

# ADAPT

## Towards an Integrated Decision Tool for Adaptation Measures – Case Study: Floods

### DURATION OF THE PROJECT

Phase 1: 15/12/2005 – 14/12/2007  
Phase 2: 15/12/2007 – 31/01/2010

### BUDGET

1.180.117 €

### KEYWORDS

Climate change, Vulnerability, Adaptation, Decision-making, Cost-Benefit, Floods

### CONTEXT

This study fits into the current context, where Man is becoming more and more aware of the way his activities impact his environment. Climate change is currently the most media-friendly form of this all-round awareness. It affects the whole of humanity and is considered today as the most predominant threat to the environment. The amplitude of the damages generated by climate change (flooding, heat waves, dry periods,...) takes their toll on our societies more and each year.

Faced with these hazards, the solutions adopted by the policy makers are of two types: the setting up of mitigation measures through a reduction in GHG emissions and the setting up of adaptation measures aimed at decreasing the impacts and protecting both population and ecosystems.

### PROJECT DESCRIPTION

In order to tackle climate change, policy-makers are confronted with various options and possibilities of adaptation measures. In general, the means required to implement these measures appear to be considerable, when compared with the risks to be avoided. Nevertheless, there is a general directive overruling the principles of decision advocated by international programmes. This directive stipulates that the choice of adaptation measures must reflect their potential to produce benefits which will surpass their costs. On the basis of this axiom, the overall objective of this project is to develop and demonstrate an efficient management tool which will be a cost-benefit analysis based instrument for the integrated assessment of adaptation measures.

The project consists of two lines of research: the first is a "general evaluation" of the impacts of climate change in Belgium, and the second relates to a more detailed analysis of the problem of flooding. This analysis will provided the basis for developing and refining the methodology.

The general introductory study will provide a synthesis of the knowledge and facts available concerning the effects of climate change, their intensity and probable progression in time. The synthesis will provide a clear overview of the situation in Belgium, as well as the uncertainties surrounding it. In the second part of the study, the problem of flooding will be tackled in a more detailed and relevant manner. In order to develop and test the methodology, case studies have been chosen in the two main Belgian river basins (Meuse and Scheldt).

The analysis of adaptation strategies related to flooding will be built on a scheme of work comprising the following steps:

- Evaluating the impact of global change induced flooding on river basin (phase 1);
- Evaluating secondary impacts of global change induced flooding on the vulnerable sectors in the river basins (phases 1 & 2)
- Determining adaptation measures (response) (phases 1 & 2)
- Evaluating costs of adaptation measures (phase 2)
- Cost-benefit analysis (phase 2)

In addition, criteria such as efficiency, feasibility and acceptability will be integrated in the decision tool. In the same way, when the tool is being set in place, it will have to be flexible in order to be able to apply a similar procedure for the other impacts identified in the first part of the study. This need will be a permanent concern.. This instrument should eventually be considered as a keystone in the management of issues linked with climate change.

The subject of the current study is vast and complex, and needs to be managed using a multidisciplinary approach, that takes into account the economic, social and environmental impacts (holistic approach), and their mutual interaction in accordance with the principle of sustainable development and management. The subject will be investigated and analyzed by five partners of complementary scientific



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expertise belonging to the three pillars of sustainable development and addressing both technical and strategic considerations.

Consequently, the project is composed of the following teams which will share in the whole research study:

- Centre for Economic and Social Studies on the Environment (CEESE) of the Université Libre de Bruxelles (economic aspects; project coordinator)
- Higher Institute for Labour Studies (HIVA) of the Catholic University of Leuven (social aspects)
- Research unit of Applied Hydrody-

namics and Hydraulic Constructions (HACH) of the University of Liege (hydraulic aspects and modelling)

- The ecosystem management research group (ECOBE) of University of Antwerp (environmental aspects)
- ECOLAS (integrator of various components into the decision tool)

Moreover, the ADAPT project will work in close cooperation with another project of the "Science for a Sustainable Development (SSD)" program: the CCI-HYDR project.

## PARTNERS - ACTIVITIES

### The CEESE (ULB)

provides its expertise to meet environmental challenges deriving from economic and social development.

### The research group on environmental policy and sustainable development of HIVA (KUL)

specialises in interdisciplinary policy research with an emphasis on social aspects of environmental policy.

### The HACH team (ULg)

conducts research in river hydraulics, hydraulic engineering and

water resources management (numerical and physical modelling).

### Ecosystem Management Research Group (UA)

focuses on the evaluation of human impacts on the functionality and the biodiversity of watercourse and wetland ecosystems.

### ECOLAS

presents his multi-disciplinary expertise on water management and climate change to guide and integrate the work of the different partners.

## CONTACT INFORMATION

### Coordinator

#### Website of the project:

<http://dev.ulb.ac.be/ceese/ADAPT/home.php>

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### Follow-up Committee

For the complete and most up-to-date composition of the Follow-up Committee, please consult our Federal Research Actions Database (FEDRA) by visiting <http://www.belspo.be/fedra> or <http://www.belspo.be/ssd>

