Climate Adaptation for Rural Areas

Knowledge for Climate

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Knowledge for Climate is a research programme for the development of knowledge and services that makes it possible to climate proof the Netherlands. Governmental organisations (central government, provinces, municipalities and water boards) and businesses actively participate in the research programme. Knowledge for Climate focuses on eight areas, called hotspots: Mainport Schiphol, Haaglanden region, Rotterdam region, Major rivers, South-West Netherlands Delta, Shallow waters and peat meadow areas, Dry rural areas and the Wadden Sea region. An important part of the programme is the Knowledge Transfer. We cooperate with Universities in other parts of the world and stimulate Knowledge transfer within Delta areas through the Delta Alliance.

The programme works with eight consortia doing research on eight themes, one of them being Climate Adaptation for Rural Areas.

Climate Adaptation for Rural Areas

This research programme aims to assess the effects of climate change and autonomous adaptive strategies (i.e. adaptation strategies undertaken by autonomous actors such as farmers and nature conservation organizations) on a multitude of land-use functions in the rural landscape of the Netherlands.

Research question

To achieve this aim, the consortium will focus on three case study areas, in close cooperation with local and regional stakeholders. Two contrasting climate scenarios will be explored, within the context of one plausible socioeconomic scenario. Furthermore, region-specific policy options concerning spatial planning, drainage, water prices, etc. will be defined together with the stakeholders. We will investigate the spatially-explicit feasibility and effectiveness of adaptation strategies, as well as their support from local autonomous actors.

This programme supports policy makers to:

- achieve a climate-proof ecological structure that allows meeting high-standard climate-proof nature targets;
- in such a way that costs for food-producing farmers are minimized and benefits for diversifying farmers are optimized;
- and the overall functionality of the landscape, in terms of water management, biodiversity, agriculture, drinking water, and recreation is maximized.

The research programme combines state-of-the-art research on the biophysical response to climate change with innovative methods to explore the human dimension of adaptation to climate change. We aim to predict the autonomous developments of hydrology, nature, and agriculture, and combine these developments and their interactions in one land cover / use / management model. Policy recommendations will be formulated, following an integrated impact assessment of the autonomous adaptation strategies under the various policy options.

The Work packages

WP1

Integration: multifunctional adaptation to climate change, is the coordinating and integrating work package. In WP1 contacts with the regional case studies and the project scenario development will be coordinated. Future land use and management maps will be created using Agent-Based Modelling, whereby the actors are farmers and nature managers. The agent typologies and the decision rules will be generated from two projects in WP2 and WP3 in which nature managers and farmers are interviewed. The resulting land use and management maps will feed the remaining projects in WP2 and WP3.

WP2

Water and biodiversity in the future climate. The impacts of climate change on the water balance, vegetation, and population dynamics will be studied in response to the land use and land management maps generated in WP1. The spatial and abiotic requirements for adaptation measures will be quantified and attitudes of nature managers towards adaptation options will be explored. Questions answered are: How will the natural area develop; are current definitions of nature targets still realistic; and are adaption strategies employed by local agents adequate to help eliminate potential climate change threats and create opportunities for nature development?

WP3

Drivers and consequences of adaptation by farmers. The driving factors behind different adaptation strategies for different farm types will be analyzed. Questions answered are: What are the consequences of agricultural adaptation strategies for climate, market, and environment and how can ecosystem services provided by farmers contribute to water and nature adaptation?

Stakeholders

Stakeholders are involved at many levels and at all stages of the research:

- At individual level (farmers and nature managers), co-operations of individual stakeholders and companies (LTO, Natuurmonumenten, and various drinking water companies);
- Governmental institutions (Staatsbosbeheer, provinces, Environmental Assessment Agency (PBL), water boards / STOWA) and ministries (LNV, VROM and V&W).

Currently the following stakeholders have already expressed their interest in our proposal:

- The provinces of Zuid-Holland, Utrecht, Gelderland, and Noord-Brabant
- Water board Aa en Maas
- Drinking water companies Brabant Water and Vitens
- Ministry of Agriculture, Nature, and Food Quality

Contact information

Consortium leader
Prof.dr. Adri van den Brink

Contact person
Prof.dr. Adri van den Brink
adri.vandenbrink@wur.nl
T +31 317 482784

Dr. Martha Bakker
martha.bakker@wur.nl
T +31 (0) 317 482420

Wageningen University
www.wur.nl

www.knowledgeforclimate.nl/
climateadaptationforruralareas

Working with Hotspots

- Hotspot Shallow waters and peat meadow areas
- Hotspot Dry rural areas
- Hotspot South-West Netherlands Delta
- Hotspot Wadden Sea

Consortiumpartners

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

Consortia Knowledge for Climate

- Climate Proof Flood Risk Management
- Climate Proof Fresh Water Supply
- Climate Adaptation for Rural Areas
- Climate Proof Cities
- Infrastructure and Networks
- High-quality Climate Projections
- Governance of Adaptation
- Decision Support Tools

Programme Office Knowledge for Climate

Secretariat
Daltonlaan 400
3584 BK Utrecht
The Netherlands
T +31 88 335 7881
office@kennisvoorklimaat.nl

Public Relations
c/o Alterra, Wageningen UR
P.O. Box 47
6700 AA Wageningen
The Netherlands
T +31 317 48 6540
info@kennisvoorklimaat.nl

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