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WATER REUSE AND ENVIRONMENTAL CONSERVATION PROJECT

CONTRACT NO. EDH-I-00-08-00024-00 ORDER NO. 04

ENVIRONMENTAL IMPACT ASSESSMENT GUIDANCE AND CAPACITY BUILDING OCTOBER 2014

IMPLEMENTED BY AECOM

This document was produced for review by the United States Agency for International Development. It was prepared by AECOM.

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Submitted to:
USAID Jordan

Prepared by:
AECOM

DISCLAIMER:

The authors' views expressed in this document do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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LIST OF ACRONYMS

CEQ	Council on Environmental Quality
EIA	environmental impact assessment
EPA	Environmental Protection Agency
GoJ	Government of Jordan
Jordan	Hashemite Kingdom of Jordan
MoEnv	Ministry of Environment
NEPA	National Environmental Policy Act
TOR	Terms of Reference
USAID	United States Agency for International Development
WRECP	Water Reuse and Environmental Conservation Project

1 Introduction

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 (WRECP). The project supports the improvement of the regulatory environment; industry training and networking on pollution prevention and environmental management; landfill and “hot spot” rehabilitation; water reuse to support community livelihoods; and kingdom-wide biosolids management. 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, the project has provided a wide range of technical assistance to strengthen the regulatory capacity of the Ministry of Environment (MoEnv). This assistance includes providing guidance and training on best management practices in environmental impact assessment (EIA), based on requirements and experiences in the United States and other countries. The goal of the support and training is to help the MoEnv and the Technical Committee to become better prepared to work with developers and their respective consultants in the development and review of Terms of Reference (TOR) and all EIA documents. The work has been accomplished through review of existing EIA documents; consultations with MoEnv staff and the Technical Committee; preparation of guidance materials; and training workshops.

This report summarizes the major efforts undertaken to provide the EIA guidance and training. These efforts included:

- Review of Jordanian and other countries' laws and regulations governing the EIA requirements and processes
- Preparation of initial training materials
- In-country consultations, workshops and training
- Preparation of EIA Guidance Document and Annexes
- In-country training and workshops on EIA Guidance Document and on Public Scoping

The work conducted and deliverables produced are discussed in Section 2 of this report. Meeting agendas, workshop presentations, and lists of meeting participants are provided in the appendices.

One significant product of this effort is a manual, titled *Jordan Ministry of Environment Guidance for Preparing Environmental Impact Assessments*. This manual and its annexes are attached to this report.

2 Major Work Accomplished

2.1 Review of Laws and Regulations; Preparation of Initial Training Materials

Existing Jordan, United States, and several other countries' laws, regulations and policies concerning EIAs were compiled and reviewed. Particular attention was paid to the process of environmental review, performance standards applied, level of documentation required, and approval process in Jordan. The relevant Jordanian documents reviewed included:

- EIA Regulation No.37 of 2005 of Jordan
- Annexes 1-5 of EIA Regulation No.37 of 2005 of Jordan
- Environmental Protection Law No.52 of 2006 of Jordan
- Additional Applicable Jordanian Laws, Regulations, Instructions and Standards:
 - Jordan, 2005b.Regulation No.28 for the Protection of the Air of 2005
 - 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
 - Water Authority Law No.18 of 1988
 - Groundwater Control Regulation No.85 of 2002
 - Soil Protection Regulation No.25 of 2005
 - 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
- Traffic Law No.49 of 2008
- Protection of Environment due to Emergency Cases No.26 of 2005
- Management of Solid Waste Regulation No.27 of 2005
- Instructions for Hazardous Waste Management and Handling of 2003
- Noise Reduction and Prevention Regulation of 2003
- Labor Law No. 8 for the year 1996 and its amendments

Attention was paid to the types of projects for which the MoEnv requires EIAs, the specific type of documentation required (Initial or Comprehensive), the level of public scoping or input appropriate to determine the required content of the assessment, the technical parameters to be assessed, the performance standards to be used to determine potential significance of impact, and requirements for mitigation of potentially significant impacts.

A review of United States and other major EIA laws and regulations was then conducted to identify accepted EIA processes that provide a sound basis of best practices. Specific attention was given to selecting examples that would be directly applicable to the conditions and types of projects encountered in Jordan. Preliminary discussion and presentation materials were prepared in anticipation of meetings with the Ministry of Environment and other stakeholders.

2.2 In-Country Consultation and Training October 2012

Between 7 and 18 October 2013, the project team met with MoEnv staff responsible for implementing EIA regulations and policies, to gain an understanding of the specific issues and concerns they have in implementing EIA, and to determine the guidance and training

that would provide greatest benefit to them. Several group and individual meetings were held with MoEnv EIA, Licensing, and Inspection staff and with Technical Committee members over the 10-day period.

In addition to the individual meetings with EIA and Technical Committee staff, the team reviewed several EIA documents that had been filed with the MoEnv. These documents reflected the range of document types that project applicants may be required to submit, including TOR, Scoping Report, Initial EIA, and Comprehensive EIA. While some of the documents reviewed showed a general understanding of EIA requirements in terms of level of detail and quality of information presented, the review of the documents revealed several things:

- Lack of consistency in organization and content
- Inadequate definition of appropriate study areas for each of the technical parameters
- Incomplete presentation of baseline conditions, or lack of attention to the most important conditions for providing a basis for impact assessment
- Incomplete and/or inadequate technical analysis
- Lack of description of performance standards by which to judge potentially significant impacts

Two full-day workshops with MoEnv staff and Technical Committee members were held on 11 October and 18 October 2012 to outline basic and more advanced EIA requirements and best practices. Information gleaned from the EIA document review was used to highlight examples of applications in which additional technical attention and consistency were warranted. The workshops were interactive and provided an opportunity for the project team to gain additional insight into the concerns and questions of the individuals responsible for implementing the EIA law and regulations and reviewing EIA documents. A quiz was given at the end of the second workshop on 18 October to enable the team to judge the level of participant understanding of EIA practices and determine specific areas in which additional training would be helpful. The quiz and discussion confirmed that more focused training would be beneficial in several major areas including :

- Developing an appropriate statement of purpose and need
- Establishing an adequate range of practicable alternatives
- Identifying performance standards to provide a basis for determination of impact significance
- Identifying and selecting impact assessment tools
- Identifying mitigation requirements

Appendix A to this report includes the list of attendees for all the workshops. Appendix B includes the materials from the October 2012 workshops: agendas, presentation slides, and the quiz.

2.3 Preparation of EIA Guidance Document

As a result of conclusions drawn from the initial training and follow-up discussions with MoEnv staff and the Technical Committee, the decision was made (with USAID concurrence) that the project would prepare an EIA Guidance Document for use in Jordan. The purpose of the guidance document is to provide instruction on Jordan EIA regulatory requirements, the required elements of an EIA, recommended organization, and recommended methods. The document would be directed to Project Proponents and their consultants; the goal would be to improve the quality of the EIAs prepared by applicants and to achieve consistency among EIAs submitted, in terms of format and organization. Achieving both goals would help reduce

the review time required of the MoEnv and would help the MoEnv and the Technical Committee identify critical issues that required additional attention and analysis.

The annotated outline for the EIA Guidance Document was approved by the MoEnv and USAID on 15 March 2013. The project team consulted a variety of Jordanian and international sources to prepare the EIA Guidance Document. The preliminary draft document was submitted on 26 March 2013. The Ministry reviewed the document and provided comments. The project team submitted the revised Draft EIA Guidance Document on 14 March 2014, in advance of training workshops scheduled for April 2014.

2.4 EIA Guidance and Public Scoping Training Workshops April 2014

In late March and early April 2014, two training workshops took place in Amman. The first of the two workshops, led by the MoEnv with project team support, provided an overview of the Guidance Document and MoEnv requirements for Project Proponents and their consultants to follow. The second workshop, led by the project team, focused on Scoping and Public Participation. These two training workshops are described in more detail below.

2.4.1 EIA Guidance Training

The EIA Guidance workshop occurred on 2 April 2014, with 34 attendees present. Attendees included MoEnv staff and a number of consultants responsible for preparing EIA documents. Appendix A contains the sign-in sheet from the workshop, and Appendix C contains a copy of the agenda and presentation. The MoEnv provided an overview of the EIA process, walked through the various requirements outlined in the EIA Guidance Document, and went into detail on the requirements for preparation of a Comprehensive EIA. The MoEnv noted the importance of following the recommended organization outlined in the Guidance Document for all EIA documents. The Consultant group did ask for clarification on the role of scoping within the EIA process, and the MoEnv noted that a separate workshop focusing on scoping was to occur during the week.

The MoEnv stated that the EIA Guidance Document would be provided in draft form to the consultants for their comments. The document was issued to the consultants on 11 June 2014, with comments due back to the project team by 18 June 2014.

2.4.2 Scoping and Public Participation Training

The Scoping Workshop was held at the Quality Suites Hotel on 3 April 2014. The workshop covered the major elements of Scoping and Public Participation:

- Understanding the value of public/stakeholder input
- Identifying a range of stakeholders
- Modes of public outreach
- Preparing for a scoping meeting
- Conducting a scoping meeting
- Documenting and evaluating comments
- Preparing a scoping report
- Keeping public and stakeholders informed

The workshop was interactive, with a mix of presentation and break-out groups. Discussion in the workshop was good, and participants provided examples of various tools and practices that had worked well for projects throughout Jordan in which they had been involved .

The workshop was led by the project team. Attendees included MoEnv staff, several representatives from the Technical Committee, and a number of the consultants who also attended the EIA Guidance workshop. The attendees list is in Appendix A, and the agenda and presentation materials are provided in Appendix C.

2.5 Technical Guidance Protocols

The project team also prepared technical guidance protocols for eight (8) technical parameters likely to require in-depth study or analysis in EIAs; these are the annexes to the EIA Guidance Document:

1. Surface Water Hydrology and Quality
2. Groundwater Hydrology and Quality
3. Air Quality
4. Noise
5. Traffic
6. Life Cycle Analysis (LCA)
7. Risk Assessment (human health)
8. Risk Assessment (environmental)

These technical guidance protocols provide instruction on accepted analytical methods, tools, and models for conducting environmental impact assessments. Prepared by senior technical specialists in the relevant fields, these protocols are based on their experience and on accepted international practices. Each technical guidance protocol provides sufficient guidance for project proponents or consultants to follow so they can identify the potential for positive or adverse impacts and determine the level/significance of impacts anticipated.. The protocols provide detail regarding:

- 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 performance standards/ impact and significance criteria
- Presentation of analysis methodology, findings, and results, including figures, tables, and photographs
- Examples of projects where methodologies have been successfully followed on other projects similar to those encountered in Jordan

2.6 Final EIA Guidance Document

The project team finalized the EIA Guidance Document, incorporating and responding to the comments and input received at the workshops and the final comments from the MoEnv. The document is attached to this report.

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Appendix A. Workshop Participants, October 2012 and April 2014

Topic EIA Review Training

Location Quality Suites

Date 11-Oct-12

	Name	Entity
1	Eng. Izzat abu Hamra	MoEnv/ Director
2	Eng. Haitham Adaileh	MoEnv
3	Dr. Shuhadeh Al Goraan	MoEnv
4	Eng. Sharif Bani Hani	MoEnv
5	Eng. Abdul Karim Shalabi	MoEnv/ EIA section Head
6	Fawwaz Karasneh	MoEnv/ Licensing
7	Eng. Bilal Qtaishat	AECOM/ AI JIDARA at MoEnv
8	Ameen Aref Tahboob	Ministry of Health / Env. Health Dir.
9	Laila Sami Tashamneh	Ministry of Public works and Housing
10	Eng. Sahar Mohammad Albarari	Ministry of Tourism and Archeology
11	Eng. Mona Mohammad Habahbeh	Ministry of Industry and Trade
12	Eyyas Mohammad Innab	Ministry of Water and Irrigation
13	Dr. Asma' Tayseer Al Ghzawi	Ministry of Municipal Affairs
14	Eng. Fida' Ali Al Rawabdeh	Ministry of Agriculture
15	Eng Ola Al Sarhan	Ministry of Energy and Mineral Resources
16	Eng. Nedaa Bani Slman	Ministry of Municipal Affairs
17	Emad M.S.	MoEnv
18	Eng. Ghadeer Habahbeh	ASEZA
19	Eng. Aya Al Majali	DFZC
20	Sawsan Zaatar	Project staff
21	Ala Homaidan	Project staff

Topic EIA Review Training

Location Quality Suites

Date 18-Oct-12

	Name	Entity
1	Eng. Izzat abu Hamra	MoEnv/ Director
2	Dr. Shuhadeh Al Goraan	MoEnv
3	Eng. Sharif Bani Hani	MoEnv
4	Eng. Abdul Karim Shalabi	MoEnv/ EIA section Head
5	Fawwaz Karasneh	MoEnv/ Licensing
6	Eng. Bilal Qtaishat	AECOM/ Al JIDARA at MoEnv
7	Ameen Aref Tahboob	Ministry of Health / Env. Health Dir.
8	Eng. Sahar Mohammad Albarari	Ministry of Tourism and Archeology
9	Eng. Mona Mohammad Habahbeh	Ministry of Industry and Trade
10	Dr. Asma' Tayseer Al Ghzawi	Ministry of Municipal Affairs
11	Eng Ola Al Sarhan	Ministry of Energy and Mineral Resources
12	Eng. Nedaa Bani Slman	Ministry of Municipal Affairs
13	Emad M.S.	MoEnv
14	Eng. Ghadeer Habahbeh	ASEZA
15	Eng. Aya Al Majali	DFZC
16	Ala Homaidan	Project staff
17	Patricia Bakil	Project Staff
18	Rasha Haymour	RSCN
19	Eng. Naim Al Saud	
20	Awwad Salameh	Ministry of Planning and intl Cooperation
21	Bayan Awwad	Ministry of Health

Meeting EIA Guidance Report

Date 2nd april 2014

Location Quality suites

	Name	Institute
1	Baraa Maaytah	Royal Scientific Society
2	Dina Kisbi	Engicon
3	Sakher Nazzal	Sigma
4	Emad Al Derawi	MoEnv
5	Rania al Omari	CC Group
6	Bashar Bitar	Bitar Consultants
7	Nader Daher	Consolidated Consultants
8	Rawia Abdulla	Royal Scientific Society
9	Yanal Abeda	Mostaqbal
10	Lubna alkhaldy	Jordan University of Science and technology
11	sireen Adwan	MoEnv
12	Bayan Awwad	Ministry of Health
13	Islam Daoud	Dar al Omran
14	Sawsan Zawahreh	Al Shamil Engineering
15	Khaled Nassar	Arabtech Jaradaneh
16	Doaa Al Derbany	MoEnv
17	Nedal al Oran	Balqa University
18	Abdelkarim Shalabi	MoEnv
19	Khaldoon Hamdan	Himaconsultant
20	Lana al Zubi	Eco Consult
21	Jiana al Masri	Eco Consult
22	Ryad abu Hazim	Al Dar al Arabyia
23	Mohammad Daghash	Ministry of Energy and Mineral resources
24	Zain al Majed	Jordan Environment Society
25	Nerdeen Abu Aboud	MoEnv
26	Faraj al taleb	MoEnv
27	Izzat abu Hamra	MoEnv
28	Isra al turk	JFEN
29	Asma al Ghzawi	Ministry of Municipal Affairs
30	Ameen Tahboub	Ministry of Health
31	Muna al Habahbeh	Ministry of Industry and Trade
32	Sahar al Barari	Ministry of Tourism and Archeology
33	Shrorouq al Wekhyan	Al Rawabi
34	Ayman Jaber	Ministry of Water and Irrigation

Meeting Scoping and Public participation Training

Date 3rd April 2014

Location Quality suites

	Name	Institute
1	Islam Daoud	Dar Al Omran
2	Izzat abu Hamra	MoEnv
3	Rania al Omari	CC group
4	Lana al Zubi	Eco Consult
5	Rawia Abdullah	Royal Scientific Society
6	Ayman Jaber	Ministry of Water and Irrigation
7	Rasha Tomaira	Arabtech Jaradaneh
8	Sahar Al barari	Ministry of Tourism and archeology
9	Sana Al Labadi	Hima Consulting
10	Ameen Tahboub	Ministry of Health
11	Ryad aby Hazim	Al Dar al Arabyia
12	Emad darawi	MoEnv
13	Nardeen abu Aboud	MoEnv
14	Muna al Habahbeh	Ministry of Industry and Trade
15	Doaa Al Derbani	MoEnv
16	Jiana Al Masri	Eco Consult
17	Sawsan Zawahreh	Al Shamil
18	Ali Khawaldeh	Ministry of Energy and Mineral resources
19	Bara Matalqah	RSS
20	Abdel Karim Shalabi	Moenv
21	Esraa Ajarma	Al rawabi
22	Nader Daher	Consolidated Consultants
23	Asma al Ghzawi	Ministry of Municipal affairs
24	Dina Kisbi	Engicon
25	Lubna Alkhaldy	JUST
26	Bayan Awwad	Ministry of Health
27	Sireen Adwan	MoEnv

Appendix B. Workshop Materials, October 2012



EIA Review Training for the Ministry of Environment

EIA Review Workshop Agenda

11 October 2012

9:00 – 9:30 AM	Introductions
9:30 – 9:45	Overview of Workshop
9:45 – 10:00	Introduction to Critical Elements of EIA Review
10:00 – 10:45	Critical Elements <ul style="list-style-type: none">• Description, purpose/need• Alternatives• Technical topics of most concern
10:45 – 11:15	Coffee Break
11:15 – 13:15	Critical Elements (continued) <ul style="list-style-type: none">• Evaluation criteria• Study areas/potential areas of effect• Baseline conditions• Technical analyses• Significance of impacts• Mitigation• Monitoring
13:15 – 14:15	Lunch
14:15 – 15:45	Case Study
15:45 – 16:00	Closing



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USAID Water Reuse and Environmental Conservation Project

Technical Review of EIA Studies

Betsy Shreve-Gibb
EIA Specialist

11 October 2012
Implemented by AECOM



Today's Agenda

9:00 – 9:30	Introductions
9:30 – 9:45	Overview and goals
9:45 – 10:00	Coffee Break
10:00 -12:00	Critical elements - Discussion, examples, exercises
12:00 – 12:30	Coffee break
12:30 – 14:00	Case Study
14:00 – 14:15	Closing
14:15	Lunch

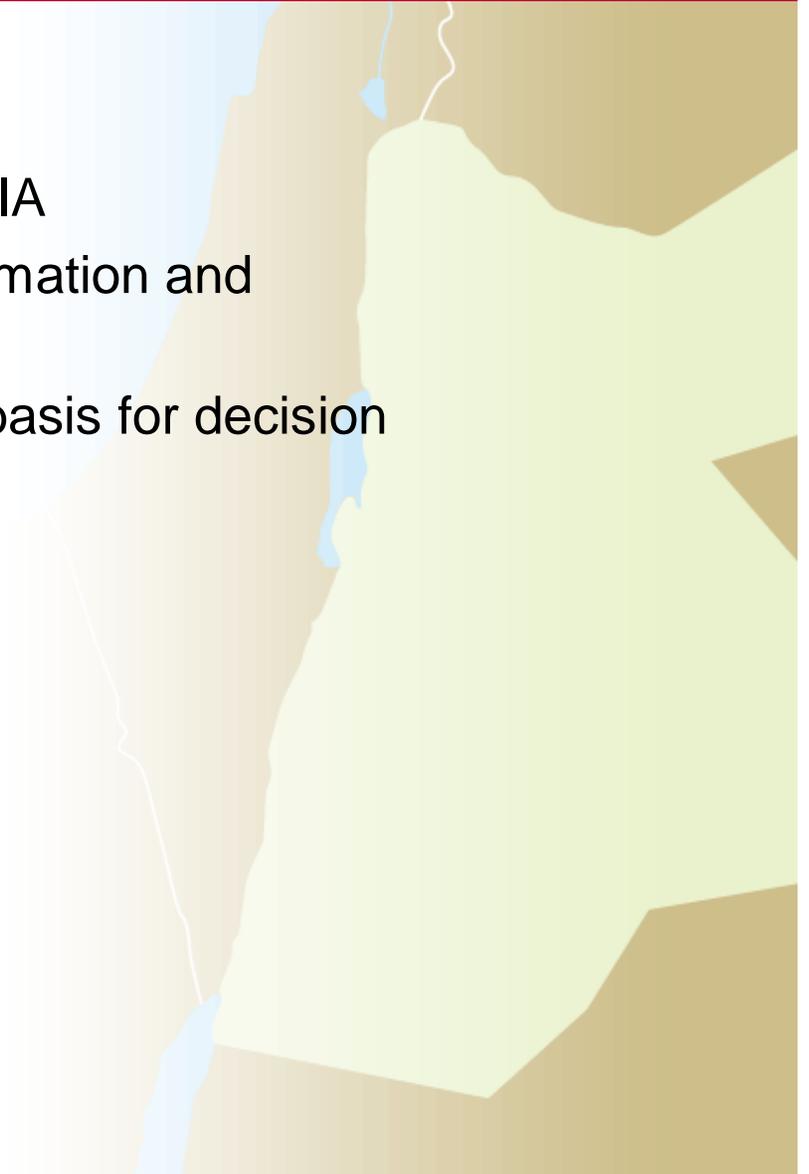
Introductions

- Names
- What was the most challenging EIA you have worked on?



Workshop Overview

- Reviewer's role
 - Understand critical elements of EIA
 - Understand how to tell if EIA information and analyses are sufficient
 - Determine whether there is solid basis for decision
- Today's goals
 - What do we want to achieve



Jordan EIA Requirements

- Environmental Protection Law 52 of 2006
- EIA Annex 1-5
- Initial vs. Comprehensive EIA

EPL ANNEXES

1: General information required

2: Projects requiring comprehensive EIA

3: Projects needing initial EIA

4: Types of environmental impacts

5: EIA study components

Critical Elements – Overview

Critical Element	What to look for
Description, purpose and need	Clearly stated
Alternatives	Reasonable range identified Feasible
Technical topics	Topics of greatest concern identified
Evaluation criteria	Clearly spelled out
Project study area and potential area(s) of effect	Clearly defined Appropriate (large enough, not too large)
Baseline information	Sufficient to evaluate impacts
Technical analyses	Defensible
Significant impacts	Identified
Mitigation	Whether needed and if so, proposed
Monitoring	Does it track the impacts of concern

Project Description, Purpose, and Need

- Project description
 - Who, what, when, where and why
- Purpose and need
 - Is it clearly stated
 - Is there a defined need for the project
 - Are related activities identified
 - Previous EIA reviews

ANNEX 1

Project description must include:

- *Nature of project*
- *Production processes*
- *Quality and quantity of expected wastes and emissions*
- *People and equipment for both construction and operation*

Pyramids Plateau – Project Need

“Egypt’s ancient monuments have been subjected to the erosive effect of rising groundwater....
groundwater has surfaced in many low-lying areas posing a direct threat to some of these monuments, particularly those of the Giza Necropolis.”



Pyramids Plateau – Project Purpose

“...lower groundwater level in the vicinity of the Pyramids Plateau to a level that would not endanger the monuments and archeological sites. Groundwater should be lowered to a minimum of 2 meters below levels of the foundation of the ancient structures to account for expected water capillary rise.”



Cape Wind – Project Description

- Construct wind-powered electric generation facility
- 130 turbines
- 127 meters above water surface
- 24 square nautical miles
- Two submarine 115-KV lines
- Underground cable to NSTAR for distribution into grid



Cape Wind - Project Purpose and Need

- Purpose: “To generate up to 454 MW of clean renewable wind-generated energy that will be transmitted and distributed to the New England Regional Power grid.”
- Need – See handout



Critical Elements

Critical Element	What to look for
Description, purpose and need	Clearly stated
Alternatives	Reasonable range identified Feasible
Technical topics	Topics of greatest concern identified
Evaluation criteria	Clearly spelled out
Project study area and potential area(s) of effect	Clearly defined Appropriate (large enough, not too large)
Baseline information	Sufficient to evaluate impacts
Technical analyses	Defensible
Significant impacts	Identified
Mitigation	Whether needed and if so, proposed
Monitoring	Does it track the impacts of concern

Alternatives – Are They Well Developed?

Does the EIA contain:

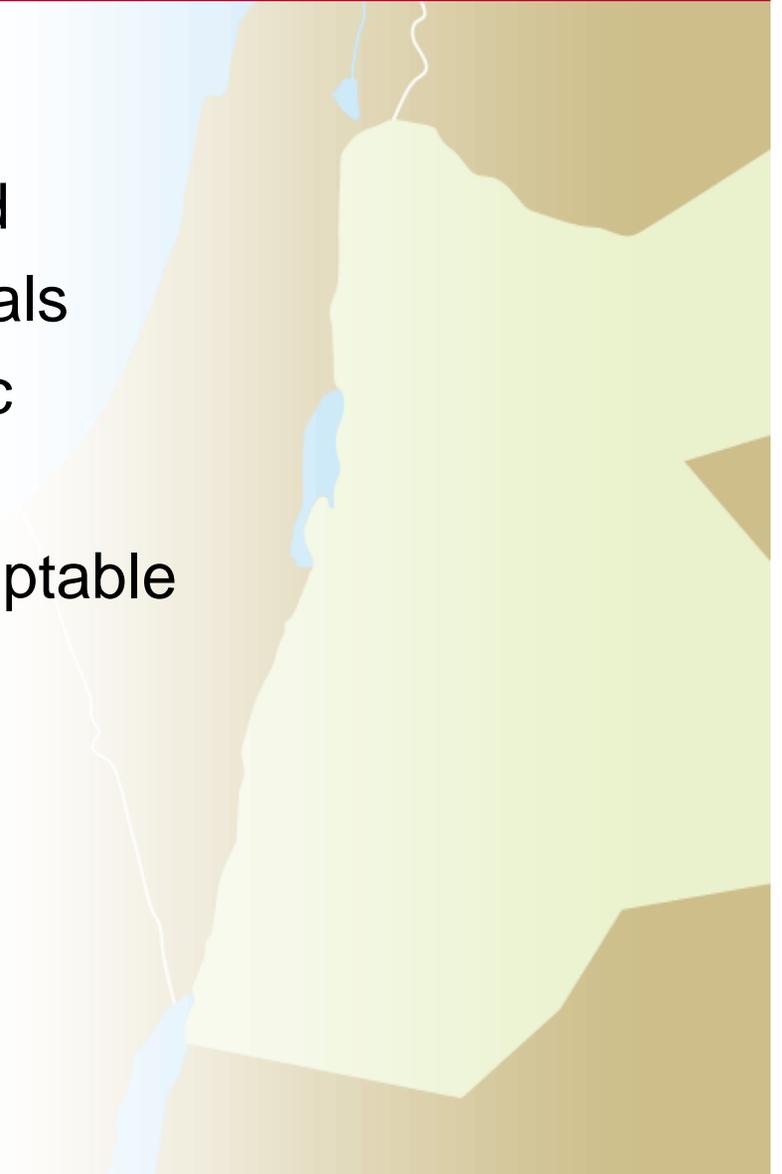
- Reasonable range of alternatives
- Adequate description
 - Location
 - Design
 - Technology
- Feasible alternatives
 - Viable technology
 - Cost
 - Authority to implement



Alternatives – Are they Reasonable?

Alternative is reasonable if:

- Meets project purpose and need
- Scale consistent with project goals
- Physical configuration is realistic
- Cost appears reasonable
- Technologies are tested or acceptable



Critical Elements

Critical Element	What to look for
Description, purpose and need	Clearly stated
Alternatives	Reasonable range identified Feasible
Technical topics	Topics of greatest concern identified
Evaluation criteria	Clearly spelled out
Project study area and potential area(s) of effect	Clearly defined Appropriate (large enough, not too large)
Baseline information	Sufficient to evaluate impacts
Technical analyses	Defensible
Significant impacts	Identified
Mitigation	Whether needed and if so, proposed
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Technical Topics Requiring Analysis

- Conduct high level screening to determine likely technical areas of impact
 - Air, historic resources, water quality, etc.
- Some topics may require minimal attention
- Focus on topics with potential for greatest impact
- Use logical reasoning

Topics of Concern (partial list Annex 4):

- *Aesthetics*
- *Endangered species*
- *Water quality*
- *Aquatic life*
- *Ancient resources*
- *Traffic*
- *Population growth*
- *Drainage flooding*
- *Public health*
- *Infrastructure improvements*

What Topics have Greatest Potential Impact



Development of new mining pit adjacent to residential neighborhood

Critical Elements

Critical Element	What to look for
Description, purpose and need	Clearly stated
Alternatives	Reasonable range identified Feasible
Technical topics	Topics of greatest concern identified
Evaluation criteria	Clearly spelled out
Project study area and potential area(s) of effect	Clearly defined Appropriate (large enough, not too large)
Baseline information	Sufficient to evaluate impacts
Technical analyses	Defensible
Significant impacts	Identified
Mitigation	Whether needed and if so, proposed
Monitoring	Does it track the impacts of concern

Confirming Evaluation and Impact Criteria

- Types of changes related to the technical topics
- Must be clearly presented
- Why it matters
 - You need to know what the evaluation and impact criteria are so you know if the correct baseline information is provided

Example Criteria:

Traffic

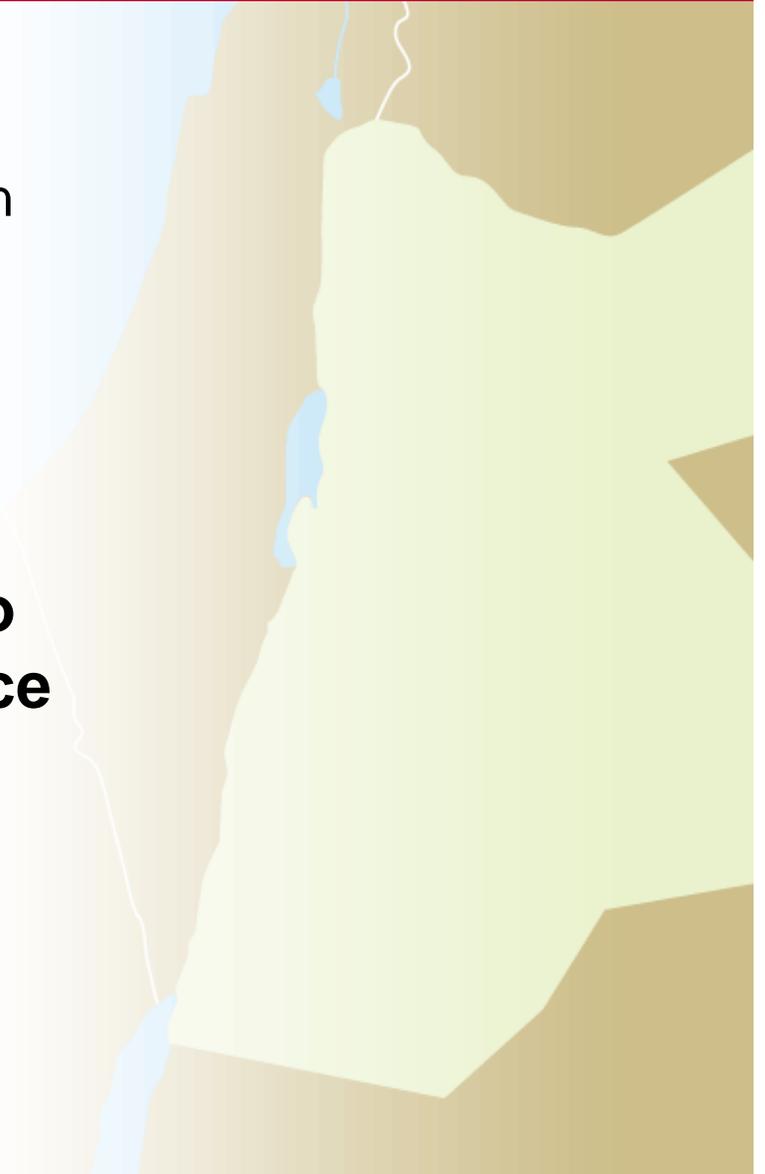
- *Change in delay at key intersections*
- *Change in # accidents to pedestrians/vehicles*

Public Health

- *Change in emissions/quality of water or air that may affect population groups*

Evaluation Criteria – Performance Standards

- Very specific, detailed measures
 - Established for each impact criterion
 - To measure the performance of the alternatives
- Qualitative or quantitative
- May be defined by regulation
- **Performance standards help to determine potential significance of an impact**



Potential Sources of Evaluation Criteria and Performance Standards in Jordan

Environmental Laws

Environmental Protection Law No. 52 for the year 2006

Law on the Water Authority No. 18 of 1988

Underground Water Regulation No. 85 of 2002

Environmental By-laws

Environmental Impact Assessment By-law No. 37 for the year 2005

Environment Protection Form Pollution for Emergencies No. 26 for the year 2005

Soil Protection By-law No. 25 for the year 2005

Air Protection By-law No. 28 for the year 2005

Marine Environment and Coastal Protection By-law No. 51 for the year 1999

Nature Reserves and Parks Protection By-law No. 29 for the year 2005

Hazardous and Noxious Substances Management By-law No. 24 for the year 2005

Solid Waste Management System No. 27 for year 2005

Inspection Regime and Environmental Control – adjusted – No. 52 for year 2006

Inspection Regime and Environmental Control No. 52 for year 2006

The Environmental Protection Fund By-law No. 52 for year 2006

Environmental Instructions

Instructions for Hazardous Waste Management and Handling – for the year 2003

Consumed Oil Management and Handling Instructions – for the year 2003

Instructions for Noise Reduction and Prevention – for the year 2003

Evaluation, Impact and Significance Criteria

Topic	Evaluation Criteria	Impact Criteria	Significance Criteria
Land Use	Change in land use on adjacent sites or land use in vicinity of proposed project	Displacement of current or planned use	<i>Current or planned use would be eliminated and use is of public benefit</i>
		Compatibility with surrounding area	<i>Extreme disruption to surrounding land uses</i>
		Interference with existing or future view and/or neighborhood character	<i>Substantial deterioration in view or major detriment to other activities in neighborhood</i>
		Consistency with local zoning	<i>Not allowed by zoning</i>

Evaluation, Impact and Significance Criteria

Topic	Evaluation Criteria	Impact Criteria	Significance Criteria
Air Quality	Change in type or volume of emissions	Raising or lowering of air quality levels to above or below air quality standards	<i>> 5 tpy</i>
		Increase or decrease of dust to level above or below nuisance level	<i>Can not be prevented through seeding, paving, covering, or wetting</i>
		Increase or decrease of odor emissions to level above or below nuisance level	<i>H2S >10ppb</i>

Evaluation, Impact and Significance Criteria

Topic	Evaluation Criteria	Impact Criteria	Significance Criteria
Noise	Increase or decrease in noise level or tone	Increase or decrease in noise levels above or below regulatory requirements or generally accepted ambient conditions	<i>Exceeds maximum noise level allowed for either operation or construction (i.e >5db)</i>
Traffic	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	<i>Lowers LOS by one or more levels</i>
		Addition or elimination of travel or turning lanes to increase or decrease roadway capacity or parking	<i>Removes one lane of travel or parking</i>

Evaluation, Impact and Significance Criteria

Topic	Evaluation Criteria	Impact Criteria	Significance Criteria
Natural Resources	Change in total area for resources or change in quality of habitat	Increase or decrease in area available for fauna or flora Change in habitat characteristics	<i>Loss of area or habitat to support fauna or flora of special local importance or protected species</i>

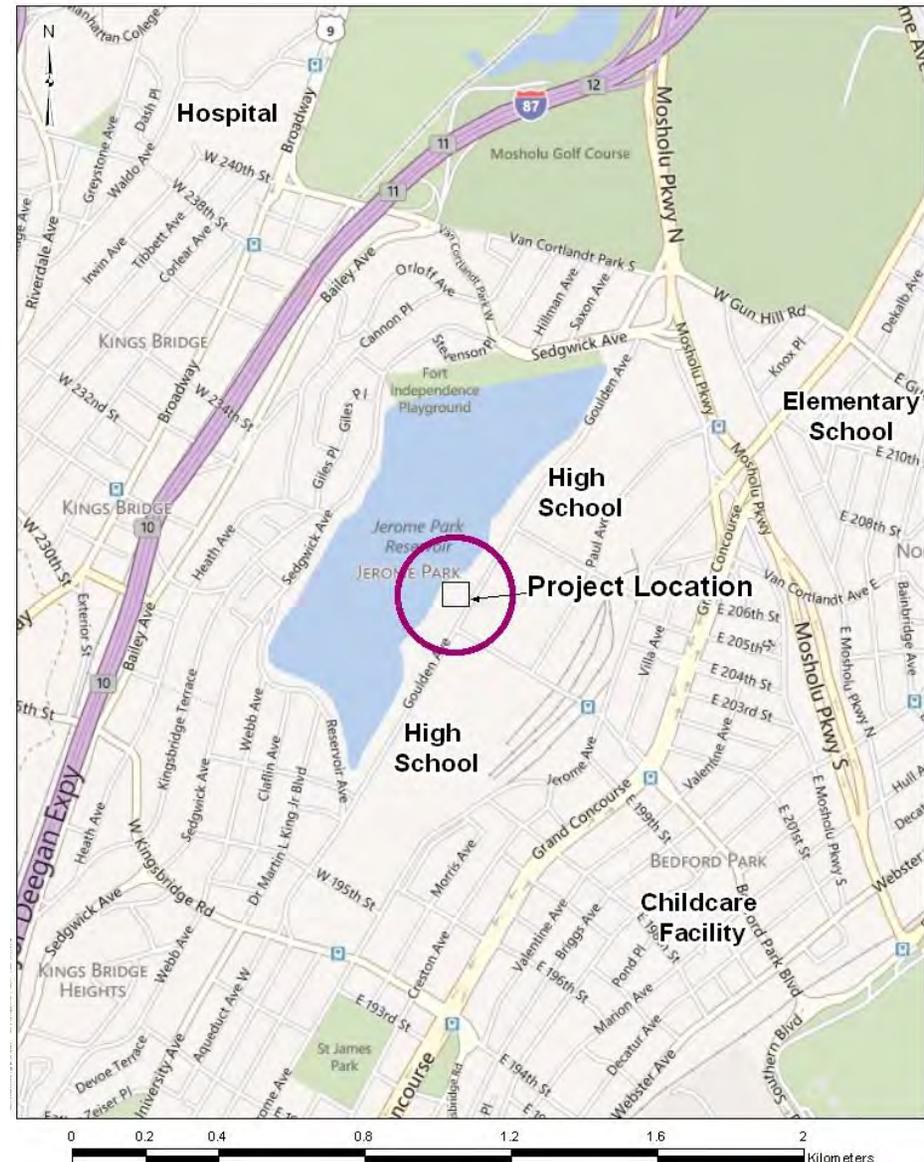
Critical Elements

Critical Element	What to look for
Description, purpose and need	Clearly stated
Alternatives	Reasonable range identified Feasible
Technical topics	Topics of greatest concern identified
Evaluation criteria	Clearly spelled out
Project study area and potential area(s) of effect	Clearly defined Appropriate (large enough, not too large)
Baseline information	Sufficient to evaluate impacts
Technical analyses	Defensible
Significant impacts	Identified
Mitigation	Whether needed and if so, proposed
Monitoring	Does it track the impacts of concern

SETTING, STUDY AREA, APE – WHAT TO LOOK FOR

Project Setting, Study Area(s) & Areas of Potential Effect

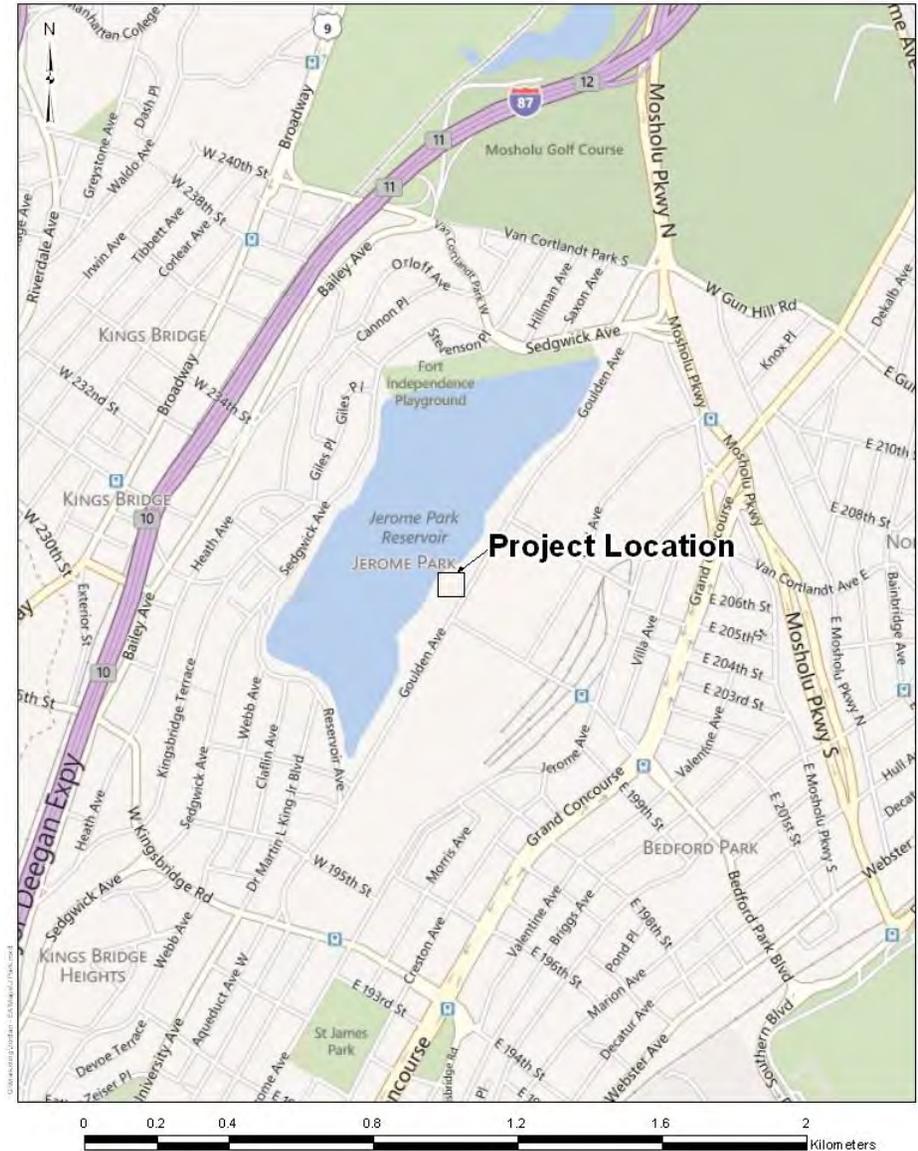
- Project setting: project site and vicinity
- Study areas correspond to areas of potential effect (APE)
 - Depends on technical parameters



SETTING, STUDY AREA, APE – WHAT TO LOOK FOR

Project Study Areas and APEs

Study areas should encompass the area in which impacts may occur



Study Areas for Technical Parameters

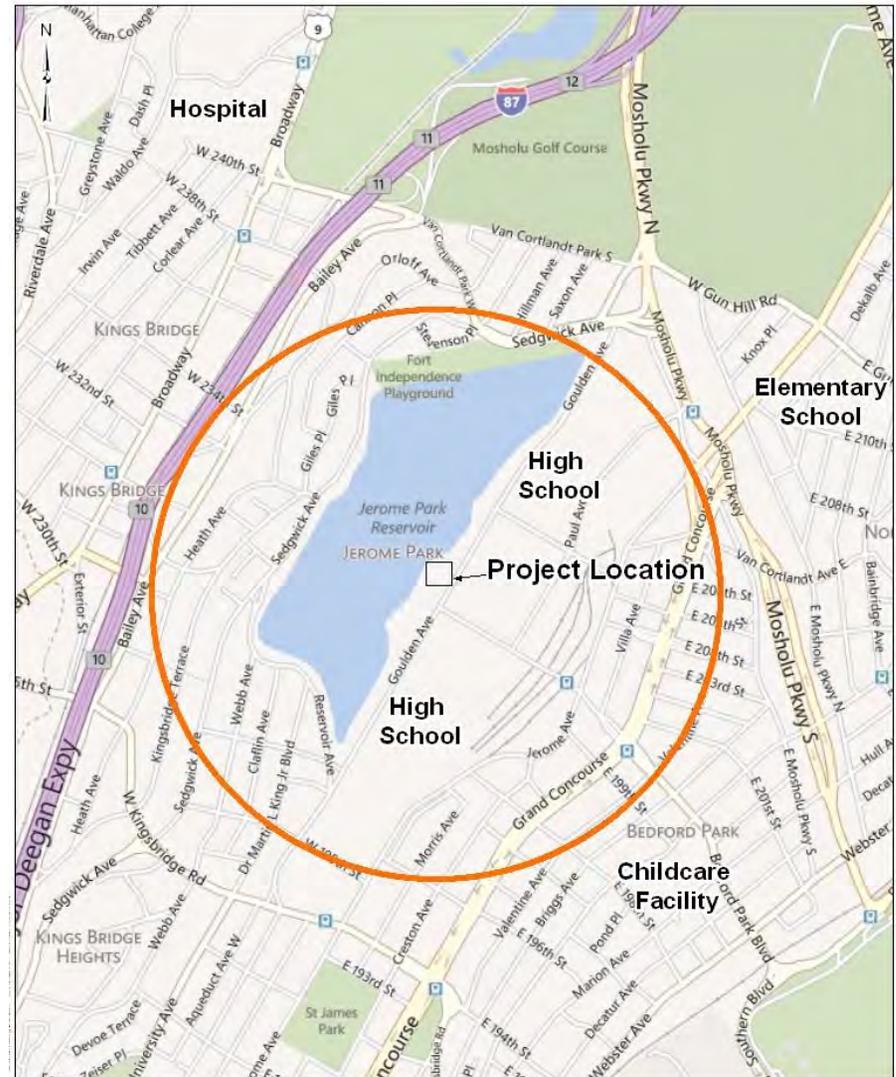
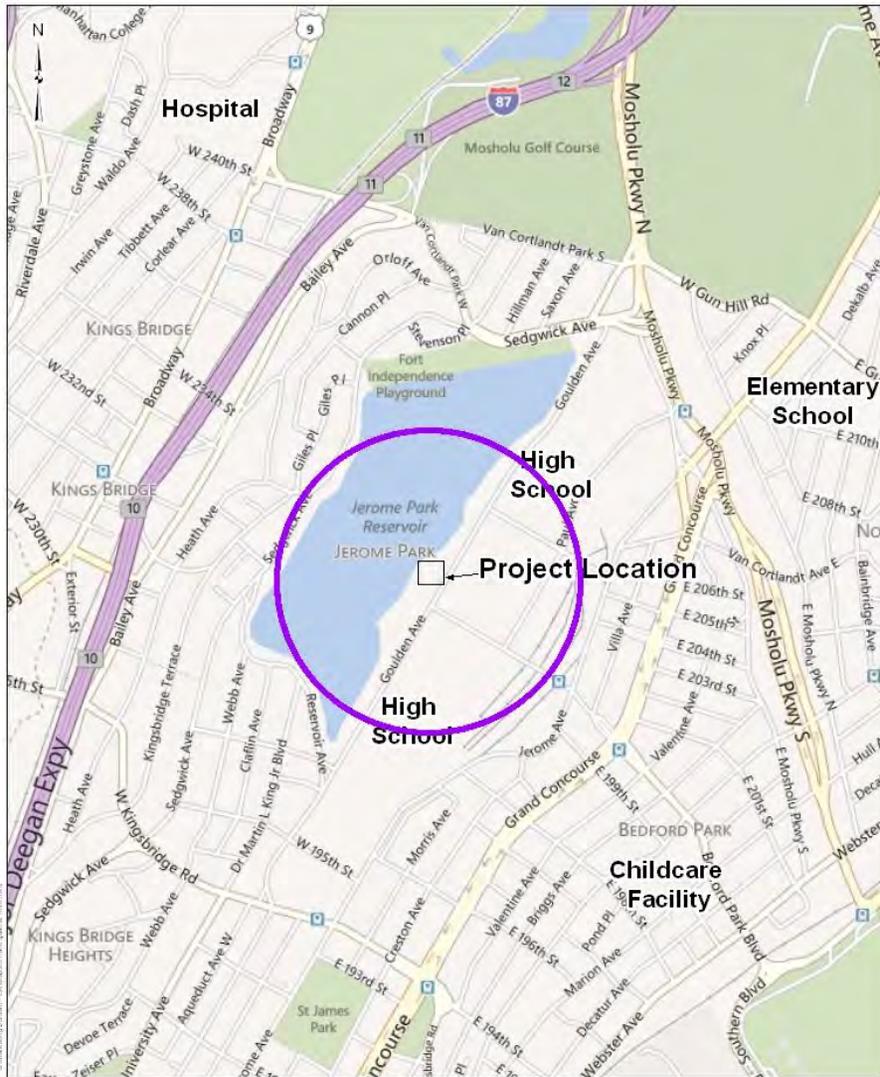
Parameter	Primary Study Area	Secondary Study Area
Land Use and Zoning	100 meters from project site boundaries	0.5 to 1 km from project site
Socioeconomic Conditions	100 meters from project site boundaries	Population increase <5%: 0.5 km radius; population increase >5%: 1 km radius
Community Facilities and Services	<p>Public Schools: School district where project located</p> <p>Libraries: 1 km from project site</p> <p>Child Care Centers: 2 km from project site</p> <p>Hospitals/Fire and Police Departments: Show on map only if project would directly impact</p>	<p>Public Schools: Primary/Secondary School: 1-1.5 km from project site</p> <p>Libraries: Extend to nearest branch if none within 1 km</p>
Open Space	0.5/1 km radius for commercial/residential projects	
Historic and Cultural Resources	<p>Archaeological Resources: Prehistoric: 1 km radius; Historic: within boundaries of nearest streets</p> <p>Architectural Resources: 100 meters radius from project site boundaries</p>	
Natural Resources	Resources within immediate area of project; encompass resource in entirety if small enough for project to impact entire resource	

Study Areas for Technical Parameters

Parameter	Primary Study Area	Secondary Study Area
Hazardous Materials	Project site and excavation areas. Properties within 100 meters of site.	
Water Supply	Connect on map: primary pressure regulators; primary unregulated connections; pumping station and related gradient zone.	
Wastewater and Stormwater	Plot on map: wastewater treatment plant(s); collection system; and combined or separate sewer system. Delineate drainage area for direct discharges and overland flow to water bodies.	
Transportation	Define by traffic routes to/from site (100 m to >1 km); include major roads, problem intersections, and alternative routes.	
Air Quality	<p>Mobile Sources: Similar to traffic study area; include intersections where congestion is expected</p> <p>Stationary Sources: 100 meter radius from emission source</p>	
Noise	<p>Mobile Sources: Same as transportation study area; along routes to project site</p> <p>Stationary Sources: 500 meter radius of proposed project</p>	

SETTING, STUDY AREA, APE – EXERCISE

What is the Right Study Area?



Critical Elements

Critical Element	What to look for
Description, purpose and need	Clearly stated
Alternatives	Reasonable range identified Feasible
Technical topics	Topics of greatest concern identified
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Project study area and potential area(s) of effect	Clearly defined Appropriate (large enough, not too large)
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Baseline – What Must be Identified

- Existing conditions
- Future anticipated conditions (without the project)



Baseline Conditions – Level of Detail

- Initial versus Comprehensive EIAs
- Detail in keeping with type of document

Parameter	Initial Detail	Comprehensive Detail
Noise	General characterization of noise level by land use	Monitoring data to provide actual ambient noise levels
Traffic	Description of type of roadway and characterization of traffic volume, delays and accidents	Monitoring data on vehicles per day, number of trucks vs. passenger cars, actual quantification of delay
Groundwater	Best estimate of source, depth and quality	Hydrogeologic study and pump test to confirm depth and capacity, and environmental sampling to confirm quality

Baseline Conditions – Level of Detail

- Example of differences in detail between Initial and Comprehensive EIAs

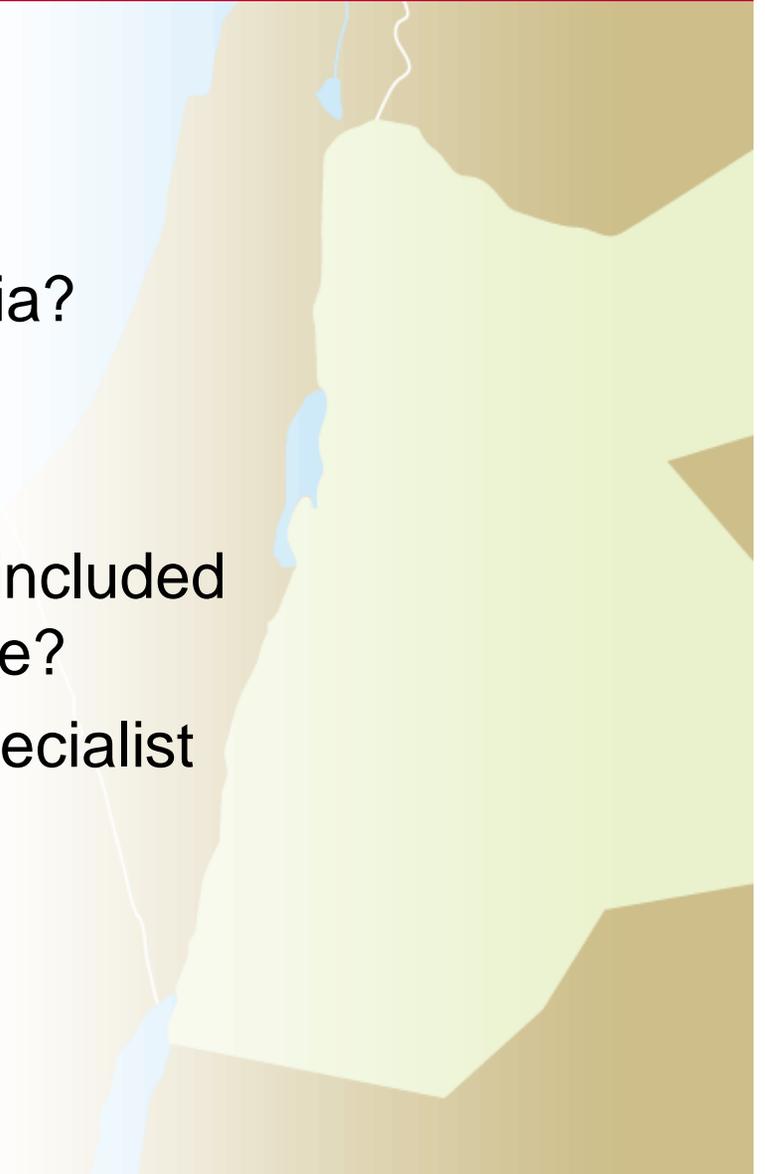
Parameter	Initial Detail	Comprehensive Detail
Natural Resources	?	?
Air Quality	?	?
Socioeconomic	?	?

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Technical Analyses – Are They Adequate?

- Quantitative or qualitative?
- Methodology described?
- Does it relate to evaluation criteria?
- Assumptions clearly presented?
- Assumptions reasonable?
- If modeling used, is explanation included why that model is most applicable?
- May need to involve technical specialist



Typical Impact Analyses

Parameter (Topic)	Type of Analysis	Relation to Evaluation and Impact Criteria
Natural Resources	Calculate change in area and quality of habitat due to removal of trees	Measures change to area or quality of resource and provides basis to determine significance
Noise	Calculate change to ambient noise levels due to construction equipment; calculate change to noise due to increase in trucks on access roadways	Measures noise level changes and at specific locations to determine if exceedance has occurred
Air Quality	Calculate emissions from each equipment source at site; Calculate emissions from trucks and worker vehicles traveling to and from site	Measure the change in pollutant load at specific locations to determine if exceedance of air quality standards or major annoyance may occur

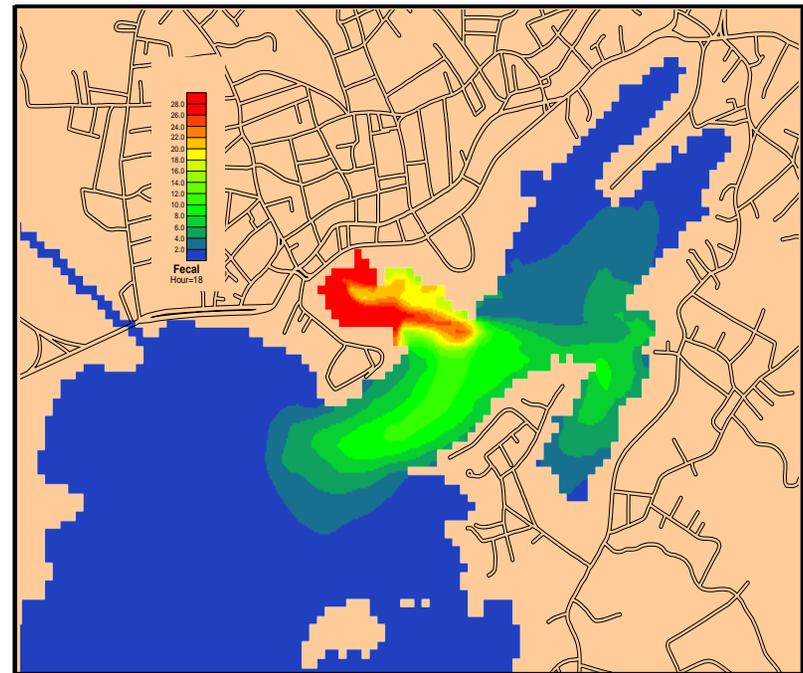
Typical Predictive Analyses

Parameter (Topic)	Type of Analysis	Relation to Impact Criteria
Public Health	Quantify type and amount of air pollutants generated from the project (short/long term)	Increase in potential incidence of asthma, other air induced illnesses
Hazardous Waste	?	?
Land Use	?	?

Use of Predictive Models

Important factors in reviewing models:

- Relevant to evaluation criteria (will it predict information)?
- Inputs to model clearly stated?
- Assumptions about model inputs described?
- Model source provided (who developed it)?
- Is there an interpretation of model results?
- Are conclusions clear?
- Do conclusions provide targeted information?



Models Used in Technical Analyses

Model	Type of Model and Application
Noise	<ul style="list-style-type: none">• Cadna A - predicting noise levels, including traffic noise• SoundPLAN - predicting noise levels, including traffic noise
Traffic	<ul style="list-style-type: none">• Synchro - intersection and roadway analysis (can be animated with SimTraffic)• Autoturn - simulates vehicle turning movements
Air Quality	<ul style="list-style-type: none">• MOVES - motor vehicle emissions simulator• AERMOD - air dispersion model for short range (up to 50 kilometers) for emissions from stationary sources

Models Used in Technical Analyses (cont.)

Model	Type of Model and Application
Hydrologic and Water Quality Models	<ul style="list-style-type: none"> • EFDC—Three-dimensional hydrodynamic and water quality model • MIKE 21—Two-dimensional (horizontal) hydrodynamic and water quality model • WASP—EPA water quality model for toxics and eutrophication • CEQUAL-W2—Two-dimensional (vertical) hydrodynamic and water quality model for lakes and estuaries • RMA-2/4—Two-dimensional flow and water quality model • PLUMES—Water quality model simulating dilution over long sequence conditions • CORMIX—Water quality mixing zone model • FLUENT—Computational fluid dynamic model of flow, turbulence and heat transfer • MODFLOW/MODPATH—Three-dimensional groundwater flow, particle tracking, and contaminant transport

Models Used in Technical Analyses (cont.)

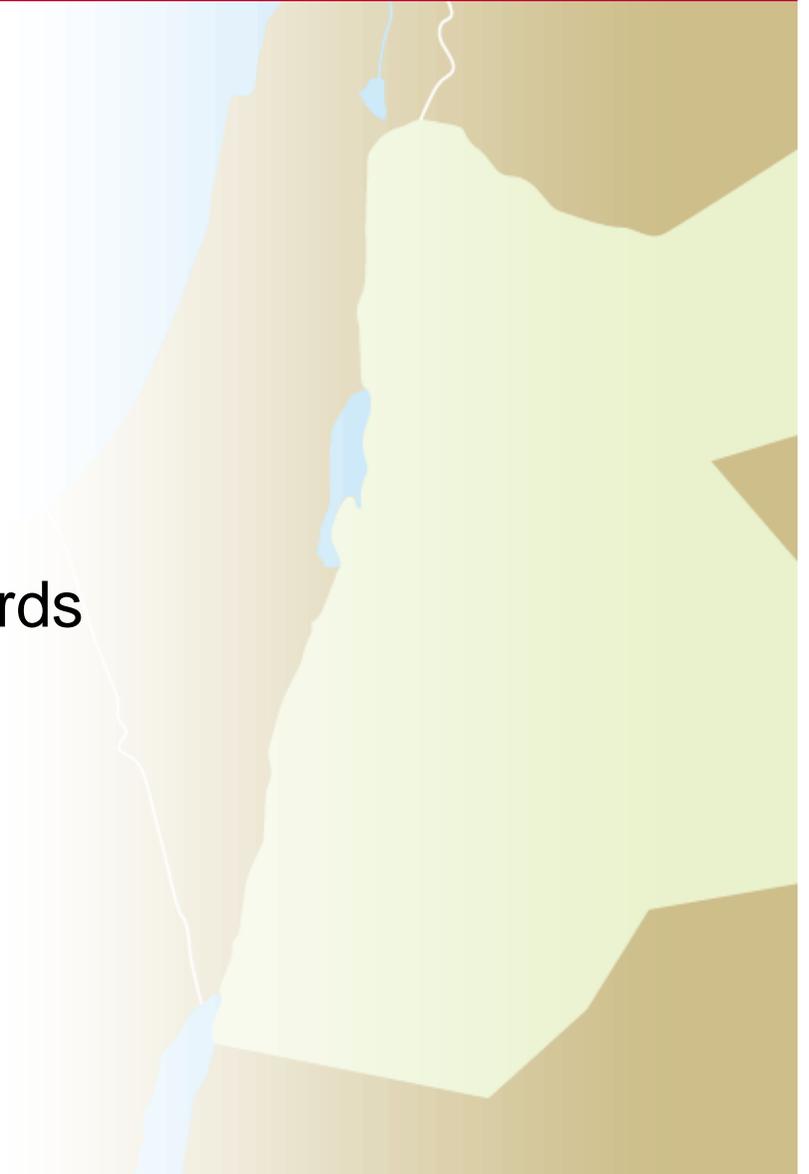
Model	Type of Model and Application
Hydrologic Models	<ul style="list-style-type: none">• PHP—Plant Hydraulic Profile• DIMHY—Diffuser manifold hydraulics• WHAM—Water Hammer• Fluent and Flow 3D• CFD (computational fluid dynamics)

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Determining Impact and Significance of Impact

- Compare outcome of technical analyses to impact criteria
- Compare impacts to proposed significance criteria
- Impact and significance criteria should relate to quantitative or qualitative performance standards identified



Evaluation, Impact and Significance Criteria

Topic	Evaluation Criteria	Impact Criteria	Significance Criteria
Land Use	Change in land use on adjacent sites or land use in vicinity of proposed project	Displacement of current or planned use	<i>Significant if current or planned use would be eliminated and use is of public benefit</i>
		Compatibility with surrounding area	<i>Significant if extreme disruption to surrounding land uses</i>
		Interference with existing or future view and/or neighborhood character	<i>Significant if deterioration in view or major detriment to other activities in neighborhood</i>
		Consistency with local zoning	<i>Significant if not allowed by zoning</i>

Evaluation, Impact and Significance Criteria

Topic	Evaluation Criteria	Impact Criteria	Significance Criteria
Air Quality	Change in type or volume of emissions	Change that would result in raising or lowering air quality levels to above or below air quality standards	<i>Emissions significant if greater than 5 tpy</i>
		Increase or decrease of dust to level above or below nuisance level	<i>Dust significant if can not be prevented through seeding, paving, covering, or wetting</i>
		Increase or decrease of odor emissions to level above or below nuisance level	<i>Odor significant if H2S greater than 10ppb</i>

Evaluation, Impact and Significance Criteria

Topic	Evaluation Criteria	Impact Criteria	Significance Criteria
Noise	Increase or decrease in noise level or tone	Increase or decrease in noise levels above or below regulatory requirements or ambient conditions	<i>Significant if exceeds maximum noise level allowed for either operation or construction (i.e >5db)</i>
Traffic	Change in capacity of roadway; change in risk to safety; change in delay at signalized or unsignalized intersections	Increase in vehicle traffic that increases or decreases the level of service (LOS) of intersection	<i>Significant if lowers LOS by one or more levels</i>
		Addition or elimination of travel or turning lanes to increase or decrease roadway capacity or parking	<i>Significant if removes one lane of travel or parking</i>

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Topic	Evaluation Criteria	Impact Criteria	Significance Criteria
Natural Resources	Change in total area for resources or change in quality of habitat	Increase or decrease in area available for fauna or flora; change in habitat characteristics	<i>Significant if loss of area or habitat to support fauna or flora of special local importance or protected species</i>

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Determine Appropriate Mitigation Needs

Mitigation may be needed to reduce potential significant impacts to acceptable levels.

Considerations:

- Targeted to impact of concern
- May be temporary (construction related) or permanent
- Must be “do-able”; if mitigation not do-able, project jeopardized
- Must be reasonable cost

Annex 5

“Determining suitable measurements with low cost to mitigate negative impacts to be within acceptable limits...determine institutional, training, and monitoring requirements for these measurements...”

Examples of Mitigation

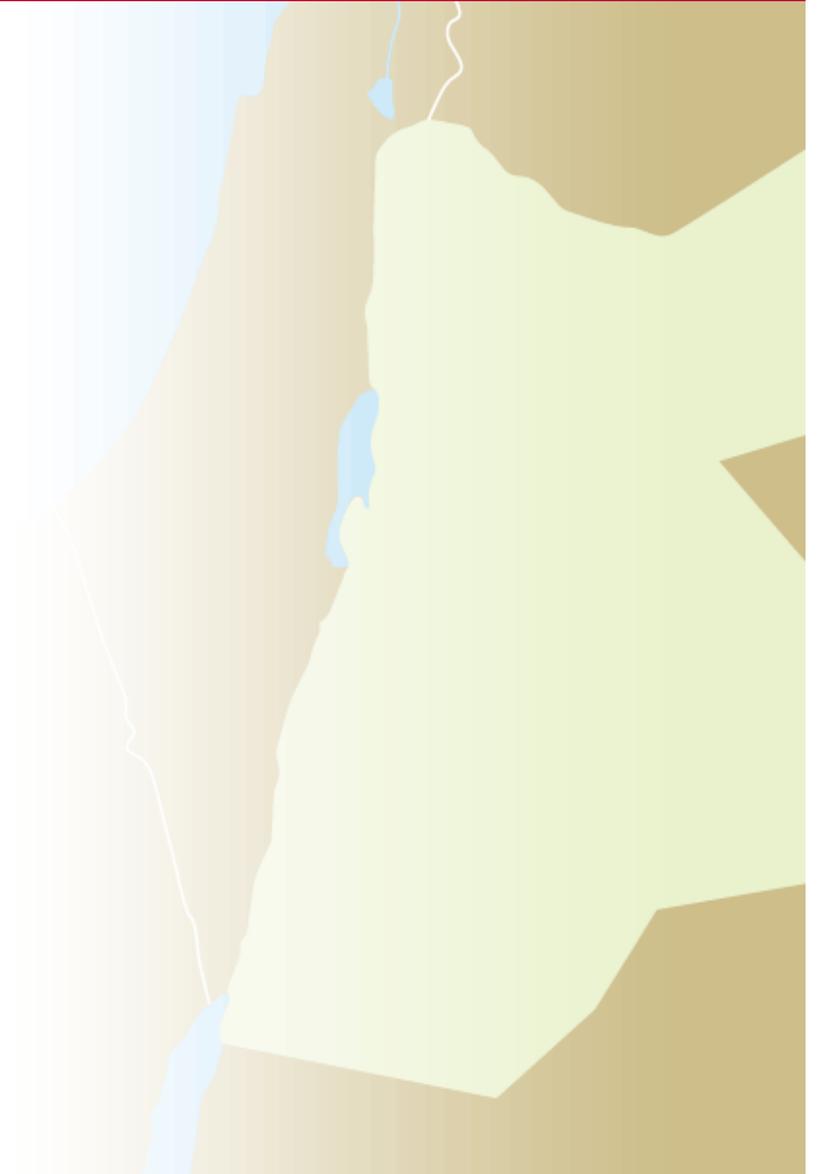
Topic	Potential Effect	Proposed Mitigation
Noise	Elevated noise levels at construction site boundary in excess of regulatory limits	<ul style="list-style-type: none">• Confine construction work to normal working hours• Maintain proper noise suppression devices• Provide noise barriers• Provide acoustical protection for pumps and any other potential noise sources
Traffic	Decline in LOS and roadway capacity on major access roads to site	<ul style="list-style-type: none">• Design and implement construction traffic controls• Post traffic detail as appropriate• Schedule material deliveries to avoid rush hours• Identify construction access locations and construction material• Laydown sites to avoid key intersections

Examples of Mitigation (cont.)

Topic	Potential Effect	Proposed Mitigation
Air Pollution	Dust from construction activities	<ul style="list-style-type: none">• Minimize exposed surfaces including stockpiles• Apply wetting agent to site• Cover all dump trucks and other equipment carrying dirt
Traffic	Change in character of area; loss of scenic vista	<ul style="list-style-type: none">• Provide screening during construction• Plant vegetative buffer to help screen for long-term operation• Design facilities or structures to complement surrounding structures

Your Experience with Mitigation

- Provide examples of mitigation on recent projects you have worked on
 - Appropriate?
 - Not appropriate?



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Elements of Monitoring Plan

- Identifies responsible party for monitoring
- Confirms sufficient resources (funds, staff) to undertake monitoring
- Identifies what (water quality, noise levels, etc) is to be monitored
- Identifies specific monitoring measures
- Provides information on how effectiveness will be measured

Annex (5):

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

Elements of Monitoring Plan (cont.)

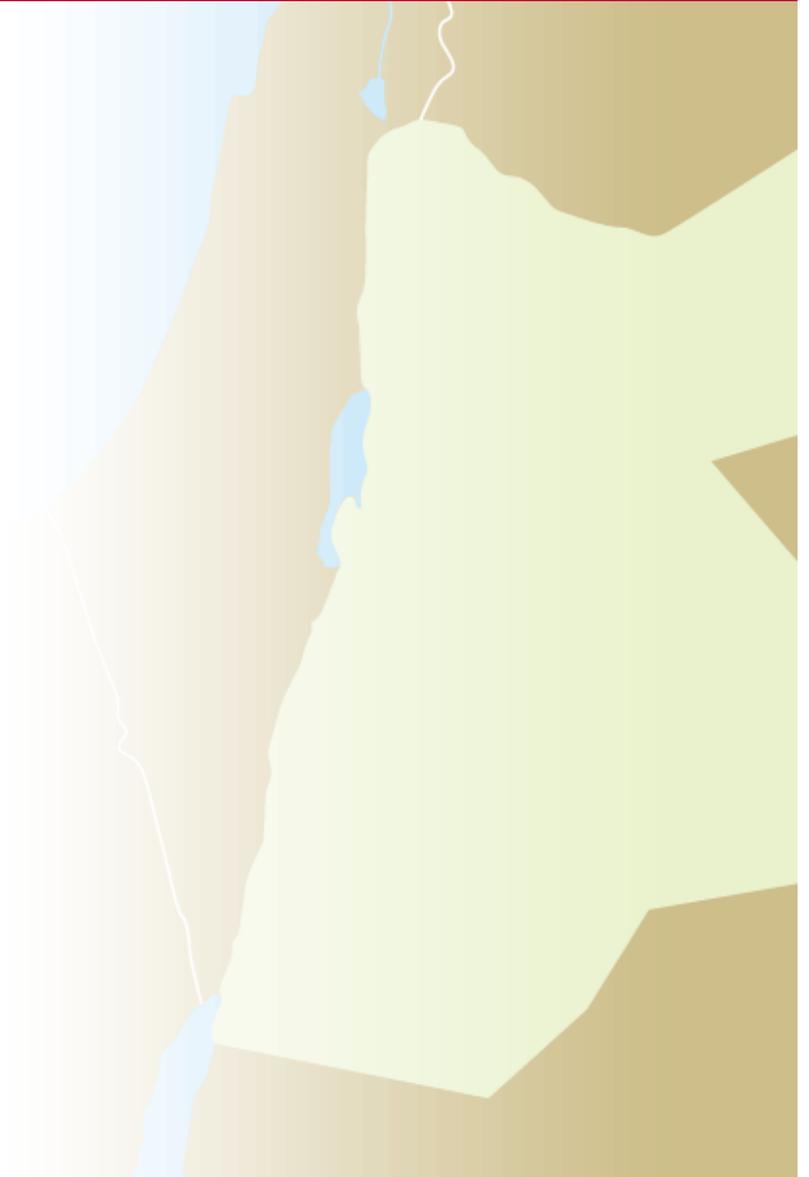
- Defines period and frequency of monitoring
- Spells out reporting requirements
- Indicates if specific training needed
- Indicates what happens if monitoring shows impacts not reduced

*Consider anticipated expectations or requirements of other directorates which may have involvement once construction or operation begins—
Inspection and Enforcement,
Environmental Rangers
etc*

References

- City Environmental Quality Review (CEQR) Technical Manual, 2012 Edition, City of New York, Mayor's Office of Environmental Coordination, June 2012
- Bureau of Land Management, Examples of Purpose and Need Statements, August 2010
- EIA: A Framework for ESDM: USAID and Partners, Luxor March 2010
- Pacific Northwest National Laboratory 2010
- Principles of Environmental Impact Assessment Review and Week 1 USEPA and Malian Ministry of Environment Mentoring Program, Mali, February 2010
- Pyramids Plateau Groundwater Lowering Activity Environmental Assessment, USAID, 2010
- Cape Wind Energy Project, Draft Environmental Impact Statement, Cape Wind Associates LLC, 2006

CASE STUDY



Project Description

- ACE Power Company proposes to construct 350-MW generating facility
- 5-hectare site in center of 30-hectare industrial park
- State-of-the-art technology to supply electricity
 - Uses natural gas
 - Uses 28% less fuel than typical steam generation
- Closed loop cooling water system
 - No discharge anticipated
- Water from city reclamation facility will be used in cooling tower
- Close to residential area
- Several contentious issues

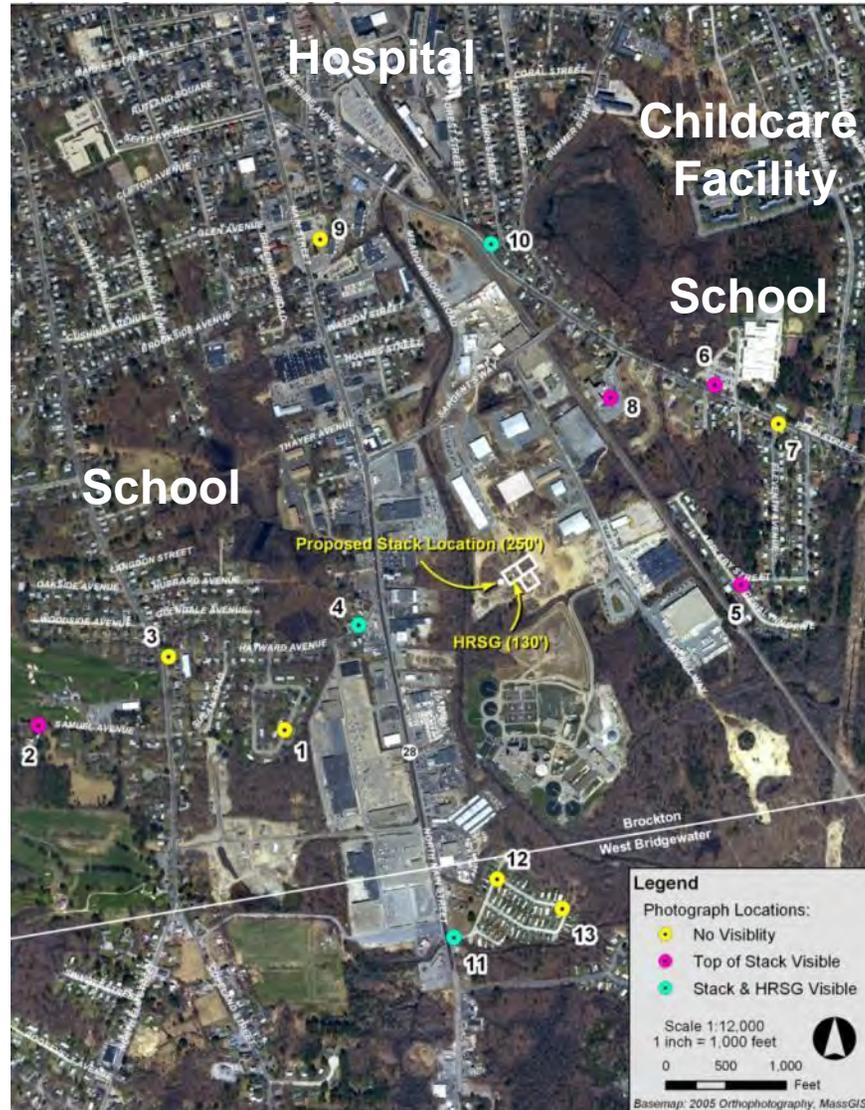
CASE STUDY

Project Rendering



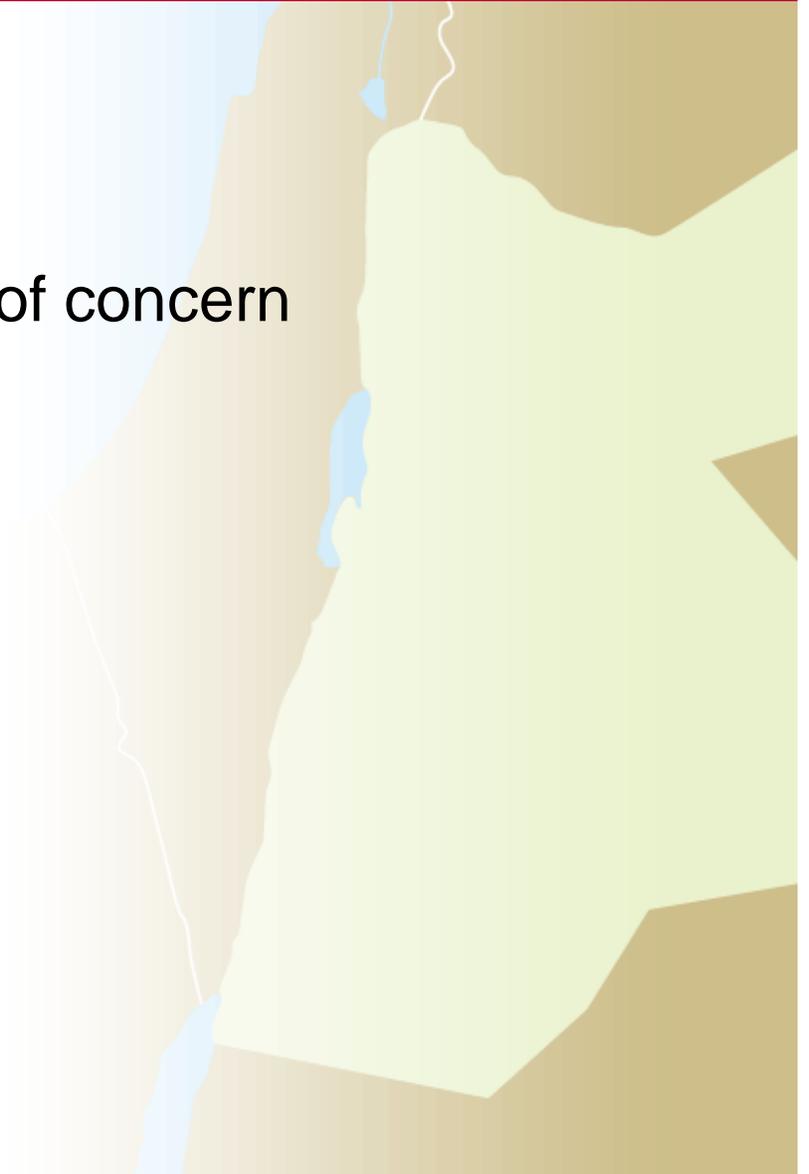
CASE STUDY

Project Site and Surrounding Area



Identify the Following

- Project purpose and need
- Technical topics of concern
- Study area for technical topics of concern
- Evaluation criteria
- Impact criteria
- Significance criteria
- Likely mitigation
- Likely monitoring





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FROM THE AMERICAN PEOPLE

USAID Water Reuse and Environmental Conservation Project

Technical Review of EIA Studies

Betsy Shreve-Gibb
EIA Specialist

11 October 2012
Implemented by AECOM





EIA Review Training for the Ministry of Environment

EIA Review Workshop 2 – Agenda

18 October 2012

9:00 – 9:15 AM	Welcome and Overview
9:15 – 10:00	Summary and Highlights from Workshop I
10:00 – 10:45	Additional Issues and Practices <ul style="list-style-type: none">• Discussion• Examples• Exercises
10:45 – 11:15	Coffee Break
11:15 – 12:30	Additional Issues and Practices (continued) <ul style="list-style-type: none">• Discussion• Examples• Exercises
12:30 – 13:00	Test
13:00 – 13:30	Summary and Closing
13:30 – 14:30	Lunch



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FROM THE AMERICAN PEOPLE

USAID Water Reuse and Environmental Conservation Project

Advanced Technical Review of EIA Studies (Workshop 2)

Betsy Shreve-Gibb
EIA Specialist

18 October 2012
Implemented by AECOM



Today's Agenda

9:00 – 9:30	Registration
9:30 – 10:00	Summary and Highlights from Workshop 1
10:00 – 11:30	Additional Issues and Practices - Discussion, examples, exercises
11:30 – 12:00	Test
12:00 – 12:30	Coffee Break
12:30 – 13:30	EIA and Licensing Procedures
13:30 – 14:30	Lunch

Summary of Critical Elements of EIA Review

Critical Element	What to look for
Description, purpose and need	Clearly stated
Alternatives	Reasonable range identified Feasible
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Additional Issues and Practices

- **Monitoring within the EIA process**
 - Indirect versus direct impacts
 - Cumulative impacts
 - Best available technologies
 - Project tracking
 - EIA organization
- 

Example Monitoring Plan – Construction

Proposed mitigation measure	Parameters to be monitored	Additional inspection items	Measurement frequency	Institutional responsibilities	
				Enforcement	Reporting
Measures for minimizing dust ; AQ emission control on equipment	Ambient air: CO ₂ , CO, NO _x , SO ₂ , PM ₁₀	Site inspections & review of site plans;	Daily site inspection; weekly air monitoring	Contractor Third party supervisor	Supreme Council for Antiquities
Provide noise mufflers on construction equipment and install noise barrier	Noise levels (dBA, Leq)	Review weekly logs of complaints of noise pollution;	Weekly	Contractor Third party supervisor	

Example Monitoring Plan – Construction

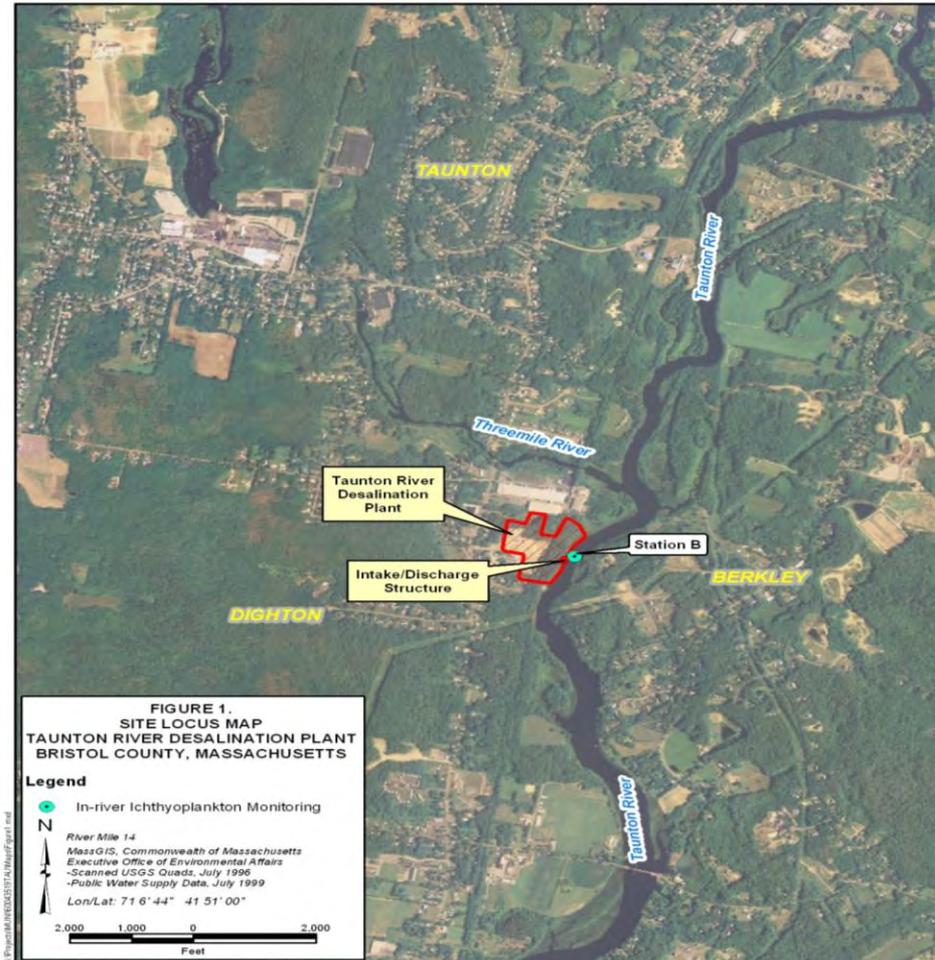
Proposed mitigation measure	Parameters to be monitored	Additional review	Measurement frequency	Institutional responsibilities	
				Enforcement	Reporting
Proper storage of construction and solid waste material	Construction debris, trash, and collection and removal practice	Site, stockpile and truck inspection	Daily during demolition and excavation; weekly during construction	Contractor Third party supervisors	Supreme Council for Antiquities
Measures to protect work environment	Application of workers' health and safety procedures	Health and safety inspection protocol	Daily	Contractor Third party supervisors	

Example Monitoring Plan – Operation

Proposed mitigation measure	Parameters to be monitored	Additional review	Measurement Frequency	Institutional Responsibilities	
				Enforcement	Reporting
Discharge of pumped groundwater	BOD, COD, pH, oil & grease, temperature, TSS, TDS, settleable solids, chlorine, salinity, heavy metals (Fe, Mn, Hg, Cr, Cd, Pb)	Inspection of receiving water	Weekly	SCA	Egyptian Environmental Affairs Agency Ministry of Health and Population Ministry of Water Resources and Irrigation
Discharge pump operation	Noise emission from pump stations		Every 3 months minimum	SCA	EEAA, MoHP

Monitoring Frequency and Location - Example

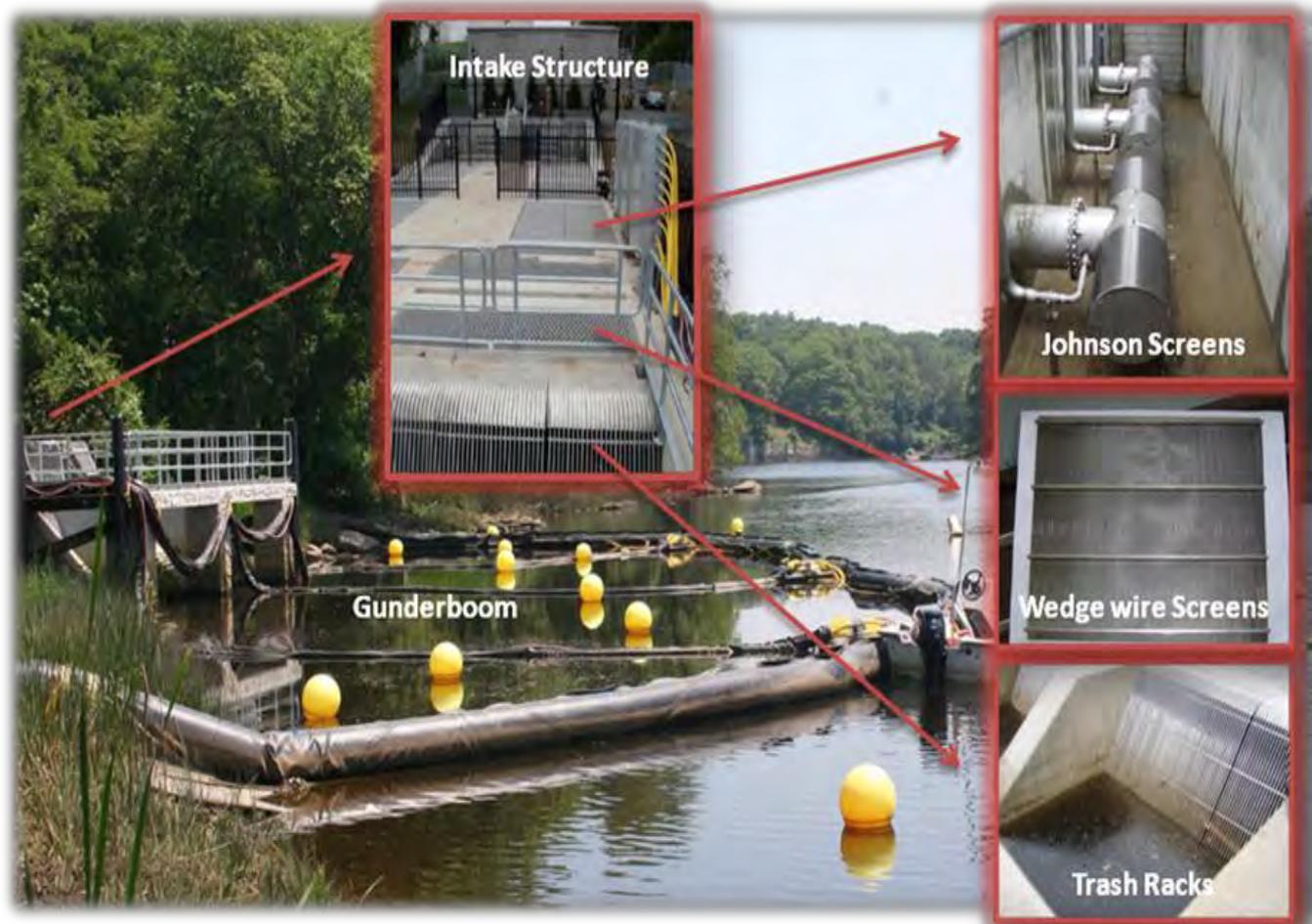
- EIA for desalination plant identified need for operational fisheries monitoring
- EIA monitoring plan identified location and frequency of monitoring required



Monitoring Frequency Specified

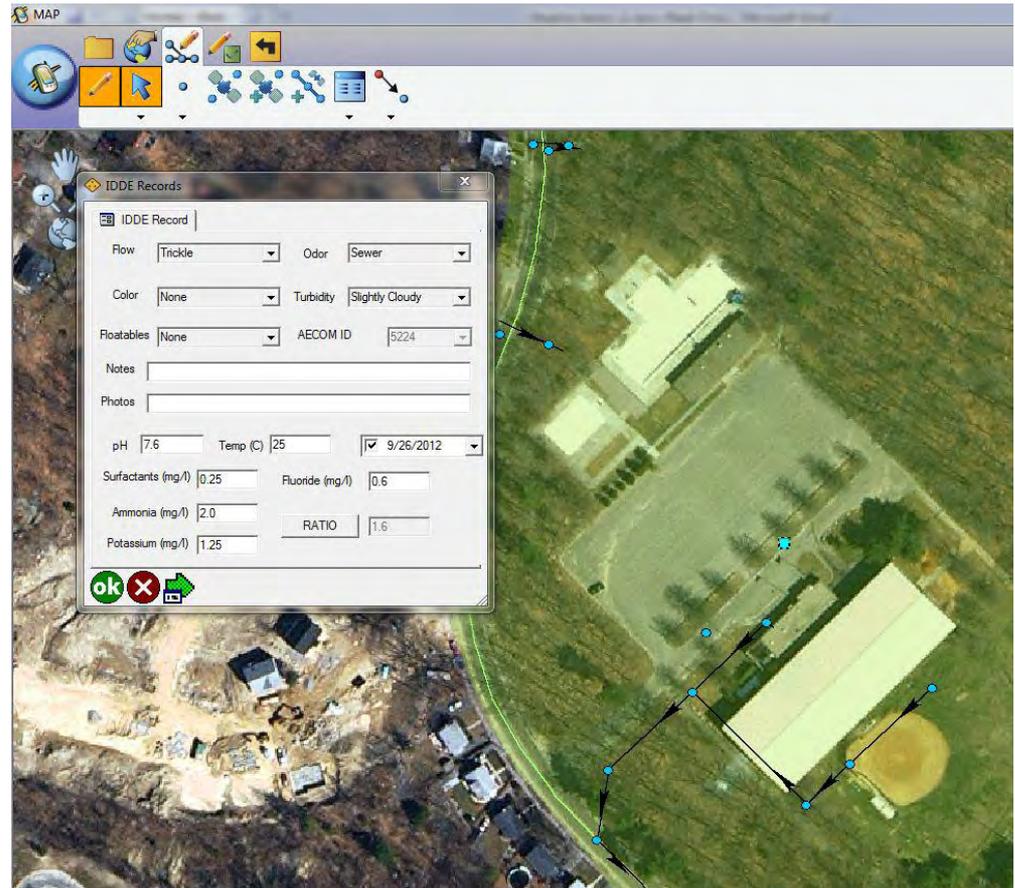
Location of Monitoring	March 1– April 15	April 16– June 15	June 16 – November 15
Impingement of Eggs and Larvae			
<i>-Gunderboom</i>	2/week	2/week ¹	2/week
<i>-Johnson Screens</i>	1/week	1/week	1/week
<i>-Wedge Wire</i>	1/month	1/month	1/month
Entrainment of Eggs and Larvae			
<i>-Intake Structure</i>	1/week	1/week	1/week
<i>-Raw Water Pump Station</i>	3/week	3/week	3/week
In-River			
<i>-Ichthyoplankton Station B</i>	3/week	4/week ²	3/week

Monitoring Location Specified



Monitoring Tools

- Specific monitoring locations and checklists should be included in EIA, if known
- Electronic data collection forms can reduce errors, time, and cost
- Electronic data can be imported to EIA data base



Additional Issues and Practices

- Monitoring within the EIA process
- **Indirect versus direct impacts**
- Cumulative impacts
- Best available technologies
- Project tracking
- EIA organization



Definitions

Direct Impacts

- Occur as direct result of proposed project at the same time and place
- Also known as primary or direct effects

Indirect Impacts

- Caused by the action and may be later in time or farther removed in distance, but are still reasonably foreseeable
- Wider-range consequences than direct impacts
- May be called secondary or indirect effects

Constructing a New Outfall

- Direct** • Rise in water elevation in river results in flooding adjacent land
- Direct** • New outfall pipe crosses site of protected plant species
- Indirect** • Area is more desirable due to better water quality and thus housing demand increases



New Auto Manufacturer In Residential Neighborhood

Topic	Direct Impact	Indirect Impact
Land Use		
Water supply		
Traffic		
Ancient resources		
Biological resources		

Additional Issues and Practices

- Monitoring within the EIA process
- Indirect versus direct impacts
- **Cumulative impacts**
- Best available technologies
- Project tracking
- EIA organization



Definition

- Result when the effects of an action are added to, or interact with, other effects in a particular place within a particular time
- Combination of these effects, and any resulting impacts, are focus of cumulative impact analysis

Annex (4)

A project impacts the environment if there is:

Overlapping with other projects

Overlapping with movements of fish and wild animals or their habitats

Overlapping with recreational, educational, scientific, religious uses

Assessing Cumulative Impacts

What to consider:

- Is resource especially vulnerable to incremental effects
- Is proposed action one of several similar actions in same geographic area, or are there other actions with similar effects
- Whether these effects have been historically significant for this resource
- Whether other analyses in the area have identified a cumulative effects concern

Evaluating Cumulative Impacts

Topic	Impact from Proposed New Solid Waste Processing Facility	Additional Projects in Vicinity including Power Plant
Water Quality	Processing facility effluent discharge to local waterway	Existing power plant discharges cooling water to waterway downstream of landfill
Noise	Noise from waste hauler trucks and emergency generator at facility	?
Air Quality	Odors from solid waste and emissions from waste processing facility	?

Additional Issues and Practices

- Monitoring within the EIA process
- Indirect versus direct impacts
- Cumulative impacts
- **Best available technologies**
- Project tracking
- EIA organization



Defining Best Available Technologies

- Definitions vary by country and application
- “Moving target” based on advances in technologies and changes in regulation
- Should be evaluated based on specific pollutants and receiving environment
- Effectiveness and cost may be key factors in selection

From Ireland’s Environmental Protection Agency Acts and Waste Management Acts:
“Most effective and advanced stage in the development of an activity and methods of operation, which indicate the practical suitability of techniques to provide basis for emission limit values designed to prevent or eliminate or, where that is not practicable, to reduce an emission and its impact on the environment as a whole.”

Defining Best Available Technologies

Term	Country Source	Definition	Application
Best Available Techniques	EU	(BAT) is defined in EU directive on integrated pollution prevention and control and is developed on a scale which allows implementation in relevant industrial sector, under economically and technically viable conditions, taking into consideration both costs and advantages	Multiple
Best Available Control Technologies	USA	BACT is emission limitation based on maximum degree of reduction of each pollutant that permitting authority... determines is achievable through application of production processes and available methods	Air Quality
Best Practicable Environmental Option	UK	BPEO is outcome of decision making process which emphasizes protection and conservation across land, air and water. The BPEO procedures establish option that provides most benefits or least damage to environment as a whole at acceptable cost in both long and short term.	Multiple

Defining Best Available Technologies

Term	Country Source	Definition	Application
Best Practicable Control Technology Currently Available (BPT)	USA	Factors assessing BPT include consideration of total cost of application of technology in relation to the effluent reduction benefits to be achieved, and shall also take into account age of equipment and facilities involved, the process employed, engineering aspects of the application of various types of control techniques, process changes, etc.	Water Quality

Additional Issues and Practices

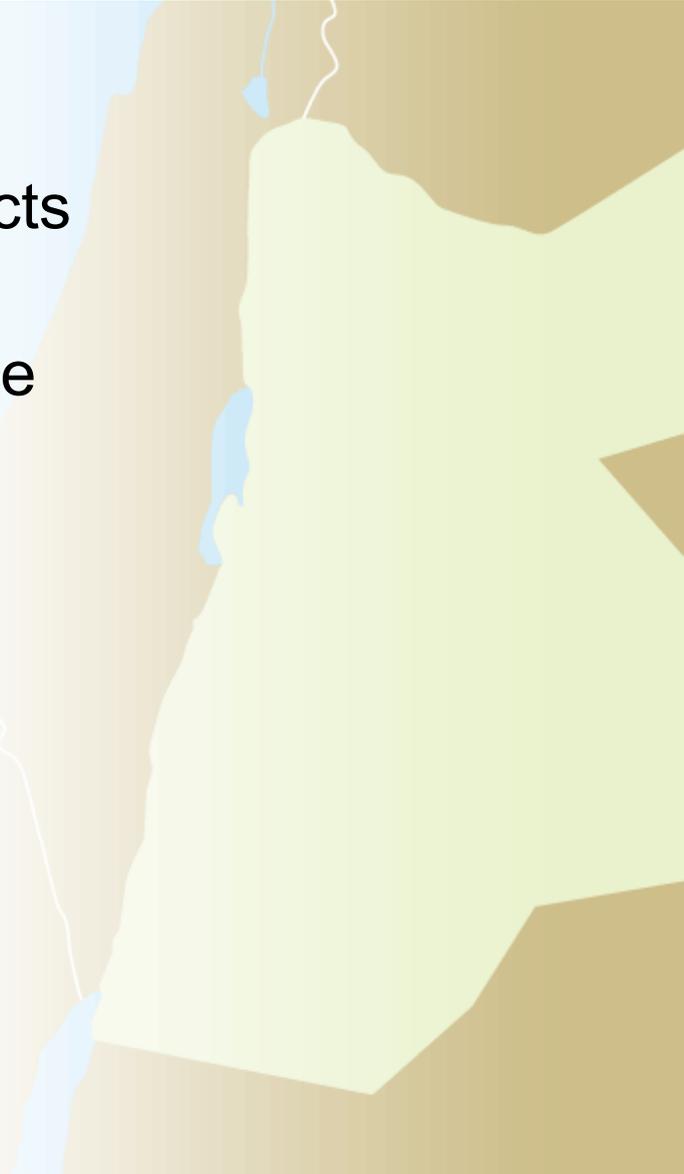
- Monitoring within the EIA process
- Indirect versus direct impacts
- Cumulative impacts
- Best available technologies
- **Project tracking**
- EIA organization



Benefits of Tracking Projects

Excellent source of information for:

- Reviewing other EIAs for new projects in same geographic area
- Reviewing other EIAs for similar type projects in other locations
- Assessing cumulative effects
- Evaluating project monitoring and inspection data



Tracking Tools

- Multiple database programs available
- Range from low-cost simple spreadsheet databases to more complex tools
- Establish key tracking parameters you want before committing to a tool
- Tools should allow sorting and searching

Key word search capability is critical:

Type of project:
solid waste landfill,
industrial wastewater

Location of project:
i.e. Amman, Petra

Technical parameter:
air quality, noise, traffic

Tracking Tools – Database Example

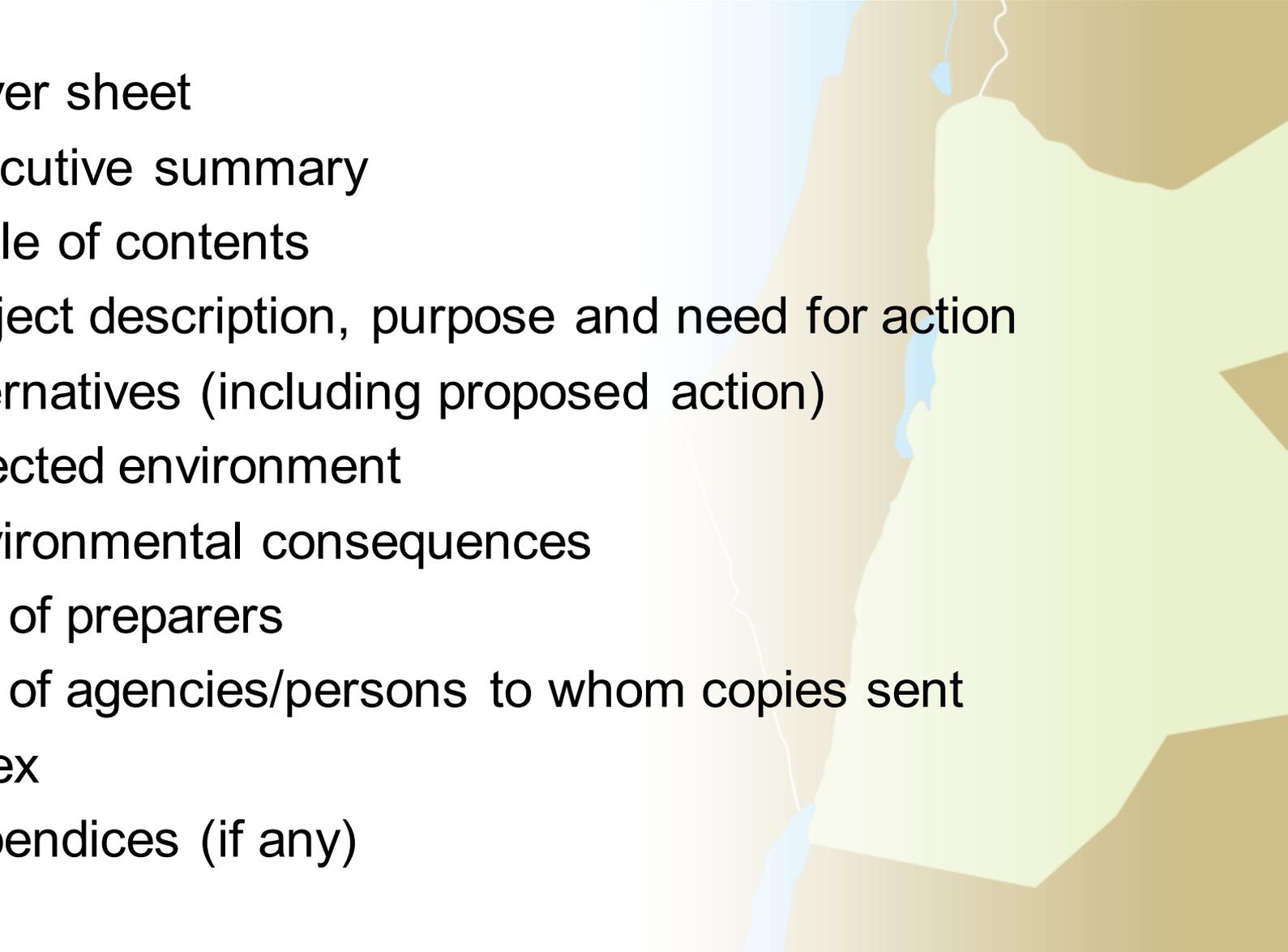
City – Town (Watershed) ^	Facility Name ◆	Permit Number ◆	Date of Issuance ◆
Acton (Assabet River)	Powder Mill Plaza WWTP (PDF) (11 pp, 125K)	MA0028835	06/05/2006
Acushnet (Acushnet River)	P.J. Keating Company (PDF) (12 pp, 116K)	MA0029297	09/12/2007
Adams (Hoosic)	Adams Waterwater Treatment Plant POTW (PDF) (14 pp, 189K)	MA0100315	07/13/2005
Adams (Hudson)	Specialty Minerals Inc (PDF) (10 pp, 60K)	MA0005991	09/16/2003
Allston (Charles River)	CSX Transportation, Inc [MODIFICATION] (PDF) (16 pp, 153K)	MA0025704	02/02/2006
Allston (Charles River)	CSX Transportation, Inc (PDF) (16 pp, 174K)	MA0025704	07/01/2005
Allston (Charles River)	Genzyme Corporation (PDF) (19 pp, 82K)	MA0040291	05/01/2009
Amesbury (Merrimack River)	Amesbury Water Pollution Abatement Facility (PDF) (43 pp, 230K)	MA0101745	08/24/2010
Amherst (Connecticut River)	Bioshelters, Inc. (PDF) (9 pp, 82K)	MA0110281	12/17/2002
Amherst (Connecticut River)	Amherst, Town of (PDF) (94 pp, 755K)	MA0100218	06/26/2012
Amherst (Connecticut River)	Amherst, Town of (PDF) (11 pp, 114K)	MA0100218	09/29/2006
Amherst (Connecticut River)	University of Massachusetts in Amherst (PDF) (6 pp, 37K)	MA0032689	12/30/2003
Ashland (Concord River)	Ashland Sand and Stone Inc. (PDF) (6 pp, 36K)	MA0000132	11/21/2003
Athol (Millers River)	Athol Wastewater Treatment Plant (PDF) (45 pp, 396K)	MA0100005	06/24/2008

Additional Issues and Practices

- Monitoring within the EIA process
- Indirect versus direct impacts
- Cumulative impacts
- Best available technologies
- Project tracking
- **EIA organization**



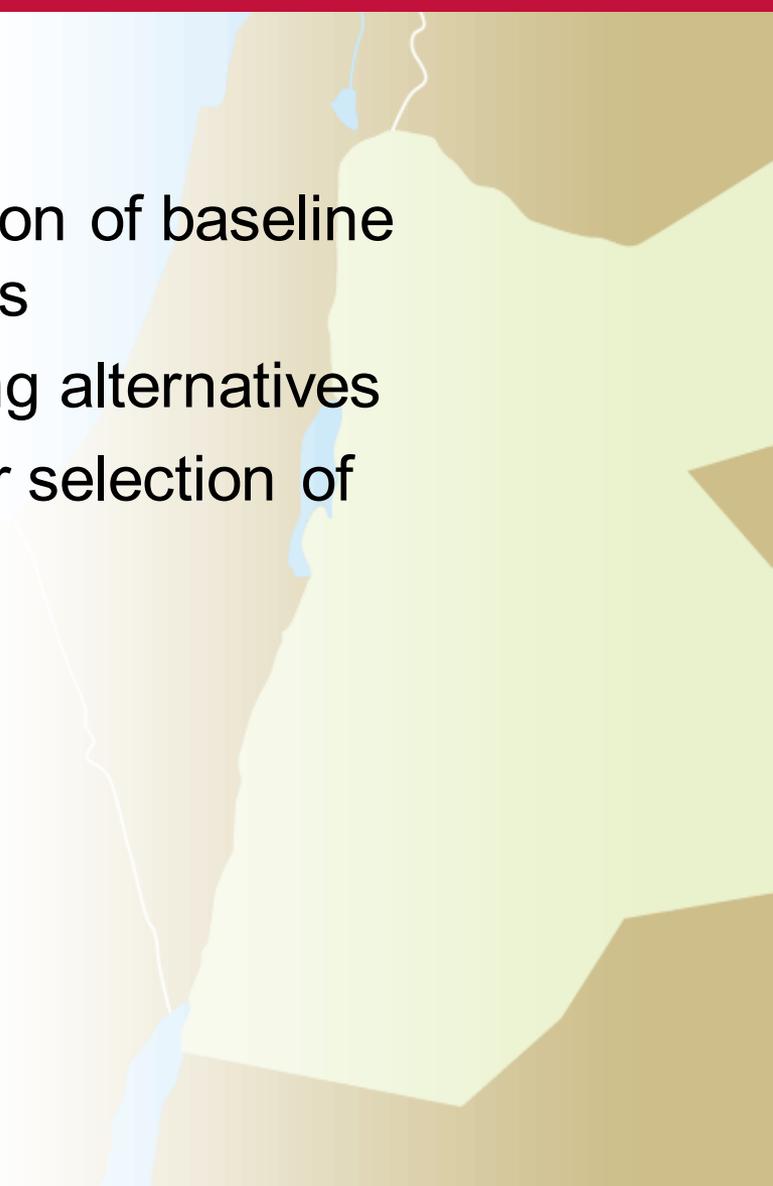
Simple EIA Outline

- Cover sheet
 - Executive summary
 - Table of contents
 - Project description, purpose and need for action
 - Alternatives (including proposed action)
 - Affected environment
 - Environmental consequences
 - List of preparers
 - List of agencies/persons to whom copies sent
 - Index
 - Appendices (if any)
- 

Consideration for Baseline and Technical Analyses

Presentation should:

- Minimize redundancy in discussion of baseline conditions and technical analyses
- Allow for easy comparison among alternatives
- Clearly demonstrate rationale for selection of preferred alternative



References

Sources:

- National Pollutant Discharge Elimination System (NPDES) Permits in New England, Massachusetts Final Individual Permits, Available at: http://www.epa.gov/region1/npdes/permits_listing_ma.html, Accessed October, 2012
- City Environmental Quality Review (CEQR) Technical Manual, 2012 Edition (Revised 6/18/12), City of New York, Mayor's Office of Environmental Coordination
- Taunton River Desalination Plant, Operational Monitoring Plan, January 2012
- Brockton Power Company, LLC, Final Environmental Impact Report, Brockton Clean Energy, Epsilon Associates Inc. February 2008.
- Waste Management Acts 1996 and 2005 Section 5(2), Ireland
- Environmental Protection Agency Acts (Ireland), 1992 and 2003, Section 5

References

Sources:

- Clean Water Act, Section 304(b)(1)
- Select Committee on European Communities, Seventeenth Report, 1998 reference to RCEP 12th Report, Best Practicable Environmental Option, Cm 310, HMSO, February 1988.

TEST



Appendix C. Workshop Materials, April 2014



Draft Guidance for Preparing Environmental Assessments Workshop

April 2014

8:30 – 9:00 AM	Registration and Coffee
9:00 – 12:30	Introductions, and Overview and Discussion of EIA process, EIA Requirements, and Comprehensive EIA Document (including one break)
12:30 – 13:00	Discussion
13:00 – 14:00	Lunch and Mid-day Prayers



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USAID Water Reuse and Environmental Conservation Project

Draft Guidance for Preparing Environmental Impact Assessments

وزارة البيئة

April 2014

*Implemented by MoEnv
with assistance from AECOM*





PRESENTATION OUTLINE

- Overview of EIA process and requirements
 - Approval process
 - Initial versus comprehensive
- Comprehensive EIA components
 - Front matter
 - Chapters 1-10
 - References and appendices



JORDAN LAWS AND REGULATIONS

EIA required by

- Environment Impact Assessment Regulations of 2005 (No. 37)
 - Annexes 1-5
- Environmental Protection Law of 2006 (No. 52)

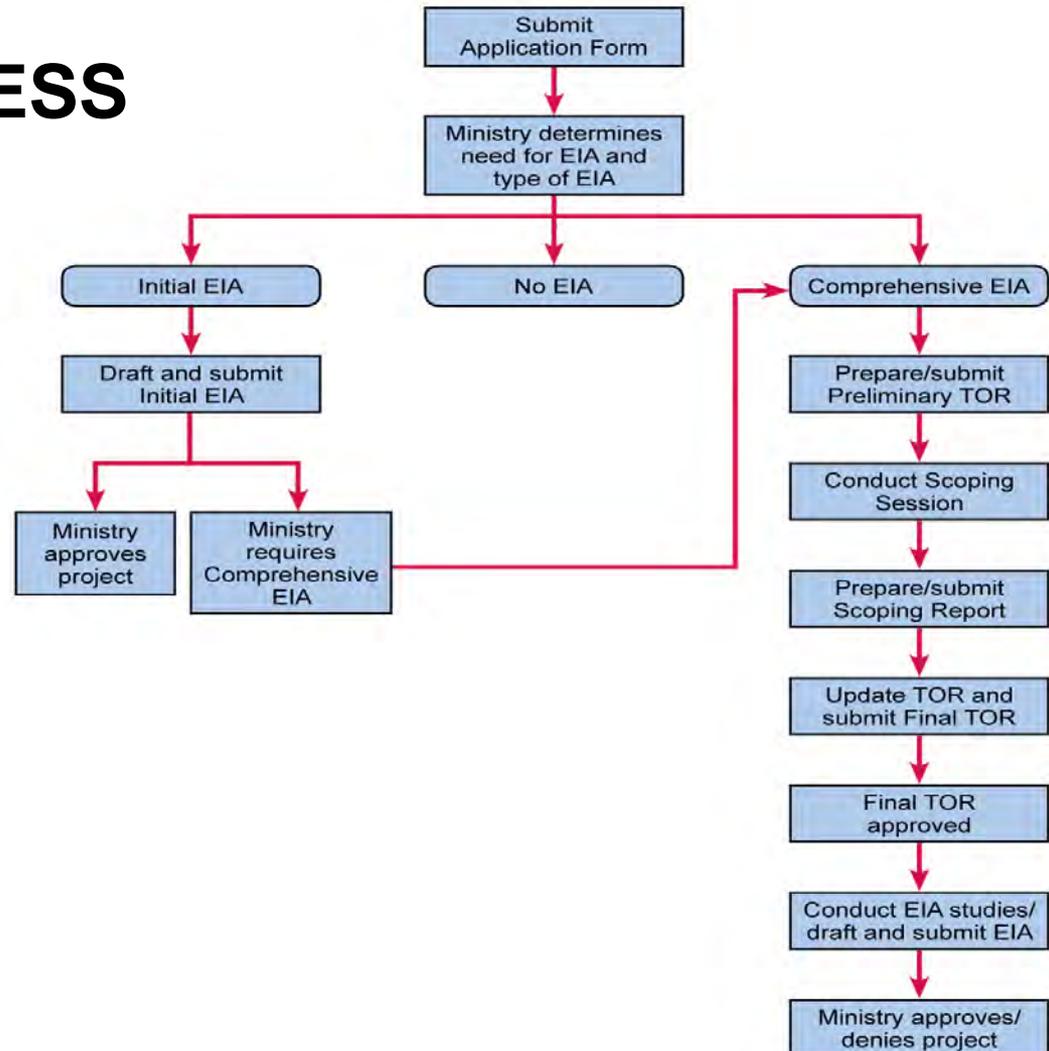
ANNEXES of EIA REGULATIONS of 2005

- 1: General information required*
- 2: Projects requiring comprehensive EIA*
- 3: Projects requiring initial EIA*
- 4: Types of environmental impacts*
- 5: EIA study components*



ENVIRONMENTAL APPROVAL PROCESS

- MoEnv determines Initial or Comprehensive EIA
- Initial (Preliminary)
 - Annex 3
- Comprehensive
 - Annex 2





INITIAL VS COMPREHENSIVE DOCUMENTS

- Initial (Preliminary)
 - Rationale and methods used to select potential impacts for study plan
 - Assessment of potential impacts
 - Mitigation measures to prevent significant impacts/need for Comprehensive EIA
 - Recommendation regarding need for Comprehensive EIA
- Comprehensive
 - Description of methods used to evaluate impacts
 - Assessment of impacts anticipated if project is built
 - Mitigation measures to reduce impacts
 - Environmental, Health, and Social Management



INITIAL VS COMPREHENSIVE LEVEL OF DETAIL

EIA Section	Initial	Comprehensive
Baseline Conditions	Characterizations based on available data, mapping, site reconnaissance	Detailed field studies and sampling data
Impact Assessment	Best professional judgment based on data available, basic analysis and similar project examples	Detailed predictive modeling and evaluations (as relevant)
Risk Assessment	Not required	TOR should identify if Risk Assessment required



INITIAL EIA OUTLINE

Initial EIA Outline

Front Matter

Executive Summary

1. Project Description

2. Legal and Administrative Matters

3. Alternatives to the Project

4. Methods (Rationale for Selecting Potential Impacts for Study Plan)

5. Baseline Conditions (refer to Annex 4)

6. Assessment of Impacts

7. Mitigation Measures

8. Environmental, Health, and Social Management

9. Recommendation Regarding Comprehensive EIA

References

Appendices



COMPREHENSIVE EIA OUTLINE

Component/ Chapter	Content
Front Matter	Title Page, Table of Contents, List of Acronyms
Executive Summary	Brief overview of project and findings
1. Project Description	Description of nature and location of project Clearly stated purpose and need
2. Legal and Administrative	Description of applicable laws and regulations
3. Alternatives to the Project	Description of alternatives, including no-action
4. Methods	Well-defined study area, evaluation criteria, analyses
5. Existing Environment	Description/ assessment of baseline conditions
6. Assessment of Impacts	Description/ assessment of potential impacts
7. Risk Assessment (if required)	Risk characterization, management and mitigation
8. Mitigation Measures	Measures to minimize and mitigate impacts
9. Environmental, Health, and Social Management	Monitoring measures, parameters to be monitored
10. Response to Comments	Response to comments on most recent EIA
References	List of references used to prepare EIA
Appendices	List of contributors, Staff CVs, Technical data



PRESENTATION OUTLINE

- Overview of EIA process and requirements
 - Approval process
 - Initial versus comprehensive
- **Comprehensive EIA components**
 - Front matter
 - Chapters 1-10
 - References and appendices



FRONT MATTER

- Title Page
- Table of Contents
 - EIA components, chapters and subsections
 - Figures
 - Tables
 - Appendices
- Acronyms and Abbreviations
- Glossary of Terms

GOVERNING BODIES	
JURISDICTION	
PROJECT NAME	
PROJECT LOCATION	
TYPE OF EIA	
PROJECT PROPONENT	
EIA PREPARER	
DATE OF FILING	
EIA SUBMITTED TO	



EXECUTIVE SUMMARY

- Include two versions:
Arabic and English
- Summarize EIA in clear non-technical language
 - Proposed action
 - Alternatives
 - Impacts
 - Mitigation
 - Risk assessment (if applicable)
 - Major conclusions of the assessment

***ANNEX 5 of EIA
REGULATIONS of 2005***

*Executive Summary
should include:*

*“...analysis of the
outcomes (conclusions)
and recommendations.”*



PROJECT DESCRIPTION, PURPOSE AND NEED

- Project description (Proposed Action)
 - Who, what, when, where
- Purpose and need
 - Why is project necessary
 - Clearly state project purpose
 - Define need for project
 - Identify related activities
 - Describe scoping process

ANNEX 1 of EIA REGULATIONS of 2005

Project description should include:

- *Nature of project*
- *Production processes*
- *Quality and quantity of expected wastes and emissions*
- *People and equipment for both construction and operation*



LEGAL AND ADMINISTRATIVE FRAMEWORK*

- Identify applicable laws, regulations and performance standards
 - List jurisdictional authorities responsible for implementing
 - Explain how each law is related to project and how each should be integrated into the EIA
- Provide list of permits, licenses, financial assistance, and land transfer that must be obtained to implement project

***ANNEX 5 of EIA
REGULATIONS of 2005***

*Legal and Administrative
Policy Framework should
include:*

*“...the legal and
administrative framework,
which relied on it to
prepare the policy”*

* Indicates topic requiring further discussion



ENVIRONMENTAL LAWS, REGULATIONS, STANDARDS*

Environmental Impact Assessment Regulation No.37 of 2005

The Environmental Protection Law No. 52 of 2006

Water Authority Law No.18 of 1988

Groundwater Control Regulation No.85 of 2002

Protection of Environment due to Emergency Cases No.26 of 2005

Soil Protection Regulation No.25 of 2005

Regulations for the Protection of the Air Regulation No.28 of 2005

Marine Environment and Coastal Protection Regulation No.51 of 1999

Natural Reserves and National Parks Regulation No.29 of 2005

Management, Transportation and Handling of Harmful and Hazardous Substances Regulation No.24 of 2005

Management of Solid Waste Regulation No.27 of 2005

Instructions for Hazardous Waste Management and Handling of 2003

Inspection Regime and Environmental Control – adjusted – No.52 of 2006

Inspection Regime and Environmental Control No.52 of 2006

The Environmental Protection Fund Regulation No.52 of 2006

Environmental Instructions

Consumed Oil Management and Handling Instructions of 2003

Noise Reduction and Prevention Regulations of 2003

Agriculture Law No. 44 of 2002



ALTERNATIVES TO PROJECT

- Process of identifying alternatives
- Alternative design, evaluation, and selection criteria
- Alternatives considered but eliminated
 - Shows a range of alternatives was developed
- Feasible alternatives
 - Location alternatives and design alternatives
 - Viable technology
 - Cost
 - Authority to implement
- No-action alternative

ANNEX 5 of EIA REGULATIONS of 2005

*Analysis of Alternatives
should include:*

- *Alternative designs*
- *Alternative locations*
- *Alternative technology
and environmental effects*
- *Basis for determining
alternatives*



REASONABLE ALTERNATIVE

- Meets project purpose and need
- Scale consistent with project goals
- Physical configuration is realistic
- Cost appears reasonable
- Technologies are tested or acceptable



METHODS – TECHNICAL TOPICS

- Refer to TOR for technical areas of impact to be addressed
 - Air, historic resources, water quality
- Focus on topics with potential for greatest impact identified in TOR
- Give minor attention to topics not of concern
- Use logical reasoning

Topics of Concern

(partial list from Annex 4 of EIA Regulations of 2005):

- *Aesthetics*
- *Endangered species*
- *Water quality*
- *Aquatic life*
- *Ancient resources*
- *Traffic*
- *Population growth*
- *Drainage flooding*
- *Public health*
- *Infrastructure improvements*



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



EVALUATION AND IMPACT CRITERIA

- Types of changes related to technical topics
- Must be clearly presented
- Necessary to establish for identification of baseline information

Example Criteria:

Traffic

- *Change in delay at key intersections*
- *Change in # accidents to pedestrians/vehicles*

Public Health

- *Change in emissions/quality of water or air that may affect population groups*



IMPACT AND SIGNIFICANCE CRITERIA

- Very specific, detailed measures
 - Established for each impact criterion
 - Measure the changes resulting from alternatives
- Qualitative or quantitative
- May be defined by regulation
- Performance standards help to determine potential significance of an impact
 - See Partial List of Jordan Laws, Regulations, and Standards (Slide 12)



IMPACT AND SIGNIFICANCE CRITERIA – LAND USE EXAMPLE

Topic (example)	Evaluation Criteria	Impact Criteria	Significance Criteria
Land Use	Change in land use on adjacent sites or land use in vicinity of proposed project	Displacement of current or planned use	<i>Current or planned use would be eliminated and use is of public benefit or use can not be relocated</i>
		Compatibility with surrounding area	<i>Extreme disruption to surrounding land uses</i>
		Interference with existing or future view and/or neighborhood character	<i>Substantial deterioration in view or major detriment to other activities in neighborhood</i>



IMPACT AND SIGNIFICANCE CRITERIA – AIR QUALITY EXAMPLE

Topic (example)	Evaluation Criteria	Impact Criteria	Significance Criteria
Air Quality	Change in type or volume of emissions	Raising or lowering of air quality conditions to above or below air quality standards	<i>Refer to Technical Standards in Annex 1 of the Regulations for the Protection of the Air of 2005 of Jordan</i>
		Increase or decrease of dust to level above or below nuisance level	<i>Cannot be prevented through seeding, paving, covering, or wetting</i>
		Increase or decrease of odor emissions to level above or below nuisance level	<i>Refer to Technical Standards in Annex 1 of the Regulations for the Protection of the Air of 2005 of Jordan</i>



TECHNICAL ANALYSES

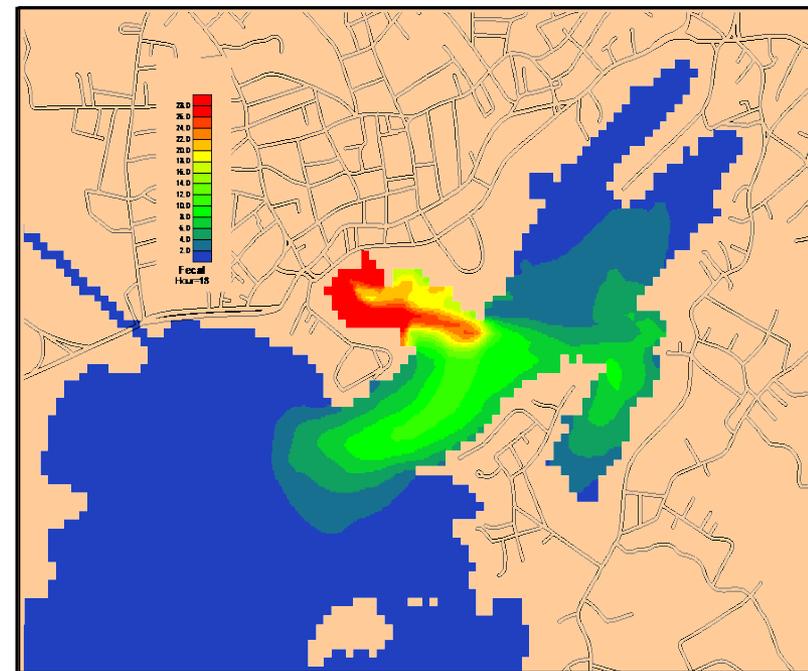
- Description of quantitative or qualitative methodology for
 - Field surveys
 - Laboratory analyses
 - Calculations
 - Modeling, if applicable
- Relationship of analyses to evaluation criteria
- Clear and reasonable assumptions



ASSESSMENT TOOLS – PREDICTIVE MODELS

Modeling description should include:

- Type of model
- Source of model
- Model selection process
- Previous applications of model for similar projects
- Model inputs and assumptions
- Relationship to evaluation criteria
- Interpretation of model results





LIFE CYCLE ANALYSES* (IF REQUIRED IN TOR)

- Purpose
- Identify, calculate and evaluate inputs and outputs from human activities
- Methods
- Define the goal and scope
- Describe data collection
- Conduct life cycle impact assessment
 - Calculate emissions and resources and evaluate according to impacts
- Interpretation
 - Analyze & calculate significance of assessment results



EXISTING ENVIRONMENT

- Existing (baseline) conditions
 - Physical
 - Biological
 - Socio-economic
- Future anticipated conditions (without the project)



ANNEX 5 of EIA REGULATIONS of 2005

Baseline data should include:

“...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).”



EXISTING ENVIRONMENT TOPICS

5.1 Physical Environment

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

5.2 Biological Environment

- Flora (plants)
- Fauna and avifauna (animals, including birds and bats)
- Threatened or endangered species and habitats
- Protected areas and areas of special protection

5.3 Socio-Economic Environment

- Land Use
- Cultural resources
- Noise
- Infrastructure
- Transportation
- Solid/hazardous waste management
- Demographic conditions
- Aesthetics



ANALYSIS OF IMPACTS

- Identify potential impacts
 - What, how, where, when resources would be affected
- Quantify impacts
 - Short and long-term impacts
 - Direct, indirect and cumulative impacts
- Describe impact/significance criteria
- Compare “quantity” of impacts to criteria
- Determine if impacts exceed criteria
- Identify significant impacts requiring mitigation
- Include results of Life Cycle Analysis



ANALYSIS OF IMPACT TOPICS

6.1 Physical Environment

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

6.2 Biological Environment

- Flora (plants)
- Fauna and avifauna (animals, including birds and bats)
- Threatened or endangered species and habitats
- Protected areas and areas of special protection

6.3 Socio-Economic Environment

- Land Use
- Cultural resources
- Noise
- Infrastructure
- Transportation
- Solid/hazardous waste management
- Demographic conditions
- Aesthetics



IMPACT DEFINITIONS

Direct Impacts

- Occur as direct result of proposed project at the same time and place
- Also known as primary or direct effects

Indirect Impacts

- Caused by the action and may be later in time or farther removed in distance, but are still reasonably foreseeable
- Wider-range consequences than direct impacts
- May be called secondary or indirect effects



CUMULATIVE IMPACTS DEFINITION

- Result when the effects of an action are added to, or interact with, other effects in a particular place within a particular time
- Combination of these effects, and any resulting impacts, are focus of cumulative impact analysis

ANNEX 4 of EIA REGULATIONS of 2005

A project impacts the environment if there is:

“Overlapping with other projects

Overlapping with movements of fish and wild animals or their habitats

Overlapping with recreational, educational, scientific, religious uses”



TYPICAL IMPACT ANALYSIS EXAMPLE

Parameter (Topic)	Type of Evaluation	Relation to Impact Criteria
Natural Resources	Calculate change in area and quality of habitat due to removal of trees	Measures change to area or quality of resource and provides basis to determine significance
Noise	Calculate change to ambient noise levels due to construction equipment; calculate change to noise due to increase in trucks on access roadways	Measures noise level changes at at specific locations to determine if exceedance has occurred
Air Quality	Calculate emissions from each equipment source at site; Calculate emissions from trucks and worker vehicles travelling to and from site	Measure the change in pollutant load at specific locations to determine if exceedance of air quality standards or major annoyance may occur



SIGNIFICANT IMPACTS

- Determining significance
- Compare outcome of technical analyses to impact criteria
- Compare impacts to proposed significance criteria
- Impact and significance criteria should relate to quantitative or qualitative performance standards identified



SUMMARIZING POTENTIAL IMPACTS – EXAMPLE

Technical Parameters	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	○	○	○	○	○	●
Technical Parameter X	○	○	○	○	○	○
Technical Parameter Y	○	○	○	○	○	○

Key: ○ No significant impact anticipated ● Significant impact anticipated



RISK ASSESSMENT* (IF REQUIRED IN TOR)

- Introduction/objectives, description of study boundaries
- Identification of receptors
- Exposure (acute/chronic)
- Chemical/receptor/exposure pathway identification/screening
- Toxicity assessment
- Exposure assessment
- Risk characterization
- Uncertainty analysis
- Reporting
- Risk management and mitigation
- Other considerations (emergency response/spill control plans)



MITIGATION MEASURES

Purpose of mitigation

- To avoid, reduce, or eliminate potential negative impacts on affected resources

Mitigation measures should

- Target impact of concern
- Be feasible to implement
- Represent reasonable costs
- Include Best Available Technology
- Include short, long term, and cumulative impacts

ANNEX 5 of EIA REGULATIONS of 2005

“Determine suitable measurements with low cost to mitigate negative impacts to be within acceptable limits...determine institutional, training, and monitoring requirements for these measurements...”



EXAMPLES DURING CONSTRUCTION

Topic	Potential Effect	Proposed Mitigation
Noise	Elevated noise levels at construction site boundary in excess of regulatory limits	<ul style="list-style-type: none">• Confine construction work to normal working hours• Maintain proper noise suppression devices• Provide noise barriers or equipment enclosures• Provide acoustical protection for potential noise sources• Conduct routine inspection of equipment/vehicles
Traffic	Decline in LOS and roadway capacity on access roads to site	<ul style="list-style-type: none">• Design and implement construction traffic controls• Post traffic detail as appropriate• Schedule material deliveries to avoid rush hours• Identify construction access locations
Air Pollution	Dust from construction activities	<ul style="list-style-type: none">• Minimize exposed surfaces including stockpiles• Apply wetting agent to site• Cover all dump trucks and equipment carrying dirt



MITIGATION*

- Temporary and permanent measures to be taken to avoid, reduce, and mitigate potential impacts
- Significant impacts remaining after mitigation (see example)
- Responsible parties
- Training/monitoring requirements
- Anticipated (feasible) schedule for implementation



EXAMPLE MITIGATION SUMMARY

Technical Parameters	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	○	○	○	○	○	●
Technical Parameter X	○	○	○	○	○	○
Technical Parameter Y	○	○	○	○	○	○
Key: ○ No significant impact ● No significant impact after mitigation ● Significant impact						



ENVIRONMENTAL, HEALTH, AND SOCIAL MANAGEMENT

- Health, Safety and Environmental Management Policy
- Environmental Management Plan
- Emergency Plan
- Resettlement Compensation Action Plan (if required)
- Waste Management Plan
- Rehabilitation Plan



ENVIRONMENTAL MANAGEMENT PLAN

- Identify what (water quality, noise levels) is to be monitored
- Identify specific monitoring measures
- Identify responsible party for monitoring
- Confirm sufficient resources (funds, staff) to undertake monitoring
- Define monitoring period and frequency
- Spell out reporting requirements
- Indicate if specific training is needed
- Indicate what happens if monitoring shows impacts are not reduced

ANNEX 5 of EIA REGULATIONS of 2005

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



CONSTRUCTION EXAMPLE

Proposed mitigation measure	Parameters to be monitored	Additional inspection items	Measurement frequency	Institutional responsibilities	
				Enforcement	Reporting
Measures for minimizing dust; AQ emission control on equipment	Ambient air: CO ₂ , CO, NO _x , SO ₂ , PM ₁₀	Site inspections & review of site plans;	Daily site inspection; weekly air monitoring	Contractor Third party supervisor	Supreme Council for Antiquities
Provide noise mufflers on construction equipment and install noise barrier	Noise levels (dBA, Leq)	Review weekly logs of complaints of noise pollution	Weekly	Contractor Third party supervisor	



RESPONSE TO COMMENTS

- Include response to comments received on most recent EIA document
- Comments can be included in main text of EIA
- If voluminous, comments can be summarized in main text and provided in a separate appendix



REFERENCES

- Alphabetized list of material incorporated by reference, including:
 - Documents/research papers
 - Correspondence documentation (letters, email or phone)

ANNEX 5 of EIA REGULATIONS of 2005

“List of references includes the written materials used in document preparing process.”



APPENDICES

- List of contributors who prepared EIA
- Correspondence documentation
 - Meeting records and agency consultation
- Detailed technical data (traffic analyses, hydrologic calculations, modeling data)
- Curriculum Vitae (CVs) of project staff

ANNEX 5 of EIA REGULATIONS of 2005

Appendices include:

“- List of contributors in preparing the EIA document (institutions, individuals)

- Record of consultancy meetings between the relevant parties to the project and documentation of all meetings held between the effected parties and the local NGOs”



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USAID Water Reuse and Environmental Conservation Project

Draft Guidance for Preparing Environmental Impact Assessments

وزارة البيئة

April 2014

*Implemented by MoEnv
with assistance from AECOM*





Scoping and Public Participation Workshop

April 2014

8:30 – 9:00 AM	Registration
9:00 – 9:45	Workshop Overview and Introductions
9:45 – 10:45	Major Elements of Scoping and Public Participation <ul style="list-style-type: none">• Understanding the value of public/stakeholder input• Identifying range of stakeholders• Modes of public outreach• Preparing for a scoping meeting
10:45 – 11:00	Coffee Break
11:00 – 12:45	Major Elements of Scoping and Public Participation (continued) <ul style="list-style-type: none">• Conducting a scoping meeting• Documenting and evaluating comments• Preparing scoping report• Keeping public and stakeholders informed• Open discussion
12:45 – 13:45	Lunch and Mid-day Prayers
13:45 – 14:45	Break-Out Groups
14:45 – 15:45	Group Recommendations
15:45 – 16:00	Closing and Action Items



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FROM THE AMERICAN PEOPLE

USAID Water Reuse and Environmental Conservation Project

Scoping and Public Participation

Betsy Shreve-Gibb
EIA Specialist

April 2014

Implemented by AECOM





AGENDA

8:30 – 9:00 am	Registration
9:00 – 9:45	Workshop Overview and Introductions
9:40 – 10:45	Major Elements of Scoping and Public Participation <ul style="list-style-type: none">• Understanding the value of public/stakeholder input• Identifying range of stakeholders• Modes of public outreach• Preparing for a scoping meeting
10:45 – 11:00	Coffee Break
11:00 – 12:45	Major Elements of Scoping and Public Participation (continued) <ul style="list-style-type: none">• Conducting a scoping meeting• Documenting and evaluating comments• Preparing scoping report• Keeping public and stakeholders informed• Open discussion
12:45 – 13:45	Lunch and Mid-day Prayers
13:45 – 14:45	Break-Out Groups
14:45 – 15:45	Group Recommendations
15:45 – 16:00	Closing and Action Items



WORKSHOP GOALS

- Workshop purpose
- Today's goals-what do we want to achieve?

Purpose:

Provide you with overview and guidance on Best Practices for Scoping and Public Participation, to lead to successful development of Terms of Reference and EIA.



BRIEF DISCUSSION

- Scoping process in Jordan
- Public participation process in Jordan





SCOPING PROCESS

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REGULATORY DRIVER FOR SCOPING: Jordanian EIA Regulation No.37 of 2005, Article 9

“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.



Jordanian EIA Regulation No.37 of 2005, Article 9

“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.”



ROLE OF SCOPING AND PUBLIC PARTICIPATION IN EIA PROCESS

- Satisfies legal or regulatory requirement
- Initiates consultation among developer, agencies, and interested parties
- Allows stakeholders and public to feel valued in assessment leading to decision-making
- Provides opportunity for full explanation of proposed project
- Confirms key technical concerns
- Identifies issues perceived as important by stakeholders
- Identifies relevant groups/ individuals to coordinate with throughout EIA development



VALUE TO PROJECT PROPONENT & MoENV

- Focuses TOR (and EIA) on relevant topics
- Provides opportunity to confirm data or conditions not previously known
- Identifies issues that may need limited evaluation
- Streamlines EIA analysis
- Minimizes re-work late in EIA process
- Minimizes negative public comments late in EIA process
- Aids in development of environmental management plan



VALUE TO PROPONENT & MoENV – DISCUSSION

What are other benefits of public participation and stakeholder input to Project Proponent and MoEnv?





TYPICAL OUTCOME FROM SCOPING

- Establishes alternatives to be evaluated
- Confirms baseline studies needed
- Confirms proposed methods to be used in evaluations
- Provides input on criteria used to identify impacts and determine potentially significant effects
- Identifies potential mitigation requirements



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IDENTIFY THE RANGE OF STAKEHOLDERS

- Property owner(s)
- Municipal officials
- Business owners
- Neighborhood residents
- Women's groups
- Concerned individuals
- Regulatory agencies
- NGOs





IDENTIFY RANGE OF STAKEHOLDERS – EXERCISE

- How do you identify the full range of stakeholders?
- What sources do you use to identify the right people, NGOs, officials?



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MODES OF PUBLIC OUTREACH AND INFORMATION GATHERING

- Individual or small group meetings
- Formal scoping meetings
- Print and electronic media

Multiple modes of communication and outreach are usually needed when stakeholders are diverse or have varying circumstances (access, language, social circumstances)



INCORPORATE MULTIPLE MODES

Example: Egypt Groundwater Lowering Project

- Diverse interests and concerns required varied outreach and scoping methods
- 5 focus meetings
 - Residents (2)
 - Bazaar owners
 - Women
 - Stable owners
- 1 formal scoping meeting
- Newspaper notices



Egypt Pyramid Plateau



INDIVIDUAL STAKEHOLDER MEETINGS

- May be with individual people or small groups representing specific interest
- Work well for neighborhood groups, business associations, or NGOs that represent a specific interest

Why are individual meetings a good idea?

- *Allow for more focused discussion about specific interest or concern*
- *May be more accommodating to specific needs for access or schedule*
- *Reduce chance of dominant opinion gaining control of meeting due to sheer numbers*



INDIVIDUAL STAKEHOLDER MEETING

- Official, but often informal, meetings and discussions with individuals or small groups
- Location of meeting
 - Proposed project site
 - In the field
 - Residences
 - Local businesses
 - Community centers
 - Others?
- Two people participate from proponent team
 - One focuses on questions
 - Other records comments
- Cover general information but focus on issues most relevant to individuals in meeting



FORMAL SCOPING MEETINGS

- May be required by regulation
- Formal presentation on all aspects of project development (construction, operation, and decommissioning)
- Provides opportunity for comment and question
- Allows all attendees to hear all questions and responses

Challenges

- *Some people intimidated by large group setting*
- *Time may prohibit detailed discussion of issues*
- *Some individuals may dominate discussion*



PAPER AND ELECTRONIC MEDIA

- Allow early notice of scoping sessions and public meetings
- Local newspapers engage larger number of stakeholders
- Website allows public notice to wide audience
- Website also allows for written comments to be obtained after the meeting



*Public Scoping meeting advertisement
Ahram Daily Newspaper on 7 April 2010*



PAPER AND ELECTRONIC MEDIA- DISCUSSION

- Where have you used electronic media to gather public input?
- Has it been successful?





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SCOPING MEETING ROLES AND TASKS

- Organize meeting
- Arrange logistics
- Identify and invite stakeholders
- Post public notices, advertise
- Open meeting and greet attendees
- Moderate, provide presentation, lead Q&A
- Document input



WHO SHOULD BE INVITED

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



INVITATION TO SCOPING MEETING

Invitation for Scoping Meeting:

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

Where to advertise for a public meeting:

- *Local newspapers*
- *Notices in businesses and community halls*
- *Web sites*
- *Other locations*



ADVERTISE MEETING

NSWC DAHLGREN DIVISION

This Site

NAVSEA
NSWC HQ
Carderock
Corona
Crane
Dahlgren
Dam Neck
EOD
Indian Head
Panama City
Philadelphia
Port Hueneme

Keeping America's Navy
#1 in the World

Dahlgren Environmental Impact Statement - Get Involved

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- [Dam Neck](#)
- [EEO/CMEQ Programs](#)
- [Environmental Policy](#)
- [Environmental Impact Statement](#)
- [Environmental](#)

Public Scoping Meetings

Public scoping meetings for the environmental impact statement (EIS) were held in the five counties near Dahlgren and around the Potomac River Test Range – King George, Westmoreland, and Northumberland Counties in Virginia and Charles and St. Mary's Counties in Maryland – during the weeks of July 23rd and July 30th, 2007. The purpose of these meetings was to inform the public about the EIS and to receive oral and written comments on environmental concerns that should be addressed in the EIS.

A summary of the scoping meetings and public outreach program is provided in the [Scoping Meetings Summary Report](#).

The meetings were open houses, where there were individual display stations rather than a formal presentation. The stations provided information about NSWCDD and the EIS, and representatives of the Navy were present at each station to speak with visitors and to take comments. All the meetings were the same. Members of the public came at any time during the hours posted, and were welcome to attend more than one meeting if so desired.

At these meetings, comment forms were available that could be filled out there and dropped into a comment box or that could be taken home to be completed and mailed in after the meeting. A laptop was available for those who wished to dictate their comments, and easels were set up around the room with markers for individuals who preferred to post their comments that way.

After the scoping meetings, comments were received by telephone, fax, e-mail, and mail, or from the comment form on the project website. Comments delivered and postmarked no later than August 14, 2007 were included in the scoping report.

EIS Links

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Project Overview

- [About NSWCDD](#)
- [NEPA & The EIS Process](#)
- [EIS Fact Sheets](#)

The EIS to Date

- [Proposed Action](#)
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Related Publications

- [Biological Assessment](#)
- [Noise Measurements at Six Historic Structures](#)
- [2006 ATSDR Study](#)



FINAL PREPARATION ACTIVITIES

- Prepare agenda, written handouts
- Prepare sign-in sheet
- Prepare presentation outlining project and key issues
- Have comment cards ready
- Organize support staff
- Confirm logistics are set

JBC Expansion Project	
Scoping Session Agenda	
Amman, October 25, 2011, Holiday Inn	
9:30- 10:00	Registrations and Coffee
10:00- 10:10	Introduction of the Attendees
10:10- 10:20	Ministry of Environment Introduction
10:20 - 10:35	JBC Welcome and Introduction
10:35 - 11:00	Overview of the Proposed Expansion Project by JBC
11:00 -11:30	Coffee Break
11:30 -13:30	Environmental Impact Assessment Presentation, Participants Feedback, Discussions and Questions & Answers
13:30 -14:30	Lunch
 مشروع توسعة مصنع شركة برومين الأردن جدول الأعمال عمان 25 تشرين الأول ، 2011 ، فندق هوليداي-إن	
التسجيل وقهوة	10:00 - 9:30
تقديم الحضور	10:10 - 10:00
تقديم وزارة البيئة	10:20 - 10:10
ترحيب ومقدمة شركة برومين الاردن	10:35 - 10:20
لمحة عامة عن مشروع التوسعة المقترحة من قبل شركة برومين الاردن	11:00 - 10:35
استراحة قهوة	11:30- 11:00
عرض تقديمي لتقييم الأثر البيئي جمع اقتراحات المشاركين ومناقشتها	13:30- 11:30
غداء	14:30- 13:30



SCOPING PROCESS

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MEETING ACTIVITIES

- Lead the meeting, provide detailed presentation, moderate Q&A
- Distribute Fact Sheet(s) summarizing proposed action, key issues, analyses to be undertaken
- Identify primary point of contact
- Obtain signatures on sign-in sheet for record of attendees
- Record all comments and responses

Scoping Session Attendance – Holiday Inn – Amman
Alternative fuels Project
Al- Qatrana Cement Company

Date: 28 /6 /2011

No.	Name of Participant	Participating Organization	Signature
الرقم	اسم المشارك	الجهة المشاركة	التوقيع
41.	الدراجة المثلثة لجامعة الحسين	الجامعة الحسينية	[Signature]
42.	م. محمد قنديل	م. محمد قنديل	[Signature]
43.	م. محمد عيسى	م. محمد عيسى	[Signature]
44.	م. خالد شحاتة	م. خالد شحاتة	[Signature]
45.	م. محمد عيسى	م. محمد عيسى	[Signature]
46.	م. محمد عيسى	م. محمد عيسى	[Signature]
47.	م. محمد عيسى	م. محمد عيسى	[Signature]
48.	م. محمد عيسى	م. محمد عيسى	[Signature]
49.	م. محمد عيسى	م. محمد عيسى	[Signature]
50.	م. محمد عيسى	م. محمد عيسى	[Signature]
51.	م. محمد عيسى	م. محمد عيسى	[Signature]
52.	م. محمد عيسى	م. محمد عيسى	[Signature]
53.	م. محمد عيسى	م. محمد عيسى	[Signature]



USAID | JORDAN

FROM THE AMERICAN PEOPLE



EGYPT

Pyramids Plateau
Groundwater Lowering Activity



منطقة أبو الهول وما حولها بحوالي
متر واختفاء المياه السطحية من كل
الناطق المتأثرة حول أبو الهول .

واستكمالاً للجهود المجلس
الأعلى للأثار لحماية المنشآت الأثرية
والسياحية الهامة قام المجلس الأعلى
للأثار بالتعاون مع الوكالة الأمريكية
للتنمية الدولية USAID بتكليف
شركة AECOM الأمريكية بالتعاون
مع جماعة المهندسين الاستشاريين
ECG بعمل دراسة عن مشكلة المياه
الجوفية بمنطقة أبو الهول واقتراح الحلول
المناسبة لها.

وتقوم شركة AECOM / ECG بعمل عدة اقتراحات لتخفيض
منسوب المياه الجوفية بالمنطقة إلى مستوى أمن لا يؤثر على جميع الآثار
بمنطقة هضبة الهرم وبما لا يؤثر على جميع
المنشآت الحديثة والأثرية بالمنطقة.

ومن بين الحلول المقترحة تنفيذ مجموعة
من خطوط المواسير المثقبة محاطة بفلتر من
الزلط ومحاطة بنسيج يسمح بمرور المياه دون
مرور حبيبات التربة (Filter Fabric) وعلى
أعماق تسمح بتخفيض مستوى المياه الجوفية
للمستوى المطلوب ثم تجميع المياه في بئارة
تجميع ثم ضخها بواسطة طلمبات إلى ترعة
المنصورية .

والجدير بالذكر أن الأعمال الإنشائية للمشروع
سوف تكون جميعها داخل المنطقة الأثرية فيما
عدا خط الطرد الواصل من محطة الضخ إلى ترعة
المنصورية والذي سوف يكون على عمق لا يتجاوز
المتريين وسوف يتم تنفيذه بحيث لا يعوق الحركة السياحية للمنطقة.

وجدير الإشارة إلى أن المجلس الأعلى للآثار أكد على الشراكة المصممة
للمشروع AECOM / ECG أن تكون الحلول المقترحة آمنة تماماً على
المنشآت الأثرية وجميع المباني الأخرى بالمنطقة وأن يتم التنفيذ على
مراحل وبطريقة لا تؤثر على الحركة السياحية بالمنطقة وأيضاً على الحياة
اليومية ومصالح المواطنين بالناطق المجاورة للمشروع.

Fact Sheets (in English and Arabic) should provide:

- Project description
- Proposed schedule (demolition, construction, operation, decommissioning)
- Likely short and long-term impacts
- Proposed mitigation
- Proposed monitoring



AECOM

ECG





TOPICS TO COVER

- Overview of EIA policies and procedures
- Description of proposed project
- Summary of alternatives
- Description of affected environment
- Identification of environmental issues to be evaluated in EIA
- Proposed methods of analysis (field surveys, models)
- Anticipated EIA organization
- Schedule for EIA completion





CHECKLIST TO IDENTIFY IMPACTS

No.	Questions to be considered in Scoping	Yes/ No?	Which characteristics of the Project environment could be affected and how?	Is the effect likely to be significant and why?
1. Will construction, operation, or decommissioning of the Project involve actions which will cause physical changes in the locality (topography, land use, changes in water bodies, etc.)?				
1.1	Permanent or temporary change in land use, land cover or topography, including increases in intensity of land use?			
1.2	Clearance of existing land, vegetation, and buildings?			
1.3	Creation of new land uses?			
1.4	Preconstruction investigations, e.g. boreholes, soil testing?			
1.5	Construction works?			
1.6	Demolition works?			
1.7	Temporary sites used for construction works or housing of construction workers?			



CHECKLIST TO EVALUATE SIGNIFICANCE

Questions to be considered

- 1) Will there be a large change in environmental conditions?
- 2) Will new features be out of scale with existing environment?
- 3) Will the effect be unusual in the area or particularly complex?
- 4) Will the effect extend over a large area?
- 5) Will there be any potential for multi-jurisdictional impact?
- 6) Will many people be affected?
- 7) Will many receptors of other types (flora & fauna, businesses, facilities) be affected?
- 8) Will valuable or scarce resources or receptors be affected?
- 9) Is there a risk that protected sites, areas, features will be affected?



HELPFUL HINTS

- Select moderator
 - Respectful yet assertive in managing the meeting
- Require commenters to sign up to speak
- Provide opportunity for each person to speak
- Establish maximum time (5 minutes) for each commenter and adhere to it
- Consider security if controversial project
- Provide tables with information on specific topics





KEEP IN MIND

- Objective is to inform and listen
- Welcome all opinions
- Answer all questions as honestly as possible
- Keep responses focused on question or issue
- Acknowledge conflict and suggest further opportunities for discussion
- Thank commenter for his/her comment

Inform and Listen!



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DOCUMENT AND EVALUATE STAKEHOLDER INPUT

- Document each comment
 - Who provided comment
 - Summary of concern or question
- Evaluate comments
 - Determine type of comment
- Categorize (unofficially) comments
 - Facts
 - 3rd party
 - Opinions
- Respond to each comment
 - Prepare response as to how comments will be addressed
- Summarize comments
 - Include comment summary in scoping report

Comments in three general categories:

- *Facts (existing conditions, planned developments)*
- *Third party data or methods*
- *Opinions*



COMMENT SUMMARY – EXAMPLE

Public Scoping Comment Summary

The representative quotes include non-official correspondence from members of organizations who may not be official representatives of the organizations or agencies; therefore, the comments may not reflect the official views of the organizations or agencies. Those comments received from an official representative of an organization or agency are indicated by an asterisk ().*

AL4000 – ALTERNATIVES – NEW ALTERNATIVES OR ELEMENTS

Concern ID	41159	
Concern Statement	Commenters suggested additional areas where Park Service should allow public use. Suggestions include the east end of the park from the northeastern border of the Beaver Basin Wilderness area to Grand Marias.	
Representative quotes	Corr ID 1992	Organization: Not specified
	Comment ID: 303959	Organization type: Unaffiliated individual
	Quote: Expand public access areas to include both the existing public access areas as well as the shoreline from the Grand Marias southwestward to the northeastern boundary of the Beaver Basin Wilderness area.	
Concern ID	41160	
Concern Statement	Commenters suggested issuing time of use restrictions that would prohibit public use during peak tourist use time periods at the park	
Representative quotes	Corr ID: 29	Organization: Not specified
	Comment ID: 303223	Organization type: Unaffiliated individual
	Quote: I can understand such complaints as personal watercraft being too noisy. As a possible solution to that issue – if it is indeed a time of use restriction during tourist season.	



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SCOPING REPORT CONTENT

- Summary of proposed project
- Location, date of scoping session(s)
- List of attendees
- Brief overview of comprehensive EIA process, role of scoping session
- Meeting discussion, participant input
- Adverse impacts identified

Typical Annex:

- *Preliminary TOR*
- *Materials Distributed*
- *Presentations*



ADDITIONAL SCOPING REPORT CONTENT

- General summary of comments
- Suggested revisions to TOR based on feedback
- Names of experts responsible for the EIA preparation
- Level of effort and schedule to prepare EIA

Typical Annex (continued):

- *Feedback or comment forms*
- *Attendee sign-in sheet*
- *Formal Summary of Comments*



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WAYS TO INFORM

- Inform public and stakeholders of availability of review documents and decisions made
- Provide opportunity for comments to be received through public meetings or written comments
- Indicate in the EIA how document has changed through the incorporation of stakeholder input
- Post decisions in public location or on website
- Consider a monthly publication that provides summary of decisions made or decisions pending



OBTAIN PUBLIC COMMENT ON EIA

NSWC DAHLGREN DIVISION
This Site

Keeping America's Navy
#1 in the World

NAVSEA | NSWC HQ | Carderock | Corona | Crane | **Dahlgren** | Dam Neck | EOD | Indian Head | Panama City | Philadelphia | Port Hueneme

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- Environmental

Submit an EIS Comment

We welcome your input on NSWCDD's environmental impact statement (EIS) at any time by using any one of the methods below. Following publication of the Draft EIS http://www.navsea.navy.mil/nswc/dahlgren/EIS/EIS-to-Date/draft_EIS.aspx on August 17, 2012, you have the opportunity to review the document, attend public hearings, and provide comments officially during a 45-day public review period. We will record comments during this period and address them in the Final EIS.

The public comment period ended on October 1st, 2012. **All written comments had to be received or postmarked by October 1, 2012 to ensure they became a part of the official record and were assessed and considered as part of the Final EIS.**

E-mail:
DLGR_NSWC_EIS@navy.mil.

Fax:
1-540-653-4679

Mail:
Commander, Attn: Code C6
Naval Surface Warfare Center Dahlgren Division
6149 Welsh Road, Suite 203
Dahlgren, VA 22448-5130

EIS Links

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- Noise Measurements at Six Historic Structures
- 2006 ATSDR Study



PUBLIC NOTICES

MEPA Environmental Monitor - Current Issue

Mar 20, 2013
Volume 79, Issue 10

The Environmental Monitor
a publication of the
Massachusetts Executive Office of Energy and Environmental Affairs

The **Environmental Monitor** provides information on projects under review by the Massachusetts Environmental Policy Act (MEPA) office, recent MEPA decisions of the Secretary of Energy & Environmental Affairs, and public notices from environmental agencies. Please note that the links on this page require the use of Adobe Acrobat Reader®, which is available free of charge at <http://www.adobe.com/products/acrobat/readstep.html>.

Projects Submitted March 1-15, 2013

[Environmental Notification Forms](#)

[Environmental Impact Reports](#)

[Notices of Project Change](#)

Other Projects Under Review

[Environmental Notification Forms](#)

[Environmental Impact Reports](#)

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Secretary's Certificates March 1-18, 2013

[Environmental Notification Forms](#)

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Requests for Advisory Opinion

Public Notices

[Submitting Public Notices](#)

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Projects Submitted March 1-15, 2013

Environmental Notification Forms

EEA No.	Project Name	Location	Comments Due	For Copies	MEPA Analyst
15028	South Station Expansion Project	Boston	4/09/2013	Katherine Fichter (857) 368-8852	Holly Johnson (617) 626-1023
15029	River Street and Western Avenue Bridges Rehabilitation Project	Boston and Cambridge	4/16/2013	Michael Trepanier (857) 368-8828	Deirdre Buckley (617) 626-1044
15030	I-95 Maintenance and Drainage Improvements	Burlington and Lexington	4/09/2013	Gregory Dlubac (857) 368-8795	Nicholas Zavolas (617) 626-1030
15031	Somerset Woods	Dighton	4/09/2013	Geoffrey Signorelli (781) 843-6060	Anne Canaday (617) 626-1035



PHOTO CREDITS

- Enefit, 2013, Shale Oil Production Plant Photo available at:
<https://www.enefit.com/en/jordan>
- National Park Service (NPS), 2013, Public Scoping Comment Summary available at:



REFERENCES

- Guidance for Implementing the EIA Process 2003, Central Environmental Authority Sir Lanka
- European Commission, 2001, Guidance on EIA-Scoping, Office for Official Publications of the European Communities
- Al-Rawabi Environment & Energy Consultancies (REEC), 2012, Environmental Impact Assessment Study, Jordan Bromine Company Plants Expansion Project, EIA Report
- United States Environmental Protection Agency (USEPA)
- Massachusetts Environmental Policy Act (MEPA) 2008, 301 CMR 11.07 EIR Preparation and Filing



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Discussion and Break-Out Groups





BREAK-OUT GROUPS

Four break-out groups:

- Roles and responsibilities (proponent vs MoEnv)
- Preparing for the scoping meeting (who to invite, what to send out in advance, etc.)
- Addressing comments received during Scoping in the EIA document
- Informing the public on decisions made (what, when and how)



BREAK-OUT GROUPS

Presentations

- Recommendations
- Actions (be specific)

