



CTU

CZECH TECHNICAL
UNIVERSITY
IN PRAGUE

ENvironmental Engineering

Environmental Impact Assessment



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Complexity of Environment

See the lectures on the scope of ENE and SD

- Humans **manipulate with the natural resources** to gain certain goal (usually economic)
- The scale of the goals is often **no more local**
- Awareness of the potential consequences
 - Range of issues that need to be examined

Complexity of Environment

- **Multidisciplinary**
 - Difficult tasks – experts
 - Interconnectivity (cause effect chains)
 - Long response times
 - Uncertainties
 - Difficult to communicate
-
- Need of a decision supporting TOOL

Environmental Impact Assessment (EIA)

EIA - definition

...an evaluation procedure that helps planners and decision-makers to understand the environmental **impacts** of a proposed project or activity

...a technique for drawing together, in a systematic way, expert qualitative assessment of a project's environmental **effects**

1. Planning tool

2. Decision making instrument

EIA - purpose

- **Avoiding mistakes** that can be expensive and damaging in ecological, social and economic terms
- **Avoiding conflicts** and increasing project acceptance
- Integrating short-term needs with long-term goals
- Addressing **transboundary issues**
- **Improving project design** and **reducing capital and operating costs**
- Improving institutional co-ordination
- Considering **alternative projects** and designs
- Improving accountability and transparency in planning and decision-making.

(after Looijen, 2004: Lecture notes on EIA)

EIA - history

- 1970s – USA (from National Environmental Policy Action)
- soon Western countries (70s and 80s)
 - **Since 1988 in EU legislation**
- Today: countries independently modify the exact EIA procedure

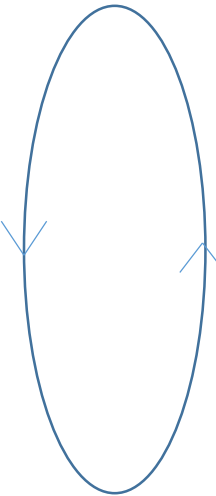
EIA - stakeholders

- Developer – private or governmental agency
- Decision maker – government agency
 - (+ Advisors)
- Board of experts
- Public
- EIA consultant – performs the study

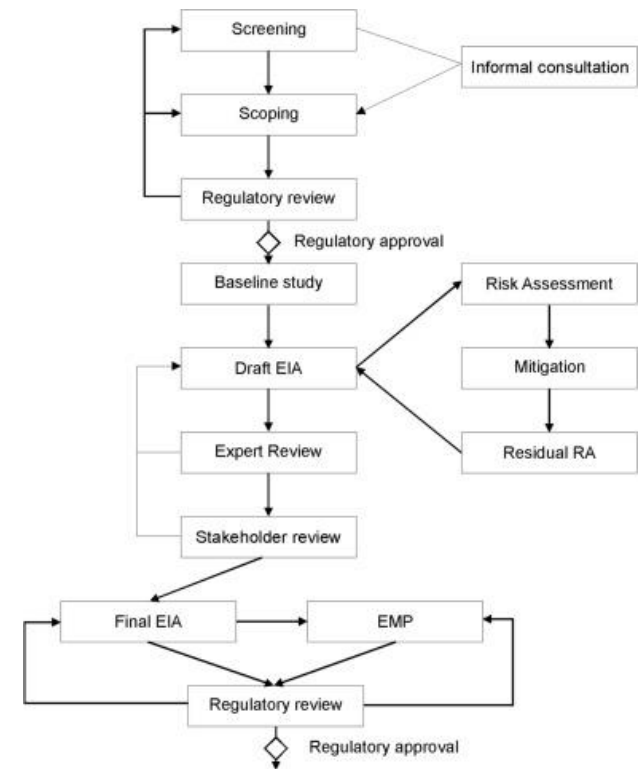
EIA – process

-Differs by country (eg. positive or negative lists)

1. Considering variants of the project
2. Designing the activity
3. **Screening** (is EIA necessary)
4. **Scoping** (which topics will be studied)
5. **EIA report** + review
6. Decision
7. Monitoring



Methodology exists



EIA – scoping

Environmental aspect (ecological & socio-economical)

- **Abiotic (land, water, soil, air, etc.)**
- **Biotic (flora, fauna, biodiversity, ecology)**
- **Current infrastructure (buildings, roads, monuments...)**
- **Aesthetic, scientific, cultural values**
- **Interrelationship of the above**

EIA – scoping

Table 7.1. Main environmental aspects identified for a mining project.

Physical-chemical			Biological		Cultural			Socio-economic		
<i>Earth</i>	<i>Water</i>	<i>Atmosphere</i>	<i>Flora</i>	<i>Fauna</i>	<i>Land use</i>	<i>Recreation</i>	<i>Aesthetic</i>	<i>Social</i>	<i>Quality of life</i>	<i>Economic</i>
Landform	Surface water	Climate	Trees	birds	forestry	fishing	scenery	demography	health	employment
Rocks	Ground water	Temperature	Shrubs	land animals	agriculture	boating	landscape	accomodation	safety	wage levels
Soils			Grasses	fish and	fishery	hunting	parks and	local	noise	training
Mineral			microflora	shellfish	residential	swimming	reserves	services		
resources			endangered	benthic	industrial	camping	monuments	crime		
			species	organism	mining and	hiking	historical			
				insects	quarrying		sites			
				endangered						
				species						

During construction and operating phase!

EIA – proposed alternatives

- 1. Proposed design**
- 2. No-go alternative**
- 3. Most environmental friendly**
- 4. Others...**



ENE 2019

Course homepage: storm.fsv.cvut.cz

5 Groups (5-6 students each)

Goal: study an existing EIA report, propose own alternative solution

The end: report + presentation

Potential reward: 20 bonus points (per person) for the exam

Points

- Exam = max 100 p.
- Assessment (report + presentation):
 - 20 p. per team member (5 members = 100 p.) minus reductions
 - Team can redistribute points according to contribution of each member (your selfevaluation will be attached to the final report)
 - Max. 30 p./person, min. 0 p./pers. (no negative points)
 - Management of the group is your business! We will accept your evaluation.
 - Attendance on seminars of all is not compulsory, even though welcomed. One per group must come regularly. Everybody must be present during presentation.

Schedule of SEMINARS:

Students merged into one seminar parallel (all of us will work together)

- currently 25 students enrolled
- team work in groups of 4-5 students

Room C208, 12:00 – 13:40

Dates of the seminars (**Irregular, mostly even weeks**) :

23.9. (today) – brief information, basically cancelled due to incomplete list of the students

→ **3.10.** (odd week) – task definition, division into the groups

17.10. (odd week)

24.10. (even week)

14.11. (odd week)

28.11. (odd week)

→ **12.12., 12:00** (odd week) – project presentation

Compulsory attendance

The task – study an existing EIA report

- 1. Get know each other** within your groups (today)
- 2. Find an example** of any finished EIA report (landfill, highway, mine, factory, pipeline etc.)
 - preferably from country of a team member (but should be in English)
 - It is a team work – everybody must agree with the choice
- 3. Get familiar** with the report
4. Propose and evaluate an alternative solution
5. Presentation + report

(1) Get to know each other

- Interchange the contact information (emails, phone no., room no., etc.)
- Agree on the form of communication and group meetings (facebook, shared google document, dropbox etc.)
- Set the group leader (not compulsory)
- Redistribute the sub-tasks for the next deadline

(1) Find an EIA example

- EIA reports on internet (public)
- Usually Ministries of Environment
- Select EIA, not SEA (Strategic environmental assessment)
- Team work!
- send the selected EIA to david.zumr@fsv.cvut.cz (same EIA cases are not acceptable, first-come basis)

!!! FORBIDDEN EIAs:

- Nuclear reactor , power plant Olkiluoto, Finland
- Cross Island Line in Singapore
- Wind farm, Forsmark, Sweden

(task 1) Get familiar with the report

DEADLINE 1: 17.10. 2019

- Within a consultation introduce the EIA report (what project, where, when?)
- Why was EIA necessary?
- What are the key environmental factors?
- Who are the key stakeholders?
- EIA report reference (incl. www link)
- FORM:** up to you (slides, notes on the paper, oral, reference on the paper)
- ATTENDANCE:** at least one representative per group
- PENALTIES:** no show = -10 p. per person
not prepared = -1 to -5 p. per person