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SUSTAINABLE MANAGEMENT OF CONTAMINATED SEDIMENTS

A participatory approach to establish guidelines for dredged material assessment

Wolfgang Ahlf, Bo Svedberg, Kristina Lundberg, Göran Holm

TUHH
Technische Universität Hamburg-Harburg

Baltic Sea Region Programme 2007-2013
Part-financed by the European Union (European Regional Development Fund and European Neighbourhood and Partnership Instrument)

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Partners

Sweden (3)

Finland (2)

Lithuania (2)

Poland (2)

Germany (1)

Associated partners

Sweden

Denmark

Russia

Estonia

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Outcomes

Guideline for management of contaminated sediments incl.
- handling alternatives for sediments
- disposal alternatives
- benefical use of treated contaminated sediments

Tool-box of
- treatment technologies
- tools for assessment of sustainablity
- 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

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Number	Name	Description	WP-leader
WP0	PREPARATION ACTIVITIES	Preparation of the project proposal	SGI
WP1	PROJECT MANAGEMENT AND ADMINISTRATION	Management and co-ordination of the project by LP and with help of Management Team	SGI (lead partner, LP)
WP2	COMMUNICATION AND INFORMATION	Information to the project stakeholders of BSR about the project results and outcome in order to implement and commercialise the results.	LTU (communication manager nominated)
WP3	SUSTAINABILITY ASSESSMENT OF HANDLING ALTERNATIVES	Production of the methodology and examples to assess the sustainability of different alternatives for the management of contaminated sediments.	LTU
WP4	INVESTIGATION OF CONTAMINATED SEDIMENTS – SITUATION AND METHODS	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.	MIG

Number	Name	Description	WP-leader
WP5	NEW EMERGING TECHNOLOGIES – SOA AND NEW POTENTIAL	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	CORPI
WP6	VERIFICATION & DEMONSTRATION OF TECHNOLOGIES AND SOLUTIONS	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.	LUT
WP7	GUIDELINE AND RECOMMENDATIONS	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.	TUHH

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)

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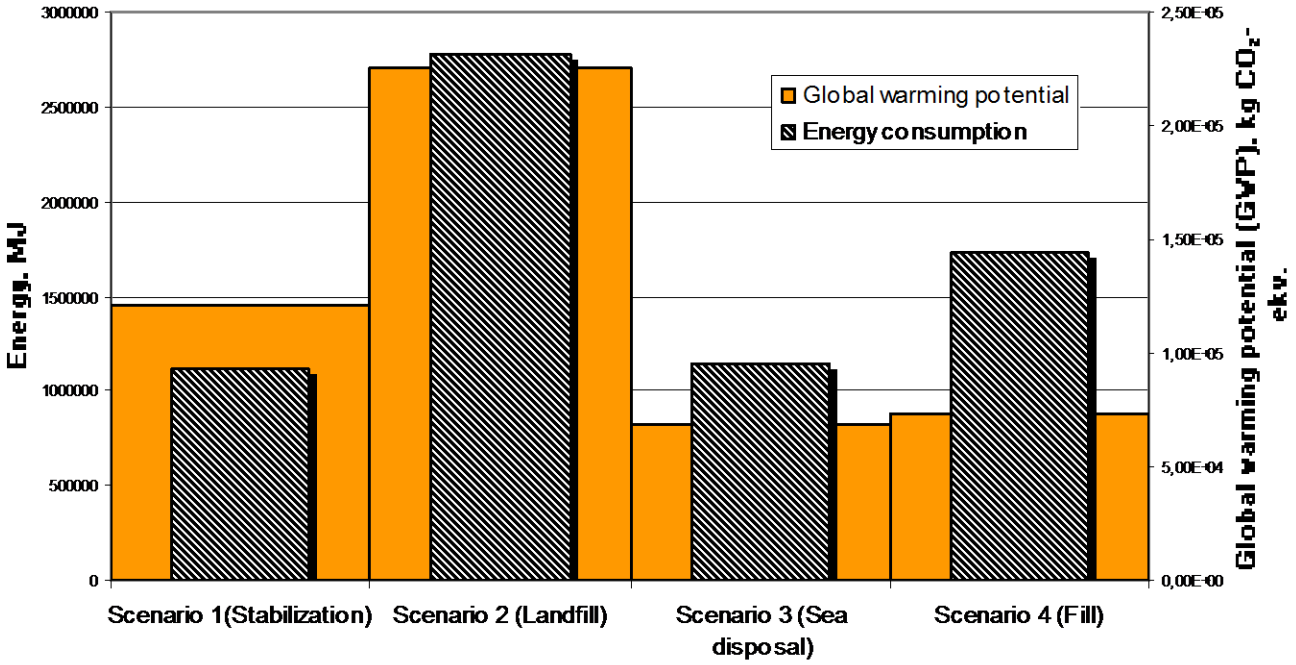
SMOCS will have a positive impact on energy use and global warming !



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.

SOA - Summary of the Evaluation

- 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 -

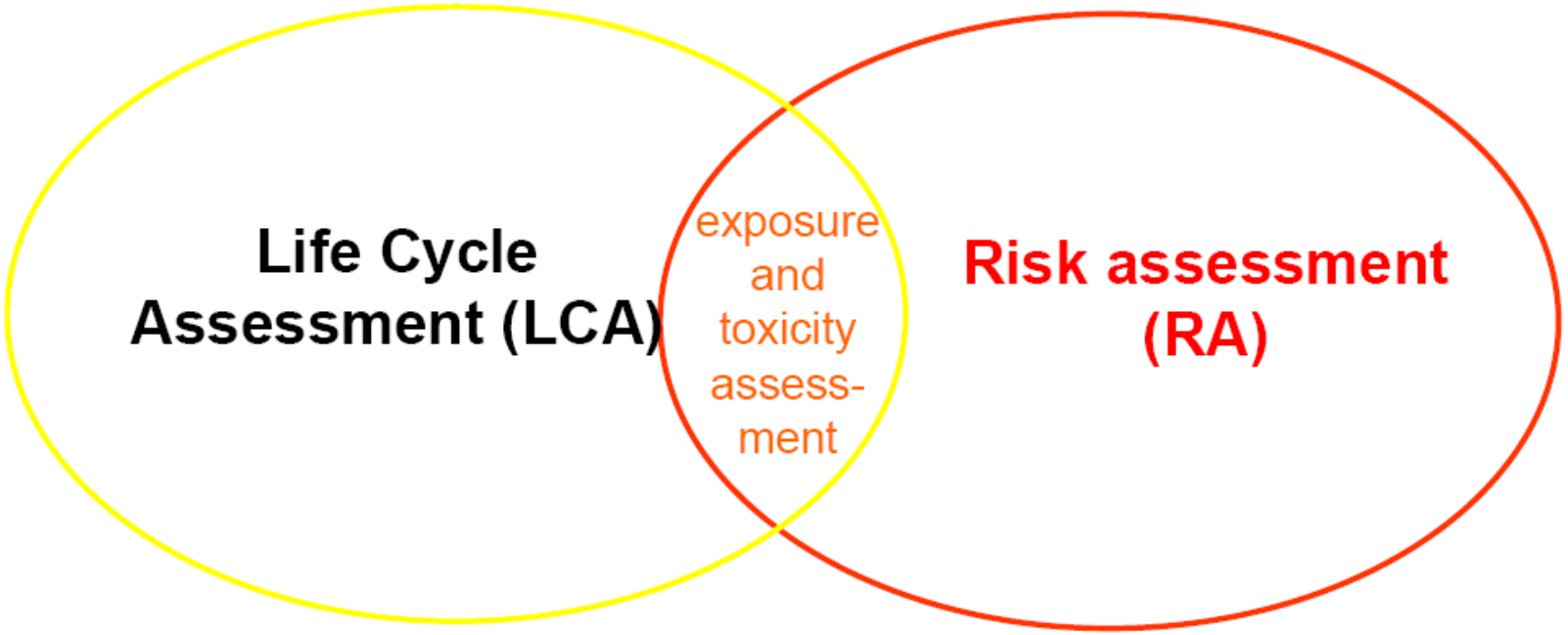
the bottleneck is NOT the availability of treatment and disposal techniques

Main objective of the Helcom Guideline is to reduce risk!

Risk reduction is not only a question of reducing the concentration of pollutants, but als reducing bioavailability!

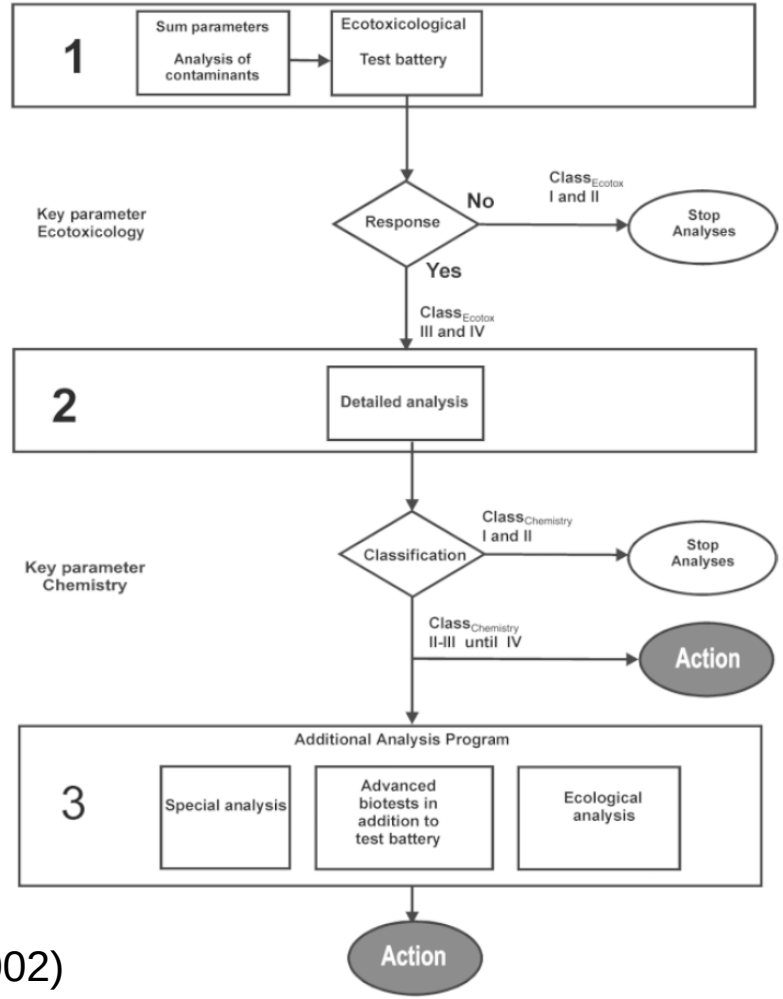
The owner of the sediment will look on the costs mainly. A consensus based solution of the problem requires a fair distribution of costs and a fair consideration of risks.

Sustainability includes - Life Cycle Thinking



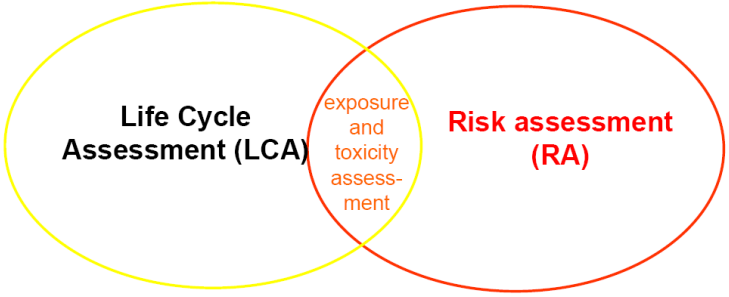
The smocs vision makes obvious that a sustainable sediment management is only achievable on a new spatial and time scale!

Example of a tiered decision making concept



(Ahlf et al. 2002)

Not included:



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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?

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SMOCS Guidelines

Three main levels

1:st level – Guideline incl appendixes/sche

Outlines – Similar outline to Helcom, about 30 p

2:nd level – Supporting reports, short sum-

Scope – Further info and examples corresponding to a
case studies etc within smocs
Outlines – Popular versions, short summarys on wp-re

3:rd level – SMOCS reports

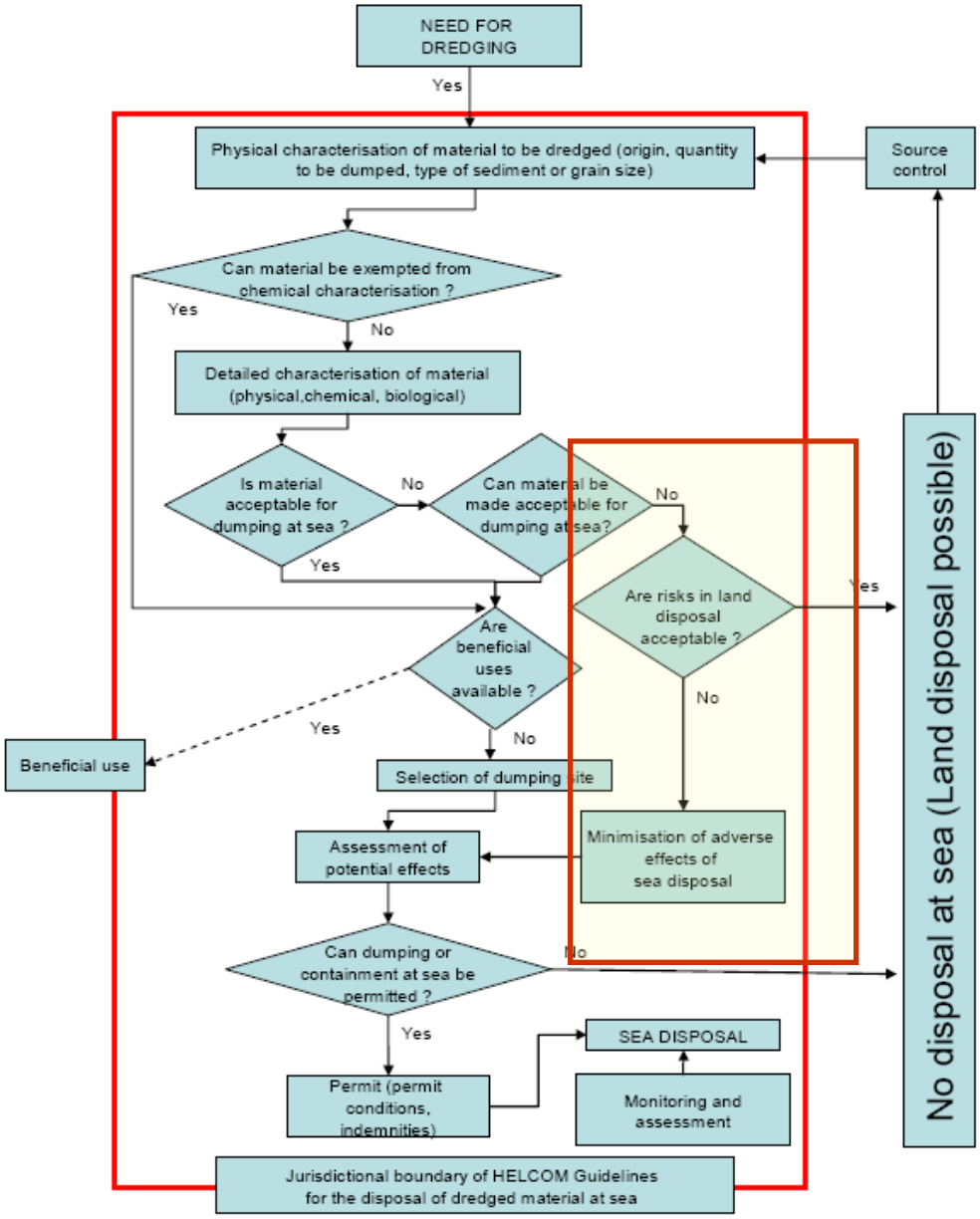
Scope – Reports on performed work, data, analysis, re
Outlines - Template by WP2, based upon SGI-report ter

GUIDELINE - 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

Helcom Guideline

Figure 1: Steps to be considered in assessing permits application for sea disposal



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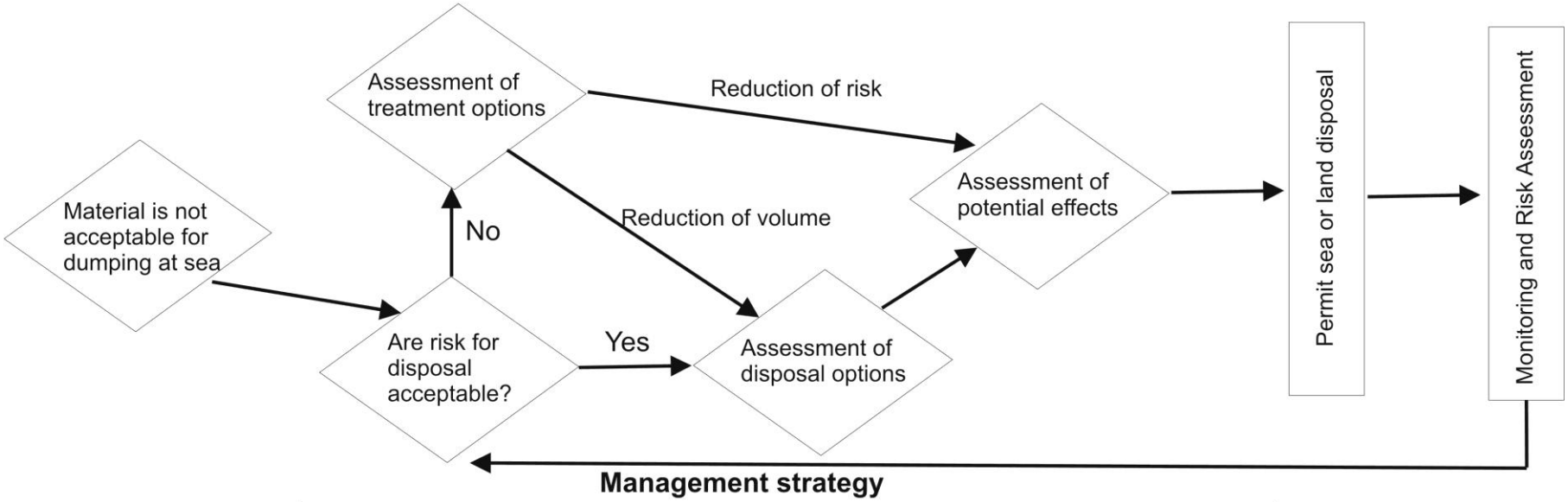
Guideline concept

Level 1 Guideline



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, enegy consumption, raw material consumption, transport of sediment fractions including additives
Social: SEE-Balance, working accidents, toxicity potential for emloyees, outdoor leisure limitation, family support

Best environmental practice (BEP) - That is now new for HELCOM!

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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"

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European Workshop

Sustainability Assessment and Management of Contaminated Sediments

10-11 May 2011

Hamburg University of Technology Hamburg, Germany

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Programme 2007-2013

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Thank you for attention!