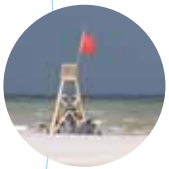
Knowledge for Climate

Dutch climate adaptation research












Knowledge for Climate develops scientific and applied knowledge needed to make the Netherlands climate proof. The research involves many actors in joint exploration of diverse options for adaptation to a changing climate.

Excellence in science

We aim for *excellence in science*. Our scientists work at an international forefront of a *broad range of disciplines*. Through cooperation with knowledge institutes abroad we promote open *exchange of knowledge*, a process in which we share our results and learn from others beyond our borders. Communication plays a central role in fostering cooperation, networking and disseminating research results, both within and outside the scientific community.

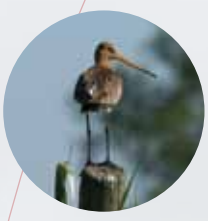
Applied knowledge

Knowledge for Climate has a strong focus on *applied knowledge*. Climate proofing is best achieved when research triggers and supports local, regional, national and international *adaptation strategies*. Therefore we work *closely together* with Dutch authorities and the private sector. The result is co-creation of knowledge.

Themes and hotspots

We focus our research in eight regions, the so-called hotspots. Hotspots are important because they are sites of large investments or of relatively high vulnerability to climate change. For each hotspot, the research programme offers options for a regional adaptation strategy. During the first phase of the programme 40 research projects have been carried out, focusing on the most urgent needs for knowledge. The main components in the second phase are in-depth studies in which generic knowledge and area-specific questions are linked. The research is carried out in eight themes by consortia.

Research in eight themes



Adaptation

Knowledge for Climate uses a 'climate proofing' approach to adaptation. Climate proofing does not mean reducing climate based risks to zero, an unrealistic goal for any country. Rather, it means combining infrastructural, institutional, social and financial adaptation strategies to reduce risk and identify opportunities for innovations. The research projects are realized in a multidisciplinary network that jointly assesses impacts and develops adaptation strategies. We look for location-specific measures that combine 'blue', 'green' and 'red' functions and make use of the specific characteristics of the area. Five consortia have been formed, carrying out research in different fields: flood risk management, fresh water supply, rural areas, cities and infrastructure.

Theme 1 • Climate Proof Flood Risk Management

What are strategic alternatives for flood risk management from the point of view of risk reduction?

Theme 2 • Climate Proof Fresh Water Supply

What are opportunities and adaptation strategies for fresh water supply and water quality?

Theme 3 • Climate Adaptation for Rural Areas

What are the effects of climate change and adaptive strategies on land-use functions in the rural areas of the Netherlands?

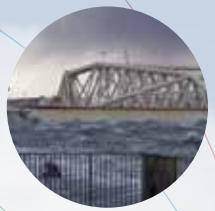
Theme 4 • Climate Proof Cities

How can the vulnerability of the urban system to climate change be reduced and the urban adaptive capacity be strengthened?

Theme 5 • Infrastructure and Networks

How does climate change affects our infrastructure and networks and which strategies can be adopted to climate proof them?



Climate projections and coupling models

Projects in this field are designed to assess impacts in the Netherlands by obtaining high quality climate scenarios and climate impact models. Reliable projections of trends and changing extremes are required to identify options for the use of space. The programme delivers regional climate scenarios tailored to these practical needs. Researchers work jointly with specialists, officials and other key actors to assess which assumptions must guide climate scenarios.

Theme 6 • High-quality Climate Projections

Uncertainty about the pace and extent of climate change is a central issue: how to reduce, quantify and communicate these uncertainties?

Governance, economy and decision support

How can society's 'adaptive capacity' be improved? Understanding the physical component and existing institutional arrangements is crucial to analyzing adaptive capacity. This requires dealing with uncertainties and perceptions of risk, analyzing policy processes and estimating socio-economic capacities. Adaptation strategies must be in line with the current institutional structures. We develop and improve decision support tools; tools to use before measures are taken, such as scenarios and the *Climate Effect Atlas*; and tools used afterwards such as monitoring and evaluation methods. The research into governance and decision support tools is carried out by two consortia.

Theme 7 • Governance of Adaptation

Which government arrangements increase the adaptive capacity of society and help implement adaptation options?

Theme 8 • Decision Support Tools

Tools for design and evaluation already exist to integrate climate change issues in government policies. How can they be improved and new tools developed?

Research in eight hotspots

Adaptation options and their feasibility can best be examined in national and regional settings, since that is where one finds the knowledge and experience for effective intervention strategies. This is why we focus on a limited number of places: the hotspots. Here, scientists work together with actors from public and private sectors to ensure a relevant research agenda and effective employment of research results. The hotspots offer the research consortia opportunities to build knowledge through case studies.

Hotspots

- Rotterdam Region
- Haaglanden Region (the region around The Hague)
- Southwest Netherlands Delta
- Schiphol Mainport
- Wadden Sea
- Dry rural areas
- Major rivers
- Shallow waters and peat meadow areas

Hotspot Rotterdam region

Climate change is forcing Rotterdam to prepare for greater extremes of rainfall and temperature. As part of its preparations, the city has developed a long-term vision, based on scientific research. The vision has been translated by *Rotterdam Climate Proof* (Rotterdam's Climate Initiative adaptation programme) into more concrete, short-term action programmes. This means the short-term issues have largely been identified and translated into concrete measures. But Rotterdam is in need of more thorough knowledge about the future. Scientific research currently focuses on heat stress in the city, water safety from both sea and rivers and the effects of climate change on the urban water system.

Hotspot Dry rural areas

The current intensive use of land by farmers is not climate proof. The use of large areas of the countryside situated on higher sandy grounds is today shifting from a single focus on food production toward multiple functions, including leisure and tourism. The research focuses on the effects of climate change on regional development in the short and medium term. One of the issues is how climate related risks can be incorporated into the regional planning and decision-making process.

Communication

A closely-knit network between researchers and end users facilitates knowledge dissemination. The Knowledge Transfer unit creates and supports this knowledge network. The unit helps make knowledge available to a wider audience. It also sees that hotspot knowledge is thematically translated so that it may better support national policy-making. Its work includes a website, conferences, workshops, publications and courses.

International

Knowledge for Climate cooperates with partners abroad to generate and share knowledge and to develop a complete climate adaptation product. We take part in the ERA-Network CIRCLE, the Joint Programming Initiative (JPI) Climate, and the Climate KIC. As a partner of the Delta Alliance we aim to increase the efficiency of responses to critical problems commonly experienced in river delta regions worldwide.

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