Identifying roles, responsibilities and options in climate risk management by employing role-play simulations: the case of flood risk in the “Zukunftsraum Lienzer Talboden”

Thomas Schinko[1], Michèle Lintschnig[2], Stefan Ortner[3]

[1] International Institute for Applied Systems Analysis (IIASA) | [2] Wegener Center for Climate and Global Change, University of Graz | [3] Institute of Geography, University of Innsbruck

Acknowledgements: This project was funded by the Climate and Energy Fund under the „Austrian Climate Research Program – ACRP 9th Call”

RESPECT

www.respectproject.net

powered by klima+ energie fonds

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).

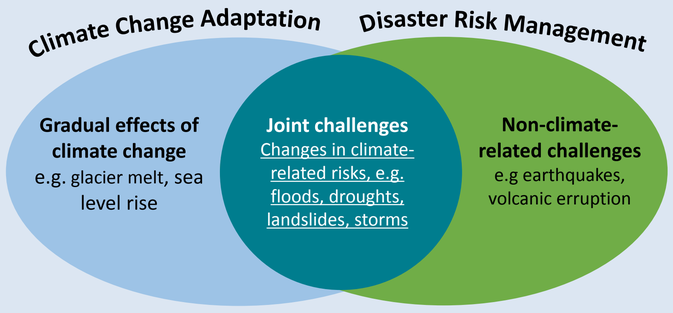

Fig. 1 *Joint challenges of Disaster Risk Management and Climate Change Adaptation. Source: The authors*

Objectives

The overarching goal of the RESPECT project is to support the implementation of comprehensive CRM in Austria. In practice, however, we often experience a policy-implementation gap. Even though climate-related risks might have been identified and potential options for dealing with them have been suggested too, their implementation in practice does not always materialize. One reason for that is the incomplete identification and allocation of roles and responsibilities.

The research project RESPECT sets out to further the implementation of a comprehensive CRM framework for Austria by developing and implementing an innovative methodological framework for participatory risk layering at the local level. The framework permits jointly identifying and allocating roles and responsibilities for comprehensively managing climate-related risks, thereby closing the policy-implementation gap.

Methodology: The RESPECT role-play simulation

We develop a methodological framework that integrates risk layering with a scenario approach in a participatory setup. The concept of risk layering involves identifying efficient and acceptable interventions based on the recurrence of hazards and allocating roles and responsibilities to reduce, finance or accept risks. In our case study region, the “Zukunftsraum Lienzer Talboden”, a novel role-play simulation, addressing local flood and drought risks as jointly identified via the 'Local Reasons for Concern'- approach (developed in the ACRP project ARISE), was implemented. The role-play simulations comprises three phases: (1) warm-up phase, (2) simulation phase and (3) debriefing phase. In the warm-up phase, the participants are introduced to each other and the role-play setting in general. At the beginning of the simulation phase, the participants are informed about the specific role-play content, the different role-characters and the role-play situation. After that, the participants deal with several tasks from the perspective of their randomly assigned role-play characters. First, they have to individually determine whether they have to expect positive or negative impacts if specific risk management measures are implemented and if they are responsible for the implementation. What follows are two blocks in the simulation phase with an identical sequence of steps. Each block deals with a specific future flood (or drought) risk scenario for the year 2050. The players have to determine individually whether they think there is a need for action in the given scenario setting and identify measures that they perceive efficient against damages due to two different hazard categories (risk-layering). The end of each block focuses on a group discussion and on finding compromise about the most efficient measures and key actors in consideration of the results. In the third functional phase the players leave their roles and the process is completed by a debriefing and post-simulation discussion. The role-play is systematically assessed by a documentation of the whole workshop with audio recording, collection of workshop materials and a feedback-form with open-ended and rating-scale questions.

Results

Role-play simulation implementation:

Before implementing the RESPECT role-play simulation in the field, the concept was tested at the University of Graz on April 6th , 2018. In consideration of the experiences of the pre-test, the concept was further improved for the implementation in the study region. Two role-play simulations, one for flood risk and one for drought risk, were then successfully implemented in 2018 in the “Zukunftsraum Lienzer Talboden” and the city of Innsbruck, respectively (Fig. 2).

Fig. 2 *Pictures from the role-play simulations in the “Zukunftsraum Lienzer Talboden” and in Innsbruck. Copyright: Michèle Lintschnig*

Handbook “RESPECT role-play simulation climate risk management”:

Based on the experiences and insights gained from implementing the role-play simulations in the two case-study regions, a handbook has been developed to support potentially interested stakeholders in the implementation of the role-play simulation in practice (Fig. 3). The handbook as well as the material required for planning and running the role-play simulation will be made freely available online.

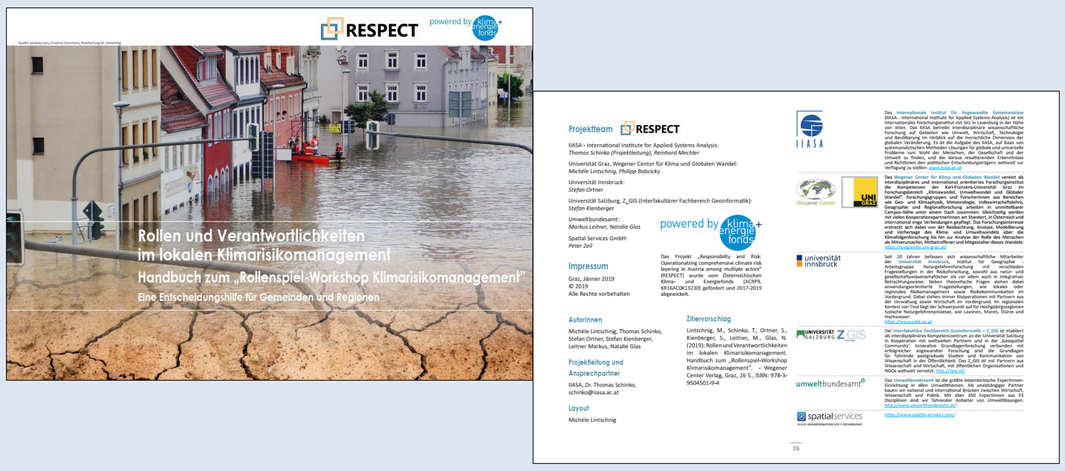

Fig. 3 Handbook „RESPECT Role-play simulation climate risk management“.

Discussion and conclusions

An evaluation of the two role-play simulations showed that the method is useful in CRM practice for achieving a better understanding of:

- The complexities of the climate risk context as well as the decision making process
- The risk management measures, their effectiveness and potential (positive & negative) impacts
- The roles and responsibilities in implementing a comprehensive CRM

Moreover, the participants stated that the role-play simulation led to a better mutual understanding of the joint goal but also of the individual perspectives, and allowed for a compromise in prioritizing a portfolio of risk management measures. We therefore conclude that role-play simulations are an effective decision support tool in terms of closing the policy-implementation-gap and coordinating a comprehensive CRM strategy.

[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.