Learning from the past for strategic decision-making in climate risk management: Connecting historic and future adaptation pathways

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Past-current-future developments: the case of Austria

- Hydro-metrological events cause substantial economic damage
- Heavily driven by past development and risk management decisions
- Climate-related risks will become even more severe in the future
  - Socioeconomic development
  - Climate Change

What caused the challenges?

- Competing interests from various policy areas

- Ad-hoc decisions often taking precedence over strategic planning for long-term climate risk management (CRM), and

- Previous decisions providing carry-over, follow-up or creating even lock-in effects for later decisions.
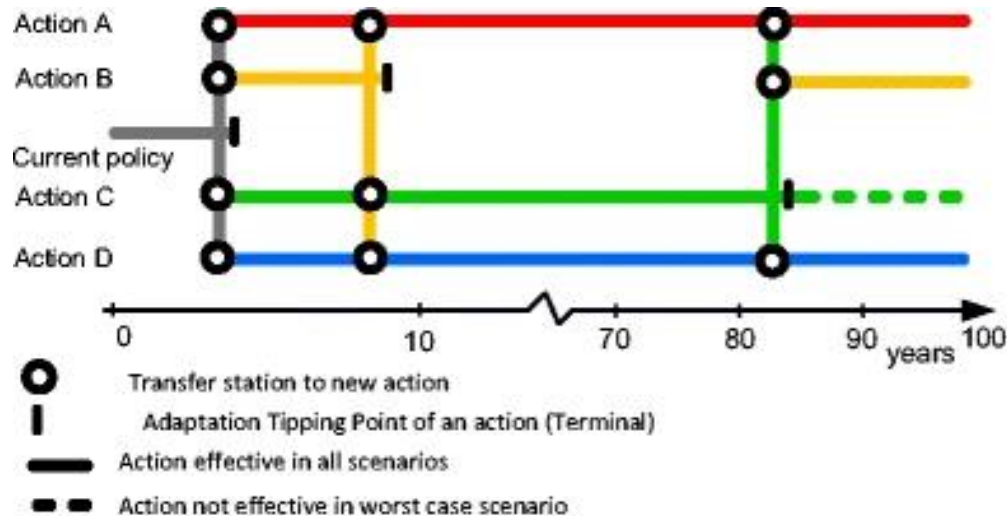
Aim of the study

- Inform future adaptation pathways to promote an efficient transition to a climate resilience society by
    - Reconstructing and evaluating how CRM is currently organised and planned at the local level
    - Assessing historical and ongoing local adaptation pathways in terms of their socio-economic, social cohesion/equity
- Provide novel methodological and empirical insights into dynamic adaptation pathways literature

Methodology and selected case studies

- Two study sites: Aist (Upper Austria) & Ennstal (Styria)
- Mixed method approach:
  - Qualitative interviews
  - Archival research and desk review
  - Formative Scenario Analysis

Conceptual framework: The status quo
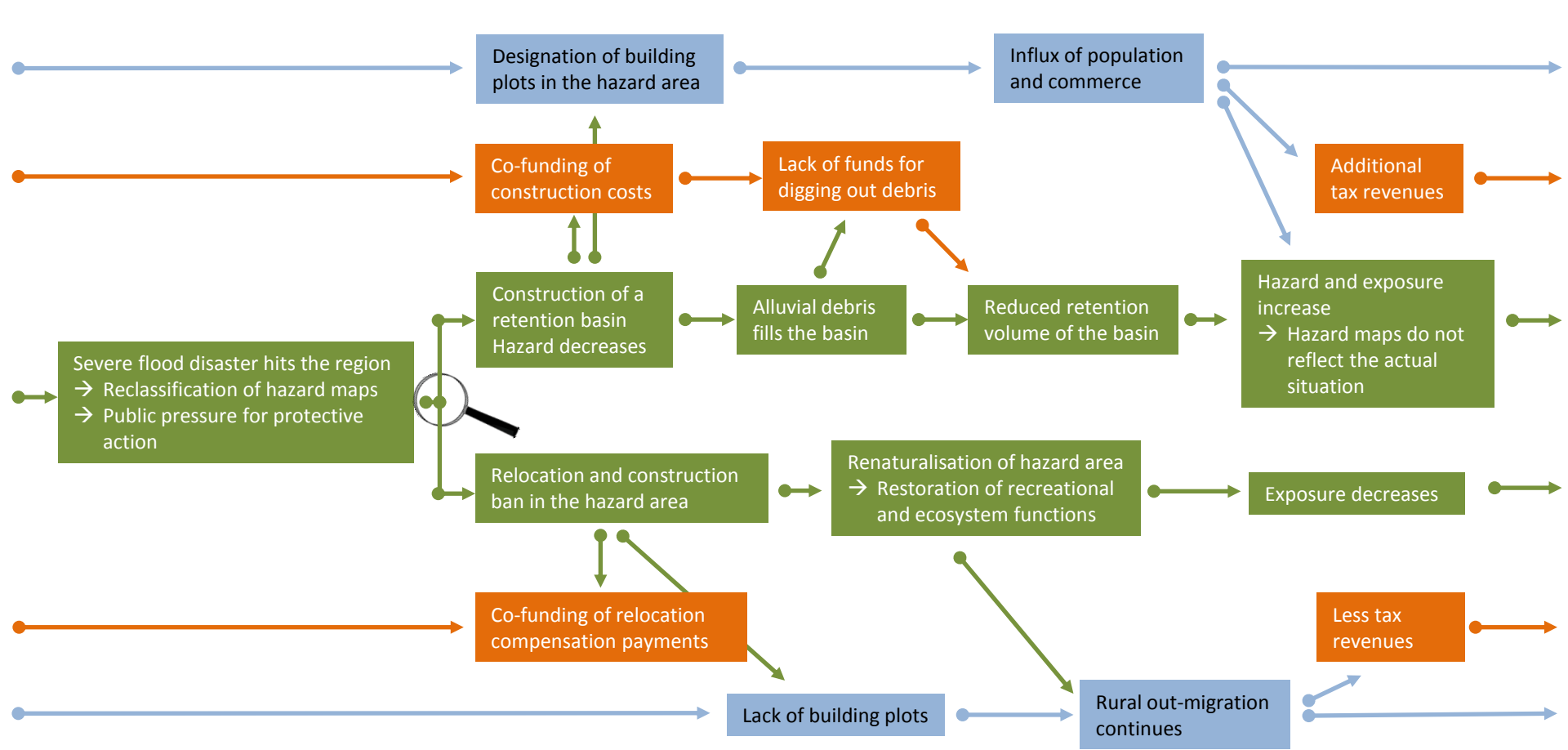

Adaptation Pathways Map

Scorecard for pathways

© Kwakkel, J.H., Haasnoot, M., Walker, W.E. (2015): Developing dynamic adaptive policy pathways: a computer-assisted approach for developing adaptive strategies for a deeply uncertain world. Climatic Change, 132, 373-386.

Our approach

- Looking back 15-30 years with the aim
  - To identify past decision points
  - Reconstruct pathways taken and not taken and hence
  - To learn from the past for the future
- Looking forward 10-20 years with the aim
  - To co-develop future pathways for selected case studies
  - Explicitly building on past decisions

Designation of building plots in the hazard area

Influx of population and commerce

Co-funding of construction costs

Lack of funds for digging out debris

Additional tax revenues

Construction of a retention basin
Hazard decreases

Alluvial debris fills the basin

Reduced retention volume of the basin

Hazard and exposure increase
→ Hazard maps do not reflect the actual situation

Severe flood disaster hits the region
→ Reclassification of hazard maps
→ Public pressure for protective action

Relocation and construction ban in the hazard area

Renaturalisation of hazard area
→ Restoration of recreational and ecosystem functions

Exposure decreases

Co-funding of relocation compensation payments

Less tax revenues

Lack of building plots

Rural out-migration continues

Decision point

Hazard pathway

Budget pathway

Exposure pathway

Conclusion

- Extend the current adaptation pathways debate
- Increase awareness
  - Participatory reconstruction of pathways taken and not taken in the past
  - Uncertainty framing
- Experiment
  - Designing future pathways for a specific problem (flooding) in the region