

Dynamic adaptation of regional planning and development processes to the effects of climate change

dynaklim – Using the example of the Emscher-Lippe region (Ruhr area)



Coordinated by the FiW, the network and research project dynaklim, which was funded by the German Federal Ministry of Education and Research (BMBF), developed the basis for future and forward-looking adaptation actions to the effects of climate change. The project was realised in cooperation with stakeholders from the Emscher-Lippe region between July 2009 and February 2015.

Impacts of climate change on the regional water balance in the Emscher and Lippe river basins

The work focused on potential impacts of projected climatic changes on surface water and groundwater, and ultimately on the full range of water uses.

As the leader of the network, the FiW was responsible for the central and overall coordination and control of the project activities. This included the establishment and expansion of the regional network, the project communication and the representation of the project network and the network in the region towards funding agencies and project sponsors on the state and federal level. The FiW's

work also included the development and implementation of appropriate adaptation concepts and actions, as well as pilot projects for surface and stormwater management, urban drainage, management of competing water uses, and the organisation and financing of water management (services). These activities were supported by further work and products in the area of climate-focused economic development and adaptation potentials in politics, planning and administration. Furthermore, the FiW was involved in the conception, initiation and moderation of the roadmap process for the development of a regional adaptation strategy by the network.

Four of the six pilot projects were realised under the leadership of the FiW. The pilot projects in Duisburg and Dortmund (Germany) are particularly interesting, as they focused on the development of practical, innovative solutions with a focus on water-sensitive urban development. Some of the solutions developed here are now continued in the participating municipalities and are on their way to implementation. The pilot project “Water in dialogue” was also an important element of dynaklim. Here, with reference to the topic of “competing uses in the face of limited water supply”, mechanisms were developed which should strengthen cross-sector communication and co-operation and create compensation measures. They were developed under the leadership of the FiW together with water users on the middle Lippe.

Future city – climate-friendly, water-sensitive and energy-efficient

After the end of the funding period in February 2015, however, the dynaklim network continued with their work to promote the results and to further develop the content of the regional strategy process that has been started and linked it to other processes and topics in NRW (Germany). Furthermore, the project dynaklim was awarded as a qualified pioneer project of KlimaExpo.NRW in the field of urban development. In addition, the Roadmap 2020 was sent to more than 450 mayors, representatives of municipalities and authorities, as well as network partners to communicate the knowledge about the achieved results of dynaklim and the concrete proposals for actions to the relevant stakeholders.

Organisation und financing

When developing adaptation strategies to the consequences of climate change in water management, the organisational and economic perspectives should not be ignored. The development and implementation of adaptation actions is closely linked to the question of their costs, the financial resources, responsibilities and, last but not least, the evaluation of these actions. The goal of the dynaklim project was to be able to organise and finance water management (services) in a climate-robust way, in the future. Together with regional partners and the network, a decision-making support tool and adaptable, efficient organisation and financing models were developed.

Within the projects the following aspects were processed:

- ▶ Macroeconomic evaluation of adaptation actions to climate change impacts
- ▶ Development of sustainable financing models for water management services
- ▶ Examination and evaluation of existing organisational models and their adaptability to climate challenges and identification of possible development trends
- ▶ Development of methods for the estimation of adaptation costs
- ▶ Development of a process support system
- ▶ Integration of water users in decision-making processes
- ▶ Surveys of the population and businesses on how they are affected by climate change, their willingness to adapt and their willingness to finance adaptation actions
- ▶ Transferability of the approach and results to other regions

The unit “Organisation and Financing” was also intensively involved in the dynaklim pilot projects for water-sensitive urban development in the centre of Duisburg and Dortmund Roßbach (Germany). The involvement and participation of all affected stakeholders is an important component of water-sensitive urban development, which often makes individual actions in new and existing areas possible in the first place.

Adaption in politics und planning

Up until the last few years, state institutions were still characterised by “static control,” which made it difficult to adapt continuously to dynamic processes of change. The shift of competencies to the European and municipal levels, which is based on the principle of subsidiarity, the efforts to strengthen civil society actors and, in general, the citizens’ own responsibility, are changing the framework conditions of state control. Uncertain developments like climate change and its effects create additional challenges for the state at all levels: Dealing with uncertainty and risk. The knowledge advantage is shrinking, the complexity of the subject is increasing, and the risk of an inappropriate response is rising. In this situation, it is necessary to adapt governance mechanisms that allows the state, the federal states and the local authorities to continuously get reliable information and to evaluate it

faithfully. On this basis, they can set targets with regard to climate change, develop and implement appropriate actions, and control the effectiveness of the actions taken to start counteractions if necessary.

As central management actors, administrations in particular must be supported to develop strategies, involve stakeholders and implement actions and their decisions must be prepared based on the data already available today. In this way, it is possible to deal with the consequences of climate change in the best possible way.

The purpose of integrating different actor and expert perspectives is to effectively adapt public services to climate change. The goal is to strengthen regional adaptation competencies by developing strategic starting points and actions for regional governance and government. This is only possible if the process of adaptation involves the broad participation of citizens and enjoys a high level of social acceptance.

The following methods and work steps were followed in the "Adaptation in politics and planning" unit:

- ▶ The actors, laws, structures and processes relevant for the public services will be identified by a status quo analysis. For example, screenings on the legal situation and regional adaptation events in various policy fields and expert discussions will be made and also an Internet research and an initial representative population survey will be realised. (Status: completed)
- ▶ The status quo assessment uses a strengths, weaknesses, opportunities, threats (SWOT) analysis to identify how adaptive the involved stakeholders are with regard to the consequences of climate change - with reference to current laws, responsibilities, processes and structures. (Status: completed)
- ▶ Within the dynaklim pilot projects, this research unit analyses / accompanies adaptation to climate change from the perspective of politics, planning and administration and their decision-making processes by asking the following questions:
- ▶ What are the motivations for "public actors" to develop adaptation strategies?
- ▶ Which factors support the development of adaptation strategies and actions in administrations? Which factors hinder them?

- ▶ How are administrations being made more aware of the topic of adaptation?
- ▶ Where do administrations need to be "picked up"?

Competing water uses in dialogue

Since 2011, the background of the dynaklim work unit „Competing Water Uses at the Middle Lippe“ was the consensual management of the impacts of predicted drought and heat on the future water supply in the Middle Lippe region, specifically the region of Dorsten, Haltern am See and Marl (Germany). One focus was the establishment of the working group „Lippe-Groundwater“ (AG Lippe) according to the basic principles of the Regional (Water-) Governance. Here, under the leadership and knowledge-based moderation of Dr.-Ing. Paul Wermter and Jens Schneider, M. A., together with colleagues from ahu AG, sfs Dortmund, IWW Mülheim and supported by the Lippeverband, the dynaklim stakeholders succeeded in bringing together the relevant stakeholders on the topic of groundwater management. The stakeholders included the district government of Münster, Recklinghausen, the city governments of Dorsten, Haltern am See and Marl, the water supplier RWW Rheinisch-Westfälische Wasserversorgungsgesellschaft mbH, the NRW Chamber of Agriculture and the Biological Station of the Recklinghausen district. The meetings of the work group Lippe served on the one hand to identify relevant competing uses related to climate change and on the other hand to support the affected water users and to develop cross-sectoral communication and compensation mechanisms within the regional dialogue process. With regard to the challenges of climate change, the group considered a climate change scenario focusing on single or recurrent droughts. A set of five different (adaptation) actions was developed together:

- ▶ Management of water resources in a regional dialogue
- ▶ Build a communication network for consensual water management
- ▶ Raise awareness in the region and empower it to take action
- ▶ Realise organisational actions together and extend modernisation cycles to include technical climate adaptation
- ▶ Implement accompanying technical climate adaptation measures

dynaklim in numbers

- ▶ 13 applying partners with more than 80 project workers,
- ▶ successful realisation of over 70 individual activities in 7 work fields,
- ▶ implementation of 6 pilot projects, creation and permanent establishment of a climate impact adaptation network in the Emscher-Lippe region / Ruhr area with over 70 actors, 23 thematic dynaklim platforms with over 600 visitors and five dynaklim annual conferences with a total of over 1,300 visitors,
- ▶ over 60 publications within dynaklim,
- ▶ dynaklim Roadmap 2020 with 155 specific recommendations for actions for climate impact adaptation in municipalities, institutions, associations and companies.

Project overview

PROJECT TITLE

dynaklim – dynamic adaptation of regional planning and development processes to the effects of climate change

PROJECT PERIOD

2009 – 2015

PROJECTPARTNERS

ahu GmbH; dr. papadakis GmbH; Emschergenossenschaft; IWW Rheinisch-Westfälisches Institut für Wasserforschung gGmbH; RWTH Aachen; Rhein-Ruhr-Institut für Sozialforschung und Politikberatung e. V. (RISP), Universität Duisburg-Essen; Ruhr-Forschungsinstitut für Innovations- und Strukturpolitik e. V. (RUFIS); Technische Universität Dortmund; Universität Duisburg-Essen; Wuppertal Institut für Klima, Umwelt, Energie GmbH

FUNDING

GEFÖRDERT VOM



Bundesministerium
für Bildung
und Forschung



SUPERVISED BY

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STATUS

Juni 2022