

ID 1411 | SOCIAL RESILIENCE AND NATURAL HAZARDS - ANALYZING MULTIPLE SOCIAL LEVELS OF RESILIENCE IN THE CONTEXT OF PLANNING AND RISK GOVERNANCE

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ABSTRACT: The paper conceptualizes resilience as a matrix of social levels (intra-organizational, organizational-, and inter-organizational) and social capacities (coping, participative, adaptive, and transformative). The paper reflects on some advantages and limitations of this resilience conceptualization. The concept is, for instance, strong in considering processes of interpretation and social change. However, it has only limited usefulness in simple quantitative attempts to measure and assess resilience in “the real world”. Furthermore, some implications for future research and practice are discussed.

KEYWORDS: Adaptation, capacity, coping, inclusion, organization, participation, transformation

1 INTRODUCTION

The word ‘resilience’ is used in most diverse research areas and policy fields of modern societies. To name only a few examples: psychologists ask under which conditions and through which processes those children that face adverse risk situations may still build and display “normal” development competencies in specific social and/or cultural settings (e.g., Masten 2014). Social psychologists and management scholars like Karl Weick ask through which social processes teams may be able to deal with surprises and sudden dangers in the context of firefighting (e.g., see the seminal paper on the Mann Gulch Disaster by Weick 1993). Organizational scholars are concerned with organizational performance in the face of increasing levels of complexity, uncertainty, and ambiguity (e.g., Kayes 2015). Resilience is especially prominent in research on so-called “socio-ecological systems” (e.g., Boyd & Folke 2012) and on the prospects of understanding, analyzing, and promoting disaster resilience in the context of natural hazards, climate change, and the possibility of cascading disastrous events (e.g., Tierney 2014, Coaffee & Lee 2016). Given this diversity of research streams and policy contexts and communication across streams and contexts, no wonder that there is also a high diversity of definitions, theories, and methods to use “resilience” in planning research and practice (e.g., Davoudi 2012, Deppisch 2017).

Fortunately, there are useful book-length publications that review resilience definitions in various scientific disciplines and related theoretical approaches as well as their methodological and practical implications for planning research and practice (e.g., Comfort et al. 2010, Tierney 2014, Coaffee & Lee 2016). We do not seek, therefore, to provide another overview of social resilience research that discusses the advantages and disadvantages of diverse perspectives. We are more interested in promoting a specific organizational-institutional and sociological perspective on resilience (e.g., Ansell et al. 2017). Based on an extensive review of the resilience literatures¹, we conceptualize social resilience as a matrix of (1) social levels (intra-organizational, organizational, and inter-organizational level) and (2) as a set of capacities (coping and participative capacity as well as adaptive and transformative capacity). The aim of this paper is to outline and justify social resilience as matrix in the context of planning (Allmendinger 2009, Davoudi 2012, Coaffee & Lee 2016) and governance (Hutter 2016, Ansell et al. 2017), especially from the viewpoint of “human agency” (Emirbayer & Mische 1998). Future work will show in more detail how this conceptualization may be used in theoretical as well as empirical planning research.

¹ See Hutter & Lorenz (2017) for a more detailed account of the literature review. The literature review will be published by Cambridge University Press (CUP) at the end of the year 2017 or the first half of the year 2018. We are thankful to the editors of the CUP-book, Sven Fuchs and Thomas Thaler (both of BOKU in Vienna), for helpful comments on the review.

For us, the following wide definition of social resilience (based on Boin et al. 2010, 9) serves as a starting point of our argumentation:

Social resilience is the capacity of a social entity (social order of actions) to proactively adapt to and recover from disturbances that are perceived within the social entity to fall outside the range of “normal” and “expected” disturbances.

This definition of resilience provides an anchor in the expanding “landscape” of resilience research in the natural sciences, civil engineering, and the social sciences. Therefore, some remarks on the definition are in order: Firstly, resilience is understood as a capacity of social entities. Questions of how and why actors address “resilience” in ideological processes are certainly important (e.g., “resilience” as manifestation of the politics of neoliberalism, Coaffee & Lee 2016). However, the following cannot elaborate on this in detail (for a more detailed account see Hutter & Lorenz 2017). Secondly, the definition highlights social entities understood as social order of actions. Without doubt, ecological systems and individual persons influence social action. Though, from our conceptual viewpoint, they are placed in the context of social resilience. Thirdly, the definition may be characterized as a wide definition because efforts to proactively and reactively manage disturbances are addressed (see Weick & Sutcliffe 2015 for an alternative of understanding resilience mainly as the capacity to react to the unexpected). Fourthly, the definition explicitly refers to perceptions and interpretations. In line with principles of qualitative social research (e.g., Strübing 2013), social resilience is seen as a capacity to manage the unusual and unexpected from the viewpoint of the focal social order of actions. We are interested in understanding social action that shapes perceptions, expectations, interpretations and learning processes based on context conditions that are characterized by power relations, networks, and institutions.

The paper is structured as follows: Chapter 2 introduces the aforementioned matrix and explains how resilience may vary with regard to social levels (intra-organizational, organizational, and inter-organizational) and social capacities that make up resilience in relation to unexpected disturbances. Chapter 3 provides the opportunity to reflect on some advantages and limitations of conceptualizing resilience as matrix of social levels and capacities. Chapter 4 concludes our paper and gives a brief outlook.

2 SOCIAL RESILIENCE AS MATRIX OF LEVELS AND CAPACITIES

Planning and risk governance are both evolving context conditions for conceptualizing social resilience (e.g., Allmendinger 2009, Hutter 2016, Lamker 2016). To simplify our argument with regard to context, we adopt the notion of a “planning project in the twenty-first century” as summarized by Patsy Healey:

• An orientation to the future and a belief that action now can shape future potentialities
• An emphasis on liveability and sustainability for the many, not the few
• An emphasis on interdependences and interconnectivities between one phenomenon and another, across time and space
• An emphasis on expanding the knowledgeability of public action, expanding the ‘intelligence’ of a polity
• A commitment to open, transparent government processes, to open processes of reasoning in and about the public realm

Table 1: Attributes of a twenty-first century planning project (Source: Healey 2010, 19)

All five attributes point to the challenge of developing an inclusive approach to public problem solving. There is wide agreement in the resilience literatures that dealing with unexpected disturbances potentially involves and affects actors from various societal spheres and organizational fields. Researchers and practitioners alike often mention public leaders (elected politicians and public officials), market-oriented business organizations, organizations of the “third sector”, and, last but not least, citizens and self-organized community forms (e.g., Tierney 2014). An inclusive perspective on resilience is not surprising, because the call for resilience materializes especially with regard to non-routine events, crisis, disasters, as well as catastrophes. In such situations, the institutions and social differentiation of everyday life are no

longer functioning by definition and the limitations of state-centered approaches like anticipation-based “command and control” or plan-based disaster management are often salient which paves the way for discussions about policy reform and social change (Wildavsky 1988, Clarke 1999, Boin & McDonnell 2007, Weick & Sutcliffe 2015, Coaffee & Lee 2016).

We do agree that social resilience encourages researchers and practitioners to follow an inclusive approach to public problem solving. In line with a pragmatic understanding of “human agency” (Emirbayer & Mische 1998, for resilience and agency see also Hutter & Lorenz 2017) – instead of prevalent focus on social structures in resilience research –, we are somehow optimistic that actors in modern societies are – to some extent – able to proactively adapt to unexpected future disturbances even in the face of barriers to such resilience organizing.

Furthermore, we are interested in understanding people, tools, and tasks as well as organizational goals, technical systems, and relations between organizations, and how all this fits together to organize for resilience in modern society (Comfort et al. 2010). Hence, social resilience in the context of planning and risk governance requires both an inclusive approach and a multi-level approach to distinguish between social levels of organizing that encompass, for instance, collective resilience efforts of teams, organizations, and networks of organizations.

In a first step, the following elaborates on the dimension of social levels of resilience from an organizational-institutional perspective on planning and risk governance (see Ansell et al. 2017). Then, in a second step, we develop a sociologically informed understanding of how the overall notion of resilience can be disaggregated into more specific social capacities to deal with unexpected disturbances. And in a third step, we combine the social levels of resilience and the capacities of resilience in a “matrix” for analyzing social resilience.

2.1 SOCIAL LEVELS OF RESILIENCE

To understand social resilience in modern societies we need to take into account its constituents in terms of different social levels. In the following, we suggest focusing on three different levels, being the intra-organizational, the organizational, and the inter-organizational level, as resilience may emerge in very diverse forms on the levels as our examples will show.

Proactively adapting to future disturbances that fall outside the perceived range of “normal” events requires that people are able to imagine “strange futures” while simultaneously dealing with the demands of an evolving present. In particular, organizational scholars (e.g., March 1991) have long pointed out that organizations have difficulties in maintaining both learning processes termed exploration to deal with possible, distant, and perhaps strange futures and exploitation to reap the benefits from knowledge accumulation based on experience. Organizations tend to prefer exploitation while neglecting to sustain exploration. However, some researchers also show that face-to-face communication between organizational members may facilitate intra-organizational processes of developing formal or informal social groups that are eager to prepare for rare and even “strange” events in the future. Furthermore, resilience at this social level is also characterized by the collective capacity to discuss the specific implications of imagination for how an organization runs right now.

From the viewpoint of the whole organization, results of efforts to imagine possible, but strange disturbances are rather “useless”, if they do not connect to organizational strategy, structure, incentives, and routines. In modern society, organizations responsible for planning and natural hazard management are often to some extent bureaucratic organizations that display a significant degree of formalization (e.g., formalized responsibilities, authority, standardized processes of communication, and routines like “Standard Operating Procedures (SOPs)”). Social resilience at this level may require that people “at the top” of the hierarchy are willing and able to provide resources and intra-organizational arrangements to facilitate and exploit processes of team-based learning for dealing with future imagined disturbances and for handling current emergencies through mindful process management (Weick & Sutcliffe 2015).

Increasingly, there is research that focuses on inter-organizational relations in the context of risk governance and planning (e.g., Comfort et al. 2010, Boyd & Folke 2012, Goldstein 2012, Thaler et al. 2016). With regard to social resilience, we highlight the following points: A wide preliminary definition

requires that actors interested in proactively adapting to future disturbances are eager and able to combine diverse domains and types of knowledge in processes of inter-organizational collaboration that are often resource-demanding and far from risk-free in terms of realizing the intended collaborative advantage (e.g., Huxham & Vangen 2005,

Zimmermann 2010). For instance, the flood disaster in Dresden in August of the year 2002 triggered collaboration of organizations from research and practice at the spatial level of the whole catchment of the river Weisseritz (a tributary of the river Elbe). This inter-organizational collaboration included state authorities, municipalities, and organizations from civil society. Collaborators were able to jointly produce some innovative products for dealing with future flood events (Wirth et al. 2010), but showed only rather limited capacity to facilitate collaborative pro-active adaptation to future disturbances among the participating organizations (Vulturius 2013). Collaboration among organizations from diverse societal realms may be especially difficult when it comes to collective efforts that address future disturbances and even strange events that are difficult to interpret based on the diversity of the existing strategies, structures, and routines of the participating organizations.

2.2 SOCIAL RESILIENCE AS SET OF CAPACITIES

When it comes to disaggregate the overall concept of resilience into components in order to understand how “a social entity [...] proactively adapt[s] to and recover[s] from disturbances that are perceived within the social entity to fall outside the range of ‘normal’ and ‘expected’ disturbances” (Boin et al. 2010, 9), discussions usually focus on separate, though interlinked capacities (e.g., Tierney 2014). As the discourse on resilience is nowadays situated in various scientific disciplines and research streams, not only a high diversity of definitions of social resilience is to be found, but also of the capacities that constitute resilience.

Some authors argue that resilience encompasses coping capacity, adaptive capacity and transformative capacity (e.g., Davies et al. 2013, Keck & Sakdadolrak 2013, Béné et al. 2016). This influential threefold division is useful to understand various degrees of re- and pro-active efforts of resilience. While some authors, for instance, Pelling (2011, 78), distinguish a “conservative” notion of resilience being the “contained” persistence of functions and practices from fundamentally different transformations meaning the “deepest form of adaptation indicated by reform in over-arching political-economy regimes and associated cultural discourses”, successive authors incorporated the idea of transformation into their resilience conceptualization. Hence, the triad of coping capacity, adaptive capacity and transformative capacity reflects the stepwise evolution of the resilience concept starting with the mere “conservative” persistence of a system, over adaptations of systems ending so far with “evolutionary” transformations of systems in the face of global challenges.

In order to fully grasp social resilience and its distinct social features, the following introduces an alternative set of capacities with a broader sociological informed understanding of the underlying social matrix enabling resilience and human agency. The rationale behind this alternative set is not a critique of the aforementioned three capacities, but rather their limited scope, when it comes to the social sphere and its specific characteristics. This alternative set is rather a broadening from a sociological point of view due to the fact that most important social features of social resilience have been neglected (Voss 2008); without their consideration, the specific social aspects of adaptation and recovery as mentioned by Boin et al. (2010) in our preliminary wide definition of social resilience in the introduction cannot be grasped and understood.

By distinguishing coping capacity and participative capacity as well as adaptive and transformative capacity (e.g., Voss 2008, Lorenz 2013) not only the aforementioned aspects of dealings with risks and natural hazards can be understood, but also the specific social aspects of resilience being in particular social processes of perception, interpretation and meaning as well as power relations and ideological processes that influence social resilience and human agency substantially.

Coping capacity: Sociological as well as anthropological studies (e.g., Erikson 1994) teach us that social actors do not just restore a former status quo after extreme and unexpected events, but show a much more complex and interpretative dealing with such events. A symbolic dimension of meaning (Lorenz 2013) and social processes of remembering, perception, interpretation, imagination and expectation building come into play and need to be considered to understand resilience. Taking into account these

notions, coping capacity is understood as the cultural and social “dealing” with collective stress (Voss 2008, Norris et al. 2008). As a result, coping especially comes to bear in the midst of or after a disaster. Especially endowment with meaning, i.e. attribute meaning to otherwise meaningless disasters, proves to be a significant precondition for the overcoming of disastrous occurrences (Norris & Stevens 2007). Looking at the community level, Dittmer et al. (2016), for instance, show how a local rural community coped with the disaster of the Elbe river flood in the year 2013, both in psychological and physical terms. By establishing their own patterns of interpretation and communal narratives about the disaster, the community displayed significant efforts of human agency in terms of organizing themselves for weeks autonomously in the inundated area – while still experiencing the situation as meaningful and a situation of community-building.

Participative capacity: Whether teams, organizations, networks, communities, and societies can actually cope with threats and disasters depends not only on the coping capacities of actors, but quite often to a greater degree also on the societal factors that enable or constrain these actors to do so. Actual social action is the function of complex social context conditions and processes, for instance, power relations, networks of different types and size, as well as institutional conditions. Especially the underlying dimension of power has been neglected in resilience discussions. But more recently, a significant number of scholars (e.g., Voss 2008, Bohle et al. 2009, Lorenz 2013, Voss & Funk 2015) have addressed this aspect of social resilience. The concept of participative capacity enters the discussion of social resilience to acknowledge different ‘radii of agency’ (Lorenz & Dittmer 2016, 36) and to direct attention to the interpretive power and influential prospects of actors regarding those local, regional, and global processes which affect them. “[P]articipative capacity becomes a key category in the circle of disasters: the lower the participative capacity, the lower the resonance for critical developments, the lower the prevention activities, the lower the capacity to respond and to adapt and so on” (Voss 2008, 52). Arguing for an inclusive perspective on ways to organize for resilience, the concept of participative capacity is most relevant across and on all social levels. It is to be found in intra-organizational processes, for instance, team efforts to balance exploration and exploitation as introduced earlier. In the context of “High-Reliability Organizations (HRO)”, rigid structures of power and formal hierarchies are seen as amplifying errors while flat and more participative hierarchies may contribute to stronger collective mindfulness and this is then translated into more social resilience in the context of technological as well as natural hazards (Weick & Sutcliffe 2015).

Adaptive and transformative capacity: Adaptive capacity is not just – as, for instance, in the ecological discourse on resilience (e.g., Folke 2006) – the ability to adjust in the face of natural hazards or unknown future threats. If we take the contribution of sociology seriously, adaptation as well as transformation need to be seen as deeply entangled with the respective social processes of perception, interpretation and meaning (coping capacity) and existing structures of power (participative capacity). Adaptive capacity, therefore, describes the ability to adjust and adapt in the face of natural hazards or other known as well as unknown threats under the conditions of coping capacity and participative capacity. The dependence on and the available resources for adaptive capacity are in most cases not issues of choice, but rather distributed by all those factors that make up participative capacity. In the discussion on adaptive capacity the significance of social capital is discussed at length (Adger 2000, Hagan & Maguire 2007, Tierney 2014). What is often missing and what is brought to the fore by participative capacity is that the distribution of social capital is never natural, but always the result of social actors struggling for more social capital and that there is always a so-called “dark side of social capital” (van Deth & Zmerli 2010, Aldrich 2012) in terms of social exclusion, marginalization etc. Given the often normative actions and goals, esp. of transformation, for instance in terms of “individual welfare” (Keck & Sakdadolrak 2013, 5) or “good governance” (Béné et al. 2015, 10), the entanglement of transformative capacity with socially build expectations, fundamental norms and values, normative judgements, ethical conceptions of the “good life”, but also power structures becomes even more apparent.

2.3 SUMMARY

Table 2 suggests a quasi-formal depiction of our social resilience (SR) conceptualization as matrix of levels and capacities. Table 2 disaggregates the overall wide definition of resilience (see Chapter 1) into 12 types of resilience propositions² in a “matrix” of social levels and a set of capacities as suggested in this paper.

2 A “proposition is a declarative sentence expressing a relationship among some terms.” (Van de Ven 2007, 117). A proposition and a hypothesis differ by levels of abstraction. Propositions “are relationships among theoretical concepts or construct, while hypotheses are relationships among concrete observable variables or events.” (Van de Ven 2007, 118) This understanding of propositions and hypotheses is in line with the philosophy of science called realism (in contrast to, for instance, relativism, Van de Ven 2007).

	Coping capacity	Participative capacity	Adaptive capacity	Transformative capacity
Level 1: intra-organizational	SR _{1c}	SR _{1p}	SR _{1a}	SR _{1t}
Level 2: organizational	SR _{2c}	SR _{2p}	SR _{2a}	SR _{2t}
Level 3: inter-organizational	SR _{3c}	SR _{3p}	SR _{3a}	SR _{3t}

Table 2 – Analyzing levels of social resilience: 12 types of resilience propositions

Some comments may clarify the purpose of this quasi-formal resilience conceptualization. Firstly, resilience statements are arranged primarily with regard to social levels. This reflects our organizational-institutional approach to social resilience with the emphasis on micro- and meso-dynamics for understanding collective action. Level-specific propositions are then differentiated with regard to social capacities. Secondly, we assume that propositions that refer to transformative capacities are – regardless of the level – the most ambitious analytical statements (see the growing literature on processes of transition and transformation in general, in cities and regions in particular, e.g., Egermann & Hutter 2014). Thirdly, as introduced above, issues of coping, participation, adaptation, and transformation may show relations characterized by tensions on multiple temporal as well as spatial scales. Hence, Table 1 does not emphasize 1-to-1 relations of specific propositions with “the real world”. In contrast, Table 1 may be used in research and perhaps also in practice heuristically to conceptualize the questions that need answering to promote social resilience in the context of planning and risk governance. Questions may emerge out of combining multiple resilience statements (e.g., SR1p - SR2c - SR3a, see Hutter & Lorenz 2017 for this example). Chapter 3 elaborates further on the advantages of our resilience conceptualization, but also on limits to its usefulness.

3 REFLECTIONS ON SOCIAL RESILIENCE AS MATRIX OF LEVELS AND CAPACITIES

Chapter 2 conceptualized social resilience as a “matrix” of social levels (intra-organizational, organizational, and inter-organizational) and as a set of capacities (coping and participative capacity as well as adaptive and transformative capacity). We summarized some social resilience research with regard to these levels and capacities. Overall, resilience research in general, social resilience research in particular, seems to be highly dynamic. Furthermore, policy makers in natural hazard and disaster management as well as in collective efforts for spatial planning and sustainable development increasingly use the notion of resilience to suggest ways to improve policies and practices in the face of the manifold pressing problems of our time (e.g., Tierney 2014). For instance, Jon Coaffee and Peter Lee (2016) outline policies and practices to enhance resilience in the context of climate change, security concerns in urban regions, and large-scale disasters.

Given these dynamics of resilience research and the request of policy makers and practitioners for valid as well as user-friendly and context-specific results of scientific analysis, a widely acknowledged research paradigm about resilience could be helpful to facilitate joint qualitative as well as quantitative analysis and to provide standards and research contents for the assessment of resilience with regard to various temporal and spatial scales. However, as it is now, no such unifying resilience paradigm exists in research and practice (e.g., Coaffee & Lee 2016). Quite the contrary, we observe an increasingly diverse “landscape” of research approaches and frameworks for analyzing and assessing resilience.

Conceptualizing social resilience as “matrix” of levels and capacities adds to this diversity through combining an inclusive approach with the analysis of multiple social levels and through reworking the set of resilience capacities. We encourage scholars of resilience to consider this complexity. Chapter 3

clarifies why they should try to do so. We also point to some limitations of understanding social resilience as matrix of levels and capacities.

Overall, this chapter uses two criteria to reflect on social resilience as matrix (Corley & Gioia 2011): (1) the criterion of originality that refers to the question to what extent a research contribution provides new insights into the phenomenon in question; (2) the criterion of usefulness that refers to the question whether researchers as well as practitioners may benefit from using the research contribution in the face of their own complex, dynamic, and uncertain context conditions.

The following argues that the concept of resilience as matrix provides new insights in the context of planning and risk governance. Furthermore, we are confident that the concept may prove useful in empirical resilience research. However, policy makers and planning practitioners who are eager to analyze, measure, and assess resilience with regard to spatial planning as well as cities and regions may ask about the usefulness of the concept in “the real world”.

3.1 WHY CONSIDER RESILIENCE AS MATRIX?

The concept of resilience as matrix does not claim to be comprehensive in relation to the “social world” in its given complexity. But, we see the concept is in line with an organizational-institutional approach to “governance in turbulent times” (Ansell et al. 2017). This has implications for how we answer the question why students (in a broad sense) should use the concept in their own research. The following highlights three reasons:

Seeing resilience through the sociological eye: The expression “sociological eye” is attributed to Everett Hughes (e.g., Whittington 2007). Of course, seeing resilience through the sociological eye may take on many forms, because sociology is characterized by diverse theories and methods (e.g., see Joas & Knöbl 2013 on social theory). However, it seems justified to state that current sociologies have some commonalities. For instance, they enhance at least two abilities of observers in and of the social world: Firstly, they consider the limits of rationality of actors even if these actors try to show a strong sense of human agency. Secondly, they emphasize differences in perception, interpretation, and learning of actors also in the face of similar context conditions. Our resilience as matrix pays especially attention to differences related to formal and informal organization (Scott 2014). Students of resilience that are interested in planning by organizations are encouraged to use the given resilience conceptualization.

Facilitating strategic research decisions: Discussions about processes of social differentiation and integration have a long tradition in sociology and social psychology (e.g., Weick 2001, Joas & Knöbl 2013). Resilience as matrix supports both researchers that are motivated to focus on specific features of a selected level (e.g., resilience of small social groups in the context of wider organizational forces) and researchers that are ambitious to study multiple social levels and their relations (“cross-level analysis”). Resilience as matrix may also help to focus the scope of dealing with disturbances in specific policy fields. Studies that encompass the whole spectrum of capacities may highlight a selected level. Studies that consider multiple levels may place a specific capacity in the foreground of investigation. We hypothesize that empirical studies will often be characterized – more or less explicitly – by a selective focus, because comprehensive studies are difficult to do (e.g., due to resource constraints). Hence, the concept of resilience as matrix may facilitate strategic research decisions: it allows focusing on specific research questions without neglecting other levels or relations.

Understanding interactions, especially tensions, between levels and capacities: Resilience research and particularly quantitative conceptualizations of resilience often suggest that capacities function in an additive manner, but neglect the interactions or interferences of capacities and different social levels. These interferences might be constructive, i.e. amplifying each other and contributing to an overall increase in resilience. But, and this is most important for us, there are also non-additive interferences to be found, which can also lead to diminished resilience, if such tensions, trade-offs and side effects cross levels and capacities are not considered. Studies that focus on multiple capacities of social resilience have the opportunity to consider such tensions inherent in collective efforts of pro- and reactively dealing with unexpected disturbances. Such studies are especially challenging with regard to the interpretation of tensions based on empirical data. For instance, teams with members from multiple organizations and with the task to analyze future unexpected disturbances need to consider the challenge of communicating team

results in the context of how the participating organizations run right now. Issues of coping, adaptation, and transformation tend to show multiple tensions that may be characterized as trade-offs, dilemmas or even paradoxes¹. The choice of interpretation of tensions is important for how team efforts are perceived by the participating organizations. We hypothesize that understanding tensions between capacities is especially fruitful from the viewpoint of research (e.g., see Wiechmann 2008 on tensions in strategy development in cities and regions, Healey 2009 on tensions of strategic spatial planning). However, emphasizing tensions may be risky or at least unfavorable (even though often needed) in the context of policy making and planning practice for resilience which brings us to the task of considering the limitations of resilience as matrix.

3.2 LIMITATIONS OF RESILIENCE AS MATRIX

Conceptualizing social resilience as matrix of levels and capacities has some limitations which should nevertheless be emphasized. This is not surprising, because “true” research, whether engaged or not, always has limitations (e.g., see Van de Ven 2007 on “engaged scholarship”). To clarify the usefulness of our concept of social resilience, it is therefore worthwhile to think about the limits of our argumentation. From a research perspective, the following briefly reflects on limitations in theory and empirical research, the assessment of resilience, and, last but not least, policy and practice (see Hutter & Lorenz 2017 for more details).

Limitations of theorizing and empirical research: In general, theorizing and empirical research on resilience as matrix is challenging and resource-intensive work. Given some strategic decisions about the selective focus of a study and appropriate research design and resource decisions to implement the intended work, we expect that limitations will especially arise due to the challenge of grasping the processual character of social resilience capacities. Researching social capacities as processes implies making some “tough” research decisions (e.g., defining the notion of “process”, Van de Ven 2007). Social capacities are not just there and easily detectable through, for instance, document analysis and qualitative interviews. Social capacities emerge (or vanish) through complex and dynamic processes that may be characterized by high uncertainty and dynamic conflict. How organizational resilience, for instance, emerges out of specific processes has been studied intensively for “High-Reliability Organizations (HRO)” (Weick & Sutcliffe 2015). HRO-inspired research needs careful adoption in the context of planning and risk governance (e.g., Hutter 2016).

Does the concept help to measure and assess resilience? If the reader expects some direct input or blueprint into efforts to analyze and assess social resilience at multiple levels in cities and regions, the tentative answer would be at best “Yes, but...”. Resilience as matrix may help as a simple classification schema to define indicators or sets of indicators for the measurement and assessment of social resilience. The set of 12 resilience propositions could serve as guidelines for defining and operationalizing a specific assessment approach to resilience. However, currently there is no shortage in resilience assessment efforts (for an overview see, again, Coaffee & Lee 2016). Limitations arise out of the high diversity in basic assumptions, in theoretical considerations underlying assessment attempts, and in empirical approaches to measure and assess resilience. Due to this situation there are, as in social science in general, limitations for integrating approaches to measurement and assessment in line with basic principles of qualitative and quantitative research. We assume that resilience as matrix is more in line with qualitative social resilience research. However, we hope that future research efforts will lead not only to comprehensive social resilience studies based on our conceptualization, but also to more integrative qualitative as well as quantitative research (see van de Ven et al. 1999 for an example in innovation research).

Limitations with regard to policy and planning practice: Obviously, this paper is targeted towards a resilience research audience and less so towards policy makers and planning practitioners. Social resilience, at least in our understanding, arises out of the synthesis of diverse capacities at specific levels

¹ Hence, tension on the one hand and trade-off, dilemma, and paradox on the other differ in levels of abstraction. Tension is the more abstract term. In “the real world”, actors may interpret tensions as, for instance, trade-offs, dilemmas, or paradoxes with significant consequences for planning and risk governance (e.g., Wiechmann 2008, Healey 2009).

of social order. Social processes of synthesizing issues of interpretation, power, and participation, as well as issues of learning, adaptation, and transformation cannot be addressed through checklists, recipes that resemble recipes in cookbooks, and simple causal models. Implementing social resilience in practice requires continuous efforts of agents that desire to enhance social resilience and that are able to consider such diverse issues as constructing and communicating meaning as well as playing power games in risky settings. Resilience as matrix summarizes some social resilience research findings that may serve as a springboard to future research activities with high policy impact. It is our hope that the conceptual arguments proposed here may support future research work that gives policy makers and planning practitioners the opportunity to facilitate social processes of resilience making.

4 CONCLUSION AND OUTLOOK

It is now widely acknowledged that discussions about resilience in research and practice have led to an abundance of concepts, theories, methods, empirical findings, assessments and ideas how to improve policy and practice. This abundance may be interpreted as a threat to the usefulness of resilience for research and practice (e.g., Brand & Jax 2007). But this abundance may also be interpreted as sign of the liveliness of debate and of the importance of resilience in an uncertain, complex, and dynamic world. This paper clearly follows the pathway of the latter rather than the former. However, resilience researchers on this pathway face further challenges of strategic choice.

For instance, Pelling describes a “conservative” notion of resilience within an overall framework to analyze climate change adaptation through resilience, transition, and transformation (2011, 51). In contrast, some planning researchers see resilience as the overall guiding concept to analyze policies and practices for more climate change adaptation, security, and better disaster management in urban regions. We follow Coaffee and Lee (2016) in transcending a conservative concept of resilience by taking issues of coping, participation, and adaptation as well as transformation into account.

To avoid inappropriate fuzziness in resilience analysis, we argue to specify the spectrum of relevant research propositions through identifying the social levels of organizing for resilience in urban and rural regions (Hutter & Lorenz 2017). This is in line with recent attempts to promote an organizational-institutional approach to “governance in turbulent times” (Ansell et al. 2017). Therefore, capacities of resilience may vary with regard to specific social dynamics on intra-, organizational, and inter-organizational levels of organizing to deal with unexpected disturbances. And what is even more important: cross-level social dynamics may be crucial for how successful collective efforts of dealing with unexpected disturbances are.

Of course, there are further dimensions and related variations that could be taken into account (e.g., see Van Wijk et al. 2003 on knowledge and networks and Zimmermann 2010 on knowledge and planning). However, we are confident that our conceptualization may serve as one analytical and heuristic concept among others in future theoretical and empirical research on resilience, planning, and governance. Like in the case of innovation and strategy research, we expect significant research progress from medium-sized to large projects that seek to integrate theoretical discussions, empirical work through qualitative as well as quantitative methods, and practical considerations (e.g., Van de Ven et al. 1999, Van de Ven 2007). It is unlikely that discussions about resilience as hype or hope will vanish. However, resilience in planning research may display similar pathways like the ones that can be observed in psychology that has been analyzing resilience now for decades (e.g., Masten 2014).

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ID 1482 | CHINESE EXPERIENCE IN DELTA CITIES: TO WHAT EXTENT DOES GUANGZHOU CITY'S SPATIAL PLANNING SYSTEM FACILITATE THE INITIATIVES IN RESOLVING FLOOD RISK?

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ABSTRACT: Spatial planning is supposed to denote innovations in resolving flood risk. However, taking spatial action is never an easy task. This study aims to explicate the reasons for this difficulty by illustrating why the urban flood risk mitigation is struggling to be tackled locally despite the growing flood risk in delta cities. It does so by investigating the recognition of flood risk in the spatial planning system. Specifically, Guangzhou, a city located in the Pearl River Delta and vulnerable to fluvial, pluvial and coastal flooding, is taken as an example in this research. By using the method framing analysis, the paper finds that the road to face the flood risk in Guangzhou is still at an emerging process from informal activities to formal legislation. With a pace changing from a dedicated to an integral issue, there is an appeal for a combination between nature-based options and engineering options. In spite of these progress, there is still a mismatch between this policy intent and real practitioners. Due to the weak sense of identity in flood-proof initiatives among practitioners, the road toward a more resilient city is challenging.

KEYWORDS: Climate change, flood risk, urbanisation, spatial planning, framing analysis, Pearl River Delta, Guangzhou

1 INTRODUCTION

Flood risk, greatly increased by climate change, is remarkably affecting global cities. It poses a considerable threat to the safety and social-economic development by causing considerable losses. Against this background, spatial planning is increasingly recognised as an essential tool and process to mitigate flood risk and raise the cities' ability to face climate change (Gersonius et al. 2008; Roggema 2009, 2014). On one hand, it works through multiple routines by locating suitable types of land use, arranging activities, regulating scales of development and designing physical environment to avoid or decrease the impact of the potential flood (White et al. 2007). By this, many spatial policies, strategies, plans and projects (in this study, they are collectively named as spatial development) are formulated. On the other hand, water sees no boundaries. Flooding is increasingly regarded as a cross-cutting issue which requires the contribution from different professions. Spatial planning, supported by other relevant fields such as water management, is regarded as a decision-making process which provides the opportunities for mutual learning. Thus, the role of spatial planning in enhancing negotiation stands out.

However, incorporating flood risk into spatial planning is still challenging in many delta cities. Even in the pioneer cities, such as Rotterdam in the Netherlands, applying spatial efforts to resolving flood risk is never an easy task. The situation seems worse in new urbanising flood-prone areas equipped with limited experience in dealing with water, for example, Guangzhou city. It is one of the most vulnerable delta cities