Strategies for Flood Risk Management - a Process Perspective

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1 Introduction

- It is widely acknowledged that issues of strategic planning, implementation, and learning are important for flood risk management.


- Aim of presentation: (1) To describe important elements of a process perspective on flood risk management, and (2) to illustrate their implications using findings from the IOER project Weisseritz-Regio as an example.
2 Three Dimensions of Strategies (1)

- Narrow definition of strategies (Hooijer et al. 2004, p. 346): „consistent set of measures, aiming to influence developments in a specific way“; in this content definition of strategy issues of context and implementation are not included

- Strategies have to give one answer to two questions at a time:
  1. „Where do we want to go?“
  2. „How do we get there?“

- Hence, strategy is multi-dimensional and situational; strategy encompasses the content, context and process of flood risk management
2 Three Dimensions of Strategies (2)

**Content**
- General aims and specific targets
- Strategic alternatives as combinations of measures and instruments
- Technical measures and policy instruments
- System analysis: controllable, not controllable variables

**Process**
- Strategic planning modes: programming, scenario-based planning, etc.
- Models of formulation and implementation: linear, adaptiv
- Learning processes on different levels: individual, group, organisation, network

**Societal context**
- **External:**
  - Political
  - Social
  - Economic
- **Internal:**
  - Politics
  - Resources
  - Responsibility
  - Culture
  - Capabilities
3 Process Issues: Strategic Planning (1)

- Strategic planning is a linear/sequential process of formulating plans with a long term perspective.

- In the context of flood risk management strategic plans of water authorities and spatial plans of municipalities are of special importance.

- Strategic programming can induce inflexibility because plans are based only on one "picture" of the future and detailed decisions about future actions;

- Scenario-based planning is a flexible strategic planning mode for an uncertain future.
3 Process Issues: Strategic Planning (2)
3 Process Issues: Implementation (1)

- Strategic alternatives should be implemented with regard to the societal context on regional level

- **The linear model:**
  1. sequential process of analysing, evaluating, deciding, implementing, and feedback learning
  2. top-down decision making
  3. appropriate in case of low political conflict and high resource potential

- **The adaptive model:**
  1. parallel processes, feedback and feedforward learning
  2. top-down and bottom-up
  3. appropriate in case of high potential for political conflict, too little resources, and tensions between formal structures and informal processes
3 Process Issues: Implementation (2)
The Linear Process Model

- Risk analysis
- Risk evaluation
- Risk mitigation

Society (Context)

Water basin with hazards and vulnerability

Implementation
3 Process Issues: Implementation (3)
The Adaptive Process Model
3  Process Issues: Learning (1)

- Learning can be defined as drawing conclusions from experiences of self and others; learning identifies and integrates existing knowledge or induces new knowledge about action-outcome relationships.

- Recurring events simplify learning; hence, learning to manage the flood risk is often difficult.

- It is less a question if actors learn, but what and when they learn; therefore, we should distinguish between different outcomes of learning: learning for (1) incremental change and for (2) fundamental change.

- The claim to develop a flood risk culture is a claim to learn for a fundamental change; in this case, medium- to long-term changes should be expected.
### 3 Process Issues: Learning (2)

#### Elements of learning for flood risk management

<table>
<thead>
<tr>
<th>Learning level</th>
<th>Learning content</th>
<th>Learning type</th>
<th>Learning phase</th>
<th>Learning outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td>Cognitive / knowledge</td>
<td>Simple learning: feedback learning</td>
<td>Identification</td>
<td>Incremental change within context</td>
</tr>
<tr>
<td>Group/Team</td>
<td>Behavioral / action patterns</td>
<td>Complex learning: feedback and feedforward</td>
<td>Generation/creation</td>
<td>Fundamental change of context</td>
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<tr>
<td>Organisation</td>
<td></td>
<td>Learning to learn („Deutero learning“)</td>
<td>Integration</td>
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<td>Network</td>
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<td>Diffusion</td>
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</tbody>
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4 An Example: Weisseritz Regio (1)

The Weisseritz river basin: 386 km², 17 Municipalities
4 An Example: Weisseritz Regio (2)

- Regional initiative; participation of all municipalities of the Weisseritz river basin, water authorities, regional planning authority, Institutions of the Free State of Saxony, IOER, and others

- Cooperation was initiated after the flood event in August 2002

- Regional cooperation is based on voluntary membership

- Cooperation attempts to complement the existing formal structures with an informal, basin-wide decision-making and learning process
4 An Example: Weisseritz Regio (3)

- Main task of time period 09/2002 – 09/2004:
  1. stabilising the cooperation
  2. reaching a consensus on main themes
  3. defining the organisational structure and working groups

- The content of the cooperation encompasses issues of preventive measures and instruments to increase preparedness for coping with flash floods
Organisational structure based on the Method „Regional Management“ (Fürst 2000)

Steering Group

Recommendation

Working Groups

Work orders

Consulting

Moderation

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4 An Example: Weisseritz Regio (5)

- Retrospectively, the development of the regional initiative Weisseritz-Regio can be interpreted as an adaptive process with an emphasis on knowledge identification.

- Now it is possible to formulate and implement specific targets for knowledge integration and diffusion (e.g. GIS- and Web-based information system, brochure for citizens to prepare for a flash flood).

- The future development of the cooperation could lead to (1) a dynamic knowledge-based cooperation and, last but not least, (2) strategic plans for the Weisseritz river basin.
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5 Conclusions

- Adapting concepts from strategy research to the field of flood management research induces no fundamental changes.

- The adaption enhances:
  1. a systematic analysis of well-known flood management issues („Strategic Planning“, „Implementation“)
  2. the creation of new knowledge about how to organise collectively for flood risk management under different physical and societal conditions (catchment size, politics, resources, and so forth)

- Concepts from strategy process research can be used in transdisciplinary projects (e.g. Weisseritz-Regio) and projects with a comparative case study approach.
Thank you for your attention!
(Store)
Hazard Maps for Flood Risk Management

Gefahrenkarte Musterstrecke Schmiedeberg

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