



Co-producing Knowledge for Theory and Practice – Learning about Uncertainty of Flood Risk through Scenario Planning

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The presentation shows how to initiate and manage a process of co-producing knowledge for theory and practice for addressing the pressing problem of dealing with uncertainty of flood risk. Specific recommendations are given with reference to scenario planning with wild card analysis. The presentation is based on various research projects with dense interaction between practitioners and scientists (e. g., the EU-project FLOODsite, Weißeritz-Regio of the IOER, Dresden).

The presentation argues for a strategy of exploiting the different perspectives and knowledge assets of practitioners and scientists to address complex problems in the real world. Using this strategy leads to the view that societal decision making is improved through practitioners and researchers who are *co-producing* knowledge. Especially research on emerging, not yet well-understood themes could benefit from adopting this approach. Consider the example of dealing with uncertainty of flood risk through scenario planning.

Flood disasters in recent years triggered a shift from flood protection to flood risk management within the European policy and research community. One important theme of flood risk management is the issue of how to deal with uncertainty of flood risk. It is accompanied by a new awareness of the shortcomings of flood protection assets (e. g., dams, dykes). At present, flood risk analysis aims at incorporating elements of uncertainty analysis (e. g., dam failure scenarios). In the field of scenario planning research, sophisticated tools for dealing with the unexpected through fostering learning and resilience have been developed.

Whereas research expands its capacity to deal with uncertainty of flood risk, case studies show that practitioners have their problems with open discussion about uncertainty and residual risk. Due to societal contexts (e. g., public anxiety in reaction to flood disasters, time pressure) they can be more engaged in uncertainty *absorption* (Simon, March) than in reducing it through improved tools of flood risk analysis and scenario planning. Therefore, the theme of dealing with uncertainty of flood risk should be defined with regard to the knowledge needs and contexts of science and practice right from the beginning.

The approach proposed in this presentation for co-producing knowledge has four distinct features:

1. Scenario-based planning for flood risk management is understood as an interactive approach wherein practitioners and scientists engage in an egalitarian relationship to focus on an important, complex research question. Organizing a *theme-driven* and *egalitarian* relationship is crucial.
2. The approach distinguishes between scenarios as expected trends and discontinuous *processes* on the one hand and “wild cards” to address unexpected *disruptive events* and *structural breaks* with unknown or perceived low probability, but potentially catastrophic impacts on the other.
3. Formulating and analysing scenarios as well as wild cards is as much an *analytical* effort as an opportunity for developing a *learning community* of practitioners and researchers. Thereby, creative conflict management lies at the heart of managing such a process.
4. The approach pays ample attention to the process of co-producing knowledge for theory and practice. Hence, the *timing* of practitioner-researcher-interaction is in the foreground, not in the background, of investigation (e.g., through using the timing model of pluralistic leadership developed within the MIRP-Minnesota Innovation Research Program).

To sum up, the presentation shows that co-producing knowledge for theory and practice implies specific challenges for matching research *theme* (What?) and research *process* (How?).