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Environmental Impact Assessment

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- If you have any suggestions about this course
- Any other questions on study

Please do not hesitate to contact me!

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Environmental Impact Assessment

SYLLABUS

- Chapter I Introduction
- Chapter II Process And Method
- Chapter III Assessment of Individual Environmental Factors
- Chapter IV Overview of EIA Cases

Course Learning Objectives

At the end of this course you should be able to:

- Define and state the purpose of environmental impact assessment (EIA)
- Specify the process of EIA
- Learn the application of EIA in China
- How to do the EIA for construction projects

Chapter I Introduction

Lesson Learning Goals

At the end of this lesson you should be able to:

- In your own words, define and state the conception of **Environment**
- Define and state the purpose of **environmental impact assessment (EIA)**
- Specify the benefits of EIA
- Discuss the role of EIA in supporting sustainable environmental management decision making

1.1 Environment

- What is “The Environment”?

Humans have always inhabited two worlds.

- Natural World

- Social World



1.1 Environment

- What is “The Environment”?

Environment can be defined as:

- (1) the **circumstance** or conditions that **surround an organism or group of organisms**
- (2) the complex of social or cultural conditions that **affect** an individual or community.

1.1 Environment

- Global Environmental Issues

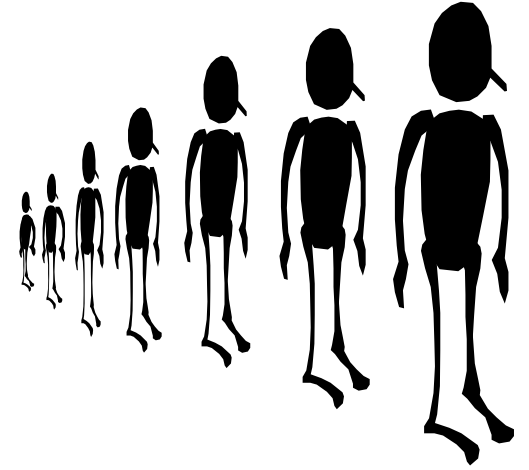
How many global environment issues do you know?

- Climate Change and Global Warming
- Biodiversity
- Acid Rain
- Marine Pollution
- Ozone Layer Depletion
- GE Food
- Population Explosion
- ...



Why does environment matter?

Historical Background

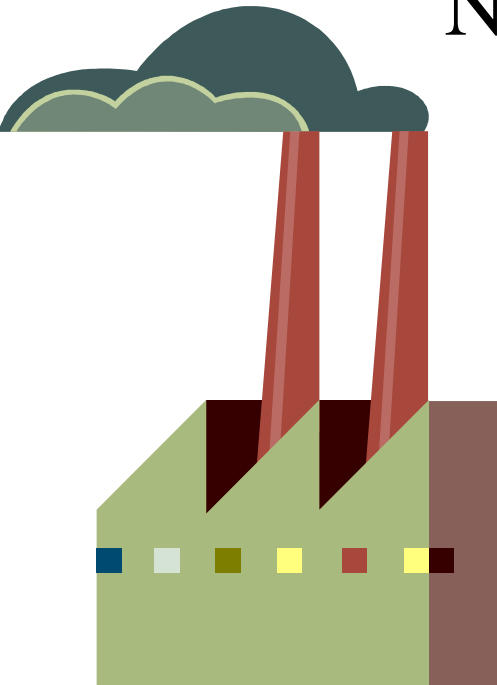


Population Growth

Natural Resource Pressures

Urbanization

Industrialization



What is an impact?

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

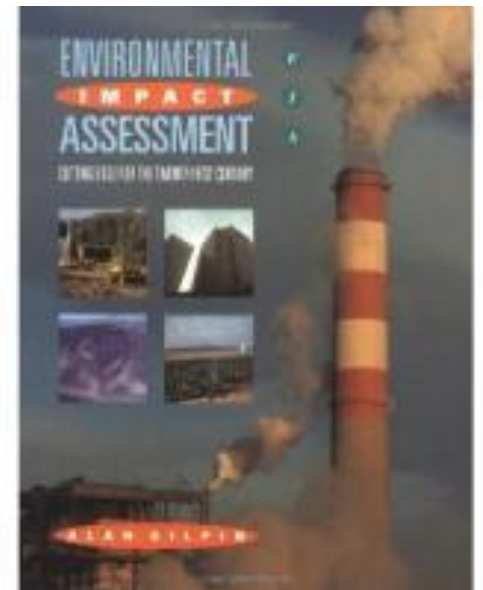
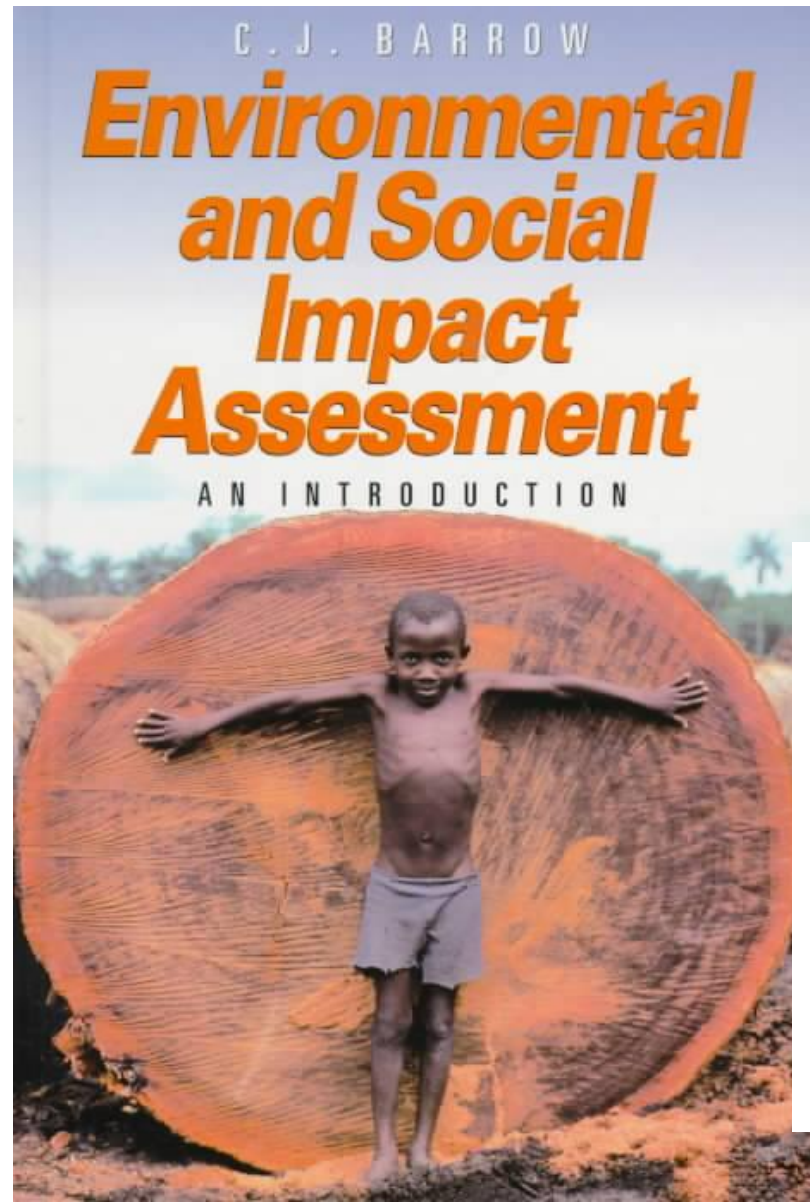
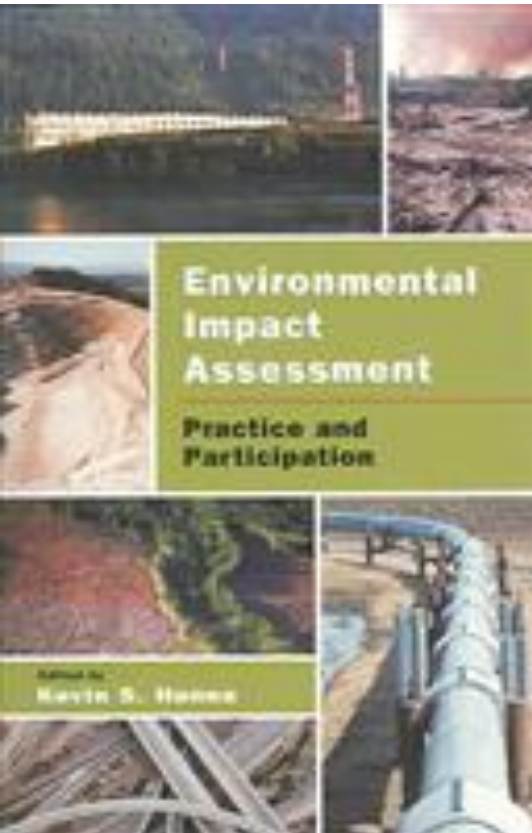


To measure an impact, you must know what the baseline situation is.

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

The **baseline situation** is a key concept in EIA.

Environmental Impact Assessment

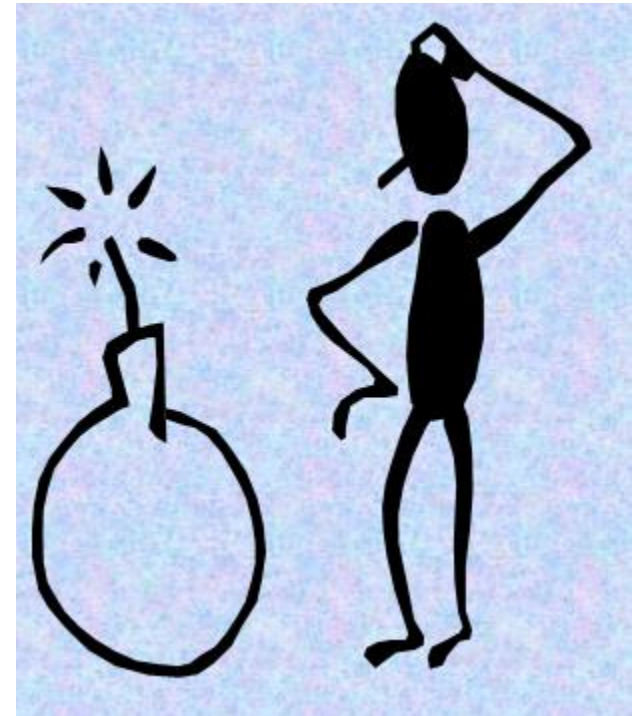


Basic learning of EIA:

Process of decision-making

Focus is

- Natural environment and
- People' opinions



Origins and history of EIA

- 1960s witnessed the emergence of environmentalism (e.g. publication of *Silent Spring* by Rachel Carson in 1962)
- First formal system of EIA established in the US following the **National Environmental Policy Act (NEPA)** of 1969

Origins and history of EIA

- NEPA sought to ensure that environmental concerns were considered in the decision-making of Federal Government agencies
- Section 102(2)(c) required agencies to prepare a **detailed statement** on the environmental impact of “*proposals for legislation and other major Federal actions significantly affecting the quality of the human environment*”

Origins and history of EIA

- The statement – referred to as an **Environmental Impact Statement (EIS)** - should include details on
 - any **adverse environmental effects** which cannot be avoided should the proposal be implemented
 - **alternatives** to the proposed action

Origins and history of EIA

- Since 1969 a host of other countries have adopted EIA legislation
- In 1977 the European Commission began drafting a directive on EIA and finally published a proposal in 1980
- Directive 85/337/EEC *on the assessment of the effects of certain public and private projects on the environment* – the ‘**EIA Directive**’ was adopted in July 1985

1.2 Environment Impact Assessment

- The Objectives of EIA

To **help decision-makers** make well-informed decisions related to proposed projects/activities.

- *Predict environmental impact of actions;*
- *Find ways and means to reduce adverse impacts;*
- *Shape the actions to suit local environment;*
- *Present the predictions and options to the decision-makers;*

• Why do EIA ?

- Promotes **better planning** and leads to more responsible decision making; ensures that renewable and non-renewable resources are used wisely
- Evaluates the rationale behind proposed projects and activities; are there alternatives to a proposed project or activity?
- Assists in **pursuing sustainable development** by evaluating alternatives means of undertaking proposed projects and activities

• Why EIA is Needed ?

- The **natural environment is the foundation** of the world economy and our social well-being
- Past development practices have severely degraded the natural environment and wasted scarce resources
- Increasing development pressures (e.g., industrialization, urbanization, and resource use) will inevitably accelerate **environmental** degradation unless **sustainable environmental** management practices are adopted

- **The Benefits of EIA:**

The benefits to local communities from taking part in environmental impact assessments include:

- A healthier local environment (forests, water sources, agricultural potential, recreational potential, aesthetic values, and clean living in urban areas)
- Improved human health
- Maintenance of biodiversity
- Decreased resource use
- Fewer conflicts over natural resource use
- Increased community skills, knowledge and pride

What is the purpose of EIA ?

“To LOOK before you LEAP!”

- ***EIA is now a required process in more than 100 nations.***
- ***The International Association for Impact Assessment (IAIA) is a global network with 2,700 members from more than 80 countries.***

WHAT CHANGES CAN EIA BRING?

Before introduction of EIA:

- Government planning and decision-making:

“D-A-D” ---- “Decide, Announce, Defend”

- Role of citizens:

“Critics” “Objectors” “Protestors”

- Environmental conditions:

Steadily deteriorating

EIA Core Values

- **Sustainability:** The EIA process will provide necessary environmental safeguards
- **Integrity:** The EIA process will conform with established standards; underlying science is credible and decisions are justified
- **Utility:** The EIA process will provide balanced, accurate information for decision making

EIA Guiding Principles

- **Participation:** Appropriate and timely access by all interested parties
- **Transparency:** All decisions should be open and accessible
- **Certainty:** Process and timing agreed in advance and followed by all
- **Accountability:** Decision makers and project proponents are responsible for their actions

EIA Guiding Principles

- **Credibility:** Assessments are professional and objective
- **Cost-effectiveness:** Environmental protection is achieved at the least cost
- **Flexibility:** Process is adaptive and responsive
- **Practicality:** Information and outputs are usable in decision making and planning

Integration of EIA into the Decision-Making Process

- **Timing:** EIA conducted early in the project cycle
- **Disclosure:** EIA results disclosed to all interested parties
- **Weight:** EIA results are considered by decision makers
- **Revisions:** Plans revised to include feasible mitigation measures or a less damaging alternative

Integration of EIA into the Decision-Making Process

- **Mitigation:** Agreed-upon mitigation measures are implemented and monitored for effectiveness
- **Monitoring:** Post-project, follow-up monitoring of impacts conducted and results acted upon

Sustainable Development

“Sustainable development is development that meets the needs of the present **without compromising** the ability of future generations to meet their own needs.”

Sustainability Criteria

- Application of clean technology
- Waste recycling or use
- Material utilization allowing **recycling or re-use**
- Energy efficiency/Use of renewable energy sources
- Public acceptability/Involvement of the community
- Full cost recovery for goods or services
- Equitable cost-benefit distribution