



# State and Future of Population Protection in Germany

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Lessons to Learn

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## Summary

The German population protection system has evolved in large parts over decades and has largely proven its worth, but it has also shown some serious weaknesses, and not only since the Coronavirus pandemic. In the following, I will outline "lessons to learn" from a researcher's point of view: To this end, I will first discuss the initial situation and write about 2. the protection goal of population protection, 3. societies in transition and changing hazards, 4. strengths and weaknesses of population protection in Germany and 5. needs for reform. In Chapter 6, the main part of this report, concrete conclusions with "lessons to learn" follow. The report ends with a proposal for a "National Research Centre on Resilience and Population Protection".

**Keywords:** Population protection, risk management, crisis management, disaster management, lessons learned, pandemic, resilience

## 1. Introduction

The German population protection system has evolved over decades and has largely proven its worth, but it has also shown some serious weaknesses, and not only since the Coronavirus pandemic. Once again, the question arises as to whether its organisational-institutional and legislative guidelines are still appropriate to the challenges or whether fundamental reforms are needed. However, this question cannot be answered adequately as long as it is unclear what population protection in Germany actually is as *lived practice* beyond its legal provisions. It has been known for many years that the most urgent and fundamental problem is a completely inadequate base of information and knowledge. This statement, however, must be specified right away because knowledge is abundantly available in many respects. Climate processes are very well understood today, and the effects caused by humans are very well described and known. The occurrence of storms and heavy precipitation can be explained very well by natural science nowadays. Related measures have also been tested in many ways and technical solutions are available in many forms. In many respects, the fundamental problem is not a lack of knowledge, but of implementation. And yet: Without knowing what material and human resources are available to whom at what time and in what place, without knowing where the particular vulnerabilities in a specific situation are located, without knowing which technical solutions actually lead to an increase in performance or even resilience, without knowing how the behaviour of the heterogeneous population and their information and communication needs develop over the course of a prolonged crisis such as a pandemic, and how they assess the evolving situation – without all this knowledge related to the lived practice of population protection –, it is not possible for policymakers or population protection authorities and organisations to adequately assess whether responsibilities and competencies are actually well distributed at present, or whether the weaknesses that are evident everywhere. Furthermore, it is not possible to evaluate if – beyond the many clear strengths of Germany's special population protection architecture – weaknesses are not based on entirely different causes. In other words, without such a well-founded knowledge and information base on population protection as a practice, the tendency to seek simple solutions for manifest symptoms, but not to seek and find adequate solutions for the actually system-relevant, more complex risks and dangers underlying the symptoms, will persist. For population protection in the 21st century, it is not enough that knowledge and solutions are available here and there and for one or the other. A more complex situation can only be managed adequately if this knowledge is also shared and if the solutions are also accessible to the relevant actors at the right time and in the right place, and if it is seen as a whole, because a situation does not consist of individual elements, but of many processes that interact with each other. Population protection in the 21st century needs a system update, or better: it needs to become *systemic*.

The lack or inaccessibility of essential knowledge also makes a "lessons learned" study, strictly speaking, impossible - only if *all* relevant information were available would it be possible to say not only that lessons have been learned, but also that *adequate* lessons have been learned. Nevertheless, some desiderata, weaknesses and gaps can be identified from the observation of events and after reviewing and

systematically evaluating the state of research and relevant reports and strategy papers of the past years. However, naming these weak points does not of course solve the underlying problems, or in other words: the lessons have not yet been learned, but what needs to be learned has at best been outlined. In this report, I therefore explicitly do not speak of "lessons learned", but of "lessons to learn" - that is, what still needs to be learned.

It goes without saying that this cannot be meant in a fully comprehensive, conclusive sense. This report therefore does not identify "the" lessons to learn; it merely summarises the findings from the perspective of a disaster researcher. Perhaps this report is suitable as a starting point for a comprehensive study, involving all the other relevant actors from the authorities and organisations with security tasks (*Behörden und Organisationen mit Sicherheitsaufgaben, BOS*) or politics, on the lessons to be learned not only from the recent pandemic, but also from previous crises or disasters, such as the refugee crisis in 2015/2016. It is to not only to look at what is already very well known (explosion, fire, extreme weather, etc.) but also at complex situations looming on the horizon, such as a severe cyber-crisis or radically escalating economic and social dislocations. This report is therefore a working report, a snapshot and accordingly designed to be updated. This is the reason for this format: individual points are discussed in greater detail than others, some focus particularly on the lessons learned from the pandemic, others more generally on conclusions drawn from the observations of recent years and decades. Sources are sometimes cited here to a greater extent than is usually the case, insofar as they have already been well presented elsewhere and therefore do not need to be reinvented here. This report is therefore not a final report, it is a start of work, nothing more, but nevertheless open to critical discussion. I am grateful for any feedback and can be reached by email: [martin.voss@fu-berlin.de](mailto:martin.voss@fu-berlin.de).

This report is, as I said, that of a (crisis and disaster) researcher, more precisely a social scientist. It is not a purely scientific report but a statement. In addition to the state of research and its own research results, subjective experiences from close cooperation with different actors from population protection also flow into it, and against this background normative conclusions are drawn, i.e. what is "bad" and what is "good" or how it "should be"; unlike a scientific article, which has to refrain from evaluative judgements (at least from the author's point of view, even if this principle is increasingly questioned or simply disregarded), this report aims at increasing societal resilience<sup>1</sup>. Accordingly, it has a "bias", just as ultimately every report has a bias resulting from the prior knowledge and individual perspectives of those involved in it. This bias cannot be eliminated. However, it should also be mentioned that the author is used to interdisciplinarity on the one hand and transdisciplinarity on the other, i.e. to working

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<sup>1</sup> The fact that resilience in the context of population protection is a clearly normative concept was recently discussed by the philosopher Prof. Armin Wildfeuer in a wonderful lecture. The manuscript of the lecture is available to the author, the publication is still pending.



very closely not only with academics from other disciplines, but also with a wide variety of actors from with operational experience. Thus, research from communication science, psychology, anthropo/human geography, social and cultural anthropology, political science, cultural studies, philosophy, sociology, etc. is integrated. In addition, contributions from third parties have also been integrated, which do not appear to be disciplinary, but which appear to be of particular relevance and use for strengthened population protection in relation to everything else compiled here. Let me say this: The author is a sociologist, who has also studied psychology and pedagogics, has learned a lot from philosophy and has worked on many research projects with colleagues from the aforementioned and other social and scientific disciplines and learned from them. But he is certainly not a legal scholar, nor a lawyer, nor a climate scientist, nor a meteorologist, nor the president of an aid organisation. Nevertheless, arguments are included that are put forward by just such people and that seem "accurate" from the author's point of view. If the report merely included the author's expertise (which is obviously limited, cf. also the remarks on the "expert" and "lay" difference below, Chapter 6.10), it would contract its basic idea, namely that a systemic, integrated disaster risk management is needed.

This being said, I will, in the following, first discuss the initial situation or framework and write about 2. protection goals of population protection, 3. societies in transition and changing threats, 4. general strengths and weaknesses of population protection in Germany from a bird's eye view, so to speak, and 5. equally general needs for reform. In Chapter 6, the main part of this report, concrete references to a total of nine fields and related "lessons to learn" follow. The report ends with a proposal for a "National Research Centre on Resilience and Population Protection".

## 2. On the primary protection goal: The population

Before we can talk about *population protection*, we must first clarify what the population actually is. The state has the duty to protect its citizens while the four pillars of the national security architecture – consisting of the police, the Bundeswehr, the intelligence services and civilian population protection – implement this constitutional mandate.

Art. 2, para. 2, sentence 1 of the Basic Law states: "Every person shall have the right to life and physical integrity". The population is therefore the object of protection, and its *physical* integrity is always the goal of protection. But the object of protection, namely the population, has changed fundamentally in the past decades. Awareness, sensitivity and demands are growing in an advanced, differentiated, democratic, open, liberal society of the 21st century. These expectations are also directed at the institutions of population protection and in peacetime, therefore, at the civilian components, which cover a wide range of tasks, particularly due to the multi-purpose planning of personnel at the state level. These tasks range from care to accident rescue and fire protection to preventive spatial planning.



The Basic Law provides an underpinning for this changing public expectation of population protection, as it lists further fundamental rights to be protected that *go far beyond mere physical integrity*: the right to freedom of faith and expression (Art. 4 and 5), the right to the free development of personality (Art. 2), and the right not to be favoured or disfavoured because of sex, parentage, race, language, homeland and origin, faith or religious or political opinions or disability (Article 3, para. 3). Is all this therefore *also* a protection goal for population protection, or does it stop at *physical integrity*?

The population's expectations of population protection have undergone fundamental and well-founded changes, and population protection has responded to these changes in many ways, adapting and expanding its concepts, for example by offering an already differentiated range of psychosocial care. The consequence, however, is that population protection, which historically and at its core has still been oriented towards the image of protection against physical harm, is increasingly growing together with other areas of society. Considering consumer protection, health policy, agricultural policy, etc., it is no longer possible to really define where population protection begins or ends. The mechanisation and bureaucratisation of the work, which is mainly covered via (formalized) volunteering, also go beyond the traditional framework of institutionalised population protection. Wars are more and more shifting towards the digital space. Social cohesion (not only in Germany) is deliberately attacked by means of disinformation. And demographic and social change undermine cohesive forces such as volunteerism. All these processes increase the pressure on population protection "from outside" as well as "from within".

### 3. Social change and change in hazards

The core problem is the difficulty to differentiate clearly between what entails actually still only social change and what poses already danger. Traditionally, population - protection in Germany was first and foremost geared towards external defence. According to Art. 73 of the Basic Law, civil defence is the task and responsibility of the federal government. Peacetime population protection forms the second component of population protection and is the task and responsibility of the Länder (German states) according to Art. 30 of the Basic Law. Since the end of the Warsaw Pact, the probability of a military conflict was considered to be close to zero. As stated in the White Paper on Security Policy and the Future of the Bundeswehr of 2016, however, not only the classic "images of the enemy", but also the means of combat that are potentially or actually already in use have become hybrid against the backdrop of an "international order in transition" (Bundesregierung 2016). Specifically, the White Paper mentions the following as drivers of this upheaval, for example

- Climate change
- the globalisation and interconnectedness of politics, economics and technology,
- Identity and legitimacy deficits of large parts of the population,

- the demographic development,
- the unchecked trend towards urbanisation,
- the emergence of new centres of power with the simultaneous fragmentation of regulatory designs, and
- associated shifts in the global balance of power,
- the growing importance of transnational networks,
- the economic and financial crisis, the refugee crisis, the Ukraine crisis,
- transnational terrorism,
- the consequences of digitalisation and in particular developments in the field of artificial intelligence
- and others.

According to the White Paper, new challenges are arising for German security policy for example as a result of

- new forms of intentional destruction or destabilisation, e.g. through disinformation, cybercrime and cyberterrorism,
- by concealing attackers and parties to the conflict, etc.

But the White Paper also mentions more civilian challenges such as the increasing likelihood of epidemics and pandemics (in 2016!). Differentiating between civil protection and disaster management is becoming increasingly difficult against the backdrop of these changing, more complex and systemic threats.

What is listed in the White Paper, however, still does not reflect the complexity associated with each individual aspect. Climate change is already interconnecting everything today, therefore, global systemic management appears to be without alternative in the future. How do rising temperatures and water shortages amalgamate with refugee movements, the imbalance in the pension system associated with demographic change, the consequences for agriculture associated with the loss of biodiversity, extreme social inequality that corrodes social cohesion, and the increasing global shock waves of political, economic or social upheavals elsewhere in the world? How do societies under this pressure deal with rapidly recurring pandemics in a global community that can be fully monitored digitally and thus also manipulated? What if such a situation is further overlaid by galloping inflation? What if the population in such a situation no longer behaves pro-socially as before and does not do everything to avoid escalating damage? What if, all of a sudden, war also becomes a very real scenario? From the author's point of view, these are not distant future scenarios,<sup>2</sup> rather we have already arrived at this scenario. It just does not show its face all at once,

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<sup>2</sup> It seems increasingly strange to me that in seminars and conferences on the consequences of climate change, for example, people are still talking about the "future" consequences, as if everything is still fine. Climate change has long been a reality - in the meteorological and ecological sense, but also in the social, political and economic sense.

but successively and therefore still appears as the appearance of isolated "black swans". So, what is population protection under these conditions?

## 4. Strengths and weaknesses of population protection

Civil protection in Germany has no or at least only limited experience with most of the developments mentioned above. It has always been geared primarily to conventional warfare (the extent to which it is "equipped" for such situations is a different question; here it is merely stated that conventional warfare dominated the view) and hazards: Extreme weather situations such as heavy precipitation or storms can be effectively countered by the complex integrated relief system. Floods, snow, avalanches and ice are practised and field-tested scenarios. A highly professional fire brigade knows how to deal with fires. In this respect, Germany is also in a good position in an international comparison, but recent wildfires such as the one in Lübtheen in 2019 gave an impression of the challenges that fire brigades will face in the course of climate change.

For years, there have been trainings for the release and combined effects of hazardous substances (chemical, biological, radiological, nuclear - CBRN). For example, the "dirty bomb" was the subject of a major cross-border exercises (LÜKEX 2009/2010). The exercise clearly showed that the limits of the population protection system would at least be tested in such a situation. As recently as 2012, the risk analysis in population protection had decidedly played out a possible Modi-SARS pandemic. The SARS-CoV-2 pandemic manifested the vulnerability to zoonotic infectious diseases, which has also been known to politicians since this report at the latest (Dittmer/Lorenz 2021; Baekkeskov 2015; Davis 2006; Morse 1996; McNeill 1998; Snowden 2020).

What the complex aid system in Germany is geared and prepared for are essentially events that are limited in space and time. The crises and catastrophes of the future, of which we have gained an impression through Fukushima, the refugee crisis in 2015/2016 and now the SARS-CoV-2 pandemic, will increasingly be of a complex nature - not only in the course of climate change. In the 21st century, humanity has reached a level of development where, with increasing speed and interconnectedness, various processes are simultaneously leading to problems of global proportions, where financial market transactions, national bankruptcies, wars in the Middle East and refugee movements are forming a confusing alliance with incalculable effects on the Federal Republic of Germany. Antibiotic resistance, the structurally increasing potential for social disruption, the unforeseeable consequences of developments in the field of artificial intelligence, or the consequences of a fundamentally changed monetary policy of the central banks, which will be spatially and temporally staggered in the medium term - all these processes interact and have a significant impact on the resilience of society, and by no means only a negative one. And they do have an influence on population protection, which has so far remained practically unobserved

and thus misunderstood, because we continue to think in terms of the past, so that we are surprised by the negative effects and then, in the worst case, realise that population protection is not prepared for them.

All these effects that influence the resilience of society have an impact on the population - and on the helpers in population protection, who are themselves part of the population. These changes may mean that the population may react more affectively and be more easily unsettled. This also makes them more susceptible to demagogues of all kinds. On the other hand, it is the helpers in population protection who are particularly confronted with the consequences of these changes in their everyday work. Everything is becoming more and more burdensome for them, without being able to tell where the feeling of increasing stress as a paramedic comes from. Germany "lives" from commitment - be it "ad-hoc" as in the case of a flood or the care of refugees, be it (formalized) voluntary work in associations or aid organisations, be it low salaries and countless overtime hours in the care of those most in need. Anyone who talks about resilience in population protection must not remain silent about this "resource".

Population protection is only an additive. It *complements* these services that citizens provide on a daily basis and which have always been reliably the greatest commitment to providing services for the common good, even in a crisis or disaster. The more this commitment, which is ultimately fed by a general sense of belonging (social cohesion), comes under pressure, the more population protection in its organised form would have to perform, while at the same time it itself is also dependent on this commitment. This is the - apparent - paradox facing population protection. Only apparent, because this paradox can be solved if population protection is no longer understood as something independent, but as an integral part of a *population protection culture* that integrates all social actors and includes all destructive (side) effects of human action (cf. Clausen 1988).

## 5. Developments and reforms since 1989 (with a special focus on biological hazards)

The "boundless and groundless reduction of competences and resources, of coordination and cooperation and above all of motivation and commitment" (Horst Schöttler, DKKV 2000, author's translation) and the reaping of the so-called "peace dividend" showed its negative consequences with 11 September 2001 and the floods of 2002 and 2003. A rethinking began and since then, a lot has happened.

With the "New Strategy for the Protection of the Population in Germany" adopted by the Conference of German Interior Ministers and Senators (*Konferenz der deutschen Innenminister und -senatoren, IMK*) in 2002, the federal government reacted to a changed risk assessment and thus above all increased its coordination competences in a cross-Länder situation through: the establishment of the German Federal Agency

for Population protection and Disaster Assistance in 2004 (*Bundesamt für Bevölkerungsschutz und Katastrophenhilfe, BBK*), the continuously conducted risk analyses on various topics, innovations such as the Joint Reporting and Situation Centre of the Federation and the Länder (*Gemeinsames Melde-und Lagezentrum des Bundes und der Länder, GMLZ*) and various interlinking options for joint crisis teams, the establishment of a separate department for crisis management and population protection in the Federal Ministry of the Interior in 2007, the cross-Länder exercises (LÜKEX) and the Interministerial Coordination Group of the Federation and the Länder (*Interministerielle Koordinierungsgruppe des Bundes und der Länder; IntMinKoGr*).

Concerns about a biohazard attack have shaped numerous reforms and initiatives over the last two decades. September 11 and the anthrax spore attacks in the USA in 2001 (Guillemin 2011) increased attention to biological hazards at the WHO as well as at the national level (Baekkeskov 2015; Bundesamt für Bevölkerungsschutz und Katastrophenhilfe; Robert Koch Institute 2007a, 2007b). Cordula Dittmer and Daniel Lorenz from the Disaster Research Unit (DRU) at the FU Berlin write about this:

*"In extensive working groups, interdisciplinary expert networks (Dickmann et al. 2011) and internal research projects, biological hazards were examined from the perspective of health-related population protection (Bundesamt für Bevölkerungsschutz und Katastrophenhilfe und Robert Koch-Institut 2007a, 2007b; Uhlenhaut 2011; Bundesamt für Bevölkerungsschutz und Katastrophenhilfe 2009; Schirrmeister 2013), whereby the focus was primarily on the scenario of a "bioterrorist attack" due to the proximity to the major event of the 2006 World Cup (cf. Broemme 2011). The (...) LÜKEX 2007 exercised the case of an influenza pandemic with a focus on securing critical infrastructures and supply processes as well as the coordination of scarce resources; in 2013, an extraordinary biological threat situation was again exercised. In the (...) risk analysis of the Federal Government of 2012, the scenario "Pandemic due to virus 'Modi-SARS'" was depicted (Deutscher Bundestag 2013). It examines, among other things, how well prepared the German civil protection and disaster management system is for various hazard scenarios, what effects can be expected and what coping capacities and capabilities are required. Within the framework of civil security research by the Federal Ministry of Education and Research, funding was tendered for technical solutions in the area of detection in the context of "protection against biological danger situations and pandemics". With the Ebola fever epidemic (2014-2016), which took place primarily in West Africa, this topic also became concretely relevant through foreign disaster relief, especially for the German Red Cross (DRK) and the Federal Agency for Technical Relief (THW). At the beginning of 2016, the "Framework Concept for CBRN Protection" (Bundesamt für Bevölkerungsschutz und Katastrophenhilfe 2016) was published, in which summarising ideas on "CBRN Protection for Federal Population protection and Disaster Assistance" (Bundesamt für Bevölkerungsschutz und Katastrophenhilfe 2016, p. 11) were elaborated. The "Civil Defence Concept" (Konzeption Zivile Verteidigung, KZV) (Federal Ministry of the Interior 2016) also confirms CBRN protection as an important aspect of civil defence and civil*



*emergency preparedness of the federal government. In addition to these developments, which were evident at both the conceptual and operational levels within national population protection and disaster management, national pandemic concepts and plans have been developed in parallel as a reaction to international developments, particularly in the context of the worldwide WHO influenza pandemic planning, primarily by the Robert Koch Institute (RKI) since 2001 (Knufmann-Happe 2011), which can thus be assigned to the health sector. For example, the National Pandemic Plan (NPP) "on infection and disaster control" (Robert Koch-Institut 2017, p. 6) for Germany was published for the first time in 2005, with which Germany reacted to corresponding WHO recommendations for the worldwide preparation of national pandemic plans (especially related to influenza) that had existed since 1999. The NPP also refers to population protection and disaster management as a resource for coping with a pandemic situation, e.g. with regard to the use of established crisis management concepts for coping with the situation. Previously, a study (Fock et al. 2001) was conducted in Germany in which basic principles for the preparation of pandemic plans were developed and which is now also referred to in many of the pandemic plans of the federal states. In this plan, civil protection and disaster control are seen as central actors both for crisis teams and in coping with a high number of infections in the population, whose expertise should be comprehensively taken into account (Fock et al. 2001). Accordingly, many pandemic plans of the federal states refer to population protection and call for coherence between measures for pandemic and disaster situations. Pandemic plans of some of the Länder in any case "assume that in the event of a pandemic, the Land's disaster control law may also apply if the impact of the pandemic exceeds the disaster threshold" (Taupitz 2011, 112, fn 53). The framework concept "Epidemically Significant Situations" prepared by the RKI (2019) is subsequently intended to form "a bridge between the abstract concepts of general population protection and disaster management and the partly very specific scenario-oriented plans of infection protection such as the influenza pandemic plan or the Ebola fever framework concept" at the national level. "It illuminates [...] the interfaces of publicly funded healthcare (Öffentlicher Gesundheitsdienst, ÖGD) with other institutions, e.g. police, fire brigade, technical relief organisation, disaster control and other aid organisations" (Robert Koch-Institut 2019, p. 1). Population protection and disaster control organisations thus represent a central and important pillar of public health protection in the context of a pandemic and specifically as a support resource for the ÖGD; at the same time, this interface has so far been little defined in either direction or tested in practice" (Dittmer/Lorenz 2020, author's translation).*

The sum of these learning processes and adaptations of population protection in Germany has undoubtedly contributed to keeping the performance of the protection architecture high in international comparison. This comparison reveals strengths but also clear weaknesses. However, it is not the comparison with others that is decisive.

What is decisive is the relationship between prevention and capacities in relation to the *fundamentally* changing risks and dangers.

In the following, I will discuss nine specific points and name "lessons to learn" from a research perspective. Many of the points mentioned here have been known for years, in some cases for decades. Other weaknesses became more apparent during and in the wake of the most recent complex crises, such as the refugee crisis in 2015/2016 and the Coronavirus pandemic since 2019, but also, for example, through the forest fires of 2019.

Against this backdrop, I would like to put one general lesson first: If these situations have shown anything, it is first and foremost the need to consider scenarios in a far more complex way and to consider this complexity over a long period of time. The "Black Swan" must no longer remain outside the thinking and planning horizon, rather it must become the pivotal point of population protection, because - some causes have been named above - it seems to be in the process of becoming "normal", so to say the invasive "Black Swan" is becoming indigenous worldwide. By no means is preparation to the unforeseen impossible. Rather, societies as a whole must be made resilient enough to withstand the unforeseen. This, however, requires a fundamental change, not only in the architecture of population protection, but also in the object of protection, i.e. the population or, rather, the communities and societies.

No crisis or disaster is alike, yet there are events that are more "familiar" to population protection in Germany than others. Complex disasters and crises such as a pandemic do not adhere to traditional patterns. For too long, even during the ongoing pandemic, events were *thought of* according to familiar emergency response patterns tailored to "natural disasters" and "major technical accidents", but without triggering the procedures aimed at dealing with them in the same way as with such disasters - it seems that perception and the framework for action diverged here. The effects of a pandemic, however, are not only disastrous as a health problem linked to the viral event (which is not assessed here), but the consequences are multiplied by the direct, indirect, and then cascading consequences, which must also be recognised and considered at an early stage.

The protection of the population must not stop at the "old" threats. It must (further) develop into an integrated, systemic management of crises and disasters in all their destructive complexity, aimed first and foremost at prevention.



## 6. Lessons to learn

### 6.1 Population, vulnerability and capacities

Crises and disasters hit people differently. Vulnerability often correlates with general socio-demographic characteristics: Age, gender, social status/income, illnesses, etc. are important indicators for the likelihood of being affected to an above-average degree. However, no crisis or disaster is alike; rather, a specific crisis or disaster in a specific social and spatial context often reveals a very different vulnerability than would have been statistically expected. For example, vulnerability in a pandemic does not result solely from previous illnesses, but also from a social position that, for example, increases the likelihood of infection due to one's occupation, or from being particularly affected by the consequences of the various pandemic-related measures. Vulnerability is highly scenario-specific and situational. In past crises and disasters, however, it has always been shown that we in population protection do not have such a differentiated view of vulnerabilities, and even more so that even the knowledge that is available (especially in the social sciences) about the heterogeneity of the population hardly reaches population protection. This also has something to do with resources, because a more differentiated understanding of vulnerabilities is not in itself a gain as long as it is not (or cannot be) accompanied by more targeted measures. However, it is a *political decision* whether this knowledge and the necessary resources are made available, by no means is it the case that there are no far more differentiated answers available.

Vulnerability is, if not entirely, then at least to a large extent the result of social action or political decision-making. The reduction of personnel capacities in the health sector is only one example that became particularly visible during the pandemic. In the case of a situation requiring the ad-hoc treatment of a high number of patients, it also showed that capacities are not only a question of technical equipment, but that in the crisis social competences are required to a large extent, from neighbourly help to nursing to the competence of performing very demanding tasks in the intensive care unit.

The pandemic proved in many respects that the reserves held are insufficient in a globally networked society that has converted its production and supply chains to just-in-time. In a hearing before the Interior Committee of the German Bundestag in April 2021, Gerd Friedsam, President of the THW, pointed out that "even in other scenarios (... ) rapid access to protection and preparedness material as well as care and accommodation equipment" is needed. "Only through pre-planning do we have a situation overview of the available resources in the event of an operation and could coordinate and compensate for deficiencies and bottlenecks. The conclusion has already been drawn, namely that there is a need for emergency stockpiling by the national health protection reserve" (Friedsam 2021, author's translation).

#### Lessons to learn

- Vulnerability is thought of as under-complex and static. In the context of the Coronavirus pandemic, it became apparent that there are no significant capacities

to monitor vulnerabilities in their situational changes and to initiate corresponding measures. It can be assumed with certainty that, at least at the municipal level, a wide range of data is available on outbreaks in specific social areas. However, this data - presumably for political and certainly for data protection reasons - has never been systematically evaluated or made available to external research or even to the public. **As far as is known, systematic research on this complex of topics, which could have been conducted with full consideration of data protection, did not take place at any time, which must be considered a blatant system failure.** Uninformed about actual vulnerabilities, policies are also unable to address them specifically; as a consequence, "vulnerable people" in particular must feel virtually abandoned by "politics". **With systematic analyses, a much more differentiated planning of measures would have been possible** (e.g. with social space-specific information and vaccination campaigns and motivational support or targeted aid measures due to socially spatially concentrated consequences of the lock downs, etc.). The fact that this topic is politically particularly explosive must of course be taken into account; however, to refrain from all these considerations from the outset for this reason (and to cite data protection as the reason without looking for ways in which this data could have been collected in compliance with data protection) cannot be justified. Rather, this refers to the lesson to learn on "democratic disaster risk management" mentioned in 6.6.

- The fact that vulnerabilities develop in a differentiated and dynamic manner also applies to institutions such as critical infrastructures (CRITIS, see again point 5). Often, the actual criticality in the disaster turns out to be different than expected. **A far more differentiated consideration of scenario-specific vulnerabilities and their development within an ongoing crisis or disaster than has been the case to date should form the basis of contemporary and dynamic demand planning.** Corresponding long-term studies ("quick response research") should have been carried out during the current crisis. For future crises, the corresponding (research) capacities, which would then also become (policy)-advisory capacities, should be built up (see the proposal for a national research centre).
- Vulnerability is especially also a **question of the availability of time in general and of competent actors in particular.** Those who do not have time to take care of their neighbours fall away as a "resilience resource". Also if personnel capacities in critical institutions such as care facilities, hospitals, but even in schools and kindergartens are trimmed for maximum efficiency under everyday conditions, society successively loses its crisis and disaster capacity. An overall balance is needed that analyses these effects in a structured way and determines an optimum between everyday efficiency and crisis capacity.
- The heterogeneous population has different vulnerabilities in different situations. This also goes hand in hand with the need for differentiated communication with different population groups (milieus). In my opinion, it is **misleading (even though it can also be found in parts of the research) to assume that the population has an inadequate risk awareness for risks and dangers.**

In order to be able to judge this, **it is first necessary to have a differentiated**

**understanding of life situations and the risk and danger assessments that arise from these life situations**, because these do not just appear, but are (at least mostly) simply more relevant for many in everyday life and thus guide people's actions more than risks and dangers seen from a professional, overall societal perspective, such as an infection with SARS-CoV-2. While some can "afford" to move their workplace to the home office, others cannot. For them, the direct consequences would be real, whereas the infection would remain a mere risk.

**Incidentally, the same applies to professional actors**, they too have a differentiated understanding of risks and dangers. However, they have professionalised their view and learned to evaluate risks and dangers according to further criteria in addition to those that they, like all other people, are familiar with from everyday life. Numerous studies have shown, however, that **their assessments of risks and dangers also vary greatly** and are dependent on many different influences (an overview is provided by Renn 2014, for example). This is evident not only in the assessment of the consequences associated with climate change. Therefore, before speaking of a "lack of risk awareness", the knowledge *available* about the heterogeneous population, especially in social science research, should be made the basis for a more differentiated assessment of such issues. For this purpose, it must be systematically compiled and processed for the needs of population protection. This is hardly possible within the framework of 3-year research projects in a research consortium. But even what would be possible is usually assessed by the funding agency (such as the BMBF within the framework of the security research programme) as ineligible for funding, with the argument that such knowledge is already available (even scientific reviewers tend to make this short-circuit, which casts a questionable light on their competences, but also on the review process itself. Or does this rather show how the research habitus itself has become economised or mechanised and, through its rehearsed particularity, is no longer able to grasp the "black swans"?).

- Vulnerability in crises and disasters should not be viewed in isolation, but in the context of everyday vulnerabilities. Only such an overall view can lead to sustainable measures to strengthen the resilience of society. The Malteser Hilfsdienst, with its concept of a **social service**, and the German Red Cross, with its concept for **training support** staff, have presented proposals for strengthening the human resource base for skills that are particularly urgently needed in a crisis or disaster. Both concepts have resilience-increasing effects beyond the crisis and disaster protection aspect through an awareness of possible hazards that is once again brought to the general population and through the skills that are taught, which can also be of particular importance in everyday situations. It is crucial that these resources are truly additive and do not result in a mere redistribution of resources (e.g. to the detriment of voluntary service). In this context, the new voluntary military service in homeland security (Armed Forces Base of the German Armed Forces, "Homeland Security Service") must be evaluated regarding whether it takes resources away from volunteerism.

## 6.2 Communication and warning

After the largely nationwide privatisation or the dismantling of sirens, there was a well-known warning gap in population protection, which is at best gradually closing with the introduction of warning systems such as SatWas and MoWas or apps such as NINA from the BBK (see Warning Day 2020). The real problem, however, lies in the question of how and by whom effective risk and crisis communication with a socially and culturally heterogeneous and, in particular, differently vulnerable population can be sustainably designed. The technologies to be used for this purpose should be geared to these needs. So far, as described, there is a lack of competence to determine these needs adequately and against the background of dynamically changing social conditions. Even more, there is a lack of understanding of the social conditions that make effective warning communication possible in the first place (Mayer/Voss 2021).

In the wake of the SARS-CoV-2 pandemic, governments and authorities are taking measures to contain the spread of the virus, some of which mean considerable cuts in the everyday and economic life of the population. Whether and to what extent such measures are accepted and recommendations followed, or whether they provoke counter-behaviour or even counter-movements, depends largely on the kind of trust relationship that exists between the government and the population. Effective and sustainable risk and then crisis communication is seen as the key to building and maintaining this relationship of trust.

### Lessons to learn

- The information situation or its perception is decisive for all actions, not the "objective" situation. Who considers what to be relevant for their actions differs according to the situation. Thus, what is important information for one person is irrelevant or even wrong for another. **In crises or catastrophes, the usual standards of rationality no longer apply, and the consensus of everyday life that guarantees these standards of rationality disintegrates.** A common basis for all action must therefore first be established through communication.
- Risk and crisis communication must be understood as a complex social process (whereby there are countless moments of risk communication in the crisis, which is why the separation between risk and crisis communication is an artificial one that does not reflect actual practice, Voss, Lorenz 2016; Mayer/Voss 2021). Accordingly, entirely new institutional and personnel competencies need to be developed that go far beyond the ability to merely transmit information.
- Not only the heterogeneous population, but **also employees in authorities and organisations**, even those who work professionally with risks, take note of information in very different ways and draw very different conclusions from the information they perceive.
- **Not only what information is made available, but also how it is communicated** (by whom, at what time, in what language and rhetoric, via what medium, etc.) **must be assessed in the course of an event and shaped, taking into account current moods.** One needs to bear in mind that the very definition of what is to be

communicated is complex (that it is possible to clearly determine what is to be done - "leave your building because it will soon be flooded" - is the exception; the rule, on the other hand, is that situations develop dynamically and are accompanied by fundamental uncertainty about what is to be done and thus what is to be communicated). Changes in a processual manner and the comprehensibility of how these problem and solution definitions come about already significantly influence the subsequent linguistic transmission of information.

- Basically, **what is not created before a crisis or disaster as a basis for communication in the crisis or disaster cannot be fully made up for in the situation.** At the same time, the current crisis/disaster is always the "before" the next crisis/disaster. Here, in turn, the next central course is already set for the next situation.
- **Trust is the fundamental capital of society; without trust there is no social cohesion.** It is necessary to continuously monitor where fractures are emerging. This is the domain of experts from the social sciences, cultural studies and the humanities, who must be consulted here. **I believe that a committee composed of these experts would be useful and that it should** have insight into the work of the crisis team and other relevant decision-making structures.
- It is particularly important to bear in mind that dealing with experiences from a crisis or disaster, especially with perceived mistakes, attracts far more attention in the immediate time window when the situation calms down than at a later point in time. **Accordingly, this time window is particularly suitable for fundamentally establishing or regaining trust** if it has been lost in the crisis or disaster.
- I see one concrete measure in particular in the **formation of a citizens' council** that itself draws lessons from the pandemic and proposes measures related to it.
- I see another concrete lesson to learn in the **development of publicly communicable** (e.g. also via visually illustrative explanatory videos in different languages), **differentiated and addressee-specific scenarios**, on the basis of which expected developments and related measures are discussed. Incidence values play just as important a role as other key figures that have been identified as relevant to the situation and are presented in a comprehensible and transparent manner. In particular, the perspectives of the heterogeneous stakeholders should be taken into account, and these (potentially or actually affected) should ideally be included in the preparation of the scenarios from the outset. The scenarios should be prepared in a level-specific manner and nested within each other, from the concrete social space reference (e.g. also for families, schools or organisations) to the regional and state to the national level. It is a good idea to present these scenarios in an appealing way, e.g. in videos and - of course - in several languages.
- In addition to the use of illustrative scenarios, decision-making processes should be made more transparent. **A consultation register should be considered in** which it is made comprehensible (publicly accessible) where the relevant actors and decision-makers from politics and the authorities and organizations with security tasks obtain their central decision-relevant information.



- As with all the points mentioned here, it is particularly true for the topic of communication that **the scenarios used as a basis must be expanded in the direction of greater complexity and longer-lasting situations**: How do you communicate on the 10th day without electricity?

### 6.3 Prevention

Overall, it is hardly possible to speak of preventive population protection in Germany, as called for in international agreements (especially the Sendai Framework for Disaster Risk Reduction, SFDRR). Taken seriously, prevention must begin with an *integrative* risk assessment that takes into account societal *resilience as a whole*, for example in the development of new technological products or the assessment of changes to the architecture of the welfare state. While the discussions in the area of climate protection are becoming more and more differentiated, they have not even begun yet with regard to prevention in the area of population protection.

#### Lessons to learn

- *Integrated, systemic risk, crisis and disaster management (ICRM, see point 6.4)* must **focus on prevention rather than response**. The best management prevents its own necessity. It aims to prevent the occurrence of risk and then to increase resilience in order to cope with unforeseeable or unavoidable hazards. Integrated risk, crisis and disaster management aims to increase the effectiveness of all crisis and disaster prevention measures and the resilience of the population. A **response-oriented, after-care approach is being replaced by a risk- and sustainability-oriented approach**. The health sector should promote health and disease prevention, in addition to increasing the capacity for diagnosis and treatment, instead of only addressing diseases and their consequences (Gröne and Garcia-Barbero 2001). The same applies to population protection as a task for society as a whole. The view must not stop at the narrow understanding of disasters of the past, but must take into account the diverse processes that can contribute to an increased vulnerability to crises and disasters. A fundamental part of this is to **recognise the planetary boundaries**.
- The prevention of crises and disasters should therefore not be seen in isolation, but as a central component of sustainable development as a global process. **Population protection as integrated risk, crisis and disaster management must become the central pivot of sustainable social development**. Crisis and disaster prevention must be integrated into other policies, such as the poverty reduction portfolio or policies to strengthen social cohesion. The global Sustainable Development Goals (SDGs) provide a framework that operationalises sustainability normatively as an **increase in well-being**. The prevention or reduction of the destructive effects of crises and disasters (as well as conflicts) is a fundamental condition for sustainable development. The term "sustainable transformation pathways" is used in discussions on how sustainable development can be made possible in the face of fundamental uncertainties and normative differences in the

world. The SDGs provide a broad strategic framework for global sustainable development. As a strategic version of the future, they allow decision-making under great uncertainties, which must, however, be sufficiently open to be able to react to developments. So-called "rebound effects", "adaptation lock-ins" and "path dependencies" must be permanently analysed and social, political, technological, economic and climatic changes taken into account (Haasnoot et al. 2013). The orientation towards scenarios involving all stakeholders is central to many contributions in this framework (e.g. Butler et al. 2016).

Crisis and disaster prevention measures (for example, with regard to the consequences of climate change) go hand in hand with diverse societal **responses to change as well as the measures themselves, and must be integrated into local cultural, political, economic, ecological and developmental contexts** (cf. Wise et al. 2014). Responses need to be sought across spatial scales and sectors, taking into account temporal aspects. Future pathways are dependent on historical pathways, including path dependency, rebound and lock-in effects (ibid.). Measuring and monitoring trajectories is difficult in complex socio-ecological systems: social processes are shaped by existing rules, values and knowledge cultures and their interdependencies and develop dynamically and reflexively. **These interdependencies must be perceived and it must be understood how they can be changed to better enable crisis and disaster prevention as well as adaptations to dynamic societal and ecological changes** (ibid.). The latter dimension is also important to assess the potential of adaptation for the well-being of disadvantaged and politically marginalised populations due to e.g. existing power relations or norms (ibid., also Leach et al., 2007; Pelling, 2012; Maru et al., 2014).

#### 6.4 Population protection as a cross-level and cross-departmental task - integrated and systemic risk and disaster management

The federal framework proved its worth to a large extent during the pandemic, but numerous deficits also came to light, particularly with regard to cooperation, coordination and leadership. The separation between civil protection and disaster management and the associated responsibilities of the federal government (population protection) and the Länder (disaster management) is not only due to Germany's special history, it has also proven to be efficient and functional in many cases in view of the diversity of regionally specific hazards and the responses to them. However, as was already the case during the refugee crisis in 2015/2016, the pandemic also showed that there is a kind of grey area between civil protection and disaster management, and thus also between those responsible in each case, which is largely unregulated. In 2015/2016, as in the pandemic, new committees or decision-making bodies were created - partly politically motivated, but also partly for the sole reason that a declaration of the state of disaster and the associated ways of organisation and cost absorption would have been accompanied by undesirable "side effects". Such manoeuvres are accompanied by a functional gain in flexibility: every situation requires new forms of coping. At the same time, however, such moves to create new forms and interfaces in every situation, such as the federal-state talks on the pandemic, rather



than activating the intended mechanisms (e.g. by declaring a state of disaster), can lead to a successive erosion of the existing, proven, tried-and-tested architecture.

Population protection is also highly differentiated, not only due to its federal structure, but also in terms of its subject matter. At the same time, however, it is still under-differentiated in many cases and over-differentiated in others, which makes constructive cooperation in a situation very difficult, especially because knowledge and information are unevenly distributed and inaccessible for overarching situation management. In addition to the above-mentioned reforms and additionally to the - overall architecture, there is a need for further integration.

### Lessons to learn

- Crises and disasters are becoming more complex. The competence to deal with this complexity does not come from everyday life, where processes run differently. **It requires the targeted training of "complexity competence".**
- Germany's security architecture has weaknesses for more complex situations. The **federally organised population protection needs a third, integrating pillar**, because the dual architecture of population protection and disaster management is not suitable for dealing with "complex crises and disasters".
- The pandemic has shown in particular that the **interface between population protection and health care** must be **rethought** and a framework for health protection in the population must be defined on this basis.
- **To this end, a (learning) comparison with the protection architectures of other countries is particularly necessary**, e.g. those in which population protection is organised from the perspective of health-related population protection.
- **Leadership and cross-Länder cooperation must be redefined against the backdrop of the pandemic.** How can complex situations be managed more coherently? How can crisis management committees (*Krisenstäbe*) be organised on a cross-state (*Länder*) basis and how can measures decided on at this level be implemented in a concerted manner at the state level? The procedures have proven themselves for past challenges and where they proved insufficient new answers, such as the Interministerial Coordination Group (*Interministerielle Koordinierungsgruppe, IMK*), were found. In many respects, these procedures work very well, even in pandemic management there is coordination across levels and country borders; overall, there has been no great chaos. However, it would be better, as Dr Alexander Götz, Chair of AK V of the IMK, put it at an expert hearing before the Interior Committee of the German Bundestag on 12 April 2021, "to think about joint structures on the basis of what we have and to provide for something like leadership/staff structures for a national crisis. Of course, this also presupposes that the corresponding staff structures function across the departments. And this is not only a question that arises at the state level, but also at the federal level in particular. And decisive tasks that have to be dealt with in this context must then also be taken up and carried out responsibly" (Götz 2021).
- The need for a **joint platform of the federal government, the Länder, municipalities and aid organisations**, which the federal government should meet

with a joint competence centre at the BBK, was emphasised by various experts at a hearing before the Interior Committee of the German Bundestag in April 2021.

- **Information/knowledge management needs to be harmonised with policy making.** There needs to be a common agreement and understanding on how data is collected, analysed and communicated. The harmonisation of information/knowledge management and policy design is the basis for **internal and external integration** (Blümel/Brüggen/Voss 2021). Internal integration means on the one hand horizontal integration as cooperation of different actors on one level in a multidisciplinary team. On the other hand it stands for vertical integration as cooperation of different levels (e.g. local, subnational, national, international). External integration means that a sector is taken into account in other frameworks or overarching goals.
- In the context of pandemic response, it became apparent that there was a need for greater cross-linking between various federal authorities, each of which had special responsibilities, such as the RKI, THW and BSI (cf. Gusy 2021, p. 8).
- In his statement to the Bundestag's Committee on Internal Affairs in April 2021, legal scholar Christoph Gusy also pointed out the need for "sufficient linking of federal and Land offices with overlapping tasks".

*"The sooner a disaster has a nationwide impact, the sooner the federal government must be (jointly) responsible. The more specialised a disaster management task is and the less frequently it occurs in the individual federal states, so that individual states will hardly (meaningfully) perform the task, the more the federal government should be responsible (e.g. for the development or provision of rare expert knowledge). The greater the need for coordination across Länder borders, the greater the federal government's steering and coordination competences should be. For this, the federal authority needs sufficient information. And this requires the necessary (not complete, but sufficient) standardisation of organisational structures, technical terms, -regulations, recording and counting methods" (ibid., author's translation).*

According to Gusy, it is also necessary that

- **"The federal government must be adequately equipped for the necessary cooperation with independent organisations, companies and other private or semi-private institutions that are involved in disaster management or that can be called upon. Here, too, information comes first"** (ibid., p. 8, author's translation).
- **"Consultation, coordination and, if necessary, instruction rights** should complement them, the sufficient federal competence to achieve a **culture of cooperation** between the providers Länder, municipalities and independent providers, also in the exchange of resources and the knowledge thereof. One must not allow that the use of aid fails due to the limits resulting from the multitude of facilities" (ibid., p. 8, author's translation).
- "sufficient federal competence for effective **cooperation in and with the EU, neighbouring states and international institutions**, at least where it

is not merely a matter of small-scale cross-border neighbourly assistance" (ibid., p. 8-9, author's translation).

- For this, the Federal Government needs "an authority that is able to fulfil the necessary federal tasks with the necessary equipment" (Gusy 2021: 8).
- *External integration* is also required in the form of taking into account, for example, social services, education in risk, crisis and disaster prevention or in health care and health promotion (Waddington and Egger 2008) and the inclusion of information from outside the health sector during a pandemic (Pan American Health Organization, 2000).
- In risk, crisis and disaster prevention as well as in their management, **cross-cutting issues must be "mainstreamed"** (Blümel/Brüggen/Voss 2021): gender, age, disability and human rights aspects must be taken into account in every planned or implemented measure (Wisner 2011). But even the introduction of new technologies or products in the food industry must be considered in terms of their short-, medium- and long-term health and social consequences in the sense of holistic risk prevention. To this end, the federal government must build up corresponding risk assessment competences, which go far beyond the current capacities of, for example, the Federal Institute for Risk Assessment (*Bundesinstituts für Risikobewertung, BfR*) and has therefore so far been forced to leave such risk assessments to the - more competent, but also driven by own interests - risk producers (e.g. from industry) themselves. In view of the dimensions of the risk potentials, the entire architecture of checks and balances must be reviewed. From a research point of view, there are many indications that the current legal provisions and obligations for risk producers have become imbalanced in relation to the opportunities associated with the risk and thus **no longer guarantee effective risk control**. To date, the externalisation of costs has been profitable for these actors. The pricing of CO<sub>2</sub> is generally seen as a model for pricing all costs associated with a product or innovation (including indirect and solely potential risks) and thus arriving at a realistic picture.
- A multi-hazard approach states that an integrated risk, crisis and disaster management strategy should not be thought of as a single-issue strategy. Ideally, an **integrated management strategy** provides a solution that can be transferred and applied to different scenarios (keyword resilience). In addition, a multi-hazard approach also recognises the **interrelationships between different hazards and the possibility of multiple hazards occurring simultaneously**.
- This, in turn, points to the need for a **cross-cutting assessment of risks and corresponding strategy development**, for example from general sustainability issues to more specific challenges in the context of climate change to very concrete challenges in relation to individual events, such as a specific storm or a mass casualty incident. In many respects, the complex architecture of the aid system in Germany, with its multi-level structure, meets this requirement better than a centralised system.
- However, various current comparisons, for example with China, show that a more centralised architecture can also be superior to ours in other places. A careful

assessment of the advantages and disadvantages must therefore begin with a **systematic restructuring of the complex architecture**, which is more historically oriented than towards the concrete current and future needs, and must be further developed or, where necessary, redeveloped in a **scenario-oriented manner**. One should bear in mind that the **orientation towards scenarios** should **only be a means** of being more concretely prepared for certain situations, whereas **resilience to unanticipated situations must not be lost sight of**. A holistic view of societal resilience is complementary to the scenario perspective.

- The measures planned or taken must **meet the needs of the people**, as explicitly mentioned in the Sendai Framework for Disaster Risk Reduction 2015-2030. This principle is also central in the health sector, where it is stated that services must be provided according to the needs of patients. Before, after and especially in an ongoing crisis, these needs must be assessed and taken into account in their heterogeneity. "Expertocratic" advance decisions that set a certain course of action as "objective" or "without alternative" should be avoided. **Every measure requires a plausibility check that is appropriate for the recipient**, whereby very different evaluation criteria on the part of the recipients must be considered (see above).
- Spatial and temporal specificities must be taken into account (**reference to the social space**), which means that preparedness, response and recovery planning and implementation must be adapted to local conditions and temporal changes. Local conditions may include particular hazards in risk, crisis and disaster risk management or cultural aspects that need to be taken into account when planning and implementing activities. In doing so, the locally available capacities, competences and resources must be optimally integrated.
- Integrated, systemic risk, crisis and disaster management aims to **optimise the use of financial, material and human resources** by avoiding duplication, seeking synergies or using an existing infrastructure for multiple purposes.

## 6.5 Critical infrastructure

Infrastructures such as roads, railways, waterways, gas and electricity grids, communication networks or airports, but also the education system with universities, schools and libraries, the health system with hospitals and general practitioners, and population protection with its supporting organisations and technical equipment etc. play an important role for society in general. The criticality of infrastructures is gradually becoming the focus of discussions, for example in security research. Increasingly, the dependence of modern, highly complex, differentiated and technologically advanced societies on infrastructures is being recognised, and possibilities are being sought to make societies more resilient to the failure of basic infrastructures. However, the depth to which infrastructures permeate these societies is hardly addressed at all; rather, infrastructures are largely thought of in technical terms. Yet infrastructures play a decisive role in shaping the modern understanding of space and time. For a contemporary understanding of societal resilience, a more profound understanding of CRITIS as central hubs of modern societies is needed.

An infrastructure is "critical" if it is of high importance for the functioning of society, i.e. if its failure or impairment is expected to cause lasting disruptions in the overall system or in the security of supply and public safety. A distinction is made between infrastructures with *systematic criticality*, i.e. "if they are of particularly high interdependent relevance due to their structural, functional and technical positioning in the overall system of infrastructure sectors". (Bundesministerium des Innern 2009, p. 5, author's translation) and infrastructures with *symbolic criticality*, i.e. "if, due to their cultural or identity-forming significance, their destruction can emotionally shake a society and psychologically tip it out of balance in the long term". (Bundesministerium des Innern 2009, p. 5, author's translation) .

The National Strategy for Critical Infrastructure Protection (BMI 2009), the White Paper (Bundesregierung 2016), the Civil Defence Concept (BMI 2016) and the new "Green Paper" of the Future Forum on Public Security (ZOES 2020) address the increasing vulnerability due to dependencies on information and communication technologies. In general, the dependencies of critical infrastructures (CRITIS) have come into focus in recent years, but there can be no talk of an "all-clear" here in any way. In particular, symbolic criticality is considered almost exclusively with regard to material cultural assets. Karutz and Posingies recently pointed out that the education system should also be regarded as a CRITIS: "A systemic failure of the education system is by no means a threat in the sense of only temporarily tolerable class cancellations; rather, a considerable criticality of the education system must be assumed. After all, about half of the population is directly or indirectly dependent on the functioning of the education system: Crisis situations that affect educational institutions do not only affect the teachers, other staff and the numerous children and young people, but also, at least indirectly, the respective parents or guardians" (Karutz and Posingies 2020, author's translation) .

Particularly in the wake of the Covid-19 pandemic, the concept of "systemically important infrastructures" or "systemically important services" has increasingly come into focus. What exactly is to be understood by this can hardly be defined at present, as the use of the terms is too diverse. This alone indicates that in the course of the pandemic, the area of CRITIS has revealed other problem areas than before. At the beginning of the pandemic, the Federal Ministry for Labour and Social Affairs published a "List of Systemically Important Areas", which specifically lists 20 areas.<sup>3</sup> Among them are the critical infrastructures according to the national CRITIS strategy (e.g. energy, finance), some from the precautionary provision and supply laws (Vorsorge- und Sicherstellungsgesetze) (e.g. wholesale and retail) and some new ones (such as schools and day-care centres). Some Länder have issued their own lists of system-relevant occupational groups and designations.

The categorisation of CRITIS into sectors and industries is helpful and clear at first, but ultimately it is only the tip of the iceberg, because each sector can be subdivided into

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<sup>3</sup> The report is currently no longer available.



even smaller categories. Behind them "hide" numerous critical services and their associated sectors.

Against this background, it must be fundamentally doubted whether the strategies and measures initiated so far can keep pace with the developments of the CRITIS and the parallel socio-technical change of society itself.

### Lessons to learn

- **Up to now, criticality has been thought of almost exclusively in technical terms**, which does not correspond to the complexity of the challenges. Research that addresses this complexity has so far been sporadic at best.
- **Critical are never the infrastructures themselves, which are referred to as CRITIS**. However, this is easily lost sight of, and so measures are primarily directed at hardening these infrastructures, while possibilities to reduce the dependencies on them are much less focused on. This may contribute to the so-called "**dyke paradox**", namely that these dependencies increase more and more as long as the CRITIS can be further hardened... until at some point the limits are exceeded. **A strategy aimed at increasing resilience must therefore always consider both sides: The CRITIS and what makes them critical.**
- The Coronavirus pandemic has highlighted the criticality of the health care system in particular. The whole complex of **CRITIS must be (re)assessed from an integrative, systemic perspective**.

## 6.6 Democratic Risk and Disaster Management and Law

The SARS-CoV-2 pandemic challenged and at times overwhelmed health protection systems around the world. Governments' choices for pandemic containment and control strategies shaped policy discourse and practice, public debates and people's daily lives. The ways in which societies and political systems deal with emergency situations differ, sometimes starkly, around the world. Complex crises and disasters, as the pandemic shows, are always also "stress tests" for competing political and legal systems and are therefore vulnerable not only at the level of the primary crisis and disaster, but also at the level of the respective framework conditions, especially if a crisis or disaster lasts longer or hits the core of social cohesion particularly hard.

In a comparative exploratory study on the handling of the pandemic, the ADRU examined<sup>4</sup> the range of options for action, from "very democratic" to "very authoritarian", also with regard to their direct and indirect effects, all of which must be taken into account in the context of preventively oriented crisis and disaster

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<sup>4</sup> The non-profit Academy of Disaster Research (<https://a-kfs.de/>) is a spin-off from the Disaster Research Unit (DRU) of the FU Berlin that focuses on consultancy, knowledge transfer and education.

management (cf. Merkes/Güven/Voss 2021). It becomes apparent that the management of disaster, crisis (such as pandemics) and emergency situations can sometimes require interventions in central social norms in order to counter threats, protect people and infrastructures, save lives and minimise damage. Depending on the political and economic system, the values of the society as well as the cultural imprint, the choices between preventing damage and preserving civil liberties may differ. While authoritarian systems implement containment measures, if necessary by means of the threat of force or digital surveillance, democratic systems are required, especially in times of protracted crises and emergencies, to reconcile democratic values and freedoms with appropriate crisis management and civil and health protection, i.e. to act within their democratic provisions and not outside of them. In this sense, they must find ways for democratic disaster risk management under the conditions of multimedia communicative observation (e.g. via social media).

*Democratic* risk and disaster management is tied to the very principles and core values of democracy. Based on an analysis of current research and debates, Sara Merkes proposes an understanding of democratic disaster risk and crisis management along the following lines:

*"Democratic risk and disaster management protects and operates within the parameters of democratic principles, norms and institutions, respects the respective functions and responsibilities of elected bodies, and is held accountable by checks-and-balances and hierarchy of control of oversight institutions, including the legislature and judiciary as well as the constitutional and democratic rule of law and international law, meaning there are opportunities for reversal and adjustment of measures taken. The protection of human rights and fundamental freedoms is at its core; their suspension or restriction requires very careful consideration and deliberation based on the principles of legitimacy (in their objective), necessity, suitability, proportionality, reasonability, the minimal restrictiveness and intrusiveness, gradualness, temporality, equity, non-discrimination, legality (according to the law) and compliance with international law" (Merkes/Güven/Voss 2021).*

The management of crises and disasters therefore does not remain without consequences for the broader political framework. This also applies to the legal framework. Art. 2, para. 2, sentence 1 of the German Basic Law: "Everyone has the right to life and physical integrity". Whether climate protection or the protection of the population - every social crisis also places new demands on the law. Resilience implies that the legal framework also develops according to the changing challenges. This became apparent in the course of the pandemic, which brought the interface between population protection and public health or "public health protection" into focus. Cordula Dittmer and Daniel Lorenz (2021) from the Disaster Research Unit (DRU) at the Freie Universität of Berlin summarise the responsibilities in pandemic response as follows:

*"In Germany, the legal framework, competencies and responsibilities in pandemic response are primarily defined by the "Law on the Prevention and Control of Infectious Diseases in Humans" (Gesetz zur Verhütung und*



*Bekämpfung von Infektionskrankheiten beim Menschen, IfSG) (Infektionsschutzgesetz 2000). The implementation of the measures required by the Infection Protection Act to contain pandemics is primarily the responsibility of health authorities at the municipal level, which is also where the lowest disaster protection authorities are located, which are sometimes required to implement the measures and prevent further damage (Bundesamt für Bevölkerungsschutz und Katastrophenhilfe and Robert Koch-Institut 2007a, 2007b). Due to the federal division of responsibilities in the health sector, the pandemic is thus architecturally located at the interface of federal infection control law and disaster control law of the Länder (Kloepfer 2011)" (Dittmer/Lorenz 2021, author's translation).*

### Lessons to learn

In the course of the Coronavirus pandemic, various questions in need of clarification with regard to crisis and disaster management in a democratic framework have emerged (Merkes/Güven/Voss 2021):

- Are the existing disaster risk management regulations and procedures in line with broader socio-political norms and values, are they also "crisis-proof", i.e. are they supported by the breadth of the heterogeneous population even under extreme pressure?
- Which democratic principles, norms and institutions are or can be affected in a particular crisis or disaster?
- How can the functions and responsibilities of elected bodies be maintained or restored as quickly as possible?
- What democratic challenges arise for crisis and disaster management in a particular context? And how can a society best use the strengths of democratic disaster risk management?
- What are possible ways to support and strengthen public debates and independent media coverage in emergency and disaster situations?

In sum, the questions mentioned here are open desiderata; a debate on the conflicting goals that can arise in democratic systems in the course of damage prevention has not yet begun. Thus, there are only questions to be named here.

In a written statement before the Interior Committee of the German Bundestag, legal scholar Christoph Gusy formulated regulatory requirements for the federal legislature against the background of the pandemic experience. "The tasks and responsibilities of the federal government," says Gusy, "essentially depend on its legislative competences. Independent tasks are most likely to be found in Art. 35 (2), (3) GG (for extraordinary emergencies) and Art. 87a GG (Bundeswehr tasks outside of the 'case of defence' or 'deployment'). What the Federal Government may not regulate, it may not execute according to Art. 83ff. GG" (Gusy 2021, p. 6, author's translation).

- So far, according to Gusy, federal legislation for pandemics and (civil) disasters "has only very isolated legislative competences and, moreover, for disaster prevention these are controversial. In the new challenges, it is necessary to

reassess this preliminary decision of the GG" (Gusy 2021, p 1, author's translation). Higher "authorities need appropriate supervisory, coordination and instruction rights. In particular, a cross-institutional and cross-regional exchange of personnel (including volunteers), relief goods and information should be ensured with the aim of optimally allocating them at or near the place of need" (Gusy 2021, p. 2, author's translation).

Based on the disaster and pandemic management legislation, potential deficits may arise, namely redundancies and double stockpiling, shortage situations, inequality of providers, information problems (quantitative and qualitative) and distribution problems, Gusy continues (ibid.). The federal legislator should therefore "at least consider within the framework of legislative competences that is to be created,

- that the disaster capacity and responsibility of lower agencies is ensured and higher agencies are obliged, if necessary, to reimburse (additional) costs required for this or to create supplementary resources themselves,
- that the lower authorities meet definable requirements for their disaster response capacity, in particular that they provide basic resources in terms of personnel and equipment,
- that these inventories are recorded according to uniform and equal standards and can thus be used, compared and exchanged across regions,
- that local providers are enabled in the best possible way to cooperate with other local public and private providers and vice versa,
- that the private sector's deployment and provision tasks are sufficiently recognised, promoted and legally secured,
- that higher-level bodies have sufficient knowledge of and oversight over the performance of these tasks, including those by private providers,
- that the higher-ranking bodies themselves provide and make available supplementary aids, this concerns all levels up to the federal government,
- that the best possible and local exchange is also made possible across institutions and locations,
- that equipment that cannot be kept available locally is created at higher levels and kept operational,
- that the primacy of voluntary cooperation of lower levels over the intervention of higher levels is established,
- that conversely, the higher levels have sufficient authority to issue directives and reserves where the lower levels lack the willingness or ability to act,
- that cooperation across authority responsibilities and borders at all levels is promoted and not hindered; if necessary, the merging of agencies with similar tasks at the central level - namely at the federal level - should be examined,

- that cross-border cooperation on the ground - across national and state borders with neighbouring countries - is promoted,
  - that cost issues neither paralyse nor misdirect the initiatives of the lower bodies,
  - that international cooperation with neighbouring countries, the EU and international organisations is optimised and cultivated through mutual optimisation
  - that the infrastructures necessary for the aforementioned tasks are recognised as critical infrastructures and are kept sufficiently functional and secure against malfunctions in an emergency and against interference by third parties". (Gusy 2021, Author's translation)
- The extent to which a comprehensive legal framework is needed for civil national emergencies and crises should also be examined.
  - A legal obligation to pass on information from the state level to the federal government also seems necessary. However, this should not be seen as the solution to all problems, because in many respects the decisive information must first be generated from the isolated data available on the ground. For example, membership figures of the volunteer fire brigades and the THW say little about how many personnel resources can actually be counted on in a situation, for example because many volunteers are listed as volunteers with both organisations, but will only wear one uniform in the event of a disaster.

## 6.7 Administration

The responsibility and competence structures of the individual federal levels can become problematic in a crisis, i.e. under unforeseen changing conditions and requirements. The assessment of data protection issues, for example, may be different under the conditions of a complex crisis or disaster than under everyday conditions. The citizens' claim to the protection of the state cannot be met under the conditions of a complex crisis or catastrophe in the same way as it can under normal conditions - although limits are always recognisable in everyday life, but they are experienced as "normal" and not as a surprise. In the complex crisis or catastrophe, at the moment when insecurities come to the fore, the demand for protection by the state increases rapidly, while its capacity tends to decrease at this very moment. Depending on the situation, this then raises completely new questions that require many actors to respond flexibly under framework conditions (legal, formal, routines, procedures) that were not intended for the situation.

This dynamic must also be taken into account in administrative action. How can administrations be prepared for such extraordinary demands? How can administrative structures be designed in such a way that they can fall back on "special routines" in the event of a crisis or disaster? Can the crisis- and disaster-related questioning of principles such as data protection be thought through in advance in such a way that paths of action and decision-making are provided for the unforeseen case, without

anticipating answers in advance, while at the same time safeguarding the foundations of constitutional, law-compliant action? What forms of institutional control and what resources are required, for example, in the event of a crisis or disaster, in order to be able to adequately meet the significantly increased need for control? In my opinion, a "reserve" such as that proposed in the concept of a social service by the Malteser Hilfsdienst should not only be considered for areas such as care or emergency rescue, but also for the executive power of the state.

### Lessons to learn

- **Solution orientation must take precedence over perfectionism.** Regulations must (be able to) be adapted to the respective development, responsibilities must be defined, sought and accepted according to the development of the situation. The systemic nature of the connections must be actively considered: What else could be connected to what? This is best done in discussion, ideally moderated by external experts. Authorities and administrations cannot meet this demand. A "national research centre" could form an advisory "think tank" here, see below.
- **Culture of error-friendliness:** Mistakes must be sought and communicated. Mistakes that are feared or made must not lead to the avoidance of actions that are important in themselves; concealing mistakes leads to a loss of trust in the medium and long term that is more serious than admitting them. Persons in decisive positions must receive public "backing" for this "from above".
- Especially in the first months of the pandemic, many processes seemed too slow to keep up with the dynamics of the situation and the constantly changing challenges and demands. However, this limited (short-term) flexibility may be offset by long-term benefits, as "chaos" has largely been absent in Germany throughout the entire course of the pandemic and the administrative management of the situation has so far not fundamentally shaken confidence in the underlying structures, but perhaps even strengthened them "over the long run". In this respect, it must be evaluated **to what extent administrative action can be better prepared with a special framework for special demands, equivalent to the special law for emergencies and crises**, without causing lasting damage, in particular with regard to institutional trust.
- However, many "weak points" became apparent during the crisis (e.g. with regard to digitalisation, over-bureaucratisation, capacities), which need to be evaluated in detail. Such **an evaluation of administrative action during the crisis also promises lessons for the modernisation of the administration.** The task should be outsourced and not carried out by the administrations themselves.

## 6.8 Volunteering and voluntary commitment

Volunteering in governmental (especially judicial) and non-governmental institutions (associations, churches, trade unions, political parties, etc.) has a long tradition in Germany. Originally, it was characterised by a high time commitment, binding duties, a system of command and obedience and a high degree of organisation; volunteers were integrated into fixed structures of cooperation and division of labour (Voss et al. 2015, p. 71). Over the past decades, the rate of volunteering in Germany has risen steadily and continues to do so to the present day. As far as the reasons for volunteering in general are concerned, the importance of interest in helping to shape society declined from 2004 to 2009; instead of 67% of respondents, only 57% gave this as a reason. This is now roughly on a par with the interest in socialising (53%). Expectations of volunteering in general are also changing, with fewer expecting to be able to contribute to the common good as a whole and more expecting to be able to help others through volunteering (op. cit.: 6, after Gensicke, Geiss 2011: 88). In Germany, four to five percent of the total number of volunteers are involved in disaster management (op. cit.: 7, Lange et al. 2011: 4).

Although there is still a very high willingness to volunteer in various formats, a differentiated view is necessary for disaster protection. Social developments - and these do not only refer to demographic developments but at least as much to the changing working conditions and a changing sense of insecurity with regard to one's own biography - will in the medium term deprive aid organisations, especially in rural, structurally weak regions, but foreseeably also elsewhere, of specialist and managerial staff. Other developments, such as voluntary military service in homeland security (armed forces base of the German Federal Armed Forces, see above), could deprive the voluntary sector of additional forces.

In population protection, the demands on volunteers are increasing, the pressure to professionalise is growing and the demands and pressures in working life are also increasing. This leads to multiple workloads and competition with work, family and hobbies. In addition, there is often on-call duty and the assignments are unplannable and unpredictable. Another problem can be the liability risk for volunteers (Voss et al. 2015:74f., after Enquete-Kommission 2002: 345f).

**Table 1: Characteristics "Structural Change in Voluntarism"**

<b>"Old voluntarism"</b>	<b>"New voluntarism"</b>
long commitment...	temporary, pragmatic and activity-oriented engagements...
...to a characteristic supporting organisation with highly formalised structures	...in different forms and fields of organisation
strong identification with the goals and values of the organisations	temporarily common themes
milieu-based socialisation	biographical fit
selfless action, sacrifice and care	social benefit; medium of self-discovery and self-searching
free of charge	expense allowance or fee-based activity
homogeneous groups	heterogeneous groups
lay activity	training-oriented, competence development, (semi-)professionalism

Source: Voss et al. 2015; after Braun 2008, Rauschenbach 1999, Gensicke and Geiss 2010.

(Potential) volunteers are increasingly thinking economically and weighing the costs and benefits of volunteering (Voss et al. 2015: 71f.). The increased spatial mobility in society also leads to a change in the willingness to commit, which results in people organising themselves less traditionally and in the long term and more spontaneously, in the short or medium term, in voluntary projects or initiatives.

### Lessons to learn

The question for population protection organisations is how they can reconcile the high demands of their tasks and the necessary permanent readiness (Voss et al. 2015: 71f). On the one hand, there seems to be a general increase in the willingness to help, but on the other hand, the organisations are experiencing a decline in membership and, in particular, in the number of specialists in some areas. The assumption is that this is a consequence of the special conditions in disaster management (op. cit.: 74f):

- non-coverage of organisational structures and expectations from people willing to engage,
- high challenges of engagement in disaster management,
- incompatibility of time-intensive commitment and working life,
- necessary physical resilience, which is particularly difficult for older people.

If one wants to maintain the structures, then the honorary office must be significantly upgraded. There are a number of proposals, such as



- standardized exemption regulations,
- additional pension points
- and obligatory social service of several years.

The fact that these demands have been voiced for many years but have not been heard until today is to be criticised. However, this also requires an attractiveness that can only be achieved through up-to-date equipment. **Volunteering makes a very important contribution to social cohesion.** The cost of a fancy quad should therefore not be assessed purely in economic terms, but in the broader social context.

Further approaches can be summarised from the state of research (slightly modified from Voss et. al. 2015):

- Underrepresented population groups should be addressed and involved more strongly.
- Temporary and/or project-based forms of engagement (donation of time instead of long-term commitment) should be promoted.
- Helpers without membership should be more involved in the aid system.
- Training concepts should be developed for the quick and spontaneous instruction of unattached helpers in simple tasks.
- Online tools are to be (continuously) developed to record and recruit spontaneous helpers (see "Team Austria").
- Emergency workers should be trained in dealing with untrained helpers.
- Concepts for the targeted, rapid and situation-related activation of volunteers and optimised solutions for the professional integration of voluntary engagement should be (further) developed (see ENSURE and INKA projects<sup>5</sup>).

Within the organisations, restructuring of fields of activity and qualification processes appear to be necessary.

- This applies to the involvement of untrained spontaneous helpers, to the involvement of helpers with relevant professional qualifications in projects or spontaneous assignments as well as to the involvement of older people. This process can be promoted above all through joint and mutual learning between the organisations.
- Through special training and further education in the context of volunteer work or the awarding of certificates for the successful completion of certain modules, population protection could also become more attractive for young people through

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<sup>5</sup> For the ENSURE project see <https://www.sifo.de/de/ensure-verbesserte-krisenbewaeltigung-im-urbanen-raum-durch-situationsbezogene-2064.html>, for the INKA project see <https://www.sifo.de/de/inka-professionelle-integration-von-freiwilligen-helfern-in-krisenmanagement-und-1963.html>.



the qualifications it offers, who often (may only be able to) act in a profit-oriented manner due to the high social and economic pressure.

- The needs of different social groups must be taken into account both in the approach and in the organisational culture. While intercultural opening can draw on a multitude of experiences and recommendations, the integration of senior citizens or women still requires greater sensitisation, scientific support and joint concept development.
- Cross-organisational cooperation will play a particularly important role. This includes cooperation with each other in recruitment and training, but also with the business community, especially with employers:
  - Cooperation with local training companies in order to gain certain qualifications which are also important for the profession in voluntary work, not in the company.
  - Cooperation with local companies in order to give employers more time off for voluntary work ("corporate volunteering") and to be able to credit this towards their own corporate social responsibility.
  - Integrate cross-border capacities (cooperation with Denmark exists in various areas. Possibly promote a cross-border volunteer network - inspire young people at schools who went on exchange to the neighbouring country? Address cross-border commuters? Use political and economic networks to spread the idea/ develop an appropriate marketing concept).
- Outside the organisations, the main focus is on promoting a recognition structure in business and society, improving the legal framework and providing scientific support for the processes.
- Linkage with self-help:
  - Adoption of "sponsorships" of older volunteers with (potential) younger volunteers in order to foster self-protection/self-help and disaster awareness among the population.
  - Conduct educational events with older people as eyewitnesses about their own experiences of disasters in order to raise awareness of the relevance of volunteering and self-protection from the perspective of those affected and to narrow the gap between expectations of population protection and what it is capable of delivering.

## 6.9 Self-protection and self-help skills

For some years now, a lot of attention has been paid to the question of self-protection and self-help skills, which all relevant studies assess as highly deficient. However, it is not enough to appeal to the population. Strengthening this central resilience component requires, in particular, a responsible approach to this issue on the part of politicians and a different approach to the population. The old dogma, which is deeply rooted in people's minds, that the population cannot handle too much information, perverts the very idea of population protection in an enlightened, open society, because no sensitivity for vulnerabilities and no ability to help oneself can develop if the impression is maintained that the protection of the population is guaranteed by authorities and organisations. The fact that this is not true - the pandemic has once again falsified this - must first be communicated. And for that, a **realistic picture of the threat situation is indispensable**. I am not saying that there are no limits to what can be communicated to whom and when. What is decisive is that we determine these limits realistically and, at best, in a social dialogue and not on the basis of outdated prejudices in the back room.

### Lessons to learn

- Self-protection and self-help capacities cannot be defined in absolute terms, but only relative on the one hand to known risks and unknown dangers (which are assessed differently), and on the other hand in relation to other capacities and resources within society. **An integrated, systemic overall assessment of protection capacities is necessary**. Only then can we recognise deficits in delimited areas (organised population protection on the one hand, self-protection on the other) more adequately.
- Relevant research clearly suggests that **the best measure to increase societal resilience to potential crisis and disaster is to reduce poverty, marginalisation and social inequality**. Those who are poor and socially excluded are more exposed than average and at the same time less able to protect themselves.
- The **discussion about risks and hazards must be factual, engaged, continuous and concise**. Open discourse forms the basis for all protection-related action. Innovative formats need to be developed here. A warning day on which *no* siren sounds is not the worst way to do this, as a (so to speak silent) wake-up call and to raise awareness of the issue, in the aftermath of which, people should then not simply talk about failure on the part of the authorities, but about the issue itself. To this end, the media should participate in a targeted way.
- The **possibilities and limits of protection that support the population must be communicated** transparently. The fact that this implies that a district administrator must tell the inhabitants of his/her district that they will *not* ultimately and comprehensively be protected by the fire brigade and aid organisations makes it clear that the question of self-protection and the ability to help oneself requires nothing less than a cultural change in dealing with each other (here: politics and the population) and with risks, crisis and disaster potentials.

- Not only too little, but **also too much or wrong communication related to risks and dangers is possible**. The communication of risks, crisis and disaster potentials can easily be misused for partial political agendas (keywords: **society of fear and securitisation**). Dialogue again presupposes trust - trust in institutions, authorities and organisations, but also trust in fellow citizens. Only on the basis of trust understood in this way can risks, whose effects cannot be conclusively determined, be communicated and related measures, necessary competences and resources for self-protection and self-help be more adequately determined.
- All this is a **prerequisite for all actors in the heterogeneous society to recognise what share they can - and must - contribute to the protection of the population as part of it**. Communicating this share and related tasks is essential for the resilience of society, but this does not start with "informing the population" or "educating", but via a holistic, concerted management and communication approach, in which **all actors recognise their respective responsibility based on their knowledge concerning resources and capacities**.
- It is crucial for the distribution of responsibilities between the state, the authorities and organisations with security tasks and the heterogeneous population that this distribution of tasks is regulated fairly and equitably. The resilience approach has the potential to use the forces of society as a whole to avert damage. However, the resilience approach also has the potential to distribute responsibility and burdens among all individuals without adequately taking into account the socially unevenly distributed forces and thus ultimately undermining the architecture of the welfare state. **Resilience must not ultimately mean that everyone is responsible for themselves**.

## 6.10 Summary assessment

These nine gaps or weaknesses in population protection are based on a fundamental **lack of data evaluation and integration**, a structural problem of population protection that has basically always existed but is becoming increasingly serious. There is no framework for crisis and disaster risk management that is not only *integrated in name*, let alone *systemic*. Accordingly, deficits cannot become transparent if it is not even conceptually possible to map what belongs to this integrated and systemic management. The fact that organisations and authorities work with different and incompatible data management systems, on the other hand, is a weighty problem, but "only" a secondary one. In Germany, no one knows how many human and material resources are actually available for a specific scenario in a cross-state (*Länder*) situation. But it seems much more important to me that there is a complete lack of understanding of the *processes* that are increasingly pressing population protection, i.e. information about the systemic overall events in the broader sense.

It can be rightly argued that knowledge is widely available, for example with regard to climate change, and that the primary weakness lies in *implementation* - i.e. in the step "from knowledge to action". Nevertheless, there is still a lack of **more complex**

**knowledge about risks and dangers of the future as feedback phenomenon of systemic societal causes and respective systemic effects:** What internal and external challenges will confront population protection in the coming years and decades? The actors limit their perception to a risk horizon that is familiar to them from the past or that seems to them to be defined as a framework by law or administrative regulation. This institutionally traditional and organisationally formalised framework does not give rise to an adequate awareness of new types of threats arising from the interaction of completely different processes and the associated challenges. Instead of starting from the goal - the protection of the population, not only physically, but also in the sense of well-being - and building up an integrated and systemic risk, crisis, risk and disaster management, emergency situations are dealt with to the best of one's ability using the means at hand. Subsequently, selective needs for improvement are derived - "lessons learned", in other words - which may be suitable for the case that has just been experienced, but are still far from being adequate for the next, presumably completely different crisis or disaster (especially since they gather dust in the drawers again faster than they can be written).

The perception of population protection is largely ideological, as can be seen, for example, in the idea of an ignorant, largely passive or panic-stricken population (the "laity") and of authorities and organisations with security tasks (the "experts" or "professionals"), who somehow already know what risks and emergency situations entail and how to address them "correctly". Furthermore, this perception carries the expectation that risk assessment competencies are most likely to be found in private-sector actors, while the state and its organs are by definition incapable of more demanding assessments of this kind. The fact that this distribution of competences is the product of a "learned division of labour" over two centuries is formulated in philosophical debates, but is completely ignored in the discourse on the protection of the population. For decades, the state's capacities for control and supervision have been reduced. Weaknesses in the state's crisis and disaster management that come to light in crises and disasters are not taken as an opportunity to fundamentally build up its capacities, but rather serve as further proof of the hopelessness of such an undertaking. This vicious circle must be broken as a central lesson from the pandemic and in view of the expected consequences of climate change or other complex crises and disasters. **A paradigm shift is required here in the truest sense of the word. The planned strengthening of the BBK is certainly a necessary, but by no means sufficient step in this direction.**

What form must population protection take if it is no longer defined in terms of emergency organisations, but sees the protection of the population beyond the protection of physical integrity as a challenge for society as a whole? This far-reaching question, the answer to which is a prerequisite for the design of a contemporary population protection system, has so far remained unanswered. Instead, attempts are being made to reform existing structures and organisational formats on an ad hoc basis, always in the wake of specific crisis and disaster events. This path cannot be a sustainable one. **Resilient societies cannot be created through the sum of isolated measures alone. These measures are needed but resilience requires - this may sound trite - holistic thinking that includes implementation.** If the

population and politicians expect more and more from population protection, while society is exposed to ever more and ever more hybrid hazard situations, then questions must also be asked about the structural conditions that underlie these processes. **The complex cause-effect networks must be identified and sustainable countermeasures found. The processes that continuously undermine the resilience of society must be included and understood as a problem of population protection.**

Some of the deficits mentioned above can be solved technically and organisationally with some financial effort. The BBK has presented a strategic vision with the recent presentation of its proposal for reorientation. As said, it is to be hoped that politics will recognise and acknowledge the necessity of the measures mentioned therein.

In my opinion, however, the challenges cannot be met by the authorities and organisations with security tasks as long as they fundamentally lack information and systemic orientation knowledge. No authority is in a position to generate this knowledge itself. **Research and the advice generated from it are needed - but research in a different format than the previous one, which finances small-scale issues through short-term project funding and excludes all systematic basic work as not application-related.** Population protection needs a system update - and so does research aimed at strengthening it.

### Lesson to learn

- There is no research centre in Germany or anywhere else in the world that can adequately address the questions outlined here, which are far from exhaustive. Authorities and organisations can at best address parts of the fundamental questions mentioned here, but an integrated overall view cannot be expected from them in any case. **So why does such a research centre not exist, the costs of which need no mention in comparison to the benefits?**
- According to current estimates, the costs of the pandemic will clearly exceed the sum of 1 trillion € (in my opinion, a multiple can be assumed, although far-reaching compensation effects are to be expected, which will also make the calculation very difficult for economists). Against this background, this proposal is to be evaluated, which promises a **very high contribution to more efficient and also sustainably more effective prevention and management of complex situations at comparatively low costs very quickly and without fundamental changes in the proven federal architecture.** It creates a foundation that complements the reforms of the past two decades for a modern new approach to protecting the population in the face of increasingly complex crises and disasters, while integrating existing structures.

A concept for a "Research Centre for Resilience and Population Protection" is outlined below.

## 7. Concept for a “Research Centre for Resilience and Population Protection”

Proposal for strengthening the integration of preventive civil, disaster and crisis protection and management as well as the overall societal prevention and management competencies for complex crises and disasters by establishing a base-financed, interdisciplinary “National Research Centre for Resilience and Population Protection”.

The concept outlined here is designed in a way that it may be accepted by and allow for consensus across different parties and stakeholders. Neutrality is a second imperative because trust is the most important resource of a modern society. Therefore, an independent institution is envisaged, which however, seeks and promotes cooperation with relevant actors (ministries, authorities and organisations, the private sector, networking with further research competences, both nationally and internationally). The concept also aims for international visibility. Although the challenges are omnipresent, so far there is no research centre anywhere in the world that comes close to being able to address the array of questions related to the enormous damage potential. While numerous institutions, many of which are state-funded, have specialised in climate change research and new ones have been established solely for this purpose, and thousands of scientists worldwide compile the current state of research in the IPCC and process it for policy advice, there is none of this in relation to complex crises and disasters. **To initiate such a centre in Germany would be a milestone with international impact.** From here, humanitarian and diplomatically relevant orientation knowledge could be sent out into the world during the next pandemic, which is so essential in the current situation.

The research centre’s objective is to continuously bring together the entire breadth of research relevant to population protection on the various topics, to identify further research needs on this basis, to advise the BMBF (Federal Ministry of Education and Research) and the EU on corresponding research programmes and to conduct its own research on cross-cutting topics, developments and complex issues. Under this umbrella, national and international developments would also be analysed and, accordingly, e.g. the SFDRR Platform at the BBK (German Federal Agency for Population protection and Disaster Assistance) could be advised on strategy development, for example on the further integration of national into European and international processes (especially SFDRR, but also on other global agendas such as the Paris Agreement or the Sustainable Development Agenda, SDG).



The tasks of the research centre include

- The preparation of status reports (similar to the IPCC on climate change, summarising the state of research on the topics listed below).
- Identifying research needs, advising funding bodies such as BMBF, foundations, etc.
- Conduct own research (self-financed and externally financed) basic research and application-oriented research, "quick-response", resilience, crisis and disaster research
- Definition of protection goals
- Design of citizens' dialogues and forums
- Organisation and implementation of high-profile events involving politics and the public to create visibility for the topic
- Communication work towards the public and media before, during and after crises and disasters
- Educational offers in the context of school and adult education: development of curricula, lectures, courses ("Train the Trainer") etc.
- Scenario development
- Preparation of risk, hazard and resilience analyses
- Preparation of a "National Resilience Report" (every 1-2 years), "Scientific - Advisory Board".
- Advising politics, administrations, authorities, (aid) organisations, business, media and the public, etc.
- Advising the National Sendai Focal Point at the BBK
- Fellowship programme: hosting of up to 10 international experts at any given time at the research centre for a period of 1-6 months to optimise international exchange and mutual learning.
- International "think tank" - advising international organisations and for shaping international policy processes e.g. on the UN Sustainable Development Goals (SDGs), the UN-Sendai Framework (SFDRR) and the Paris Agreement.

## Thematic fields/focus areas of the centre

### 1. Information and resources

The long-known information and data gap must be closed. Research financed on a permanent basis and with appropriate resources can gradually close this gap, keep information up to date and generate innovative solutions for optimised information and data management, also in the course of international agreements (SFDRR).

### 2. Analysis of risks, hazards and resilience, scenarios and protection goals

In the revision of the Population protection and Disaster Assistance Act (*Zivilschutz- und Katastrophenhilfegesetz, ZSKG*) of 2 April 2009, §18 legally stipulated a nationwide risk analysis by the federal government together with the Länder. Especially in the first six months of the Coronavirus pandemic, there was a lack of orientation knowledge and concrete protection goals everywhere. Scenarios (most commonly worst-case, business as usual, best-case scenarios) are an established and simple means of concretising uncertain futures and thus serve as starting point for more differentiated preparations for possible courses of events. Scenarios form the basis for the risk analysis method developed by the BBK; however, they are also suitable for businesses, schools or even households.

### 3. Climate change impacts

The complex consequences of climate change extend far beyond meteorological events. Promoting societal resilience to climate change impacts is an unparalleled task of this century and requires the bundling of competencies to an even greater extent than has been the case to date. A specific research division should be dedicated to this central challenge.

### 4 Vulnerabilities and CRITIS

This research division builds up much-needed competence for the differentiated, again scenario-specific assessment of vulnerabilities. Only within the framework of a base- and permanently financed research activity can it be possible to monitor the constantly changing vulnerability and to propose interdepartmental options for action and measures to policy-makers.

## ***5 Social change and social cohesion***

Individualisation, demographic change, changes in the world of work, digitalisation, globalisation, migration and the erosion of traditional role models are changing the foundations of social cohesion as a central resource for resilience. There are shifts in social conflict structures and concerning the willingness to actively contribute to the formation of political opinion. Understanding these dynamics is central to answering questions about societal resilience.

## ***6. Voluntary help, voluntary work and motivation of helpers***

Volunteering has a long tradition in Germany and is the main pillar for the protection of the population. In the course of changing social values, but also due to increased qualification requirements and multiple workloads, forms of engagement are increasingly competing with work, family and hobbies. The dynamics of change require constant further development of efforts to preserve this essential resource.

## ***7. Self-protection and self-help capacity***

In recent debates, much attention has been paid to the question of self-protection and self-help capacity, which is judged to be highly deficient by a number of relevant studies. Against the backdrop of dynamically changing social conditions, we need to continuously examine which measures contribute to strengthening this central resilience component (for example in the area of school or adult education) and which other influences positively and negatively affect self-help abilities.

## ***8. Communication and warning***

Communication is a prerequisite for social cohesion, which in turn is the most important resource of population protection. In the 21st century, risk, crisis and disaster communication follows a script less than ever before: It requires not only coherent communication strategies but even more so competent communicators who are able to discuss risks in a dialogue with a highly heterogeneous population on the one hand and no less heterogeneous professional stakeholders on the other hand, and who are accordingly able to communicate necessary measures during crisis or disaster. There is a need for correspondingly differentiated research and process-oriented expertise that can advise in this regard during an ongoing crisis, again oriented towards scenarios.

## 9 Resilience and the law

Whether climate protection or protection of the population, every social crisis also places new demands on the law. Resilience implies that the legal framework also develops according to the changing challenges. For example, the Coronavirus pandemic has raised the question of whether a more comprehensive legal framework is needed for civil national emergencies and crises. In the research division on resilience and law, all questions arising from the demands of crisis and disaster prevention and optimised management are dealt with. It further asks what room for manoeuvre the current law allows, where there is a need for adaptation and how this can be implemented legislatively.

## 10. Behaviour in crises and disasters

Behavioural patterns play a decisive role in maintaining or quickly restoring the vital functions of a society in crises and disasters. It is particularly important that human behaviour (including that of “professionals”) in crises and disasters changes over time. Strangely enough, knowledge about human behaviour in crises and disasters in Germany has hardly been studied in the recent past and especially processed for the needs of disaster management or psychosocial emergency care.

## 11. Lessons to learn, lessons learned

A constructive approach to errors in the sense of a “culture of error-friendliness” can, according to the broad state of research, lead to efficient and sustainable learning from mistakes. New organisational forms of such learning processes are therefore necessary, which must be developed in close and trust-based cooperation between external, neutral research and stakeholders from authorities and organisations with security tasks (*Behörden und Organisationen mit Sicherheitsaufgaben, BOS*). In Germany, unlike in the USA, for example, there are practically no funding opportunities for “quick response research”, which makes an immediate analysis of an ongoing crisis or disaster very difficult. Lessons learned studies, however, do not improve the situation. The transfer of lessons learned findings into operational practice has been completely underestimated so far. This transfer would be the focus of this field of work.

## 12. Foreign disaster relief and humanitarian aid

In the future, crises and disasters will increasingly have cross-border effects and require international cooperation even more than before. So far, engagement in the context of foreign disaster relief or humanitarian aid has not received any significant cross-cutting attention. An integrated approach does not yet exist. Such a framework must be developed in accordance with the SFDRR, harmonised with the national strategy and corresponding concerted, efficient measures (coherence), which are to be developed, also with regard to synergies with, for example, the Sustainable Development Goals (SDGs) or the Paris Agreement on climate change.

## 13. Development and testing (real lab, living lab)

Both THW (Federal Agency for Technical Relief) and BBK (German Federal Agency for Population protection and Disaster Assistance) are planning or in the process of setting up real laboratories in which concrete solutions can be tested and new development ideas generated. Complementary to these real laboratories, the research division “Development and testing” analyses developments relevant to population protection as a whole (horizon scanning, national and global). In close cooperation with stakeholders from authorities and organisations with security tasks (*Behörden und Organisationen mit Sicherheitsaufgaben, BOS*) solutions and concepts are further developed and, if desired, communicated to the institutions for further specification.

## 14 Operational

The “Operational perspective” includes aspects such as the improvement of competences for situational awareness. It identifies scenario-related optimisation potentials for crisis management, leadership concerning operational tactics and inter-organisational cooperation and collaboration of organised professional forces with the many other forms of engagement, etc. This research division would be the non-governmental counterpart to the BBK's Joint Centre of Competence, oriented towards research, development and consulting.

All societal forces are required to meet the challenges posed by complex hazards, crises and disasters. These forces can only be mobilised through strong involvement of and close cooperation with civil society actors.

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