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Title of presentation: Coping with systemic risks: lessons for analysis and governance

Abstract

The history of the last four decades has been a success story in terms of conventional risk management. All data show that life expectancy is increasing, accidents become less frequent and habitual risks less severe. The picture becomes, however, less favorable if we look at globally interconnected, non-linear risks such as those posed, for example, by climate change or the global financial system and the closely related growing inequality between rich and poor. Systemic risks can be characterized by four major properties: they are (1) global in nature, (2) highly interconnected and intertwined leading to complex causal structures, (3) non-linear in the cause-effect relationships and (4) stochastic in their effect structure. The main features of systemic risks include ripple effects beyond the domain in which the risks originally appear and the threat of a multiple breakdown of important or critical services to society. The main problem is that it is often difficult to predict when a system will suffer a breakdown or collapse. Threats to the system, such as climate change, may be hidden in small incremental effects that provide no hint about when thresholds have been reached. Or a collapse may occur due to a domino effect where a small glitch is released that affects multiple elements within a system or even multiple systems in parallel, thereby amplifying the overall risk.

Insidious systemic risks tend to be underestimated and do not attract the same amount of attention as catastrophic events that occur suddenly. There are three main sources of global hazards that we need to focus on: the growing extent of human intervention in nature (climate change, pollutant emissions, use of land and water); inadequate or ineffective control of central processes in the realms of business and politics (capital markets, corruption, capacity deficits); and adverse by-products of globalization and modernization (unequal living conditions, lack of security, cyber-risks, loss of identity). Although most people are usually familiar with them, they do not get the same attention as the conventional hazards and risk have been given in the past. This can have disastrous consequences – and not only in financial markets.

Responding adequately to global systemic risks is a challenge for our world society where national interests and different cultures conflict with efficient responses. Governance of systemic risks require strategies that address the complexity, scientific uncertainty and socio-political ambiguity of its underlying relationships. However, national as well as international attempts to address systemic risks have decoupled risk anticipation from sustainable and resilient risk management processes and structures. Furthermore, the modernization process facilitates the emergence of plural knowledge and value claims that leads to the request of multiple stakeholders to be part of the risk management process. Public participation has proven to be an important part and often key driver for successful and legitimate risk governance for advancing effective policies to curb systemic risks. In the end risk management and communication needs to address the four characteristics of systemic risks and develop the appropriate instruments to deal with global, interconnected, stochastic and non-linear risks.

Short bio

Dr. Renn is scientific director at the *International Institute for Advanced Sustainability Studies* (IASS) in Potsdam (Germany) since February, 1, 2016. He continues to serve as acting chair of the *Stuttgart Research Center for Interdisciplinary Risk and Innovation Studies* at the University of Stuttgart (ZIRIUS) and as scientific director of the non-profit company *DIALOGIK*, a research institute for the investigation of communication and participation processes. Renn is *Adjunct Professor for "Integrated Risk Analysis"* at Stavanger University (Norway) and *Affiliate Professor for "Risk Governance"* at Beijing Normal University.

Ortwin Renn has a doctoral degree in social psychology from the University of Cologne. His career included teaching and research positions at Clark University (Worcester, USA), the Swiss Institute of Technology (Zuerich) and the Center of Technology Assessment (Stuttgart). His honours include the National Cross of Merit Order, an honorary doctorate from the Swiss Institute of Technology, an honorary professorship at the Technical University Munich and the "Distinguished Achievement Award" of the Society for Risk Analysis (SRA)