



**Goal-oriented  
networks and  
capacity building for  
natural hazards**

G. Hutter

# Goal-oriented networks and capacity building for natural hazards – examples in the Dresden region

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## Abstract

5 Networks and networking are important to build social capacities for natural hazards. However, up to now, it is an open question which types of networks contribute to capacity building under certain circumstances. The paper focuses on the type of a goal-oriented network. The distinction between goal orientation and goal directedness is used to show the following: goal directedness of networks to build capacities for natural hazards involves intensive and continuous processes of sensemaking (Weick, 1995) to specify the network goal. This process of specifying an initial goal statement is important in small and large networks. The governance form of a lead organization network facilitates goal specification. The paper illustrates these findings through evidence from two case studies conducted in the Dresden region in Germany.

## 1 Introduction

15 In principle, capacity building for 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 capacity building (e.g. actors from local communities, the political sphere, administration, research organizations). No wonder then that the concept of social capacity building for natural hazards highlights 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 and Grodal, 2005; Klijn, 2008; Raab and Kenis, 2009) contribute to capacity building for 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 social capacity building for natural hazards need to be specified and explained.

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Halgin, 2011). The following section presents the concepts to structure the case studies. Then, the two cases of goal-directed networks are introduced. The paper ends with conclusions for research and practice.

## 2 Goal-oriented networks

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 and Foster, 2003; Provan and Kenis, 2007; Klijn, 2008; Raab and Kenis, 2009). Hence, the sociological literature about social networks on the one hand and research findings about networks *in* organizations on the other are in the background of analysis (see Van Wijk et al., 2003 for a review). The relevance of networks of organizations in the context of capacity building for natural hazards cannot be overestimated, especially when organizations seek to develop innovative solutions at the boundaries of knowledge (Powell and Grodal, 2005; Van de Ven, 2007).

It is important to distinguish between different types of networks (Diller, 2002; Kilduff and Tsai, 2003; Powell and Grodal, 2005; Wiechmann, 2008; Raab and Kenis, 2009). This paper uses the concept of a goal-oriented network to address issues of network management in the context of capacity building for 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

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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 and Vangen, 2005; Raab and Kenis, 2009).

- 5 – *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 and Vangen, 2005; Ansell and Gash, 2007).
- 10 – *Formal and informal processes of network management*: a goal-oriented network shows some formalization of interaction between the network actors (Ansell and 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, 15 informal processes of communication are also relevant for goal-oriented networks (Ring and 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.

20 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 and Sydow, 2008). We argue that goal orientation in the context of capacity building for natural hazards is significantly influenced by four kinds of variables: (1) processes of making sense of the network purpose 25 to change goal orientation into goal directedness, (2) network size, (3) composition of network actors, and (4) network governance form.

## 2.1 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 and 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 and Tsai, 2003, p. 89, italics added) Healey (2009, p. 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

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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 and Kenis, 2007). This assumption is in line with an interpretative approach to understanding and explaining networks and organizations (Aldrich and Ruef, 2006, p. 43–46). An interpretative approach sees goal orientation and goal directedness, especially in case of networks with high or modest heterogeneity (Eden and Huxham, 2001; Huxham and Vangen, 2005), as unstable social processes “constantly at risk of dissolution” (Aldrich and Ruef, 2006, p. 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.

## 2.2 Network size

Network size may refer to various features of goal-oriented networks. 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).

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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 two case studies. 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 capacity building. 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.

### 2.3 Heterogeneity of actors

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 and 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; Carlsson and Sandström, 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 et al. (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 and 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.

## 2.4 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 and Kenis, 2007, p. 233; Raab and Kenis, 2009, p. 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 (2003, p. 87–110) assume 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.

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- 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 two case studies illustrate this general statement.

### 3 Two examples of goal-oriented networks and capacity building for natural hazards in the Dresden region

In the Dresden region (see Fig. 1), it is possible to observe various goal-oriented networks that seek to build capacities for natural hazards. The following focuses on two networks (full names of the networks and the supporting institutions are given in the section on acknowledgements): firstly, the KLIMAfit 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. Secondly, there is the REGKLAM network, a large network funded by national government. It is the goal of REGKLAM to formulate a comprehensive program

for the Dresden region to adapt to climate change, including issues of dealing with natural hazards.

KLIMAfit can be understood as a *project network* (Windeler and Sydow, 2001) with a limited duration from July 2009 until April 2013. New networks emerge in the context of existing networks (Gulati et al., 2002). KLIMAfit emerged in the context of the project network REGKLAM which was established in July 2008 and will end in December 2013. However, the following starts with the case study about KLIMAfit because the structural features of this network facilitate an understanding how network actors create goal directedness to build capacities for natural hazards.

The author was, as mentioned in the introduction, involved in establishing both networks. In the case of REGKLAM he is responsible for organizing the process of program formulation based on concepts from planning research (e.g. Healey, 2009; Wiechmann, 2008; Hutter and Wiechmann, 2010). In the case of KLIMAfit, he is responsible for supporting the regional planners in implementing the network goal (Hutter, 2012). The following compares the two cases of goal-oriented networks to highlight some similarities and differences (Dougherty, 2002; Yin, 2009).

### 3.1 Case study KLIMAfit

The emergence of new networks is an iterative and dynamic process. 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 and Van de Ven, 1994; Vlaar et al., 2006).

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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 REGKLAM network. 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 were motivated to apply as “lead partner” for this funding because REGKLAM does not focus on the specific issues of statutory regional planning for climate change adaptation. 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.

### 3.1.1 From goal orientation to goal directedness

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

1. 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.

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2. In March 2011, KLIMAFit 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).

3. From April 2011 to April 2013, national government continued to support KLIMAFit 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 are seen as complementary to statutory planning. The following shows the structural conditions of this process of goal specification.

### 3.1.2 Network size

Compared to the REGKLAM network, KLIMAFit was a relatively small project network. The regional planning office was the lead partner, supported by the research

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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 KLIMAFit, 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 KLIMAFit 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 KLIMAFit (e.g. less than 100 000 EUR funding by national government for the whole project duration, Hutter, 2012).

### 3.1.3 Network governance form

High reliability characterized the process of working together in KLIMAFit in all phases of goal specification. The relatively high degree of formalization (relative to the network





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).

### 5 3.1.5 Case study summary

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, p. 449) that are relevant for 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). In contrast, the following case study about the REGKLAM network shows that network actors may have some difficulties in achieving goal specification to discuss priorities of capacity building in the context of climate change adaptation.

### 3.2 Case study REGKLAM

The project network REGKLAM is exceptional in at least two aspects: firstly, national government supports the network through a grant of approximately 11 Mio. EUR. Mainly research organizations in the Dresden region use this grant to finance their activities to establish and implement REGKLAM. Some organizations from practice have a share in this large budget (e.g. the City of Dresden and the state agency that is responsible for supporting the Free State of Saxony with regard to environmental and agricultural policy as well as geology). Secondly, national government supports REGKLAM from July 2008 until December 2013, a relatively long project duration

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On the other hand, a working group of high-ranking practitioners and researchers started to define the agenda of the climate change adaptation program (working group “Integrated Regional Climate Change Adaptation Program”). A majority of the group members showed some affinity to planning and strategy development (e.g. regional planning, city planning, and strategies of business organizations). The group considered the specific topics of the scientific work packages as well as further topics that were judged to be important for climate change adaptation in the Dresden region (e.g. flood risk management, health issues, nature conservation). As a consequence of this complex process of agenda building, the working group structured the contents of the climate change adaptation program into “strategic themes”. The agenda now covers issues of adapting the building stock, settlement structures and open spaces as well as issues of water management, agriculture, forestry, economic development, and nature conservation. Natural hazards are considered within these themes (e.g. adaptation of the building stock to flood risk, agricultural policy and soil erosion).

2. The second phase was characterized by intensive processes of formalization and implementation, but *not* by equally intensive processes of specification as a basis for setting priorities of climate change adaptation. Formalization means that network actors agreed on the codification of the contents of strategic themes (challenges of climate change adaptation, theme-specific *Leitbilder*, aims and measures). They also agreed on procedures and organizational arrangements as well as flexible resource commitments to bring the complex and detailed contents together in *one* document – the long version of the climate change adaptation program. The draft of the program shows approximately 280 pages (state of work: December 2012).
3. The project network REGKLAM includes various research organizations and practitioners from the Dresden region (see below). However, politicians, citizens, and representatives of organizations belonging to “civil society” are mainly

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included on a limited temporary basis (e.g. a workshop, a meeting). Network actors were aware of this exclusive character of REGKLAM (Hutter and Bohnefeld 2012). Furthermore, network actors agreed that the draft of 280 pages of the climate change adaptation program would be suitable only for experts and officials already involved in more “technical” aspects of climate change adaptation. It also became apparent that the draft of the program lacks a “selective focus” (Healey, 2009, p. 449). The primary representatives of the network actors of REGKLAM decided to formulate a short version of the climate change adaptation program. The short version was presented at a large workshop located at the parliament of the Free State of Saxony in Dresden in November 2012. Politicians from various political parties participated in this workshop.

In sum, the process of goal specification in REGKLAM is relatively limited (compared to KLIMAfit). The agenda of the program was broad at the beginning and probably will remain broad until the end of REGKLAM. The long and the short version of the climate change adaptation program cover a broad spectrum of issues that are, in principle, relevant for long-term development in the Dresden region. However, it is difficult to discuss and identify priorities of adaptation based on these interim outputs. In case of REGKLAM, moving from goal orientation to goal directedness primarily means formalizing and implementing the network goal. In contrast, specification in the sense of creating “specific goals that members share” (Kilduff and Tsai, 2003, p. 89) or in the sense of creating a “selective focus” is more in the background or absent in REGKLAM (Hutter and Bohnefeld, 2012). The following tries to explain this briefly through referring to the three structural variables size, composition, and network governance form.

### 3.2.2 Network size

The grant of 11 Mio. EUR by national government is an important indicator that REGKLAM is a large project network. As mentioned above, research organizations receive most of the grant to finance research activities and coordinating activities to realize

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the three main goals of REGKLAM. It would be misleading to understand REGKLAM *only* as research network. Firstly, as mentioned above, some organizations from practice receive parts of the grant. Secondly, various organizations from the administrative and intermediary as well as the private sphere participate in the project network development of REGKLAM (e.g. spatial planners from different levels, representatives from ministries and state agencies, from the chamber of commerce in Dresden). The three main goals of REGKLAM provided the rationale for the intensive inclusion of practitioners into the decision-making organizational units of REGKLAM. Now, approximately 100 organizations are included into REGKLAM – with various degrees of intensity and through various ways of organizing the inclusion (Hutter and Bohnefeld, 2012). With regard to the observed limited goal specification of REGKLAM, the paper argues that large network size makes specification difficult through its potential influence on the degree of heterogeneity.

### 3.2.3 High heterogeneity

Two features of REGKLAM are salient with regard to the heterogeneity of actors. Firstly, the project network includes some types of actors only on a limited temporary basis (e.g. politicians) or excludes some types of actors (e.g. citizens). Secondly, the network includes some types of organizations intensively and in a differentiated way that is difficult to understand for outsiders (e.g. research organizations with researchers from various scientific disciplines, various departments of the local administration of the City of Dresden, spatial planning at regional and *Länder* level, state agencies, representatives of the economic sector). The composition of network actors shows a bias towards organizations with “strong views” on how to analyze the challenges, aims, and measures of climate change adaptation, but only “weak views” on how to make legitimate decisions to get adaptation focused on only a few issues of a political agenda. Symptoms of high heterogeneity of actors within a selective composition of network members can be seen in discussions about “integration”. Different researchers interpreted this term very differently (e.g. integration as rationale of applying a specific method, integration

of cause-effect relations versus integration of aims and measures in different strategic themes of the program). Researchers and practitioners “naturally” also followed different understandings of what integration means in REGKLAM and why it is important (see details in Hutter and Bohnefeld, 2012). Network size and the high heterogeneity of actors jointly made an agreement of the REGKLAM actors on the process of content specification in terms of a focused agenda difficult.

### 3.2.4 Network governance form

Furthermore, REGKLAM can be understood as a network with a hybrid network governance form and multiple identities. Firstly, it is important to consider that all formal network actors (the seven organizations applying for funding, six research organizations and the City of Dresden) were autonomous with regard to the formal management and reporting to national government as funding organization. It is formally correct to say that REGKLAM was coordinated, not led, by the IOER. Therefore, the form of a lead organization form does not apply. The form of shared governance is only applicable to parts of REGKLAM, not to the whole network due its size. Furthermore, REGKLAM did not establish a new administrative unit for the project duration. Therefore, we conclude that REGKLAM is characterized by a hybrid network governance form with elements that need further description and explanation. Secondly, REGKLAM is a network that connects researchers in and between specific work packages (*network of researchers*) and it is also a *governance network* (Sørensen and Torfing, 2005, 2007, 2009) with the goal to serve the “public purpose” through formulating a climate change adaptation program for the Dresden region. Multiple identities and related evaluation criteria are important for REGKLAM (Provan and Sydow, 2008). The case study about KLIMAfit points to the argument that strong leadership based on a lead organization network could have facilitated goal specification as a contributing process to creating goal-directedness. However, directedness in REGKLAM was still possible to some extent due to resource-intensive processes of formalization and implementation.

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### 3.2.5 Case study summary

REGKLAM is a large project network coordinated by the research organization “Leibniz Institute of Ecological Urban and Regional Development (IOER)” in Dresden. Network actors created the limited goal directedness of the network through intensive processes of formalizing the network output “Integrated Regional Climate Change Adaptation Program”. However, up to now, the draft documents of the program show no “selective focus” to enhance the goal-directedness of the network. The agenda of the program covers a complex set of issues with only some considerations of interdependencies between the issues (e.g. conflicts between measures of agricultural policy and measures to reduce soil erosion due partly to intensive rainfall). The limited extent of goal directedness corresponds to the hybrid form of network governance and the high degree of heterogeneity of the network actors that is due partly to the large size of the network. Under these circumstances, goal specification (in its limited form) had to rely on intensive processes of developing the formal organizational arrangements further and on informal ways of communication.

## 4 Conclusions

Two conclusions are drawn from the attempt in this paper to conceptualize goal-oriented networks and to interpret the findings from two case studies about capacity building for natural hazards in the Dresden region. The first conclusion focuses on research about capacity building. The second conclusion makes a suggestion how practitioners can use the findings of this paper in processes of networking of capacity building for natural hazards.

Firstly, goal-directedness of networks to build capacities for natural hazards is based on intensive and continuous collective processes of interpreting the network goal. This holds for small and large networks with modest or high heterogeneity and for networks with strong leadership or a more hybrid form of network governance. This is not to

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say that *all* goal-oriented networks in society need intensive processes of goal specification (Raab and Kenis, 2009). However, the two case studies about networks in the Dresden region point to the conclusion that capacity building for natural hazards at the regional level requires intensive sensemaking (Weick, 1995) of the network goal, especially if plan-making and program formulation are salient (Healey, 2009) and if effectiveness is an important criterion of network evaluation (Provan and Sydow, 2008). Sensemaking of the network goal is especially important in the context of capacity building for natural hazards, if the network actors face a situation in which they need to make sense of high quantities of information in diverse knowledge contexts that are due to network heterogeneity. Making sense of a network goal can be an important way to avoid information overload (Sutcliffe and Weick, 2008). Hence, the paper confirms the proposition of Vlaar et al. (2006) and Huxham and Vangen (2005) that network management through mechanisms of incentives, co-ordination, control, and evaluation needs to be complemented by at least equally intensive and continuous efforts to make sense of the purpose of working together. Organizing and strategizing are both important investments in network development to build capacities for natural hazards (Denis et al., 2009, p. 241–245). What will vary with regard to structural network features are the specific patterns of making sense of the network goal based on case-specific formal arrangements and informal ways of communication (Ring and Van de Ven, 1994; Weick, 1995; Klijn, 2008).

Secondly, network practitioners could benefit from considering more intensively the challenge of creating goal-directed networks. Klijn (2008, p. 133) gives an overview of network management strategies. In one dimension, there is a distinction between strategies to manage interactions within a given network on the one hand and strategies to manage and change the network structure on the other. In a second dimension there is a differentiation between strategies of activation of actors and resources, goal-achieving strategies, and organizational arrangements. In this approach, the challenge of *creating* goal-directedness as a precondition to adopt goal-achieving strategies is not sufficiently considered. Goal-orientation of networks is easily confused







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**Fig. 1.** The Dresden region as defined in the REGKLAM project network. The region is an approximation to the planning region relevant for the network KLIMAfit (Source: Roessler et al., 2013).

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