



CapHaz-Net

Social Capacity Building  
for Natural Hazards  
Toward More Resilient  
Societies

## Social capacity building for natural hazards: A conceptual frame

Christian Kuhlicke & Annett Steinführer  
(Helmholtz Centre for Environmental Research – UFZ, Leipzig &  
Johann Heinrich von Thünen Institute – vTI, Braunschweig)

Date  
Report Number  
Location  
Deliverable Number

04/2010  
WP1 report  
Leipzig  
D1.1

## Document information

|                           |  |
|---------------------------|--|
| <b>Title</b>              | Social capacity building for natural hazards:<br>A conceptual frame  |
| <b>Lead Authors</b>       | Christian Kuhlicke (UFZ) & Annett Steinführer (vTI)  |
| <b>Contributors</b>       | Sue Tapsell, Hazel Faulkner, Simon McCarthy, Meghan Alexander (all FHRC), Fiona Tweed (Staffordshire University) as well as the whole CapHaz-Net consortium and participants of the Lancaster workshop on 10 November 2009 |
| <b>Distribution</b>       | Public   |
| <b>Document Reference</b> | D1.1 – Version 4   |

## Document history

| Date     | Revision  | Prepared by                               | Organization | Approved by   | Notes   |
|----------|-----------|---|--------------|---|---|
| 05/11/09 | Version 1 | Christian Kuhlicke,<br>Annett Steinführer | UFZ          | CapHaz-Net<br>consortium and<br>invited external<br>experts | discussed at<br>Lancaster<br>workshop<br>10/11/2009 |
| 28/12/09 | Version 2 | Christian Kuhlicke,<br>Annett Steinführer | UFZ          |   | sent to<br>Denis Peter<br>(EC)                      |
| 02/2010  | Version 3 | Christian Kuhlicke,<br>Annett Steinführer | UFZ          | Consortium  |   |
| 30/04/10 | Version 4 | Christian Kuhlicke,<br>Annett Steinführer | UFZ/vTI      | Revised version   | published<br>online                                 |

## Acknowledgement

The work described in this publication was supported by the European Commission's 7<sup>th</sup> Framework Program (Contract No. 227073).

## Recommended citation format

Kuhlicke, C & Steinführer A (2010): Social Capacity Building for Natural Hazards. A Conceptual Frame. CapHaz-Net WP1 Report, Helmholtz Centre for Environmental Research – UFZ: Leipzig (available at: [http://caphaz-net.org/outcomes-results/CapHaz-Net\\_WP1\\_Social-Capacity-Building.pdf](http://caphaz-net.org/outcomes-results/CapHaz-Net_WP1_Social-Capacity-Building.pdf)).

© CapHaz-Net Consortium

## Preamble: Social capacity building for 'natural' hazards

The following report is the result of work package (WP) 1 of CapHaz-Net which in the logic of the project fulfils a specific function: the central concepts of WP 1 and 2 – social capacity building and risk governance – were prior to the start of the CapHaz-Net project identified as the major

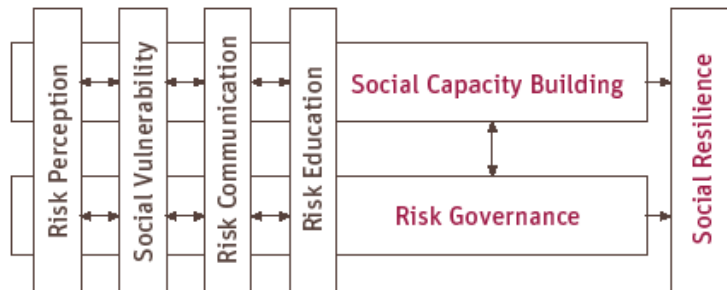


Figure: CapHaz-Net's thematic structure

framework concepts. They directly relate to the other thematic work packages (on risk perception, social vulnerability, risk communication, risk education and social resilience; see the figure to the left). Therefore the reports of both WP 1 and WP 2 are so-called »living documents«. That means that they are continuously enriched by state-of-

the-art knowledge and empirical examples in the field of enhancing, developing and building capacities to natural hazards.

This report is version 4 and the first one to be published in the Internet based on a preliminary draft report which was presented at the Lancaster Workshop on November 11, 2009 to a wider audience of about 30 participants. At that workshop we used the unique opportunity to discuss the ideas presented in the draft report with a number of experts in this field and to further improve the content and the structure of the WP 1 report. This report tries to take into account the suggestions and comments we received during and in the aftermath of the workshop. We want to use the opportunity again to express our gratitude to all participants. Our particular thanks go to Fiona Tweed (Staffordshire University), Sue Tapsell and Hazel Faulkner (both FHRC), Matthias Buchecker and Corina Höppner (WSL), Blaž Komac (GIAM) as well as Bruna De Marchi (ISIG and Milano) whose detailed comments hopefully helped to improve the report. The remaining shortcomings are of course entirely our own responsibility.

### Contact persons for WP1

Christian Kuhlicke – [christian.kuhlicke@ufz.de](mailto:christian.kuhlicke@ufz.de)

Annett Steinführer – [annett.steinfuehrer@vti.bund.de](mailto:annett.steinfuehrer@vti.bund.de)

## Structure

|   |           |
|---|-----------|
| <b>Preamble: Social Capacity Building for ‘Natural’ Hazards</b> .....   | <b>3</b>  |
| <b>Introduction to this report</b> .....  | <b>5</b>  |
| <b>1 Framing the problem: Why is social capacity building becoming a relevant concept for natural hazards research in Europe?</b> .....           | <b>7</b>  |
| <b>2 Social capacity</b> .....  | <b>11</b> |
| 2.1 Approaching social capacity.....  | 11        |
| 2.2 Related concepts I: Social vulnerability.....   | 12        |
| 2.3 Related concepts II: Resilience.....  | 16        |
| 2.4 Related concepts III: Social capital.....   | 17        |
| <b>3 Capacity building</b> .....  | <b>20</b> |
| 3.1 Discourses: Origins and basic assumptions.....  | 20        |
| 3.2 Criticism on capacity building approaches: Widening the focus.....  | 25        |
| <b>4 Social capacity building for natural hazards: Basic assumptions and implications for CapHaz-Net</b> .....                                    | <b>29</b> |
| 4.1 A conceptual frame of social capacity building for natural hazards.....   | 29        |
| 4.2 Social capacity building for natural hazards and its implications for CapHaz-Net: Establishing links between the different work packages..... | 34        |
| <b>5 Concluding remarks and open questions</b> .....  | <b>41</b> |
| <b>6 References</b> .....   | <b>43</b> |

## Introduction to this report

This report examines social capacity building and how this might be understood in the context of natural hazards in Europe. It is a key deliverable from Work Package (WP) 1 of the CapHaz-Net FP 7 project. The objective of the report is to review the existing literature on social capacity building and to relate it to natural hazards and disasters.

By using the term *social* capacity building we want to emphasise that capacity building is a social process (rather than a simple managerial task) which involves different actors and takes place at various levels. It is understood as an umbrella term which comprises efforts to build individual, organizational, communal as well as institutional capacities. In this sense, social capacity building is an ambiguous multi-level concept as it contains both a normative-prescriptive dimension as well as a more conceptual-analytical one. However, we will argue that in spite of all its ambiguity, fuzziness and social-engineering inclination, the concept and the approach suggested here might provide a useful starting point or a heuristic tool to pave the way from the contemporary situation to an envisioned better future of a more 'resilient' society.

This report serves two purposes: On the one hand it attempts to outline some aspects that we consider as important when it comes to social capacity building for natural hazards in Europe. We outline basic assumptions that are inherent to most capacity building approaches (and hence also to the ones with regard to natural hazards). On the other hand, the report also represents a 'backbone document' describing the conceptual frame of CapHaz-Net which is open for continuous improvements in the course of the project and which serves as main basis for the final synthesis report of CapHaz-Net to be provided in 2012. It shall provide a means to stimulate and guide the discussion and is open for incorporating new insights gained during the action. We therefore call it a 'living document'.

More specifically, this report is an attempt to structure the field of social capacity building for natural hazards by deconstructing the compound in its two main components; that is '*social capacity*' and '*capacity building*'. It wants to discuss key assumptions and critical aspects underlying social capacity building efforts as well as possible relations to other, more established concepts in the field of natural hazards research. The report is structured as follows:

- In its *first part* it frames the problem (or rather tension) the report is interested in: on the one hand, capacity building for natural hazards seems increasingly to gain importance at least on the level of national and international organizations; on the other hand, this is not yet reflected in natural hazards research literature. Furthermore it outlines quite general developments taking place in Europe influencing our understanding of social capacity building.
- In its *second part*, the review will reveal that 'social capacities' are already an important topic in social science research on natural hazards and disasters. However, the concept has not yet been systematically applied, let alone explored. Vulnerability research, for instance, is interested in it and also the concept of resilience knows something about capacities. Further relations are established to the social capital debate. This part will hence outline how capacities are dealt with in several discourses and which questions need to be further addressed in the course of CapHaz-Net.
- The *third part* considers the discourse on 'capacity building'. The literature reviewed comes from different fields of expertise. Interestingly natural hazards per se play hardly any role in this discussion. The aim of this chapter is to identify central assumptions underlying capacity build-

ing. At the same time it presents criticism within this discourse. By doing this, it wants to ensure a conceptual sensitivity, which means to create a certain level of awareness about pitfalls and difficulties that any attempt of building capacity is confronted with.

- In the *fourth part* the previous discussion is applied to natural hazards in a conceptual manner as well as to the structure of CapHaz-Net. Important issues that need to be reflected upon as well as linkages to other topics and areas of interests are established.
- The *fifth part* draws some conclusions and addresses open issues and questions.

Generally, we attempted to produce a rather ‘lean’ version of the report which rather outlines central elements of social capacity building, key questions to be considered and interrelations to further topics dealt with more intensively in the course of CapHaz-Net in order to substantiate this ‘backbone report’ in the course of the project. Major concluding remarks and definitions are highlighted in shaded boxes.

This report is a living document’ which will be revised, updated and developed as the Cap-Haz-Net project evolves. Although it is made public as a report, it is not in its definitive form. All comments and suggestions on the document are welcome. This document’s reference is Deliverable D1.1, version 4 (as of April 2010).

# 1 Framing the problem: Why is social capacity building becoming a relevant concept for natural hazards research in Europe?

»Not every windstorm, earth tremor, or rush of water is a catastrophe. A catastrophe is known by its work; that is to say, by the occurrence of disaster. So long as a ship rides out the storm, as long as the city resists the earth-shocks, so long as the levees hold, there is no disaster. It is the collapse of the cultural protection that constitutes the disaster proper.« (Carr 1932, 211; cited in: Dombrowsky and Brauner 1996, 43)

»In over 25 years experience of disaster situations, we have observed that in most disaster situations there is a tendency for all concerned to exaggerate the scale of damage and dislocation and to greatly underestimate the capacity of the affected population to resolve their own problems.« (Quarantelli 1973, quoted after Davis 2004, 131)

Capacity building is *increasingly gaining relevance* in efforts to reduce the impacts of natural hazards and disasters. At least, this is the impression the reader has when reviewing documents of international and national organizations aiming at reducing the devastating consequences of natural disasters. The Hyogo Framework for Action 2005–2015, for instance, contains several links to capacity building efforts. It identifies as one of its central ‘priorities for actions’ the need to enhance “international and regional cooperation and assistance in the field of disaster risk reduction through, *inter alia*: The transfer of knowledge, technology and expertise to enhance *capacity building* for disaster risk reduction” (UN/ISDR 2006, 5). Resources should be invested for ensuring appropriate support for disaster risk reduction in general, but also for “awareness-raising initiatives and for capacity-development measures” (ibid.).

At the same time such capacity building efforts are predominantly related to developing countries and in this context usually imply transfers of knowledge and technology from the developed ‘north’ to the less developed and more vulnerable ‘south’. This view is also reproduced in a report of the UN/ISDR Scientific and Technical Committee “Reducing Disaster Risk through Science – Issues and Actions”. It identifies a lack of capacity on the side of developing countries “in terms of human, institutional and material resources for a range of disaster reduction needs, including identifying hazards, exposure levels, and vulnerability and thereby characterizing risk, as well as integrating this information into national and regional development goals, informing the public, and developing risk reduction programmes” (UN/ISDR 2009b, 17). Interestingly, the IPCC definition of capacity building follows a similar line of argument: “In the context of climate change, capacity building is developing the technical skills and institutional capabilities in developing countries and economies in transition to enable their participation in all aspects of adaptation to, mitigation of, and research on climate change, and in the implementation of the Kyoto Mechanisms, etc.” (IPCC 2007, 871). Similarly, a strategy paper on adaptation research argues that “substantial investments are needed in scientific and technical capacities in the developing world” (Patwardhan 2009, 223).

For some scholars such an understanding of capacity building is problematic. Firstly, as it is stressed that not only Western countries have trained practitioners and scientists as well as expertise and techniques to reduce disaster risks, but also “non-Western peoples have historically developed sophisticated strategies and complex institutions to reduce the constant insecurity of their lives” (Bankoff 2004, 32). Secondly, there is a strong paternalistic stance in this debate when capacity building is regarded as providing others with goods, information, services and further resources. These two objections point towards some fundamental questions any capacity building effort is confronted with: Who has the legitimacy and the power to identify and

define a 'lack of capacity'? How are capacities and the success of enhancing these capacities measured and by whom? What is the goal of capacity building efforts? Should they be the same for each individual, for each organization? What is the appropriate level of capacity building? What is or should the relationship between 'capacity builder' and those lacking capacities be like? These are just some questions, among others, which this report deals with. Moreover, it also tries to overcome the somewhat one-sided perspective on technical and institutional skills by explicitly focusing on social capacity building.

As already pointed out, social capacity building is usually applied with respect to non-European (or at least non-EU) countries. There are even hints in the literature that the origin of the very concept of capacity building stems from a non-European, namely South American and in that time highly non-democratic, context (outlined in more detail below). It is hence a very different frame of reference compared with the one CapHaz-Net is focusing on. European countries were so far rather known as capacity *builders*; the idea that it is necessary to build capacities *in* Europe itself might sound somewhat awkward as it implies that there is also a need to build capacities on the part of contemporary European societies. Yet, a look into the "National Progress Report on the implementation of the Hyogo Framework for Action" of the German Committee for Disaster Reduction DKKV reveals that also European countries are concerned with capacity building (DKKV 2009). It identifies as one of its major 'strategic goals' the "development and strengthening of institutions, mechanisms and capacities at all levels, in particular at the community level, that can systematically contribute to building resilience to hazards" (ibid., 4).

Against this background the question arises: why is social capacity building becoming a relevant concept for natural hazards research also in Europe? What exactly is lacking that social capacity building is gaining relevance? To find answers to these questions is obviously not an easy task, all the more as the scientific discussion on this matter has not yet evolved: We could not identify any substantial scholarly contribution to this effort in the scientific debate on capacity building – at least not with regard to natural hazards in Europe. The following reasoning therefore needs to be understood as hypotheses, as heuristics which should sensitise natural hazards research community for certain developments and alterations taking place in Europe (cf. also Walker, G. et al. 2010).

*Why social capacity building for natural hazards in Europe? We identified three overarching reasons:*

- The first one relates to an observed increase in the occurrence of natural disasters as well as rising monetary damages questioning established protection and management strategies.
- The second reason relates to a changing distribution of responsibility between different state and non-state actors, that is, between the public, private and voluntary sectors.
- The third reason relates to a possible lack of capacities on the side of formal organizations involved in disaster and risk management.

→ Ad 1: Europe has witnessed an increase in damages due to natural hazards, particularly weather-related events (e.g. windstorms, hailstorms, floods, extreme temperature and se-



vere storms; CEA 2007). Single events such as the 2002 floods affecting parts of Germany, Austria and the Czech Republic with overall damages of 18 billion € but also the heat wave of 2003 with fatalities between 35,000 and 50,000 people (ibid.) have highlighted how vulnerable European societies are to the negative impacts of natural hazards. The question whether this increase in economic damages and losses of life is related to globally observed climatic changes (ibid.) or to changes in population, inflation and per capita wealth (Barredo 2009) is of secondary importance for the argument, since the overall conclusions drawn from both ways of explaining the occurrences of natural disasters are quite similar: it is underlined that pure technical or structural solutions along with the demand of an “absolute protection” against the negative impacts of natural hazards are “unachievable and unsustainable because of high costs and inherent uncertainties” (Schanze et al. 2008, 1). Within the frame of current risk management approaches it is increasingly acknowledged that ‘big solutions’ in terms of large-scale engineering works cannot always solve ‘big problems’ like the severe consequences of major natural hazards (ibid., IX).

Therefore, a more comprehensive view on natural hazards is demanded, considering not only the hazard itself but also other dimensions such as the vulnerability of people, building and infrastructure, the risk perception of residents at risk and decision-makers as well as prevention and mitigation options and strategies that are still adaptable and resilient to uncertain future developments (Kuhlicke and Kruse 2009, Merz et al. 2010). With this broadening of the perspective and an increasing inclusion of non-structural adaptation and mitigation measures also non-governmental and administrative actors are involved in risk and disaster management. Merz et al. (2010) state with regard to flood risk management: “The increasingly prominent role of non-structural measures requires a much larger involvement of the public, and a functioning dialogue on the flood risk and mitigation options is an essential element of an integrated flood risk management” (ibid., 522). As a consequence of this change not only actors formally involved in risk and disaster management are faced with new challenges, but also actors from the private and public sectors including individual citizens. To be sure, this change is not taking place evenly and simultaneously across Europe, a multiplicity of pathways and development stages is observable (see also WP 2 report, Walker, G. et al. 2010). However, because of this profound transformation of how risk management is understood social capacity building becomes more important and this at the levels of individuals, organizations, communities and regions as well as institutions (cf. also Chapters 3 and 4).

At a more general level, this change underlies a reinterpretation of ‘natural’ disasters as truly social phenomena with social (and not natural and/or divine) causes (cf. also Felgentreff and Dombrowsky 2008). Socially established “protection means” including material and cultural aspects turn out to be insufficient to avoid what they apparently try to prevent (Dombrowsky 1996, 43). In this vein, the occurrence of natural disasters may be understood as a result of people’s, communities’ and institutions’ insufficient or lacking capacities to anticipate, cope with and recover from the impact of a natural hazard (cf. also Blaikie et al. 1994).

- Ad 2: The second (and related) reason why to deal with social capacity building for natural hazards in Europe lies in the changing “landscape of risk responsibility” (Johnson and

Priest 2008) as it used to be allocated between different state and non-state actors. State and non-state actors, whether independent of each other or in the form of (public-private) partnerships, are increasingly concerned with managing natural hazards (see also WP 2 report, Walker, G. et al. 2010). Legislations, programs and/or agencies operating at the national and European levels are encouraging or even requiring private companies, voluntary organizations and individuals to take more responsibility for their actions. This process of “responsibilization” (Garland 1996) includes, among others, attempts to define individuals, households and companies as agents that need to actively take decisions and choices with regard to the prevention and mitigation of hazards. In our previous work on flooding, we have defined this as the “privatisation of risk” (Steinführer et al. 2009), meaning that there is a tendency to place greater responsibility on the people at risk (e.g. to apply private prevention measures etc.). Obviously, this process strongly relates to the first reason outlined above, since it implies also a shift from traditional command and control instruments to more bottom-up, inclusive and market-oriented instruments (e.g. CEA 2007, Tesh 2009).

- Ad 3: The third reason relates to a lack of capacity and this in a twofold sense. On the one hand, the increasing importance of capacity building efforts may result from state authorities recognizing and acknowledging that they are hardly able to prevent (and actually never were), let alone to avoid the occurrence of natural disasters and its negative consequences as a single actor since the problem is too complex. Therefore, non-governmental actors are increasingly encouraged or even demanded by legislation to participate in the management of natural hazards. On the other hand, people at risk may experience or identify a lack of capacity on the side of state authorities. Due to different reasons, local, regional and national authorities yet may be overwhelmed with having to deal with the consequences of the devastating impacts of natural hazards and therefore residents at risk may mistrust the competency of state actors and feel the urgency of taking over responsibility themselves. This (perceived) lack of capacity on the part of state actors, however, is at the same pointing to the fact that governmental bodies are continuously regarded as a key resource in providing certain functions (e.g. protection, shelter, information etc.). Taking this serious implies to not reduce social capacity building efforts to a managerial task, but to also focus on the relationship between various actors from the public, private and voluntary sector (Jayasuriya 2006). Moreover, it also suggests that social capacity building is to happen at different levels – that of the people and communities at risk, public organizations formally or informally involved in risk and disaster management, companies and voluntary organizations.

CapHaz-Net takes all three possible reasons for the increase of the importance of social capacity building efforts into account and will collect empirical evidence but also specify the implications of this change on different levels throughout the project duration.

## 2 Social capacity

Neither the term ‘capacity’ nor ‘social capacity’ are established or traditional concepts in the social sciences. They are used in development policy and research and, partly, also in the natural hazards discourse. This chapter intends to examine basic meanings of the concept of social capacity and to then relate it to neighbouring discourses: to social vulnerability, social resilience and social capital. Its relevance with regard to the natural hazards discourse will be touched throughout the chapter.

### 2.1 Approaching social capacity

The Penguin Concise English Dictionary differentiates between four meanings of the word ‘capacity’, one of them being “ability or talent” and “power or potential” (Allen 2002). A broader search particularly in development and hazard research reveals that capacity is widely used as an umbrella term for referring to a broad set of resources (including abilities, skills, competences, and social relations) of an individual or a social entity (such as a group, a community or a society). These resources are either actually available or provide a potential, i.e. something latent. Although the explicit term ‘social capacity’ is used only sparsely, all definitions provided in Table 2.1 are basically on social capacity. The concept basically refers to the existence of something positive, since in the case of lacking capacity a deficit will be stated.

**Table 2.1** Definitions of (social) capacity

| <b>Definition</b>  | <b>Source(s)</b>                             | <b>Relation to natural hazards</b> |
|--|--|------------------------------------|
| Capacity: “(a) ability or talent; (b) power or potential” (and three further meanings of the term)   | Allen 2002, 121                              | No                                 |
| Capacity: “that emergent combination of individual competencies, collective capabilities, assets and relationships that enables a human system to create value”  | Baser and Morgan 2008, 3                     | No                                 |
| Capacity: “Capacity is the ability of people, organizations and society as a whole to manage their affairs successfully.”  | OECD DAC 2006 (in Baser and Morgan 2008, 22) | No                                 |
| Capacity: “The combination of all the strengths and resources available within a community, society or organization that can reduce the level of risk or the effects of a disaster. Capacity may include physical, institutional, social or collective attributes such as leadership or management. Capacity may also be described as capability.”   | UN/ISDR 2004 (in Thywissen 2006, 453)        | Yes                                |
| Capacity: “The combination of all the strengths, attributes and resources available within a community, society or organization that can be used to achieve agreed goals. [...] Capacity may include infrastructure and physical means, institutions, societal coping abilities, as well as human knowledge, skills and collective attributes such as social relationships, leadership and management. Capacity may also be described as capability. Capacity assessment is a term for the process by which the capacity of a group is reviewed against desired goals, and the capacity gaps are identified for further action.” | UN/ISDR 2009a, 5-6                           | Yes                                |
| Social capacity: “the societal assets, skills and resources necessary to anticipate, cope with and recover from stresses and disasters”  | CapHaz-Net proposal 2008, 5                  | Yes                                |

→ Thus, very generally, capacity refers to a context-related ability of an individual, a social group, an organization or of institutional actors to decide and to behave successfully in a certain situation or to overcome the negative impacts of some event as well as to employ the necessary resources.

Yet, in contrast with such explicit approaches, very often capacity is not defined at all but rather used as a synonym for other terms like “strengths”, “(coping) abilities”, “capabilities”<sup>1</sup> or “resilience” (see for example Davis 2004, 133 or Table 2.1). But knowing about what we talk and making it transparent is indispensable to come to a better understanding of the ‘social dimension’ of natural hazards. Not least, it will impact on our choice of ‘good’ or ‘bad’ practices in the course of the CapHaz-Net project.

Due to a lack of research explicitly employing the concept of ‘(social) capacity’ in the social science natural hazards community we will take an *indirect way* by referring to neighbouring discourses and concepts. In our perspective three discourses are worth considering:

1. the concept of social vulnerability,
2. the resilience discourse, and
3. the debate on social capital.

To be clear, the intention of this short overview is to indicate in which discursive contexts ‘social capacities’ are used and referred to; its intention is not to clarify the interrelation of all the single concepts among each other. This is a task for the prospective work of CapHaz-Net.

## **2.2 Related concepts I: Social vulnerability**

Most often the term ‘capacity’ appears in the context of vulnerability research. In a number of varying conceptualisations, social capacity – referred to as capacity, response, coping or adaptive capacity – is considered to be a dimension or component of (social) vulnerability. One of the earliest sustained definitions of vulnerability gives a negative definition of capacities by emphasizing the double-sided character of vulnerability: “Vulnerability has thus two sides: an external side of risks, shocks and stress to which an individual or household is subject; and an internal side which is defencelessness, meaning a lack of means to cope with damaging losses” (Chambers 1989, 38). This differentiation leads us to our first conceptualisation of social capacity in relation to social vulnerability, namely as an integral part of the latter.

### ***The internal and the external side of vulnerability – capacity and exposure***

The internal side of vulnerability refers to individuals or groups of individuals and departs from their existent and/or non-existent capacities to come to terms with stressing, threatening or damaging events. The external side also refers to actors but concentrates on sources of threat or stress *external* to their reach; that means to people’s exposure. These are the two phenomenological core components of most vulnerability frameworks (van Dillen 2002). In this vein, Greiving (2006, 214), for example, considers two components of vulnerability, that is hazard exposure and coping capacity (see also Fig. 2.1 below). Together with the hazard potential these

<sup>1</sup> The relationship between *capacity* and *capability* is rarely explored. Wisner (2003), for example, treats both terms similarly, while Baser and Morgan (2008) propose to clearly distinguish between capacity and capability. *Capability*, in their conceptualisation, is “the collective skill or aptitude of an organization or a system to carry out a particular function or process” which contributes to the overall *capacity* of this system/organization, which is understood as its ability to create public values (ibid., 25, 34; see also Table 2.1). They differentiate between five core capabilities, e.g. the capability to commit and to engage or the one to adapt and self-renew (Baser and Morgan 2008, 26-33). Our understanding of social *capacity* is closer to their definition of capabilities than to their capacity concept. In our approach here, we will avoid the term *capability* being aware of the huge cross-disciplinary debate on the so-called ‘capability approach’ linked to the name of Amartya Sen (e.g. Sen 1992) who refers capability as an individual property to a broad range of social issues such as well-being, freedom(s), social justice etc. This notion goes beyond our narrower understanding (see definition below).

components then make up the specific risk. Similarly, Alexander et al. (2009) define exposure, susceptibility and response capacities as key components of vulnerability.

At the causal level the connection between the internal and external side is in principle mirrored. Being interested in explaining the causes why a group of people does not have the capacities to influence their fortunes and why one group of persons is more exposed to hazards than another, vulnerability researchers want to uncover the *causal forces* at work defining the missing capacities and exposure of actors. This view is elaborated most explicitly by Watts and Bohle aiming at unravelling the “causal forces of hunger and famine” (Watts and Bohle 1993, 43). By investigating creeping crises such as hunger and famine, they identify forces such as entitlements, empowerment and political economy that cause specific effects resulting in vulnerable conditions. Another prominent example is presented in Blaikie and his colleagues’ book publication “At Risk” (Blaikie et al. 1994), which was meanwhile to a certain extent reworked and published again (Wisner et al. 2005). What the mentioned scholars share is that they put an emphasis on a macro-perspective, which is, in this perspective, the processes *outside* the influence of individuals; they scrutinise how “external conditions affect endowments and limit or enhance people’s coping capacity” (van Dillen 2002, 54).

Current approaches to “measure” vulnerability try to put these approaches into practice by means of indicators and indices (for overviews: Tapsell et al. 2005, Birkmann 2006a and 2006b, see also CapHaz-Net WP 4 report by Tapsell et al. 2010). The underlying hypothesis of many of such efforts is the assumption of a strong positive correlation between socio-economic status and vulnerability or, as Blaikie et al. (1994, 9) state: “as a rule the poor suffer more from hazards than the rich”. Consequently, most “classical” vulnerability indicators (age, income, formal qualification, gender, race etc.) are basically indicators of social inequality in general and therefore of social vulnerability with respect also to other hazardous events in the life-course (and not just to natural hazards).

However, it has become apparent that differences and variations in the vulnerability of groups and people cannot be sufficiently explained from a macro-perspective alone and by exclusively considering structural aspects (van Dillen 2002, 54). An epistemological implication is that the level of observation needs to be switched. While the previously introduced concepts of vulnerability made the pre-analytical decision to depart from a macro-perspective, another prominent perspective argues that it is more insightful to depart from a *bottom-up perspective*; that is from the level of individuals and/or households. It is increasingly acknowledged that people held as vulnerable might perceive or experience their own ‘vulnerability’ differently than external observers. Therefore, actor-oriented – and locally focused – approaches argue that all people develop strategies to deal with their uncertain future. This perspective asks more thoroughly for the internal side of vulnerability employing a (high resolution) micro-perspective, often based on activities, assets and capacities of individuals or households (van Dillen 2002, 64). It is argued that it is more promising to depart from “local people’s perception of vulnerability” or “vulnerable people’s view of their vulnerability” (Heijmans 2001 and 2004, Delica-Willison and Willison 2004), to take into account “local knowledge” and/or local “coping capacities/practices” (Hilhorst and Bankoff 2004, 5, Few 2007).

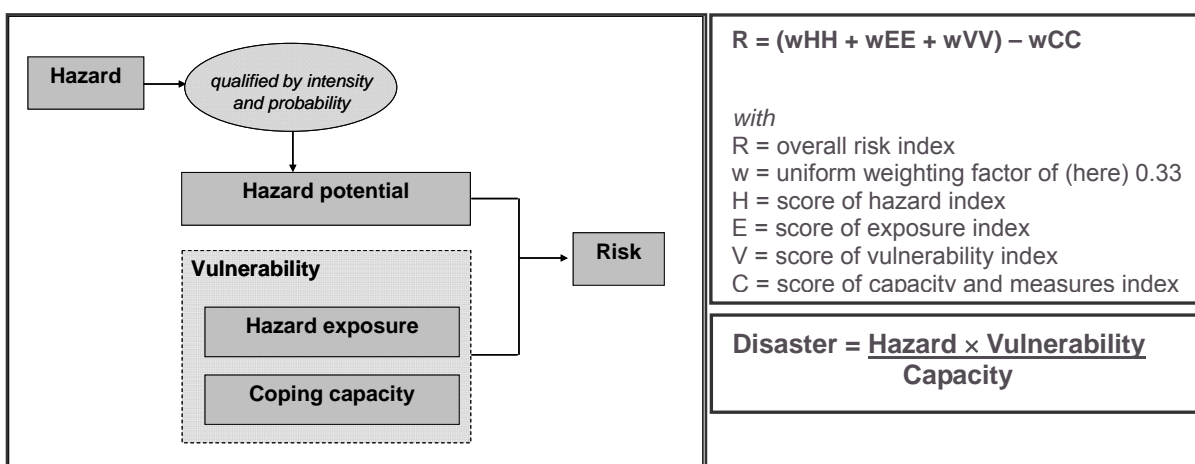
Not least, a change of scale comes into play: in these approaches it is the community and the local level which are starting points for both assessing social vulnerabilities and to do something about it. Different tools and procedures were developed and are constantly refined, e.g. community-based risk assessments (CRA; Wisner 2003 and 2006) or community-based disaster

preparedness (CBDP) approaches (Allen 2006) which are to large parts based on perspectives of actors involved, Seen from another angle – and this is an important link to risk governance (WP2) and the ‘privatization of risk’ – they are part of a broader policy change which intends to employ local resources, skills and knowledge stocks into risk management efforts in order to reduce the negative impact of natural hazards on individuals and communities (Adger 2006; Steinführer et al. 2009).

### ***Vulnerability, exposure and capacities***

In contrast with the approaches discussed so far, vulnerability and capacity can also be understood as separate (analytical) entities. Bollin and Hidajat (2006, building upon Davidson 1997), create a ‘community-based risk index’ by summing (weighted) hazard, exposure and vulnerability scores on the one hand and relating them to existing capacities and measures (Fig. 2.1). These comprise physical planning, social (or societal) capacity, economic capacity and management. Social (or societal) capacity is operationalised by indicators like public awareness programmes (frequency), school curricula (scope of specific, e.g. hazard, topics taught at school), emergency response drill, public participation (e.g. in form of an emergency committee) and local risks management/emergency groups (grade of organization of local groups; Bollin and Hidajat 2006, 274-7). Furthermore, Davis (2004, 131) extends the original equation “Disaster = Hazard × Vulnerability” by incorporating capacity, which is again taken as something separate from vulnerability (see Fig. 2.1).

**Figure 2.1:** Examples of graphical and numerical representations of (social) capacity in natural hazards research



Sources: Greiving 2006 (left), Bollin and Hidajat 2006 (upper right), Davis 2004 (lower right)

To make a long story short and to relate it more specifically to natural hazards: In spite of the meanwhile highly differentiated vulnerability discourse and a number of sophisticated approaches, a basic line of separation is **whether vulnerability is taken as exposure and capacity or whether exposure, vulnerability and capacity are treated separately**. The decision about to which understanding CapHaz-Net adopts will not be made in this report but is a matter of continuous debate (see also the WP 4 report; Tapsell et al. 2010). However, we want to highlight here that any decision has implications for an understanding of what social capacity (building) is about.

Another line of argumentation leaves numerical equations behind and relates vulnerability and capacity in another way. Davis (2004) considers the two concepts to be in a mutual relationship: “... it was encouraging to note a positive development in the 1980s *with the link between the negative and the positive or, in current terminology, with the link between vulnerability and capacity*” (ibid., 131; our emphasis). He particularly refers to the “Capacities and Vulnerabilities Analysis Matrix” (Anderson and Woodrow 1989; see also Table 2.2) which was developed to aid risk and disaster management particularly in developing countries: “Users of this matrix were invited to fill in appropriate boxes to describe their situation, often finding that the same element might be repeated in both the ‘vulnerability’ as well as the ‘capacity’ box” (Davis 2004, 132).<sup>2</sup> The boxes are not to be filled with numbers or crosses but rather with qualitative statements – thus: perspectives – on one and the same social group or actor. The example Davis provides is one that probably each researcher comes across when empirically analysing vulnerability to a disaster: the social vulnerability of the elderly (cf. also Birkmann 2008, 7). In a number of dimensions they are usually regarded as being more vulnerable than other people (because their physical condition is poorer, they lack mobility, have smaller social networks to get information in due time etc.) but in others they are ascribed better capacities to prepare for and to cope with a disaster. They might, for example, remember earlier disastrous events and be able to act upon it unlike younger people. Memory is then, just like local knowledge, regarded as a capacity (Komac 2009). Not least, the very basis of the CVA approach is the conviction that people always have capacities and that they are not only vulnerable:

→ “Women and men, however poor or marginalised, always have many capacities, which may not be obvious to outsiders, and which they themselves may not recognise. It may take time to discover these capacities and potential. But to intervene without doing so is not only disrespectful; it also wastes an opportunity to build on these existing capacities, and – even more importantly – risks undermining them, and so leaving people even more vulnerable than they were before.” (Eade 2005, 3)

**Table 2.2:** Template of a ‘Capacities and Vulnerabilities Analysis Matrix’

| <b>Definition</b>  | <b>Capacities</b>  | <b>Vulnerability</b>   |
|--|--|--|
| <b>Physical/material</b><br>What productive resources, skills and hazards exist?             | e.g. flood-resistant buildings   | e.g. residential homes in a floodplain   |
| <b>Social/organizational</b><br>What are the relations and motivations among people?         | e.g. strong mutual ties  | e.g. excluded local minority   |
| <b>Motivational/attitudinal</b><br>How does the community view its ability to create change? | e.g. community members are interested in initiating a risk communication process | e.g. community members stress problems other than those related to natural hazards (e.g. a recent disruption in the local economy) |

Source: Anderson and Woodrow (1989, 12)

When reconsidering both definitions of (social) capacities provided above (Table 2.1) and the (mostly implicit) use of the term in the vulnerability discourse, we will now introduce *our definition of social capacity* (see box below). We were particularly inspired by the (varying) UN/ISDR defi-

<sup>2</sup> According to Davis (2004), a vulnerability and capacity assessment (VCA; IFRC 2006) – developed by Red Cross/Red Crescent – is meanwhile a standard procedure after disasters and carried out by at least some national member organizations of the IFRC. – Moreover, similar approaches are known from other fields of practice, e.g. regional development strategies, where SWOT analyses (taking into account strengths, weaknesses, opportunities and threats) are conducted.

nitions (UN/ISDR 2004 and 2009a; Table 2.1) but restrict our focus to 'social capacity' rather than to 'capacity' in an all-embracing sense.

#### **Working definition of “social capacity”**

By social capacity we mean all the resources available at various levels (e.g. individuals, organizations, communities) that can be used to anticipate, respond to, cope with, recover from and adapt to external stressors (e.g. a hazardous event). These resources include skills, knowledge, social networks as well as institutions, structures and knowledge of how to elicit and use them.

This definition puts, on the one hand, major emphasis on (potential) resources including the strategies and knowledge on how to use them. With regard to natural hazards, these might differ in different situations (e.g. before or during a disaster) and contexts, respectively. On the other hand, it becomes apparent that social capacity is a context-dependent concept since it relates to different resources at the levels of an individual, a community, or an organization. This issue will be taken up and explored in more detail in Chapter 3 and 4. The working definition as highlighted above suggests a rather static understanding of 'social capacity'. This is done deliberately because, then, the process of social capacity building is also about integrating the resources in a continuous and long-term way.

### **2.3 Related concepts II: Resilience**

The term of resilience has gained considerable attention in natural hazards research in recent years. Although deriving from ecology (Holling 1973; Folke 2006), it is meanwhile also identified within the social sciences as a concept that helps to better understand the occurrence of unexpected and disastrous events and how to better prepare for them (Timmerman 1981, Handmer and Dovers 1996, Adger 2000, Klein et al. 2003, Gallopin 2006, Berkes 2007). Without going in a detailed discussion, some central characteristics of the concept shall be mentioned.

Holling defined resilience in his initial writing as the “persistence of relationships within a system and it is a measure of the ability of these systems to absorb changes of state variables, driving variables, and parameters, and still persist” (Holling 1973, 17). In later writings a greater emphasis was laid on the notions of change and adaptation. Resilience is thus not only the ability to absorb change but to also maintain function, structure, identity and feedback while undergoing change (Walker, B. et al. 2004). Berkes, for instance, understands resilience as the “capacity of a system to absorb recurrent disturbances, such as natural disasters, so as to retain essential structures, processes and feedbacks” (Berkes 2007, 239; cf. also Buckle 1998). Similarly the UN/ISDR defines resilience as the “capacity of a system, community or society potentially exposed to hazards to adapt, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure. This is determined by the degree to which the social system is capable of organising itself to increase this capacity for learning from past disasters for better future protection and to improve risk reduction measures” (UN/ISDR 2006, 4).

Within the discourse on hazards and disasters resilience is quite often, although mostly implicitly, treated as the counterpart of vulnerability (Adger 2000). In this argument, vulnerability mostly refers to the 'exposure' of individuals/groups, while resilience refers to the internal capacities of individuals/groups to absorb disturbances and stresses (Turner II et al. 2003; Walker, B. et



al. 2004). However, it was already discussed above that internal capacities are at least in one approach a central part of the concept of vulnerability. This is also underlined by Thywissen who recognises that in the literature most definitions show a large overlap “between coping capacity and resilience, which are often used as synonyms. These two dimensions of a harmful event are not easily separated from each other” (Thywissen 2006, 489). Therefore one may ask: what is the additional value of the concept of resilience if it is just considered as the “flipside” of vulnerability (Folke et al. 2002, 13)? Apparently, there is none (Steinführer et al. 2009). Some scholars argue that such a view is even dangerous as it “lends to circular reasoning: as system is vulnerable because it is not resilient; it is not resilient because it is vulnerable” (Klein et al. 2003, 40). Timmerman clearly prefers to keep vulnerability and resilience separate (Timmerman 1981, 1986). According to him resilience assumes that everything and everyone is vulnerable, but not everything and everyone is resilient. The resilience of a system is an outcome of past vulnerabilities that a system has overcome. In this sense resilience is mostly associated with learning from past experiences and preparing for future events, though this should not be misunderstood as a guarantee that this automatically results in greater resilience – a system may have simply been lucky and may have survived coincidentally. In this sense, resilience is hard to achieve and rather the exception than the rule (Kuhlicke 2008, Kuhlicke and Kruse 2009).

#### **What is the interrelation of social capacity (building) and resilience?**

By the very design of its working structure, CapHaz-Net has made the pre-project decision that social capacity and resilience are separated. Having stated this, the exact interrelation of social capacity (building) and resilience needs not to be solved at this stage; it is part of the collective effort of the CapHaz-Net consortium until the end of the project. For the time being we think it is sufficient to state that social capacity building might be part of a wider approach and, hence, an important means on the way toward more resilient communities and societies. For a more detailed discussion see Chapter 4.2.

## **2.4 Related concepts III: Social capital**

Social capital became a buzzword in the social sciences during the 1990s and was then applied to many topics, scientific projects as well as for social engineering across the world (Fine 2008). One scale of application was that of local communities and urban neighbourhoods.

Though often and primarily associated with the political scientist Robert Putnam, who receives the bulk of attention in the social capital debate,<sup>3</sup> the concept is older. One of its first major conceptualisations goes back to Pierre Bourdieu (1986) who distinguishes four sorts of capital: economic, cultural, symbolic, and social. In his understanding, social capital is based upon affiliation to a certain social group or, to put it differently, it is the “aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalised relationships of mutual acquaintance and recognition” (Bourdieu 1986, 248). Social capital along with material resources and formal qualification (i.e. economic and cultural capital, respectively) are major resources for placing an individual in the social space. Another sociological contribution stems from James S. Coleman (1990) who distinguishes economic, human and social capital. Also according to Coleman, social capital arises out of the relations between (individual

<sup>3</sup> According to Fine (2008), Putnam was “the single most cited author across the social sciences in the 1990s” (ibid., 14).

or collective) actors, but it is not the social relations themselves. Like his other sorts of capital – and due to the underlying economic ('rational choice') theory of the author – social capital is about utility (Coleman 1988 and 1990).

Both Bourdieu and Coleman conceptualise social capital as an individual asset: it is the quality and quantity of the social relationships as well as further social, but also economic and cultural capital which can be mobilised via this network. Taken together these make up the social capital of an individual. Putnam (1993 and 2000), in contrast, rather emphasises the role of social capital as a collective asset. Social capital in his understanding relates to “features of social organization, such as trust, norms and networks, that can improve the efficiency of society by facilitating coordinated actions” (Putnam 1993, 167). In contrast with the two aforementioned authors social capital then is the collective good of a community which indicates its respective level of ‘civicness’. Particularly this last approach to social capital was and still is heavily criticised for a number of reasons (e.g. the absence of power issues) which, however, cannot be recapitulated here (see Portes 1998 and Fine 2008 with a number of further references).

All three approaches add important ideas to our concept of social capacity. On the one hand, we want to highlight the resource idea which takes into account people’s networks and the resources potentially available from them. In the context of a disaster these could be, for example, information and support. On the other hand, Putnam’s approach to social capital can also be seen as a community-level conceptualisation of social capacity. Particularly the notion of trust, be it in co-residents or in public authorities, can be taken as an important community resource during and after a disaster (De Marchi et al. 2007). However, as stressed above, social capacity in our understanding also includes the notion of how to employ the respective resources.

Theories of social capital are predominantly about the conditions, functioning and utility of network structures (Schnur 2003, 56) and, thus on resource availability and use which is the major link to social capacity as defined above. Yet, when we shortly scan the natural hazards literature, we have to conclude that this link is still “missing” (Nakagawa and Shaw 2004). Neither social capital nor network theories are of major importance in the research on natural hazards and disasters. Some studies were interested in the recovery phase and the effects a disastrous event has on social cohesion and community relations (Beggs et al. 1996, Sweet 1998, Nakagawa and Shaw 2004), but only a few authors dealt with the relevance of social networks and social capital in earlier stages or phases of a disaster (Barton 1969, Hurlbert et al. 2000, Kirschenbaum 2004, De Marchi et al. 2007, Steinführer and Kuhlicke 2007).

From the climate-change perspective, Pelling and High (2005) argue that “social capital offers a lens through which to study the coevolution of social networks and norms in the production of adaptive capacity among collectives” and, thus, of learning and of social change (ibid., 308). Considering a variety of social capital approaches in their applicability and use for geographical vulnerability research, Bohle (2005) particularly highlights those approaches “that seek to promote opportunities, those that facilitate empowerment, and those that enhance security” to be worthwhile in development research (ibid., 65).

Whether or not this also applies to natural hazards research has to be elaborated in the course of the entire CapHaz-Net project. Another line still to be followed are (local) empowerment approaches which, among others, are also to be found in the social capital and the natural hazards discourses and relate to issues of participation, voluntary commitment as well as of diverging risk and response perceptions by disaster ‘professionals’ and affected communities, but

probably also to the 'privatization of risk' as a major shift in risk governance in contemporary (European) societies (see also WP 2 report, Walker, G. et al. 2010).

### 3 Capacity building

This chapter turns its attention to a variety of concepts and understandings of capacity building. The literature reviewed comes from different fields and is concerned with environmental issues, development and social justice both within Europe and developing countries. Natural hazards per se were mostly not covered in the texts referred to in the following.

To build capacities is a process enjoying high popularity. Many international organizations, such as the United Nations, the World Bank, the World Trade Organization or the International Monetary Fund, consider capacity building as being central for their mission (cf. also Eade 2005, 1-22). They share the aim to assist people and institutions to develop skills, abilities, resources, and knowledge but also responsibilities to enable them to better adapt to and cope with a rapidly changing and increasingly complex environment (e.g. Johnson and Thomas 2007). The UN, for example, has not only a long-standing interest in capacity building, it also gives capacity building a strategic importance when defining it as a process that enables people and institutions to learn “to transform themselves as necessary in response to changing situations and requirements” (Maconick 2002, 4-5). However, although the term is on everyone’s lips (at least outside the natural hazards community), there is a great deal of debated centring on the question of what capacity building actually is. To begin with, it is, like many other terms, a rather elusive concept.

#### 3.1 Discourses: Origins and basic assumptions

In a general sense the aim of capacity building is to help people, communities and/or organizations to acquire special skills, knowledge, abilities or other resources to improve a somehow unsatisfactory situation. Therefore different tools and techniques have developed but also distinct audiences were identified. This chapter gives a short overview of the origins of the concept of capacity building. It introduces the reader to the different levels and then reflects about the context of capacity building efforts. Thereafter it takes into account and reflects upon critique on capacity building approaches. It is particularly the critique which seems relevant for a more nuanced understanding of capacity building efforts.

##### *Origins of the capacity building discourse*

To trace the origins of the term ‘capacity building’ is not an easy task and there are surely many different ways of framing and defining capacity building. Some argue that scholars and practitioners alike have been writing on “capacity issues for decades, albeit using different concepts, terms and contexts” (Baser and Morgan 2008, 13). Others underline that capacity building as a term and concept was introduced as “part of a political fashion” but is in practice hardly to be distinguished from other concepts (Craig 2007, 335). The same author argues, for example, that community capacity building is not different from “community development” with the latter being a much older concept (ibid.).

Eade (2005) gives a clear hint on where capacity building has its origins: “Today’s thinking about ‘capacity-building’ is influenced by earlier ideas concerning participation, empowerment, civil society, and social movement” and these have been influenced and shaped by the work of Paulo Freire and the impact of Liberation Theology in Southern America in the 1970s and 1980s (ibid., 10). During this time Freire developed his “awareness-creation approach to adult literacy” (ibid.) in a context which was characterised by political and military repression in large parts of Latin America. Some of Freire’s ideas directly relate to capacity building. In a general sense, he

argues that being able to read is a political act: “our reading of the word is shaped by our reading of the world” (ibid.). Instead of understanding the process of learning as a one-way dialogue (a superior person hands down its knowledge to a student), Freire emphasised the importance of developing skills and competences to solve problems in a dialogical manner. More specifically, he argues that “learners and their own experience and knowledge are of crucial importance; second, that awareness, learning, self-esteem, and the capacity for political action are mutually reinforcing. And third, that poor and marginalised people have the right, and the capacity, to organise and challenge authority in order to create a society that is not based on exploitation and oppression” (ibid., 11). Particularly in development thinking and practice his ideas of empowerment and participation became relevant, as we will see below.

‘Capacity building’ has risen to worldwide prominence during the mid-1990s in the context of the sustainable development / Agenda 21 debate as it was initiated by the United Nations Environment and Development Program (UNEP) and the UN Commission on Sustainable Development. At its beginning the term had a reflexive component in the sense that, for instance, the UNEP definition focused on the role of the UN itself in supporting capacity building. The aim was to build capacity “for the formulation of plans and strategies in support of sustainable development” (McGinty 2003, 5). This understanding was hence quite different to the one outlined above, as it was an intervention by an external organization that would initiate or promote an endogenous process by concentrating on specific aspects such as human resource development, organizational, institutional as well as legal development (Craig 2007, 341; see also IPCC 2007). Only later definitions of capacity building, particularly within the development context, expanded the focus and contained a stronger community component. By pursuing a more participatory mode of understanding capacity building, the relationship between external interventions and local endogenous potentials shifted towards empowering the latter. It was intended to stimulate a process that would be consistent with the goals of the “self-help approach to community development” (Christenson and Robinson 1980) aiming at an increased autonomy and agency of individuals and communities (Pavey et al. 2007, 92).

### ***Social capacity building and its multi-levelled nature***

In the literature, capacity building efforts are often differentiated with regard to different *levels* departing from building technical skills, enhancing the capacity of individuals, organizations, communities etc. but to also to enhance the institutional capacity (such as legal frameworks). Taking this multi-levelled nature of capacity building serious we therefore use ‘social capacity building’ as an *umbrella term* underlining that it is a highly complex and ambitious process. In the following we want to specify how its single levels are characterised. In a very general sense four levels of social capacity building can be differentiated: (a) an individual level, (b) an organizational level, (c) a community level and (d) an institutional level:

(A) *Individual level*: This level concentrates on individuals or a collective body of individuals. It mostly concentrates on specific practices or skills (e.g. managerial, communicative etc.) and is taking place in an organizational and/or community environment. Although most often the individual is addressed directly, the aim of individual capacity building efforts is not aiming at the individual’s capacities per se, but rather wants to improve the respective organizational setting or community environment by increasing its ‘social’ or ‘human capital’ (cf. also Chapter 2.3).

(B) *Organizational level*: This level concentrates on structures, processes and management systems of organizations (Table 3.1). Strategic planning, financial management, information management, communication networks as well as resource development and management are capacities that are considered as relevant in the frame of organizational capacity building (OCB; Brown et al. 2001, Johnson and Thomas 2007). Quite often the discussion relates to non-profit organizations by trying to give them “training, technical assistance and other resources to achieve their mission” (Sobeck and Agius 2007, 237).

**Table 3.1:** Selected definitions of organizational capacity building (OCB)

| <b>Definition</b>   | <b>Source</b>                |
|---|------------------------------|
| OCB is the ability of individuals and organizations or organizational units to perform functions effectively, efficiently and sustainably ... the power of something (a system, an organization, a person) to perform or produce            | UNDP 1998                    |
| OCB is a continuous process of attracting and managing finite board ensured resources in a rapidly changing landscape to produce projects, programs and services, and activities that are demonstrably appropriate to non-profit's missions | Freeman and Roming 2005, 101 |
| OCB is a multidimensional concept that includes the blending of capabilities, knowledge and resources, and the human capital to actuate the service mission   | Connolly and Lukas 2002      |

(C) *Community level*: This level focuses on communities and/or community-based organizations (Table. 3.2). In the development context community capacity building (CCB) gained importance, as previously stated, when it was increasingly recognised that simple ‘top-down’ project work was perceived as misleading and therefore required replacement, or at least complementation, by bottom-up approaches aiming at strengthening “people’s capacity to determine their own values and priorities and organise themselves to act on this” (Eade and Williams 1996, 64; cf. also Eade 2005, 2-3). In this context, CCB is, above all, about local ownership of development processes.

**Table 3.2:** Selected definitions of community capacity building (CCB)

| <b>Definition</b>   | <b>Source</b>              |
|---|----------------------------|
| CCB tries to strengthen groups organizational capabilities to enable them to sustain themselves in order to play a fuller part in civil society and community cohesion and engage more fully with public authorities  | Ahmed et al. 2004, 20      |
| CCB is defined as developing the capacity and skills of the members of a community in such a way that they are better able to identify and help meet their needs and to participate more fully in society. More specifically CCB aims at:<br>Equipping people with skills and competencies which they would not otherwise have;<br>Realising existing skills and developing potential;<br>Promoting people’s ability to take responsibility for identifying and meeting their own and other people’s needs. | Charity Commission 2000, 3 |
| CCB is defined as activities, resources and support that strengthen the skills and abilities of people and community groups to take effective action and leading roles in the development of their communities  | Home Office 2003, 15       |

In the European context, community capacity building was mentioned for the first time in a report to the European Commission in 1996 (EC 1996, 68). Here the focus is different as capacity building was considered, above all, as a remedy to negative economic development. In this sense it contains “strategies for community economic development in areas of ‘low economic

activity whose members have lost the ability to compete in the labour markets', i.e. disadvantaged communities" (Craig 2007, 341). It was hence regarded as an approach that tries to initiate and foster economic development by enhancing people's capacities of specific disadvantaged communities to participate in the labour market. This approach was influenced by US experience, as Banks and Shenton (2001) suggest, and followed the Community Investment Act (1977) which tried to facilitate access to the labour market by advising individuals of communities with business and management skills.

However, although stemming from different contexts, community capacity building approaches mostly share that they stress "the importance of participation, community development and strengthening of skills, abilities, and responsibility" (Craig 2007, 345). Kaplan (2000), for instance, understands capacity building efforts as a way of building the capacity of people and organizations to identify and realise their own objectives, independent of external pressure. CCB is, as already stated above, about enabling local communities to "take a degree of 'ownership' over local development trajectories" (Barker 2005, 13). It is hence a process aiming at taking "local ownership" of the agenda, rather than simply responding to an externally defined requirement or deficit (Nunn 2007, 470).

It is striking that the *notion of community* is not questioned at all in most of these documents. Neither is there obviously seen any need to define community. But (at least from a non-native speaker's perspective) this term is far from being unambiguous (see also Quarantelli and Dynes 1986; Cohen 1992) since it relates to at least two distinct issues: a local unit, on the one hand, and a social entity, on the other. Even more decisive is, however, that the recurring reference to 'the' community suggests a homogeneity which in terms of social structure, exposure, vulnerability and capacities usually not exists.<sup>4</sup>

(D) *Institutional level*: This level has at least two different dimensions (cf. Gualini 2002): A first one is *institution building*. This includes the emergence and transition of the "mobilisation and commitment of individuals, the contingent unity of meanings, and the constitution of collective forms of action" into a stable institutional pattern (ibid., 35). The second dimension would not focus on the "generative' conditions" but rather on the "enabling dimension" (ibid.). It includes rules and norms "structuring the interaction" of people and creating the "power to achieve purposes that would be unreachable in their absence" (Scharpf 1989, 152 in Gualini 2002, 36). This dimension may be called "institutional design" (ibid.).

Apparently, all four dimensions of capacity building overlap (Fig. 3.1). Community capacity building, for instance, contains elements of the organizational and individual levels, and building capacities of organizations is also only meaningful by investing in capacity building efforts of individuals (e.g. Johnson and Thomas 2007).

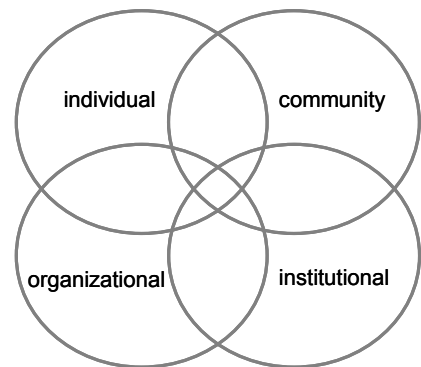


Figure 3.1: The multi-levelled nature of social capacity building

<sup>4</sup> An interesting typology is provided by CCS (2009) which differentiates geographical communities (more or less defined by geographical boundaries), communities of common interests (be them employment, hobbies, sport, gender, entertainment or politics, to mention but a few such interests) and communities of circumstance (e.g. created a group of non-related tourists during a disaster). Thanks to Laura Gibb for providing this material.

### ***Contextualizing social capacity building***

While in the previous section different levels of capacity building were identified, this part concentrates on the respective institutional context by introducing different *dimensions* of capacity building. This section is closely interlinked with the topic of risk governance (cf. WP 2 report, Walker, G. et al. 2010). It is an attempt to better understand what kind of mix of institutional arrangements seems particularly appropriate for conducting and eventually improving capacity building efforts. To be sure, this section (as the entire report) does not yet provide an answer to the question which context conditions are most appropriate or which practices are particularly exemplary; it just aims at outlining ways of how the context of capacity building efforts can be examined.

Nunn (2007), for instance, identifies five different dimensions:

1. a policy dimension (the purpose of the system, values),
2. legal/regulatory systems (rules, laws, norms standards)
3. management/accountability (who manages, who are the stakeholders within the system),
4. resources (human, financial, information),
5. processes (relationship between entities in the system including sub-systems, resource flows and networks).

Weidner (2002) examines the development of environmental policy in 30 advanced and developing countries by using a “capacity-building approach”, which concentrates on the prerequisites, development and effects of such policies (ibid., 1340). He departs from the definition of the OECD Task Force on Capacity Building Development stating that “capacity in environment relates to the abilities of a society to identify environmental problems and solves them, capacity development in environment relates to the ‘process’ by which those abilities are developed” (OECD 1994, 9). This definition is rather broad and encompasses a great variety of elements both in a material and non-material sense. By using an actor- and system-oriented approach, Weidner defines the process of reaching environmental capacity as a multidimensional process determined by:

- usually conflicting organised groups, their resources, their ability to form alliances and their ability to cooperate in identifying and seizing (or even creating) situational opportunities;
- cultural, political and economic (structural) conditions, the environmental situation and public awareness;
- the nature of the problem to be resolved (as partly constituted by these factors), how easy it is to solve – which usually depends on the kind of interest and the clout of the polluters involved, the systemic nature of the problem, whether it is conventional or latent/creeping, and so on (Weidner 2002, 1342).

In a more policy-driven mode of understanding capacity building efforts, *capacities for environmental policy and management are constituted by:*

- 1) the strength, competence and configuration of governmental and organised non-governmental proponents of environmental protection and
- 2) a) cognitive, informational,  
b) political-institutional, and  
c) economic-technological framework conditions



The *utilization of existing capacities* depends on:

- 3) the strength, will and skills of proponents and
- 4) their situative opportunities

This has to be *related to*:

- 5) the kind of problem: its urgency, complexity and the power resources and options of targets groups, their allies, and supporters (cf. Jänicke 1997, 8).

The broader view on capacity building just outlined points toward the importance of taking the *context* of capacity building into account. It underlines that a reductionist understanding of capacity building concentrating exclusively on managerial and technocratic aspects must fail. Such a logic is based on a notion understanding “people, organizations and systems as pieces of performance machinery whose capacity can be constructed and adjusted through a set of purposeful (and often externally financed and managed) interventions” (Land 2009, 7). Such a view would neglect the respective cultural, political, economic, geographical and historical context when applying a ‘best practice’ solution that might work in a certain context but not necessarily in others. Things are more complicated. Empirical studies on organizational capacity building efforts (e.g. Baser and Morgan 2008) impressively illustrate that capacity building actually does not necessarily result from purposeful and/or planned interventions but “rather have emerged from difficult-to-chart processes of organizational learning and adaptation” (Land 2009, 7).

### **3.2 Criticism on capacity building approaches: Widening the focus**

This section shortly summarises major criticisms concerning the concept and practices of capacity building. From this we will develop the idea of capacity building as a learning process characterised by several feedback loops which will then enable us to apply this concept in the context of natural hazards research.

#### ***Agency and structure – redefining its interrelations***

One strand of criticism concentrates on underlying assumptions about structures and agencies. It regards many capacity building efforts as an institutionalisation of Giddens’ “Third Way” rhetoric. To recall, Giddens’ analysis of late or post-traditional societies suggests that agency is gaining importance there as these societies become more reflexive (cf. also Lash 2003, 49). In this vein, Giddens suggests a shift towards the importance of actions: “the more knowledge the individual obtains, the more autonomous of structure he becomes” (Hoogenboom and Ossewaarde 2005, 6).

Many capacity building approaches, as governance in a more general sense, are no longer about direct interventions into areas such as social exclusion (and hence concentrating on structural aspects), they are rather about creating the conditions for individuals and communities to solve their own problems (hence agency; cf. also Rose 1993). In this vein, facilitating social capital in “individuals and building capacity in marginalised communities is primarily about empowering people to be able to look beyond and ultimately to transcend structures” (Fudge 2009, 64). Therefore particularly community capacity building efforts often reflect Giddens’s conception of agency and prescribe a greater individual responsibility (Fudge 2009, 59-60). Such programs look primarily at facilitating the agency response, helping individuals to see opportunities –

mostly through access to education, training and job opportunities – where previously they may have seen barriers: “It is assumed that the institutional structure of society will respond to these choices and will facilitate the heightened social reflexivity of individuals who inhabit areas where these choices were previously more tenuous” (Fudge 2009, 60).

However, such approaches need to be embedded, as Taylor (cited in Fudge 2009, 61) argues, in the basic political, economic and social rights of modern citizenship. Importantly, she asserts that the structural causes of social exclusion need to be addressed, particularly in any programme that seeks to build capacity and empower individuals and communities.

### **Capacity building and power relations**

Another point which needs more attention is the power relations inherent in any capacity building effort. Glendinning et al. (2002) argue that most often there exists a major difference among partners and/or organizations involved in capacity building. In particular, non-governmental organizations and community groups, which are often represented on an unpaid volunteer basis, are considerably worse equipped (e.g. financially, managerially, technically etc.) in comparison with representatives of larger, more powerful and better resourced partners. As a result there might be a tendency for building the “capacity of the powerful (and their organizations) and not the weak, or for building the capacity of the weak only insofar as it accords with the interests of the powerful” (Banks and Shenton 2001). This, then, undermines the very idea of capacity building: “Perforce, there is a relationship of unequals. And inequality never built capacity” (Manji 1997, quoted in Eade 1997, 8).

### **Capacity building as deficit model**

Another line of criticism focuses on the analyses of the status quo and the inherent difficulty of which actors have the legitimacy to define that a ‘deficit’ exists which needs to be dealt with by means of capacity building (see also De Marchi 2003). Particularly, people ‘working on the ground’ question the motives of those promoting capacity building from the top. Responding to the UK government’s review of its support for community capacity building, the body representing community development training argued (FCDL 2004, 3) that

*“... the experience of many communities is that ‘community capacity building’ programmes (with a myriad of titles), have been imposed on them; with perceived needs, desired outcomes and preferred methods part of the package which they have not had the opportunity to identify, develop or agree ... the ‘community’ (often not self-defined) is exhorted to play its part in an environment where inequalities of resources, power, information and status are not even acknowledged, never mind addressed”.*

As Tedmanson (2003) noted, by referring to experiences of the Aborigines in Australia the capacity building jargon “signifies an entrenchment of notions of what constitutes capacity, who defines capacity and what constitutes the relationship between the dominant culture of *capacity-builders* and those identified as *capacity deficient*” (ibid., 15). More specifically, as an Aborigine argues, the challenge in Australia is not to ‘build’ capacity but to rather ‘restore’ capacity as “they had 40,000 to 60,000 years of survival and capacity” (quoted ibid.). Capacity building is quite often applied “by *donors* to *recipients*” (Nunn 2007, 470) whereas the need to capacity building is defined by external actors (see also the impressive example given by Singh 2009 on the outcomes of international aid in the post-tsunami Nicobar Islands). More intriguingly, cultural differences

are in this perspective quite often viewed as a “weakness and not as a strength, a capacity deficit to be rebuilt or a problem to be ‘solved’” (Tedmanson 2003, 15). Attempts to build capacity hence always face the problem of taking a paternalistic stance. There is indeed an interesting parallel to the natural hazards discourse: as outlined in Chapter 2.2, vulnerability research is troubled with similar questions (as of who defines vulnerability according with which means and to what end).

According to Beazley et al. (2004) the weakness of the ‘deficit model’ is that it pays no attention to the capacity of institutions to overcome inherent barriers to engagement. In a nutshell: the problem often lies not with communities but with the institutions, structures and processes that affect them. Additionally, quite often community capacity building approaches would define the ‘deficit’ (i.e. a status quo X) but would not define the endpoint or the expected outcome of a capacity building effort: “What is the capacity being built towards or is it an end in itself?” (Beazley et al. 2004, 6). Taking this argument into account, Partridge has an interesting interpretation of the very concept. In his view it is only meaningful to speak of community capacity building “where it applies equally to the lack of capacity both in neighbourhoods and of powerful partner agencies to listen to, engage with and share power with communities effectively. Do such powerful agencies have the capacity to lose their face or to cope with residents’ decision going against them?” (quoted *ibid.* based on personal communication).

→ Taking the ‘deficit’ model critique serious, any analysis of and/or setting up of capacity building efforts needs to ask the following questions (based on Craig 2007, 354):

1. *Who defines the capacity that communities need and why?*
2. *Who defines what a community actually is?*
3. *What control do local communities exercise over the capacity-building process?*
4. *Who defines what a strong/adapted/‘resilient’ community should look like?*

### ***Capacity building: a dynamic learning process rather than a linear development***

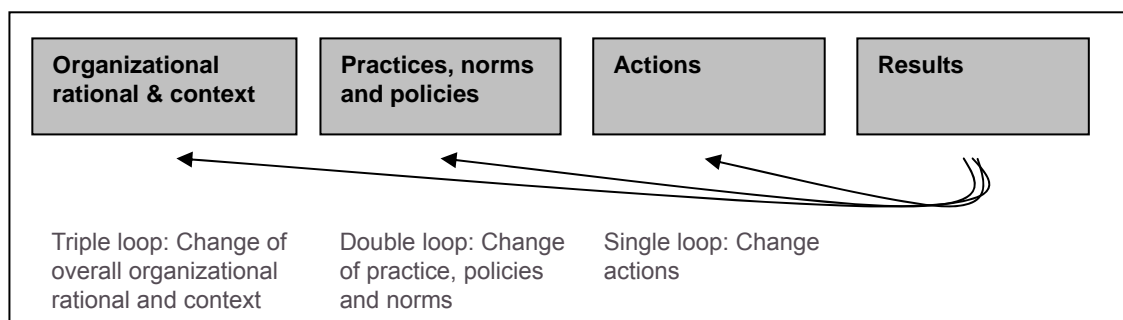
Another strand of criticism, which is mostly concerned with organizational capacity building, argues that many approaches to capacity building do not sufficiently acknowledge the dynamic learning processes that underlie any attempt to build capacity. Although some kind of education, training and/or transfer of knowledge and experience is inherent in all capacity building efforts, this dimension only gains prominence in more recent writings.

In a quite general sense capacity building is connected with learning processes as existing experiences, routines and stocks of knowledge are always existent in an area where further capacities are built. In this sense, capacity building always implies the integration of “old and new knowledges and being able to apply learning in new ways and to new situations” (Johnson and Thomas 2007, 40).

Others underline the iterative nature of learning processes, particularly with respect to capacity building. Quite often the actors involved discover a surprising mismatch between “expected and actual results of action” (Argyris and Schön 1996, 16). The discovery of such kind of surprises may cause feedback loops consisting of single-, double- and triple-loop learning processes (cf. Argyris and Schön 1978; Ramalingam 2008; Johnson and Thomas 2007 and Fig. 3.2):

- *Single-loop learning* departs from the mismatch of expectations and actual results and tries to detect and correct deviations and variances from established and more or less taken-for-granted practices, policies and norms by changing actions;
- *Double-loop learning* processes involve reflections on the underlying practices, norms and policies. It thus addresses the basic self-conception of an organization and might result in re-addressing and rearranging them;
- *Triple-loop learning* questions the entire rationale of a social entity and may result in radical transformation with regard to practices, norms, structures and cultures of the entity itself as well as its external context.

Figure 3.2: Capacity building as a learning process (based on Ramalingam 2008)



We regard this idea of multi-loop learning processes as a good starting point to be applied to natural hazards in a conceptual manner and the basic tasks of CapHaz-Net. This will be discussed in more detail in the next chapter.

## 4 Social capacity building for natural hazards: Basic assumptions and implications for CapHaz-Net

### 4.1 A conceptual frame of social capacity building for natural hazards

Underlying most efforts to build capacity is the assumption that capacity building is linked to some kind of process or performance. They depart either from an observed lack of skills, resources, practices, abilities, knowledge etc. which needs to be remedied or from some kind of inadequate performance which needs to be improved by a specific process as for instance training, education, discussion, partnership, participation, empowerment or experience exchange (cf. also Brown et al. 2001, Kay and Alder 1999). Very generally, there are hence three elements involved in capacity building: a status quo, which is defined by a lack of capacity, a means or a process attempting to improve the situation and an expected outcome or a defined objective characterised by more capacities (Fig. 4.1).

Figure 4.1: Elements involved in capacity building



Source: authors' considerations; design: annalogie.de

- Relating this basic idea to *natural hazards*, it might be easily imagined that stakeholders identify a lack of risk awareness with regard to land slides in an Alpine region. To improve this situation a state organization, regional authority or local NGO may therefore decide to put greater emphasis on risk communication in this area to sensitise citizens for this risk and to give them examples and advices on how to act in a case of emergency. Aim of the collective endeavour could be to reduce fatalities and physical damages.
- In a similar logic, CapHaz-Net is structured: prior to the project, risk perception and social vulnerability were defined as crucial issues in order to describe and understand the status quo, while risk communication and risk education were regarded as the means to achieve more social resilience (Fig. 4.2).

Figure 4.2: Elements involved in social capacity building for natural hazards according to CapHaz-Net



Source: authors' considerations; design: annalogie.de

In the following we want to further elaborate this basic framework of the elements involved by taking into account the previous discussions of Chapters 3 and 4. It hence incorporates the lessons we learned in the review of the literature on social capacity and capacity building.

### ***Capacity building – a multi-level effort***

It was previously shown that attempts to build capacity take place on different levels: above all on that of the individual, of organizations as well as of communities. To conduct capacity building efforts on these various levels needs to address different audiences and stakeholders, departs from different 'deficits', relies on different means and processes, and has also diverging aims. In the following section we give a general overview, which will be specified below.

(A) *Individual level*: This level relates to individuals or a collective body of individuals (e.g. households, schools etc). The defining characteristic of this level is that actors are formally not organised with respect to hazard and risk management efforts.

(B) *Organizational level*: This level relates to organizational actors which belong to "cooperation structures within formal-institutional structures and systemic functions, with clearly defined strategic goals, explicit benchmarking processes (milestones) and [...] with a defined end (death of network)" (Matthiesen 2005, 10). Such formal structures may exist in different sectors:

- Organizations from the public sector, which are directly or indirectly involved in disaster and risk management. They may include governments, ministries, administrations, planning agencies, local authorities, public services, fire brigades, etc..
- Companies in the private sector. They may be insurance companies but also other companies formally or informally involved in risk and disaster management e.g. privately owned utility or infrastructure companies. It may also include companies exposed to natural hazards.
- Non-governmental organizations from civil society (voluntary sector) involved directly or indirectly in disaster and risk management. They may include NGOs, foundations, community groups, activist groups, Union and interest groups.

(C) *Community level*: This level focuses on local communities and summarises the actors from the organizational level (public, private & voluntary) as well as individuals. It concentrates, above all, on the interaction and forms of cooperation between the different actors. Generally, there seems to be a broad consensus that the local level and/or the level of communities is the most appropriate setting for realising social capacity building efforts. But it was also pointed out above, that community is a concept far from self-evident or neutral which needs definition and – this is the lesson of decades of community studies (Elias and Scotson 1965, Stacey 1969, Cohen 1992, Cox 1998) – it needs some critical distance when approaching it. Otherwise issues like social conflicts, social inequity and social exclusion might be overlooked. For the time being, we therefore prefer to speak of contextualising social capacity building for natural hazards, which will often imply to place it on the local or at least regional scale. There are a number of good reasons to strictly contextualise natural hazards and hazardous events, respectively:

- *From a natural-hazards perspective:* each natural disaster is singular in its physical characteristics and local impact due to its coincidence with context-specific risk cultures, risk governance structures and institutional performance.
- *From the perspective of social vulnerability (status quo; Fig. 4.2):* taxonomic top-down and hazards-of-place approaches account only for some part of actual social vulnerabilities to natural hazards and need to be accomplished by bottom-up approaches and detailed contextualised research.
- *From the perspective of social capacity building (process and means; Fig. 4.2):* From the experiences made in other contexts, it is well known that simple ‘top-down’ approaches are mostly misleading. Therefore bottom-up processes are gaining acceptance. In the field of natural hazards this is for sure similar, as capacity building attempts will always need to take into account local management practices and local memories. Such local ‘risk cultures’ need to be integrated to adequately and effectively build (or sometimes rather re-establish) social capacities.
- *From a governance point of view:* The local level is meanwhile an important scale of actual risk management. It is here where the tendency toward an increasing ‘privatisation of risk’ – that the people themselves are expected to take preparatory measures – is materialising. This, however, remains a tricky issue since risk governance actually takes place at a number of different and interacting scales.

(D) *Institutional level:* This level includes overarching societal processes, cultural patterns, shared norms and values, beliefs and attitudes which are among individuals, organizations as well as communities. These processes may be formally expressed and include legal and regulatory frameworks or may be simply taken for granted and implicitly generally shared. With regard to social capacity building at least three different dimensions are of relevance (cf. Gualini 2002):

- *Existing institutions:* across Europe a multiplicity and diversity of different set of norms, values, beliefs and attitudes exist among and between individuals, organizations and communities with regard to how natural hazards are perceived, how they are managed and governed.
- *Institution building:* this includes the emergences and transition of the “mobilisation and commitment of individuals, the contingent unity of meanings, and the constitution of collective forms of action” into a stable institutional pattern (ibid., 35).
- *Institutional design:* finally, one needs to not only consider the “‘generative’ conditions” but also the “enabling dimension” (ibid.). The institutional design includes hence rules and norms “structuring the interaction” of people and creating the “power to achieve purposes that would be unreachable in their absence” (Scharpf 1989, 152, quoted in Gualini 2002, 36).

Table 4.1 summarises the main characteristics of the organizational, individual and community levels of social capacity building. Since the institutional level is an integral part of each of the aforementioned levels, it is not distinguished separately.

**Table 4.1:** Social capacity building in a multi-level perspective

| <b>ORGANIZATIONAL LEVEL</b>   |   |   | <b>INDIVIDUAL LEVEL</b>  | <b>COMMUNITY LEVEL</b>   |
|---|---|---|--|--|
| <p>The defining characteristic of this level is that actors belong to some kind of “cooperation structures within formal-institutional structures and systemic functions, with clearly defined strategic goals, explicit benchmarking processes (milestones) and [...] with a defined end (death of network)” (Matthiesen 2005, 10). Such formal organization structures may exist in different sectors: the public, the private and the voluntary sectors.</p> |   |   | <p>This level includes individuals or a collective body of individuals (e.g. households, schools etc). The defining characteristic of this level is that actors are formally not organised with respect to hazard and risk management efforts.</p> | <p>This level focuses on local communities and summarises the actors from the organizational level (public, private &amp; voluntary sectors) as well as individuals. It concentrates, above all, on the interaction and forms of cooperation between the different actors in a specific locality (e.g. village or an urban neighbourhood).</p> |
| <p>Organizations from the <b>public sector</b>, which are directly or indirectly involved in disaster and risk management. They may include governments, ministries, administrations, planning agencies, local authorities, public services, fire brigades, etc.</p>  | <p>Companies in the <b>private sector</b>. They may be insurance companies but also other companies formally or informally involved in risk and disaster management e.g. privately owned utility or infrastructure companies. It may also include companies exposed to natural hazards.</p> | <p>Non-governmental organizations from civil society (<b>voluntary sector</b>) involved directly or indirectly in disaster and risk management. They may include NGOs, foundations, community groups, activist groups, Union and interest groups.</p> |  |  |

**Social capacity building as an iterative learning process**

Particularly in the field of natural hazards, social capacity building should be understood as a learning process which needs to be open to surprising events (Kuhlicke 2008, Kuhlicke and Kruse 2009). Most of the ‘lessons learned’ documents compiled after major disasters (e.g. the Kirchbach Report in Germany after the 2002 flood or the Pitt Review after the 2007 floods in the UK; Kirchbach et al. 2002, Pitt 2007) give testimony that disasters contain the possibility to scrutinise previously established policies, practices and actions (see also Felgentreff 2003).

**Social capacity building as an iterative and mutual learning process**

In this vein, social capacity building should be organised as an iterative and mutual learning process that recognises and takes into account the mismatch of expectations and actual results; that is to reflect and if appropriate adapt established practices, norms and policies. Such attempts may even lead to questioning the very basis of practices, norms, structures and cultures of the entity of interest itself as well as its context of actors and structures involved.



### ***'Who defines what?' Deficits, means and outcomes***

This is surely a central challenge of social capacity building for natural hazards: *Who defines on which (empirical) ground what kinds of capacity of whom are lacking ('deficits') and by which means or processes capacity should be reduced/improved, with which resources, which actors involved and which outcome?* Building capacity often entails a paternalistic stance, in the sense that an actor or a group of actors is considered by an outsider as lacking a certain skill, a resource or a capacity. This judgment is mostly made from a position of superiority. This implies that the interrelations of 'capacity builders' and those 'deficient' of a certain capacity need to be carefully taken into account and this at least with regard to the following aspects:

#### **Interrelation of 'capacity builders' and those 'deficient' of capacities**

Ideally those considered as lacking a certain capacity should be involved in the process of defining their (own) deficit: do they agree or do they have distinct perceptions and definitions of their own 'deficits'? Do they perceive the need to overcome them?

At the same time, the means and processes by which a certain aim should be reached should also be made transparent and become part of a collective process of defining the means and processes.

Finally, the outcome of any social capacity building should be made transparent and agreed upon, again by taking into account the views of the different actors involved in such an endeavour (more generally on these issues in a risk context: De Marchi 2003)

Based on the previously outlined basic elements of capacity building efforts as well as the subsequently introduced aspects to be considered, the basic framework may be reconsidered as shown in Fig. 4.3.

**Figure 4.3:** Elements involved in social capacity building for natural hazards – reconsidered



Source: authors' considerations; design: annalogie.de

These considerations lead us to the following definition of social capacity building.

### **Suggested definition of social capacity building**

By 'social capacity' we mean all the resources available at various levels (e.g. individuals, organizations, communities) that can be used to anticipate, respond to, cope with, recover from and adapt to external stressors (e.g. a hazardous event). These resources include skills, knowledge, social networks as well as institutions, structures and knowledge of how to elicit and use them. 'Social capacity building' is a normative concept that aims at rediscovering, enhancing and developing the previously mentioned resources. Ideally, it is understood as a long-term effort taking place on a variety of levels including that of individuals, organizations, communities and institutions. It is designed and set up as an iterative and mutual learning process which is based on the cooperation and interaction of various actors. This implies also that those considered as 'lacking' a certain capacity should not only be involved (and have the capacities) in defining their own 'deficit' but also in defining the aims and purposes of the capacity building effort.

## **4.2 Social capacity building for natural hazards and its implications for CapHaz-Net: Establishing links between the different work packages**

After having outlined basic assumptions of social capacity building and the general challenges of any effort on that, this final section builds further links to the field of natural hazards. At the same time it relates the previous discussions to CapHaz-Net itself, as the overall working structure of CapHaz-Net is organised in a similar manner as the basic framework presented (see below Fig. 4.4). Thus, when setting up the project proposal we had already made some decisions of how certain topics interrelate with regard to social capacity building for natural hazards.

In the context of natural hazards, we relate social capacities more specifically to the resources of the people, communities and organizations in order to anticipate, cope with and recover from hazards. Here capacity relates to questions of awareness and people's understanding that risks exist and may affect them; their preparedness to be able to respond effectively and to protect themselves, their property and livelihood when disaster strikes; their ability to receive warnings and understand whether and how to respond to these; and their ability to engage with and contribute to decision making and planning processes for managing risks as well as their abilities to deal practically with their limits of knowledge. It furthermore includes training, education and other methods to help people develop skills necessary for them to achieve their purposes. These capacities as well as the willingness and ability to act strongly relate to people's social vulnerability and their risk perceptions (see the WP 3 and WP 4 reports).

Although social capacity building pays particular attention to individuals and communities, this has to be set within the wider context of socio-economic processes, regulatory and legal frameworks, infrastructures and institutions that shape and structure local experiences and capacities (risk governance; Walker, G. et al. 2010). Therefore a simple focus on communities will neglect these broader societal conditions that may both increase and reduce the capacities of communities to cope with risk. On the other hand, local communities are certainly an appropriate entity for concrete awareness raising programs, risk communication efforts and risk education actions.

**Figure 4.4:** Elements involved in social capacity building for natural hazards according to CapHaz-Net



Source: authors' considerations; design: annalogie.de

As Fig. 4.4 displays, CapHaz-Net departs from better understanding the current situation ('status quo') in Europe with regard to risk perception and social vulnerability. It aims at taking into account general trends on the one hand and context-specific findings on the other. Furthermore, CapHaz-Net considers risk communication and risk education as important means (that is, processes) of social capacity building and its aims at enhancing social resilience. This is taking place in specific contexts of how risk is governed. This rather general approach will be contextualised by means of three 'Regional Hazard Workshops' taking place in different geographical contexts. The purpose of these workshops which are the focus and major highlights of the work in the second project phase of CapHaz-Net is to match the scientific debate with the regional perspective related to natural hazards. Therefore, the perspectives and knowledge of regional stakeholders will be an integral part of this effort. For this, it is above all crucial to understand the role of the contexts and this with regard to the previously elaborated topics. Thus the second half of the project is dedicated to concrete examples of the work done in the first phase and the evaluation of existing 'deficits', 'means and processes' as well as 'aims'.

The entire effort is organised as a mutual learning process that tries to include varying stakeholders and scholars from across Europe. A series of workshops is the main means in this process.

### ***Risk perception and social vulnerability***

As stated throughout this report, social capacity building is closely interlinked with the discourse on social vulnerability and risk perception, at least implicitly. In this section we want to make the links more explicit. As stated above, we take both issues as starting points in order to identify the status quo, that is, existing capacities (Fig. 4.2 and 4.4).

Risk perception and social vulnerability come from different disciplinary backgrounds and originated in distinct societal contexts. While risk perception studies were initially conducted by psychologists during the 1960s and 1970s investigating 'lay'-people's perceptions of newly introduced technologies such as nuclear power (Slovic et al. 1974), vulnerability research came into being during the 1970s in developing countries, particularly in the Sahel Zone; it was mostly interested in socio-economic and political structures influencing the ability of people to survive droughts, famines and other disasters (Waddell 1975; O'Keefe et al. 1976; Waddell 1977; Susman et al. 1983).

Risk perception is frequently used to refer to people's view on risks; the term refers to "people's judgements and evaluations of hazards they (or their facilities or environment) are or might be exposed to" (Rohrman and Renn 2000, 14-15). Both people's previous experiences and their beliefs influence their perceptions of risk. An alternative concept worth considering is risk construction (Steinführer and Kuhlicke 2007).

The term social vulnerability has been dealt with at some length in Chapter 2.1. It was shown that the concept of vulnerability also knows some kind of 'capacity' and that it has experienced a considerable reinterpretation, which is grounded in the insights that it is not simply a constant 'state' and/or a stable condition which is inherent and/or intrinsic to a person or a community and defined by some kind of external socio-economic factors (e.g. age, gender, income, education, ethnicity etc.) Such approaches hence failed 'to acknowledge the importance of the resources and capacities of a community which enable them to overcome these vulnerabilities and cope with change' (Maguire and Cartwright 2008, 7). As a consequence, people's vulnerability needs also to be seen in light of their capacities and abilities to influence and define their own fortunes. Vulnerability is much more complex and dynamic than an approach which understands vulnerability as a stable 'state' assumes.

But there is more, by introducing the term social capacity building we want to emphasise that capacity building is a social process (rather than a simple managerial task) including different actors and taking place on different levels as well as different temporal and spatial scales. Social capacity hence needs to be differently conceptualised and assessed at the different levels. This also implies that social vulnerability assessment should take these different levels and scales into account as the vulnerability is not a constant stock but rather dependent from the social unit we are referring to (individual, community, nation state). Based on these reflections, some general questions with regard to social vulnerability arise:

- How do vulnerability studies conducted in Europe conceptualise vulnerability? Which implicit and/or explicit assumption are vulnerability studies base on? How do they define vulnerability and which consequences does this have for the results they obtain?
- Is vulnerability taken as exposure and capacity or are exposure, vulnerability and capacity treated separately? What implications does the respective understanding have for the assessment of social vulnerability?
- By which means and methods (e.g. surveys, indicators etc.) is vulnerability assessed and 'measured'? What are the advantages and disadvantages of the different means and methods?
- Is vulnerability considered as a stable state, as a given and constant 'stock' or rather as a more dynamic and relational entity? To what extent is it taken into account that vulnerability emerges in the interaction between people, groups, organizations, authorities etc.
- Is there a tendency to understand vulnerability as a 'deficit' in order to 'label' vulnerable groups? Who is defining vulnerability on which ground?

The link between social capacity building and risk perception is less obvious, yet there are interconnections which need to be explored more in-depth. At the core of the report are two observations: apart from the observed increase in the damages associated with natural hazards, the "landscape of risk responsibility" (Johnson and Priest 2008) between different state and non-state actors seems to change in Europe (see also WP 2 report, Walker, G. et al. 2010). Legislations, programs and/or agencies operating at the national and European levels are encouraging

or even requiring individuals to take more responsibility for their actions ('privatisation of risk', Steinführer et al. 2009). Obviously, this process strongly relates to how residents at risk perceive and interpret the risk associated to natural hazards.

- How do people perceive this change of responsibility? Is it taking pace at all and if so do residents accept it?
- In the view of residents, is the demand for people to take personal responsibility realistic and which conditions need to be fulfilled in order to make it more than just a lip service? How do people deal with an increased demand for shared responsibility? Is this increase of complexity possibly related to new issues of vulnerability?

A final question relates to the interrelations between risk perception of and social vulnerability to natural hazards which were hardly explored by previous research.

**Table 4.2:** Status quo: topics addressed in CapHaz-Net with regard to risk perception and social vulnerability

**STATUS QUO**

|                                    |  |
|------------------------------------|--|
| <b>Risk Perception (WP 3)</b>      | Identifies important psychological factors influencing people's perceptions of natural hazards   |
|                                    | Provides a review of the factors that influence or shape the perception of hazard mitigation or adaptation measures  |
|                                    | Generates more insights into the connections between perceptions and behaviour   |
|                                    | Identifies and maps existing studies on risk perception across Europe  |
| <b>Social Vulnerability (WP 4)</b> | Identifies general and context-specific factors influencing social vulnerabilities to natural hazards in Europe  |
|                                    | Identifies regions and social groups that need particular attention with regard to risk governance and social capacity building efforts for reducing their vulnerabilities |
|                                    | Identifies and maps existing studies on social vulnerability to natural hazards across Europe  |
|                                    | Implications of our findings for differing stages of the risk cycle  |

***Risk communication and risk education***

Risk communication and risk education are two important means of social capacity building and basically refer to the process itself. The differences between both terms are not apparent at first sight, and sometimes they are even used interchangeably. However, in our understanding, risk communication is the broader concept and entails, above all, information exchange between institutions responsible for risk production/risk forecasting (e.g. industrial companies, meteorological institutes), stakeholders involved in risk warning and risk management as well as the affected general public. Risk education is more specific and addresses the inclusion of knowledge in school curricula at all levels and the consideration of other formal and informal channels to reach people at schools and institutions of higher education. Among others, knowledge is also reflected in textbooks and teaching practices but school curricula widely differ conceptually across Europe and sometimes even within countries. Systematic knowledge on risk education with regard to natural hazards is missing. In the course of CapHaz-Net we need to reflect upon

further whether risk communication (as the broader concept) is solely a means to build social capacity or whether it is also a social capacity itself.<sup>5</sup>

**Table 4.3:** Means and processes: topics addressed in CapHaz-Net with regard to risk communication and risk education

**MEANS AND PROCESSES**

|                                  |  |
|----------------------------------|--|
| <b>Risk Communication (WP 5)</b> | Reviews different risk communication approaches, provides a state-of-the-art overview in the field of natural hazards as well as good practice examples                        |
|                                  | Develops a framework for risk communication in the field of natural hazards forming the basis for developing risk communication guidelines                                     |
|                                  | Identifies and maps 'good' (and where appropriate 'bad') practices of risk communication across Europe   |
| <b>Risk Education (WP 6)</b>     | Assesses different risk education approaches, tools, practices and policies in the field of natural hazards (with particular emphasis on children, teenagers and young adults) |
|                                  | Identifies constraints to education activities and suggest ways, topics and channels that should be covered with regard to risk education more thoroughly                      |
|                                  | Identify and map 'good' (and where appropriate 'bad') practices of risk education across Europe  |

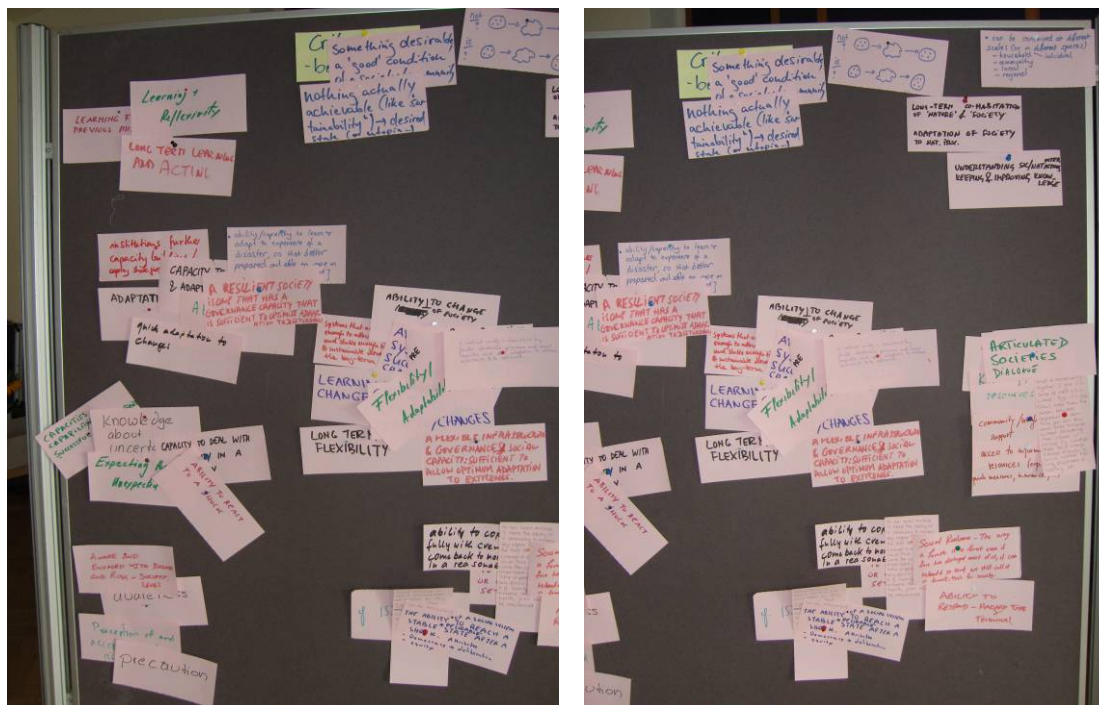
***Toward more resilient societies***

Outcome of analysing the status quo as well as the means and processes of how to change the situation might be an enhanced social resilience. The term resilience stands as a concept that aims at better understanding of how to strengthen capacities of individuals, communities and societies to deal with disasters, crises and stress. We departed from the assumption, that resilience points towards the ability to survive or even benefit from the occurrence of unknown, surprising and possibly harmful occurrences (Holling 1978, 104). In this understanding resilience underlines, in a very general manner, that change is not the exception but rather the rule, that change is not a negligible factor, but quite often a “necessary condition for system maintenance” (Timmerman 1986, 444). The notion of resilience thus points towards the necessity to learn from past experiences and to prepare for an uncertain and contingent future. As already stated above, in this understanding it is difficult to achieve (Kuhlicke and Kruse 2009).

Although resilience is somewhat the ‘aim’ of CapHaz-Net (i.e. it is the final work package synthesizing the previous work) it is dealt with from the very beginning to ensure that on the interrelation of ‘status quo’, ‘means and processes’ as well as ‘expected outcomes’ is constantly reflected upon. CapHaz-Net itself is hence organised as an iterative learning process. During our first meeting in July 2009 members of CapHaz-Net started to discuss the question what resilience might mean in the context of this project. The individual answers to the question what resilience means to each consortium partner were collected (Fig. 4.5). Based on that collection, seven dimensions of social resilience in the context of natural hazards were found (Table 4.4).

<sup>5</sup> Thanks to the WSL team for this consideration.

**Figure 4.5:** “What does social resilience mean to you?” Results of a brain-storming session at the CapHaz-Net kick-off meeting in Leipzig (July 2009)



**Table 4.4:** Different dimensions of resilience: ex-post clustering of characteristics of resilience defined by participants of the CapHaz-Net Kick-off meeting in Leipzig (July 2009)

| <b>DIMENSIONS</b>   | <b>UNDERLYING MEANINGS</b>   |
|---|--|
| <b>Capacity/flexibility to adapt to and cope with impacts, changes, and uncertainty</b> | Flexibility & adaptability; ability of a system to adapt successfully to changes, flexible infrastructure & governance; expecting the unexpected   |
| <b>Learning</b>   | Long-term learning and acting; learning and reflexivity; learning from previous mistakes; learning from change   |
| <b>Resources, skills etc.</b>   | Knowledge, skills + resources; access to information & resources; articulated societies dialogue; community, neighbourhood & family support; ties that bind a community together and give it a sense of itself |
| <b>Awareness, perception, precaution</b>  | Aware and engaged with hazard and risk-society level; perception of and acceptance of risk; precaution   |
| <b>Cope successfully with events and to comeback to normal</b>                          | Reach a stable/desirable state after a shock; get back to normal; maintain key aspects of itself in the face of changes (internal or external)   |
| <b>Nature–society</b>   | Long-term co-habitation of ‘nature’ and ‘society’, adaptation of society to natural processes  |
| <b>Levels</b>   | Household – individual; community – local; regional  |

Departing from this discussion the meaning of social resilience will be further specified as CapHaz-Net proceeds. Also its interrelations to other topics will be substantiated, both from the perspective of single thematic work packages (e.g. social vulnerability, risk communication etc.) and the hazard-related workshops (floods, droughts etc.) as well as from the perspective of the synthesising work package on social resilience. The task remains an ambitious one and this for two

reasons: it became obvious that resilience as an aim is in principle unreachable as it is left open and it is neither verifiable nor measurable. Not least: what about those who are not able or willing to live with change or to adapt to change?<sup>6</sup>

<sup>6</sup> Thanks to Carsten Felgentreff (Osnabrück) for insisting on this question during the Lancaster workshop in November 2009.



## 5 Concluding remarks and open questions

This report deconstructed social capacity building into its two components ‘social capacity’ and ‘capacity building’. By doing so the first part focused on existing research in natural hazards research as well as in the social sciences more generally and scrutinised how ‘social capacity’ is framed, understood and dealt with. In a second step we reviewed literature concentrating more explicitly on ‘capacity building’ and outlined basic elements involved in as well as different levels and dimensions of capacity building. The final section took into account the previous discussions and applied them to natural hazards in general as well as to the CapHaz-Net project more specifically.

We shortly want to summarise some main implications at this stage:

- By social capacity we mean all the *resources* available within a specific social and/or spatial unit that can be used to anticipate, respond to, cope with, recover from and adapt to external stressors (e.g. a hazardous event). These include skills, knowledge, social networks as well as institutions, structures and knowledge of how to elicit and use them.
- In a very general sense there are *three elements involved in capacity building*: a status quo, which is defined by a ‘lack of capacity’, a means or a process attempting to improve the situation and an expected outcome or a defined objective which is aimed at.
- *Building social capacity takes place on different levels*: above all on the level of the individual, of organizations as well as social and/or local communities. To conduct capacity building efforts on these various levels needs to address different audiences, needs to depart from different ‘deficits’, relies on different means, and should have diverging aims. The institutional level, and thus risk governance, is an integral part of all the aforementioned levels and needs to be taken into account for each of them.
- *Central for the entire process is the question of ‘who defines what?’*: Who defines on which (empirical) ground what kinds of capacity of whom are lacking (‘deficit’)? And by which means or processes should capacities be reduced/improved, with which resources, which actors involved and which outcome? Social capacity building is thus also about taking responsibility (or taking ownership of one’s responsibilities e.g. for reducing one’s vulnerability) by an individual, a community or an organization.
- Generally the process of building capacities should be organised as *an iterative and mutual learning process* that recognises and takes into account the mismatch of expectations and actual results. It should be open to adapt established practices, norms and policies to new knowledge, occurrences and results.

In a second step we applied this general perspective to more established concepts of social science research on natural hazards (risk perception, social vulnerability, risk communication and risk education) and related it to the general idea of CapHaz-Net in whose structure this conceptual frame of social capacity building (status quo, process, outcome) is reflected. In the further course of the project we will now relate our findings from the social capacity and the capacity building literature more specifically to risk perception of and social vulnerability to natural hazards as well as to risk communication and risk education efforts with regard to different natural hazards across Europe. We will also keep in mind the three critical points mentioned at the beginning of this report which have been changing Europe’s landscape of natural hazards and dis-

asters for quite a few years now: the observed increase in the occurrence of natural disasters as well as rising damages questioning established protection and management strategies; the changing distribution of responsibility between different state and non-state actors (referred to throughout this report as 'privatisation of risk') and the lack of capacities on the part of state actors to eventually avoid the negative impacts of natural hazards.

At the end we want to briefly outline open questions which will also deserve attention as CapHaz-Net further evolves:

- *Social capacity building and the so-called risk cycle*: The definition of social capacity suggested in this report remains at a general and more or less conceptual level but it already addresses major issues of natural hazards and disasters, respectively, such as anticipation, preparedness response, coping, recovery or adaptation to external stressors. CapHaz-Net's efforts on understanding and contextualising natural hazards from a social science perspective will need to connect the process of social capacity building to these single concepts, efforts and activities – that is to existing research *and* to existing 'good' (as well as 'poor') practices from across Europe (and, to some extent, the globe) in order to enrich the theoretical concepts by knowledge from the ground.
- *Adaptive capacity and climate change*: Particularly within the discourse on climate change, the notion of 'adaptive capacity' is gaining relevance. What is the difference between 'social capacity' and 'adaptive capacity'? One way of making a difference could be that both concepts are framed differently in terms of their aims and/or expected outcomes. While social capacity building might aim at a more specific outcome (e.g. to make people more aware of a certain flood risk), the objectives of adaptive capacity are more contingent as it is usually referred to in the literature to the notion of 'surprise': it wants to – paradoxically – expect the unexpected. CapHaz-Net will discuss the interrelation of both concepts particularly in the context of the notion of 'resilience'.
- *Operationalising and measuring social capacity building*: How can social capacity building be adequately evaluated or measured? Which ex-ante and ex-post monitoring strategies are possible? Is it common practice to evaluate the effect of integrative risk management and different forms of risk communication on social capacities? What role does communication play for the evaluation of social capacities?

## 6 References

- Adger, N., Hughes, T. P., Folke, C., Carpenter, S. R., Rockstrom, J. (2005): Social-ecological resilience to coastal disasters, *Science* 309 (5737), 1036-1039.
- Adger, N. (2006): Vulnerability, *Global Environmental Change* 16, 268-281.
- Ahmed, R. et al. (2004): *Tools for Regeneration: A Holistic Approach for Faith Communities*. London: FBRN (Faith-Based Regeneration-Network).
- Alexander, D. et al. (2009): *The MOVE project*. Presentation given at the coordinators' meeting of FP7 natural hazard projects in Brussels, 28 October 2009.
- Allen, K.M. (2006): Community-based disaster preparedness and climate adaptation: local capacity-building in the Philippines, *Disasters* 30 (1), 81-101.
- Allen, R. (ed.) (2002): *The Penguin Concise English Dictionary*. London et al.
- Anderson, M., Woodrow, P. (1989): *Rising from the Ashes. Development Strategies in Times of Disasters*. London: Intermediate Technology Publications.
- Anderson-Berry, L., King, D. (2005): Mitigation of the Impact of Tropical Cyclones in Northern Australia through Community Capacity Enhancement, *Mitigation and Adaptation Strategies for Global Change* 10 (3), 367-392.
- Argyris, C., Schön, D. (1978): *Organizational Learning: A Theory of Action Perspective*. McGraw-Hill.
- Argyris, C., Schön, D. (1996): *Organizational Learning II. Theory, Method and Practice*. Addison-Wesley: Cambridge, M.A.
- Bankoff, G. (2004): The Historical Geography of Disaster: 'Vulnerability' and 'Local Knowledge' in Western Discourse. In: Bankoff, G., Frerks, G., Hilhorst, D. (eds.): *Mapping Vulnerability: Disasters, Development and People*. London, Earthscan: 25-37.
- Banks, S., Shenton, F. (2001): Regenerating Neighbourhoods: A Critical Look at the Role of Community Capacity Building, *Local Economy* 16(4), 286-298.
- Barker, A. (2005): Capacity building for sustainability: towards community development in coastal Scotland, *Journal of Environmental Management* 75, 11-19.
- Barton, A. H. (1969): *Communities in Disaster. A Sociological Analysis of Collective Stress Situations*. Garden City, NY: Doubleday.
- Baser, H., Morgan, P. (2008): *Capacity, Change and Performance. Study Report*. Discussion Paper No 59B. European Centre for Development Policy Management.
- Beazley, M., Griggs, S., Smith, M. (2004): *Rethinking Approaches to Community Capacity Building*. Mimeo, Birmingham: University of Birmingham.
- Beggs J., Haines V., Hulbert J. S. (1996): The effects of personal network and local community contexts on the receipt of formal help during disaster recovery, *International Journal of Mass Emergencies and Disasters* 14, 57-78.
- Berkes, F. (2007): Understanding uncertainty and reducing vulnerability: Lessons from resilience thinking, *Natural Hazards* 41 (2), 283-295.
- Billing, P., Madengruber, U. (2006): Overcoming the black hole: Outline for a quantitative model to compare coping capacities across countries. In: Birkmann, J. (ed.): *Measuring vulnerability to natural hazards: Towards disaster resilient societies*. New York: United Nations University Press. 403-414.
- Birkmann, J. (2006a): Measuring vulnerability to promote disaster-resilient societies: conceptual frameworks and definitions. In: Birkmann, J. (ed.): *Measuring vulnerability to natural hazards: Towards disaster resilient societies*. New York: United Nations University Press. 9-54.
- Birkmann, J. (2006b): Indicators and criteria for measuring vulnerability: Theoretical bases and requirements. In: Birkmann, J. (ed.): *Measuring vulnerability to natural hazards: Towards disaster resilient societies*. New York: United Nations University Press. 55-77.
- Birkmann, J. (2008): Globaler Umweltwandel, Naturgefahren, Vulnerabilität und Katastrophenresilienz. Notwendigkeit der Perspektivenerweiterung in der Raumplanung, *Raumforschung und Raumordnung* 66 (1), 5-22.

- Blaikie, P., Cannon, T., Davis, I., Wisner, B. (1994): *At Risk: natural hazards, people's vulnerability and disasters*. London: Routledge.
- Bohle, H.-G. (2005): Soziales oder unsoziales Kapital? Das Sozialkapital-Konzept in der Geographischen Verwundbarkeitsforschung, *Geographische Zeitschrift* 93(2), 65-81.
- Boin, A., Ekengren, M., Missiroli, A., Rhinard, M., Sundelius, B. (2007): *Building societal security in Europe: the EU's role in managing emergencies*. EPC Working Paper 27. Available at: <http://www.epc.eu> (accessed 30/10/2009).
- Bollin, C., Cardenas, C., Hahn, H., Vatsa, K. S. (2003): *Natural disaster network; disaster risk management by communities and local governments*. Washington, D.C.: Inter-American Development Bank. Available at: <http://www.iadb.org/sds/doc/GTZ-StudyFinal.pdf> (accessed 13/10/2009).
- Bollin, C., Hidajat, R. (2006): Community-based disaster risk index: Pilot implementation in Indonesia. In: Birkmann, J. (ed.): *Measuring vulnerability to natural hazards: Towards disaster resilient societies*. New York: United Nations University Press. 271-289.
- Bourdieu, P. (1986): The forms of capital, In: Richardson, J. G. (ed.): *Handbook of Theory and Research for the Sociology of Education*. New York: Greenwood Press. 241-258 (first in German in 1983).
- Brehmer, B. (1994): Some notes on psychological research related to risk. In: Brehmer, B., Sahlin, N. E. (eds.): *Future risks and risk management*. Amsterdam, Kluwer. 79-91.
- Brody, S. D., Zahran, S., Highfield, W. E., Bernhardt, S. P., Vedlitz, A. (2009): Policy learning for flood mitigation: A longitudinal assessment of the community rating system in Florida, *Risk Analysis* 29 (6), 912-929.
- Brown, L., LaFond, A., Macintyre, K. (2001): Measuring Capacity Building, *MEASURE Evaluation*, 59 pp. Available at: [www.cpc.unc.edu/measure](http://www.cpc.unc.edu/measure) (accessed 30/10/2009).
- Buckle, P. (1998): Redefining community and vulnerability in the context of emergency management, *Australian Journal of Emergency Management* 13(4), 21-26.
- Buckle, P., Marsh, G., Smale, S. (2000): New approaches to assessing vulnerability and resilience, *Australian Journal of Emergency Management* 15 (2), 8-14.
- Burningham, K., Fielding, J., Thrush, D. (2007): 'It'll never happen to me': Understanding public awareness of local flood risk, *Disasters* 32 (2), 216-238.
- Carr, L. J. (1932): Disaster and the Sequence-Pattern Concept of Social Change, *American Journal of Sociology* 38, 207-218.
- CCS [Civil Contingencies Secretariat] (2009): Community Resilience Consultation Outputs. London: CCS (unpublished typescript).
- CEA (2007): Reducing the Social and Economic Impact of Climate Change and Natural Catastrophes. Insurance Solutions and Public-Private Partnerships. Brussels.
- Chambers, R. (ed.) (1989): *Vulnerability. How the poor cope*. Brighton: IDS.
- Charity Commission (2000): *The Promotion of Community Capacity-building*. Taunton: Charity Commission. Available at: [www.charity-commission.gov.uk/publications/rr5.asp](http://www.charity-commission.gov.uk/publications/rr5.asp) (accessed 30/10/2009).
- Christenson, J. A., Robinson Jr., J. W. (1980): In Search of Community Development, In: Christenson, J. A., Robinson Jr., J. W. (eds.): *Community Development in America*. Ames, IA: Iowa State University Press.
- Cohen, A. P. (1992): *The Symbolic Construction of Community*. London: Routledge.
- Coleman, James S. (1988): Social Capital in the Creation of Human Capital, *American Journal of Sociology* 94 Supplement, S95-S120.
- Communities and Local Government (2008): *Facing the challenge: The Chief Fire and Rescues Adviser's review of the operational response by the Fire and Rescue Service to widespread flooding in England during 2007*.
- Connolly, P., Lukas, C. (2002): *Strengthening nonprofit performance: A funder's guide to capacity building*. St. Paul, MN: Amherst Wilder Foundation.
- Cox, K. R. (1998): Locality and community: Some conceptual issues, *European Planning Studies* 6, 17-30.

- Craig, G. (2007): Community capacity-building: Something old, something new ...? *Critical Social Policy* 27 (3), 335-359.
- Davidson, R. (1997): *An Urban Earthquake Disaster Risk Index*. The John A. Blume Earthquake Engineering Center, Department of Civil Engineering, Report 121, Stanford: Stanford University.
- Davis, I. (1994): Assessing community vulnerability. In: UK IDNDR Committee: *Medicine in the International Decade for Natural Disaster Reduction (IDNDR) Research*. Preparedness and Response for Sudden Impact Disasters in the 1990s. London: UK IDNDR Committee, 11-13.
- Davis, I. (2004): Progress in Analysis of Social Vulnerability and Capacity. In: Bankoff, G., Frerks, G., Hilhorst, D. (eds.): *Mapping Vulnerability: Disasters, Development and People*. London: Earthscan. 128-144.
- Dekens, J. (2007): *Local knowledge for disaster preparedness: A literature review*. ICIMOD 2007, 2 pp. Available at: [www.books.icimod.org](http://www.books.icimod.org) (accessed 30/10/2009).
- Delica-Willison, Z., Willison, R. (2004): Vulnerability Reduction: A Task for the Vulnerable People Themselves. In: Bankoff, G., Frerks, G., Hilhorst, D. (eds.): *Mapping Vulnerability: Disasters, Development and People*. London: Earthscan. 145-158.
- De Marchi, B. (2003): Public participation and risk governance, *Science and Public Policy* 30, 171-176.
- De Marchi, B., Scolobig, A., Delli Zotti, G., Del Zotto, M. (2007): *Risk construction and social vulnerability in an Italian Alpine Region*. FLOODsite report T11-06-08. Available at: [www.floodsite.net](http://www.floodsite.net) (accessed 30/10/2009).
- Department on Economic and Social Affairs (2000): *Capacity building in trade, environment and sustainable development*. Background Paper 1 prepared by the UN conference on Trade and Development.
- DKKV [German Committee for Disaster Reduction] (2009): *Germany – National Progress Report on the implementation of the Hyogo Framework for Action*. Available at: <http://www.preventionweb.net/english/countries/europe/deul/> (accessed 30/10/2009).
- Dombrowsky, W.; Brauner, C. (1996): *Katastrophenvorsorge in Industriegesellschaften am Beispiel Deutschlands: Untersuchungen und Empfehlungen zu methodischen und inhaltlichen Fragen*. Langfassung. Bonn: DKKV.
- Dynes, R. R., Quarantelli, E. L. (2008): A Brief Note on Disaster Restoration, Reconstruction and Recovery: A Comparative Note Using Post Earthquake Observations. Preliminary Paper 359. 4 pp. University of Delaware: Disaster Research Center.
- Eade, D. (2005): *Capacity-Building. An Approach to People-Centred Development*. Oxfam Development guidelines (first in 1997).
- Eade, D., Williams, S. (1996): *The Oxfam Handbook of Development and Relief*. Oxford: Oxfam.
- Eakin, H., Bojorquez-Tapia, L.A. (2008): Insights into the composition of household vulnerability from multicriteria decision analysis, *Global Environmental Change* 18, 112-127.
- Elias, N., Scotson, J. L. (1965): *The established and the outsiders. A sociological enquiry into community problems*, London: Cass & Co (New sociological library).
- EC [European Commission] (1996): *Social and Economic Inclusion through Regional Development: The Community Economic Development Priority in European Structural Funds Programmes in Great Britain*. Luxembourg: European Commission.
- FCDL [Federation of Community Development Learning] (2004): *Building Civil Renewal of Government Support for Community Capacity Building and Proposals for Change*. Submission from Federation of Community Development Learning. Sheffield: FCDL.
- Felgentreff, C. (2003): Post-Disaster Situations as 'Windows of Opportunity? Post-Flood Perceptions and Changes in the German Odra River Region after the 1997 flood, *DIE ERDE* 134(2), 163-180.
- Few, R., Brown, K., Tompkins, E. L. (2007): Public participation and climate change adaptation: avoiding the illusion of inclusion, *Climate Policy* 7 (1), 46-59.
- Fine, B. (2008): *Social Capital and Health: The World Bank through the Looking Glass after Deaton*. Draft paper for presentation on 12 March 2008, Seminar for School of Oriental and African Studies, London International Development Centre, 41 pp. Available at: <https://eprints.soas.ac.uk/5623/> (accessed 02/11/2009).

- Folke, C. (2006): Resilience: The emergence of a perspective for social-ecological systems analyses, *Global Environmental Change* 16, 253-267.
- Folke, C., Carpenter, S., Elmqvist, T., Gunderson, L., Holling, C.S., Walker, B. (2002): Resilience and sustainable development: Building adaptive capacity in a world of transformations, *Ambio* 31 (5), 437-440.
- Freeman, D. E., Roming, L. (2005): The Unity Foundation's C.Q.: Capacity benchmarking and capacity building. In: Bartczak, L. (ed.): *A funder's guide to organizational assessment*. St. Paul, MN: Fieldstone Alliance. 97-111.
- Fudge, S. (2009): Reconciling agency with structure: The contradictions and paradoxes of capacity building in Wales' 2000-2006 Objective 1 programme, *Critical Social Policy* 29(1), 53-76.
- Garland, D. (1996): The Limits of the Sovereign State: Strategies of Crime Control in Contemporary Society, *British Journal of Criminology* 36(4), 445-471.
- Glendinning, C., Powell, M., Rummery, K. (eds.) (2002): *Partnerships, New Labour and the Governance of Welfare*. Bristol: Policy Press.
- Gouldby, B., Samuels, P., Klijn, F., Messner, F., Os, A.V., Sayers, P., Schanze, J. (2005): *Language of Risk: Project Definitions*. Floodsite report T32-04-01. Available at: [www.floodsite.net](http://www.floodsite.net) (accessed 30/10/2009).
- Greiving, S. (2006): Multi-risk assessment of Europe's regions. In: Birkmann, J. (ed.): *Measuring vulnerability to natural hazards: Towards disaster resilient societies*. New York: United Nations University Press. 210-226.
- Heijmans, A. (2001): *Vulnerability: A Matter of Perception*. Disaster Management Working Paper 4/2991. Benfield Greig Hazard Research Centre.
- Heijmans, A. (2004): From Vulnerability to Empowerment. In: Bankoff, G., Frerks, G., Hilhorst, D. (eds.): *Mapping Vulnerability: Disasters, Development and People*. London: Earthscan. 115-127.
- Hilhorst, D., Bankoff, G. (2004): Introduction: Mapping Vulnerability. In: Bankoff, G., Frerks, G., Hilhorst, D. (eds.): *Mapping Vulnerability: Disasters, Development and People*. London: Earthscan. 1-9.
- Hoggett, P. (2001): Agency, Rationality and Social Policy, *Journal of Social Policy* 30, 37-56.
- Holling, C. S. (1978): Myths of Ecological Stability: Resilience and the Problem of Failure. In: Smart, C. S., Stanbury, W. T. (eds.): *Studies on Crisis Management*. Toronto: Butterworth & Co. 93-106.
- Home Office (2003): *Building Civil Renewal*. London: Home Office.
- Hoogenboom, M., Ossewaarde R. (2005): From Iron Cage to Pigeon House: The Birth of Reflexive Authority, *Organization Studies* 26, 601-619.
- Hurlbert, J. S., Haines, V. A., Beggs, J. J. (2000): Core Networks and Tie Activation: What Kinds of Routine Networks allocate Resources in Nonroutine Situations? *American Sociological Review* 65, 598-618.
- IFRC [International Federation of Red Cross and Red Crescent Societies] (2006): *What is VCA? An introduction to vulnerability and capacity assessment*. Geneva: IFRC.
- IPCC [Intergovernmental Panel on Climate Change] (2007): *Climate Change 2007 – Impacts, Adaptation and Vulnerability*. Contribution of Working Group II to the Fourth Assessment Report of the IPCC. Ed. by M. Parry, O. Canziani, J. Palutikof, P. van der Linden, C. Hanson. Cambridge: Cambridge University Press. Available at: [www.ipcc.ch](http://www.ipcc.ch) (accessed 16/07/2009).
- Jänicke, M. (1997): The political system's capacity for environmental policy. In: Jänicke, M., Weidner, H. (eds.): *National environmental policies. A comparative study of capacity-building*. New York/Berlin: Springer. 1-14.
- Johnson, C., Priest S.J. (2008): Flood Risk Management in England: A Changing Landscape of Risk Responsibility, *Water Resources Management* 24, 513-525.
- Johnson, H., Thomas, A. (2007): Individual learning and building organisational capacity for development, *Public Administration and Development* 27, 39-48.
- Kaplan, A. (2000): Capacity Building: shifting the paradigms in practice, *Development in Practice* 10 (3&4), August.
- Kay, R., Alder, J. (1999): *Coastal Planning and Management*. New York: SPON.

- Keim, M. E. (2008): Building Human Resilience: The Role of Public Health Preparedness Response as an Adaptation to Climate Change, *American Journal of Preventative Medicine* 35, 508-516.
- Kirschenbaum A. (2004): Generic Sources of Disaster Communities: A Social Network Approach, *International Journal of Sociology and Social Policy* 24 (10/11), 94-129.
- Krausmann, E., Mushtaq, F. (2006): A methodology for learning lessons: Experiences at the European level. In: Birkmann, J. (ed.): *Measuring vulnerability to natural hazards: Towards disaster resilient societies*. New York: United Nations University Press. 415-431.
- Kuhlicke, C. (2008): *Ignorance and Vulnerability: The 2002 Mulde Flood in the City of Eilenburg (Saxony, Germany)*. PhD thesis, Department of Geography: University of Potsdam.
- Kuhlicke, C., Kruse S. (2009): Nichtwissen und Resilienz in der lokalen Klimaanpassung: Widersprüche zwischen normativen Anpassungsstrategien und empirische Befunde am Beispiel des Sommerhochwassers 2002, *GAIA* 18, 247-254.
- Land, T. (2009): Organism or machine? *Capacity* 37, 7-9.
- Lash, S. (2003): Reflexivity as Non-Linearity, *Theory, Culture & Society* 20, 49-57.
- Lebel, L., Nikitina, E., Kotov, V., Manuta, J. (2006): Assessing institutionalised capacities and practices to reduce the risk of flood disaster. In: Birkmann, J. (ed.): *Measuring vulnerability to natural hazards: Towards disaster resilient societies*. New York: United Nations University Press. 359-379.
- Maconick, R. (2002): Introduction. In: Maconick, R. (ed.): *Capacity-Building for Poverty Eradication: Analysis of, and Lessons from, Evaluations of UN System Support to Countries' Efforts*. New York: UN.
- Maguire, B.; Cartwright, S. (2008): *Assessing a community's capacity to manage change: A resilience approach to social assessment*. Canberra: Bureau of Rural Sciences.
- Matsuoka, S., Murakami, K., Aoyama, N., Takahashi, Y., Tanaka, K. (2005): *Capacity development and Social Capacity Assessment (SCA)*. Discussion Paper Series 2005-4. Hiroshima: Graduate School for International Development and Cooperation.
- McCarthy, S., Parker, D. J., Penning-Rowsell, E. C. (2006): *Preconsultation social survey, community based flood risk reduction options reach 4: Walton Bridge to Teddington*. London: Flood Hazard Research Centre, Middlesex University.
- McCarthy, S., Penning-Rowsell, E. C., Tunstall, S. (2008): Public attitudes to 'community based' small scale flood risk reduction measures in England: A case study in the Lower Thames catchment. In: Boshier L. S. (ed.): *Hazards and the Built Environment: Attaining Built-in Resilience*. London: Taylor & Francis.
- McFadden, L., Priest, S., Green, C. (2008): Social learning in SPICOSA. D11. Draft internal project report. London: Flood Hazard Research Centre, Middlesex University.
- McGinty, S. (2003): *Community Capacity-Building*. Paper presented at Australian Association for Research in Education conference, Brisbane, Australia. Available at: [www.aare.edu.au](http://www.aare.edu.au) (accessed 30/10/2009).
- Mitchell, J. K. (1989): A Contextual Model of Natural Hazard, *The Geographical Review* 79, 391-409.
- Mitchell, J. K. (ed.) (1996): *The long road to recovery: Community responses to industrial disaster*. Tokyo et al.: United Nations University Press.
- Morgan, P. (1998): *Capacity and capacity development – some strategies*. Note prepared for the Political and Social Policies Division. Policy branch, CIDA, 13 pp.
- Nakagawa Y., Shaw R. (2004): Social Capital: A Missing Link to Disaster Recovery, *International Journal of Mass Emergencies and Disasters* 22, 5-34.
- Nunn, A. (2007): The capacity building programme for English local government: evaluating mechanisms for delivering improvement support to local authorities, *Local Government Studies* 33, 465-484.
- OECD [Organization of Economic Cooperation and Development] (1994): *Capacity development in environment*. Paris.
- O'Keefe, P. et al. (1976): Taking the Naturalness out of Natural Disasters, *Nature* 260, 566-567.
- Oxfam (2004): *Social Inclusion Directory*. Oxford: Oxfam.
- Patel, L. H. (2005): Evaluating Capacity building and participatory development in community timber operations of the Peten, *Guatemala*, Spring 24, 66-72.

- Paton, D., Johnston, D. (2001): Disasters and communities: Vulnerability, resilience and preparedness, *Disaster Prevention and Management* 10, 270-277.
- Patwardhan, A. (2009): Towards an integrated agenda for adaptation research: Theory, practice and policy. *Current Opinion in Environmental Sustainability* 1, 219-225.
- Pavey, J. L., Muth, A. B., Ostermeier, D., Steiner Davis, M. (2007): Building Capacity for Local Governance: An Application of Interactional Theory to Developing a Community of Interest, *Rural Sociology* 72, 90-110.
- Pelling, M., High, C. (2005): Understanding adaptation: What can social capital offer assessments of adaptive capacity? *Global Environmental Change* 15, 308-319.
- Phillips, L., Ilcan, S. (2004): Capacity-Building: The Neoliberal Governance of Development, *Canadian Journal of Development Studies* 25, 393-409.
- Pitt, M. (2007): *Lessons Learned from the 2007 Floods*. The Pitt Review. London: The Cabinet Office.
- Portes, A. (1998): Social Capital: Its Origins and Applications in Modern Sociology, *Annual Review of Sociology* 24, 1-24.
- Potter, C., Brough, R. (2004): Systemic capacity building: a hierarchy of needs, *Health Policy and Planning* 19, 336-345.
- Putnam, R. D. (1993): *Making democracy work. Civic traditions in modern Italy*. Princeton, N.J.: Princeton University Press.
- Putnam, R. D. (2000): *Bowling alone. The collapse and revival of American community*. New York: Simon & Schuster.
- Quarantelli, E. L., Dynes, R. R. (1986): Community Responses to Disasters. In: Sowder, B. J. (ed.): *Disaster and Mental Health: Selected Contemporary Perspectives*. Maryland: U.S. Department of Health and Human Services. 158-168.
- Ramalingam, B. (2008): Organisational learning for aid, and learning aid organisations, *Capacity* 33, 4-6.
- Robins, L. (2008): Making Capacity Building Meaningful: A Framework for Strategic Action, *Environmental Management* 42, 833-846.
- Rohrmann, B., Renn, O. (2000): Risk Perception Research - An Introduction. In: Renn O., Rohrmann B. (eds.): *Cross-Cultural Risk Perception: A Survey of Empirical Studies*. Dordrecht, Boston, London: Kluwer Academic Publishers. 11-55.
- Rose, N. (1993): Government, Authority and Expertise in Advanced Liberalism, *Economy and Society* 22, 283-299.
- Schneiderbauer, S., Ehrlich, D. (2006): Social levels and hazard (in)dependence in determining vulnerability. In: Birkmann, J. (ed.): *Measuring vulnerability to natural hazards: Towards disaster resilient societies*. New York: United Nations University Press. 78-102.
- Schnur, O. (2003): Lokales Sozialkapital für die „soziale Stadt“. Politische Geographien sozialer Quartiersentwicklung am Beispiel Berlin-Moabit. Opladen: Leske + Budrich.
- Sen, A. (1992): *Inequality Re-examined*. Oxford: Clarendon Press.
- Singh, S. J. (2009): Complex Disasters. The Nicobar Islands in the Grip of Humanitarian Aid, *Geographische Rundschau International Edition* 5 (3), 48-56.
- Slovic, P. et al. (1974): Decision processes, rationality, and adjustment to natural hazards. In: White, G. F. (ed.): *Natural Hazards: Local, National, Global*. New York: Oxford University Press. 187-205.
- Smit, B., Wandel, J. (2006): Adaptation, Adaptive Capacity and Vulnerability. *Global Environmental Change* 16, 282-292.
- Sobeck, J., Agius, E. (2007): Organizational capacity building: Addressing a research and practice gap, *Evaluation and Program Planning* 30, 237-246.
- Stacey, M. (1969): The Myth of Community Studies, *The British Journal of Sociology* 20, 134-147.
- Steinführer, A., Kuhlicke, C. (2007): *Social Vulnerability and the 2002 Flood: Country Report Germany (Mulde River)*. FLOODsite report T11-07-08. Available at: [www.floodsite.net](http://www.floodsite.net) (accessed 07/10/2009).
- Steinführer, A., Kuhlicke, C., De Marchi, B., Scolobig, A., Tapsell, S., Tunstall, S. (2009): *Local communities at risk from flooding. Social vulnerability, resilience and recommendations for flood risk management*.



- ment in Europe. Leipzig: Helmholtz Centre for Environmental Research – UFZ. Also available at: [www.ufz.de/data/Task11\\_Broschuere\\_7-0911060.pdf](http://www.ufz.de/data/Task11_Broschuere_7-0911060.pdf) (accessed 30/10/2009).
- Susman, P. et al. (1983): Global Disasters, a Radical Interpretation. In: Hewitt, K. (ed.): *Interpretation of Calamity: From the Viewpoint of Human Ecology*. Boston: Allen & Unwin. 263-283.
- Sweet, S. (1998): The Effect of a Natural Disaster on Social Cohesion: A Longitudinal Study, *International Journal of Mass Emergencies and Disasters* 16, 321-331.
- Tapsell, S. M., Tunstall, S. M., Green, C., Fernandez, A. (2005): *Task 11 Social Indicator Set*. FLOODsite report T11-07-01. Available at: [www.floodsite.net](http://www.floodsite.net) (accessed 30/10/2009).
- Taylor, M. (2003): *Public Policy in the Community*. London: Palgrave Macmillan.
- Tedmanson, D. (2003): *Whose capacity needs building? Open hearts and empty hands: Reflections on capacity building in remote communities*. Paper given at the 4<sup>th</sup> International Critical Management Studies Conference, University of South Australia.
- Tesh, J. (2009): *Resilience of the UK*. Paper given at the CapHaz-Net Workshop in Lancaster, 10 November 2009.
- Thywissen, K. (2006): Core terminology of disaster reduction: A comparative glossary. In: Birkmann, J. (ed.): *Measuring vulnerability to natural hazards: Towards disaster resilient societies*. New York: United Nations University Press. 448-496.
- Timmerman, P. (1986): Mythology and Surprise in the Sustainable Development of the Biosphere. In: Clark, W. C., Munn, R. E. (eds.): *Sustainable Development of the Biosphere*. Cambridge: Cambridge University Press. 435-453.
- Tompkins, E., Lemos, M.C., Boyd, E. (2008): A less disastrous disaster: Managing response to climate-driven hazards in the Cayman Islands and NE Brazil, *Global Environmental Change* 18, 736-745.
- UNDP [United Nations Development Program] (1998): *Capacity Assessment and Development in a Systems and Strategic Management Context*. Technical Advisory Paper No. 3, Management Development and Governance Division. Bureau for Development Policy.
- UN/ISDR [International Strategy for Disaster Reduction] (2004): *Living with risk. A global review of disaster reduction initiatives*. Geneva: UN/ISDR. Available at: [http://www.unisdr.org/eng/about\\_isdr/bd-lwr-2004-eng.htm](http://www.unisdr.org/eng/about_isdr/bd-lwr-2004-eng.htm) (accessed 21/10/2009).
- UN/ISDR [International Strategy for Disaster Reduction] (2006): *Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters*. World Conference on Disaster Reduction. Extract from the final report of the World Conference on Disaster Reduction, 18-22 January 2005, Kobe, Hyogo, Japan. Geneva: UN/ISDR. Available at: <http://www.unisdr.org> (accessed 21/10/2009).
- UN/ISDR [International Strategy for Disaster Reduction] (2009a): *Terminology on Disaster Risk Reduction*. Geneva: United Nations.
- UN/ISDR [International Strategy for Disaster Reduction] (2009b): *Reduction Disaster Risks through Science: Issues and Actions*, The full report of the ISDR Scientific and Technical Committee. 32 pp. Geneva: UN/ISDR. Available at: [www.unisdr.org](http://www.unisdr.org) (accessed 21/10/2009).
- van der Veen A., Dopheide, E., Parker, D., Tapsell, S., Hardman, J., Gregg, Costanza, B. (2009): *Deliverable 1.1: Methodologies to assess vulnerability of structural, territorial and economic systems – Task 1.3: State-of-the-art on vulnerability of socio-economic systems*. ENSURE – Del. 1.1. Project report.
- von Kirchbach, H.-P. et al. (2002): *Bericht der unabhängigen Kommission der Sächsischen Staatsregierung. Flutkatastrophe 2002*. Dresden.
- Waddell, E. (1975): How the Enga Cope with Frost: Response to Climatic Perturbation in the Central Highlands of New Guinea, *Human Ecology* 3, 249-273.
- Waddell, E. (1977): The Hazards of Scientism: A Review Article, *Human Ecology* 5, 69-76.
- Walker, B., Holling, C. S., Carpenter, S. R., Kinzig, A. (2004): Resilience, adaptability, and transformability in social-ecological systems, *Ecology and Society* 9 (2): 5. Available at: [www.ecologyandsociety.org/vol9/iss2/art5](http://www.ecologyandsociety.org/vol9/iss2/art5) (accessed 30/10/2009).
- Walker, G., Whittle, R., Medd, W., Watson, N. (2010): *Risk Governance and Natural Hazards. CapHaz-Net WP2 report (Deliverable D2.1)*. Lancaster: Lancaster University, Lancaster Environment Centre. Available from [www.caphaz-net.org](http://www.caphaz-net.org).

- Watts, M., Bohle, H.-G. (1993): The Space of Vulnerability: The Causal Structure of Hunger and Famine, *Progress in Human Geography* 17, 43-67.
- Weidner, H. (2002): Capacity Building for Ecological Modernization. Lessons from Cross-National Research, *American Behavioral Scientist* 45, 1340-1368.
- Wisner, B. (2003): *Disaster Preparedness and Response: Why is the Phone of the Hook?* European Telecommunications Resilience & Recovery Association Inaugural Conference (ETRA) Newcastle-upon-Tyne, UK.
- Wisner, B. (2004): Assessment of Capability and Vulnerability. In: Bankoff, G., Frerks, G., Hilhorst, D. (eds.): *Mapping Vulnerability: Disasters, Development and People*. London: Earthscan. 183–193.
- Wisner, B. et al. (2005): *At Risk: Natural Hazards, People's Vulnerability, and Disasters*. London: Routledge.
- Wisner, B. (2006): Self-assessment of coping capacity: Participatory, proactive and qualitative engagement of communities in their own risk management. In: Birkmann, J. (ed.): *Measuring vulnerability to natural hazards: Towards disaster resilient societies*. New York: United Nations University Press, 316-329.