

Environmental clearance Acts and Rules - Evolution and experience

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Many of the infrastructure projects, specially in the transportation sector, (Railways, Ports, Roads, / Highways and Airports) have had time and cost overruns on account of delay in grant of environmental clearance also in addition to delay in obtaining other approvals/clearances. Though, prior to 1985, forest related legislations / Acts / Rules existed but in isolated and exclusive domains. With the notification of the Environment (Protection) Act 1986 followed by the Environment Impact Assessment, Rules, 2006, the related stipulations, regulatory norms started getting formalized and evolving. Herein, the legislative history of the Acts/Rules at different times in India and across the World has been stated. Chronologically, the USA (NEPA legislation) and European countries have an edge over other regions. Grant of forest clearance (FC) which comprises approval for diversion of forest land, if that be the case of the project, took much longer time than it took for grant of environmental clearance in case of roads/highways projects in India. Use of technological advancements can be very helpful in mapping of roads and railway line alignments, extent of forest cover getting affected adversely by the proposed projects etc. Satellite imaging techniques etc. can be used extensively for evaluating the extent of human habitats getting displaced, submerged, and affected.

1.0 INTRODUCTION

The Government of India vide its policy and regulatory functions, ensures protection and improvement of the

environment of India. The Constitution of India vide the 42nd amendment, has detailed and outlined this onus and responsibility on the Government of India in Articles 48A and 51A (g) of the Indian Constitution. These articles provide that:

- i. the state will protect and improve the environment and safeguard forests and wildlife of the country (Article 48A), and
- ii. every citizen is bound to protect and improve the natural environment and to have compassion for living creatures [Articles 51A (g)].

The Ministry of Environment and Forests (MoEF), since then, has been renamed as Ministry of Environment, Forest and Climate Change, and is the nodal regulatory body of Government of India. Primarily, it is mandated to formulate policies, laws and rules related to environment, and issuing environmental clearance (EC) for any developmental project, as in the Schedule of the Environmental Impact Assessment (EIA) Notification, dated 14 September 2006 [1] under the Environment (Protection) Act, 1986. With the increase in number and sector specific infrastructure projects entailing substantial private investment, several Acts, Bills and their respective Amendments to ensure improvement in quality of environment, were legislated in India. Forest Conservation Act,1980, Environment (Protection) Act,1986,the Coastal Regulation Zone,1991(notification) and the National Appellate Authority Act,1997 are some of the critical laws that need to be complied with by the

proponents (applicants seeking environment clearance) for the projects. The Environment (Protection) Act (EPA) 1986 was notified soon after the Bhopal gas tragedy (1984). This Act is all encompassing in its mandate and empowers the Government of India to effect measures for improving and protecting the quality of environment. The said Act mandates the Government of India to set standards for effluent discharge and emission as well as regulating location of industries.

2.0 ENVIRONMENT IMPACT ASSESSMENT (EIA)

Consequent to the Earth Summit held at Rio de Janeiro in 1992 the EIA was notified in 1994 in India, based on the EPA 1986 and has seen further amendments in 1997, 2006 and 2007. The updated processes and stages for getting the environmental clearance in terms of the provisions of the EIA Act are illustrated in Figure 1. Screening, scoping, public consultation, and appraisal are the four cardinal stages in the EIA process.

The EIA notification of 1994 was further improved upon with the more detailed notification of 2006. The latter provided for significant and elaborate arrangement for effectively carrying out EIA. The provision comprised categorization of projects in terms of set out parameters. The clearance process was decentralized with some categorized as ‘B2’ projects falling within the competency of the concerned State Governments for the purpose of granting environmental clearance. In fact the process was democratized and the

2006 provisions further ensured closer interaction between the State Governments and the Central Government. The improvements have been summarized in Table 1.

2.1 Structure and other aspects of EIA in india

The EIA system, being multidimensional and interdisciplinary in nature, is concerned with identifying and evaluating direct and indirect impacts of a project on the environment. These impacts are addressed by appropriate environmental protection and enhancement measures and it needs to be ensured and should form an integral part of the proposal. The EIA system supports project proponents in incorporating environmental considerations in project planning. The project cost should also account for implementing measures for environment upkeep and cost for complying with the conditions accompanying the environmental clearance granted by the regulator. Onus for determining and disclosing all relevant inputs needed for a methodical assessment of environmental impacts of their proposed projects lies with the project proponent. Review of an EIA by Central Regulatory Authority/ State Environmental Impact Assessment Agency (SEIAA) is guided by the following criteria: (a) environmental considerations are integrated into overall project planning; and (b) the environmental impact assessment is sound, and the proposed environmental mitigation measures are effective. An effective regulatory review of an EIA depends on timely, full, and accurate disclosure of relevant

Table 1. Salient improvements in GoI’s EIA Notification of 2006 over EIA Notification of 1994

EIA Notification 2006	EIA Notification 1994 (including amendments)
<p>Clearance process simplified - Previously all the projects figured in Schedule 1 required environmental clearance. Now, the projects have been categorized as “A” & “B” and ‘B’ has further been bifurcated into B1 and B2 category. B2 projects would not required EIA report. Category B projects would be cleared by the respective State Governments.</p>	<p>Project proponents were required to seek clearance for all the projects under Schedule 1 from the Central Government</p>
<p>Screening and scoping processes. The screening process has been specifically detailed and the responsibility for carrying out scoping has been entrusted to the Expert Appraisal Committee. [EAC]. Scoping comprises freezing of Terms of Reference [TOR] and the TOR is required to be displayed on the websites of State/ Union Territory Environmental Impact Assessment Authority [S/UEIAA].</p>	<p>It was the project proponent who decided the TOR as well as conducted the EIA study either by himself or through consultants.</p>
<p>Public consultation comprising public hearing :All projects categorized as ‘A’ & ‘B1’ are mandatorily required to undertake the public consultation. Some projects e.g. extension of road and highways, those that do not require any further acquisition of land etc. are exempt from carrying out public consultation. Responsibility lies with the State PCBs/ UTPCBs.</p>	<p>Provisions existed but the methods to be adopted weren’t that transparent and all encompassing.</p>

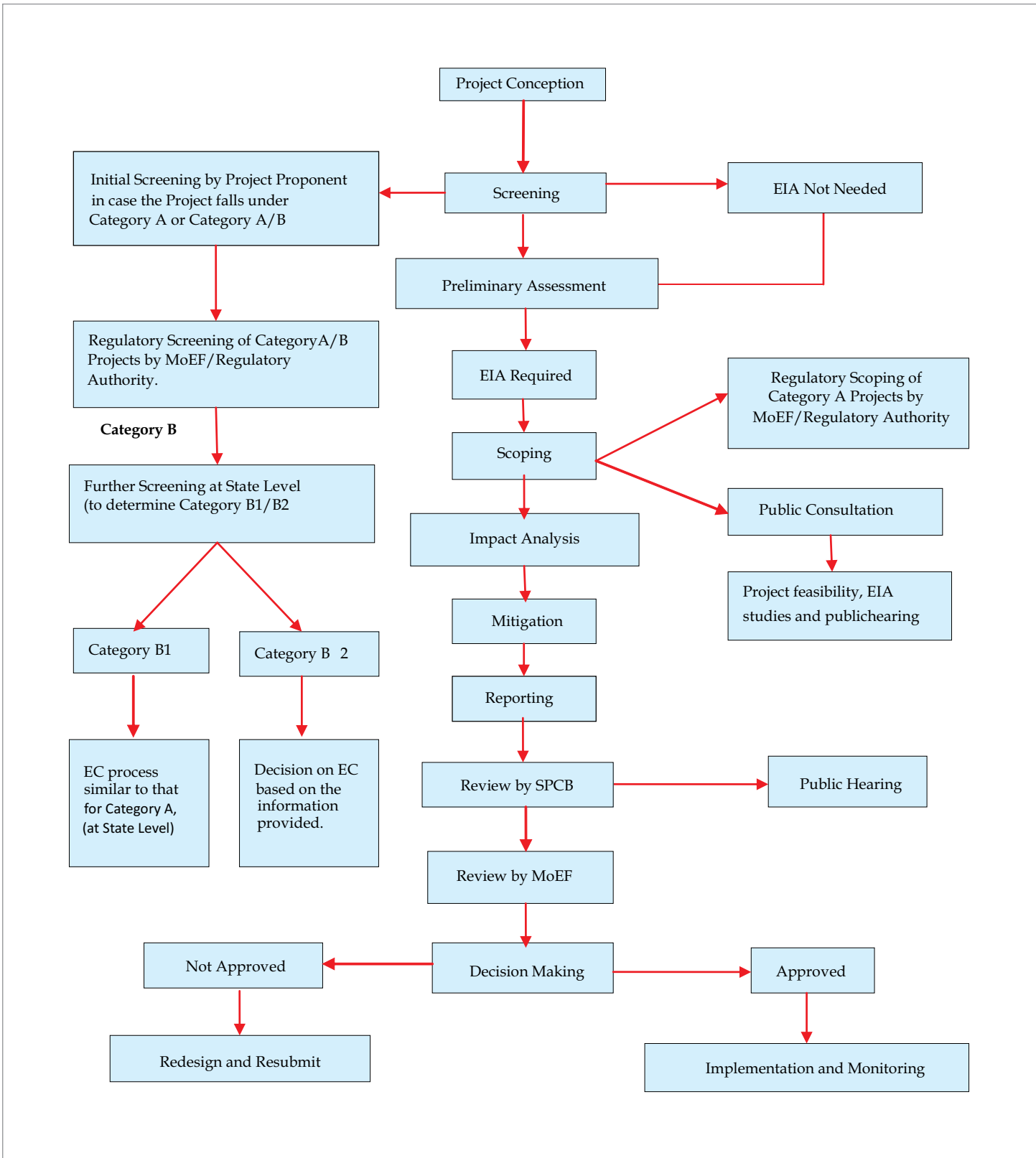


Figure 1. Environmental approval process & EC project classification scheme

information in the EIA by project proponents to project stakeholders. An effective public participation in course of preparation of EIA report plays a very important role and it facilitates assessment of application, seeking EC. With a view to achieving an effective implementation and further clarifying the processing principles involved, Government of India updated its EIA Notification in September 2006.

2.2 Public consultation process

The public consultation shall ordinarily have two components [1] comprising:

- i. a public hearing at the site or in its close proximity-district wise, to be carried out in the manner prescribed for ascertaining concerns of local affected persons.
- ii. obtaining responses in writing from other concerned persons having a plausible stake in the environmental aspects of the project or activity.

The public hearing at, or in close proximity to, the site(s) in all cases shall be conducted by the State Pollution Control Board (SPCB) or the Union Territory Pollution Control Committee (UTPCC) concerned in the specified manner and the minutes of the proceedings shall be forwarded to the regulatory authority concerned within 45 (forty five) days of a request to the effect, from the applicant. In case the State Pollution Control Board or the Union Territory Pollution Control Committee concerned does not undertake and complete the public hearing within the specified period, and/or does not convey the proceedings of the public hearing within the prescribed period directly to the regulatory authority concerned as above, the regulatory authority shall engage another public agency or authority which is not subordinate to the regulatory authority, to complete the process within a further period of forty five days.

If the public agency or authority nominated above, reports to the regulatory authority concerned that on account of the prevailing local situation, it may not be possible to conduct the public hearing in a manner which will enable the views of the concerned local persons to be freely expressed, it shall report the facts in detail to the concerned regulatory authority, which may, after due consideration of the report and other reliable information that it may have, decide that the public consultation in the case need not include the public hearing. For obtaining responses in writing from other concerned persons having a plausible stake in the environmental aspects of the project or activity, the concerned regulatory authority and the State Pollution Control Board (SPCB) or the Union

Territory Pollution Control Committee (UTPCC) shall invite responses from such concerned persons by placing on their website the summary EIA report prepared in the format as specified in EIA Notification, 2006 and further amendments, by the applicant along with a copy of the application in the prescribed form, within seven days of the receipt of a written request for arranging the public hearing.

2.3 Public consultation - worldwide

Directive 2003/25/EC [2] governs issues related to the 'public hearing' [EIA] in respect of Member States. The EIA Directive does not define 'reasonable time-frames' and leaves a margin of discretion for Member States to determine 'reasonable time-frames' within their jurisdiction. The time frames adopted by the Member States in the consultation phase, range from 14 days as the shortest time frame (Bulgaria, Estonia) to 60 days as the longest time frame (Italy) [2]. Most Member States have adopted a time frame of 30 days for the public consultation process to conclude.

2.4 EIA as a regulatory tool

After the project is subjected to an EIA and the application for clearance is submitted and approved, MoEF issues an environmental clearance (EC). The EC normally lists down a set of conditions for it to be valid. The EC is accompanied by conditions under which the project shall operate and clearance has been granted. This is how the MoEF is able to regulate the operations of all environmentally critical projects and projects within environmentally critical areas.

The site of a project (e.g., in ecologically sensitive areas) is an important factor which decides whether an EC is required. Ecologically sensitive areas include coastal areas (protected by the Coastal Regulatory Zone notification (CRZ), forests (protected by the Forest Conservation Act), various areas notified by the MoEF as Ecologically Sensitive Zones (ESZs), for example, Doon valley, Taj Trapezium etc. to wetlands, deserts, national parks, sanctuaries, corals, etc. (which are not protected by any specific Notification). In case of industries, the Environmental Guidelines for Siting of Industry (framed in 1985) and the Environment (Siting for Industrial Projects) Rules, 1999 have to be complied with.

The following categories of projects/activities are exempt from public consultation as notified by EC notification dated 14 September 2006: (i) modernization of irrigation projects (ii) all projects or activities located within industrial estates or parks approved by the concerned authorities, and which are not disallowed in such approvals; (iii) expansion of roads and highways which do not involve any further acquisition of land; (iv) maintenance and dredging provided the dredged

material shall be disposed within port limits; (v) all building or construction projects or area development projects (which do not contain any category A projects and activities) and townships (vi) all category B2 projects and activities; and (e) all projects or activities concerning national defence and security or involving other strategic considerations as determined by the central government.

2.5 Specified requirements for environmental clearance

Thresholds in respect of roads/highways, ports and airports and other stipulations / governing criteria etc. for processing and grant of environment clearance for projects in these sectors are spelt out in **Table 2**.

2.5.1 General condition (GC)

Any project or activity specified in category B will be treated as category A, if located in whole or in part within 10 km from the boundary of: (i) protected areas notified under the Wild Life (Protection) Act, 1972; (ii) critically polluted areas as notified by the Central Pollution Control Board from time-to-time; (iii) eco-sensitive areas as notified under section 3 of the Environment (Protection) Act, 1986, such as Mahabaleshwar, Panchgani, Matheran, Pachmarhi Dahanu, Doon Valley, and, (iv) inter-State boundaries and international boundaries, provided that the requirement regarding distance of 10 km of the inter-state boundaries can be reduced or completely done away with by an agreement between the respective states or Union Territories (UTs) sharing the common boundary in case the activity does not fall within 10 km of the areas mentioned at item (i), (ii) and (iii) above.

2.5.2 Specific condition (SC)

If any industrial estate/complex/export processing zone/special economic zone/biotech park/leather complex with homogeneous type of industries, such as chlor-alkali industry, leather /skin / hide processing industry, petrochemical based processing units and synthetic organic chemicals industry located outside industrial area for category 'A' projects and located within industrial area for category 'B' projects or those industrial estates with pre-defined set of activities (not necessarily homogeneous), obtains prior environmental clearance, individual industries including proposed industrial housing within such estates/complexes will not be required to take prior environmental clearance, so long as the terms and conditions for the industrial estate/complex are complied with. Such estates/

complexes must have a clearly identified management with the legal responsibility of ensuring adherence to the terms and conditions of prior environmental clearance, and must indicate the authority to be held responsible for violation of the same throughout the life of the complex/estate.

2.6 Important legislations regulating the environmental clearances in india

- i. One of the earliest legislation in this direction was the Indian Forest Act, 1927 which provided for consolidating acquisition of common property such as forest. The nodal agencies for the purpose are the respective State Governments and Forest settlement officers.
- ii. The Air (Prevention and control of Pollution) Act, 1981 further amended in 1987 was legislated with the mandate to the Government for ensuring prevention and control of Air pollution including noise pollution. The Government was further mandated to set up and constitute pollution control boards at Central and State Government level. No one could establish or operate any industry without the concerned Board's clearance.
- iii. The Water (Prevention and Control of Pollution) Act, 1974 and further amended in 1988 mandated the Government to ensure prevention of degradation of quality of water, restoration of water quality. No industry can be established or operate without clearance from the respective Pollution Control Boards. No developer is permitted to discharge sewage or industry effluents in any river/stream.
- iv. The Wildlife (Protection) Act, 1972 and further amended in 1993 stipulates that any industry or other developmental activities (including road and highway projects) requiring prior EC in terms of the thresholds detailed in the EIA notification, Sept 2006 shall have to obtain Wildlife Clearance if the project is proposed to be located inside of 10 kms of any National Park/Wildlife Sanctuary.
- v. The Forest Conservation Act, 1980 and further amended in 1988 aimed to empower the Central Government to ensure prevention of depletion of forest area. It prevents de-reservation of forest land and to ensure that forest land is not used for non-forest purposes without the express approval of the Central Government.

Table 2. Categorisation and conditions for accord of environmental clearance

Project or Activity		Category with threshold limit		Conditions if any
(1)	(2)	A	B	
(1)	(2)	(3)	(4)	(5)
1	Physical infrastructure including environmental services			
1a	Air ports	All projects including air strips which are for commercial use.		Note: air strips, which do not involve bunkering /refueling facility and or air traffic control, are exempted.
1b	Ports , harbours, breakwaters, and dredging	≥5 million TPA of cargo handling capacity (excluding fishing harbours)	< 5 million TPA of cargo handling capacity and/or ports/ harbours >10,000 TPA of fish handling Capacity	General condition shall apply Note: (i) Capital dredging inside and outside the ports or harbors and channels are included. (ii) Maintenance dredging is exempt provided it formed part of the original proposal for which Environment Management Plan (EMP) was prepared and environmental clearance obtained.
1c	Highways	(i) new national highways, and (ii) expansion of national highways greater than 30 km, involving additional right of way greater than 20m involving land acquisition and passing through more than one state.	(i) all new state highways projects, and (ii) state highways expansion projects in hilly terrain (above 1000m AMSL) and or ecologically sensitive areas.	General condition shall Apply Note: highways include Expressways
2	Construction/Township/Commercial Complexes/Housing			
2a	Building and construction projects		≥50000 sq. m. and <1,50,000 sq. m. of built-up area	The built up or covered area on all the floors put together including basement(s) and other service areas, which are proposed in the building/construction projects.
2b	The built up or covered area on all the floors put together including basement(s) and other service areas, which are proposed in the building / construction projects.		Covering an area >100 ha and / or built up area >1,50,000 sq. m.	++All projects under Item 8(b) shall be appraised as category B1

- vi. The Environment (Protection) Act 1986 further amended in 1991 mandates ensuring prevention of discharges or environment pollutants beyond prescribed limits and also to ensure handling of hazardous substances in accordance with the standards and procedures set out by the respective authorities.
- vii. The above crucial Acts are summarized in **Table 3**.

2.7 Exemption (relaxation) in clearances to linear projects

MoEF on 19th March 2013 partially modified the provisions of the Forest Conservation Act 1980 with a view to providing for non-forest use of forest land. Provisions were made for grant of EC to linear projects, of course subject to fulfillment of additional conditions viz. work on non-forest land may only be executed up to such point (to be selected by the user agency) on either side of forest land. This was permitted under explicit certification by the user agency that if approval under the Forest (Conservation) Act 1980 for diversion of forest land is declined, it is technically feasible to execute the project along an alternate alignment without involving diversion of forest land. Further, commencement of work on non-forest land will not confer upon the user an assurance for grant of final approval under the Forest (Conservation) Act, 1980.

3.0 EVOLUTION OF THE EIA SYSTEM ACROSS THE WORLD

The European countries started with the process of enacting legislations for EIA as a follow up to the approval of the European Directive on EIA in 1985. Regulatory framework and guidelines on EIA were established in West Germany (1974), France (1976), Canada (1973) and Australia (1975) etc. Among researchers and authors there is unanimity that in the year 1969 the U.S.A. was the first nation to establish formally, legislation requiring EIA by way of the U.S. National Environmental Policy Act (NEPA) [3]. Subsequently, Council on Environmental Quality (CEQ) was established by NEPA for assisting in the interpretation of NEPA's provisions and procedures. The broad mandate of NEPA was to ensure creation of and maintaining conditions conducive to harmonious existence of man and nature. In the U.K. several laws got legislated that served as the foundation stone for EIA, 1988 onwards. These legislations implemented the European Commission Directives 85/337/EEC (CEC 1985) including its amendments. The directives itself grew out of a concern for physical environment and preventing its further deterioration. Provisions contained in Directive 85/337 [an offshoot of European Communities Act of 1972] are the statutory documents which spell out the rules for EIA to be carried out by the Member States. In terms of the above Directive, EIA is mandatorily required for classes of projects appearing in Annexure -I of the Directive, whereas, projects figuring in Annexure-II provides for discretion to authorities for carrying out EIA. Annexure-I projects

Table 3. Summary of key environmental acts in India

S. no.	Name	Scope and objective	Operational agencies/key players
1.	Indian Forest Act, 1927	Mandates consolidation of acquisition of common property such as forests	State Government, Forest Settlement Officers
2.	Wildlife Protection Act, 1972, amended, in 1993	To protect wildlife	Wildlife Advisory Boards, Central Zoo Authorities
3.	Water (Prevention and Control of Pollution) Act, 1974, amended in 1988	Constitutes provisions for the prevention and of water pollution and enhancing the quality of water	Central and State Pollution Control Boards
4.	Forest Conservation Act, 1980, amended in 1988	To halt India's rapid deforestation and resulting environmental degradation	Central Government
5.	Air (Prevention and Control of Pollution) Act, 1981, amended in 1987	Details provisions for prevention, control and abatement of air pollution	Central and State Pollution Control Boards
6.	Environment (Protection) Act, 1986, amended in 1991	To provide for the protection and improvement of the environment under an umbrella legislation	Central Government, nodal agency MoEF, can delegate powers, State Departments of Environment

primarily consists of those related to crude oil refineries, coal / shale, thermal power station, nuclear power stations, large scale projects for dams reservoirs pipelines for gas, waste water treatment etc. Further, for identifying a project figuring under Annexure-II, a combination of both, 1) thresholds and 2) a case by case approach is followed by Member States. However, still, major variation in the nature of thresholds used, exists among different Member States e.g. in afforestation projects from an area of 30 hectares in Denmark to 350 hectares in Portugal, triggers mandatory EIA.

EIA procedures and legislations were finalized/adopted in China in 1989 [13], in Cambodia in 1996, in Laos in 1999, in Vietnam in 1993, and in Thailand in 2002. The EIA system adopted/in existence worldwide, have a very comprehensive objective of making the decision-makers fully aware of the environmental consequences that will follow their decision in the proposed action.

Despite the EIA law of 2002 enacted in China, wherein public participation is enshrined under Articles 11 and 21, researchers are of the view that initially public participation in the EIA process was limited [12]. In many of the countries several laws have been enacted since 2002 to mitigate adverse environmental impact and for improving forestry management. These laws/legislations were drafted/enacted in response to and for complying with the conditions regarding proper land use and progressive forest reforms, laid down by the World Bank for the release of Structural Adjustment Credit Loans.

4.0 DETAILS OF FOREST CLEARANCE

Protected areas like National Parks are completely free from human activities and are notified under Forest Protection Act (1980) and/or Wildlife (Protection) Act, 1972 and their respective amendments. Wildlife clearance is a prerequisite to obtaining "Forest Clearance" if the project involves forest land diversion in Protected Areas even for roads/highway projects. In fact, all projects/developmental activities including projects of roads/highways requiring prior EC in terms of the thresholds notified under EIA stipulations, 2006, require Wildlife Clearance if the projects' location falls within 10 kms of the geographical boundary of any Wildlife Sanctuary/National park as per the provisions of the Wildlife (Protection) Act, 1972. The National Board of Wildlife (NBWL) was constituted by the Government of India as a follow-up to the Wildlife (Protection) Amendment Act (2003). Prior clearance/approval from the NBWL and the Supreme Court, Government of India, is essential for obtaining wildlife clearance. However, Wildlife Clearance

is not a prerequisite for grant of "Prior Environmental Clearance" (MoEF OM dated 2nd Dec 2009).

The Forest Clearance process comprises 2 stages: stage I and II. The 1st stage constitutes in-principle approval in addition to depositing money for Compensatory Afforestation. No activity is allowed to be undertaken by the project-proponent until stage II clearance (Final) is accorded. Stage II clearance involves compliance of set out conditions under Stage-I approval, followed by handing over of the land. Previously, EC and FC were being sought independently, however, with the MoEF notification dated 19.03.2013 Forest Clearance has been delinked for linear projects (roads/highways, pipeline projects etc.).

5.0 ENVIRONMENT MANAGEMENT PLAN (EMP)

Environment impact assessment precedes formulation of Environment Management Plan. In the process of the said assessment the direct, indirect, intangible/induced and short/long term environment impacts, their range and scope, those that may cause risk to and adversely affect the physical, socio-economic and biological resources, are carried out in co-ordination with all the stakeholders and affected people. The study also incorporates processing and examining of "Alternatives" to the projects' location, design etc. with a view to avoiding adverse environmental effects or at least minimize such risks. Such assessment studies also cover the geographical "area of influence" of the project. The likely risks and impacts on account of the proposed project shall cover the whole project-cycle including at relevant i) preconstruction, ii) construction, and (iii) operation and maintenance stages.

The client/proponent has to prepare the EMP which necessarily should comprise:

- i. mitigation measures,
- ii. implementation schedule, cost estimates, and performance indicators, and
- iii. contingency plan for quick response in case of emergency situations and should have an in-built detailed environment impact monitoring and reporting mechanism.

The EMP must ensure that mitigation measures proposed e.g. design, construction including O & M of any project is in complete synergy with the extant and applicable Acts, Rules, Laws, Notifications and regulatory provisions. Mitigation

Table 4. Projects where forest land required diversion & where wild life clearance was required (as on 29.09.2014).

S I . No.	Name of Projects	ENV. Clearance (Time)	Forest Clearance (Time)	Area for diversion (ha)	Wild life clearance (Time)
1	Kishangarh-Udaipur – Ahmedabad section of NH-8	2 yrs	1 yr 8.5 mth	78.01 + 173.39 [*1]	NA
2	Gomati Chauraha – Udaipur section of NH-8 (from Km 177/000 TO Km 260/100) in the State of Rajasthan	1 yr 3 mth	2 yrs 6 mth	267	NA
3	Jhalawar – Biaora section of NH-12 in the State of Rajasthan	1 yr 10 mth	2 yrs	12.6	NA
4	Rehabilitation and upgrading to 2 Lane with paved shoulder of NH-232A (Unnao-Lalganj Section) in the state of Uttar Pradesh	1 yr 5 month	No data	66	NA
5	Rampur-Kathgodam Section from Km 0.000 (Km 190.000 of NH-24) to Km 88.000 of NH-87 in the States of Uttar Pradesh and Uttarakhand	1 yr 10 mth	3 yrs 9 mth	54.76+ 59.24 [*2]	NA
6	Hospet - Chitradurga section of NH-13 from Km 299.000 to Km 418.600 in the State of Karnataka	1 yr 7 mth	3 yrs 6 mth	53.6	NA
7	Hospet-Bellary-AP/KNT Border Section of NH-63 from Km.280.300 to Km.375.740 in the State of Karnataka	1 yr 9 mth	3 yrs 2 mth	12.9	NA
8	MH-KNT Border to Sangareddy Section of NH-9 from Km.348.800 to Km.493.000 in the State of Karnataka and Andhra Pradesh	1 yr 8 mth	2 yrs 7 mth	5.6+2.8 [*3]	NA
9	Shivpuri-Dewas Section of NH-3 from km.236.000 to km. 566.450 in the State of Madhya Pradesh	1 yr	3 yrs 6 mth	39.63	NA
10	Sultanpur-Varanasi Section of NH-56 in the State of Uttar Pradesh	11 mth	11 mth	133.22	NA
11	Varanasi-Indo-Nepal border of NH-233 (Varanasi-Indo-Nepal border, Pkg-II, Ghaghra bridge section)	1 yr 8 mth	1 yr 7 mth	50.51	NA
12	Agra – Etawah Bypass Section of NH-2 from Km. 199.660 to Km. 323.525 in the State of Uttar Pradesh	1 yr 1 mth	2 yrs 6 mth	##	NA
13	2 Lane with paved shoulder of NH-231 (Raebareilly – Jaunpur Section) and NH-232 (Ambedkar Nagar – Banda Section) in the state of Uttar Pradesh	1 yr 2 mth	2 yrs 6 mth	##	NA
14	Pratapgarh-Padi section of NH-113 FROM KM 80.00 TO KM 180.00 of NH-113	8 mth	2 yrs 6 mth	42.35	NA
15	2-lane with paved shoulders in Padhi –Dahod Section of NH-113 in the State of Rajasthan & Gujarat (Length 87 Km):	1 yr 11 mth	1 yr 8 mth	4.42 + 1.5 [*4]	NA
16	For 4-laning of Amravati – Gujarat- Maharashtra District Border (in Km.167/000 to Km.649.000) Section of NH-6 in the State of Maharashtra	1 yr 6 mth	3 yrs 2 mth	48.61	NA
17	Four Laning of ObedullaganjBetul Section of NH-69 From Km 2.800 to 8.300 and from Km 20.700 to Km 137.000 (Excluding Wild Life Sanctuary from Km 8.300 to Km 20.700) (Except 28+000 to Km 61+500 as Two Lane with Paved Shoulder) in the State Of MP	2 yrs	2 yrs 10 mth	153.54	NA
18	Four Laning of Rewa-Katni-Jabalpur Section of NH-7 From Km 242.3 to 465.5 in the State Of MP as BOT (Toll) Project On DBFOT	1 yr 3 mth	3 yrs 5 mth	16.89	NA
19	Part-II (Panagar Bypass and existing Jabalpur Bypass)	1 yr	1 yr 4 mth	0.46	
20	Four Laning of Gwalior-Shivpuri Section of NH-3 & 75 From Km 103 to 236 in the State of MP	2 yrs 4 mth	3 yrs 4 mth	##	3 yrs 7 mth
21	Widening and improvement of existing 2- lane to 4 lane of Kiratpur - Bilaspur Section of NH-21 in the State of Punjab and Himachal Pradesh(F.No.10-1228/2011.IA.III)	7 mth	2 yrs 3 mth	##	Wild life clearance involved but no time data available
22	4 lane to 4 lane of Bilaspur- NerChowk Section of NH-21 from Km 134.500 to Km. 186.500 in the State of Himachal Pradesh	1 yr 4 mth	1 yrs 1 mth	##	Wild life clearance involved but no time data available
23	Four Laning of Solapur-MAH/KNT Border Section of NH 9 in Km. 249/000 to Km. 348/800 in the State of Maharashtra.	1 yr 11 mth	10 mth	4.14 + 0.4 [*5]	2 yrs 2 mth
24	Four Laning of Solapur-Bijapur Section of NH-13 in Km. 0/000 to Km. 110/542 in the State of Maharashtra and Karnataka	1 yr 3 mth	7 mth	2.665	2 yrs 2 mth
25	Sitar Ganj-Tanakpur Section from Km 0.000 to Km 52.200 of NH- 74 in the States of Uttar Pradesh and Uttarakhand	2 mth	1 mth	36.47	NA
26	Kashipur-Sitar Ganj Section from Km 175.000 to Km 252.200 of NH- 74 in the States of Uttar Pradesh and Uttarakhand	4 mth	4 mth	2.95	NA
	## Data are not available [*1] In the States of Rajasthan & Gujarat. [*2] In the States of Uttar Pradesh & Uttarakhand. [*3] In the States of Karnataka & Andhra Pradesh. [*4] In the States of Rajasthan & Gujarat. [*5] 2 district in Maharashtra (Osmanabad & Solapur). Source :- http://www.nhai.org/Env.asp Note: The time stated for EC, FC and wild life clearance in respect of the road in Table --- has been reckoned from the details of the concerned projects as available in the "source "				

measures shall be planned and designed in such a way so as to ensure that “no net loss of biodiversity” is achieved (India Infrastructure Finance Company Limited; IIFCL). Extent of projects’ impacts and risks on biodiversity shall form an integral part of the assessment process and the provisions of the documented EMP must contain measures for preventing degradation of: (i) modified habitats (where the natural habitat has been altered on account of introduction of alien plants and animals) and (ii) natural and critical habitat.

6.0 TIME-LINES FOR ACTIONS BY CONCERNED AUTHORITIES FOR ACCORD OF EC

Ministry of Environment & Forest, Government of India is the regulatory authority at the Central Government level and the State Environment Impact Assessment Authority (SEIAA) at the state level for category ‘A’ and category ‘B’ projects described in the schedule. The time lines in regard to prior environmental clearance are shown in Table 4. The stage of “public consultation process” is normally the most time consuming one. In case of many projects spanning more than one state, arranging and concluding the public hearing with stakeholders required tremendous patience and continuous perusal.

7.0 CASE STUDIES – EC AND FC REGARDING

A snapshot of the details pertaining to the port, road, and airport projects in India is given in the following paragraphs. All the cardinal issues and time period taken in relation to grant of environmental clearance and forest clearance are spelt out.

7.1 Port projects

7.1.1 Dhamra Port Project (State of Odisha) -

The project entailed expansion of Dhamra Port project. Environmental Clearances as well as clearances in terms of the Coastal Regulatory Zone stipulations were required. The process seeking the above two clearances was initiated on 20.12.2012 by the Environment-cum-special Secretary to the Government of Odisha starting with the sending of the proposal to the Ministry of Environment and Forests, Government of India (IA Division). The EIA comprised addressing all issues pertaining to marine, terrestrial and socio-economic aspects of the project including a hydro-dynamic study of the effect of dredging. The said study suggested that no significant impact on the shoreline abutting the project shall take place.

A total of 23 Specific Conditions and 9 General Conditions were spelt out and appended to the two clearances for compliance. It is important to note that Appeal can be filed against any EC granted within a period of 30 days in terms of section 16 of the National Green Tribunal Act, 2010. The EC and CRZ clearances were accorded on January 1, 2014 [4]. In other words it took simply one year to accord the EC and CRZ Clearance.

7.1.2 Development of Southern Dock Complex and Oil jetty at Paradip Port, Project (State of Odisha) -

This project comprised development of multipurpose terminal for handling ‘clean cargo’ viz. containers and steel exports from the existing green field steel industries. The EC and CRZ clearances were issued by the Ministry of Environment and Forests, Government of India on 13th July 2012 and the clearances comprised of 14 Specific Conditions and 9 General Conditions to be complied with [5].

7.2 Roads/highway projects

A total of 6 Road/Highway projects located in the State of Uttar Pradesh & Madhya Pradesh each, were taken up for detailed case studies. All these projects involved diversion of forest land. Further, it also involved conducting public hearing in more than one district of the States. Similarly, 3 projects spanning the two States of Uttar Pradesh and Uttarakhand as well as 2 projects spanning the two States Rajasthan and Gujarat were analysed vis-a-vis the time consumed for obtaining EC and FC. In all, 26 projects were analysed and it was found that in nearly 14 of these projects (53.85%), the time taken for grant of forest clearance was either twice or more than two times the time taken for granting EC. The input data for the case studies of the above roads/highways projects have been gathered and collated in the **Table 5**[10]. The Table also shows the time period taken for grant of EC and FC for other road projects also. From the Table 5 [only 26 road projects for which data in regard to EC and FC is available], it is seen that an average of 16.04 months’ time has been consumed for grant of EC with the highest being 28 months and the three lowest being 2,4 and 7 months. Similarly, in regard to forest clearance an average of 25.74 months has been consumed for grant of the same with the highest being 45 months and the lowest three being 1,4 and 7 months.

7.3 Airport projects

7.3.1 Greenfield International Airport at Shamshabad, near Hyderabad

The environment clearance was based on the EIA study comprising aspects covering environmental quality monitoring, waste water management, green house guest management and development of green belt, rain water harvesting and water treatment etc. In fact the EMP too for the above project covered the above aspects. The greenbelt has been developed covering an area of 273 hectares and 971 hectares of natural greenery has been left undisturbed as required in the details of the EMP [6]. This green cover facilitated in removal of 124 tonnes of carbon dioxide annually from the environment comprising the airport and its surrounding areas. The mechanism for carrying out environmental monitoring analysis covered various parameters of the ambient air as well as stack, water, soil, wastewater and noise, in and around the airport site.

MoEF has granted environmental clearance for expansion of Hyderabad international airport at Shamshabad on 10th April, 2007, Letter no. 10- 14/2006-IA-III.

7.3.2 Greenfield International Airport at Mopa, Goa

Ministry of Environment and Forests had constituted a High Level Working Group (HLWG) under the Chairmanship of Dr. K. Kasturirangan, Member (Science), Planning Commission vide office order dated 17.08.2012 to study the preservation of the ecology, environmental integrity and holistic development of the Western Ghats in view of their rich and unique biodiversity. The HLWG submitted its report to the MoEF on 15th April 2013. The HLWG identified 37% of natural landscape having high biological richness, low forest fragmentation, low population density and containing Protected Areas, World Heritage Sites and Tiger and Elephant corridors as an Ecologically Sensitive Areas (ESA) [7].

7.4 Worldwide projects – case study related to environmental issues

7.4.1 Mekong river basin projects

Six countries are located in the Mekong River Basin. The river starts from Tibet in the West and traverses through China, Myanmar, Laos, Cambodia, Thailand, and Vietnam. As such any water related project in the Basin area is certain to

Table 5. Time line for efficient and prompt action by authorities for speedy grant of EC

Sl.no.	Activity	Time line
1	Constitution of the State Environment Impact Assessment Authority (SEIAA).	within 30 days of the receipt of the names from the State Government / Union Territory administration.
2	Scoping - This stage constitutes firming of "Terms of Reference"(ToR) and while finalizing the ToR the ones proposed by the applicant is also examined.	within 60 days of receipt of the Form 1/Form 1A.
3	Public consultation-	To be completed within a period of 45 days of a request to the effect from the applicant.
4	In case this does not get completed within the said period another authority or agency can be engaged for the work for completing the public hearing.	To be completed within a further period of 45 days.
5	The appraisal of the application by the Expert Appraisal Committee (EAC)/State Level Expert Appraisal Committee (SLEAC).	To be completed within a period of 60 days from the receipt of the EIA report and other documents.
6	The EAC/SLEAC shall place their appraisal for final approval before the competent authority.	within a period of 15 days of completion of the appraisal by them.
7	The regulatory authority shall convey its decision to the applicant.	within a period of 45 days from the date of receipt of the recommendations of the EAC/SLEAC or within 105 days of the receipt of the EIA report except in case of the regulatory authority's disagreement with the final EIA report.

have a trans boundary environmental, economic and social impacts on the populace, flora-fauna, and other inhabitants/species in the basin area [11]. Resultantly, it is very desirable that the country specific laws, rules and policies related to the fallout from the environmental impacts are framed and implemented in a well coherent and co-ordinated manner. Use of traditional mechanisms for gathering input data, often leads to misleading information particularly with regard to expanse of affected area. This happened in many of the transboundary EIAs also known as TIAs, conducted for Mekong river basin water-related projects. Resultantly, only “selective impact area” instead of the “potential impact area” got reflected and factored in the EIA. As such use of advanced technological methods viz. satellite imaging for mapping affected habitats as well as other geographical and biological formations shall project a more realistic picture in this regard. While legislating laws and their implementation and decision making should not allow short term benefits to trump other more related concerns. Power asymmetry is manifest in the Mekong basin countries resulting in muted resistance to related undue activities by the countries located in the upstream.

8.0 WORLD BANK, ADB AND OECD – PERSPECTIVE ON AID AND ENVIRONMENT

The aid agencies shall assess the environmental impact of development assistance projects which because of their nature, size and location could significantly affect the environment [8]. The World Bank’s detailed guidelines to be adhered to for evaluating the environmental impacts have been published in *Environmental Assessment Sourcebook (1991)*. Planning and implementation process of the projects by the WB hinges upon the central concepts of: (i) environmental economics, (ii) sustainable development, and (iii) complete project cycle. The Bank considers all these project specific variables to be related.

8.1 Time and cost requirements for EIA

Determination/allocation of time for initial EIA is a difficult process. The initial EIA is required to be carried out during the planning phase of a project and as such, is a function of the planning procedures and project characteristics. The assessment is also contingent upon the availability of its baseline data for conclusion of the process. Simultaneous action during the EIA and planning process ensures use of common data leading to a robust and much more efficient EIA and that is in synergy with other aspects of the planning

process. Complexity and quantum of problems faced by the proposed project govern the cost involved in undertaking the EIA. The cost normally is of the order of 0.1 to 2.0 % of the total investment [8].

8.2 Responsibility for EIA

The ultimate responsibility for design of the development projects and their upkeep besides safeguarding the environment in the respective developing countries lies with the governments. The OECD further underscores the need that the donors are to ensure that an EIA of the aid-assisted project takes into account the environmental laws and regulations of the recipient countries. Onus for EIAs to be carried out and paid, lies with the developers, whereas, in Belgium [9] the EIA is carried out by the experts engaged by authorities responsible for environment matters.

9.0 DISCUSSION AND CONCLUSION

The Government of India’s concern for environmental impacts started getting formalized with the setting up of the Ministry of Environment and Forest in 1985. This was followed by enactment of the Environment (Protection) Act, 1986 in turn framing and notifying the Environment (Protection) Rules, 1986. An important milestone in the course of enacting successive legislations by the Government of India, is the Notification dated 14th September, 2006 wherein the MoEF, Government of India has mandated seeking “prior environmental clearance” in case of construction of new projects and other activities appended as Schedule to the said notification entailing capacity addition or change in process or technology etc.

The assessment process of impacts on the environment and affected people is very complicated, vast and varied as well as interdisciplinary in nature. Further, it is very difficult for, even experts in the field, who attempt at estimating the costs and benefits of these impacts. The difficulty starts with establishing the baseline values of the existing environment as well as estimating the change in these values on account of the project/activity.

From the Table 4 it is clear that EC for most of the roads/highways projects took lesser time (significantly lesser time in some of the projects) than the time taken for accord of FC. However, as per the relevant rules and provisions, no activity can be started till Stage-II clearance is given by

the MoEF. This becomes very time consuming wherever diversion of Forest land is involved particularly if the project is spread over more than one State geographically. Therefore, appropriate level of co-ordination and cohesion between the concerned line Ministry, proposing the project and the MoEF is inevitably required. Though the regulator is the MoEF for grant of EC there are numerous authorities/entities viz. those associated with the (i) grant of Wild Life clearance (ii) Coastal Regulatory Authority (iii) Agriculture Ministry (iv) State Governments (when political considerations start weighing upon the decision making process in India). Still, it's on a healthy course in India, as the policies related to EC, has been nearly very dynamic in nature and has come a long way since 1985.

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