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## Practical resilience measurement for the management of multiple hazards

**Michael Szoenyi**<sup>2</sup>, Adriana Keating<sup>1</sup>, Reinhard Mechler<sup>1</sup>, and Karen McClune<sup>3</sup>

<sup>1</sup>IIASA, RISK, Laxenburg, Austria (mechler@iiasa.ac.at)

<sup>2</sup>Zurich Insurance Company

<sup>3</sup>ISSET-International

Defining and measuring disaster resilience is a burgeoning endeavour in the contemporary disaster, development and climate change adaptation space. A core tenant of resilience measurement is the need to be explicit about 'resilience of what, to what, for whom.' What does this mean in the context of multiple and systemic risks? Can resilience to systemic risks be measured? What of our experience with measuring resilience to-date can inform the measurement and management of systemic risks? These are the questions that will be explored in this presentation.

The Flood Resilience Measurement for Communities (FRMC) framework and tool, developed by the Zurich Flood Resilience Alliance, is one of the most widely applied disaster resilience measurement approaches in the world, informing community-led action in more than 250 communities globally. It is founded on a systems-based, holistic and integrated conceptualization of community resilience capacity as comprising of human, social, physical, financial and natural capitals. Data analysis, user experience feedback and expert peer review support the conceptual rigor, practicality and hazard-management utility of the FRMC. In this presentation the authors will present a framework for expanding this single-hazard tool to measure community resilience to multiple hazards at the same time.

We will outline key principles in multi-hazard resilience measurement and explore questions of integration, complex dynamics and the link to decision-making. We will present a typology of resilience measurement indicators that range from generic or hazard-neutral to highly hazard-specific. We then discuss vertical and horizontal scoring options and what this means for decision-making. We will show that multi-hazard community resilience measurement is feasible and useful, generating robust information for local- and regional-level management as well as data for globally generalizable lessons about the dynamics of systemic risks.