A participatory approach to establish guidelines for dredged material assessment

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Partners
Sweden (3)
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Germany (1)

Associated partners
Sweden
Denmark
Russia
Estonia
Guideline for management of contaminated sediments incl.
- handling alternatives for sediments
- disposal alternatives
- beneficial use of treated contaminated sediments

Tool-box of
- treatment technologies
- tools for assessment of sustainability
- decision support tools (MCD)

Field tests to validate, demonstrate and communicate emerging treatment methods under various conditions

Permanent network for the management of contaminated sediments in BSR
<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Description</th>
<th>WP-leader</th>
</tr>
</thead>
<tbody>
<tr>
<td>WP0</td>
<td>PREPARATION ACTIVITIES</td>
<td>Preparation of the project proposal</td>
<td>SGI</td>
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<tr>
<td>WP1</td>
<td>PROJECT MANAGEMENT AND ADMINISTRATION</td>
<td>Management and co-ordination of the project by LP and with help of Management Team</td>
<td>SGI (lead partner, LP)</td>
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<tr>
<td>WP2</td>
<td>COMMUNICATION AND INFORMATION</td>
<td>Information to the project stakeholders of BSR about the project results and outcome in order to implement and commercialise the results.</td>
<td>LTU (communication manager nominated)</td>
</tr>
<tr>
<td>WP3</td>
<td>SUSTAINABILITY ASSESSMENT OF HANDLING ALTERNATIVES</td>
<td>Production of the methodology and examples to assess the sustainability of different alternatives for the management of contaminated sediments.</td>
<td>LTU</td>
</tr>
<tr>
<td>WP4</td>
<td>INVESTIGATION OF CONTAMINATED SEDIMENTS – SITUATION AND METHODS</td>
<td>A comprehensive evaluation of the current contamination of the coastal areas, especially in the ports of BSR, testing of different mapping methods, and compiling of a review about the international, regional and national policies and legislation concerning contaminated sediments.</td>
<td>MIG</td>
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<td>WP5</td>
<td>NEW EMERGING TECHNOLOGIES – SOA AND NEW POTENTIAL</td>
<td>State-of –the-Art review of the methods for handling contaminated sediments, and evaluation of the applicability and potential of different handling methods including new alternatives. The Focus is on the s/s (stabilisation/solidification) technology. Thus, the WP includes gathering information about the binder potential, commercial and recycled components, within BSR</td>
<td>CORPI</td>
</tr>
<tr>
<td>WP6</td>
<td>VERIFICATION &amp; DEMONSTRATION OF TECHNOLOGIES AND SOLUTIONS</td>
<td>The most important and innovative technologies and solutions for the management of contaminated sediments will be verified and demonstrated using laboratory and field tests. The focus is on the dredging, s/s-method and binder – contaminant efficiency. The field tests are carried out in Ports of Gävle, Kokkola and Gdynia, each port testing a different technology.</td>
<td>LUT</td>
</tr>
<tr>
<td>WP7</td>
<td>GUIDELINE AND RECOMMENDATIONS</td>
<td>The project results are compiled and integrated into comprehensive guideline and recommendations for the management of contaminated sediments. The guideline shall contain the expert knowledge of the project while being user-friendly.</td>
<td>TUHH</td>
</tr>
</tbody>
</table>
stabilisation/solidification with mass stabilisation

Nordsjö, Helsinki
Ramboll Finland
(2006)

Stegeludden,
Oxelösund,
Sweden (2009)
stabilisation/solidification with process stabilisation

Port of Turku
(Ramboll Finland 2008)
SMOCS will have a positive impact on energy use and global warming!
Sustainability

SUSTAINABLE DEVELOPMENT

3 Dimensionen: PPP

People

Planet

Profit
1. Evaluation of existing management concepts in the different countries - is in situ management under the scope?

2. Define sustainability targets and find a consensus between all stakeholders

3. Develop science based indicators for the desired targets.
problem acceptance - the contaminated dredged material should be seriously treated in the sense of law regulations and strong control of the work

lack of adequate law regulation concerning the handling and treatment of contaminated dredged material is stated
ISSUES -

the bottleneck is NOT the availability of treatment and disposal techniques

Main objective of the Helcom Guideline is to reduce risk!
Risk reduction is not only a question of reducing the concentration of pollutants, but also reducing bioavailability!

The owner of the sediment will look on the costs mainly. A consensus based solution of the problem requires a fair distribution of costs and a fair consideration of risks.
Sustainability includes - Life Cycle Thinking

The smocs vision makes obvious that a sustainable sediment management is only achievable on a new spatial and time scale!
Example of a tiered decision making concept

(Ahlf et al. 2002)
Environmental Impact Assessment

disposal
beneficial use
treatment
transport
extraction
global, regional, local effects
Assessment and decision-making need criteria, parameters and tools for evaluation!

Do we need a guideline or a handbook?
SMOCS Guidelines

Three main levels

1:st level – Guideline incl appendixes/schemes
Outlines – Similar outline to Helcom, about 30 pages

2:nd level – Supporting reports, short summaries
Scope – Further info and examples corresponding to a certain decision situation, based on works, case studies etc within smocs
Outlines – Popular versions, short summaries on WP results/critical issues about 5-8 pages

3:rd level – SMOCS reports
Scope – Reports on performed work, data, analysis, results, findings etc
Outlines - Template by WP2, based upon SGI-report template

GUIDEINE - Level 2

WP3-Compilations
Risk assessment,
Lifecycle tools,
Cost-benefit analysis
MCD-tools

WP4-Compilations
Mapping, sampling

WP5-Compilations
New emerging technologies
Dredging tech

WP6-Compilations
Treatment tech
Figure 1: Steps to be considered in assessing permits application for sea disposal.
Guideline concept

Level 1 Guideline

Material is not acceptable for dumping at sea

Assessment of treatment options

No

Are risk for disposal acceptable?

Reduction of risk

Reduction of volume

Yes

Assessment of disposal options

Assessment of potential effects

Management strategy

Level 1 Guideline (partly level 2)

Management strategy considering the concept of Sustainability

**Economic:** Method of LCC, costs for the life cycle and including transport

**Environmental:** LCA, energy consumption, raw material consumption, transport of sediment fractions including additives

**Social:** SEE-Balance, working accidents, toxicity potential for employees, outdoor leisure limitation, family support

**Best environmental practice (BEP)** - That is now new for HELCOM!
We will provide scientific and practical guidance on how to consider management issues with input from all WPs and stakeholders concerned.

International Workshops

Communication

“Making sense, together”
European Workshop
Sustainability Assessment and Management of Contaminated Sediments

10-11 May 2011
Hamburg University of Technology Hamburg, Germany
Thank you for attention!