



The  
Federal Government

# National Voluntary Report Germany

Midterm Review of the Implementation of the Sendai Framework  
for Disaster Risk Reduction 2015–2030





# Table of Contents

Table of Contents .....	3
List of Acronyms and Abbreviations .....	4
<b>1 Highlights and Introduction .....</b>	<b>6</b>
<b>2 Methodology and Process .....</b>	<b>6</b>
<b>3 Retrospective Review 2015–2022 .....</b>	<b>7</b>
3.1 Outcome and Goal .....	8
3.2 Risk Assessment, Information and Understanding .....	9
3.2.1 Data collection, research and science .....	9
3.2.2 Methods, models and instruments .....	14
3.2.3 Risk communication/raising public awareness .....	16
3.2.4 Education .....	18
3.3 Risk Governance and Management .....	18
3.3.1 Institutional mechanisms .....	19
3.3.2 Policies .....	20
3.3.3 Legislation .....	23
3.3.4 Standardisation .....	23
3.4 Investment in Risk Reduction and Resilience .....	25
3.4.1 Funding .....	25
3.4.2 Topic-specific instruments for disaster risk reduction and resilience .....	29
3.5 Disaster Preparedness, Disaster Response and “Build Back Better” .....	32
3.5.1 Early warning and situational awareness .....	32
3.5.2 Training and equipment .....	36
3.5.3 Disaster preparedness .....	38
3.5.4 Disaster response and “build back better” .....	39
3.6 International Cooperation .....	40
3.7 Collaboration, Partnership and Cooperation .....	43
3.8 Progress in Achieving the Targets of the Sendai Framework .....	44
<b>4 Context Shifts, and New and Emerging Issues .....</b>	<b>45</b>
<b>5 Prospective Review (to 2030 and Beyond) .....</b>	<b>46</b>
5.1 Outcome and Goal .....	46
5.2 Risk Assessment, Information and Understanding .....	46
5.3 Risk Governance and Management .....	47
5.4 Investment in Risk Reduction and Resilience .....	48
5.5 Disaster Preparedness, Disaster Response and “Build Back Better” .....	49
5.6 International Cooperation .....	50
5.7 Collaboration, Partnership and Cooperation .....	54
Annex and List of References .....	55
Imprint .....	59

## List of Acronyms and Abbreviations

AA	Federal Foreign Office
AKV	Working Group V “Fire Service Matters, Rescue Services, Civil Protection and Civil Defence” of the Standing Conference of Ministers of the Interior and Senators of the Länder
AKNZ	Academy for Crisis Management, Emergency Planning and Civil Protection
ANK	Action Programme Natural Climate Protection
ARC	African Risk Capacity
ASB	Workers’ Samaritan Federation
AufbhV 2021	Reconstruction Aid Ordinance 2021
BABZ	Federal Academy for Civil Protection and Civil Defence
BAW	Federal Waterways Engineering and Research Institute
BBK	Federal Office of Civil Protection and Disaster Assistance
BBSR	Federal Institute for Research on Building, Urban Affairs and Spatial Development
BfG	Federal Institute of Hydrology
BfS	Federal Office for Radiation Protection
BGR	Federal Institute for Geosciences and Natural Resources
BKG	Federal Agency for Cartography and Geodesy
BKM	Federal Government Commissioner for Culture and the Media
BMBF	Federal Ministry of Education and Research
BMDV	Federal Ministry for Digital and Transport
BMEL	Federal Ministry for Food and Agriculture
BMG	Federal Ministry of Health
BMI	Federal Ministry of the Interior and Community
BMJ	Federal Ministry of Justice
BMUV	Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection
BMWK	Federal Ministry for Economic Affairs and Climate Action
BMWSB	Federal Ministry for Housing, Urban Development and Building
BSH	Federal Maritime and Hydrographic Agency
CDC	Climate Data Center
CEDIM	Center for Disaster Management and Risk Reduction Technology
CEMS	Copernicus Emergency Management Service
CIP	Critical Infrastructure Protection
Cop4Sen	Determination and monitoring of Sendai indicators with satellite remote sensing/ Copernicus in Germany
CTBTO	Comprehensive Nuclear-Test-Ban Treaty Organization
DAS	German Strategy for Adaptation to Climate Change
DaViS	Data Analysis and Visualisation
DESTATIS	Federal Statistical Office
DFD	German Remote Sensing Data Center
DIN	Standard set by the German Institute for Standardization
DLR	German Aerospace Center
DLRG	Deutsche Lebens-Rettungs-Gesellschaft
DLZ	Service Centre
DRK	German Red Cross
DWD	German Weather Service
EU	European Union
ExWoSt	Building for the Future and the research programme Experimental Housing and Urban Development
FAO	Food and Agriculture Organization
G7	Group of Seven
G20+	Group of Twenty and additional partners
GDV	General Association of the German Insurance Industry

GeKoB	German Joint Competence Center for Civil Protection
GFMC	Global Fire Monitoring Center
GFZ	German Research Centre for Geosciences
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
GMLZ	Joint Information and Situation Centre
HDP	Humanitarian-Development-Peace
HLfGP	Hessian State Office for Health and Care
HLNUG	Hessian Agency for Nature Conservation, Environment and Geology
HWS	Heat warning system
IGP	InsuResilience Global Partnership
IMAG Sendai	Interministerial Working Group for the Implementation of the Sendai Framework
IMIS	Integrated Measuring and Information System
IMK	Standing Conference of Ministers of the Interior and Senators of the Länder
JUH	Johanniter Unfallhilfe
KAEP	Hospital Alarm and Emergency Planning Manual
KaVoMa	Disaster Risk Reduction and Disaster Management
KIT	Karlsruhe Institute of Technology
KomPass	Competence Centre for Climate Impacts and Adaptation
KRONER	Knowledge Database on EuROpeaN Climate ExtRemes
KvdB	Federal Arts Administration
KZV	Civil Defence Concept
LHP	Länderübergreifendes Hochwasserportal
MHD	Malteser Hilfsdienst
MoWaS	Modular Warning System
NATO	North Atlantic Treaty Organization
NGO	Non-governmental organisation
NINA	Notfall-Informations- und Nachrichten-App
NKS	National Focal Point for the Sendai Framework Germany
ODA	Official development assistance
OECD	Organisation for Economic Co-Operation and Development
RKI	Robert Koch Institute
RLZ	Federal Radiological Situation Centre
RWBs	Regional weather advisory offices
SDGs	Sustainable Development Goals
SFDRR	Sendai Framework for Disaster Risk Reduction
SFM	Sendai Framework Monitor
SiLK	Security Guide for Cultural Assets
SKD	Satellite-Based Crisis and Situation Service
StMI	Bavarian State Ministry of the Interior, for Sport and Integration
THW	German Federal Agency for Technical Relief
UBA	Federal Environment Agency
UCPM	European Union Civil Protection Mechanism
UN	United Nations
UNDRR	United Nations Office for Disaster Risk Reduction
V20	Vulnerable Twenty
VBZ	Forecast and Advisory Centre
WBI	Wildland Fire Hazard Index
WMO	World Meteorological Organization
ZKI	Center for Satellite-Based Crisis Information
ZSKG	Civil Defence and Disaster Assistance Act

# 1 Highlights and Introduction

This report provides an overview of (i) key elements of Germany's disaster risk management system, (ii) trends and milestones since the adoption of the Sendai Framework for Disaster Risk Reduction (SFDRR) in 2015 and other global agendas and (iii) major commitments and recommendations for measures up until 2030.

The report focuses on governmental structures and institutions, and draws on a variety of publicly available information sources and documents.

The synergies that result from the implementation and monitoring process of the SFDRR in Germany and other related international processes by the United Nations (UN), the European Union (EU),

the North Atlantic Treaty Organization (NATO), the Organisation for Economic Co-operation and Development (OECD) and others form the basis for this report.

The descriptions in the report are of a qualitative nature, refer to the national and sub-national level, follow a multi-hazard approach and do not claim to be complete.

The midterm review will provide input for the baseline to monitor the progress of implementing the German Strategy for Strengthening Resilience to Disasters (German Resilience Strategy), which is the main guiding document for the cross-sectoral implementation of the SFDRR in Germany.

## 2 Methodology and Process

The development of this report was coordinated by the German National Focal Point for the Sendai Framework (NKS) at the Federal Office of Civil Protection and Disaster Assistance (BBK). Contributions have been provided by all ministries of the Federal Government. The federal states (the Länder), through the designated working group of the Standing Conference of Ministers of the Interior and Senators of the Länder (Ständige Konferenz der Innenminister und -senatoren der Länder, IMK), were invited to contribute and to complement the report with examples of their work. Examples were provided by Hesse and the Free State of Bavaria.

### **The process included:**

1. the development of a concept by the NKS and its clearance by the Interministerial Working Group for the Implementation of the Sendai Framework (IMAG Sendai)
2. informing the Länder of the process during the 102th meeting of the IMK's Working Group V "Fire Service Matters, Rescue Services, Civil Protection and Civil Defence" (Arbeitskreis V "Feuerwehrangelegenheiten, Rettungswesen, Katastrophenschutz und Zivile Verteidigung", AKV)

3. the consolidation of input by the NKS based on key reports, official statements and contributions by the Federal Government and the Länder
4. finalisation of the report by the NKS and clearance by the Federal Government and the Länder through their designated ministries/departments/working groups.

While the midterm review process did not include direct consultations with non-state stakeholders, the content of this report is based on various sources which have been developed with stakeholder consultations, and so to a certain extent include technical recommendations by non-state stakeholders.

### **The content of this report is mainly based on:**

- official information from ministries and public authorities (in some cases involving stakeholder consultations)
- official progress reports of the Federal Government on related international processes (e.g. Sustainable Development Goals, SDGs)
- information provided or gathered for the Sendai Framework Monitor (SFM)

- the German Resilience Strategy (includes consultations with non-state actors)
- the Coalition Agreement of the Federal Government
- the official progress report by the Federal Government to the EU in 2018 on assessing risk management capabilities in the EU
- content of the national website on disaster risk management **KatRiMa** (includes input by non-state stakeholders)
- written input (e.g. questionnaires and reports) on several other related processes by organisations such as the NATO, the OECD and the EU
- conceptual papers on the reorientation of civil protection (includes consultations with non-state stakeholders)
- lessons learned/recommendations from final reports (partly based on stakeholder consultations) on past disasters, particularly in relation to the 2021 flood disaster and Covid-19.

### 3 Retrospective Review 2015–2022

The implementation of the SFDRR in Germany is understood in the context that disaster risk management measures have been established for a long time and the responsible institutions are well positioned overall. For the national implementation of the SFDRR, the roles and responsibilities for tasks relating to disaster management are defined by law and organised at the federal level.

The implementation of the SFDRR addresses all policy areas, since all sectors take on responsibilities in risk and crisis management. These are anchored in different ministries in Germany. Furthermore, competencies in civil protection and disaster management are shared across levels in the German federal system. Civil protection and disaster management in Germany are implemented by a multilayered and integrated assistance system that is based on the basic principle of subsidiarity and is anchored at all administrative levels. A legal distinction is made between civil protection (in times of war), which is the responsibility of the Federal Government, and disaster management (in peacetime), which is the responsibility of the Länder. Civil protection includes civil defence, which, as part of overall defence, includes important tasks involved in maintaining state and government functions, maintaining security and order, supporting the armed forces, and protecting the civilian population and cultural assets. The Länder's responsibilities also include fire protection, technical assistance and rescue services, which are included within the broader understanding of civil protection.

Despite the different responsibilities between the Länder and Federal Government, there are no duplicate structures for civil protection and disaster management in Germany. Instead, the focus is on a double benefit: in civil protection, the Federal Government also uses the disaster management structures. The operational basis of the integrated assistance system is formed by the municipalities, cities and districts with their fire brigades and the participating relief organisations, which together provide more than 1.7 million trained volunteers for this system. The relief organisations involved in the integrated assistance system are: Workers' Samaritan Federation (ASB), Deutsche Lebens-Rettungs-Gesellschaft (DLRG), German Red Cross (DRK), Johanniter-Unfall-Hilfe (JUH) and Malteser Hilfsdienst (MHD). Civil protection in Germany is supported by numerous partners who work together in the event of a disaster, either supporting the government response or working independently. These include the federal and state police as well as the Bundeswehr.

In addition, national civil protection is increasingly interlinked at European level, at NATO level and at UN level, and is integrated into concrete, structured procedures for cross-border and international disaster relief. At the international level (e.g. in the European/International Climate Protection Initiative and in the EU and NATO), Germany contributes to the implementation of the SFDRR, for example in relation to development cooperation and humanitarian assistance, via the institutionally responsible federal departments.

### 3.1 Outcome and Goal

In recent years, Germany has been hit by unprecedented events and disasters, such as the Covid-19 pandemic, the flood in July 2021 and increased migration, as a result of global climate change and armed conflicts, to name just a few causes. It is therefore not possible to record quantifiable progress in the reduction of disaster risk and the impacts of natural and human-induced hazards. Nevertheless, qualitative progress has of course been made.

The SFDRR and the above-mentioned, and other, hazardous events have had, and continue to have, a significant influence on German society and politics. They have repeatedly shown that Germany will have to position itself better in all areas of disaster risk management in the future and that strengthening resilience is a task for the whole of government and society that requires greater political attention. This applies to civil protection as well as the risk and crisis management measures in all other policy areas.

The SFDRR underscores that sustainable disaster risk management is only possible if all levels, sectors and policy areas work together in close coordination. Awareness of this fact has increased significantly in recent years, leading to the development of the German Resilience Strategy. Progress has thus been made in various areas of disaster risk management in Germany.

#### Achievements

Although the SFDRR is not as well known as, for example, the SDGs and the Paris Agreement, it has led to several important developments in Germany. The SFDRR, as an international framework, is a document that many stakeholders refer to. With its new approach, it has provided fresh ideas and impetus for civil protection and its intersections with other disciplines. This has enabled the mainstreaming of civil protection and the strengthening of resilience to disasters through comprehensive disaster risk management to be advanced as a cross-sectoral issue.

In addition, the SFDRR has further stimulated inter-governmental exchange (bilaterally and at conferences) between German stakeholders and countries in Europe and other regions of the world.

Numerous physical and virtual meetings have taken place to exchange views on SFDRR topics such as opportunities and challenges or individual approaches. The SFDRR has also been used as a vehicle to rethink “old ideas” and to look for new approaches, for example the collection of damage data or the development of a national platform.

Therefore, as part of the adoption of the SFDRR, institutional mechanisms for the implementation, such as the IMAG Sendai (2016) and the NKS (2017), were established. The IMAG Sendai steers the implementation of the SFDRR in Germany, while the NKS is the main contact point for the implementation of the SFDRR in Germany. The NKS coordinates the process from a technical point of view, advises and connects stakeholders, carries out analyses and provides information on the progress of the process as part of public relations work and reporting to the UN.

Since the SFDRR was relatively unknown compared to the other post-2015 agendas in Germany, in addition to the NKS and other governmental actors, German stakeholders from other disaster risk management bodies were also very committed to mainstreaming the SFDRR within Germany. In order to implement the SFDRR, it was necessary to communicate the goals as part of a translation into the national context. The German Resilience Strategy (target E) was therefore developed from 2018 to 2022 with all departments and authorities at federal level under the leadership of the IMAG Sendai and with the support of the NKS. It was adopted on 13 July 2022 (see [3.3.2](#)). In order to support the implementation of the Resilience Strategy and the SFDRR, the German government’s website **KatRiMa** (the name is the German abbreviation for “disaster risk management”) was launched in April 2022 and is maintained by the NKS (see [3.2.3](#)).

#### Challenges

In the implementation of the SFDRR, Germany has had to face several challenges:

**Coping with crisis:** The series of recent hazardous events in Germany, the long-term involvement of personnel in crisis management and the resulting shortage of resources have raised knowledge and awareness among all those involved, but have also caused delays in the implementation process and been a major challenge in recent years.



**Legal responsibilities:** Since competencies and legal responsibilities in civil protection and disaster management are shared across levels in the German federal system, a more comprehensive dialogue process is necessary to advance the implementation of the SFDRR and the German Resilience Strategy.

**Collaboration and finance:** Disaster risk reduction and the strengthening of resilience is a broad approach that is useful in terms of comprehensive solutions but challenging with regard to financial budgeting. The financing of the implementation of the measures in accordance with the SFDRR and the German Resilience Strategy is the responsibility of the stakeholders involved and the respective ministries within the scope of their respective competences and subject to available budgetary resources. Germany is currently in the transition from sectoral thinking to interdisciplinary cooperation, across sectors and levels.

**Visibility of the SFDRR:** Since the adoption of the SFDRR, raising awareness and creating an understanding of comprehensive disaster risk management have particularly been a challenge. However, awareness of this has increased significantly in recent years.

**Terminology of national and international approaches:** The German terminology of disaster risk management differs from the one used internationally. A 1:1 translation is only possible to a certain extent. This is partly due to the legal terminology used in disaster management. Furthermore, there are also differences between the individual organisations, such as relief organisations and the German armed forces. Therefore, a continuous translation of the terminology in the corresponding context will remain necessary in the long term.

**Data:** Within Germany, a lot of data that is relevant to the implementation of the SFDRR is collected by a wide variety of organisations at several levels. However, this data is not brought together in one place and is therefore not fully accessible by the state. Germany consequently only reports on selected indicators (E, F, G) in the online Sendai Framework Monitor (SFM). The main reason for this is that data on the other indicators is not collected in the desired form in Germany and is consequently not yet available. For example, in the event of disruption

of electricity supply, only the failure frequency is measured, but not the duration of the disruption nor the number of people or households affected. Furthermore, these incidents are also not correlated with a possible cause, such as a storm or other hazard. Nevertheless, there are different methodical approaches to collecting this data, with benefits for the German disaster risk management system.

## 3.2 Risk Assessment, Information and Understanding

In order to be able to assess disaster risks, it is essential to ensure that all actors have knowledge and understanding of the possible effects and interactions of hazards. This also requires the development and use of methods that can be used to collect, visualise and analyse information and data. At the same time, risk communication must raise awareness of risks among the public and among all those responsible, for example in supply facilities and in public administration.

### 3.2.1 Data collection, research and science

Reliable data and up-to-date information are the central starting point for the assessment and management of disaster risks. Data and information relating to disaster risks is collected in Germany by various state actors at various administrative levels in accordance with the federal state structure and the corresponding (legal) responsibilities.

However, official bodies' recording and analysis of data about disasters are only partially standardised. Currently, sharing of data between governmental authorities is challenging, due to a lack of standards and collaboration formats. The development and exchange of standardised datasets between the Federal Government and state governments and with and between non-governmental actors, especially scientific institutions, should be further promoted. It is also important to effectively involve the local authorities in the decision-making and implementation processes.

Efforts are currently being made in many federal departments and/or their subordinate authorities to collect data and make it available in various ways. At the current time, several governmental organisations are collecting data or developing methodological approaches for the collection. This is particularly noteworthy in the context of comprehensive disaster risk management. The federal authorities listed below represent a selection of bodies that collect and/or analyse information and geodata relating to disaster risks as part of their (legal) responsibilities:

### **1. Federal Office of Civil Protection and Disaster Assistance (BBK)**

The BBK is responsible for anchoring civil protection as the fourth pillar in the national security system alongside the police, the armed forces and emergency services. This includes tasks in the areas of self-protection, warning the public, protective structures, civil protection in accordance with the German Civil Defence and Disaster Assistance Act (Gesetz über den Zivilschutz und die Katastrophenhilfe des Bundes, ZSKG), measures to protect health and measures to protect cultural assets. Since 2015, the BBK has initiated and implemented various approaches to data collection and processing. There are a few aspirations in particular that should be emphasised here:

**NKS:** The office of the NKS is based at the BBK. With regard to the reporting obligations under the SFDRR, the NKS has engaged in intensive dialogue with other disaster risk management institutions and the Federal Statistical Office since it was founded in 2017 in order to obtain an overview of the data situation and develop approaches for improving it.

**DaViS:** The Data Analysis and Visualisation (DaViS) team is a highly specialised, interdisciplinary group of experts that was established at the BBK in 2019. DaViS analyses and visualises data for decision-making in all phases of crisis and risk management. To that end, DaViS:

- applies methods and procedures from the field of data science. Spatial analyses of geodata are a particular focus.
- advises and trains all stakeholders (federal, state or local agencies; relief organisations; international development cooperation bodies) in civil

protection. DaViS offers well-researched and individually tailored advice on the potential of geoinformation in crisis and risk management.

- supports the operational units of the BBK and other decision-makers (e.g. crisis management teams) in presenting and analysing the situation.

In the recent past, DaViS created maps and analyses for the Federal Government's coronavirus crisis team. DaViS also provided support in dealing with the flood disaster in July 2021 by providing analyses, maps and applications for the assessment of flood damage and by aiding the German Aerospace Center (DLR) in providing aerial imagery.<sup>1</sup>

**Remote sensing in support of the SFDRR:** The BBK champions the use of remote sensing and geoinformation for the SFDRR. Since 2018, it has focused in particular on monitoring. With the project "**Determination and monitoring of Sendai indicators with satellite remote sensing/Copernicus in Germany**" (Cop4Sen), the National Focal Point for the Copernicus Emergency Management Service (CEMS), in close coordination with the NKS, examined how satellite remote sensing and the European Copernicus programme can be used for reporting on the SFDRR for disaster risk reduction. A feasibility study examined which indicators of the SFDRR can be measured with the help of satellite remote sensing and whether data gaps can be closed in this way. The project showed that satellite remote sensing offers great potential for SFDRR reporting, especially when combined with other statistical and spatial data. Remote sensing can especially support the monitoring for SFDRR targets B, C and D, as well as the monitoring of specific hazards and the spatial extent of a disaster.<sup>2</sup> In addition to the Cop4Sen project, the National Focal Point for the CEMS at BBK is promoting the use of remote sensing technologies for the SFDRR within national and international networks, such as the Group on Earth Observation, and is collaborating with scientific institutions to enhance the usability of remote sensing/Copernicus data for the identification of disaster loss data.

### **2. Federal Statistical Office (DESTATIS)**

DESTATIS has the task of providing and disseminating statistical information. This information is available to everyone: politicians, government agencies,

businesses and citizens. DESTATIS keeps statistics on the following areas, among others:<sup>3</sup>

- society and state (e.g. population, families, ways of life, income)
- the economy and the environment (e.g. labour market, earnings and labour costs)
- individual economic sectors (e.g. energy, agriculture and forestry, domestic trade)
- international affairs (worldwide statistics, official development assistance [ODA] data from the OECD on disaster risk management, demographics, education, health).

DESTATIS is also responsible for reporting on the SDGs set by the 2030 Agenda and has been making the data freely accessible on the website [www.sdg-INDICATORS.de](http://www.sdg-INDICATORS.de) since 2018. Unfortunately, DESTATIS does not collect the data required for the monitoring of the implementation of the SFDRR.

### **3. Deutscher Wetterdienst (DWD)**

The DWD is the German Meteorological Service and is responsible for the provision of meteorological and climatological services for the general public and individual customers and users in Germany.<sup>4</sup> Its tasks include compiling information on the subject of weather and climate, issuing weather warnings for the public, climate watch advisories (early warning advisories for the next two to five weeks) and weather and climate forecasts in various time ranges, including seasonal and decadal forecasts, monitoring the present and past climate including climatological assessment reports of disasters, collecting weather and climate data from various sources (stations, satellites, numerical models) on a national and global level, operating weather stations and recording the meteorological and climatological interaction between the atmosphere and other areas of the environment.<sup>5</sup> In order to fulfil its statutory tasks, the DWD has one of the most extensive monitoring networks in the world. The data obtained is the basis for all subsequent processes in numerical weather forecasting, warning management, meteorological advice for air and sea shipping and services in the field of climate and the environment. The measurements of the DWD are divided into ground observation, atmosphere observation and monitoring of radioactivity in the atmosphere.<sup>6</sup> In order to provide weather and climate forecasts as a prerequisite for

early warnings, international exchange of relevant data is key. While the World Meteorological Organization (WMO) has agreed a unified data policy (Res. 1, WMO Cg-Ext [2021]), sustaining observational networks is a challenge for many countries. The Systematic Observations Finance Facility (SOFF), also supported by Germany, will address the deficits.<sup>7</sup> Projects such as the DWD Knowledge Database on EuROpean Climate ExtRemes (KRONER) (see [7 3.2.2](#)) contribute to documenting information on extreme weather events and the damage they cause in Europe using internationally standardised identifiers (WMO Initiative UUIDs = unique universal identifiers) as defined by the WMO. The DWD hosts the WMO Regional Climate Centre Network for Europe (WMO RA VI Region), which provides climate data collection and climate monitoring services and long-range forecasts for the whole of Europe to support other national meteorological and hydrological services with climate information.

### **4. Federal Agency for Cartography and Geodesy (BKG)**

The BKG is Germany's central authority for geodesy and cartography/geoinformation. In the event of an emergency or crisis, the BKG supplies Federal Government agencies quickly and reliably with up-to-date geodata for the location, for example with satellite and aerial photographs. Geographic information is often widely distributed across the data pools of different organisations. The experts at the BKG analyse this information, collect it together and enrich the images according to the specific crisis situation. For this purpose, the service point for remote sensing, the Service Centre (Dienstleistungszentrum, DLZ) and the Satellite-Based Crisis and Situation Service (Satellitengestützter Krisen- und Lagedienst, SKD) were set up in the BKG. The BKG also provides digital atlases for the natural phenomena of heat, drought, flooding and forest fires, which are valuable tools for assessing disaster risks and provide support in combating them in an emergency.

Since 2015, the BKG has supported the Federal Government in recent crises by (i) mapping refugee flows in 2015, (ii) analysing satellite imagery during the 2021 flood disaster in the Ahr valley and (iii) creating maps with the locations of vaccination centres during the Covid-19 pandemic.<sup>8</sup>

## **5. Federal Environment Agency (UBA)**

The UBA's work centres around gathering data concerning the state of the environment, investigating the relevant interrelationships and making projections, and providing federal bodies such as the Ministry of the Environment with policy advice. The UBA's overarching mission is early detection of environmental risks and threats so that Germany can assess them and find viable solutions in a timely manner. It does this by conducting research in its own labs and by outsourcing research to scientific institutions in Germany as well as abroad.<sup>9</sup> In order to fulfil its tasks, the UBA operates its own air measurement network with a total of seven measurement stations distributed throughout Germany outside of metropolitan areas and cities.

## **6. Robert Koch Institute (RKI)**

The RKI is Germany's public health institute. The main pillars of the RKI's work are research that provides data for decision-making, and independent, reliable advice to the expert public, especially the public health service and politicians in Germany. As part of these tasks, the RKI collects a lot of data and makes it available to the public, in part both in the form of raw data and various reports. For example, during the Covid-19 pandemic the RKI published a situation report on Covid-19 on a daily basis in German and English as well as an interactive graphical overview of current trends and developments relating to Covid-19, and was advising the Federal Government.<sup>10</sup> The Covid-19 dashboard deserves particular mention here (see [↗ 3.2.2](#)).<sup>11</sup>

## **7. Federal Institute for Geosciences and Natural Resources (BGR)**

The BGR is the Federal Government's central research and advisory body for geosciences and natural resources. It provides private and public services. The BGR helps advance geological knowledge on a national and international level. In cooperation with the geological services of the Länder and Europe, it provides geological information, maps, standards and methods. Within the framework of national, European (EuroGeoSurveys) and international initiatives,

the BGR contributes to the development of the geodata infrastructure.<sup>12, 13</sup> With its interactive map application Geoviewer, the BGR also offers the option of viewing and combining the various geodata services, including data gained from their risk analysis, e.g. of earthquake hazards, in several specialist areas.<sup>14</sup>

In addition to the above-mentioned selection of federal authorities and institutions funded by the Federal Government, there are also a large number of authorities at the level of the Länder that collect and/or analyse information and geodata relating to disaster risks as part of their statutory tasks. The specialist authorities of the Länder are in close professional contact with the federal authorities. A selection of Länder authorities is listed below:

The **Hessian Agency for Nature Conservation, Environment and Geology (HLNUG)** is a technical-scientific environmental authority in the portfolio of the Hessian Ministry for the Environment, Climate Protection, Agriculture and Consumer Protection. The HLNUG collects, processes, evaluates and publishes nature conservation data as well as data and information on the state of and changes in the environment. The data is used to draw up models, recommendations for action and expert reports and, on this basis, to provide scientific, technical and practical advice to ministries and other government bodies, as well as to inform experts and the public.

The **Hessian Office for Health and Care (HLfGP)**, which was newly founded on 1 January 2023, has the task of protecting the public against transmissible infectious diseases, ensuring uniform standards in public health, medical civil protection and drug safety, examining and ensuring the qualification of graduates of academic and non-academic training courses in healthcare, overseeing care and nursing, and collecting and processing health data and making it available for scientific evaluation.

In addition, there are institutions in all sectors, including the **scientific community** and the **private sector**, that collect and/or analyse information and geodata relating to disaster risks. The ones mentioned below are just a few examples.

### **General Association of the German Insurance Industry (GDV)**

The GDV is the umbrella organisation for private insurers in Germany. With over 433 million insurance contracts, around 460 members ensure comprehensive risk protection and cover for private households as well as for industry, commerce and public institutions.<sup>15</sup> The products of the insurance industry are based on data collection and analysis of potential risks. The GDV's annual natural hazards report has been providing insights into the data since 2012. The report details the damage caused to buildings, trade, industry and vehicles by natural hazards.<sup>16</sup>

### **Helmholtz Association**

The Helmholtz Association consists of 18 scientific-technical and medical-biological research centres. It is the largest scientific organisation in Germany. The Helmholtz Association's research is divided into six areas: Energy; Earth and Environment; Health; Information; Matter; and Aeronautics, Space and Transport. The 18 research centres include the Karlsruhe Institute of Technology (KIT), which hosts the Center for Disaster Management and Risk Reduction Technology (CEDIM) and the GeoForschungs-Zentrum (GFZ).<sup>17</sup>

### **Center for Disaster Management and Risk Reduction Technology (CEDIM)**

CEDIM is an interdisciplinary research facility in the field of disaster management, which was founded in 2002. CEDIM was set up to improve understanding of natural and anthropogenic risks, and allow them to be identified earlier and managed better. The aim of CEDIM is to produce knowledge and to develop technologies and tools for the areas of risk assessment, analysis, communication and management. It uses synergies between the participating scientific institutions

and disaster control facilities at international, federal, state and local level. CEDIM is currently researching the risks of the socially relevant fields of energy, mobility and information in the following projects, among others:

- Early Warning of Hazardous Weather<sup>18</sup>
- Crowdsourcing – Using Social Media for Rapid Damage Assessment<sup>19</sup>
- Indicator System for Assessing the Hazard to Infrastructure against Extreme Flooding<sup>20</sup>
- Risks toward 2025: Disaster Risk and Resilience Assessment of Renewable and Traditional Systems<sup>21</sup>
- Rapid Earthquake Impact Modeling<sup>22</sup>

CEDIM has been providing data and general analyses in general via its website and Risklayer Explorer (see [↗ 3.2.3](#)) since 2021.

### **Center for Satellite-Based Crisis Information (ZKI)**

The Center for Satellite-Based Crisis Information (ZKI) is an institution of the German Remote Sensing Data Center (DFD) at the DLR in Oberpfaffenhofen near Munich. At ZKI, earth observation data, such as satellite or aerial imagery, and geodata are acquired and analysed in order to generate up-to-date situational awareness information before, during or after a disaster or major incident. All crisis information is produced according to the ZKI users' requirements and provided for instance as maps, GeoPDFs, web services or text dossiers. The main national and international user groups are political decision-makers, situation centres and relief organisations. Many ZKI products are published on the website. In addition, the ZKI provides consultancy services, technology transfer, training and exercises. The close interweaving of research, development and service is an enormous strength of the ZKI. The ZKI cooperates in the national and international context with various partners from research and industry and has close links with official partners and non-governmental organisations.

### 3.2.2 Methods, models and instruments

The large number of state and non-state actors from different disciplines requires an equally large variety of established methods, models and instruments with which data can be collected, visualised and analysed for a better understanding of disaster risks. A selection of these methods, models and instruments for disaster risk management, which have been strengthened or newly developed since 2015, is presented below; the selection focuses on federal activities.

#### Analysis methods

##### **Risk analysis in federal civil protection**

The BBK has developed a nationwide method for carrying out **risk analyses in federal civil protection** (Risikoanalyse im Bevölkerungsschutz Bund), which was also considered in the development of the guidelines for risk assessment as part of an EU community procedure. Since 2012, the Federal Government has been carrying out risk analyses for civil protection in cooperation with the Länder in accordance with the ZSKG. The national risk analysis is drawn up by interdepartmental working groups.

The Federal Government's risk analyses consider hazards and events that the Federal Government would be required to deal with in the framework of its (basic) statutory responsibility. Risks are analysed in a generic, abstract manner. The fictitious scenario that is analysed is based on an assumed "reasonable worst case" effect. The descriptive instrument of national risk analysis thus serves as the cornerstone for adequate risk management. In terms of a holistic approach, the analysis must be supplemented by more specific risk analyses at state and municipal level in their respective areas of responsibility.<sup>23</sup>

Since 2015, there has been a sharper focus on the question "How are we prepared for the event under consideration?" by considering the scenario-relevant capabilities and resources for dealing with the event. In concrete terms, this means, depending on the risk under consideration, different civil protection capabilities and resources are stress-tested with the help of risk analysis up to the threshold of resilience and beyond. This allows a more targeted examination of the performance of the civil protection system in

Germany from a federal perspective. This approach is reflected in the chapters "Results", "Fields of action" and "Federal services" that have been added to subsequent risk analyses following the 2015 report "Release of Radioactive Substances from a Nuclear Power Plant".<sup>24</sup> Since 2015, there have been four Federal Government risk analyses. They considered the following scenarios:

1. release of radioactive substances from a nuclear power plant (2015)
2. release of chemical substances (2016)
3. drought (2018)
4. earthquake (2019).

These reports are publicly accessible and can be downloaded from the German parliament or BBK websites. In 2016, the guide "Risk Analysis for Civil Protection – A Stress Test for General Hazard Prevention and Disaster Management" (Risikoanalyse im Bevölkerungsschutz: Ein Stresstest für die Allgemeine Gefahrenabwehr und den Katastrophenschutz),<sup>25</sup> including resources and the addition of level-specific procedures in the area of risk assessment and risk treatment, was published in German. In addition, an interim evaluation of all of the previous risk analyses was carried out in 2017. In 2021, a compilation of the eight federal risk analyses previously carried out was published. It also shows current developments at national and international level in the field of risk analysis and considers possible future developments.

##### **Climate impact and risk assessment**

In accordance with the Federal Government's mandate as set out in the first progress report of the German Strategy for Adaptation to Climate Change (Deutsche Anpassungsstrategie an den Klimawandel, DAS),<sup>26</sup> published in 2015, an updated, cross-sectoral climate impact and risk assessment was carried out from 2017 to 2021 with the federal authorities' "Climate Change and Adaptation" network (Behördennetzwerk Klimawandel und Anpassung). The assessment was published in 2021 under the title "Climate Impact and Risk Assessment 2021 for Germany" (Klimawirkungs- und Risikoanalyse). It considers the current state of scientific knowledge, the available data and the need for further methodological development and will serve to further develop the DAS and other related processes.<sup>27</sup>

## Websites and databases

In addition to the websites and databases mentioned under [3.2.1](#), there are others in Germany that are for the most part freely accessible and are continuously supplied with new data. A distinction can be made here between those databases that belong to the already mentioned institutes and those that span the Federal Government and Länder governments.

### **RKI: Covid-19 dashboard**

In 2020, during the Covid-19 pandemic, an official geospatial dashboard was developed by the RKI and ESRI Deutschland GmbH. **The Covid-19 dashboard**<sup>28</sup> presents the data on confirmed Covid-19 cases that were recorded nationwide in a standardised manner and transmitted to the RKI. The dashboard displays Covid-19 incidences. The population figures used for the incidence calculation are provided by the state statistical offices. In the presentation of new infections per day, the reporting date is used, i.e. the date on which the health office became aware of the case and electronically recorded it as such.<sup>29</sup>

### **DWD: KRONER**

As part of its activities as regional climate centre for the WMO Region RA VI, the DWD maintains a hydrometeorological extreme event catalogue with a focus on impacts of extreme events for the region spanning from Greenland to Jordan and from Portugal well into Russia. The results of the event monitoring are updated weekly in the geodatabase **KRONER**, and the evaluations are published in the monthly reports as text descriptions and an extreme event map. In the KRONER database, hydrometeorological events are considered. These include cold spells, heatwaves, heavy rainfall, floods, droughts, wildfires, landslides, snow slides and storms. The data collection establishes a relation between weather extremes and related damage. At present, the KRONER database contains approximately 9,000 events, based on various sources for the period from 1900 to 2020.<sup>30</sup> Since 2021, the KRONER database has been filled according to the specifications of the UUID initiative. KRONER is currently not freely accessible.

## **CEDIM/Risklayer Explorer**

In cooperation with the CEDIM spin-off Risklayer GmbH, the **CEDIM/Risklayer Explorer**<sup>31</sup> has been developed, which provides summaries of CEDIM's previous work and real-time analyses of recent disasters. Scientists, disaster management stakeholders, decision-makers and interested members of the public can obtain detailed information in the form of easy-to-read metrics, detailed reports and graphics (currently, the CEDIM/Risklayer Explorer mainly provides information on earthquakes and tsunamis; it will gradually be extended to other events).

In the context of the Covid-19 pandemic in 2020/2021, the platform was launched earlier than planned in order to make the current development of Covid-19 case numbers and a wealth of other data available to the public in interactive maps, both regionally for Germany and globally. The CEDIM and Risklayer team use official statistics from governments and health ministries. Using crowdsourcing, the latest data is collected with the help of a large number of volunteers, quality-checked several times and then transferred to the platform. For Germany, the platform provides information on infection numbers, seven-day incidences, mortality and lethality rates and convalescence numbers at the county level. The CEDIM Risk Explorer Germany offers users the option to create maps of various datasets developed in this project, especially maps of hazard, vulnerability and risk related to natural disasters (earthquakes, winter storms).<sup>32</sup>

### **Online databases with official statistics from federal and state governments**

The Federal Statistical Office and the statistical offices of the Länder provide official statistics via various online services, which are constantly updated.<sup>33</sup> These include the following:

The **GENESIS database** (GENESIS-Online) is the main database of the Federal Statistical Office. It offers detailed, technical statistics on a wide range of topics. Access to the database is free of charge. The data can be adapted to individual needs using time, subject and regional filters. Interactive diagrams and – in the case of regionally structured tables – geographical maps are available to visualise the data. The database is available in German and English.<sup>34</sup>

The **Germany Regional Database** (Regional Datenbank Deutschland) provided by the Federal Government and Länder governments offers deep-structured quantitative data. The consideration of the regional level extends to the municipal level.<sup>35</sup> The online **Census Database** (Zensus Datenbank)<sup>36</sup> of the Federal Statistical Office and Länder statistical offices provides detailed data on the number of inhabitants in all communities, information from the census of buildings and dwellings and much more data on the population of Germany. New census data is currently being collected. With the 2022 census, Germany is taking part in an EU-wide census round that has been scheduled to take place every ten years since 2011. Due to the coronavirus pandemic, the upcoming census was postponed from 2021 to 2022.<sup>37</sup>

Other databases that include relevant data for disaster risk management are:

- **The Federal Maritime and Hydrographic Agency's databases**<sup>38</sup>
- **The DWD's Climate Data Center (CDC)**<sup>39</sup>
- **The federal-state information and communication platform "WasserBLICK"**<sup>40</sup>
- **Wasser-DE**<sup>41</sup>

### 3.2.3 Risk communication/ raising public awareness

A key factor for the resilience of a society is the ability of the public to take self-protection measures. Lack of knowledge and inadequate information about risks reduce people's motivation and sense of responsibility to take their own precautions and protect themselves. Ministries, public authorities, relief organisations and other institutions therefore provide a wide range of information for the public.

However, in view of the constantly changing risk landscape and the increasingly complex interrelationships and interactions, these information materials and communication offerings must be regularly updated. All federal authorities provide continuously updated information on their websites about the risks that lie in their respective areas of responsibility and give advice on the topics of self-protection and self-help. A variety of other content to increase public awareness has been published since 2015.

### Consolidated cross-sectoral information at federal level

**KatRiMa** is a German government website that addresses the question "Who does what?" when it comes to national and international disaster risk management. It was launched in April 2022 and functions as a participatory knowledge platform whose content is provided by the respective stakeholders, developed together with them and/or based on publicly available sources. In addition, overviews of and more detailed information on actors, strategies, instruments and best practices for disaster risk management in and by Germany can be found on the website. **KatRiMa** is a constantly growing source of information that does not claim to be complete. Together with the respective stakeholders, content is regularly added, augmented and updated. As well as disseminating knowledge, **KatRiMa** also serves to connect stakeholders. Editorial responsibility for the website lies with the NKS. The website is currently only available in German.<sup>42</sup>

### Sector/hazard-specific information campaigns

#### Civil protection in general

The BBK provides an extensive range of information regarding possible risks, including in connection with precautionary and self-help measures for citizens. Some examples of relevant information resources include:

The **official BBK website**, which was relaunched in 2021, offers a wide range of tips for emergency situations, especially with regard to precautions and behaviour in the event of fire, floods, storms, power outages, release of hazardous substances and other hazardous situations.<sup>43</sup>

The **BBK's information campaign "Prepared for all Eventualities"** (Auf alle Fälle vorbereitet), which was launched in 2021, aims to raise awareness among the public of possible dangers and risks and to recommend specific precautions and behaviours. The campaign kicked off with four videos that were intended to provide a humorous and fear-free introduction to the topic of emergency preparedness. The protagonists of the videos are unexpectedly confronted with surreal disaster scenarios, which they nevertheless master skilfully – thanks to their precautions.<sup>44</sup>



The BBK website **Max und Flocke Helferland**, [www.max-und-flocke-helferland.de](http://www.max-und-flocke-helferland.de), has been familiarising children aged seven to twelve with everyday risks since 2016. On the website, children and young people can learn important rules of conduct for topics such as fire protection, first aid, emergency calls, volunteering and self-help, which will have an enduring effect on the entire rest of their lives. They receive information about the German assistance system (such as fire and rescue services) and volunteer work. But above all, the aim is to take away their fear of emergencies and disasters and strengthen their ability to help themselves.<sup>45</sup>

Launched in 2021, **360° Emergency Training** (360° Notfalltraining) is a learning module in the form of an interactive website, on which you move through a virtual apartment by pointing and clicking. Various examples of emergency situations are made accessible and tips are provided on what to do to prepare or protect yourself in such a situation. Like the publication “Guide for Emergency Preparedness and Correct Action in Emergency Situations” (Ratgeber für Notfallvorsorge und richtiges Handeln in Not-situationen), it recommends precautions that should be taken and provides information about possible disasters. By contrast with the Max und Flocke website, it is aimed at adults and young adults.<sup>46</sup>

In the wake of the Covid-19 pandemic and the accompanying quarantine regulations, the demand for the BBK’s **Guide for Emergency Preparedness and Correct Action in Emergency Situations** increased. This guidebook, which was updated in 2019, summarises precautionary and behavioural recommendations for various emergency situations. It includes helpful checklists, such as an example of a ten-day basic food and beverage supply for one person. In addition, the checklists address the topics of first-aid kits, hygiene articles, fire protection, energy failure, broadcasting equipment, document security and emergency luggage. The guide is available in German, English and French.<sup>47</sup>

## Climate change adaptation

In 2021, the **Centre for Climate Change Adaptation** (Zentrum KlimaAnpassung) was founded. With its practical and needs-oriented advisory services, the centre makes it easier for municipalities and social institutions to get started in the field of climate adaptation, which contributes to the development and implementation of broad-based, precautionary climate adaptation throughout Germany.<sup>48</sup>

Launched in 2018, the **German Climate Preparedness Portal (KliVO)** shares quality-approved services offering guidance in taking precautionary measures against the effects of climate change. KliVO collects data and information about climate change and climate change adaptation services. The climate preparedness services, which include guidelines, web tools, maps, upskilling, training and advice, all aim to support self-provision in the face of the inevitable effects of climate change.<sup>49</sup>

The website of KomPass, the UBA’s Competence Centre for Climate Impacts and Adaptation (Kompetenzzentrum Klimafolgen und Anpassung), offers various tools for climate adaptation, such as Klimalotse, a guide that helps people to circumnavigate the risks of climate change and to pursue relevant opportunities. It is aimed primarily at employees in the administration of municipalities, for example in environmental offices, urban planning or similar departments, who have little or no prior knowledge of the consequences of climate change.<sup>50</sup>

In 2020, the “climate and water” basic service (DAS-Basisdienst “Klima und Wasser”) was established as an operational climate service for the topics of climate and water and is available for consultation and data provision in the context of adaptation to climate change in Germany. This service is provided on behalf of the Federal Ministry for Digital and Transport (BMDV) by the Federal Waterways Engineering and Research Institute (BAW), Federal Institute of Hydrology (BfG), Federal Maritime and Hydrographic Agency (BSH) and DWD.

Additionally, there are of course also private and civil society institutions such as insurance companies and aid and welfare organisations such as the DRK and ASB that promote public awareness.

### 3.2.4 Education

The German higher education landscape offers a wide range of courses related to disaster risk management and thus makes a valuable contribution to a better understanding of how to deal with disaster risks. However, there is an increased need to embed disaster risk management and self-protection content in all areas of education – from day-care centres to adult education and continuing education for professionals. Some of the stakeholders mentioned in section 3.2.1 contribute to the education and training of professionals for risk and crisis management in their respective fields. Below, some other examples of educational programmes are given

As part of the BBK, the **Federal Academy for Civil Protection and Civil Defence (BABZ)** is the Federal Government's central training and further education institution for civil protection. Its training programme is primarily aimed at decision-makers and communicators at all administrative levels who are concerned with civil security issues. In addition, the BABZ is a platform for the exchange of information and further development in all areas of civil protection, alongside the state firefighting schools and the schools of relief organisations and the German Federal Agency for Technical Relief (THW).<sup>51</sup> As part of the realignment of the BBK in 2021, the academy was expanded from the former Academy for Crisis Management, Emergency Planning and Civil Protection (AKNZ) into the BABZ.

The THW maintains its own training centres. The core task of the **THW training centres** is to continuously train and educate THW members for current and future civil protection requirements, both national and international. In this way, the training centres contribute to sustainably ensuring the operational readiness and operational value of the THW.<sup>52</sup>

Fire departments and voluntary relief organisations make up by far the largest proportion of the disaster management forces in Germany. The training and continuing education of these emergency forces at the **state firefighting schools and the schools of voluntary relief organisations** is therefore of considerable importance

The German university landscape offers a wide range of study programmes related to disaster risk reduction and management, making a valuable contribution to a better understanding of disaster risk management. A selection of these courses can be found on the website **KatRiMa**.<sup>53</sup>

One example of such a course is the master's degree in "**Disaster Risk Reduction and Disaster Management**" (Katastrophenvorsorge und -management, **KaVoMa**). It is offered by the University of Bonn in cooperation with the BBK. The aim of the course is to train professionals in the sectoral professional fields of disaster risk reduction and risk management to become generalists with a comprehensive understanding of holistic disaster risk management. To this end, KaVoMa imparts action and key competencies that are useful and necessary for sustainable disaster risk reduction and thus sustainable disaster management as a whole.<sup>54</sup>

## 3.3 Risk Governance and Management

In Germany, there is a robust system for the protection of the public against emergencies, crises and disasters that has grown over decades. A short description of the civil protection system can be found in section 3. The implementation of the SFDRR is fundamentally understood against the background that measures to protect the public have long been established and the responsible institutions are well positioned.

However, the effects of disasters not only affect different administrative levels but also a wide variety of (policy) areas such as health, internal and external security, infrastructure, environment, finance, mobility, agriculture, (early childhood) education and culture. In order to be able to effectively control disaster risks in terms of risk-informed governance, instruments for disaster risk management must be anchored in different sectors. For this purpose, risk-informed planning, e.g. in the financial budget, urban and spatial planning, land use, health, conservation and management of natural resources and transport and infrastructure (including communication and IT), remains an important goal.

### 3.3.1 Institutional mechanisms

In Germany, a large number of institutions, committees, networks and working groups already exist that deal with disaster risk management and increasing resilience. Those at federal and state level also collaborate with civil society, the private sector and academia. Examples include working groups at the conferences of ministers of the Länder, such as AK V, expert advisory boards, such as UP-KRITIS, and the National Academy of Science Leopoldina in the management of the Covid-19 pandemic. While they all set different priorities, there are nevertheless overlaps and common interests in selected topics. The implementation of the SFDRR is therefore intended to build on these existing institutional structures and complement them with regard to necessary aspects of disaster risk management. In addition to those that already exist, new institutional mechanisms were created for the targeted implementation of the SFDRR in Germany.

The **IMAG Sendai**, an interministerial working group, was established at the federal level in 2016. The IMAG Sendai steers the implementation of the SFDRR in and by Germany at federal level with the interest of safeguarding the coherence among all relevant policy fields. Its aim is to improve disaster preparedness, response and recovery and to promote efforts to increase resilience to disasters as a cross-cutting task across departments and stakeholders. The IMAG Sendai currently consists of all federal ministries and the Federal Government Commissioner for Culture and the Media (BKM). Mandated higher federal authorities and organisations such as the BBK, the DRK, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and the UBA among others provide technical support for the work of the IMAG Sendai within the framework of a federal authorities working group called **Behörden AG Resilienzstrategie**.

In 2017, the **NKS** was established at the BBK. The NKS coordinates the process from a technical point of view, advises and connects stakeholders, carries out analyses and provides information on the progress of the process as part of public relations work and reporting to the United Nations Office for Disaster Risk Reduction (UNDRR).

In addition to the institutional mechanisms mentioned above, the **German Joint Competence Centre for Civil Protection (GeKoB)** was founded in summer 2022 by the Federal Government and the Länder. It is still continuously being expanded. The scope of the GeKoB, whose office is hosted by the BBK, is to be a joint information and cooperation platform, in order to strengthen the coordinated cooperation of all structural partners in civil protection. Therefore, the core of GeKoB is formed by the authorities that are primarily responsible for disaster management and civil protection in Germany – the ministries of the interior and the interior senate administrations of the Länder and the Federal Government.

On behalf of the Federal Government, the THW, the Federal Police and the BBK are also participating in the GeKoB. Depending on the situation, other specialised authorities with corresponding responsibilities or expertise will be involved: for example, the RKI for health situations especially with regard to infectious diseases. In addition, relief organisations and partners at the municipal level, such as fire brigades, can participate in the GeKoB in an advisory capacity after approval by the GeKoB's (strategic) steering committee, and on the basis of individual agreements.<sup>55</sup>

In Germany, the **Fachtagung Katastrophenvorsorge**, the National Conference for Disaster Risk Reduction, has been held annually since 2017. It is funded by the Federal Foreign Office (AA) and organised and coordinated by the DRK. This event has established itself as a platform for stakeholders in disaster risk management from various sectors to engage in dialogue about their practical needs and experiences.

The IMAG Sendai, NKS and Fachtagung Katastrophenvorsorge form the core of the national platform for strengthening resilience to disasters in Germany. This platform must still be gradually expanded. All the organisations mentioned above are also in regular communication with other stakeholders in disaster risk management.

### 3.3.2 Policies

#### Strategies at national level

The greatest milestone so far in the implementation of the Sendai Framework in Germany is the development (2018–2022) and adoption (2022) of the **German Resilience Strategy**. As a result, Germany not only fulfils the requirements under SFDRR target E, but also has, for the first time, a national strategy at the federal level that addresses the strengthening of resilience to disasters as part of a comprehensive disaster risk management approach and as a task for the whole of government and society.

The Resilience Strategy was developed in a multi-year consultation process with all departments and authorities at the federal level under the leadership of the IMAG Sendai and with the support of the NKS. Contributions from the expert public were gathered at the Fachtagung Katastrophenvorsorge. In the context of various exchange formats, other stakeholders were informed about the process and topics of the Resilience Strategy were discussed. In addition, the Resilience Strategy is based on the research into existing strategies and structures that was compiled in 2018 as part of a report on the assessment of the Federal Republic of Germany's risk management capabilities.

The Resilience Strategy is a strategy of the German Federal Government that aims to increase the protection of the public and their livelihoods and to strengthen the resilience and adaptive capacity of the community in the face of disasters. To this end, the Resilience Strategy considers all phases of the risk and crisis management cycle, i.e. prevention, preparedness, response and post-disaster recovery, including the “build back better” approach, as to provide comprehensive disaster risk management. In doing so, the strategy focuses on all hazards in the context of disasters and also considers them beyond the responsibilities of specialist departments and administrative boundaries.

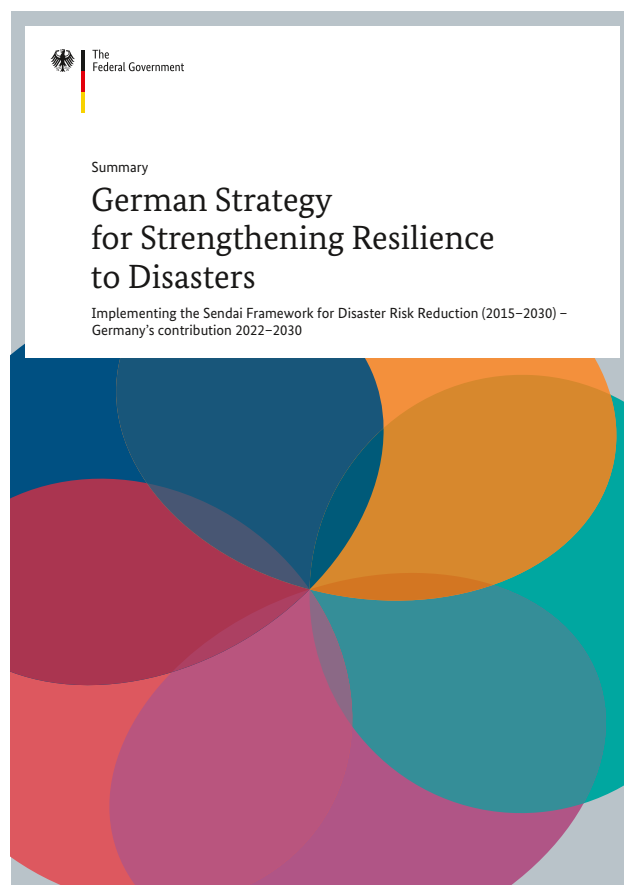
The action areas and measures of the Resilience Strategy are based on the Sendai Framework's priorities for action, complemented by an action area called “international cooperation”. Among these measures, some generic measures and corresponding recommendations for action have been identified.

Further details of the content of the Resilience Strategy can be found in section 5 of this document.

#### Other strategic linkages in the implementation of the SFDRR

Prior to the German Resilience Strategy, Germany already had numerous topic-specific and cross-thematic strategies at different levels that address aspects of resilience or disaster risk management. These strategies are coordinated under the leadership of different ministries according to sectoral or hazard-specific responsibilities and serve as strategic starting points for the German Resilience Strategy.

Strategies focusing on civil protection and security provision, such as the **National Strategy for Critical Infrastructure Protection** (Nationale Strategie zum Schutz Kritischer Infrastrukturen [KRITIS-Strategie], BMI 2009) or the **Cyber Security Strategy** (Cybersicherheitsstrategie für Deutschland, BMI 2021),<sup>56</sup> address risk and crisis management both as a cross-sectoral and a sectoral task.



In addition, established committees in specific sectors also deal with aspects of and strategies for risk and crisis management. In agriculture, for example, this is done by the Conference of Chief Officers and Ministers of Agriculture, as part of the **Agenda for Climate Change Adaptation in Agriculture, Forestry and Fisheries and Aquaculture** (Agenda Anpassung von Land- und Forstwirtschaft sowie Fischerei und Aquakultur an den Klimawandel 2018,<sup>57</sup> 2019<sup>58</sup>). In the area of research and innovation, the topic of civil security is addressed in the **Federal Future Research and Innovation Strategy**<sup>59</sup> and implemented with the Federal Government's strategy **Research for Civil Security 2018–2023** (Zivile Sicherheitsforschung).<sup>60</sup>

Resilience is also addressed as a central element of cross-sector strategies. In the German **Sustainable Development Strategy – 2021 Update** (Deutsche Nachhaltigkeitsstrategie – Weiterentwicklung 2021),<sup>61</sup> resilience is seen as an important element of the guiding principle of sustainable development. Another example is the **DAS**<sup>62</sup> of 2008. The DAS presents the consequences of climate change and options for adaptation in 15 fields of action. The fields of action include human health, biodiversity and the energy economy. Civil protection is addressed as a cross-cutting issue alongside spatial, regional and urban planning. Since 2015, the implementation of the DAS has resulted in two progress reports that updated strategy (2015 and 2020, every five years), two monitoring reports (2015 and 2019, every four years), two updates of the **Adaptation Action Plan** (Aktionsplan Anpassung, 2015 and 2020, every five years), an **interim evaluation** (2019, every four years), the launch of the KliVO-Portal (2018) and the publication of a cross-sectoral climate **vulnerability and risk assessment** (2015<sup>63</sup> and 2021, every six years).

The implementation of the DAS is steered by an **interministerial working group** (Interministerielle Arbeitsgruppe Anpassung an den Klimawandel, IMAA) and supported by a network of federal agencies (**Behördennetzwerk**). Their work interfaces with the process of implementing the SFDRR. Additionally, an alliance of a number of federal authorities (Strategische Behördenallianz) has initiated climate-related projects with clear links to civil protection and therefore disaster risk management, such as “Radarklimatologie” (2017)<sup>64</sup> and “KlamEx” (2021).<sup>65</sup>

Furthermore, in Germany several strategies exist to deal with specific hazards, such as the National Pandemic Plan.

In contrast to the SFDRR, the German Resilience Strategy also covers civil defence and conflict. Germany maintains that the management of crises also requires the ability to defend itself. Through providing safety and security for citizens, peace and political freedom of action can be preserved. The federal civil defence planning strategy (**Konzeption Zivile Verteidigung, KZV**) was adopted in 2016. It is the basis for the future interdepartmental fulfilment of tasks in the area of civil defence. The subject of the strategy is the future design of the four areas of responsibility of civil defence:

- Maintenance of state and government functions
- Civil protection
- (Emergency) supply of the public
- Supporting the armed forces

The strategy describes contexts and principles and provides guidelines for the ongoing design of the individual specialised tasks, which are oriented towards the respective capabilities. At the same time, it forms the basis for further work and planning in the federal ministries, which is continually being specified and implemented on the basis of a series of specialised and framework concepts.<sup>66</sup>

The **Urban Resilience Memorandum** (Memorandum “Urbane Resilienz – Wege zur robusten, adaptiven und zukunftsfähigen Stadt”)<sup>67</sup> was adopted at the 14th Federal Congress of the National Urban Development Policy on 4 May 2021. It outlines ways to make use of opportunities for transformative processes that strengthen cities’ and communities’ resilience in the face of crises and disasters. The focus is on people’s security, well-being and quality of life, taking into consideration their responsibility for sustainability and the protection of the natural basis of life. The NKS was actively involved in the development of the Urban Resilience Memorandum.

## Further strategic developments

The **Coalition Agreement of the Federal Government elected in 2021** also attached special importance to civil protection. This includes the continuation of the redesign and realignment of the BBK, the creation of continuously updated situation reports on the available forces and resources of the Federal Government and the Länder, the improvement of warning structures including the expansion of the “warning mix” in Germany, and the strengthening of the volunteer strategy including the coordination of standardised national release and insurance protection rules for volunteers. According to the Coalition Agreement, the THW will continue to play a central role and expand its competences in cyber-assistance. The Coalition Agreement also states that the KZV is to be strategically realigned. In addition to the German Resilience Strategy and European approaches, foundations are to be laid for future stockpiling, emergency reserves and the deployment of volunteers. In Europe, Germany specifically wants to contribute more capabilities to “rescEU”.<sup>68</sup>

In order to advance crisis management and thereby improve civil protection and security in Germany, the BBK critically reviewed previous procedures, capacities and prioritisation and analysed and assessed its own strengths, weaknesses, opportunities and risks with a view to future situations. The resulting **strategic realignment of the BBK**,<sup>69</sup> which was adopted in 2021, can be seen as a building block to maintain and strengthen security in Germany for future challenges.

The realignment comprises eight core elements, some of which are mutually dependent. They are linked by the awareness that they will only be effective in close cooperation with partners in the federal and state ministries, in the fire brigades and relief organisations and all other partners. The core elements of the realignment include:

1. strengthening of health-related civil protection
2. establishment of the GeKoB
3. evaluation of crisis situations
4. warning the public
5. emergency drinking water supply
6. strengthening voluntary work, recruiting spontaneous helpers, improving self-protection
7. using further capabilities of the BBK – the BBK as a service provider
8. German Resilience Strategy – resilience of critical infrastructures.

As a follow-up, the programme for a **Restart in Civil Protection**,<sup>70</sup> which aims to strengthen federal cooperation with the Länder and municipalities as well as Germany’s overall crisis resilience, was released by the Federal Ministry of the Interior and Community (BMI) in July 2022. The concrete measures for the restart in civil protection are based on four guidelines:

1. We must always be prepared.
2. We must provide early warning of dangers.
3. We must act efficiently.
4. We must learn from crises and address reconstruction after disasters together.

As early as 2020, against the backdrop of the Covid-19 pandemic, the **Länder** prepared a joint report on behalf of the IMK on the further development of a strategic and conceptual framework for sustainable civil protection with its diverse interfaces (“**Security through Federal Partnership and Sectoral Preparedness – Strategic and Conceptual Framework for the Development of State Risk and Crisis Management Taking into Account the Experiences from the Coronavirus Pandemic**”). Against the backdrop of the Russian war of aggression on Ukraine, a second report by AKV was submitted to the IMK on 29 April 2022, which was expanded to include the civil defence section and which incorporated further findings on the development of state risk and crisis management.

### 3.3.3 Legislation

As already mentioned before, the German constitution stipulates that the Federal Government is responsible for civil protection and the Länder for disaster management. This is also reflected in the legislation. The Federal Government can only enact regulations in a few exceptional cases, which must be implemented in the Länder. The existing federal and state legislation is constantly being expanded and adapted to current circumstances and challenges.

An example of this is the Infection Protection Act (Infektionsschutzgesetz)<sup>71</sup> from 2001, which was constantly amended in the course of the Covid-19 pandemic to protect the public in an epidemic situation of national importance and represents the legal basis for the measures taken in the fight against the Covid-19 pandemic in Germany.

### 3.3.4 Standardisation

For a common understanding and clear definition of roles, responsibilities and tasks in the political and social context, not only rules and laws are necessary, but also standardised procedures, guidelines, benchmarks and norms. These standards should be accessible to everyone in order to help people around the world understand each other better and react and act more quickly and appropriately. Whether in the private or industrial sector, in almost all areas of life there is usually at least one standard that is of significance. Unfortunately, access to approved standards such as the DIN standards in Germany is usually subject to a fee.

With regard to strengthening disaster risk management, German stakeholders have focused on:

- improving the framework conditions for risk management (including risk analyses) and hazard prevention within companies by revising existing laws and European standards and guidelines, and developing new ones
- the development of binding standards for systematised and cross-sectoral cooperation between different stakeholders in disaster risk management based on the regulations of standard-setting bodies and professional associations
- establishing a basic protection capability for private and public buildings by means of harmonised protection regulations, DIN standards and laws as far as possible (for example in the areas of fire, flood and overvoltage protection).

Based on this understanding, various standards have been developed and adopted in Germany since 2015. Both thematic/sector-specific and overarching standards have been formulated.

There is insufficient space here to list all the standards and norms that have been adopted since 2015 that are relevant to strengthening resilience to disasters.

The following standards regarding disaster risk management can be highlighted as examples:

Norm	Title	Focus
DIN EN ISO 22300	Security and resilience – Vocabulary (ISO 22300:2021); German version EN ISO 22300:2021	Resilience
DIN EN ISO 22361	Security and resilience – Crisis management – Guidelines for developing a strategic capability (ISO/DIS 22361:2021); German and English version prEN ISO 22361:2021	
DVGW W 1003	Resilience and security of drinking water supply	
ISO 22328-1	Security and resilience – Emergency management – Part 1: General guidelines for the implementation of a community-based disaster early warning system	
ISO/TR 22370	Security and resilience – Urban resilience – Framework and principles	
DIN EN 17483-1:2021-09	Private security services – Protection of critical infrastructure – Part 1: General requirements; German version EN 17483-1:2021	Critical infrastructure
DIN SPEC 91461:2021-12	Stress-testing resilience of critical infrastructures exposed to cyber-physical threats; text in English	
DIN SPEC 91390:2019-12	Integrated risk management in civil protection	(Integrated) risk management
OENORM D 4901:2021-01-01	Risk management for organizations and systems – Requirements for the risk management system – Guide for the implementation of ISO 31000	
OENORM D 4902-3:2021-01-01	Risk management for organizations and systems – Guideline – Part 3: Emergency, crisis and business continuity management – Guide for the implementation of ISO 31000	
DIN EN ISO 14091:2021-07	Adaptation to climate change – Guidelines on vulnerability, impacts and risk assessment (ISO 14091:2021); German version EN ISO 14091:2021	Climate Change Adaptation
DIN EN ISO 14090:2020-02	Adaptation to climate change – Principles, requirements and guidelines (ISO 14090:2019); German version EN ISO 14090:2022	

Table 1: Examples of standards and norms related to disaster risk management and strengthening resilience adopted in Germany since 2015



A further overview of civil infrastructure protection (CIP) standards from 2021 according to the BBK definition of CIP can be viewed on the DIN website.<sup>72</sup> There are also processes currently ongoing to coordinate standards. One example of this is BSI Standard 200-4.<sup>73</sup> The new BSI Standard 200-4 – as the follow-up to Standard 100-4 – will continue to provide practical guidance on how to establish an adequate business continuity management system. The aim is to maintain or ensure the continuous availability of business processes and thus the provision of services even in the event of disruptions, e.g. due to IT failure or disrupted supply chains.

### 3.4 Investment in Risk Reduction and Resilience

In Germany there are various programmes and strategies at European, federal, state and local level that directly and indirectly promote disaster risk management measures. The basis of the funding measures is the relevant specialist laws, ordinances and guidelines. They create the necessary legal framework for both avoiding and reducing risks and dealing with disasters quickly and effectively. However, disaster risk reduction is not yet systematically integrated as a part of structural investment and financing measures and the promotion of sustainable development.

In general, the financing of the implementation of the SFDRR and the measures of the Resilience Strategy are the responsibility of the stakeholders involved and the respective governmental departments within the scope of their respective competences.

For stakeholders who need support in planning and implementing prevention, preparedness, response and follow-up measures in Germany, the federal funding database (Förderdatenbank des Bundes)<sup>74</sup> provides an initial overview of existing federal, state and EU funding programmes. However, this funding database does not offer the option to explicitly search for funding for resilience-building measures.

#### 3.4.1 Funding

In order to implement a holistic approach to resilience, German stakeholders have various funding options at their disposal. Effective disaster risk management connects different regional levels as well as thematic and working areas, which is why funding for measures to strengthen resilience can also come from various funding sources. However, in order to facilitate an efficient and targeted search for suitable funding opportunities for stakeholders in practice, a user-friendly overview is needed, which did not exist until 2022.

A study on **resilience funding in Germany** (2021 to 2022, yet to be published), which was commissioned by the NKS, underscores that the funding landscape at the federal level is very extensive and therefore sometimes confusing. Individual focus topics, such as climate adaptation, stand out. The term “resilience” does not appear frequently in the funding measures, nor is disaster risk reduction a direct and explicit focus of the funding measures.

The study states that by far the most federal funding opportunities for resilience-building measures are available in the thematic areas of “technology and digitalisation”, “the economy” and “climate adaptation”. There is also a relatively large array of funding opportunities for the thematic area of “energy”. Relatively few federal funding measures exist in the fields of “education and science” and “food and agriculture”, although federal strategies indicate such measures in the context of climate change. The funding opportunities address different target groups. Most of the funding opportunities are directed at civil society, academia and the private sector. It should be noted, however, that the Federal Ministry of Education and Research’s (BMBF’s) funding for collaborative research projects is aimed at municipalities and civil organisations, for example. Funding for the action areas prevention, adaptation and transformation were well balanced and evenly represented. There were fewer funding options for preparedness and recovery. This indicates that there is more funding for measures with long-term effects such as adaptation and innovation in areas such as “technology and digitalisation” and “climate adaptation”. Federal funding measures for crisis preparedness and response are scarce.

The analysis also revealed a number of trends in the funding landscape that could indicate areas where more funding is needed:

- Resilience measures are often linked to digitalisation, technology and climate adaptation, and they are very often funded together.
- Many funding programmes that focus on energy also address climate adaptation.
- In the area of transport and traffic, electromobility is often linked to climate adaptation. These measures are also aimed at either expanding rail transport or electromobility.
- Many funding opportunities referred to the risk amplification effect of climate change, or the fight against climate change was explicitly addressed by the funding measures. The whole spectrum of natural or human-induced hazards was very rarely directly addressed.
- Links are often found between technology and digitalisation and other thematic areas. The goal of these funding programmes is the general implementation of digitalisation and innovation, rather than resilience.
- The funding measures also focus on knowledge and technology. They take little account of the social or cultural factors of resilience-building.

### Examples of funding opportunities provided by the Federal Government

Below, some selected examples of current funding opportunities are described. The Federal Ministry for Economic Affairs and Climate Action (**BMWK**) maintains the Förderdatenbank des Bundes, a database in which a number of federal and state funding programmes can be found by searching for “disaster management”. Government investments concern, for example, the replacement and new acquisition of vehicles and measures in the area of “fire protection, disaster management, civil defence and explosive ordnance disposal”. These include measures to defend against:

- severe nuclear, biological and chemical accidents
- epidemics and epizootics
- severe storms, floods, high water and storm surges
- severe accidents and disasters involving mass casualties, in particular injured, sick and traumatised persons
- severe damage to the environment, wildfires and severe disruptions to critical infrastructure

as well as measures for:

- training and further training
- the subsidised maintenance of vehicles, equipment for units and facilities, administrative expenses and relief trains of state associations of certain relief organisations.

In the field of research, there are relevant **BMBF** funding programmes for research on civil protection. The framework programme “Research for Civil Security” addresses the entire resilience cycle, from disasters and risk prevention to coping with and maintaining the functioning of critical infrastructure. In addition, the federal programme “Water: N – Research and Innovation for Sustainability” (Wasser: N – Forschung und Innovation für Nachhaltigkeit) is developing new procedures, models and strategies for the transdisciplinary management of extreme water events with the funding measure “Water Extreme Events” (Wasser-Extremereignisse, WaX). In the thematic area of climate research and climate change adaptation, the BMBF provides the funding programmes ClimXtreme – Climate Change and Extreme Events (ClimXtreme – Klimawandel und Extremereignisse), Urban Climate under Change (Stadtklima im Wandel), Climate Resilience through Action in Cities and Regions (Klimaresilienz durch Handeln in Stadt und Region) and Regional Information for Action on Climate Change (RegIKlim – Regionale Informationen zum Klimahandeln). In addition, and in response to the catastrophic floods in western Germany in July 2021, the BMBF is funding the project “Scientific Support for the Reconstruction Processes after the Flood Disaster in Rhineland-Palatinate and North Rhine-Westphalia – Climate Adaptation, Floods and Resilience” (KAHR). These programmes provide transdisciplinary and demand-oriented research to address the regional challenges of climate change and to increase climate resilience. As part of the Federal Government’s framework programme for health research, the BMBF also offers funding opportunities for pandemic prevention and management.

The other ministries also provide funding for elements of disaster risk management in their respective areas of responsibility. These include the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection’s (**BMUV**’s) funding of measures for adaptation to climate change (Maßnahmen zur Anpassung an

die Folgen des Klimawandels & Klimaanpassung in sozialen Einrichtungen) and the **Federal Ministry of Food and Agriculture's (BMEL's)** joint task "Improvement of Agricultural Structures and Coastal Protection" (Gemeinschaftsaufgabe Verbesserung der Agrarstruktur und Küstenschutz, GAK), a national funding instrument with two special framework plans, "Preventive Flood Protection" (Präventiver Hochwasserschutz) and "Coastal Protection Measures as a Result of Climate Change" (Maßnahmen des Küstenschutzes in Folge des Klimawandels), which are technically supervised by the BMUV. With the federal programme for the "Adaptation of Urban Areas to Climate Change" (Anpassung urbaner Räume an den Klimawandel), the **Federal Ministry for Housing, Urban Development and Building (BMWSB)** supports high-impact conceptual and investment projects on climate mitigation (CO<sub>2</sub> reduction) and climate adaptation. In addition, the BMWSB supports innovative ideas and concepts for the creation of resilient structures in cities and municipalities with the project called "Post-Corona City" within the joint initiative National Urban Development Policy (Nationale Stadtentwicklungspolitik). The **BMEL** and the **BMUV** jointly fund projects with the "Forest Climate Fund" (Waldklimafond) which increase the resilience of forest ecosystems. The fund supports measures to prepare for the impacts of climate change and to avoid and cope with large-scale damage events such as forest fires.

In the area of health, the Hospital Structural Fund (Krankenhausstrukturfonds) can be used to support projects of the Länder that contribute to improving the structures in hospital care, such as projects to improve the IT security of hospitals. In addition, the Hospital Future Fund (Krankenhauszukunftsfonds) offers the Länder the opportunity to take advantage of funding for hospitals to implement a wide range of measures in the area of digitalisation. The requirement for this is that a minimum share of the funding for the respective project benefits the improvement of IT security, so as to increase hospitals' resilience to cyber-attacks.

As part of their research activities, the **BMWSB** and the **Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR)** support the implementation of precautionary risk management in regional planning and development through model projects in regional planning and

within the framework of the Shaping Regions programme (financed by the Federal Rural Development Programme [Bundesprogramm Ländliche Entwicklung]). Likewise, resilience and risk prevention and risk management in the context of building cultural heritage are the subject of various research and model projects in the innovation programme Building for the Future and the research programme Experimental Housing and Urban Development (Experimenteller Wohnungs- und Städtebau, ExWoSt).

### Examples of funding opportunities provided by the Länder

The Länder also offer a wide range of individual funding programmes. These include funding for training courses for fire brigades and relief organisations involved in disaster management.

The **state of Hesse** has made considerable investments in the area of civil protection. For example, since 2008, the Hessian state government has invested more than 70 million euros (approx. 41 million euros since 2015) in comprehensively upgrading Hesse's civil protection equipment and resources, thus more than doubling the number of state vehicles available for civil protection from 278 to over 700 during this period. A total of 315 state vehicles have been procured since 2015.

In addition, the **state of Hesse** invests around 3.2 million euros annually in the **promotion of a culture of recognition** (recognition bonus for long-serving firefighters and civil protection workers, funding of school and integration projects, funding of the campaign "1+1=2 – A Strong Connection", with which the state promotes a better compatibility of voluntary work and paid work).

In addition, the **state associations of relief organisations** in Hesse receive annual funding from the **state of Hesse** totalling around 2.5 million euros for the ongoing fulfilment of their tasks in Hesse's disaster management. In addition, the state of Hesse has supported these associations in coping with special pandemic-related burdens with a funding programme amounting to 4 million euros. The **municipal fire brigades** receive fire protection funding from the state of Hesse amounting to approximately 20 million euros annually (approval of new firefighting vehicles and construction measures as well as state procurement campaigns).

In view of increasing risks and challenges, in particular due to the progressing climate change, the **Free State of Bavaria** has been investing heavily in disaster management for years. Within the framework of the Bavarian Disaster Management 2030 investment programme, 71 million euros were made available for investments in the budget years 2019–2022. These funds were used to procure or finance important equipment for the fire brigades, the medical and care services and the water rescue service, needed for preparing for floods, forest fires, snow, power outages or a mass casualty incident. In the last five years (2018 with 2022), the Free State of Bavaria spent more than 244 million euros to support the acquisition of firefighting vehicles and equipment as well as the construction of fire stations at local government level. In addition, the Free State of Bavaria has already invested around 100 million euros since 2011 in the ongoing expansion of the three state fire brigade schools to increase training capacities and to foster modern and realistic training facilities.

In addition to the above mentioned federal and state funding opportunities, there are a variety of civil society and private funding opportunities from foundations and other institutions, as well as funding through international qualification programmes within the framework of exchange and further education programmes.

### **Risk transfer and coverage**

In Germany, risk transfer and protection against natural hazards are achieved through insurance, risk-sharing and compensation. The private sector, specifically the insurance industry, plays an essential role in individual private protection. In addition to the funding opportunities mentioned above, the Federal Government usually fulfils a compensation role in individual cases. In June 2017, the ministers-president of the Länder agreed to pay out aid only to those who have unsuccessfully sought insurance or who have been offered insurance on economically unreasonable terms.

Nevertheless, during the Covid-19 pandemic, the most extensive financial aid in the history of the Federal Republic was distributed to various people, thus stabilising the economy, helping employees, the self-employed and companies through the crisis and strengthening the healthcare system.<sup>75</sup> More-

over, financial aid amounting to 30 billion euros was distributed for reconstruction after the flood disaster in western Germany in 2021.<sup>76</sup> However, the German government does not have a fixed annual budget that is explicitly set aside for dealing with disasters.

In consideration of the large amounts of money flowing into reconstruction aid after disasters, and since state aid cannot cover all private damage, the state is appealing to house and flat owners and tenants to take greater personal precautions in order to reduce possible damage and thus also requirements for state aid. Those who may be affected by floods, for example, are legally obliged (section 5 paragraph 2 of the Federal Water Act [WHG]) to take precautionary measures. In addition to structural measures, personal precautions also include adequate insurance cover. In particular, insurance against natural hazards should be mentioned here. However, it is currently optional to take out such insurance, which is why only 43% of residential buildings in Germany were insured against natural hazards at the end of 2018.<sup>77</sup> At the political level, the introduction of compulsory insurance for natural hazard damage for homeowners is currently being discussed. Therefore, the Federal Ministry of Justice (BMJ) is set to examine a practicable regulatory proposal for insuring private residential buildings against natural hazard damage.

German insurers, however, are currently in favour of a three-pronged approach consisting of education, binding measures for prevention and insurance cover. As this is an ongoing discussion, the outcome is still uncertain. Various options are currently being examined in order to improve the risk transfer.

Additionally, various insurance policies are of course also available for private companies and for different sectors, such as the agricultural and forestry sector. For the individual coverage of farmers, a distinction is made between yield guarantee and damage-based insurance. There are both single-peril and multi-peril insurance schemes. The most widespread is hail insurance – according to the insurance industry, more than two-thirds of all agricultural land in Germany is insured against hail. Insurance against other weather risks is much less prevalent. In order to increase the market penetration of multi-peril insurance schemes for farmers, some Länder provide financial contributions to pre-

miums for such schemes, often in the field of special crops. Forest owners are offered insurance against various damaging events such as storms and forest fires. Forestry associations often take out collective contracts for forest fire insurance. However, there is only low demand for storm damage insurance due to the high fees.

### 3.4.2 Topic-specific instruments for disaster risk reduction and resilience

The German government sees investment in disaster risk reduction as being about more than just financial aspects. It also involves efforts and implementation of measures that not only contribute to resilience to disasters through sectoral development, but also address underlying risk drivers that may arise as a result of social, economic or environmental processes. This section therefore shows selected examples of what has happened in certain sectors since 2015.

#### Healthcare

In order to increase protective measures and safety standards in hospitals and to be prepared for mass-casualty incidents, critical infrastructure impairments, etc., the BBK developed the **Hospital Alarm and Emergency Planning Manual** (Krankenhaus Alarm- und Einsatzplanung, KAEP)<sup>78</sup> over several years in cooperation with the German Working Group for Hospital Emergency Planning (Deutsche Arbeitsgemeinschaft für Krankenhauseinsatzplanung) and the German Society for Trauma Surgery (Deutsche Gesellschaft für Unfallchirurgie). The manual was published in 2020 and is intended to serve as guidance for the relevant stakeholders. The task of drawing up a hospital alarm/emergency plan and also practising it regularly is regulated by law at federal level. The Federal Government wants a nationwide approach to hospital crisis management, which is why it has issued this recommendation. The manual covers how hospitals deal with a mass-casualty situation involving injured or infected persons and with the impairment/destruction of infrastructure (hospitals as critical infrastructure).

The German **National Pandemic Plan** (Nationaler Pandemieplan)<sup>79</sup> was comprehensively amended in 2017. The plan contains recommendations for

pandemic management, for example regarding surveillance measures, infection control measures, antiviral drug treatment and pandemic planning measures in companies, public administration and other non-medical areas and awareness-raising/risk communication. The pandemic plans of the Länder follow a similar approach.<sup>80</sup> In 2020, the National Pandemic Plan was augmented by the “Supplement to the National Pandemic Plan – Covid-19 – New-Type Coronavirus Disease” (Ergänzung zum Nationalen Pandemieplan – COVID-19 neuartige Coronaviruserkrankung).<sup>81</sup>

In Germany, there are already many **health campaigns** in place that promote vaccinations and personal health to target/risk groups. During Covid-19, various additional health campaigns were launched. Probably the best-known efforts in raising risk awareness during the Covid-19 pandemic were those of the German government and, in particular, the Federal Ministry of Health (BMG). Since 2020, various initiatives have been launched as part of the “Together against Coronavirus” (Gemeinsam gegen Corona) campaign, such as a dedicated website that provides information about the disease itself and about vaccination, testing and Covid-19 in everyday life, as well as TV commercials, a social media strategy and interviews.<sup>82</sup>

Measures have also been taken at the Länder level to reduce disaster risk in relation to pandemic events and to strengthen resilience. For example, the **state of Hesse** established a **Central Strategic State Reserve of Personal Protective Equipment and Medical Devices** in 2022. This reserve serves to maintain the state and government functions of the state of Hesse, to maintain the performance and action capability of the Hessian civil protection system under pandemic conditions and to protect other important areas such as critical infrastructure.

Maintaining the provision of sufficient quantities of personal protective equipment (PPE) and medically necessary material/equipment for medical and nursing staff is an essential building block for managing future pandemic crisis situations and thus significantly supports the maintenance of the health system. The Covid-19 pandemic has highlighted the dangers of the spread of infectious diseases in the absence of such equipment as well as the life-threatening situations to which medical and nursing staff

in particular are exposed during the treatment of sick people. In particular, the PPE not available to the necessary extent or to be procured on the world market in the short term – in particular semi-masks filtered by particle filtering – was the central challenge at the beginning of the coronavirus crisis in spring 2020. The **Free State of Bavaria** had therefore decided very early at the beginning of the Covid-19 pandemic to set up a **central strategic stockpile** – in particular for the stockpiling of PPE and medical devices – to cope with crisis situations by securing the materials required by the medical and nursing staff in the event of a severe pandemic.

In addition to ventilators and patient monitors, a national pandemic central stockpile stores in particular stores infection control gloves, gowns, protective suits, surgical masks, FFP2 and FFP3 masks as well as protective goggles. These items are intended to ensure emergency supply for medical and nursing staff, in particular with PPE, in the event of a renewed disruption or failure of supply chains – for example in the event of an aggravation of the still ongoing pandemic situation, but especially for future epidemic or pandemic crises.

### **Digital infrastructure**

In a digitalised world, the resilience of digital infrastructure has become more important. Examples of how Germany acts to strengthen digital infrastructure and especially cyber infrastructure security are provided by the IT Security LAW 2015 and 2021, BMI's **Cyber Security Agenda** (Cybersicherheitsagenda des BMI, 2022)<sup>83</sup> and the Federal Government's **Cyber Security Strategy 2021**, which is due to be updated. Within this agenda, the BMI is introducing measures to strengthen cybersecurity in Germany. With regard to strengthening resilience to disasters, particular focus is placed on goals and measures to strengthen the cyber-resilience of critical infrastructure, the protection of civil infrastructure from cyber-attacks and the creation of stable and disaster-resilient communication networks.

### **Transport**

In Germany, road construction authorities are preparing the digitalisation of the main civil road network as part of the update of the road network itself. The main civil road network (Hauptzivil-

straßengrundnetz) consists of routes that are useable for the public in the event of war or disasters. The update and digitalisation of the network are based on a decision by the Conference of Transport Ministers (Verkehrsministerkonferenz) in May 2022.

### **Critical infrastructure**

The functioning of critical infrastructure and the continuity of the services it provides are particularly important in the context of resilience to disasters in Germany. To promote crisis and risk management for critical infrastructure and to support the operators of critical infrastructure, the BBK developed a "toolkit": a set of short, practical crisis management guidelines.<sup>84</sup> It serves as a source of information for public authorities and operators of critical infrastructure and as a basis for further discussion on strengthening crisis prevention and crisis management. The toolkit covers topics such as the clarification of basic vocabulary, issues of identification in the context of critical infrastructure and key facilities and priorities in the context of critical infrastructure. The toolkit is intended to assist in preparing for future events and to strengthen resilience to disasters. It was developed in 2021 in close cooperation with partners in the Länder, based on lessons learned during the Covid-19 pandemic.

Another example of guidance for operators of critical infrastructure is the BBK's guide on **emergency power supply in companies and public authorities** (Notstromversorgung in Unternehmen und Behörden),<sup>85</sup> published in 2019. Although there is a high degree of energy supply security in Germany, power outages cannot be ruled out completely. The public supply of electrical energy might fail, for example, due to a technical defect, a deliberate act or a natural event. The guide is aimed at managers and employees in companies and public authorities who are responsible for the safe operation of a site. It is intended to help them provide an emergency power supply for their site with a high degree of reliability and operational capability, and consequently strengthen the infrastructure's resilience to disasters.

Sufficient drinking water is the basis for the functioning of any social and economic system and is vital for people. Many critical infrastructure sectors heavily rely on a dependable water supply. But the water supply system itself is also highly dependent

on other critical infrastructure. The protection of the critical water supply infrastructure, and in particular the guarantee of drinking water safety, is an extremely important task. To raise awareness and provide support for companies and public authorities, and in particular for drinking water supply stakeholders in municipalities, in 2019 the BBK published two **recommendations on securing the drinking water supply**:<sup>86</sup> Risk Analysis (Part I) and Emergency Preparedness Planning (Part II).

Additionally, as one component of the BBK's realignment in 2022, the strategy for **emergency drinking water supply**<sup>87</sup> was amended to increase the resilience of Germany's water supply. In the context of new and emerging threats, the focus of water security will be expanded to include strengthening the critical public water supply infrastructure and mobile solutions in addition to existing emergency wells. This will establish a modular system that can address the wide range of threats to which the drinking water supply is exposed. This expanded set of tools will meet the requirements of the Water Security Act (Wassersicherstellungsgesetz) and allow for intensified collaboration with partners. Within the strategy for emergency drinking water supply, measures worth more than 80 million euros were financed or partially financed within two years (2020–2022). Thus, for example, water suppliers were able to implement adequate emergency power solutions, interconnected water supply systems and mobile transport systems. This has increased the resilience of drinking water supply systems to various threats.

Since spring 2022, the GeKoB (see ↗ 3.3.1) and the BBK's Critical Infrastructure Division have been compiling a **joint state-wide situation report on civil protection** (Gemeinsames Lagebild Bevölkerungsschutz), which considers a large number of aspects, such as security of supply for critical infrastructure, international requests for assistance and information on the so-called Kleeblatt (see ↗ 3.5.1) mechanism.<sup>88</sup> Against the background of the war in Ukraine, current information from the Länder and the federal ministries is compiled by the BBK. This information is intended to help identify possible disruptions to supply security at an early stage so that appropriate measures can be taken. The joint situation report on civil protection gives those responsible for crisis management in the Federal Government and the Länder

a general overview of the current situation and thus provides an information basis for taking action.<sup>89</sup>

At the level of the Länder, situations and developments in the critical infrastructure sectors are also continuously monitored on a sector-specific basis and assessed with regard to possible cross-sectoral effects. Since the Omicron wave of the SARS-CoV-2 pandemic, **situation reports on critical infrastructure** have been created in order to have a standardised information basis for the measures of the individual responsible authorities to ensure the functionality of and security of supply for the critical infrastructure. In some Länder, specific software applications have been introduced for this purpose. The **state of Hesse**, for example, has designed a **digital reporting and information platform** that helps to maintain an overview of dynamically changing situations in (multiple) crisis situations. This will make it possible to display situation information on the individual critical infrastructure areas to all responsible authorities within the state administration in real time, thus also supporting rapid decision-making by specialised departments and political decision-makers.

### Civil and military defence

The German Basic Law (Grundgesetz) specifies four exceptional circumstances when the German armed forces (Bundeswehr) may be deployed inside Germany: in the case of defence, a state of tension, a domestic emergency or a disaster emergency. Where no explicit constitutional authorisation is available, a domestic deployment of the German armed forces is unconstitutional. The German armed forces therefore do not take charge of disaster management themselves but only provide assistance to other governmental authorities (Amtshilfe). The support services or assistance provided by the German armed forces in the event of a disaster do not include executive powers and therefore consist mostly of technical or logistical support. This assistance follows the principle of subsidiarity. This means that the German armed forces' assistance can only be requested, if, for example, measures cannot be provided or cannot be provided in a timely manner by the authorities responsible for disaster management or civil protection – which was the case, for example, in the flood areas in North Rhine-Westphalia, Rhineland-Palatinate and Bavaria in the summer of 2021 and throughout Germany in the context of the Covid-19 pandemic.<sup>90</sup>

Furthermore, assistance to other governmental authorities by the German armed forces is provided only on the basis of available resources. Possible deployments of the German armed forces in Germany with regard to homeland defence, national crisis and risk prevention and subsidiary support services such as assistance to other governmental authorities were last defined by the Federal Government in 2016 in the White Paper on Security Policy and the Future of the Bundeswehr (Weißbuch zur Sicherheitspolitik und zur Zukunft der Bundeswehr) and will be nested in the future German National Security Strategy, which is due to be published in 2023.<sup>91</sup> In addition, for civil and military defence it is very important to facilitate communication between public authorities, the armed forces, the public-private partnership sector and relief organisations such as the German Red Cross.

### **Protection of cultural assets**

The Hague Convention not only obliges states to protect cultural assets in times of war, but also requires appropriate protective measures in times of peace. Preventive measures can effectively and sustainably protect a cultural asset such as a painting, a written document or a historical building from armed conflicts or natural hazards.

One key component in risk and crisis management in the protection of cultural assets is “emergency alliances” (Notfallverbände): associations of cultural institutions that help each other in the event of a crisis. The number of alliances has continued to increase in recent years. There are currently about 60 emergency alliances in Germany.<sup>92</sup> The BBK supports the alliances by organising an annual meeting. To strengthen preventive measures in the protection of cultural assets, the BBK is funding the Security Guide for Cultural Assets (SicherheitsLeitfaden Kulturgut, SiLK)<sup>93</sup> as part of a project (2016-03/2023). In 2023, the SiLK project will be continued by the Federal Arts Administration (KVdB), an agency, subordinate to BKM. SiLK is a free online tool for museums, archives and libraries on issues relating to the security and protection of cultural assets. It is available in German, English and Arabic.<sup>94</sup> In addition, the BBK created the working group “Emergency Preparedness for Cultural Property” in 2021, in which representatives of the Länder, fire brigades and emergency alliances come together to discuss and develop measures for the protection of cultural assets. Since the training of

appropriate specialist staff is also essential, the BABZ has offered a pilot seminar for expert advisors on the protection of cultural property since September 2022.

### **Environment**

The environmental sector plays an important role in dealing with a wide variety of risks: flood protection, climate adaptation measures for extreme weather events as a result of human-induced climate change, and responses to radiological emergencies – issues that are also central to disaster risk management. The climate change adaptation strategies that have been put in place in Germany since 2015 are described in section 3.3.2. Another important directive in the environmental sector is the European Floods Directive (Directive 2007/60/EC), which provides a binding framework for the assessment and management of flood risks. According to the Floods Directive, flood risk management should be treated as a recurrent cyclical process. In the second implementation cycle of the Floods Directive (2015–2021), the Länder (i) updated their flood risk assessments, (ii) flood hazard and risk maps and (iii) flood risk management plans. In the current third implementation cycle (2021–2027), the aforementioned steps (i, ii, iii) will be repeated and the recurring cyclical updating process thus continued.

## **3.5 Disaster Preparedness, Disaster Response and “Build Back Better”**

To achieve effective disaster preparedness and response and to “build back better”, Germany has acted in a variety of areas since 2015.

### **3.5.1 Early warning and situational awareness**

Early warning systems, forecasts and situational and information management are key elements in preparation for a disaster and for the coordination of the response measures. Forecasting and monitoring risks and disasters are generally conducted by different governmental stakeholders depending on the type of hazard.



## Forecasts and monitoring

The DWD is responsible for weather forecasts and storm warnings. The DWD's Forecast and Advisory Centre (Vorhersage- und Beratungszentrale, VBZ) in Offenbach am Main is responsible for the nationwide coordination of warnings and for issuing pre-warnings, while regional weather advisory offices (Regionale Wetterberatungen, RWBs) are responsible for issuing (severe) weather warnings. The DWD's warning system is multilevel and consists of (i) a weekly overview of potential weather hazards (early warning information), (ii) early advisories on the potential development of severe weather (preliminary information about a specific forthcoming event), including climate watch advisories for upcoming events such as heat and cold waves, long periods of heavy precipitation and drought, and (iii) county-specific and community-specific official warnings. The DWD constantly provides information directly to institutions such as the fire department, police or disaster management authorities, but also to special users such as the energy or water sector. The DWD's public weather forecasts and storm warnings are provided via the media, internet, fax, email, text message and push technologies for mobile devices (such as the WarnWetter app and the GesundheitsWetter app). In addition, the DWD operates a heat warning system (Hitzewarnsystem, HWS) with a newsletter function and has developed a wildland fire hazard index (Waldbrandgefahrenindex, WBI) and a grassland fire index that distinguish between five hazard levels ("very low hazard" to "very high hazard"). The DWD also hosts a climate monitoring node in the WMO's Regional Association VI Regional Climate Centre Network (RCC Node-CM). One of the functions of the RCC Node-CM is to issue climate watch advisories (CWAs) to inform national meteorological and hydrological services in the region about upcoming extreme events for the next two to three weeks. In Germany, the GMLZ (see below) is also regularly informed about any CWA that is issued.

In addition, various non-governmental actors are involved in researching or monitoring weather hazards, such as the **Global Fire Monitoring Center (GFMC)** in Freiburg, which is affiliated with the Max Planck Institute for Chemistry and maintains the **Global Early Warning System for Wildland Fires** together with the Canadian Forest Service.

In Germany, flood forecasts and assessments are conducted by the flood forecasting and reporting centres of the Länder and in cooperation with the Federal Waterways and Shipping Administration. Based on the weather data and forecasts received in cooperation with the DWD, the current water level, discharge and tide gauge data and the discharge and water level forecasts calculated with models, these centres also prepare and distribute warnings about actual or imminent flood hazards. The Länder operate a **flood portal (Länderübergreifendes Hochwasserportal, LHP)**<sup>95</sup>, a website that provides official information on all flood-relevant gauges and current flood warnings, in addition to their own Länder portals. The information on the LHP is also available via a smartphone app, which is available in German, English, French, Italian and Dutch.

**Avalanche forecasts** for the Bavarian Alps are conducted by the avalanche warning centre, which is a unit of the Bavarian Environment Agency. Information on the snowpack and avalanche situation in the mountains is collected by observers and avalanche commissioners. These are consulted by local authorities to assess avalanche safety measures for roads and ski slopes. Information on the avalanche situation is available online ([www.lawinenwarndienst-bayern.de](http://www.lawinenwarndienst-bayern.de)) in German and English in accordance with the statutes of the association of the European Avalanche Warning Services (EAWS). During the winter season, a daily report is published and distributed.

**Seismological monitoring** in Germany is predominantly federal. Even though each state has its own service, much of the data converges at the BGR, whose mission includes monitoring compliance with the Nuclear-Test-Ban Treaty using seismic methods. Research institutes and universities operate additional local earthquake station networks for various purposes. The GFZ tests models and their uncertainties to help improve early warning systems for earthquakes, tsunamis, volcanic eruptions, floods and other natural hazards.

The radiological situation in Germany is determined and assessed by the **Federal Radiological Situation Centre** (Radiologisches Lagezentrum des Bundes, RLZ) in the event of an accident with radiological consequences for the environment. The RLZ provides all available information (i) on the accident sequence, (ii) the accident prognosis and (iii) the

existing and expected effects on the environment, and (iv) forecasts the radiation doses to be expected for the public and the emergency forces.

Copernicus, the EU's earth observation programme, delivers data, information and services based on satellite earth observation data and in situ data. The information services and the data they are based on are used to complement the stakeholders' tasks in monitoring and forecasting risks and disasters. Germany regularly uses data and information provided by the Copernicus programme, especially CEMS products. For example, CEMS damage assessments were used during the floods in western Germany in July 2021.

### **Situation and information management**

The German **Joint Information and Situation Centre (Gemeinsames Melde- und Lagezentrum von Bund und Ländern, GMLZ)** at the BBK is the central hub for the flow of information between the Federal Government, the Länder and a large number of national and international partners in civil protection. It is responsible for three main tasks:

1. situation management: creating a situation overview from a federal perspective on topics relevant to civil protection, at the national and international level
2. resource management: mediating of bottleneck resources to national and international demand carriers, e.g. within the European Union Civil Protection Mechanism (UCPM) or NATO
3. serving as a national contact point: providing a central point of contact for more than 50 national and international warning and reporting procedures, e.g. for contact tracing for infectious diseases (IHR) and coordinating warnings in radio-nuclear emergencies (IAEA).

Due to its good network, 24-hour availability and wide-ranging civil protection responsibilities, the GMLZ ensures that warnings and reports of relevance for civil protection are received, analysed, processed in situation products and forwarded and communicated to the responsible authorities. It also facilitates national and international assistance in the event of emergencies. Milestones in the GMLZ's work since 2015 include:

#### **Since 2020: Covid-19 pandemic:**

- At the beginning of March 2020, the GMLZ, with input from the Länder, created a nationwide situation report for the Federal Government and the Länder.
- The establishment of the Kleeblatt mechanism together with the Länder and other partner organisations: a mechanism designed to transfer Covid-19 intensive care unit (ICU) patients within Germany to prevent individual regions from reaching full capacity within their ICU units. Consequently, securing the healthcare services in the areas with high ICU occupancy rates.
- Supporting the international community by providing medical personnel as well as bottleneck resources such as ventilators, oxygen and medicine.

#### **July 2021: Floods in western Germany:**

- Information management at state level; resource management and coordination of civil protection and emergency service units from all over Germany, as well as international assistance offers.

#### **2022: Russian war on Ukraine:**

- Extension of the Covid-19 Kleeblatt mechanism within the framework of the UCPM to organise the transfer of patients from Ukraine to Germany. The GMLZ coordinated transport options with the EU, the Ukraine ministry of health, the German armed forces, the Norwegian military and private actors, while the Länder organised the medical care for the incoming patients. The Kleeblatt mechanism was able to organise transport and medical treatment for more than 500 patients in Germany.
- In partnership with the Länder as well as federal ministries and agencies, the GMLZ coordinated the national civil humanitarian assistance for Ukraine and bordering states under the UCPM.

### **Warning the public**

In the event of a major incident or disaster, it is important to address and warn the public in a timely and targeted manner. Germany relies on a mixture of means to warn the public, as it can be most effective when warning messages are shared by as many channels and means as possible. In Germany, the Länder are generally responsible for warning

the public in the event of a disaster. However, the Federal Government provides the Länder with a warning infrastructure that is also used by the Federal Government: **the Modular Warning System (Modulares Warnsystem, MoWaS)**. The MoWaS has been operated by the BBK since 2011 and is continuously being developed further to enable disaster risk management authorities at all levels to quickly and immediately trigger the many warning means connected to it (e.g. apps, media channels).

In 2015, the BBK added the smartphone app **NINA (Notfall-Informationen- und Nachrichten-App)** to the mix of available warning means. NINA was primarily designed to communicate warning messages issued by the responsible disaster management authorities (e.g. fire brigades, police, civil protection authorities) via the MoWaS. It also processes messages by other stakeholders such as the **DWD** and **LHP** and the warning systems **BIWAPP** and **KATWARN**. Currently, the NINA app has more than 13 million users and the system processes billions of push messages per month. In 2020, NINA was adapted to include information on Covid-19, such as local incidences and regulations. NINA is currently available in eight languages (German, Arabic, English, French, Polish, Russian, Spanish and Turkish) and, in addition, in “Leichte Sprache” (a similar concept to “easy-read” versions in English).

In addition, the **state of Hesse** uses its own **warning and information app, hessenWARN**. For this purpose, the tried-and-tested warning app KATWARN was further developed with specific functions. In addition to the proven alerts for unexpected dangerous situations (bombs, large fires with hazardous substances, severe weather warnings, terrorist attacks and more), the free app offers other important alerting functions. Users can, for example, receive cybersecurity alerts, information on product recalls or earthquakes or school notifications. These alerts can be switched on and off within the app depending on personal needs.

Since 2021, and in addition to the smartphone app, sirens and other warning means, Germany has been working on the implementation of **cell broadcast** as a new warning technology. In the aftermath of the floods in western Germany in July 2021, the Federal Government has made the legal changes that allow the official introduction of cell broadcast technology in

the mix of warning means. The implementation of the cell broadcast technology is due to be completed in 2023. A first nationwide test warning was sent via the service on Germany’s second National Warning Day (Bundesweiter Warntag) on 8 December 2022. The new warning channel will be put into service at the end of February 2023. From that point onwards, all control centres of the federal states for which the service has been made accessible will be able to issue warnings via cell broadcast alongside existing warning channels. Further access activation for municipalities will take place step by step after training of those responsible for issuing warnings has been completed during the first quarter of 2023. In addition, the Federal Government can already use cell broadcast for public warnings via the MoWaS.

The first National Warning Day since the end of the Cold War took place in September 2020. The idea of the **National Warning Day** was to test all warning means and channels as well as to raise awareness among the public. The next National Warning Day will take place on 14. September 2023. It is due to take place annually from 2022 onwards.

In the aftermath of the reunification of Germany and the end of the Cold War, the siren network in Germany was considerably diminished. Following the first National Warning Day in 2020, the importance of sirens and the need for a comprehensive siren network to effectively warn the public was identified. In 2021, the BBK provided 88 million euros of funding for the **expansion of the siren network** in Germany. The funds are intended to financially support the expansion of the network by the Länder and municipalities. In addition, existing sirens will be technically upgraded so that they can be connected to the MoWaS.

In 2018, the **state of Hesse** began supporting the conversion of municipal sirens to digital radio as part of a **funding programme**. For each siren control device, the state provides the necessary TETRA radio equipment through a material subsidy. With approximately 4,500 sirens to be converted, this results in approximately 2.1 million euros of funding for the municipalities.

Covid-19 made it necessary to develop a new hazard-specific app to complement the already-existing apps. The **Corona-Warn-App** was created in 2020 on behalf of the Federal Government and is managed by Deutsche Telekom, SAP and the RKI. The aim of the app is to break chains of infection and contain the coronavirus pandemic in Germany.

In addition to contact tracing, the app offers other helpful functions, such as digital vaccination records or the ability to organise test results for the whole family. The Corona-Warn-App uses Bluetooth® technology to measure the distance and duration of contacts between people who have installed the app, and was specifically designed to comply with personal data protection laws. At no point in time does the app allow connections to be made to the user or the user's location. The app is currently available in six languages (German, English, Romanian, Bulgarian, Polish and Turkish)<sup>96</sup> and was downloaded over 48 million times up to December 2022.<sup>97</sup>

### 3.5.2 Training and equipment

The German civil protection and disaster risk reduction landscape is just as diverse in terms of the training systems of the various organisations involved as it is in terms of structures and responsibilities. At a local level, disaster management and emergency response are the responsibility of municipal fire departments, the THW and the relief organisations ASB, DLRG, JUH, MHD and DRK. The training of their respective workforce and volunteers differs among organisations and in the case of the fire departments according to federal state laws. The training itself is mostly carried out at local level according to the organisation's guidelines. Many organisations also have training institutions, e.g. the state fire service schools or the THW's educational facility.

At the Länder level, the **Free State of Bavaria** also invests in the **Mountain Rescue Service Center for Safety and Training in Bad Tölz**, a training facility that is unique in the world. The Bavarian Mountain Rescue Service and the mountain rescue foundation built this facility specifically for the training of volunteer rescuers in mountain, air and water rescue scenarios on helicopter simulators. At the newly

built functional annex, emergency services can simulate the entire rescue chain, from patient care and transport to the transfer of the patient from the ambulance to the hospital. The centre also provides the opportunity to present and train certain disaster management scenarios in a realistic manner. In addition to the mountain rescuers and the crews of emergency helicopters, fire brigades, the water rescue service and the Bavarian police use this facility for training. Furthermore, the Free State of Bavaria financially supports the **Bavarian Centre for Special Operations** of the voluntary aid organisations in Windischeschenbach, which is another unique training centre and an important building block for the joint cross-organisational training in disaster management alongside the three state fire service schools.

Germany is also determined to promote first-aid and self-protection measures within the public. Relief organisations therefore offer first-aid training for the public, and fire departments also engage in public education regarding disaster preparedness. In Germany, first-aid training is also mandatory to acquire a driving licence.

Training courses with a focus on decision-makers and stakeholders at all administrative levels in the area of disaster risk management are provided by the BABZ (see ↗ 3.2.4). In 2022, the BABZ is currently setting up a second training facility to expand their training capacities for policy and decision-makers.

#### Civil protection exercises

Regular incident exercises are important elements in maintaining the high standards for protecting the public in Germany. They serve above all to prepare for a possible emergency and to strengthen smooth cooperation between all those involved. On a federal, state and local level, incident exercises are conducted regularly with the participation of, among others, fire departments, voluntary relief organisations and the THW.

The exercises of the national strategic LÜKEX series, organised by the BMI and BBK, take place every two years. These are interministerial and interstate crisis management exercises. The exercises are aimed at top crisis staff and crisis management structures at the federal and state levels, including critical

infrastructure in private ownership. The aim is to improve the overarching response capability in extraordinary crisis situations. In addition, LÜKEX exercises promote the development of a coordination and decision-making culture in organisations during crises, the exchange of knowledge about risks, and the establishment of crisis management networks. Since 2004, eight LÜKEX exercises have taken place. Exercises since 2015 have included a storm surge on the German North Sea coast (2015) and a gas shortage in southern Germany (2018). The planned ninth LÜKEX exercise for 2021 was postponed due to the Covid-19 pandemic and is scheduled for September 2023.

In addition, the Länder conduct their own state disaster management exercises. For example, in 2017, the **state of Hesse** conducted a **framework exercise on floods** for the crisis team of the Hesse state government. The aim of the exercise was to review/optimize the organisation, functionality and working capacity of the crisis team within the situation centre, in particular the interdepartmental and cross-Länder cooperation as well as press and public relations work. The possibilities and limits of cooperation with the personnel and resources of the German armed forces were also tested. In addition, a large number of exercises take place at the municipal level or at the level of regional councils.

The **Bavarian disaster management authorities** at all levels (state, regional and county level) also conduct regular disaster management exercises. The Bavarian Act on Disaster Control from 24 July 1996 stipulates that the disaster management authorities have to carry out civil protection exercises to an appropriate extent and with the participation of those actors/organisations obliged to provide disaster aid according to the regulations of the act. Therefore, **the Bavarian State Ministry of the Interior, for Sport and Integration (StMI)** has further defined that provision in 1994 and again in 2021 regarding the frequency and scope of exercises to be conducted by the disaster management authorities. These requirements include among others, different types of exercises, such as table-top and field exercises and a certain time interval, for carrying out these different exercise types.

In addition, there are also exercises with the neighbouring EU Member States and their regions. For example, in 2017, a cross-border exercise on forest firefighting took place in the border region between Austria, Czechia and Germany/the Free State of Bavaria. The aim was, amongst others, to practice existing structures and procedures and to improve the joint cross-border cooperation. Moreover, the Free State of Bavaria participated together with Baden-Württemberg, as intensively practicing Länder, in the 2018 LÜKEX exercise.

As mentioned Topic-specific exercises (e.g. to prepare for possible accidents with radiological consequences for the environment) are also held regularly, which test the interaction between local, federal and state authorities, neighbouring EU countries and/or international organisations, and are often coordinated by the latter.

#### **Supplementary civil protection equipment provided by the Federal Government**

In principle, responsibility for disaster risk management in Germany lies with the Länder. However, the Federal Government supports the Länder by providing extensive materials, technical resources and vehicles in the areas of fire protection, CBRN protection and medical services. The BBK is responsible for developing, centrally procuring and equipping the emergency vehicles.

The **2007 concept on the provision of supplementary civil protection equipment** by the Federal Government (updated in 2019) provides for 5,421 emergency vehicles, including equipment, and is based on a hazard pattern that can be expected in today's world: the spatially limited, large-scale disaster situation. The strategy is made up of two components: the core federal component for special hazard situations and the support component. The aim is to complement the disaster management of the Länder for special situations in the best way possible. This applies in particular to CBRN hazards and mass-casualty incidents.<sup>98</sup>

As part of the support reserve for civil protection, the BBK, together with the German relief organisations DRK, ASB, JUH and MHD, is developing and testing a new mobile care module for up to 5,000 people (MBM 5.000). In this project, a mobile care

module is designed to accommodate up to 5,000 people at very short notice and for a period of up to one year. The module ensures people's basic needs of life are met and is also designed to be largely self-sufficient. It can also support existing facilities in different subareas. The pilot project (called Labor Betreuung 5000) has already been realised in cooperation with the DRK. The realisation of four more modules is planned within the year 2023. A total of ten modules are to be built in the coming years. In order to be quickly operational in an emergency situation, the necessary materials will be procured and kept in stock. The module is intended as buffer capacity to bridge critical resources. In the pilot project, these materials will be tested, appropriate deployment and personnel concepts developed and standards set. The knowledge gained from this will be incorporated into the planning and development of the other support modules. Although the module is still being developed and tested, it was already put to use during the floods in western Germany in 2021 and to house Ukrainian refugees in Berlin in 2022.

### 3.5.3 Disaster preparedness

Emergency planning represents the totality of concrete preparations for a crisis or disaster that must be made in order to ensure that the crisis or disaster is effectively managed. Various federal and state laws in Germany stipulate that **emergency plans** must be established, for example for fire protection, emergency assistance and disaster management, radiation protection and hospital alarm planning. These are to be regularly updated and adapted to current conditions. At the national level, prominent examples include the National Pandemic Plan (Nationaler Pandemieplan) (most recently updated in 2020) and the Gas Emergency Plan (Notfallplan Gas) (2019).

Another key element for the resilience of a society is the ability of the public to take **self-protection measures**. That means people have an active and very important role to play: they are not just bystanders. Some of the measures taken in this regard can be found under [↗ 3.2.3](#)

In addition, **volunteering** is an essential resilience factor for the protection of the public. The integrated civil protection system in Germany is largely supported by volunteers – in relief organisations, fire brigades and the THW. Around 1.7 million civil protection and disaster management personnel are involved in voluntary work in their spare time, are trained and are regularly deployed. In the long term, however, a decline in the number of available volunteer emergency workers is to be expected, which can be attributed to demographic change, increasing mobility and changing lifestyles and social structures, among other factors. At the same time, the professional requirements for the tasks are increasing. Opportunities to recruit volunteers from all age groups and to develop initiatives and innovative voluntary work projects are important to strengthen civil protection in Germany in the long term.

Therefore, the BBK and the Federal Government have taken various measures. In addition to the **Förderpreis Helfende Hand** (Helping Hand Prize),<sup>99</sup> which has been awarded annually by the BMI since 2009 for efforts in youth work to promote and maintain civil protection volunteering, as well as for innovative concepts to increase the attractiveness of civil protection volunteering and support for civil protection volunteering by companies, institutions or individuals, the campaign **Mit dir. Für uns alle**. (With you. For all of us.)<sup>100</sup> was launched by the BBK, to only name one example. The campaign consists of a website and a social media campaign in which the slogan “No matter what you can do, you can help” is used to highlight the diverse tasks performed by civil protection volunteering. In videos, podcasts and interviews, volunteers have their say and give an insight into their work. The aim is to answer the question “What kind of voluntary work suits me?” and to give an insight into different organisations.

Besides general measures to promote voluntary work (voluntary work card, voluntary work certificate, voluntary work insurance), the **Free State of Bavaria** harnesses a variety of measures to specifically support the recruitment of young people for safety-relevant volunteering. Since 2014, the Free State of Bavaria harnesses a variety of measures to specifically support the recruitment of young people for safety-relevant volunteering. (“Helfernetz Bayern”) with an annual grant of 90,000 euros.

In addition, an internet portal was created to showcase and exchange good and successfully implemented ideas/concepts for recruiting young people to volunteer. This portal offers those at the local level a collection of ideas which they can use to gain inspiration for their own recruitment work ([www.nachwuchs112.bayern.de](http://www.nachwuchs112.bayern.de)). Currently, the campaign “doppelt engagiert” ([www.doppelt-engagiert.de](http://www.doppelt-engagiert.de) – twice committed) is running in Bavaria. It points out to employers how they can benefit from the qualities that volunteers also bring to their jobs – such as willingness to perform, the ability to work in a team, a certain stress resistance and a high level of motivation. In return, the employers are also recognised and thanked for their support of safety-relevant voluntary work. Since 2018, the distinction “Volunteer-friendly company together for more safety” has been conferred. Every year, employers who support their employees exceptionally in their safety-related voluntary work receive this award as a sign of recognition.

### 3.5.4 Disaster response and “build back better”

Immediate disaster response measures rely on the Länder and municipalities with their local emergency response units, such as the fire brigades, the local units of the relief organisations and the crisis teams at the corresponding administrative levels, as described in the introduction to section 3. The full-time and voluntary forces of the THW can be called in for support in the event of major incidents and disasters. Beyond that, the Federal Government does not maintain its own operational forces for the performance of its civil protection tasks. However, in individual cases the Länder can specifically request assistance from the Federal Government – for example, for bottleneck resource management, coordinated by the GMLZ (see ↗ 3.5.2).

#### Integrating prevention into rehabilitation and reconstruction measures

The aim of disaster-preventive reconstruction is to learn appropriate lessons from a disaster and thus to integrate certain disaster prevention criteria or measures directly into the reconstruction process. The Urban Resilience Memorandum (see ↗ 3.2.2), published in 2021, provides guidelines and recommendations to include disaster risk management in

urban planning and reconstruction measures and to “build back better”. The application of lessons learned in the process of post-disaster reconstruction in the German context can be observed in statutory changes made after the severe flood events of 2002 and 2013 in eastern and northern Germany. It is not yet clear what impact the floods in western Germany in July 2021 will have on reconstruction guidelines and statutory changes.

#### Learning after crises

Continuous learning during crises, the evaluation of crisis and disaster risk management, and the integration of lessons learned in all stages of disaster risk management offer an opportunity to improve disaster risk management measures based on real-life stress tests. Some of the relevant lessons and evaluation processes since 2015 include:

The Covid-19 pandemic and the measures taken by the Federal Government in Germany were evaluated in 2022. An expert commission, commissioned by the BMG, specifically evaluated the measures taken on the basis of the Infection Protection Act and its amendments during the years of the pandemic. The expert commission’s report was published in September 2022.<sup>101</sup>

In response to the floods in western Germany in July 2021, the BMI and the Federal Ministry of Finance published the report “Flood Disaster Report 2021: Disaster Response, Reconstruction and Evaluation Processes” (Bericht zur Hochwasserkatastrophe 2021: Katastrophenhilfe, Wiederaufbau und Evaluierungsprozesse),<sup>102</sup> which provides a comprehensive overview of the flood event, the damage and the response measures by the Federal Government, the Länder and relief organisations. It also includes a section on current evaluation and reform processes at different administrative levels. The state parliaments of the heavily affected Länder North Rhine-Westphalia<sup>103</sup> and Rhineland-Palatinate<sup>104</sup> have both established parliamentary committees to investigate the disaster preparedness and response measures in their respective state. At the time of this report, both committees are still conducting their investigations and have not yet published their final findings.

In the aftermath of the flood events in July 2021, **the state of Hesse** also took a number of measures to be even better prepared for comparable crisis situations. These measures included the creation of guidelines (“**Guidelines** for Preparedness for and Coping with Flood and Heavy Rain Events”, published 25 November 2021), **four information events** throughout Hesse in winter 2021 for mayors, district councillors, political decision-makers and the respective technical decision-makers in the field of civil protection at the municipal level, the creation of **training and exercise opportunities for municipal administrative staff** and the procurement of **mission-specific special operations equipment**.

In the **Free State of Bavaria**, a concept called “Hochwasser-Check” (Aid) is being developed in which the municipalities, together with the water management offices, conduct an in-depth investigation of the flood risks on site.

In the light of current and past disasters, the BMI, in cooperation with the BBK, hosted the high-level conference “Lernen aus Krisenlagen – vorbereitet sein und effizient handeln” in Berlin on 6 December 2022 to identify lessons learned and next steps for the improvement of strategic crisis management.

### **Financial aid after disasters**

One specific lesson of the flood in western Germany is that the level of solidarity in Germany is extremely high. In addition to the countless people who rushed to help those affected in their time of need, a total of 655 million euros was donated for emergency relief and reconstruction. However, due to the complicated donation law in Germany, many of these donations could not be forwarded to those affected. Only some of the private donations have been paid out so far, and many affected people are still waiting (as of November 2022) for insurance money or help from the federal and state governments. The reason for this is the principle of subordination. This regulates when which funds are disbursed. First, insurance or state reconstruction aid must pay for the damage, and only then may private donations be distributed.<sup>105</sup>

As described in section 3.4.1, the German government does not provide a permanent fund for disaster support, but under specific circumstances the government can provide support in the form of ad hoc relief funds. The drought in summer 2018 caused damage to agriculture and relevant companies. The damage was classified as an event of national extent and the federal government decided to contribute with a total volume of up to 170 million euros. In the case of the 2021 flood disaster in Germany, the Reconstruction Aid Ordinance 2021 (Aufbauhilfeverordnung, AufbhV 2021) was drawn up specifically for this purpose. Immediately after the flood disaster, the Federal Government decided to contribute to the emergency aid programmes of the Länder, initially on a 50/50 basis, up to an amount of 400 million euros. In addition, the Federal Government has established a special fund, “Reconstruction Assistance 2021” (Aufbauhilfe 2021), with a total volume of up to 30 billion euros for medium and long-term support in reconstruction.<sup>106</sup> However, due to a variety of factors, many of the homeowners in the affected areas are still waiting for financial support either from their insurers, the government funds or the private donations. To speed up such processes, bureaucratic barriers must be dismantled. Relief organisations and the German Fundraising Association have therefore approached the Federal Government in order to improve the processes.

## **3.6 International Cooperation**

Germany, together with its partner countries, is fostering **risk-informed planning and decision-making** in its international cooperation activities. This includes a tailored mix of public and private financial and technical instruments from the local to the national level.

Germany has strongly advocated for a **comprehensive risk management** approach. This means bringing together strategies and measures from different sectors to respond to crises and to reduce disaster and climate risks. Rather than a series of individual measures, it combines both tried-and-tested and innovative instruments from the fields of climate change mitigation, climate change adaptation, disaster risk management and social protection into a single holistic approach.



Disaster risk management is also one of the four fields of action of Germany's transitional development assistance. This is an internationally unique instrument that builds bridges in many directions both during and after crises. It includes instruments linking all three dimensions of the Humanitarian-Development-Peace (HDP) Nexus, especially in connection to humanitarian assistance.

Germany has advocated for and scaled up its own funding for disaster risk reduction and anticipatory action. Between 2014 and 2019, Germany spent a total of 23 million euros on anticipatory action. This was increased to 30.4 million euros and 33.9 million euros in 2020 and 2021 respectively. In 2022, this figure has been further doubled to an annual expenditure of around 60 million euros on anticipatory action. The goal of anticipatory action is to proactively reduce the humanitarian impacts of predicted disasters before they strike. The provision of humanitarian assistance is triggered by early warning systems that predict both likely disasters and their humanitarian impacts. Financing and actions are pre-agreed. Numerous studies have shown that anticipatory action can result in considerable efficiency gains,<sup>107</sup> thus contributing to reducing the gap between humanitarian needs and funding. By increasing the resilience of affected people, it also contributes to the complementarity between humanitarian action and development cooperation.

#### **Creating new risk management capabilities at local level in Somaliland**

The rural population of Somaliland is highly vulnerable to disasters. With Germany's transitional development assistance, the affected rural population was able to improve its resilience to natural hazards, food insecurity and health risks. This included the establishment of citizens' committees for disaster preparedness and risk awareness. To improve food security and income opportunities, farmers have reinforced embankments and taken part in training courses on the cultivation of climate-resilient crops. To help people deal with health risks, radio programmes covering pandemic prevention and providing information on hygiene-related measures were broadcast. The project started in 2020, and its current phase will be implemented until 2023 with funding of almost 10 million euros.

The following aspects of disaster risk management were key for Germany's achievements at the international level in the last seven years:

#### **Risk assessment, information and understanding**

Germany enhanced its own and its partners' **understanding of risks**, as risk-informed decision-making is the best form of prevention. When examining hazards, there is often a lack of reliable data and analysis on the expected impacts and costs. Therefore, concrete recommendations for action are difficult to articulate. However, such information is very important, as it builds the foundation of any further engagement. Germany supported various initiatives and research on integrative risk assessments and joint analysis and the exchange of reliable data in international cooperation.

Sectors such as agriculture that are highly sensitive to weather conditions are especially dependent on reliable information. To gain reliable information, Germany has been providing funding since 2018 to research institutions such as the Potsdam Institute for Climate Impact Research to conduct comprehensive climate risk analyses based on solid data and methods, with a regional focus on the Sahel region and Sub-Saharan Africa. These analyses informed national adaptation and disaster risk reduction strategies in partner countries. Research conducted in this framework addressed climate-related risks, conflict and fragility issues and regional approaches.

Germany's international cooperation is also supporting initiatives aimed at facilitating data collection and exchange, such as the Complex Risk Analytics Fund. Beyond data exchange, Germany has been funding the Anticipation Hub since 2019, which has established itself as the central anticipatory action platform for learning, knowledge exchange, guidance and advocacy between scientists, practitioners and policymakers.

#### **Risk governance and management**

Germany is pushing to overcome siloed approaches to reducing disaster risks. This also applies to support in building and strengthening governance structures and processes. Policy, institutional and financing arrangements must consider disaster risks to ensure a resilient and sustainable future.

Therefore, Germany has offered partners advice on their development of risk reduction strategies, adaptation plans and emergency and disaster laws. Effective coordination and coherence with other development policies were central. As part of its international cooperation efforts, Germany listened to civil society, businesses and academia in its partner countries, following a whole-of-society approach, and made sure that their needs and demands were reflected in the processes leading to policies and regulations. Germany also supported administrative agencies in putting robust accountability mechanisms in place for their implementation.

In urban development, risk governance is an integral part of Germany's engagement. Megacities are rising, and medium-sized cities continue to expand. This increasingly exposes them to hazards such as floods and landslides. Cities should be able to access technical, financial and human resources more easily from higher-level institutions in order to minimise disaster risks in urban contexts. Therefore, German development cooperation has supported the provision of financing arrangements to strengthen coastal infrastructure, including dykes and sand embankments, via its development bank KfW, e.g. in Tunisia since 2013, and fostered the implementation of building codes in accordance with flood directives in flood-prone areas, e.g. in the Western Balkans from 2012 to 2023.

Germany has also supported the development of tools to enable an enhanced response in urban settings by local humanitarian actors, but also to better reduce and anticipate disaster risks in urban environments.

### **Investment in risk reduction and resilience**

Germany has supported the upgrading of critical infrastructure and supply systems to make them more resilient, and enabled the development of innovative solutions for **climate risk financing**.

One of Germany's instruments in the area of climate risk financing is the InsuResilience Global Partnership (IGP). It was founded in 2017 by the German government together with partners from the G20+ (Group of Twenty and additional partners) and V20 (Vulnerable Twenty). It aims to facilitate a timely and reliable financial response to disas-

ters using instruments of climate and disaster risk finance and insurance. One of the main targets is to financially protect 500 million people living in poverty or vulnerable situations against climate and disaster shocks by 2025. So far, German development cooperation has supported the partnership's risk financing and insurance solutions with more than 800 million euros. The IGP now has over 120 members from industrialised and developing countries, civil society, the private sector, development banks, multilateral organisations and academia.

### **Reducing climate and disaster risks through risk finance and insurance**

One of the IGP's initiatives is the African Risk Capacity (ARC). ARC supports African countries in adapting to climate change by issuing innovative insurance policies combined with technical solutions for disaster risk management. In 2018, with the support of 18.5 million euros of German development cooperation funding, a finance scheme called ARC Replica was launched.

The IGP, among other risk financing instruments, also supports the Natural Disaster Fund, established in 2019. This fund offers innovative financial solutions to address climate risks, including the provision of financing before a climate-related hazard, for example a tropical cyclone, strikes. Weather forecasts and risk analyses are decisive for disbursements, since they enable beneficiaries to prepare better or move to safety in advance. Solutions like these can prevent an extreme weather event from turning into a disaster.

On the humanitarian side, Germany is contributing to a variety of anticipatory action financing mechanisms, including via the Central Emergency Response Fund, the International Federation of Red Cross and Red Crescent Societies' (IFRC's) Disaster Response Emergency Fund, the World Food Programme's corporate Trust Fund for Hunger-Related Climate Change, the Food and Agriculture Organization (FAO) Special Fund for Emergency and Rehabilitation Activities, and the START Fund.

## Disaster preparedness, disaster response and “build back better”

Disaster-resilient **reconstruction and recovery** draws lessons in the aftermath of a disaster and includes disaster risk management in rehabilitation processes. Following such an approach, Germany focuses not only on rapid restoration of infrastructure and services. Applying a disaster-preventive approach also means factoring in potential future risks in accordance with the “build back better” approach. This applies to reconstructing buildings and basic infrastructure as well as adapting laws, social systems and guidelines to improve the livelihoods of disaster-affected people. For example, Germany’s support of the World Bank’s Sahel Adaptive Social Protection Program, in effect since 2018, has led to enhanced national social protection systems that help poor and vulnerable households in the fragile Sahel region. These support systems make communities and families more resilient to the impacts of multiple risks, including those caused by climate change.

In international cooperation, Germany places a special emphasis on **fragile and conflict-affected contexts**. It addresses the needs of people most at risk and of those already affected or displaced by disasters. To this end, Germany draws on instruments of both humanitarian assistance and longer-term development cooperation.

Germany’s development cooperation supports local communities to better avert and deal with shocks and disasters, e.g. providing radio broadcasts on the protection against infectious diseases or training for farmers on climate-resilient cultivation methods. Such transformative activities make communities more resilient and empower them in risk-informed decision-making and planning. Germany links this engagement of humanitarian assistance and development cooperation wherever possible to enable frictionless support in highly volatile situations. This is also in line with the HDP Nexus.

## **Raising risk awareness in urban and fragile contexts in Lebanon**

Since 2019, the support of the AA has allowed the German and Lebanese Red Cross to develop an enhanced vulnerability and capacity assessment training package (consisting of a facilitator guide and toolbox), which includes guidance for disaster risk reduction projects and approaches in fragile and conflict-affected contexts.

In addition, since 2015 German development cooperation has supported the Lebanese Red Cross to scale up their disaster risk reduction in schools and in conflict-affected and/or urban communities. These projects are implemented through strong coordination and cooperation on preparedness and prevention with public authorities and other stakeholders such as the military, civil defence, inter-/non-governmental organisations and community-based organisations at local, regional and national level. This allows the Lebanese Red Cross to support the government with the national crisis and response plan. Investment in preparedness and disaster risk reduction also enables a quick scale-up of local capacities in emergencies.

In addition to supporting preparedness and disaster risk reduction projects, the AA has supported an anticipatory action project since 2021. This project is directly interlinked with the previous investments in preparedness and disaster risk reduction to further enhance early warning and early action mechanisms in Lebanon.

## **3.7 Collaboration, Partnership and Cooperation**

The institutional set-up, coordination mechanisms and partnerships in Germany’s disaster risk management landscape have been described in the previous sections. The SFDRR has significantly contributed to increased collaboration and cooperation among government stakeholders. In section [7 3.3.1](#), the institutional mechanisms that resulted from the SFDRR process in Germany are described. On top of that, collaboration with non-state actors within Germany as well as with other national focal points within the international community has

increased since 2015, which has led to several developments. For example, an improvement of the SFM was achieved due to the cooperation of the German national focal point for the SFDRR with Switzerland and other neighbouring focal points in consultation with the UNDRR. As a result, users are now able to specify the survey method used to collect their data.

An integral part of the implementation of the SFDRR and the basis for collaboration and partnerships with other stakeholders is the concept of coherence in governmental action and among sectors and stakeholders. The SFDRR has strong ties with the Paris Agreement, the 2030 Agenda for Sustainable Development and the 2016 New Urban Agenda. Keeping this in mind, German disaster risk management efforts also focus on building coherence among these policy fields and on avoiding the duplication of efforts by linking climate change adaptation, emergency planning, spatial planning and sustainable development. Synergies between disaster risk management, climate change adaptation and sustainable development can be found at the planning level as well as in research and funding programmes. In this context, the KomPass laid the foundation for the use of synergies from disaster risk reduction and climate change adaptation with the DAS.

It is clear that the implementation of the SFDRR and the German Resilience Strategy is only possible in partnership with all involved stakeholders, including the Länder, municipalities, civil society, academia, the private sector and the media.

In its **international** humanitarian aid and development cooperation, Germany builds strong **multilateral and regional partnerships** through continuous financial support and technical collaboration. This includes international organisations such as the United Nations and civil society networks. Together, Germany is able to shape the global agenda on disaster risk reduction and related topics, build effective alliances and respond globally to the needs of people who are increasingly affected by disasters and other crises.

The UNDRR has been Germany's main partner in promoting disaster risk management within global development policy forums. Together, Germany

and the UNDRR have continually developed innovative risk management instruments and information for decision-makers. Within the World Bank, Germany has supported the Global Facility for Disaster Reduction and Recovery, which makes sure that World Bank investments are implemented in a disaster and climate-resilient manner.

The German-funded Anticipation Hub has brought together more than 100 partner organisations from the Red Cross and Red Crescent Movement, the UN, non-governmental organizations (NGOs), government and think tank sector and academia. Through the support of anticipatory action projects around the world, the Anticipation Hub has enabled local humanitarian actors to develop, jointly with hydrometeorological services, impact-based forecast thresholds for extreme weather that can be used to trigger anticipatory action.

### 3.8 Progress in Achieving the Targets of the Sendai Framework

With the adoption of the German Resilience Strategy, Germany has translated the goals and targets of the SFDRR to its national context. The implementation of the strategy will closely follow the goals and spirit of the SFDRR. Progress has been made towards all seven targets. However, monitoring the targets and reporting within the SFM comes with challenges for several reasons.

First and foremost, the Federal Government and the Länder share the responsibility when it comes to monitoring and reporting on disasters. Sections 3.1–3.6 provide information on the qualitative improvements within the German disaster risk reduction landscape since 2015. With the adoption of the German Resilience Strategy, target E1 was fulfilled in July 2022 and a milestone was established by providing the first comprehensive and overarching strategy for the Federal Government to strengthen resilience to disasters. Considering the progress on target F, a high influx in financial support by the Federal Government for international cooperation efforts can be declared. Due to the diverse governance structure and the shared responsibilities among stakeholders, the progress in achieving targets A–D and G cannot be described quantitatively.

## 4 Context Shifts, and New and Emerging Issues

Germany used to be considered a safe country with only a few disasters, and long-lasting and large-scale disasters were rare, which is why although there was investment in disaster risk reduction and some recognition of its importance, it was not treated as a priority. However, this view has changed since the Covid-19 pandemic, the flood event in western Germany in July 2021 and the Russian war on Ukraine since February 2022. Both among politicians and the general public, there is greater awareness of vulnerability to disasters and the need for effective disaster risk management. Particularly in high-tech societies enmeshed in global trade, the consequences of disaster for all areas of life have become much more complex: loss of human life and livelihoods, significant economic, social and environmental damage and a threat to critical infrastructures.

The disasters of recent years have had a significant impact on German society and politics and are continuing to change them. These and other damaging events have also clearly shown where both Germany's preparedness and coping capacities and capabilities are well organised and where they must significantly improve in order to be fit for the future. This applies to civil protection in general and to risk and crisis management measures in all other policy areas.

The extent to which preparedness has gained importance among the public is shown by the fact that people also want to take precautions themselves. For example, the demand for guides on emergency stockpiling increased during the Covid-19 pandemic. The public needs to be supported to take their own precautions, and risk awareness must continue to be raised.

The Russian war on Ukraine, its effects on German energy supply and news of possible cyber-attacks have increased awareness among politicians and the public of the dependence on Russian energy sources and the need for cybersecurity. The military aggression by Russia has also resulted in an unprecedented influx in funding for the German military, which has also led to the re-emergence of the topic of civil protection in political discussions and the media.

Covid-19 revealed Germany's dependence on the world market and supply chains and once again highlighted the shortage of qualified personnel, especially in the health sector.

At the same time, it is important to address relief organisations' current problems in recruiting new volunteers, which are also being exacerbated by demographic change.

In the future, German society will face more frequent and more intense hazardous events that are increasingly connected and will create cascading effects across various sectors. The effects of a changing climate will contribute to more frequent and more intense events as well.

Germany is addressing these new challenges in dealing with hazards, risks, disasters and crises with its Resilience Strategy. The German Resilience Strategy creates a strategic framework that promotes forward-looking action informed by risk and fosters a resilient society, which are important elements of sustainable development. The driving forces behind it are the SFDRR and other global and European agendas that are mutually committed to the importance of integrated disaster risk management for sustainability, climate change mitigation and adaptation, international cooperation and urban development.

# 5 Prospective Review (to 2030 and Beyond)

The Federal Government adopted the German Resilience Strategy in July 2022. In the strategy, the federal ministries laid out goals, objectives and measures for achieving a more resilient future. The prospective review to 2030 and beyond will focus on these adopted goals, objectives and measures to strengthen Germany's resilience to disaster until 2030. As the implementation of the Resilience Strategy is just beginning, this report will spotlight individual measures undertaken by various federal authorities and will only show a selection of Germany's upcoming crisis and risk management activities.

## 5.1 Outcome and Goal

By adopting the German Resilience Strategy, Germany has committed to the goals of the SFDRR and set ambitious goals for itself until 2030. The overarching goal of the Resilience Strategy is that by 2030 German society will be more resilient to disasters and that Germany's international cooperation will contribute to global implementation of the Sendai Framework. This is to be pursued through three strategic objectives: **integration, cooperation and coordination.**

Existing structures and systems are to be supplemented or linked by new or improved disaster risk management measures. State and non-state stakeholders are supposed to work more closely together in the area of disaster risk management. Information, insights and findings in the area of disaster risk management are to be communicated more widely and more closely interlinked.

## 5.2 Risk Assessment, Information and Understanding

In order to be able to assess disaster risks, it is essential to ensure that all stakeholders have knowledge and understanding of the possible effects and interactions of hazards. This also requires the development and use of methods to collect, visualise and analyse information and data. At the same time, risk communication must raise awareness of risks in the public and among all those responsible,

for example in healthcare facilities and in public administration. Germany has therefore committed to improve its capabilities to:

1. enhance and use risk analyses
2. identify newly emerging risks at an early stage
3. improve the data situation
4. raise awareness of self-provision among the public
5. include disaster risk management issues in education and training.

Below, a selection of activities and measures that will enhance Germany's understanding of risks until 2030 are highlighted. The prospective review shows examples of activities in Germany that will contribute to strengthening resilience to disasters.

### Risk analysis in federal civil protection

In the area of risk assessments, the Federal Government's risk analysis will be continued. With the completion of the last risk analysis (earthquakes), a total of eight risk analyses, which evaluate hazards and their effects on 16 damage parameters – including up to 29 branches of critical infrastructure and consideration of potential cascade effects – have been performed since scenario-based risk analyses for civil protection began at the federal level in 2012.

On this basis, an overview of capabilities and resources for civil protection from a federal point of view has been generated, allowing experts to identify the corresponding fields of action. Cooperation between the federal and state levels has also increased in recent years. Thanks to efforts by the state of North Rhine-Westphalia, the earthquake risk analysis also marks the first time that the municipal level has been successfully integrated into the analysis process.

In addition, a productive network has been established across different agencies and levels within the framework of developing the individual risk analyses for the Federal Government's civil protection efforts. Not only the government agencies involved, but also scientific and business organisations and actors value the findings of the risk analyses.

The Federal Government's risk analysis will continue to involve all ministries and all relevant public authorities' business divisions as well as other public authorities and experts from the Federal Government, the Länder and scientific and business organisations. This will ensure that the knowledge and expertise available is pooled and that any statements issued are coordinated jointly by the Federal Government. It is important to consider both extraordinary and plausible incidents and their potential consequences, as they challenge Germany's emergency response and relief system like never before.

### **Improvement of data availability**

Natural hazards and their change in intensity and frequency due to climate change are a major factor in Germany's vulnerability. They can lead to high economic and business losses. These losses and damage caused by the consequences of climate change threaten both the state and the private sector. However, in the national policy field of climate adaptation, it has been difficult to clearly distinguish the costs of climate-change-related damage and the effectiveness of financing instruments from other influencing factors.

Therefore, the UBA will develop a methodology to systematically record and estimate the observed damage and costs of climate-related extreme weather events. In doing so, both insured and non-insured damage, monetary losses and extended damage (e.g. ecosystem services) are to be considered. Of particular relevance is the differentiation of climate change from other influencing factors. Results are expected to be published in early 2024.

### **Civil Protection Day**

In the area of "Raising awareness", the Federal Minister of the Interior and Community proposed the establishment of an annual national Civil Protection Day (**Bevölkerungsschutztag**).

The Civil Protection Day will be marked by the federal and state governments from 2023 onwards to raise awareness of self-protection among the public. The first Civil Protection Day is planned for 24 June 2023.

## **5.3 Risk Governance and Management**

Germany has recognised that in order to be able to effectively manage disaster risks in the sense of risk-informed governance, instruments for disaster risk management must be anchored in different sectors. To this end, the Federal Government continues to strive for risk-informed planning, e.g. in its financial budget, urban and spatial planning, land use, health, conservation and management of natural resources, and transport and infrastructure (including communication and IT). To achieve this, Germany will focus on the following points until 2030:

1. anchoring disaster risk management as a cross-functional task
2. bolstering risk management skills and coordination mechanisms
3. expanding and leveraging coherence with other cross-sectoral policy areas
4. stepping up cooperation between state and non-state stakeholders
5. increasing cooperation in the area of disaster risk management in and with the EU and NATO.

Below, a selection of activities and measures that will enhance Germany's risk governance and management until 2030 are highlighted. The prospective review shows examples of activities in Germany that will contribute to strengthening resilience to disasters.

### **Institutions, legislation and policies**

In the coming years, key risk governance projects will include the implementation of the German Resilience Strategy and the development of a national platform for strengthening resilience to disasters. The concept for the platform is still under discussion and will be the subject of a dialogue series with the Länder and non-governmental stakeholders in 2023. To monitor the progress in implementing the German Resilience Strategy, the strategy calls for regular progress reports with a three-year interval. The first progress report will be based on this midterm review report and will be compiled in 2025.

The Federal Government is currently preparing a new legislative act to strengthen the resilience of critical infrastructure to disasters (KRITIS-Dachgesetz).

The EU Directive on the Resilience of Critical Entities<sup>108</sup> will be implemented into national law in this act. It will include obligations to take measures to strengthen the resilience of critical infrastructure across all administrative levels and all sectors. The focus of the framework legislation is on preventing outages of critical services for the general public as well as ensuring quick response and restoration of services in times of crises. Its adoption will be accompanied by amendments to a number of other CIP-related laws. In addition, the EU published Directive 2022/2555 in December 2022 on measures for a high common level of cybersecurity across the union. Member States must transpose the directive into national law within the next few months.<sup>109</sup> While preparing the legislative acts at national level, the Federal Government is aiming for a coherent approach towards physical security and cybersecurity of critical infrastructures.

In the area of climate change adaptation, the Federal Government is preparing a new climate adaptation law and a new adaptation strategy (DAS 2.0). The climate adaptation law seeks to establish governance regulations at federal level and to implement a national climate adaptation strategy with measurable targets together with the Länder. The adaptation law is therefore accompanied by the development of a new climate adaptation strategy with measurable targets. It will provide for a consistent governance of climate adaptation in Germany through concrete, measurable targets in various fields of action, including the measures required to achieve the targets, which are to be developed through a broad societal discussion process.

In terms of policies, a new overarching framework will be provided by the planned **National Security Strategy (Nationale Sicherheitsstrategie)** as the German government's basic security policy document. The strategy is spearheaded by the AA and will be adopted by the Federal Government. It is based on a comprehensive concept of security that will also include resilience.

Legislative and conceptual measures are also planned at state level. For example, the **state of Hesse** will continue its Integrated Climate Protection Plan Hesse 2025 until 2030 with the new **Climate Plan Hesse**, which will also include climate mitigation and climate change adaptation measures in the area of civil protection and the protection of critical infrastructure.

## 5.4 Investment in Risk Reduction and Resilience

Investments are essential to strengthen disaster risk management. It is therefore increasingly necessary to include risk aspects in investment decisions for structural, non-structural and other financial and investment measures. In this way, damage caused by disasters can be substantially reduced and financial expenditure can be made sustainable. Germany wants to advance efforts that promote the implementation of measures that not only contribute to resilience to disasters through sectoral development, but also address underlying risk drivers that may arise through social, economic or environmental processes. These efforts continuously address the following issues:

1. finance
2. healthcare
3. economic affairs and energy
4. digital infrastructure
5. construction, urban, rural and regional development and land-use planning
6. transport
7. food, agriculture and forestry
8. environment
9. labour and social affairs
10. education and science
11. civil and military defence
12. justice and consumer protection
13. vulnerable groups
14. innovative technologies
15. protection of cultural assets
16. critical infrastructure
17. dissemination of proven resilience practices.



Below, a selection of activities and (non-)financial measures that will enhance Germany's investment in risk reduction and resilience until 2030 are highlighted. The prospective review shows examples of activities in Germany that will contribute to strengthening resilience to disasters.

### Finance

The study on **resilience funding in Germany** mentioned under ↗ 3.4.1 is to be updated to support the implementation of the German Resilience Strategy. The study, which was conducted from 2021 to 2022, focused on the funding opportunities offered by the Federal Government and the EU. The new study will also include the funding opportunities offered by the Länder, through which various stakeholders can improve their resilience to disasters at local level.

In order to cover the increased adaptation costs, joint financing options for climate adaptation are currently being negotiated between the Federal Government and the Länder.

### Environment

The “**Action Programme Natural Climate Protection**” (ANK), launched in 2022, ensures that ecosystems such as forests and oceans are strengthened, restored and preserved. This can be seen as an investment in the resilience of ecosystems as well as an important service for society and economy. At the same time, the programme preserves and extends habitats for plants and animals. A total of 4 billion euros is available for various measures up until 2026. An essential component is, among other things, the restoration and rewetting of peatlands.

### Protection of cultural assets

To strengthen preventive measures in the protection of cultural assets, the **SILK** project will be continued by the KVdB, an agency subordinate to the BKM, in 2023.

### Critical infrastructure

The **joint situation report on civil protection** (see ↗ 3.4.2) with a focus on critical infrastructure is expected to continue and will be further developed depending on the situation. As mentioned under ↗ 3.4.2, in recent years considerable financial resources have been invested in the implementation of **emergency drinking water supply measures**. Appropriate financing will also take place in the future to support increased resilience of drinking water supply systems.

### Dissemination of proven resilience practices

Various channels will be used to disseminate proven resilience practices. Apart from verbal exchanges in the IMAG Sendai, the national platform to strengthen resilience to disasters, the Fachtagung Katastrophenvorsorge and many other exchange formats, the website **KatRiMa** will be further developed. In the upcoming dialogue process on the Resilience Strategy, stakeholders will be consulted and their knowledge will be incorporated into the content of the website.

## 5.5 Disaster Preparedness, Disaster Response and “Build Back Better”

The past few years have made it clear that not all damaging events can be prevented. Measures to prepare for disasters and capacities to cope must be continuously reviewed and strengthened. Disaster risks are changing as a result of climate change, urbanisation, globalisation and the degradation of ecosystems. For example, the flood disaster in July 2021 required the deployment of civil protection forces from all over Germany for months. In particular, the extensive destruction and damage caused to transport and supply infrastructure by extreme events pose new challenges for the entire civil protection system. At the same time, the challenges related to the capacity to protect the public are growing, for example due to demographic change and declining participation in voluntary work. The lessons of past disasters also show that the process of preparing for disaster risks is never complete. If damage cannot be prevented, it is important to learn from damaging events for the future and to

use opportunities for better reconstruction, which by increasing resilience will help to reduce the risk of more damaging events. Therefore, in the future Germany will focus on:

1. improving early crisis detection and early warning systems for timely and targeted action
2. better forecasting the potential ways that disasters may develop
3. conducting regular incident exercises
4. enhancing emergency planning
5. improving the training of leaders and emergency services
6. offering better incentives for voluntary work
7. connecting stakeholders, interests and expertise before crises
8. learning from crises.

Below, a selection of activities and measures that will enhance Germany's disaster preparedness and response and ability to "build back better" until 2030 are highlighted. The prospective review will show exemplary activities in Germany that will contribute to strengthening resilience to disasters.

### Warning the public

With regard to warning the public, the BBK has already taken action that will continue to be relevant in the upcoming years. **Cell broadcast** will become a new warning channel in early 2023, and upcoming evaluation of the technology will determine the next steps. After the **National Warning Day** was resumed in December 2022, it will remain important as a way to test the warning infrastructure in Germany and to raise awareness among the general public. From 2023 onwards, the National Warning Day will take place annually. On top of that, the warning app NINA is going to be expanded in the future. NINA is planned to become the **federal warning app**, which can be used by as many authorities in Germany as possible at all administrative levels to issue their warnings. The BBK recently gained the BSH as a new partner. Its storm surge warnings for the North Sea coast are now also displayed in the NINA warning app, and soon warnings for the Baltic coast will be included too. The **state of Hesse's warning and information app hessenWARN** will also be further developed to include additional specific functions for warning and informing the public.

### Conducting exercises relevant to climate change

To support civil protection forces in preparing for the consequences of climate change in Hesse, the **state of Hesse** is implementing the **KLIMPRAX crisis preparation** project. The aim of the project, which was launched in 2021, is to identify gaps in the interaction between critical infrastructure and the Hessian authorities, to anticipate cascading effects and to improve processes and responsibilities between administrative staff and critical infrastructure operators. To this end, starting in 2023, a series of exercises will be carried out by regional councils on the extreme weather scenarios of heat and drought, heavy rain and snow/storms.

## 5.6 International Cooperation

According to the 2022 Global Assessment Report on Disaster Risk Reduction, "risk creation is outstripping risk reduction".<sup>110</sup> The world is already facing a complex and uncertain environment of risks today, which are emerging worldwide faster than they can be managed.

Looking forward to 2030, climate-induced disasters will occur more frequently with more severe effects globally. Events such as the 2022 heatwave across Europe and rampant flooding across Asia will become the new normal, resulting in overlapping risks and undermining resilience. Climate change and its impacts will also increase pressure on already-stretched systems, e.g. the environment, health, food and water. Long-term achievements of international development cooperation, which are already facing setbacks from the Covid-19 pandemic, appear increasingly at risk. In addition, food security crises are occurring alongside heightened humanitarian needs in many places.

In future, the probability of such crises with irreversible tipping points is higher than ever before. Besides that, democratic systems are contested, and fragility is on the rise, making it hard to navigate through phases of uncertainty and transition. This weakens reliable and inclusive governance structures and reduces capacities to react when a disaster strikes or to prepare efficiently for extreme events. Thus, the key task in the coming years will now be to take a closer look at interconnected, systemic and

transnational risks. The underlying risk drivers of vulnerability and fragility need to be addressed to eradicate poverty and injustice. Those most affected by disasters need to be systemically strengthened via transformative recovery.

While there are common global challenges and trends threatening risk-informed and sustainable development, each context is different – policies and interventions that work in one situation might create risks in another. This requires continuous learning, tailor-made solutions and flexibility in Germany’s approach. Germany will put particular emphasis on the following topics in its international cooperation until 2030:

### **Smart solutions in the face of climate change**

Overall, coherent action across policy frameworks including humanitarian assistance, development cooperation and climate action is needed. Therefore, Germany will continue to advocate for a comprehensive risk management approach. Sound risk analyses and warning systems are at the core of this approach, as well as averting, minimising and addressing losses and damage. Germany needs to further develop the gathering of disaggregated data, including regional and local levels, and to enhance shareability and comparability. This also includes going the last mile of the early warning chain – ensuring an effective translation into action by local governmental entities from all sectors and communities. Focusing on **climate change** and related risks, new and existing early warning systems must take a multi-hazard approach. This must be accompanied by smart technology such as updated earth observation systems and easily accessible digital solutions.

In the area of climate and disaster risk financing, a tailored mix of public and private financial and technical instruments from the local to the national level needs to be strengthened. Germany will continue its engagement in the IGP. Its aim to enable a more timely and reliable disaster response using climate and disaster risk finance, and insurance solutions for poor people and people in vulnerable situations will be further advanced by the G7 initiative “Global Shield against Climate Risks”, which was launched at COP27 and will be implemented from 2023 onwards. The Global Shield strengthens the global climate and disaster

risk finance and insurance architecture and enables systematic, coherent and sustained financial protection. Additionally, the German Federal Foreign Office will strive to spend 5% of its humanitarian budget from 2023 onwards on anticipatory action. Together with its partners, Germany is committed to significantly increasing financial resources from all sources and to scaling up and mainstreaming anticipatory action. Germany has recognised that preventive and anticipatory approaches save lives and livelihoods and reduce immediate risks ahead of disasters. This is more effective and less expensive than reacting after a shock. These approaches are also key in contributing to climate change adaptation and to averting, minimising and addressing the risk of losses and damages.

### **Strong risk governance systems**

Finance and insurance solutions work best when they are based on risk-informed decisions. This means that decision-making has to consider the inherent risks included in development processes and address underlying risk drivers to ensure that development achievements are safeguarded in the future. Thus, it is necessary to place more focus on **governance processes** linked to risk management, e.g. its integration in national planning processes as well as fiscal and budgetary plans, as they have immense leveraging effects. At the national level in Germany’s partner countries, this means supporting the institutionalisation of competence, capacities and resources to address risks and risk drivers in a holistic manner. The role of Sendai national focal points to facilitate intersectoral cooperation and navigate complementary approaches needs to be enhanced.

But systems are driven by people. That is why Germany will support partners to further enhance training concepts focusing on risk-informed development, in order to close decision-makers’ knowledge and skill gaps. This can be enhanced by networks for professionals working in planning and financial authorities, where they can share experiences of and tools for resilient public investments. In international cooperation with public financial institutions, Germany aims to make risk analysis a precondition for public investments. Furthermore, Germany will strive to support women in all their diversity in their decision-making power and make capacity-building activities accessible for illiterate and marginalised groups.

## Addressing risk in fragile contexts

The world is becoming more complex every day. Risks of **conflict and fragility** are on the rise and have cascading effects. Communities and government agencies in fragile and volatile contexts face an additional burden when struck by a disaster. However, the challenges arising from complex risks and conflicts have not been reflected in the Sendai Framework so far.

Adopting a multi-hazard approach and multi-annual, flexible funding is crucial to advance disaster preparedness and disaster risk reduction in conflict-affected and fragile contexts. Increased joint (humanitarian and development cooperation) risk analysis and joint planning around disaster risk reduction outcomes between humanitarian and development actors are key in this regard.

The key mission for more secure, sustainable international cooperation will be to support weak or fragile governmental and administrative structures at all levels. In its work on risk reduction and preparedness, the international community needs to further develop solutions for how to support communities and municipalities, already struggling with providing basic services to their population, to additionally address hazards and related risks. This also links to the interaction of (disaster) displacement and fragility. Fragile contexts and conflicts are among the main sources of displacement. At the same time, the majority of refugees and internally displaced persons globally are hosted by low and middle-income neighbouring countries, straining their already limited basic services. Support efforts must be coherent with wider climate action and human rights approaches. Therefore, Germany will address the protection needs of displaced people in all their diversity and find durable solutions to (protracted) displacement.

To close the protection gap in contexts of cross-border disaster displacement, Germany supports the follow-up of the Nansen Initiative – the state-led Platform on Disaster Displacement. This support includes a focus on prevention, with the promotion of a words-into-action protocol. In addition, German humanitarian assistance funds protection and assistance through local and international humanitarian actors in contexts of disaster displacement. Scale-up

of first-responder and anticipatory action approaches in disaster risk reduction systems and plans is also needed to bridge the gap in contexts where public authorities are weak or non-existent due to conflict.

## Recovery from Covid-19 and prevention of pandemic diseases

Another upcoming challenge is the consolidation and strengthening of disaster risk reduction in the health sector following the **One Health** approach, especially in light of endemic and pandemic diseases. In addition, other disaster-associated health risks are on the rise. In the face of growing risks to health system infrastructure and capacities, Germany has emphasised the need to develop climate-resilient and low-carbon sustainable health systems. Germany will scale up its support in risk reduction in the water, sanitation and hygiene sector, adequately equip the vaccine alliance GAVI and intensify the fight against poverty-associated and neglected tropical diseases. Germany aims for health and pandemic prevention to be incorporated into disaster risk management strategies and programming in a comprehensive risk approach. Germany will further support corresponding multilateral initiatives, e.g. the Quadripartite (FAO, World Organisation for Animal Health, United Nations Environment Programme and World Health Organization) and its Joint Plan of Action, the Nature for Health Multi-Partner Trust Fund and the World Bank's Financial Intermediary Fund for Pandemic Prevention, Preparedness and Response. The Covid-19 pandemic has also made clear that adaptive social protection systems are needed that can be rapidly and flexibly scaled up to effectively support affected people, especially the most vulnerable, in the event of crisis. Together with Germany's international partners, particularly multilateral development banks and multilateral organisations, Germany wants to support developing countries, especially Low-Income Countries, as they work to extend national social protection systems. The principle of "build forward better" needs to be established, as the international community needs to learn from the recently experienced disaster and the response to it. It is necessary to do more than just recover and reconstruct the status quo of the pre-disaster situation. Adaptation and transformation to boost disaster-resilient structures and services to mitigate future crises will be the aim for the future.

## Fostering food and nutrition security

To reach the global target of eliminating hunger by 2030, food production and supply chains need to be resilient to shocks and disasters. Therefore, Germany will advocate for agricultural and nutrition policies to address risks, especially in food security strategies, and will further support communities facing protracted food shortages with transitional development assistance, including the action area “Food and nutrition security”. The overall dependency on imports needs to be reduced and production capacities need to be maintained when a disaster strikes. Germany will further strive to improve resilient transport structures, food storage systems and the supply of seeds and fertilisers. It will continue its efforts in training and knowledge sharing about alternative, innovative and climate-adapted farming methods. This includes the use of sustainable and resilient crops, agricultural and dietary diversification, innovative irrigation methods, affordable crop insurance, nutritional information and marketing advice, particularly for smallholder agriculture. Germany will support the sustainable use of crops and farmland and the conservation of soil, e.g. by analyses that identify favourable agricultural areas. Digital solutions, such as remote-sensing-based information gathering, will become an important instrument for this. Germany will continue its work in safeguarding robust supply chains for food and nutrition. As part of Germany’s G7 presidency, the German Federal Government launched with the World Bank the Global Alliance for Food Security.

## Social inclusion and civil society participation

In its international engagement, Germany will ensure **civil society participation and all-gender inclusion** as a cross-cutting topic, because gender and other factors such as age, disability and education directly affect how individuals and groups experience disasters, shocks and fragility, which hazards and risks they are exposed to and what needs and opportunities they have in contributing to building resilience to disasters and mitigating underlying risks. In most cases, women, children and marginalised groups are already in particularly vulnerable situations when a disaster strikes, but also have crucial perspectives and abilities to offer. Therefore, Germany will continue to advocate for involving women in all their diversity in decision-making and

giving them a seat at the table as agents of change for transformation towards more prevention and risk awareness. The whole-of-society approach has already been a priority in Germany’s work but needs to be further strengthened to support groups whose voices have so far not been adequately reflected, to include people with disabilities and to harness the potential of engaging youth groups.

## Conclusion and recommendations

The emerging complex and uncertain risk environment must be countered by multilateral approaches and coordinated action on global issues. It is important that Germany constantly aligns its activities and searches for the best synergy effects. Only by avoiding silos and eliminating blind spots can the international community together achieve the Sendai targets and the Agenda 2030’s Sustainable Development Goals.

**Therefore, Germany is putting emphasis on the following goals:**

1. In all the sectors outlined above, the international community will be confronted with **inter-connected, systemic and transnational risks**. The intersection of critical situations caused by energy scarcity, climate change, insecurity and Covid-19 has already shown what disasters in Germany’s partner countries will look like in the future if the international community does not continue to invest in prevention and transformative action. This means that Germany too must coherently link and more closely align instruments that fall under the responsibility of different departments. In particular, multi-lateral alliances will be crucial to address risks and achieve a resilient and risk-proof future for all. Adopting a multi-hazard approach as well as multi-annual and flexible funding will also be key to advancing disaster preparedness and disaster risk reduction in conflict-affected and fragile contexts.

2. Two-thirds of reported deaths from disasters occur in the top 30 most fragile states. Losses and damage from disasters are especially high in these countries, as they have little capacity in terms of preparedness and responsiveness. That is why Germany is putting **disasters, underlying risks and vulnerabilities in fragile and conflict-affected contexts** high on the political agenda and encouraging other international donors and multilateral organisations to recognise fragility as an important risk driver and thus overcome the shortcomings of funding, strategies and frameworks that do not yet address this issue adequately.
3. The international community needs to shift its focus from reaction to **prevention, adaptation and anticipatory action**. This will save lives and livelihoods, will reduce immediate risks ahead of disasters and is cost-efficient. Therefore, preventive action takes priority in Germany's international cooperation. Germany will provide more support for pre-disaster activities and risk reduction as it continues to implement the Sendai Framework at national and international level.

## 5.7 Collaboration, Partnership and Cooperation

As described in the previous sections of this report, the civil protection and disaster risk management landscape in Germany is very diverse, and a lot of stakeholders and actors are involved at federal and Länder level. With the German approach of shared responsibility in times of war and peace, collaboration, partnership and cooperation among all those stakeholders is essential. Resilience to disasters can only be achieved together – as a common and comprehensive approach to disaster risk management.

Enhancing cooperation, collaboration and partnership is an integral part of the German Resilience Strategy and its implementation. In the upcoming years, a national platform is going to be established that will function as a networking and collaboration platform. The involvement of non-state stakeholders and institutions will be elaborated in a discussion series starting in early 2023. It is planned to invite stakeholders from the Länder across all sectors, municipalities and civil society to develop the concept for the national platform. The idea of the national platform is to serve as a network of networks, bringing the concepts and ideas for strengthening resilience to disasters to a wider audience.

In the spirit of collaboration and partnership, Germany is also committed to continuing and enhancing the cooperation with other national focal points and the UNDRR, in order to work closely together on common topics and challenges in the implementation of the SFDRR.

## Annex and List of References

- 1 Bundesamt für Bevölkerungsschutz und Katastrophenhilfe (2022): Datenanalyse und – visualisierung – kurz DaViS. [https://www.bbk.bund.de/DE/Themen/Krisenmanagement/Lagebild/Davis/davis\\_node.html](https://www.bbk.bund.de/DE/Themen/Krisenmanagement/Lagebild/Davis/davis_node.html) [last accessed: 23.06.2022].
- 2 KatRiMa (2022): Ermittlung und Monitoring von Sendai Indikatoren mit Copernicus / Satellitenfernerkundung in Deutschland (Cop4Sen). [https://www.katrima.de/DE/Wer\\_macht\\_was/Gute-Beispiele/Cop4Sen.html](https://www.katrima.de/DE/Wer_macht_was/Gute-Beispiele/Cop4Sen.html) [last accessed: 23.06.2022].
- 3 Statistisches Bundesamt (2020): Statistisches Jahrbuch 2019. [https://www.destatis.de/DE/Themen/Querschnitt/Jahrbuch/\\_inhalt.html](https://www.destatis.de/DE/Themen/Querschnitt/Jahrbuch/_inhalt.html) [last accessed: 22.06.2022].
- 4 Bundesministerium für Justiz und für Verbraucherschutz (2018): Gesetz über den Deutschen Wetterdienst (DWD-Gesetz). [https://www.gesetze-im-internet.de/dwdg/\\_4.html](https://www.gesetze-im-internet.de/dwdg/_4.html) [last accessed: 22.06.2022].
- 5 Deutscher Wetterdienst (2022): Aufgaben des DWD. [https://www.dwd.de/DE/derdwd/aufgaben/aufgaben\\_node.html](https://www.dwd.de/DE/derdwd/aufgaben/aufgaben_node.html) [last accessed: 02.11.2022].
- 6 Deutscher Wetterdienst (2018): Datengewinnung im Deutschen Wetterdienst. [https://www.dwd.de/DE/derdwd/messnetz/messnetz\\_node.html](https://www.dwd.de/DE/derdwd/messnetz/messnetz_node.html) [last accessed: 23.06.2022].
- 7 World Meteorological Organization (2021): World Meteorological Congress, Abridged Final Report of the Extraordinary Session, virtual session, 11–21 October 2021, WMO-No 1281. [https://library.wmo.int/doc\\_num.php?explnum\\_id=11113](https://library.wmo.int/doc_num.php?explnum_id=11113) [last accessed: 11.01.2023].
- 8 KatRiMa (2022): Bundesamt für Kartographie und Geodäsie (BKG). [https://www.katrima.de/DE/Wer\\_macht\\_was/Akteure/Staatlich/BKG.html](https://www.katrima.de/DE/Wer_macht_was/Akteure/Staatlich/BKG.html) [last accessed: 23.06.2022].
- 9 Umweltbundesamt (2022): About us. <https://www.umweltbundesamt.de/en/the-uba/about-us> [last accessed: 23.06.2022].
- 10 Robert Koch-Institut (2022): Aktuelle Situationsberichte, Wochenberichte und COVID-19-Trends im Überblick. [https://www.rki.de/DE/Content/InfAZ/N/Neuartiges\\_Coronavirus/Situationsberichte/Gesamt.html](https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Situationsberichte/Gesamt.html) [last accessed: 24.06.2022].
- 11 Robert Koch-Institut (2019): Das Robert Koch-Institut. [https://www.rki.de/EN/Content/Institute/institute\\_node.html;jsessionid=26079906FD1A5F031D1E231CF1D6E580.internet0821](https://www.rki.de/EN/Content/Institute/institute_node.html;jsessionid=26079906FD1A5F031D1E231CF1D6E580.internet0821) [last accessed: 24.06.2022].
- 12 Bundesanstalt für Geowissenschaften und Rohstoffe (2022): Aufgaben und Themenfelder. [https://www.bgr.bund.de/DE/Gemeinsames/UeberUns/Aufgaben/aufgaben\\_node.html](https://www.bgr.bund.de/DE/Gemeinsames/UeberUns/Aufgaben/aufgaben_node.html) [last accessed: 23.06.2022].
- 13 Bundesanstalt für Geowissenschaften und Rohstoffe (2018): Themenfelder. <https://www.bgr.bund.de/DE/Gemeinsames/UeberUns/Aufgaben/arbeitsrichtungen.html?nn=1561604> [last accessed: 23.06.2022].
- 14 Bundesanstalt für Geowissenschaften und Rohstoffe (2022): Geoviewer. <https://geoviewer.bgr.de/mapapps4/resources/apps/geoviewer/index.html?lang=de> [last accessed: 23.06.2022].
- 15 Gesamtverband der deutschen Versicherungswirtschaft e.V. (2018): Der GDV. <https://www.gdv.de/de/ueber-uns/wer-wir-sind/der-gdv-23856> [last accessed: 22.06.2018].
- 16 Gesamtverband der deutschen Versicherungswirtschaft e. V. (2022): Naturgefahrenreport – Alle Ausgaben im Überblick. <https://www.gdv.de/de/zahlen-und-fakten/publikationen/naturgefahrenreport> [last accessed: 22.06.2022].
- 17 Hermann von Helmholtz-Gemeinschaft Deutscher Forschungszentren e.V. (2018): Die Strategie der Helmholtz-Gemeinschaft. Spitzenforschung für Gesellschaft, Wissenschaft und Wirtschaft. [https://www.helmholtz.de/fileadmin/user\\_upload/03\\_ueber\\_uns/Helmholtz\\_Strategiebrochure.pdf](https://www.helmholtz.de/fileadmin/user_upload/03_ueber_uns/Helmholtz_Strategiebrochure.pdf) [last accessed: 22.06.2022].
- 18 Center for Disaster Management and Risk Reduction Technology (CEDIM) (2018): Early Warning of Hazardous Weather. <https://www.cedim.kit.edu/english/2234.phpd> [last accessed: 22.06.2022].
- 19 Center for Disaster Management and Risk Reduction Technology (CEDIM) (2018): Crowdsourcing – Using Social Media for Rapid Damage Assessment. <https://www.cedim.kit.edu/english/2418.php> [last accessed: 22.06.2022].
- 20 Center for Disaster Management and Risk Reduction Technology (CEDIM) (2020): Indicator System for Assessing the Hazard to Infrastructure against Extreme Flooding. <https://www.cedim.kit.edu/english/3077.php> [last accessed: 23.06.2022].
- 21 Center for Disaster Management and Risk Reduction Technology (CEDIM) (2021): Energy Risks toward 2025: Disaster Risk and Resilience Assessment of Renewable and Traditional Systems. <https://www.cedim.kit.edu/english/3091.php> [last accessed: 23.06.2022].
- 22 Center for Disaster Management and Risk Reduction Technology (CEDIM) (2021): Rapid Earthquake Impact Modeling. <https://www.cedim.kit.edu/english/3065.php> [last accessed: 22.06.2022].
- 23 Bundesamt für Bevölkerungsschutz und Katastrophenhilfe (2021): Risikoanalysen Bund und Länder. [https://www.bbk.bund.de/DE/Themen/Risikomanagement/Risikoanalysen-Bund-Laender/risikoanalysen-bund-laender\\_node.html](https://www.bbk.bund.de/DE/Themen/Risikomanagement/Risikoanalysen-Bund-Laender/risikoanalysen-bund-laender_node.html) [last accessed: 23.06.2022].
- 24 Bundesamt für Bevölkerungsschutz und Katastrophenhilfe (2021): 10 Jahre Risikoanalyse im Bevölkerungsschutz Bund. [https://www.bbk.bund.de/SharedDocs/Downloads/DE/Mediathek/Publikationen/PiB/PiB-22-10-jahre-risikoanalyse.pdf?\\_\\_blob=publicationFile&v=4](https://www.bbk.bund.de/SharedDocs/Downloads/DE/Mediathek/Publikationen/PiB/PiB-22-10-jahre-risikoanalyse.pdf?__blob=publicationFile&v=4) [last accessed: 23.06.2022].
- 25 Bundesamt für Bevölkerungsschutz und Katastrophenhilfe (2016): Risikoanalyse im Bevölkerungsschutz: Ein Stresstest für die Allgemeine Gefahrenabwehr und den Katastrophenschutz. [https://www.bbk.bund.de/SharedDocs/Downloads/DE/Mediathek/Publikationen/PiB/PiB-16-risikoanalyse-bevoelkerungsschutz.pdf?\\_\\_blob=publicationFile&v=9](https://www.bbk.bund.de/SharedDocs/Downloads/DE/Mediathek/Publikationen/PiB/PiB-16-risikoanalyse-bevoelkerungsschutz.pdf?__blob=publicationFile&v=9) [last accessed: 02.11.2022].
- 26 The Federal Government: German Strategy for Adaptation to Climate Change. [https://www.preventionweb.net/files/27772\\_dasgesamtenbf1-63.pdf](https://www.preventionweb.net/files/27772_dasgesamtenbf1-63.pdf) [last accessed: 01.03.2023].
- 27 Umweltbundesamt (2021): Climate Impact and Risk Assessment 2021 for Germany. [https://www.umweltbundesamt.de/sites/default/files/medien/479/publikationen/cc\\_27-2021\\_climate\\_impact\\_and\\_risk\\_assessment\\_2021\\_for\\_germany\\_english\\_summary\\_bf.pdf](https://www.umweltbundesamt.de/sites/default/files/medien/479/publikationen/cc_27-2021_climate_impact_and_risk_assessment_2021_for_germany_english_summary_bf.pdf) [last accessed: 14.03.2023].
- 28 Robert Koch-Institut (2022): Robert Koch-Institut: COVID-19-Dashboard. <http://www.corona.rki.de> [last accessed: 24.06.2022].
- 29 Esri Deutschland (2020): Corona Impact 2020 – FAQ. <https://www.esri.de/de-de/landingpages/corona-impact-2020/faq> [last accessed: 24.06.2022].
- 30 Deutscher Wetterdienst (2022): Klimamonitoring Europa – Karten der Extrem-Ereignisse für die WMO-Region RA VI. [https://www.dwd.de/DE/leistungen/rcccm/int/rcccm\\_int\\_eev.html](https://www.dwd.de/DE/leistungen/rcccm/int/rcccm_int_eev.html) [last accessed: 02.11.2022].
- 31 Risklayer GmbH (2022): Risklayer Explorer. <https://www.risklayer-explorer.com> [last accessed: 03.11.2022].
- 32 Center for Disaster Management and Risk Reduction Technology (CEDIM) (2022): CEDIM/Risklayer Explorer. <https://www.cedim.kit.edu/english/3338.php> [last accessed: 03.11.2022].
- 33 Statistisches Bundesamt (2020): Statistisches Jahrbuch 2019. [https://www.destatis.de/DE/Themen/Querschnitt/Jahrbuch/\\_inhalt.html](https://www.destatis.de/DE/Themen/Querschnitt/Jahrbuch/_inhalt.html) [last accessed: 22.06.2022].
- 34 Statistisches Bundesamt (2022): Genesis-Online. [www.destatis.de/genesis](http://www.destatis.de/genesis) [last accessed: 23.06.2022].
- 35 Statistische Ämter des Bundes und der Länder (2022): Regionaldatenbank Deutschland. [www.regionalstatistik.de](http://www.regionalstatistik.de) [last accessed: 23.06.2022].
- 36 Statistisches Bundesamt: The 2011 census database is available via: <https://ergebnisse2011.zensus2022.de/datenbank/online/> [last accessed: 23.06.2022]. Information about the current census survey can be found at: [https://www.zensus2022.de/DE/Home/\\_inhalt.html](https://www.zensus2022.de/DE/Home/_inhalt.html) [last accessed: 23.06.2022].
- 37 Statistisches Bundesamt (2022): Zensus 2022: Was ist der Zensus? [https://www.zensus2022.de/DE/Was-ist-der-Zensus/\\_inhalt.html](https://www.zensus2022.de/DE/Was-ist-der-Zensus/_inhalt.html) [last accessed: 23.06.2022].
- 38 Bundesamt für Seeschifffahrt und Hydrographie (2022): Data. [https://www.bsh.de/EN/DATA/data\\_node.html](https://www.bsh.de/EN/DATA/data_node.html) [last accessed: 04.11.2022].
- 39 Deutscher Wetterdienst (2022): Climate Data Center (CDC). [https://www.dwd.de/DE/klimaumwelt/cdc/cdc\\_node.html](https://www.dwd.de/DE/klimaumwelt/cdc/cdc_node.html) [last accessed: 23.06.2022].
- 40 Bundesanstalt für Gewässerkunde: Bund/Länder- Informations- und Kommunikationsplattform. Wasserblick. <https://wasserblick.net/servlet/is/1/> [last accessed: 04.11.2022].
- 41 Bund/Länder-Arbeitsgemeinschaft Wasser (LAWA) (2022): Wasser-DE. Zentraler Informationsknoten Wasserwirtschaft Deutschland. <https://www.wasser-de.de/#> [last accessed: 04.11.2022].

- 42 Bundesamt für Bevölkerungsschutz und Katastrophenhilfe (2022): KatRiMa. [www.katrima.de](http://www.katrima.de) [last accessed: 25.06.2022].
- 43 Bundesamt für Bevölkerungsschutz und Katastrophenhilfe (2022): Tipps für Notsituationen. [https://www.bbk.bund.de/DE/Warnung-Vorsorge/Tipps-Notsituationen/notsituationen\\_node.html](https://www.bbk.bund.de/DE/Warnung-Vorsorge/Tipps-Notsituationen/notsituationen_node.html) [last accessed: 24.06.2022].
- 44 Bundesamt für Bevölkerungsschutz und Katastrophenhilfe (2022): Für alle Fälle vorbereitet. [https://www.bbk.bund.de/DE/Warnung-Vorsorge/Fuer-alle-Faelle-vorbereitet/fuer-alle-faelle\\_node.html](https://www.bbk.bund.de/DE/Warnung-Vorsorge/Fuer-alle-Faelle-vorbereitet/fuer-alle-faelle_node.html) [last accessed: 24.06.2022].
- 45 Bundesamt für Bevölkerungsschutz und Katastrophenhilfe (2022): Max & Flocke. [https://www.max-und-flocke-helferland.de/DE/Home/home\\_node.html](https://www.max-und-flocke-helferland.de/DE/Home/home_node.html) [last accessed: 24.06.2022].
- 46 Bundesamt für Bevölkerungsschutz und Katastrophenhilfe (2022): #vorbereitet – das 360° Notfalltraining. [https://www.bbk.bund.de/DE/Warnung-Vorsorge/Vorsorge/Notfalltraining/notfalltraining\\_node.html](https://www.bbk.bund.de/DE/Warnung-Vorsorge/Vorsorge/Notfalltraining/notfalltraining_node.html) [last accessed: 24.06.2022].
- 47 Bundesamt für Bevölkerungsschutz und Katastrophenhilfe (2022): Ratgeber für Notfallvorsorge und richtiges Handeln in Notsituationen. [https://www.bbk.bund.de/DE/Warnung-Vorsorge/Vorsorge/Ratgeber-Checkliste/ratgeber-checkliste\\_node.html](https://www.bbk.bund.de/DE/Warnung-Vorsorge/Vorsorge/Ratgeber-Checkliste/ratgeber-checkliste_node.html) [last accessed: 25.06.2022].
- 48 Adelphi Consult GmbH (2021): Das Zentrum KlimaAnpassung. <https://zentrum-klimaanpassung.de/zentrum-klimaanpassung> [last accessed: 24.08.2022].
- 49 Deutscher Wetterdienst/Umweltbundesamt (2022): Das Klimavorsorgeportal. [https://www.kliportal.de/EN/Home/home\\_node.html](https://www.kliportal.de/EN/Home/home_node.html) [last accessed: 24.08.2022].
- 50 Umweltbundesamt (2017): Klimalotse. (<https://www.umweltbundesamt.de/themen/klima-energie/klimafolgen-anpassung/werkzeuge-der-anpassung/klimalotseEinfuehrung>) [last accessed: 24.08.2022].
- 51 Bundesamt für Bevölkerungsschutz und Katastrophenhilfe (2022): Bundesakademie für Bevölkerungsschutz und Zivile Verteidigung. [https://www.bbk.bund.de/DE/Themen/Akademie-BABZ/akademie-babz\\_node.html](https://www.bbk.bund.de/DE/Themen/Akademie-BABZ/akademie-babz_node.html) [last accessed: 25.06.2022].
- 52 Bundesanstalt Technisches Hilfswerk (2018): Wir über uns. [https://www.thw-bundesschule.de/THW-BuS/DE/Bundesschule/Organisation-Struktur/wir\\_ueber\\_uns\\_node.html](https://www.thw-bundesschule.de/THW-BuS/DE/Bundesschule/Organisation-Struktur/wir_ueber_uns_node.html) [last accessed: 25.06.2022].
- 53 Bundesamt für Bevölkerungsschutz und Katastrophenhilfe (2022): Wer macht was – Instrumente. [https://www.katrima.de/SiteGlobals/Forms/Suche/Instrumentsuche\\_Formular.html](https://www.katrima.de/SiteGlobals/Forms/Suche/Instrumentsuche_Formular.html) [last accessed: 24.04.2023].
- 54 Universität Bonn (2018): KaVoMa – Motivation & Ziele. <https://www.kavoma.de/ziele-des-studiengangs> [last accessed: 25.06.2022].
- 55 Bundesamt für Bevölkerungsschutz und Katastrophenhilfe (2023): Das Gemeinsame Kompetenzzentrum Bevölkerungsschutz. [https://www.bbk.bund.de/DE/Das-BBK/Zivilschutz/Gemeinsames-Kompetenzzentrum/gemeinsames-kompetenzzentrum\\_node.html](https://www.bbk.bund.de/DE/Das-BBK/Zivilschutz/Gemeinsames-Kompetenzzentrum/gemeinsames-kompetenzzentrum_node.html) [last accessed: 24.04.2023].
- 56 Bundesministerium des Innern und für Heimat (2021): Cybersicherheitsstrategie. <https://www.bmi.bund.de/DE/themen/it-und-digitalpolitik/it-und-cybersicherheit/cyber-sicherheitsstrategie/cyber-sicherheitsstrategie-node.html> [last accessed: 04.07.2022].
- 57 Bundesministerium für Ernährung und Landwirtschaft (2018): Bericht des BMEL und der Länder zum Risiko- und Krisenmanagement in der Landwirtschaft im Rahmen der Amtschef- und Agrarministerkonferenz vom 26. bis 28. September 2018. [https://www.bmel.de/SharedDocs/Downloads/DE/\\_Landwirtschaft/AMK-18-09-Risiko-Krisenmanagement.pdf?\\_\\_blob=publicationFile&v=4](https://www.bmel.de/SharedDocs/Downloads/DE/_Landwirtschaft/AMK-18-09-Risiko-Krisenmanagement.pdf?__blob=publicationFile&v=4) [last accessed: 04.07.2022].
- 58 Bundesministerium für Ernährung und Landwirtschaft (2019): Bericht des BMEL unter Beteiligung der Länder, der Versicherungswirtschaft und des Thünen-Instituts zu Versicherungslösungen mit und ohne staatliche Unterstützung im Rahmen der Amtschef- und Agrarministerkonferenz vom 25. bis 27. September 2019. [https://www.bmel.de/SharedDocs/Downloads/DE/\\_Landwirtschaft/AMK-19-09-Risiko-Krisenmanagement.pdf?\\_\\_blob=publicationFile&v=2](https://www.bmel.de/SharedDocs/Downloads/DE/_Landwirtschaft/AMK-19-09-Risiko-Krisenmanagement.pdf?__blob=publicationFile&v=2) [last accessed: 04.07.2022].
- 59 Bundesministerium für Bildung und Forschung (2023): Future Research and Innovation Strategy. Executive Summary. [https://www.bmbf.de/SharedDocs/Publikationen/de/bmbf/FS/747580\\_Zukunftsstrategie\\_Forschung\\_und\\_Innovation\\_en.pdf?\\_\\_blob=publicationFile&v=2](https://www.bmbf.de/SharedDocs/Publikationen/de/bmbf/FS/747580_Zukunftsstrategie_Forschung_und_Innovation_en.pdf?__blob=publicationFile&v=2) [last accessed: 28.04.2023].
- 60 Bundesministerium für Bildung und Forschung (2022): Sicher leben – Forschung für die zivile Sicherheit. <https://www.bmbf.de/bmbf/de/forschung/sicherheitsforschung/sicher-leben.html> [last accessed: 02.11.2022].
- 61 Die Bundesregierung (2021): Die Deutsche Nachhaltigkeitsstrategie. <https://www.bundesregierung.de/breg-de/themen/nachhaltigkeitspolitik/die-deutsche-nachhaltigkeitsstrategie-318846> [last accessed: 02.11.2022].
- 62 Die Bundesregierung (2008): Deutsche Anpassungsstrategie an den Klimawandel. [https://www.bmu.de/fileadmin/Daten\\_BMU/Download\\_PDF/Klimaanpassung/das\\_gesamt\\_bf.pdf](https://www.bmu.de/fileadmin/Daten_BMU/Download_PDF/Klimaanpassung/das_gesamt_bf.pdf) [last accessed: 02.11.2022].
- 63 Die Bundesregierung (2020): Zweiter Fortschrittsbericht zur Deutschen Anpassungsstrategie an den Klimawandel. [https://www.bmu.de/fileadmin/Daten\\_BMU/Download\\_PDF/Klimaschutz/klimawandel\\_das\\_2\\_fortschrittsbericht\\_bf.pdf](https://www.bmu.de/fileadmin/Daten_BMU/Download_PDF/Klimaschutz/klimawandel_das_2_fortschrittsbericht_bf.pdf) [last accessed: 04.07.2022].
- 64 Deutscher Wetterdienst (2017): Radar Climatology. [https://www.dwd.de/EN/ourservices/radarklimatologie/radar\\_climatology.html](https://www.dwd.de/EN/ourservices/radarklimatologie/radar_climatology.html) [last accessed: 04.07.2022].
- 65 Deutscher Wetterdienst (2020): KlamEx. [https://www.dwd.de/DE/fachnutzer/wasserwirtschaft/kooperationen/klamex/klamex\\_themen\\_node.html](https://www.dwd.de/DE/fachnutzer/wasserwirtschaft/kooperationen/klamex/klamex_themen_node.html) [last accessed: 04.07.2022].
- 66 Bundesministerium des Innern und für Heimat (2016): Konzeption Zivile Verteidigung. <https://www.bmi.bund.de/DE/themen/bevoelkerungsschutz/zivil-und-katastrophenschutz/konzeption-zivile-verteidigung/konzeption-zivile-verteidigung-node.html> [last accessed: 18.10.2022].
- 67 Bundesministerium für Wohnen, Stadtentwicklung und Bauwesen (2021): Memorandum Urbane Resilienz. [https://www.nationale-stadtentwicklungspolitik.de/NSPWeb/SharedDocs/Blogeintraege/DE/memorandum\\_urbane\\_resilienz.html](https://www.nationale-stadtentwicklungspolitik.de/NSPWeb/SharedDocs/Blogeintraege/DE/memorandum_urbane_resilienz.html) [last accessed: 04.07.2022].
- 68 SPD/GRUENE/FDP (2021): Mehr Fortschritt wagen – Bündnis für Freiheit, Gerechtigkeit und Nachhaltigkeit. Koalitionsvertrag zwischen SPD, Bündnis 90/Die Grünen und FDP. <https://www.bundesregierung.de/resource/blob/974430/1990812/04221173eef9a6720059cc353d759a2b/2021-12-10-koav2021-data.pdf?download=1> [last accessed: 06.07.2022].
- 69 Bundesamt für Bevölkerungsschutz und Katastrophenhilfe (2021): Neuausrichtung des BBK. [https://www.bbk.bund.de/DE/Das-BBK/Neuausrichtung-BBK/neuausrichtung-bbk\\_node.html](https://www.bbk.bund.de/DE/Das-BBK/Neuausrichtung-BBK/neuausrichtung-bbk_node.html) [last accessed: 04.07.2022].
- 70 Bundesministerium des Innern und für Heimat (2022): Unser Land gegen Krisen und Klimafolgen wappnen – Neustart im Bevölkerungsschutz. [https://www.bmi.bund.de/SharedDocs/downloads/DE/publikationen/themen/bevoelkerungsschutz/BMI22013-neustart-bevoelkerungsschutz.pdf?sessionId=A54B2099929BA6FE091358C17B07CC48.2\\_cid373?\\_\\_blob=publicationFile&v=5](https://www.bmi.bund.de/SharedDocs/downloads/DE/publikationen/themen/bevoelkerungsschutz/BMI22013-neustart-bevoelkerungsschutz.pdf?sessionId=A54B2099929BA6FE091358C17B07CC48.2_cid373?__blob=publicationFile&v=5) [last accessed: 14.12.2022].
- 71 Bundesministerium der Justiz (2022): Gesetz zur Verhütung und Bekämpfung von Infektionskrankheiten beim Menschen. <https://www.gesetze-im-internet.de/ifsg/index.html>
- 72 DIN (2021): KRITIS-Normen-Matrix, Stand 2021-07-14. <https://www.din.de/resource/blob/801724/975cfa0e347695e62f30b6661789f943/kritis-normen-matrix-20210714-data.pdf> [last accessed: 25.10.2022].
- 73 Bundesamt für Sicherheit in der Informationstechnik (2022): BSI-Standard 200-4. [https://www.bsi.bund.de/DE/Themen/Unternehmen-und-Organisationen/Standards-und-Zertifizierung/IT-Grundschutz/BSI-Standards/BSI-Standard-200-4-Business-Continuity-Management/bsi-standard-200-4\\_Business\\_Continuity\\_Management\\_node.html](https://www.bsi.bund.de/DE/Themen/Unternehmen-und-Organisationen/Standards-und-Zertifizierung/IT-Grundschutz/BSI-Standards/BSI-Standard-200-4-Business-Continuity-Management/bsi-standard-200-4_Business_Continuity_Management_node.html) [last accessed: 02.11.2022].
- 74 Bundesministerium für Wirtschaft und Klimaschutz (2022): Förderdatenbank. Bund, Länder und EU. [www.foerderdatenbank.de](http://www.foerderdatenbank.de) [last accessed: 04.07.2022].
- 75 Bundesministerium der Finanzen (2022): Corona-Hilfen. [https://www.bundesfinanzministerium.de/Web/DE/Themen/Oeffentliche\\_Finanzen/Corona/corona.html](https://www.bundesfinanzministerium.de/Web/DE/Themen/Oeffentliche_Finanzen/Corona/corona.html) [last accessed: 30.01.2022].
- 76 Die Bundesregierung: Fragen und Antworten zu den Hochwasser-Hilfen. <https://www.bundesregierung.de/breg-de/aktuelles/hochwasserhilfen-der-bundesregierung-1944556> [last accessed: 02.11.2022].
- 77 Umweltbundesamt (2019): BAU-R-5: Versicherungsdichte Elementarschadenversicherung Wohngebäude. <https://www.umweltbundesamt.de/themen/klima-energie/klimafolgen-anpassung/folgen-des-klimawandels/monitoring-zur-das/das-handlungsfelder-indikatoren/bauwesen/bau-r-5-versicherungsdichte#noch-immer-zu-wenige-abschlusse-von-elementarschadenversicherungen-> [last accessed: 19.10.2022].
- 78 Bundesamt für Bevölkerungsschutz und Katastrophenhilfe (2020): Handbuch Krankenhausalarm und- Einsatzplanung (KAEP). [https://www.bbk.bund.de/SharedDocs/Downloads/DE/Mediathek/Publikationen/Schutz-der-Gesundheit/handbuch-kaep.pdf?\\_\\_blob=publicationFile&v=10](https://www.bbk.bund.de/SharedDocs/Downloads/DE/Mediathek/Publikationen/Schutz-der-Gesundheit/handbuch-kaep.pdf?__blob=publicationFile&v=10) [last accessed: 02.11.2022].



- 79 Robert Koch-Institut (2017): Nationaler Pandemieplan Teil I – Strukturen und Maßnahmen. [https://www.gmkonline.de/documents/pandemieplan\\_teil-i\\_1510042222\\_1585228735.pdf](https://www.gmkonline.de/documents/pandemieplan_teil-i_1510042222_1585228735.pdf) [last accessed: 21.10.2022].
- 80 Robert Koch-Institut (2022): Pandemiepläne der Bundesländer. [https://www.rki.de/DE/Content/InfAZ/1/Influenza/Pandemieplanung/Pandemieplaene\\_Bundeslaender.html;jsessionid=12AE6E644EA8459BB5A-F8A1AA2284042.internet111?nn=2370466](https://www.rki.de/DE/Content/InfAZ/1/Influenza/Pandemieplanung/Pandemieplaene_Bundeslaender.html;jsessionid=12AE6E644EA8459BB5A-F8A1AA2284042.internet111?nn=2370466) [last accessed: 03.11.2022].
- 81 Robert Koch-Institut (2020): Ergänzung zum Nationalen Pandemieplan – COVID-19 – neuartige Coronaviruserkrankung. [https://www.rki.de/DE/Content/InfAZ/N/Neuartiges\\_Coronavirus/Ergaenzung\\_Pandemieplan\\_Covid.pdf?\\_\\_blob=publicationFile](https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Ergaenzung_Pandemieplan_Covid.pdf?__blob=publicationFile) [last accessed: 03.11.2022].
- 82 Bundesministerium der Gesundheit (2022): Zusammen gegen Corona. <https://www.zusammengegencorona.de/> [last accessed: 25.06.2022].
- 83 Bundesministerium des Innern und für Heimat (2022): Cybersicherheitsagenda des Bundesministeriums des Innern und für Heimat. Ziele und Maßnahmen für die 20. Legislaturperiode. [https://www.bmi.bund.de/SharedDocs/downloads/DE/veroeffentlichungen/themen/sicherheit/cybersicherheitsagenda-20-legislatur.pdf?\\_\\_blob=publicationFile&v=4](https://www.bmi.bund.de/SharedDocs/downloads/DE/veroeffentlichungen/themen/sicherheit/cybersicherheitsagenda-20-legislatur.pdf?__blob=publicationFile&v=4) [last accessed: 02.11.2022].
- 84 Bundesamt für Bevölkerungsschutz und Katastrophenhilfe (2022): Krisenbewältigung Kritischer Infrastrukturen. [https://www.bbk.bund.de/DE/Themen/Kritische-Infrastrukturen/Schutzkonzepte-KRITIS/Krisenbewaeltigung-KRITIS/krisenbewaeltigung\\_node.html](https://www.bbk.bund.de/DE/Themen/Kritische-Infrastrukturen/Schutzkonzepte-KRITIS/Krisenbewaeltigung-KRITIS/krisenbewaeltigung_node.html) [last accessed: 02.11.2022].
- 85 Bundesamt für Bevölkerungsschutz und Katastrophenhilfe (2019): Notstromversorgung in Unternehmen und Behörden. [https://www.katrima.de/DE/Wer\\_macht\\_was/Instrumente/Handbuecher/BBKNotstromversorgungUuB.pdf?\\_\\_blob=publicationFile&v=4](https://www.katrima.de/DE/Wer_macht_was/Instrumente/Handbuecher/BBKNotstromversorgungUuB.pdf?__blob=publicationFile&v=4) [last accessed: 02.11.2022].
- 86 Bundesamt für Bevölkerungsschutz und Katastrophenhilfe (2022): Wasser. [https://www.bbk.bund.de/DE/Themen/Kritische-Infrastrukturen/Sektoren-Branchen/Wasser/wasser\\_node.html](https://www.bbk.bund.de/DE/Themen/Kritische-Infrastrukturen/Sektoren-Branchen/Wasser/wasser_node.html) [last accessed: 02.11.2022].
- 87 Bundesamt für Bevölkerungsschutz und Katastrophenhilfe (2022): Rahmenkonzept der Trinkwassernotversorgung. Neukonzeption zur Anpassung an veränderte Rahmenbedingungen in Anlehnung an die Konzeption Zivile Verteidigung (2016). [https://www.bbk.bund.de/SharedDocs/Downloads/DE/Mediathek/Publikationen/KRITIS/rahmenkonzept-trinkwassernotversorgung.pdf?\\_\\_blob=publicationFile&v=1](https://www.bbk.bund.de/SharedDocs/Downloads/DE/Mediathek/Publikationen/KRITIS/rahmenkonzept-trinkwassernotversorgung.pdf?__blob=publicationFile&v=1) [last accessed: 02.11.2022].
- 88 Bundesamt für Bevölkerungsschutz und Katastrophenhilfe (2022): Kleeblattkonzept. [https://www.bbk.bund.de/DE/Infothek/Fokusthemen/Corona-Pandemie/Kleeblattkonzept/kleeblattkonzept\\_node.html](https://www.bbk.bund.de/DE/Infothek/Fokusthemen/Corona-Pandemie/Kleeblattkonzept/kleeblattkonzept_node.html) [last accessed: 04.11.2022].
- 89 Bundesamt für Bevölkerungsschutz und Katastrophenhilfe (2022): Die Arbeit des GeKoB und der KRITIS-Zelle. <https://www.bbk.bund.de/DE/Das-BBK/Zivilschutz/Aktuelles-Lagebild/Arbeit-GeKoB-KRITIS/arbeitsgeko-kritis.html> [last accessed: 25.10.2022].
- 90 Bundesministerium der Verteidigung (2021): Katastrophenhilfe: Bundeswehr beendet Hochwassereinsatz. <https://www.bundeswehr.de/de/organisation/streitkraefebasis/aktuelles/bundeswehr-beendet-katastrophenhilfe-in-den-hochwassergebieten-5213976> [last accessed: 03.11.2022]. Bundesministerium der Verteidigung (2022): Amtshilfe die Bundeswehr informiert. <https://www.bundeswehr.de/de/organisation/streitkraefebasis/im-einsatz/der-inspekteur-der-streitkraefebasis-informiert>
- 91 Bundesministerium der Verteidigung (2016): Weißbuch 2016. <https://www.bmvg.de/de/themen/dossiers/weissbuch> [last accessed: 03.11.2022].
- 92 Gemeinsames Portal der Notfallverbände Deutschland (2022): <http://notfallverbund.de/> [last accessed: 03.11.2022].
- 93 SiLK GbR (2022): SiLK-Tool. <https://www.silk-tool.de/de/d> [last accessed: 24.10.2022].
- 94 Bundesamt für Bevölkerungsschutz und Katastrophenhilfe (2021): Sicherheits Leitfaden Kulturgut. [https://www.bbk.bund.de/SharedDocs/Downloads/DE/Mediathek/Publikationen/Kulturgutschutz/silk-sicherheitsleitfaden-kulturgut.pdf?\\_\\_blob=publicationFile&v=1](https://www.bbk.bund.de/SharedDocs/Downloads/DE/Mediathek/Publikationen/Kulturgutschutz/silk-sicherheitsleitfaden-kulturgut.pdf?__blob=publicationFile&v=1) [last accessed: 30.01.2022].
- 95 Bayerisches Landesamt für Umwelt und Landesanstalt für Umwelt Baden-Württemberg: Länderübergreifendes Hochwasserportal. <https://www.hochwasserzentralen.de/> [last accessed: 19.10.2022].
- 96 Die Bundesregierung (2022): <https://www.bundesregierung.de/bregde/themen/corona-warn-app/corona-warn-app-englisch> [last accessed: 19.10.2022].
- 97 Statista (2022): Anzahl der Downloads der Corona-Warn-App über den Apple App Store und den Google Play Store (kumuliert) in Deutschland von Juni 2020 bis December 2023. <https://de.statista.com/statistik/daten/studie/1125951/umfrage/downloads-der-corona-warn-app/> [last accessed: 18.12.2022].
- 98 Bundesamt für Bevölkerungsschutz und Katastrophenhilfe (2022): Zivilschutzfahrzeuge. [https://www.bbk.bund.de/DE/Themen/Ergaenzende-Ausstattung/Zivilschutzfahrzeuge/zivilschutzfahrzeuge\\_node.html](https://www.bbk.bund.de/DE/Themen/Ergaenzende-Ausstattung/Zivilschutzfahrzeuge/zivilschutzfahrzeuge_node.html) [last accessed: 19.10.2022].
- 99 Bundesministerium des Innern und für Heimat (2022): Förderpreis Helfende Hand. <https://www.helfende-hand-foerderpreis.de/> [last accessed: 03.11.2022].
- 100 Bundesamt für Bevölkerungsschutz und Katastrophenhilfe: Mit dir. Für uns alle. <https://mit-dir-fuer-uns-alle.de/> [last accessed: 03.11.2022].
- 101 achverständigenausschuss nach § 5 Absatz 9 Infektionsschutzgesetz Bundesgesundheitsministerium (2022): Evaluation der Rechtsgrundlagen und Maßnahmen der Pandemiepolitik. Bericht des Sachverständigenausschusses nach § 5 Abs. 9 IFSG. [https://www.bundesgesundheitsministerium.de/fileadmin/Dateien/3\\_Downloads/S/Sachverstaendigenausschuss/BER\\_lfSG-BMG.pdf](https://www.bundesgesundheitsministerium.de/fileadmin/Dateien/3_Downloads/S/Sachverstaendigenausschuss/BER_lfSG-BMG.pdf) [last accessed: 03.11.2022].
- 102 Bundesministerium des Innern und für Heimat und Bundesministerium der Finanzen: Bericht zur Hochwasserkatastrophe 2021: Katastrophenhilfe, Wiederaufbau und Evaluierungsprozesse. [https://www.bmi.bund.de/SharedDocs/downloads/DE/veroeffentlichungen/2022/abschlussbericht-hochwasserkatastrophe.pdf;jsessionid=CCE224201B-4736F2445A469DB9EEC9DE.2\\_cid295?\\_\\_blob=publicationFile&v=3](https://www.bmi.bund.de/SharedDocs/downloads/DE/veroeffentlichungen/2022/abschlussbericht-hochwasserkatastrophe.pdf;jsessionid=CCE224201B-4736F2445A469DB9EEC9DE.2_cid295?__blob=publicationFile&v=3) [last accessed: 03.11.2022].
- 103 Der Präsident des Landtags Nordrhein-Westfalen (2022): Parlamentarischer Untersuchungsausschuss II (Hochwasserkatastrophen). <https://www.landtag.nrw.de/home/der-landtag/ausschuesse-und-gremien-1/untersuchungsausschuesse/untersuchungsausschuss-ii-hochwa.html> [last accessed: 03.11.2022].
- 104 Der Präsident des Landtags Rheinland-Pfalz: Untersuchungsausschuss 18/1 “zur Flutkatastrophe in Rheinland-Pfalz, deren Folgen und zur rechtlichen und politischen Verantwortung der Landesregierung, ihrer nachgeordneten Behörden sowie aller sonstigen öffentlichen Stellen hierfür”. <https://www.landtag.rlp.de/de/parlament/ausschuesse-und-gremien/fachausschuesse/untersuchungsausschuss-181-flutkatastrophe/> [last accessed: 03.11.2022].
- 105 Kai Remen (2022): Wie kommen die Spenden zu den Flutopfern? ZDF heute. <https://www.zdf.de/nachrichten/politik/flut-ahrtal-spenden-fluthilfe-100.html> [last accessed: 03.11.2022].
- Harald Schumacher (2021): Halbe Milliarde Euro für die Flutopfer in Deutschland. WirtschaftsWoche. <https://www.wiwo.de/politik/deutschland/spenden-halbe-milliarde-euro-fuer-die-flutopfer-in-deutschland/27525858.html> [last accessed: 03.11.2022].
- Michael Lang (2023): Warum 187 Millionen Euro Spendengelder für Flutopfer noch nicht verteilt sind. SWR aktuell. <https://www.swr.de/swraktuell/rheinland-pfalz/millionen-euro-spendengelder-noch-nicht-verteilt-100.html> [last accessed: 23.02.2023].
- 106 Bundesministerium des Innern und für Heimat und Bundesministerium der Finanzen (2022): Bericht zur Hochwasserkatastrophe 2021: Katastrophenhilfe, Wiederaufbau und Evaluierungsprozesse. [https://www.bmi.bund.de/SharedDocs/downloads/DE/veroeffentlichungen/2022/abschlussbericht-hochwasserkatastrophe.pdf;jsessionid=CCE224201B-4736F2445A469DB9EEC9DE.2\\_cid295?\\_\\_blob=publicationFile&v=3](https://www.bmi.bund.de/SharedDocs/downloads/DE/veroeffentlichungen/2022/abschlussbericht-hochwasserkatastrophe.pdf;jsessionid=CCE224201B-4736F2445A469DB9EEC9DE.2_cid295?__blob=publicationFile&v=3) [last accessed: 03.11.2022].
- 107 Anticipation Hub: Evidence database. <https://www.anticipation-hub.org/experience/evidence-database/evidence-list> [last accessed: 23.02.2023].
- 108 European Union (2022): Directive of the European Parliament and of the Council on the Resilience of Critical Entities and Repealing Council Directive 2008/114/EC. <https://data.consilium.europa.eu/doc/document/PE-51-2022-INIT/en/pdf> [last accessed: 30.01.2023].
- 109 Bundesamt für Sicherheit in der Informationstechnik (2022): NIS-2-Richtlinie im Amtsblatt der EU veröffentlicht. <https://www.bsi.bund.de/DE/Themen/KRITIS-und-regulierte-Unternehmen/Kritische-Infrastrukturen/KRITIS-aktuell/KRITIS-Meldungen/221227-veroeffentlichung-nis-2.html> [last accessed: 30.01.2022].
- 110 UNDRR (2022): Our World at Risk. Transforming Governance for a Resilient Future. <https://www.undrr.org/gar2022-our-world-risk> [last accessed: 15.03.2023].



# Imprint

## **Published by**

Federal Ministry of the Interior and Community (BMI)  
Alt-Moabit 140  
10557 Berlin

## **Edited by**

Office of the National Focal Point  
for the Sendai Framework, Germany  
At the Federal Office of Civil Protection  
and Disaster Assistance

Version as of March 2023

## **Design and Layout**

familie redlich AG –  
Agentur für Marken und Kommunikation  
KOMPAKT MEDIEN –  
Agentur für Kommunikation GmbH

The publication can be downloaded from:  
[www.bmi.bund.de/publikationen](http://www.bmi.bund.de/publikationen)

[www.bundesregierung.de/publikationen](http://www.bundesregierung.de/publikationen)  
Email: [publikationen@bundesregierung.de](mailto:publikationen@bundesregierung.de)

Article Number: BMI23005

Additional Federal Government publications  
can be downloaded or ordered here:  
[www.bundesregierung.de/publikationen](http://www.bundesregierung.de/publikationen)

This publication is issued by the Federal Government as part of its outreach activities. It is available free of charge and is not for sale. It may not be used by any political party, candidate, or campaign worker during an election campaign for the purpose of campaign advertising. This applies to elections at the European, federal, state and local level.

