

# Environmental Impact Assessment Guidelines



## Volume 2 - Generic

Version 4

November 2000

Environmental Protection Agency/Environmental Assessment Board

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## Summary

This manual is a result of the joint effort of the Environmental Protection Agency (EPA) and the Environmental Assessment Board (EAB). The intention is to provide to the EPA, EAB, sector agencies, private sector, NGOs, members of the public and consultants a set of approved guidelines for the conduct and review of Environmental Impact Assessments (EIA) in Guyana.

The need to have clear guidance on what constitutes a good EIA has been evident since the establishment of the EPA and the subsequent review of EIAs by the EPA and EAB for new projects. EIAs are a good means of identifying and planning for the avoidance or minimization of environmental impacts that may arise from the development and exploitation of resources. Although not the only form of environmental protection, EIAs are meant to foster sensible, sustainable development.

As each project is different, EIAs will be customized to reflect issues that are relevant and specific to the project. While not exhaustive, the guidelines contained in this document and subsequent volumes are meant to compliment those in Section IV of the Environmental Protection Act, 1996 (EP Act) and any other sectoral EIA guidelines which may be produced by the EPA from time to time. These guidelines are meant to be applied consistently to projects requiring EIAs and allows for transparent decision-making.

This volume contains Generic Environmental Impact Assessment Guidelines which are to be followed for projects which are not sector specific or for which the EPA has not yet produced sectoral guidelines.

As our understanding and awareness of the environment improve, these guidelines will be updated to reflect new ideas or issues.

## Components of an EIA

The EIA will comprise three components: Environmental Baseline Study; Environmental Assessment; and Environmental Impact Statement. The Environmental Impact Assessment may be submitted in the three components stated above or could be submitted as one document depending on the size and nature of the proposed project.

The Environmental Baseline Study will record the present quality of the environment within the area of influence before project implementation. This data will then be analysed in the environmental assessment and will be used to predict and quantify impacts.

The Environmental Assessment is basically the identification and assessment of impacts of the proposed project and of its alternatives. The EA will also consider mitigation measures to offset negative impacts and will assess the impact of implementing these measures on the environment.

The Environmental Impact Statement is a summary of the findings of the Environmental Baseline Study and the Environmental Assessment and includes an Environmental Management Plan. For large EIAs, the EIS will be the document which decision makers and the public will use. The Environmental Baseline Study and the Environmental Assessment will then serve as reference documents to the EIS.

## Generic Guidelines for Preparing Environmental Impact Assessments

### ENVIRONMENTAL BASELINE STUDY

The environmental baseline should be established in suitable detail to record the environmental conditions and seasonal variability prior to development, to permit the assessment of potential effects and to provide a baseline with which to monitor future changes. The needs will vary by project and potential environmental effects but would normally encompass the following physical, biological and socioeconomic conditions.

- ***Physical Environment:*** geology, topography, soils, climate and meteorology; ambient air quality; noise; surface and groundwater hydrology; surface and ground water quality; seasonal changes; sediment quality; seismology; and coastal and marine parameters such as currents, bathymetry, sedimentation and erosion.
  
- ***Biological Environment:*** flora; fauna; rare and endangered species; endemic flora and fauna; and sensitive ecological habitats and ecological balance. Specific data may be required on aquatic animals, benthos species and diversity; plankton; fisheries population, use, spawning sites, mercury levels; aquatic plants, wetlands, mangroves and salt marshes; and terrestrial plants and animals (species, distribution, use, valued habitats, hunting, commercial potential).
  
- ***Socioeconomic Environment:*** Land use including parks, reserves, protected areas, residential, commercial, agricultural and industrial; effects on future development; cultural/historic resources (archaeology); indigenous peoples; demographics, infrastructure; employment, income, skills and education; population relocation and public health.

In the collection of data it is imperative to include a Quality Assurance/Quality Control program, submit detailed protocols for all field testing procedures and use procedure generally accepted by other jurisdictions.

### ENVIRONMENTAL ASSESSMENT

The environmental assessment will provide technical detail on the environmental effects of the project. The EA will focus on the proposed project but must also address alternatives. A summary of the data in the EA

would be incorporated into the Environmental Impact Statement (see below). The EA should provide the following information and components;

1. Results of the regulatory and public participation program. These programs would normally include meetings, workshops, information brochures and should include consultation with NGOs, regulators, members of the public including indigenous peoples, etc. with the objective of identifying all issues and potential mitigation strategies.
2. Identification, description and assessment of alternatives in relation to siting, processing, technology selection and reclamation. Provide a comparison of the alternatives with and without the implementation of mitigation measures, including the recommended alternative (under the environmental point of view). Indication of the main reasons for selection of alternatives taking into account environmental factors. Inclusion of a prognosis of the state of the environment in each of the alternatives.
3. Detailed information regarding the methods used to analyse impacts (EIA methods) and the techniques used to estimate the magnitude of the impacts (prediction techniques).
4. Identification, characterization, description and determination of magnitude and importance of the social distribution of the potential impacts in the short, medium and long term. Analysis of impacts must include as a minimum, direct, primary and secondary, temporary and permanent, reversible and irreversible impacts on the physical, biological, social, economic and cultural components of the environment, when applicable.
5. Special emphasis should be placed on indirect impacts which may arise from project implementation.
6. Analysis of the compatibility of the proposal with the existing environmental legislation that applies to the project itself or to its area of influence. In the event that national or local environmental standards do not exist, at least two international standards must be informed.
7. Assessment of physical effects for all phases including construction, operation and closure. Estimation by type and quantity of expected contaminants, residues, and emissions (water, air and soil pollution, noise, radiation, heat) resulting from the operation of the proposed project.

8. Identify how much of a particular resource is degraded or eliminated, and how quickly the natural system may deteriorate.
9. Assessment of the biological effects on ecosystems of all project phases (construction, operations and closure).
10. Assessment of the positive and negative impacts on land use (compatibility), future development, cultural/historic resources (archaeology), indigenous peoples, demographics, infrastructure, employment, income, skills and education, and public health.
11. A description of any hazards or dangers which may arise from the project and an assessment of the risk to the environment.
12. Assessment of the project with a view to the need to protect and improve human health and living conditions and the need to preserve the stability of ecosystems as well as the diversity of species.
13. Detailed information regarding the measures which the proposed developer intends to use to mitigate any adverse effects and a statement of reasonable alternatives (if any), and reasons for their rejection.
14. An assessment of worker health and safety
15. Assessment of Mitigation Measures including cost/benefit analysis and implementation strategy.

## **ENVIRONMENTAL IMPACT STATEMENT (EIS)**

The EIS will provide all relevant details on the project and its effect on the environment. This document should provide a summary level of detail adequate to allow the average reader to make an informed decision on the project. This document will include a broad range of data including information on the developer, schedule, the detailed description of the project, regulatory framework, a review of alternatives, environmental management plans, socioeconomic factors, environmental impacts, mitigation, monitoring and reclamation. The EIS would be accompanied by supporting appendices, the baseline study report and the environmental assessment that will provide technical detail on specific issues, assumptions and modeling projections. These supporting documents would be more technical.

A typical EIS report could be organized as follows:

- Executive summary
- Introduction-overview of the project; details on the developer, ownership, the resource, description of the key components with site/land use maps; and regulatory framework and requirements.
- Detailed project description including the area of influence (spatial and temporal boundaries), location, layout, description of present land use of the project area and the area contiguous to it, project size and production, land requirements, activities associated with all development stages from construction to closure, alternatives considered, staffing and employment, emission characteristics, water supply and waste disposal, environmental/waste management plans.
- Economic information regarding the project, including financial statements, budgets etc. This may be submitted as a separate document to preserve confidentiality.
- Rationale for the project and its sustainability, including consideration of alternatives to the project as well as not proceeding (no-project option).
- Existing environment – summary of information that is provided in the baseline study report
- Summary of the public consultation programme
- A statement of the alternatives selected and the justification behind each choice.
- Summary of the environmental effects. A description of the likely significant effects of the proposed project on the environment resulting from: the existence of the project; the use of natural resources; the emission of contaminants, the creation of nuisances and the elimination of wastes.
- A statement of the degree of irreversible damage and an explanation of how it was assessed.
- A description of the best available technology.
- The Environmental Management Plan (EMP), (refer to pg. 10 for guidelines for preparing EMPs)

- An Emergency Response Plan for containing and cleaning up any pollution or spill of any contaminant.
- Initial plan for closure and reclamation of the environment.
- An indication of any difficulties (technical deficiencies or lack of knowledge or expertise) encountered in the EIA.
- Conclusion and Recommendations
- Annexes which include the Terms of Reference, Curriculum Vitae of the members of the EIA team, document references, field observations, etc.

## Guidelines for Preparing Environmental Management Plans

Environmental Management Plans (EMP) are necessary to ensure that the proposed procedures, actions and measures identified as part of alleviating environmental impacts of a project are not just a statement of goodwill by the company/developer but that they will be effectively implemented.

The EMP should identify feasible and cost effective measures that may reduce potentially significant adverse environmental impacts to acceptable levels. It should also involve operational procedures needed to avoid environmental risks during everyday and maintenance operations, as well as emergency and contingency plans in case of accidents, where applicable.

Each EMP must clearly state the company's commitment and policy on the environment. There must also be a clear statement committing the company to integrate environmental management and specifically the EMP into its operation.

The preparation of an Environmental Management Plan (EMP) involves the following:

1. Environmental Policy of the company
2. Specific objectives of the plan.
3. Identification and description of the potential adverse impacts and environmental risks associated with implementation of the proposed/existing project.
4. Detailed description of the appropriate mitigation and compensatory measures together with designs, equipments description and operational procedures (as appropriate) to respond to these impacts or to avoid or reduce risks.
5. Determination of requirements for ensuring that responses to predicted impacts are made effectively and an implementation schedule (timing) for mitigation measures that must be carried out as part of the project.

6. Development of a programme to monitor the impacts arising out of the project operational activities and the effectiveness of the proposed mitigation measures. The monitoring plan should detail as a minimum, impact indicators, location and frequency of sampling, analytical methods to be used and criteria for evaluation. Such information enables the developer and the EPA to evaluate the success of mitigation and allows corrective actions to be taken when needed. This programme should also include regular audits of the implementation of the EMP.
7. Identification of persons within the company responsible for executing the EMP
8. Identification of necessary funds (including budget) to implement mitigation measures.
9. Emergency Response Plan in cases where the project uses or produces substances known to have a deleterious effect on the environment.

The decision to proceed with a project is based in part on the expectation that the EMP will be executed effectively. Consequently, the EPA expects the plan to be specific in its description of the individual mitigation and monitoring measures which must be integrated into the project's overall planning, design, budget and implementation. Such integration is achieved by establishing the EMP within the project so that the plan will receive funding and supervision along with the other project components.

The Environmental Protection Agency encourages companies to move towards ISO 14000 Certification. ISO 14000 is an internationally accredited set of environmental standards that allow companies to achieve an Environmental Management System.