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Protecting German North Sea Estuaries in Times of Climate Change

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6-L-4.1.3 Adaptation strategies and planning Regional policies

as well as research and policy documents, which influenced their formulation, were analyzed in three alpine countries on a national and sub national level (Austria and Tyrol, Germany and Bavaria, Switzerland and Grisons). In a qualitative content analysis policy documents and research reports were analysed according to the major challenges of climate changes for the natural hazard management as well as possible solutions mentioned in the reports. While in Grisons and Bavaria first examples of adaptations plans were developed rather early (2003, 2000), the responsible actors needed more time on the national level (Germany 2008, Switzerland 2011, Austria 2012). Tyrol has neither a climate change mitigation nor a adaptation strategy. In the early plans a strong tendency can be observed to reduce uncertainty. Bavaria e.g. developed a so called climate change factor of 15%, which must be added to the normal design event. Especially the national plans rely more on flexible and adaptive strategies, which do not cause a fundamental short-term change in the existing natural hazard management. In all countries spatial planning is seen to have a central role for climate change adaptation due to its role as intersectoral coordinator and moderator. This might be in conflict with the strict top-down land use regulations (hazard zones) which are enforced by forestry and water agencies.

4.1.3 Protecting German North Sea Estuaries in Times of Climate Change

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As climate will change in the next century and beyond, the German Ministry of Transport (BMVBS) is interested in the

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effect of climate change on the waterways in the German North Sea estuaries. In order to find a strategy for adaptation to climate change it is important to understand today's situation and analyse the future situation under the influence of climate change. This concept will be presented by looking into storm surges in the German Bight. A sensitivity study is used to identify areas along the estuaries of Elbe, Jade - Weser and Ems, that are vulnerable in case of storm surges. The development and intensity of a storm surge in an estuary is determined by the water level at the boundary to the North Sea, the river run off into the estuary and the wind field over the estuary. Based on a sensitivity study the influence of

- sea level changes in the North Sea,
- increase / decrease of river run off into the estuary and
- increase / decrease of the local wind over the estuary

on the highest water level along the estuaries during storm surge are analysed. The parameters mentioned are varied according to the knowledge about expected changes in a future climate. The sensitivity is studied using hydrodynamical numerical models of the estuaries (UnTRIM, V. Casulli and R.A.Walters (2000), BAW, 2004). In a second step the efficacy of several adaptation measures is investigated. As an example storm surge barriers in the mouth of the estuaries are tested varying again the mentioned parameters that might change in a future climate. The results will help to identify vulnerabilities of e. g. the shore protection of each estuary and give a chance to develop an adaptation route for the waterways in the estuaries of Elbe, Jade - Weser and Ems in order to mitigate problems caused by climate change.

References

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European
Commission

European Climate Change Adaptation conference 2013

ECCA

European Climate
Change Adaptation
conference 2013

European Climate Change Adaptation conference 2013

The European Climate Change Adaptation conference 2013 (ECCA2013) brings together scientists and practitioners working on adaptation to climate change impacts in Europe and internationally. The conference will create a European forum with the aim of fostering a creative and effective dialogue between science, policy and practice. The theme of the conference is Integrating Climate into Action.

New results and practical experience will be presented and shared under twelve themes:

- Climate vulnerability assessment
- Risk assessment
- Economics of adaptation
- Decision-making under uncertainty
- Governance of adaptation
- Adaptation strategies and planning
- Mainstreaming climate adaptation
- Adaptation case studies
- Monitoring and measuring adaptation
- Impact and effectiveness studies
- Role of tools and knowledge in adaptation
- Communicating impacts, vulnerability and adaptation

The conference is co-sponsored by the German Federal Ministry of Education and Research (BMBF), the European Commission, the City of Hamburg and the University of Hamburg. The conference is an initiative of four EU research projects: RESPONSES, CLIMSAVE, MEDIATION and ClimateCost.



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