EWCE 431
Environment and Social Impact Assessment

Basic Concepts for Assessing Environmental Impacts

Definition of EIA

✓ **Environmental Impact Assessment is**

A formal process for identifying:

- likely impacts of activities or projects on the ENVIRONMENT, and on human health and welfare.
- means and measures to mitigate & monitor these impacts

Environment is broadly interpreted: physical, biological, and social.

In EIA, the term "impacts" is used instead of "effects of activities."

What is an impact?

What is an impact?

The impact of an activity is a deviation (a change) from the baseline situation that is caused by the activity.

The baseline situation is the existing environmental situation or condition in the absence of the activity.

The baseline situation is a key concept in EIA.

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

The baseline situation

In characterizing the baseline situation, many environmental components MAY be of interest

The components of interest are those that are likely to be affected by your activity—or 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*

The baseline situation

The baseline situation is not simply a "snapshot."

Describing the baseline situation requires describing both the normal variability in environmental components & current trends in these components.



This chart of groundwater levels shows both variability and a trend over time.

Both are part of the groundwater baseline situation.

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.

Specifically,

It is ESSENTIAL in EIA to focus on the most significant impacts.

Don't waste effort & time analyzing and discussing impacts that are less important.

Example of Impacts

Effects On Land

- Compaction of soils by earth-moving equipment
- Surface erosion and alteration
- Excessive agricultural soil exploitation as a result of future growth in a prone-to-erosion zone
- Mangrove swamp soils are irreversibly salinized and acidified.

Effects On Water

- Use of a considerable amount of water in curing
- Usage by dwelling for routine tasks throughout the operational period

Example of Impacts

Effects On The Air

- During the Construction Stage
- More vehicular movement
- Waste-related emissions

Effects Due To Noise

- Noise from construction equipment
- Diesel generator operating noise
- An increase in transit noise from nearby roads within site.

Effects On Environmental Biology

- Biological loss as a result of site removal

Example of Impacts

Effects On Socioeconomic Implications

- Has both beneficial and harmful consequences
- Cultural Influences and Well-Being
- Demographic shifts

Effects Due To Waste Produced

- Debris from construction or demolition
- Municipal garbage
- Hazardous waste and electronic waste

What is an activity?

We are discussing the impacts of activities.
What are activities?

✓ **An activity is:**

a desired accomplishment or output

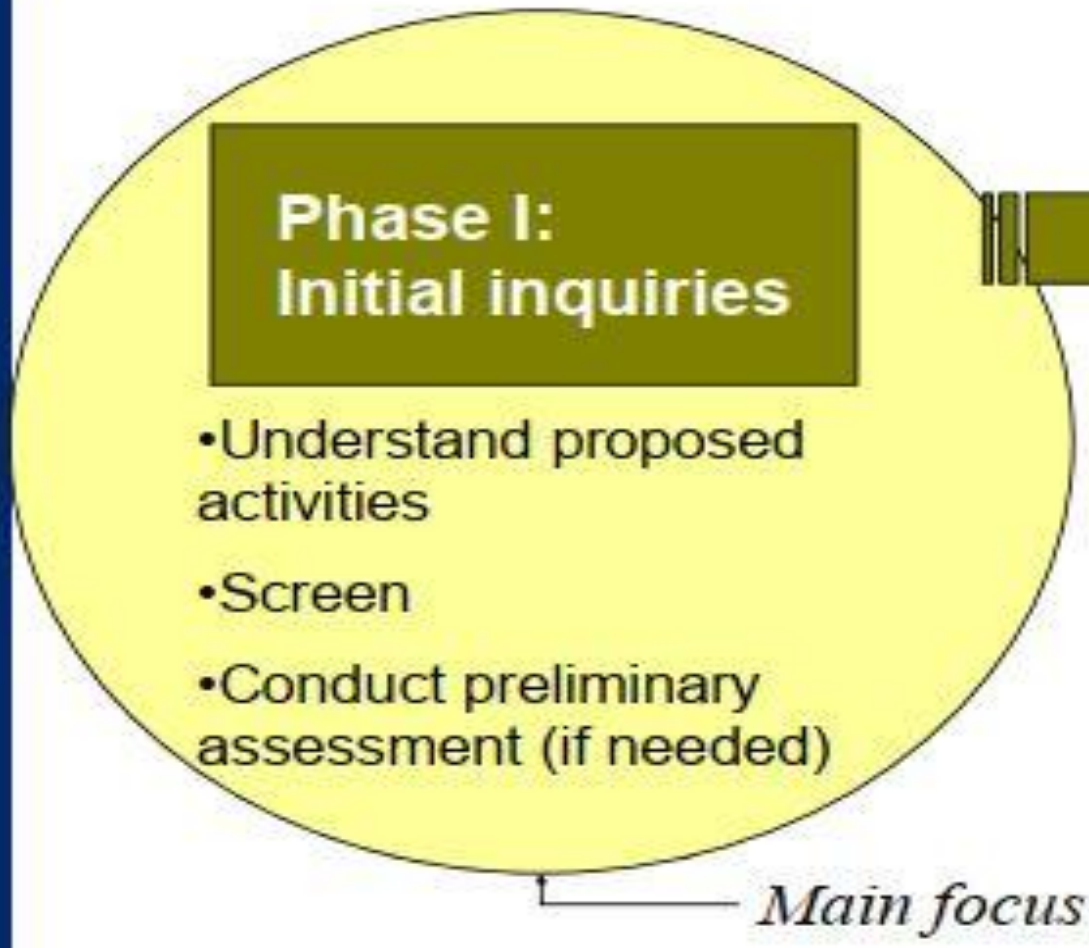
E.g.: a road, seedling production, or river diversion to irrigate land

Accomplishing an activity requires a set of actions

ACTIVITY:	ACTIONS:
market access road rehabilitation	Survey, grading, culvert construction, compaction, etc. . .

A project or program may consist of many activities

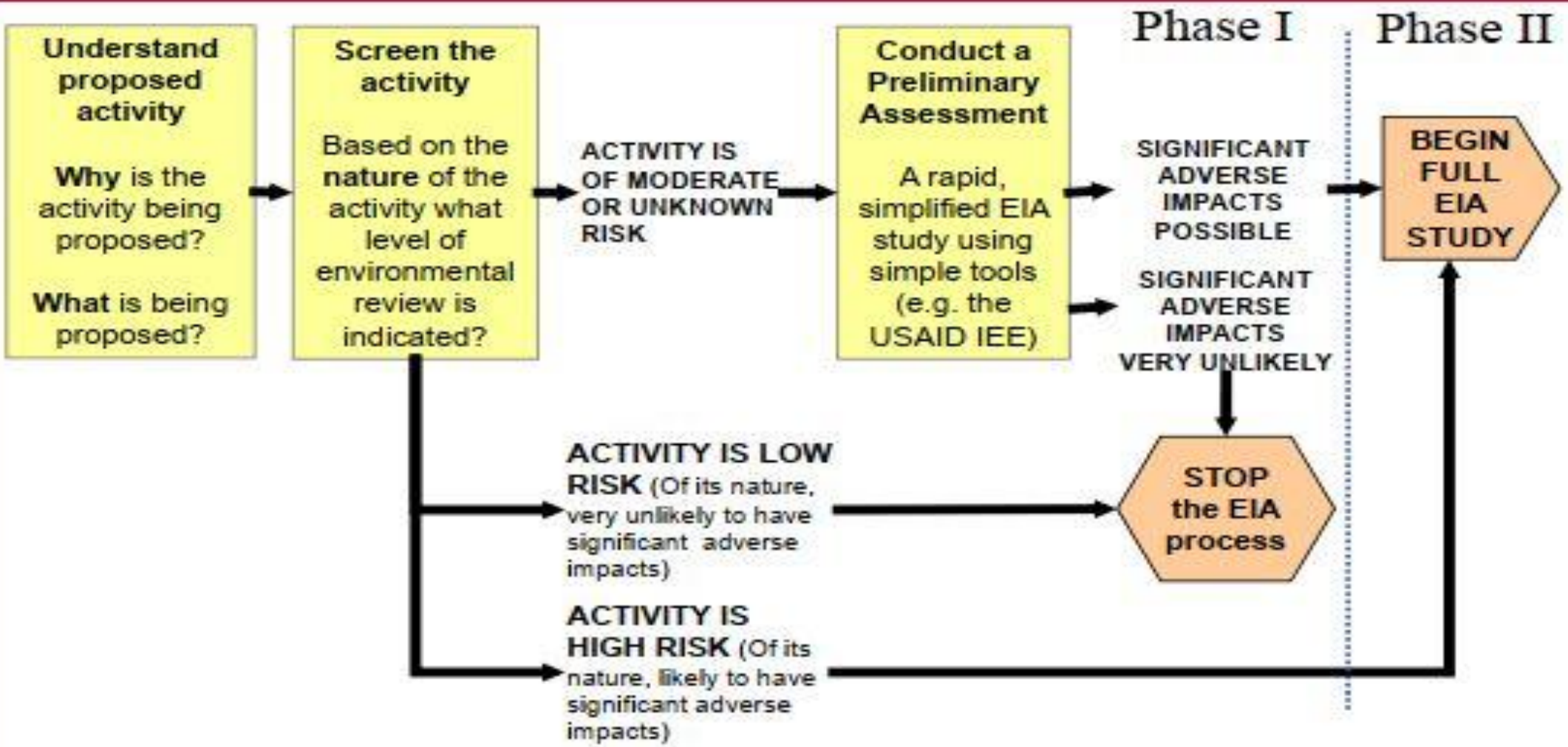
The EIA process



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

Phase 1 of the EIA Process



Phase 1 of the EIA process:

Understand the proposed activity

Understand the proposed activities

Why is the activity being proposed?

What is being proposed?

ALL EIA processes begin with understanding WHAT is being proposed, and WHY.

The question "WHY IS THE ACTIVITY BEING PROPOSED? is answered with the development objective (D.O.).

"buildin a road" **Not a D.O.!**

"increasing access to markets" **Is a D.O.**



"If we don't understand it, we can't assess it!"

We must understand the Development Objective to identify environmentally sound alternatives

Phase 1 of the EIA process:

Understand the proposed activity

Understand the proposed activities

Why is the activity being proposed?

What is being proposed?

Once we understand the development objective, we must fully understand WHAT is being proposed.

This includes associated actions!

PRIMARY ACTIVITY: construction of diversion dam & irrigation canal

ASSOCIATED ACTIONS:

- Survey
- negotiate land tenure
- construct borrow pit
- establish construction camp
- construct temporary diversion structure
- dispose of soil, debris

Phase 1 of the EIA process:

Screen the activity

Screen each activity

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

SCREENING is the process of asking a very basic set of questions about the nature of activity.

These questions:

- **do NOT require analysis.**
- **do NOT require detailed knowledge about the proposed sites, techniques or methods**

these questions are indicative of associated risks

Example screening questions:
Does the activity involve:

- Penetration road building?
- Large-scale irrigation?
- Introduction of non-native crop or agroforestry species?

Phase 1 of the EIA process:

Screen the activity

Screen each activity

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

screening classifies the activity into a RISK CATEGORY:

- **VERY LOW RISK** → **EIA process ends**
- **VERY HIGH RISK** → **Do full EIA study**
- **MODERATE OR UNKNOWN RISK** → **Do preliminary assessment**

The outcome of the screening process determines the next step in the EIA process

! Each donor agency and national EIA law has its own set of screening questions.

Phase 1 of the EIA process:

The Preliminary Assessment

Conduct a Preliminary Assessment

A rapid, simplified EIA study using simple tools (e.g. the USAID IEE)

The purpose of a preliminary assessment is to provide documentation and analysis that:

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

Screening determines whether the preliminary assessment is necessary

Phase 1 of the EIA process:

The 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 project is very unlikely to have significant adverse impacts. (EIA process ends)**
- **With specified mitigation and monitoring, the project is unlikely to have significant adverse impacts**
- **The project is likely to have significant adverse impacts (full EIA study is required)**

What is mitigation?

Mitigation is. . .

✓ The implementation of measures designed to reduce the undesirable effects of a proposed action on the environment

To arrive at findings: Identify, Predict and Judge

Arriving at the FINDINGS in a preliminary assessment requires 3 steps:

1. **Identify potential impacts** → Many resources describe the potential impacts of typical small-scale activities.
2. **Predict potential impacts** → Determine which potential impacts are likely to become actual, and quantify these impacts to the extent possible.
3. **Judge the significance of potential impacts** → Determine whether the predicted impacts are indeed significant!
   THIS WILL OFTEN DEPEND ON HOW EFFECTIVE THE PROPOSED MITIGATION MEASURES ARE!



We only proceed to Phase II of the EIA process

if

Phase I indicates that a FULL EIA STUDY is required

Most small-scale activities do not require a full EIA study!

Phase 2 of the EIA process:

The 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 usually required.**
- **A professional EIA team is usually required.**

Phase 2 of the EIA process:

Scoping

A very early exercise in an EIA, in which an attempt is made to identify the attributes of components of the environment for which, there is public (and professional) concern and upon which the EIA should be focused

Scoping reveals the following:

- EIA spatial and temporal limits
- Significant challenges and concerns
- Information required for decision-making

Importance of Scoping in development projects

- Helps Promote efficient EIA by identifying acceptable areas for consideration.
- Prevents wasteful costs and time delays caused by oversights or unneeded research areas.
- Ensures that vital issues are not overlooked

Phase 2 of the EIA process:

The Full EIA study

With a few additions, the basic outline of the preliminary assessment is the template for the steps involved in a full EIA study:

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



Basic steps of the full EIA study

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

Communicate & Document throughout

Phase 2 of the EIA process:

The Full EIA study

✓ **In summary,**

The full EIA study is a far more significant effort than the preliminary assessment.

It is reserved for activities for which screening or the preliminary assessment shows that significant impacts are likely.

Who is involved in EIA?

Sponsor of the activity
(usually commissions/conducts the EIA)

Regulatory agencies/ Review authorities

Broad-based public
Communities (men & women)
Civil society
Private Sector

Public consultation is usually only REQUIRED for full EIA studies.

However, it is good practice for preliminary assessments because:

- Predicting impacts is FACILITATED by broad-based public consultation; Judging significance is very difficult without it.
- Transparency and accessibility require disclosure to stakeholders

Making EIA effective

To be an effective tool, EIA must be:

- **a integral part of the project development cycle.**

  EIA is undertaken early enough to affect project design

  Mitigation and monitoring developed in the EIA process is implemented.

- **Honest**

  The full EIA study must consider real alternatives

  Impacts must be assessed honestly.

- **Transparent & accessible**

  The EIA products must be clear and accessible to key actors.