Strategy on environmental management and CSR at IØT

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Focused area

- Environmental Management (EM), Supply Chain Management (SCM) and Corporate Social Responsibility (CSR) in Global Value Chains – research topics and challenges

- The activities on this area should contribute to increased activity on three levels:
  - strengthen the internal research at IØT through cooperation and collaboration between the research groups at the department
  - strengthen the position of IØT in the strategic areas at NTNU, in particular within the area 'Globalization', and strengthen the collaboration with industrial partners
  - strengthen the participation in national and international research networks

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Overall research challenges

- To improve the knowledge and understanding of the challenges faced by companies along the global value chain. The focus is on the environmental and social responsibilities; however, understanding the dynamics, interactions and juridical aspect between the different actors in the global production systems is essential.
- Based on this understanding, contribute to the development of methodologies and guidelines which facilitate sustainable performance and competitiveness in a global system, and associated performance indicators

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Relevant issues

- modelling of the supply chains their actors
- identification of CSR-aspects of relevance for products and processes, both for business and for regions
- understanding of interactions between different subsystems, between the actors and the regions, and between different regions, and the flow of information and communication of performance
- understanding the effect and potential of regulatory aspects; both public (juridical) regulations and industry imposed (self-) regulations

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Understanding the system
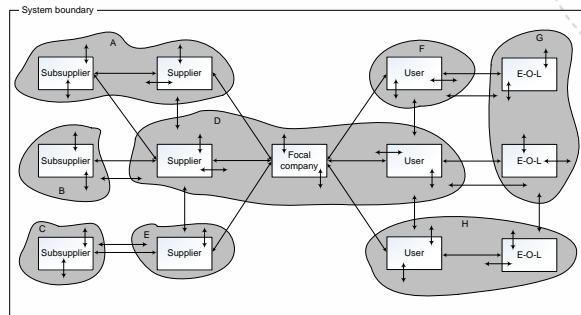
- <u>Develop methodologies</u> and <u>reveal potential</u> for improvements

KPIs

- Prepare and submit at least one national and one international research proposal each year
- Publish at least __ papers in international journals with referee each year
- Recruit at least one new PhD student every year
- Supervise at least __ master students within the focused thematic area every year
- Strengthen the international network, which includes to invite guest researchers, visit other research institutions, participate in international research conferences, and arrange at least one workshop or seminar each year with international participation

Description of PhD Research Project
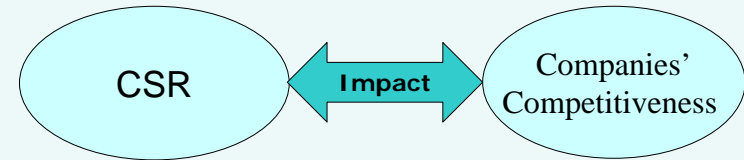*within Global Production*

Evaluation of Competitiveness of Production Enterprises Engaged in CSR within Global Value Chains

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Central Objective:

Develop a methodological framework for evaluation of competitiveness of production enterprises operating within global value chains.

Emphasis:

CSR — Impact → Companies' Competitiveness

Evaluation of Enterprises' C-ss

Operational Level	Tactical Level	Strategic Level
Evaluation Methods:	Evaluation Methods:	Evaluation Methods:
1. Expert Method (under system 1111-5555) • without regard to factor contribution; • with regard to factor contribution. 2. Method for Polygon Construction of Product C-ss. …	Evaluation Methods of Financial and Economic Activity of an Enterprise: 1. Horizontal Analysis 2. Vertical Analysis 3. Trend Analysis 4. Factor Analysis 5. Benchmarking 6. Coefficient Analysis	1. SWOT-analysis. 2. Method based on marketing activity rate and financial coefficients. 3. Method for Computation of Integrated C-ss Index of Industrial, Trade and Financial Business. …

Hypotheses:

1st hypothesis:

It's possible to define and assess the impact of CSR on companies' competitiveness as well as their interdependency.

2nd hypothesis:

It's possible to assess quantitatively the impact of upstream and downstream companies' performance on the competitiveness of the considered company.

Preliminary titles for the articles:

1. Competitiveness and CSR in Global Value Chains: State of the Art.

2. Assessment of CSR and Its Impact on Competitiveness of Enterprises.

3. Methodological Framework for Evaluation of Enterprises' Competitiveness: Use of CSR Assessment and Value Chain Analysis.

4. Machine and …? Industries: Evaluation of Enterprises' Competitiveness with the use of CSR Assessment and Value Chain Analysis.

1. Competitiveness and CSR in Global Value Chains: State of the Art

1. What is competitiveness of specifically production enterprises?

2. What does a concept of CSR mean for production enterprises in value chains? What are the values and ethics for enterprises?

3. Does implementation of CSR affect the competitiveness of enterprises, or is it competitiveness that is one of the key drivers for adopting a CSR approach?

2. Assessment of CSR and Its Impact on Competitiveness of Enterprises

1. What is a CSR assessment? Why do an assessment?

2. Can CSR be quantitatively measured?

3. How to do an assessment of CSR? What are the CSR indexes for production enterprises?

4. What are the key CSR issues that are affecting or could affect enterprises?

5. How to do and assessment of CSR Impact on Competitiveness of Enterprises?

3. Methodological Framework for Evaluation of Enterprises' C-ss: Use of CSR Assessment and Value Chain Analysis

CSR assessment
Value chain analysis

Subgoals:

- Define and assess the impact of CSR on competitiveness and their interdependency within production enterprises;

- Assess the impact of performance of the other companies, cooperated with the considered company both in upstream and downstream value chains, on the competitiveness of the considered company.

A stepwise algorithm for implementation of methodological framework is to be introduced.

4. Machine and …? Industries: Evaluation of Enterprises' C-ss with the use of CSR Assessment and Value Chain Analysis.

○ How is it possible for companies to use <u>a concept of CSR and CSR-activities</u> as a **workable tool** for *managing (esp. enhancing)* their level of competitiveness?

○ How to use the obtained <u>results of evaluation</u> of companies' competitiveness at a **profit** of development and innovation *of the whole global value chain*, products in a global supplier's network, and marketing mechanisms for sustainable solutions?

Thank you for your attention!

Ph.D Project

Methods for Sustainable Urban Costal Area Management

Magnus Sparrevik

About me…

- MSc Chemical Engineering, Chalmers University of Technology
- 7 + 1 years Norwegian Geotechnical Inst.
- 7 years Scandpower Risk Management
- Lead auditor ISO 14001/EMAS for Nemko
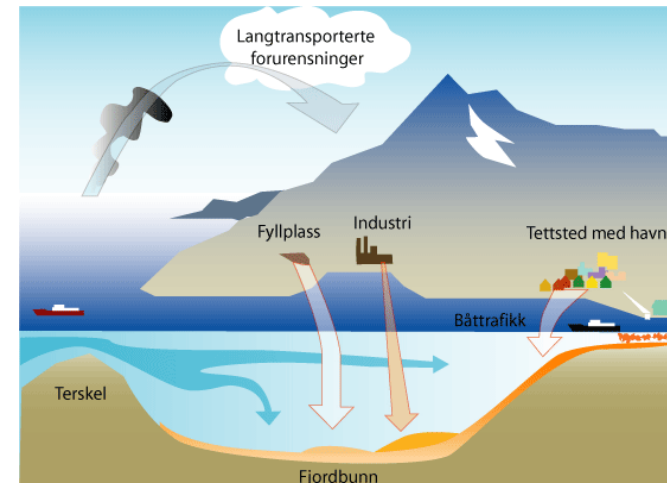- 10 publications, mainly contaminated soil

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Why Ph.D?

- Need for scientific focus after 15 years as a consultant
- Combine environmental management with environmental technology
- Possibility to contribute with new knowledge
- Challange!!!
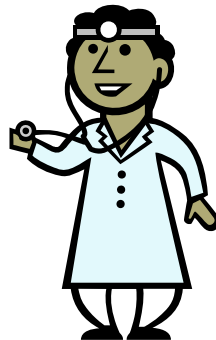
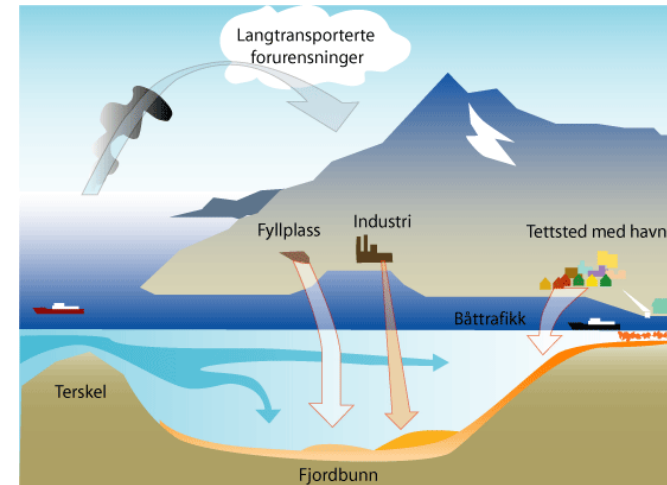## Urban Coastal areas and contamination

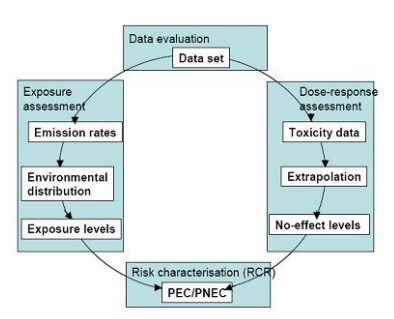## Contaminated sediments in Norway

- 24 fiords covering 1200 km^2
- Consumption restrictions
- Cost for clean-up 25 billion NOK?
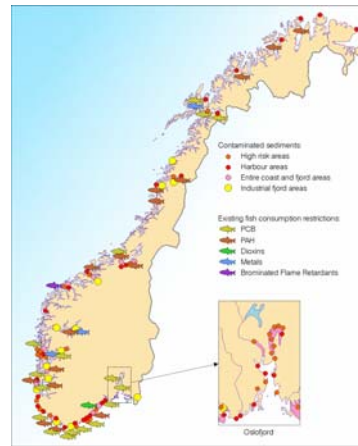
Urban Coastal areas and contamination

Decison based on environmental risk management

Alternatives for remediation

Dreadging and deposition

Chemical stabilisation

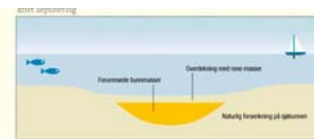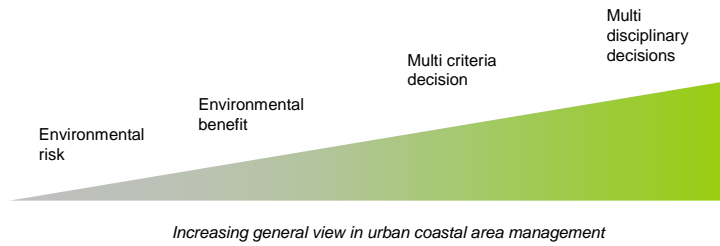Natural improvement

Cleaning

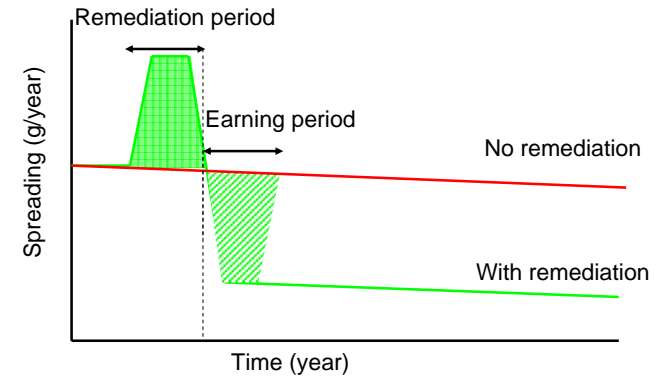Stabilisation/solidification

Capping

Deep sea disposal

Confined disposal

What is sustainable?

Increasing general view in urban coastal area management

Environmental risk — Environmental benefit — Multi criteria decision — Multi disciplinary decisions

Environmental benefit

Multi criteria decisions

In a value tree objectives are organised hierarchically

overall objective — sub-objectives — attributes — alternatives
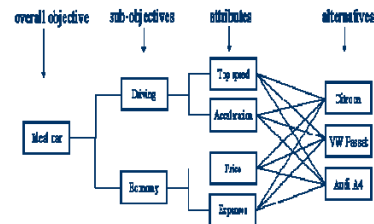
Multi disiplinary disisions

Industrial risk assessment and NaTech

Fault Tree — Critical Event — Event Tree

Bow-tie approach © ARAMIS Project, INERIS et al.
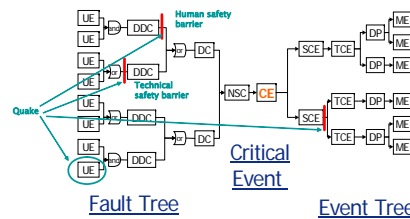
Use of other reasearch projects (NGI – ICG)

- NGI- SIP sediments
- NGI – OPTICAP (KMB)
- NGI – SEDCONFLICT (Havkyst)
- ICG – MOVE – (EU 7 framework)