

## **Denmark - case studies - adaptation to climate change**

### **Introduction**

In 2004, the Danish Ministry of the Environment published the leaflet "Adapting to the Climate of the Future". Previously the Danish Ministry of the Environment was focusing only on the need to reduce emissions of greenhouse gases but the leaflet points out that we also have to focus on measures to adapt to climate change. The leaflet focuses on selected areas which illustrate what kind of problems may be encountered by the regional and local authorities, consultants, contractors etc.

Subsequently, the Ministry has initiated a number of small case studies in order to increase the focus on adaptation and the need for a national strategy on adaptation to climate changes. The first project initiated was a more overall project screening the experiences from other countries. Further scoping studies involve projects within sectors where adaptation could be relevant. All projects are financed by the Ministry of the Environment and will be completed in 2005. Therefore, the results and the lessons learnt from the projects will be reported later.

### **Description of the cases**

#### A survey of experiences on adaptation to climate changes in relevant countries

A number of countries have already initiated studies that focus on how to mitigate expected climate change impacts. The current study has the following objectives:

- To collate information about climate adaptation measures in other countries
- To gain an overview of the procedural approaches to climate adaptation in various countries
- To assess to what extent the collected information is relevant in a Danish context.

Nine countries and a number of international organisations have been selected for this survey. A report (in Danish with an English summary) will be available in September 2005.

#### Climate Change and Species Distributions. Potential Consequences of Climate Change on Species Distributions and Biodiversity in Denmark using Vascular Plants as an Example

The purpose of this project is to analyse the effects of predicted climate change on the distribution of 104 plant species in Denmark over the 21<sup>st</sup> century. Most of the species are mentioned in the EEC Habitat Directive as 'characteristic' and represent a wide variety of Danish vegetation types. A bioclimatic envelope model is used to calculate each species' potential distribution under two climate scenarios (IPCC SRES A2 and B2). A report containing 104 distributional maps will be available in September 2005.

#### Climate change and adaptation of urban drainage systems

A number of projects have started recently. The purpose is to analyse and report on measures to adapt urban drainage systems to a future changing climate. The results will include guidelines to local authorities regarding renovation of sewerage systems. A best practice catalogue will be developed in a dialogue with local authorities, consultants and the research community.

### Climate change and scenarios for the marine environment

A new project is planned at the moment. The purpose is to perform a number of sensitivity studies regarding future changes in the marine environment. There is a focus on the risk of oxygen depletion as a consequence of warmer and wetter winters and drier summers. Potential adaptation measures may include changes in the agricultural practise.