Services for modern civil protection

Protection and assistance

BBK. Working together. Living in safety.
Protection and assistance
Services for modern civil protection
Over the course of a year, around 10,000 people attend 400 educational and training events hosted by the BBK’s Academy for Crisis Management, Emergency Planning and Civil Protection (AKNZ)

The 18 BBK’s civil protection helicopters are stationed at 12 air rescue centres

The MoWaS warning system is designed to transmit official alerts to more than 170 radio and television stations, media providers, etc. in a matter of seconds

Since 2002, NOAH has coordinated around 20 operational assignments each year
On average, BBK staff supervise 20 departmental research projects running simultaneously.

The BBK is responsible for supplying Germany’s federal states with the 5000+ operational vehicles available at a national level for the purpose of providing supplementary civil protection.

The BBK brings together experts from more than 30 academic fields.

A group of 1.7 million voluntary helpers forms the backbone of civil protection in Germany.
‘Our remit is very wide indeed.’
A brief interview with Christoph Unger, President of the Federal Office of Civil Protection and Disaster Assistance

What are the various roles of the BBK?
According to its original remit, the role of the Federal Office of Civil Protection and Disaster Assistance is to protect the population in a state of armed conflict. Today, however, we also deal with every conceivable type of major national incident – from natural disasters and critical infrastructure failures through to accidents at technical facilities and terrorist attacks. Against this background, we have a large number of very specific tasks. On the practical side, these include alerting people to danger and managing resources and information in the case of a national disaster. However, we also develop strategies to protect critical infrastructures, and of course we need to plan our future training programmes and exercises. Equally, we try to raise awareness among the general public and help them prepare for such events. As you can see, our remit is very wide indeed, so the BBK is called upon to perform many roles.

You have described the BBK as an ‘event-driven’ government authority. What do you mean by that?
Some of the jobs we do require 24/7 readiness, 365 days a year. At our Joint Information and Situation Centre (GMLZ), for example, we have to be prepared for both national and international deployments at a moment’s notice. We support our partners in Germany and abroad, and we can issue warnings at any time of day or night. To make...
this possible, BBK personnel are always on hand to sound the alarm immediately in the event of an emergency. Another key role is to assist German citizens who get caught up in disasters outside the country. One of the ways we do this is by providing psychosocial support.

**How do Germany’s federal states, local authorities and your other partners benefit from the BBK’s services?**

We see ourselves as the first port of call in all matters related to civil protection, so our job is to support the entire national civil protection system. In this way, the services we provide benefit a large number of stakeholders, including Germany’s federal states. For example, our Academy for Crisis Management, Emergency Planning and Civil Protection (AKNZ) runs staff training courses. We also conduct exercises and produce information for state and local government bodies, in addition to providing strategic planning support at federal state level. Furthermore, the BBK supplies a great deal of technical equipment for fire service and relief organisation vehicles.

**The BBK is also involved in civil protection measures at an international level. What form does that take?**

Germany’s system of civil protection is highly regarded all over the world. For that reason, we often receive requests for assistance. At the political level, too, there is now recognition of our potential role in the implementation of German foreign policy. To give you an example, one of our main areas of expertise is CBRN, i.e. measures to protect people against chemical, biological, radiological and nuclear dangers. For this reason, we currently have people in Jordan and Ukraine working on CBRN assignments. Another permanent focus is on staff training for our partners. At the moment, for instance, we are involved in a training project in China. As part of another project, in Tunisia, we are helping to strengthen the country’s fire protection infrastructure and establish a programme for volunteer firefighters.

**Looking ahead, what do you see as the main challenges facing the BBK?**

The entire country faces some significant new challenges in many areas, and that includes civil protection. One of those challenges is dealing with the impact of climate change. We also need to address multiple risks to Germany’s critical infrastructures. We are currently at a crossroads in terms of policymaking. This involves discussing changing circumstances with regard to security policies, which includes completely rethinking the way we perform our various roles and implementing the required measures. Take the new civil defence strategy adopted last year by the Federal Cabinet. The strategy is designed to protect us in the event of an armed conflict or should we need to defend one of our allies. When it comes to implementing the associated policies, the BBK will have numerous roles to play in very specific areas, and to that end we are already working closely with all our stakeholders.
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Risk management
Detecting danger, preventing damage
Protection and risk mitigation

Natural disasters, cyber attacks, industrial accidents, terror: how can we prevent damage, minimise the overall impact and manage incidents as effectively as possible? Risk management is one of the key responsibilities of the BBK. We identify potential hazards and threats, develop strategies and establish structures and mechanisms in order to protect the population and infrastructures of critical importance to society and to safeguard the supply of goods and the provision of services.

Drawing on qualified rescue and fire services as well as civil protection units, Germany is well equipped to respond to emergencies and disasters. At the same time, however, the risk climate as a whole – and therefore also the nature of such incidents – has changed. The purpose of risk management is to refine and adapt protective measures in response to new challenges. For example, who would have imagined several years ago that we would be facing such a significant threat from cyber attacks?

The essential elements of risk management in the field of civil protection:

• Identifying risks: what do we have to expect?
• Analysing risks: what are the consequences?
• Evaluating risks: what are the most significant risks?
• Tackling risks: what should be done?

In this context, risk management and crisis management are closely interlinked, with risk management delivering vital information needed when it comes to handling crises more effectively and, ideally, preventing them.

A concerted effort

Federal government, federal states, municipalities, operators of critical infrastructures, civil organisations such as fire brigades, volunteers and, last but not least, the general public: risk management in the field of civil protection provides a solid basis for efficient interaction between all those involved. This includes, for example, drawing up damage scenarios – such as a regional power outage – and looking at possible measures to be implemented in response. Building on these efforts, civil protection and supply structures can then be optimised in a targeted manner.
One of the key tasks of risk management within the area of civil protection is to take a far-sighted approach for the purpose of evaluating specific situations, drawing up appropriate plans and preparing a basis for well-judged policymaking. With this in mind, the BBK conducts in-depth risk analyses for a wide range of hazard scenarios that have been submitted to the German Bundestag annually since 2010. Among these, for example, is the “storm surge” scenario.

In this scenario, a number of dykes have been breached, resulting in widespread flooding directly affecting 150,000 people. This extreme coastal flooding is the result of a winter storm that causes severe damage to the infrastructure of electricity utilities. At times, some 6 million people are without power. Some regions are without electricity for periods of up to three weeks. People have to be evacuated, medical care is disrupted and transport routes are blocked, which has also contribu-
Analysing risk

Stress tests for needs-based, risk-oriented prevention and defence planning

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ted to bottlenecks in supply. These are just some of the factors to be considered in multidimensional risk analysis. All aspects of relevance to the assessment are outlined in detail: from the root causes, the probability of occurrence and the sequence of events to the impact on the population, the environment, the economy and intangibles as well as the effects on critical infrastructures. The analysis includes a description of the challenges faced by the various bodies at a federal level. This also covers aspects such as estimated costs or the consequences with regard to public order and safety.

The risk analyses conducted by the BBK provide valuable information for planning purposes within the area of civil protection – detailed, insightful and of practical relevance. For further information, please visit www.bbk.bund.de/risikoanalyse
What do electricity grids, water supply systems and IT networks have in common? Disruption to such infrastructures, e.g. as a result of a natural disaster, may have dire consequences, causing supply shortages or adversely affecting public safety. Additionally, there is the problem of a domino effect: if power grids fail and electricity is out for an extended period of time, nearly all areas of critical importance will automatically be affected – from telecommunications to food supply, transport and health care.

The protection of critical infrastructures (KRITIS) – primary utilities and assets that are essential to the state, the economy and the general public – is one of the key responsibilities of the BBK. The BBK’s remit is based on the National Strategy for Critical Infrastructure Protection adopted by Germany’s federal government. This strategy combines the aspects of prevention (identifying risks in advance, preventing malfunctions to the largest extent possible) and response (minimising the impact by means of emergency management, self-help capabilities and redundancies) for the purpose of establishing a framework for comprehensive risk and crisis management.

In this context, close collaboration between public authorities and (usually private-sector) operators is essential. The BBK assists all those involved, e.g. by providing guidelines on methodology as well as recommendations and seminars. It is an active partner of UP KRITIS, a cooperation between operators, their associations and the respective national bodies. Additionally, the BBK is part of the National Cyber Defence Centre.
Unfortunately, cultural property often faces destruction or pillage during armed conflicts. Additionally, such assets are exposed to the risk of disasters. The Hague Convention of 1954 focuses on the protection of cultural property in armed conflict. The aim is to adopt specific protective measures in times of peace. In Germany, the BBK takes a leading role in the protection of cultural property under the provisions of the Hague Convention. Working in close cooperation with the federal states (Laender) and operators of cultural facilities, the BBK is responsible for implementing a number of key measures:

- Communicating details of the Hague Convention
- Preserving archives on microfilm
- Registering cultural assets to be protected by the Hague Convention
- Training staff at museums, archives and libraries in the protection of cultural property during armed conflicts and disasters
• Providing access to an internet platform dedicated to security aspects for cultural sites (Sicherheitsleitfaden Kulturgut, SiLK – Guidelines for the Protection of Cultural Property)

One of the ongoing tasks is to preserve the most important cultural assets on microfilm. Today, Germany’s archives include 34 million metres of microfilm with more than one billion images. The goal is to illustrate and convey the nation’s history with the help of original documents. The microfilm material is stored in the Barbarastollen underground archive near Freiburg. At present, this archive encompasses 1,500 airtight containers made of stainless steel. Specialist procedures and storage conditions ensure that the documents of German cultural heritage can be preserved for at least 500 years. Germany’s central underground archive, the Zentrale Bergungsort (ZBO), is under special protection and has been specially marked for identification purposes.
Which structural and technical measures help to protect people, property and critical infrastructures against the consequences of natural disasters as well as terrorism and armed conflict?

The BBK provides comprehensive answers to these questions in the form of practical recommendations that help the population to take suitable protective measures.

The aim is to ensure the stability and functional reliability of buildings, other facilities and critical infrastructures against hazards. We take this to mean all structural measures that will provide protection against extreme dangers such as storms, hail and floods (including flash flooding) as well as other emergencies such as technical/human error all the way through to armed conflict.
Research projects expose typical structures to predefined stresses in order to analyse their weaknesses. The results of experiments like these are turned into recommendations for suitable reinforcing measures that serve the dual purpose of prevention and sustainability. For instance, protective film on windows prevents glass from splintering, which can be dangerous, while Western Red Cedar hedges can be planted in gardens to impede air blasts.

We compile the findings from our work into guidelines, videos and information leaflets for industry experts and the general public, which provide practical help for structural and technical preventive measures designed to promote self-protection and self-help. In so doing, we are supporting not only the public but also those tasked with operating critical infrastructures.
As a country rich in water, does Germany need to worry about the security of its water supply and thus the supply of emergency drinking water? Definitely. It is not only armed conflict – other extreme events such as natural disasters, power cuts or cyber attacks can also disrupt the power supply for lengthy periods of time or render tap water unusable due to chemical, biological or radiological contamination. This is why ensuring an emergency drinking water supply is one of the BBK’s most crucial tasks for preventive protection.

With the overriding objective being to maintain a mains public water supply for as long as possible, the BBK supports measures that supplement the pipeline network or generate emergency power, for instance.

Over 5,200 self-sufficient emergency wells have been set up in Germany to date, mainly in major cities and urban areas, for the scenario of a disrupted mains water supply. These allow the bare minimum necessary for the public to be supplied regardless of the state of the pipelines. The BBK also provides equipment for transporting and distributing water.

Emergency wells are yet another area that highlights the key role played by volunteers in civil protection. For instance, it is the volunteer fire brigades that are responsible for carrying out the necessary annual functional tests and maintenance.
Self-protection and self-help

Working together. Living in safety.

Need electricity? Just plug in and switch on! Need to stock up on food? Head for the supermarket pretty much any time you like. Got an emergency? Dial 112.

Germany is a very safe country. We are protected by a highly professional and integrated system of public- and private-sector organisations. However, the steps taken by individuals, businesses and public authorities to protect and help themselves are also crucial to our safety. They are a key element of the government’s civil protection strategy.

This is partly because even the best efforts of the state cannot guarantee absolute security and partly because those who are able to help themselves and others can take whatever immediate action is needed in the event of a serious incident such as major flooding until the emergency services can organise a proper rescue and relief effort. By
preparing for such events, you can ease the pressure on the official response teams, allowing them to allocate resources more effectively.

Furthermore, by taking proactive steps to protect and help yourself, you can potentially reduce the number of injuries and fatalities. Local authorities have a legal obligation to establish and promote self-protection measures.

Wide-ranging support is available from the BBK, which channels information from the federal government directly to certain target groups in the form of flyers, brochures and handbooks, through online material aimed at adults and children (e.g. the Max und Flocke Helferland website), via Twitter and YouTube and at trade fairs. You can also contact the BBK by telephone or email if you have any questions.
‘We receive a huge amount of support from the BBK.’

Marlis Cremer, Head of the Office of Regulatory Affairs, Emergency Services and Civil Protection of StädteRegion Aachen

How have the services provided by the BBK helped you directly to improve safety for people living in StädteRegion Aachen?

As a subordinate local government authority, we are responsible for protecting the local population. That means we have to manage the risks that particularly affect our region. When it came to reviewing our critical infrastructures, we drew widely on the risk assessment materials provided by the BBK to help us identify, prioritise and, above all, minimise the associated risks. As a specialised federal government authority, the BBK has given us a huge amount of support, including training courses and technical publications. Our sub-committee on critical water infrastructures is a good example. We store drinking water in several large reservoirs in the south of our region, well into the Eifel. Our treatment works provide drinking water for hundreds of thousands of people through a major distribution system. Any disruption at our water treatment and distribution plants immediately affects a great number of people, so it’s clear that the whole water supply chain forms part of our critical infrastructure. That’s why we set up the committee years ago, bringing together all those in positions of responsibility.
What direct support does the local population receive?
In October of last year, after installing the necessary equipment at our command centres, we introduced NINA, the new public warning app. NINA is a very important resource. In the event of an emergency, we can use it to issue warnings and at the same time give people the information they need directly. As well as making people feel safer, it means they actually are safer. We will of course use traditional methods of communication such as radio and TV as well. Thanks to the BBK, which linked us up to NINA, and the federal state authorities in North Rhine-Westphalia, who introduced the modular warning system known as MoWaS, we now have a simpler and more reliable network of communications, so we can provide local people with the information they need more quickly and more efficiently.

Apart from risk assessment support, what other BBK services do you use?
For a start, we use their brochures and guidelines. The BBK organises a wide range of conferences and seminars, too, and provides expert speakers for our own events. Naturally, we also use the services provided by the Academy for Crisis Management, Emergency Planning and Civil Protection, which is the first port of call for us when we need to provide operational or administrative training for senior civil protection officers. We send our team leaders there for training, as well as other staff who work on the admin side of disaster protection or in the veterinary team or the public health office. The BBK also provides vital strategic advice on procurement for our operational managers, and of course it supplies specially equipped emergency response vehicles from the federal government. If we have any questions about specific adaptations for CBRN purposes, we can always contact the BBK for technical advice, for example if we need additional resources for our site assessment teams.

The specialist information desk (FIS) run by the BBK is also very helpful. I studied disaster prevention management through the BBK and Bonn University. If you need to research a particular subject in greater depth, the FIS is a brilliant resource. We’ve always received very professional advice, and they have a superb library.

Going forward, what other support would you like to see from the BBK?
From the perspective of a subordinate civil protection authority, I sometimes get the impression that information at national level may well be passed on to the federal states but it doesn’t always filter down to us here. I know, for example, that a situation report is produced every day at the BBK. I’m sure the information would be useful at our level, too. Unfortunately, we don’t receive a copy. To some extent, that must be down to our federal system. In my view, a little more openness in this area would be very helpful.
Crisis management

A joint approach to crisis response
Pooling resources and providing assistance

It is impossible to prevent each and every disaster situation; the flood disaster of 2013 is a prime example. In times of increasingly severe weather, the ever-present threat of terrorist acts and the growing challenges associated with cyber attacks it is essential that protective and supportive structures operate as effectively as possible. The record floods of 2013 also illustrate the effectiveness of the various defensive measures put in place when it came to preventing more severe damage. The BBK played a pivotal role in providing information and coordinating specific measures.

Coordination is the key to efficient crisis response

With this in mind, the BBK’s primary responsibilities are as follows:

- Improving the interaction of disaster relief resources at federal and state level, e.g. fire service and aid organisations
- Optimising crisis management in operational and conceptual terms by establishing and merging structures and procedures
- Assisting with resource management
- Overseeing information management
- Conducting skills training

The BBK is at the hub of things

Germany’s federal government has brought together the key instruments of federal/state crisis management at the BBK. In particular, this includes the German Joint Information and Situation Centre (GMLZ), responsibilities for alerting the population and psychosocial crisis management with the federal government’s Central Coordination Centre for Aftercare and Support for Victims and Relatives (NOAH). Drawing on R&D, specialist expertise and the analysis of field exercises and previous crisis incidents, the BBK prepares guidelines and concepts for crisis management.
Spotting crises early, assessing situations in depth and deploying resources in the best possible way: the Joint Information and Situation Centre of the federal government (Bund) and the states (Laender) allows them to work together and exchange information with one another and with organisations in response to a crisis. It gathers information around the clock from 20 German, European and international warning and notification systems. Amongst other things, the GMLZ is linked up to the federal government’s Modular Warning System (MoWaS), works together with NATO’s Euro-Atlantic Disaster Response Coordination Centre and is an integral part of the EU’s civil protection mechanism. For instance, it is the only body in Germany authorised to request satellite images from the European Earth Observation Programme Copernicus (service: Emergency Management Service EMS).
The BBK’s experts assess situations and provide partners such as the federal states, government ministries, relief organisations, the Federal Agency for Technical Relief (THW), neighbouring countries, the EU and NATO at an early stage with the information they need to make decisions and take action. Its central position gives the GMLZ an excellent overview and enables it to deploy the relevant resources and measures in the best possible way. The GMLZ also handles resource management in the event of a bottleneck. During the Elbe and Danube floods, for example, 1.25 million sandbags from neighbouring countries were distributed to meet the individual needs of the federal states affected.

Cutting-edge media technology, redundant communication systems, comprehensive link-ups to the relevant information sources and highly experienced, expert staff make the GMLZ an essential coordinator in crisis management.
Exercises

Officers, task forces, structures and technology in action

Gathering experience, uncovering possibilities, testing new approaches – exercises and operational testing are vital instruments for making permanent improvements to civil protection. They help to ensure that, in an emergency, the people affected will receive better and more rapid assistance. This is why, for example, we practise a range of scenarios involving large numbers of injured victims. We also test how the various organisations work together, including the permanent and voluntary emergency services, and trial new technical procedures. One example from the Medical Task Force was when drones were used for test purposes. They provided extremely useful images so that it was possible to ensure a treatment station was set up in the right location. The BBK has successfully advocated that the use of airborne drones in disaster areas should be enshrined in legislation. Since April 2017, all those involved in civil protection are allowed to use drones.
One particularly important series of exercises led by the BBK is LÜKEX, a German acronym for Transnational Crisis Management Exercise. This is where the country’s leading federal and state decision-makers come together with operators of critical infrastructures, scientists and academics to practise dealing with specific threats and crisis situations. This allows federal and state governments to prepare for crises by testing and improving their existing procedures and processes. Key scenarios include virus epidemics, cyberterrorism and CBRN threats.
Effective warning procedures are crucial for minimising or avoiding the impact of hazards on the population. The German federal government has set up MoWaS, a satellite-based modular warning system, for defence and crisis situations and has also made it available to the federal states as a central warning and information system.

MoWaS allows alerts to be issued within a few seconds, for example via:
- TV and radio broadcasters
- Media service providers
- Internet and paging services
- Deutsche Bahn
- Mobile apps such as NINA

Other warning devices and media can be connected to MoWaS, including sirens, smoke alarms (with warning module) and smart home systems.

MoWaS features a graphical user interface that allows operators to select the affected region and message templates and create alerts with recommendations for action on an ad hoc basis.

The system is constantly being adapted to changing demands, the different ways that people use media, technical developments and structural requirements.
Preparing task forces for extreme situations and helping both them and those directly affected to handle the psychological impact. Amongst other things, psychosocial crisis management is about underpinning the planning and decision-making element of crisis management with sociological viewpoints. To this end, the BBK incorporates the latest research findings and helps to develop appropriate measures and structures, also taking on board the general public’s expertise and willingness to help.

How can the effects of psychosocial stress on task forces and those directly involved be prevented or detected at an early stage? What forms of aftercare are effective? These are the issues tackled by the BBK’s quality assurance relating to psychosocial emergency services (PSNV). This involves funding research projects and devising uniform
standards and guidelines for the whole country at consensus conferences, which the BBK organises together with the federal states and all other partners responsible for implementing PSNV in Germany.

Psychosocial support for German citizens affected by serious accidents, terrorist attacks and natural disasters abroad is provided by NOAH, the central coordination centre for aftercare and support for victims and relatives. The BBK’s psychosocial crisis management team also supports the important work being done by crisis units. Psychology and the science of communication help to create psychosocial pictures of a situation, enabling the protective and relief measures to take due account of population diversity and thus be applied more effectively in a specific situation.
‘The BBK helps us keep our crisis management system up to date.’
Daniela Schlegel-Friedrich, Chief Executive, District Authority of Merzig-Wadern

What is your relationship with the BBK at a functional level?
We are keen to ensure that our civil protection and disaster response mechanisms are up to date and that we have the best resources currently available. To that end, we based our crisis management system and our plans to deal with various disaster scenarios on the BBK’s recommendations. With federal government support, we have adapted the crisis structures in our district accordingly.

We have drawn on many of the services provided by the BBK. In particular, we take advantage of the courses offered by the Academy for Crisis Management, Emergency Planning and Civil Protection (AKNZ) in Ahrweiler, where we often send our staff and operational teams for training. In fact, we now provide the occasional guest speaker ourselves at the Academy. That way, the BBK helps us keep our crisis management system up to date.
How do you and your district benefit from the services provided by the BBK?

For us, the BBK is a source of exceptional expertise that – like most local authorities – we cannot possibly provide in-house on the same scale. We make use of that expertise whenever we need additional theoretical or practical knowledge, especially when it comes to training our own disaster control teams. The fact that we can arrange training in so many areas from a single provider is very important to us. As well as technical courses, the Academy provides training in public relations, for example. That’s a crucial element of any crisis response.

Ultimately, the high standard of training available to all our disaster management teams will benefit local people in the event of a crisis. In other words, our links with the BBK help us to ensure the safety of the population – through staff training, technical updates and other services aimed directly at the public. All in all, that allows us to operate a well-rounded crisis management system.

While it is mainly our senior managers and operational teams who use the Academy, local people also benefit directly from the BBK’s work. Take the warning app NINA, for example. You can download the app free to your smartphone to ensure that you receive any danger warnings that may be issued. Of course, the BBK also produces a wealth of information that is aimed directly at the public.

Going forward, what other support would you like to see from the BBK?

In terms of our specific operational needs, we would like to see more straightforward mechanisms for interstate cooperation through the BBK. Ideally, similar rules should be in place across all the country’s federal states (Laender). Obviously, crises do not necessarily stop at the federal state border. In such cases, we have to help each other, and that’s where we need to be using the same standards.

It would also be helpful if the BBK provided additional training capacity, especially at the Academy. Demand for the courses offered by the Academy is so high that we often have to wait several months after registering before we receive confirmation of a place. That’s because all the courses are booked up well in advance.
Research, development and innovation

Because good isn't good enough
Driving and harnessing innovation

One of the BBK’s crucial roles is to respond to evolving threat situations and social developments with measures based on the latest research and technology. It has established the structures and expertise needed to achieve this goal. One such unit is the BBK’s in-house research council, whose remit is to ensure that all research, development and innovation activities are efficiently directed and resourced. The work of the BBK has a direct impact on every aspect of civil protection:

- Equipment used in emergency response vehicles
- CBRN defence
- Public warning and information systems
- Measures to protect public health
- Psychosocial emergency services
- Self-protection
- Measures to protect critical infrastructures

In-house innovation and collaborative research projects

The BBK conducts its own research projects and commissions research from outside experts. It also participates in collaborative research projects at national and international level. One example of this approach is SEMFreS, which involves a consortium of partners whose work is coordinated by the BBK. The aim of the project is to examine and evaluate different scenarios in which chemical and explosive substances might be released and the equipment and procedures needed to measure and analyse their effect. When the results are available, the BBK will be able to issue appropriate recommendations on how best to respond in such situations.

A proactive, multi-level approach to improving civil protection

As well as conducting its own research and development activities, the BBK provides a variety of research-based services. These include:

- evaluating and compiling research findings,
- publishing the results in usable form,
- providing scientific advice to the federal government (Federal Ministry of the Interior and other government authorities).

Here at the BBK, we are continuously refining and improving what we do – because in the field of civil protection, merely good isn’t good enough. On the next few pages we have put together some examples of the exciting improvements that can be achieved through research.
Chemical (C), biological (B), radiological (R) and nuclear (N) attacks or accidents can have a devastating effect on the population. Against this backdrop, CBRN protection is to be seen as one of the BBK’s key responsibilities when it comes to sharing professional expertise, conducting research and providing suitable equipment. The following aspects are of particular importance when dealing with CBRN hazards:

- Protecting emergency task forces/people in the danger area
- Detecting and identifying hazards as quickly as possible
- Implementing operational measures upon exposure (e.g. decontamination) and providing instructions on how to respond or behave

The BBK takes an active role in two areas: as a specialist/scientific adviser and as a technical support
unit and supplier of equipment. For example, this includes providing task forces with personal CBRN protective equipment, which is being refined continuously thanks to targeted R&D efforts. The same applies to reconnaissance and decontamination vehicles.

The BBK develops new concepts for CBRN protection either alone or in collaboration with others. Among them are a framework drawn up for CBRN protection within the context of civil protection and a concept for the Analytical Task Force (ATF). Committed to contract research with external bodies and the manufacturing industry, the BBK places particular emphasis on monitoring and detection devices. A key focus is on their practical value to the general public. A case in point is the Scanning Infrared Gas Imaging System – SIGIS 2. It is already being used at major events (e.g. stadiums) for the purpose of preventive surveillance.
How can mass casualties be managed in the best possible way, and how should CBRN victims be treated? The BBK is constantly expanding its capacities and expertise in order to protect the health of the population.

The BBK is involved in the following key areas in this respect:

- Disaster medicine
- Hospital response planning
- Protecting health in the event of CBRN threats
- Stockpiling of medical supplies

For example, the BBK has come up with the concept of a Medical Task Force (MTF) at a federal level, which is also equipped by the Office. The MTF, an emergency medical team staffed with doctors, is currently being set up to care for large numbers of injured people in the event of a disaster. The task force will be called in if the local infrastructure is unable to cope in a disaster situation and if normal local emergency services are overloaded or failing. The MTF will rapidly establish an autonomous treatment station, decontaminate victims as necessary, treat patients and organise patient transport. These functions are all tested in practical exercises, which assess the suitability of the equipment and ensure that the quality and efficiency of the MTF is continuously improved.

Protecting health

Total commitment to the public’s well-being
5,055 emergency response vehicles complete with disaster control equipment: part of the BBK’s remit is to develop and procure supplementary equipment on behalf of the federal government for use by civil protection teams across the country in various scenarios – firefighting, frontline victim support, CBRN defence and medical emergency units. Ultimately, the vehicles are used by the fire services and by relief organisations such as the ASB, DLRG, DRK, JUH and MHD. Rigorously tested, cutting-edge equipment is also supplied to the analytical and medical task forces.

The BBK supplies a wide range of civil protection resources – from fully equipped analysis and decontamination vehicles for use in CBRN situations through to equipment transporters, personnel carriers, casualty evacuation vehicles and firefighting vehicles designed to carry an entire fire service group with specialised disaster control equipment.
Through the BBK, the federal government also provides a total of 16 civil protection helicopters based at 12 air rescue stations around the country. These are used by the federal states (Laender) for emergency rescue purposes. As regards civil protection and disaster control, they can be used to monitor a disaster situation, carry specialist teams and material or measure radioactivity levels from the air.

The BBK contributes its own expertise at every point from the initial planning stage onwards. That includes drawing on current research and development findings, both in-house and external. The vehicles are fitted out by the BBK and then, together with their equipment, put through a series of rigorous tests to ensure that they perform as required. These tests include simulating the conditions at a major incident involving widespread damage.
‘We’ve been liaising with the BBK on major public events for over 15 years.’

Dr. Hauke Speth, Head of Research and Training Division, Dortmund Fire Service

What is your relationship with the BBK at a functional level?

Here in Dortmund, the fire service has had close links with the BBK for many years. That’s partly because we are one of the seven brigades in Germany to host an Analytical Task Force. The ATF is a specialist unit that analyses unidentified substances in accident situations. The BBK played a key role in setting up the unit and is still heavily involved on the operational side, so we are in regular contact to discuss the development of new equipment, day-to-day assignment planning and the new challenges we face. Having said that, our relationship is not limited to technical matters. We’ve been liaising with the BBK on major public events for over 15 years. That cooperation evolved particularly in 2006 when we were preparing to host the Football World Cup here in Dortmund. In its coordinating role, the BBK brought together civil protection teams from host cities all over the country to develop a uniform security plan. This working group on major public events remained in place after the 2006 World Cup, because we all know that public events on that scale involve dealing with many different challenges. The BBK is a very influential moderator and coordinator in
those important discussions, and we’re grateful for that.

**Which BBK services do you use?**
The ATF unit uses many of the services provided by the BBK. To give you an example, the BBK supplied us with a device called SIGIS 2, which is a very important piece of equipment. It's an infrared spectrometer that can identify different substances from a distance of up to five kilometres. It takes an infrared picture of gases in the air and analyses the results in real time. Every substance has a unique spectrum. SIGIS 2 is important because it allows us to detect and analyse substances from a distance so that we can tell very quickly what we are dealing with. That means we don’t necessarily have to send an emergency response team right into the accident zone, where they might be exposed to greater risks. SIGIS 2 can also analyse samples on site, which is much faster than having to bring them back to the lab. That considerably reduces the time needed by team leaders to make an overall assessment of the situation, and of course it has a direct benefit in terms of public safety. It's worth noting, too, that SIGIS 2 was developed by the BBK for practical use on the basis of earlier research.

**Going forward, what other support would you like to see from the BBK?**
I'd love to see us work with the BBK to repeat the success of SIGIS 2 by developing another piece of equipment. Here in Dortmund, we set up a research project that developed a remote sensing platform for use at disaster sites. We can use the platform to collect data from a large area. In future, the system would allow us to control situations that are completely inaccessible to us at the moment, for example if we need to take measurements in heavily contaminated areas. It’s a great system, and the project is done and dusted. The question now is where do we go from here?

Whether we can move on to the next stage is a matter for the policymakers. At present, we are in the unfortunate position of frequently being able to demonstrate through research projects that we can solve problems very effectively, but we can’t move on from there to develop a working device because the funding isn’t available. The benefits of our research are 'only' felt in terms of public safety. Private investors are not interested in ‘small’ projects of this kind. To give you an example, the reason there are only seven ATF units in Germany is that the level of specialisation involved deters investors from industry.

So, I would like to see the BBK address this problem by pressing for a top-level federal authority to coordinate the next stage of development and introduce a system that has emerged from hands-on R&D for practical use in the field.
Education and training

Providing competent and assured protection
Developing expertise for civil protection

Civil protection in Germany has a multifaceted structure: full-time and voluntary staff work side by side, as do the public and private sectors, while the competent bodies at state and national level all pull in the same direction. How can the skills required at the various levels be developed and practised? Answers are provided by the BBK’s education and training team. Together with the Academy for Crisis Management, Emergency Planning and Civil Protection (AKNZ), the BBK acts as the central education and training institute for civil protection, risk management and crisis management.

Its specific activities are drawn from the BBK’s underlying mandate:
- Making people more able to help themselves – e.g. by training young people in first aid
- Training the staff responsible at state level – e.g. in the correct usage of the vehicles and equipment provided by the federal government
- Seminars, exercises and training sessions on the AKNZ’s campus in Bad Neuenahr-Ahrweiler

Every year, the BBK Academy puts on around 450 seminars and training sessions, which are attended by some 10,000 people from all levels of administration, all organisations involved in civil protection and all industry sectors. A 20-hectare site offers an ideal learning environment for participants. This also includes a teaching philosophy based on modern principles of adult education. As well as delivering new content, it also promotes the acquisition of skills such as cooperation and teamwork that are especially crucial to civil protection in Germany.

The BBK itself proactively engages in partnerships as well. For instance, all candidates for the upper echelons of the police service studying at the Deutsche Hochschule der Polizei (German Police University) are given in-depth training in civil protection. Meanwhile, members of Germany’s armed forces learn important information about civil/military cooperation and a close relationship is also cultivated with the Federal College for Security Policy Studies (BAKS). The BBK’s extensive portfolio in the key field of education and training also includes training courses at international levels and on-site events.
Severe weather, major public events, terrorist threats, large-scale refugee movements and traumatised victims needing psychosocial support. Situations such as these require professional leadership. As well as ensuring that the right mechanisms and structures are in place, you have to be able to rely on the expertise and coordinated action of decision-makers.

One of the BBK’s roles is to train senior managers and command centre and crisis management teams on behalf of local and regional authorities, fire departments, relief organisations, the Federal Agency for Technical Relief, police forces and critical infrastructure companies. In conditions that are as realistic as possible, the participants learn how to deal with extreme situations such as mass panic or extended power cuts. The various scenarios are designed, for example, to test risk analyses or specific risk prevention plans drawn up by local authorities. BBK training courses also draw on analyses of previous major incidents involving large-scale damage.

The focus is on developing the required skills and taking the appropriate action. That might also include using social media, involving ad hoc volunteers, dealing with the media response and working across borders. Realistic scenarios, the latest detailed analyses and effective cooperation are the hallmarks of the BBK’s training courses for command centre and crisis management teams and decision-makers.
Command and crisis management units

Initial and advanced training in effective disaster control for command centre teams and senior managers
Effective civil protection systems are built on the contributions of numerous organisations. As well as gaining vital qualifications, those who take part in the BBK’s dedicated training courses acquire teamwork skills and an understanding of why cooperation with others is so important. That applies in equal measure to public authority officials, civil protection volunteers, civilians, police officers, the military, public-sector workers and those in the private sector. And since disasters don’t stop at borders, civil protection is also a supranational challenge. In response, the BBK has established a wide range of partnerships, and there is tremendous demand in Germany and beyond for the training it provides through the Academy for Crisis Management, Emergency Planning and Civil Protection (AKNZ). The Academy’s trainers have been preparing EU command teams for reconnaissance missions and operational deployments in disaster-hit regions.
for many years. NATO also uses the Academy as a CBRN training centre. BBK specialists contribute to relief efforts on the ground in other countries as well as advising on strategy and on measures to build and improve civil protection infrastructure. The list of our partners includes countries such as China, Jordan and Tunisia.

The challenge we face is to bring diverse organisations together to create robust civil protection systems, especially in rapidly changing contexts. Through its highly practical, meticulously prepared and multi-sectoral training courses, the BBK is one of the key players involved in meeting that challenge.
The BBK is committed to providing civil protection training precisely where it generates the maximum impact. That means, for example, delivering many of our training courses outside the Academy.

Wherever possible, we try to fit in with the needs and operational routines of our target groups. If required, our trainers can attend local exercises and conduct seminars at our partners’ premises. We can even arrange ad hoc seminars and shadow local teams on deployment.

The BBK is expanding its provision of virtual courses at the Academy in order to harness the full potential of modern digital learning methods. This remote learning approach allows participants to combine training with the everyday demands of their position and makes a significant difference, especially for civil protection volunteers. Another exciting development and one of the great benefits of IT-based learning is the ability to produce digital simulations and evaluate virtual scenarios.

Sophisticated and comprehensive civil protection and disaster control systems are rapidly emerging as a priority in our complex world. Against this background, in collaboration with the BBK, the University of Bonn now offers a dual work-study Master’s degree in disaster prevention and management. Students are given a firm interdisciplinary grounding and can choose from a range of more specialised modules.
‘We need more training in major incident control.’

Professor Axel Heller, Medical Director,
24th Medical Task Force (MTF), Dresden

What is your relationship with the BBK at a functional level?

The Federal Office of Civil Protection and Disaster Assistance (BBK) is one of our key partners on the medical side of civil protection. In fact, it was the BBK that developed the Medical Task Force concept. The role of the 24th MTF is to implement that concept in Dresden and the surrounding region together with the various relief organisations and the fire service. There are around 60 medical task forces across the country. Each MTF is made up of different sections that specialise in treatment, operational command, transport and decontamination. If a disaster occurs, they work together as a joint task force with 24 vehicles and 126 responders, including 12 medics, usually on a supraregional basis. A fully deployed MTF can treat between 50 and 100 patients over a sustained period of 48 hours. In the event of a major incident, the individual sections can also be deployed within their respective districts. For example, our medical equipment transporter (GW San) can provide additional personnel and resources in the event of a multi-vehicle pile-up on the motorway. As part of our working relationship with the BBK, we send our task force leaders there for training.
and we run a number of joint projects. The objective, of course, is to ensure that we can provide the best possible medical response in the wake of a disaster.

**How does the BBK’s training help you to protect the public?**

For those of us working on the medical side of civil protection, the training provided by the BBK, primarily at the Academy for Crisis Management, Emergency Planning and Civil Protection (AKNZ), is very important. In our own case, it was the BBK that developed the MTF concept and supplies the vehicles and equipment we need to train up our first responders. The Academy offers more advanced training specifically designed for the MTFs. To give you an example, I took part in a multi-day course for task force leaders. The training gives us the skills we need to decide on the most appropriate and effective course of action in the event of a major incident or disaster. As well as dedicated MTF training, the Academy runs courses for senior command centre staff to help them deal with major incidents below the disaster threshold. I’ve been to several of those, too. The courses have been very well conceived from an educational perspective and are extremely interesting, even for those of us who have notched up quite a few years with the emergency services. Here in Dresden, we completely revised our major incident strategy in light of what we learned at the Academy.

**What are the main challenges facing medical response teams as part of the wider civil protection system?**

Since 2016, we’ve faced an evolving security situation here in Germany and elsewhere. Looking ahead, we expect to have to deal more and more with incidents involving a large number of serious injuries. As emergency medical responders and disaster relief teams, we need to ensure that we have the required breadth and depth of skills. Against this background, the Academy, for example, could increase the number of courses available to train medical teams in both urban and rural environments so that they can provide an effective response to major incidents. The MTF is a volunteer force. It’s an exciting challenge and really enjoyable, too, because we have a more hands-on job to do, relying on our instincts and senses rather than all the high-tech equipment available at the hospital. Having said that, we don’t have anything like enough doctors that we can deploy in disaster situations. There are twelve regular posts that need to be filled in each MTF, and there are 60 MTFs overall in Germany. To ensure that we are really well prepared for every situation, we need two people, ideally three, for each of those posts. That means each MTF needs at least 40 volunteer doctors. On average, we are well below that figure. We need more medically trained people to volunteer and attend courses such as those run by the Academy on disaster medicine and responding to major incidents. I urge anyone with the required medical background to consider joining your local civil protection team or a relief organisation as a volunteer – one of the MTFs, for example.