Assessment of Alternatives in Environmental Impact Assessment (EIA) reports of Development Projects in India During 2009 – 2014.

G.V.Reddy*, M.Srinivasa Reddy and J.Jyothirmai

TEAM LABS AND CONSULTANTS

B-115 - 117 & 509, Aditya Enclave, Annapurna Block, Ameerpet, Hyderabad, India

*** teamlabs@gmail.com**

Environmental Impact Assessment (EIA) - India

1977/78

- *EIA as an administrative requirement based on Central Water Commission Guidelines*

1994

- *EIA legislation with 13 amendments during 1994 – 2006 for 32 numbers (nos.) of development projects*

1997

- *Public hearing mandated for all EIA category projects*

2006

- *EIA Notification in suppression of 1994 notification for 39 numbers (nos.) of development projects. Public consultation in place of public hearing*

Stages in Prior Environmental Clearance Process - India

Stage - I	Screening for EIA Requirement
Stage - II	Scoping
Stage - III	Public Consultation based on Draft EIA
Stage - IV	Appraisal based on Final EIA

Ref: Notification S.O.1533 issued by MoEF&CC, Government of India, dt. September 14, 2006.

GENERIC STRUCTURE OF EIA DOCUMENT

S.NO	EIA STRUCTURE	CONTENTS
1.	Introduction	↓ Purpose of the report ↓ Identification of project & project proponent ↓ Brief description of nature, size, location of the project and its importance to the country, region ↓ Scope of the study – details of regulatory scoping carried out (As per Terms of Reference)
2.	Project Description	↓ Condensed description of those aspects of the project (based on project feasibility study), likely to cause environmental effects. Details should be provided to give clear picture of the following: ↓ Type of project ↓ Need for the project ↓ Location (maps showing general location, specific location, project boundary & project site layout) ↓ Size or magnitude of operation (incl. Associated activities required by or for the project ↓ Proposed schedule for approval and implementation ↓ Technology and process description ↓ Project description. Including drawings showing project layout, components of project etc. Schematic representations of the feasibility drawings which give information important for EIA purpose ↓ Description of mitigation measures incorporated into the project to meet environmental standards, environmental operating conditions, or other EIA requirements (as required by the scope) ↓ Assessment of New & untested technology for the risk of technological failure
3.	Description of the Environment	↓ Study area, period, components & methodology ↓ Establishment of baseline for valued environmental components, as identified in the scope ↓ Base maps of all environmental components
4.	Anticipated Environmental Impacts & Mitigation Measures	↓ Details of Investigated Environmental impacts due to project location, possible accidents, project design, project construction, regular operations, final decommissioning or rehabilitation of a completed project ↓ Measures for minimizing and / or offsetting adverse impacts identified ↓ Irreversible and Irretrievable commitments of environmental components ↓ Assessment of significance of impacts (Criteria for determining significance, Assigning significance) ↓ Mitigation measures

Ref: Notification S.O.1533 issued by MoEF&CC, Government of India dt. September 14, 2006.

GENERIC STRUCTURE OF EIA DOCUMENT

S.NO	EIA STRUCTURE	CONTENTS
5.	Analysis of Alternatives (Technology & Site)	In case, the scoping exercise results in need for alternatives: - Description of each alternative - Summary of adverse impacts of each alternative - Mitigation measures proposed for each alternative, and - Selection of alternative
6.	Environmental Monitoring Program	- Technical aspects of monitoring the effectiveness of mitigation measures (incl. Measurement methodologies, frequency, location, data analysis, reporting schedules, emergency procedures, detailed budget & procurement schedules)
7.	Additional Studies	- Public Consultation - Risk assessment - Social Impact Assessment. R&R Action Plans
8.	Project Benefits	- Improvements in the physical infrastructure - Improvements in the social infrastructure - Employment potential –skilled; semi-skilled and unskilled - Other tangible benefits
9.	Environmental Cost Benefit Analysis	- If recommended at the Scoping stage
10.	EMP	- Description of the administrative aspects of ensuring that mitigative measures are implemented and their effectiveness monitored, after approval of the EIA
11	Summary & Conclusion (This will constitute the summary of the EIA Report)	- Overall justification for implementation of the project - Explanation of how, adverse effects have been mitigated
12.	Disclosure of Consultants engaged	- The names of the Consultants engaged with their brief resume and nature of Consultancy rendered

Ref: Notification S.O.1533 issued by MoEF&CC, Government of India dt. September 14, 2006.

Assessment of Alternatives

- *150 Scoping documents and the corresponding EIA reports submitted during 2009-2014 to MOEFF&CC, available in public domain are reviewed*

- *Reports segregated on the basis of prescription of alternatives assessment during scoping stage*

- *Both sets of reports reviewed for quality of Alternatives Assessment.*

Reports Reviewed and Sectors

S.No.	Sector	No. of Projects
1	Industry	72
2	Infrastructure	15
3	River Valley and Hydroelectricity	39
4	oil and gas exploration	24
	Total	150

Scoping Documents Prescribing Assessment of Alternatives

S. No.	Sector	No. of Projects
1	Industry	4
2	Infrastructure	11
3	River Valley and Hydroelectricity	2
4	Oil and gas exploration	0
	Total	17

EIA Reports with Assessment of Alternatives Chapter

S.No.	Sector	No. of Projects
1	Industry	32
2	Infrastructure	11
3	River Valley and Hydroelectricity	9
4	Oil and Gas exploration	3
	Total	55

Number of Pages Describing "Alternatives Assessment" in EIA Reports

S.No.	Sector	Number of reports		
		1 page	2-4 Pages	4-6 Pages
1	Industry	12	16	4
2	Infrastructure	5	3	3
3	River Valley and Hydroelectricity	6	2	1
4	Oil and Gas exploration	0	1	2
	Total	23	22	10

Type of Alternatives Discussed in EIA Reports

Type of Alternative	Sector			
	Industry	Infrastructure	River Valley and Hydroelectricity	Oil and Gas exploration
Location	4	-	3	-
Activity	-	-	-	-
Design or Layout	2	-	1	-
Technological	10	-	2	3
Demand	-	-	-	-
Input	-	-	-	-
Routing	-	6	-	-
Scheduling and Timing	-	-	-	-
Scale and Magnitude	-	-	-	-
"No-Go Option"	-	-	-	1
Others*	16	5	6	-

*Others denote no description of alternatives despite keeping the heading of alternatives

Alternatives - Discussion

INDUSTRY SECTOR

This Industry decided to undertake an "Alternative Analysis (AA)" for this project. The various alternatives are

(1) Raw materials
(2) Technology
(3) Engineering and Hardware
(4) Site
(5) 'No-Project'

IRRIGATION SECTOR

The third alternative has been selected for establishment of reservoir due to low submergence area and moreover no complete rehabilitations are involved. Only a minimum of village forest, single crop area are coming in submergence area.

HIGHWAYS SECTOR

Analysis of alternatives & improvement proposals

OIL & GAS EXPLORATION

Analysis of Alternatives has been carried out considering the technical and operational feasibility.

(1) Alternative locations
(2) No Project Scenario
(3) Safety Considerations
(4) Options for use of Drilling Mud

Alternatives - Discussion

- *The location of project is best suited for the start of Bulk Drugs Manufacturing activities. So no alternative for site is analysed.*
- *Already best proven technology is proposed to be used in this project located in the Government demarked industrial area.*
- *Analysis of Alternative Technologies*

  Already best proven technology is proposed to be used in this project. Hence the analysis of alternative technology does not arise.
- *ALTERNATIVE TECHNOLOGIES*

  Limestone mining, Cement manufacturing and Power generation technologies are well proven ones all over the world. Hence no technological failures are anticipated.
- *The manufacturing of Asbestos cement sheets & Accessories is a well proven technology all over the world. Hence no technological failures are anticipated. Hence no alternative technologies are considered.*
- *Scoping exercise, (i.e. ToR issued by MoEFCC) does not specify any need for alternatives. Hence this exercise has not been done.*

Reasons

- *Mandate : Conditional in SO 1533*

Predominant Views

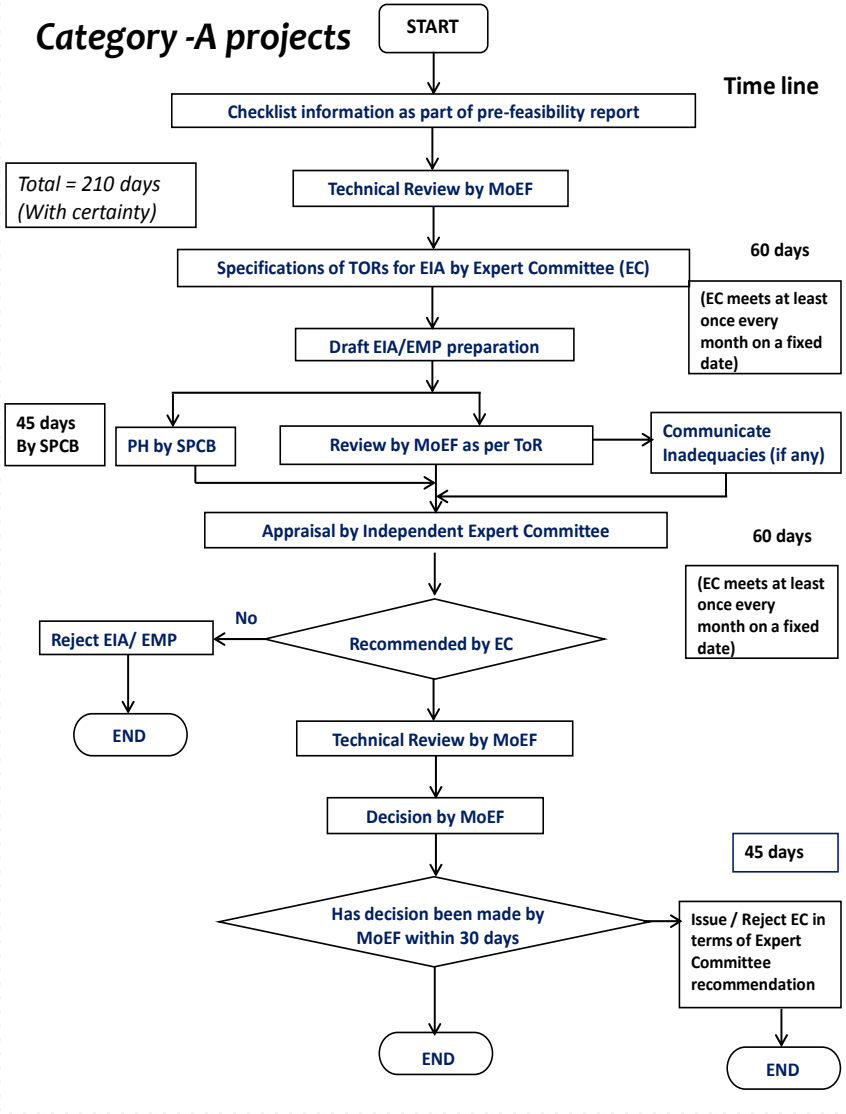
- *Consultant : I do not know*
- *Proponent : I do not want/care*
- *Regulator : I do not want to – No statutory requirement*

Way Forward

- *Mandate : Change in Statute*
- *Consultant : Awareness – guidance document/Mentoring*
- *Proponent : Positive Feedback*
- *Regulator : Refine TOR/Scoping Document*

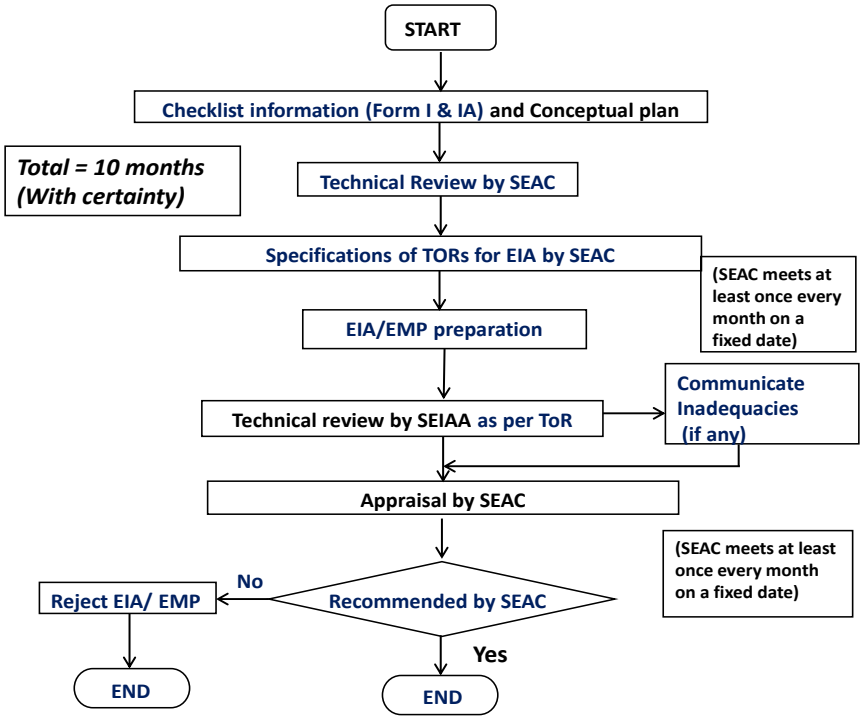
Thank You

Environmental Clearance Process - Category -A projects



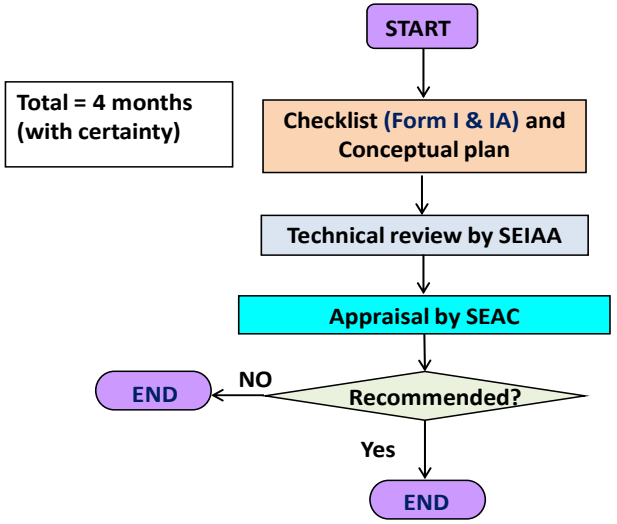
Environmental Clearance Process - Category -B projects

Category – B 1 projects



SEIAA: State Level Environment Impact Assessment Authority
SEAC: State Expert Appraisal Committee
ToR: Terms of reference

Category –B 2 projects



SEIAA: State Level Environment Impact Assessment Authority

SEAC: State Expert Appraisal Committee

Time limits - Prior Environmental Clearance Process - India

- EAC and SEAC shall meet at least once in every month
- Approval of TOR – 60 days (otherwise deemed for approval)
- Public Hearing – 45 days (otherwise Central/State Government shall engage other agency/authority to complete the process)
- The final EIA report and other documents shall be scrutinized in the office of the regulatory authority within 30 days
- Appraisal by EAC or SEAC – 60 days (on receipt of the final EIA report and other documents)
- Placing recommendations of EAC or SEAC before the competent authority for the final decision – within next 15 days
- The applicant shall be informed at least 15 days prior to the schedule date of EAC/SEAC meeting
- The minutes of the EAC/SEAC – within 5 working days & shall be displayed on the regulatory authority website

PROJECT ACTIVITIES REQUIRING 'EC'

EIA Notification No. S.O 1533 dated 14th September 2006 as amended S.O 3067 (E) dated 1st December 2009

- **All new projects/activities listed in Schedule**
- **Expansion and/or modernization of existing projects /activities with addition of capacities beyond the limits specified for the concerned sector**
- **Change in product mix**

LIST OF PROJECT CATEGORIES REQUIRED TO OBTAIN EC

I. Mining extraction of natural resources and power generation (for a specified production capacity)

1(a) Mining of minerals

1(b) Offshore and onshore oil and gas exploration, development & production

1(c) River valley projects

1(d) Thermal Power plants

1(e) Nuclear power projects and processing of nuclear fuel

II. Primary Processing

2(a) Coal Washeries

2 (b) Mineral beneficiation

III. Materials Production

3(a) Metallurgical industries (ferrous & non ferrous)

3(b) Cement plants

LIST OF PROJECT CATEGORIES REQUIRED TO OBTAIN EC

IV. Materials Processing

4(a) Petroleum refining industry

4(b) Coke oven plants

4(c) Asbestos milling and asbestos based products

4(d) Chlor-alkali industry

4(e) Soda ash industry

4(f) Leather/skin/hide processing industry

V. Manufacturing/Fabrication

5(a) Chemical fertilizers

5(b) Pesticides industry and pesticide specific intermediates (excluding formulations)

5(c) Petro-chemical complexes (industries based on processing of petroleum fractions & natural gas and/or reforming to aromatics)

5(d) Manmade fibres manufacturing

LIST OF PROJECT CATEGORIES REQUIRED TO OBTAIN EC

5(e) petrochemical based complexes (processing other than cracking & reformation and not covered under the complexes)

5(f) Synthetic organic chemicals industry (dyes & dye intermediates; bulk drugs and intermediates excluding drug formulations; synthetic rubbers; basic organic chemicals, other synthetic organic chemicals and chemical intermediates)

5(g) Distilleries

5(h) Integrated paint industry

5(i) Pulp & paper industry excluding manufacturing of paper from waste paper and manufacture of paper from ready pulp with out bleaching

5(j) Sugar industry

5(k) Induction/arc furnaces/cupola furnaces 5TPH or more

VI. Service Sectors

6(a) Oil & gas transportation pipeline (crude and refinery/petrochemical products), passing through national parks/sanctuaries/coral reefs/ecologically sensitive areas including LNG Terminal

6(b) Isolated storage & handling of hazardous chemicals (as per threshold planning quantity indicated in column 3 of schedule 2 & 3 of MSIHC Rules 1989 amended 2000)

LIST OF PROJECT CATEGORIES REQUIRED TO OBTAIN EC

VII. Physical Infrastructure including Environmental Services

7(a) Air ports

7(b) All ship breaking yards including ship breaking units

7(c) Industrial estates/parks/complexes/areas, export processing zones (EPZs), Special Economic Zones (SEZs), Biotech parks, leather complexes

7(d) Common hazardous waste treatment, storage and disposal facilities (TSDFs)

7(e) Ports, Harbors

7(f) Highways

7(g) Aerial ropeways

7(h) Common Effluent Treatment Plants (CETPs)

7(i) Common Municipal Solid Waste Management Facility (CMSWMF)

VIII. Building/Construction projects/Area Development projects and Townships

8(a) Building and construction projects

8(b) Townships and Area Development projects