

## Societal aspects

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### 1. Relevance of the research programme for national and regional adaptation policies

The program is highly relevant for national and regional adaptation policies because it contributes to the fundamental and applied research that is required to design national and regional adaptation options that are politically feasible, efficient and effective. The program contributes to all stages of the design of these policies, from assessing the climate impacts, via identifying (in close consultation with stakeholders in the relevant hotspots) the adaptation options, to assessing the various options in an integrated manner, that considers issues like discounting and optimal planning of adaptation under uncertainty, this will also include a focus on resilience robustness and flexibility. The program covers the most relevant adaptation issues, e.g. climate and socioeconomic scenarios and their impacts on the adaptation tasks (WP 1), flooding (WP2), spatial planning, interactions and crosscutting issues and it pays full attention to interactive design and stakeholder analysis (WP3 and WP4), freshwater availability and salt water intrusion (WP5). The assessment and cost benefit analysis is covered in WP6, with full attention for the remaining complicated issues in CBA analysis and assessment, such as optimal timing, choice of appropriate discount rate, and decision making under uncertainty, of course after consideration of the perspectives and views of the stakeholders. The project will directly contribute to the development of the adaptation strategy for the Hotspot Haaglanden in the western part of the Netherlands and the results will also be communicated at the national level. WP7 makes a very important contribution by identifying indicators and monitoring for national and regional adaptation. This is extremely relevant to implement policies in an efficient manner, and to trace whether the policies are implemented according to the required time path and whether dangerous situations occur because of a lack of action or unawareness.

Through the direct participation of the Netherlands Environmental Assessment Agency (PBL) and Deltares the program is directly linked to the national institutes and policymakers in the domain of adaptation and through the many linkages with the other Themes in KvK (1 to 7) the program plays an important integrating role in the full domain of KvK. Through the participation of leading research institutes like Deltares, IvM, WUR ENR, and WUR Alterra, the program is well embedded in international research on adaptation, and the involved researchers are all very well acquainted with state of the art in adaptation research and with the relevant questions and issues for adaptation level at the national and regional level. This implies that top quality results can be obtained that are directly relevant for the stakeholders at the national and regional level.

Currently the various research groups are already engaged in a number of case studies and hotspots and in the stage of the elaboration of the program (as requested by the KvK instructions), we will directly link up with hotspots and case studies including dry rural areas, major rivers, and shallow waters and peat meadow areas in order to be directly communicating from the start of the program till its completion on the most relevant and burning issues.

Although some general aspects of adaptation have been included in local and regional policies, it will be necessary in the coming decades to make the investments in an optimal manner. From a policy perspective, an ex ante assessment of costs and benefits is important and appropriate monitoring needs to be done in order to avoid damages that would not have occurred if adaptation would have been correctly implemented. Of course optimality will be defined in its context, also based on stakeholders perspectives.

## 2. Involvement of stakeholders

All work packages will involve various categories of stakeholders in the hotspots and at the local level. In the elaboration of the proposal we will clearly indicate after consultation with the hotspots how the coordination of the WPs with the hotspots will be structured. WP1 will deal with the relevant climate and socioeconomic scenarios and will fit these scenarios to the need of the stakeholders in the various regions of the Netherlands. WP2 will predominantly deal with water managers, individuals and organizations at risk of flooding. However, flood risk affects all stakeholders involved in spatial planning. Therefore water boards, provinces as well as the responsible ministries will be involved. Enhancing (re)insurability of flood risk calls for the involvement of insurance companies too. Candidates are Aon Re, Munich Re, SCOR, Swiss Re.

Particularly the WPs 3 and 4 almost completely focus on how to design adaptation policies in close communication with and based on the experiences and knowledge of the stakeholders. WP3 focuses explicitly on interactive design of adaptation policies, whereas WP4 develops and applies innovative tools based on visualization of the various adaptation issues and the alternative options for adaptation. In various workshops with stakeholders these tools will be applied in the context of the hotspots and case studies. The need for interactive design is now widely recognized and the expertise of stakeholders (including stakeholders such as the business sector, the various economic sectors of the economy (e.g. agriculture, industry, services, transportation, hospitals) local, regional and national policymakers, consumers and households, tourists, conservationists) is indispensable to design and assess adaptation options that can be applied and implemented. Hotspot Haaglanden is directly involved in WP4 (projects 2 and 3), while the Hoogheemraadschap Delfland and Deltares are part of the new Delft 3Di project. Four hotspots (dry rural areas, major rivers, Haaglanden region and shallow waters and peat meadow areas) and several provinces and municipalities have expressed interest in support from the WP4. New visualization techniques will be developed especially for the Haaglanden and shallow waters and peat meadow areas hotspots.

WP5 focuses on fresh water supply which is highly relevant for the water sector, the agricultural sector and nature conservation and ecological network policies. The relevant stakeholders will be consulted identifying the best options in an integrated manner, where the potential of the various regions in the Netherlands to contribute to sustainable and efficient adaptation solutions will be analyzed based on a thorough understanding and modeling of the water-dependent economy in the Netherlands under various climate regimes and scenarios for economic growth.

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WP6 will focus on the assessment of various options relevant to hotspots and case studies and this will be done in close cooperation with stakeholders, including the consultancy sector that very often applies CBA analysis on the basis of rules of thumb. WP6 will be directly linked to stakeholders through the hotspot Haaglanden which is one of the key hotspots in the densely populated area of Zuid Holland in the western part of the Netherlands.

The emphasis in Work Package 7 will be on the development of evaluation methods and indicators at the request of the interdepartmental Adaptation, Space and Climate programme (ARK), led by the Ministry of Housing, Spatial Planning and Environment (VROM) which will be a key stakeholder and involvement has been ensured in advance. In the first phase of the project, opportunities to include monitoring and evaluation methods and indicators related to the Delta Programme will be explored. Finally, involvement of stakeholders at the regional level is envisaged, notably the KvK hotspots and interested provinces.

The research team can benefit from preceding experiences in the Routeplanner project and the lessons learned from previous projects. Because of the participation of Netherlands Environmental Assessment Agency (PBL) in the consortium we can benefit from the experience of PBL in advising national and regional governments and we will have automatic access to the main policymakers. Also WUR-ENR, Alterra, IVM, Deltares and TNO, are very closely linked to the domain of policymaking at the various institutional levels, ranging from international to local.

### 3. Knowledge transfer and valorisation

The results of the program will be disseminated in a variety of ways, suited to the needs of the scientific and the policy community and using a wide array of means of communication. For the scientific community the results and knowledge will be disseminated first through presentations in workshops and in the communication with stakeholders in a mutual exchange. Next the results will be published in research reports and scientific papers, targeted at a scientific audience. These results will also be peer reviewed and published in international journals (in hardcopy or electronically). We will select journals (e.g. Nature or Science, or Climatic Change or top journals in the relevant disciplines), targeted at the core scientific community, depending on the topics covered in order to reach a large audience and to have high scientific impact, also through the Kennis Network of KvK.

The scientific impact will be enhanced through our cooperation with leading research institutes in Europe, such as IIASA, PIK and JRC. Through direct interaction with the leading researchers and the leading authors in the context of UNFCCC we can optimally exploit our scientific skills and potential.

For the policy community we will present results and knowledge in a variety of ways ranging from presentation in workshops and science policy interaction, to publication in the national press and broadcastings on radio and tv, both national and regional. When appropriate and in the context of the hotspots we will communicate with MPs, local authorities and opinion leaders on adaptation and representatives of the business community and other stakeholders. This will be done in the context of the hotspots, but also by means of special fora, e.g. organized in the context of KvK, KvR, or EU programs such as MEDIATION, in which various consortium partners are involved.

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On invitation we will also disseminate our knowledge to the international community of policymakers, for instance in the USA (in the past we were invited to EU workshops on Capitol Hill), China (through various projects and scientific exchange ) and other regions of the world (for instance through PhD research in the context of Erasmus Mundus programs).

In the strategy on the dissemination within the Netherlands we will closely consult those that are specialized in communication and dissemination of results, either in the context of KvK or KvR, in particular through Knowledge transfer and the Climate effect atlas.

The program will issue a concise newsletter twice a year and will contribute to the websites to be developed in KvK context. For this purpose a communication officer will develop initiatives.