



Climate Proof Fresh Water Supply



Knowledge for Climate

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 Proof Fresh Water Supply](#).

Climate Proof Fresh Water Supply

Climate change will affect the supply of fresh water to the population and to economic sectors in many deltas around the world. Also the Netherlands will have to adapt to a growing mismatch between water demand and supply. The central issue is: what are opportunities and adaptation strategies for fresh water supply and water quality in the Netherlands, given the changing physical boundary conditions in evaporation, precipitation, river discharges, sea level rise and salt water intrusion?

Goal

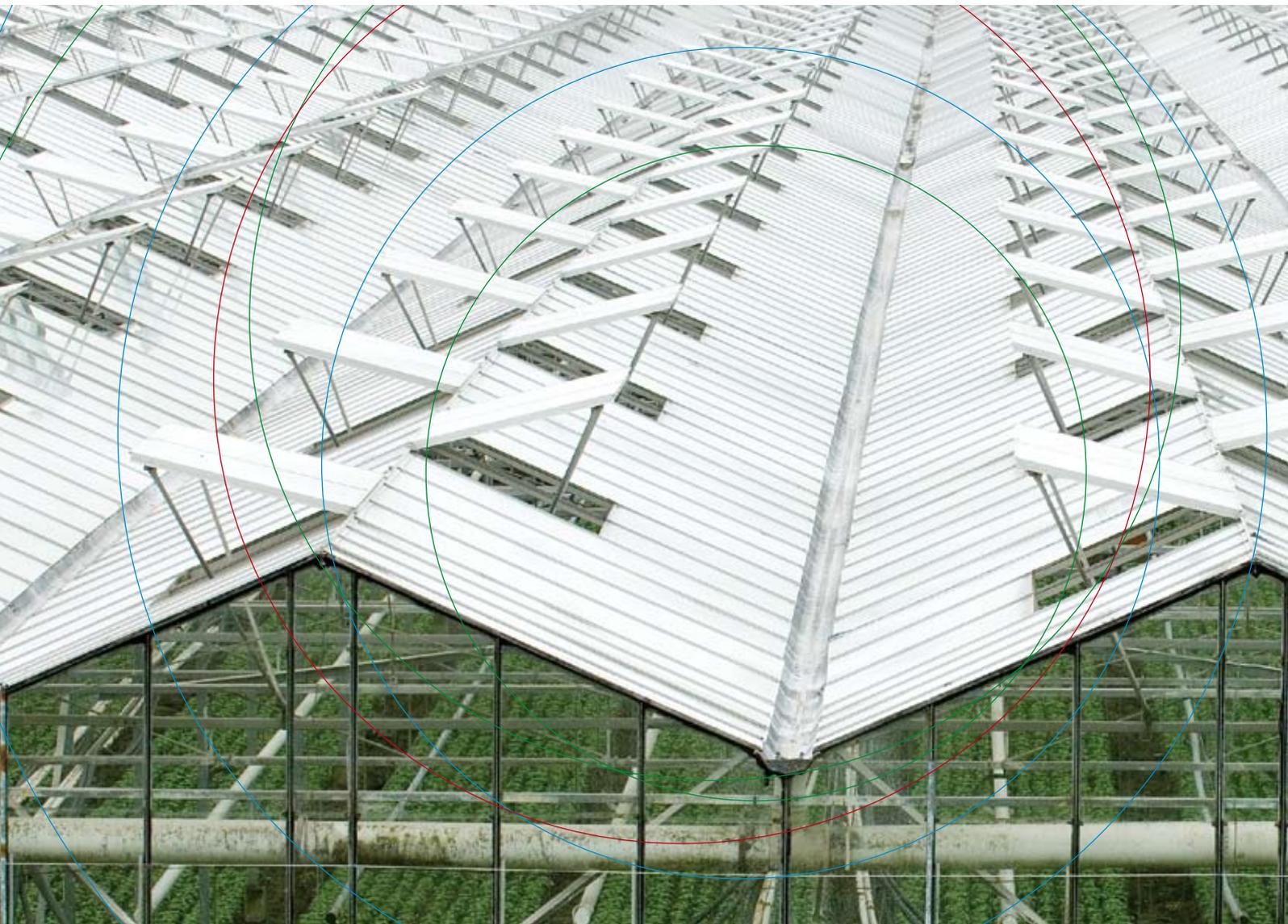
The focus is on regional and local solutions within the low lying parts of the Netherlands. In addition to droughts, the main threat to fresh-water availability in this area is salinisation. The research focuses on how these regions can become more self-reliant.

Research question

The aim of the research is to develop robust, flexible and long-term solutions from a local to regional perspective which can contribute to successful strategies to bridge the growing mismatch between demand and supply of fresh water (quantity and salinity) in the changing Dutch Delta.

The main research questions on a general level are:

- what is the potential of measures to either increase water availability or decrease water demand?
- how can effective regional adaptation strategies be built from these and other measures?
- to what extent do these strategies contribute to a national solution for a climate proof freshwater supply?



The Work packages

WP1

What range of conditions should be taken into account to assess the severeness of an inadequate fresh water supply (evaporation, precipitation, river discharges, sea level rise and related salt water intrusion, international economic changes)?

WP2

How will fresh-water availability within the coupled groundwater-surface water system change due to climate change and how can the self-reliance of water users be increased by improved water management?

WP3

Do we understand the dynamics (in time and space) of salt tolerance levels of common agricultural crops and ecosystems under typical Dutch conditions? To what extent can the tolerance levels of different land uses be stretched? What opportunities for the reduction of the fresh water demand are possible also exploring the use of alternative more resistant crops?

WP4

What is the potential of water technologies like desalinization techniques, re-use of waste water and (ASR) Aquifer Storage and Recovery for providing solutions for regional self-sufficiency in the fresh water supply?

WP5

What approach should be used to build robust and flexible adaptation strategies, given the (mainly unknown) uncertainties in the long-term prediction of future climate change effects, and of other relevant socio-economic developments?

WP6

How can knowledge about specific adaptation measures, perspectives of different stakeholders, available approaches for tackling uncertainty, be integrated to build strategies for selected pilot areas?



Research method

The focus is on in-depth scientific research into local and regional solutions with impact on the national fresh water budget. With this focus of 'solutions at the source' the best connection is assured with the questions asked by the hotspots. Through up-scaling we can contribute to national policy oriented programs.

The Delta Programme, the elaboration of the national water plan with fresh water supply as a main theme, will be the main policy oriented programme in the forthcoming years. The research will hence be carried out as much as possible in the context of this Delta Programme and will use the data and tools from their research, but will not address completely the national key issues involved in that programme directly. At the other hand it is expected that the outcomes of this research programme will in turn be complementary to the national Delta programme. Several disciplines will be combined in integrating cases.

The work will be organized into research projects where involved stakeholders from the hotspots, PhD students, Postdocs and experts from research institutes will closely work together. Hence, the programme will not only have a high scientific and innovative profile, but will also result in practical solutions.

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climateprooffreshwatersupply](http://www.knowledgeforclimate.nl/climateprooffreshwatersupply)

Stakeholders

- Ministry of Transport, Public Works and Water Management
- STOWA (Applied Water Research)
- Ministry of Agriculture, Nature and Food Quality

Working with Hotspots

- Hotspot Rotterdam region
- Hotspot South-West Netherlands Delta
- Hotspot Haaglanden region

Consortiumpartners



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

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