



C2C Coast to Coast Climate Challenge

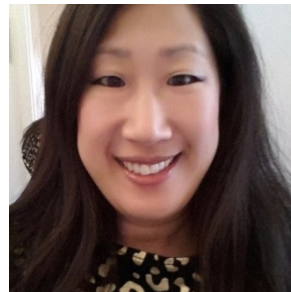
Cross-boundary Implementation of Climate Adaptation Plans in Denmark - a LIFE Integrated Project



9th BSR Climate Change
Dialogue Platform RT meeting
16 November 2018, in Riga, Latvia
Rikke Nan Valdemarsen, Advisor – C2C CC



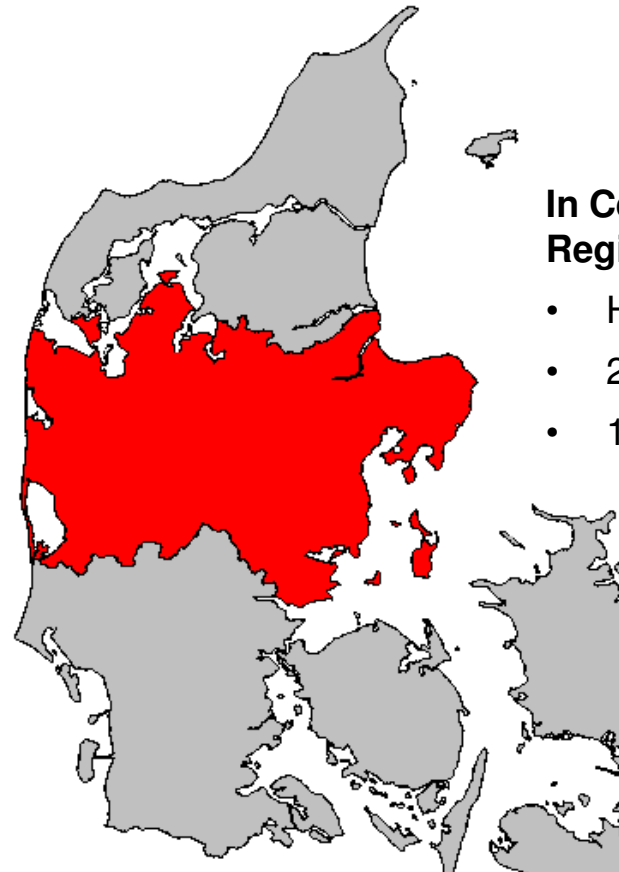
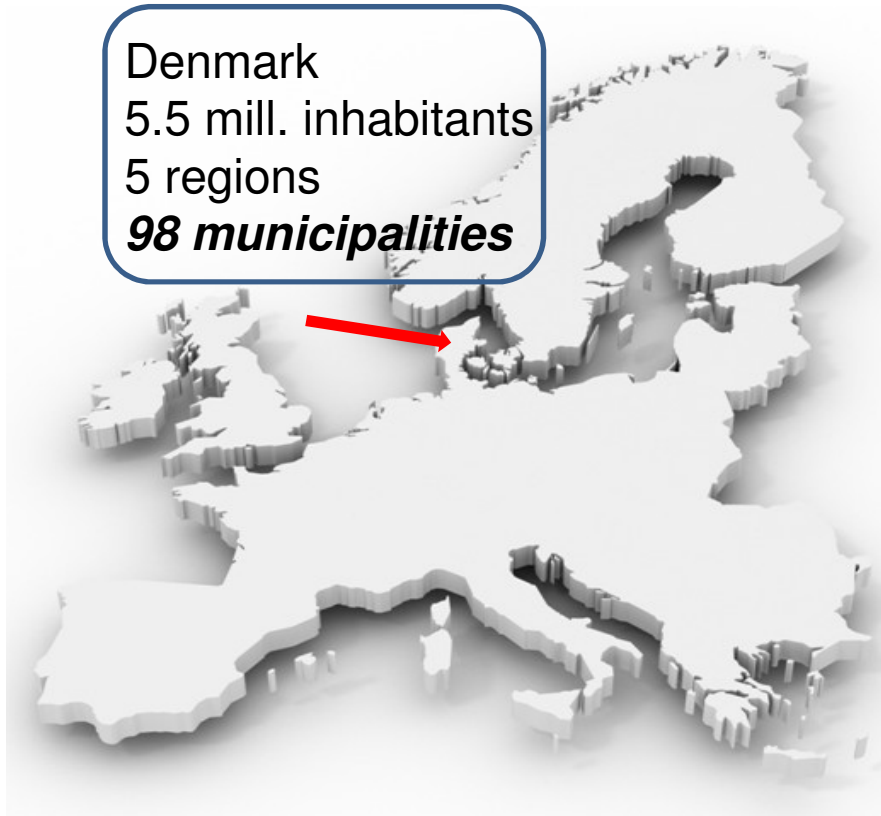
Who am I?





Introduction to Central Denmark Region

Denmark
5.5 mill. inhabitants
5 regions
98 municipalities



In Central Denmark Region:

- Highest point 178 m
- 2,500 km of coast
- 10,000 km of streams



Progress of the Danish Adaptation Policy Development - our experience working with municipalities on a regional level

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- No authority in DK has taken on the role to secure a prudent and coherent planning across municipality borders.
- It is our assertion that Water Knows No Frontiers – and that is the reason why water must be handled in broad collaborations.
- In DK no authority secures a coordination across authorities and various interests. So in Central Denmark Region we have decided to do something about it.





Progress of the Danish Adaptation Policy Development - our experience working with municipalities on a regional level

- The government platform, in 2012, decided, that the municipalities should have climate adaptation plans within 2 years. We went through the plans to get an impression of how the municipalities handled the task.
- We found a vast difference in how the task had been solved. However, certain issues were the same across the municipality borders. Thus, we considered it wise to initiate collaboration on handling the joint challenges.
- It formed the basis for the project C2C CC





Progress of the Danish Adaptation Policy Development - our experience working with municipalities on a regional level

Legislative drivers

- 2014: Climate adaption plans in 98 municipalities
- 2018: Climate and coastal protection in municipalities





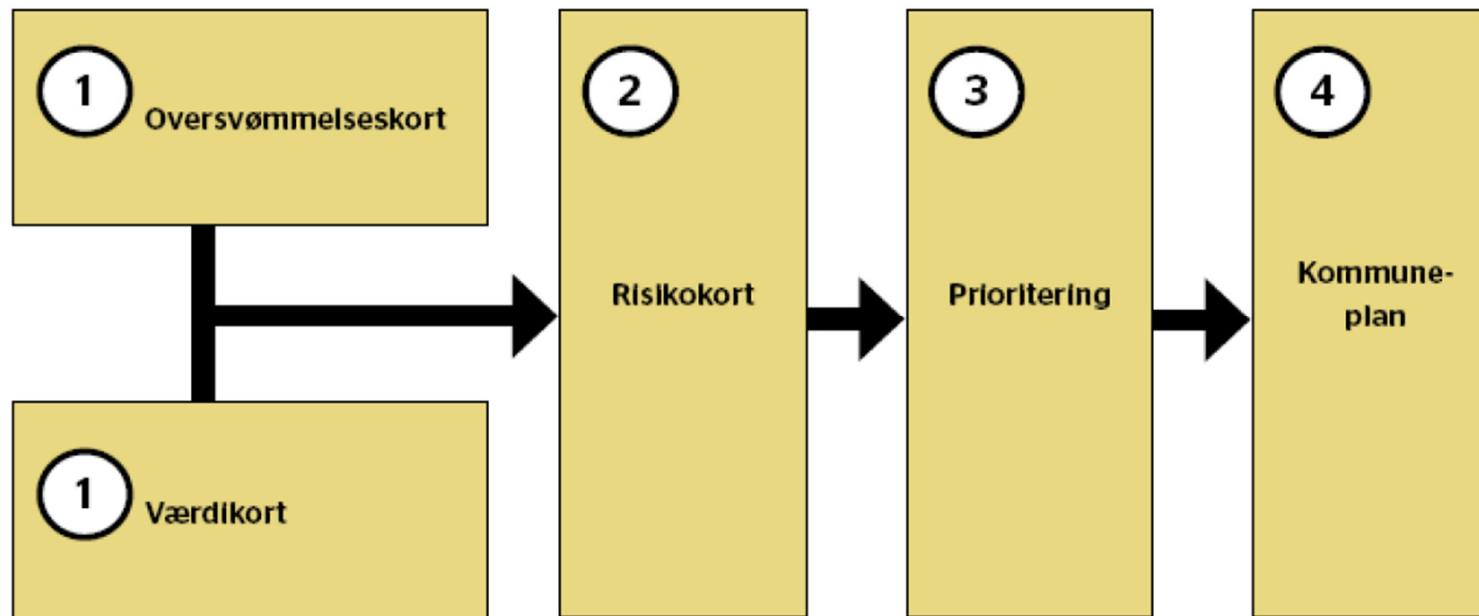
Progress of the Danish Adaptation Policy Development - our experience working with municipalities on a regional level

- Which areas will be flooded?
- Value mapping using the BBR (national housing and building register)
- Escape routes (values – what must be preserved)
- Merging various maps





Progress of the Danish Adaptation Policy Development - our experience working with municipalities on a regional level



p 17: <http://www.rm.dk/siteassets/regional-udvikling/ru/publikationer/klimatilpasning/skabelon-klimatilpasning2013.pdf>





Progress of the Danish Adaptation Policy Development - our experience working with municipalities on a regional level

- Implementation of who must pay?
- A finance system based on rates where the consumers pay for *water supply* and *water discharge levy* respectively
- Finding the money for climate adaptation:
- The water utilities have *service objectives*,
- Political requirement that the municipality can handle a 10 or 25 year incident (historically, 5 year incident)
- The utility can pay by a finance system based on rates, if the model is cheaper than traditionally.





Progress of the Danish Adaptation Policy Development - our experience working with municipalities on a regional level

The Secretariat for Water Supply sets the price ceilings and economic limits for Danish water and waste water companies to ensure the best prices on water.

The water regulation ensures that:

- Consumers are not overcharged
- Companies have the necessary means to operate their net
- Companies continuously are streamlining their operation





Progress of the Danish Adaptation Policy Development - our experience working with municipalities on a regional level

- The Secretariat for Water Supply is a national board to which the utility/municipality can apply for funds.





Progress of the Danish Adaptation Policy Development - our experience working with municipalities on a regional level

A finance system based on rates

- Each utility has to benchmark itself against others (just published for 2017 based on accounting figures).
- There is a CEILING. An application can be made to raise the ceiling due to extraordinary climate adaptation costs.
- The ceiling is the reason why utilities are merged, as the benchmark becomes too expensive for the individual utility.





Progress of the Danish Adaptation Policy Development - our experience working with municipalities on a regional level

All stakeholders put the system to the test, and the boundaries are moving. E.g. making the streams robust. Does that imply that the polluters can discharge more?

2016: 100 % financing

2017: 80 % financing (not a single project was applied for)

2018/2019: 100 % financing (again)

Still, municipalities pay for only hardware like tables and benches.





Progress of the Danish Adaptation Policy Development - our experience working with municipalities on a regional level

- In order to get free resources in the coming budgets, planning within municipality borders
- 10 areas for special risk management plans (more far-reaching than climate adaptation plans, and not a requirement)
- No requirements for coordinated planning (only in Randers municipality)
- Coordinated planning in C2C CC





Progress of the Danish Adaptation Policy Development - our experience working with municipalities on a regional level

- The utility must comply to the regulations and pay
- Functional ownership:
 - Delay of water in the countryside/farmland fields.
 - The municipality must own the function of the plant.
 - If it leads to damages, the landowner is compensated.





Progress of the Danish Adaptation Policy Development - our experience working with municipalities on a regional level

- The municipalities and the citizens plan within the scope of the legislation. They must comply with the consideration for biodiversity and aesthetics.
- The Danish society for Nature Conservation is dissatisfied due to too few requirements.
- The state grants money for projects in the National Budget.
- Otherwise, municipal own financial contribution.





Progress of the Danish Adaptation Policy Development - our experience working with municipalities on a regional level

The citizen who has the dog crap, must pay himself”

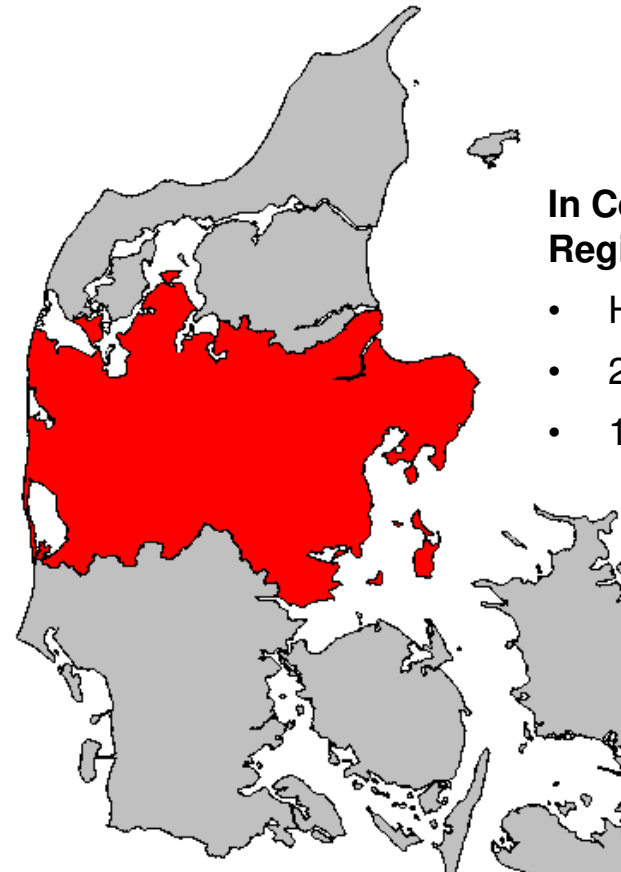
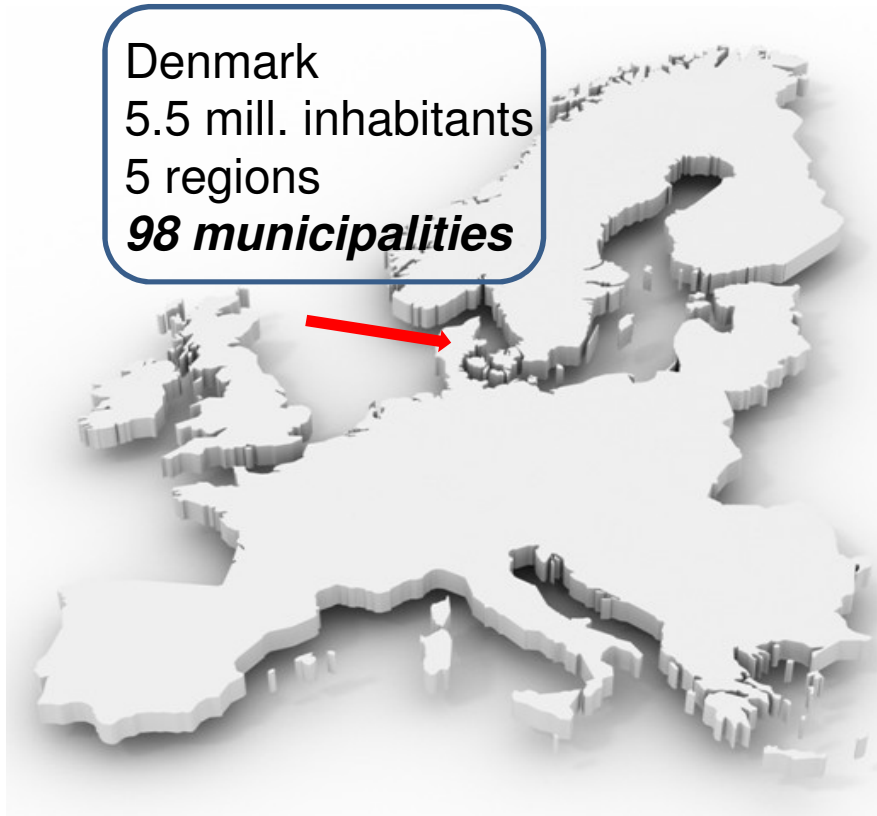
”Principle of use: The one who has got the usefulness, must pay for it”





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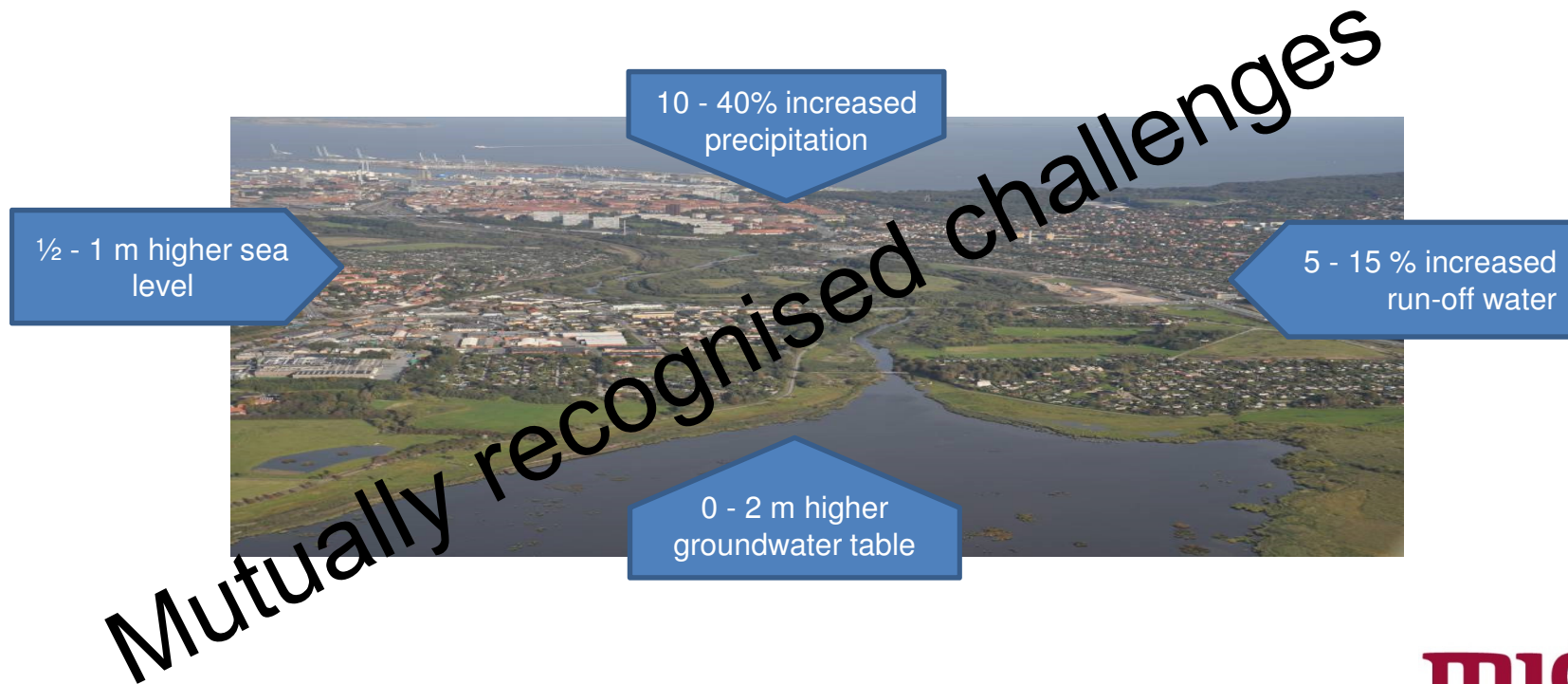
Progress of the Danish Adaptation Policy Development - our experience working with municipalities on a regional level

- Central Denmark Region makes a template with the municipalities and an advisor from the Environmental Protection Agency.
- The attention is on the dialogue across governance borders, and to merge risk maps with value maps in order to generate joint principles for value assessment (not in each municipality) in order to create a better understanding.
- Joint scenarios are made a sea levels rises +1 m and +3 m, a joint map.
- Climate adaption plans, finding the joint challenges, the holes in the cheese and filling out those holes.





Water challenges in the year 2100 (in Denmark)

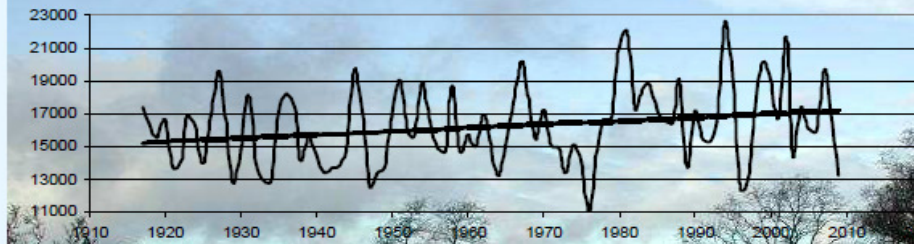




River challenges in the Gudenå

DANMARKS
MILJØUNDERSØGELSER
AARHUS UNIVERSITET

Mean annual flow, litres per second



Coastal Challenges



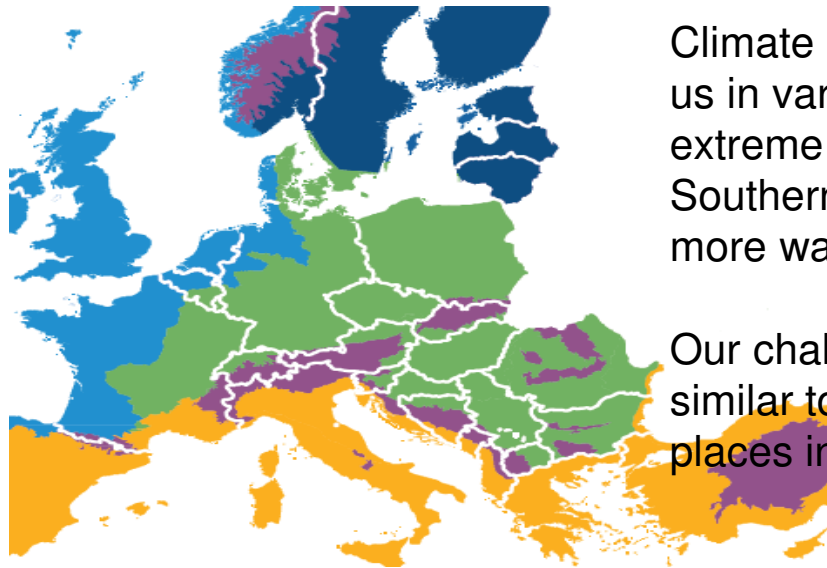
Water knows No Frontiers





Following CH, DK has the highest European losses connected to water incidents!

No matter how much we limit the CO₂ emissions, the climate changes and we need to adapt!



Climate change affect us in various ways, e.g. extreme heat in Southern Europe and more water in the North.

Our challenges are similar to many other places in the world.

Climate change, impacts and vulnerability in Europe 2016 | An indicator-based report
EEA Report | No 1/2017





The Project

Partners of Collaboration

1. Region Midtjylland, leadpartner
2. Central Denmark EU-Office
3. Favrskov Kommune
4. Hedensted Kommune
5. Herning Kommune
6. Holstebro Kommune
7. Horsens Kommune
8. Lemvig Kommune
9. Lemvig Vand & Spildevand A/S
10. Morsø Forsyning A/S
11. Morsø Kommune
12. Norddjurs Kommune
13. Randers Kommune
14. Samsø Kommune
15. Silkeborg Kommune
16. Skanderborg Forsyningsvirksomhed A/S
17. Skanderborg Kommune
18. Skive Kommune
19. Skive Vand A/S
20. Struer Forsyning & Spildevand A/S
21. Struer Kommune
22. Syddjurs Kommune
23. Thisted Kommune
24. Thisted Spildevand Transport A/S
25. Vestforsyning Erhverv A/S
26. Vesthimmerland Kommune
27. Vesthimmerlands Vand A/S
28. VIA University College
29. Viborg Kommune
30. Aalborg Universitet
31. Aarhus Universitet

Project period 6 years
Budget EUR 12m
Support EUR 7m



Supporting Partners

1. Beredskabsstyrelsen
2. Concito
3. DI
4. DTU Miljø
5. Eksportforeningen
6. Ferskvandscentret
7. Forsikring og Pension
8. GEUS
9. Ikast Brande Kommune
10. KLIKOVAND
11. Kystdirektoratet
12. Miljøstyrelsen
13. Naturstyrelsen
14. Odder Kommune
15. Ringkøbing-Skjern Kommune
16. SEGES
17. Teknologisk Institut
18. Vand i byer

Tværgående kapacitetsopbyggende

- > Hav og fjord
- > Vandløb
- > Grundvand
- > Regnvand
- > Styling (eller Governance)
- > Værktøjer og
- > Innovation

Åben land projekter

- > Håb til Håb
- > Thyborøn Kanal og den vestlige Limfjord
- > Grenaaens opland
- > Randers Fjord
- > Gudenåen
- > Storåen

By projekter

- > Horsens Bycentrum
- > Klimatilpasning i Hedensted og Tørring
- > Klimabåndet
- > Thyborøn By og Havn
- > Borgerdrevnen klimatilpasning i Juelsminde
- > LAR som rekreative elementer

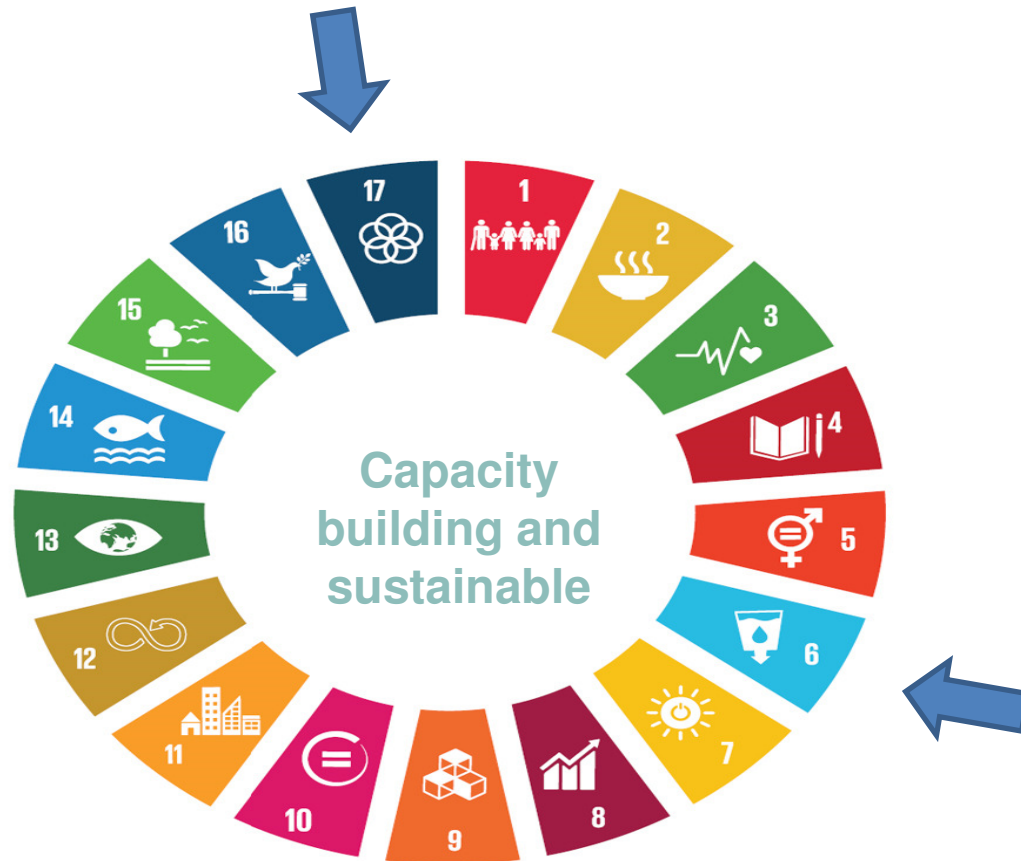
Tværgående innovative

- > AquaGlobe
- > Klimatorium
- > Permeable belægninger
- > Potentialer for øget infiltration
- > Klima historie | Kultur historie



The Direction

C2C
Coast to Coast
Climate Challenge



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Central Denmark Region

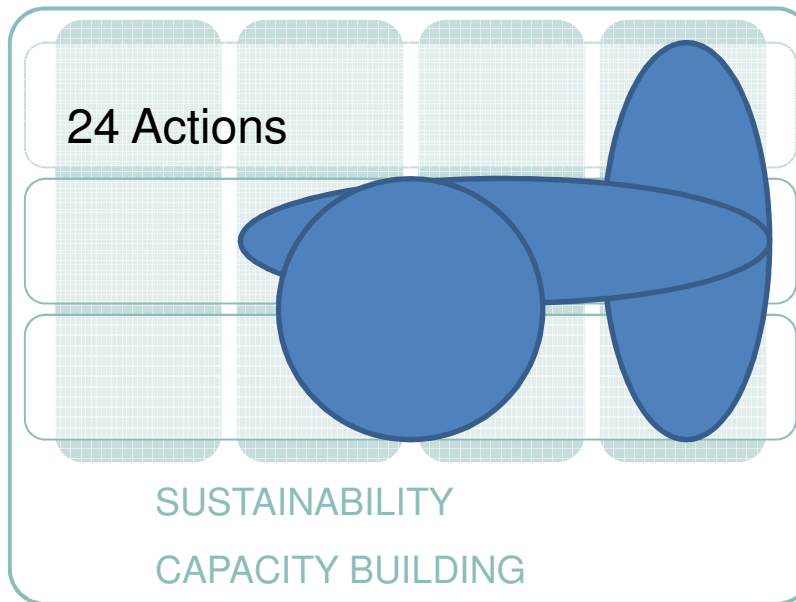


C2C CC Matrix

GOVERNANCE

TOOLS

INNOVATION



1 region
 18 municipalities
 8 water companies
 3 universities
 1 EU rep. office

= 31 partners

+ 19 supporting partners

Life project: 6 years
 12m EUR



Progress of the Danish Adaptation Policy Development - our experience working with municipalities on a regional level

We work in the C2C CC matrix where the vertical pillars represent the water circuit, whereas the three horizontal tasks handle cross-disciplinary considerations, we

- develop new ways of planning and new ways of managing the solutions
- develop the best possible tools and a joint basis for decisions thus concepts and solutions solve several challenges at the same time, and
- include the enterprises, creating business opportunities





Governance

- Hands on Preparatory Actions A1
- Mobilising broad partnerships (Bulgaria, India, Tokyo)
- Challenges, the partners needed to solve anyway, and which they could not solve on their own
- Synergies and opportunities in co-creation
- Improving processes during co-creation
- Gaps finding in existing legislation
- Legislation, new paradigm for maintenance
- The UK, the watertrusts (no demands from the governance side), local stakeholders and local ownership result in succes and maintenance



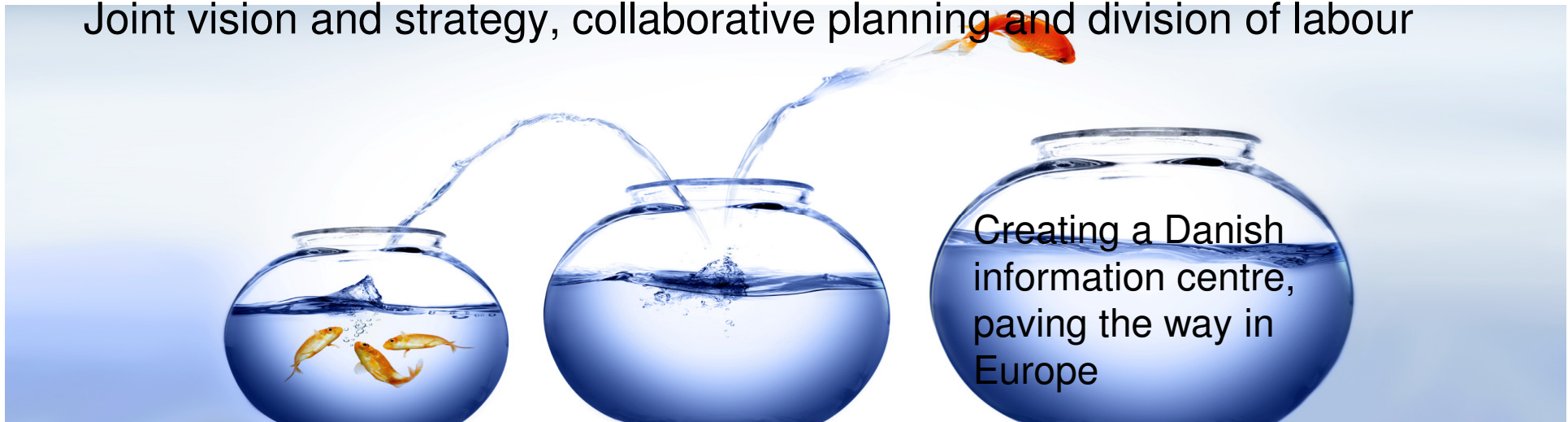


The overall objective

Better mutual planning than one can do alone

Efficiently taking care of water related climate challenges and turning them into business opportunities and improvements of society

Joint vision and strategy, collaborative planning and division of labour





We have the platform!

Thus we have good prerequisites for developing, testing, manufacturing and selling new solutions

We must
develop and demonstrate new solutions and concepts
train the labour force
create the necessary organisations (networks, cross-boundary collaborations, information centres etc.)



In other words, we shall collaborate on
a shared vision
a joint strategy
coordinating plans
a rational division of labour





Le Mur in Lemvig is
a multifunctional
solution





C2C
Coast to Coast
Climate Challenge



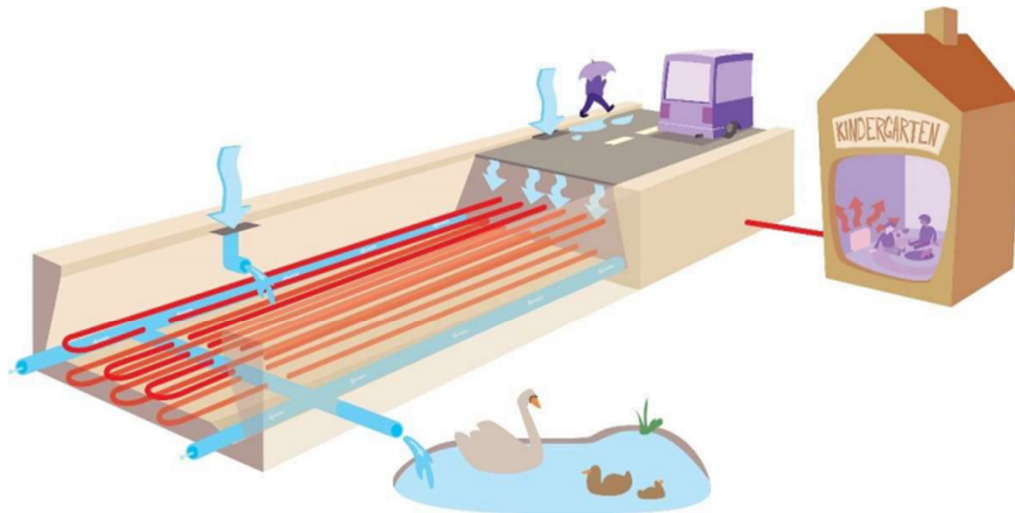
sønæs in Viborg is
a multifunctional
solution

midt
Central Denmark Region





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Coast to Coast
Climate Challenge



Climate road in Hedensted





Klimavejen – permeable asphalt with a multi functional solution

- Precipitation is used for district heating of a kindergarten
- Innovative collaboration started among participants, on a European Climate Change Adaption Confence in Glasgow, where they met by chance
- 13 participants, VIA University College, PhD students, Hedensted Municipality, and Lemvig Public Utility.
- NCC (construction), Lemvig Public Utility and Klimatorium did the initial sale to NZ.
- VIA University College and Lemvig Public Utility collaborated with an interest in NZ.
- Resulting in prolonged training of engineers, and a study tour to NZ.
- One on one replication of Klimatorium in NZ.





WaterCoG



WaterCoG

C2C
Coast to Coast
Climate Challenge



WaterCoG

About

News

Events

Contact

Welcome to the web space for the WaterCo-Governance (WaterCoG) project. WaterCoG is a project co-funded by the North Sea Region Programme 2014 - 2020.

Working with a range of partners and stakeholders from Sweden, Germany, Denmark, Netherlands and the UK, WaterCoG aims to understand the extent to which effective stakeholder and community participation in water management (co-governance) can deliver more sustainable and long-term approaches to managing North Sea Region (NSR) ecosystems by improving the implementation of key environmental objectives such as the Water Framework Directive (WFD).





Many changes are needed



Now wheat



Rice in future?

Adaption of
sustainable
agriculture





We need to be prepared for flooding



Business Opportunities



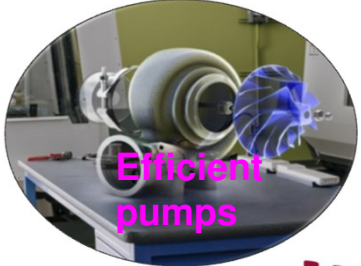
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Permeable pavements



Adaptive sluices



Efficient pumps

midt
Central Denmark Region



Game changers – new paradigms in innovation and business development

- Eco System Services
- Nature based solution
- Biodiversity





AquaGlobe



Klimatorium





Dissemination



- Climate history / cultural history
- Communication to raise awareness among citizens
- Platforms like museums, and 2 beacons, Klimatorium and AquaGlobe
- Films
- Events

AquaGlobe





Klimatorium





C2C CC – a Pathway to a Climate Resilient Region

A
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M

Becoming a climate resilient (SDG) region is reached fast and efficient



Smart knowledge based Climate Change Adaptation is implemented locally and regionally



P
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S
S

Technical and stewardship guidance and support across and from outside the consortium to implement local and catchment based CCA solutions



Capacity development for the use of climate adaption, targeted decision makers



Science-based climate change adaptation knowledge
(methods, data and innovation)





The Life Integrated Project Coast to Coast Climate Challenge is,

- ▶ 48 triple/quadruple helix partners making the region climate resilient
- ▶ focusing on catchment based holistic solutions
- ▶ working on climate adaptation and water in partnerships
- ▶ combining societal challenges with business opportunities
- ▶ a truly integrated project





Thank you for listening

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