



**Factsheet  
of the German case study  
of the BuildERS project**

# INFLUENCING FACTORS OF VULNERABILITY AND RESILIENCE

## A CASE STUDY OF FLOODING DISASTERS AND THE COVID-19 PANDEMIC IN DRESDEN

### General Information about the case study



The BuildERS project aims at improving the resilience of the European population to disasters of various types by providing useful insights on how relevant government policies can be enhanced. It focuses in particular on the most vulnerable and aims to reduce their vulnerability as well as to increase their resilience.

*Figure 1:*

*Flooded area in Dresden in 2002*

The German case study contributes to the overall goals of the project by focusing on the impacts of flooding disasters and the ongoing COVID-19 pandemic on the local population of Dresden and its surrounding areas within the German federal state of Saxony. As case examples for floods the flooding disasters of 2002, 2006, and 2013 were chosen due to their great impact on the region. Special attention is paid to the most vulnerable population segments.



*Figure 2:  
Airview of Dresden during the flood in 2002*

**The study aims to reduce their vulnerability and to increase their resilience by developing social innovations. These innovations are identified by exploring which factors need to be considered to make disaster management and technologies appropriate to serve all members of societies.**

Together, the University of Tübingen and the German Red Cross used a twofold research design that combines expert interviews and a quantitative survey.

Through these two research approaches previous (floods) and existing (pandemic) disaster management measures are scrutinized regarding their ability to support individuals or to reduce their vulnerabilities in disasters.

	<b>Qualitative Approach</b>	<b>Quantitative Approach</b>
<b>Used Method</b>	Explorative interviews	Web based survey
<b>Data Collection Method</b>	Open-ended questionnaire	Predominantly closed survey questions
<b>N (Number of Data Points)</b>	20 expert interviews	118 valid survey participations
<b>Target Population</b>	Interviewees are experts from disaster management agencies, city administration, social service departments as well as social service providers	Participants are predominantly recruited from the general population of the area of interest

## SUMMARY OF THE KEY RESULTS

Considering both investigated disasters, the German case study arrived at a total of eight relevant key insights:

1. **Disaster management efforts often do not sufficiently consider social diversity in the beginning of their relief activities.** Organizations active in disaster management consequently need to adapt their policies and activities to become more inclusive.
2. **The vulnerability of a person depends on contextual factors.** Most importantly, these are the type of disaster people are facing, the time and resources they had available for preparing against the disaster, and what challenges were posed by the disaster and if people are able to successfully deal with them. Furthermore, the presence and absence of additional stressors, like social disadvantages and discrimination, also can increase or decrease vulnerability.
3. During both investigated disasters, **people who had access to a large amount of social capital and strong social networks appeared to be less vulnerable.**
4. **Participants who lacked social capital and only had access to relatively weak social networks were more socially vulnerable than the average.** They were also affected worse by both floods and the ongoing COVID-19 pandemic than most other survey participants.
5. **Crisis management measures can create vulnerability and disaster management and social service personnel themselves can become vulnerable** during crisis.
6. **Some people can personally evolve during crisis.** The experiences made during a disaster therefore do not necessarily have to be negative for everyone exposed to them.

7. **Only relatively small associations exist between most socio-demographic characteristics of respondents (like age and gender), their social vulnerability, and the negative impact of both floods and the COVID-19 pandemic on them.**
8. **Consequences for mental health are among the largest negative impacts** of the investigated disasters. Furthermore, those kinds of negative impacts were also those that were lingering the longest. Also, the impacts of the current pandemic were reported as much more severe than the already grave mental health impacts caused by floods.

## POLICY RECOMMENDATIONS

Seven recommendations for improving disaster management with a focus on vulnerability were derived from the results of the study.

1. *Taking up responsibilities requires **awareness, ability and the possibility to adjust:***

Information and knowledge about responsibilities and their distribution should be spread (i.e. regarding preparedness). Those, who have responsibilities, must be able to fulfill them. Therefore, they must be trained and equipped accordingly.

2. **Improving crisis management** *requires both **short-term adjustments and long-term changes of social structures:***

The study revealed a disconnection between crisis and social politics (both on a national and on a local level), which shows a detachment of short-term disaster management activities and long-term social policy strategies to reduce vulnerability. To increase resilience and decrease vulnerabilities inequalities need to be reduced. Therefore, social services and disaster management should collaborate more and work closely together to make sure that vulnerable people are enabled to use their capabilities in crisis situations and that disaster management takes their needs into account.

3. **Individual autonomy** should be promoted by crisis management activities, while acknowledging its potential risk to put people in vulnerable situations:

Crisis management needs to scrutinize how to help and respect those who do not follow official calls by understanding the (good) reasons individuals might have not to trust (e.g. being stigmatized in previous events), not to follow procedures (e.g., because they want to protect their property) or raise concerns about measures to be taken.

4. **Crisis management activities** should be considered as a potential factor contributing to vulnerability:

Especially the COVID-19 pandemic showed how people can become vulnerable due to implemented necessary mitigation measures (e.g., not being able to activate their social capital to cope with crisis, losing jobs). Not only extreme events or inappropriate crisis management structures can put people in vulnerable situations, but measures themselves can redistribute risks and harms.

5. **Recognition of psychosocial wellbeing** as a factor contributing to resilience and vulnerability:

Psychosocial wellbeing influences the resilience and vulnerability of individuals in crisis situations. Therefore, psychological and psychosocial support is important for enabling people to cope with disasters. It should be included in disaster policy strategies and local measures that are taken during crisis.

6. **Social capital** and **social cohesion** are powerful resources that should be recognized as situation-dependent:

Both can help to increase the resilience of individuals and societies. Social cohesion in crises depends on the ability to work together and to cooperate. Depending on the crisis it can be more or less accessible. Social capital is unequally distributed within societies (as are other capitals, e.g. economic capital). Having social capital under normal circumstances (e.g. social networks, knowledge on support infrastructures) does not necessarily mean that this social capital is available, accessible or activatable in the crisis situation.

7. *Preparedness planning must consider the **embeddedness of disaster management personnel** in different social contexts:*

Disaster management often builds to a large extent on affiliated volunteers whose capacities and work force can be activated if necessary. These people need to be enabled to go into action (e.g. by offering child care). Disaster management personnel can become vulnerable themselves (e.g. by being affected themselves or through psychological stress). Therefore, an infrastructure that enables them to get active and reflects their embeddedness in different social contexts should be developed.

## IMPLICATIONS REGARDING SOCIAL AND TECHNOLOGICAL INNOVATIONS

The results and recommendations have implications for existing social and technological innovations and for the development of new technologies in the field of disaster management.

- ***The diversity of living situations should be considered in preparedness planning:***

This refers especially to communication actions in crisis situations. It is important to consider all members of society. For example, **warning apps** are important to inform the population in case of crisis. Therefore, they need to become **more accessible** to people in diverse living situations (e.g., to people who have difficulties to read, who need simple language options or information in another language).

- ***Risk awareness and crisis management skills in the population should be promoted:***

Existing guidelines and manuals for individual preparedness and response to extreme events need to be **communicated broadly**



**to society.** They should be spread through different media formats (e.g. newspapers, tv, social media, Youtube, with the help of influencers).

- ***Social capital is a powerful resource which should be recognized as situation-dependent and potentially discriminating:***

Having social capital encompasses the ability to access the rescue and support system. This can be **promoted** through making emergency apps accessible and creating social innovation that supports people to activate their social capital (e.g. friends, neighbors) in crisis situations.

- ***In addition to vulnerability assessment, a problem centered perspective should be used when analyzing the challenges individuals have to overcome:***

Knowing what needs to exist is important to establish corresponding support structures and technologies. Therefore, **knowledge on existing needs** of the diverse population should be the starting point for developing social and technological innovations.