



# Fundamental Skills of Environmental Impact Assessment (EIA)

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GEMS Environmental Compliance-  
ESDM Training Series

Jordan ■ March 2018



## SESSION OBJECTIVES:

- Define Environmental Impact Assessment (EIA)
- Explain the EIA process
- Develop fundamental EIA skills; learn basic approach
- Illustrate EIA framework as the internationally accepted standard process for achieving ESDM
- Establish EIA as the basis of USAID Environmental Procedures

# EIA

## ENVIRONMENTAL IMPACT ASSESSMENT IS

- A formal process for identifying:
  - likely effects of activities or projects on the environment, and on human health and welfare
  - means and measures to mitigate & monitor these impacts



# WHAT IS AN ACTIVITY?

THE EIA PROCESS EXAMINES THE IMPACTS OF **ACTIVITIES**.

## An activity is:

- A desired accomplishment or output.
- A project or program may consist of many activities.



## Accomplishing an activity requires a set of **actions** or **interventions**

**ACTIVITY:**  
increase rice production

### **ACTIONS:**

- Provide inputs (seed, fertilizer, pesticides)
- Design and construct irrigation infrastructure
- Increased access to finance, lending
- Road rehabilitation
- Capacity building and technical assistance

WHAT ARE SOME  
OF YOUR ACTIVITIES?

# THE EIA PROCESS

## Phase I: Initial inquiries

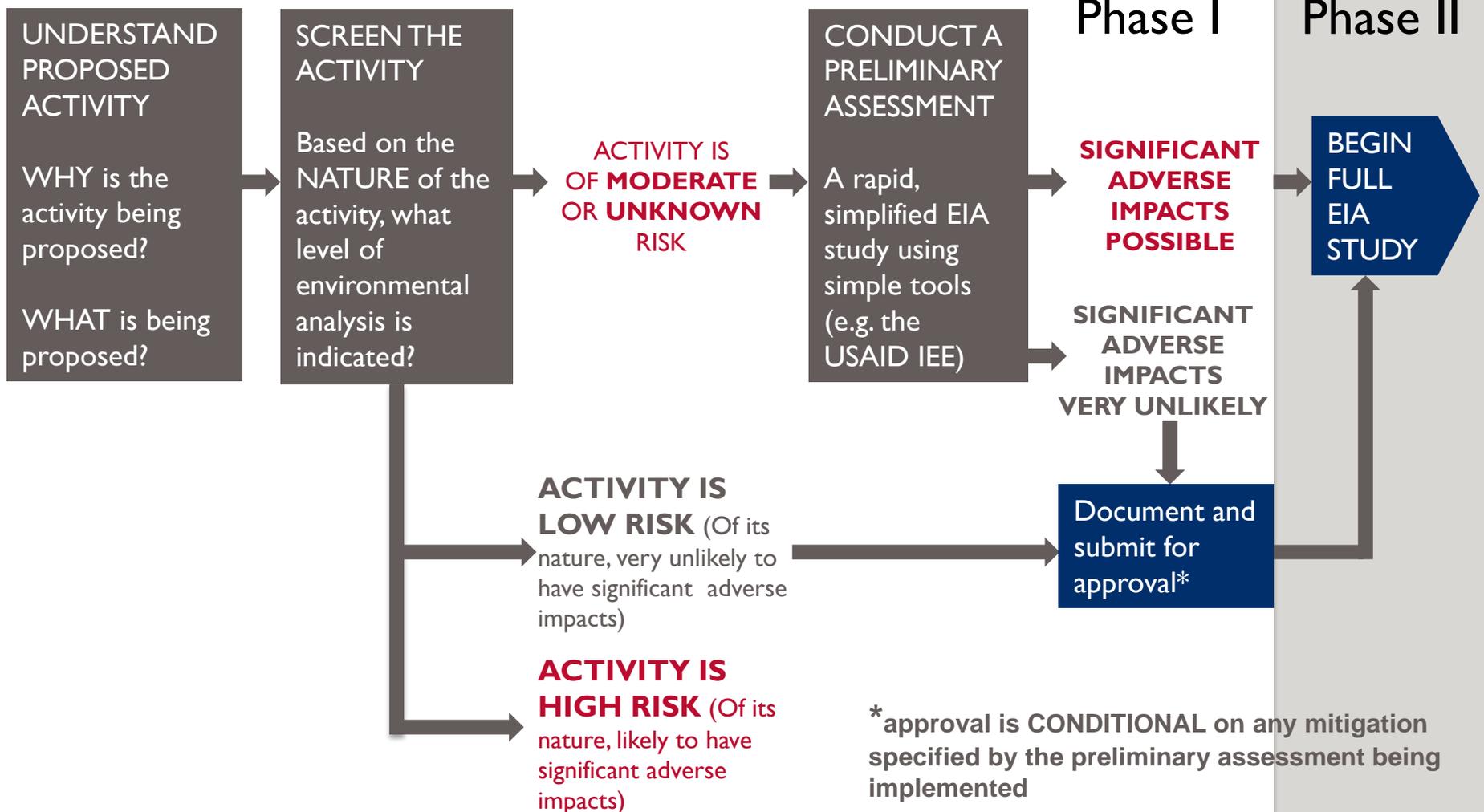
- Understand proposed activities
- Screen activities
- Conduct preliminary assessment (if needed)

## Phase II: Full EIA study (if needed)

- Scope
- Evaluate baseline situation
- Identify and choose alternatives
- Identify and characterize potential impacts of proposed activity and each alternative
- Develop mitigation and monitoring
- Communicate and document throughout

*Most USAID activities do NOT proceed to a full EIA study*

# PHASE I OF THE EIA PROCESS



# PHASE I: SCREEN THE ACTIVITY

## SCREEN EACH ACTIVITY

Based on the NATURE of the activity, what level of environmental analysis is indicated?

## Answering these questions does NOT:

- require analysis
- require detailed knowledge of the proposed sites, techniques or methods

SCREENING asks a very basic set of questions about the activity.

## EXAMPLE SCREENING QUESTIONS:

- Does the activity involve:
- Penetration road building?
- Large-scale irrigation?
- Introduction of non-native crop or agroforestry species?
- Resettlement?



# PHASE I: PRELIMINARY ASSESSMENT

## CONDUCT A PRELIMINARY ASSESSMENT

A rapid, simplified EIA study using simple tools (such as USAID's Initial Environmental Examination [IEE])

SCREENING DETERMINES WHETHER THE PRELIMINARY ASSESSMENT IS NECESSARY

Purpose is to provide documentation and analysis that:

- Allow the preparer to determine whether or not significant adverse impacts are likely
- Allows the reviewer to agree or disagree with these determinations
- Sets out mitigation and monitoring for adverse impacts

# PHASE I: PRELIMINARY ASSESSMENT

## TYPICAL PRELIMINARY ASSESSMENT OUTLINE:

1. Background (Development objective, list of activities)
2. Description of the baseline situation
3. Evaluation of potential environmental impacts
4. MITIGATION & MONITORING
5. RECOMMENDED FINDINGS

FOR EACH ACTIVITY IT COVERS, A PRELIMINARY ASSESSMENT HAS 3 POSSIBLE FINDINGS:

### THE ACTIVITY IS...

- very unlikely to have significant adverse impacts.
- unlikely to have significant adverse impacts with specified mitigation and monitoring,
- likely to have significant adverse impacts (full EIA study is required)

# WHEN TO PROCEED

We only proceed to  
Phase II of the EIA  
process

**IF**

Phase I indicates that  
a **FULL EIA STUDY**  
is required



## PHASE II: FULL EIA STUDY

The full EIA study has very similar objectives and structure to a preliminary assessment.

### HOWEVER, THE FULL EIA STUDY DIFFERS IN IMPORTANT WAYS:

- A formal SCOPING PROCESS precedes the study to IDENTIFY ISSUES TO BE ADDRESSED
- ANALYSIS of environmental impacts is much MORE DETAILED
- ALTERNATIVES\* must be formally defined. THE IMPACTS OF EACH ALTERNATIVE MUST BE IDENTIFIED & EVALUATED, AND THE RESULTS COMPARED
- PUBLIC PARTICIPATION is required
- A PROFESSIONAL EIA TEAM is usually required

*\*includes the project as proposed, the no-action alternative, and at least one other real alternative*

# FUNDAMENTAL EIA SKILLS

There are “core” skills that are central to environmental impact assessment:

- Baseline characterization
- The identification of potential adverse impacts (or impacts of concern)
- Developing a mitigation strategy

HOW DO I  
APPROACH THE  
EIA PROCESS?



# FUNDAMENTAL EIA SKILLS

## BASELINE CHARACTERIZATION

Used to prepare preliminary assessment—but also critical to making mitigation responsive to local environmental conditions

## IDENTIFYING IMPACTS OF CONCERN

## MITIGATION STRATEGY\*

Key skill for avoiding adverse impacts and achieving ESDM

\* Monitoring is the essential complement to mitigation; it is required to verify whether the mitigation measures are sufficient, effective—and actually implemented. Monitoring is addressed in a subsequent session.

# CHARACTERIZING THE BASELINE SITUATION...

- The **environmental components** of interest are those:

- likely to be affected by your activity
- upon which your activity depends for its success

Water? *Quantity, quality, reliability, accessibility*

Soils? *Erosion, crop productivity, fallow periods, salinity, nutrient concentrations*

Fauna? *Populations, habitat*

Env Health? *Disease vectors, pathogens*

Flora? *Composition and density of natural vegetation, productivity, key species*

Special ecosystems? *Key species*

# WHERE DO I OBTAIN INFORMATION ON THE BASELINE SITUATION?

## 1. YOUR ORGANIZATION:

- TALK to staff who know the project, and know the sites.
- OBTAIN project documents and information

## 2. DIRECT OBSERVATION:

- Go to the site(s)! Look up publicly available satellite imagery before you go.

## 3. UTILIZE OTHER LOCAL TALENT & KNOWLEDGE:

- communities, government, counterparts

### AREN'T WE FORGETTING SOMETHING?

*What about reports by donor organizations and international agencies? What about government statistics? GIS databases?*

All these sources can be useful (and sometimes necessary)

But good local information is the most important input

# IDENTIFYING IMPACTS OF CONCERN

## WHAT IS AN IMPACT?

The impact of an activity is the change from the

**BASELINE SITUATION**

caused by the activity.

The **BASELINE SITUATION** is the existing environmental situation or condition in the absence of the activity.

*Important:*

*Baseline situation is not just a “snapshot in time”*



To measure an impact, you must know what the baseline situation is.

# TYPES OF IMPACTS & THEIR ATTRIBUTES

The EIA process is concerned with **all types of impacts** and may describe them in a number of ways

- Intensity
- Direction
- Spatial extent
- Duration
- Frequency
- Reversibility
- Probability

- Direct & indirect impacts
- Short-term & long-term impacts
- Adverse & beneficial impacts
- Cumulative impacts

But all impacts are **NOT** treated equally.



# FOCUS!

ESSENTIAL to focus on the most significant impacts

You definitely do not have time and resources to analyze and discuss in detail less important ones.

# IMPACT EVALUATION PROCESS: THEORY

1. **Understand** the activities being proposed
2. **Research** the potential adverse impacts typical of these activities & know **how** they arise
3. Based on the potential impacts, **identify** which elements of the baseline situation are important
4. **Characterize** these elements of the baseline



Given:

1. the baseline conditions,
2. the project concept/design, and
3. How the adverse impacts arise,

DECIDE WHICH IMPACTS ARE OF CONCERN

# IMPACT EVALUATION PROCESS: EXAMPLE

1. Proposed intervention: irrigation scheme  
(wing dam diversion type ■ water-intensive crops ■  
high fertilizer use, unlined canals & open-channel  
irrigation)

2. Key potential impacts:

- Excessive diversion of water
- Salinization of soils
- Contamination of groundwater & downstream  
surface water

3. Key elements of baseline:

- River flow volume, variability
- Soil & water characteristics & groundwater  
depth
- Downstream uses



# IMPACT EVALUATION PROCESS: EXAMPLE

## 4. Baseline characterization

- *River flow volume, variability*
  - Will divert 3% of normal flow
  - low-year flows are 50% of normal
  - Downstream abstraction is <10% of total flow volume.
- *Soil characteristics & groundwater depth*
  - Soils are well-drained but relatively high in salts; groundwater 2m depth
- *Downstream uses*
  - Key water source for community domestic use & livestock, immediately downstream.

## 5. THEREFORE:

### IMPACTS OF CONCERN:

Salinization  
Downstream  
contamination

### LITTLE CONCERN:

Excess  
Diversion

**WHY THESE  
CONCLUSIONS?**



# MITIGATION DESIGN

A critical part of the EIA process—and of ESDM

## MITIGATION IS...

The implementation of measures designed to eliminate, reduce or offset the undesirable effects of a proposed action on the environment.

# HOW DOES MITIGATION REDUCE ADVERSE IMPACTS?

TYPE OF MITIGATION MEASURE	HOW IT WORKS	EXAMPLES
PREVENTION AND CONTROL MEASURES	Fully or partially prevent an impact/reduce a risk by: <ul style="list-style-type: none"><li>▪ <b>Changing means or technique</b></li><li>▪ <b>Changing or adding design elements</b></li><li>▪ <b>Changing the site</b></li><li>▪ <b>Specifying operating practices</b></li></ul>	PREVENT contamination of wells, by SITING wells a safe distance from pollution sources  Add wastewater treatment system to the DESIGN of a coffee-washing station and train in proper OPERATIONS
COMPENSATORY MEASURES	Offset adverse impacts in one area with improvements elsewhere	Plant trees in a new location to COMPENSATE for clearing a construction site
REMEDIATION MEASURES	Repair or restore the environment after damage is done	Re-grade and replant a borrow pit after construction is finished

... and sometimes you may need to redesign the project to modify or eliminate problem components

# MUST **EVERY** IMPACT BE MITIGATED?

Mitigation specified in Phase I or Phase II of EIA process must be implemented

Environmental management criteria often require judgment in designing specific mitigations. Apply the following principle:

**PRIORITIZE!**

## POTENTIALLY SERIOUS IMPACTS/ISSUES

These must **ALWAYS** be mitigated to the point that the impact is non-significant

## EASILY MITIGATED IMPACTS

Then, there may be other impacts for which mitigation is easy and low-cost

# PREVENTION IS BEST

Where possible, **PREVENT** impacts by changes to site or technique.

CONTROL of impacts with Operation & Maintenance (O&M) practices is more difficult to monitor, sustain.



# THREE RULES FOR ENVIRONMENTALLY SOUND DESIGN & MANAGEMENT (ESDM)

1. Be prevention-oriented
2. Apply best development practices to environmental aspects of the activity
3. Be systematic

Properly implemented, the EIA process makes them a reality.

# ENVIRONMENTAL IMPACT ASSESSMENT: A UNIVERSAL REQUIREMENT

- From its beginnings in the 1970 US National Environmental Policy Act...
- EIA now extends beyond government works to
  - *Infrastructure and economic development projects funded by the private sector & donors*
  - *Analysis of policies, not just projects*
- In many developing countries, EIA is the core of national environmental regulation
- Most countries & almost all donors (including USAID) now have EIA requirements



JORDAN MINISTRY OF  
ENVIRONMENT

GUIDANCE FOR PREPARING  
ENVIRONMENTAL IMPACT  
ASSESSMENTS



# ENVIRONMENTAL IMPACT ASSESSMENT: A UNIVERSAL REQUIREMENT

**Preliminary Environmental Impact  
Assessment (EIA) for developing a 50  
MWac PV Power Plant Project in  
KHBTD - Al Mafrq**

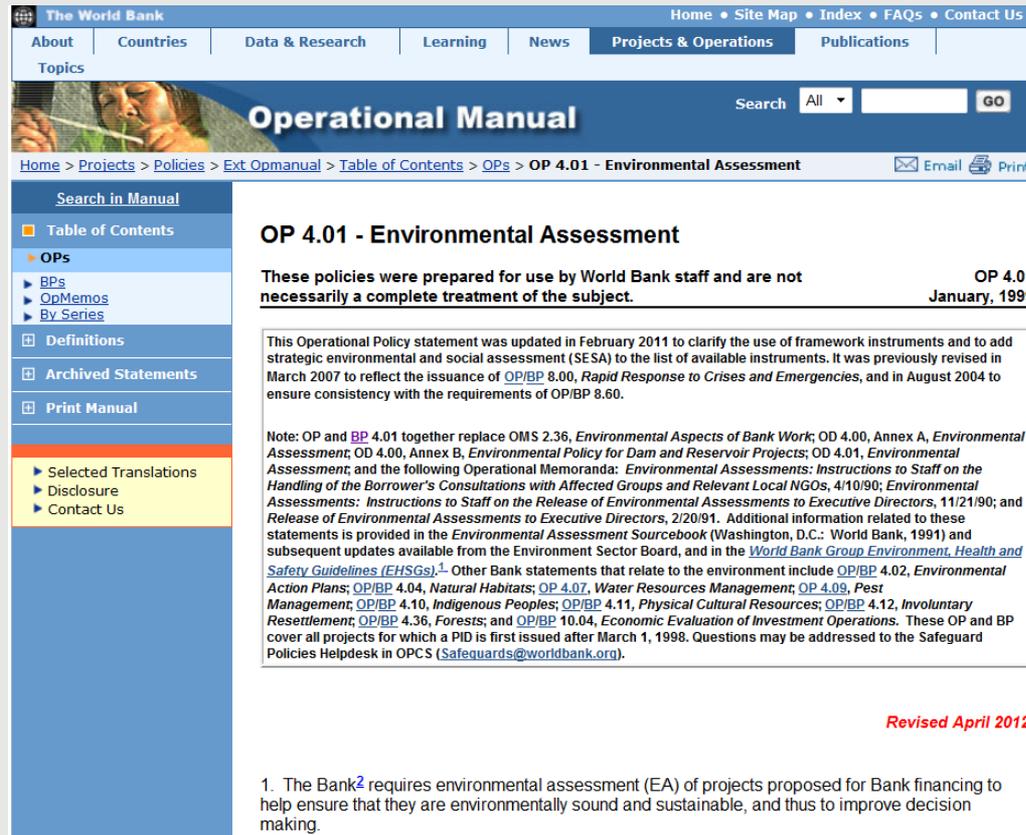


**Non-Technical Summary**

May 2016

**AJ** | ARABTECH JARDANEH  
Deline • Design • Deliver

# ENVIRONMENTAL IMPACT ASSESSMENT: THE WORLD BANK



The screenshot shows the World Bank Operational Manual website. The main navigation bar includes links for Home, Site Map, Index, FAQs, and Contact Us. Below this is a secondary navigation bar with categories like About, Countries, Data & Research, Learning, News, Projects & Operations, and Publications. The page title is "Operational Manual" and the breadcrumb trail is "Home > Projects > Policies > Ext Opmanual > Table of Contents > OPs > OP 4.01 - Environmental Assessment". The left sidebar contains a search box and a table of contents with sections for OPs, BPs, OpMemos, By Series, Definitions, Archived Statements, and Print Manual. The main content area is titled "OP 4.01 - Environmental Assessment" and includes a disclaimer: "These policies were prepared for use by World Bank staff and are not necessarily a complete treatment of the subject." It also features a text box with a detailed update history and a note about the policy's scope and application. A red text at the bottom right of the page indicates it was "Revised April 2012".

**OP 4.01 - Environmental Assessment**

These policies were prepared for use by World Bank staff and are not necessarily a complete treatment of the subject. OP 4.01  
January, 1999

This Operational Policy statement was updated in February 2011 to clarify the use of framework instruments and to add strategic environmental and social assessment (SESA) to the list of available instruments. It was previously revised in March 2007 to reflect the issuance of [OP/BP 8.00, Rapid Response to Crises and Emergencies](#), and in August 2004 to ensure consistency with the requirements of [OP/BP 8.60](#).

Note: OP and [BP 4.01](#) together replace OMS 2.36, *Environmental Aspects of Bank Work*; OD 4.00, Annex A, *Environmental Assessment*; OD 4.00, Annex B, *Environmental Policy for Dam and Reservoir Projects*; OD 4.01, *Environmental Assessment*; and the following Operational Memoranda: *Environmental Assessments: Instructions to Staff on the Handling of the Borrower's Consultations with Affected Groups and Relevant Local NGOs*, 4/10/90; *Environmental Assessments: Instructions to Staff on the Release of Environmental Assessments to Executive Directors*, 11/21/90; and *Release of Environmental Assessments to Executive Directors*, 2/20/91. Additional information related to these statements is provided in the *Environmental Assessment Sourcebook* (Washington, D.C.: World Bank, 1991) and subsequent updates available from the Environment Sector Board, and in the [World Bank Group Environment, Health and Safety Guidelines \(EHSGs\)](#).<sup>1</sup> Other Bank statements that relate to the environment include [OP/BP 4.02, Environmental Action Plans](#); [OP/BP 4.04, Natural Habitats](#); [OP 4.07, Water Resources Management](#); [OP 4.09, Pest Management](#); [OP/BP 4.10, Indigenous Peoples](#); [OP/BP 4.11, Physical Cultural Resources](#); [OP/BP 4.12, Involuntary Resettlement](#); [OP/BP 4.36, Forests](#); and [OP/BP 10.04, Economic Evaluation of Investment Operations](#). These OP and BP cover all projects for which a PID is first issued after March 1, 1998. Questions may be addressed to the Safeguard Policies Helpdesk in OPCS ([Safeguards@worldbank.org](mailto:Safeguards@worldbank.org)).

**Revised April 2012**

1. The Bank<sup>2</sup> requires environmental assessment (EA) of projects proposed for Bank financing to help ensure that they are environmentally sound and sustainable, and thus to improve decision making.

“The Bank requires environmental assessment (EA) of projects proposed for Bank financing to help ensure that they are environmentally sound and sustainable, and thus to improve decision making.”

# JORDAN

- <http://www.moenv.gov.jo/>
- <http://www.moenv.gov.jo/En/LegislationAndPolicies/Legislation/Systems/Pages/EnvironmentalAssessmentSystem.aspx>



Ministry of Environment



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

Article 1

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

Article 2

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

The Ministry	The Ministry of the Environment.
The Minister	The Minister of the Environment.
Secretary General	The Secretary General of the Ministry.
Technical Committee	The committee formed by virtue of the provisions hereof and specialized in studying projects from the environmental aspect.
Environmental Approval	The approval given to the owner of a project to commence implementation of his project pursuant to the provisions hereof.
Significant Impact	An adverse change that affects the Environment whether this change is dangerous or potentially dangerous.
Terms of	The bases submitted by the project owner prior to conducting the environmental



# SUMMARY

- EIA is an established process that promotes sustainable environmental management and successful development outcomes.
- Core skills are needed to implement the EIA process and to help achieve ESDM; these are:
  - Baseline characterization
  - Identifying impacts of concern
  - Mitigation design
- EIA enables ESDM-focused development, and is the basis for USAID Environmental Procedures