



# JORDAN MINISTRY OF ENVIRONMENT

## GUIDANCE FOR PREPARING ENVIRONMENTAL IMPACT ASSESSMENTS







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**OCTOBER 2014**

## FORWARD

The Government of Jordan (GOJ) recognizes the urgent need to protect and conserve scarce resources through regulation, education, and coordination with industry, local communities and the private sector. To address this need, the United States Agency for International Development (USAID) and the GOJ launched the Water Reuse and Environmental Conservation Project. The project supports the improvement of the regulatory environment; industry training and networking on pollution prevention and environmental management; landfill and hot spot rehabilitation; and water reuse to support community livelihoods. The implementing contractor is AECOM. This five-year program consists of four tasks aimed at increased efficiency in the use of water and energy, and improved liquid and solid waste handling practices in the industrial sector of Jordan.

As part of Task 1, Institutional and Regulatory Strengthening, the project prepared this Guidance Document.

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7. Technical Guidance Protocol for Human Health Risk Assessment for EIA
8. Technical Guidance Protocol for Ecological Risk Assessment for EIA

## LIST OF ACRONYMS

APE	Areas of Potential Effect
ASEZA	Aqaba Special Economic Zone Authority
BAT	Best Available Technologies
CEQ	Council on Environmental Quality
CV	Curriculum Vitae
DFZC	Development & Free Zones Commission
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
GoJ	Government of Jordan
IUCN	International Union for Conservation of Nature
JVA	Jordan Valley Authority
LCA	Life Cycle Assessment
LOS	Level of Service
MoEnv	Ministry of Environment
MoMA	Ministry of Municipal Affairs
NGO	Non-governmental Organization
SABEQ	Sustainable Achievement of Business Expansion and Quality
TOR	Terms of Reference
USEPA	United States Environmental Protection Agency
USAID	United States Agency for International Development

## 1.0 INTRODUCTION TO THE GUIDANCE DOCUMENT

### 1.1 PURPOSE OF THE GUIDANCE DOCUMENT

The purpose of this Guidance Document is to provide the project Proponents/preparers of Environmental Impact Assessments (EIAs) in Jordan with direction and a standard framework for preparing an EIA. The Ministry of Environment (MoEnv) requests that preparers use this framework, so the proposed project and the potential impacts and mitigation measures will be adequately and consistently presented to decision-makers for review. This Guidance Document also explains the Environmental Approval application process, which Proponents should follow closely before preparing the EIA.

#### **Purpose of Guidance Document**

Provide a standard framework and organization for EIAs

This document was prepared in accordance with the EIA Regulation No.37 of 2005 in Jordan (including Annexes 1-5) (Jordan, 2005a) and Article 13 of the Environmental Protection Law No.52 of 2006 in Jordan (Jordan, 2006). The EIA regulation is undergoing review and is expected to be amended; this Guidance Document will be integrated into the amended regulation, and thus project Proponents should use this Guidance Document in preparing EIA documents in accordance with the new environmental regulation, when available. This Guidance Document incorporates elements from several Jordanian and international sources.

### 1.2 GUIDANCE DOCUMENT ORGANIZATION AND CONTENT

Section 1.0 describes the purpose of this Guidance Document and defines terms used throughout the document.

Section 2.0 describes the purpose of an EIA document and explains the application process that should be followed before beginning to prepare an EIA.

Section 3.0 outlines the organization and content the MoEnv requests for each component of a Comprehensive EIA, including:

- Section 3.1: EIA Front Matter
- Section 3.2: Executive Summary
- Section 3.3: Project Description
- Section 3.4: Legal and Administrative Framework
- Section 3.5: Alternatives to the Project
- Section 3.6: Methods
- Section 3.7: Existing Environment
- Section 3.8: Assessment of Impacts
- Section 3.9: Risk Assessment (if required)
- Section 3.10: Mitigation Measures
- Section 3.11: Environmental, Health, and Social Management
- Section 3.12: Response to Comments
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#### **Guidance Document Components**

- 1:** Introduction to the Guidance Document
- 2:** EIA Purpose and Application Process
- 3:** Comprehensive EIA Organization and Content

#### **Appendices:**

- Jordan regulations
- Forms
- Reference tables
- Other supporting guidance

The appendices to the Guidance Document include applicable Jordan legislation (Appendix A), forms to be completed by the project Proponent (Appendix B), and reference tables for the Guidance Document (Appendix C). Annexes 1 through 8 contain technical guidance protocols for analyzing and assessing the following for EIAs: surface water hydrology and quality, groundwater flow and quality, air quality, noise, traffic impact, life cycle impacts, human health risk, and ecological risk.

### 1.3 GUIDANCE DOCUMENT DEFINITIONS

Table 1-1 defines terms that are used throughout this Guidance Document. These terms are based on best professional use in Jordan and the United States and are defined in the following sources: Jordan, 2005a; SABEQ, 2009; CEQ, 1978; EPA (Ireland), 1992 and 2003; USEPA, 2006 and 2011).

**Table 1-3. Definitions of Terms and Acronyms used in the Guidance Document**

Term	Definition
<b>Best Available Technologies (BAT)</b> (also referred to as Best Available Techniques, Best Available Control Technologies, Best Available Practicable Technology):	The most effective and advanced stage in the development of an activity and its methods of operation, which indicate the practical suitability of particular techniques for providing the basis for limits/measures designed to prevent or eliminate or, where that is not practicable, generally to reduce impacts on the environment.
<b>Cumulative Impact</b>	The impact on the environment which results from the incremental impact of an action when added to other past, present, and reasonable foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively adverse or positive actions taking place over a period of time.
<b>Direct impacts</b> (also referred to as primary or direct, effects or consequences)	Occur as direct result of proposed project at the same time and place. Impacts can be beneficial or adverse.
<b>Environmental Approval</b>	The approval given to the owner of a project to commence implementation of his project pursuant to the provisions identified in EIA Regulation No.37 of 2005.
<b>Environmental Impact Assessment</b>	Any procedure that aims to: identify, describe, and study the impact of all the phases of the establishment of a project and its impact from social and economic aspects; and identify the methods for limiting any adverse impact on the Environment.
<b>Environmental Impact Assessment (EIA) Document</b>	A report submitted by the project owner that is prepared in accordance with the Terms of Reference (TOR).
<b>Environmental Management Plan (EMP)</b>	This plan includes a description of the specific measures that a project owner or proponent will undertake to mitigate the potential negative environmental impacts of the project, the levels of mitigation that will be achieved, and the means by which compliance with these levels will be documented. The project Proponent must carry out the terms of the EMP.
<b>Evaluation criteria</b>	Topics of concern (things that could change as a result of a project) for which alternatives are assessed.
<b>Human environment</b>	The natural and physical environment and the relationship of people with that environment.
<b>Impact criteria</b>	Criteria that measure the type and magnitude of potential effects as a result of project implementation.
<b>Indirect impacts</b> (also referred to as	Impacts caused by the action; may be later in time or farther

**Table 1-3. Definitions of Terms and Acronyms used in the Guidance Document**

<b>Term</b>	<b>Definition</b>
secondary or indirect, effects or consequences)	removed in distance, but are still reasonably foreseeable. Impacts can be beneficial or adverse.
<b>Induced impacts</b>	Impacts that are caused by the action later in time; are similar to indirect impacts, but are farther removed in time than indirect impacts.
<b>Irretrievable effects/impacts</b>	Effects of the proposed action that render an area or resource unavailable for future generations.
<b>Irreversible effects/impacts</b>	Permanent effects caused by a project that cannot be reversed.
<b>Life Cycle Assessment (LCA)</b>	A technique to assess the environmental aspects and potential impacts associated with a product, process, or service over the entire life cycle from “cradle to grave” (manufacture/construction to use/operation to final disposal).
<b>Long-term effects/impacts</b>	Effects/impacts caused by the proposed action after construction is completed or during full operation.
<b>Ministry</b>	The Ministry of the Environment (MoEnv)
<b>Mitigation</b>	<p>Actions taken to:</p> <ul style="list-style-type: none"> <li>• Avoid an impact altogether by not taking a certain action or parts of an action</li> <li>• Minimize impacts by limiting the degree or magnitude of the action and its implementation</li> <li>• Rectify an impact by repairing, rehabilitation, or restoring the affected environment</li> <li>• Reduce or eliminate an impact over time by preservation and maintenance operations during the life of the action</li> <li>• Compensate for an impact by replacing or providing substitute resources or environments.</li> </ul>
<b>No-action Alternative</b>	The option to operate as at present and not to undertake the project establishes a baseline in relation to which the project and its alternatives can be described and analyzed and its potential environmental impacts and mitigation measures can be assessed.
<b>Proposed Action</b>	A plan that a Proponent intends to take that requires an environmental analysis.
<b>Risk Assessment</b>	Scientific evaluation of the potential for harmful effects to human health or to ecological systems resulting from exposure to a physical, biological, or chemical stressor.
<b>Secretary General</b>	The Secretary General of the MoEnv.
<b>Scope</b>	The range of actions, alternatives, and potential impacts to be considered in an EIA.
<b>Scoping</b>	The process for: determining the scope of issues to be addressed in the EIA; identifying potentially significant issues related to a proposed action; and identifying those topics which should receive less attention in order to focus the EIA on relevant/key environmental issues.
<b>Short-term effects/impacts</b>	Effects/impacts caused during construction of the proposed action.
<b>Significance criteria</b>	Thresholds used to define whether impacts are potentially significant in that they may exceed a performance standard or result in major or significant effects.
<b>Significant Effect</b>	Effect that exceeds a specific threshold.

**Table 1-3. Definitions of Terms and Acronyms used in the Guidance Document**

<b>Term</b>	<b>Definition</b>
<b>Significant Impact</b>	An adverse change of sufficient scope or magnitude that it represents a potentially significant change that affects the environment.
<b>Study Area</b>	A geographic area identified by the project Proponent that encompasses the area in which impacts associated with the project may occur for each technical parameter; may vary in size depending on the resource area and type of impact.
<b>Technical Committee</b>	The committee formed at the MoEnv and chaired by the Secretary General that specializes in environmental impact projects.
<b>Terms of Reference (TOR)</b>	Document that defines and provides the foundation for how an EIA study will be conducted.

## **2.0 EIA PURPOSE AND ENVIRONMENTAL APPROVAL PROCESS**

This section explains the purpose of an EIA and the process of obtaining Environmental Approval, as outlined in the EIA Regulation No.37 of 2005 in Jordan and associated annexes (Jordan, 2005a) and in SABEQ, 2009. Note that EIA Regulation No.37 of 2005 may be amended to include discussion of licensing, and this Guidance Document should be used in accordance with the amended regulation.

### **2.1 PURPOSE OF AN EIA**

The purpose of an EIA document in Jordan is to provide the Ministry of Environment (MoEnv) with a full discussion of the potential environmental effects of a proposed action (such as the extraction of mineral resources or construction of a processing facility) and the reasonable alternatives which could be taken to avoid or minimize adverse impacts to, or enhance the quality of, the human and natural environment.

### **2.2 ENVIRONMENTAL APPROVAL PROCESS**

This section describes the process for obtaining Environmental Approval from the MoEnv, as shown in Figure 2-1. This process may change as a result of the amended EIA regulations; thus project Proponents should use this Guidance Document in preparing EIA documents in accordance with the new environmental regulation, when available. As further described in subsections 2.2.1 to 2.2.5 below, the first step is for the project Proponent to submit an application. The project Proponent should provide the documentation that is required by Jordan EIA regulations so that the MoEnv is able to determine whether a preliminary (Initial) or Comprehensive EIA is required. Annex 2 and Annex 3 to the EIA Regulation identify the types of project activities that require a Comprehensive or Initial EIA, respectively. The MoEnv is in the process of revising the lists of classified activities requiring EIA studies and will revise the annexes accordingly. If an Initial EIA is required, the project Proponent should complete that document. Following review of the Initial EIA, the MoEnv will decide whether to grant the Environmental Approval or (if significant impacts are anticipated) to require further study in a Comprehensive EIA.

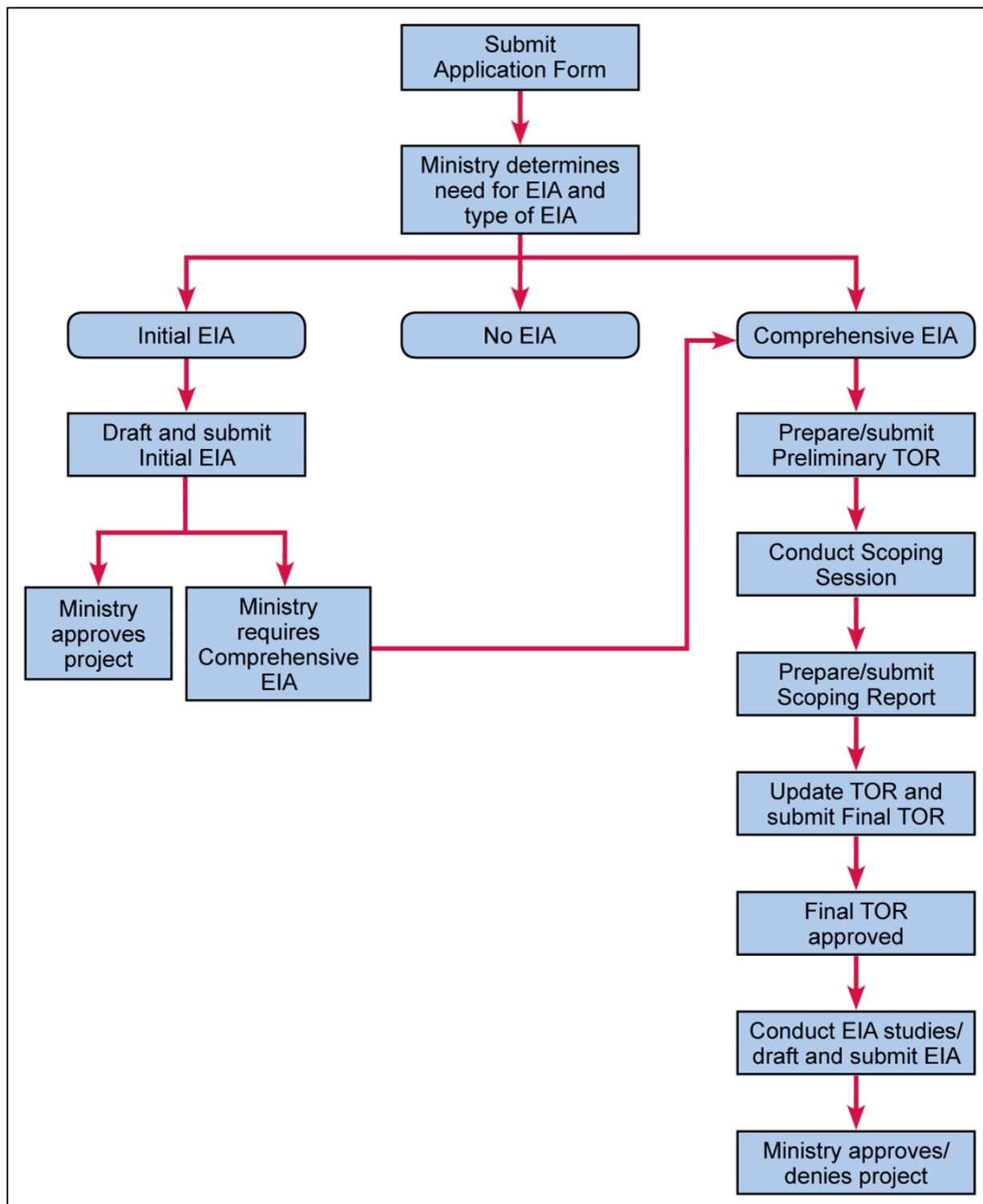


Figure 2-1. EIA Process, based on SABEQ 2009

If a Comprehensive EIA is required (based on Annex 2 or based on a determination by the MoEnv that significant impacts are anticipated following review of the Initial EIA), a preliminary “Terms of Reference” (TOR) document should be prepared by the project Proponent. The TOR document should explain how the EIA will be conducted and should identify potential impacts and proposed mitigation measures for the purposes of discussion at a scoping session. Using information acquired in the scoping session, in which interested

stakeholders participate, the Proponent writes a scoping report and finalizes the TOR document. The MoEnv may approve the revised TOR or request modifications. When the TOR is approved, the Proponent conducts the EIA study and prepares the Comprehensive EIA document. The MoEnv reviews the document and may request modifications. After completing the document review, the MoEnv either issues Environmental Approval or rejects the project.

This Guidance Document provides an outline of the content and organization of a Comprehensive EIA. The recommended content for an Initial EIA is discussed briefly in subsection 2.2.2. The remainder of this Guidance Document is focused on preparation of a Comprehensive EIA.

## 2.2.1 Application Form

If the project is any of the types of high or medium impact projects listed in either Annex 2 or 3 of the EIA Regulation No.37 of 2005, or if it includes industrial, agricultural, commercial, housing, tourism or construction development, Environmental Approval must be obtained from the MoEnv.

If an Environmental Approval by the MoEnv is required for the type of project under consideration, the project Proponent should submit an application form (called the "Intent to Conduct an Environmental Impact Assessment," as shown in Figure 2 and included in Appendix B, Form B-1) to the Secretary General of the MoEnv. It describes the nature and location of the project. The MoEnv reviews the application to determine what level of EIA will be required (Initial or Comprehensive).

Intent to Conduct an Environmental Impact Assessment	
<b>Project Information</b> [attach available data, preliminary maps, designs and specifications so that Ministry can determine recommended type of EIA (Comprehensive or Initial)]	
Proposed Action:	_____
Project Type:	_____
Project Location:	_____
<b>Project Proponent</b>	
Contact Person/Company:	_____
Mailing Address:	_____
Telephone:	_____
E-mail Address:	_____
<b>Approved Consultant</b>	
Contact Person/Company:	_____
Mailing Address:	_____
Telephone:	_____
E-mail Address:	_____
Submit to:	Environment Impact Assessment Section Ministry of Environment
<i>Based on the information provided, the Environmental Impact Assessment Section of the Ministry will determine whether an Initial or Comprehensive EIA is recommended. Please indicate who should be contacted (proponent or consultant) regarding this decision.</i>	

Figure 2-2. Application Form (based on SABEQ, 2009)

## 2.2.2 Preparing an EIA (Initial or Comprehensive)

In accordance with the EIA Regulation No.37 of 2005, the MoEnv will advise the project Proponent whether:

- No further level of EIA is required,
- A limited EIA is required (often called Preliminary or Initial EIA), or
- A full and Comprehensive EIA is required.

In general, the MoEnv will request an Initial EIA if the project is one of the types listed in Annex 3 and will require a Comprehensive EIA for projects of the types listed in Annex 2. If an Initial Assessment is required, it should be conducted using the criteria in Annex 4 of the

EIA Regulation No.37 of 2005 (See Appendix A). An outline illustrating recommended organization and content of an Initial EIA is included in Table 2-1.

**Table 2-4. Outline for an Initial EIA**

Chapter	Contents
	Front Matter
Executive Summary	Executive Summary
Chapter 1	Project Description
Chapter 2	Legal and Administrative
Chapter 3	Alternatives to the Project
Chapter 4	Methods (rationale for selecting potential impacts for in-depth study)
Chapter 5	Baseline Conditions
Chapter 6	Assessment of Impacts
Chapter 7	Mitigation Measures
Chapter 8	Environmental, Health and Social Management
Chapter 9	Recommendations regarding Comprehensive EIA
References	References
Appendices	Appendices

An Initial EIA should clearly:

- Identify the rationale for identifying and selecting potential impacts for in-depth study
- Describe the methods used to evaluate them
- Provide clear justification of the technical areas that were not included in the study
- Propose mitigation measures (including a schedule for implementation) to meet environmental standards/guidelines and to prevent impacts from being significant and thus requiring a Comprehensive EIA

In accordance with the EIA Regulation No.37 of 2005, if the Initial EIA reveals that the project has a potentially significant impact on the environment, either as a result of findings in the initial study or otherwise, a Comprehensive EIA must be conducted.

If the project requires a Comprehensive EIA, a scoping process is required. This includes preparing a preliminary TOR report, conducting a scoping meeting, and preparing a scoping report and Final TOR (as discussed in Subsections 2.2.3 through 2.2.5). These steps are requested by the MoEnv to confirm that alternatives and environmental factors are considered at an early stage in the planning process. The Comprehensive EIA, as described in this Guidance Document, should be based on the alternative actions and issues identified in the scoping statement/report and the final TOR approved by the MoEnv.

Please note that an Initial EIA does not require the scoping process steps discussed in Subsections 2.2.3 through 2.2.5. The two types of EIAs contain similar sections, but the level of detail differs, and thus the associated length of discussion differs. The baseline and impact assessment in an Initial EIA is generally based on best professional judgment, considering available data, mapping, site visit (if possible), and similar project examples. In the Comprehensive EIA, the baseline and impact assessments are typically based on detailed field studies and sampling data, and (generally) predictive modeling and evaluations.

The remainder of this document focuses on the Comprehensive EIA.

### 2.2.3 Preliminary TOR

If the project requires a Comprehensive EIA, the MoEnv requests that the Proponent prepare a preliminary TOR report, which describes the project. This TOR report will be discussed at a scoping meeting (see Section 2.2.4).

**TOR**  
Provides the foundation for Comprehensive EIA

The TOR provides the foundation for the Comprehensive EIA by identifying issues and potential adverse and beneficial environmental and socio-economic impacts that may result if the project goes forward (SABEQ, 2009). It explains how the project Proponent will evaluate each of these issues to determine the nature and magnitude of the impact that can be expected (SABEQ, 2009).

The Proponent should work with the EIA Section of the MoEnv to define the framework for the TOR. The Proponent should then prepare a preliminary draft of the TOR and submit it to the EIA Section of the MoEnv for review and comment. The preliminary draft TOR should include the components included in Table 2-2.

**Table 2-2. Outline for a Preliminary TOR Report**

Section Number	Section Title	Section Contents
Chapter 1	Project Description	Include a description of the proposed location and any special considerations due to proposed location
Chapter 2	Legal Framework	Include applicable regulations
Chapter 3	Proposed Schedule	Include construction, operation, and decommissioning phases and current phase of project design
Chapter 4	Alternatives to be considered	Include alternative technologies, scale, etc.
Chapter 5	Proposed methods	Include methods for establishing baseline conditions and assessing the potential impact for each of the technical areas of concern for each phase of the project (methodology should be clear and based on appropriate assumptions)
Chapter 6	Anticipated impacts	Describe the nature of anticipated positive and adverse impacts of the project
Chapter 7	Life cycle assessment (LCA) and risk assessment	Describe if there is a potential need for an LCA or risk assessment
Chapter 8	List of interested stakeholders	List all entities concerned with and affected by the project
Chapter 9	Additional information	Include this section, if applicable
References	References	Include a list of references
Appendices	Appendices	Include appendices, if applicable

Sources: Jordan, 2005a and SABEQ, 2009

### 2.2.4 Scoping Meeting and Report

Following submittal of the preliminary draft TOR, the EIA Section of the MoEnv will schedule a scoping session/meeting with interested stakeholders. The overall goal of the scoping process is to identify environmental issues requiring further study and to identify issues that are anticipated to be less significant, narrowing the scope of the EIA

#### Scoping Meeting and Report Goal

- Confirm technical areas of concern
- Identify potentially significant issues
- Identify less significant issues, so EIA can focus on the important concerns

process. Scoping streamlines the analysis process so the EIA document can be prepared efficiently and clearly.

**Identify and Contact Stakeholders.** Before the formal scoping session, the EIA Section of the MoEnv will identify and contact interested stakeholders who should be invited to the scoping session, including (Jordan, 2005a):

- Project owner(s)
- Municipal or other government officials
- Business owners
- Neighborhood residents
- Stakeholder groups, i.e. women's groups
- Concerned individuals
- Regulatory agencies
- Institutional representatives (schools, religious)
- Non-governmental Organization (NGO) representatives

Individual stakeholder meetings are official but often informal meetings and discussions that may be conducted during the scoping process with individual people or small groups representing specific interests (such as neighborhood groups, business associations, or NGOs). Individual meetings allow for more focused discussion about specific interests or concerns and may be more accommodating to specific needs for access or schedule. Individual stakeholder meetings can be conducted at a variety of locations, including but not limited to: at the proposed project site, in the field, at local businesses or residences, or at community centers. The meeting should cover general information but focus on issues that are the most relevant to meeting participants.

**Conduct Scoping Session.** The scoping session is a formal presentation on all phases of project development (i.e. construction, operation, and decommissioning). The scoping session provides meeting participants the opportunity to provide comments and ask questions and to hear feedback from other participants.

The project Proponent should allow early notice of scoping sessions. In advance of the scoping session, notices should be advertised in local newspapers and posted in local businesses, community centers and on web sites. Invitations should be sent to:

- Individual stakeholder meeting attendees
- Government agencies responsible for authorizing, implementing or monitoring project activities
- Businesses potentially affected by construction or operation
- Neighborhood groups
- Residents, academic leaders
- Special interest groups
- Institutional representatives (schools, religious)
- NGO representatives

Invitations should include the following information:

- Date, location and time of meeting
- Proposed project title and short description
- Name of the project Proponent and primary contact person, including address and telephone number
- Purpose of scoping meeting: to inform the public and stakeholders, obtain input and answer questions.

To prepare for the scoping session, the Proponent, in consultation with the MoEnv, should prepare a visual presentation such as a slide show to present an overview of the project and outline the proposed scope to interested stakeholders. The Proponent should also prepare written materials to hand out, including a brief (approximately two pages) description of the project and an agenda for the session. The project description should include details regarding the proposed activities, location of the site, potential impacts, and the location where the draft TOR can be viewed (i.e. web site and posted at a proposed location for the project). Sign-in sheets and comment cards should also be prepared in advance.

At the scoping session, the project Proponent should present the draft TOR to the assembled stakeholders, explaining the project, potential issues, possible types of impacts, and plans for the Comprehensive EIA study. The project Proponent should record oral and written stakeholder feedback on the project and the impacts that stakeholders believe warrant study in the Comprehensive EIA. During the scoping session, the EIA Section of the MoEnv and project Proponent should (SABEQ, 2009):

- Provide written materials, including the written project description, session agenda, and comment cards, and circulate sign-in sheet for incorporation into the scoping session report annex (project Proponent)
- Explain the EIA purpose and EIA process, including policies and procedures (MoEnv/EIA Section)
- Explain all project details, including a description of the proposed project, a summary of alternatives, a description of the affected environment and potential environmental issues to be evaluated in the EIA (project Proponent)
- Present video documentation of baseline conditions, if available, using available media (projector/ lap top computer) at meeting location (project Proponent)
- Discuss the draft TOR, including potentially adverse impacts, how impacts were identified, and how they are to be evaluated (field surveys, models, etc.) in the EIA study (project Proponent)
- Discuss the need for a life cycle assessment (LCA); the MoEnv would determine if this is necessary (MoEnv/EIA Section)
- Discuss the need for a human health and/or ecological risk assessment, if applicable (MoEnv/EIA Section)
- Discuss the anticipated EIA organization and schedule for EIA completion (project Proponent)
- Provide feedback forms to participants, explain how to complete the forms, and collect completed forms (project Proponent)
- Record (take notes) on discussions, including participant feedback (MoEnv/project Proponent)
- Document comments received at scoping session by collecting comment cards and using scanned copies of forms or flip chart notes (project Proponent)
- Record the names and contact information of all attendees (project Proponent)

**Prepare Scoping Session Report.** Following the scoping meeting, the project Proponent should compile the feedback from the stakeholders and prepare a scoping session report for submission to the EIA Section of the MoEnv.

Comments should be documented (include the name of each commenter and comment summaries) and evaluated (determine the comment type). The project Proponent should respond to each comment and provide a summary of comments in the scoping session report.

The scoping report should include a summary of the information included in Table 2-3, with support information included in annexes.

**Table 2-3. Outline for a Scoping Report**

Section Number	Title	Contents
Chapter 1	Project summary	Summary of the proposed project
Chapter 2	Scoping session information	Location and date of scoping session(s)
Chapter 3	List of stakeholders/attendees	Include attendee sign-in sheet in Annex
Chapter 4	Legal requirements	A brief description of the legal requirements for the Comprehensive EIA process and the role of the scoping session in that process
Chapter 5	Role of scoping session in Comprehensive EIA process	Description of how the scoping session was conducted, including: materials distributed, agenda, and methods used to gather feedback
Chapter 6	Scoping session	Summary of the scoping meeting discussions
Chapter 7	Discussions and feedback	Summary of participant feedback
Chapter 8	Potential impacts	Potential adverse construction, operation, and decommissioning impacts identified for each valued environmental component
Chapter 9	Revisions to preliminary TOR	Suggested revisions to the TOR based on feedback
Chapter 10	List of EIA document authors	Names of the experts responsible for preparation of the EIA document
Chapter 11	Anticipated level of effort and schedule	Expected level of effort needed to prepare the EIA document and anticipated schedule
Annex A	Preliminary TOR	
Annex B	Attendee sign-in sheet	
Annex C	Materials Distributed	Include materials distributed before and during the Scoping Session (if any)
Annex D	Scoping Session Presentations	Include printed versions of presentation slides.
Annex E	Scanned Feedback/ Comment Forms	If applicable
Annex F	Detailed Feedback Records	Include detailed records/notes gathered at scoping session(s)
Annex G	Additional Annexes	Include other Annexes as needed

Source: SABEQ, 2009

### 2.2.5 Final TOR

The Proponent should amend and finalize the TOR based on applicable feedback from stakeholders in the scoping session and the determination by MoEnv regarding the need for an LCA and/or human health/ecological risk assessment (see Table 2-4 for a recommended outline). The Final TOR should outline how the LCA and risk assessment should be conducted. The Final TOR should then be submitted to the EIA Section of the MoEnv. The EIA Section of the MoEnv will distribute the TOR to the EIA Technical Committee for review and comment.

**Table 2-4. Outline for a Final TOR Report**

Section Number	Title	Contents
Chapter 1	Project Description	Include a description of the proposed location and any special considerations due to proposed location
Chapter 2	Legal Framework	Include applicable regulations
Chapter 3	Proposed Schedule and Design Phase	Include construction, operation, and decommissioning phases and current phase of project design
Chapter 4	Alternatives to be Considered	Include alternative technologies, scale, etc.
Chapter 5	Proposed Methods	Include methods for establishing baseline conditions and assessing the potential impact for each of the technical areas of concern for each phase of the project (methodology should be clear and based on appropriate assumptions)
Chapter 6	Anticipated Impacts	Describe the nature of anticipated positive and adverse impacts of the project
Chapter 7	Life cycle assessment (LCA) and risk assessment	Include determination if either or both is necessary and an outline (if applicable)
Chapter 8	List of Interested Stakeholders	List all entities concerned with and affected by the project
Chapter 9	Revisions to Preliminary TOR	Include revisions based on scoping session feedback
References	References	Include a list of references
Appendices	Appendices	Include appendices, if applicable

Sources: Jordan, 2005a and SABEQ, 2009

Following review of the scoping session report and Final TOR, the MoEnv will either approve these documents or specify the conditions that need to be met for approval (SABEQ, 2009). When such conditions are met, the MoEnv will grant final approval, and the project Proponent can begin the Comprehensive EIA study, as laid out in the TOR (SABEQ, 2009).

## 2.2.6 Preparation and Submittal of the EIA

Following approval of the Final TOR, the project Proponent should conduct a Comprehensive EIA study and prepare a draft Comprehensive EIA document. Guidance on the content and organization of the EIA is in Section 3.0 of this document. The Proponent should complete a checklist (see Appendix B, Form B-2) before submitting the Comprehensive EIA document, to confirm that the components and content requested by the MoEnv are present. The Proponent should also complete a Commitment Letter to confirm commitment to conducting proposed monitoring and mitigation activities outlined in the EIA document (see Appendix B, Form B-3). Completed EIA documents (one paper copy and one digital copy) should be submitted to the MoEnv for review. The MoEnv will provide comments; the project Proponent should then respond to comments and prepare and submit the final EIA. The MoEnv then grants or denies environmental approval. The MoEnv requires that the results of the EIA study, potential impacts and mitigation plans, the date of the final EIA submittal, and the final determination of the MoEnv are disclosed to the public (which may be done through the MoEnv web site).

### 3.0 EIA ORGANIZATION AND CONTENT

Subsections 3.1 through 3.14 of this Guidance Document explain the outline and content of a Comprehensive EIA (referred hereafter as the EIA). The full outline for the EIA is shown in Table 3-1. Each subsection (3.1 through 3.14) corresponds to and explains the content of one chapter (or the executive summary or appendices) of the EIA. The order of the subsections follows the sequence of the analysis process. The relationship between the subsection numbers and the EIA chapters is shown in Table 3-2. The MoEnv requests that all EIAs follow this organization, unless otherwise approved in the Final TOR.

In general, an EIA includes:

- A project description and complete description of the alternatives
- A presentation of existing and future baseline environmental conditions
- A prediction and assessment of the expected short-term, long-term, direct, indirect, and induced impacts to environmental components if the project is built
- An evaluation and selection of abatement measures where necessary to reduce the impacts of the project
- An Environmental Management Plan (EMP) for the proposed project, structured according to project phase (provided as a separate report in conjunction with the EIA document).

The EIA should be a stand-alone document; sufficient relevant information on the project and studies should be provided so that the reader does not need to review previous or supplementary reports to understand the analysis and conclusions presented in the EIA. The presentation of baseline conditions and anticipated impacts should be based on the technical areas of concern. Details regarding the construction, operation, and decommissioning stages of the project should be presented for each technical area.

Each chapter should be clearly written. A minimum of technical terms should be used; non-technical writing with consistent terminology should be used in the main document, and technical details should be included in the appendices. Chapters should be succinct and objective; however, full disclosure should not be compromised for the sake of brevity. The level of analysis and detail included for the various issues should reflect the level of significance of the impacts; significant issues should receive more discussion than topics not of concern.

#### EIA Best Practices

- Stand-alone document
- Describes all project stages
- Clearly written
- Non-technical language
- Includes accurate figures and maps

The EIA must include a methods chapter, outlining the rationale for the selection of study areas and the evaluation, impact, and significance criteria to be used in the evaluation. The results of any environmental analysis, studies, and/or investigations conducted should be summarized in the main text, with details included in appendices. Applicable maps (with accurate scales, clear legends, and sufficient detail), figures, or other descriptive details should be used to support or illustrate text whenever possible; these can be included within the main text or in appendices.

The Proponent should complete and bind the EIA checklist into the Draft EIA document to confirm that components requested by the MoEnv are present (Appendix B, Form B-2). The Proponent should also complete a Commitment Letter to confirm commitment to conducting proposed monitoring and mitigation activities outlined in the EIA document (see Appendix B,

**Table 3-1. Outline for Comprehensive EIA**

<b>Executive Summary</b>	
<b>Chapter 1</b>	<b>Project Description</b>
<b>Chapter 2</b>	<b>Legal and Administrative Framework</b>
<b>Chapter 3</b>	<b>Alternatives to the Project</b>
<b>Chapter 4</b>	<b>Methods</b>
<b>Chapter 5</b>	<b>Existing and Future Baseline Environment</b>
5.1	Physical Environment
5.1.1	Topography and geology
5.1.2	Soils
5.1.3	Water resources (surface water and groundwater)
5.1.4	Weather parameters (climate)
5.1.5	Air quality
5.2	Biological Environment
5.2.1	Flora
5.2.2	Fauna and avifauna
5.2.3	Threatened or endangered species and habitats
5.2.4	Protected land and areas of special protection
5.3	Socio-economic Environment
5.3.1	Land use
5.3.2	Cultural resources
5.3.3	Noise
5.3.4	Infrastructure
5.3.5	Transportation
5.3.6	Solid and hazardous waste management
5.3.7	Demographic conditions
5.3.8	Aesthetics
<b>Chapter 6</b>	<b>Assessment of Impacts</b>
6.1	Physical Environment
6.1.1	Topography and geology
6.1.2	Soils
6.1.3	Water resources (surface water and groundwater)
6.1.4	Weather parameters (climate)
6.1.5	Air quality
6.2	Biological Environment
6.2.1	Flora
6.2.2	Fauna and avifauna
6.2.3	Threatened or endangered species and habitats
6.2.4	Protection land and areas of special protection
6.3	Socio-economic Environment
6.3.1	Land use
6.3.2	Cultural resources
6.3.3	Noise
6.3.4	Infrastructure
6.3.5	Transportation
6.3.6	Solid and hazardous waste management
6.3.7	Demographic conditions
6.3.8	Aesthetics
6.4	Life Cycle Analysis
<b>Chapter 7</b>	<b>Risk Assessment (if required)</b>
<b>Chapter 8</b>	<b>Mitigation Measures</b>
<b>Chapter 9</b>	<b>Environmental, Health and Social Management</b>
<b>Chapter 10</b>	<b>Response to Comments</b>
<b>References and Sources</b>	
<b>Appendices</b>	

**Table 3-2. Organizational Relationship of Guidance Document Sections with Recommended EIA Chapters**

<b>Guidance Document Section</b>	<b>EIA Component/Chapter</b>
Section 3.1	EIA Front Matter: Title Page, Table of Contents, List of Terms and Acronyms
Section 3.2:	Executive Summary
Section 3.3	Chapter 1. Project Description
Section 3.4	Chapter 2. Legal and Administrative Framework
Section 3.5	Chapter 3. Alternatives to the Project
Section 3.6	Chapter 4. Methods
Section 3.7	Chapter 5. Existing and Future Baseline Environment
Section 3.8	Chapter 6. Assessment of Impacts
Section 3.10	Chapter 7. Risk Assessment (if required)
Section 3.9	Chapter 8. Mitigation Measures
Section 3.11	Chapter 9. Environmental, Health and Social Management (note that the EMP should be provided under separate cover from the EIA document)
Section 3.12	Chapter 10. Response to Comments
Section 3.13	References
Section 3.14	Appendices

Form B-3). The project Proponent and consultant must submit the EIA document (one paper copy and one electronic version) to the MoEnv. The MoEnv will review the EIA document first to determine whether the study has been properly conducted and reported. If it has not, the MoEnv will specify changes that are necessary. When the MoEnv judges that the information submitted is adequate for decision-making, it will determine whether the impacts, abatement measures, and EMP are acceptable and, if they are not, specify revisions that the project Proponent must make. Finally, when the EIA document is complete and final, the MoEnv will either grant Environmental Approval for the project or disapprove the project.

The MoEnv requires that the results of the EIA study, as well as any potential construction or operation related impacts and mitigation plans, be disclosed to the public (which may be done through the MoEnv web site). Information regarding EIA submittal dates and the final determination of the MoEnv must also be disclosed. The project Proponent should coordinate disclosure with the MoEnv.

## **3.1 EIA FRONT MATTER**

### **3.1.1 Title Page**

The title page should consist of one page and include the following details:

- Governing bodies
- Jurisdiction
- Project name
- Project location
- Type of EIA
- Project proponent
- EIA preparer
- Date of filing
- EIA submitted to

### **3.1.2 Table of Contents**

A table of contents helps reviewers easily navigate to specific chapters and subchapters within the document. The table of contents should include the titles and page numbers of:

- EIA components, chapters and subsections
- Figures (including maps and plans)
- Tables
- Appendices (each appendix must be identified by letter and page numbers should be provided, if necessary)

### **3.1.3 List of Acronyms and Abbreviations and Glossary of Terms**

Provide a list of all acronyms and abbreviations and a glossary of terms. “MoEnv” is an example of an acronym, used for the Ministry of Environment.

## **3.2 EXECUTIVE SUMMARY**

The Proponent should provide an Executive Summary in both Arabic and English. The Executive Summary must adequately and accurately summarize the report, describing the proposed action and summarizing the assessment’s major conclusions. The executive summary briefly describes the project in clear, non-technical language, including:

- Name and location of the project and project Proponents
- Brief project description listing changes made to the project since the previous submittal
- Brief description of scoping process and scoping report findings
- List of any permit, financial assistance, or land transfer, and any required environmental, or land-use permit, license, certificate variance, or approval and the current status of each application
- Summary of alternatives to the project
- Summary of potential environmental impacts of the project, including a summary of the results of the Life Cycle Assessment (LCA) (if required)
- Summary of the risk assessment (if required)
- List of mitigation measures for the project

- Summary of plans, including the environmental management plan (EMP) (submitted under separate cover from EIA document)
- Conclusions and recommendations

### 3.3 PROJECT DESCRIPTION (EIA CHAPTER 1)

The Project Description should include:

- Detailed, clearly stated description of the proposed action
- Detailed clearly stated explanation of the purpose and need
- Summary of the scoping process

#### 3.3.1 Proposed Action

This part of Chapter 1 should answer the following questions:

**Who** is the project Proponent?

- Include the name and location of the project and project Proponents

**What** is the nature of the project?

- Include the type, size, and proposed use/ activity
- Describe production processes, including the quality and quantity of expected wastes and emissions, and the number of people and vehicles anticipated during all phases (construction, operation, and decommissioning) of the project
- Provide approximate costs to develop and implement the project

**Where** will the project occur?

- Include the physical characteristics of the project and its surroundings.
- Include a location map and site plan (at an appropriate scale and level of detail).
- Include location coordinates

**When** will the project occur?

- Include a timetable and duration of construction of the project, operational period and any anticipated decommissioning, if relevant.

#### 3.3.2 The Purpose and Need for the Project

The Proponent should identify the project purpose and should clearly define the reasons why the project needs to occur. The need for the proposed action can be expressed as a problem or an opportunity, including any anticipated benefits. The purpose and need are the basis for identifying alternatives to fill that need; Section 3.7 includes recommendations regarding how to present project alternatives in the EIA.

The explanation of the purpose and need should answer the following questions:

- Why** is the project necessary?
- Why** here?
- Why** now?
- Why** is this urgent (if applicable)?
- What** is driving the action?

### 3.3.3 Scoping Process

The Proponent should summarize the scoping process, including:

- Outreach that was conducted
- Brief summary of scoping session(s) held and participants attending
- Results of the scoping session(s), including additional technical topics or potentially significant issues identified and issues that were identified but screened from detailed analysis
- Scoping session report findings
- Recommendations for the Final TOR.

## 3.4 LEGAL AND ADMINISTRATIVE FRAMEWORK (EIA CHAPTER 2)

The project Proponent should identify environmental laws, regulations, instructions, and performance standards. The project Proponent should explain how each law, regulation, instruction, or standard is related to the project and how each is integrated into the EIA. The results of required surveys and studies should be integrated into the EIA document.

Appendix A includes a partial list of applicable laws, regulations, instructions and standards in Jordan for reference purposes. Chapter 2 of the EIA document should include:

- List of permits, licenses, financial assistance, and/or land transfer that must be obtained to implement the project
- List of jurisdictional authorities responsible for implementing the above laws and regulations
- Explanation of how each law, regulation, instruction, or standard is related to the project and how each is integrated into the EIA.

## 3.5 ALTERNATIVES TO THE PROJECT (EIA CHAPTER 3)

The Proponent should describe the alternatives to the proposed action. This chapter should explore and evaluate reasonably practicable alternatives, which are alternatives that are practical and feasible technically and economically, and that meet both minimum project objectives and minimum environmental standards. A no-action alternative should be included in every EIA study. Substantial attention should be devoted to each feasible alternative, including the no-action alternative. A summary of alternatives that have been previously evaluated and screened out (including project location) should be provided.

This chapter should include the following components, in order of analysis:

- Summary of the history and process of identifying the alternatives
- Alternative design, evaluation, and selection criteria, including costs for each alternative

- Alternatives considered but eliminated from detailed study (necessary to show that a reasonable range of alternatives was developed), including:
  - Reasons for eliminating those alternatives
  - Summary of the alternatives screening process
- Detailed descriptions (design, technology, and cost) of all feasible alternatives, including:
  - No-action alternative (the alternative of not undertaking the project)
  - Preferred alternative (the alternative that the Proponent proposes to select)
  - Other reasonable alternatives

**EIA Chapter 3 should include:**

- A summary of alternatives considered but screened out
- A reasonable range of practicable alternatives, including the no-action alternative
- Adequate description of alternatives
  - Design
  - Technology
- Feasible alternatives, including the no-action alternative
  - Tested or acceptable technology
  - Reasonable cost
  - Authority to implement

### 3.6 METHODS (EIA CHAPTER 4)

The project Proponent should describe the concept and basic rationale for identification of the study areas for the technical parameters, provide an overview of the criteria (evaluation, impact and significance) that will be used in evaluating impacts, and introduce the methodology (analytical tools, including models) that may be used in the assessment. If required by the MoEnv as identified in the TOR, the Methods chapter should also outline methods for conducting an LCA to address the impacts of product development (from “cradle to grave”), depending on the nature of the project proposed, and the methods for conducting a risk assessment.

A more detailed methodology for study areas, criteria, and assessment tools for each individual technical parameter can be presented in the appropriate subchapters of the EIA document [Existing Environment (Chapter 5) and Assessment of Impacts (Chapter 6)], but a summary of the process and basis for selection of the tools would be described in the Methods chapter of the EIA document (setting the stage and framework for the EIA document).

Technical guidance protocols for technical parameters that may require in-depth study or analysis (as determined in the TOR and scoping process) are included in the Annexes to this Guidance Document, including protocols for:

- Surface water hydrology and quality analysis
- Groundwater flow and quality analysis
- Air quality assessment
- Noise assessment
- Traffic assessment
- Life cycle analysis (LCA)
- Risk assessment (human health)
- Risk assessment (ecological)

These technical guidance protocols provide instruction on accepted analytical methods, tools, and models to conduct the analyses for environmental impact assessments. Each technical guidance protocol provides sufficient guidance in the following areas:

- Purpose/intention of the analysis
- Terminology
- Background/baseline information necessary to begin the analysis
- Assessment tools that would be used, including models or predictive analysis
- Recommended methods for analysis, including equations and calculations and any potential field monitoring
- Interpretation of results, including comparing results to identified performance standards/ impact and significance criteria
- Presentation of analysis methodology, findings, and results, including figures, tables, and photographs
- Examples showing how these methodologies have been successfully used in projects similar to those encountered in Jordan

### 3.6.1 Definition of Study Areas

The project Proponent should identify study areas, inclusive of the project site, for the project. These areas should encompass the area in which impacts may occur [areas of potential effect (APE)] for each technical parameter (described in Section 3.7, Existing Environment). The size of the study area may vary depending on the resource area and type of impact (direct, indirect, induced or cumulative), and should include both primary (direct impacts) and secondary (indirect or secondary impacts) study areas when appropriate. Appendix C, Table C-1 provides examples of primary and secondary (when applicable) study areas that may be included in an EIA study. The project Proponent should illustrate the proposed study areas on a figure or map. Figure 3-1 provides an example of a primary study area (500 meters from the project boundary) and a larger secondary study area (one kilometer from the borders of the site).

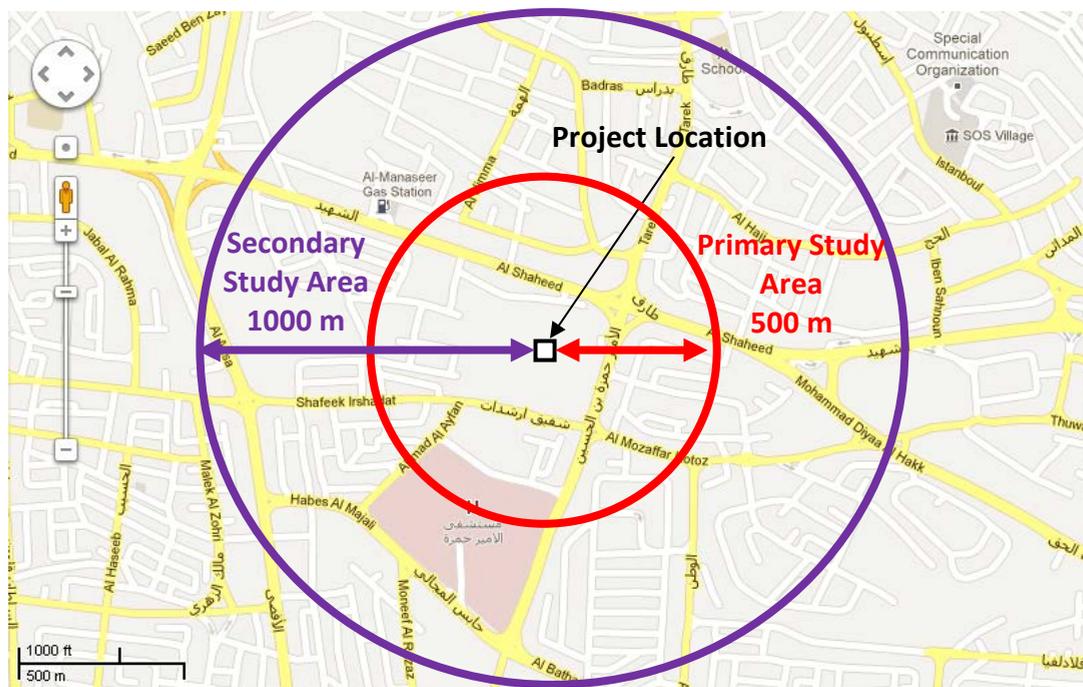


Figure 3-1. Primary and Secondary Study Areas

### 3.6.2 Description of Evaluation, Impact and Significance Criteria

As noted above, the project Proponent should include a discussion of the methods, including criteria used to evaluate the potential impacts of the proposed project and alternatives, including:

- Short-term, long-term, direct, indirect, and induced impacts for all phases of the project (e.g., construction, operation, and decommissioning)
- Cumulative impacts of the project, any other projects, and other current or future work or activity in the immediate surroundings and region

The criteria used to assess impacts should be clearly presented and should include:

1. Evaluation criteria (what is measured):

Defined as topics of concern (things that could change as a result of a project) for which alternatives are assessed. Evaluation criteria are necessary to establish in order identify baseline information.

- The Proponent should list the things that could change as a result of a proposed action or alternatives, for example:
  - changes in noise levels,
  - change in air emissions that may affect population groups,
  - changes in water quality, and
  - changes in vehicular traffic (delays at intersections or pedestrian or vehicular accidents).

2. Impact criteria (how change in impact is measured):

Defined as criteria that measure the type and magnitude of potential effects as a result of project implementation.

- The Proponent should indicate how the change will be measured, for example:
  - increase in the decibel level at sensitive noise receptors due to stationary or mobile sources,
  - increase in particulate matter (air emissions) as a result of excavation,
  - decrease in the level of service on roadways due to increase in number of vehicles).

3. Significance criteria (how significance of impacts is evaluated based on thresholds):

Defined as thresholds used to define whether impacts are potentially significant in that they may exceed a performance standard or result in major or significant effects. Significance criteria may be defined by regulation (see Appendix A); performance standards help to determine potential significance of an impact.

- The Proponent should indicate the performance standards, regulatory standards, or defined qualitative criteria (based on best professional judgment) that will be used to determine whether the impacts would be significant, for example:
  - a certain decibel level, or x parts per million, or
  - decrease in level of service at key locations at peak hours).

Appendix C, Table C-2 provides examples of these criteria for the various technical topics that may be evaluated. This information is the basis for the MoEnv and interested stakeholders to understand how the proposed project may result in changes, how the changes are being measured, and whether the changes are potentially significant. Very specific, detailed measures should be established for each criterion to measure the performance of alternatives. Measures can be qualitative or quantitative.

### **3.6.3 Assessment Tools**

This subsection provides an overview of the methods (including models) used to evaluate potential impacts of the proposed project and alternatives. The level of analysis should be sufficient to determine:

- The level of (adverse/ positive; significant/ not significant) impacts anticipated based on evaluation, impact, and significance criteria, and
- If mitigation will reduce anticipated adverse impacts.

The level of analysis will vary for each environmental component. For example, some environmental components, such as land use, may not require detailed modeling or calculations to determine anticipated impacts, while an extensive modeling effort may be required to analyze air quality impacts. Field surveys may be required to determine impacts to environmental components. For environmental components that require in-depth study or analysis, as defined in the TOR and scoping process, project Proponents should use the technical guidance protocols included in the Annexes to this Guidance Document.

Assessment tools may include:

- Field surveys. Proponent should explain location, duration, type of equipment used to collect data, sampling techniques, QA/QC
- Laboratory analyses. Proponent should identify specific laboratory methods and protocols
- Calculations. Proponent should provide equations, parameters and units in calculations
- Modeling if applicable, including:
  - Type of model
  - Source of model
  - Previous applications of model for similar projects
  - Model inputs and assumptions
  - Relationship to evaluation criteria
  - Interpretation of model results

The EMP, as discussed in subsection 3.11.3, should include details regarding the implementation of any surveys or analysis and any monitoring required.

#### **3.6.3.1 Life Cycle Assessment (LCA) (if required)**

The LCA is a technique used to assess the environmental aspects and potential impacts associated with a product, process, or service over the entire life cycle from “cradle to grave” (manufacture/construction to use/operation to final disposal) (USEPA, 2006). The project Proponent should include an LCA, if it is required by the MoEnv. The LCA should evaluate the proposed project and its alternatives from “cradle to grave” and should include all activities that would differ among the alternatives.

The specific methodology used to conduct an LCA should be included for applicable resource areas. A technical guidance protocol for an LCA is included in the Annexes to this

Guidance Document. Results of the LCA should be presented in Chapter 6, Assessment of Impacts for each alternative. Both the purpose of the LCA and the methods should be described in the EIA:

**Purpose of the LCA:**

- Identify inputs and outputs from human activities (such as emissions and natural resource consumption) to the environment for each alternative
- Calculate inputs and outputs over the entire life cycle of a human activity, including disposal of excess and waste materials
- Evaluate the impacts of emissions and natural resource consumptions according to environmental criteria

**Methods:**

- Define the goal and scope (describe methodological choices, assumptions, and limitations of the study)
- Conduct life cycle inventory analysis (define inputs and outputs)
  - Include data collection and calculation procedures to quantify inputs and outputs
- Conduct life cycle impact assessment for each activity (i.e. extraction, production, transport, disposal)
  - Calculate emissions and resources and evaluate according to impact criteria
  - Calculate mass balance
- Interpret data (analyze and calculate significance of the assessment results)
  - Identify significant issues
  - Establish confidence in the results (check for: completeness, the sensitivity of significant data, and consistency)
- Provide conclusions regarding potential impacts of each alternative from “cradle to grave.”

### 3.7 EXISTING AND FUTURE BASELINE ENVIRONMENT (COMPREHENSIVE EIA CHAPTER 5)

The Proponent should describe and analyze the relevant, currently existing aspects/resources (baseline conditions) and future anticipated conditions (without the project) that would be affected by the proposed project, including the physical, biological, social and economic conditions of the project site and study area(s). The effects of feasible alternatives will be compared to these baseline conditions in Chapter 6, Assessment of Impacts.

Environmental aspects should be described in sufficient detail to provide a baseline in relation to which the project and its alternatives can be described and analyzed and potential environmental impacts (including cumulative impacts) and mitigation measures can be assessed. Data and analyses in the EIA should be commensurate with the importance of the impact, with less important material (as identified in the TOR and scoping process) summarized or referenced. Video can be used to document baseline conditions and can be appended to the EIA report.

The following subsections (as outlined in Table 3-3) include suggestions for the type of information that the project Proponent should provide for each physical, biological, and socio-economic aspect/resource (USEPA, 2011) to describe baseline conditions in the EIA document. The Proponent may decide to include information in addition to what is suggested in the following section, based on recommendations outlined in the TOR or the availability of additional data.

**Table 3-3. Recommended Outline for Existing and Future Baseline Environment Chapter**

<b>Chapter 5</b>	<b>Existing and Future Baseline Environment</b>
5.1	Physical Environment
5.1.1	Topography and geology
5.1.2	Soils
5.1.3	Water resources (surface water and groundwater)
5.1.4	Weather parameters (climate)
5.1.5	Air quality
5.2	Biological Environment
5.2.1	Flora
5.2.2	Fauna and avifauna
5.2.3	Threatened or endangered species and habitats
5.2.4	Protected land and areas of special protection
5.3	Socio-economic Environment
5.3.1	Land use
5.3.2	Cultural resources
5.3.3	Noise
5.3.4	Infrastructure
5.3.5	Transportation
5.3.6	Solid and hazardous waste management
5.3.7	Demographic conditions
5.3.8	Aesthetics

#### 3.7.1 Physical Environment

The project Proponent should describe the physical resources within the vicinity of the proposed project, including:

- Topography and geology
- Soils
- Water resources (surface water and groundwater)
- Weather parameters (climate)
- Air quality

### ***Topography and Geology***

The Proponent should provide the following types of information within the project and study area(s):

- Topography (including land features and surface elevation)
- Geologic formations (including major geologic structures and aquifers)
- Regional geology (including lithology and structure)

This type of information should be provided on a topographic map to show the geologic context of the project.

### ***Soils***

The Proponent should characterize the soils within the project area, which can include the following types of information:

- Soil type/classification
- Erosion potential
- Availability and suitability (vegetative growth potential) of soils for use during rehabilitation activities

If soil maps are available, these should be evaluated and included. The Proponent should provide sufficient soil information to perform runoff and sediment transport models, if applicable.

### ***Surface Water***

The Proponent should provide an evaluation of surface water resources in the vicinity of the project. The types of information that can be included are:

- Water quality (for example: dissolved oxygen, ph, temperature, conductivity, total dissolved solids, metals)
- Water quantity (for example: stream flow, yield)
- Wetlands (type and function)
- Flow/flood characteristics, including stormwater flow

The Proponent should identify location of nearby rivers, wadi, streams, and other water bodies, wetlands and surface water wells, as well as the uses of the water (for example: drinking water, irrigation, wildlife) within, and upstream and downstream of the project area.

To provide sufficient baseline data to establish surface water flow rates (including seasonal variability) and water quality (including sediments) without the project, the Proponent should compile existing and historic water quality and flow data. If existing data are not available, the Proponent should coordinate with the MoEnv to determine whether a surface water sampling program to monitor specific sites in the project area should be implemented. The Proponent should also refer to the TOR for sampling requirements that may have been included. In addition, regional data and appropriate models should be used to determine baseline rainfall, runoff and erosion characteristics as well as flooding characteristics of nearby rivers and streams, if appropriate.

A hydrologic map should be included to illustrate surface water resources and floodplains in the project area, including monitoring stations and discharge points, if applicable.

### **Groundwater**

To characterize baseline groundwater resources in the project area, the Proponent should describe:

- Aquifers (bedrock and alluvial) including their geology
- Aquifer characteristics (hydraulic characteristics)
- Groundwater recharge and discharge
- Influences of geologic structures (for example: faults, contacts, bedrock fracturing) and surface water bodies
- Parameters (such as aquifer parameters) that may be necessary for modeling impacts to groundwater

Existing data on the quantity and quality of groundwater from springs and wells in the vicinity of the proposed project should be collected and reported, including depth to groundwater. For each well, the Proponent should identify the location, operator, and purpose, as well as the average daily and annual withdrawal and recharge rates. If data for existing wells and springs are not available, the Proponent should coordinate with the EIA Section of the MoEnv to determine whether a groundwater sampling program should be implemented (this requirement would have been described in the TOR). Groundwater sampling typically includes measuring water levels, flow rates, and groundwater quality parameters.

The Proponent should include topographic maps showing the locations of wells and springs in the project area, including flows, groundwater levels, and uses (for example: drinking water or irrigation).

### **Weather Parameters (Climate)**

Climatic data from local weather stations should be gathered and analyzed. The types of data that can be included are:

- Rainfall data (total precipitation, rainfall intensity, and duration)
- Wind direction and speed
- Solar radiation
- Evaporation rates
- Barometric pressure
- Temperature variations

If no data are available near the site, the Proponent should review the TOR and coordinate with the EIA Section of the MoEnv to determine if a weather station should be established to collect baseline data. Sampling site and weather station locations (if applicable) should be depicted on a map in the EIA document. In addition, potential risks and risk management programs should be identified for storm events.

### **Air Quality**

The Proponent should provide air quality data from nearest monitoring station. If no air quality data is available near the project site, the Proponent should coordinate with MoEnv to determine whether air quality monitoring (upwind and downwind of the project area) should be conducted. Air quality monitoring typically includes collecting samples of air borne particulates and gases. If applicable, the Proponent should compare results to regulatory

standards, including the Jordan Regulation for the Protection of the Air No.28 of 2005 (Jordan, 2005b).

### 3.7.2 Biological Environment

The project Proponent should include information on biological resources in the vicinity of the proposed project, including:

- Flora
- Fauna and avifauna
- Threatened or endangered species and habitats
- Protected land and areas of special protection

#### **Flora (plant)**

The project Proponent should record and describe in the EIA document the flora (plants/vegetation) within the project boundaries and study area. This information should be presented as vegetation maps of the area, which should also include habitat information. Descriptions of vegetation types should also be included, identifying:

- Plant species
- Species rarity, including threatened or endangered species (which should be further described in the *Threatened and Endangered Species and Habitats* subsection)

#### **Fauna (animal) and avifauna (birds)**

The project Proponent should record and describe in the EIA document the fauna, including fish and wildlife, avifauna (birds) and bat fauna within the project boundaries and study area. The results of the study should present information on the species and life history characteristics (for example: mating seasons, migratory patterns, habitat requirements) of the fauna identified in the area. The Proponent should include maps identifying the following type of information:

- Breeding areas and wildlife corridors
- Locally, nationally, regionally and globally endangered species (which should be further described in the *Threatened and Endangered Species and Habitats* subsection)

For avifauna and bat fauna, specifically:

- Nesting areas
- Migratory pathways (if applicable)
- Migratory and resident bird species, including nocturnal bird species
- Importance of the site within a recognized bird flyway
- Areas considered as international bottle neck sites
- Studies of bat species and their activity within the project site

#### **Threatened and Endangered Species and Habitats**

The Proponent should provide the following types of information to describe threatened and endangered species and habitats (without duplicating the information under Flora and Fauna sections of the EIA document):

- Review of available local, national, regional and global literature on endangered or threatened species habitat
- Consultation with relevant agencies (including MoEnv) to determine what species may be located within the project area.

- Review of national lists of threatened and endangered species as well as the International Union for Conservation of Nature (IUCN) Red List (<http://www.iucnredlist.org>)

### ***Protected Land and Areas of Special Protection***

As defined in the Natural Reserves and National Parks Regulation No.29 of 2005 of Jordan, protected land is: “any land designated as protected by decision of the Council of Ministers”; and an area of special protection is “an area containing a special ecosystem or wildlife threatened with extinction, and needing special protection to ensure the preservation of the ecosystems and wildlife.”

Protected land, including designated national parks and reserves, and areas of special protection should be described in the EIA document. The project Proponent should indicate the following types of information:

- Whether there is a current management plan
- If applicable, whether the management plan accommodates the current and future use of the area
- Whether the quality and use of the area has declined or been maintained
- Anticipated trends in capacity and use of the area in the absence of the proposed project over the anticipated life of the project

### **3.7.3 Socio-Economic Environment**

The Proponent should describe existing and future social and economic conditions on the site and within the study area for the following as noted in the paragraphs below:

- Land use
- Settlements
- Demographic conditions
- Cultural resources
- Noise
- Infrastructure
- Transportation
- Solid and hazardous waste management;
- Aesthetics

#### ***Land Use***

The EIA should comply with the national planning schemes that are being prepared by several planning entities, such as: Ministry of Municipal Affairs (MoMA), Jordan Valley Authority (JVA), Development and Free Zones Commission (DFZC), and the Aqaba Special Economic Zone Authority (ASEZA). The project Proponent should describe land use plans that govern activities and the existing and potential land uses on the project site and within the study area. The description should include an inventory of the variety of land uses and should include information on potential land uses and trends/patterns in land use. The information should be presented as a land use map showing location and size of:

- Open space/parks and areas of special protection
- Wildlife and hunting areas
- Forested areas
- Flood plains
- Coastal areas
- Wetlands

- Agricultural land (farmland/cropland)
- Grazing land/pasture
- Recreational/tourist areas
- Utility corridors
- Roads
- Mining areas
- Public/institutional (schools, cemeteries, religious buildings)
- Residential areas (housing)
- Industrial facilities
- Commercial areas/business districts

### ***Cultural Resources***

The Proponent should identify, map (if allowed by law), and describe archeological, historical, ancient, and religious resources in the vicinity of the project, including:

- Archeological structures/sites/artifacts
- Architectural resources
- Historic buildings
- Ancient monuments
- Burial grounds
- Sacred or ceremonial sites

During the preparation of the EIA, the Proponent should consult with relevant agencies on whether the site or surrounding area has important traditional or cultural value.

### ***Noise***

Ambient noise levels (representative of both night and day time noise levels) should be characterized. If no historical or existing noise data are available near the project site, the Proponent should coordinate with MoEnv to determine if baseline noise measurements should be collected. Typically noise measurements are collected where noise or vibrations would be perceived as a result of construction, operation, or decommissioning of the proposed project for comparison to applicable noise standards (for example: the Jordan Noise Reduction and Prevention Regulation of 2003). Noise levels in and around sensitive habitats and areas of human habitation should be recorded.

### ***Infrastructure***

The project Proponent should include descriptive and quantitative information, including maps when applicable, on the current and future planned infrastructure in the absence of the proposed project in the following areas (USEPA, 2011):

- Water supply, including:
  - Sources of drinking water, treatment systems, distribution systems, pumping facilities
  - Quality (before and after treatment)
  - Access
  - Trends in availability of potable water in the study area
- Wastewater systems, including:
  - Quantity (collection systems and discharges)
  - Treatment
  - Sludge disposal, if applicable
  - Effluent discharge points
  - Trends
- Communications and energy, including:

- types of communication systems (phone/fiber optic) and energy (electric/gas)
- Associated infrastructure (transmission/distribution lines and microwave towers)
- Storage facilities, if applicable (including fuel storage facilities)
- Emergency services, including:
  - Fire protection
  - Police protection

### ***Transportation***

The Proponent should present basic information on the existing transportation system in the project area, including:

- Roads [including roadway layout; type, capacity, usage and condition of roadways; and traffic patterns (traffic movement)]
- Pedestrian and livestock pathways
- Parking
- Transit (including bus lines and railroads)
- Pedestrian and bicycle transportation
- Air strips
- Airports

Each existing transportation system component should be described in terms of its location, name, type and intensity of use, and communities it connects. The location of each of the recommended items listed above should be shown on a map.

If improvements are scheduled for any of the system components but are not part of the proposed project, the Proponent should describe these improvements. The description should include the nature and location of the improvements, the entity performing the improvements, and the timing of improvements. On-going maintenance to any component of the existing transportation system should also be described, including the type and frequency and the entity performing the maintenance.

### ***Solid, Liquid and Hazardous Waste Management***

Solid and liquid (non-hazardous) wastes generally include garbage and refuse. Examples include domestic trash and garbage; construction or demolition materials; scrap metal and empty containers (except those previously used to contain hazardous materials); and residual (non-hazardous) waste from industrial operations. Solid or liquid discarded material from processes at treatment facilities (waste treatment plants, water supply treatment plants, or air pollution control facilities) and other industrial operations may or may not be considered non-hazardous and should be individually tested to determine whether the waste is hazardous or non-hazardous.

Hazardous and harmful wastes are defined in the Jordan Management, Transportation and Handling of Harmful and Hazardous Substances Regulation No.24 of 2005 as: “any substances that cannot be disposed of in dumping sites designated for general waste, or into drainage networks, due to their hazardous characteristics and their harmful effects on the Environment and life forms, and which require special means to treat and permanently dispose of.” Hazardous waste is not permitted to enter Jordan, as indicated in the Environmental Protection Law No.52 of 2006 in Jordan (Jordan, 2006).

In addition to information on locations of known hazardous waste sites, information on solid, liquid and hazardous waste generators in the vicinity of the proposed project and study area should be presented on maps (if applicable) as well as in narrative and tabular forms and should include:

- Location of waste generators
- Type of waste generated
- Quantity (daily quantities generated, collected and disposed of)
- Collection systems
- Recycling programs in the area
- Disposal facilities (locations, sizes and management)

### ***Demographic Conditions***

To identify trends in the demographic characteristics of the project area, the project Proponent should present historic and current data on the existing social and economic conditions in the vicinity of the proposed project, including:

- Population characteristics (size of population, race, gender and age distribution, income and population growth, subsistence population groups)
- Cultural characteristics (religion, ethnic composition)
- Economic activities (industrial and commercial activities, employment, incomes and distribution of income, local services and goods)
- Crime rates
- Literacy rates
- Public services (libraries, child care centers, educational facilities, health facilities)
- Nearby community organizations
- Housing
- Public health and safety
  - Known diseases in the project area
  - Electromagnetic fields (high voltage electric power lines)
- Schools and other education facilities

### ***Aesthetics***

The project Proponent should identify baseline information on views and vistas that could be impacted by the proposed project. Vistas and views include, but are not limited to:

- Mountains
- Natural landscapes
- Skylines (including sunrises and sunsets)
- Beaches and other coastal features
- Cultural, archeological, and historical structures

Narrative descriptions of existing visual attributes in the vicinity of the proposed project area should be provided, as the specific importance of a view may not be obvious. In addition, the project Proponent should present information on the visibility of the proposed project area from outside the project area.

The project Proponent should include panoramic photos of the proposed project area from potential viewpoints, such as communities and roads. These photos can be used to establish the views without the proposed project.

In addition to describing the aesthetic character of the project area, information should also be presented on light pollution from existing sources in the project area, including communities, factories, street lights, etc. For urban areas with tall buildings or areas with tall structures present, information regarding shadows from existing buildings or structures should be included.

### 3.8 ASSESSMENT OF IMPACTS (COMPREHENSIVE EIA CHAPTER 6)

The project Proponent should present the assessment and findings of the evaluation of the proposed action and alternatives in this chapter. This chapter forms the scientific and analytic basis for comparing alternatives. The following steps are suggested to assess impacts:

#### 1. Identify impacts

Provide a detailed description and assessment of the negative and positive potential environmental impacts of the project and its alternatives for all phases of the project (construction, operation, and decommissioning). For each technical parameter identified in the Existing Environment chapter of the EIA document, the project Proponent should discuss the following, in a format consistent with Chapter 5, with subheadings for each parameter, as in Table 3-4:

- What component of the resource would be affected
- Where (specific location) each resource would be affected
- When (timing) each resource would be affected.

Provide details of the methods/assessment tools (which should be introduced in the Methods chapter) used to estimate impacts for each technical parameter, as appropriate. For specific models used, identify the type, source, and where the model has been used in similar applications.

**Table 3-4. Recommended Outline for Assessment of Impacts Chapter**

<b>Chapter 6</b>	<b>Assessment of Impacts</b>
6.1	Physical Environment
6.1.1	Topography and geology
6.1.2	Soils
6.1.3	Water resources (surface water and groundwater)
6.1.4	Weather parameters (climate)
6.1.5	Air quality
6.2	Biological Environment
6.2.1	Flora
6.2.2	Fauna and avifauna
6.2.3	Threatened or endangered species and habitats
6.2.4	Protection land and areas of special protection
6.3	Socio-economic Environment
6.3.1	Land use
6.3.2	Cultural resources
6.3.3	Noise
6.3.4	Infrastructure
6.3.5	Transportation
6.3.6	Solid and hazardous waste management
6.3.7	Demographic conditions
6.3.8	Aesthetics
6.4	Life Cycle Analysis

#### 2. Quantify impacts

Assess to the extent practicable, the scale or quantity of potential impacts anticipated from all aspects of the project throughout each phase of the project (construction, operation and decommissioning) including:

- How it would be impacted (include the quantity of impact, such as volume, area, tons, or other quantitative measure)

- Whether the impact would be short-term, long-term, direct, indirect, and induced impacts for all phases of the project (construction, operation, and decommissioning)
- Whether the impact would contribute to cumulative impacts, considering the effects of other past, current or proposed (in the reasonably foreseeable future) projects or activity in the vicinity of the proposed project area and in the region

Methods for evaluating cumulative impacts can include a combination of tables, matrices, map overlays, and modeling, depending on the type of impacts. For example, the cumulative effects of mining actions on each environmental component can be calculated quantitatively and presented in a table. Modeling can be used to calculate cause and effect relationships that may result in cumulative effects. For example, mathematical equations can be used to quantify cumulative processes such as soil erosion (CEQ, 1997).

### 3. Compare the type and quantity of impacts to criteria

Evaluate the type and magnitude of impact to the quantitative or qualitative criteria that were established (section 3.6.2). The project Proponent should assess potential effects in light of any regulatory standards and/or other performance standards established and determine whether the anticipated impact meets or exceeds the standards or criteria.

### 4. Identify potentially significant impacts

The project Proponent should identify which technical parameters have the potential to be significantly affected by the project. A summary of direct, indirect and cumulative impacts to the various technical parameters should be provided to allow comparison among the alternatives being considered (see example matrix in Table 3-5).

**Table 3-5. Example Matrix for Summarizing Potential Impacts**

Technical Parameters (examples-full list should be included in EIA)	Direct/Indirect Impact			Cumulative Impact		
	Proposed Alternative	Alternative X	Alternative Y	Proposed Alternative	Alternative X	Alternative Y
Topography, geology, and soils	○	○	○	○	○	○
Surface and Groundwater	○	●	○	○	●	○
Air Quality	○	○	○	○	●	○
Noise	○	○	○	○	○	●
Resource X	○	○	○	○	○	○
Resource Y	○	○	○	○	○	○
Resource Z	○	○	○	○	○	○

Key:  
 ○ No significant impact anticipated  
 ● Significant impact anticipated

Based on: Lillie and Lindenhofen, 1991

### 3.8.1 Life Cycle Assessment (if required)

The Life Cycle Analysis sub-section should provide a clear, organized, and complete presentation of the results of the LCA study, in accordance with the goal and scope of the study. The results of the LCA should be presented in this sub-section for each applicable resource area, including a discussion of the methods used, interpretation of assessment results, and a summary of the conclusions and recommendations regarding potential impacts of each alternative from “cradle to grave.” Any assumptions and estimates made in the process should be described. The LCA should not be used as the sole basis for alternative selection but should be used in conjunction with other screening factors.

The following recommended components should be included in this sub-section to summarize results of the LCA (USEPA, 2006):

- Background information
  - Name of responsible parties conducting the LCA study
  - Date of study
  - Other background information
- Definition of the goal and scope
- Life cycle inventory analysis results (data collection and calculation procedures)
- Life cycle impact assessment (methodology and results of the impact assessment that was performed)
- Interpretation
  - Results
  - Assumptions and limitations
  - Data quality assessment
- Critical Review (internal and peer review)
  - Peer review which addresses methods, data analysis, and results
  - Responses to recommendations from internal and peer review
- Conclusions and recommendations

## 3.9 RISK ASSESSMENT (IF REQUIRED) (EIA CHAPTER 7)

The need for a risk assessment, which addresses human health and/or ecological risk, is determined during the scoping/TOR process. If the need for a risk assessment is not identified by the MoEnv as a requirement in the early steps of the EIA process, it is not required.

A human health risk assessment is defined as “the process for evaluating the nature and probability of adverse health effects in humans exposed to chemicals or radiation in contaminated environmental media now or in the future” (USEPA, 2014). An ecological risk assessment is “the process for evaluating the likelihood that the environment may be impacted as a result of exposure to one or more environmental stressors, such as chemicals, land change, disease, invasive species, and climate change” (USEPA, 2014).

The risk analysis is separate from the impact assessment, as a risk assessment is specific to human health or ecological risk and is a prescribed detailed process that uses scientific data to analyze exposure pathways to humans and the environment. The results of risk assessments can be used as a tool to provide an adequate basis for impact assessment for the proposed project and alternatives as well as form the basis for mitigation, monitoring and contingency plans for addressing residual risk. Thus, it is important that the various risks be adequately portrayed so that they can be related to the proposed project.

The Final TOR outlines how the risk assessment should be conducted, if required. The project Proponent should include the following components when assessing risks for each health or ecological risk assessment (USEPA, 2014):

- Introduction/objectives, including a description of study boundaries
- Identification of receptors/hazards (examine the potential to harm humans or ecological systems and under what circumstances)
- Dose-response assessment (examine numerical relationship between exposure and effect)
- Chemical/receptor/exposure pathway identification and screening
- Toxicity assessment
- Exposure assessment (acute/chronic; examine the frequency, timing, and level of contact with the environmental stressor)
- Risk characterization (examine if data supports conclusions of the nature and extent of the risk of exposure)
- Uncertainty analysis
- Other considerations, including a brief mention of:
  - Emergency response plans (which should be addressed in the Emergency Plan, as discussed in Section 3.11.4)
  - Spill control plans (which should be addressed in the Waste Management Plan, as discussed in Section 3.11.6)

### 3.10 MITIGATION MEASURES (EIA CHAPTER 8)

Mitigation measures are defined as measures that would eliminate or reduce adverse impacts that may be caused by the Proposed Action. Mitigation measures should:

- Target the impact of concern
- Be feasible to implement (or project may be jeopardized)
- Incorporate Best Available Technology when possible or when mandated by permit approval
- Address impacts that by themselves would not be considered significant (cumulative impacts)

**Purpose of mitigation:**

To avoid, minimize, or eliminate potential negative impacts on affected resources

The project Proponent should describe and assess physical, biological and social measures and management techniques designed to avoid or reduce negative environmental impacts during the construction and operation of a project (using the format of Chapters 5 and 6, with subheadings for each parameter). The project Proponent should sign the Commitment Letter to attest to a commitment to mitigation measures. The project Proponent should specify in detail:

- Temporary (construction-related) and permanent measures to be taken by the project Proponent to avoid, minimize, and mitigate potential environmental impacts/effects, and measures that would improve the project (examples of mitigation measures are included in Table 3-6)

**Table 3-6. Examples of Construction Related Mitigation Measures**

Topic	Potential Effect	Proposed Mitigation
Noise	Elevated noise levels at construction site boundary in excess of regulatory limits	<ul style="list-style-type: none"> <li>• Confine construction work to normal working hours</li> <li>• Maintain proper noise suppression devices</li> <li>• Provide noise barriers or equipment enclosures</li> <li>• Provide acoustical protection for pumps and any other potential noise sources</li> <li>• Conduct routine inspection of equipment and vehicles</li> </ul>
Traffic	Decline in level of service (LOS) and roadway capacity on major access roads to site	<ul style="list-style-type: none"> <li>• Design and implement construction traffic controls</li> <li>• Post traffic detail as appropriate</li> <li>• Schedule material deliveries to avoid rush hours</li> <li>• Identify construction access locations and construction material</li> </ul>
Aesthetic	Change in character of area; loss of scenic vista	<ul style="list-style-type: none"> <li>• Provide screening during construction</li> <li>• Plant vegetative buffer to help screen for long-term operation</li> <li>• Design facilities or structures to complement surrounding structures</li> </ul>
Air Pollution	Dust from construction activities	<ul style="list-style-type: none"> <li>• Minimize exposed surfaces including stockpiles</li> <li>• Apply wetting agent to site</li> <li>• Cover all dump trucks and other equipment carrying dirt</li> </ul>
Air Pollution	Emissions	<ul style="list-style-type: none"> <li>• Limit truck idling and queuing</li> <li>• Use certain fuels in equipment</li> <li>• Utilize best management practices on equipment, such as installing air filters on engines</li> <li>• Inspections of vehicles and equipment</li> </ul>

- Significant impacts remaining after mitigation, which can be illustrated in a comparison table or matrix. Symbols can be used to indicate the degree/category of the impact associated with each alternative (no significant impact, no significant impact after mitigation, or significant impact). See Table 3-7 for an example of a comparison matrix
- Persons/party responsible for funding and implementing mitigation measures, if not the project Proponent
- Training or monitoring requirements
- Anticipated (feasible) implementation schedule so that mitigation measures can be implemented prior to or when appropriate in relation to environmental impacts, noting that:
  - Measurement indicators should fit within the project schedule (enough time should be available to complete any necessary analysis)
- Discussion of the alternatives to the proposed mitigation measures considered by the Proponent, noting:
  - The relative benefits and costs of these alternative mitigation measures
  - The purpose of any potential subsequent measures to be implemented if initial mitigation is not effective

**Table 3-7. Example Matrix for Comparing Potential Impacts of Alternatives**

Technical Parameters (examples-full list should be included in EIA)	Direct/Indirect Impact			Cumulative Impact		
	Proposed Alternative	Alternative X	Alternative Y	Proposed Alternative	Alternative X	Alternative Y
Topography, geology, and soils	○	○	○	○	○	○
Surface and Groundwater	○	●	○	○	●	○
Air Quality	○	○	○	○	●	○
Noise	○	○	○	○	○	●
Resource X	○	○	○	○	○	○
Resource Y	○	○	○	○	○	○
Resource Z	○	○	○	○	○	○

Key:

- No significant impact
- No significant impact after mitigation
- Significant impact

Based on: Lillie and Lindenhofen, 1991

### 3.11 ENVIRONMENTAL, HEALTH, AND SOCIAL MANAGEMENT (EIA CHAPTER 9)

#### 3.11.1 Objectives

The objective of this chapter in the EIA document is to present management plans that address both natural resources and the human population. The plans should reflect the findings of the analyses conducted and presented in the EIA. The Proponent should include a Health, Safety and Environmental Management Policy, Emergency Plan, Resettlement, Compensation Action Plan (if required), Waste Management Plan, and Rehabilitation Plan in the EIA document, as described in the following subsections. An Environmental Management Plan should be included with the EIA document under separate cover.

#### 3.11.2 Health, Safety and Environmental Management Policy

The project Proponent should present the Health, Safety, and Environmental Management Policy in the form of a statement, which should include the following:

- A description of the Proponents' Health, Safety, and Environmental System, which should include:
  - Accident/incident prevention
  - Compliance with all applicable environmental, safety, and health legislation, including legal requirements
- A commitment to follow the Health, Safety, and Environmental System
- Responsible parties for implementing the policy
- The policy version, date of acceptance, and author

### 3.11.3 Environmental Management Plan

The Environmental Management Plan (EMP), in accordance with Annex 5 of EIA Regulation No.37 of 2005 (Jordan, 2005a), is a separate report from the EIA document that should address each activity at the facility for all phases of the project (construction, operation, and decommissioning) to which an environmental limitation or other requirement applies or for which a mitigation measure will be implemented. The EMP is a stand-alone document that will be a “living document” for use during inspections that should be continually updated as needed as the project goes to construction, operation and long-term monitoring. This document must provide sufficient information for the inspection department to use during the inspection process.

The presentation of the EMP should be organized by project phase (i.e. construction, operation, and decommissioning). The organization may vary depending on the project; however, the EMP report should be easy to follow and should include figures, tables, and maps whenever appropriate. The EMP should address the following for each of the project phases at the facility (see Appendix C, Table C-3 for an example of how to present an EMP):

- Identify the aspect/resource (for example: water quality, noise levels) to be monitored
- Identify specific mitigation and monitoring measures
- Provide information on the anticipated effectiveness of the mitigation
- Define the location, period and frequency of monitoring
- Describe monitoring requirements as commitments (i.e. use phrases such as “shall,” “must,” “will,” rather than “should”)
- Identify the responsible party for monitoring
- Describe reporting and record keeping requirements
  - Consider anticipated expectations or requirements of other stakeholders which may have involvement once construction or operation begins
  - Include reporting frequency (for example: annual compliance reporting) and type (an example construction inspection checklist is included in Appendix C, Table C-4)
- Discuss what will happen if monitoring indicates that impacts are not reduced
- Confirm sufficient resources (funds, staff) are available to conduct monitoring
- Reference applicable Jordanian legislation and/or regulations; if neither exist, identify applicable international standards in the EIA document
- Include additional general requirements
- Include a signature by an authorized representative of the project Proponent
- Include a statement that the project Proponent or owner is required to implement all items stated in the EMP (commitment of the project Proponent).

### 3.11.4 Emergency Plan

The project Proponent should include an Emergency Plan that addresses construction, operation, and decommissioning, in accordance with Environmental Protection Law No.52 of 2006 in Jordan (Jordan, 2006), and includes the following information:

- Purpose
- List of authorized personnel and responsible parties, including contact information
- List of and location information for medical facilities
- Legal requirements
- Working conditions, including personal protection equipment
- Records, including accident reports
- Notification requirements

### **3.11.5 Resettlement, Compensation Action Plan (if required)**

If residents of an area need to be relocated, the project Proponent should prepare a Resettlement, Compensation Action Plan that complies with applicable Jordanian Legislation (such as Land Acquisition Law No. 12 of 1987 and Labor Law No. 8 for the year 1996 and its amendments), which should include:

- Introduction
- Objectives
- Studies completed
- Regulatory framework, including Resettlement Action Plan implementation principles
- Institutional framework, including governmental organizations and local NGOs
- Eligibility (eligibility of displaced people for resettlement measures)
- Valuation of resettlement measures and compensation for losses
- Entitlement framework

### **3.11.6 Waste Management Plan**

The project Proponent should develop a Waste Management Plan (in accordance with the Management of Solid Waste Regulation No.27 of 2005 and the Management, Transportation and Handling of Harmful and Hazardous Substances Regulation No.24 of 2005 of Jordan) which should include:

- Goals and objectives
- Procedures for production, handling, segregation of waste streams (to optimize reuse and recycling), transportation, storage, treatment, and disposal of waste
- Procedures for separation of potentially hazardous waste from solid waste
- Plans to reduce, reuse, recycle, and recover
- A summary of expected wastes, including origin, anticipated storage, treatment, and disposal methods for each category of waste (process, hazardous, non-hazardous, or inert wastes)
- Spill prevention and control plans
- Recordkeeping, including: tracking the quantities and sources of solid waste, the methods of treatment thereof, and the vehicles transporting waste
- Training and enforcement programs
- Monitoring programs (if applicable)
- Location of the nearest waste landfills

### **3.11.7 Rehabilitation Plan**

The project Proponent should include the following components in a Rehabilitation Plan:

- Procedures for the end rehabilitation of the site, including:
  - Re-contouring and stabilizing disturbed areas
  - Removal of construction equipment and facility structures at the end of the construction stage
  - Sequencing of decommissioning activities
  - The final security of the site, including dismantling, and decontamination activities during the decommissioning phase
- Quantitative standards for revegetation, including success criteria
- Schedule for full recovery of restored area (for example: plans to be recovered within 8-10 years)

- Responsible parties for all procedures
- Detailed cost estimates (to confirm that sufficient funds will be available for the decommissioning phase)
- Schedule for revisions to update rehabilitation practices and costs (for example: revise every 3 to 5 years)
- Applicable laws/regulations

### **3.12 RESPONSE TO COMMENTS (IF APPLICABLE) (EIA CHAPTER 10)**

If applicable, the response to comments received on the most recently submitted EIA document should be included in Chapter 10 of the EIA document, provided that the subject matter of the comment is within the scope and identified in the TOR. Comments can be included in the main text of the EIA. If voluminous, comments can be summarized in the main text and provided in a separate appendix (provided that the main text clearly explains the location of each comment and the response to each comment).

### **3.13 REFERENCES AND SOURCES (EIA REFERENCES)**

An alphabetized list of material incorporated by reference or used as a source in development of the EIA Guidance Document (which may or may not be included in the appendices) should be included in the references section of the EIA document, including documents/research papers and correspondence documentation, such as letters, email or phone correspondence.

### **3.14 EIA APPENDICES**

The main text of the EIA document should be a succinct statement describing all environmental impacts and alternatives and summarizing technical studies in plain language. The appendices should include supplementary material prepared in connection with the EIA, including detailed methods and results of any studies conducted. Material not prepared for the EIA but incorporated by reference should be included in the list of references. The main text should refer to and summarize information contained in the appendices.

Required appendices, which can be labeled as Appendix A, B, C, and so on in the EIA include:

- List (less than two pages) of contributors, including names and qualifications (expertise, experience, professional discipline) of those primarily responsible for preparing the EIA and background studies or analyses
- Correspondence documentation, including meeting records and agency consultation
- Detailed technical data (traffic analyses, hydrologic calculations, modeling data), to the extent necessary to keep the main text of the EIA clear and readable
- Curriculum Vitae (CVs) of project staff
- Signed disclosures from all experts who participated in the EIA study.

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## **APPENDIX A    APPLICABLE JORDANIAN LEGISLATION**

## **A-1. Environmental Impact Assessment (EIA) Regulation No.37 of 2005 of Jordan**

### **Regulation No. (37) of 2005**

Environmental Impact Assessment Regulations  
Issued by Virtue of Sub-paragraphs 9 and 11 of Paragraph A of Article 23 of the  
Environmental Protection Law No. (1) of 2003

#### **Article 1**

These Regulations shall be cited as the Environment Impact Assessment Regulations of 2005, and shall be effective as of the date of their publication in the Official Gazette.

#### **Article 2**

A. The following terms and expressions wherever appearing herein, shall have the meanings assigned to them hereunder unless the context provides otherwise:

The Ministry: The Ministry of the Environment.

The Minister: The Minister of the Environment.

Secretary General: The Secretary General of the Ministry.

Technical Committee: The committee formed by virtue of the provisions hereof and specialized in studying projects from the environmental aspect.

Environmental Approval: The approval given to the owner of a project to commence implementation of his project pursuant to the provisions hereof.

Significant Impact: An adverse change that affects the Environment whether this change is dangerous or potentially dangerous.

Terms of Reference: The bases submitted by the project owner prior to conducting the environmental impact assessment study for his project, provided that it is within the broad framework of environmental requirements adopted by the Ministry.

Environmental Impact Assessment Document: The report submitted by the project owner, prepared in accordance with the Terms of Reference.

B. The definitions of the terms appearing in the Environmental Protection Law in force shall apply herein.

#### **Article 3**

The environmental impact assessment means any procedure that aims to identify the impact of all the phases of the establishment of a certain project, and describe and study this impact on the project and its impact from the social and economic aspects, and identify the methods for limiting any adverse impact on the Environment. The assessment shall be conducted during the preparation of the economic feasibility study, and planning, design, implementation, operation and removal of the project.

#### **Article 4**

A. No industrial, agricultural, commercial, housing or tourism project or any construction development project or any of the projects specified in Annexes 2 and 3 of these Regulations may commence operations with the services relevant thereto, until it obtains the Environmental Approval required for this purpose from the Ministry.

- B. The Ministry, upon the recommendation of the Secretary General, may require the owner of the project not from among those specified in Annexes 2 and 3 of these Regulations to conduct an environmental impact assessment study based on the nature or location of the project, or the nature of the impact that may result therefrom.

#### **Article 5**

- A. A Technical Committee shall be formed at the Ministry, chaired by the Secretary General, and the membership of experienced and specialized persons from the following Ministries and entities:
1. The Ministry of the Environment.
  2. The Ministry of Planning and International Cooperation.
  3. The Ministry of Municipal Affairs.
  4. The Ministry of Health.
  5. The Ministry of Agriculture.
  6. The Ministry of Industry and Trade.
  7. The Ministry of Energy and Mineral Resources.
  8. The Ministry of Water and Irrigation.
  9. The Ministry of Tourism and Antiquities.
  10. The Ministry of Public Works and Housing.
  11. Any other concerned entity specified by the Minister.
- B. The members representing the ministries referred to in Sub-paragraphs 1-10 of Paragraph A hereof shall be nominated by decision of the concerned minister. The member representing any other entity shall be nominated by that entity.
- C. The Minister shall nominate from among the Committee members a vice-chairman to chair the Committee when the chairman is absent.
- D. The Minister shall nominate from among the Ministry's officers a rapporteur who shall prepare the invitation to Committee meetings, keep its records and books and record the minutes of its meetings, and follow up on the implementation of its decisions.

#### **Article 6**

The Committee shall review the Terms of Reference submitted by the project owner, and review the Environmental Impact Assessment Document, and submit its recommendations to the Minister to make the required the decision with regard thereto.

#### **Article 7**

- A. The Committee shall meet whenever deemed necessary, upon the invitation of its chairman, or of the vice-chairman during his absence. Quorum for the meeting is met in the attendance of a simple majority of its members, provided that the chairman or the vice-chairman is in attendance. Its decisions are passed by a simple majority of the vote. In the event of a tie, the side with whom the meeting chairman voted shall prevail.
- B. The Committee may invite any person to a meeting for consultation purposes, but that person shall not be entitled to vote on its recommendations.

#### **Article 8**

- A. The project owner shall submit an application to the Ministry to obtain the Environmental Approval needed to establish his project, in accordance with the special form prepared for this purpose, and shall present with it all the necessary information

and data, and attaching thereto the preliminary maps, designs and specifications referred to in Annex 1 of these Regulations.

- B. The project shall be classified in any of the following categories by decision of the Secretary General on the basis of the recommendations of the competent party at the Ministry:
1. Category 1: includes the projects referred to in Annex 2 of these Regulations and which require a comprehensive environmental impact assessment.
  2. Category 2: includes the projects referred to in Annex 3 of these Regulations and which require a preliminary environmental impact assessment, based on which the need to conduct a comprehensive environmental impact assessment will be determined.
  3. Category 3: includes the projects that require neither a preliminary nor a comprehensive environmental impact assessment.

#### **Article 9**

- A. If a project is classified as Category 1, the Ministry shall advise the project owner in writing, requesting him to conduct a comprehensive environmental impact assessment for the project.
- B. The project owner shall submit a preliminary draft of the Terms of Reference for the environmental impact assessment study he intends to conduct after agreeing with the Ministry on the content of the draft, the general framework of the study, the scope of the study, the nature of anticipated Significant Impacts of the project, and the entities concerned with and affected by the project.
- C. The Ministry shall call the project owner and any concerned individual or representative of a public or private party that may be potentially affected by the project to participate in investigating the preliminary draft to identify the Significant Impacts of the project on the Environment. The Ministry and the project owner shall provide all the available information on the project and its surrounding Environment to all concerned entities within an appropriate time prior to the date of the meeting, in order to facilitate the identification thereof.
- D. The project owner shall submit a report to the Ministry including a summary of the meeting's discussions, the parties attending, and the Significant Impacts identified, and demonstrating the Terms of Reference for the environmental impact assessment study, the names of the experts responsible for preparation of the Environmental Impact Assessment Document, the required technical expertise, and the expected level of effort needed to prepare this document. The competent party at the Ministry shall submit this report to the Technical Committee.
- E. The Technical Committee shall review the Terms of Reference within one week from the date of receiving the report, and this period may be extended by agreement with the project owner. It shall submit its recommendations in this regard to the Minister to issue the appropriate decision in that regard, provided that the project owner shall be informed of this decision.

#### **Article 10**

If the Minister approves the Terms of Reference of the project, the project owner shall prepare the draft of the Environmental Impact Assessment Document, and he shall be

responsible for the accuracy and authenticity of the contents thereof. This draft must include the significant environmental impact relevant to the project under review in the manner referred to in Annex 5 of these Regulations.

#### **Article 11**

- A. Upon the Ministry's receipt of the draft Environmental Impact Assessment Document, the Technical Committee shall review and analyze the draft to ascertain its compliance with the provisions of these Regulations. If it finds that the application fulfills the conditions and requirements thereof, the party making the submission is advised thereof. But if it finds that the application does not fulfill the conditions and requirements thereof, the Technical Committee shall require the project owner to provide any additional information needed to complete its analysis of the draft.
- B. If the draft Environmental Impact Assessment Document fulfills all of the requirements of the provisions of these Regulations, the Minister, upon the recommendation of the Secretary General that is based on the recommendation of the Technical Committee, shall issue his decision in this regard within 45 days after the date of receipt of the draft that is in fulfillment of the conditions and requirements thereof, in accordance with the following:
  1. Approving the draft and considering it the final Environmental Impact Assessment Document if it is shown that the project's environmental impacts are appropriately dealt with throughout the study including the plan for reducing adverse impacts. The approval shall be valid for one year from the date it is issued.
  2. Denial of Environmental Approval of the project if it is shown that its implementation would cause Significant Impact on the Environment and that the plan for reducing adverse impacts is inadequate for the purpose.
- C. If the Minister does not issue his decision with regard to the draft Environmental Impact Assessment Document within the period set in Paragraph B hereof, the project is considered as having been approved *de jure*.
- D. The decision related to the environmental impact assessment study shall be announced to the public in the manner that the Ministry deems appropriate.

#### **Article 12**

When launching his project and during all the implementation and operation phases, the project owner shall abide by the contents of the Environmental Impact Assessment Document and any other conditions issued by the Ministry when granting its approval.

#### **Article 13**

- A. If the project is classified as Category 2, the Ministry shall request the Project Owner to conduct a preliminary environmental impact assessment of the project, taking into account the criteria referred to in Annex 4 of these Regulations.
- B. If the preliminary environmental impact assessment reveals that the project has a potential Significant Impact on the Environment, the Minister shall request the project owner to conduct a comprehensive environmental impact assessment study in accordance with the provisions of these Regulations.
- C. If the preliminary environmental impact assessment reveals that it is not likely for the project to have a Significant Impact on the Environment, the project shall obtain the

Ministry's approval in accordance with the provisions of these Regulations and instructions issued by virtue hereof, and the Ministry shall inform the project owner of this approval.

**Article 14**

If the project is classified as Category 3, the Ministry shall inform the project owner that his project does not require an environmental impact assessment study, and in this case, the project is considered approved in accordance with the provisions of these Regulations and instructions issued by virtue hereof.

**Article 15**

Any amendment to or expansion of a current project the establishment of which requires an environmental impact assessment and may impact the Environment in a significant way is considered a separate project, and shall be treated as a new project. In this case, the project owner must undertake all the measures referred to in these Regulations regarding environmental impact assessment.

**Article 16**

- A. The project owner may object before the Minister to the Minister's decision denying the Environmental Approval of his project within 15 days from the date the project owner is informed of such decision, and the Minister may appoint an independent panel of experts consisting of not less than three members with the appropriate technical experience, at the expense of the project owner, to review the objection submitted by the project owner, and submit its recommendations to the Minister in this regard.
- B. The Minister's decision regarding the objection is considered final and it is capable of being contested before the High Court of Justice.

**Article 17**

The Ministry shall regularly monitor the extent of the compliance of the project owner with all the conditions and requirements stipulated in the Environmental Approval during any of the activities of the project including its implementation, operation, and disassembling.

**Article 18**

The Ministry shall make available to the concerned entities and upon their request, the information and data related to the Environment provided by project owner during the phases of the environmental impact assessment study. In specific cases dictated by the public interest or the provider's own interest, the Ministry may consider some of the data or information provided as confidential.

**Article 19**

Annexes 1, 2, 3, 4 and 5 attached to these Regulations shall be considered part and parcel of hereof.

**Article 20**

- A. Upon the submission of the application, the Ministry shall charge the following:
  - 1. Twenty-five Jordanian Dinars for projects that do not require an environmental impact assessment study.
  - 2. Fifty Jordanian Dinars for projects that require a preliminary environmental impact assessment study.

3. Seven hundred and fifty Jordanian Dinars for projects that require a comprehensive environmental impact assessment study.
- B. Costs of experts and consultants who are assigned to review the environmental impact assessment study shall be borne by the project owner, provided that such costs shall be determined by decision of the Minister, upon the recommendation of the Secretary General.

**Article 20**

The Minister shall issue the instructions necessary for the implementation of the provisions of these Regulations.

15/3/2005

Faisal Bin Al-Hussein

## **A-2. Annexes 1-5 of the EIA Regulation No.37 of 2005 of Jordan**

### **Regulation No. (37) of 2005 Annex (1)**

General information on the projects which need a comprehensive or initial an EIA study:

#### 1- Project Description:

- The nature of project and cases of using the land through the preliminary, building up, operation, rehabilitation stages.
- The nature of production processes (the quality and quantity of the used substances and the productions' inputs and outputs.
- Estimating the expected quality and quantity of wastes and emissions resulted from operating the project (water, air, soil, noise, vibrations, light, emissions and heat).
- Estimating the number of people, vehicles and equipments through different project stages.

2- List of the main proposed projects' alternatives including the design, location and the used techniques in addition to discuss the main reasons to choose and prefer the proposed project than other projects, taking into consideration the environmental impacts.

If the project owner did not choose the least damage alternatives on the environment as a design, location and the used technique, he has to discuss and view the reasons.

3- Determining the most important environmental aspects affected by the proposed project as the public health, infrastructure, flora, fauna, soil, water, air, weather parameters, natural aspects and the Ancient monument and the interrelationships between these aspects.

**Regulation No. (37) of 2005  
Annex (2)**

Projects, which need an EIA, study:

- 1- Raw petroleum Refining.
- 2- Electricity generating plants.
- 3- An establishments designed as permanent stores or as landfills for the irradiant nuclear wastes.
- 4- Iron and steel factories.
- 5- Establishments for extracting, treatment, conversion the asbestos and the substances which asbestos part of its structure.
- 6- Integrated chemical industries such as:
  - Petrochemicals.
  - Fertilizers, pesticides and peroxides industries.
  - Chemical products, petrochemicals and petroleum storage facilities.
- 7- Roads, airports and rails constructing projects.
- 8- Hazardous wastes treatment plants and disposal from these wastes.
- 9- Establishing the industrial cities.
- 10- Extraction industries:
  - The excavating processes for water and the geo- thermal digging except the digging for investigating the soil.
  - Mining processes and relevant industries.
  - Natural fortunes extraction.
- 11- Generating energy industries.
  - The industrial establishments which producing electricity, vapor, hot water.
  - The industrial establishments which conveying gas, vapor, hot water and electrical energy.
  - Natural gas surface storage.
  - Flammable gases storage under ground surface.
  - Fossil fuels surface storage.
- 12- Tanning (leathers) factories.
- 13- Sugar factories.
- 14- Yeast factories.
- 15- Building up Marine ports.
- 16- Establishing ships and boats for industrial and recreational purposes.
- 17- Sea dumping for using the land in industrial and recreational uses.
- 18- Glass factories.
- 19- Establishing slaughterhouses (abattoirs).

**Regulation No. (37) of 2005  
Annex (3)**

Projects need initial EIA study:

1- Agriculture Projects:

- Poultry Farms if the capacity exceed 30.000 birds,
- Caws Farms if the capacity exceed 50.000 caws.
- Sheep Farms Caws Farms if the capacity exceed 1.000 sheep.

2- Minerals treatment projects:

Iron and steel works including galvanizing, varnish factories.  
Establishments producing non-irony minerals including production, purification (washing), liquefying, demonetizing (pulling) and galvanizing processes.

- Compressing Bullions.
- Treatment of minerals surfaces and covering (coating).
- Boilers, cisterns, tanks, industrialized from minerals plates.
- Establishments for felting and scorching (roasting). Raw minerals
- Complexes industry and aligning (collecting).

3- Food Industries:

- Oils, animal and vegetarian fats.
- Bottling, Packaging the animal and vegetarian products.
- Milk products industry.

4- Fabric, leather, wood, papers and tissues industries.

5- Rubber industry.

6- Infrastructure projects including housing projects.

7- Other projects:

- Municipal landfills
- Landfill for disposal from junk.
- Sports activities centers.
- Junk storage establishments.

8- Any additions, amendments on the projects that mentioned in this annex.

**Regulation No. (37) of 2005**  
**Annex (4):**

The project affects environment in the following cases:

- Overlapping with other projects and planning for the residents at some place.
- The negative effects on the aesthetic aspects of the place.
- The negative effects on the endangered species on the flora and fauna or their habitats.
- Overlapping with the movements of fish and wild animals or on any of their habitats.
- Breaking declared national standards which relevant to solid and liquid wastes treatment.
- affect water quality.
- Ground water depletion or reducing its' quality.
- overlapping with ground water feeding.
- destroying or affecting Ancient monument or on the culture of society.
- Encouraging the population growth and collecting a large number of people at this area.
- affecting the traffic movements (increasing it) in comparison with the current traffic size in the roads nets and its' capacity.
- immigrating of (relegating) a large number of people from their origin homes.
- encouraging the activities which need a large quantity of the fuel, water or all the type of energy.
- causing floods, divesting and large granite sediments.
- raising the noise and vibrations limits in some place.
- Causing large geological risks on people and buildings.
- Enlarging sewer system (the nets) to serve new developments projects.
- Constricting the fish habitats or the wild animals or the plants.
- Divide the natural organization of the current groups.
- Cause danger on public health, or use or produce or disposal harmful substances which cause risk on the human, animals, plants.
- Overlapping with the recreational, educational, scientific, religion uses.
- Breaking any of ambient air quality standards or contributing in Of infraction the air quality.
- To use the agriculture land in other uses, or reduce the land productivity.
- obstructing emergency plans.

**Regulation No. (37) of 2005  
Annex (5)**

The EIA study should include the following:

The EIA document should be briefed and includes the key environmental aspects, The details of this document should be appropriate to the impacts of the project and should deal with the project designers and the executing Companies, the owner of the project, and the public, also the NGOs and this document should be in English or Arabic.

This document should include the following:

**- Non-Technical Summary: includes the two versions summaries** (Arabic and English) of analysis of the outcomes (conclusions) and recommendations.

**- Framework policy legal and administrative:**

Views the legal and administrative framework, which relied on it to prepare the policy.

**- Project description:**

Includes a briefed description to the geographical, biological, social, time (chronological) framework for the project including any works needed out projects' site e.g. : open roads, laying pipes, constructing energy generation plants, providing water, housing the employees and establishing facilities to store the raw materials and products.

**- Baseline data**

Includes assessment of the studied location dimensions and describing the social, natural and economical conditions including any expected changes before the beginning of the project taking into account the current suggested development activities inside the project location (related indirectly to the project).

**- Environmental Impacts** includes:

Determining and assessing the Expected Negative and positive impacts results from the project.

Determining the mitigation measures to the adverse impacts on the environment and studying the opportunities to improve the environment.

Determining the available data type and the gaps and accompanist uncertainties for the environmental impacts.

Determining the subjects, that does not need any more research.

**- Analysis of Alternatives:**

Includes an organized comparison of the suggested alternatives for the project:

Design alternatives.

Location alternatives.

The used technology alternatives and its' environmental effects for every alternative.

Capital cost for every alternative.

The repeated costs for every alternative.

Stability in the national conditions for every alternative.

The institutional, training and monitoring requirements and determining

The cost and the environmental benefits for every alternative.

Economical cost.

In addition, the basis of determining the alternatives.

**Mitigation Plan:**

Includes determining suitable measurements with low cost to mitigate the negative impacts to be in the acceptable limits.

Estimating the supposed environmental impacts and the capital cost.

Determining institutional, training and monitoring requirements for these measurements.

Introduce a plan includes the details of proposed work programs and also the claims procedures from the negative impacts on the environment if the mitigation measurements weren't worth or were so expensive, and to work on the environmental aspects at the same time with project activities through the implementation stage.

**- Monitoring and Environmental Post Auditing Plan:**

Includes determining: monitoring type, the cost, the responsible persons and other inputs such as: training.

**- Appendices:**

- List of contributors in preparing the EIA document (institutions, individuals).
- List of references (the written materials that used in document preparing process). This list is very important due to rely on unpublished document.
- Record of consultancy meetings between the relevant parties to the project and document all these meetings which held between the effected parties and the local NGOs.

### **A-3. Environmental Protection Law No.52 of 2006 of Jordan**

#### **ENVIRONMENTAL PROTECTION LAW NO. 52 OF 2006**

**Article 1:**

This law shall be cited as the Environmental Protection Law of 2006[ ], and shall be effective as of the date of its publication in the Official Gazette.

**Article 2:**

The following terms and expressions, wherever appearing in this Law, shall have the meanings assigned thereto below, unless the context provides otherwise:

**The Ministry:** The Ministry of the Environment.

**The Minister:** The Minister of the Environment.

**The Secretary General:** The Secretary General of the Ministry.

**The Environment:** The surroundings that include living and non-living beings and matter and all of the components of the surroundings in terms of air, water and earth and the interaction thereof, and things erected by Man thereon.

**Elements of the Environment:** The air, water and earth and all of the components thereof.

**Pollution:** Any change in the Elements of the Environment that may lead, directly or indirectly to harming the Environment, or negatively affecting its elements or affecting Man's exercise of his natural life, or upsetting the natural balance.

**Deterioration:** An effect on the Environment that reduces its value or spoils its nature or bleeds its resources or harms living beings or archeological remains.

**Environmental Protection:** Protection of the components and Elements of the Environment and improvement of same and prevention of the deterioration or pollution thereof or the reduction thereof to within the safe pollution thresholds, and these components include the air, the water, the soil, natural beings and Man, and the resources thereof.

**Sustainable Development:** Development that utilizes natural resources in a manner that maintains them for future generations and protects environmental integration and does not cause the deterioration of the Elements and components of the ecosystems and do not upset the balance thereof.

**Technical basics:** A document which sets out the characteristics of a service or product, methods of production and management systems, and it may also include the technical terms, symbols, data, packaging and placement of marks, and the requirements of the specifications list applicable to the products or which is limited to any of them, and with which compliance shall be compulsory.

**The Court:** The competent court.

**Article 3:**

A- The Ministry is deemed the competent party to protect the Environment in the Kingdom and the official and public bodies shall execute the instructions and decisions issued by virtue of the Law and the regulations issued by virtue thereof, at the risk of legal liability as provided for herein and in any other legislation.

B- The Ministry is deemed the competent reference at the national, regional and international levels as regards all environmental matters and affairs, in cooperation and coordination with the competent parties.

**Article 4:**

For the purpose of achieving the goals of environmental protection and the improvement of its various Elements in a sustainable manner the Ministry, in cooperation and coordination with the competent parties, shall carry out the following duties:

A- Setting a general policy for environmental protection, and preparing the plans, programs and projects necessary to achieve Sustainable Development.

B- Preparing the specifications and standards for the Elements and components of the Environment.

C- Monitoring and measuring the elements and components of the Environment and follow-up thereof through scientific centers authorized by the Ministry in accordance with set standards.

D- Issuing environmental instructions necessary to protect the Environment and its components and the conditions to establish agricultural, development, commercial, industrial, housing, mining and other projects and all services relating thereto for compliance therewith and the adoption thereof within preconditions for the licensing or renewal of licensing thereof in accordance with the legal principles in force.

E- Monitoring and supervision of public and private corporations and bodies including companies and projects to ensure their compliance with environmental specifications and measurements and the set technical standards.

F- Conducting research and studies related to matters of the Environment and the protection thereof.

G- Setting the principles (basics) of the handling of materials harmful and hazardous to the Environment, and the collection, classification storage, transportation, destruction and disposal thereof in accordance with regulations issued for that purpose.

H- Coordinating national efforts aimed at protecting the environment including setting a national strategy for awareness, education and environmental contact, and to transfer, utilize and provide environmental data and take the measures necessary for that purpose.

I- Approving the establishment of national reserves and parks and the management, monitoring and supervision thereof.

J- Preparing environmental emergency plans.

K- Issuing publications related to the Environment. The Ministry is the competent party to issue reports on the state of the Environment in Jordan.

L- Improving relations between the Kingdom and the Arab, regional international states, authorities and organizations in matters related to protection of the Environment and recommending the joining thereof and following up the execution thereof.

**Article 5:**

The Ministry, in cooperation and coordination with the bodies concerned with environment matters on the local, Arab and international levels, shall be responsible for protecting the Elements and components of the Environment from pollution and shall endeavor to execute agreements concerning Environment matters.

**Article 6:**

A- Materials prohibited from being entered into the Kingdom shall be set by instructions issued by the Council of Ministers upon the recommendation of the Minister.

B- Hazardous waste is not permitted to be entered into Jordan. This waste shall be defined by virtue of instructions issued by the Council of Ministers upon recommendation of the Minister.

C- In the event of the discovery of hazardous waste entered into the Kingdom or the entry of any environmental pollutant in an illegal manner, the Ministry, in coordination with the concerned authorities, shall return same to its origin at the expense of the party who entered it into the Kingdom and shall levy fines and recoup costs and losses suffered by the Kingdom.

D- Any person violating the provisions of this Article shall be fined an amount of not less than (20,000) Twenty Thousand Dinars or by imprisonment for a period of not less than 3 years and not exceeding fifteen years, or both.

**Article 7:**

A- For the purposes of this Law, the specialized officer named by the Minister in writing upon the recommendation of the Secretary General shall be granted police powers and he may enter any industrial, commercial, handicraft or agricultural shop or any establishment or corporation or any other entity whose activities may affect in any way the Element and components of the Environment to ensure its compliance and the compliance of its activities with the standard environmental conditions.

B- 1- The Minister, upon recommendation of the Secretary General, may notify the establishment or corporation or shop or any other entity in violation, and shall set the period within which the violation must be removed. If the violation is not removed the violator will be referred to the Court.

2- The Minister may in emergencies or dangerous situations, on the basis of a technical committee formed for that purpose, issue a decision to remove the violation at the expense of the violator, or provisionally shut down any of the entities referred to in Paragraph 1 hereof before the Court issues its decision.

C- The perpetrator of any of the violations provided in this Article, after the end of the period of notification and the failure to remove the violation shall be punished by imprisonment for a period of not less than thirty days and not exceeding 3 months or by a fine of not less than Three Hundred Dinars and not exceeding Five Thousand Dinars. In case of a repeat of the violation, the fine shall be doubled. If the violation is repeated a third time, the entity shall be shut down until the violation is removed.

**Article 8:**

Subject to the provisions of any other legislation, it is forbidden at the risk of legal liability to discharge any material polluting or harmful to the marine Environment in the territorial waters of the Kingdom or on the beach within the boundaries and distances set by the Minister by virtue of instructions issued for that purpose.

**Article 9:**

A- The captain of a ship or vessel or tanker or boat that discharges or pours or empties or dumps any pollutant in the territorial waters or on the beaches of Jordan shall be punishable by imprisonment for a period of not less than one year and not exceeding 3 years or a fine of not less than Ten Thousand Dinars, or both.

B- A person who perpetrates any of the violations referred to in Paragraph A hereof is obligated to remove the violation within the period set by the Court. In the event that the perpetrator fails to do so, the Ministry or whoever it delegates shall remove same at the expense of the perpetrator, and shall levy an additional 25% of such expense as administrative costs, and the vessel, ship or boat shall be impounded with all of its contents until all amounts due on it shall be paid.

**Article 10:**

Any person who picks coral or shells and removes same from the sea or deals therein or causes harm of any form thereto shall be punishable by imprisonment for a period of not less than 6 months and not exceeding one year or by a fine of not less than Ten Thousand Dinars and not exceeding Twenty Five Thousand Dinars, or both.

**Article 11:**

A- 1- It is forbidden to dump, dispose of, or collect any materials harmful to the Environment, whether such materials are solid, liquid, gaseous, radioactive or thermal, in the sources of water.

2- It is forbidden to store any of the materials listed in Paragraph 1 hereof in the proximity of water sources within the safe limits set by the Ministers by virtue of instructions issued for that purpose, including the protection of water basins, in coordination with the concerned parties.

B- Any person perpetrating the acts stated in Paragraph A hereof shall be punishable by imprisonment for a period of not less than 3 months and not exceeding 2 years or by a fine of not less than Ten Thousand Dinars and not exceeding Fifty Thousand Dinars, or both, and shall be obligated to remove the subject of the violation within the period set by the Court based upon a technical report. If the perpetrator fails to meet this obligation, the Ministry or whoever it delegates shall remove such violation at the expense of the perpetrator, and shall levy an additional 25% of such expenses as administrative costs. He shall also be fined an amount of not less than Fifty Dinars and not exceeding Two Hundred Dinars for each day he fails to remove the violation after the end of the period set by the Court for such removal.

**Article 12:**

A- The Minister shall issue instructions for the purpose of defining the sources of noise and specifications for the maximum thereof, and the requirements for compliance with the prevention or reduction thereof to below the minimum environmentally permissible level.

B- Any person violating the instructions referred to in Paragraph A hereof shall be punishable by imprisonment for a period of not less than one week and not exceeding one month or by a fine of not less than One Hundred Dinars and not exceeding Five Hundred Dinars, or both.

C- The owner of a vehicle or machine or a person who causes noise shall be fined an amount of not less than Ten Dinars and not exceeding Twenty Dinars.

**Article 13:**

A- Every corporation or company or establishment or any entity established after the coming into force of this Law and which conducts activities that negatively impact the Environment is obligated to prepare an environmental impact assessment report for its projects and submit such report to the Ministry to take the appropriate decision in its regard.

B- The Minister may request any corporation or company or establishment or other entity established prior to the coming into force of this Law and which conducts activities that affect the Environment to prepare an environmental impact assessment report for its projects if so required by environment protection exigencies.

**Article 14:**

A- The Minister, upon the recommendation of the Secretary General, may approve the environmental projects and studies submitted by official and civil corporations and the private sector and nongovernmental organizations. These entities are obligated to submit regular reports to the Ministry regarding the progress of activities in these projects from the financial and technical standpoints.

B- The Ministry is entitled to supervise these projects from the environmental aspect and monitor the progress thereof to ascertain the proper execution thereof.

**Article 15:**

The Council of Ministers, upon the recommendation of the Minister, may form a consultative committee on which are represented those entities concerned with the Environment, provided that its members have competence and expertise. The number of members and the appointment of the chairman of the committee, as well as its duties and powers, and all other matters relating to that committee shall be defined by instructions issued for that purpose.

**Article 16:**

There shall be established at the Ministry a fund referred to as the *Environment Protection Fund*, from which money shall be spent on protecting the Environment *and its* Elements within the aims of achieving the goals and objects set forth in this Law and the regulations issued by virtue thereof.

**Article 17:**

A- The Fund shall be fed by aid, donations and grants presented to the Fund from public corporations, civic and private entities, and Arab, regional and international entities, provided that the Council of Ministers approves the funding presented to the Fund from *Foreign* entities; *As well as* fees, charges and fines collected by virtue of this Law.

B- The procedures related to depositing, conserving, expenditure and disposal of the monies in the Fund shall be *specified* by virtue of regulations issued by the council of Ministers for that purpose.

**Article 18:**

Any person who violates the provisions of the regulations and instructions related to environmental protection in natural reserves and national parks shall be punishable by imprisonment for a period of not less than one week and not exceeding one month, or by a fine of not less than One Hundred Dinars and not exceeding One Thousand Dinars, or both, without prejudice to any more severe penalties set forth elsewhere in this Law or in any other legislation.

**Article 19:**

A- The owners of factories or vehicles or workshops or any entity that conducts activities with a negative impact on the Environment and emit environmental pollutants must install equipment or take the necessary measures to prevent or reduce the emission of such pollutants therefrom, and to control such pollutants before emission from such factories or vehicles into the air to within the limits permitted based on the set standards.

B- The owner of a factory who commits a violation referred to in Paragraph A hereof and does not remove such a violation within the period set by the Minister or whoever he delegates, shall be referred to the Court, who is entitled to issue a decision to shut down such factory and punish the perpetrator by imprisonment for a period of not less than one week and not exceeding thirty days, or by a fine of not less than One Hundred Dinars and not exceeding One Thousand Dinars, or both. He shall also be obligated to remove the violation within the period set for that purpose, and he shall be fined an amount of not less than Fifty Dinars and not exceeding One Hundred Dinars for each day that he fails to remove the violation after the end of the period set for that purpose.

C- 1- The owner or the driver of a vehicle who commits any of the violations appearing in Paragraph A hereof, and does not remove or reduce such violation to within the level permitted pursuant to instructions issued for that purpose within the period set therefor shall be punishable by a fine of not less than Ten Dinars and not exceeding Twenty Dinars, and his license shall be suspended until the violation is removed.

2- The official authorities that license vehicles shall not license or renew the licenses of vehicles unless they comply with the set standards.

D- Any person who commits any of the violations referred to in Paragraph A hereof shall be punishable by double the maximum prison time or the fine stipulated in Paragraph B if the violation is repeated a second time, and by triple the maximum prison time for any subsequent repeat of the violation.

**Article 20:**

Nothing in this Law shall preclude the applicability of a more severe punishment provided for in any other law in force.

**Article 21:**

A- All movable and immovable property, rights and projects belonging to the General Corporation for the Protection of the Environment shall be transferred to the Ministry, and it shall be responsible for all of the obligations of the General Corporation.

B- The officers and employees of the General Corporation for the Protection of the Environment shall be transferred to the Ministry in accordance with the provisions of the Civil Service Regulations in force.

**Article 22:**

The Minister may delegate to the Secretary General or the Governor or the Environment Director in any Governorate any of his authorities provided for in this Law.

**Article 23:**

The Ministry, upon the approval of the Council of Ministers, may delegate any of its duties and powers to any ministries, corporation or volunteer organizations concerned with the field of environmental protection, provided that such delegation shall be specific and in writing.

**Article 24:**

The licensing and the renewal of the licensing of non-governmental organizations operating in the field of environmental protection shall be carried out by the competent authorities after obtaining prior approval from the Ministry, in accordance with instructions issued by the Minister for that purpose.

**Article 25:**

A- The Council of Ministers shall issue the regulations necessary for the execution of the provisions of this Law, including the following:

- 1- Nature Protection Regulations.
- 2- Environment Protection from Pollution in Emergency Situations Regulations.
- 3- Water Protection Regulations.
- 4- Air Protection Regulations.
- 5- Marine Environment and Coastal Protection Regulations.
- 6- Natural Reserves and National Parks Regulations
- 7- Management, Transport and Handling of Harmful and Hazardous Materials Regulations.
- 8- Management of Solid Waste Regulations.
- 9- Environmental Impact Assessment Regulations.
- 10- Soil Protection Regulations.
- 11- Charges and Wages Regulations.
- 12- Environmental Protection Fund Regulations.

B- Instructions issued by virtue of the provisions of this Law shall be published in the Official Gazette.

**Article 26:**

Environment Protection Law No.12 of 1995 is hereby repealed, but regulations issued by virtue thereof shall remain in force until amended, repealed or replaced.

**Article 27:**

The prime minister and the ministers are entrusted with the execution of the provisions of this Law.

**A-4. Partial List of Applicable Jordanian Laws, Regulations, Instructions and Standards  
[relevant regulations to be discussed]**

The Environmental Protection Law No. 52 of 2006
Environmental Impact Assessment Regulation No.37 of 2005
Water Authority Law No.18 of 1988
Groundwater Control Regulation No.85 of 2002
Soil Protection Regulation No.25 of 2005
Regulation for the Protection of the Air No.28 of 2005
Marine Environment and Coastal Protection Regulation No.51 of 1999
Natural Reserves and National Parks Regulation No.29 of 2005
Land Acquisition Law No. 12 of 1987
Management, Transportation and Handling of Harmful and Hazardous Substances Regulation No.24 of 2005
Agriculture Law No. 44 of 2002
Municipalities Law No.14 of 2007
Civil Defence Law No.18 of 1999
Traffic Law No.49 of 2008
Crafts & Industries Law No.16 of 1953 and its amendment
Protection of Environment due to Emergency Cases No.26 of 2005
Management of Solid Waste Regulation No.27 of 2005
Inspection Regime and Environmental Control – adjusted – No.52 of 2006
Inspection Regime and Environmental Control No.52 of 2006
Environmental Instructions
Instructions for Hazardous Waste Management and Handling of 2003
Consumed Oil Management and Handling Instructions of 2003
Noise Reduction and Prevention Regulation of 2003
Charges and Wages Regulation
Labor Law No. 8 for the year 1996 and its amendments
Environmental Protection Fund Regulation
Jordanian Standard for Industrial Reclaimed wastewater No.202 of 2007
Jordanian Standard for Treated Domestic Wastewater No.893 of 2006
Jordanian Standard for Ambient air quality No.1140 of 2006
Jordanian Standard No.1189-2006-Maximum allowable limits of air pollutants emitted from stationary sources

## **APPENDIX B    FORMS TO BE COMPLETED BY PROJECT PROPONENT**

**Form B-1.**

**Intent to Conduct an Environmental Impact Assessment**

**Project Information** [attach available data, preliminary maps, designs and specifications so that the EIA Section of the Ministry of the Environment (MoEnv) can determine the recommended type of EIA (Comprehensive or Initial)]

Proposed Action: \_\_\_\_\_

Project Type: \_\_\_\_\_

Project Location: \_\_\_\_\_

**Project Proponent**

Contact Person/Company:  
\_\_\_\_\_

Mailing Address:  
\_\_\_\_\_

Telephone:  
\_\_\_\_\_

E-mail Address:  
\_\_\_\_\_

**Approved Consultant**

Contact Person/Company:  
\_\_\_\_\_

Mailing Address:  
\_\_\_\_\_

Telephone:  
\_\_\_\_\_

E-mail Address:  
\_\_\_\_\_

**Submit to:** Environment Impact Assessment Section  
Ministry of Environment

*Based on the information provided, the EIA Section of the MoEnv will determine whether an Initial or Comprehensive EIA is recommended. Please indicate who should be contacted (Proponent or consultant) regarding this decision.*

**Form B-2. EIA Document Checklist**

<b>Recommended Component/Chapter of EIA</b>	<b>Description</b>	<b>Yes</b>	<b>No</b>
Title Page	Includes governing entity, name and location of project, type of EIA, names of Proponent and preparer, date of filing, and to who the EIA is submitted		
Table of Contents	Includes title and page number of all sections, tables, figures/maps/plans, and appendices of the EIA document		
List of Acronyms and Abbreviations/ Glossary of Terms	Lists all abbreviations and define terms used in the EIA document		
Executive Summary	Brief overview of project and findings		
Project Description	Detailed description and analysis of the nature and location of the project, including purpose and need of the project and a description of the scoping process		
Legal and Administrative Framework	Descriptions of applicable laws, regulations, instructions, and standards		
Alternatives to the Project	Description and analysis of alternatives to the project including the no-action alternative		
Existing Environment	Detailed description and assessment of baseline conditions of the project site, including: physical, biological, economic, and social conditions		
Assessment of Impacts	Detailed description and assessment of negative and positive potential environmental impacts of the project and its alternatives		
Risk Assessment	Includes risk characterization, management and mitigation		
Mitigation Measures	Measures to be taken to avoid, minimize, and mitigate potential environmental impacts		
Environmental Management Plan	Includes monitoring measures, parameters to be monitored, cost, responsible institutions		
Response to Comments	Response to comments received on most recently submitted EIA document		
References	List of references (documents, letters, email or phone correspondence) used in preparation of EIA document		
Appendices	Include: <ul style="list-style-type: none"> <li>• List of contributors to preparation of EIA document</li> <li>• Documentation of correspondence (including meeting records and agency consultation)</li> <li>• Technical data and any maps/figures not included in text</li> <li>• CVs of project staff</li> </ul>		

Based on SABEQ Comprehensive EIA document Screening Checklist

**Form B-3.**

**Environmental Impact Assessment Commitment Letter**

**Project Information**

EIA Title:

\_\_\_\_\_

Date of Submission:

\_\_\_\_\_

Project Location:

\_\_\_\_\_

**Project Proponent**

Contact Person/Company:

\_\_\_\_\_

Mailing Address:

\_\_\_\_\_

Telephone:

\_\_\_\_\_

E-mail Address:

\_\_\_\_\_

**Approved Consultant**

Contact Person/Company:

\_\_\_\_\_

Mailing Address:

\_\_\_\_\_

Telephone:

\_\_\_\_\_

E-mail Address:

\_\_\_\_\_

**Signature:**

**Date of submission:**

*By signing this letter, the project Proponent hereby certifies that the information included in the EIA is true and complete, to the best of their knowledge, and that the project Proponent thereby commits to the activities proposed in the EIA document.*

**Submit to:** Environment Impact Assessment Section  
Ministry of Environment

## **APPENDIX C    SUPPORTING GUIDANCE**

**Table C-1. Example Study Areas for Technical Parameters**

<b>Parameter</b>	<b>Primary Study Area</b>	<b>Secondary Study Area</b>
<b>Land Use</b>	100 meters from project site boundaries	0.5 to 1 km from project site
<b>Demographic Conditions</b>	<p><b>Schools:</b> School district where project located</p> <p><b>Libraries:</b> 1 km from project site</p> <p><b>Child Care Centers:</b> 2 km from project site</p> <p><b>Health Facilities:</b> Show on map only if project would directly impact</p>	<p><b>Schools:</b> Primary/Secondary School: 1-1.5 km from project site</p> <p><b>Libraries:</b> Extend to nearest branch if none within 1 km</p>
<b>Open Space</b>	0.5/1 km radius for commercial/residential projects	
<b>Cultural Resources</b>	<p><b>Archaeological Resources:</b> Prehistoric: 1 km radius; Historic: within boundaries of nearest streets</p> <p><b>Architectural Resources:</b> 100 meters radius from project site boundaries</p>	
<b>Biological Resources</b>	Resources within immediate area of project; encompass resource in entirety if small enough for project to impact entire resource	

**Table C-2. Sample Evaluation, Impact and Significance Criteria**

<b>Topic (example)</b>	<b>Evaluation Criteria</b>	<b>Impact Criteria</b>	<b>Significance Criteria</b>
<b>Land Use</b>	Change in land use on adjacent sites or land use in vicinity of proposed project	Displacement of current or planned use	Current or planned use would be eliminated and use is of public benefit
		Compatibility with surrounding area	Extreme disruption to surrounding land uses
		Interference with existing or future view and/or neighborhood character	Substantial deterioration in view or major detriment to other activities in neighborhood
<b>Air Quality</b>	Change in type or volume of emissions	Raising or lowering of air quality levels to above or below air quality standards	Refer to Technical Standards in Annex 1 of the Regulation for the Protection of the Air of 2005 of Jordan
		Increase or decrease of dust to level above or below nuisance level	Cannot be prevented through seeding, paving, covering, or wetting
		Increase or decrease of odor emissions to level above or below nuisance level	Refer to Technical Standards in Annex 1 of the Regulation for the Protection of the Air of 2005 of Jordan
<b>Noise</b>	Increase or decrease in noise level or tone	Increase or decrease in noise levels above or below regulatory requirements or generally accepted ambient conditions	Exceeds maximum noise level allowed for either operation or construction
<b>Traffic</b>	Change in capacity of roadway; change in risk to safety; change in delay at signalized or unsignalized intersections	Increase in vehicle traffic increases or decreases level of service (LOS) of intersection	Lowers LOS by one or more levels
		Addition or elimination of travel or turning lanes to increase or decrease roadway capacity or parking	Removes one lane of travel or parking

**Table C-3. Sample EMP Format (for Construction or Operation)**

Environmental Component	Proposed Mitigation Measure	Parameters to be Monitored	Location	Monitoring Methods	Measurement Frequency	Institutional Responsibilities		Estimated Cost	Applicable Regulations
						Enforcement	Reporting		
<b>Construction or Operation Phase (select one)</b>									
Include environmental resource, i.e. air, noise, traffic, etc. to be monitored	Include measures for minimizing/protecting each resource during construction or operation phases	Identify parameters that will be monitored	Identify where mitigation/monitoring activities will occur	Identify how parameters will be measured	Daily/weekly, etc.	Identify who will oversee mitigation/monitoring	Identify who reporting will be submitted to	Estimate cost	Identify applicable Jordanian laws

**Table C-4. Sample EMP Monitoring Checklist (for Construction)**

<b>Project Location:</b>			
Inspector Name (print, date, and sign):			
<b>Environmental Controls</b>	Yes	No	Comments
<b>Air Quality</b>			
Are vehicles restricted to dedicated areas?			
Are vehicle speeds below 20km/hr on access roads?			
<b>Soils and Hydrogeology</b>			
Are geotextile fences installed in appropriate locations and secure?			
Are geotextile fences clean and well maintained?			
<b>Noise Control</b>			
Is all site work conducted within prescribed hours (i.e. between 7AM and 6AM Mon-Fri; no weekend work?)			
<b>Hazardous Goods</b>			
Are safety data sheets available?			
Are spill kits on site and complete?			
<b>Waste Management</b>			
Is all cut vegetation being retained on site in piles?			
Is the site left tidy and in safe condition every day?			
<b>Subcontractors</b>			
Have all subcontractors completed a site induction?			
Are all subcontractors complying with the EMP?			

*Complete a non-compliance/corrective action report for any "no" answers.*