



CLEAN TECHNOLOGY

Practical Exercise

2015 - 2016

Tutors: Msc. Trang T. Nhu



TASKs

1. Renewable energy
2. Environmental impact category



TYPE 1. Renewable energy

a) Principles of technology

- Summarise the technology background, principles, and general overview.
- Analyse the current state of implementation, trends, and future perspectives.

b) Critical sustainability assessment

- Discuss the economics and the environmental effects of the technology.
- Give suggestions for improvement.

c) Discuss the application of the technology

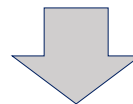
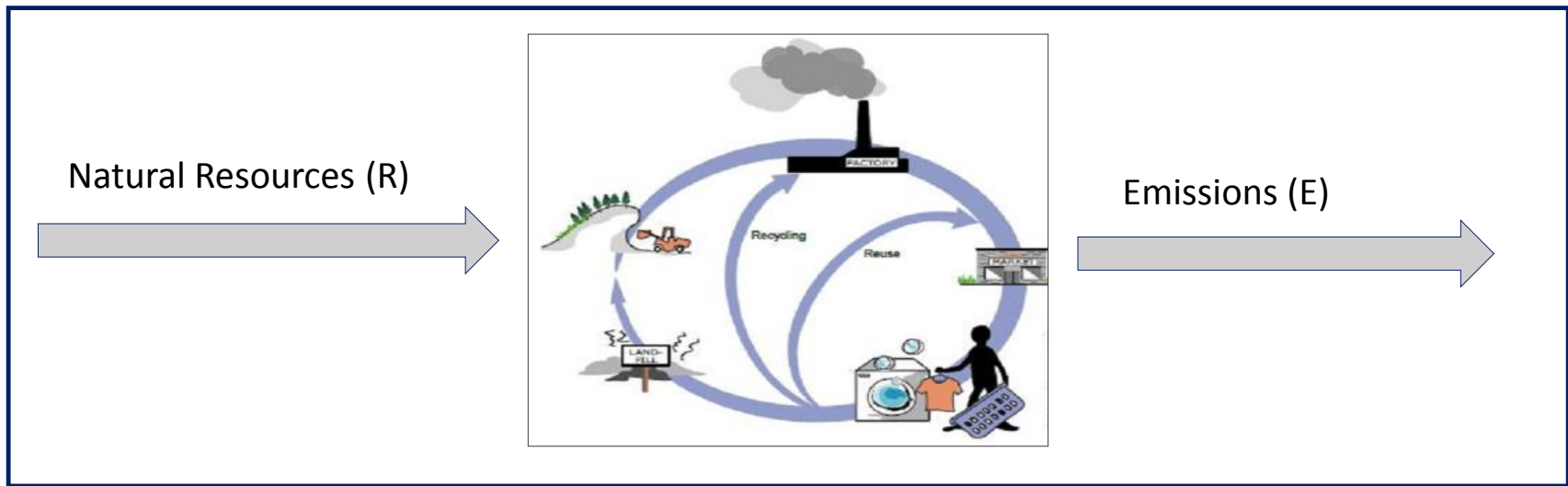
- Scrutinise the application of the technology in your countries.
- Opportunities and barriers to develop the technology: make a critical SWOT analysis.

d) Conclusions

- Provide a general synopsis of the technology and your personal views.



TYPE 2. Environmental impact category



Step 1: Classification

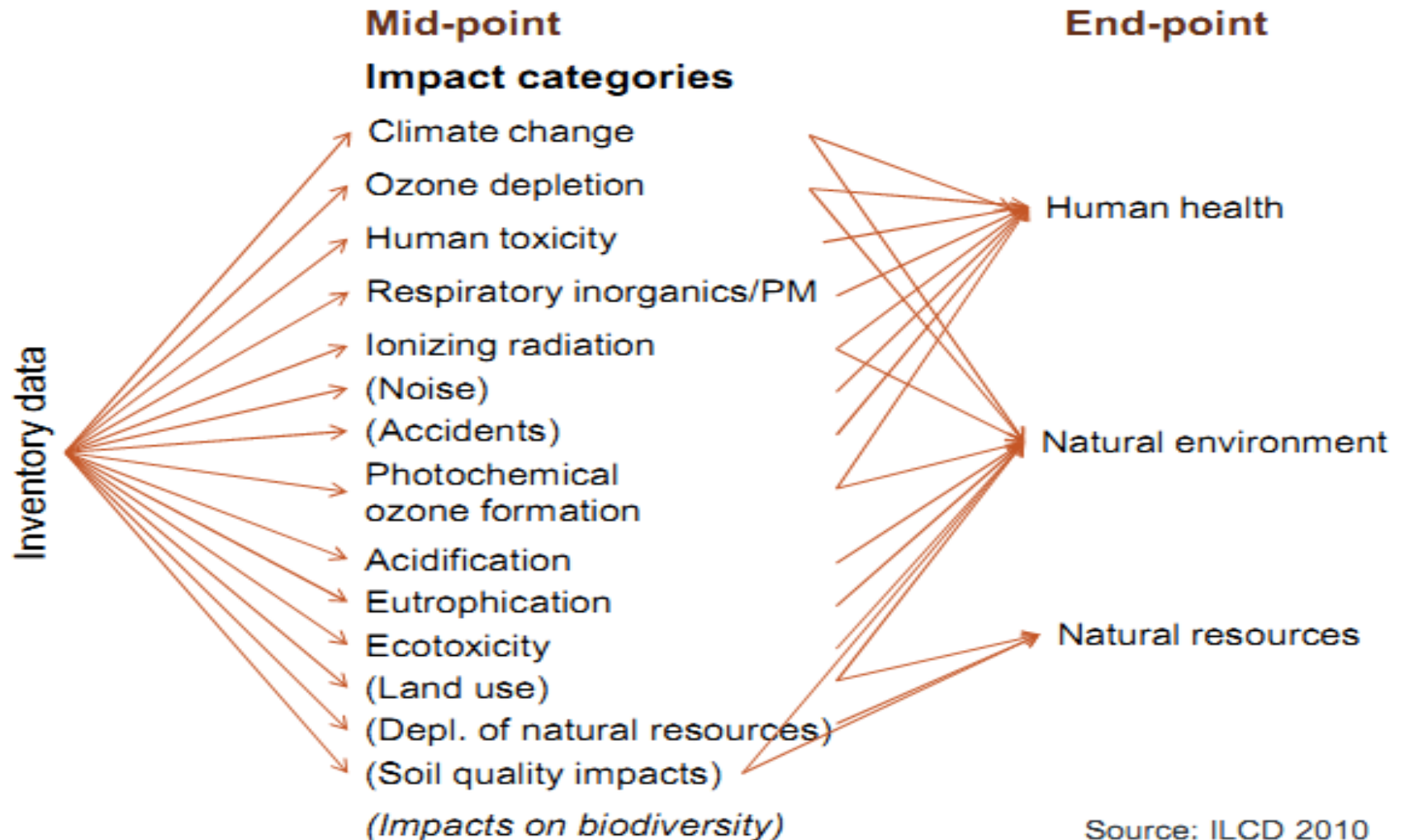
Environmental Impact Assessment

- Select environmental impact categories
- Classify R & E into impact categories



Problem-oriented approach

Damage-oriented approach





TYPE 2. Environmental impact category

a) Explain the impact category

- Summarise the background and its mechanism (“cause – and – effect chain”).

b) Briefly describe two metrics (unless only one exists) related to the category

- Summarise the general principles, the applications (pre-selected impact category)
- Review the metric from the broad spectrum SWOT point of view

c) Analyze the operability of the concept

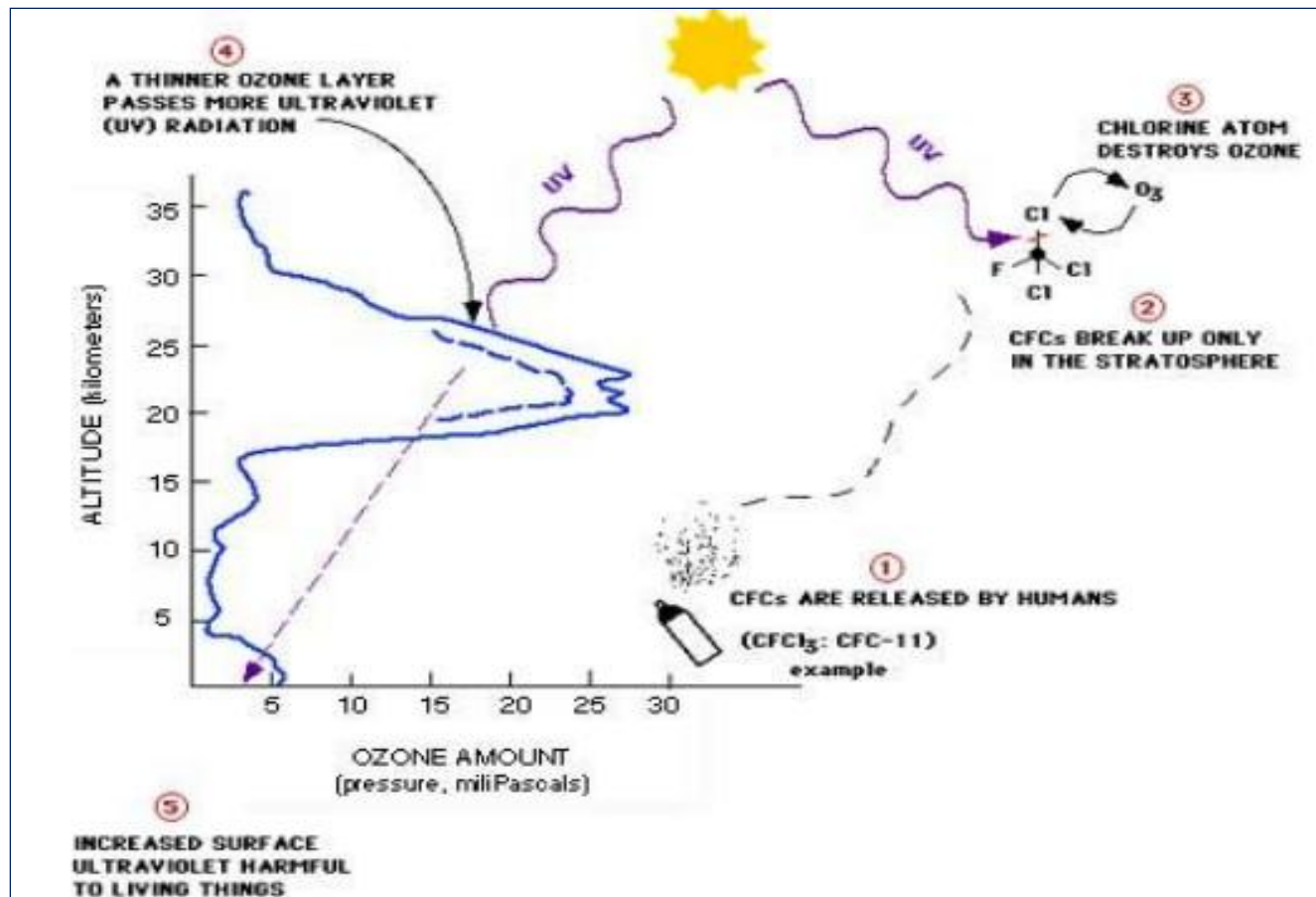
- Select technology at your countries which has an impact in the pre-selected category
- Propose improvements to remediate emissions or reduce consumption.

d) Conclusions

- Provide a general synopsis of the technology and your personal views.



a. Cause - and - effect chain : Ozone depletion





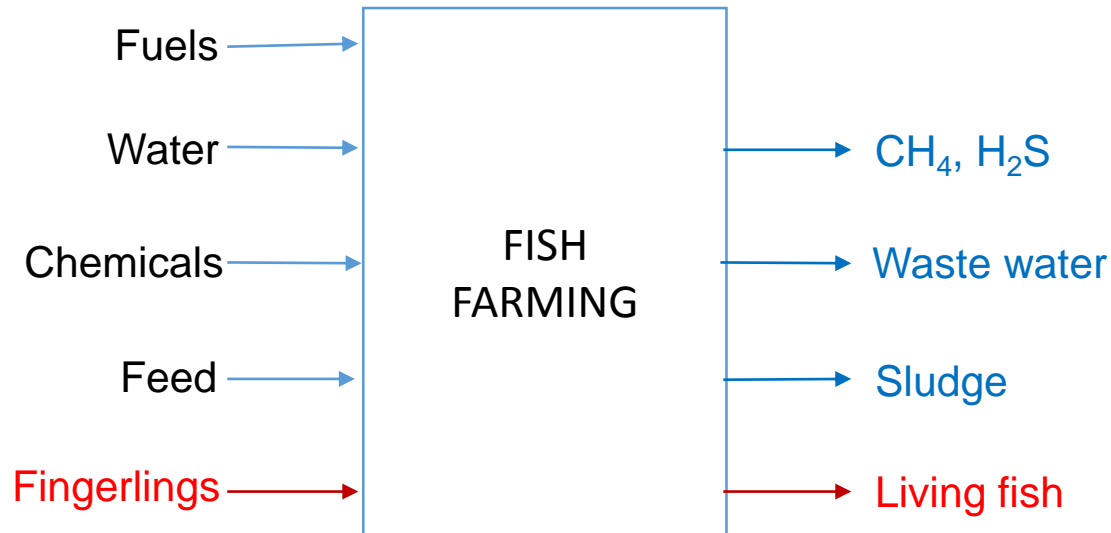
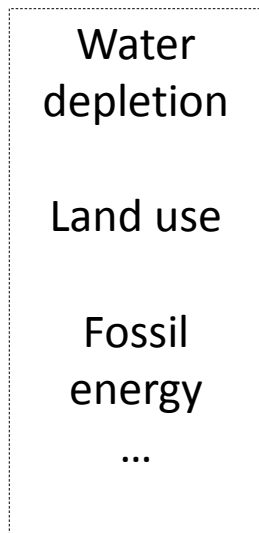
b. Select metrics

- CML2002
- Eco-indicator 99
- EDIP 2003
- Impact (2002)+
- ReCiPe 2008
- Swiss Ecoscarcity (*Ecopoints*)
- CEENE
- CED
- etc.

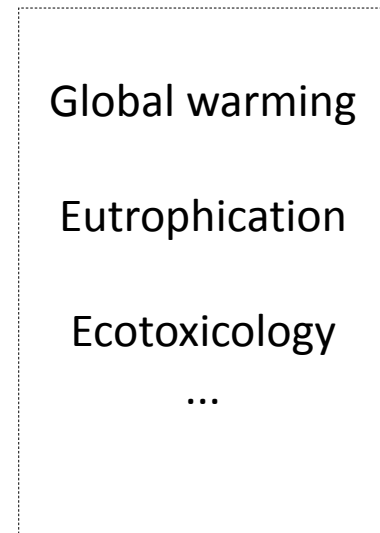


c. Select technology/industry

RESOURCES



EMISSIONS





TIPS:

- ILCD Hand book (2010) *Analysis of existing Environmental Impact Assessment methodologies for use in Life Cycle Assessment*. European Commission
- Search an published article (keyword: Life cycle assessment) to present the case study in your country.

Examples

TYPE 1

Bio-fuel cells
Hydrogen production
Biofuels - 1st generation
Biofuels - 2nd generation
Biofuels - 3rd generation
Biodiesel production from algae
Biogas production from bio-waste
Bioethanol production

etc...

TYPE 2

Climate change
Ozone Depletion
Eutrophication
Acidification
Photochemical Ozone Formation
Biodiversity
Toxicity
Resource depletion



Task registration

- Register the task: only 1 topic belong to TYPE 1 **OR** TYPE 2.
https://docs.google.com/spreadsheets/d/14Z4shR9Ht1Fo-V8iruyQ6_fTgRRUnpL3PaBWaj2r5K8/edit#gid=0
- Fill in the group number, task type and topics
- **Protect your registration from being edited (by other groups)**
<https://support.google.com/docs/answer/144687?hl=en>
- Email your registration to Trang.Nhuthuy@UGent.be
- **FIRST COME, FIST SERVED! > 7 groups TYPE 1 and 7 groups TYPE 2**
- Deadline: **Friday 23/10/2015**
- **After 23/10/2015, Trang will select the tasks for unregistered groups.**



Task submission

- Check Minerva for Topics, Groups and Guidelines
 - Report: max. 5 pages (excluding cover page, references).
 - Submit **report + presentation**: **before 6 Dec 2015**
- Only one of the group email to Trang.NhuThuy@UGent.be

Presentation

- **15 - 16 Dec 2015 – Room E2.009**
- Audience: all students
- Max. 10 minutes presentation per group
- 5 – 10 minutes questioning and discussion
- **No last minute changes to presentation!**
- **No late coming!**

Submission & Questions ?

Via e-mail

Only one of the group!

Subject: CT + Group number + Topic

e.g. CT1 Climate change