



To develop the scientific and applied knowledge
required for climate-proofing the Netherlands
and to create a sustainable knowledge infrastructure
for managing climate change

A climate-proof Netherlands

Knowledge for Climate is a research programme to generate the knowledge we need to climate-proof the Netherlands. This means shaping the spatial structure of the Netherlands so that it can cope with the consequences of climate change. We also need this knowledge to assess the resilience of major landscape, urban and infrastructure investments to climate change, and if necessary to adapt them.

Hotspots

The programme focuses on eight areas, called hotspots. These areas are not only of great economic and/or ecological importance, but are also vulnerable to the consequences of climate change. Responding to climate change at each hotspot will involve a combination of sectoral policies, such as water management, transport, agriculture and nature.

Climate Knowledge Facility

Support is provided to the hotspots by the Climate Knowledge Facility (CKF). The CKF not only supplies specific information on the hotspots themselves, but also provides generic knowledge for developing adaptation strategies. This may include information about climate change and its effects, dealing with scientific uncertainties, the costs and benefits of potential solutions, or the communication between scientists, government and stakeholders.

The CKF consists of two information services:

- **the Model Platform**, which quantifies the changes in climate and their impacts, and
- **the Research Platform**, which answers questions on generic issues.



Knowledge Transfer

A key function of Knowledge for Climate is to pass on the knowledge it generates. This knowledge transfer is an interactive process between information recipients and providers and operates through a well managed and active network. Knowledge is exchanged, revealed and made available to a wider audience. Hotspot knowledge is also interpreted and presented thematically to better support policy making. Specific products include a website, conferences, workshops, brainstorming sessions, publications and a knowledge helpdesk.

International hotspots

Knowledge for Climate will be working with international hotspots elsewhere in the world, especially in delta areas. Lessons can be learned from their experience, allowing the programme to develop a comprehensive package for climate adaptation – and a valuable export product.

Initiators and implementation

The Knowledge for Climate Foundation was established by the following organisations:

- Wageningen University and Research Centre
- Utrecht University
- VU University Amsterdam
- Royal Netherlands Meteorological Institute (KNMI)
- TNO
- Deltares

These organisations carry out the research in close cooperation with other knowledge centres, the corporate sector, civil society organisations, local and regional authorities, water boards and national government.

Goal

The Knowledge for Climate Foundation is responsible for implementing the Knowledge for Climate research programme. The research will deliver evidence-based and practical knowledge on climate change and land use. The goal of the programme is to make this knowledge openly available and to use it for climate-proofing the Netherlands: preparing the country for the effects of climate change, where possible turning the effects to our advantage, and ensuring we are not caught unawares.

Financing

The Knowledge for Climate programme has a total budget of 100 million euros. The Economic Structure Enhancing Fund (FES) provides 50 million euros; the remainder of the budget is obtained through participation and co-financing.

Duration

The Knowledge for Climate programme runs from 2008 to the end of 2013.





Climate change has direct consequences for various regions in the Netherlands. Some of them deserve extra attention because they are of great economic or ecological significance.

Mainport Schiphol

Amsterdam Schiphol Airport and the Schiphol region are very vulnerable to climate change. Land subsidence, more violent precipitation events, more severe droughts and faster rising sea levels compel us to make structural changes in the layout and use of the airport and the region. To retain its competitive position as a major international hub, we need to know more about the effects we can expect from changes in the weather and the climate. An important strategy in this region, therefore, will be adaptation.

Haaglanden region

The Haaglanden region (The Hague conurbation) has almost reached the limits to its urban expansion. The provincial and local authorities and the business community have therefore decided to pursue a strategy of restructuring and intensification of existing urban areas and greenhouse complexes. This choice is complicated by the demand for large areas of new water bodies, largely needed to avert the potential impacts of climate change such as flooding and water damage. This region in particular will have to find other, more innovative solutions to meet the water management objectives and associated land requirements.

Rotterdam region

Ensuring the cities are climate and flood proof is a condition for continued economic development. The region – Rotterdam city, the port and surroundings – is pursuing a ten-year strategy for further industrial growth, increased port capacity, improved accessibility and new urban development, both in the old port area and along the river Maas axis. Climate change will alter the risk of flooding from the sea and the river, and river discharges and water levels will change. Both have implications for these plans. The layout and design of new urban development will also have to respond to aspects like heat and changes in wind direction.

Major rivers

The consequences of climate change that affect this hotspot are increased precipitation and evaporation, higher river discharges in winter and more frequent or extreme droughts in summer. Higher sea levels and greater river discharges make flooding more likely. These problems will affect not only the lowland areas, but also the higher ground in the south and east. Land use patterns in the Rhine-Meuse floodplain will continue to change and this has a direct influence on the water storage capacity of the river system. New research is therefore long overdue. Studies will take on board the most recent recommendations and advice from the Delta Commission.

South-West Netherlands delta

The effects of climate change on the South-West delta region will be rising sea levels, higher temperatures and changing river discharges (lower in summer and higher in winter), leading to salination and affecting water quality and availability. The estuarine ecosystem will also change. The repercussions on spatial planning and the economic structure will have to be translated into long-term policy objectives for agriculture and nature (freshwater/saline gradient). This hotspot focuses on restoring the dynamic processes in the estuary, guaranteeing flood protection and strengthening the regional economic structure. Potential benefits will also be explored – like those to be found in agriculture and tourism.

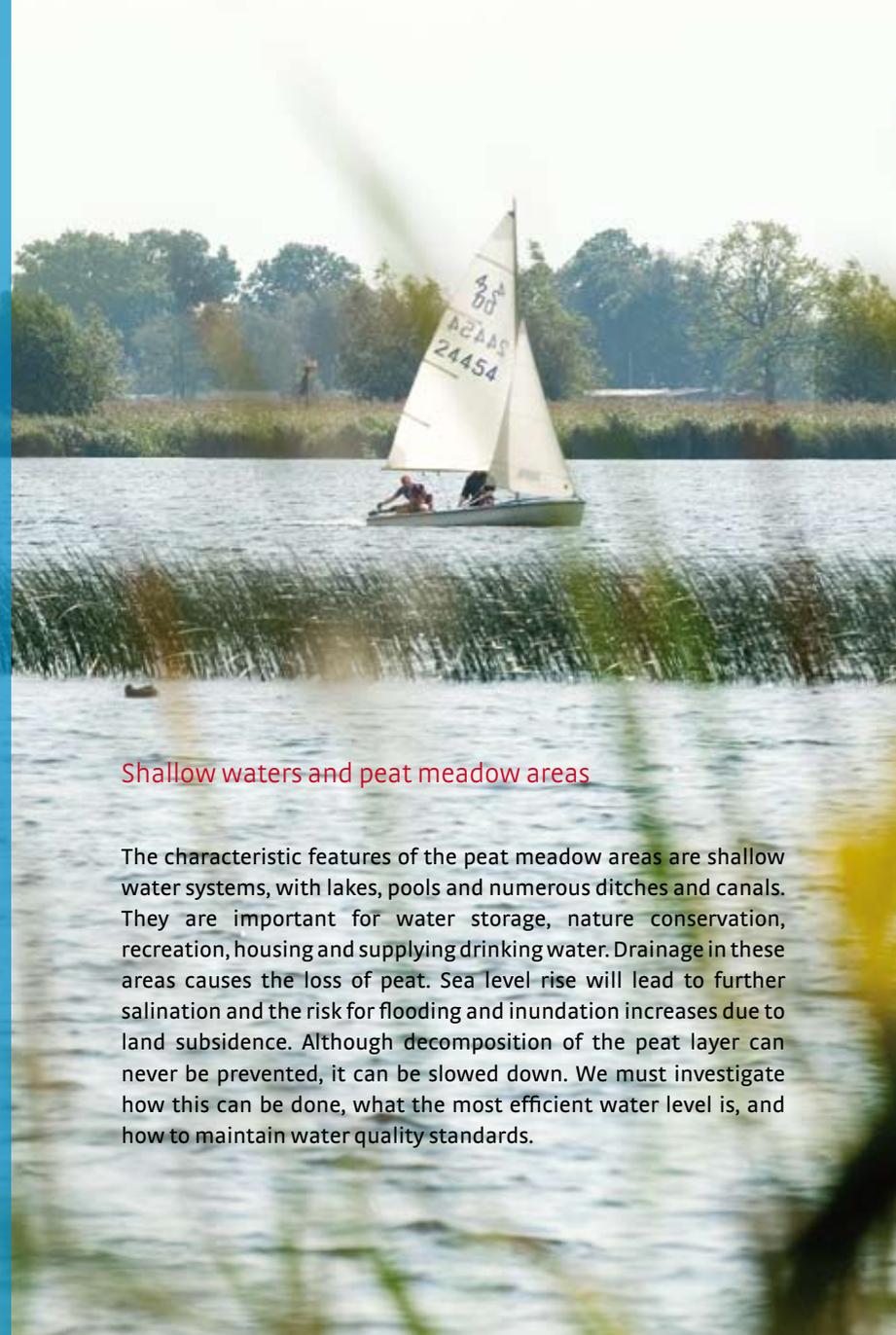


Wadden Sea

The Wadden Sea is already changing in response to the shifting climate, especially rising temperatures. This affects natural processes and the amenity value of nature and the landscape, the use of natural resources and the safety of the area. The Wadden Sea area is a relatively resilient part of the Dutch coastline; the shallow tidal flats are a safety buffer of considerable size as well as a major tourism resource. But how resilient will this safety buffer prove to be when confronted with the real effects of climate change?

Dry rural areas

Large areas of countryside on the higher sandy ground are being transformed from a food production landscape into a consumption-oriented multifunctional landscape. Farmers are trying to transform the current system of large-scale, intensive livestock management into one geared more towards quality and animal welfare. Moreover, the growing numbers of small businesses and private residents moving into these areas provide a new economic basis and are keen to raise the quality of the countryside. Besides this process of urbanisation, climate change puts additional pressure on this already complex process of conversion. The factors in the equation include the availability of water for agriculture and ecosystems, accommodating certain land uses under increasingly extreme weather conditions, and ecosystem resilience to climate change.



Shallow waters and peat meadow areas

The characteristic features of the peat meadow areas are shallow water systems, with lakes, pools and numerous ditches and canals. They are important for water storage, nature conservation, recreation, housing and supplying drinking water. Drainage in these areas causes the loss of peat. Sea level rise will lead to further salination and the risk for flooding and inundation increases due to land subsidence. Although decomposition of the peat layer can never be prevented, it can be slowed down. We must investigate how this can be done, what the most efficient water level is, and how to maintain water quality standards.

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