Sediment and society: assessing approaches for including stakeholder interests and contaminated sediment management

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Motivation for the project

(source: www.stopp-giftdumping.org)
Description of work

- **PAST**
  - OSLO HARBOUR
  - Learn from the process

- **PRESENT**
  - BERGEN HARBOUR
  - Is another approach possible?

- **FUTURE**
  - NORWEGIAN HARBOURS
  - Transfer of knowledge
Oslo Harbour Remediation Project
Comprehensive remediation - dredging and capping
Deep water disposal site
Land disposal at Langøya
Research aims for Oslo Harbour case study

- **Involvement:** organization and perception of stakeholder involvement
- **Communication:** perception of the communication of data, information and opinions
- **Riks perception:** Stakeholders’ approach to risk and perception of the risk of sediments
Interview process

- 160 stakeholders identified using document review
- 30 people selected to be interviewed
- 78% participation in the interviews
Internet survey respondents

How did you receive the request to fill out the survey?

- Direct
- Forwarded

Role in process:
- Participant
- Critical observer
- Information supplier
- Listener
- Not involved

Number of respondents

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Communication of information – trusted sources

• High trust in scientific reports among both groups

• Communication with project and colleagues more trusted for the aquatic disposal group

• Land disposal group relies more on external sources of information
Risk perception of contaminated sediments
Controllability

- Risk perception relates to controllability
  - Ability to control spreading
  - Effect of the CAD on the fjord in the future
- Differences relates to the choice of solution (land/sea)
Bergen harbour – the next comprehensive sediment remediation project?
Control of land based sources
Marine archeological investigations
Establishing a stakeholder panel – Bergen Harbour case study

• 100 stakeholders identified
• Contact established with Bergen municipality
• Meeting with Bergen municipality and a couple stakeholders to select 10
• Invitation sent to 20 potential participants
Establishing a Citizen Panel for Bergen Harbour

• Market research company used to identify and invite citizens to participate

• 30 citizens selected to participate in three evening meetings

• Discuss remediation alternatives and use Multiple-Criteria-Analysis to quantify individual and group preferences
Criteria for assessing the consequences

Sediment remediation

Environmental and health
- Reduction in spreading of contaminants
- Maximum tolerable health dosage exceedance
- CO₂ discharges

Societal
- Spatial influence during remediation
- Disposal site location
- Marine archeological excavations
- Property development

Economic
- Total direct costs
- Percent of costs paid by municipality
- Municipal tax earmarked for sediment remediation
Bergen harbour citizen panel – initial results

What effect will the selected remediation alternative have on the water quality for Bergen harbour?

- Dredging + Langøya disposal: Large effect
- Dredging + local disposal: Large effect
- Dredging + near shore disposal: Large effect
- Capping: Large effect
- Natural recovery: No effect
Using Multiple-Criteria-Analysis to weight the parameters and select a remediation alternative.
Outlook towards other projects

• Participation:
  – The ‘type’ of problem has consequences for the strategy to deal with stakeholders

• Communication & Risk perception
  – Create a shared body of knowledge: lay knowledge is just as valuable as scientific knowledge.
  – Respect the risk perception of all stakeholders, do not try to ‘explain it again’ to stakeholders
Outlook towards policy

• Adaptive management:
  – Acknowledges the complexity of the physical, biological and social aspects;
  – Emphasizes the importance of stakeholder involvement and monitoring;
  – It builds upon monitoring, evaluating and learning as guiding principles creating flexibility in strategy.
Thank you for your interest!

Sediment and Society
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