



Capacities and Gaps in German civil protection in the context of climate-related hazards

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Summary

Disasters and crises are becoming more complex and overlap, thus posing new challenges for civil protection. For the needed reorientation of the German civil protection system, it is important to show capacities and gaps in order to be able to close gaps and strengthen capacities. Furthermore it's crucial to have an overview of stakeholders involved and their interrelationship. This urgency is reinforced in the context of climate change, which increases the risk of hydro-meteorological events, one of the most common natural hazards in Germany. This report on capacities and gaps in the German civil protection system in the context of climate-related hazards has been developed within the INCREASE joint project.

In order to identify these capacities, gaps, and actors, the history, and task of civil protection are first presented. In Germany, the term civil protection encompasses civil defence and disaster management. While civil defence is a task of the federal level, disaster management is the responsibility of the individual federal states. Since the risk of climate-related hazards is increasing, the report looks at the most frequent hydro-meteorological hazards in Germany in the second chapter. Even though Germany is not yet as threatened by natural hazards compared to other countries, storms, floods, and heavy rainfall in particular, as well as droughts and heat waves, occur repeatedly and cause considerable damage. Before the capacities and gaps of the German civil protection are discussed, the methodology is presented. It consists of a systematic literature research, an online survey, expert interviews with representatives from science, practice, and politics, and the methodology for the stakeholder mapping.

The mapping provides a visual overview of the overall disaster risk management system and increases the understanding of the relationships between the different actors, roles, and responsibilities. To make the diagram easy to understand, 18 key players in German DRM at the three administrative levels of local, state, and federal government have been visualized. The categorization into research and science, media, military, operations, politics, administration, and civil society provides an overview of the different types of stakeholder groups. The relationship between the individual actors is described by the arrows, making the actor mapping evident.

For the capacity and gap analysis, past events are assessed, with a special focus on the flood disaster of 2021. Through the different methods, a variety of capacities and gaps were identified. From risk communication and perception to cooperation and lack of preparedness and warning systems, the gaps are assessed differently depending on personal background and expertise. Capacities, on the other hand, are assessed quite consistently, ranging from a large number of actors, including volunteers and spontaneous helpers, as well as technical resources, expertise and commitment. However, far fewer capacities were mentioned, which further mainly apply to spatially and temporally limited events.

In the conclusion, it is underlined that looking into the future is indispensable. We need to transform today's gaps into capacities and prepare for new challenges in order to build resilient civil protection in the context of climate-related hazards and thus strengthen the resilience of society as a whole.

1. Introduction

Climate change increases the risk of hydro-meteorological events, which are among the most common natural hazards in Germany. We are experiencing disasters, such as the devastating heavy rainfall in western Germany in summer 2021, pandemics, and war in Europe. Disasters and crises are becoming more complex, overlap, and pose new challenges for civil protection and its actors.

The German civil protection system has a long history of ups and downs. In order to adapt to current and future challenges, a reorganisation is needed. As civil protection is in the spotlight more than ever before, it is important to identify capacities and gaps in order to close gaps and strengthen capacities and to get an overview of the key stakeholders and their interrelationship. The current deficits show the need for an ongoing revision and improvement of disaster risk management approaches and civil protection in general.

This report was produced as part of the INCREASE joint project, which is funded by the BMBF. INCREASE stands for: "Inclusive and integrated multi-hazard risk management and volunteer engagement to increase social resilience in climate change¹". The INCREASE project aims to contribute to short-term disaster risk reduction, long-term strategic planning and overall resilience of Iran and Germany by closing the gaps between theoretical knowledge, strategies, disaster management plans, capacities, and actual practice in the context of multi-hazards. INCREASE focusses on two points. Firstly, on an integrated approach to analysing and assessing hazards, risks, vulnerabilities, and resilience, and secondly on an integrated management approach to emergencies and disasters. In an iterative and transdisciplinary process between the German and Iranian partners (from science, administration, the private sector, emergency services and other end users), the INCREASE project works on the basis of multi-hazard scenarios: pandemics, major earthquake and extreme meteorological events (i.e. heavy rains, floods, heat waves and droughts). These three scenarios serve as a starting point for the assessment of risks, needs and capacities, and for the development of the integrated disaster risk management (IDRM) framework. INCREASE develops this IDRM through the elaboration of various specific frameworks, which are then incorporated into an overarching framework for scalable and integrated DRM. The process is based on the specific social and cultural contextual conditions, risks, vulnerabilities, and needs of Iranian society and its disaster risk management systems. To strengthen resilience in Iran and Germany, the framework will consider several aspects, such as specific risks and hazards, emergency situations and scenarios, different geographical levels, such as the local, regional, and national levels, and others.

The joint project is structured into nine work packages. The work package "scenario discussion, knowledge transfer, mutual exchange and learning" forms the basis for a sustainable exchange and knowledge transfer between the association partners. This also includes analysing the capacities

¹ "INCREASE-Project - Inclusive and Integrated Multi-Hazard Risk Management and Engagement of Volunteers to INCREASE Societal Resilience in Times of Climate Change".

and gaps in German civil protection with regard to climate-related hazards and developing a stakeholder map. The results are presented in this report.

To this end, civil protection is first presented with its history, actors and tasks. As the risk of climate-related hazards is increasing, the second chapter of the report takes a look at the most common hydro-meteorological hazards in Germany. Before discussing the capacities and gaps of the German civil protection system, the methodology of the research, analysis, and stakeholder mapping is first explained. For the capacity and gap analysis, past events are evaluated and the 2021 flood disaster is discussed in particular. Finally, a conclusion is drawn and an outlook for the future is given with regard to the capacities and gaps of German civil protection in the context of climate-related hazards.

2. Civil protection in Germany

This chapter explains what civil protection in Germany entails. It then goes into the historical background, which explains the division into civil defence and disaster management. Finally, the structures, players and their tasks are presented.

2.1. What is civil protection?

In the event of incidents such as terrorist attacks, major accidents or long-lasting power outages, but also when coping with a pandemic or extreme weather conditions, civil protection plays a major role in every country. While this area of responsibility is usually summarised and coordinated at international level under the term "civil protection", the literal translation "civil defence" is only one aspect. In Germany, the term "civil protection" is understood to represent "all tasks and measures of the municipalities and the federal states in disaster management as well as the federal government in civil defence" (BBK 2023b). More precisely, the Federal Office of Civil Protection and Disaster Assistance (BBK) defines civil protection as "all non-police and non-military measures to protect the population and their livelihoods from disasters and other serious emergencies and from the effects of wars and armed conflicts. Civil protection also includes measures to prevent, limit and manage the aforementioned events (BBK 2023b)."

In Germany, the term civil protection therefore includes civil defence and disaster management. Civil defence is the responsibility of the federal government and includes the task of "using non-military measures to protect the population, their homes and workplaces, vital civilian services, businesses, facilities and installations as well as cultural assets from the effects of war and to eliminate or mitigate its consequences (BBK 2023b)". In addition to official measures, civil defence includes "self-protection, warning the population, shelter, residence regulations, measures to protect health, measures to protect cultural property and disaster management in accordance with §11 ZSKG" (cf. § 1 ZSKG). While civil defence is regulated at federal level, disaster management is the responsibility of the individual federal states and is therefore "an organisational form under state

law of the municipal and state administrations in the federal states for averting danger in the event of disasters, in which all authorities, organisations and institutions involved in averting danger work together under the uniform leadership of the locally responsible civil protection authority (BBK 2023b)". It should be noted here that civil defence "can make use of the disaster management units and facilities of the federal states, which are additionally equipped and trained for this purpose (cf. 11 ZSKG) (BBK 2023b)".

2.2. History of German civil protection

German civil protection has grown over many decades. Today, far-reaching interdependencies from the municipal to the federal level as well as a large number of players from a wide variety of sectors make up the current organisational form. A brief review of the past is helpful to understand the existing, complex structures and the division between civil defence and disaster management.

After the end of the Second World War, the word "disaster" was mainly used as a synonym for "war" in the Federal Republic of Germany, which was founded in 1949, as the term war was considered unpopular due to the defeat experienced and the trauma of war (Rosen 2008). At this time, civil protection was divided into the areas of air defence and civil defence, for which the Federal Air Defence Association and the Federal Agency for Technical Relief (THW), founded in 1950, were largely responsible. These were mainly concerned with educating and training the population with regard to possible military scenarios (Molitor 2021).

Storm surge disasters, such as the Hamburg storm surge, which affected large parts of northern Germany in 1962, paved the way for changes in West German civil protection. The subsequent change in the understanding of the concept of disaster from a narrowly defined term focussed on the preparation for war to a complex definition that includes all possible hazards is understood as the "all-hazards principle" (Molitor 2021). As a result of this change, German civil protection was no longer only concerned with preparing for possible wars, but also with a variety of different disasters. Measures that were as generalised as possible were developed to ensure the safety of the population (Molitor 2021). Reunification in 1990 led to a change in the German security situation. The responsibilities of the state to protect against the dangers of war were reassessed; the significantly reduced risk of war led to numerous civil defence structures being dismantled towards the end of the twentieth century due to economic aspects ("peace dividend"). For example, the warning service was disbanded and many training centres were closed (Franke 2016). At the same time, the scope of action of the federal states was expanded for disaster management geared towards natural hazards and in some cases merged with civil defence geared towards defence policy (Lange & Endreß 2015).

The German IDNDR Committee for Disaster Prevention was established in Bonn in 1990 at the start of the United Nations' International Decade for Natural Disaster Reduction (IDNDR). Its successor, the "German Committee for Disaster Reduction" (DKKV), took over seamlessly in 2000. Since then, the DKKV has shaped discussions on disaster risk reduction in Germany and was also recognised internationally as the National Platform of the United Nations Office for Disaster Risk Reduction

(UNDRR) (DKKV 2023). An awareness developed in Germany that hazards can mainly arise from limited and therefore controllable accidents or disasters induced by natural hazards (Meyer-Teschendorf 2008). The attacks of 11 September 2001, as well as the flooding of the Oder and Elbe rivers in the summer of 2002, highlighted the vulnerability of the population and the lack of preventive measures. The subsequent general sensitisation to the vulnerability of the population and the state led to a new awareness of civil defence and disaster management. A reorientation of the state in civil protection became necessary, and in 2002 the federal and state governments developed a corresponding political strategy for the protection of the population in Germany as a framework concept for civil defence and disaster management (Geier et al. 2017). In this strategy, the federal and state governments agreed to cooperate more closely in the event of nationally significant incidents, whether in relation to armed conflicts or natural hazards. By working together as partners and pooling resources across the boundaries of different levels of action, the aim was to achieve effective crisis management in the event of major emergencies (Meyer-Teschendorf 2008). One institutional measure resulting from the new orientation of civil protection was the establishment of the Federal Office of Civil Protection and Disaster Assistance (BBK) in 2004, which was to serve as a strategic hub for all areas of civil security provision (Lange and Endreß 2015).

Other historic events for German civil protection include the 2013 floods in the area of disaster management and the 2016 White Paper of the Federal Ministry of Defence and the 2016 Civil Defence Concept of the Federal Ministry of the Interior and for Home Affairs in the area of civil defence. While it became apparent after the 2013 floods that gaps were slowly being filled, civil defence identified new challenges in the area of security and threats, not least in response to the annexation of the Crimean Peninsula by Russia (DKKV 2015; BMVG 2016; BMI 2016).

In the wake of the COVID-19 pandemic and the devastating flood disaster in western Germany in 2021, the BMI and the BBK then announced a strengthening of civil protection and a reorganisation of the BBK in order to be able to cope with the diverse challenges and new, complex risks (BMI 2021). The strategic reorientation comprises the following eight points: strengthening health-related civil protection, joint civil protection competence centre, evaluation of crisis situations, warning the population, emergency drinking water supply, strengthening volunteer work, improving spontaneous assistance and self-protection, the BBK as a service provider and a national resilience strategy, which was adopted by the Federal Government in 2022 (BMI 2022).

The past shows that what a society considers to be a risk and how the state organises civil protection is directly linked to which hazards or damaging events are considered possible in a given period. This can be clearly seen in the importance of the concept of disaster, which has changed from a definition focussed on military scenarios after the end of the Second World War to a complex consideration of multiple hazards. In the globalised world in which we live, many things seem to have the potential for disaster. In addition to terrorism, the COVID-19 pandemic and violent riots, news about extreme weather conditions is now a fixed part of media reporting. The reorientation of civil protection is therefore an important step in order to take into account new, multiple, and complex risks that are not yet considered likely in order to be able to constantly adapt the structures and tasks of civil protection.

2.3. Federal structures, organisation, and tasks of civil protection

The areas of responsibility of civil protection have grown since the turn of the millennium due to new risks, emphasising the need to ensure the safety of the population (Molitor 2021). It therefore makes sense to take a look at how exactly German civil protection is currently organised.

Due to the federal structure of the Federal Republic of Germany, the corresponding tasks are assigned to the two levels of government or the three administrative levels of federal, state and local authorities. The federal government is responsible for civil defence, i.e. for all matters relating to external security and the civilian defence (see Chapter 2.1). Almost all other hazard prevention tasks, such as technical assistance, fire and disaster protection or rescue services, fall within the legislative competence of the federal states. These can in turn delegate certain tasks to the municipalities, which are responsible for their operational implementation (Geier 2021).

A suitable, clear representation depicts the system structures in the form of a pyramid (see Fig. 1). The pyramid is divided into the three administrative levels of the Federal Republic of Germany (Geier et al. 2017). The municipalities and cities form the operational basis of civil protection. These are responsible for fire protection with the municipal fire brigades or for the rescue service in the respective municipality with private aid organisations, such as the German Red Cross. Additional federal resources can also be mobilised as part of official and disaster relief, so that THW forces can support the municipalities in crisis management. The basis of the operational emergency forces in Germany consists of around 1.8 million trained volunteers, who make up one of the most important active and operational resources in German civil protection (BMI 2023).

In the centre of the pyramid are the federal states, which are legally responsible for civil protection in times of peace. Due to the federal structures and the associated autonomy of the federal states, there are 16 different specialised laws for the area of disaster management in Germany. Due to the large number of laws, it is not possible to take a comprehensive look at the individual legal regulations here (Glade et al. 2017). The federal states are responsible for crisis management in disaster situations, even if certain events affect several federal states at the same time. The highest disaster management authorities in this area are the interior ministries of the federal states, while the lower authorities are the respective specialised offices of the municipalities. In disaster situations, the state level can support the local authorities with material and technical resources and also set up additional units of its own. In the event of major emergencies, the federal state then coordinates with its own crisis teams at political and administrative level (Geier 2021).

In order to be prepared to deal with incidents, the federal states are obliged to take preparatory measures. This includes, for example, the adequate staffing of crisis teams or the organisation of crisis team exercises. For example, as part of the "LÜKEX" exercise concept (cross-state and inter-departmental crisis management exercise), the crisis management of the states is regularly tested in order to test existing plans and concepts (BBK 2022). Another task is to warn the population in times of peace. Corresponding systems include sirens, radio announcements, and warnings via the internet or warning apps. Cell broadcast was tested for the first time in Germany in December 2022

and is now being gradually introduced (BBK 2023a). In addition to fire brigades and aid organisations, another important partner in this area is the assistance system of the federal police, which ensures safety and order in the event of accidents or other incidents (Geier 2021).

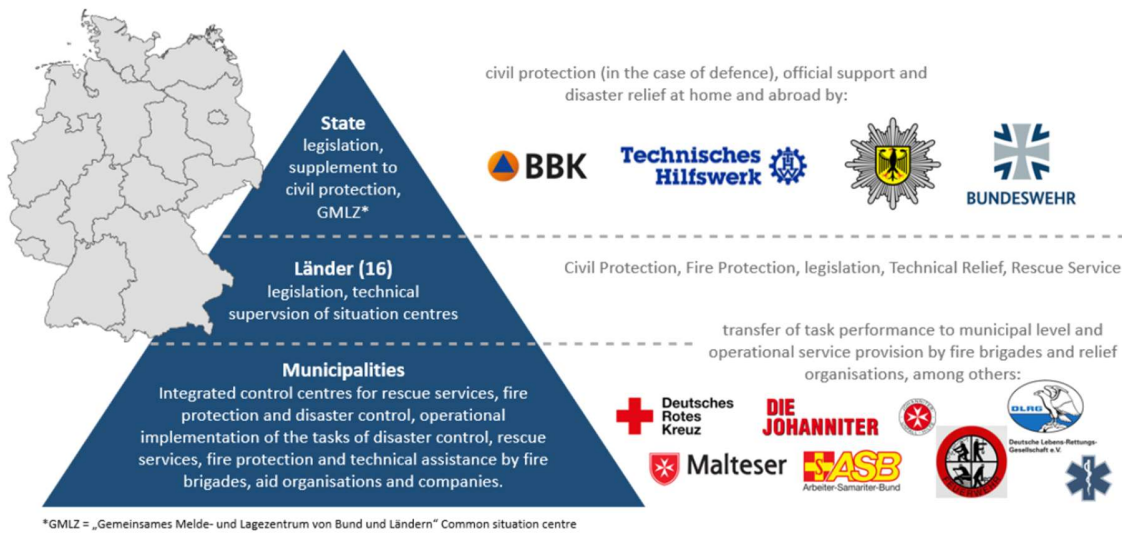


Figure 1: System structure in pyramid form of civil protection in Germany (source: own illustration 2022)

At the top of the pyramid is the federal government, which is responsible for civil defence in Germany. The legal framework for this is provided by the "Federal Civil Defence and Disaster Relief Act". According to this law, "the object of federal competence [...] is the protection of the civilian population in military crises and situations" (Meyer-Teschendorf 2008:96). Furthermore, the federal government is responsible for the protection of citizens in the event of the release of nuclear energy and ionising radiation (Lange and Endreß 2015). Through non-military measures, the federal government should protect citizens, their homes and workplaces from the effects of war. This includes the construction of protective facilities to protect the population from the effects of offensive weapons. The fulfilment of tasks in this area is the responsibility of the BBK and the THW. One of the most important tasks of the federal government is to promote the population's ability to protect itself and help itself, which is particularly important in the event of long-term disasters. Training programmes in first aid and fire safety education are intended to increase the resilience of the population in crisis situations (Geier 2021). In addition, great importance is attached to the timely warning of the population of immediate dangers in the event of defence; the corresponding modular civil protection systems already presented can be used here. The federal government is also responsible for the development of stay regulations and evacuation plans for the population in the event of certain war events or nuclear accidents. For example, after the reactor disaster in Fukushima in 2011, Germany revised the corresponding plans (Geier 2021).

Despite the distribution of competences in civil defence and disaster management among the various levels of action in Germany, these two areas, which together form civil protection, are strongly interlinked due to the so-called "dual use". This means that the federal government can rely on the

disaster management of the federal states in the event of defence. To this end, the federal government supports the federal states with additional resources, primarily in the form of vehicles and equipment, but also with personnel support, e.g. from THW volunteers. If an event relevant to civil defence occurs, the disaster management units of the federal states help to deal with it. Conversely, in the event of disasters or major emergencies in peacetime, the federal states utilise the additional resources provided by the federal government in order to deal with the events effectively (Meyer-Teschendorf 2008). Although German civil protection is such a complex system, the "dual use" and the associated link between civil defence and disaster management has created the possibility of building an integrative system and preventing the complete separation of the different areas. This made it possible to optimise the management of war events, disasters, and other crisis.

2.4. Actors in civil protection

Civil protection in Germany is very complex; numerous different actors are important to ensure the safety of the population. The actor mapping, which was created as part of the INCREASE project, is intended to serve as a simplified, clear representation of the most basic structures of the German DRM. On the one hand, it aims to familiarise employees from Iran with the local structure and, on the other hand, it should also help users from outside the field to understand the structure of the DRM system. It therefore only refers to the 18 "most relevant" actors or groups of actors.

Continuous revision and adaptation appear to make sense, especially in the context of the needed reorganisation and expansion of civil protection but is not possible within the framework of the INCREASE research project planning.

The below seen actor mapping shows the key players in the German DRM. They are divided into three administrative levels: local authorities, federal states and the federal government, and only appear once in this mapping, even if the actors are represented at several levels. Furthermore, the actors are assigned to different colour categories - here too, the actors are only assigned to one category for reasons of simplification. The seven categories Operative, Civil Society, Administration and Coordination, Media, Politics and Policy making, Military and Science and Research represent different types of actor groups. The relationship between the individual actors is described by the arrows. The appendix contains detailed profiles of the individual actors in profiles and a high-resolution mapping of the actors.

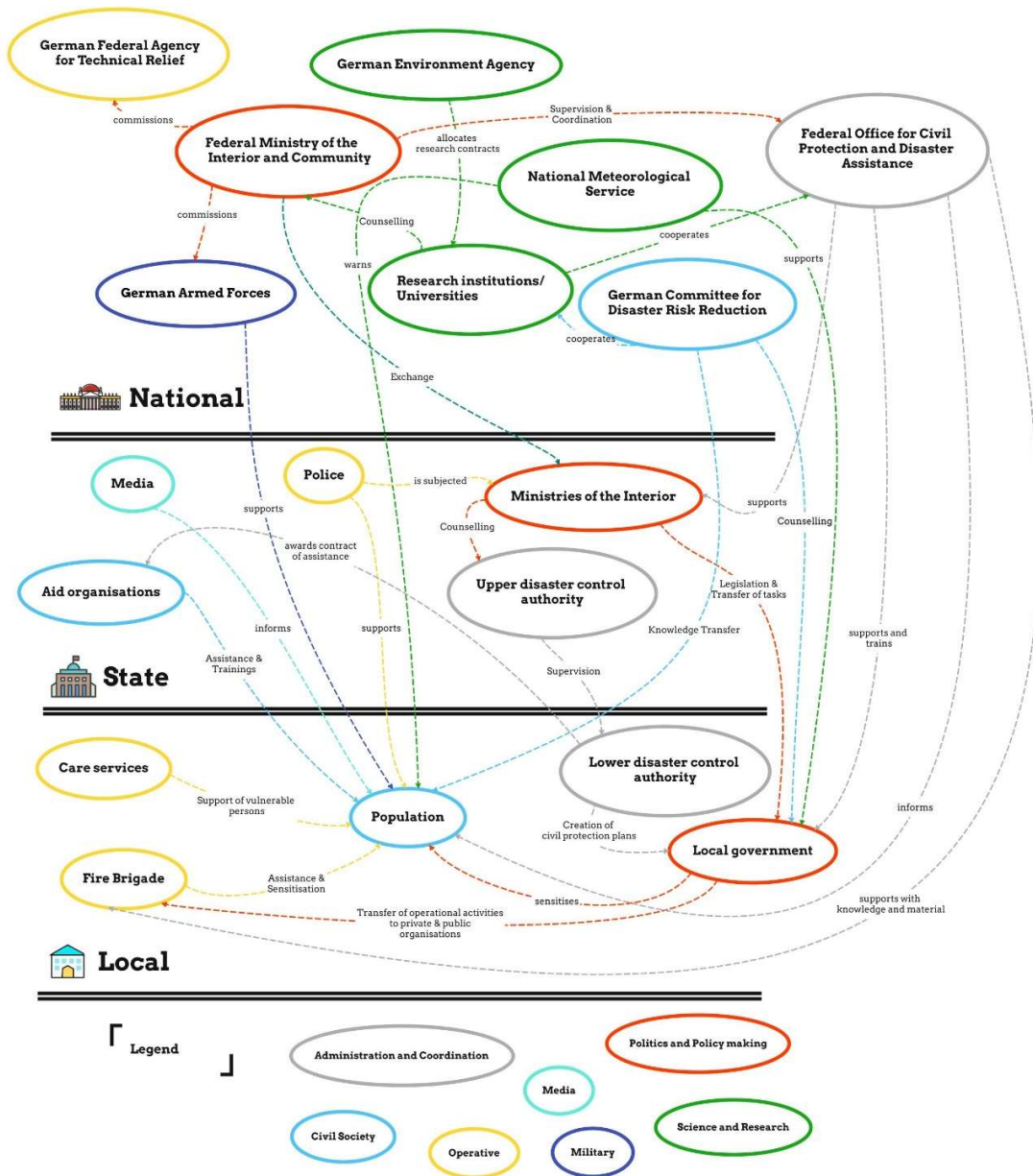


Figure 2: Working version of the stakeholder mapping of German civil protection (source: own illustration 2024)

3. Climate-related risks in Germany

Before this chapter takes a closer look at the individual climate-related hazards in Germany, some terminology is explained in order to better categorise climate-related hazards. After all, what distinguishes a natural event from a natural hazard and when do we speak of climate-related hazards or even disasters?

Geophysical, meteorological, hydrological, or climatological processes are generally referred to as natural events. If people and their valuables can potentially be affected by them, this is referred to as a natural hazard (Dikau and Voss 2023). In this report, climate-related hazards include fast-onset (e.g. storm or flash flood) and slow-onset hazards with hydro-meteorological and climatological origins (e.g. heatwave or drought). A flash flood due to heavy rainfall on an uninhabited island is therefore a natural event that initially poses no direct danger to humans. A flash flood in a populated area would mean correspondingly high potential damage to people and valuables and is therefore to be categorised as a natural hazard.

If a natural event occurs and (significant) damage is caused as a result, leading to an administrative act, this is referred to as a disaster (BPB 2021). The term "natural disaster", on the other hand, is misleading as it gives the impression that nature alone triggers the disaster. However, humans are always part of the structure, as the interactions between human activity and natural hazards influence what are actually natural events and are amplified by human intervention (Dikau and Voss 2023). One example of this is climate change. As a result of climate change, hazards are not only increasing in magnitude and frequency, but are also becoming more complex, which can lead to multiple and cascading risks. Civil protection will also have to adapt to this in the future.

According to EM-DAT, an international database for disasters, storms occur most frequently in Germany, followed by floods and extreme temperatures (EM-DAT 2023). In addition to the frequency of natural events, the extent of damage is also relevant for the assessment of natural hazards. Munich Re recorded a total economic loss of €96.3 billion caused by weather-related loss events in Germany in the period from 1980 to 2017 (Munich Re 2018). During this period, meteorological events (e.g. storms) accounted for the largest share at 61%. 33% of the total loss was due to hydrological events (floods and mass movements) and 6% was of climatological origin (e.g. heatwaves). However, floods were increasingly responsible for the highest economic losses in the recent past (DKKV 2017).

From the perspective of both the frequency of disasters and the extent of damage caused by weather-related events, storms and floods in particular, but also extreme temperatures such as heatwaves, can be identified as natural hazards for Germany. For this reason, storms, floods/heavy rain, drought and heatwaves are presented in the following sub-chapters as representative of climatic hazards.

3.1. Storms

Storms are caused by pressure differences and can be divided into winter storms and convective storms (DKKV 2017). Winter storms usually occur over the North Atlantic, which is why the north-west of Germany is most frequently and severely affected by them. Convective storms, as a result of temperature fluctuations, can lead to heavy hail and mainly affect the south of Germany (Kreibich et al. 2014; DKKV 2017). They are more spatially limited, but occur much more frequently than winter storms, with 10 to 40 storm days per year (DKKV 2017). In Germany, storms are among the most frequent natural hazards. Almost half of all damage events caused by natural hazards in Europe are attributable to storms (DKKV 2017).

3.2. Flooding and heavy rain

As floods and heavy rainfall can be closely linked, they are presented together in this chapter. In Germany, flooding includes floods caused by heavy precipitation, river floods, and flash floods caused, for example, by melting snow or heavy precipitation, as well as coastal flooding after storm surges (DKKV 2017). In winter, river floods can be triggered by dynamic low-pressure areas known as "cyclones" in western Germany. This flooding mainly occurs in the catchment areas of the Rhine and Weser rivers. In the south of Germany on the Danube, for example, snowmelt usually causes flooding in spring and cyclones in the south-west of Germany in summer (Beurton and Thieken 2009). Due to the combination of onshore winds and low atmospheric pressure, storm surges on the North Sea and Baltic Sea usually occur in the winter months (DKKV 2017). Heavy rainfall refers to high amounts of precipitation in a short period of time, which usually fall in a limited area and are accompanied by short warning times due to their convective origin. In Germany, heavy rainfall occurs more frequently in the summer months from May to September. As the temperature rises, the air's capacity to absorb water increases. The upward movement and resulting cooling of warm, moist air triggers heavy rainfall events (BBK 2015). The very large amounts of precipitation can cause water levels in small rivers and streams to rise rapidly, leading to flooding. Flash floods also occur without bodies of water due to the enormous amount of rainfall, particularly on slopes. The surface run-off rain masses accumulate in topographically low areas and can cause flooding and damage to infrastructure. Heavy rainfall and the resulting floods are intensified by water-saturated soils, a lack of retention areas, sealing and backwater in the sewerage system. Due to a high degree of development and sealing, the damage potential of flash floods is high, especially in urban areas (Klimanavigator 2023).

3.3. Droughts

A drought usually extends over a longer period of time and announces itself gradually. This represents an important difference to other disasters such as heavy rainfall events or storms, which occur in a limited and usually short period of time. Therefore, various definitions of drought exist (GERICS 2012). The German Weather Service (DWD) defines drought as a lack of water caused either by too little precipitation and/or by greater evaporation due to higher temperatures than usual, for ex-

ample. Furthermore, the term drought is always related to the prevailing regional weather conditions. Due to the different spatial and temporal characteristics, drought is primarily characterised by its effects (GERICS 2012). The DWD classifies droughts into four types according to their duration and effects (DWD 2022). Meteorological drought describes the purely meteorological lack of water and is already used for a duration of one to two drier months. Agricultural drought is associated with crop losses and usually has a duration of 2-4 months of drought. Hydrological drought refers to the impairment of groundwater and river levels, usually over a period of 4-12 months of drought. If a drought lasts 12 months or more and the water shortage is associated with economic consequences and is referred to as a socio-economic drought (DWD 2022). In Germany, individual years have repeatedly stood out as extreme drought years in recent years, such as 2003 and 2018, in which agriculture also suffered considerable losses (Buras et al. 2019).

3.4. Heat waves

The German Weather Service describes a heatwave as "a period of several days with unusually high thermal stress" (DWD 2023). In its heat warning system, the DWD defines a heatwave based on the perceived temperature at midday, indoor conditions during the night and people's adaptation to heat over time. Therefore, warnings apply for the current and next day, for different altitude levels, in the respective districts. In Europe, summer heatwaves are usually triggered by pronounced and almost stationary areas of high pressure. These high-pressure systems are usually located over Eastern Europe or Scandinavia and also combine with an Azores high. This situation allows dry and warm air masses to move from North Africa to Central Europe (PLANAT 2023). The 2018 summer heatwave in Germany had significant health consequences, especially for vulnerable population groups such as the elderly and children. Due to climate change, heatwaves will increase in intensity and frequency under extreme temperatures, which will influence the urban heat island effect and may also favour droughts and forest fires (Meehl and Tebaldi 2004).

4. Methodology

This chapter explains the methods used to analyse the capacities and gaps in German civil protection in the context of climate-related hazards as well as the methods for the actor mapping. A mix of methods was used, combining the advantages of quantitative and qualitative methods to enable a comprehensive approach to the analysis. The triangulation of the literature review, a survey and interviews make it possible to analyse the capacities and gaps of German civil protection from different perspectives. Also, the methodology for the actor mapping contains different methods for a more holistic approach.

4.1. Literature research

The approach for the literature review was derived from Clifford et al. 2010. First, existing literature was reviewed in order to familiarise ourselves with the topic, define key terms, and identify fist

stakeholder groups. In particular, library holdings and Google Scholar were searched with search terms from civil protection in combination with actors, structures, and stakeholders.

For the capacity and gap analysis the following clusters and their key terms were then used to conduct an initial review of the literature in German and English.

- Gaps (Lücken)
- Capacities (Kapazitäten)
- German civil protection (Deutscher Bevölkerungsschutz)
- Climate-related hazards (Klimabedingte Gefahren)
- Flood 2021 (Flut 2021, Hochwasser 2021)

Scientific literature, reports and databases were reviewed to identify current capacities and gaps, analyse existing scientific and grey literature or "build bridges to related topics" (Creswell 2014: 28), which is crucial for this inter- and transdisciplinary topic. In order to find articles with sufficient scientific-based information for the topic in addition to field reports, a systematic literature search was conducted using Google Scholar, covering a period from 2000 to 2022. The systematic literature search used a combination of keywords derived from the preliminary literature search. The most important keyword combinations are listed in the following table.

Table 1: Main key terms for the literature search (Source: own presentation 2022)

Combination of key terms	Google Scholar	
	Quantity	With relevance
Gaps + capacities + civil protection + Germany	201	8
Gaps + German civil protection	1	1
Capacities + German civil protection	0	0
Climate-related hazards + civil protection	1	1
Flood 2021 + Civil protection	3	2

On this basis, an initial selection of more than 200 articles was found, from which only those that are actually relevant to the topic were selected. The result of this filter is shown in the "with relevance" column of the table. Articles that appear in different keyword combinations were only counted once. After checking the criteria, the abstracts/summaries of the available results (11) were viewed and analysed. Due to the large number of synonyms or related words for capacities and gaps that could still be relevant for the analysis, the snowball system was applied to the selected articles in order to read them completely. In the context of a literature search, the snowballing principle is a technique to find related or interesting literature from an article by checking citations and references (Lecy and Beatty 2012; Biernacki and Waldorf 1981). The advantage of this principle is that relevant literature is found that could not be found with the given keywords alone (Atkinson and Flint 2001). In addition, this literature search is designed in a spiral form due to the interactivity of the various steps within the search - first deductive and then inductive (Clifford et al. 2010). In the end, 35 references were processed in this report.

4.2. Survey

For the capacities and gaps analysis, an online survey was conducted to collect quantitative data. The survey was online for a fortnight (03.01.-17.01.2023) and advertised via various channels of the DKKV network (website, LinkedIn, Twitter, Instagram, and at the BBK congress "Research for Civil Protection" from 12-14 January 2023 in Bonn). A total of 65 people took part in the survey, with an average time of 13:49 minutes to complete the survey. The survey contained the following four questions:

Capacities

1. In your opinion, what are the three greatest capacities of German civil protection in the context of climate-related hazards?
2. Case Study: In your opinion, which capacities/strengths of German civil protection proved particularly effective during the 2021 flood disaster?

Gaps

1. In your opinion, what are the three biggest gaps in German civil protection in the context of climate-related hazards?
2. Case Study: In your opinion, what gaps were particularly evident during the 2021 flood disaster?

The answers were then categorised, and the three largest capacities and gaps were presented visually.

4.3. Interviews

Four interviews were conducted for the analysis of capacities and gaps with representatives from the areas of science, operational practice, and policy. In the semi-structured interviews, the results of the survey were discussed and contextualised. Semi-structured interviews contain key questions on the topics to be answered during the interview. However, most questions are open-ended to encourage participants to share their perspectives, their experiences and the meaning they associate with the topic. Depending on the answers given, the interviewer and interviewee can explore a topic in more depth if relevant. In this way, the interviews were guided but still open to respond to thoughts that may not have been previously considered by adding a follow-up question (Gill et al. 2018; Adams 2015).

4.4. Stakeholder mapping

In order to create a map of the existing structures of German civil protection, a map was designed that clearly shows the most relevant actors and their interrelationships.

4.4.1. Screening and identification

Screening and identification are two important steps in the investigation of disaster management systems in both Iran and Germany. Screening involves reviewing available legal and official documents to explore the disaster management systems of both countries. This process made it possible to gain a basic understanding of the structures and mechanisms used to manage disaster risks. Identification is the next step after screening. This involves identifying the key actors, their roles and responsibilities within the disaster management systems. This includes governmental and non-governmental actors. Identifying these actors and their roles is critical to understanding how the disaster management systems work and how they respond to disasters and prepare for risks. Screening and identification are the first important steps for a comprehensive insight into the disaster management systems of Iran and Germany.

4.4.2. Categorisation and profiling

Based on the screening and identification, a category system was developed in cooperation with the Cologne University of Applied Sciences (THK) and the Disaster Research Centre of the Free University of Berlin (KFS). This system could be used both for the actors of the German civil protection system and for the actors of the partner country Iran. It depicts the state of civil protection in the period of research work from 2022 to 2024. The categories make it possible to show the differences and similarities between the actors and to categorize them into specific groups. The categorization was used to assign the actors to the administrative levels or sectors in which they are active. They help to identify cross-connections between individual players. Profiling refers to the development of a basic data set for the individual actors. This data set contains information about the contacts, specific roles, responsibilities and skills of the actors.

Table 2 shows the categories developed for Germany and Iran. The completed table with the individual profiles of the actors serves as the basis for the profiles (see appendix).

Table 2: Category system for the actor mapping of the Iranian and German civil protection system (own illustration 2023)

Nr.	Kategorie	Kartierung Deutschland	Kartierung Iran
1	Name der Institution	Name der Institution	Name of institution
2	Adresse	Adresse und Webseite	Address and homepage
3	Logo	Logo	Logo
4	aktuelle:r Vorsitzende:r	Aktuelle:r Vorsitzende:r	current key authority
5	Sektor/ sector	a. Wissenschaft und Forschung b. Verwaltung c. Praxis d. Politik e. Netzwerk f. Militär	a. Science and research b. Administration c. Operation and practice d. Politics and religious leadership e. Network f. Military
6	Art der Organisation/ type of organisation	a. Regierung b. Staatliche Institution c. Private Einrichtung d. Verein/ NRO und Zivilgesellschaft	a. Governmental organisation b. State-owned and state- controlled organisation c. Private institution d. Civil society
7	Themen tags / theme tags	BEISPIELE (zu ergänzen!) a. Gesundheit b. Nachhaltigkeit c. Entwicklung d. KRITIS e. humanitäre Hilfe f. ...	a. Health b. Sustainability c. Development d. CRITIS e. humanitarian aid f. ...
8	Querverbindungen / interaction	Hier werden Mitglieder, Partner oder Institutionen, mit denen Verbindungen bestehen, eingetragen	Members, partners or institutions with which connections exist are to be entered here
9	Verwaltungsebene/ scale	a. Bund b. Länder c. Kreise d. Kommunen/Gemeinde/Stadt e. international	a. National b. Provinces c. Counties d. Cities and rural districts e. international
10	Prozesszyklus / process cycle	a. Phase 1: Vorbeugung b. Phase 2: Vorbereitung c. Phase 3: Bewältigung d. Phase 4: Nachbereitung	a. Phase 1: Mitigation/Prevention b. Phase 2: Preparation c. Phase 3: Coping/Response d. Phase 4: Evaluation/Recovery
11	Kurzbeschreibung / short description	Kurzbeschreibung	Short description
12	Verantwortung/ mandate and responsibilities in DRM	Verantwortlichkeiten	Mandate and responsibilities
13	Detaillierte Beschreibung im jeweiligen Szenario/ detailed description per scenario	Detaillierte Beschreibung pro Sz	Detailed description per scenario

Together, categorization and profiling help to provide an overview of different actors, their relevance, strengths and weaknesses and to identify opportunities for improvement. They are therefore of crucial importance for strengthening disaster risk management capacities in Germany and Iran.

4.4.3. Fact sheet and process cycle

The creation of fact sheets plays a crucial role in clearly bundling the information from the previous two work steps for each actor. A factsheet is an effective tool for presenting important information in an easily understandable and accessible way.

A typical factsheet contains, in this case, the full name and logo of the actor and a link to their website. This provides visual identification and allows direct access to further information.

In addition, the factsheets contains the assignment for sector, type of organization and administrative level. This is followed by a brief description and the most important information about the area of responsibility. This summary makes it possible to get a quick overview of the actor and to better understand its role and significance.

Another important aspect of a factsheet is the presentation of the phases of the process cycle (disaster management cycle) in which the actors are active. This helps to recognize the actor's contribution to the overall process and to see their activities in context. The cycle is divided into the phases “mitigation”, “preparedness”, “response” and “recovery” (see figure 3).

The “mitigation” and “preparedness” phases relate to the time before a disaster occurs. Although it is difficult for humans to influence the occurrence of events such as an extreme heat wave in advance, the impact on the well-being of the population can be reduced through preventive measures. Measures in the preventive phase include avoiding areas potentially at risk from natural hazards or stockpiling certain resources. In this context, particular importance is attached to the training of emergency services and warning the population. The two prevention phases “mitigation” and “preparedness” can take place at the same time; however, the mitigation phase is often given priority, as good mitigation means that preparation measures do not have to be applied in some cases. The response phase comprises the direct deployment to contain and combat the disaster. To this end, short-term measures are also used immediately after the occurrence of a hazard. In contrast, the subsequent phase of recovery refers to a medium to long-term period.

In addition to considering the damage and negative effects that may result from the incident, the previous cycle phases are also evaluated².

The factsheets of all key players can be found in the appendix.

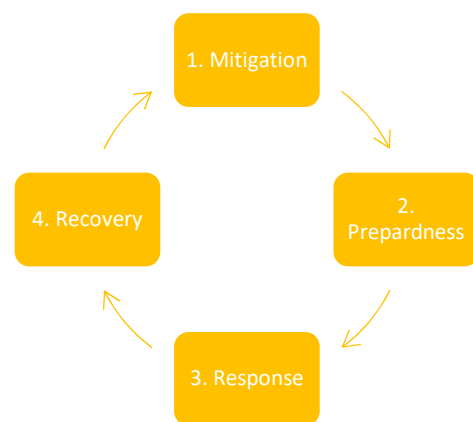


Figure 3: Process cycle in German disaster risk management (own presentation 2023)

² Meyer-Teschendorf, K. (2008). Bevölkerungsschutz im Spannungsfeld des Föderalismus. In: 50 Jahre Zivil- und Bevölkerungsschutz, 2008, S. 96-104. Bonn: Druckpartner Moser.

4.4.4. Visualization and mapping

Visualization and mapping are important steps in structuring and developing an understanding of the DRM key actors, their responsibilities and relationships. Information from the factsheets and the category system was used to create a mapping of the actors. The actors were divided into the federal, state and municipal administrative levels. This subdivision helps to better understand the competencies and responsibilities at the various administrative levels. The sectors of the actors are represented by different coloured borders. This colour differentiation enables quick and easy identification of the various sectors and their respective institutions. In addition, the cross-connections and links between the actors were represented by arrows. The cross-connections were worked out from the profiles on the basis of the tasks and responsibilities of the individual players.

These arrows illustrate the relationships and interactions between the various key players and help to better understand the network and dynamics within the DRM structure. Individual actors as a generic term encompass a large number of other institutions. In order to visualize the actor mapping, a draft was first created using Microsoft Power Point. The online tool “xMind” was then used to finalize the actor mapping. The mind mapping software can create organizational charts and thus support users in capturing and understanding structures.

Overall, this visualization and mapping helps to provide a clear and comprehensive picture of the DRM structure and the key players operating within it. It underlines the importance of a structured and clear presentation of information for understanding complex structures and relationships in the German DRM.

5. Capacities and gaps

Based on the three methods used, this chapter presents the capacities and gaps in German civil protection in the context of climate-related hazards. In general, it should be noted that Germany is not heavily affected by climate-related hazards in an international comparison, so that experience is limited to a few crises and disasters, such as the storm surge in Hamburg in 1962, the Elbe floods in 2002 and 2013 or the flood disaster in 2021. As a result, a false sense of security has developed over the years, which has led, among other things, to gaps not being closed and capacities not being expanded. This is also reflected in the results of the survey and is confirmed by the literature research and the interviews.

5.1. Capacities

There is far less literature on capacities in German civil protection in the context of climate-related hazards compared to gaps. However, this shows that the capacities lie where experience can be drawn on and volunteers are well trained. According to Voss (2022), these are primarily in the area of natural hazards as long as the situation is not too large and complex.

Some of these capacities were also named in the survey. When asked about the three largest capacities in German civil protection in the context of climate-related hazards, 58 people responded, resulting in a total of 140 capacities being named, which were initially divided into 17 categories.

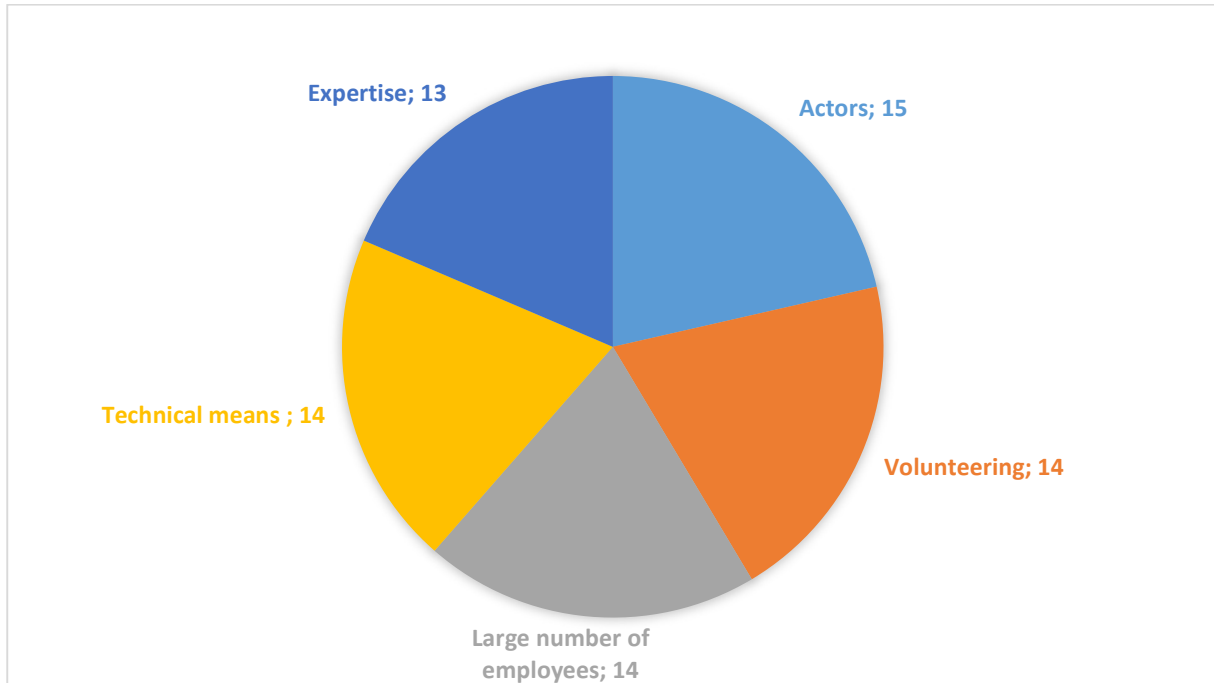


Figure 4: Most frequently mentioned capacities in the DKKV survey. A total of 140 capacities were named, which were divided into 17 categories. The five largest categories are shown in this figure (source: own illustration 2023)

Figure 4 shows the three most frequently mentioned capacities, with "technical resources", "voluntary work" and "large number of staff" sharing second place alongside "actors" and "expertise". The entire categorisation, as well as the gaps, can be found in the appendix.

According to the survey, the largest capacity of the German civil protection system is made up of actors. Players such as the THW, fire brigades, rescue and medical services, but also the police and the German Armed Forces were named. Closely related to this are the capacities of volunteers and the associated large number of personnel. In the technical resources category, the basic structures and essential technical materials, equipment and vehicles are mentioned above all. Another competence that was often mentioned is expertise, which includes extensive knowledge in the area of hazards and risks as well as expertise and research.

According to the researcher interviewed, the capacities mentioned are more of a look in the "rear-view mirror" of what we have been able to rely on in the past. The current situation is well represented by the survey, especially if you also look at other categories such as commitment, motivation, and solidarity. The practice sees the greatest capacities in similar categories that also emerged from the survey. First and foremost, staff were named here, bringing together the categories of volunteering and large numbers of staff. At the same time, volunteering was described as both a "curse and a blessing". Civil protection only works thanks to volunteers, but this alone is not enough to guarantee the safety of the population. Expertise and technical know-how in particular, which are

cited as the second major capacity, are fundamentally important. According to the practice representatives interviewed, this is a competence that needs to be constantly improved and adapted. While equipment was named as one of the biggest gaps in the survey, technical equipment was also described as a capacity. According to the experts, this is due to perception and personal background as well as different local conditions. The third capacity mentioned by practitioners was the population and cohesion during disasters. The interviewed expert from the political sphere deviated only slightly from the other interviewees and the survey in her prioritisation of capacities. For her, volunteering, equipment, and hazard prevention are among the greatest capacities, as long as they are small and manageable.

Case study: Capacities during the 2021 flood disaster

The case study also shows that there is more literature on gaps than on capacities. Nevertheless, a survey was also conducted on the satisfaction of the emergency services and helpers during the 2021 flood disaster (Fekete 2021).

The emergency services, including full-time staff, volunteers and honorary staff, showed great commitment and vigour in helping people. According to the survey, they also had high expectations in the areas of crisis management, coordination, communication, care, and recognition. The motivation of the emergency services became even stronger after their deployment. Most felt that the training and exercises they completed in preparation were useful. They also rated the cooperation between the volunteers and the behaviour of their superiors as generally positive (Fekete 2021). The results of the survey also clearly show the capacities in the area of the large number of forces, the actors, and specifically the volunteers and spontaneous helpers. This is also the view of the interviewees. According to the experts, the known and already described capacities also proved their worth during the 2021 flood disaster.

Based on this information on capacities from literature research, surveys, and interviews, it can be concluded that the focus is more on gaps than on capacities. It is important that civil protection does not rest on its laurels but continues to build on these capacities, especially in view of the climate-related risks.

5.2. Gaps

The literature on the topic of gaps in civil protection in the context of climate-related hazards is made up of experiences of individual climate-related events as well as general gaps in civil protection. Of particular note here is the KFS Working Paper No. 20 by Martin Voss on "The state and future of civil protection in Germany - lessons to learn" (Voss 2022). In his paper, Voss addresses nine lessons to learn that highlight gaps in the following areas prevention; population, vulnerability and capacities; communication and warning; civil protection as a cross-level and cross-departmental task - integrated and systemic risk and disaster management; critical infrastructure; democratic risk and disaster management and law; administration; volunteering; and self-protection (Voss 2022).

Some of these gaps were also identified in the survey. When asked about the three biggest gaps in German civil protection in the context of climate-related hazards, 63 people responded, meaning that a total of 176 gaps were named, which were initially divided into 24 categories. The following figure shows the three most frequently mentioned gaps, with warning structure, lack of preparedness and federalism sharing third place. The entire categorisation can be found in the appendix.

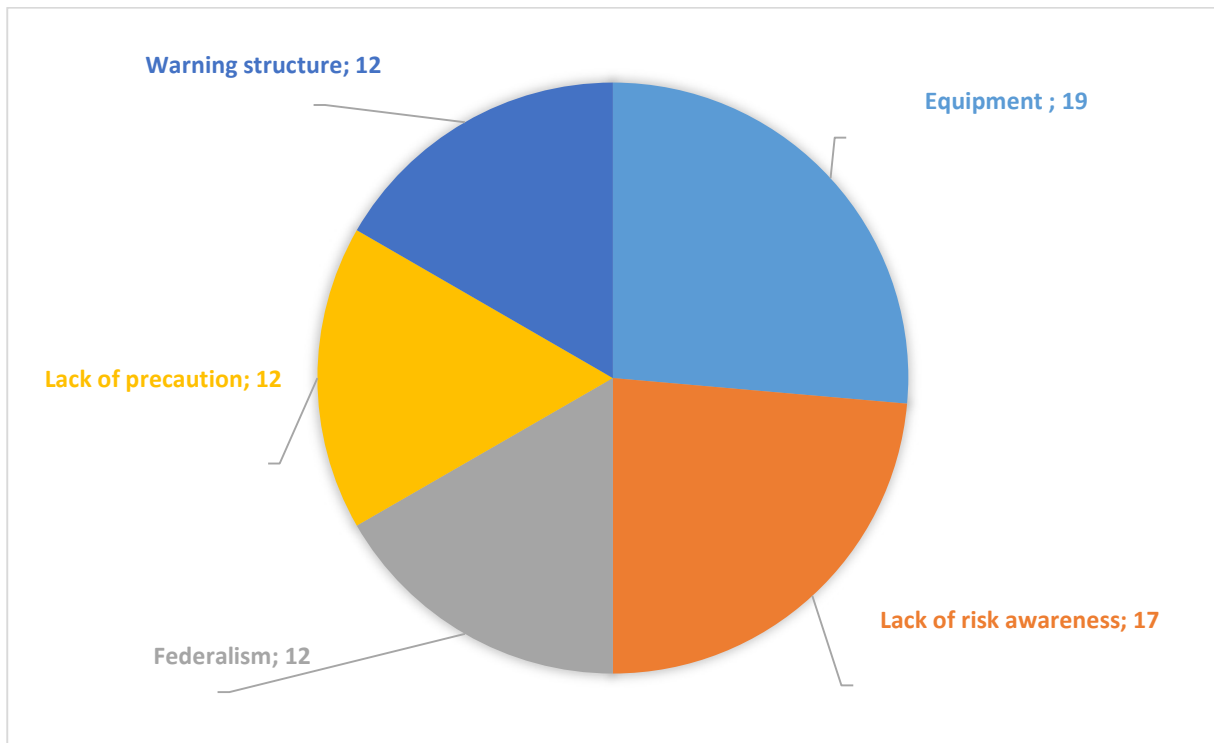


Figure 5: Most frequently mentioned gaps in the DKKV survey. A total of 176 gaps were named, which were divided into 24 categories. The five largest categories are shown in this figure (source: own illustration 2023).

According to the survey, the biggest gaps are in the area of "equipment". In this category, a lack of old and unsuitable technical equipment was mostly mentioned. Regarding climate-related hazards, the lack of air conditioning systems for heatwave accommodation or vehicles that are prone to flooding were occasionally mentioned. The category "lack of risk awareness" includes the risk perception of the population and of those in positions of responsibility as well as a lack of information about climate-related hazards. Gaps in the "warning system", "lack of preparedness" and "federalism" were mentioned twelve times. The "warning system" category includes gaps in the warning mix, a lack of instructions for action, a lack of understanding of warning signals among the population, and inaccurate predictions of climate-related hazards. The "lack of preparedness" includes, above all, the population's low level of self-preparedness and ability to help themselves, but also at local authority level. "Federalism" refers to inhomogeneous structures, preparation and response of civil protection, but also diffusion of responsibility and administration as well as standardised procedures for dealing with incidents.

The analysed results were then discussed and categorised in interviews with representatives from science, practice, and politics. When evaluating the results of this survey, it is important for scientists to note that there are different points of view, depending on the scientific field from which the results are viewed. From a social science perspective, the expert interviewed would characterise perception as the biggest gap. This includes, above all, the sensitivity of the population. The social component in civil protection should not be underestimated and currently still has many gaps, as well as awareness of individual natural hazards. The interviewee cited administrative capacities as the second largest gap. There is a lack of institutional mechanisms and structural measures to close the gaps. This is directly related to the third gap of putting the issue on the agenda and implementing it. In the context of climate-related hazards, the topic of spatial planning for adaptation to climate change was also identified as a gap. In the area of practice, two interviews were conducted which, with the exception of federalism, which the interviewees tended to see as a strength or opportunity, were able to confirm the gaps mentioned in the survey but prioritised them slightly differently and also summarised individual categories. This results in the following three largest gaps from the perspective of the practice representatives interviewed. Firstly, risk communication and perception. This primarily includes sensitising the population and raising awareness of climate-related hazards with corresponding precautionary measures. Furthermore, there are large gaps in the structural organisation. There is a lack of predefined interfaces to treat civil protection as a cross-cutting issue and to create coordinating bodies. The third major gap mentioned in the two interviews was equipment, operational handling, and redundancies. In the discussion with a political representative, it was noted, as by the practical experts, that the category "federalism" should rather be replaced by cooperation, as federalism itself is not a problem. The risk awareness of the population was named as the second major gap. The third area with major gaps is warning, which is a task for society as a whole and is now also being addressed as a result of the 2021 flood disaster. It was striking that relatively few of the gaps mentioned related specifically to climate-related risks. There were isolated references to Germany not being prepared for prolonged heatwaves, which includes the emergency drinking water supply, as well as references to the 2021 flood disaster, which were included in the case study section. This did not come as a great surprise to the interviewees, as individual natural hazards, for example, are not always associated with climate change.

Case study: Gaps in the 2021 flood disaster

The processing of the flood disaster by various actors from science, operational practice, politics and civil society reveals various gaps, which are also reflected in the gaps already mentioned in this chapter. In the aftermath of the 2021 flood disaster, the DKKV drew overarching lessons from the various processes, which show the following gaps (DKKV 2022). The flood disaster showed that Germany has not yet developed a positive risk culture. Above all, gaps in risk perception and communication need to be closed, but education must also be addressed across society. In addition, there is still insufficient focus on disaster prevention, although numerous studies show that prevention is more cost-effective and moral. Another gap in the flood disaster was the existing

hazard and risk maps, which incorrectly analysed the situation and did not cover all the areas actually affected. In connection with the flood disaster, it was again recognised that rivers do not have enough space, partly due to extensive sealing and expanding buildings and infrastructure, and that water retention basins are lacking. Another gap exists in the area of critical infrastructure. Communication networks, electricity and gas supplies, hospitals, and sewage treatment plants, for example, were damaged during the flood disaster and were not set up redundantly enough to maintain supplies. There was also a major gap in the flood disaster in the area of warning and the fact that the emergency was not sufficiently planned and practised. Further challenges in this complex situation were posed by crisis management, the coordination of many different forces, and the lack of suitable material for the operational relief forces. Finally, it is now becoming apparent during reconstruction that there are gaps in the application of the "build back better" concept (DKKV 2022).

The results of the survey regarding gaps in the flood disaster largely coincide with the gaps just mentioned. The three most common gaps are summarised here under the categories of warning, staff, and communication. Within the warning category, the lack of warnings, late warnings or warnings that were not appropriate for the addressees were mentioned, while some of the warnings were not taken seriously and did not lead to actions being taken. In the staff category, for example, a lack of experience and practice was cited as a gap, as was cooperation within and between staffs across management levels. The third largest gap according to the survey was in communication during the flood disaster. There were gaps in the communication infrastructure, alerting, and between responsible bodies and levels.

The assessment by the experts interviewed from science, practice, and politics largely coincides with the results of the survey on gaps in the case study. Practitioners emphasised the great importance of redundant warning systems, which was also mentioned by politicians as one of the most important points, alongside the handling of spontaneous helpers.

Based on the information gathered from the literature review, survey, and interviews, there are some relevant gaps in German civil protection in the context of climate-related hazards, including the 2021 flood disaster case study. How these are prioritised depends somewhat on the respective expertise of the interviewees, the survey participants, and the authors of the literature. Based on this overview, the gaps should be closed as quickly as possible and, in the best case, even converted into capacities.

6. Conclusion

The German civil protection system is currently in a need of reorganisation. This is an opportunity to close the gaps that have been identified and to expand and strengthen existing capacities. It is essential to focus civil protection more on climate-related hazards. Climate change leads to new, complex, and multiple risks to which society must adapt.

Civil protection in Germany can rely on a range of capacities when it comes to spatially and temporally limited events. Based on experience, the large number of actors, including volunteers and spontaneous helpers, as well as technical resources, expertise and commitment are among the capacities that appear most frequently in both the literature and the survey. As the interviewees from academia, practice, and politics are also largely in agreement, the capacities shown illustrate the current situation well. When complex, multiple, or new events occur, civil protection reaches its limits, as the 2021 flood disaster has shown.

Based on the information gathered from literature research, surveys, and interviews, it was also possible to identify the biggest gaps in German civil protection in the context of climate-related hazards. The different prioritisation that was identified means that gaps such as risk communication and perception or cooperation need to be addressed at various points. As the case study has shown, this includes learning from past events, adapting, and evolving. While warning was one of the biggest gaps in the 2021 flood disaster, the momentum was used to take the next step for the warning mix, i.e. redundant warning with different warning systems.

Moreover, the report shows that the German civil protection is also complex due to its broad variety of actors. This complexity is illustrated through a simplified mapping of 18 key stakeholders and their relationships, although it doesn't cover all aspects. The mapping helps to understand the system and identify key actors, enhancing the overall understanding and effectiveness of disaster risk management. The actor mapping of the German DRM is comparable to the procedure used for the Iranian actor mapping, as it has the same structure and categorization. This underlines the universal applicability and relevance of this project result and contributes to increasing overall societal resilience with a simple and comprehensible visualization of the actors of the German DRM. The INCREASE project highlights ways to optimize and integrate the system further, improving societal resilience and offering valuable insights for other countries with similar structures.

Dealing with capacities, gaps and actors shows how important it is to look to the future, where we can best turn today's gaps into capacities and where actors can adapt to new challenges in order to build a resilient civil protection in the context of climate-related hazards and thus strengthen the resilience of society as a whole.

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8. Appendix

8.1. Categorisations

Categorisation of the gaps

Category	Quantity
Equipment	19
Lack of risk awareness	17
Federalism	12
Lack of precaution	12
Warning structure	12
Coordination	11
Education	10
Communication	9
Strategy, measures and implementation	9
Guidance	7
Cross section	7
Vulnerability	7
Knowledge transfer	7
Miscellaneous	7
Reactive system	5
Structural adaptation	4
Climate and weather forecast and impact forecast	4
Sensitisation	4
Uniformity	3
Financial situation	3
Redunances	3
Bureaucracy	2
Risk analyses	2
N=24	Total: 176

Categorisation of the gaps in the 2021 flood disaster

Category	Quantity
Warning	19
Staff work	14
Communication	13
Coordination	11
Guidance	9
Responsibility and competence	9
Lack of risk awareness	7
Lack of prevention	6

Lack of expertise	6
Equipment	5
Miscellaneous	5
Situation picture	4
Politics	4
Lack of networking	3
Federalism	2
Spatial planning	2
Exercise	2
N=17	Total: 121

Categorisation of capacities

Category	Quantity
Actors	15
Volunteering	14
Large number of employees	14
Technical means	14
Expertise	13
Co-operation	11
Commitment Motivation and solidarity	9
Spontaneous helpers	9
Financial resources	8
Miscellaneous	8
Training quality	5
Helpfulness	5
The public	4
Personal provision	3
Local knowledge	3
Network	3
Specialisation	2
N=17	Total: 140

Categorisation of capacities for the 2021 flood disaster

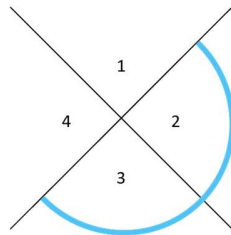
Category	Quantity
Spontaneous helpers	11
Technical means	9
Actors	7
Volunteering	7
Large number of employees	7
Expertise	7
Miscellaneous	7



Commitment	6
Offer of assistance	6
Solidarity	6
ZMZ	6
Reconditioning	5
Co-operation	5
N=13	Total: 89

8.2. Factsheets of actors

Population

Population	
Sector	Civil Society
Type of organisation	Civil society
Administrative level	Municipality
Process cycle 1. mitigation 2. preparation 3. response 4. recovery	
Brief description <p>The term population refers to the entirety of all inhabitants within a specific area³. Since the actions of those involved in civil protection are primarily aimed at ensuring the health and safety of society, the population must also be considered as an important variable in this structure.</p>	
Field of activity <p>The population is the one affected by a disastrous event. "If, for example, a severe storm causes flooding, power cuts and other serious damage, not all citizens can be helped at the same time"⁴. To ensure that the population knows what to do in an emergency, organisations such as the BBK offer training courses on self-protection. First aid courses, for example, can also be attended as part of the preparation for action during emergencies⁵. As part of so-called self-help, citizens help themselves as a precautionary measure until organised help arrives. Neighbourhood help is also important in the context of an existing damage situation. In addition to the emergency services of the authorities and organisations with security tasks, people who do not belong to these institutions also provide support in dealing with damage situations. These people, who provide assistance without much prior knowledge or planning, are known as spontaneous helpers⁶.</p>	


³ Mendelson, B. (2021). How many people live in the 16 federal states? [online]. Available: <https://www.handelsblatt.com/politik/deutschland/bevoelkerung-in-deutschland-wie-viele-menschen-leben-in-den-16-bundeslaendern/26635128.html?ticket=ST-9370261-K9STbl4xJUSPWvboWChY-ap6> (as of 15/12/2023).

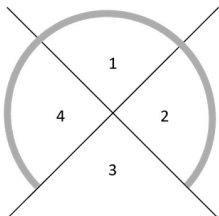
⁴ BMI (2023). Self-protection and self-help as important preventive measures. [online]. Available: <https://www.bmi.bund.de/DE/themen/bevoelkerungsschutz/zivil-und-katastrophenschutz/selbstschutz-und-selbsthilfe/selbstschutz-und-selbsthilfe-node.html> (as of 15/12/2023).

⁵ See source 5.

⁶ UK NRW (2021). Spontaneous helpers. [online]. Available: <https://www.sichere-feuerwehr.de/feuerwehr/zugehoerige-themen-fw/spontanhelfende> (as of 15/12/2023).

Federal Office of Civil Protection and Disaster Assistance


Federal Office of Civil Protection and Disaster Assistance (BBK)	 BBK Bundesamt für Bevölkerungsschutz und Katastrophenhilfe
Provinzialstraße 93, 53127 Bonn Chairman: Ralph Tiesler (as at: 12/2023)	

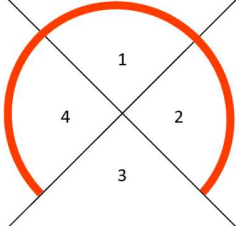
Sector	Administration and Coordination
Type of organisation	State institution
Administrative level	Federal level
Process cycle 1. mitigation 2. preparation 3. response 4. recovery	
Brief description <p>In response to the terrorist attacks of 11 September 2001 and the flooding in parts of Germany in 2002 and the resulting change in the security situation, the BBK was founded on 1 May 2004 with its headquarters in Bonn. As part of the portfolio of the Federal Ministry of the Interior, the BBK is the centre for German civil protection⁷.</p> <p>As a specialised authority, the BBK performs both the direct tasks of the federal government in civil defence and the coordinating and supporting measures of disaster relief at the request of the federal states. In addition to its statutory core tasks, the BBK has been increasingly entrusted with tasks in recent years that reflect the changed (security policy) challenges⁸.</p>	
Field of activity <p>Among other things, the BBK is responsible for planning and preparing civil protection measures and for the continuation of risk and crisis management, which was designed on the basis of national risk analyses. In addition, the BBK coordinates communication between the federal government and the federal states and also supports the federal states, for example, in dealing with major emergencies. Dealing with climate-induced natural hazards is also an area of responsibility of the Federal Office; the BBK offers citizens the opportunity to inform themselves about climate change adaptation. This is possible, for example, through various flyers or papers⁹.</p>	

⁷ Geier, W., Karutz, H., Mischke, T. (2017). Bevölkerungsschutz- Notfallvorsorge und Krisenmanagement in Theorie und Praxis. Berlin: Springer VS.

⁸ BBK (2023). The BBK introduces itself. [online]. Available: https://www.bbk.bund.de/DE/Das-BBK/Das-BBK-stellt-sich-vor/das-bbk-stellt-sich-vor_node.html;jsessionid=471FDC2AD5B47D411382DA699760140D.live131 (as of 15 December 2023).

⁹ See source 8

Federal Ministry of the Interior and for Home Affairs (BMI)	
Friedrichstraße 108, 10117 Berlin Minister of the Interior: Nancy Faeser (as at: 04/22)	


Sector	Politics and Policy making
Type of organisation	Government
Administrative level	Federal level
Process cycle 1. mitigation 2. preparation 3. response 4. recovery	
Brief description The BMI is a supreme federal authority and plays a key role in determining the domestic policy of the Federal Republic of Germany. The BMI is headed by the respective minister; Nancy Faeser (SPD) has been Minister of the Interior since October 2021. From migration policy to the protection of the constitution and sports promotion, the BMI's tasks are wide-ranging. The most important task is internal security and the associated protection of the German population ¹⁰ .	
Field of activity In order to prevent and effectively combat crime, the BMI develops strategies and draft legislation for the prevention of and defence against terrorism, extremism and organised crime ¹¹ . The BMI is also responsible for the supervision and coordination of the BBK, Federal Police and THW - as the interface between politics and operational forces, the BMI is responsible for the management of disasters with national implications ¹² . However, it does not deploy any operational forces of its own.	

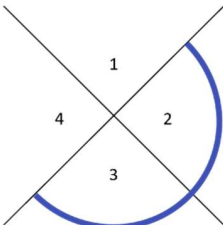
¹⁰ BMI (2024). Federal Ministry of the Interior and for Home Affairs. [online]. Available: <https://www.bmi.bund.de/DE/startseite/startseite-node.html> (as of 15 January 2024)

¹¹ BMI (2023). Departments and their tasks. [online]. Available at: <https://www.bmi.bund.de/DE/ministerium/das-bmi/abteilungen-und-aufgaben/abteilungen-und-aufgaben-node.html> (as at 15/12/2023).

¹² See source 12.

German Armed Forces

German Armed Forces	 Bundeswehr Wir. Dienen. Deutschland.
First office: Hardthöhe, 53125 Bonn Highest superior: Boris Pistorius (as of 01/24)	


Sector	Military
Type of organisation	State institution
Administrative level	Federal level
Process cycle 1. mitigation 2. preparation 3. response 4. recovery	
Brief description <p>The Bundeswehr is Germany's army. Its armed forces are divided into the army, air force and navy. It also comprises five civilian organisational areas¹³. It is subordinate to the Federal Ministry of Defence. This means that the respective Minister of Defence is also the highest superior and has command and control over the Bundeswehr. There has been no compulsory military service in Germany since 2011. According to the Basic Law, the Bundeswehr may be deployed for the defence of its own country and may not attack other countries.</p>	
Field of activity <p>The core task of the Bundeswehr is the so-called national and alliance defence. This means the defence of Germany and its NATO partners. As crises in other countries can also jeopardise Germany's security, the Bundeswehr is also involved in international peacekeeping and disaster relief missions abroad¹⁴. In the national context, the Bundeswehr is not only active in situations of tension and defence, but also in so-called homeland security: for example, in the event of natural hazards, particularly serious accidents or major events, forces are made available and civilian agencies are advised on request. The Bundeswehr is only deployed if it is commissioned by the BMI. In such situations, the BMI usually responds to requests from the federal states, which are responsible for disaster management. As part of the "dual use" of German civil defence, however, technical and personnel assistance can also be requested from the federal government¹⁵.</p>	

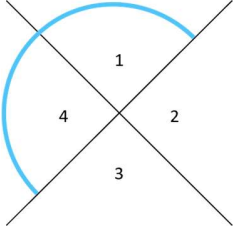
¹³ Bundeswehr (2023). The organisation of the Bundeswehr. [online]. Available at: <https://www.bundeswehr.de/de/organisation> (as at 15 December 2023).

¹⁴ Bundeswehr (2023). Mission and tasks of the Bundeswehr. [online]. Available at: <https://www.bundeswehr.de/de/ueber-die-bundeswehr/auftrag-aufgaben-bundeswehr> (as at 15 December 2023).

¹⁵ Bundeswehr (2024). National crisis preparedness of the Bundeswehr. [online]. Available at: <https://www.bundeswehr.de/de/ueber-die-bundeswehr/auftrag-aufgaben-bundeswehr/krisenvorsorge-bundeswehr> (as of 15 December 2023)


German Committee for Disaster Reduction

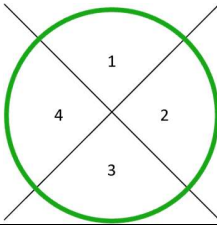
German Committee for Disaster Reduction (DKKV)	
Kaiser-Friedrich-Str. 13 53113 Bonn	
Chairman of the Executive Board: Leon Eckert (as at: 01/24)	

Sector	Civil Society
Type of organisation	Association
Administrative level	Federal level
Process cycle 1. mitigation 2. preparation 3. response 4. recovery	
Brief description <p>The German Committee for Disaster Risk Reduction (DKKV) is a platform for disaster risk reduction and acts as a competence centre at the interface between science and practice. The members of DKKV include institutions from research, practice, administration, and aid organisations as well as an extensive network of personal members who are active in science and practice. The DKKV utilises the expertise of its members to identify deficits and gaps in the existing system of disaster prevention and crisis management and to help close them¹⁶.</p>	
Field of activity <p>In its work, DKKV supports interdisciplinary research approaches and prepares disaster risk reduction findings for dissemination at all levels of society. The core areas of work include the networking of expertise from the DKKV network, practice-oriented advice for decision-makers, and the transfer of knowledge to the population¹⁷.</p>	

¹⁶ DKKV (2023). About us. [online]. Available at: <https://dkkv.org/ueber-uns/> (as at 15/12/2023).

¹⁷ See source 17.


German Weather Service (DWD)	 Deutscher Wetterdienst Wetter und Klima aus einer Hand
Frankfurter Straße 135, 63067 Offenbach am Main President: Prof Dr Sarah C. Jones (as of 01/24)	

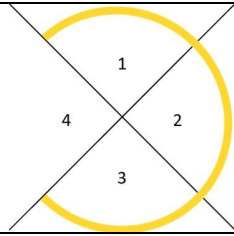
Sector	Science and Research
Type of organisation	State institution
Administrative level	Federal level
Process cycle 1. mitigation 2. preparation 3. response 4. recovery	
Brief description <p>Since its foundation in 1952, the German Weather Service (DWD) has acted as the national weather service in Germany. As a higher federal authority, which is part of the portfolio of the Federal Ministry of Transport and Digital Infrastructure, the DWD is "responsible for fulfilling the meteorological requirements of all economic and social sectors in Germany"¹⁸. The core task of the DWD is to provide meteorological services to public and private partners. These services include the collection, observation, and evaluation of physical processes in the atmosphere and the operation of the necessary measuring stations. In addition to forecasting meteorological events, the DWD is also responsible for issuing warnings of potentially dangerous weather phenomena¹⁹.</p>	
Field of activity <p>As a higher federal authority and state executive force, the DWD is responsible for protecting the population from extreme weather conditions. The "Act on the German Weather Service" states that the DWD fulfils a statutory mandate to provide services of general interest and is therefore also responsible for warning management (§ 4 (1) sentence 3 of the DWD Act). The DWD is important in all phases of the process cycle. In addition to basic research in the preventive phase, warning the population of impending natural hazards is particularly important in phase 2 (preparation). The coping phase is mainly concerned with continuous warning messages, whereas the follow-up phase relates to the revision and adaptation of processes.</p>	

¹⁸ DWD (2023). Tasks of the DWD. [online]. Available: https://www.dwd.de/DE/derdwd/aufgaben/aufgaben_node.html (as of 15 December 2023).

¹⁹ Marx, S. et al. (2017). Synthesis Report on Disaster Risk Reduction and Climate Change Adaptation in Germany. DKKV publication series 56, Bonn: DKKV.

Voluntary and professional fire brigade

Fire brigade	
German Fire Brigade Association Reinhardtstraße 25, 10117 Berlin President: Karl-Heinz Banse (as at: 12/23)	

Sector	Operative
Type of organisation	State institution
Administrative level	Municipality
Process cycle 1. mitigation 2. preparation 3. response 4. recovery	
Brief description <p>In Germany, there are voluntary and full-time fire brigades, i.e. they are either organisations with professional or voluntary staff. The fire brigades operate at municipal level and are usually maintained by the municipality concerned. The respective areas of responsibility of the fire brigades result from the legislation of the individual federal states, which are implemented by the municipalities²⁰. The purpose of all fire brigades is to provide assistance in the event of fires, accidents, or disasters. The focus here is on four tasks: rescuing people, animals, and property, extinguishing fires, rescue work, and protecting living beings from danger²¹.</p>	
Field of activity <p>In emergency situations, e.g. traffic accidents or flooding, firefighters are involved in rescuing people and animals. In order to be able to provide first aid in an emergency, the majority of fire service personnel are trained paramedics. The fire brigade is the only organisation called upon to fight fires²². In addition to dealing with incidents, the fire brigade is also active in the preventive area with so-called "preventive fire protection". This area of responsibility includes raising public awareness of fire hazards and checking extinguishing equipment and hydrants to ensure that everything runs smoothly in an emergency.</p>	

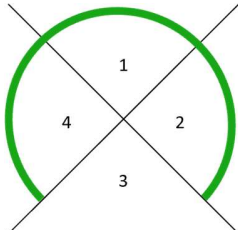
²⁰ Hegemann, J.-E. (2020). How fire brigades work in Germany. [online]. Available: <https://www.feuerwehrmagazin.de/wissen/so-funktioniert-feuerwehr-in-deutschland-77805> (as of 15/12/2023).

²¹ German Fire Brigade Association (2023). Fire brigade signet. [online]. Available: <https://www.feuerwehrverband.de/service/feuerwehr-signet/> (as of 15/12/2023).

²² Forum (2019). Fire brigade - tasks, types and legal basis. [online]. Available: <https://www.forum-verlag.com/blog-ov/feuerwehr-aufgaben-grundlagen> (as of 15/12/2023).

Research institutions / universities

Research institutions / universities	
Chair: respective director	Location: respective institute

Sector	Science and Research
Type of organisation	Public institution / private organisation
Administrative level	Federal level / states
Process cycle 1. mitigation 2. preparation 3. response 4. recovery	

Brief description

There are many different (types of) research institutions in Germany. Some of the research is carried out at German universities. A few dozen institutions also belong to the federal research institutions, where research is carried out on specific topics of the federal ministries. As a counterpart at state level, the state research organisations should also be mentioned here. The Fraunhofer-Gesellschaft is the largest organisation for applied research for private and public companies.

The Helmholtz Association of German Research Centres is also the largest scientific organisation. Various research centres conduct cutting-edge research in different subject areas. There are also various other organisations, such as the Max Planck Society, which conducts basic research in the humanities and natural sciences²³. Therefore, the German research landscape is very diversified. In addition to the state and the private sector, non-profit organisations, and societies also play a major role.

Field of activity

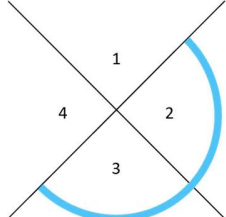
The many colleges and universities in Germany are regarded as pillars of a wide range of research. Research is carried out here in all subject areas. Research institutions at federal and state level support the respective ministries in realising their tasks by conducting the necessary research and making the results available to the ministries²⁴.

²³ Research portal (2015). Research institutions in Germany. [online]. Available at: <http://forschungportal.net/forschungseinrichtungen-in-deutschland/> (as at 15/12/2023).

²⁴ See source 25.

Aid organisations

Aid organisations	
Chair: respective Chairman	Location: respective federal association

Sector	Civil Society
Type of organisation	Civil society
Administrative level	Federal level/states/municipalities
Process cycle 1. mitigation 2. preparation 3. response 4. recovery	

Brief description

Aid organisations pursue the goal of protecting people in emergency situations and increasing their ability to help themselves. Many aid organisations are active worldwide - for example as part of development cooperation in partner countries - and are committed to ensuring that people can lead a self-determined life without hardship. However, some of these organisations are also active nationally in the various areas of German civil protection and disaster relief. These include e.g. the Arbeiter-Samariter-Bund, the German Red Cross or the Malteser Hilfsdienst e.V., which, with several hundred thousand members, represent a firm pillar of emergency care in Germany. Aid organisations are often also referred to as non-governmental organisations, as they mainly work independently of the government²⁵.

Field of activity

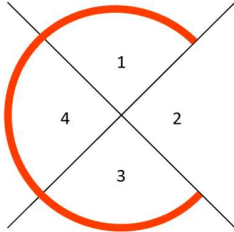
Divided into various regional associations, the aid organisations are involved at local level in the management of incidents, among other things, and also take on rescue and medical service tasks. In the context of civil protection, aid organisations are active in the preparation phase. Through contact with vulnerable groups as part of their care activities, employees can sensitise people and raise awareness of dangers. Many aid organisations also offer courses and training in the area of self-help and behaviour in the event of a crisis. In the event of major emergencies such as fires, road accidents, or natural hazards, volunteers and full-time helpers take care of injured and sick people. As soon as people in need have made the emergency call, helpers set off from the rescue coordination centre and start providing emergency medical care on site²⁶.

²⁵ ASB (2023). Who we are. The Workers' Samaritan Federation. [online]. Available at: <https://www.asb.de/ueber-uns/der-arbeiter-samariter-bund> (as at 15/12/2023).

²⁶ Ministry of the Interior of the State of NRW (2023). Tasks & organisation of security, citizen participation and administration. [online]. Available at: <https://www.im.nrw/ministerium/aufgaben-organisation> (as at 15/12/2023).

Interior ministries of the federal states

Ministries of the Interior	
Chair: respective incumbent	Location: respective Ministry of the Interior

Sector	Politics and Policy making
Type of organisation	Government
Administrative level	States
Process cycle 1. mitigation 2. preparation 3. response 4. recovery	

Brief description

Germany is a federally organised state. This means that in addition to the Ministry of the Interior at federal level, each federal state also has its own comparable ministry. These ministries are responsible for the internal policies of the respective federal state. The main task is to ensure the security of the citizens in this federal state. Due to the diversity of the individual federal states and the associated different security situations, different priorities are often set in the policies of the interior ministries²⁷.

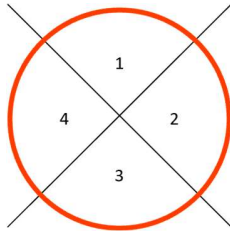
Field of activity

The ministries of the interior at state level are responsible for the security of the population in their respective states. Preventive measures, such as the promotion of social cohesion or measures against terrorism, are intended to prevent the emergence of potential dangers. In addition, the relevant state police force and the state's upper disaster management authority are subordinate to the Ministry of the Interior at state level and are responsible for their supervision. In the event of a large-scale incident, the State Ministry of the Interior can assume a coordinating role and is responsible, for example, for crisis management or the deployment of police forces. For this reason, the crisis team is often located in the respective Ministry of the Interior²⁸.

²⁷ Lower Saxony Ministry of the Interior and Sport (2024). Topics. [online]. Available at: <https://www.im.nrw/ministerium/aufgaben-organisation> (as at 15/12/2023).

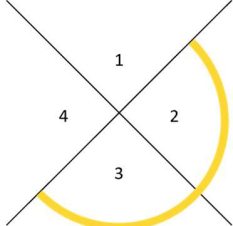
²⁸ Ministry of the Interior of the State of NRW (2023). Tasks & organisation of security, citizen participation and administration. [online]. Available: <https://www.mi.niedersachsen.de/startseite/themen/> (as at 31/01/2024).

Local authorities

Local government	
Chair: respective mayor	Location: respective town hall
Sector	Politics and Policy making
Type of organisation	State institution
Administrative level	Municipality
Process cycle 1. mitigation 2. preparation 3. response 4. recovery	
Brief description <p>The term local government is used as a generic term for the authorities of a local authority that organise the public service. The basis for the actions of local government is the local self-government guaranteed in Article 28 of the Basic Law in Germany, which grants cities and municipalities the right "to regulate all matters of the local community according to law and justice on their own responsibility" (Article 28, Paragraph 2, Sentence 1 of the Basic Law). All administrative activities with a local connection therefore fall within the remit of the institutions of a municipality. In accordance with local conditions, the municipalities maintain efficient fire brigades at the lowest administrative level, which are responsible for operational fire protection and assistance. In the event of supra-local disasters, the emergency services are obliged to cooperate under the leadership of the districts and are responsible, for example, for warning the population (§3 Para. 1 BHKG). Municipalities are also responsible for the training and further training of firefighters and for the fire safety education of citizens (§3 Para. 1 BHKG).</p>	
Field of activity <p>In Germany, disaster management is a matter for the federal states. Local self-government allows the municipalities to independently determine the implementation of the measures prescribed by the respective state government. Those responsible in local government are therefore also responsible for implementing measures that go beyond the regulations of the state government. In the area of prevention, this includes structural measures as well as raising public awareness. If an incident occurs, the municipal level is responsible for operational activities to deal with the situation. The local authority can therefore also carry out reactive measures, such as evacuating individual urban areas or convening a crisis team.</p>	

State police

Police	
Chair: respective state police headquarters	Location: respective state police headquarters

Sector	Operative
Type of organisation	State institution
Administrative level	States
Process cycle 1. mitigation 2. preparation 3. response 4. recovery	

Brief description

The police is the professional group responsible for security and order within Germany. According to the Basic Law, the police fall under the jurisdiction of the federal states. Each federal state therefore has its own state police force, which is generally divided into the areas of security police and criminal investigation police. The federal states have some freedom when organising the structures of the state police, so that the structure of the police forces can vary from state to state. In the event of major incidents or cases that cross federal borders, the state police forces work closely with the federal police²⁹.

Field of activity

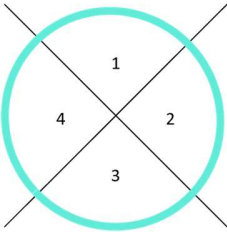
The range of tasks performed by police officers is very broad. In addition to investigating criminal offences, they are also responsible for documenting accidents or checking on suspicious persons. In this way, the police forces of the federal states make a significant contribution to protecting the German population within the Federal Republic. When natural hazards occur, such as flooding, the police are responsible for "hazard defence" (§ 2 BRAVORS). Defensive measures, such as diverting traffic or assisting in the rescue of people at risk in the event of damage, are intended to ensure the unhindered deployment of forces and stabilise the situation. The police is also active in the area of preparation. The so-called "crime prevention" serves to prevent unlawful offences by citizens. Appropriate measures should be taken to curb the conditions that give rise to crime³⁰.

²⁹ Grimm, T. (2023). Organisation of the NRW police. [online]. Available: <https://polizei.nrw/artikel/organisation-der-polizei-nrw> (as at 15/12/2023).

³⁰ BMI (2023). Crime prevention. [online]. Available: <https://www.bmi.bund.de/DE/themen/sicherheit/kriminalitaetsbekämpfung-und-gefahrenabwehr/kriminalpraevention/kriminalpraevention-node.html> (as at 15/12/2023).

Media

Media
Press Council and the Broadcasting Council

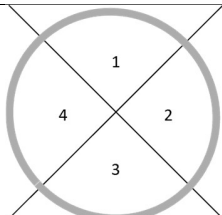
Sector	Media
Type of organisation	Public/private
Administrative level	States
Process cycle 1. mitigation 2. preparation 3. response 4. recovery	
<p>Brief description</p> <p>The nine state broadcasters and commercial private broadcasters provide information on current affairs via a wide range of channels such as television, radio, the internet and print. The purpose of the media is to provide information; in terms of civil protection, this applies to the general education of the population. Furthermore, radio and television stations are an important part of a country's warning mix when it comes to disseminating warning messages³¹.</p>	
<p>Field of activity</p> <p>As part of the media and culture sector within the critical infrastructure, broadcasting (television and radio) and the printed and electronic press in particular have tasks in the area of critical services. These include, in particular, warning and alerting the public and providing the public with information. Furthermore, the press and radio are responsible for creating public awareness³².</p>	

³¹ DKKV (ed., 2024): *Governance and Communication in the Crisis of the Flood Event in July 2021*, DKKV Publication Series No. 63, January 2024, Bonn.

³² BBK (2023). KRITIS sector: media and culture. [online]. Available at: https://www.bbk.bund.de/DE/Themen/Kritische-Infrastrukturen/Sektoren-Branchen/Medien-Kultur/medien-kultur_node.html. (Status: 30.01.2024).

Upper disaster management authority

Upper KatS authority	
Chair: Head of the respective authority	Location: respective authority

Sector	Administration and Coordination
Type of organisation	State institution
Administrative level	States
Process cycle 1. mitigation 2. preparation 3. response 4. recovery	

Brief description

In Germany, disaster management is the responsibility of the 16 federal states. However, disaster management in the federal states is essentially organised in the same way, both structurally and legally³³. At the middle administrative level - the federal states - the respective interior ministries of the federal states are responsible for civil protection. The Upper Disaster Management Authority is assigned to the respective Ministry of the Interior and coordinates disaster management in the federal state³⁴.

Field of activity

In the preparatory phases of the process cycle, the higher civil protection authorities develop strategies and concepts for dealing with incidents. In addition, the upper disaster management authorities are responsible for the technical supervision of the competent authorities at the lower administrative level. In the event of an emergency, the disaster management authorities are responsible for crisis management. In addition to mobilising the crisis teams in the districts, this also includes the coordination of emergency response measures³⁵. As part of the follow-up, existing strategies are reviewed for their effectiveness and processes are adapted if necessary.

In the event of serious disasters, the federal states can request additional technical, material, or personnel assistance from other federal states or the federal government (THW, armed forces) on the basis of the "dual benefit" arising from Article 35 of the Basic Law³⁶.

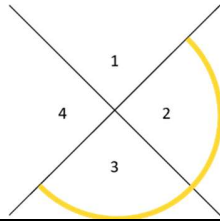
³³ Lower Saxony Ministry of the Interior and Sport (2023). Civil protection. [online]. Available: https://www.mi.niedersachsen.de/startseite/themen/innere_sicherheit/brand_katastrophenschutz/katastrophenschutz/katastrophenschutz-62914.html (as of 15/12/2023).

³⁴ German Bundestag (2022). Civil protection in the federal states. Structure and organisation. Berlin: German Bundestag.

³⁵ Security for North Rhine-Westphalia (2024). Help in exceptional situations. [online]. Available at: <https://www.im.nrw/themen/gefahrenabwehr/katastrophenschutz>. (Status: 30.01.2024).

³⁶ BMI (2023). Who does what in civil defence and disaster management [online]. Available: <https://www.bmi.bund.de/DE/themen/bevoelkerungsschutz/zivil-und-katastrophenschutz/gefahrenabwehr-und-katastrophenschutz/gefahrenabwehr-und-katastrophenschutz-node.html> (as of 15 December 2023).


Care services

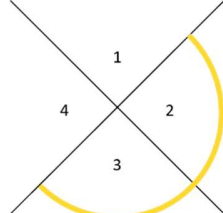
Care services	
Sector	Operative
Type of organisation	Private facilities
Administrative level	Municipality
Process cycle 1. mitigation 2. preparation 3. response 4. recovery	
Brief description <p>Care services operate as service providers at local authority level, usually run by church organisations or community institutions. In Germany, there are different care concepts depending on the care requirements of those in need of care. The two most common concepts are outpatient and inpatient care. Outpatient care is provided at home and is intended to support those in need of care in their everyday lives. For example, the care staff offer body-related activities such as personal hygiene or nutrition but also help with housekeeping or home nursing care. This contrasts with inpatient care, where those in need of care are permanently cared for and looked after in appropriate facilities, e.g. retirement or nursing homes³⁷.</p>	
Field of activity <p>Employees of care services are in close and regular contact with people in need of care and are therefore particularly vulnerable. This contact can be used to raise awareness among the people in need of care about how to behave in the event of emergencies such as fire or natural hazards such as heat-waves. In order to be prepared for emergencies, carers can also attend training and further education courses.</p> <p>In the event of a crisis, care service staff must follow predefined procedures. These often include evacuating the care facility and notifying the rescue service and emergency services³⁸. Appropriate plans are drawn up in the preventative phase to ensure that everything runs as smoothly as possible. Care services are also involved in the organisation of appeals for donations and catering for those in need.</p>	

³⁷ BMG (2023). Care in the home. [online]. Available: <https://www.bundesgesundheitsministerium.de/pflegeimheim.html> (as of 15/12/2023).

³⁸ Münster district government (2016). Recommendations for senior citizens' and care facilities and other care facilities in the Münster administrative district in the event of a crisis. Münster: Münster district government.

Technical relief organisation

Federal Agency for Technical Relief (THW)	
Provinzialstraße 93, 53127 Bonn President: Sabine Lackner (as of 01/24)	

Sector	Operative
Type of organisation	State institution
Administrative level	Federal level
Process cycle 1. mitigation 2. preparation 3. response 4. recovery	
Brief description <p>The THW is the German Federal Agency for Technical Relief of the federal government. In organisational terms, the federal agency is part of the BMI's portfolio and acts as a higher federal authority. However, only 2% of employees work full-time for the organisation. 98% of THW members work on a voluntary basis in local groups³⁹. The THW provides immediate assistance in the event of an emergency, giving German citizens confidence in a functioning civil defence system⁴⁰. The organisation is therefore part of the state's task of providing services of general interest in Germany, which includes the provision of basic goods and services⁴¹.</p>	
Field of activity <p>THW fulfils the statutory tasks of technical-humanitarian aid assigned to it, which are the responsibility of the federal government, and considers the offer to use its resources for tasks of the federal states and local authorities to be of equal importance. It thus safeguards human life, physical integrity, and vital goods during operations at home and abroad⁴². The main purpose of the work of the THW's emergency services is to avert danger in the event of local or supra-regional emergencies at both national and international level. In the preventive area, the THW also takes on restorative and advisory tasks⁴³.</p>	

³⁹ THW (2023). Show profile - who we are and what we stand for. [online]. Available: <https://ov-gieboldehausen.thw.de/das-thw/selbstverstaendnis> (as of 15/12/2023).


⁴⁰ See source 42.

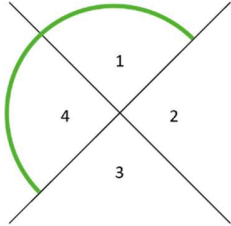
⁴¹ Chardon, M. (2023). Services of general interest. [online]. Available: <https://www.bpb.de/kurz-knapp/lexika/das-europalexikon/176770/daseinsvorsorge/> (as at 15/12/2023).

⁴² See source 42.

⁴³ See source 42.

Federal Environment Agency

Federal Environment Agency (UBA)	
Wörlitzer Platz 1, 06844 Dessau-Roßlau President: Dr. Dirk Messner (as at: 02/22)	

Sector	Science and Research
Type of organisation	State institution
Administrative level	Federal level
Process cycle 1. mitigation 2. preparation 3. response 4. recovery	

Brief description

Founded in 1974, the UBA is Germany's central environmental authority and is part of the Federal Ministry for the Environment. The aim of the federal authority is to maintain a healthy environment in Germany and to protect the population from harmful environmental impacts. The authority's technical expertise is based on research carried out in its own facilities and the awarding of research contracts to other institutions. In order to pursue as transdisciplinary an approach as possible, experts from all areas of environmental protection work together at the UBA to solve environmental problems⁴⁴.

Field of activity

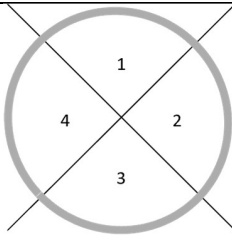
The tasks of the environmental authority are defined in the "Act on the Establishment of a Federal Environment Agency". These include, for example, the collection of environmental data as well as research into the interrelationships between climatic processes and the derivation of forecasts for the future. With its expertise, the UBA advises the Federal Government and the Federal Environment Ministry on their political decisions and also informs the public on environmental issues⁴⁵. In this way, the UBA contributes to civil protection in Germany in both the preventive and recovery phases.

⁴⁴ UBA (2023). Who we are. [online]. Available at: <https://www.umweltbundesamt.de/das-uba/wer-wir-sind> (as of 15 December 2023).

⁴⁵ See source 47.

Lower disaster management authority

Lower KatS authority	
Chair: Head of the respective authority	Location: respective district

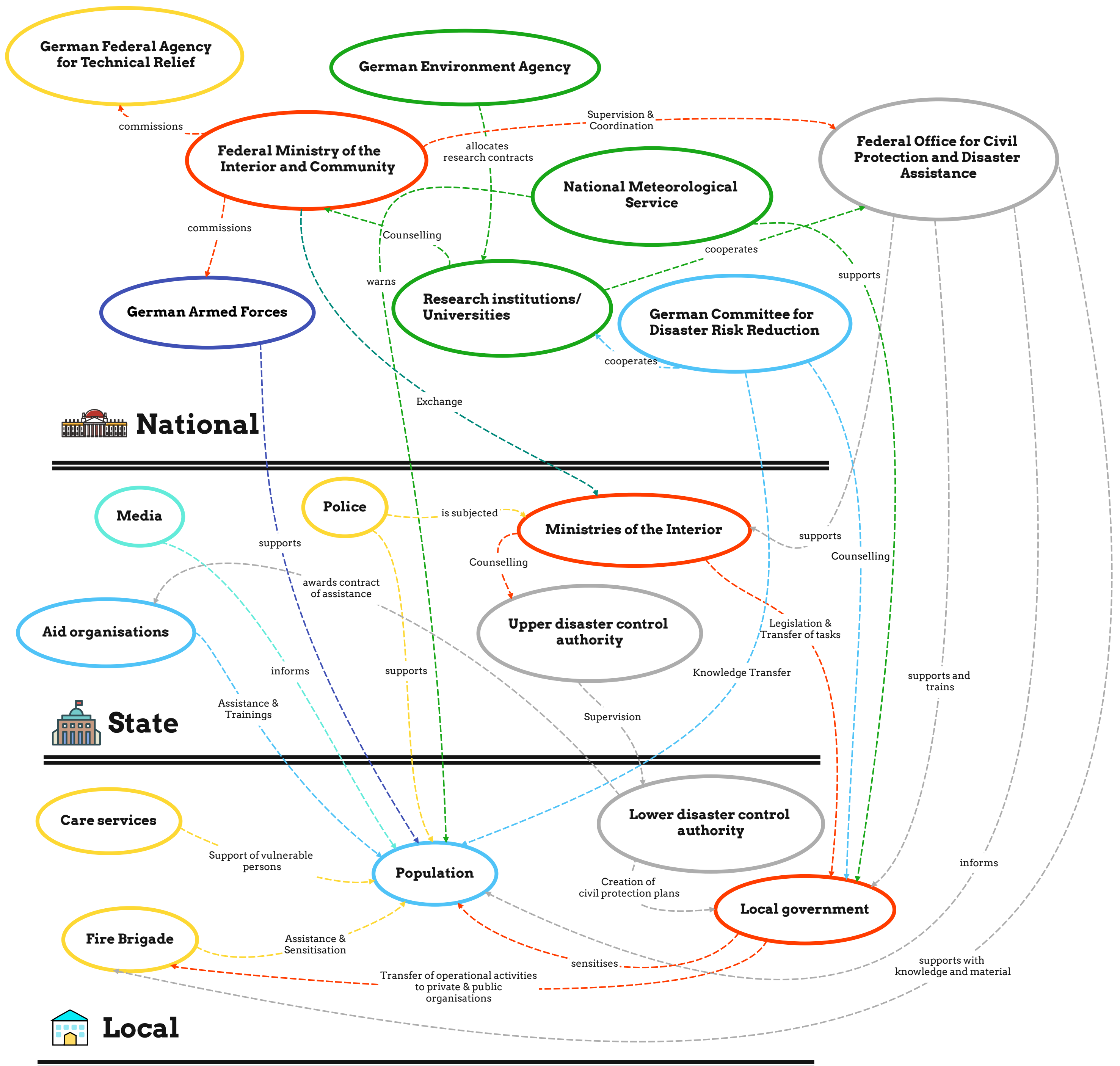
Sector	Administration and Coordination
Type of organisation	State institution
Administrative level	Districts / municipalities
Process cycle 1. mitigation 2. preparation 3. response 4. recovery	

Brief description

The legal basis for assistance in exceptional situations in Germany is the "Act on Fire Protection, Assistance and Disaster management " (BHKG). According to this law, the districts and independent cities are the responsible disaster management authorities at the lower administrative level. The districts maintain facilities for fire protection and assistance, which are deployed in the event of local and supra-local requirements (§ 4 (1) BHKG).

Field of activity

In order to be prepared for damage situations, the districts take the necessary measures to combat the disaster, e.g. by drawing up so-called "disaster management plans" for local and supra-local operations (§ 4 (3) BHKG). These can then be adapted to the respective local conditions by the affected municipalities.



Legend

