

## **CHAPTER 3**

### **GENERAL EIA PROCEDURE, REQUIREMENTS, AND STUDY METHODOLOGIES**

#### **3.1 EIA study to be Conducted by Qualified Persons**

An EIA study shall only be carried out by a team of Qualified Persons who hold a valid registration with the DOE as stipulated under Section 34A (2B) of the EQA 1974 (Amendment) 2012. The Qualified Persons are commonly referred to as the EIA Consultants. The EIA team shall comprise professionals (qualified persons) who are competent and experienced in the technical fields relevant to the EIA study. The team shall be led and supervised by a team leader who shall be responsible for coordinating the EIA study and for ensuring the EIA Report to be written is complete, clear, coherent, balanced, and impartial and is useful for decision making process.

#### **3.2 EIA Methodologies**

EIA study shall follow the following typical steps or phases commonly followed by EIA practitioners and widely adopted by environmental agencies worldwide:

- Screening
- Scoping towards formulation of terms of reference
- Baseline study
- Identification of mitigation measures
- Impact assessment and evaluation of significance
  
- EIA Report preparation
- EIA Report review
- Decision making
- Project implementation and environmental monitoring

- Environmental audit

The steps are briefly explained in the following paragraphs.

### **3.2.1 Screening**

Screening is the first process in the EIA study to determine if a proposed development project is subject to a regulatory provision requiring an EIA.

### **3.2.2 Scoping**

Scoping is the initial phase of the EIA process which occurs early in the project cycle. Scoping is the process of identifying the key environmental issues and the study spatial and temporal boundaries. The scoping answers the question of what to be investigated and assessed during the subsequent phases of the EIA process, and the range and extent of the key issues to be addressed. The scoping step is of extreme importance because it determines the focus and depth of the EIA study, which in turn implicates the requirements on time, personnel, and cost of the study.

The scoping shall consider issues of concerns identified and expressed by the stakeholders and the public (especially the local community), the professional and scientific community, government departments, and non-governmental organizations (NGOs). During the scoping process desktop analyses, stakeholder interviews, and public meetings may be conducted to ascertain whether additional information is needed to evaluate baseline conditions and potential impacts within the proposed project area.

Table 3.1 provides some recommended practices in organizing scoping consultations.

**Table 3.1 Good Practical Steps and Tips in Scoping Consultations**

Some good practices and steps in organizing scoping consultations are:
<ol style="list-style-type: none"><li>1. Identify relevant stakeholders and local residents who are concerned in the proposed project.</li><li>2. Contact the stakeholders and local residents to participate in scoping.</li><li>3. Provide the stakeholders and local residents information about the proposed project. Give contact details for information and comment.</li><li>4. Arrange meeting place for getting feedback on scoping consultation process.</li><li>5. Collate and analyze all responses and take them into account in the EIA study.</li><li>6. Thank respondents for their help and explain how their comments have been addressed.</li><li>7. If there is considerable local interest, consider holding a public exhibition or special focus group meeting in a community hall at which the project will be presented and staff will be ready answering questions and queries.</li><li>8. Record the views expressed in scoping consultations in the EIA Report.</li></ol>

The scoping ensures that only significant issues and reasonable alternatives are examined and the exercise results in the formulation of the Terms of Reference (TOR) for the EIA study.

### **3.2.3 Terms of Reference (TOR) Formulation**

Terms of reference (TOR) is the product of the scoping process. The scoping identifies the issues to be addressed, whereas the TOR sets the objectives,

defines the scope, and establishes the strategy and schedule for the EIA process to address these issues. Typically, the TOR will:

- Define what types of information obtained from the scoping process are to be presented in the EIA Report such as
- Specify what studies will be performed
- Identify who will conduct the studies
- State when the studies will be carried out and the study timeline
- Outline the methodologies to be used in impact assessment and evaluation of significance

#### **3.2.4 Baseline Studies**

A baseline study is the study of the current status of the environment in the area proposed for development before the development work of the project is started. The baseline study phase may involve field studies (the collection of data directly from the project site – primary sources) or desktop studies (data obtained from published records, project documents, maps, photos - secondary sources). The baseline study will identify key issues likely to be faced as a result of the implementation of the proposed project. The baseline studies will provide a detailed description of the affected area and establish the existing environmental and socio-economic baseline status that will be used in the impact assessment phase.

Typically baseline studies may address following main areas:

Physical:

- Land use
- Topography
- Geology, hydrogeology
- Soils and terrain
- Watershed

Environmental:

- Air quality
- Water quality
- Noise, vibration and nuisance
- Groundwater
- Visual/aesthetics

Biological:

- Terrestrial and aquatic ecosystems
- Flora and fauna
- Environmentally sensitive areas

Socio-economic:

- Demography
- Development needs and potential
- Infrastructure facilities
- Economic activities

Cultural/Heritage:

- Archaeological resources
- Historical resources

The list is not exhaustive, and not all items listed above are applicable to all EIA studies. The subject areas to be covered in the baseline study should focus only on those aspects that are likely to be affected. The areas generally depend on the nature, scale, location of the proposed project, and the extent of the impact.

### **3.2.5 Impact Assessment and Evaluation of Significance**

During the impact assessment phase of the EIA study, the impacts of the proposed project are determined. The impacted sectors could be environmental, socio-economic, health, etc. To identify and assess the magnitude of potential impacts associated with or resulting from project activities, a number of methodologies have been developed and used worldwide. These include the following:

- Experts judgement
- Checklist and matrices
- Multi-criteria analysis
- Mathematical models and simulation
- Case comparison
- Geospatial analysis
- Risk analysis

There is no single ideal method: some methodologies are appropriate in certain situations while others are more applicable to other situations, depending on several factors including the nature and scale of development project, impact receptors, budget availability, etc.

Another important process in the impact assessment stage is to evaluate the significance of the impacts. It is a standard practice to firstly categorize the impacts generated by any activity for every component of the project into adverse (negative impacts) or enhancement (for positive impacts). The impacts are then graded for their significance by using some form rating system for both scenarios of “before mitigation” and “after mitigation”. Significance is often differentiated into impact magnitude and impact significance. Impact magnitude refers to the measurable change (i.e. intensity, duration and likelihood) while impact significance refers to the value placed on the change by different affected parties (i.e. level of significance and acceptability). To determine whether an impact is significant the following criteria are commonly used:

- Impact characteristics (temporal, spatial, reversibility)
- Geographic extent
- Ecological context
- Environmental standards, guidelines, or objectives

Rating of impacts will provide a basis for prioritization of impacts to be addressed, understanding the scale of the impacts, and the method of assessment of the effectiveness of the mitigation measures.

There will be sources of uncertainty involved at several stages of the EIA study including the baseline studies and impact prediction. The sources of uncertainty are identified and discussed.

### **3.2.6 Identification of Mitigation Measures**

This step of the EIA study will identify mitigation measures that can be implemented to avoid, prevent, minimize, or offset the predicted adverse impacts. The environmental agencies normally require that state of the art technologies or best available technologies (BAT) and industry best practices appropriate to the project components are evaluated for implementation to mitigate the adverse environmental impacts on the various receptors.

Mitigation measures include all actions and activities taken, put in place, or executed which could be structural, non-structural, procedural, or administrative in nature, to mitigate the adverse impacts.

### **3.2.7 EIA Report Preparation**

Based on the results of all studies, the EIA team leader will coordinate the writing of the EIA Report and thoroughly review it to ensure it encompasses all the elements in the TOR, and is comprehensive, coherent, balanced, impartial and technically acceptable for submission to the authorities.

The EIA consultant acting as the team leader shall extract and summarize the major findings of the reports prepared by subject matter consultants (SMCs) and place them in the appropriate chapters in the EIA Report. The report summary made by the EIA consultant shall be cross referenced to the relevant pages in the SMCs' reports. The original reports by the SMCs shall be placed in the Appendix to the EIA Report.

### **3.2.8 EIA Report Review**

EIA Report review is conducted either at the DOE state office or at the DOE Headquarters depending on the nature and location of the proposed project. If the project falls under the First Schedule of the EIA Order, the EIA Report will be reviewed at the state office, while for a project which falls under the Second Schedule, the EIA Report will be reviewed at the DOE Headquarters. If a First Schedule activity traverses two or more states, the EIA Report will also be reviewed at the DOE Headquarters. The differences between the EIA reports review process at the state DOE and at the DOE Headquarters are briefly discussed below.

#### **3.2.8.1 The EIA Report review at the DOE state office**

The submitted EIA Report will firstly be checked for “Report Adequacy” (RAC) by a technical committee comprised of a team of DOE State officers to be known as Technical Review Committee (TRC). The adequacy checking involves quality checks for compliance with the Terms of Reference (TOR), EIA Report format, absence of obvious scientific and technical errors, coherence of the report, environmental pledge by the Project Proponent, etc. An EIA Report which does



not pass the RAC will be rejected. The EIA Report which passes the RAC will be reviewed by a technical committee known as the EIA Technical Review Committee (EIATRC). The members of EIATRC, other than the TRC members are representatives from government agencies (GAs) and in certain circumstances when needed, individuals (referred to as appointed individuals- Als) from within the DOE or outside of DOE who possess vast experience or specific expertise relevant to the EIA study will be appointed on a case to case basis. Non-Governmental Organizations (NGOs) may also be invited to the EIATRC meetings as general representatives or as Appointed Individuals (Als). The Appointed Individuals (Als) are required to submit a written comment on the Report to the DOE. The final decision to approve or not to approve an EIA report is made by the DOE state Director after taking into consideration the views of the EIATRC members.

#### **3.2.8.2 The EIA Report review at the DOE Headquarters**

The EIA Reports will undergo a review process as follows: Firstly, it will be checked for “Report Adequacy” (RAC) by a technical committee comprised of a team of DOE HQ officers to be known as Technical Review Committee (TRC). The adequacy checking involves quality checks for compliance with the Terms of Reference (TOR), EIA Report format, absence of obvious technical errors, coherence of the report, environmental pledge by the Project Proponent, etc. An EIA Report which does not pass the Report Adequacy Check (RAC) will be rejected. The EIA Report which passes the RAC will be reviewed by the EIATRC members, comprised of the TRC members, individuals appointed (Als) on an ad hoc basis from within the DOE or outside of DOE and relevant government agencies (GAs). Non-Governmental Organizations (NGOs) may also be invited to the EIATRC meetings as general representatives or as Appointed Individuals (Als). The individuals, appointed based on their extensive experience or particular expertise on a subject matter relevant to the EIA study are required to submit a written comment on the Report to the DOE. The Director General will

make the final decision whether to approve or not to approve an EIA Report after taking into consideration the opinions and views of the EIATRC members.

### **3.2.9 Decision Making**

A decision is made at the end of the review process to approve or reject the EIA Report. The decision is then conveyed to the project approving authority to assist them in arriving at a decision on the project.

### **3.2.10 Project Implementation and Monitoring**

If the proposed project is approved for implementation, the project will proceed to the subsequent phases of design, construction and operation. Monitoring activities will be conducted to verify that the findings of the EIA study of the potential impacts identified during EIA scoping process are correct, appropriate mitigation and prevention measures are properly implemented, and the measures are effective in mitigating the adverse impacts to the environment. This form of monitoring can be described as impact monitoring (IM). Monitoring also serves the purpose of ensuring the EIA conditions of approval (COAs) are complied with. In this phase, an environmental audit may also be carried out to assess the overall project compliance and opportunity for optimization and further improvement in environmental management of the project. This form of monitoring can be termed as compliance monitoring (CM). Additionally, monitoring may also involve the monitoring the performance of pollution control systems and other mitigation measures. This type of monitoring is commonly known as “performance monitoring” (PM).

## **3.3 EIA Report Quality Control Assessment**

As general guidance, the Project Proponent and the EIA Consultant may utilize the EIA Report Quality Self-Assessment Tool (RQSAT) shown in Table 3.2 to

assist them in conducting self-check on the quality of the EIA Report prepared and the possibility of it be approved. EIA Reports scoring an A or B will likely to be approved while those scoring an F will be rejected. The Project Proponent and the EIA Consultant are advised not to submit to the DOE any EIA Reports which has been self-assessed, where an F score is obtained.

**Table 3.2: Self–assessment tool for EIA Report quality control**

Assessment criteria	Score	Expected assessment result
<ul style="list-style-type: none"> <li>* All important tasks (e.g. studies, public engagements, modelling, etc., wherever relevant) were performed</li> <li>* All TOR components were covered</li> <li>* EIA Report complies with the report standard format</li> <li>* Data and information are factually correct, can be verified, and technically defensible</li> <li>* EIA Report is coherent, legible, and balanced</li> <li>* Proposed mitigation measures (P2M2s) are considered to be BAT or best practices</li> <li>* PP made pledge to implement EMP &amp;P2M2s</li> </ul>	A	The EIA Report can be approved.
<ul style="list-style-type: none"> <li>* Most important tasks (e.g. studies, public engagements, modelling, etc., wherever relevant) were performed but some minor ones were not performed</li> <li>* All TOR components were covered</li> <li>* Data are factually correct and technically defensible but some non-substantive facts cannot be verified</li> </ul>	B	The EIA Report can be approved

<ul style="list-style-type: none"> <li>* EIA Report is coherent and balanced but some non-substantive information may not be presented clearly</li> <li>* EIA Report complies with the report standard format</li> <li>* Some non crucial contents (e.g. maps) of EIA Report are illegible or calculations not performed or incorrect</li> <li>*PP made pledge to implement EMP &amp; P2M2s</li> </ul>		
<ul style="list-style-type: none"> <li>* Important tasks (e.g. studies, public engagements, modelling, etc., wherever relevant) were not performed</li> <li>* Some TOR components were not covered</li> <li>* EIA Report did not comply with the report standard format</li> <li>* Important data and information are factually incorrect and are not technically defensible</li> <li>* Important studies were not conducted, or inadequate, or technically flawed.</li> <li>* Some parts of EIA Report are biased, incoherent, and unreadable</li> <li>* Proposed P2M2s are not considered to be BATs or best practices</li> <li>* PP did not make pledge to implement EMP &amp; P2M2s</li> </ul>	F	The EIA Report cannot be approved and will be rejected

The score of an A or B or F in column 2 of Table 3.2 is assigned as the overall score of the EIA Report. To achieve an overall score A or B, all the criteria listed in column 1 of the Table must be complied with. On the other hand, an overall F score will be given to the Report if any of the criteria listed in column 1 is not complied with.

