



# C2C

Coast to Coast  
Climate Challenge

## Cross Border Collaboration and Solutions

**How to make partnerships work? Adaptive governance  
reflections on the CCA cross-border and cross authority  
partnership**



# You Will Meet



**Dorthe Selmer**, Project manager at C2C CC, Central Denmark Region



**Bertel Meilvang**, Forest and Landscape Engineer at the Municipality of Samsø



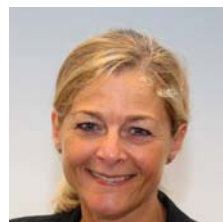
**Maria Elise Sørensen**, Biologist, Hedensted Municipality



**Theis Raaschou Andersen**, Head of Research and Development - Center of Building, Energy, Water & Environment, VIA University College



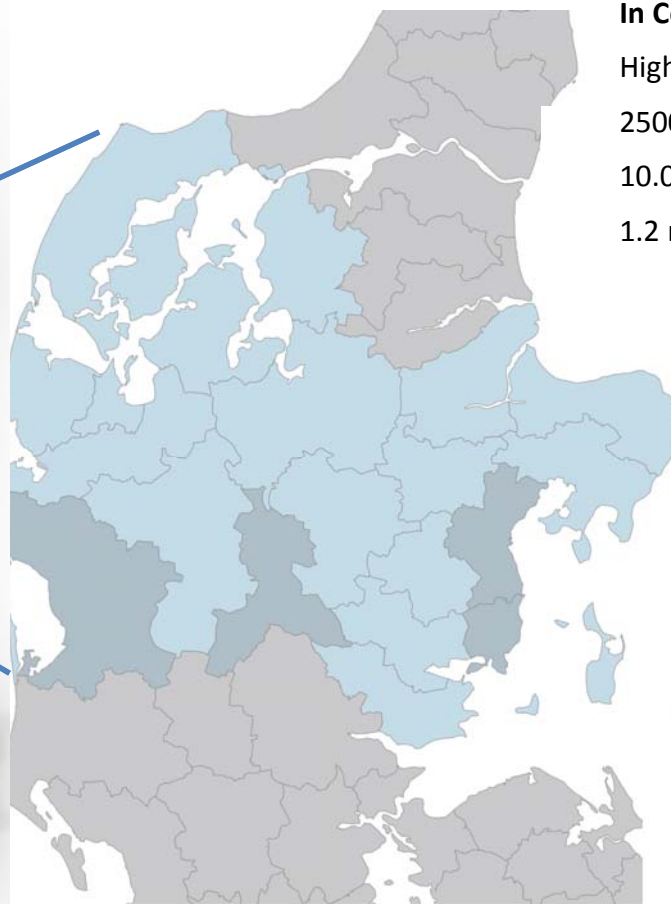
**Bjarke Horst Jensen**, Project Manager, Hedensted Municipality



**Helle Ørsted Nielsen**, PhD, Department of Environmental Science



# Introduction to Central Denmark Region



## **In Central Denmark Region:**

Highest point: 178 m

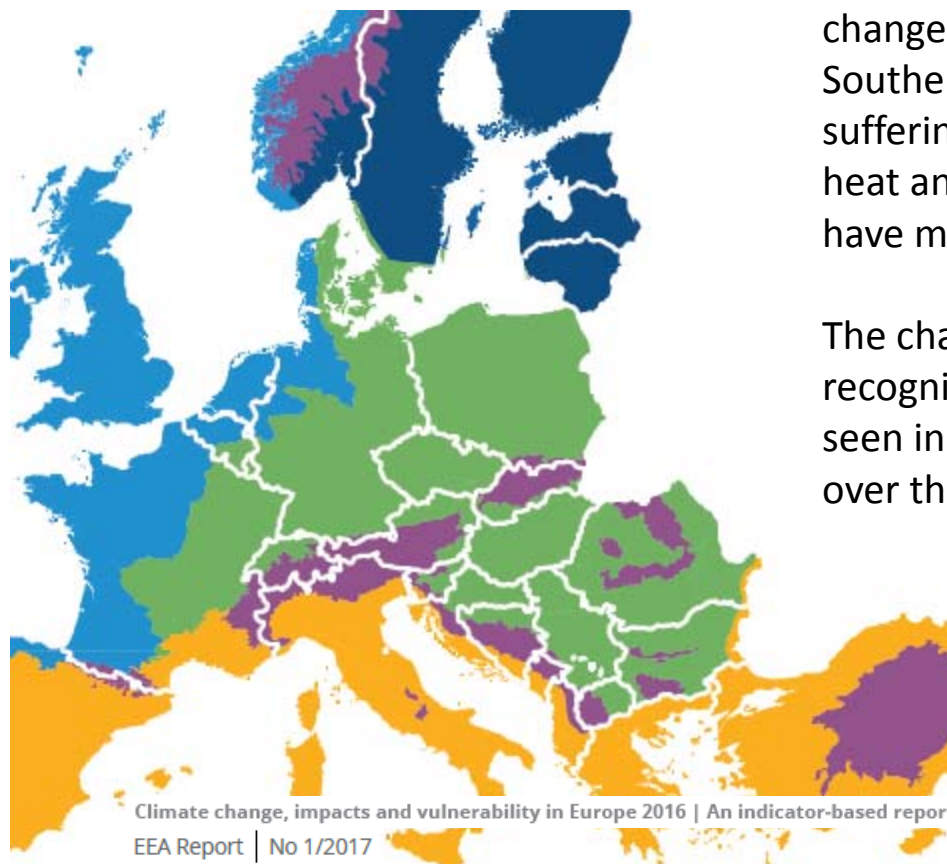
2500 km of coast

10.000 km streams

1.2 mill. inhabitants



Denmark is after Switzerland the country in Europe that suffer of the biggest losses in the water related events!

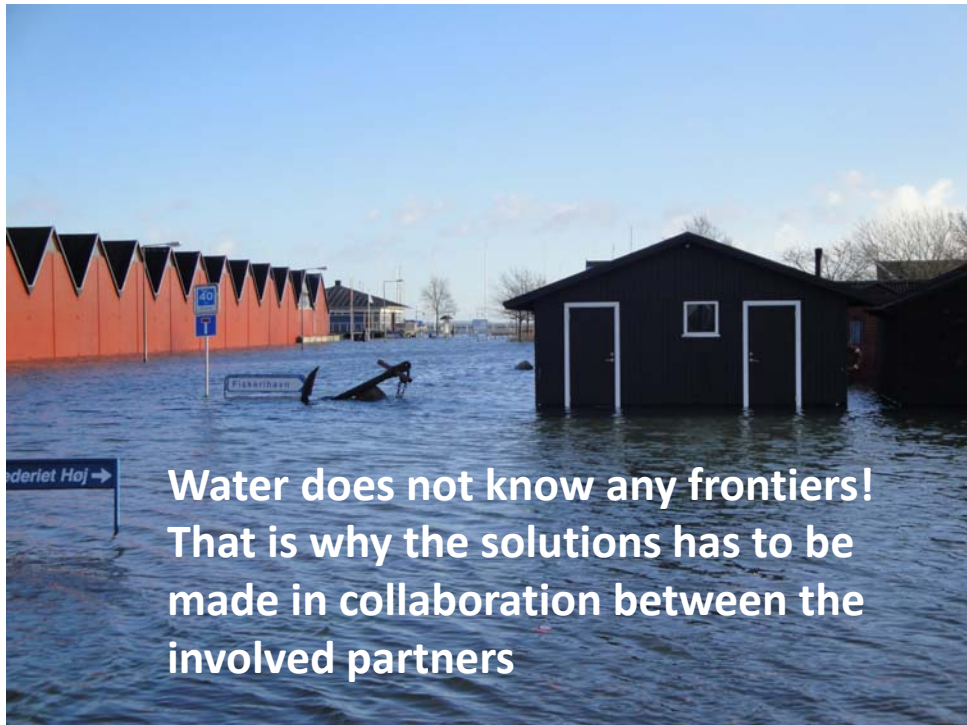


We are affected differently by climate change. For example Southern Europe is suffering from extreme heat and in Denmark we have more water.

The challenges we recognize in Denmark are seen in many places all over the world.

This is one reason why we can make relevant innovative solutions and business out of the challenges





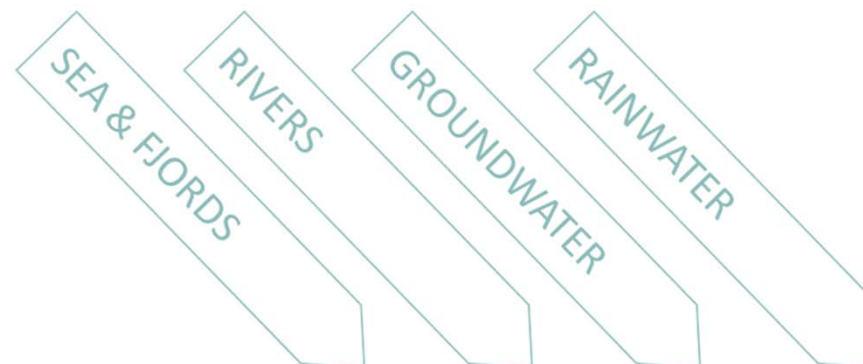
Water does not know any frontiers!  
That is why the solutions has to be  
made in collaboration between the  
involved partners



The task is to find  
the right solutions  
with added value –  
and the right tools



Municipality	Sea and fjords	Rivers	SUDS	Ground-water	Tools	Cooperation
Favrskov						
Hedensted						
Herning						
Holstebro						
Horsens						
Ikast-Brande						
Lemvig						
Norddjurs						
Odder						
Randers						
Ringkøbing-Skjern						
Samsø						
Silkeborg						
Skanderborg						
Skive						
Struer						
Syddjurs						
Viborg						
Aarhus						



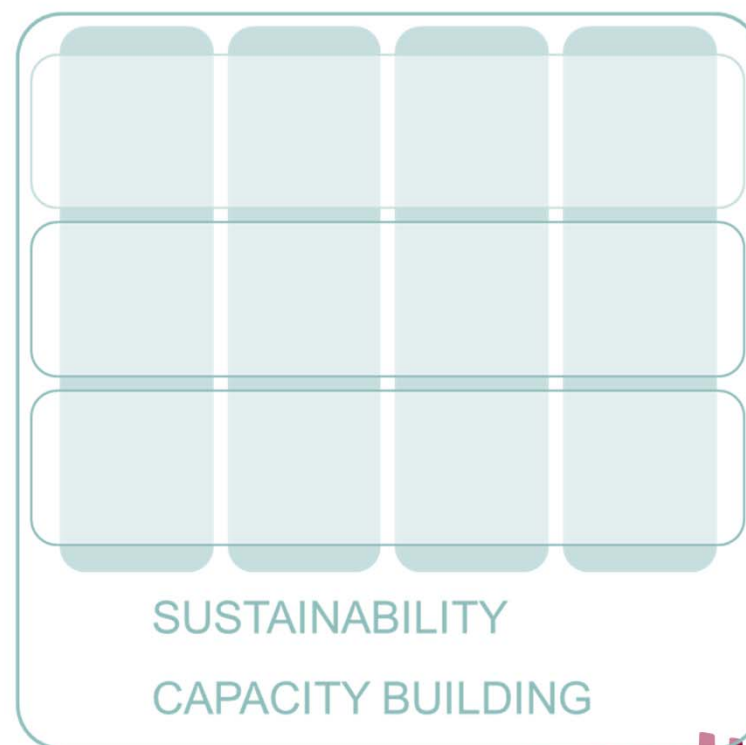
Subjects in the municipalities CCA-plans - many have the same challenges!

GOVERNANCE

TOOLS

INNOVATION

The project matric reflects these challenges



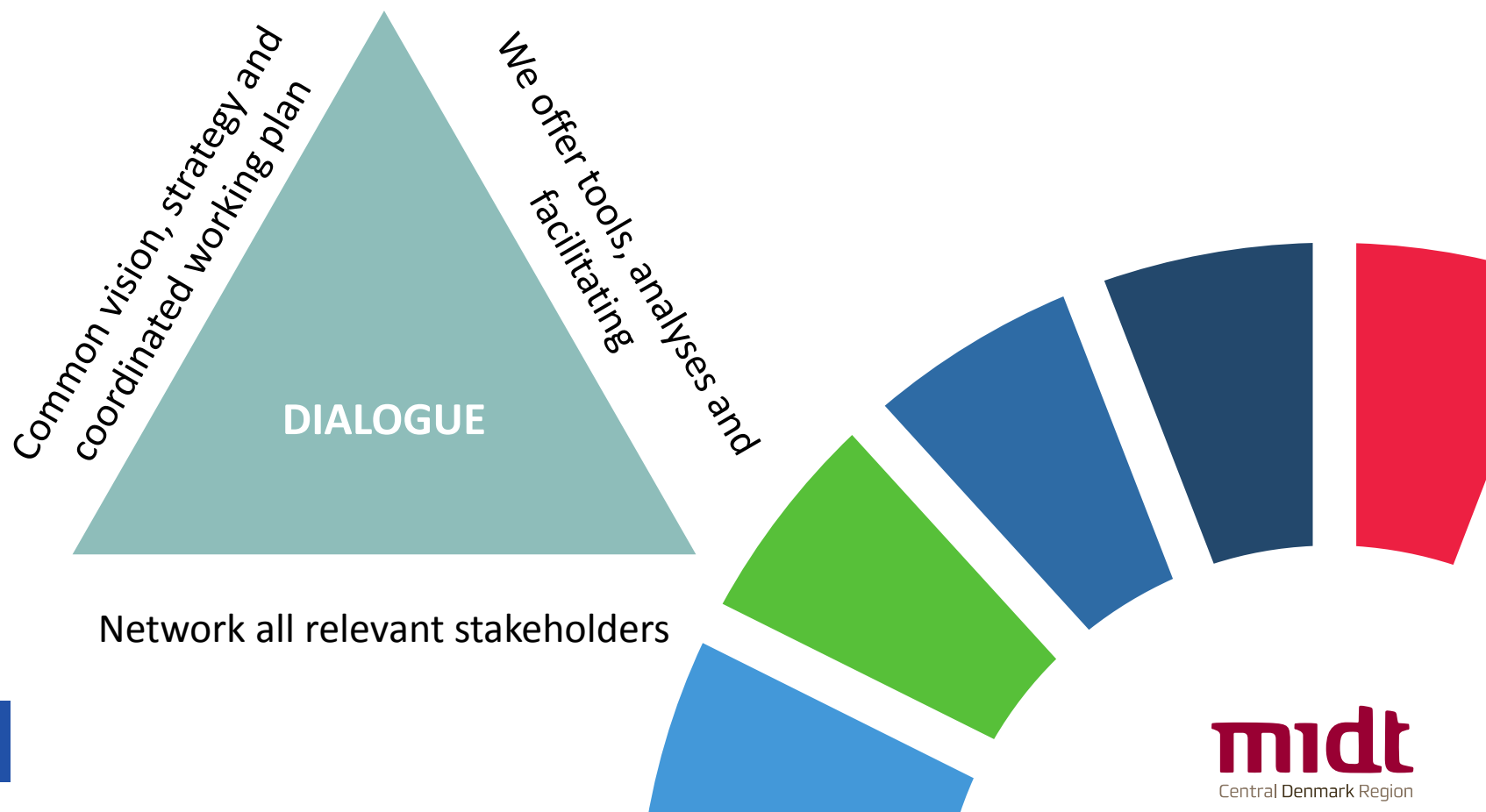
SUSTAINABILITY

CAPACITY BUILDING





# The Way We Work





# The Consortium

## Partners

### 18 Municipalities:

Favrskov Municipality  
Hedensted Municipality  
Herning Municipality  
Holstebro Municipality  
Horsens Municipality  
Lemvig Municipality  
Morsø Municipality  
Norddjurs Municipality  
Randers Municipality  
Samsø Municipality  
Silkeborg Municipality  
Skanderborg Municipality  
Skive Municipality  
Struer Municipality  
Syddjurs Municipality  
Thisted Municipality  
Vesthimmerland Municipality  
Viborg Municipality

### 8 Utilities:

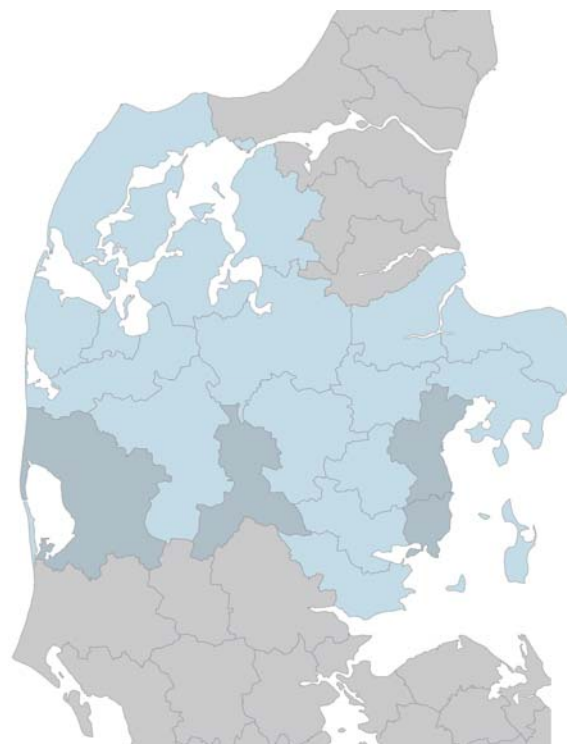
Lemvig Water & Wastewater A/S  
Morsø Utility A/S  
Skanderborg Utility A/S  
Skive Water A/S  
Struer Utility & Wastewater A/S  
Thisted Wastewater Transport A/S  
Vestforsyning Occupation A/S  
Vesthimmerlands Water A/S

### 3 Study institutions:

VIA University College  
Aalborg University  
Aarhus University

### 2 Others:

CDEU and  
Central Denmark Region as  
leadpartner

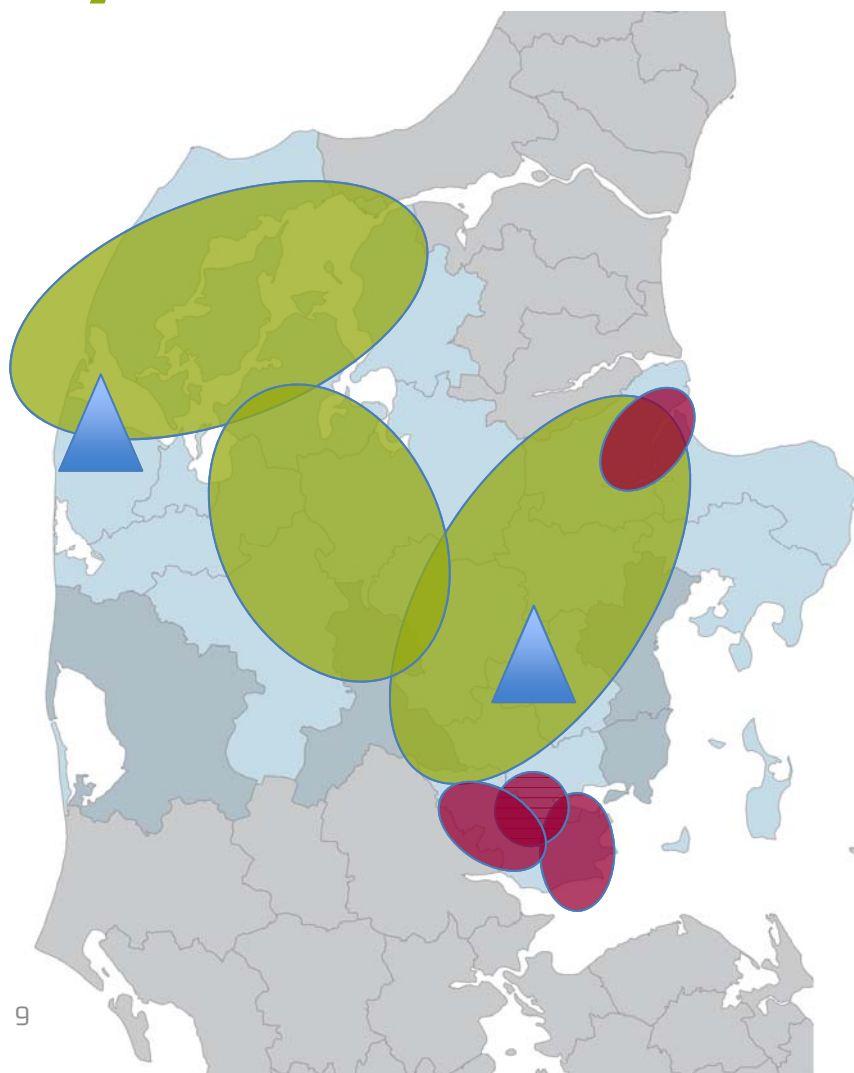


## Supporting Actors

AQUA Freshwater Aquarium  
Concito  
Danish Emergency Management Agency  
Danish Export Association  
DI  
DTU Environment  
Environmental Protection Agency  
GEUS  
Ikast Brande Municipality  
Insurance and Pension Denmark  
KLIKOVAND  
Mariager Municipality  
Odder Municipality  
Randers Water Environment  
Ringkøbing-Skjern Municipality  
SAMN Utility  
SEGES  
Technological Institute  
The Danish Coastal Authority  
Water in Urban Areas  
Aarhus Municipality



# Types of Partnerships



## Examples:

### Neighbours along the same water:

**C9** – Thyborøn Channel af the Western Part of Limfjorden

**C12** – The River Gudenåen

**C13** – The River Storåen

### Beacons for the total partnership

**C20** – Climatorium

**C21** – AquaGlobe

### Developing in collaboration with citizen's

**C9** – Håb til Håb

**C12** – Randers Fjord

**C15** – Horsens City Center

**C16** – Climate Adaptation in Hedensted and Tørring



# Timeline and Budget

## Phases

### Phase 1: Tools

Develop tools to create a uniform basis to make decisions of high quality.

2017

2018

### Phase 2: Innovation

Ensure multifunctional and holistic solutions that can be implemented among relevant actors, authorities, consultants and universities.

2019

2020

### Phase 3: Governance

Develop a paradigm for holistic planning, legislation and process.

2021

2022

### After LIFE

A new national organization are established  
Sustainable, holistic and multifunctional solutions are implemented  
Integrational planning

### Budget

12 mio. EUR

### LIFE IP support

7 mio. EUR

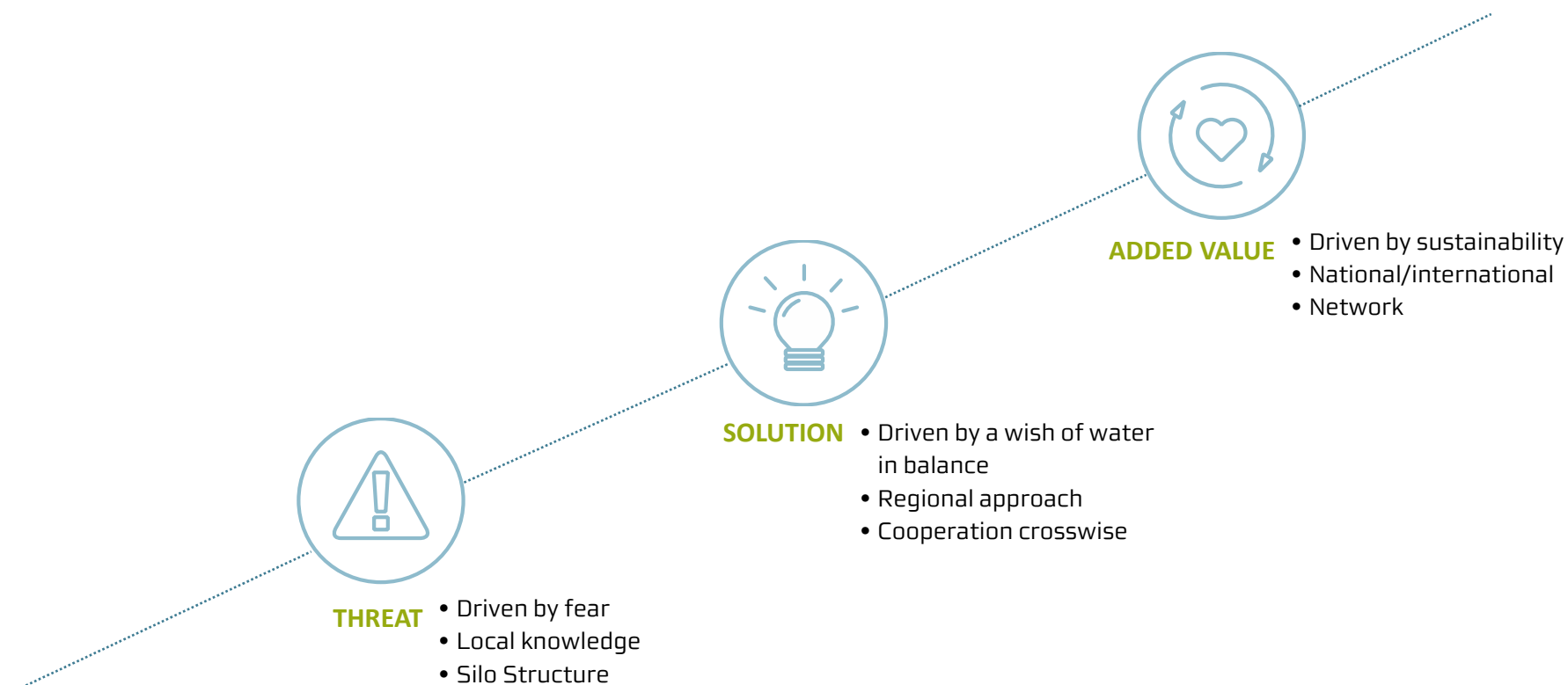
### Partner support

5 mio. EUR





# From threat to added value





## The most significant results of the 24 concrete implementation actions are related to the cross-boundary collaboration.

We can observe that already at the end of Phase 1:

- Cross-cutting collaboration provides more and better climate adaptation
- In Central Jutland work is done
  - more holistic
  - more with
  - to a large extent
- The project's focus on climate adaptation creates a higher level of activity

- Uniform tools provide:
  - interaction on coherent scenario work
  - common quality preparedness
- Learning:
  - and apply cross-boundary collaborative collaborations
  - to learn Mutual Gains Approach
- Very positive experiences and widespread use of young people in climate adaptation
- Municipal and regional politicians dare to speak more about climate adaptation and see the potentials

This is very satisfying results for us, who work with development of society!



**We are looking forward to experience  
what we achieve in Phase 2 and 3**

**Project manager**

**Dorthe Selmer**

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**[www.c2ccc.eu/english/](http://www.c2ccc.eu/english/)**





# C2C

Coast to Coast  
Climate Challenge

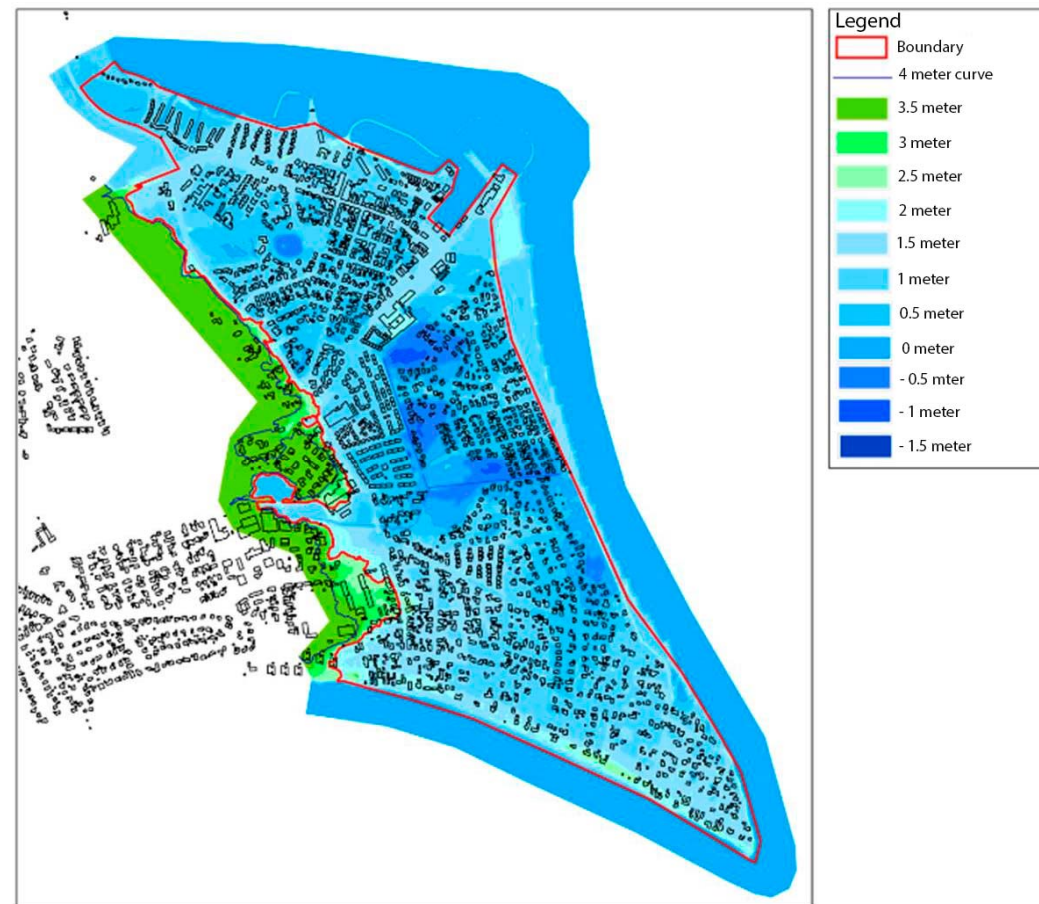
## Why citizen driven partnership makes sense, a C2C CC project

**Citizen participation is a prerequisite for success, in Juelsminde the politicians have given the citizens an opportunity for influence and determination on the city's future coastal protection and development.**



# A new dike association in Juelsminde

1150 properties and  
4000 inhabitants,  
within the projekt  
area.





- Let citizens and companies to take ownership by inviting them into the planning, decisions and projects.
- The citizen will be the main driving factor, and it requires political and administrative focus, discipline and courage.
- The politicians must let the citizens work and in the end to be able to support with a political decision





# An invitation from the politicians - the property owners decide





# Local excursion with citizen group





# Overall observations

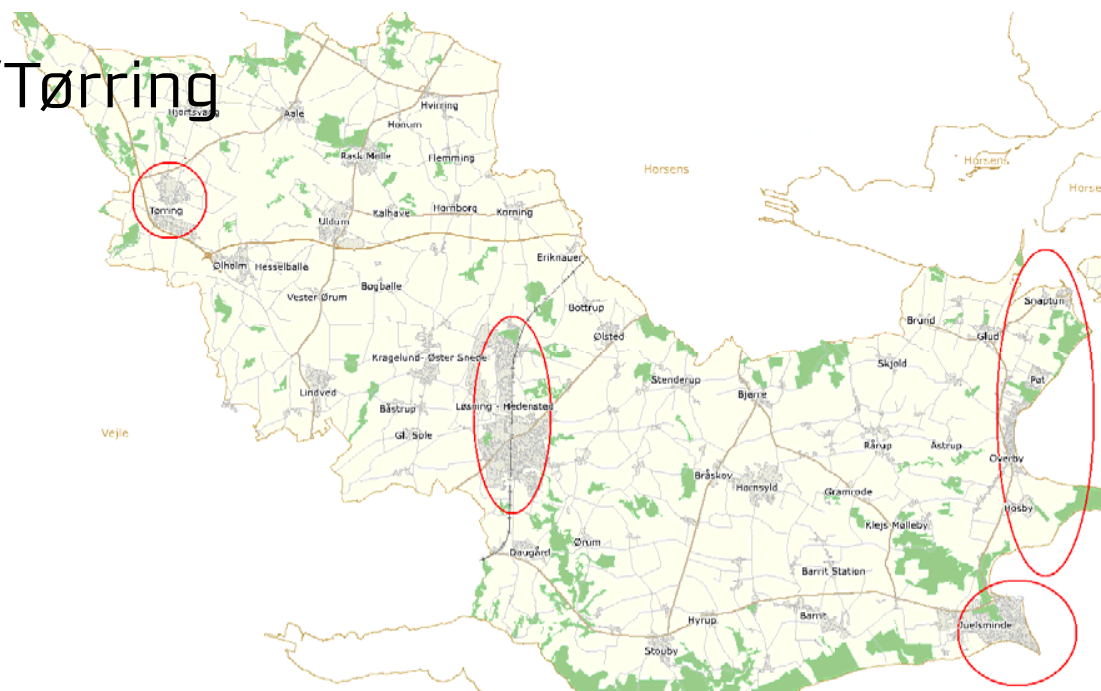
- Great support for for a dike association
- Only few opponents
- Mutual gain approach- it works
  - The framework is not set in advance - negotiations are almost always about more than one problem
  - Agreements can be good for everyone
  - Long-term relationships are important
  - It's about maximizing common goals





# Citizen-driven climate projects in Hedensted municipality

- C2CCC Juelsminde
- C2CCC Hedensted/Tørring
- C2CCC Håb til Håb





# Why partnerships makes sense?

- Sharing knowledge
- Involvement and influence provide a good basis for cooperation in the community of climate protection.





# Achived by now

- Established a committee that represent the inhabitants, companies and associations best possible
- The committee is done working on preparing the new dike association, including boundary, articles of association and membership fee.
- Agreeing in the committee of a community of solidarity
- Ready for political approval





## What now

- Final political decision
- Founding general meeting
- Dike association start up projekts



The local organising in Juelsminde will result in increased social resilience through establishment of a new dike association and the creation of a shared understanding locally of the challenges and mobilizing local front runners. 4000 citizens involved.



# Challenges

- Great interest and support for co-influence, but the demographic composition of the citizens involved is uneven.
- Many different interests and agendas among businesses, associations, citizens and summer homeowners.







**Biologist & Projekt manager  
Maria Elise Sørensen**

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<http://www.c2ccc.eu/english/subprojects/c18-citizen-driven-climate-change-adaptation-in-juelsminde/>





# C2C

Coast to Coast  
Climate Challenge

## Collaboration across municipalities in the river catchment of Gudenå

**The organization of a cooperation regarding nature and  
environmental issues focusing on both the use and  
protection of the river Gudenå**





# Cross border collaboration



HORSENS KOMMUNE



Silkeborg Kommune



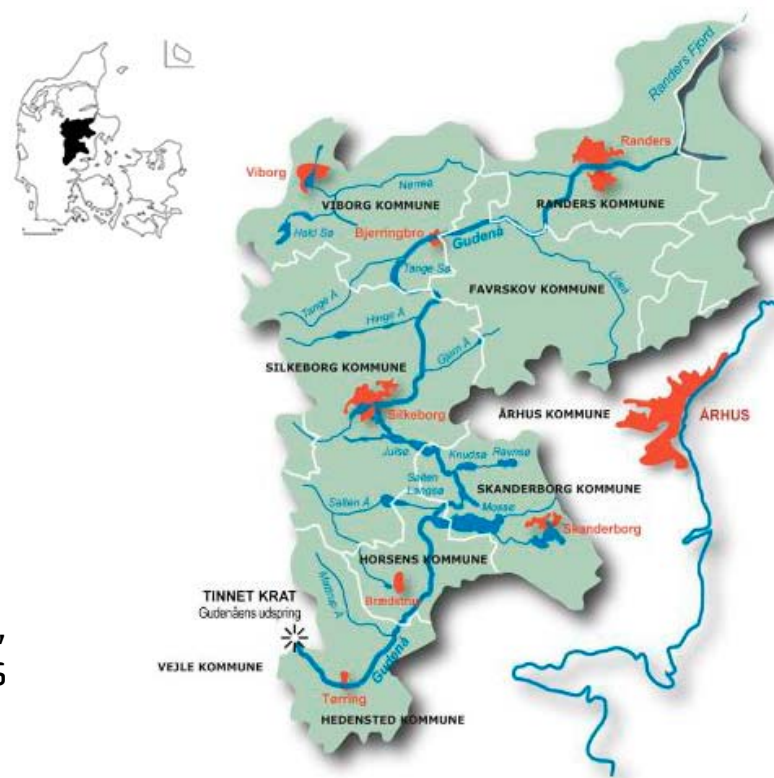
Randers Kommune



Collaboration between the 7 **municipalities** along the river Gudenå and one utility

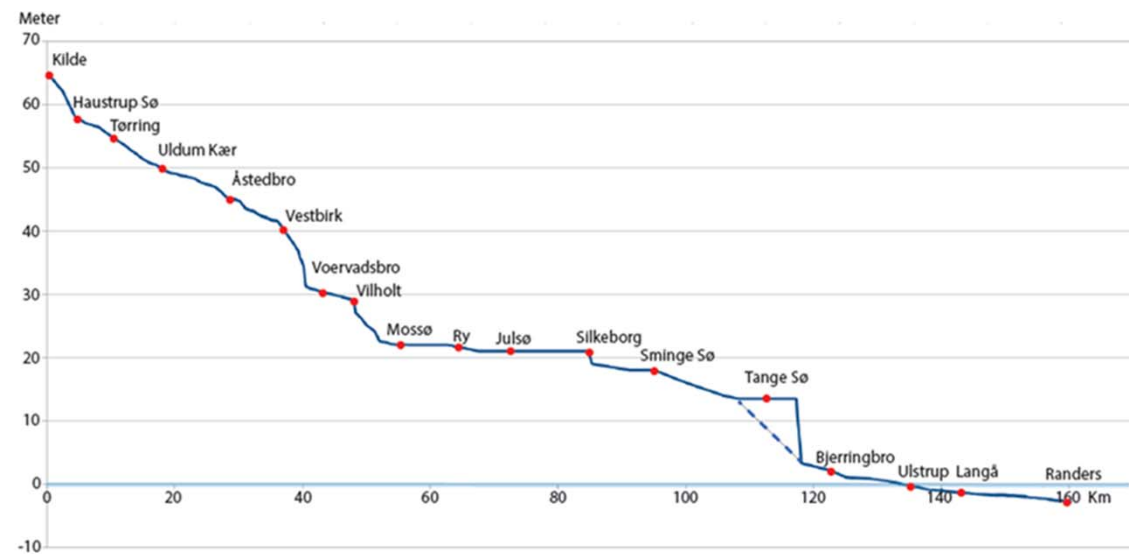
**Political involvement** through the Gudenå Committee (environment and recreational exploitation)

**Stakeholders** e.g. citizens, landowners, farmers, politicians, scientists and recreational users





# The River Gudenå



Longest river in Denmark (160 km). Catchment area 2600 km<sup>2</sup>. Mean water flow 32,4 m<sup>3</sup>/s. The name indicates the river was dedicated to the gods (gud = god). Historical and even today there are power plants and water mills along the river. The Atlantic Salmon is extinct. Environmental restoration is in progress.



# There is a need for involvement

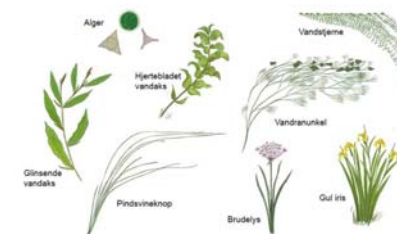
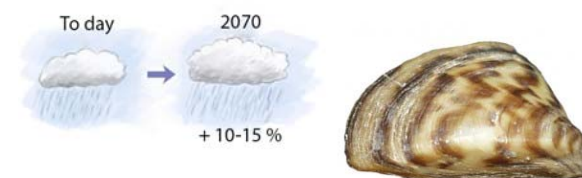
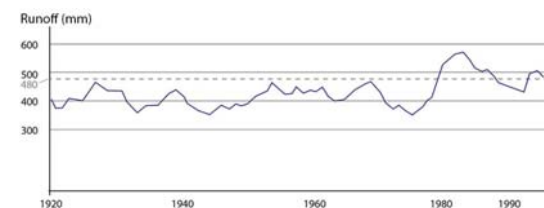
We are experiencing

- Rising volumes of runoff
- Heavier cloud bursts due to climate change
- Increasing amounts of vegetation
- Requirements of good ecological status

We need better knowledge of the relationship between precipitation, runoff, groundwater and flooding, as well as land use mapping in the areas affected by water level in the river.

There is a need to assess the effects of a number of actions that could potentially minimize conflict of lands.

Note: The Zebra Mussel (*Dreissena polymorpha*) is an invasive species in the river Gudenå





# The EU Life C12 river Gudenå project runs for 6 years (2017-2022)

## Phase 1

- A hydrological model is developed for the watercourse
- The land use is mapped
- The possible actions to handle increased volumes of water is identified
- Test scenarios for different solutions in the model will be made

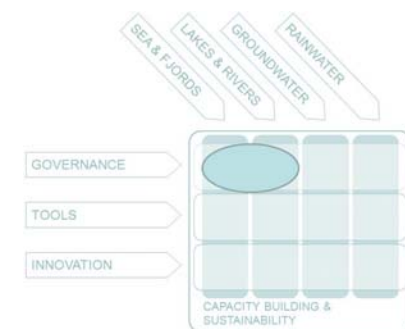


## Phase 2

- The creation of a vision and a goal for a Climate Change Adaption (CCA) approach
- Stakeholder involvement and conceptual designs for physical solutions
- Identification of suitable approaches to dealing with water
- Selection and valuation of projects

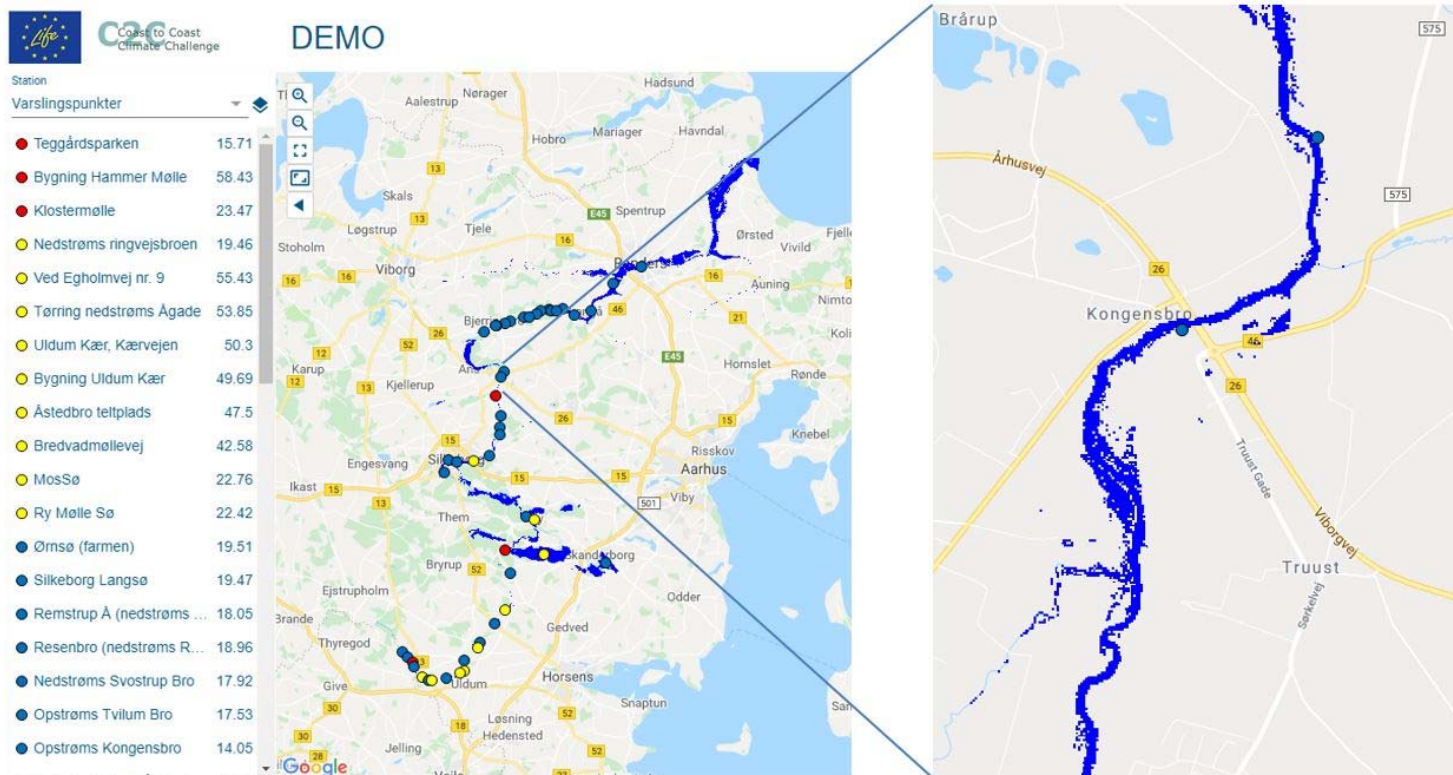
## Phase 3 and beyond

- Implementation in the municipal climate adaptation plans
- Project realizations





# The hydrological water model





# The warning model

## Real time data

- Water flow
- Water level
- Rain

## Forecast data

- Rain

## Warning through

- The Internet
- SMS ?

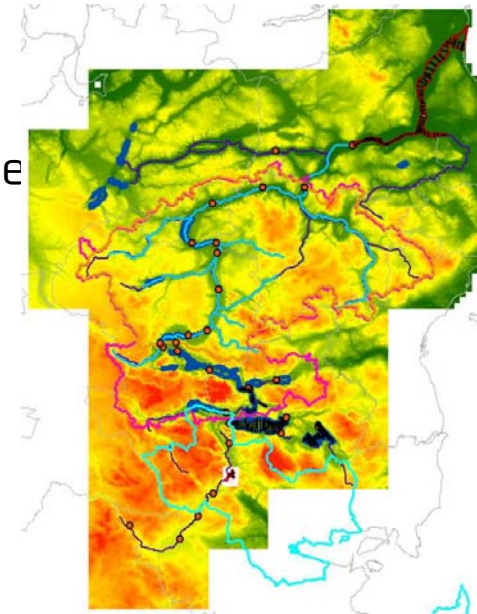




# 1st scenario run in the water model

The model and the analysis of the surface area are used to evaluate the eventual usage of the following compensating scenarios:

1. Retention of water in low-lying areas
2. Deepening of river cross profiles
3. The establishment of a parallel flow on parts of the river
4. Removal of any deposits
5. Limitation of drainage volumes
6. Land distribution and acquisitions of low-lying areas
7. Intensified watercourse maintenance
8. Altered operation of water mills and power plants
9. Others compensatory measures



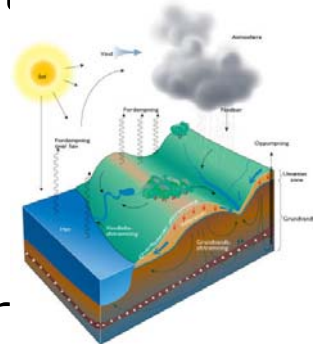


# Stakeholder involvement

Meetings and workshops among partners and stakeholders will be held - 1st meeting to be held June 21 2019.

Concrete actions:

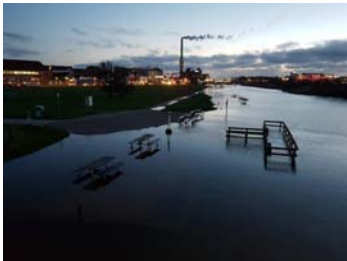
1. Developing a shared vision for handling the water
2. Agreeing on targets to be set among the municipalities
3. Listing of possible projects
4. Setting goals for water coming in and out of the municipalities
5. Preparation of financing models for compensatory actions





# Challenges

- **Improve the capacity** of those involved and those **who should do something**
- The challenges are **complex and linked** and has a **cross-border nature**
- Different approaches and attitude to **economic and time** related issues
- Party **political challenges** - can to some extent be offset by **laws and regulations**
- The **willingness to cooperate** is crucial to solve the challenges
- We need to create **a shared responsibility**





# The River Gudenå is a shared value among its stakeholders

**Biologist & Project Manager  
Bjarke Horst Jensen**

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[www.c2ccc.eu/english/subprojects/c12-gudenaen/](http://www.c2ccc.eu/english/subprojects/c12-gudenaen/)





# C2C

Coast to Coast  
Climate Challenge

## Science-practice collaboration in a Climate Change Adaptation innovation project; The Climate Road of Hedensted

**By: Theis Raaschou Andersen [Thra@via.dk]**

**Lisbon: 30-05-2019**



# The Climate Road

In collaboration between VIA University College and Hedensted Municipality an innovative Climate Road has been established as a science-practice case study in 2017 within the C2C-CC project. The Climate Road acts both as a climate adaptation and climate mitigation installation providing an interdisciplinary platform where knowledge can be transferred between researchers, stakeholders, citizens and authorities

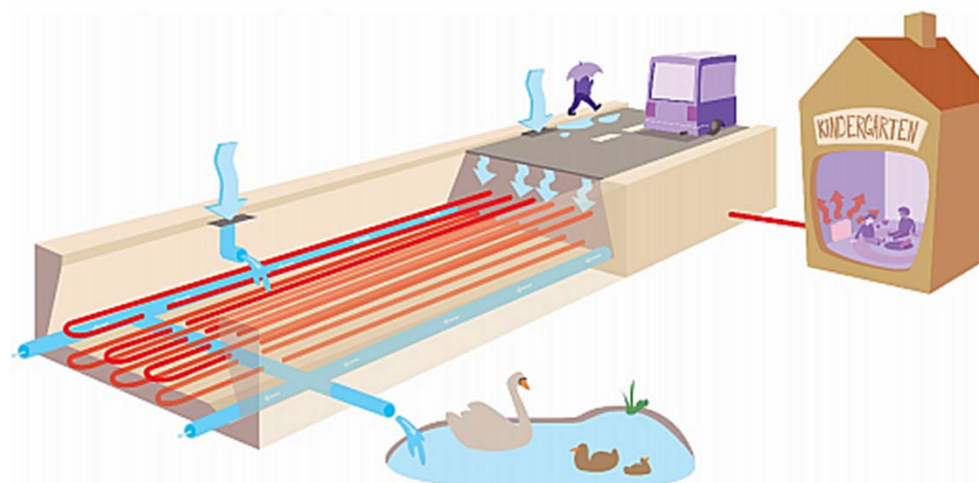
Beside the research potential the project holds (SDG 7, 9, 11 and 13) both VIA University College and Hedensted Municipality have a focus on SDG no. 4 (Quality education) and no.17 (Partnerships for the goals).







# The Climate Road



Drawing: VIA University College



# The Climate Road



Photo: Morten Telling

Since 2017 the Climate Road have performed satisfying

- Until now 80 % of all energy consumption from the daycare center is delivered by the climate road
- OK infiltration capacity of the asphalt



Photo: Theis Raaschou Andersen



# The Climate Road



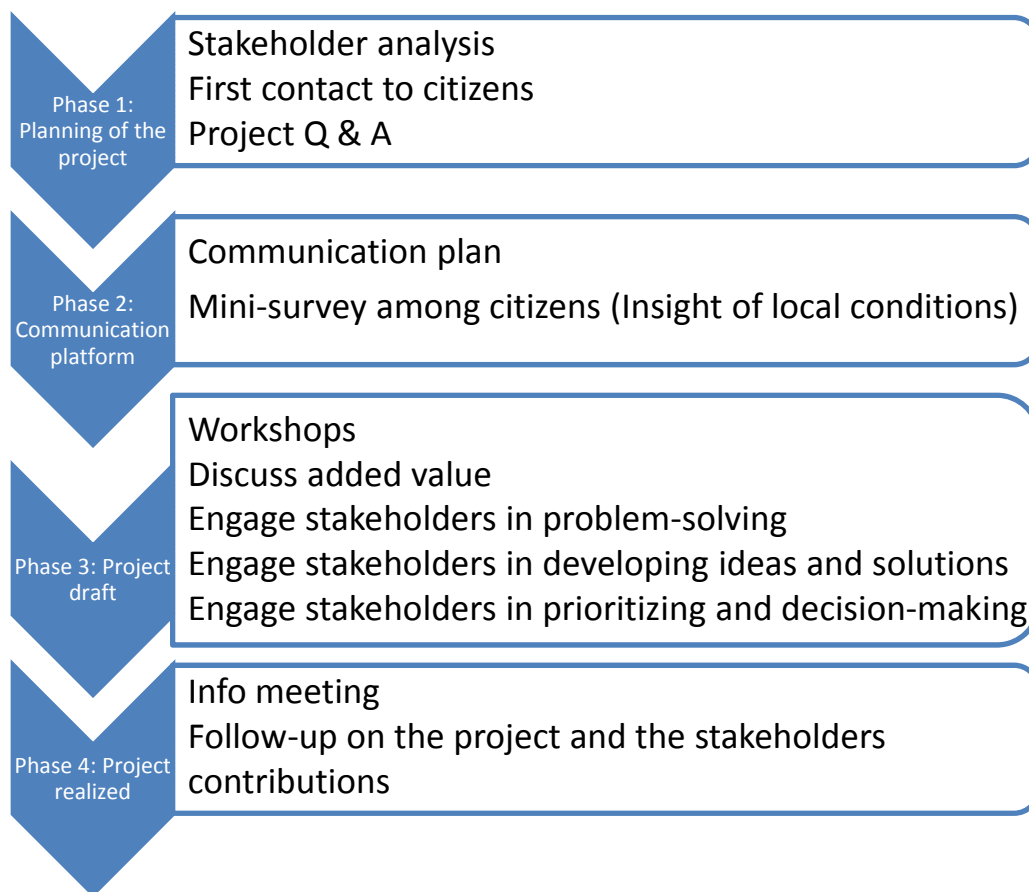
Photo: Theis Raaschou Andersen



Photo: Theis Raaschou Andersen



# The Climate Road



How do we involve citizens in the project when there is limited influence ?



Photo: Dorthe Selmer

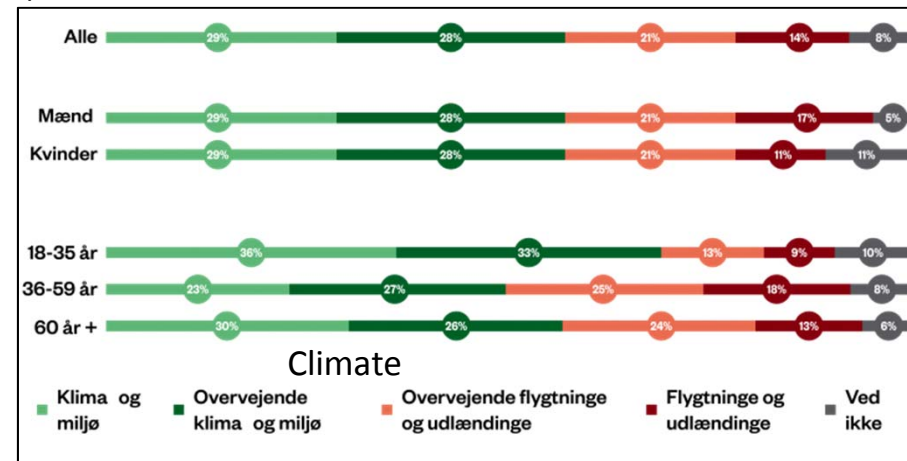




# The Climate Road - the aim with the citizens involvement

1. Creating a general understanding of the project and its purpose
2. Engage the stakeholders in the project
3. Increase the knowledge of climate adaption solutions among the citizens
4. Increase the likelihood for cooperation among the citizens the next time the municipality is conducting a climate adaption solution project
5. We want to generate a shared responsibility for the future climate in Denmark

Main topic of  
the Danish  
2019 election  
campaign



[www.Information.dk](http://www.Information.dk)





# The Climate Road - VIA University College

Through workshops and meetings, local citizens and stakeholders are engaged and introduced to the work performed by students and researchers from VIA University College.



Photo: VIA University College



Photo: Tv2Syd





# The Climate Road - VIA University College

We work with indirect involvement through especially children and young people  
- we want to create a discussion regarding climate and climate adaptation solutions at the kitchen table



Photo: ProfViden



Photo: Horsens Folkeblad



VIA University  
College



KOMMUNE

**midt**  
Central Denmark Region





# The Climate Road - Hedensted Municipality

For Hedensted Municipality, the climate road is used to enhance the public awareness of future climate changes in Hedensted e.g. the climate road is used by local schools as a case study for discussions on the future climate and the challenges and opportunities it provides



Photo: Horsens Folkeblad



Photo: Hedensted Municipality





# The Climate Road - Hedensted Municipality

We have made a number of training courses for the public schools (age 13-14 year), where they each have to make their contribution to how the area could be resilient



Photo: Hedensted Municipality

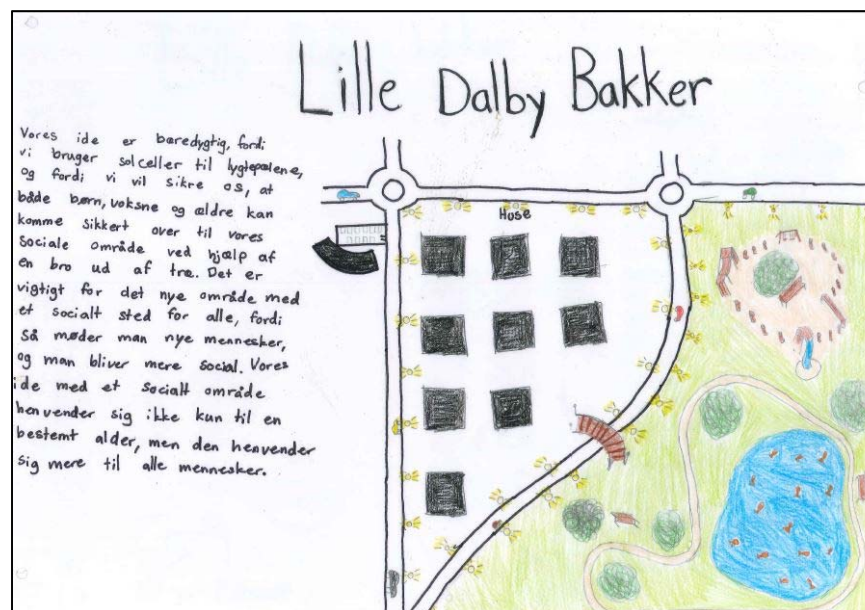
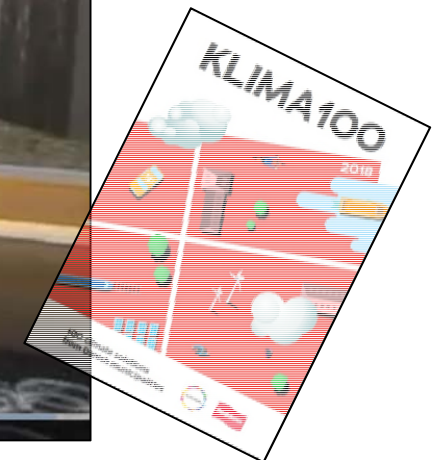


Photo: Hedensted Municipality





# The Climate Road - national information



VIA University  
College



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# The Climate Road - the future

- Continue monitoring on the roads performance
- New research projects in Hedensted
- *How do we involve citizens in the project when there is limited influence ?*
- It is very difficult to maintain a focus for the citizens to the project – **limited involvement and decision power**
  - Information meetings about the performance of the Climate Road
  - Shoot new films on Facebook about the Climate Road
- It is difficult to translate research language into normal language - **one way communication**
- How do we ensure that awareness leads to action

The first Facebook movie has been seen more than 7,000 times.  
Hedensted city has 12,000 inhabitants





# Thank you for the attention

**Theis Raaschou Andersen**  
**Thra@via.dk**







# C2C

Coast to Coast  
Climate Challenge

## **ADAPTIVE GOVERNANCE**

### **PROMISES AND PITFALLS**

**ECCA conference, Lisbon May 28-31 2019**





# OUTLINE

- Climate adaptation as a policy problem and adaptive governance as a solution?
- Adaptive governance – institutional prescriptions
  - Promises
  - Pitfalls
  - Evidence? Some key factors
- What can we learn from C2C (and audience) experiences?



# Climate adaptation

The problem(s):

- Uncertainty about impact – shortterm, longterm, shocks
- Complex systems – natural and social



Adaptive governance as the solution:

- Adaptive – policy through experimenting and learning
- Governance – involving multiple actors



# Institutional prescriptions

## Polycentricity

- Distributed decision-making
- Collaboration across scales and sectors

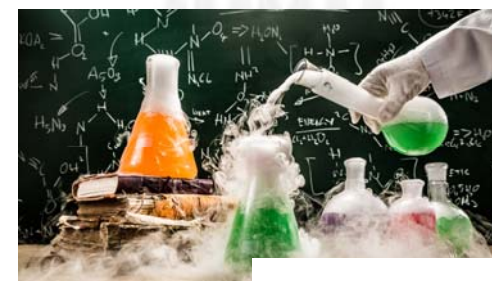
## Public participation

- Collaboration between govt. and non-govt. actors

## Experimentation

- (Small-scale) trials
- Systematic evaluation and adjusting

Sources: Huitema et al. 2009, van Buuren et al. 2015





# Polycentric structures

## Promise

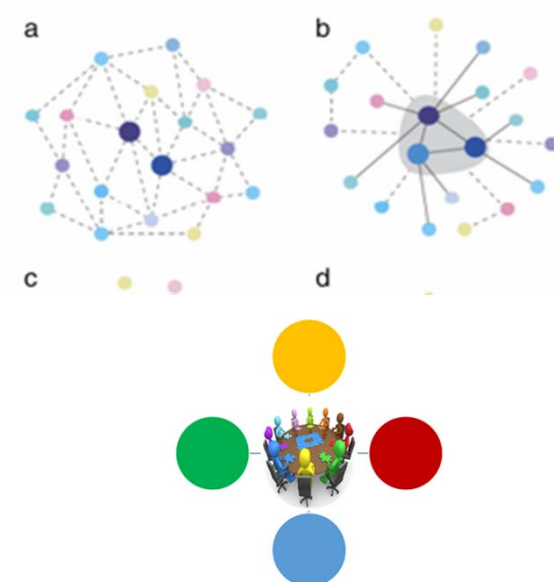
- Address problems at different scales
- Overlap reduces vulnerability
- Opportunities for experimentation

## Pitfalls

- Coordination?  
Duplication, lagunas or conflicts
- Democratic accountability?

## Evidence

- Coordination fora
- Framing solutions in terms of mutual gains





# Public participation

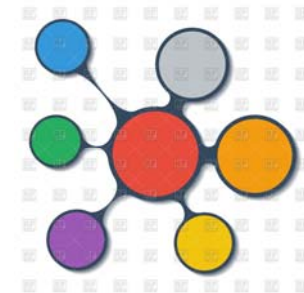
## Promise

- Better informed decisions
- Better implementation
- Learning



## Pitfalls

- Power differentials:  
who is willing and able to participate?
- Public decision-makers:  
willing to share power?



## Evidence....?

- Co-framing of problems and  
co-design solutions
- Trust: opportunities for ongoing interaction
- Support capacity to participate





# Experimentation - learning

## Promise

- Test and develop new solutions
- Learn from errors
- Capacity to deal with changing circumstances

## Pitfalls

- Scope of experimental approach
- Upscaling



## Evidence

- Collect data before, during and after implementation
- From multiple sources, including science and stakeholders
- Allow errors and pay attention to criticism
- Share experiences



## Some questions – your experiences?

- How do you deal with conflicts of interests in the partnerships?
- How do network partners ensure alignment with their political ‘bosses’?
- Challenges and solutions in bringing together partners of different influence, resources and problem understandings?
- Do partnerships offer particular opportunities or barriers for innovation and learning?



# Thank you for your attention

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# references

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