Natural hazards and resilience: exploring institutional and organizational dimensions of social resilience

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1 Context and purpose of the Special Issue

Policy discourses and academic debates provide evidence that resilience has become one of the leading ideas to deal with uncertainty and change in our times. This applies for numerous and diverse discourses such as flood risk management (Steinfuehrer et al. 2009), urban development policy (Linovski 2010; Mueller 2011), responding to terrorism (Coaffee et al. 2009), and mega-projects like the Olympic Games (Jennings and Lodge 2010), just to name a few. Resilience also appears in a diverse range of publications from institutional (Anderies et al. 2004), organizational (Weick 2009), and climate change adaptation research (Pelling 2011).

While the need to build resilience is highlighted, the definitions of resilience are manifold and partially blurred. Given this diversity and accessing the more focused usage of the term “resilience” in ecological research, some authors worry about the health of resilience research (Klein et al. 2003; Brand and Jax 2007). Others see the growth and diversity of discourses and publications as a sign of “good” health (e.g., Van de Ven and Hargrave 2004, p. 291). Despite the wide range of diverse discourses and publications, this Special Issue of natural hazards aims to contribute to these debates with a specific perspective on the overall topic of resilience that might be best described with the term “social resilience.”

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Most contributions to the Special Issue pursue a social scientific perspective on resilience with a focus on institutional, organizational, and planning aspects. Due to these different perspectives, different definitions of “social resilience” are used in the papers. For instance, one paper defines social resilience as a *myth* in organizations that matters for retrospectively making sense of efforts to deal with natural hazards on the one hand and power relationships on the other. In contrast, another paper frames social resilience as a *failure-oriented social process* in and between organizations that accelerates learning to deal with emerging situations in the context of natural hazards. Therefore, the reader should not expect an overarching perspective and related definition of social resilience from the Special Issue. The papers help to explore the different meanings of social resilience based on an account of various streams of social science research, especially sociological, institutional, and organizational studies. To formulate a theoretically derived and empirically grounded common definition of social resilience in the context of natural hazards remains a challenge for the future.

The issue is based on the 20th meeting of the Working Group “Natural Hazards and Risk” of the German Geographical Society (Deutsche Gesellschaft für Geographie (DGfG)) that took place in Leipzig in spring 2009. One of the aims of the meeting was to critically examine what the added value of the concept of resilience might be, as it is not only used in very different scientific disciplines, but also to describe very diverse systems: ecosystems, social-ecological systems, communities, etc. As a result of the Leipzig meeting, six papers are included in this Special Issue. The papers cover different topics from the applicability of the concept of resilience in trans-disciplinary research, participation in urban regions, social resilience in the context of flood risk management, to issues of power in response to natural disasters. An overarching insight from the single contributions is the relevance of institutions as both elements of governance structures and overall political regimes (Pelling 2011) as well as networks of individual persons and organizations (Raab and Kenis 2009).

Advancing research and practice requires referring to resilience as a precisely defined scientific concept. This does not mean that we want to play down the relevance of the concept of resilience as a “boundary object” (Brand and Jax 2007), allowing different disciplines to contact each other and to exchange ideas by using the same terms and concepts. Rather, this Special Issue is concerned with more thorough attempts to clarify and specify the meaning of social resilience in the context of natural hazards (as well as disasters). Hence, the contributions of this Special Issue emphasize the challenge to “operationalize” resilience in relation to institutions, organizational contexts and activities, and power—among others.

In doing so, the papers shed some light on the relevance of the institutional and organizational dimensions of social resilience. These dimensions are particularly relevant for theory development in this discursive field. We hope that these papers will contribute to “theory construction as disciplined imagination” (Weick 1989) regarding what social resilience is in the context of natural hazards and what it could be. The papers can be interpreted as contributions to developing hypotheses about resilience, which also implies that they do not provide such a hypothesis. This should not be surprising in face of the state of the art in resilience research with its multiplicity of theoretical perspectives and related definitions. Therefore, we expect that the results presented in the papers from the Special Issue will be relevant for researchers who are interested in developing a comprehensive understanding, frameworks, and theories about natural hazards and social resilience.

2 Overview over the papers

2.1 Social systems and resilience

The paper by *Daniel Lorenz* addresses fundamental questions of resilience from a social science perspective. Specific aspects of social systems, especially their symbolic dimension, are taken into account in the endeavor to research coupled social–ecological systems. Due to the symbolic dimension of social systems, disasters are defined as the failure of expectations and social resilience is defined as a system property of avoiding or withstanding disasters. In relation to this, three capacities of social systems that constitute resilience are presented (adaptive, coping, and participative). The paper argues that relations are at the heart of understanding social resilience in the context of natural hazards. This is in line with current relational approaches to societal problems such as urban planning (e.g., Healey 2007) and dealing with technological and natural hazards (e.g., Macrae 2010).

2.2 Institutions and resilience

The notion of resilience has gained considerable prominence with regard to the management of social–ecological systems and more recently climate change adaptation. However, the principles for achieving resilience in a specific institutional and cultural context often remain vague. Up until now, there is a lack of context-specific research on social resilience, especially on the diffusion of resilience approaches. Therefore, the paper of *Matthias Garschagen* analyzes how resilience thinking can diffuse and translate into organizational actions, as well as addressing what challenges and barriers may exist. Moreover, the paper uses empirical research on urban climate change adaptation in Vietnam to explore the role of institutional features in a given culture, region, or sector for shaping this process.

2.3 Organizations and resilience

Organizational studies increasingly use the term “resilience” or “organizational resilience” to analyze and recommend solutions for dealing with uncertainty and change. Like psychologists in studies on the resilience of children (Masten et al. 2009), organizational scholars argue for a positive approach to problem solving that motivates decision makers in organizations to think and act in a specific way, especially through failure-oriented and open-learning processes (“positive organizational scholarship”). The paper by *Gérard Hutter* uses a specific body of work from organizational studies to analyze options of dealing with uncertain context conditions (e.g., Weick 2009). Based on existing empirical evidence (Hutter 2007), the paper provides three suggestions through a theoretical synthesis. First, social resilience can be framed—in contrast to a rigid response to radical change—as a process of broadening information-based activities, loosening formal controls, and using slack resources of organizational members. Second, the paper argues that social resilience should be undefined at the outset of a research project with the aim of building a theory about resilience. It is expected that an appropriate definition emerges in empirical research. Third, organizational studies highlight specific social structures and processes of social resilience, for instance, small groups of individuals in organizational and interorganizational contexts. Therefore, organizing becomes a crucial factor for dealing with natural hazards (Newman and Dale 2005; Carlsson and Sandström 2008, p. 46; Cropper et al. 2008; Bodin and Crona 2009).

2.4 Sense making, power, and resilience

The paper by *Christian Kuhlicke* expands our view on social resilience by proposing that not only can it be seen as a capacity (or a set of capacities, see the paper of Daniel Lorenz) but also a myth, which has implications for power structures in organizations. The paper seeks to shed some light on a fundamental aspect of social resilience: its constructionist dimension. The paper introduces the ‘myth of resilience’, which not only considers the functional aspects of resilience (i.e., actors capacities), but also how actors retrospectively make sense of the radically surprising discovery of something entirely unknown. This myth may develop a quite intriguing way of changing, creating, and consolidating power relations in organizations. Empirical findings from flood risk management research at the local level are used to illustrate this argument.

2.5 Participation and resilience

As part of the case study about the Ukrainian Tisa river basin within the EU-project NeWater on adaptive water resources management, the paper by *Dagmar Haase* presents an example for a participatory study dealing with flood risk, vulnerability, and adaptive capacity. In order to make flood risk management more resilient and better adapted to climate change, scientists and stakeholders applied a set of qualitative and quantitative modeling approaches to characterize prevailing flood risk management, to discover respective vulnerabilities and to identify barriers and options of adaptive capacity. The paper clarifies that, from a more practice-oriented view, the term “resilience” need not be explicitly and often used to address questions that are important for resilience research. However, the paper also makes clear that the complex relationships between vulnerability, adaptive capacity, resilience, and adaptation need much more discussion in the future (see the paper of Daniel Lorenz and Pelling 2011, p. 55).

2.6 Urban regions and resilience

The notion of resilience is increasingly used to address issues of adaptation and adaptability to climate change in urban regions. Evidence for this can be found, for instance, in large running research projects in Germany, the UK and elsewhere. Based on a comparative case study analysis of three German projects, the paper of *Birte Frommer* looks for the benefits of resilience thinking in the context of climate change adaptation. Like Dagmar Haase, she also takes a more practice-oriented view. The paper argues that only parts or urban regions, certain sectors or subjects, can increase social resilience understood as set of capacities. Networks of regional stakeholders are important to understand how different sectors and levels of action can be linked. This stresses that we do not only live in a “society of organizations” (Charles Perrow) and the “network society” (Manuel Castells), but also in a “society of networks” (Raab and Kenis 2009).

2.7 Trans-disciplinary research and resilience

The paper by *Sonja Deppisch* and *Sanin Hasibovic* explores the possibilities of applying the concept of social-ecological resilience (SER) in trans-disciplinary research on climate change adaptation. The authors argue that SER can be used as a guiding concept in trans-disciplinary research even if practitioners are not included in the process of choosing this concept at the outset of their research. They stress that SER provides both a focus for

communication between researchers and practitioners and the starting point for a relatively open discussion regarding how to adapt to climate change and related hazards in the “real world.” They point out that, to accomplish these two tasks, SER needs some translation into practical terms. The argument of the paper is illustrated through using first evidence from a project with case studies in the Baltic Sea Region.

3 Perspectives

The papers in this Special Issue apply a variety of understandings and definitions to social resilience. However, what most papers share is that they underline the dynamic character of resilience. This stresses an important question to be addressed in future research work: By which measures or indicators should resilience be captured if it is a dynamic process at different social levels (group, organization, network, and so forth)?

Most papers also share the distinction between anticipation and resilience, as proposed by Wildavsky (1991) in his seminal book “Searching for Safety.” Current publications also refer to this distinction (see the contributions in Hutter 2010 as well as Kuhlicke and Kruse 2009; Hutter 2011). We are convinced that both anticipation and resilience are important for dealing with the consequences of natural hazards. Future work will show more empirical evidence how anticipation and social resilience are balanced or even fused within specific societal and ecological contexts (e.g., Macrae 2010). We expect that such integrative research is especially important for practitioners who are interested in developing social resilience in the context of natural hazards.

Furthermore, the editors strongly believe that the natural sciences should also play an important role when discussing resilience issues. The term “resilience” has a long-standing tradition in research on natural systems. The term “social-ecological resilience” has gained prominence in research about relations between people and nature in the last years (e. g., Walker et al. 2006; Brand and Jax 2007). Some authors even embark on the journey to synthesize research from the natural sciences on the one hand, policy studies as well as network and organizational studies on the other (e.g., Carlsson and Sandström 2008). These papers indicate a growing interest in more intensive communication between natural and social scientists. We hope that the Special Issue contributes to this communication.

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