Responsibility & Risk: Operationalizing comprehensive climate risk layering in Austria among multiple actors (RESPECT)

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RESPECT

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Background

Damages caused by climate and weather extremes, such as floods and droughts, have increased over the last few decades and will likely broaden with the progression of climate change and socioeconomic development. Such climate-related risks are already being governed within the framework of natural disaster risk management, as well as climate change adaptation [1]. However, to manage these climate risks more effectively it is necessary to link these two domains under the umbrella of Climate Risk Management (CRM).

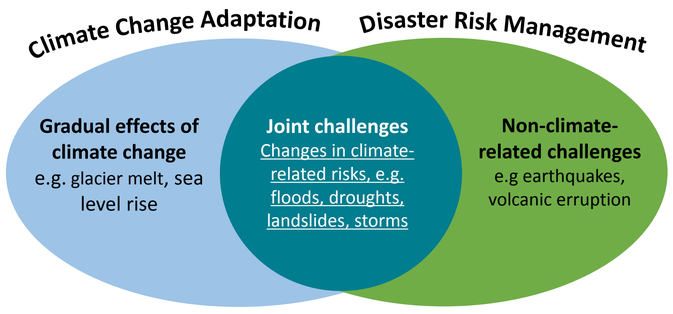


Fig. 1 *Joint challenges of Disaster Risk Management and Climate Change Adaptation. Source: The authors*

Objectives

The overarching goal of the RESPECT project is to support the implementation of comprehensive CRM in Austria. A practical CRM will be developed together with experts, decision-makers, private sector representatives and the population concerned. More specifically, the RESPECT Project is pursuing the following goals:

- A compilation of climate risk information for Austria
- Application of this information to identify current risk levels, possible future scenarios, and potential intervention measures
- Identification and allocation of roles and responsibilities in CRM through participatory implementation of the risk portfolio methods at the local level
- Identification of the potential fiscal risks for Austria if implicit or explicit climate become striking in the public budget balancing
- Closing the gap between research, practice and politics regarding comprehensive CRM
- Integration of information at different administrative levels to reconcile local and national needs, as well as courses of action

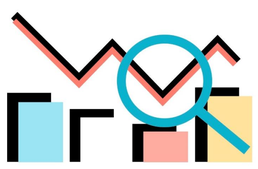
Research Approach and Methods

RESPECT executes the project goals on two different levels. At the local level, RESPECT cooperates with the community of Lienz in East Tyrol. By means of a role-playing simulation, roles and responsibilities will be identified and assigned. At the national level, the fiscal implications of present and future climate risks will be studied. Furthermore, RESPECT considers Austrian circumstances in an international context, to establish a universally applicable approach.

WP 1

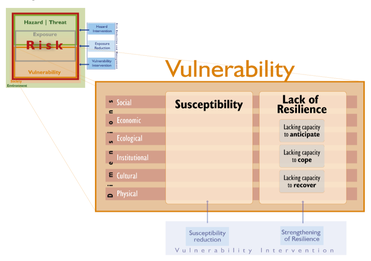
Institutional and stakeholder mapping

Key informant semi-structured interviews and workshops



Qualitative analysis and synthesis

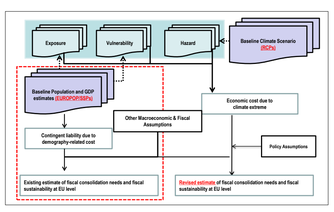
WP 2



Risk assessment

WP 3

Role-play social simulation



Economic modeling

Results of the 1st project year (a selection)

Revisiting the Austrian climate risk governance- and decision context (WP1):

The objective of WP1 was to carry out a national stakeholder mapping of relevant CRM actors, focusing on flood and drought risks. Key stakeholders and their responsibilities were identified based on a screening of the literature, expert interviews (n=14) and a stakeholder workshop. Two separate stakeholder maps (Fig. 2 for flood risk) capturing the CRM governance landscape were compiled and CRM activities were mapped against each stage of the CRM cycle in a stakeholder activity matrix. First results show that CRM is not (yet) established in Austria's institutions, but there is a clear agreement on the importance of CRM to effectively manage present and future climate risks. Two of the common themes that emerged from the analysis are related to the difficulties that arise with the high degree of uncertainty in climate models and the importance to raise awareness for climate related risks among the general population.

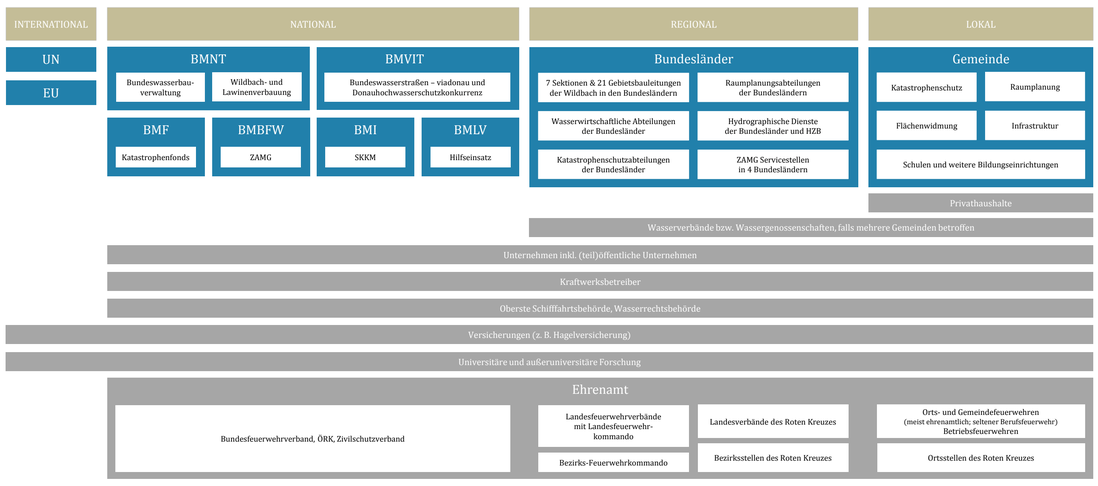


Fig. 2 *Stakeholder mapping for flood risk management in Austria. Source: The authors*

Community-level case study (WP3.2):

Fig. 3 *Pictures taken at the pre-test of the RESPECT role-play at University of Graz. Copyright: Michèle Lintschnig*

WP3.2 aims for creating an innovative format of participation by performing a role-play simulation in the context of CRM with local stakeholders in the city of Lienz. The prepared concept was successfully tested at the University of Graz on April 6th (Fig. 3). In the process, 9 players took a given role of a local stakeholder and dealt with several tasks concerning flood-risk, e.g. responsibilities for measures that can reduce flood-risk and perception of their efficacy for different flood events (risk-layering). In consideration of the experiences of the pre-test, the concept will now be further improved for the final implementation in the study region.

National-level case study (WP3.3):

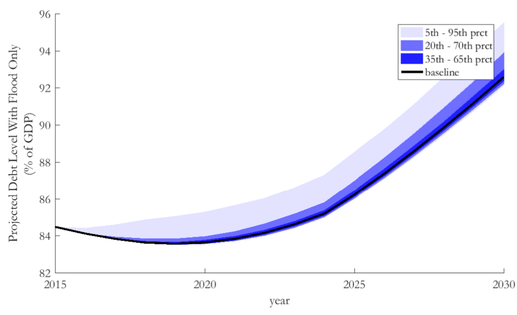


Fig. 4 *Stochastic debt trajectories for Austria under SSP2 scenario up to 2030. Showing 5th to 95th percentiles. Source:* [2]

Within WP3.3 a stochastic modelling tool for the assessment of fiscal impacts of flood risk in Austria was developed. The objective was to jointly evaluate risks of climate extremes and macroeconomic volatility on public finance until 2050. While we could not identify any systemic dependencies, we find that flood risk can indeed put additional pressure on Austria's fiscal position in the future (Fig. 4). However, macroeconomic variability has a much higher impact than the direct risk of climate extremes. Nevertheless, the current disaster fund arrangement may be insufficient to deal with rising risk of extreme floods in the future. [2]

Outlook to the 2nd project year

WP1: Second national workshop with key stakeholders to present RESPECT methods (and results) for operationalizing CRM in Austria (in collaboration with WP3)

WP2: IPCC-AR5-based spatial and temporal risk assessment for present day and future conditions for floods and droughts + Visualisation of results (webmaps and paper-cartography)

WP3.2: Implementation of role-play runs to identify roles and responsibilities in flood risk management in the city of Lienz; Debriefing and evaluation; Development of a role-play guidebook

WP3.3: Discuss results of stochastic modeling of fiscal impacts of flood risk in AT with key stakeholders (Ministry of Finance) and update method based on feedback

WP4: Second international workshop to reflect on national and international CRM approaches; work out draft scientific paper or policy brief

[1] Schinko, T., Mechler, R., Leitner, M., Hochrainer-Stigler, S. (2017). Iterative climate risk management as early adaptation in Austria – Policy case study "Public adaptation at the federal & provincial level", PACINAS Working Paper #03, Vienna, Austria.

[2] Mochizuki, J., Schinko, T., Hochrainer-Stigler, S. (forthcoming). Mainstreaming of climate extreme risk into fiscal and budgetary planning: application of stochastic debt and disaster fund analysis in Austria, *Regional Environmental Change*.