plan Baltic

Research group „Climate Change and Spatial Development: Adaptation strategies of urban and regional planning in urban regions of the Baltic Sea coast“

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Building adaptive capacity through inter- and transdisciplinary scenario planning
Findings from a case study in Rostock, Germany

Adaptive Capacity

Coastal urban regions along the Baltic Sea coast are endangered by the effects of climate change, e.g. through extreme weather events and sea level rise. Social-ecological resilience thinking is a promising conceptual framework to analyse climate adaptation and to design sustainable strategies for urban development. Its emphasis on complexity and learning to live with change, allows for the specific challenges of climate change in urban planning to be addressed. Adaptive capacity is a recurring issue in many scientific perspectives dealing with environmental change, with a range of different ontological and epistemological understandings.

From a social-ecological systems point of view, adaptive capacity..

- ..entails resources, as well as social processes and structures to employ these (Armitage & Plummer, 2010).
- ..resides in actors within the system (Lebel et al., 2006).
- ..defines the ability to manage resilience (Lebel et al., 2006).
- ..is fostered by the mutual ability of actors to live with change and uncertainty, to nurture diversity, to combine different types of knowledge for learning and to create opportunities for self-organisation (Folke et al., 2005).

An important question is how this adaptive capacity can actually be increased. We explore possible answers, by focusing on two aspects:

- Living with uncertainties
- Combining different types of knowledge for learning

Living with Uncertainties

Dealing with uncertainties is inherent to urban planning, but climate change adds a new quality to uncertainties:

- Uncertainty about the actual effects of climate change itself
- Temporally distant phenomenon, especially in comparison to short term spatial claims and developments.

A change is needed, from dealing with uncertainties to living with uncertainties. This requires a shift from a strong tendency to reduce uncertainties in decision making, towards accepting them and being prepared for the unknown (Berkes, 2007).

Outcomes

- Changed attitude of participants: from a tendency to search for a most likely scenario, towards equal assessment of each scenario
- Development of strategic or flexible measures (e.g. abandoning 100% storm surge defence, assigning risk areas and increasing flexibility in the planning system)
- Tendency towards reducing uncertainties in decision-making processes (e.g. demands for more detailed climate information and cost-benefit analyses)
- Rationale for measures related to already experienced problems
- Pleas for more flexibility to respond when necessary (e.g. increasing the flexibility of the planning system, raising awareness in society and politics)
- Physical measures to deal with uncertainty (e.g. securing areas for possible future adaptation measures, especially related to harbour and flood protection)

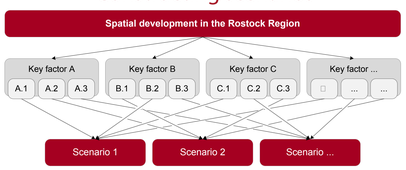
Strategic scenario planning process, Rostock Germany

Three collaborative workshops

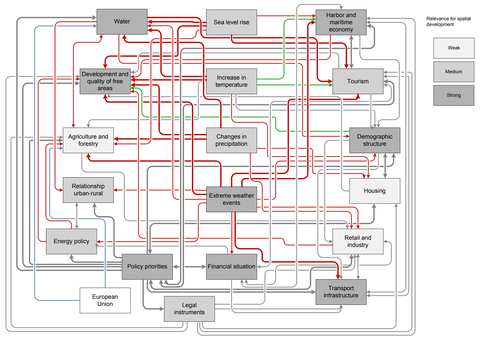
1: Discussing alternative future developments
2: Discussing scenarios
3: Development of measures and strategies

With 30-40 practitioners (scientists, planners, administration, NGO's, economy)

Constructing scenarios



Integrating complexity



Knowledge exchange, Knowledge development and Social learning

Knowledge..

- ..defines problem formulations, the assessment of different solutions and the basis on which arguments are constructed
- ..is constructed by individuals, generated through interactions with their environment and exchanged through interactions with others

To increase adaptive capacity, different kinds of knowledge need to be combined with social learning:

- Learning takes place when individuals change their understandings (e.g. by recalling new information and changing attitudes or epistemological beliefs)
- Social learning goes beyond this level; it should be institutionalised in wider social units or communities of practice (Reed et al., 2010; Argyris & Schön, 2002)

Outcomes

- Integration and interactive sharing of different types of knowledge, scientific, specialist and lay
- Platform for the generation of new knowledge, by combining key drivers of future development with climate change
- Window of opportunity for social learning, resulting in increased media awareness and a shared agreement on the need for adaptation measures
- Trigger for the development of an adaptation framework for the city of Rostock, showing increased political awareness and a translation into practice

Conclusions

- The scenario process has contributed to increased capacity among participants to deal with uncertainties about the effects of climate change; however, traditional strategies to reduce uncertainties in decision-making processes are persistent, as such we have only found minor evidence of increased capacity to live with uncertainties
- Integrating climate change and other key factors for urban development in the scenarios, within a collaborative process, fosters broad knowledge exchange and creates new opportunities for knowledge development
- Scenario planning can create opportunities for social learning; the scenario workshops functioned as a platform for knowledge exchange and learning, first signals of further institutionalisation became apparent.

- Scenario planning as an instrument has the potential to increase the adaptive capacity of actors within a system. It can increase capacities to deal with uncertainties, foster knowledge exchange, facilitate the development of new knowledge and create a platform for social learning
- However, it remains to be seen how the first signs of living with uncertainties and processes of social learning will further crystallise and institutionalise. The development of the adaptation framework work in the case study region is a promising start.

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