



Federal Ministry  
for Economic Cooperation  
and Development

# Disaster Risk Management

Understanding risks, preventing disasters, strengthening resilience







*After an earthquake in Lombok, Indonesia, only the front door of a house is left standing.*



*Dear readers,*

Storm surges, earthquakes, and droughts can strike people all over the world.

They become disasters if people are unprepared and do not know how to act in an emergency. They claim lives, destroy livelihoods, and create a lot of personal suffering. The immense loss and damage are also felt by society as a whole – often years later.

In Europe, we are also increasingly experiencing the force of extreme weather events or highly contagious diseases hitting our society.

Yet, partner countries of our development cooperation are particularly affected by disasters. They are exposed to more frequent and more extreme weather events due to climate change.

At the same time, their ability to prepare and protect themselves is limited. Poverty and hunger, corruption or inefficient administrations, crises, conflicts, and social inequality exacerbate the situation in many places.

We face a multitude of common challenges around the world.

To ensure that these challenges do not lead to disasters, we must address the underlying risks early on and invest in prevention. This is the only way we can prevent new pandemics and prepare ourselves against the consequences of climate change. Our response must be solidarity.

This is where Germany's commitment to sustainable and risk-informed development comes in.

Disaster risk management enables our development cooperation to identify risks, assess them, and then take preventive action. In doing so, we rely on partnerships – with both our bilateral and multilateral partners.



Because global challenges need global commitment.

People everywhere around the world should have the chance to live a good life on a healthy planet. This is the goal set by the global community in the 2030 Agenda for Sustainable Development.

The more people have access to health, infrastructure or education, the better countries adapt to climate change, the less poverty and inequality exists, and the greater gender equality is, the more resilient societies and economies are to disaster risks. For this reason, Germany is committed to these very issues and is working together with its partners at eye level to realise these goals.

This brochure provides an overview of what we are contributing through German development cooperation to mitigate the drivers and impacts of disasters, strengthen prevention, and secure development successes worldwide. No one is safe until we are all safe.

*Svenja Schulze,  
Federal Minister for Economic Cooperation and  
Development*



*The river Drin bursts its banks more and more often as it flows through the Western Balkans, like here in Shkodra, Albania.*

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*A large-scale fire threatens the city of Bangkok in Thailand.*

# Disaster Risk Management – strengthening resilience and securing development success

Every year, 200 million people worldwide are affected by disasters. Many lose their livelihoods as a result. We focus on development-oriented disaster risk management to ensure their life prospects.



Disasters arising from hazards such as earthquakes, floods, and storms threaten people and their livelihoods all around the world. They claim thousands of lives every year and destroy houses, infrastructure, and agricultural land. Industrial accidents and the uncontrolled spread of highly contagious diseases also place countless individuals in jeopardy. In total, about 200 million people suffer from the impacts of disasters every year. These events frequently evoke malnutrition, poverty, and conflict. Consequently, flight and migration are then often the only way out. Between 2000 and 2019, economic losses caused by disasters amounted to nearly 3 trillion US dollar.

While we cannot entirely prevent disasters, we can significantly reduce their adverse effects. Many social, economic, environmental, and political factors determine whether an extreme event – like a landslide or tsunami – will turn into a disaster. Extreme events often only lead to disasters because neither the state nor the population have taken any preventive measures and are caught unprepared.

This is where we, the German Federal Ministry for Economic Cooperation and Development (BMZ), take action with our development-oriented disaster risk management. We work to prevent disasters, reduce their negative effects, and address their underlying causes. Our focus is on taking appropriate account of risks, reducing existing risks and preventing new risks while ensuring better protection against them in the future. We cooperate with our partners to identify the drivers of risks and take preventive action. Thus, lives and livelihoods are protected, economic and environmental loss and damage are mitigated, and development gains achieved in our partner countries are secured through risk-informed development.

## **i** Disaster Risk Management

**Disaster risk management** means analysing the fundamental risk factors of a society to reduce existing risks, prevent the emergence of new risks, and manage residual risks. It describes the process of analysing, planning, implementing, evaluating, and adapting strategies and projects with the objective of reducing impacts and damage caused by disasters while building resilience. To this end, exposure and vulnerability are reduced and the coping and adaptive capacities of people, communities, and governance structures are strengthened.





After a flood, a man tries to salvage his belongings.

## i Resilience

**Resilience** is the ability of a system, community, or individual to resist, absorb, adapt to and recover from the effects of a hazard, in a timely and efficient manner, without compromising prospects for the future. Resilience improves people's ability to contend with future disasters and crisis situations.



In an average year, **50.000 people** die as a direct result of disasters – as many as 100 years ago. But compared with the world population which has more than quadrupled since then the death rate is falling significantly. This highlights the positive effect of **prevention** and **preparedness**.

We cannot view disasters and the multiple causes of disaster risks in isolation from factors such as politics, the environment, society, and the economy. Whether there is an ongoing conflict, industry constricting human and animal habitat, or a city facing high population density has a very specific impact on the local situation and people's vulnerability to various risks.

Thus, we embed our disaster risk management as a **cross-cutting issue** in development and investment projects, for example as a component in projects concerned with water and energy supply or education. In this way, we enhance the effectiveness of projects and international partnerships, exploit synergies, and mainstream disaster risk management as a **cross-sectoral task**. We thereby enable those responsible in administrations and companies as well as the general public to take diverse risks into account in their decisions so that they develop a forward-looking view of disaster risks. Disaster risk management is key to securing development progress making it a prerequisite for sustainable development.



## i From extreme events to disasters – the interaction of hazard, exposure, and vulnerability



A **disaster** occurs when a hazard – for example an earthquake, a highly contagious disease, or a flood – hits a society vulnerable to that hazard. It disrupts or interrupts society’s ability to function causing high human, economic, and environmental loss and damage. Disasters often exceed the capacity of a community or society to cope with the effects of a disaster on its own.

The **risk** of a disaster derives from the interactions between **hazard**, **exposure**, and **vulnerability**. Although (natural) hazards cannot be fully

prevented, it is possible to directly influence the risk of a disaster and reduce it to an acceptable level. This can be achieved by strengthening capacities for adaptation and coping, and by reducing vulnerability and exposure.

A **hazard** can be defined as a set of circumstances or a situation that has the potential to inflict harm. Hazards can have different origins: natural (geological, hydrometeorological, and biological) or induced by human processes (environmental degradation, social, and technological hazards).

**Exposure** means that people, their income opportunities, resources and infrastructure, as well as economic, social, and cultural assets can be harmed because they are in a hazardous location or exposed to a hazardous situation.

**Vulnerability** describes the degree to which a society or system is susceptible to the effects of hazards. It is determined by social, physical, economic, and environmental factors. Strengthening the capacity of people and institutions to cope with and adapt to the adverse impacts of extreme events reduces their vulnerability.

## i Risk-informed development

The discussion on **risk-informed development** is becoming increasingly important internationally. The term implies an understanding of development that takes multiple, interdependent, and concurrent risks into consideration in areas

such as environment, good governance, and food security. This approach serves to reinforce development progress in poverty reduction, disease control, access to health care or education, and provides protection from new threats.



### Central America: Making risk-informed decisions in administration

In cooperation with the Global Initiative on Disaster Risk Management (GIDRM) commissioned by BMZ the Central American Institute of Public Administration (*Instituto Centroamericano de Administración Pública, ICAP*) developed the Central American Initiative for Public Investment with Added Value (*Iniciativa Centroamericana para una Inversión Pública con Valor Agregado*) – in short INCENTIVA. The initiative ensures that disaster and climate risks are considered in administrative structures and processes as well as in national public investment systems and development planning.

By providing trainings for administrative staff in countries such as Honduras, El Salvador, Panama, and Costa Rica, we enable civil servants to identify and address potential risks in the planning and evaluation of public projects. For example, if these civil servants now develop concepts for expanding the power grid, they know how risks deriving from hazards such as storms, floods, or earthquakes must be included.

Through this project, German development cooperation not only contributes to a better understanding of systemic and cross-sectoral risks, but also encourages their consideration in the planning of basic infrastructure. We are

thus strengthening the ability of administrations across the region to prepare for crises and emergencies, minimise potential loss and damage, and recover from disasters.

INCENTIVA draws on structures of the Network of the National Public Investment Systems in Latin America and the Caribbean (RedSNIP). Together with GIDRM, this network promotes risk-informed development in the region. It brings together representatives of 16 Latin American and Caribbean countries to share methods and best practices in dealing with risks. Together, they ensure that public investment projects across the region are designed to be resilient to climate and disaster risks.





*A resilient basic infrastructure ensures safe supply channels for the population even during storms, floods or landslides. We support partners in taking such hazards into account when planning and building power grids and road networks, as here in Bogotá, Colombia.*





*Due to droughts and water shortages, nomads are increasingly settling down like here in the village of Waaf Dhuung in Ethiopia. They have to draw water from increasingly deeper wells due to persistent droughts.*

## Risks in our partner countries

Whether a disaster occurs depends on various economic, environmental, societal and political risks. For effective development cooperation, it is crucial to identify and mitigate the drivers of risks. Only in this way, we can prevent human suffering and secure development successes.





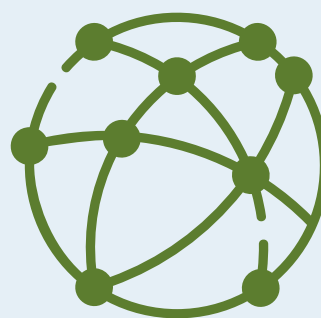
Around the world, we face a wide range of challenges: climate change, poverty, rapid urbanisation, fragile contexts, and weak health systems are slowing down development processes in many of our partner countries. Such drivers of risk often occur simultaneously and reinforce each other, giving rise to systemic risks.

For example, following Hurricane Maria in the Caribbean in 2017, a large upward correction of the death toll was required. This increase was due to the collapse of the health care system which was already overburdened in many places. After the hurricane, especially people living in

poverty had only limited access to clean drinking water and intact sanitation facilities. Hospitals were damaged by the storm and were left without electricity or fuel to run generators. Thus, fatalities included deaths that were not directly connected with the hurricane.

## **i** Systemic risks

In an increasingly interconnected world, we are facing more risks that are not only (highly) complex themselves but are also closely linked to other risks. These are referred to as **systemic risks**. Due to their dynamic interactions, these risks can simultaneously cause harm in multiple spheres of life and the economy, and trigger chain reactions with cascading effects. Systemic risks are not linear in nature and are characterised by tipping points. This, in turn, can cause a functional collapse of parts of a societal system – e.g. infrastructure or the health sector – or of the system as a whole, sometimes for an indefinite period of time. The COVID-19 pandemic is a striking example of this.



Given the complexity of this interplay, systemic risks are hardly predictable and thus difficult to influence. They pose a particular challenge to established risk management institutions, which have often so far focused on single hazards. To ensure that systemic risks receive more attention from the public and in administrative processes, BMZ supports research and communication activities in this field.

## Climate change



Due to **climate change** extreme natural events with destructive impacts have increased in intensity and frequency in recent decades. The extent and the consequences of floods, droughts and storms can still be seen years later. Environmental degradation and the loss of biodiversity exacerbate levels of vulnerability. Many people in our partner countries are faced with a growing danger that they could lose their homes to rising sea levels or will be forced into a life of extreme poverty and food insecurity because of crop failures caused by prolonged droughts. Distribution conflicts and movements of migrants and refugees – mostly within a country or region – are on the rise.



**Climate change** as a risk driver:  
Up to **216 million people**  
could face displacement within their  
own countries by **2050**

People in developing countries are particularly affected by the impacts of climate change. With fewer income alternatives, their dependence on agriculture, forestry and fisheries is considerably

higher than elsewhere. Moreover, settlement structures that are susceptible to the impacts of extreme weather are more commonly found in developing countries. Buildings are not designed to withstand severe storms, and preventive investment in safe infrastructure is insufficient. This applies in particular to basic infrastructure, such as water and energy supply, or health services.

## Marginalisation and poverty



Marginalised groups, for instance people with disabilities, migrants, low-income households, and the elderly, often settle in high-risk locations where the cost of living is lower, for example alongside riverbanks, on hillsides, or in illegal settlements. This leaves them highly exposed to hazards such as landslides or flooding. Furthermore, **marginalised people and those living in poverty** often have limited access to education and information tailored to their needs. As a result, disaster risks are not recognised or communicated due to language and cultural barriers. These population groups also often lack financial means needed to deal with lost livelihoods or rising food prices, which can in turn lead to famine. Women are particularly affected. Furthermore, when considering economic losses from disasters in relation to national income, poor countries are overall more severely affected than industrialised countries. In poorer countries, economic loss and damage caused by disasters often amounts to three times their national gross domestic product – impacts which can hardly be absorbed financially. Social protection systems are then soon stretched to their limits.





Dry soils and water scarcity have enormous consequences for people and the environment. Worldwide, nearly **55 million people** are already affected by drought.

### Urbanisation and the rise of megacities



The world's population continues to grow. The United Nations estimate that by the middle of this century around 70 per cent of people around the globe will be living in **cities and urban areas**. Megacities are rising, and medium-sized cities continue to expand. This increasingly exposes them to natural hazards like floods, storms, heat waves, and landslides. Particularly, coastal cities are at risk because of rising sea levels, coastal erosion, and soil subsidence caused by ground-water extraction.

Cities are often agglomerations, acting as hubs for regional and national energy, food and water supply systems. If an extreme event occurs in a city, it might thus not only cause extensive local damage, but could also have an impact on a larger population beyond the immediately affected areas.

Urban areas are increasingly experiencing the spread of informal settlements in risk zones. These areas are often illegally occupied so that buildings are neither constructed according to disaster-proof building standards nor connected to urban emergency systems.

### Fragility, violence and conflicts



**Fragile contexts** and armed **conflicts** intensify people's vulnerability to disasters. Most fragile states cannot guarantee the fulfilment of people's basic needs, such as access to water, electricity, and food. This makes preventive measures, e.g. establishing grain stores for possible droughts, hard to implement. Moreover, protective measures in fragile countries are often rejected because people's trust in state institutions is weak. If an extreme event happens, there is little scope for preparation, providing rapid assistance, or coping with the disaster in the medium and long term.

In the future, the consequences of climate change will have an even greater impact on the fragility of states and societies and result in more competition over food and water as well as increasing migration. Distributional conflicts and refugee movements could aggravate existing conflicts in fragile states and increase people's vulnerability to various threats.

## Weak health systems



The state of **health care systems** in a country and the actual health of the population are important factors in determining whether an

extreme event will lead to a disaster. Emergency call systems, efficient and needs-based health care, rapid initial treatment through the stockpiling of medical equipment, and an emergency power supply for hospitals in the event of a disaster are crucial for protecting the population and society. Health facilities must have adequate capacities to provide appropriate care for patients, not only during normal operations but also during a disaster, and to prevent the spread of contagious diseases.

Apart from serious individual health consequences, disasters like pandemics often have significant long-term economic and social impacts on society as a whole. Quarantine requirements as well as the closure of businesses and schools to prevent the spread of diseases cause supply bottlenecks and losses in terms of income and education. This in turn intensifies the risk of poverty.

*Climate change and rising groundwater levels make this neighborhood in Nouakchott, Mauritania, no longer inhabitable.*







## West and East Africa: Containing epidemics and pandemics

West Africa's devastating Ebola epidemic claimed the lives of more than 11,300 people between 2014 and 2016. Just a few years later, the COVID-19 pandemic holds the whole world in its grip. To contain and mitigate systemic risks from such epidemic and pandemic disease outbreaks, we support the development of monitoring and laboratory systems. In line with our One Health approach, which strives to improve global health and to reduce risks, interactions between human, animal, and environmental health are taken into account.

The digital disease surveillance system SORMAS – short for Surveillance, Outbreak Response Management and Analysis System – was developed in 2014 by the Helmholtz Centre for Infection Research, the Nigerian Centre for Disease Control, and the African Field Epidemiology Network, in

order to monitor Ebola infections and manage outbreaks in Nigeria. On behalf of BMZ, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) in cooperation with these organisations supports the work of SORMAS in Nigeria and Ghana and finetuned the application further. Today, SORMAS supports the prevention and control of various infectious diseases, including measles, malaria, yellow fever and most recently COVID-19. As a digital tool and its standardised procedures for contact tracing, it simplifies processes of authorities and the coordination between health services. Using cloud technology, SORMAS can also be deployed in countries with weak digital infrastructure. In the beginning of 2022, SORMAS covered more than 270 million people globally. Many German health authorities use SORMAS in the context of

the COVID-19 pandemic. This demonstrates that we in Germany also can benefit from experience gained in developing countries and emerging economies.

German development cooperation is also involved in disease prevention in East Africa. On behalf of BMZ, development bank KfW together with the East African Community and the Bernhard Nocht Institute for Tropical Medicine has established a network of nine mobile laboratories for the early detection of highly infectious pathogens. These laboratories facilitate a speedy, decentralised diagnosis of infectious diseases and enable health authorities to take rapid action in containing them. As part of the COVID-19 response, the laboratories are used for testing procedures at border crossings, for example between Tanzania and Kenya.



*Indonesia's National Meteorological Institute is a hub for tsunami early warning.*

# Disaster Risk Management in practice

In our development-oriented disaster risk management, we address various risks and enable preventive and locally adapted action. With this commitment, we work hand in hand with our partner countries to promote risk-informed development and strengthen resilience.





In order to reduce risks and avert the harmful effects of disasters, disaster risk management entails the following instruments: **risk analysis**, **prevention** and **disaster preparedness** measures, **risk transfer** solutions, and **reconstruction and recovery** activities. These instruments are applied by government agencies, businesses, and civil society, from local to international levels, in dealing with various risks. We use them, for example, to promote the disaster-proof construction of dams and the preparation of land use plans that identify risk areas. BMZ also support citizens' committees that raise awareness of risks while strengthening social cohesion. In all these activities, we take gender-specific needs and capabilities

into consideration and integrate disadvantaged population groups. With the construction of barrier-free shelters, affordable systems of insurance against crop failures and programmes to support the economic empowerment of female-headed households, German development cooperation creates a framework for peaceful and inclusive communities.



A **risk analysis** assesses hazards, exposure and vulnerability in a defined area, in order to estimate potential loss and damage. This includes, among other things, calculating the intensity of a (natural) hazard and the probability of occurrence or creating damage scenarios and risk maps. To this end, we analyse risk factors affecting the vulnerability of a community or of overall societal structures – for example a low level of education or a weak public health system – as well as the possible exposure to extreme events – for example settlements near a coastline or transport infrastructure on a slope. Digital methods are increasingly used to obtain necessary information for this purpose, including geographic information systems, drones, satellite technology, and simulations based on artificial intelligence. In addition, risk analyses carried out in a participatory manner with the people affected ensure that local characteristics are taken into account. Their inclusion provides for activities to be adapted to the respective context and to be better accepted by the local population. The risk analysis is the basis for all further disaster risk management measures.

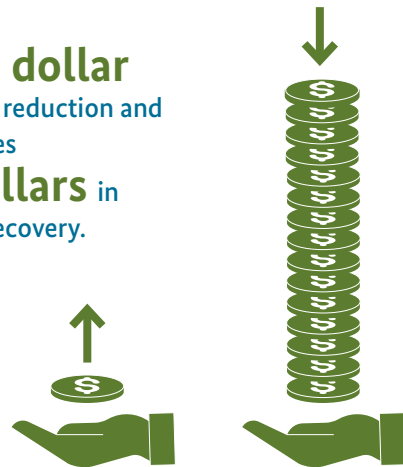


### Pakistan: Developing risk-informed land use plans

The German Federal Institute for Geosciences and Natural Resources (BGR) implements projects in the context of geohazards. On behalf of BMZ, it jointly develops national concepts for risk-sensitive spatial planning in Pakistan together with responsible authorities. The South Asian country is regularly confronted with floods, earthquakes, and landslides. Authorities prepare spatial analyses of landscape features on populated steep slopes, as shown in the photo above. In addition, data on population distribution, infrastructure, and land use as well as on the exposure of roads, bridges, health facilities, and schools are collected. Color-coded maps and handouts based on these surveys identify safe settlement areas and can be used as a basis for local emergency management.

The purpose of **prevention** is to reduce or avoid risks. Preventive measures can be structural and technical in nature, for example flood protection walls or renatured river courses. Besides, they can also be regulatory oriented, for instance land use restrictions in earthquake-prone areas based on risk maps. At the local level, education campaigns on diseases and hygiene as well as the establishment of citizens' committees that serve as focal points for dealing with risks have proven to be successful. Sustainable farming methods, improved irrigation systems, and resistant crops adapted to the respective climatic zones all reduce risks affecting agriculture and the dangers of food insecurity. Prevention is the least expensive and most effective option for managing disaster risks. Evaluations by international organizations show that investment in prevention is many times lower than the spending required for post-disaster reconstruction and recovery. According to the United Nations, every US dollar invested in risk reduction and prevention can save up to 15 US dollars in post-disaster recovery. Therefore, prevention takes priority in German development policy. It saves lives, is effective and cost-efficient.

Every US dollar  
invested in risk reduction and  
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**15 US dollars** in  
post-disaster recovery.



By building knowledge and skills as well as by establishing material and financial reserves we ensure **preparedness** for a disaster and enable rapid and effective response to an extreme event. Important elements in this respect include emergency and evacuation plans, for instance for hospitals and educational institutions, as well as the integration of volunteers in first-response networks and simulation exercises. It is crucial to set





Ana Mariquina, project delegate of the German Red Cross

## Bangladesh: Enabling comprehensive protection against diseases and cyclones for all

The coastal regions in Bangladesh are among the areas under gravest threat by climate change worldwide. Flooding and landslides caused by cyclones in addition to gradual changes such as rising sea levels endanger the lives of the local population. Settlement pressure, poverty and weak supply structures exacerbate their vulnerability.

Over 900,000 members of the persecuted Rohingya ethnic group from Myanmar have found refuge in Cox's Bazar, one of the poorest and most disaster-prone areas of Bangladesh. Here they live in crowded, makeshift camps under difficult conditions. To improve their situation as well as the living of host communities across the region, the German Red Cross on behalf of BMZ

supports vocational training courses and distributes tools and technical equipment for educational purposes.



Amina, refugee in Cox's Bazar

Amina who lives in the camp is grateful for the support. 'The volunteers of the Red Cross also regularly offer hygiene seminars,' she says. 'We were very worried, especially when we heard about COVID-19. Luckily, the volunteers explained what we needed to do to protect ourselves.'

Besides courses on disease risks, the volunteers organise workshops for the refugees, members of host communities and schools on how to prepare for extreme weather. Together, they are expanding water drainage systems to prevent landslides, flooding, and soil erosion. They are also upgrading shelters to make sure people are safe and provide protection in the event of a storm. As Ana Mariquina, delegate of the German Red Cross project, explains, 'Cyclones and floods are a growing threat to people's livelihoods. That's why – in addition to preparing for disasters – we're keen to help families to secure their basic needs and build solid shelters. This helps people to better cope with weather extremes and contributes to peaceful and inclusive communities.'

## Western Balkans: Strengthening flood risk management across borders

'That's how high the water rose. My vegetable garden and part of my house were flooded,' explains a villager as he recounts the damage caused by the most recent flooding of the Drin River. His property borders the river, which now overflows its banks more and more often.

As it traverses the Western Balkans through Albania, Kosovo, North Macedonia, and Montenegro, the Drin River covers a distance of 285 kilometres. Due to climate change, floods are becoming more common along the river. This presents a threat to the economy, human health, animal husbandry, and biodiversity in all countries concerned. Only with joint solutions for disaster preparedness, risk management, and reconstruction all riparian states

can succeed in adapting to the changes and successfully cope with flood risks.

Commissioned by BMZ, GIZ supports cross-border cooperation between national and local institutions throughout the river basin. Together, authorities of the riparian states are preparing flood hazards and risk maps in accordance with the EU Floods Directive. On the basis of these maps, more than 20 municipal flood risk management plans have been designed in participatory processes. Some districts have used these in educational campaigns to raise awareness of flood risks among the local population and authorities. Additionally, drainage channels have been repaired to reduce the risk of further inundation.

For Arben Gjuraj, deputy mayor of Shkodra in Albania, the key to success is involving the local population. Through them, knowledge and skills for dealing with flood risks flow into the work of the affected communities and their authorities. 'By adapting to EU requirements and following a 'learning by doing' approach, we've learned a tremendous amount regarding flood risks,' he says.



Arben Gjuraj,  
Deputy Mayor of Shkodra



A resident shows how high the water rose.

To be able to react quickly in an emergency, the national hydro-meteorological services have set up a cross-border flood early warning system. More than 30,000 people living close to the river now receive timely warnings of impending floods. The exchange of real-time forecasting data between the riparian states has increased considerably in scope and quality. This would have been unthinkable just a few years ago, given the formerly tense relations between these states. This technical, cross-border cooperation has thus also strengthened trust between the neighbouring countries.





## Tunisia: Strengthening coastal infrastructure

Tunisia's coastal region has considerable economic prospects due to tourism, industry, fishery, and agriculture. However, it is also a country threatened by coastal erosion, storm surges, and the salinisation of groundwater and soil, all of which present major challenges to industry and tourism, as well as to the conservation of the greater region's sensitive ecosystem. To address these challenges, German development cooperation supports the strengthening of coastal infrastructure via its development bank KfW. For example, we build dikes, breakwaters, and sand embankments, stabilise dunes, and facilitate integrated water resources management. The inclusion and participation of the local people is increasing the acceptance and sustainability of these activities.

up early warning systems that identify threats in advance and pass on warnings quickly and comprehensibly to the authorities and the population. At the same time, stockpiling of food and seeds and a secure food distribution infrastructure make it easier to reach people in an emergency and strengthen food security.

Financial solutions for dealing with disaster risks are subsumed under the term **risk transfer**. This usually refers to models covering residual risks that remain despite risk reduction activities. These can be insurance policies that provide financial protection in case of disaster related damages. Likewise, risk funds set up jointly by countries with a high disaster risk enable the rapid mobilisation of financial resources for emergency relief and reconstruction. Disbursements from these funds enable states to maintain their capability to react and to intervene in a stabilizing manner without having to take on additional debt. Furthermore, social protection systems make an important contribution to disaster risk management. If designed in a flexible manner, support can swiftly and simply be given to the population affected by a disaster. In the event of a drought or flood, for example, social protection systems ensure a rapid supply of food, which strengthens food security.

Disaster-resilient **reconstruction and recovery** draws lessons in the aftermath of a disaster and includes disaster risk management in rehabilitation processes. Hereby, our focus is not only on rapid restoration of infrastructure and services. Applying a disaster-preventive perspectives also means to factor in potential risks in accordance with the Build Back Better approach when planning and constructing buildings and infrastructure or developing laws and guidelines. For example, stricter building codes in high-risk areas reduce the threat of extensive economic loss and damage in the event of a (recurring) disaster. Furthermore, retrofitted central municipal buildings can serve as emergency shelters. In this context, it is important to build barrier-free, for example through flattened curbs or guidance systems along walls and floors. These measures provide an easy access for the elderly, the visually impaired, and people of restricted mobility. Disabled people thus have a much better chance of survival in the event of a disaster. Green reforestation and renaturation projects as well as new cultivation methods can prevent flooding and provide impetus for agricultural development and climate change adaptation. Such nature-based solutions are particularly cost-effective if they are adapted to the local context.



### Worldwide: Mitigating climate and disaster risks with insurance

Together with strategic partners, BMZ has launched the Insu-Resilience Global Partnership. The multi-actor partnership has now over 100 members from industrialised and developing countries, civil society, the private sector, international organisations, and the research community. It aims to facilitate a timely and reliable response to disasters using financial and insurance-based solutions to climate and disaster risks. The target is to cover 500 million poor and vulnerable people against climate and disaster shocks by 2025 and to support 80 vulnerable countries with comprehensive disaster risk finance strategies. So far BMZ has supported the partnership's risk financing and insurance solutions with around 800 million euro.

One of the partnership's initiatives is the African Risk Capacity (ARC). ARC supports African countries in adapting to climate change

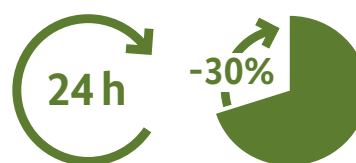
by issuing innovative insurance policies combined with technical solutions for disaster risk management. To be eligible for an insurance policy, countries must draw up contingency plans that specify how disbursements will be used to assist vulnerable people. This creates incentives for disaster preparedness and encourages countries to address hazards in advance. In 2021, ARC insured around 18 million people in 13 African countries against disasters. Since 2014, it has disbursed a total of 65 million US dollar to drought-ridden countries providing the people affected with financial assistance and food. In 2018, with the support of 18.5 million euro by German development cooperation ARC launched ARC Replica. This product allows organisations like the World Food Programme to purchase a 'replica' of a government-procured insurance policy, which increases the amount of emergency relief available in the

event of a disaster. The resulting close coordination between governmental and non-governmental actors ensures that support is organised more effectively and efficiently when a disaster strikes.

Another example of the Insu-Resilience Global Partnership is the Natural Disaster Fund, which offers innovative financial solutions to address climate risks. These include the provision of financing even before a climate-related hazard, for example a tropical cyclone, occurs. 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. In the case of typhoon Rai, which hit the Philippines in December 2021, such a forecast-based disbursement made it easier for the people to take preparatory measures.



In the context of crisis prevention and conflict transformation, it is important for BMZ to closely coordinate short-term humanitarian assistance, long-term development measures, and peacebuilding efforts. This approach is referred to as the humanitarian-development-peace (HDP-) nexus. We have created an effective and flexible instrument for this purpose: transitional development assistance, which strengthens the capacities of civil society organisations in the areas of stabilisation, adaptation, and transformation in crisis contexts. As an element of **transitional development assistance**, disaster risk management contributes to the implementation of the HDP-nexus since its instruments can be used both to prevent and to cope with disasters and crises. For example, training village communities in cultivation methods for robust crops does not only reduce the risk of soil erosion and landslides but also demonstrates alternative livelihood opportunities, thus strengthening food security and making vulnerable people



Just **24 hours** warning of a coming storm or heatwave can cut the ensuing damage by **30 per cent**.

and local structures more resilient. Furthermore, adaptive social protection systems that can respond actively to risks are becoming more and more important in transitional development assistance. They allow for better preparation for disasters and more successful crisis management.

### Cambodia: Responding to emergencies quickly and flexibly through social protection

Social protection systems are providing rapid support during the COVID-19 pandemic. For six months from the end of June 2020, Cambodia gave monthly financial assistance to 2.5 million poor and vulnerable people to mitigate the effects of the pandemic for them. This was possible thanks to the digital platform ID Poor, which was set up with support from GIZ on behalf of BMZ. It uses simple and uniform criteria to register the poorest people in the country. In this way, the social protection system facilitated a fast and flexible response to the pandemic situation.



*Talks on disaster prevention with village elders*

### ‘Somaliland’: Creating new perspectives when dealing with risks at the local level

The rural population of ‘Somaliland’ is particularly vulnerable to disasters and systemic risks. The challenges the population faces when growing crops and grazing livestock are steadily mounting due to climate-related extreme events. Especially droughts are becoming more frequent and protracted. Floods unleashed by tropical storms are also causing more and more damage to houses and farmland. They are often followed by invasions of locusts, which further diminish already scarce yields and destroy grazing areas. In addition, plant and animal diseases regularly cause yield and livestock losses, further fuelling conflicts over resources and land use. The COVID-19 pandemic exacerbates this already tense situation. There are few medical personnel and health centres often lack equipment so

that medical support is largely restricted to reactive and emergency interventions.

This is where transitional development assistance on behalf of German development cooperation comes into play. Working together with the affected rural population, we improve their resilience in the face of natural hazards, food insecurity, and health risks.

With our support, citizens’ committees for disaster preparedness have been established in 22 villages. The committees raise awareness about the causes of risks and prepare local communities for acute disasters. In seven villages, the communities have reinforced embankments to protect farmland from erosion. To improve food security and income opportunities, 815 farmers in 30 villages have

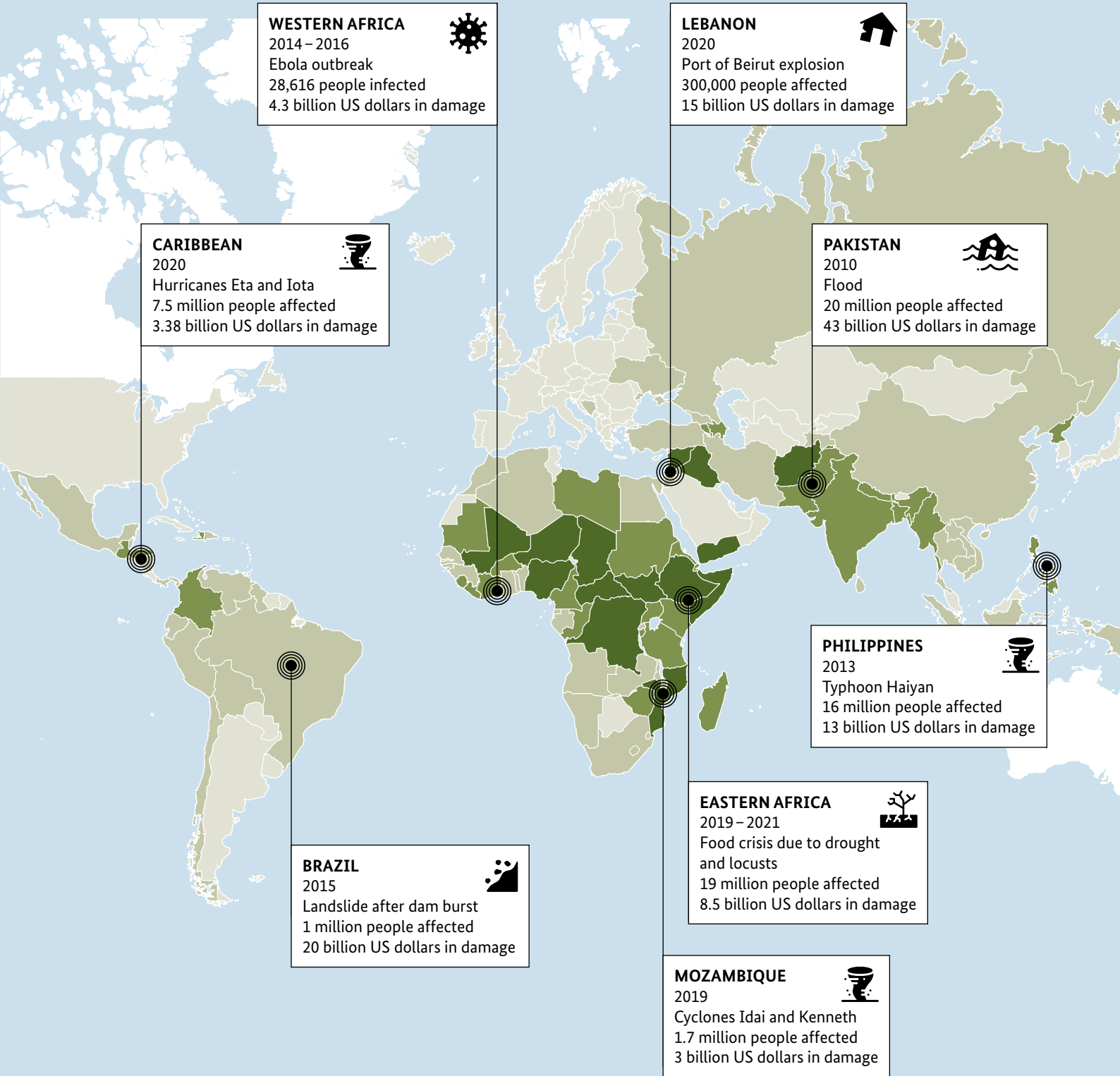
taken part in training courses on the cultivation of climate-resilient crops and 78 female dairy farmers have attended training on hygiene in milk production. For dealing with health risks, the Coordination Office for Containment Measures of COVID-19 has been assisted in the production of radio programmes covering pandemic prevention and providing information on social, hygiene-related, and medical protective measures.

To provide impetus for long-term structural transformation, the emergency planning in ‘Somaliland’ is being enhanced in cooperation with the National Disaster Preparedness and Food Reserve Authority. Warehouses holding emergency food supplies are being equipped with solar energy technology and their fire protection is being improved.



# Disasters in our partner countries and regions

## INFORM Risk Index 2022



Risk Profile: ● very high ● high ● medium ● low/very low

Sources: INFORM Risk Index 2022, Centers for Disease Control and Prevention, Weltbank, UN OCHA, UNDRR/PreventionWeb, International Federation of Red Cross and Red Crescent Societies (IFRC), UN OCHA/ReliefWeb, Natureza & Conservação 14(2) 2016  
Disclaimer: The map does not take a position on the legal status of territories or borders.



*In participatory consultations, we ensure that risk analyses are included in project planning.*

# Working together for risk-informed development

We can only overcome disasters together with our partners. In international organisations as well as with civil society, the private sector, and the scientific and research community, we are committed to ensuring that disaster risks are considered at an early stage in planning processes.





Development always entails risks. The global community is responding to these risks with international framework agreements.

The integration of disaster risk management into major international agreements of the United Nations underscores its significance. These agreements include the Sendai Framework for Disaster Risk Reduction 2015 – 2030, the 2030 Agenda for Sustainable Development, the Paris Agreement, the New Urban Agenda for sustainable urban development, and the Agenda for Humanity, which aims to reduce humanitarian emergencies.



### Lebanon: Facilitating a safe learning environment in schools

Many schools in Lebanon are located in areas with a high potential for conflict. At the same time, they face the threat of loss and damage from earthquakes because of unregulated urbanisation and informal settlements. These risks also apply to the Takmiliyat Al Kobbe School in Tripoli in the North of Lebanon. To ensure that the students have a safe learning environment, German development cooperation and the Lebanese Red Cross support first aid and fire-fighting courses for the school's teaching staff. In addition, evacuation plans have been drawn up to enable children and teachers to safely and quickly evacuate in the event of an armed conflict or a disaster. The basement of the school building has now been converted into an emergency shelter. Regular evacuation drills are conducted to teach students about dangers and appropriate behaviour during an emergency.



*Raighda Shamsine,  
Principal of  
Takmiliyat Al Kobbe School*

School director Raighda Shamsine stresses the activities' success: 'Our students now know how to make sure they're safe,' she says. 'They are more alert and understand exactly how to behave in an emergency.'



### Ghana: Strengthening innovative insurance solutions with the private sector

BMZ's funding programme *develoPPP.de* sets out to promote sustainable economic development in our partner countries. In Ghana, together with insurance provider Allianz RE, we support three communities in setting up an integrated disaster risk management system to strengthen urban resilience in the face of flood risks. Besides investments in prevention and preparedness, like cost-benefit analyses for adaptation measures and the development of community-wide emergency plans, an essential part of our work constitutes private insurance solutions to cover flood risks for public buildings such as schools and markets. The regional, compensation-based insurance product – the first of its kind for public buildings in Ghana – is now being tested in a so-called sandbox approach. This entails a set of regulative conditions that enable private insurance companies to test innovative financing products for a limited time in a controlled environment (like in a 'sandbox').

### Worldwide: Creating a resilient future for tourism

A forward-looking approach to risks is imperative, especially in the tourism sector, which is becoming increasingly important to the economic development of our partner countries. This is where the Hotel Resilient Initiative comes in. It was launched as part of a research collaboration involving GIZ on behalf of BMZ, the Karlsruhe Institute of Technology and other private sector and academic partners in Asia. Today, the initiative operates worldwide and sets international standards for hotels in disaster risk management and climate change adaptation. Its recommendations on how to behave in the event of a disaster or how to design and construct disaster-proof accommodations benefit not only hotel staff and guests, but also surrounding businesses and the local population.







*At international conferences such as the Global Platform for Disaster Risk Reduction the global community comes together to discuss ways to mitigate disaster risks.*

The key UN agreement on disaster risk prevention and reduction is the **Sendai Framework for Disaster Risk Reduction 2015 – 2030**, adopted in Sendai, Japan in 2015. This agreement constitutes the basis for action for all actors and all measures when dealing with disaster risks. It is an action plan signed by representatives of 187 states – including Germany – that entails voluntary commitments to reduce disaster risks and vulnerabilities, avoid new risks, weaken the adverse impacts of disasters, and strengthen resilience by 2030.

BMZ supports **multilateral organisations** that promote disaster risk management from the local to the global level, including the United Nations Office for Disaster Risk Reduction (UNDRR). UNDRR is our main policy partner in this field. It is responsible for the implementation and review of the Sendai Framework. With respect to the World Bank, BMZ supports the Global Facility for Disaster Reduction and Recovery (GFDRR), which makes sure that World Bank investments are implemented in a disaster- and climate-resilient manner. Together with these partners, we put disaster risk management on the agenda of global development policy fora and continue to develop innovative risk management instruments.

Coherence is central to the implementation of policy agendas as it has very practical implications: By bringing together partners and their views on disaster risk management, climate change, urban development, and other areas of sustainable development, we can pool knowledge and expertise. On this basis, we develop common goals, coordinate instruments, and thereby exploit synergies. This facilitates the more efficient use of resources in administration and planning. Governments in partner countries are then in a better position to fulfil their responsibility to protect the population and strive for sustainable, risk-informed development.

The private sector, civil society and the scientific and research community play a pivotal role in reaching the goals of international agreements. Significant reduction of disaster risks can be only achieved through a **whole of society-approach** that involves all stakeholders and addresses their needs. When it comes to protection against a hurricane, for example, a small community located at the coastline has different concerns and capacities than a large commercial enterprise further inland or a globally operating organisation. Development cooperation involves all actors and sectors in disaster risk management. Only together we can achieve risk-informed and sustainable development.





*Slope stabilisations like this one in San Pablo reduce the risk of landslides even during heavy rain.*

### **Ecuador: Women leading the way towards urban resilience**

When Zoila Moro recalls what her neighbourhood in San Pablo, a district of Portoviejo in Ecuador, once looked like, she remembers a small community on the edge of densely forested hills. ‘My father arrived here more than 60 years ago when this was nothing

but forest; very few families lived here.’ Today, the cityscape looks different. Portoviejo developed into an up-and-coming medium-sized city with a population of more than 300,000 people. It is still expanding toward the hills, where it is surrounded



by dry forest. By now, less trees cover the hills of San Pablo.

Due to its coastal location and constant growth, Portoviejo and San Pablo face multiple threats today. As more and more of the forest on the outskirts of the city is cut down, the slopes are losing their natural protection. Many families now live in landslide-prone areas. In the rainy season, heavy rainfall increases the risk of landslides and causes flooding in the city centre. San Pablo also suffers from a weak social and economic structure reflected for instance in high levels of unemployment, violence against women, and a high crime rate in the parish. The COVID-19 pandemic has intensified these social problems, revealing how much needs to be done to make San Pablo more sustainable and liveable.



*Zoila Moro, member of the Guardians of the Hills*

Zoila Moro also wants her neighbourhood to become more resilient in the face of disasters and social crises, and for the local population to feel that they are living in a safe and secure environment. She dreams of seeing San Pablo 'green again, full of carob, kapok and tamarind trees.' That's why she decided to join the Guardians of the Hills.

This civil society organisation is a women-led initiative. Its aim is to make San Pablo more resilient to climate hazards and to promote social inclusion. In particular, the Guardians champion the participation of women and their role as local actors in climate activities and disaster risk management. With the

support of German development cooperation and together with other community members, they upgrade public spaces, set up neighbourhood risk and emergency committees, and use a self-established community early warning system. The Guardians are also involved in efforts to prevent gender-based violence and crime.

Zoila Moro says, 'What mobilises people is social action.' She approaches her neighbours directly and encourages them to rearrange plants on their block and build orchards, terraced slopes, eco-paths as well as playgrounds.

The Guardians are supported by local universities, Portoviejo's Municipality, and the Association of Risk Management Professionals of Ecuador (*Asociación de Profesionales de Gestión de Riesgos del Ecuador, APGR*). Through small-scale construction measures, the residents of San Pablo have enhanced public spaces while contributing to the stabilisation and restoration of the slopes in a sustainable and environmentally friendly way. This allows for increased rainwater infiltration even during heavy downpours, mitigating the risk of landslides. The Guardians of the Hills place great emphasis on participation and share their knowledge and skills in workshops within their community – not least to support women and girls in their neighbourhood. Furthermore, the Guardians are responsible for a citizens' committee that was established as a point of contact for dealing with risks and behaviour in an emergency. They run training sessions that improve the ability of San Pablo's citizens to recognise risk situations caused by climate change, take self-protection measures, and help during evacuations. A digital app, developed by the Guardians in cooperation with APGR, supports this work and explains prevention and response measures for various hazards, such as fires or landslides.

The Guardians of the Hills demonstrate the benefits of managing disaster risks through joint efforts. Local voices must be heard and included if we want urban development to be collaborative, sustainable, and risk-informed. The women of San Pablo are advocates of change and inspire action – women like Zoila Moro, who mobilises people and works to build a resilient and liveable neighbourhood for all.



*To prepare for extreme weather events and prevent damage, female farmers in Kenya use SMS services that provide updates on the current weather situation.*

From **civil society**, committed citizens, non-profit organisations, and social movements contribute to raising risk awareness. Due to their close ties with target groups, they understand their needs and capabilities and can therefore motivate them to undertake self-help activities, for example to prepare for disasters. This is particularly important in places where state structures barely exist or function. Participatory, inclusive processes allow to incorporate local knowledge and accommodate all social groups, especially the elderly, individuals with disabilities, women, children, and people living in extreme poverty. With this approach, we uphold the principle to Leave No One Behind of the 2030 Agenda for Sustainable Development.

For us, it is also essential to actively involve the **private sector**. It plays a key role in paving the way for innovative approaches to dealing with risks, for example through insurance solutions or disaster-proof construction. Moreover, integrating disaster risk management into corporate strategies leads to a more deliberate risk culture, improved sustainability, and greater competitiveness. Investments in pre-emptive measures and preparedness are gaining in importance,

especially in view of climate change. These risk-informed investments are leading to lower levels of loss and damage and stimulate economic activities since disaster risk is decreasing. They contribute to prosperity, growth, and sustainable development. Therefore, we encourage partners from trade, industry, and commerce to join us in developing new ways of dealing with risks.

The **scientific and research community** makes valuable contributions to disaster risk management by supplying data, knowledge, and forecasts. Decision-makers in politics and businesses can use this information as a basis for implementing disaster risk management and risk-informed planning. Therefore, we support research addressing systemic risks for more precise damage scenarios. We promote the use of satellite-based analysis to better adapt farmers' risk insurance policies to specific local conditions. And we enable scenario calculations for safe land use planning in flood-prone areas. Partners include the Potsdam Institute for Climate Impact Research (PIK), the United Nations University Institute for Environment and Human Security (UNU-EHS), and scientific networks like the German Committee for Disaster Reduction (DKKV).





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