

THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
ENVIRONMENTL PROTECTION AUTHORITY



GUIDELINE SERIES DOCUMENTS FOR REVIEWING
ENVIRONMENTAL IMPACT STUDY REPORTS

NOT FOR CITATION

This guidelines is still under development and shall be binding after consensus is reached between the Environmental Protection Authority and the Environmental Units of Competent Sectoral Agencies

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PREFACE

In Ethiopia so far there is no systematic approach in reviewing environmental impact study reports. Past experience has shown that reviews of Environmental Impact Study (EIS) reports were mainly based on individuals' experiences and opinions.

In order to overcome this constraint and make review of reports to the standard, EPA has prepared **these four Guideline series Documents** with the objectives of:

- providing a consistent approach for reviewing EIS reports;
- deciding whether there is sufficient information on the background of the project and its environmental setting, alternatives, impacts, mitigation and monitoring;
- ensuring that all relevant information has been analyzed and presented based on appropriate methodologies;
- ensuring the points of view of all stakeholders have been taken into account;
- guiding the reviewing process and facilitating decision making;
- indicating a comprehensive information requirements;
- evaluating the reports in a systematic and objective manner; and
- providing a structured questionnaires for interpreting the information that will be provided in the report.

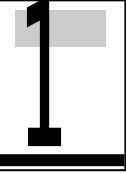
These guideline documents are intended to serve as basis for guidance in reviewing of environmental impact study reports pertaining to projects of all sectors. These documents are:

REVIEW GUIDELINE SERIES 1:	Guidelines for Review Approach
REVIEW GUIDELINE SERIES 2:	Guidelines for Contents and Scopes of Report
REVIEW GUIDELINE SERIES 3:	Checklist of Environmental Characteristics
REVIEW GUIDELINE SERIES 4:	Review Criteria

The guideline documents, although mainly meant to be used by EPA and relevant regional environmental agencies, they can also be used by sectoral environmental units, and the proponents.

Thus the guideline documents will help to make decision in good time and faith, whether and under what conditions a project should be allowed to proceed.

REVIEW GUIDELINE SERIES



Guidelines for Review Approach

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1. INTRODUCTION

This section raises a number of fundamental issues with regard to how Competent Authorities review environmental impact study reports, the approaches to be followed in reviewing the reports, a structured questionnaire (checklist) for interpreting the information as well as background information of the suggested review criteria (format) for compiling the review comments.

2. APPROCHES TO BE FOLLOWED DURING THE REVIEW PROCESS

EIS reports of major development projects that are subject to licensing, execution, or supervision by federal agency or when they are likely to produce trans-regional impacts should be reviewed for their adequacy by the EPA. At the regional level, the regional environmental agency is mandated in reviewing EIS reports of those development projects that are not under the jurisdiction of the EPA.

2.1. Competent Authorities Review

- Impact Assessment Service (IAS) of the Authority or its equivalent focal unit of the relevant regional environmental agency coordinates the review works (activities) of the staff of the various other functional units of their respective institutions.
- The same focal units mentioned above will undertake analysis and compilation of the reviews of the various functional units of the institutions.

2.2. Specialist Review

This form of review is pertinent to controversial development proposals or where there is public concern and/or uncertainty over specific issues. In this respect, therefore the following proposals should be considered for specialist review:

- highly technical proposals;
- proposals for which the Authority or relevant regional environmental agency lacks the expertise.

3. AIDS TO ASSIST THE REVIEW PROCESS

The recommended approach to review the adequacy of information contained in the EIS report is based on the requirements of *Guideline Series 2 and Guideline Series 3* of this review package.

Even though these sections of the document would have a benefit in providing general guidance as to reviewing the adequacy of the report in terms of covering sufficient aspects of the requirement, they are not considered exhaustive by their own to enable the reviewers to fully evaluate a report. Thus, the reviewers are recommended to draw extensively on their own experiences and other sources so as to sufficiently review a report.

3.1. Checklists for Evaluating the Report

The list of indicators (*Review Guideline Series 3*) can be used by the reviewer as main guide to identify environmental factors which may potentially be affected by development activities, or which might place significant constraints on a proposed development.

3.2. Guideline for the Contents and Scopes of the Report

The required outlines for report requirements (*Review Guideline series 2*) give guidance on the structure as well as technical aspects of the reports that should be covered. In short this guideline will have importance in providing the required information for: -

- determining the quality and sufficiency of the report; and
- ensuring that the assessments are in an appropriate structured format that enables the Authority or relevant regional environmental agency to make well-informed decisions.

3.3. Site Visits

As deemed necessary, the reviewers need to undertake site visits to the project area for the purpose of verifying the validity and reliability of the issues raised in the EIS report of the project.

4. REGARDING ADEQUACY OF THE REPORT

4.1. Identifying Effective EIA

An effective EIA will enable the Authority or regional environmental agency to weigh up the costs and benefits of the proposal, so as to whether or not the project is environmentally and economically sustainable and socially acceptable. To this effect therefore, reviewing considers the adequacy of:

- compliance with the environmental requirements (legal and procedural)
- information with regard to :
 - compliance with the Terms of Reference;
 - the examination of alternatives, impacts, mitigation and monitoring;

- the use of scientific and appropriate methodologies,
- involvement of all stakeholders;
- presentation of information to decision makers,; the public etc.

In general, effective review of EIS Report should be governed by taking into consideration of:

- formal judicial control;
- administrative requirements;
- ethical and professional standards ;and.
- direct stakeholders involvement.

4.2. A Framework (structured Questionnaire) for Review

Some of the key issues which need due consideration during the review of EIS report are structured around a list of questions. The coverage of the review considerations include among other things the following:

- Have the guiding principles of Environmental Policy of Ethiopia and elements regarding EIA been applied?
- Has a broad understanding of the term ‘environment’ contained in the Proclamation on the Establishment of Environmental Proclamation Organs and EIA proclamation been adopted in the planning and assessment?
- Has the EIA procedure been followed in preparing environmental impact study report of the project?
- Has there been sufficient consultation with relevant stakeholders at the federal, regional and local levels?
- Is it clear whether predictions or judgments were based on expert opinion, standards, models, case studies or personal experience and judgments?
- Does the EIA report provide the necessary information as per the guideline for the content and scope requirement of the report ?
- Is the report organized in a systematic and integrated manner so as to clearly show the interrelationships between sections? Is the information in the report accurate, unbiased and credible?
- Is adequate attention given to the reasonable alternatives identified during the scoping stage?
- Does the report consider the possibility of cumulative impacts?
- Are mitigating measures defined in specific and practical terms?
- Is Environmental Management Plan (EMP) containing environmental impacts, mitigating measures, costs, etc.described?
- Is the information analyzed, synthesized and integrated so as to indicate the main issues to be evaluated?
- Does the report contain a conclusion (should necessarily be reflected in the Executive Summary), which indicates the main issues to be evaluated in the decision?

- Are the judgments made around the issue of significance valid? Is it clear how they were made?
- Is the information in the report presented so as to make sure that it is accessible and clearly communicated to the non-specialists?
- Have appendices containing detailed technical reports, approved minutes of public involvement process and others attached to the report?

4.3 Format for Compiling the Review Comments

The review is suggested to be carried out by experts who are familiar with the EIA process and other environmental requirements of the country. The reviewers are recommended to give their comments based on the **Review Criteria (see Guideline series 4)**. This format would have importance in evaluating the reports in a systematic and objective manner. These review criteria are an amalgamation and extension of Lee and Colley's and EC's criteria, developed by the Impact Assessment unit (IAU) at Oxford Brookes University.

Guidelines for Contents and
Scopes of Report

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1. INTRODUCTION

This section is intended to provide information about the contents of the EIA report. The focus of this guidelines is to support informed decision making by enabling the reviewers to make quick and detailed evaluation of EIS report.

2. STRUCTURE AND CONTENT OF THE REPORT

The following summary is a quick-reference guide that should be incorporated in the Environmental Impact Study report.

1. Executive Summary;
2. Introduction;
3. Approach to the study;
4. Assumptions and/or Gap in know ledges;
5. Administrative, Legal and Policy requirements;
6. Assessment;
7. Mitigation measures;
8. Conclusions and Recommendations;
9. Appendices.

The contents of each section are described as follows.

2.1. Executive Summary

This section is an important part of the report that enables the reviewers to have a very clear view of the intended project. To this effect therefore, the summary should provide brief, accurate, clear, and concise information about the project, in particular highlighting the main findings and recommendations that are relevant for decision-making. As a general guide this section needs to contain:

- title and location of the project;
- name of the proponent;
- name of the consultants and/or organization preparing the EIS report;
- a brief project description;
- project alternatives;
- the major impacts;
- recommendations for mitigation/ compensation;
- proposed monitoring activity, and implementation strategy.

2.2. Introduction

This section will have importance in providing background information about the proposal and indicating how the report is structured. This needs to be outlined in one or two pages. It is important that the ‘context’ of the study report should make clear especially the following: -

- Background information that can be used for the project proposal or the study in context;
- An outline of the proposal (e.g. objectives, location; proposed alternatives in terms of location, design, process, input, etc, input and resource requirement, life-span of development);
- The structure of the report concerning the location of the TOR, summary, conclusions and recommendations;
- Methodologies employed. By how many specialists and which disciplines.

2.4 Approach to the study

The methodologies to be used for identifying, predicting and evaluating of the impacts (both positive and negative), alternatives, mitigating measures and public participation are required to be described. In describing this aspect the following points should be clearly stipulated:

- Objectives of the assessment;
- Approaches employed for assessment and evaluation (e.g. based on professional opinion or involving some techniques such as cost benefit analysis, personal experience, checklist, overlay);
- Description of the approach and/or methodology in involving the relevant stakeholders effectively;
- Explanation as to how the study team is constituted to undertake the study.

2.5 Assumptions and /or Gap in Knowledges

Reliability and quality of data to be collected with regard to the proposed project from different sources may involve some degrees of uncertainties due to absence of sufficient information. As a consequence of this, some of the assessment may be based on assumptions or there may be gaps and uncertainties in impact prediction and evaluation. In this regard therefore, the study preparer is required to clearly state the level of assessment by considering the following.

- Identification of knowledge gaps, assumptions and unavailable information;
- Reasons for the incomplete nature and/or assumptions of information;
- The implications of those identified knowledge gap and assumptions for decision making;
- Proposals and/or suggestions to avoid the identified constraints and limitations.

2.5 Administrative, Legal and Policy requirements

This will have a benefit in giving an overall picture (idea) as to how the proposed project fit into such broader frameworks. This section should contain the following information:

- Identification of planning and administrative procedures followed and the relevant legislations;
- Indication of how compliance has been achieved with respect to other environmental requirement provisions;
- Inclusion of relevant section of the legislation as an Appendix.

2.6. Assessment

One of the objectives of EIA is to integrate environmental considerations at the earliest phase of the project cycle so as to select the best project alternative that is socially acceptable and environmentally sound and sustainable.

In order to achieve the above objective therefore, the required assessments in this section should be carried out for each of the alternatives. This will have importance in facilitating comparison between them.

The statements for the baseline and impact assessments need to be in terms of specificities, not generalities. It is to be noted that they are required to be prepared at a level of accuracy and specificity consistent with a feasibility study of the project.

2.6.1. BASELINE INFORMATION ON THE PROJECT PROPOSAL

In the description of the project proposal the following elements are required to be covered:

- Size and nature of development;
- Brief description of project alternatives;
- Sources, types, characteristics, and volume of raw materials;
- Time schedule for phasing of development (i.e. construction, operation, maintenance, decommissioning),
- Description of technological process;

- Output volume (byproducts and products of the raw materials);
- Removal and disposal of waste;
- Human and Resource Materials costs.

2.6.2 BASELINE INFORMATION – BIOPHYSICAL ENVIRONMENT/ HUMAN ENVIRONMENT

Acquisition of baseline information as to the actual site of the project and the description of the state of the environment are required. This section will give more emphasis on brief description of the environment that will be affected by the development. The elements to be included in this section are the following:

- Area specific information about the location of the project (e.g. land tenure, surrounding land uses, physical constraints, infrastructure services in and around the project),
- Boundaries of the project and its implication on the environment,
- Qualitative and quantitative biophysical environment data (e.g. climate, soil, geology, hydrology, topography, flora and fauna),
- Qualitative and quantitative socio-economic data (e.g. demographic indices, standard of living, infrastructure services, housing, energy and water supply),
- Cultural and historic environment (e.g. sites of national parks, sanctuaries, monuments, statues, religious significant areas),
- Location map, figures, tables and other illustrative information,
- Description of both the local and regional biophysical and human environment of a project when it is likely produces trans-regional impacts.

2.6.3. SYNTHESIS AND ANALYSIS OF INFORMATION TO THE ENVIRONMENTAL IMPACTS OF A PROJECT

This is an important and crucial section that will have importance in identifying, predicting and evaluation of impacts (both negative and positive). With regard to each impact, the following elements (points) should be included.

- Criteria used for determining significance of impact (e.g. magnitude, geographic extent, duration, frequency, reversible or irreversible, risk of uncertainty, size of group affected);
- Brief description and analysis of each impact (e.g. nature, significance, and extent);
- Affected stakeholders in and around the project area;
- A comparison of proposal options (such as size, siting, technology; layout, energy sources, source of raw materials) within existing economic, technical, environmental and social constraints;

- Impacts on the environment which results from the incremental impact of the proposed project when added to other past, current and reasonably foreseeable future proposals;
- Potential accident or hazard scenarios covered in the assessment;
- Degree of confidence in prediction;
- Weighing (judging) the collected information for selecting the best alternatives.

2.7. Mitigation Measures

The focus of this section will have importance in suggesting appropriate measures in order to avoid and/or minimize negative impacts and optimize the positive ones. Characteristics of the mitigating measures should be project specific and will take account of various issues such as cost, views of stakeholders involved in the EIA process (including consultation within government and the community) and practicality. The main types of mitigating measures which need due considerations are the following.

- Preventing, reducing or minimizing impacts before they occur;
- Eliminating an actual impact over time by incorporating appropriate maintenance measures during the life of the project;
- Rectifying an impact by repairing, rehabilitating or restoring the affected environment;
- Compensating for an impact by replacing or providing substitute resources or environments as well as contingency plans in case of emergencies;
- Maximizing beneficial impacts through specific additional actions.

2.7.1. ENVIRONMENTAL MANAGEMENT PLAN

The effective implementation of EIA findings and recommendations hinges largely on the production of a focused EMP. It should include at least the following information:

- Description of the proposed mitigation measures;
- Schedule for implementation of mitigation measures
- Proposed reporting and review procedures;
- Cost estimate of mitigating measures;
- Capacity building requirement in terms of human and material resources;
- Stakeholders (parties), which are responsible for implementing mitigation measures.

2.7.2. MONITORING / AUDITING

Some impacts may need ongoing monitoring during construction and operation phases of the project. This helps ensure effective implementation of mitigation

measures and verify the accuracy of prediction. To this effect therefore, this section is used to clarify the following aspects.

- A check that a proposal is in compliance with environmental requirements;
- Periodical monitoring and analysis of selected environmental parameters and production and submission of reports for the concerned environmental agency;
- Checks that mitigation measures are being implemented during construction and operation phases;
- Appraisal of mitigation measures.

2.8. Conclusions and Recommendations

This section is important to highlight key issues, which are relevant to decision making. Especially the main reasons for selecting the recommended alternative need to be clearly stipulated.

Besides, the strategies to be employed for compensating unavoidable adverse impacts as well as reducing the associated risks of the project proposal should be provided in outline form. This information can easily be extracted from the EMP prepared for the project proposal. This section hence is required to include:

- Brief discussion of key issues;
- Statement of adverse impacts and the suggested measures to compensate them;
- Identification of management and monitoring needs;
- Additional recommendations;
- Net benefits, which justify the project by indicating of both positive and negative impacts;
- Explanation of how adverse effects have been mitigated;
- Explanation of use or destruction of any irreplaceable components;
- Provisions for follow-up surveillance and monitoring.

2.9. Appendices

These are separate documents to be used as references for the reviewers. They enable reviewers to reach at appropriate decision making. Examples of documents that may be provided as appendices are:

- A glossary;
- An explanation of acronyms;
- Terms of Reference;
- Endorsement letter from the concerned relevant environmental agency or local administration;
- Safety or product quality certificate;
- Health and product quality assurance certificates as the case may be;

- flow charts and site maps;
- brief corporate environmental policy;
- detailed technical reports;
- approved minutes of public involvement process;
- List of Members of the Study Team (names, qualifications, etc.).

Checklist of Environmental
Characteristics

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1. INTRODUCTION

This checklist will have importance in suggesting a range of technical issues and sub issues that should be considered in evaluating (reviewing) of different development projects in any sector. ***Except with few modifications the structure and issues of the checklist are adopted from the checklist of Environmental characteristics prepared by the CSIR (Republic of South Africa.)***

This checklist can be used by the reviewers to identify environmental factors which may potentially be affected by development activities, or which might place significant constraints on a proposed development.

It should be noted that the checklist is not a static document. It is subject to critical review and revision with changing ideas on best practice through regular updating. Moreover, it should be recognized that the environmental aspects listed in the checklist are not exhaustive and the user (reviewer) should be aware that other characteristics, significant to a particular situation, may occur. He/she should thus employ the checklist in a manner that can best suite to address them.

2. SOCIO-ECONOMIC ASPECTS

Could the proposed development have possible impact (positive and /or negative) on, or be constrained by, any of the following?

2.1 Demographic Features of the Area.

- Population size, composition and structure
 - Total number of inhabitants
 - Sex and age structure
 - Literacy rate
 - Growth rate of the local population
- Location, distribution or density of the population and its implication on:
 - Existing land use pressure
 - Anticipated land use pressure
- Existing / anticipated migration
 - Emigration and immigration pattern
 - Labour movement

2.2 Sociological and Cultural Aspects

- Means of livelihood and lifestyles
- Values, customs and traditions of the local people
- Religions of the local population
- Cultural or lifestyle diversity
- Major clans/tribes and their interaction

2.3 Economic And Employment Status of the Project Area

- Economic base of the area
- Employment level and scale of employment growth
- Conflict, which may arise as the result of non-local labor moving into the area
- Non-local labor remaining in the area after completion of the development
- Pressure on land use
- Job opportunities for local people
- Employment level of the local people based on age range and gender structure

2.4 Settlement and Resettlement Patterns

- Current settlement pattern (e.g. nucleated, scattered, etc.)
- Township
- Expected displacement, if any
- Displacement of the people and its implication on their attitude
- Compensation mechanisms

2.5 Institutions and Services in relation to the Development Project

- Local traditional institutions and their attitude towards change and development
- Adequacy of the infrastructure services
- Quality of life with respect to infrastructure services (eg. education, health, etc.)

2.6 Public Participation

- ways of maximizing the local people's participation
- involvement of women in the development project
- Provision of employment for outsiders.

2.7 Health Aspects

- General health status of the population based on health indicators such as prevalence and incidence of major diseases of concern
- Major health problems that may arise as the result of the development (e.g. water and vector borne diseases, occupational health diseases, communicable diseases especially HIV/AIDS, etc.).
- Threats to health from pollution
- Dust related illness (e.g. silicosis)
- Accidents resulting from development projects (e.g. suffocation due to mine collapse)
- Environmental factors/variables (e.g. demographic, climate, sanitation and water supply, fauna and flora, socio-cultural, etc.) which contributes for the introduction and/or aggravation of diseases
- Impacts of the Project on the health and creation of favorable environment situation for the propagation of diseases

3. ECOLOGICAL ASPECTS OF THE PROJECT AREA AND ITS VICINITES

Could the proposed development has possible significant impact (positive and/or negative) on, or be constrained by, any of the following?

3.1 Vegetation

- The type and extent of each major type of vegetation (forest, woodlands, etc.)
- Diversity of plant communities
- Plant types which are on the verge of extinction (e.g. endangered plant species)
- Survival of rare plant species
- Forest including cutting of forests for the purpose of getting fuel wood, construction of houses and roads, expansion of agricultural area, creation of water harvesting areas such as reservoir and ponds and other uses
- Vegetation communities reserved for conservation or scientific importance
- Vegetation types of particular recreational value
- The economic value through exploitation of vegetation for different purposes (e.g. for fuel wood, construction wood including poles, animal feed, and for rubber, gum and medicinal value)
- The introduction or spread of invasive alien seeds and plants
- Natural replenishment of existing species
- Genetically engineered (modified) organisms

3.2 Domestic and Wild Animals (Fauna)

- Animal species diversity
- The rare and endangered ones, in particular the currently exploited species
- The existing fauna (including birds) in relation to their breeding, feeding area and mobility
- Animal communities of particular scientific, recreational, educational and conservational value (eg. special habitats for wild animals such as national parks, sanctuaries, controlled hunting area and reserves)
- Natural migration of species
- Entertainment and impingement of aquatic organisms
- The aquatic life and nutrient levels such as nutrient cycling in the catchment, reservoir, command, and downstream areas.
- The pattern of relationship that exists between animals and their environment (plant, human, etc.)
- Invasive and alien species
- Survival of animal communities resulting from induced development activities and associated phenomena
- Genetically modified organisms

3.3 Environmental Sensitive Areas

- On conservation strategy envisaged and/or to be envisaged for both flora and fauna (e.g. afforestation programme, alternative energy resources, protected area)
- established conservation area (e.g. parks, sanctuaries, game reserves, controlled hunting areas etc.)
- local, regional or national importance of the natural communities (e.g. economic, scientific, conservational, educational)
- conformity of the development activities with the existing natural communities.
- ecological functioning of the natural ecosystems resulting from:
 - physical destruction of the habitat
 - reduction in the effective size of the delineated sensitive areas
 - quality and flow of ground water
 - quality of stable (standing) or flowing water
 - oxygen content of the water
 - salinity
 - turbidity
 - flow rate
 - temperature
 - level of chemical and other forms of pollution
 - eutrophication
 - toxins such as effluents or poisons

- siltation
- air quality
- levels of dust pollution and deposition
- availability of food
- the construction of access routes, roads and path ways
- recreation pressure
- secondary or cumulative impacts
- presence or introduction of invasive alien species
- rehabilitation potential
- barriers to animal movement or migration

4. SOCIO-CULTURAL ASPECT

Could the proposed development has possible significant impact (positive and/or negative) on, or be constrained by, any of the following?

- land scape value and scenic beauty of site
- sites of archeological importance
- sites of historical significance such as monuments, statues, etc.
- recreating areas like national parks, sanctuaries, etc.
- sites of cultural and religious significance

5. PHYSICAL ASPECTS OF THE PROJECT AREA

Could the proposed development has significant impact on, or be constrained by, any of the following?

5.1. Land

- alteration in surface characteristics (e.g. rock, soil deposit)
- erodibility and chemical composition of the soil
- potential landslide risks
- unstable bedrock
- surface Subsidence
- soil degradation intensity
- physical work conservation
- suitability of soils for different purposes (e.g. for agriculture, industry, mineral extraction)
- the availability of or access to construction materials and the management of stockpiles, spoil materials, etc.
- unique geological and physical features

5.2. Water body

- water ionic balance and its effects on :-
 - Chemical composition,
 - natural succession,
 - reproduction and diversity of water bodies organisms

- physical, biological and chemical characteristics of the receiving water bodies
- natural flow and drainage patterns
- ground water hydrology and the water table
- the quality and quantity of surface water, ground water and public water supply
- scarcity of water resources
- water resource use conflicts (e.g. effects on downstream users)
- threats to hydrological functioning due to pollution, turbidity, alkalinity, water logging, salinity, impediment construction, water extraction, etc.
- important zones such as breeding ground and migratory routes
- conservational or recreational value of rivers, streams, lakes and wetlands

5.3. Climate

- microclimatic change (functions in temperature and humidity)
- dispersal or influx of pollutants
- global warming and sea level rise

6. LAND USE AND LAND SCAPE CHARACTER

Could the proposed development have a significant impact on, or be constrained by, any of the following?

- compatibility of land uses (agriculture, industry, forestry, urban, open space, recreational areas etc.) within the area
- aesthetic quality of the landscape
- compatibility with the scale of developments in the area
- preservation of scenic views and valued features
- revitalization of run-down areas
- land scaping plans and/or site restoration proposals

7. INFRASTRUCTURE SERVICES

Could the proposed development have a significant impact on, or be constrained by, any of the following?

7.1. Energy Supply

- wood for fuel consumption
- Biomass fuels (including cow-dungs and agri-residues)
- Planned provision of power for the area
- power generation and associated infrastructure
- availability of alternative fuel sources

7.2. Water Supply

- potable water supply

- adequacy and reliability of water supply
- adequacy of ground water reserves
- need for additional purification system

7.3. Waste Management

- efficiency and capacity of existing waste management facilities
- risk associated with waste transport
- risk associated with fuels and oil spills from construction equipment and maintenance
- adequacy of emergency waste disposal facilities
- hazard to ground water pollution
- danger of rodents and scavengers at waste sites
- potential for water borne diseases
- visual and smell effects of waste sites
- hazard of birds to air traffic near sewage ponds and landfill sites

7.4. Housing and Road Facilities

- housing condition and facilities (eg. density per room, kitchen etc)
- physical availability of the road network

7.5. Health Service Facilities

- adequacy of temporary facilities during construction phase of developments
- adequacy of facilities for primary health care
- adequacy of the existing health services to cope with increased population
- projected provision of health service facilities

8. THE NATURE AND LEVEL OF PRESENT AND FUTURE ENVIRONMENTAL POLLUTION

Could the proposed development have a significant impact on, or be constrained by, any of the following?

8.1. Air Pollution

- existing levels of atmospheric pollution
- the nature of air pollution (e.g. ozone depleting gases, acidic compounds and toxic substances)
- extent of the local build-up of pollutants due to inversions
- smog formation and reduction in visibility
- production of offensive odors
- pollution of adjacent sensitive areas
- effects on human health and other living organisms
- effects on stone work, buildings, etc.

8.2. Water Pollution

- level of water pollution
- the concentration of pollutants due to variations of water flow
- localized pollution build-up through changes in salinity gradients and/or current movements
- Salinization of fresh waters
- synergistic or compounding effects with existing pollutants
- production of offensive odours
- effects of treated or untreated effluent on the flora and fauna of river, lake, etc.
- effects on irrigation schemes
- effect on recreational activities

8.3. Noise, Vibration and Lighting

- increase in ambient noise, vibration or illumination levels
- peace and quiet of residential areas
- functioning of schools, hospitals and informal recreation areas
- levels of annoyance and discomfort due to vibration caused by such activities as blasting and pile-driving
- structural damage caused to buildings by vibration
- effects on sensitive areas (eg. wildlife of nature reserves, sites of special scientific interest)

8.4. Visual Pollution

- existing level of visual pollution
- reduction in aesthetic quality of the environment through
 - sign-boards and advertising
 - unsightly or inappropriate walls, buildings, roads or other installations

8.5. Solid or Liquid Waste and Byproduct Disposal

- existing proposed waste disposal plans
- choice of alternative means of disposal
- alternative treatment technologies
- choice of disposal sites
- biological and chemical characteristics of the leachates generated within the disposal sites
- measures to reduce or treat leachates
- potential ground water pollution
- potential pollution of nearby surface waters
- potential health hazard to nearby residents

9. HEALTH AND SAFETY

Could the proposed development have a significant impact on, or be constrained by, any of the following?

- effects in the work place resulting from:
 - dust, fume and particulate matter
 - noise, odors, gases, vapors, use of dangerous chemicals
 - lighting, heat, colds, noise, vibration, radiation
 - mine wastes and hazardous residues such as waste rock and tailings, acid mine drainage, heavy metals and radioactive waste
 - protective clothing and equipment
 - access to recreational facilities
 - risk of workplace accidents
 - availability of services such as factory based health services, canteens, change-rooms

- effects in the surrounding areas resulting from:
 - dust, fumes, particulate matter, noise
 - vibration, radiation, odours, gaseous emissions
 - vapours, use of dangerous chemicals, lighting
 - mine wastes and hazardous residues such as waste rock and tailings, acid mine drainage heavy metals and radioactive waste
 - risk of major disasters involving explosions or major leaks of toxic liquids or gases
 - solid waste disposal techniques
 - liquid waste effluent and disposal

REVIEW GUIDELINE SERIES

4

REVIEW CRITERIA

Back ground

The proposed tables in the following consecutive pages are in the form of a hierarchical review framework concerning eight sub-headings, each with a series of list of issues as specified in Guideline series 1 and Guideline Series 2.

- Description of development
- Description of the Environment
- Scoping, consultation, and Impact Identification
- Prediction and Evaluation of Impacts
- Alternatives
- Mitigating and Monitoring
- Non-technical Summary
- Organization and presentation of Information

As pointed out by UNEP and EEU (1996) the contents of the evaluation (review) should also be extended to recommend the following:

- a brief summary of strengths and weakness of the report
- any needs for further study
- any impact monitoring and management requirements
- any terms and conditions that should apply if approval of the proposal is granted.

In this regard therefore, in order to determine the validity and accuracy of information contained in the EIS report and advise on whether a project should be allowed to proceed, the reviewers are recommended to use this **adopted environmental criteria**.

As retreated from the cross referred material it is unlikely that any EIS report will fulfill all the criteria. Similarly, some criteria listed in the tables may not apply to all projects. In view of this therefore, the reviewers are expected to judge the information based on the relevance to the project context and importance of decision-making as well as presence/absence in the report.

As per the instruction mentioned in the Reference Material, for each review sub-heading (category) indicated above, the reviewer is asked to rate the EIS report for its performance in addressing a list of issues. The reviewer gives each issue a rating between A and F (see marking criteria at the top of the table) next page. The overall rating for a category is determined by the reviewer on the basis of the results of the individual ratings, weighted according to their relative importance by the reviewer.

EIS REVIEW CRITERIA

EIS title, date and number:

Project name:

reviewer name:

marking criteria

(A-F) to summarise how well EIS fulfils creation for all criteria

A- good

B- Generally satisfactory (minor omissions etc.)

C- just satisfactory (despite omissions)

D- just unsatisfactory (because of omissions etc.)

E- not satisfactory (significant omissions etc.)

F- poor

1. DESCRIPTION OF THE DEVELOPMENT

Criterion	Performance against criteria	Comments
Principal features of the project		
1.1. Explains the purpose (s) and objectives of the development.		
1.2. Indicates the nature and status of the decision(s) for which the environmental information has been prepared.		
1.3. Gives the estimated duration of the construction, operational and, where appropriate, decommissioning phase, and the programme within these phases.		
1.4. Describes the proposed development, including its design and size or scale. Diagrams, plans or maps will usually be necessary for this purpose.		
1.5. Indicates the physical presence or appearance of the completed development within the receiving environment.		
1.6. Describes the methods of construction.		
1.7. Describes the nature and methods of production or other types of activity involved in the operation of the project.		
1.8. Describes any additional services (water, electricity, emergency services etc.) and developments required as a consequence of the project.		

Criterion	Performance against criteria	Comments
1.9. Describes the project's potential for accidents, hazards and emergencies.		
Land requirements		
1.10 Defines the land area taken up by the development site and any associated arrangements, auxiliary facilities and landscaping areas and by the construction site(s), and shows their location clearly on a map for a linear project, describes the land corridor, vertical and horizontal alignment and need for tunneling and earthworks.		
1.11 Describes the uses to which this land will be put, and demarcates the different land use areas.		
1.12 Describes the reinstatement and after-use of landtake during construction		
Project Inputs		
1.13 Describes the nature and quantities of materials needed during the construction and operational phases.		
1.14. Estimates the number of workers and visitors entering the project site during both construction and operation.		
1.15. Describes their access to the site and likely means of transport.		
1.16 Indicates the means of transporting materials and products to and from the site during construction and operation, and the number of movements involved.		
Residues and emissions		
1.17 Estimates the types and quantities of waste matter, energy (noise, vibration, light, heat, radiation etc.) and residual materials generated during construction and operation of the project, and rate at which these will be produced.		
1.18 Indicates how these wastes and residual materials are expected to be handled/treated prior to release/disposal, and the routes by which they will eventually be disposed of to the environment.		

Criterion	Performance against criteria	Comments
1.19 Identifies any special or hazardous wastes (defined as...) which will be produced, and describes the methods for their disposal as regards their likely main environmental impacts.		
1.20 Indicates the methods by which the quantities of residuals and wastes were estimated. Acknowledges any uncertainty, and gives ranges or confidence limits where appropriate.		

Overall mark:

2. DESCRIPTION OF THE ENVIRONMENT

Criterion	Performance against criteria	Comments
Description of the area occupied by and surrounding the project		
2.1 Indicates the area expected to be significantly affected by the various aspects of the project with the aid of suitable maps. Explains the time over which these impacts are likely to occur.		
2.2 Describes the land uses on the site(s) and in surrounding areas.		
2.3 Defines the affected environment broadly enough to include any potentially significant effects occurring away from the immediate areas of construction and operation. These may be caused by, for example, the dispersion of pollutants, infrastructural requirements of the project, traffic etc.		
Baseline conditions		
2.4 Identifies and describes the components of the affected environment potentially affected by the project.		
2.5. The methods used to investigate the affected environment are appropriate to the size and complexity of the assessment task. Uncertainty is indicated.		
2.6. Predicts the likely future environmental conditions in the absence of the project. Identifies variability in natural systems and human use.		
Criterion	Performance	Comments

	against criteria	
2.7. Uses existing technical data sources, including records and studies carried out for environmental agencies and for special interest groups.		
2.8. Reviews local, regional and national plans and policies, and other data collected as necessary to predict future environmental conditions. Where the proposal does not conform to these plans and policies, the departure is justified.		
2.9 Local regional and national agencies holding information on baseline environmental conditions have been approached.		

Overall mark:

3. SCOPING, CONSULTATION, AND IMPACT IDENTIFICATION

3.1. There has been a genuine attempt to contact the general public, relevant public agencies, relevant experts and special interest groups to appraise them of the project and its implication. Lists the groups approached.		
3.2 Statutory consultees have been contacted. Lists the consultees approached.		
3.3 Identifies valued environmental attributes on the basis of this consultation.		
3.4. Identifies all project activities with significant impacts on valued environmental attributes. Identifies and selects key impacts for more intense investigation. Describes and justifies the scoping methods used.		
3.5. Includes a copy or summary of the main comments from consultees and the public, and measures taken to respond to these comments.		
Impact identification		
3.6. Considers direct and indirect/secondary effects of constructing, operating and, where relevant, after-use of decommissioning of the project (including positive and negative effects). Considers whether effects will arise as a result of "consequential" development.		
Criterion	Performance	Comments

	against criteria	
3.7. Investigates the above types of impacts in so far as they affect: human beings, flora, fauna, soil, water, air; climate, landscape, interactions between the above, material assets, cultural heritage.		
3.8. Also noise, land use, historic heritage, communities.		
3.9. If any of the above are not of concern in relation to the specific project and its location, this is clearly stated.		
3.10 Identifies impacts using a systematic methodology such as project specific checklists, matrices, panels of experts, extensive consultations, etc. Describes the methods/approaches used and the rationale for using them.		
3.11 The investigation of each type of impact is appropriate to its importance for the decision, avoiding unnecessary information and concentrating on the key issues.		
3.12 Considers impacts which may not themselves be significant but which may contribute incrementally to a significant effect.		
3.13 considers impacts which might arise from non-standard operating conditions, accidents and emergencies.		
3.14 If the nature of the project is such that accidents are possible which might cause severe damage within the surrounding environment, an assessment of the probability and likely consequences of such events is carried out and the main findings reported.		

Overall mark:

4. PREDICTION AND EVALUATION OF IMPACTS		
Prediction of magnitude of impacts		
4.1. Describes impacts in terms of the nature and magnitude of the change occurring and the nature, location, number, value, sensitivity of the affected receptors.		
Criterion	Performance	Comments

	against criteria	
4.2. Predicts the timescale over which the effects will occur, so that it is clear whether impacts are short, medium or long term, temporary or permanent, reversible or irreversible.		
4.3. Where possible, expresses impact predications in quantitative terms. Qualitative descriptions, where necessary, are as fully defined as possible.		
4.4 Describes the likelihood of impacts occurring, and the level of uncertainty attached to the results.		
Methods and data		
4.5 The methods used to predict the nature, size and scale of impacts are described, and are appropriate to the size and importance of the projected disturbance.		
4.6 The data used to estimate the size and scale of the main impacts are sufficient for the task, clearly described, and their sources clearly identified. Any gaps in the data are indicated and accounted for.		
Evaluation of impact significance		
4.7 Discusses the significance of effects in terms of the impact on the local community (including distribution of impacts) and on the protection of environmental resources.		
4.8 Discusses the available standards, assumptions and value systems which can be used to assess significance.		
4.9 Where there are no generally accepted standards or criteria for the evaluation of significance, alternative approaches are discussed and, if so, a clear distinction is made between fact, assumption and professional judgment.		
4.10 Discusses the significance of effects taking into account the appropriate national and international standards or norms, where these are available. Otherwise the magnitude, location and duration of the effects are discussed in conjunction with the value, sensitivity and rarity of the resource.		
Criterion	Performance	Comments

	against criteria	
4.11 Differentiates project-generated impacts from other changes resulting from non-project activities and variables.		
4.12 Includes a clear indication of which impacts may be significant and which may not.		

Overall mark:

5. ALTERNATIVES

Criterion	Performance against criteria	Comments
5.1 Considers the "no action" alternative, alternative processes, scales, layouts, designs and operating conditions where available at an early stage of project planning, and investigates their main environmental advantages and disadvantages.		
5.2. If unexpectedly severe adverse impacts are identified during the course of the investigation, which are difficult to mitigate, alternatives rejected in the earlier planning phases are re-appraised.		
5.3. Gives the reasons for selecting the proposed project, and the part environmental factors played in the selection.		
5.4 The alternatives are realistic and genuine.		
5.5 Compare the alternatives' main environmental impacts clearly and objectively with those of the proposed project and with the likely future environmental conditions without the project.		

Overall mark:

6. MITIGATION AND MONITORING

Criterion	Performance against criteria	Comments
Description of mitigation measure		
6.1 Consider the mitigation of all significant negative impacts and, where feasible, proposes specific mitigation measures to address each impact.		
Criterion	Performance	Comments

	against criteria	
6.2. Mitigation measures considered include modification of project design, construction and operation, the replacement of facilities/resources, and the creation of new resources, as well as end of pipe technologies for pollution control.		
6.3 Describes the reasons for choosing the particular type of mitigation, and the other options available.		
6.4 Explains the extent to which the mitigation methods will be effective. Where the effectiveness is uncertain, or where mitigation may not work, this is made clear and data are introduced to justify the acceptance of these assumptions.		
6.5 Indicates the significance of any residual or unmitigated impacts remaining after mitigation, and justifies why these impacts should not be mitigated.		
Commitment to mitigation and monitoring		
6.6 Gives details of how the mitigation measures will be implemented and function over the time span for which they are necessary.		
6.7 Proposes monitoring arrangements for all significant impacts, especially where uncertainty exists, to check the environmental impact resulting from the implementation of the project and their conformity with the predictions made.		
6.8 The scale of any proposed monitoring arrangements corresponds to the potential scale and significance of deviations from expected impacts.		
Environmental effects of mitigation		
6.9 Investigates and describes any adverse environmental effects of mitigation measures.		
6.10 Considers the potential for conflict between the benefits of mitigation measures and their adverse impacts.		

Overall mark:

7. NON-TECHNICAL SUMMARY

Criterion	Performance against criteria	Comments
Non-technical summary		
7.1 There is a non-technical summary of the main findings of the study, which contains at least a brief description of the project and the environment, an account of the main mitigation measures to be undertaken by the developer, and a description of any remaining or residual impacts.		
7.2 The summary avoids technical terms, lists of data and detailed explanations of scientific reasoning.		
7.3 The summary presents the main findings of the assessment and covers all the main issues raised in the information.		
7.4 The summary includes a brief explanation of the overall approach to the assessment.		
7.5 the summary indicates the confidence which can be placed in the results		

Overall mark:

8. ORGANISATION AND PRESENTATION OF INFORMATION

Criterion	Performance against criteria	Comments
Organization of the information		
8.1 Logically arranges the information in sections.		
8.2 Identifies the location of information in a table or list of contents.		
8.3 There are chapter or section summaries outlining the main findings of each phase of the investigation		
8.4 When information from external sources has been introduced, a full reference to the source is included.		
Presentation of information		
8.5 Mentions the relevant EIA legislation, name of organization preparing the EIS, and name of the redeveloper, name of competent authority (ies), name address and contact number of a contact person.		
Criterion	Performance	Comments

	against criteria	
8.6 Includes an introduction briefly describing the project, the aims of the assessment, and the methods used.		
8.7 The statement is presented as an integrated whole. Data presented in appendices are fully discussed in the main body of the text.		
8.8 Offered information and analysis to support all conclusions drawn		
8.9 Presents information so as to be comprehensible to the non specialist. Uses maps, tables, graphical material and other devices as appropriate. Avoids unnecessarily technical or obscure language.		
8.10 Discusses all the important data and results in an integrated fashion.		
8.11 Avoids superfluous information (i.e. information not needed for the decision).		
8.12 Presents the information in a concise form with a consistent terminology and logical links between different sections.		
8.13 Gives prominence and emphasis to severe adverse impacts, substantial environmental benefits, and controversial issues.		
8.14 Defines technical terms, acronyms and initials.		
8.15 The information is objective, and does not lobby for any particular point of view. Adverse impacts are not disguised by euphemisms or platitudes.		
Difficulties compiling the information		
8.16 Indicates any gaps in the required data and explains the means used to deal with them in the assessment.		
8.17 Acknowledges and explains any difficulties in assembling or analyzing the data needed to predict impacts, and any basis for questioning assumptions, data or information.		

Overall mark:

COLLATION

1 Description of the development	---
2 Description of the environment	----
3 Scoping, consultation, and impact identification	----
4 Prediction and evaluation of impacts	----
5 Alternatives	-----
6 Mitigation and monitoring	----
7 Non-technical summary	-----
8 Organization and presentation of information	----
Overall mark (A-F):	----

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