Fundamental Skills of Environmental Impact Assessment (EIA)

GEMS Environmental Compliance-ESDM Training Series
Senegal, February, 2014

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:	ACTIONS:
increase sorghum production	• **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?

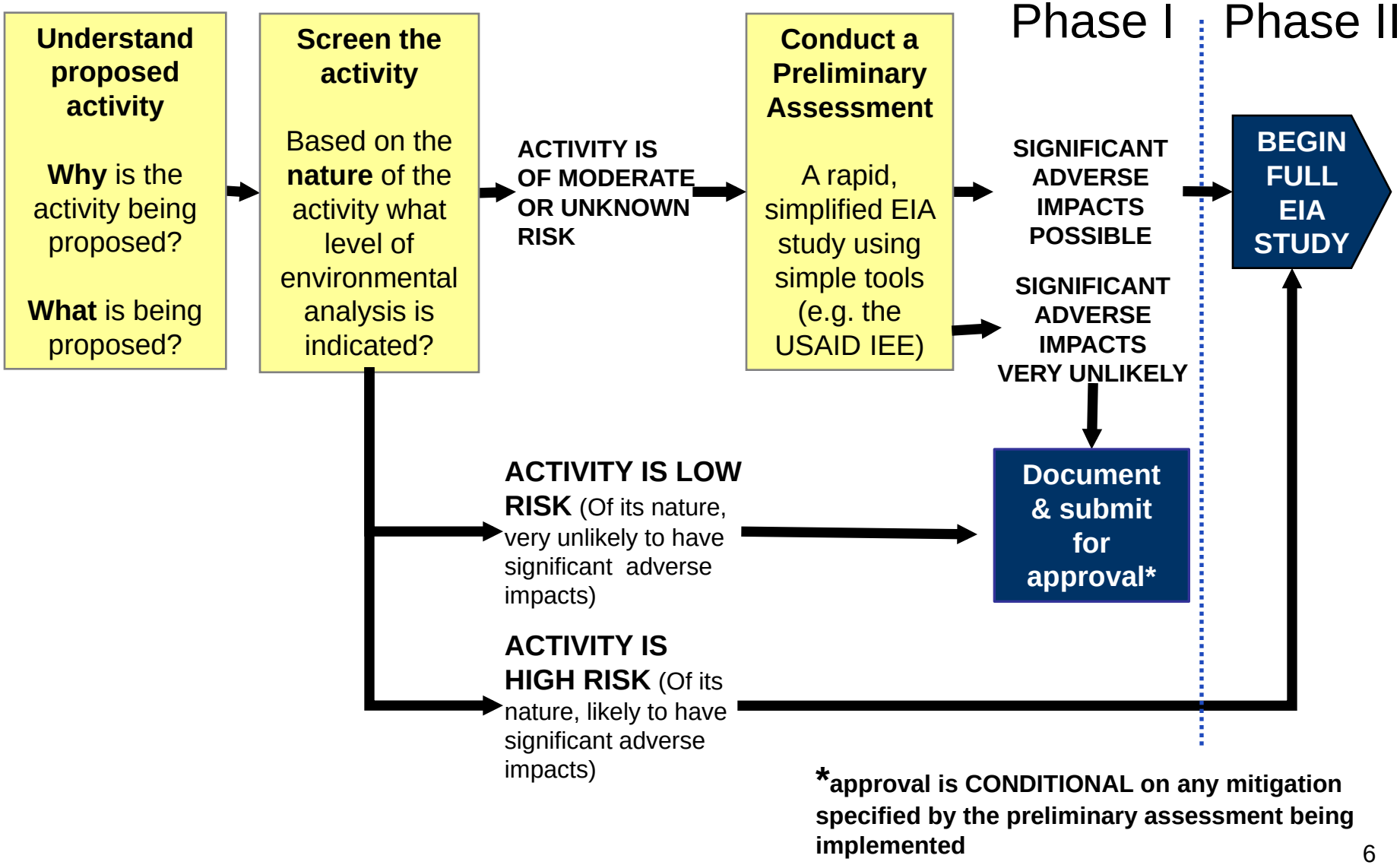
The EIA process

Phase II: Full EIA study (if needed)

- Scope
- Evaluate baseline situation
- Identify & 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



***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**

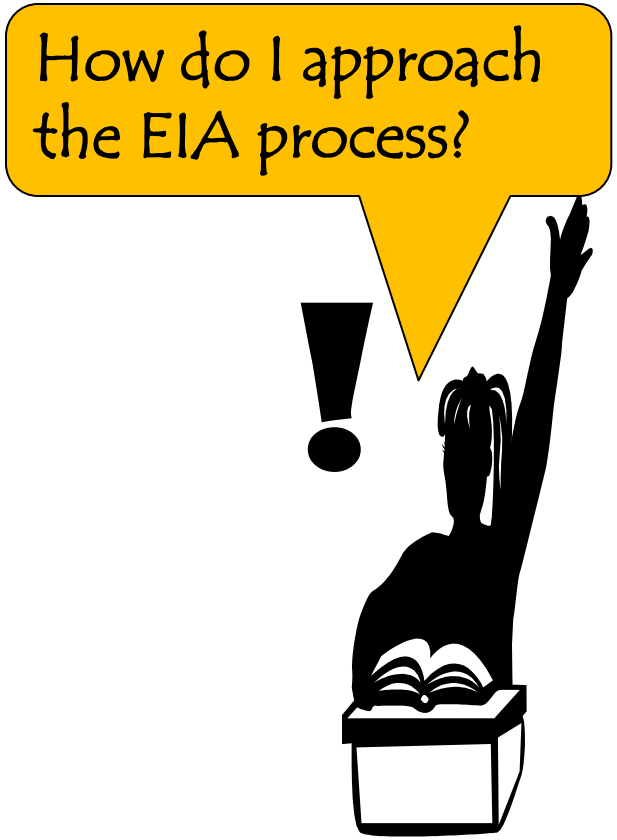
Public participation is required

A **professional EIA team** is usually required

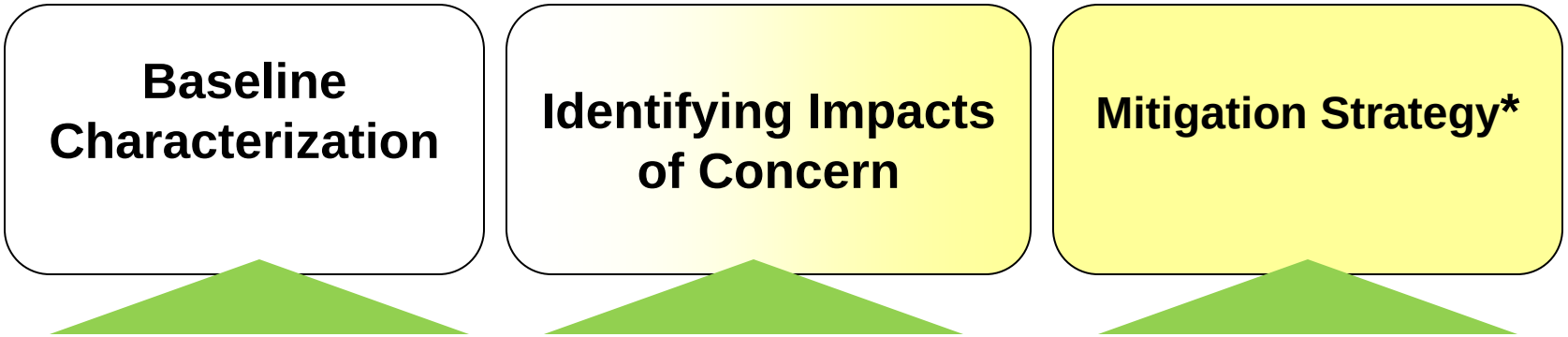
Fundamental EIA Skills

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



Fundamental EIA Skills



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

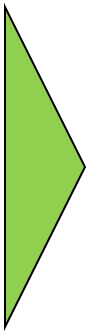
Key skill for avoiding adverse impacts and achieving ESDM

* 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:**
   - **<u>TALK</u> to staff who know the project, and know the sites.**
   - **<u>OBTAIN</u> project documents and information**
2. **DIRECT OBSERVATION:**
   - **<u>Go to the site(s)</u>! 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

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

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

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

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

<u>decide which impacts are of concern</u>

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: ▪ ***Changing means or technique*** ▪ ***Changing or adding design elements*** ▪ ***Changing the site*** ▪ ***Specifying operating practices***	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	Easily mitigated impacts
These must ALWAYS be mitigated to the point that the impact is non-significant	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.

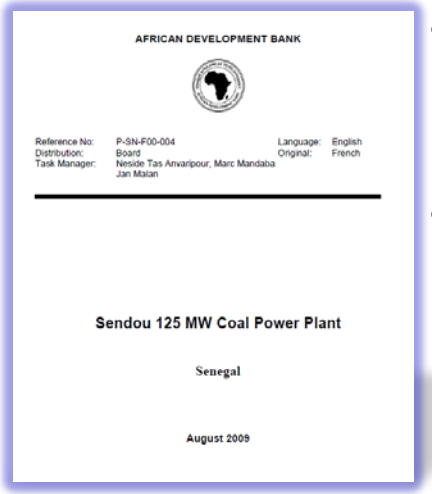
CONTROL of impacts with Operation & Maintenance (O&M) practices is more difficult to monitor, sustain.

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


AFRICAN DEVELOPMENT BANK

Reference No: P-SN-F00-004 Language: English
Distribution: Board Original: French
Task Manager: Nenide Tas Anvaripour, Marc Mandaba
Jan Malan

Sendou 125 MW Coal Power Plant

Senegal

August 2009


REPUBLIQUE DU SENEGAL
Un Peuple-Un But-Une Foi

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Ministère de la Jeunesse, de l'Emploi et de la Promotion des Valeurs civiques
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Projet d'Appui à la Promotion de l'Emploi des Jeunes et des Femmes (PAPEJF)

Entité de supervision : Banque Africaine de Développement

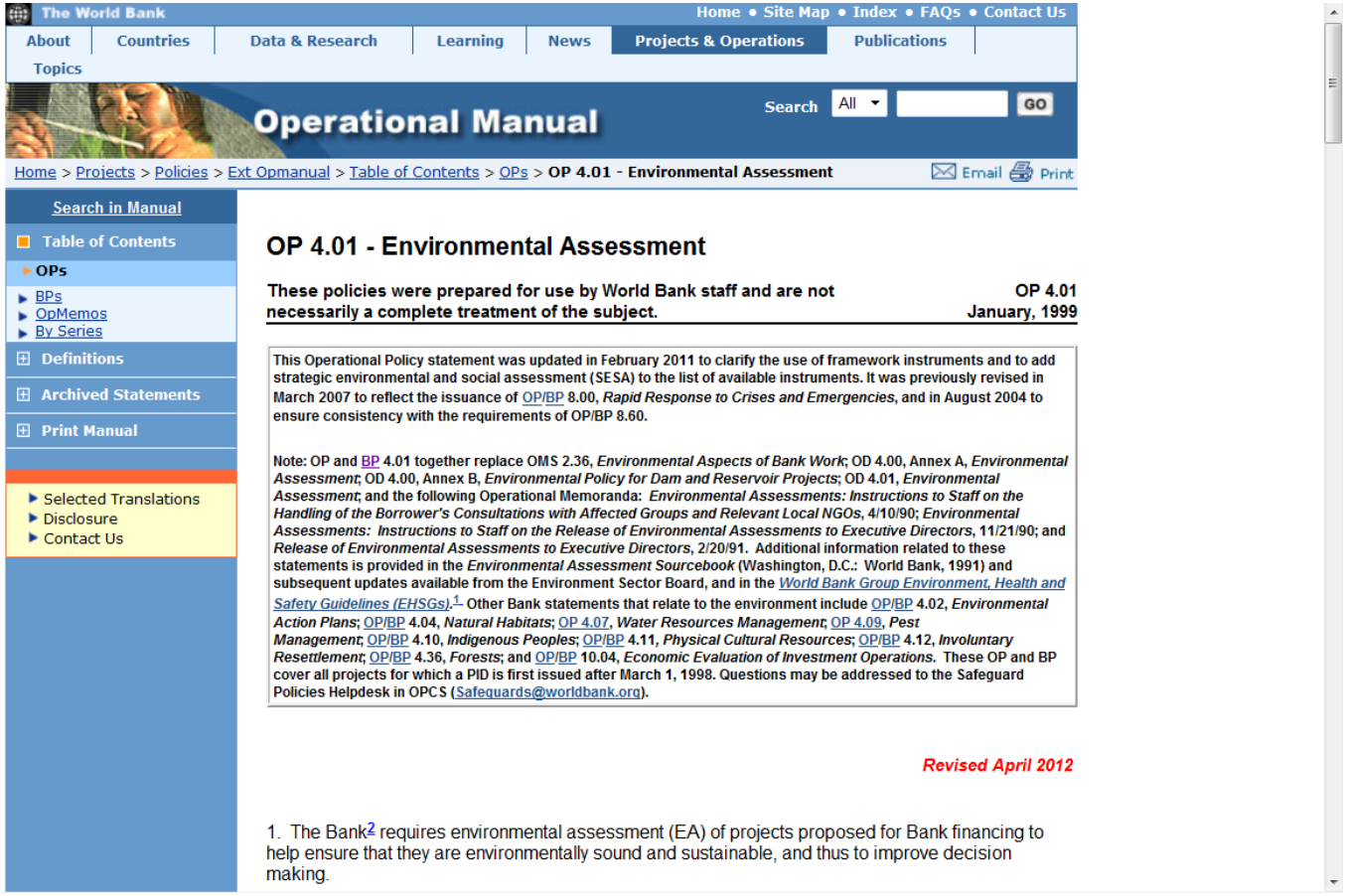
Evaluation environnementale stratégique (EES) et Plan de Gestion environnementale et sociale (PCGES)

M.Birame Diouf
Consultant

Juillet 2013

- 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



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Operational Manual

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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.

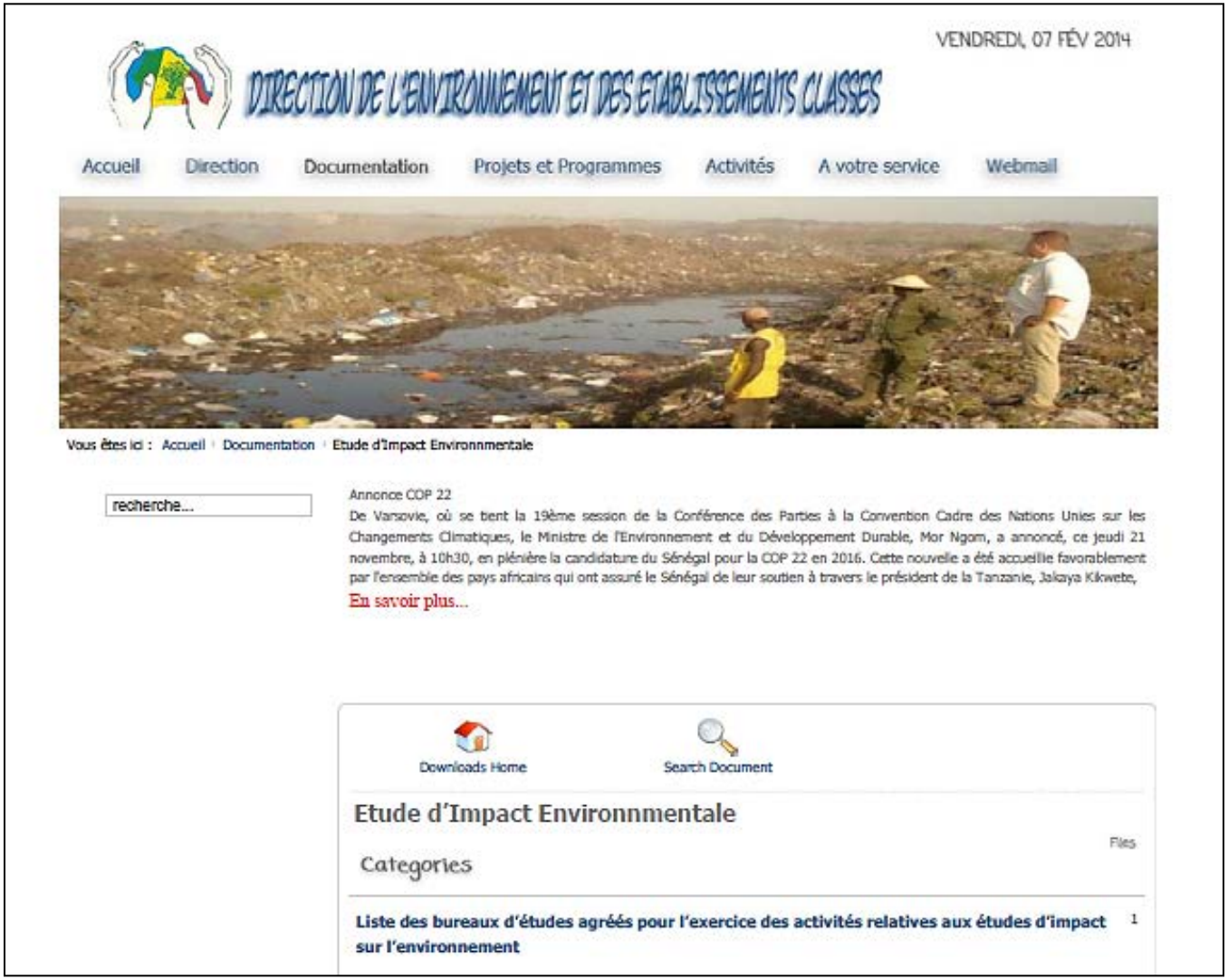
Note: OP and BP 4.01 together replace OMS 2.36, *Environmental Aspects of Bank Work*; OD 4.00, Annex A, *Environmental Assessment*; OD 4.00, Annex B, *Environmental Policy for Dam and Reservoir Projects*; OD 4.01, *Environmental Assessment*; and the following Operational Memoranda: *Environmental Assessments: 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)*.[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 Bank[2] 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."

Senegal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Annonce COP 22
De Varsovie, où se tient la 19ème session de la Conférence des Parties à la Convention Cadre des Nations Unies sur les Changements Climatiques, le Ministre de l'Environnement et du Développement Durable, Mor Ngom, a annoncé, ce jeudi 21 novembre, à 10h30, en plénière la candidature du Sénégal pour la COP 22 en 2016. Cette nouvelle a été accueillie favorablement par l'ensemble des pays africains qui ont assuré le Sénégal de leur soutien à travers le président de la Tanzanie, Jakaya Kikwete,
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Liste des bureaux d'études agréés pour l'exercice des activités relatives aux études d'impact sur l'environnement
1

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