA regulations are evaluated using modified criteria to suit the Indian context in the *ex-ante* framework [35,37,38]. **Table 2** reveals that the most good practice elements are either inadequately addressed or not addressed in the current and draft regulations. The emphasis of the proposed regulation is on permitting several projects without subjecting them to the rigor of EIA and simplifying and speeding up the environmental clearance procedure. The evaluation in **Table 2** affirms that the current regulation is a shade better than the draft. However, the evaluation scores reflect that the EIA regime needs drastic reforms and substantial improvements by incorporating the good practice elements of next-generation environmental assessment and imbibing sustainability, comprehensiveness, and transparency at every stage of the EIA process.

An opportunity lost

From the above, it is apparent that the experience gained from the implementation of the EIA system over the last three decades is not used in framing the draft regulation to simplify the EIA process and fine-tune it to overcome the weaknesses and limitations in the EIA system [20,21] while ensuring that the EIA prime objectives and EIA pillars are kept intact. The next-generation environmental assessment elements should be considered in making the EIA system more effective in achieving the EIA outcome objectives [65,66]. This calls for more earnestly engaging the precautionary approach to the much-needed development.

The framing of a regulation to replace an existing regulation offers an opportunity to look back and forward to, e.g. (a) learn from the implementation experience, review the feedback received from different corners and plug loopholes in the system, (b) evaluate the performance of the regulation proposed to be superseded, (c) systematically evaluate the ef-

Table 2. The evaluation of environmental impact assessment regulation in India.

Broad theme	Good practice EIA element	EIA draft regulation 2020	EIA regulation 2006	Remarks for the draft regulation
1. Purpose (2)	Core purpose as contributing to sustainability	0	0	Not spelled out
	A wide range of issues relevant to determining whether the proposal is in the public interest	0	0	Not spelled out
	Theme 1 score (6)	0	0	
2. Planning integration and strategic assessment (3)	SEA requirement, in addition to the project-level EIA	0	0	SEA/REA not practiced
	Clearly defined participation process for SEA	0	0	Not applicable
	Tiering of project-level EIA with SEA/REA established	0	0	Not applicable
	Theme 2 score (9)	0	0	
3. Applicability of EIA and screening (4)	Applies to a wide range of proposals through different levels	3	3	Projects are listed
	Clear rules spelled out for projects falling under the purview of EIA	3	3	Projects are categorized
	Clear rules and processes for designating additional projects and exempting currently subject projects	1	1	Not specified, amendments get issued
	Decision-making on projects based on potential significant impacts	0	0	No, based on scale criteria for the listed projects
	Theme 3 score (12)	7	7	
4. Scoping (9)	Timely and clear communication of project-specific TOR	1	2	Standardization of TORs
	Differentiates greenfield and brownfield projects	0	0	No, the same TORs
	Meaningful public participation in scoping	0	0	No provisions
	Studies as per TOR but based on potential impact significance	1	1	Yes, but impact significance is not specified
	Addressing cumulative effects	0	0	Not specified
	Addressing physical, ecological, and socioeconomic impacts and their integration	2	2	Yes, but integration is not specified
	Addressing meaningful risk assessment and integrating with implementable EMPg	1	1	Formal RA, no integration or implementable EMPg
	Each assessment addresses short-term and long-term impacts	1	1	Not specifically
	Project justification based on the comparison of potentially reasonable alternatives generated using proper methodologies	1	1	No, superficial consideration of alternatives
	Theme 4 score (27)	7	8	
5. Impact assessment and preparation of EIA report (13)	Technically sound and reliable collection and analysis of data	1	1	Quality control on data and analysis not specifically emphasized
	Justification of criteria adopted in selecting methods for impact identification	0	0	Criteria are not specified
	Justification of criteria adopted in selecting methods for impact prediction	1	1	Standard methods without justification

Table 2 continued

Broad theme	**Good practice EIA element**	**EIA draft regulation 2020**	**EIA regulation 2006**	**Remarks for the draft regulation**
	Justification of criteria adopted for significance evaluation	0	0	No determination of significance
	Identification and evaluation of cumulative effects	0	0	Not specified
	Mitigation measures clearly related to the predicted impacts	1	1	Generic mitigation measures
	Implementable environmental management program	1	1	Generic
	Significance evaluation based on sustainability criteria	0	0	Not specified
	Assessment conclusions justified in light of sustainability criteria	0	0	Not specified
	Assessment clearly communicates likely trade-offs	0	0	Not specified
	Assessment clearly communicates uncertainties	0	0	Not specified
	EIA report is publicly and easily accessible	3	3	Yes, uploaded to the public domain
	Non-technical summary of the EIA report	2	2	Not comprehensive
	Theme 5 score (39)	8	8	
6. Review of project proposal and impact studies (5)	Rules and procedures for review are clear	1	1	Rules clear, but not procedures
	Engagement of a credible body of impartial reviewers selected in a transparent manner	2	2	Yes, but not in a transparent manner
	Reviewers have sufficient technical expertise in proposed activities and associated impacts	2	2	Yes, but not all the reviewers
	Reviewers' recommendations are thoroughly justified, including the application of sustainability criteria	0	0	No
	EIA review reports are publicly and easily accessible	1	1	Ad hoc review based on the presentation by the project proponent, minutes uploaded
	Theme 6 score (15)	6	6	
7. Decisions and conditions (5)	Rules and procedures for decision-making are clear	1	1	No procedures
	Decision-making is based on sustainability criteria	0	0	No sustainability criteria used
	Decision-making clearly communicates and justifies trade-offs	0	0	Trade-offs not considered
	Public reporting of decisions and decision conditions with reasons	2	2	Yes, but without reason
	Specific and enforceable decision conditions	1	1	Generally, generic conditions
	Theme 7 score (15)	4	4	
8. Post-decision follow-up program (4)	Continuous evaluation through EMPgs, including actual impacts and compliance with the approval conditions	1	1	Weak compliance evaluation, not real impacts

Table 2 continued

Broad theme	**Good practice EIA element**	**EIA draft regulation 2020**	**EIA regulation 2006**	**Remarks for the draft regulation**
	Assignment of responsibilities and resources for implementing EMPgs	2	2	Yes, but several grey areas
	Sanctions and penalties for non-compliance with conditions and environmental and sustainability legislation	1	1	Only for pollution control regulations, no sustainability legislation
	EMPgs implementation and EIA follow-up reports are publicly and easily accessible	2	1	Yes, for compliance conditions, but not EMPg
	Theme 8 score (12)	6	5	
9. Meaningful public participation (4)	Recognition of indigenous rights	2	2	Yes, separate regulations
	Meaningful partnership opportunities for local authorities/agencies	1	2	Public participation diluted
	Rules and procedures to facilitate public participation, including socially vulnerable groups	1	2	Yes, but nothing specific for socially vulnerable groups
	Consideration of public consultations in decision-making and making these publicly and easily accessible	1	2	Yes, but many projects exempted from consultations
	Theme 9 score (12)	5	8	
10. Administrative efficiency and learning (6)	Clear and realistic timelines for assessment streams	2	2	Timelines specified
	Clear and realistic rules and procedures for addressing exceptions and managing timelines interruptions	1	1	No clear rules and procedures
	Clear rules and procedures regarding the roles of concerned federal agencies and other jurisdictions in assessments	2	2	Rules but not clear procedures
	Encourages other jurisdictions and agencies to cooperate in assessments	1	2	More for post-assessment requirements
	Monitoring of the effectiveness of the EIA regime	0	0	No provision
	Periodic review of EIA legislation based on the above effectiveness monitoring reports	0	0	No review mechanism
	Theme 10 score (18)	6	7	
Overall score (165)		49	53	

Note: Score 0: not addressed, 1: major inadequacies, 2: minor adequacies, and 3: addressed strongly.

fectiveness of EIA processes using a comprehensive and criteria-based *ex-ante* framework of four dimensions of effectiveness, viz. procedural, substantive, transactive, and normative [67,68] and EIA good practices in impact assessment reforms [37], (d) integrate the sustainability issues [35,38], climate change mitigation goals, and the UN Sustainable Development Goals [69-71] that are likely to become a central component of the future EIA [1], (e) strengthen public consultation process by employing appropriate visual communication tools [72], (f) promote and adopt EIA good practices [73] to enhance the EIA's effectiveness, and (g) use advances in information and communications technology to make the EIA process and environmental governance more efficient and effective [74]. Therefore, these aspects should be taken into

consideration when the draft is put forward again, reengineered, or presented in a new version.

5. Conclusions

In response to lobbying by project proponents and political pressure [75], democratic governments generally try to adopt a "simplified" or "practical" approach to the EIA process. As a result, even after enacting robust EIA regulations, these are diluted in the garb of the so-called "reforms" or "simplification" [6,76,77], overlooking that government actions may result in compromising the prime objective of "protection, maintenance, and enhancement of the environment". Environmental management in India has generally responded to environmental legislations [16], many of which are driven by the judiciary, international development banks, and multilateral agencies. Like the earlier, the notified draft EIA regulation is subordinate legislation, not an Act passed by the parliament, and reflects the prevailing political and economic context. It neither makes any reference to the higher levels of environmental assessment, viz. strategic, regional, or sectoral environmental assessment, nor to cumulative effects assessment as a part of project-level EIA. Environmental legislation and its implementation and follow-up are vital to environmental governance. Besides casting apprehensions on the EIA representing a proactive and preventative approach to environmental management and protection, the draft regulation puts a big question mark on whether the EIA is intended to serve as an environmental policy instrument [65]. More so when efforts on institutional reforms are not evident, and the focus appears to be on procedural reforms to simplify and fast-track the EIA approval mechanism. Given that EIAs rarely stop bad projects having the potential to destroy irreplaceable habitats or threaten the last representatives of endangered species, such "assessments may increasingly become not worth the paper they are printed on" [78].

An opportunity is lost in framing the draft EIA regulation by incorporating best practice elements of next-generation environmental assessment to make it an effective instrument for good environmental governance [58]. The application of the elements of good governance, viz. access to information, transparency, and public participation [39] is evident. Still, these, along with stakeholder involvement, responsibility, and accountability, are not reinforced further within the draft EIA regulation. The provision for *post facto* environmental clearance contradicts the precautionary principles of sustainability. The cognizance of any violations of the EIA regulation, taken *suo moto*, or reported by the project proponent or government authorities but not by the stakeholders such as local people, project-affected persons, or even media defies any rationale. Therefore, there is a need to incorporate and strengthen good practice EIA elements, summarized in **Table 2**.

6. Way forward

Middle- and low-income countries face a dilemma on the policies and measures to facilitate investments for economic development on the one hand and stringent environmental regulations on the other. Nevertheless, "simplification" to compress the time for the EIA process should not be at the cost of sacrificing the prime objectives of the EIA and the EIA pillars [75]. The EIA regulation could be an Act passed by the parliament instead of subordinate legislation. An EIA regulatory framework, even while aiming to facilitate ease of business, should address the prime issue of improving the efficacy of the EIA system in the country and making it more transparent and democratic by imbibing several effective measures, such as a) robust screening, b) strengthening the scoping process including involving the concerned public, civil society groups, community-based organizations, and NGOs in formulating TOR for at least mega projects, c) making reference to the higher levels of environmental assessment, viz. strategic, regional, or sectoral environmental assessment, d) putting into practice cumulative effect assessment and consideration of reasonable alternatives, e) improving the quality of EIA reports, spelling out the criteria for determining significance and emphasizing on the assessment of significant impacts, f) imposing a scrutiny fee for EIA reports to generate some funds to

strengthen the EIA review by inducting independent and experienced EIA professionals for transparent and rigorous appraisal of the EIA reports, g) meticulous and objective EIA follow-up [19,20] involving citizen groups, and h) introducing periodic reforms in the EIA systems to address a broader range of concerns, including health and environmental risk [52,79], sustainability, and climate change-related issues. For a prudent policy, specific types of projects must be subjected to initial environmental evaluation instead of granting a blanket exemption [80]. A proactive measure through detailed guidelines on good engineering and environmental practices for projects with less potential environmental impacts from micro-, small- and medium-scale enterprises will be a positive step for simplification and environmental protection. Transparency in the selection of members of EIA appraisal committees can add to the credibility and effectiveness of the EIA system. To raise the EIA process above bureaucratic procedure and paper exercise, it is vital to strengthen the EIA follow-up with a firm intention of enforcing the regulation to comprehend the outcome of the EIA.

After decades of experience in implementing EIA, precise clarity must be developed on a) learnings from own experience and the experience of other emerging as well as developed economies; b) specific objectives of the earlier EIA regulations and the extent to which those are achieved; c) whether the criteria for screening should be based on the scale thresholds of projects or their potential significant environmental impacts; d) the issues encountered in the EIA system; e) whether EIA impedes the development projects; f) whether all the stakeholders, especially the regulators, project proponents, and EIA consultants realistically appreciate the role and importance of EIA, especially concerning its objectives and potential benefits; etc. An in-built mechanism for periodic performance evaluation of the regulatory instrument itself can help clarify these issues and strengthen the regulation. The EIA regulation must spell out the themes—purpose and planning integration and strategic assessment in addition to the good practice EIA elements and sustainability-related aspects in different themes.

Conflict of Interest

There is no conflict of interest.

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