The GeDSeT project
Decision support tool for the management and material recovery of waterways sediments
Belgium and Northern France

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INTERREG IV

European Union: European Regional Development Fund

WASCON - 4C Environmental impact assessment - Decision support tools
Main issues:
- environmental impacts on surface and groundwater
- waterways navigability (fluvial transport)
- flood control
- → dredging

Key Question: “good” practices for the management of waterways sediments?
Objectives

➢ To provide waterways managers with a decision support system in order to compare different management and recovery processes

• Available technical options (scenarios)
  « from dredging to final disposal or re-use/recycling »

➢ Taking into account

• the ins and outs
  — not only costs or “environment” (global approach)
• the pros and cons
• local specificities (France/Belgium) and decision context

=> A case study dedicated to sediment issues
Methods and data to elaborate GeDSeT tool (Excel based)

**Methods**
- A “what-if” tool based on multi criteria analysis
- No aggregation
- Several steps:
  1. System boundaries (direct / indirect effects)
  2. Scenarios
  3. Identify effects/consequences
  4. From an extensive list of consequences to 8 criteria to compare scenarios
  5. Methods to quantify criteria (quantitative / qualitative)

**Data**
- Local data or data from references documents
- Input from research tasks of the GeDSeT project
  - “expert assessment”
Criteria & assessment methods

6 criteria organized following the sustainability concept of « well-being » based on:

- Fossil energy uses
- Climate change
- Ecosystem quality
- Human health
- Living environment
- Regional economic dev.

2 criteria
- Costs
- Decision risk level

Methods

Quantitative assessment
Based on Impacts characterization method (LCA)
Cd emission => Ecotoxicity impact => Ecosystem quality

Qualitative assessment

Quantitative assessment (industrial data)

Qualitative assessment
Focus on qualitative criteria dedicated to waterways sediment issues

> Living environment
  • Risk perception, land value…

> Regional economic development
  • Employment, fluvial transport, secondary materials…

> Decision risk level
  • Maturity of techniques, regulatory framework

=> Assessment by stakeholders interviews
How to present results?

Example

Fossil energy uses

Regional economic development

Living environment

Positive effects

Negative effects

Climate change

Ecosystem quality

Human health

Cost assessment

k€

Dommage due to sediment management

Improvement due to sediment management

Decision risk level note

Compared to the « nothing is done » option
Focus of some a-priori relevant scenarios

- Selective dredging
- Treatment for re-use
- Reconversion of disposal sites
Conclusions

The GeDSeT tool, a shared “white board” with:

> Keys of decisions and points of vue

> Indirect benefits for options that would not be retained in a local tendering process (enlarged system boundaries)
Conclusions

To be highlighted:

> The indirect costs of the cheaper options have actually to be borne by other public budgets.

  ⇒ Need for regulation and for discussions to support sediment recycling/re-use

> It allows to model the potential for regional economic development of innovative options, along with evaluating the level of risk associated with each decision.

> It confirms the benefits of early planning and of the integration of potential uses for sediments in waterways dredging plans.
Thank you for your attention…