



ENVIRONMENTAL IMPACT ASSESSMENT - EIA

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ENVIRONMENTAL SPECIALIST COURSE





ENVIRONMENTAL MANAGEMENT
FRAMEWORK - 2
FOR ENVIRONMENTAL PROFESSIONALS

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WHAT SHOULD YOU LEARN



General Environmental
Management Measures
Roles and Responsibilities of
the Key Personnel
Training and Competence
Monitoring and Reporting



GENERAL ENVIRONMENTAL MANAGEMENT MEASURES

As a general measure, all contractors and individual plot tenants shall be required to develop an individual Construction and Operational Environmental Management Plan (CEMPs and OEMP), where they establish the measures to be implemented, how, where and when they will be applied, and who will be responsible within their organization to monitor and report the implementation of these measures, and any environmental issues related to their activity.

The following guidelines should be consulted:

- ✓ International, national and local legislation applicable to each industrial plot
- ✓ International Finance Corporation (IFC) Environmental, Health, and Safety (EHS) guidelines
- ✓ U.S. Environmental Protection Agency (USEPA) guidelines



CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP)

All construction contractors shall provide a project-specific Construction Environmental Management Plan (CEMP).

The CEMP is required to provide details on how construction activities will be undertaken to minimise environmental impacts on and around the site. The CEMP should include the following key elements as a minimum:

- ✓ Project information
- ✓ Legal requirements
- ✓ Environmental aspects and impacts
- ✓ Environmental preventive and corrective measures
- ✓ Environmental monitoring
- ✓ Environmental management system (EMS)
- ✓ Environmental management plans
- ✓ Environmental reporting, inspections, monitoring and audit
- ✓ Environmental record keeping
- ✓ Environmental risk assessment
- ✓ Environmental incident procedures
- ✓ Improvements of the EMS
- ✓ Responsibilities
- ✓ Environmental Awareness and Training
- ✓ Contingency response plan



OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN (OEMP)

The OEMP should acknowledge and address the potential impacts, the mitigation and the monitoring of impacts during the operational phase.

The OEMP will be required to include the following key elements as a minimum:

- ✓ Operational information
- ✓ Legal requirements
- ✓ Environmental aspects and impacts
- ✓ Environmental preventive and corrective measures
- ✓ OEMP implementation
- ✓ Incident investigation and reporting
- ✓ Audits and inspections
- ✓ Responsibilities
- ✓ Environmental awareness and training
- ✓ Contingency response plan



ENVIRONMENTAL IMPACT PREDICTION AND MITIGATION

Environmental impacts that are anticipated to result from the environmental aspects of the proposed activities could affect one or more of the environmental components identified in Section 0.

Impacts can be avoided, minimized or mitigated by following a management system that includes proactive development and best practices.

These mitigation measures are described for the Construction Phase, for the Operational Phase, and for the Decommissioning Phase.

The combined, incremental effects of human activity, referred to as cumulative impacts, pose a threat to the environment.

ROLES AND RESPONSIBILITIES OF THE KEY PERSONNEL

The successful implementation of an Environmental Management Plan (EMPs) is often determined by the clarity of the roles and responsibilities given to employees and contractors to undertake the necessary actions.

This requires recognition by top management of the resources required to implement and control the EMF for the project.



TRAINING AND COMPETENCE

Client will develop plans for the human resources required to develop and implement its asset management system. Client should identify the training needs of workers who, while completing their work, may cause significant impacts on the environment. Any skill deficiencies should be met with appropriate training.

Client should also establish, implement and maintain procedures to ensure that employees and subcontractors have knowledge of the following:

- ✓ The importance of conforming with the EMPs
- ✓ The significant environmental impacts, actual or potential, of their work activities, and the environmental benefits of improved personal performance;
- ✓ Their roles and responsibilities in achieving conformance with the requirements of the EMPs, including emergency preparedness and response requirements
- ✓ The potential consequences of departure from specified operating procedures

TRAINING AND COMPETENCE +



The following specific issues should be covered:

- ✓ Regulations that apply to the area
- ✓ Work practices that prevent or minimize impacts, particularly for machine operators
- ✓ Handling of waste and wastewater
- ✓ Understanding the level of treatment prior to disposal
- ✓ Minimising impacts in environmentally sensitive areas, particularly on local flora and fauna

These training sessions should be reinforced with training manuals to ensure that up-to-date information on best practice is always available to employees and contractors.

Training records shall be maintained at the site to confirm the attendees' acknowledgement of the topics discussed in the toolbox talks and induction trainings. These should be maintained and sent to the HSE Team, preferably on a regular basis, but at least once a year.

TRAINING AND COMPETENCE +



All staff should be inducted in the most relevant environmental requirements prior to the commencement of the works. The training programme within the CEMP should include induction programmes and toolbox talks in common languages (English, Arabic, etc.).

Induction: The induction should take place upon arrival on site. No one should be allowed to work on the project development area until the corresponding induction has been performed. The information to be covered by the induction should include at least the following: Importance of compliance with the CEMP Explanation of the roles and responsibilities of every staff member (contractor manager, subcontractors, supervisors, workers, etc.) Description of the impacts of the project on the environment Explanation of the mitigation measures which should be carried out during the works Suggested topics to be covered: air quality issues, noise and vibration measures, biodiversity and fauna/flora management procedures, soil and groundwater protection measures, workers' rights, traffic management and road safety, "no-go" areas, hazardous and non-hazardous waste management.

TRAINING AND COMPETENCE +



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- ✓ Description of the impacts of the project on the environment
- ✓ Explanation of the mitigation measures which should be carried out during the works
- ✓ Suggested topics to be covered: air quality issues, noise and vibration measures, biodiversity and fauna/flora management procedures, soil and groundwater protection measures, workers' rights, traffic management and road safety, "no-go" areas, hazardous and non-hazardous waste management.

TRAINING AND COMPETENCE +

Toolbox talks: These talks should be carried out daily prior to the start of works or shift and tailored to the meteorological conditions of each day. These talks should be kept short (up to 15 minutes), and should inform the workers of environmental protection practices, environmental risks and restrictions affecting the day's/ shift work.

Training records shall be maintained at the site to confirm the attendees' acknowledgement of the topics discussed in the toolbox talks and induction trainings. These should be maintained and sent to the HSE Team, preferably on a regular basis, but at least once a year.

COMMUNICATION

Clear and concise communication is essential for effective communication of the EMF or EMPs. As such, it will be important for Client as well as the Contractor(s) and Individual Plot Tenants to establish and maintain procedures for communications across various levels of the organization during the project activities and to actively respond to communications from employees, contracted service providers and other interested parties on environmental performance.

Internal communications concerning environmental issues shall be developed by the contractor's and individual plot tenant's environmental manager who shall ensure all relevant environmental information is communicated to the project team for approval.

With regard to external communication, the HSE team will be informed by the contractor's environmental manager through monthly basis meetings, which should at least address the following matters: Environmental objectives performance, issues of environmental significance, contingency plans for future activities, information requirements, etc.

MONITORING AND REPORTING

EIA Components	Proposed Indicators	Monitoring Frequency	Monitoring Method	Reporting Frequency
NOISE	Measurement of day and night (DNL) and day-evening-night (DEN) noise levels at sensitive locations (e.g., schools, hospitals, residential areas) and public open spaces (POS) and SOI.	At the beginning of each construction phase (EIA), noise levels shall be monitored and annually during the first 10 days of construction.	Monitoring should be conducted weekly or bi-weekly during the construction phase. The monitoring activity is to be completed every 10 days.	At the beginning of each construction phase, noise levels shall be monitored and annually during the first 10 days of construction.
AIR QUALITY (PM 10, PM 2.5, SO2, CO, NO2, O3, etc.)	Monitoring of ambient concentration of suspended particulates (PM 10, PM 2.5), carbon monoxide (CO), sulfur dioxide (SO2), nitrogen dioxide (NO2), and ozone (O3) at sensitive locations (e.g., schools, hospitals, residential areas) and public open spaces (POS) and SOI.	Continuous air quality monitoring during construction.	Continuous air quality monitoring during construction.	Continuous air quality monitoring during construction.
SOIL & ENVIRONMENTAL	Groundwater level changes, groundwater quality (pH, electrical conductivity, total dissolved solids, etc.), and physical level of the site (e.g., erosion, sedimentation, etc.).	Monthly monitoring during construction phase (daily or bi-weekly if SOI).	Monthly monitoring during construction phase (daily or bi-weekly if SOI).	Monthly monitoring during construction phase (daily or bi-weekly if SOI).
	Groundwater concentration (Depth, Temperature, etc.)	Monthly during construction phase (daily or bi-weekly if SOI).	Monthly during construction phase (daily or bi-weekly if SOI).	Monthly during construction phase (daily or bi-weekly if SOI).

For the purpose of the EIA, monitoring involves the use of indicators. An indicator is a measure of how the environmental baseline has changed. Indicators can comprise both quantitative (facts and figures) and qualitative (descriptive) information.

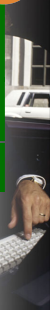
AUDIT AND INSPECTION PROGRAM



The EMF or EMPs will be periodically audited to determine whether or not the operations conform to the planned environmental controls detailed in the EMF or EMPs and if the EMF or EMPs has been properly implemented and maintained. Findings will be reported to management teams.

To be fully comprehensive, the audit procedures should also cover the audit scope, frequency and methodologies, as well as the responsibilities and requirements for conducting audits and reporting results.

Audits will be conducted by personnel independent of those having direct responsibility for the activity being examined, ensuring the impartiality of the auditing process.



NON-CONFORMANCE REPORTS



A non-conformance is a deviation from an established operating procedure that results in a loss in quality of service or in an environmental impact. It is essential that employees who are given the responsibility and authority to investigate do so for all non-conformances relating to the EMF OR EMPs.

Any corrective or preventative action taken to eliminate the causes of the actual or potential non-conformance shall be appropriate to the scale of the problem and commensurate with the environmental impacts caused. Moreover, documentary evidence of any changes to operating procedures shall be recorded and communicated widely.



ENVIRONMENTAL PERFORMANCE REPORTS



Environmental Performance Reports will be produced periodically to inform top management about the environmental performance of the entire operation and the contractors. The following reports are envisaged:

Monthly Reports with the following contents:

- ✓ Introduction
- ✓ Objectives
- ✓ Monitoring Activities Conducted
- ✓ Results
- ✓ Discussion
- ✓ Conclusions

Annual Reports that present the evolution of various parameters based on data gathered during the year with a summary discussion of the results and conclusions

