Special session

Financial Schemes for Flood Recovery and Their Impact to Flood Resilience

Theme 1: Water and Climate Change

Organizers:

Lenka Slavíková – Thomas Hartmann – Thomas Thaler

Content of the special session:

Theme: Substantial public and private resources have been devoted to recover from floods (through building and infrastructure reconstructions) pursuing the solidarity principle. However, particular flood recovery schemes have not been used strategically to prevent future damages (that are expected to increase due to climate changes). They have often increased the vulnerability of areas at risk (due to their abrupt redevelopment). Contrarily, efficient flood relief can stimulate adaptation throughout the catchment and support (rather than undermine) other types of flood resilience measures. The proposed special section addresses the effectiveness of the flood recovery and aims to discuss how the implementation of financial instruments (relief subsidies, insurance schemes and voluntary donations) influence future flood damages. Challenges related to the investigated topic are:

1. How to wisely use recovery schemes to reduce flood risk or/and minimize future flood damages without inducing false incentives (moral hazards)?
2. Are financial subsidies (private and public money) able to increase the implementation of local adaptation strategies?
3. Are financial recovery funding able to encourage individual risk awareness and behavior?

Organization: The session is organized as a panel discussion with 3-4 researchers and one moderator. Each researcher will shortly (up to 12 minutes) present the country or/and problem specific theme regarding financial schemes for flood recovery addressing also the key question: ***How flood recovery schemes (may or may not) increase resilience or change of individual behavior?***. Short presentations will be followed by the moderated discussion with the audience and the exchange of experiences among academia (research evidence) and practice (field work). The session is organized under the umbrella of LAND4FLOOD COST Action (land4flood.eu).

Moderator: Thomas Hartmann (Wageningen University, The Netherlands)

Speakers: Paul Hudson (University of Potsdam, Germany)

Lenka Slavíková (JEP University in Usti nad Labem, Czech Republic)

Thomas Thaler (University of Natural Resources and Life Sciences, Austria)

Thematic abstracts of invited speakers:

Hudson P., Ruiter M.C., De Ruig L., Kuik O.J. and W.J.W. Botzen: **An assessment of best practices of extreme weather insurance and directions for a more resilient society**

Resilience to extreme weather events has been defined as being based on three pillars: resistance (the ability to lower impacts), recovery (the ability to bounce back), and adaptive capacity (the ability to learn and improve). These pillars are important both before and after the occurrence of extreme weather events. Extreme weather insurance can both positively and negatively influence these pillars of resilience depending on how particular mechanisms are structured. There are many different examples of extreme weather insurance across Europe from which lessons can be drawn. For example, insurance mechanisms can differ in the requirements to buy insurance, the extent to which premiums reflect risk, and in their ability to provide both risk transfer and risk reduction. This paper explores how the lessons learnt from the current best practices, in terms of insurance mechanisms, can improve resilience to extreme weather events, both before and after the occurrence of extreme weather events. We employ an extensive inventory of private property and agricultural crop insurance mechanisms to conduct a multi-criteria analysis of insurance market outcomes for the following criteria for several different extreme weather events: overall insurance penetration rates; risk signaling and risk reduction incentives; affordability and availability; the speed and certainty of compensation; the ability of the sector to absorb large losses. A multi-criteria analysis evaluates the relative performance of insurance mechanisms against one another. From this we draw conclusions regarding the patterns in the best practice across insurance mechanisms. Finally, we discuss how the current best practice could be used to enhance individual and societal resilience against a wide range of extreme weather events and where limitations are currently faced.

Slavíková L., Raska P., Kiss A., Kohnova S., Matzak P. et al.: **Different approaches to governmental post-flood relief funding in Visegrad countries**

In recent flood risk management strategies, priority has been given to preventive measures that should be taken to reduce future flood damages. Based on this shift from the flood defense to flood resilience, the role of the central government is reduced in favor of local governments, which bear the responsibility for spatial planning, and individuals, who are encouraged to consider self-protection strategies. Also, the dominant role of the central governments has been blamed for providing disincentives for individual precautionary measures. However, it is omitted that this (declared) strategic shift needs to be interconnected/reconciled with the rules for post-flood relief funding. In society, when after a flood high portion of flood damages is covered by governmental subsidies it is difficult to decrease the influence of the state. Post-socialist Visegrad countries (Czechia, Slovakia, Hungary and Poland) are good examples of this ambivalence. The paper contain the comparative analysis of flood risk strategies and rules/practices for the post-flood relief among Visegrad countries.

Thomas T. and D. Pirker: **Is managed retreat in flood risk management an effective option? Example from Austria**

Hurricanes Harvey, Irma and Maria in the US and recent floods in South Asia and Africa clearly demonstrate increasing flood and coastal risks. Substantial losses due to hydrological hazards call for additional efforts in improving disaster resilience. Although a highly effective long-term measure, the managed retreat of individuals from areas at risk is rarely considered as an adaptive response. Despite its potential to permanently reduce vulnerability, managed retreat is highly contested in the public risk discourse. Households consider a wide range of risk judgments, economic consequences, emotional and social aspects when deciding to move or to stay. Many residents infer their future flood risk from prior flood experiences and struggle to visualise future risks. Households contrast the buyout offer to the current and future property value of their building, and compare the costs for moving to a new home to flood-proofing (and potentially rebuilding) their current home. Personal circumstances, such as recent family foundation, retirement or the prospects of one's children play into their economic assessment. The emotional appraisal is shaped by the personal attachment with the residence or farmyard and by the extent to which the available coping options threaten one's self-identity and way of life. Social influences do not play directly into the relocation decision, but evolve gradually as neighbors act as role models for staying or leaving. After the Danube flood in 2013, public authorities initiated an

extensive relocation project in the Eferding Basin in Upper Austria. Over 146 at-risk residents, declared un-protectable within the existing technical, economic and legal constraints, were offered a voluntary home buyout program. This contribution addresses the economic efficiency of relocation in comparison to other flood mitigation measures, particularly when considering intangible costs.

Short BIOs of speakers and pictures:

Assoc. Prof. Thomas Hartmann, Wageningen University (The Netherlands), is the spatial planner dealing with land and water governance with a focus on risk management of river floods. He is the author and editor of numerous publications (books and papers) on land policies, planning instructments and flood management. From 2017 he has been elected as the vice-Chair of the COST Action LAND4FLOOD.

Dr. Paul Hudson, University of Potsdam (Germany), is an economist working on the interplay between disaster insurance and policyholder adaptation to disasters. This is in order so that the tangible and intangible impacts of a disaster are minimized both before and after disaster events occur. Since May 2017 he has been working as part of the ResilNam project funded through the Global Resilience Partnership's Water Window. The ResilNam project seeks to develop Ecosystem-based adaptation strategies in Vietnam to increase the role of women in flood risk decision making, while offering more socially inclusive adaptation options.

Assoc. Prof. Lenka Slavíková, Purkyne University in Usti nad Labem (Czech Republic), is the institutional economist focused on water governance issues in Central and Eastern European Countries. She is the executive director of the Institute for Economic and Environmental Policy (ieep.cz) and from 2017 she has been elected as the Chair of the COST Action LAND4FLOOD (land4flood.eu).

Dr. Thomas Thaler, University of Natural Resources and Life Sciences in Vienna (Austria) is a research fellow at the Institute of Mountain Risk Engineering at the University of Natural Resources and Life Sciences, Vienna. He is interested in policy issues in flood risk management in different European countries. His research focuses on risk governance and natural hazards in Europe, with particular emphasis on questions relating to the design and effectiveness of governance systems.