

## Narrative: Climate adaptation in Danish municipalities

The sea level around Denmark is expected to rise between 50 and 100 centimeters during the next hundred years. It implies that the geography of the country will change. Danes will experience how the sea claims land from low areas and how the areas along the streams will be flooded more frequently.

170 municipalities in Denmark have a coastline, and a great many of the low areas with natural resorts, agricultural areas, housing and summer cottage areas are likely to be flooded in the future.

In 2003, The Danish Board of Technology (DBT) took contact to a number of Danish municipalities to find out if they were reacting to this future threat. We learned that only few had initiated plans to make allowance for the future, increased sea level, and we decided to do something about it. We did so despite concerns about the way the initiative would be received in the public. There are two tracks in the debate over global warming: Adaptation and mitigation. By the time we decided to make the project, these two approaches to dealing with climate change were to some extent seen as opposites in the public debate. Some (for example Bjørn Lomborg) advised politicians to simply adjust to the development while others wanted them to focus on mitigation only. We didn't want to choose sides in this debate and were afraid to do so by focusing exclusively on adaptation. On the other hand, too little attention was paid at the time to adaptation. Our conclusion, which is widely acknowledged now, was that we will have to adapt no matter what, and by making the consequences closer to home evident our goal was to stimulate the desire to control that development.

The project was initiated by the DBT Board of Governors. DBT is mainly financed by the Danish Parliament and operates at an arms length from political interference. The Board of Governors govern a yearly budget of around 1,5 million Euros and decides which projects to initiate.

We wanted to address both the local and national political levels. Since most planning takes place in the Danish municipalities, we wanted to make a project in which we would work with local authorities, but some degree of national coordination is also essential so we wanted the project to give recommendations to the national level as well, built on experiences gained from working with the municipality level.

We decided to make two scenario workshops: A scenario workshop is a participatory method previously developed by DBT in order to involve local knowledge in political decision making processes. Stakeholders are invited to develop their own visions and solutions to a given challenge, stimulated by scenarios developed by the organisers. We wanted to further develop the method so it could be used as a starting point for municipalities looking for a way to initiate adaptation measures.

At DBT a project manager and a project officer were assigned to run the project. In order to assist us, we appointed a task force:

- Walter Brüsich, the Geological Survey of Denmark and Greenland
- Karen Edelvang, the DHI - Water and Environment
- Jes Fenger, the National Environmental Research Institute, Denmark
- Carsten Rahbek, the University of Copenhagen, Zoological Museum
- Michael Stoltze, the Danish Society for Nature Conservation
- Peter Vestergaard, the University of Copenhagen, Institute of Biology

From DBT

- Søren Gram, project manager the Danish Board of Technology
- Bjørn Bedsted, project officer The Danish Board of Technology

It was agreed to take as our starting point an expected rise in sea level of half a meter over the next hundred years. Together with the task force, we pointed out two localities - one at the west coast of Jutland and one on the west

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coast of Zealand ? prone to future flooding caused by climate change. Maps showing the possible consequences of future extreme weather events were produced and several field trips conducted in order to gain an understanding of the challenges they were facing.

A journalist was hired to write scenarios for the scenario workshops in an easily digestible and provocative manner. 3 short scenarios (2-3pages) were developed in coordination with the task force showing what the selected areas may look like a hundred years later with an extra half meter of water. The scenarios portrayed the possible effects of

- Doing nothing
- Of letting nature move inland
- Of building dikes and making other protective measures

While scenarios were being developed, stakeholders were located in both case areas. We invited representatives of stakeholder groups with vested interests in the case areas. Adaptation is not just a technical issue. It is rather a question of deciding what kind of community you wish to have in the future. It is a political process and should therefore ? for practical as well as democratic reasons - involve the people affected by decisions made on how to deal with it. Besides representing the different interests at stake, the stakeholders invited had to possess knowledge about the area itself as well as the power and force of initiative to effectuate decisions made about the future of the area.

We invited around 25 local stakeholders and decision-makers for each workshop. They were:

- Local and regional politicians
- Technicians
- Farmers
- House owners? associations
- Summer cottage owners
- Nature conservancy associations
- Tourist and Business associations
- Hunters, fishermen and bird watchers

At the scenario workshops (each one day long), the participants went through a structured process of first commenting on the scenarios, then making their own visions and plans for action. The press were invited to witness the final presentation of results and the media coverage was good, kick-starting local debates about adaptation, which was part of the goal of making the project.

Some of the results from the workshops were

- General agreement about visions for the future
- Wetlands must be allowed to move inland
- Most important buildings should be protected
- Dike funds should be established
- Citizen participation and planning ahead is essential
- Massive local attention

To move the debate to the national level a report was made with results from the scenario workshop. It held clear recommendations to politicians at the municipal level to start planning for the future ocean rise. It also held clear recommendations to authorities at the national level that they should assist the municipalities with information about how to make such plans and with information about different technical solutions.

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The report was published in Spring 2004. It was sent to everybody ? dike associations, libraries, city town-halls, tourist offices, and to local branches of farmers associations and The Danish Society for Nature Conservation. There was a fair amount of attention in the media, but only little political reaction. We kept the story alive as we best could. We then had a wet summer and a few floods around the country and after the summer vacations, we sent out a newsletter about the project to members of the national parliament and to the media. This coincided with a report from the European Environment Agency, showing how the effects of climate change were already visible. The media coverage escalated and:

The then Minister of Environment, Ms. Connie Hedegaard (now EU Commissioner of Climate) promised to deliver a national climate adaptation strategy within a year on the front page of one of the biggest Danish newspapers. It came after three years. It includes the establishment of a knowledge centre, more research on adaptation and a stronger coordination of adaptation efforts made in different government offices.

The opposition says it is not really a strategy, but rather a definition of a problem and proposals for how to deal with it. The strategy, they say, has no precise targets and no clear responsibilities are delegated.

The problem at the moment is that adaptation to climate change has become a political football kicked between the municipalities and the Government, which is reluctant to make clear demands of the municipalities because the municipalities will then be able to use that as an argument for increased funding from the state. Recently though, the current minister of Climate and Energy has invited to discussions of changes in the strategy and a national conference about the adaptation strategy (arranged by DBT) in the making.

At the local level, the scenario workshops have left few visible marks on the case areas yet. House owner associations have initiated a saving fund to pay for future flood protection and one municipality has reconsidered the positioning of housing development. DBT is now working with a new municipality (Kalundborg) in a similar process, this time within the framework of an EU project (BaltCICA) aiming to implement adaptation measures in the Baltic region. And this time, more efforts are put into working closely with the municipality in order to increase the likeliness of implementing adaptation measures.