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# NORDRESS

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Nordic Centre of Excellence  
On Resilience and Societal Security



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## **Task 5.3 Risk assessment and prevention for flooding and coastal erosion in extreme weather**

Annual Meeting 2018

25-26 April 2018

Malmö



# WP 5.3

## SGI

Per Danielsson

Lisa van Well



**SGI** Swedish Geotechnical Institute

## GEUS

Hans Jörgen Henriksen

Torben Sonnenborg



**GEUS**

## IMO

Halldor Björnsson

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## WP5.3 Risk assessment and prevention for flooding and coastal erosion in extreme weather

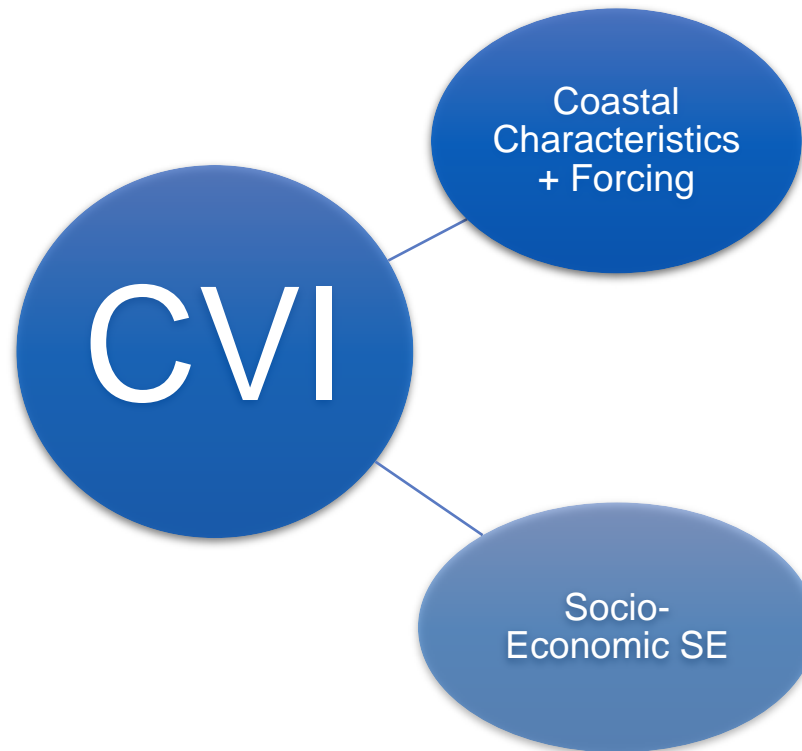


Comparing best practices in the Nordic countries, guidelines for risk assessment and preventive measures will be developed, including ecosystem based adaptation as well as land use and coastal planning with a holistic perspective.

Methods for vulnerability assessment, e.g. a Multi-scale CV Index developed in the UK will be evaluated, adapted and tested for use under Nordic conditions.

# SGI 2017: Coastal vulnerability tool for erosion in Skåne

Inspired by Multi Scale CVI, *Cooper and McLaughlin*



- Erosion sensitivity
- Geology
- Inclination
- Distance to the beach
- Topography

- *Ongoing erosion*
- *Sea defence*

- Housing
- Industry
- Roads
- Railways

- *Cultural heritage*
- *Recreation*
- *Conservation status*



# Löderupsstrandbad, CVI + add.





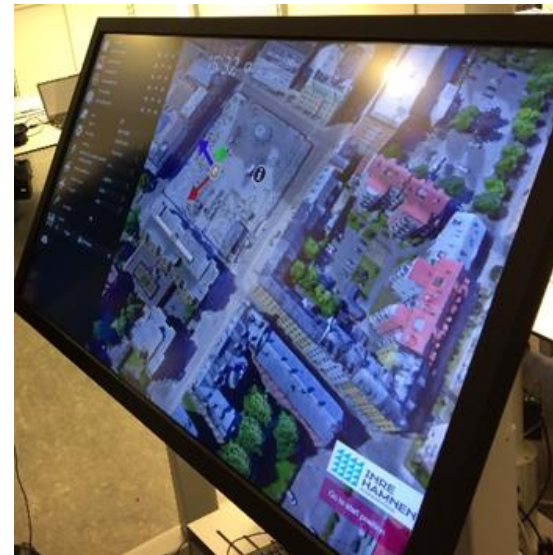
## Sustainable and Ethical Adaptation to Rising Mean Sea levels

- Debate Article SydSvenskan, 22 Dec 2017
- Per Danielsson Interview National Radio Science Programme, Dec 2017
- Coastal Conference, Almedalen 2018



## CAMEL: Climate Adaptation by Managed Realignment

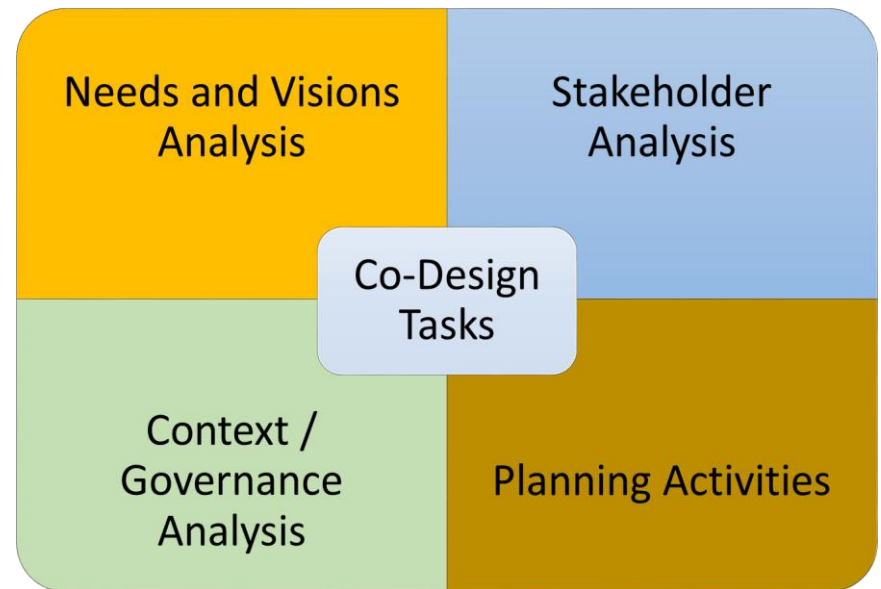
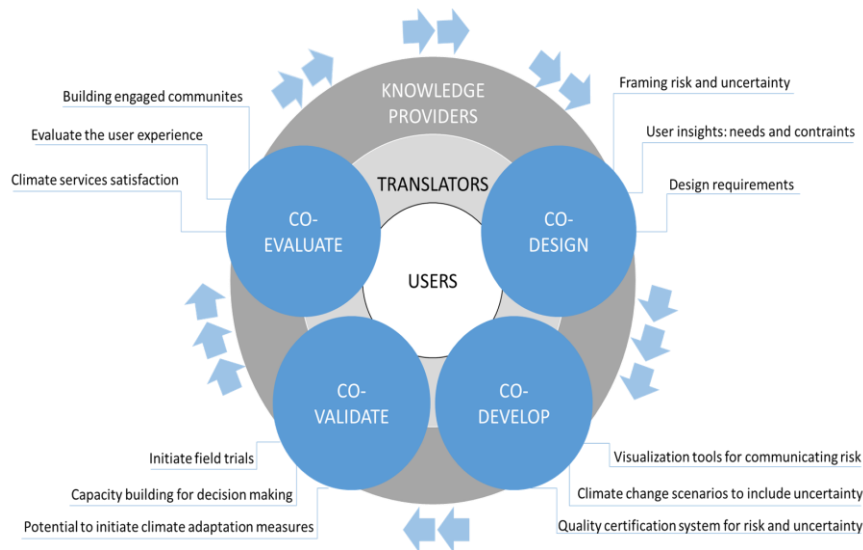
- When can MR be a viable climate adaptation strategy? What are the barriers?
- How can smart visualisation better inform long-term and sustainable planning decisions





## Communication of climate services using Living Labs

- Aim to re-frame the **risk** and **uncertainty** associated with climate data into knowledge products more understandable and useful for end-users concerned with climate risk mitigation and adaptation.



# GEUS 2017

- Developed coastal vulnerability index for flooding and erosion to be tested in Odense during 2018
- Developing software vulnerability mapping for storm surges... to be further tested and developed in the coastal vulnerability index in Odense area. Includes modelling of shallow groundwater levels and flood risks from rivers.
- Work will continue in 2018



# IMO

- 2017 published analysis of return periods of sea level in Reykjavik and Patreksfjordur.
- Chapters on sea level rise in Iceland and flood risk for the new climate change impact assessment for Iceland
- Organised a network to apply for a centre of excellence funding to National Research fund of Iceland focusing on sea level change and vertical land motion in this century.

## 5.3 Plans for 2018

Activities	Q1	Q2	Q3	Q4
Continue the work to develop a coastal vulnerability index for flooding, and the combined tool for erosion and flooding.				
Continue the work with flood risk modelling in Odense, Reykjavik and other cities.				
Comparing models in Denmark, Iceland, Sweden and other EU countries.				
Continue the work with sea level rise and land uplift in Iceland.				