Risk, Policy & Vulnerability
An Overview
RPV cuts across IIASA research themes
5 thematic areas

Risk analysis and modeling
The Risk Analysis and Modeling research theme investigates how to manage the risks arising in socio-ecological systems, including risks from climate extremes and other types of hazards. More

Understanding disaster resilience
RPV focuses on "resilience" as a central thematic research area, linking agendas on sustainable socio-economic development, disaster risk management, and climate change adaptation from the local to the global scale. More

Socioeconomics of risk management and climate adaptation
This thematic research area looks at the significant knowledge gaps regarding comprehensive risk management interventions in terms of their efficiency, effectiveness, equity, and acceptability. More

Risk Pooling and Sharing: Designing and assessing disaster safety nets
The Risk Pooling and Sharing theme examines disaster risk financing mechanisms (private and public) across developed and developing countries with special emphasis on i) how they distribute the disaster burden and ii) how to provide incentives/rules to reduce the effects of disasters. More

Governance in Transition
The Governance in Transition research theme analyzes how governance structures shape decisions and subsequent outcomes by building on and contributing to research on decision-making processes, public acceptance, risk perception, cognitive biases, and cultural perspectives, as well as participatory governance design. More
RPV
Theme 1
Risk Analysis and Modeling
IIASA has been a leader in the development of probabilistic models of risk management.

The IIASA CATSIM model assesses the economic and developmental risks of extreme events and supports risk management strategies.

Bridges gaps between outcome driven risk modelling and policy-oriented methodologies respecting plural values.

“For Mexico, CATSIM provided a clear picture of the different layers of risks posed by earthquakes to the public finances and helped identify which risks could be transferred to the international market at an acceptable cost.”

Ministry of Finance, Mexico

Amendola, Ermolieva, Linnerooth-Bayer & Mechler, 2013

CATSIM informing risk management strategies of Caribbean countries, Barbados, 2006
RPV
Theme 2
Understanding disaster resilience
Flood resilience project: a new cross-sector collaboration to catalyze change

Chosen by UNFCCC’s Momentum for Change initiative as an exemplary Lighthouse Activity at COP 20 in Lima
Mapping community risk and resilience

Disaster Risk and Wellbeing
Community Level

Distaster Risk: Hazard (Floods)
- Physical Vulnerability
- Exposure

Changes in Land Use, Infrastructure and Assets on Flood Prone Areas
- Determine

Individual and Community Aspirations, Targets
- Affect

Risk Awareness and Perception
- Affect

Corrective Risk Reduction
Prospective Risk Reduction

Crisis Preparedness
Recovery Capacity

Disaster Risk Management

Coping Capacity (Response)

Damage (direct)

Losses (indirect)

Well-being and development

5 Capitals
- Human
- Social
- Financial
- Natural
- Physical

Community Development

affect

determine

affect
Linking risk and resilience research, policy and practice at multiple scales: Risk Geo-Wiki (with ESM)
RPV
Theme 3
Socioeconomics of risk management and climate adaptation
Stress testing: Risk acceptance thresholds at what return period do disasters become a threat to public entities?

Calculating country-level stress from climate variability

Hochrainer-Stigler et al., *Global Environmental Change*, 2014
Layering risk management as part of the Loss and Damage mechanism

Figure 1 | Layered disaster risk management.

Mechler et al. *Nature Climate Change*, 2014
RPV
Theme 4
Risk pooling and sharing
Refocusing disaster aid for building resilience

Should donors consider switching priority from post-disaster aid to supporting pre-disaster risk reduction and financial instruments?

Linnerooth-Bayer et al., *Science*, 2005
The need for risk sharing: idiosyncratic strategies with large adverse effects

Example:
Survey in two districts Uganda on famers exposed to extremes garnered by Grameen Foundation knowledge workers using smart-phone technology n=3258

Partners:
• LSE
• Grameen Foundation, Uganda

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Theme 5
Governance in transition
The Nocera Inferiore stakeholder process for landslide mitigation

- Analytical-deliberative
- Respect of diversity of values/views
- Consideration of winners and losers
- Co-production of policy options
Usefulness of the decision-support tools for understanding of losses

Source: Komendantova et al., International Journal of Disaster Risk Reduction, 2014
Risk Policy & Vulnerability Program (RPV)

Staff highlight: 3 lead authors on IPCC’s SREX and 5th assessment reports