



USAID
FROM THE AMERICAN PEOPLE



Fundamental Skills of Environmental Impact Assessment (EIA)

GEMS Environmental Compliance-ESDM Training Series

USAID/Malawi • March 2013



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**

ACTIVITY:

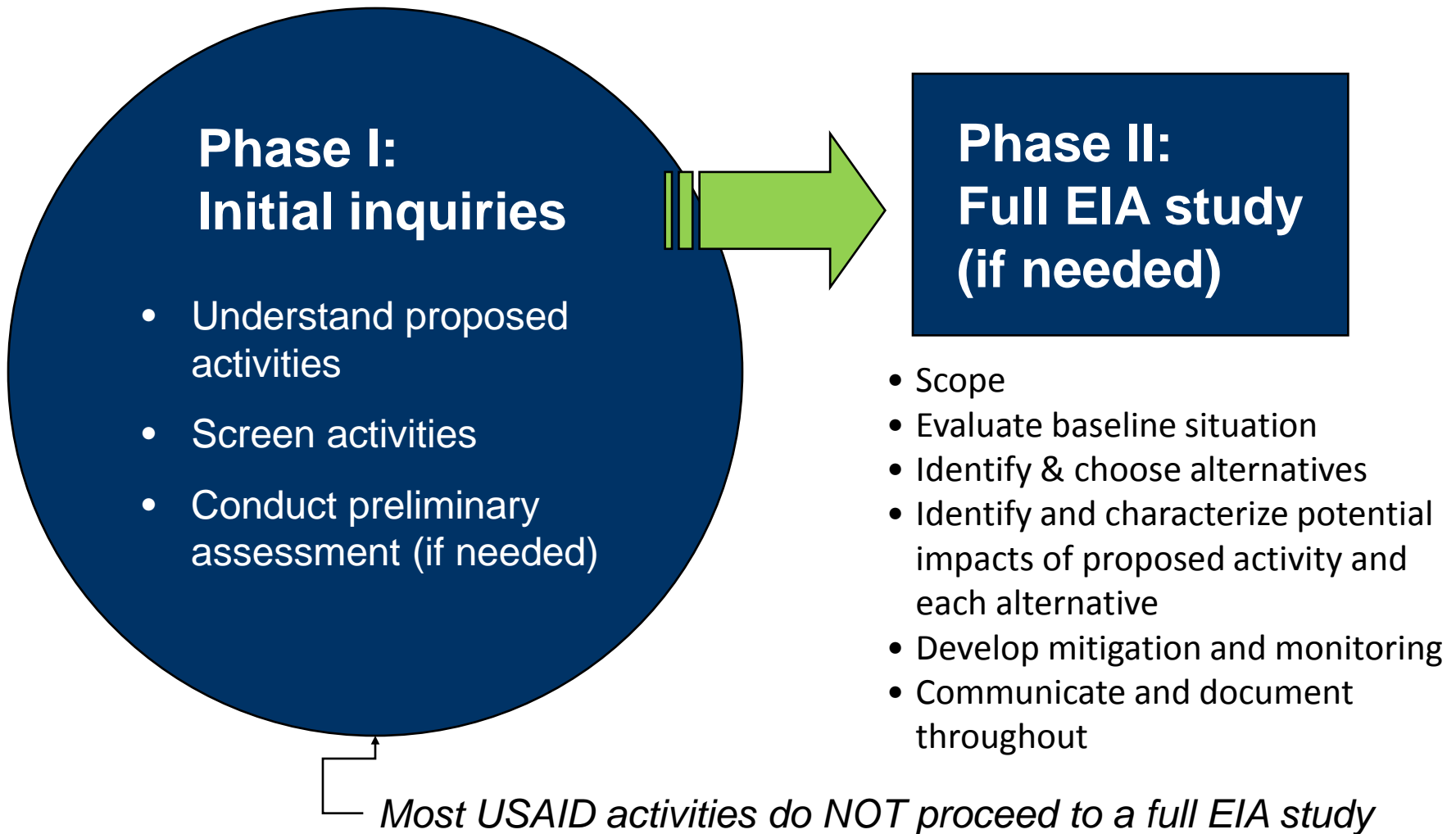
increase sorghum production

ACTIONS:

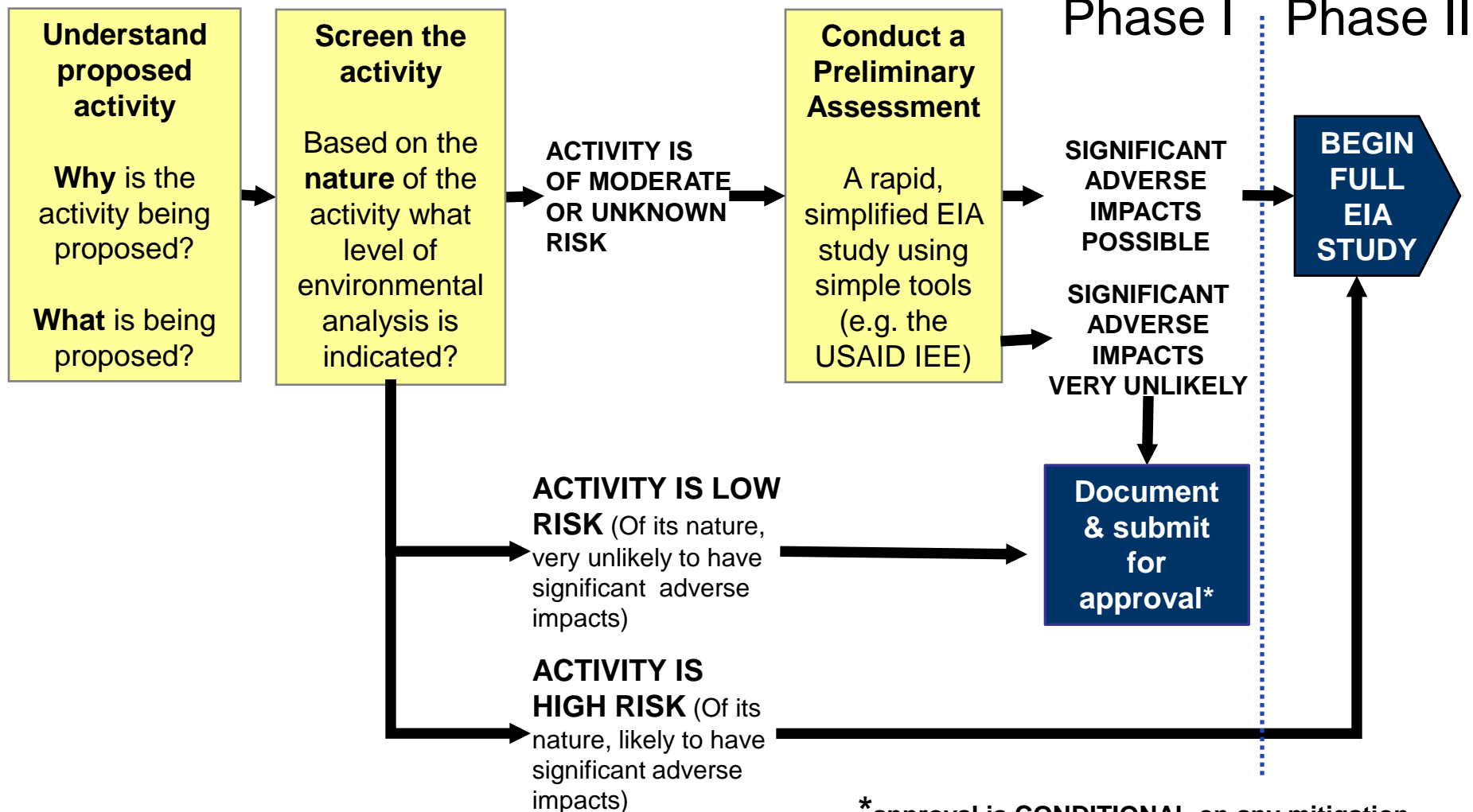
- Provide inputs (seeds, fertilizer, pesticides)
- Design and construct irrigation infrastructure
- Increased access to finance, lending
- Road rehabilitation
- Capacity building and technical assistance

What are some of your activities?

The EIA process



Phase I of the EIA process



* approval is **CONDITIONAL** on any mitigation specified by the preliminary assessment being implemented

Phase I: Screen the activity

Screen each activity

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

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?

Answering these questions does **NOT**:

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




Phase I: Preliminary Assessment

Conduct a Preliminary Assessment

A rapid, simplified EIA study using simple tools (USAID Initial Environmental Examination (IEE))

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 these determinations
- Sets out mitigation and monitoring for adverse impacts



Screening determines whether the preliminary assessment is necessary

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:



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



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

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.

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

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”*

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: 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">▪ <i>Changing means or technique</i>▪ <i>Changing or adding design elements</i>▪ <i>Changing the site</i>▪ <i>Specifying operating practices</i>	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 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.

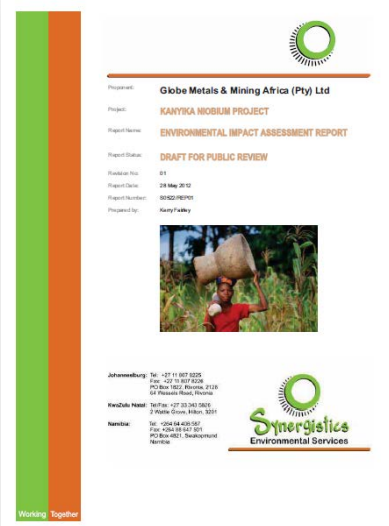
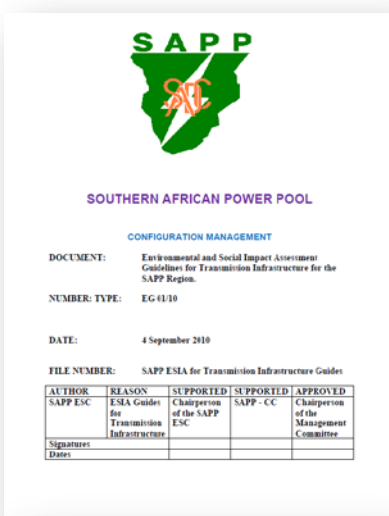
Three rules for Environmentally Sound Design & Management (ESDM)



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



Environmental Impact Assessment: The World Bank

The screenshot shows the World Bank website's Operational Manual page for OP 4.01 - Environmental Assessment. The page features a navigation menu at the top with links for Home, Site Map, Index, FAQs, and Contact Us. Below the menu are tabs for About, Countries, Data & Research, Learning, News, Projects & Operations, and Publications. A search bar is located on the right side of the page. The main content area is titled "Operational Manual" and includes a search bar with a dropdown menu set to "All" and a "GO" button. The breadcrumb trail reads: Home > Projects > Policies > Ext Opmanual > Table of Contents > OPs > OP 4.01 - Environmental Assessment. A sidebar on the left contains a "Search in Manual" section with a "Table of Contents" link, followed by "OPs" (with sub-links for BPs, OpMemos, and By Series), "Definitions", "Archived Statements", and "Print Manual". Below this is a "Selected Translations" section with links for Disclosure and Contact Us. 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." The date "OP 4.01 January, 1999" is displayed on the right. A text box contains the following information: "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." A note follows: "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)*.¹ 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).

Revised April 2012

1. The Bank² 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.

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Malawi: Environmental Management Act of 1996

MALAWI

The Malawi Gazette Supplement, dated 16th August, 1996, containing
Acts (No.7c)

(Published 16th August, 1996)

ACT

No. 23 of 1996

I assent

Bakili Muluzi
President
5th August, 1996

PART V - ENVIRONMENTAL IMPACT ASSESSMENT, AUDITS AND MONITORING

24. Projects for which an environmental impact assessment is required
25. Environmental impact assessment reports
26. Review of environmental impact assessment reports
27. Environmental audits
28. Monitoring existing projects
29. Fees



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