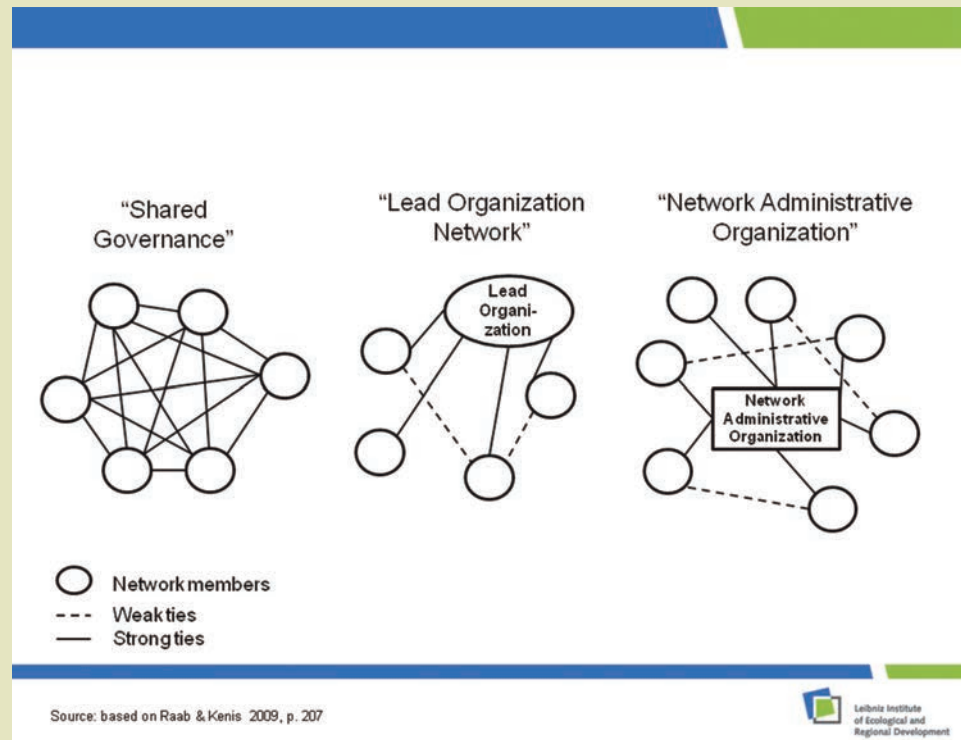# DEALING WITH THE RISK OF NATURAL HAZARDS THROUGH NETWORKS OF PLANNERS – THE CASE OF KLIMA*FIT**

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Three Forms of Network Governance. Source: elaborated by the author, based on Raab & Kenis, 2009.

ABSTRACT

Networks and networking are important for dealing with the risk of natural hazards. However, up to now, it is an open question which types of networks contribute to planning and risk management under certain circumstances. The paper focuses on the type of a goal-oriented network. It uses evidence from a case study about a network of planners, mainly regional planners, in the Dresden region in Germany. The distinction between goal orientation and goal directedness is used to show the following: goal directedness of networks involves intensive and continuous processes of sense making (Weick, 1995) to specify the network goal. The governance form of a lead organization network facilitates goal specification.

KEYWORDS

TRATAR EL RIESGO RELATIVO A LOS DESASTRES NATURALES A TRAVÉS DE REDES DE PLANIFICACIÓN - EL CASO DE KLIMA*FIT*
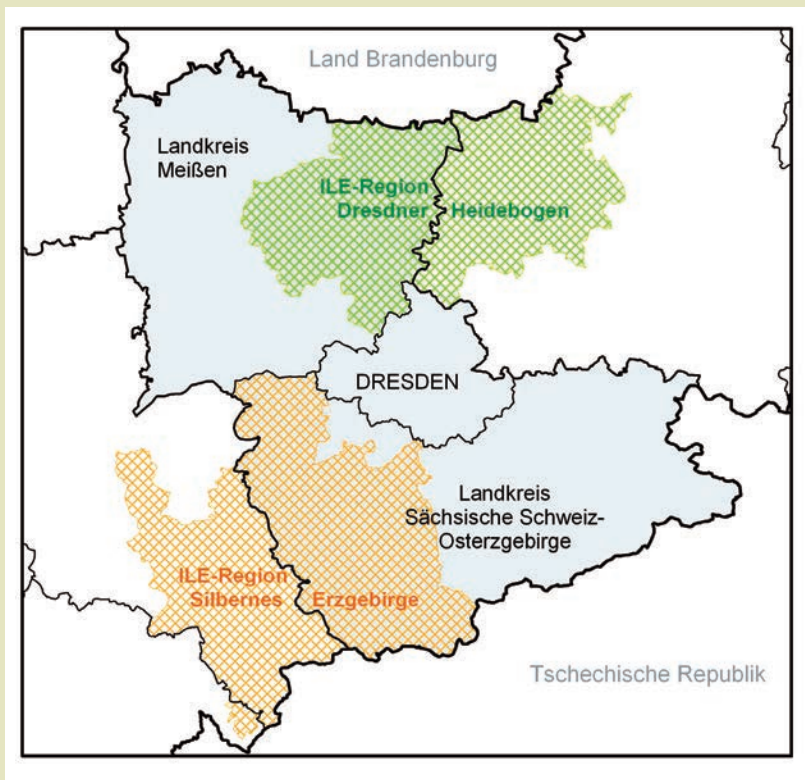
The planning region "Oberes Elbtal Osterzgebirge" and two project-relevant ILE-regions (Note: the planning region consists of the "Landkreis Meißen", the City of Dresden, and the "Landkreis Sächsische Schweiz-Osterzgebirge"). Source: elaborated by the author.

RESUMEN

Redes y networking son importantes para hacer frente a los riesgos asociados a los peligros naturales. Sin embargo, hasta ahora, aún es una pregunta abierta en cuanto a qué tipos de redes contribuyen a la planificación y gestión del riesgo en determinadas circunstancias. El artículo se centra en un tipo de red con objetivos. Utiliza los resultados de un estudio de caso de una red de diseñadores planificadores, principalmente planificadores regionales, en la región de Dresden, Alemania. La distinción entre la meta a seguir y aquello que orienta esta meta (la directriz) se utiliza para demostrar lo siguiente: las directrices de las redes involucran un proceso continuo e intenso de construcción de sentido (Weick, 1995) que determina el objetivo de la red. La gestión y dirección de una red organizacional en forma de gobernanza, facilita la definición de los objetivos.

PALABRAS CLAVE

Gestión del riesgo de inundación, Red de metas orientadas, Heterogeneidad, Red de gobernanza, Tamaño de la red, Planificación regional, Erosión del suelo

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INTRODUCTION

In principle, dealing with the risk of natural hazards involves an ambitious agenda that covers, for instance, issues of knowledge creation and integration, of strategy development, and financial resources, as well as of participation and governance. Actors of various societal spheres are important for dealing with natural hazards (e.g. actors from local communities, the political sphere, administration, research organizations). No wonder then that both practitioners and researchers highlight the relevance of networks and managing networks for connecting people and organizations (Kuhlicke et al., 2012). However, up to now, it is an open question which types of networks (e. g., Diller 2002, Powell & Grodal 2005, Klijn 2008, Raab & Kenis, 2009) contribute to dealing with the risk of natural hazards under certain circumstances. This paper starts with the assumption that networks and network management are not inherently "good" and effective. The conditions under which certain types of networks contribute to planning for reducing the risk of natural hazards need to be specified and explained.

To do this to a certain extent, the paper focuses on *goal-oriented networks* (Provan & Kenis 2007, 231, use the term "goal-directed network", see also Kilduff & Tsai, 2003). The paper adopts a network management perspective that pays ample attention to the structural features of networks and processes of network management (Klijn 2008, see Sørensen Torfing 2009, for a more macro-oriented perspective on networks). The paper argues that the specifics of goal orientation of network actors are crucial variables in understanding and explaining the effectiveness of networks (Vlaar et al. 2006, Provan & Kenis, 2007).

Networks are important to connect actors from various societal spheres and institutional levels of planning. Given that actors are significantly influenced by conditions in these spheres (e.g. formal institutional constraints, informal ways of solving problems), it is necessary to demonstrate *that network actors actually work together in the direction of a goal at the network level* (Huxham & Vangen, 2005). Goal-orientation of networks does not necessarily imply and lead to the goal-directedness of decisions and actions of network members. Goal-directedness of decisions and actions is a specific achievement. Against this background, the paper asks the following question: *How do planners create goal-directedness in networks that aim to reduce the risk of natural hazards?*

The paper explores this question based on a case study about a goal-oriented network of planners, mainly regional planners, in the Dresden region in Germany (Hutter, 2012). The network deals with the challenge of adapting to climate change in the region of Dresden. The network addresses issues of dealing with natural hazards in the context of climate change adaptation. The author of the paper was intensively involved in establishing the network and in network management, especially with regard to issues of long-term planning. The paper is an attempt to reflect on these experiences and to propose some generalizations about the case (Yin, 2009). In the future, the findings of the paper may feed into more theory-oriented approaches to network development (based, for instance, on the work of Borgatti and colleagues, Jones et al. 1997, Borgatti & Foster 2003, Borgatti & Halgin, 2011). The following section presents the concept to structure the case study. Then, the case of a goal-oriented network of planners is introduced. The paper ends with conclusions for research and practice.

THE CONCEPT OF A GOAL-ORIENTED NETWORK

In its most general form, the term "network" refers to a set of nodes and a set of ties that connect the nodes to some extent (in the social sciences, nodes are called network actors). This general notion is used in various scientific disciplines and policy contexts. The paper mainly refers to the literature about network relations between organizations (inter-organizational network, see Borgatti & Foster 2003, Provan & Kenis 2007, Klijn 2008, Raab & Kenis, 2009). The relevance of networks of organizations in the context of dealing with natural hazards cannot be overestimated, especially when organizations seek to develop innovative solutions at the boundaries of knowledge (Powell & Grodal 2005, Van de Ven, 2007).

Core features of a goal-directed network: It is important to distinguish between different types of networks (Diller 2002, Kilduff & Tsai 2003, Powell & Grodal 2005, Wiechmann 2008, Raab & Kenis, 2009). This paper uses the concept of a goal-oriented network to address issues of network management in the context of dealing with natural hazards. This concept has the following core features:

- *Goal orientation at the network level:* A network of organizations declares to realize a goal that is communicated to external organizations as the desired joint output of network actors in the future. The rationale to establish a network is based on the belief that new ties between organizations are necessary to realize the goal. The paper focuses on a type of network with an initial goal statement that needs some specification to be instructive for interpretations, decisions and actions of network actors. Goal-oriented networks refer to multiple levels of social relations (the group, the organization, the network, see Knight 2002, Huxham & Vangen 2005, Raab & Kenis, 2009).

- *Collaboration between network actors:* In general, networks can combine collaborative with competitive relations (Powell, 1990). A goal-oriented network in particular is based on the belief that collaboration between network actors will lead to the realization of the network goal (Huxham & Vangen 2005, Ansell & Gash, 2007).

- *Formal and informal processes of network management:* A goal-oriented network shows some formalization of interaction between the network actors (Ansell & Gash, 2007). The term "formalization" refers to both processes of agreeing on and codifying formal structures, procedures, and so forth, and the output of this process in terms of network-specific documents (Vlaar et al., 2006). Of course, informal processes of communication are also relevant for goal-oriented networks (Ring & Van de Ven, 1994).

Provan and Kenis (2007) speak of "goal-directed networks". We prefer the term "goal-oriented" because it is the main question of this paper how (and to what extent) networks of organizations develop goal directedness.

Goal-oriented networks are characterized by a complex set of structural features, network processes, and outputs. There is no "grand theory" that covers all these aspects of goal-oriented networks (e. g., Provan & Sydow, 2008). We argue that goal orientation in the context of dealing with natural hazards is significantly influenced by four kinds of variables: 1) processes of making sense of the network purpose to change goal orientation into goal directedness, 2) network size, 3) composition of network actors, and 4) network governance form.

From goal orientation to goal directedness: The distinction between goal orientation and goal directedness is crucial to understand this paper. Goal orientation means that network actors are aware of being involved in a network that declares to realize a goal at the network level. Goal orientation is, as mentioned above, the rationale to establish the network. However, this does not necessarily imply that the "official" goal statement is actually of high relevance for interpretations, decisions and actions of network actors. A network goal statement may only be the "façade" of a network to justify its existence in the face of powerful external actors, like organizations that provide resources to the network. Behind this "façade", network actors may follow their own agendas that are only loosely coupled to the network goal, if at all (Meyer & Rowan 1977, Scott, 2008). Goal orientation is a core network feature, whereas goal directedness may vary with regard to, among others, the willingness, capabilities, and resources of actors to make sense of a network goal. Goal directedness means that an initial network goal statement is the content of intensive and continuous processes of interpretations, decisions and actions of network actors. It encompasses at least the following two processes:

- *Specification:* The paper considers networks with initial goal declarations that are quite abstract and/or ambiguous. Goal directedness is a process that specifies the content of the goal statement and how network actors interpret the statement. "Goal-directed network trajectories develop around *specific* goals that members *share*." (Kilduff & Tsai 2003, 89, italics added) Healey (2009, 449) uses the similar, but more ambiguous term of "framing selectively" to argue that goal-directedness "involves a selective focus. It offers a way through the morass of issues, ideas, claims and arguments to identify one or more concepts, images and/or principles which are both meaningful and give direction."

- *Implementation:* Network actors interested in goal directedness are also concerned about delivering in a more *formal* way what the network promised to deliver at the outset of establishing the network. Implementation means demonstrating through documented evidence that an initial goal statement has actually been realized in terms of specific network outputs, whatever the content and (argumentative) quality of these products may be.

We assume that making sense of the network goal through some specification and implementation is necessary for network effectiveness and external legitimacy (Provan & Kenis, 2007). This assumption is in line with an interpretative approach to understanding and explaining networks and organizations (Aldrich & Ruef, 2006, 43-46). An interpretative approach sees goal orientation and goal directedness, especially in case of networks with high or modest heterogeneity (Eden & Huxham 2001, Huxham & Vangen, 2005), as unstable social processes "constantly at risk of dissolution" (Aldrich & Ruef, 2006, 45). Network actors face the challenge of continuously making sense of the network goal (Weick 1995, Vlaar et al., 2006). This social process is influenced, among others, by the network size, the composition of actors, and especially the network governance form.

Network size: The term "size" may refer to various features of a goal-oriented network. A network may increase its size due to the entry of new network members. Size is measured by counting the network actors. A network may grow also because of new ties between network members that were previously unconnected. Size is measured by counting the ties between network actors. This paper primarily refers to the former understanding of network size. It is assumed that network size is influenced by, among other factors, funding conditions for the establishment of goal-oriented networks. Network size is also influenced by the willingness of actors to participate in a network based on voluntary, perhaps more

informal resource contributions. Furthermore, network research has shown that existing network relations significantly influence the emergence of new networks (Gulati et al., 2002). Why is network size important for network management? Firstly, network size can have an influence on the degree of formalization of interactions between network members. Large networks are more involved in formalization than small networks. However, there a complex causal relations between network size and management that will be explored in the case study. Secondly, network size influences what network actors and external actors expect from a network as appropriate output. To put it simple: Large networks tend to evoke high expectations about the contribution of a network to dealing with natural hazards. Actors in small networks may have the impression that they are forced to be pragmatic about what is expected from the network right from the outset of networking.

Heterogeneity: The meanings of the term "heterogeneity" may also vary. Here, the term refers to differences between network actors that are strongly influenced by formal and informal institutional conditions of these actors. The term "institution" covers not only regulatory institutional constraints, but also normative and cognitive-cultural institutions that are important to understand why an actor interprets, decides and acts like he or she does (Scott 2008). Hence, the meaning of the term "network heterogeneity" is much broader than the heterogeneity of actors. Heterogeneity depends on complex conditions (see Ansell & Gash 2007 for trying to provide a summary), for instance, the history of network relations and processes of agenda setting in regions (Wiechmann, 2008). Sandström and Carlsson (2008) argue that networks with high heterogeneity are necessary, but not sufficient conditions for finding innovative solutions in the context of natural resource management. Network actors with heterogeneous institutional backgrounds provide an equally heterogeneous pool of information, knowledge and referrals that are important for finding innovative solutions. Vlaar and colleagues (2006) argue that goal-oriented networks with high heterogeneity require intensive and complex processes of sensemaking (Weick, 1995) to capitalize on the potential of heterogeneous networks to find innovative solutions (Van Wijk et al., 2003). These authors agree that high heterogeneity can be both a blessing and a curse for goal-oriented networks (Benz & Fuerst, 2002). High heterogeneity may be a blessing if network actors find a way to develop a common understanding as a basis for jointly specifying and implementing the network goal. High heterogeneity may be a curse if it prevents the network actors from developing a focused common agenda that is specific enough to direct interactions.

Network governance form: A network can be understood as a form of governance that is compared with markets and hierarchies as alternative governance arrangements (see the seminal article by Powell, 1990). This paper takes a closer look at goal-oriented networks and how they are managed based on a specific "form of network governance" (Provan & Kenis 2007, 233, Raab & Kenis 2009, 207, use the term "governance forms of whole networks"). The term refers to network structures that shape, firstly, who the main decision makers are with regard to goal orientation at the network level and that shape, secondly, how these decisions are made. Provan and Kenis (2007) distinguish between three forms of network governance:

- A *lead organization network* is a goal-oriented network in which one organization shapes the interpretations and decisions about the goal of the network and about the ways to realize it. Kilduff and Tsai assume (2003, 87-110) that goal-oriented networks are usually led by one powerful organization with the internal and external legitimacy to steer network development. In this paper, we consider further network governance forms.

- A *network administrative organization* is a network that is characterized by the establishment of a *new* network-specific administrative unit responsible for network management. All network actors have strong ties with the administrative unit. Often, they contribute to establish the financial basis of the unit.

- A network with *shared governance* is a network in which all network actors, in principle, have the duty and possibility to shape fundamental decisions about the goal of the network as well as ways of goal specification and implementation (Geddes 2008 uses the term "partnerships"). Provan and Kenis (2007) argue that shared governance is effective in small networks that require only limited professional network management competencies.

The governance form of a goal-oriented network may be due to deliberate decisions of powerful actors at the outset of establishing the network. The governance form may also develop in a more evolutionary way without a "mastermind" choosing the form of the network. The governance form of a goal-oriented network is difficult to see and control because the term refers to the whole network and not to the perceptions of single network actors. This may hold especially for large networks. However, we follow Provan and Kenis (2007) who argue that the governance form of a network is crucial for goal specification and implementation and therefore for its effectiveness. The following case study illustrates this general statement.

KLIMA*FIT* – A NETWORK OF PLANNERS IN THE DRESDEN REGION IN GERMANY

In the Dresden region, it is possible to observe various goal-oriented networks that seek to build capacities for natural hazards (Hutter, 2013). The KLIMA*fit* network is a small network led by regional planners and supported by national government. The network deals with issues of adapting to the consequences of climate change at regional level, especially with regard to flood risk management and dealing with soil erosion due partly to intensive rainfall. KLIMA*fit* can be understood as a *project network* (Windeler & Sydow, 2001) with a limited duration from July 2009 until April 2013. KLIMA*fit* emerged in the context of the large project network REGKLAM about climate change adaptation in the Dresden region (details about the two networks are given below). REGKLAM was established in July 2008 and will end in December 2013 (Hutter, 2013). The author was, as already mentioned, involved in establishing the KLIMAfit network. He was responsible for supporting the regional planners in implementing the network goal (Hutter, 2012).

The emergence of new networks is an iterative and dynamic process (Ring & Van de Ven, 1994). Network actors try to make sense of relations between possible desired consequences of networking ("goals") and the means and the resources to realize these consequences. This assumption about network emergence helps to understand why initial network goal statements may be rather abstract and why they need specification. Network actors assume only after several rounds of making sense of the (possible) network goal that others are reliable and trustworthy. Until then, network actors prefer to commit only to abstract goal statements that leave enough leeway for interpretation while network relations develop further and transaction costs become clearer (Ring & Van de Ven, 1994, Vlaar et al., 2006).

In line with this understanding of network emergence, KLIMA*fit* was established by representatives from the regional planning office based on communication with potential network partners in the context of meetings of the existing large REGKLAM network (Hutter, 2013). The possibility to apply for funding organized by national government within

a program about innovative solutions for climate change and spatial planning triggered this process of communication between the potential network partners of KLIMA*fit*. Regional planners claimed "ownership" of KLIMA*fit* right from the beginning and were willing to make significant resource commitments, also to comply with the many detailed procedures and requirements defined by national government.

From goal orientation to goal directedness: KLIMA*fit* is characterized by an intensive process of goal specification that can be divided into three phases:

KLIMA*fit* started with a rather abstract overall goal statement to justify networking. The network declared to formulate a strategy that 1) leads to the "implementation" of existing regional planning statements for climate change (as mainly defined in the existing and legally approved regional plan) and that 2) takes non-statutory planning, especially regional management, more intensively into account. This goal statement corresponds with the well-known argument of planners and planning researchers that statutory planning is not enough to consider long-term challenges with high uncertainty like climate change and that applying a complex portfolio of instruments based on intensive collaboration and networking is needed (e.g. Greiving 2010, Klemme, 2011). Other parts of the application for funding were much more detailed with regard to climate change and the conditions of the Dresden region.

In March 2011, KLIMA*fit* provided some interim results defined as products: Product No. 1 included detailed empirical results, for instance, about climate change at regional and sub-regional level to consider the interests of regional managers as well as survey results about the relevance of existing regional planning statements for local planning. Product No. 2 gave an overview of recommendations for regional planning and regional management in the Dresden region to consider climate change adaptation more systematically in future planning processes. These recommendations focused on a relatively broad agenda of planning issues (e.g. increasing land used for forestry at specific locations within the region, issues of soil erosion and flood risk management, topics of regional management in rural areas, implementation issues at multiple levels of strategy making).

From April 2011 to April 2013, national government continued to support KLIMA*fit* based on a more selective choice of planning issues. Regional planners and national government agreed to focus on two issues: Firstly, *flood risk management* to enhance the influence of regional planning on the building stock, especially with regard to extreme flood events; secondly, issues of *dealing with soil erosion* due partly to intensive rainfall through a more selective process of prioritizing the most vulnerable areas in the Dresden region. Planners expect that this increases the likelihood of implementing some measures for reducing soil erosion.

In this process of goal specification, the regional plan served as a *reference point* in many network communications, either to specify the content of further processes of statutory planning or to justify activities that were seen as complementary to statutory planning. The following shows the structural conditions of this process of goal specification.

Network size: KLIMA*fit* was a relatively small project network. The regional planning office was the lead partner, supported by the research organization "Leibniz Institute of Ecological Urban and Regional Development (IOER)" in Dresden. Representatives of two and then three regional management offices acting on behalf of municipalities in rural areas in the Dresden region were also actors of the project network. Further network actors were

the "Saxony State Interior Ministry (SMI)" represented by an official responsible for spatial planning and a state agency that supports the "Saxony State Ministry for Environment and Agriculture (SMUL)" with regard to knowledge about climate change and climate change adaptation. Retrospectively, it is possible to observe strong ties between these seven organizations as network partners. Weak ties developed during project network implementation to include actors relevant for issues of, for instance, soil erosion, flood risk management, and regional management on a temporary basis into the network (e. g. representatives of municipalities, authorities responsible for forestry in the Dresden region, the "Technische Universität Dresden"). Due to the contrast in network size between REGKLAM and KLIMA*fit*, network actors agreed at an early stage of working together that the expected network output would be pragmatically defined and much more limited than in the case of REGKLAM. However, network actors communicated this expectation in a more *informal* way in the first and second phase of goal specification. This may be due partly to the context of funding and the overall program of national government on climate change and spatial planning. National government as well as supporting research organizations and consulting firms raised a broad agenda of planning issues and related questions which made an early "open" communication about a "selective focus" of KLIMA*fit* somehow difficult. In a market context, it is probably easier to agree on a "niche" at an early stage of networking when the resource basis is as limited as in the case of KLIMA*fit* (e.g. less than 100.000,00 EUR funding by national government for the whole project duration, Hutter, 2012).

Network governance form: High reliability characterized the process of working together in KLIMA*fit* in all phases of goal specification. The relatively high degree of formalization (relative to the network size) facilitated continuous communication between the network actors and effective reporting mechanisms. However, it would be misleading to understand KLIMA*fit* as a network with the governance form of shared governance. The regional planning office was the lead organization from the outset of project network development. Network actors never questioned the lead role of regional planning (high internal legitimacy). The planning office controlled the communication with national government and presented the main findings of the network (high external legitimacy). Regional planners also defined the main parameters of the process of goal specification (e. g. the regional plan and planning procedures as reference points for specifying the network goal). However, within this framework set by the planning office network actors had significant leeway for discussion and for working out the details of advancing regional planning and regional management. As mentioned in the introduction to this case study, the decision to establish a network as a lead organization network was to some extent deliberate and shaped by the process of applying for funding by national government. We propose that the governance form is more important for a successful process of goal specification than the size or the heterogeneity of the network (Kilduff & Tsai, 2003).

Modest heterogeneity: Strong leadership based on the network governance form of a lead organization network facilitated goal specification in KLIMA*fit*. A further contributing structural factor was the modest degree of heterogeneity of actors. The group of repeatedly interacting individuals that represented the seven KLIMA*fit* network actors shared a similar understanding of the strengths and weaknesses of regional planning and regional management. To put it simple, KLIMA*fit* was a small network of spatial planners and planning researchers. Actors with a moderate or high "cognitive distance" (Nooteboom 2008, 616) to planning participated mainly in events organized by the network (e.g. representatives of land owners, farmers, forest management, citizens). Network actors focused on the question how to structure and interpret the high complexity and heterogeneity of contents that are relevant to build capacities for natural hazards in the context of climate change

(e. g. assessing and dealing with uncertainty of climate change variables, analyzing land use changes with a complex spectrum of evaluation criteria, discussing different approaches to understand and analyze flood risk related to extreme flood events).

CONCLUSIONS

KLIMA*fit* was a small project network led by the regional planning authority in the Dresden region. Network actors created goal directedness through an intensive process of goal specification that lasted for more than three years. Strong leadership shaped this process. Network actors that were connected through strong ties were mainly planners or planning researchers. Joint attention of the network actors to the regional plan and statutory planning made it possible to find "a way through the morass of issues, ideas, claims and arguments" (Healey 2009, 449) that are relevant for dealing with the risk of natural hazards in the context of climate change adaptation in regions. It is likely that some project network results will feed into the preparation of the next version of the regional plan (due in approximately five to six years).

The case study about the network KLIMA*fit* should motivate planning researchers to assume that configurations of contents, processes, and structural network features are important for network effectiveness. Practitioners attempting to establish networks for dealing with the risk of natural hazards are encouraged to allocate their scarce attention to issues of clarifying and organizing the network governance form. Organizing and strategizing are both important for dealing with natural hazards

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