

South Sudan, 2018. Mary and her neighbours in Yambio used to fetch dirty water from a stream a half-hour walk away. Now, clean water is on her doorstep. The region has suffered floods, drought, locusts and conflict in the last year. More than half a billion children worldwide live in areas with extremely high flood occurrence and 160 million children live in high or extremely high drought severity zones.

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CLIMATE AS A RISK MULTIPLIER



**Trends
in vulnerability
and exposure**

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INTRODUCTION

Climate change is a global threat that affects everyone, but will not affect everyone equally. This chapter focuses on the places and people who will be affected more than others by disasters related to climate change.

Every region and country has already borne some of the brunt of rising risks, but Asia is bearing the largest burden and this is likely to continue – and to accelerate. Exposure to climate change can vary enormously between countries and even within a single city, between coastal and interior neighbourhoods, between rural and urban areas, and between urban slums and wealthy suburbs.

Different people also experience climate-related disasters differently. For example, persons with disabilities, older people, women and girls, urban poor people, people with diverse sexual orientation or gender identity, migrants and refugees and indigenous people are disproportionately more at risk of climate-related harms and face specific challenges during and after disasters. Different people and communities also hold a great variety of solutions for coping with these risks based on their diverse experiences and challenges.

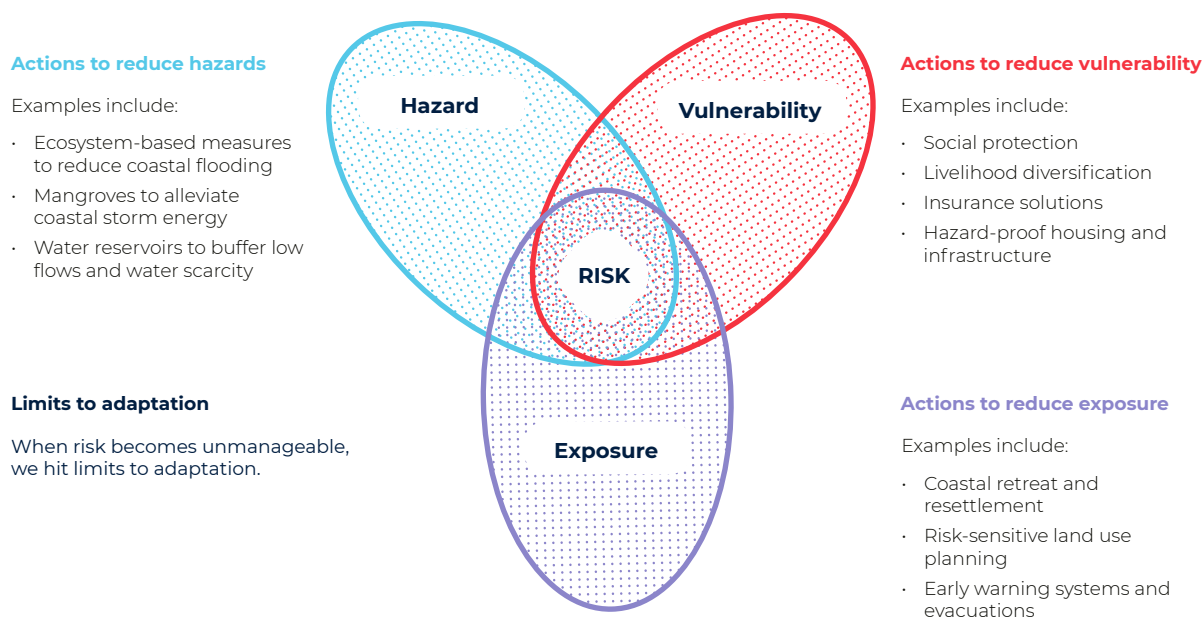
It is in our power to address these challenges of inequity, further develop local and new solutions and ensure that all people at risk have the support they need to reduce or eliminate the impacts of disasters and crises. But this work will need to be resourced. Even before the COVID-19 pandemic, national and international humanitarian organizations and systems were struggling with an increase in the number and intensity of disasters related to climate change with no corresponding rise in the resources available to prevent them, respond to them and help communities to recover from them ([International Red Cross and Red Crescent Movement, 2020](#)).

This chapter addresses these challenges and the implications for policy-makers and humanitarians as the risks continue to rise.

3.1 UNDERSTANDING RISK, VULNERABILITY AND EXPOSURE

The major causes of disaster risks are trends in exposure and vulnerability ([IPCC, 2012](#)). Figure 3.1, developed by the Intergovernmental Panel on Climate Change (IPCC), sets out how disaster risk is a function of not only the weather and climate event (the hazard), but the vulnerability and exposure of a given community.

Figure 3.1: Components of disaster risk



Source: Based on [IPCC, 2012](#)

Vulnerability is the “propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt” ([IPCC, 2012](#)). Vulnerability results from the whole range of economic, social, cultural, institutional and political factors that shape people’s lives and create the environments where they live and work ([Twigg, 2015](#)). As recognized in the 2019 *Global Assessment Report on Disaster Risk Reduction*: “Location, age, gender, income group, disability, and access to social protection schemes and safety nets greatly affect the choices people have to anticipate, prevent and mitigate risks” ([UNDRR, 2019](#)).

However, no person, group, community or society is inherently vulnerable, and vulnerabilities experienced by people, communities and societies are not constant. They change over time depending on circumstances, interventions, access to social services and structures, compounding shocks – and most importantly factors around diversity and exclusion ([IFRC, 2019](#)).

Without analysing how or why some people at a given time in a given context have less capacity to cope with a hazard than others, humanitarian efforts will fail to reach these people with any relevant support.

The impacts of extreme weather events also depend on the **exposure** of communities and individuals. Exposure can be understood as the “presence of people; livelihoods; environmental services and resources; infrastructure; or economic, social, or cultural assets in places that could be adversely affected” ([IPCC, 2012](#)). Exposure differs from vulnerability because it has much to do with location: in the world, in a country and in a community. But location and vulnerability are also linked. Some people live in exposed locations because they belong to groups that are already at risk.

Lastly, the impacts of extreme weather events depend on the **capacities** of communities and individual people to manage the risks that come their way. Vulnerability and capacity are opposite sides of the same coin: one shows the weaknesses while the other shows the strengths. Unlike vulnerability, capacity both from within and outside the exposed locations can be mobilized, accessed and used by a community.

Coping capacity is “the ability of people, organizations and systems, using available skills and resources, to manage adverse conditions, risk or disasters” ([UNDRR, 2017](#)). However coping capacity is not enough, as coping with one crisis does not ensure resilience in the face of future crises. Instead the goal should be to enhance people’s resilience in the long term, and this requires improving their capacities to absorb, adapt and transform in the face of shocks and stresses.

Supporting people’s capacities to not only cope with crises, but to absorb, adapt and transform requires continuing awareness, resources and good management, in normal times as well as during disasters or adverse conditions. Understanding the capacities and resources of communities, people and systems – and working with them to build on and strengthen these capacities – are critical aspects of enhancing resilience and reducing disaster risks.



Hong Kong, 2018. According to studies conducted by the Hong Kong Observatory, urbanization contributes about 50% of the warming in cities like Hong Kong. Urban poor people face marginalization, insecure accommodation, limited access to life-sustaining services, higher proportionate costs of living, food insecurity and greater health risks.

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3.1.1 Causes of vulnerability

At the same time as rising climate-related hazards, we are seeing concerning trends in vulnerability and exposure, that, when combined with an increase in climate-related hazards, are having devastating impacts – and will continue to do so.

Trends which contribute to increases in vulnerability to climate and weather shocks include rapid, unplanned urban growth, a growing older population, increasing unemployment, discrimination, exploitation and violence – especially in the context of COVID-19 – and shifts and increases in migration and extreme poverty in places of high fragility. In many cases, we will see these trends overlap, leading to particularly vulnerable and exposed pockets of people. A lack of mobility is also a major factor in vulnerability, as trapped populations are disproportionately affected by natural hazards.

Urbanization, for instance, and the accompanying changes of livelihoods and lifestyles, contribute to climate change and create new vulnerabilities and risks to climate-related disasters. Already, more than 4 billion people live in urban areas, and this is projected to increase to more than 7 billion people by 2050. The impacts of climate change and other trends on specific groups of people such as urban poor people are explored further in section 3.3.

Disasters and conflicts themselves also play a major role in driving vulnerability and exposure to future hazards. Disasters can keep people in – or return people to – poverty and other situations of vulnerability. Estimates for 89 countries show that if we could prevent all natural hazards from becoming disasters over a year, we would reduce the number of people living in extreme poverty (on less than 1.90 PPP dollars a day)¹ by 26 million ([Hallegatte et al, 2016](#)).

¹ PPP (purchasing power parity) dollars are equivalent to the buying power of US dollars in the USA. This means the 1.90 PPP dollars can purchase the same basket of goods anywhere in the world as 1.90 US dollars can in the USA.

DISASTERS BY CONTINENT SINCE 2010

83%
of all global
disasters since 2010
were **climate and
weather related**



EUROPE



AMERICAS



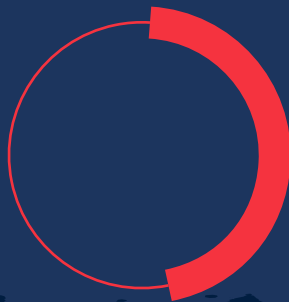
212
disasters affected
Europe

620
disasters affected
the Americas

- Climate and weather related
- Geophysical
- Biological

Source: EM-DAT

Notes: The statistics used here are event based: a storm is classified as one event even if it affects more than one country, but as more than one event if it impacts more than one continent. This map only covers disasters triggered by natural hazards.



46%
of all disasters in the
past decade were
located in **Asia**

ASIA



1,305
disasters affected
Asia

AFRICA



622
disasters affected
Africa

OCEANIA



110
disasters affected
Oceania

3.2 GEOGRAPHICAL INEQUITIES OF EXPOSURE

3.2.1 Regions hit by the most disasters

In 2019, Asia² and Africa were the most affected regions with 121 and 81 disasters respectively, followed by the Americas (63) and Europe (32), while Oceania was hit by 15 disasters. The vast majority of these were climate and weather related.

Looking at the **past decade**, Asia was by far the most-affected region with 1,305 disasters (46% of all disasters) followed by 622 in Africa, 620 in the Americas, 212 in Europe and 110 in Oceania.

Taking a **longer-term** perspective, Asia has been the most-affected region since the 1960s with 44% of all disasters. The Americas follow with 23% of all disasters, then Africa with 21%, Europe with 8% and Oceania with 4%.

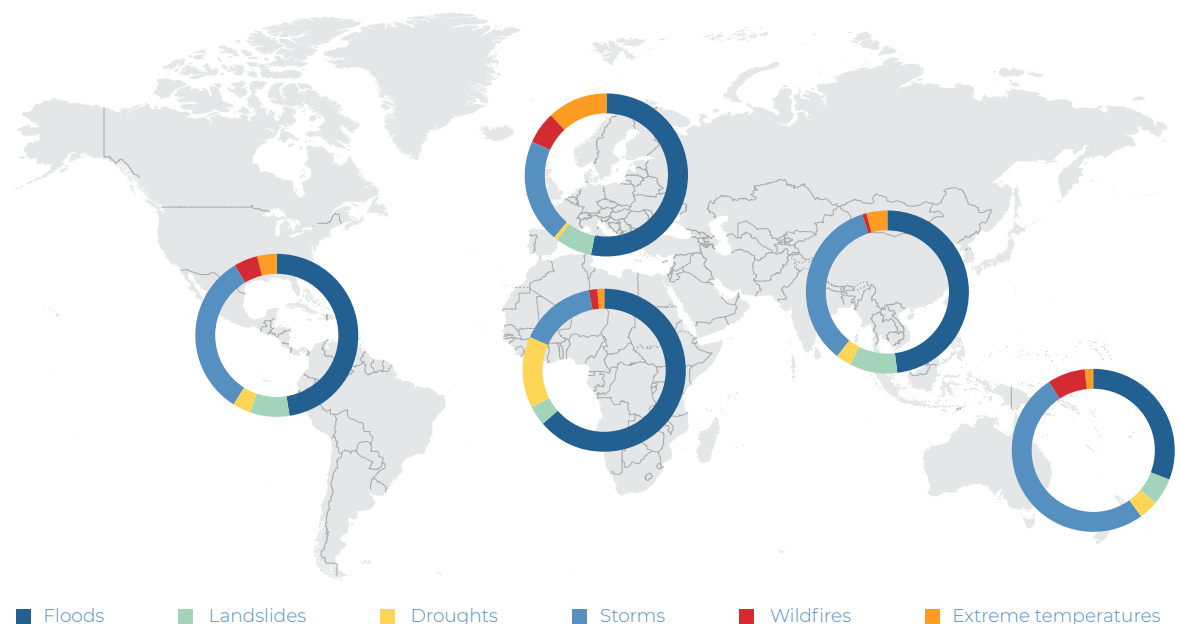


Viet Nam, 2020. A woman walks through floodwater in Quang Tri province. Floods in the Hai Lang district left residents in at least four communities isolated and without electricity and water for nearly 15 days.

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² Regional data in this report used a continental breakdown of Africa, Asia, Americas, Europe and Oceania, as this is the breakdown used in EM-DAT, although this differs slightly from the regions usually used by the IFRC.

Figure 3.2: Geographic distribution of climate- and weather-related disasters since 1960



Source: EM-DAT

Floods have affected all regions, with 44% of all floods occurring in Asia and 23% in the Americas. As a percentage of all climate- and weather-related disasters within a given region, floods represent over 64% of disasters in Africa, 53% in Europe, 48% in Asia, 48% in the Americas and 31% in Oceania.

More than half (52%) of all disasters triggered by **storms** occurred in Asia, followed by 26% in the Americas. In Oceania, 51% of disasters were triggered by tropical storms. In the Americas, 33% of disasters were storms (tropical storms, tornadoes and blizzards), affecting Central America and the Caribbean in particular.

Over 40% of **wildfires** occurred in the Americas. As a percentage of all climate- and weather-related disasters in a given region, wildfires were also relatively frequent in Europe (6.3%) and in Oceania (7.4% – mainly concentrated in Australia).

Almost half (49.5%) of all **droughts** took place in Africa, accounting for 14.2% of all disasters in Africa.

While 44% of disasters triggered by extreme temperature took place in Asia, these amounted to a very small percentage of all disasters in that region. In Europe, however, 12% of climatological disasters were triggered by extreme temperature events.

3.2.2 Affected countries

In 2019, 128 countries were affected by significant disasters. Of these, 91% (116) were affected by extreme weather events, in particular floods (69) and storms (53). The most-affected countries were the Philippines (with 23 disasters), India (18) and the USA (16). For climate- and weather-related hazards, India was the most-affected country with 16. Figure 3.3 shows how this disaster risk played out globally in 2019, focusing only on climate and extreme weather events.

In the past decade, an average of 115 countries were affected each year by disasters, with 93% of these affected by climate- and weather-related disasters (annual average of 107 disasters). The most disaster-affected countries globally over the decade were China (289 disasters), the Philippines (173) and India (166).

Figure 3.3: The 10 countries affected by the most disasters, 2000–2019

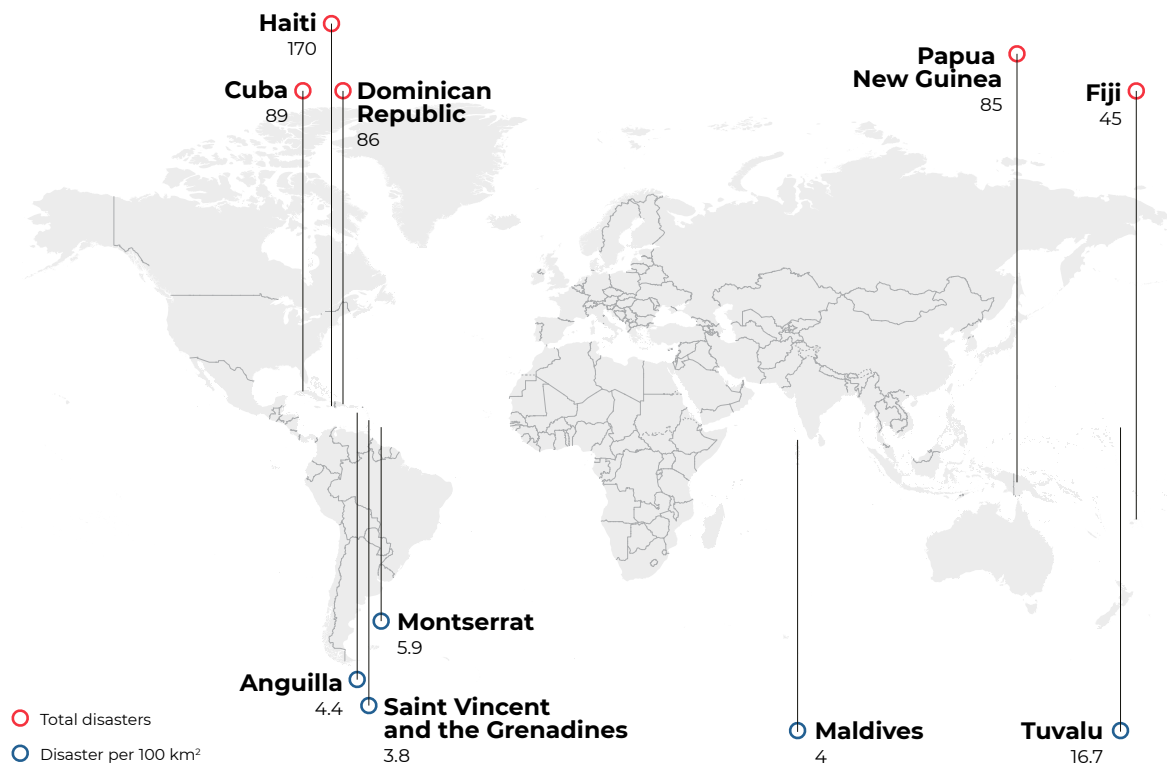
All disasters triggered by natural hazards			Climate- and weather-related disasters		
2000–2009	2010–2019	2019	2000–2009	2010–2019	2019
122 countries/ year	115 countries/ year	128 countries	107 countries/ year	107 countries/ year	116 countries
• China 279	• China 289	• Philippines 23	• China 226	• China 238	• India 16
• USA 191	• Philippines 173	• India 18	• USA 183	• India 157	• USA 15
• India 182	• India 166	• USA 16	• India 154	• USA 150	• Philippines 12
• Indonesia 146	• USA 155	• Indonesia 13	• Philippines 130	• Philippines 142	• Japan 9
• Philippines 142	• Indonesia 129	• China 12	• Indonesia 90	• Indonesia 92	• China 9
• Bangladesh 82	• Japan 79	• Japan 10	• Viet Nam 76	• Japan 68	• Indonesia 8
• Viet Nam 81	• Viet Nam 65	• Viet Nam 7	• Bangladesh 71	• Viet Nam 64	• Viet Nam 7
• Afghanistan 81	• Mexico 62	• Uganda 7	• Mexico 57	• Mexico 57	• Uganda 7
• Pakistan 66	• Afghanistan 57	• Pakistan 7	• Afghanistan 55	• Afghanistan 52	• Bangladesh 6
• Japan 66	• Pakistan 56	• Nigeria 7	• Pakistan 51	• Bangladesh 48	• Afghanistan 6

Source: EM-DAT

3.2.3 Comparison by country size

Larger countries are naturally more likely to experience a greater number of hazards, however if we control for surface area, we see a somewhat different picture of exposure. Over the past 20 years, a number of small island developing states have been disproportionately affected as well as small islands and countries in Central America, the Caribbean, the Pacific and Southeast Asia. For example, the ratio of hazards per 100km² in Comoros (1.93) is 100 times higher than in China (0.019).

Figure 3.4: The most disaster-affected small island developing states by number and area, 1960–2019



Sources: EM-DAT and World Bank, 2020



Tonga, 2020. Tropical Cyclone Harold affected the Solomon Islands, Vanuatu, Fiji and Tonga. Small island developing states face disproportionate climate risks.

© Tonga Red Cross

BOX 3.1: SMALL ISLAND DEVELOPING STATES' RESPONSE TO HAZARDS, VULNERABILITIES AND EMERGING THREATS

The small island developing states are home to 65 million people who are facing disproportional climate risks that combine water, food and economic insecurity, and growing relocation and migration challenges ([Apgar et al., 2015](#); [Haines, 2016](#); [Haines and McGuire, 2014](#); [Holland et al., 2020](#); [Magnan et al., 2019](#); [McNamara and Des Combes, 2015](#); [Rivera-Collazo et al., 2015](#); [UN-OHRLLS, 2015](#)). More than 80% of people living in small island developing states live near the coast, where flooding, erosion and water scarcity already pose serious threats ([IPCC, 2019](#), [Nurse et al., 2014](#)). In the past decade, the islands have experienced stronger storms, heatwaves on land and sea, bushfires and other threats ([Hernández-Delgado, 2015](#)). They are especially vulnerable due to their insularity, climate-sensitive natural resource systems, high population densities and economic sensitivity to external shocks among other factors.

In the past five years, category 5 Tropical Cyclone Pam (2015) ravaged Vanuatu with losses close to 70% of GDP, also affecting Kiribati, Papua New Guinea, Solomon Islands and Tuvalu. Tropical Cyclone Winston (2016) left 43 people dead in Fiji with losses over a third of GDP ([IPCC, 2019b](#)). Category 5 Hurricanes Maria and Irma (2017) swept through 15 Caribbean countries, causing major damage and fatalities ([Shultz et al., 2018](#)). Rebuilding Dominica, Barbuda and the British Virgin Islands alone will cost around 5 billion US dollars (approximately 4.9 billion Swiss francs) ([UNDP, 2017](#)). Category 4 Tropical Cyclone Gita (2018) affected 80% of Tonga's population, destroying buildings, crops and infrastructure resulting in losses of 165 million US dollars (162 million Swiss francs) (36% of GDP) ([Government of Tonga, 2018](#); [Schimel, 2019](#)). In 2019, record-breaking category 5 Hurricane Dorian stalled for more than a day over the Bahamas, sustaining 298 km/hour winds, a storm surge exceeding 6 metres above normal tide, and almost a metre (0.91m) of rainfall.

Tropical cyclones are projected to increase in average intensity, with more reaching Category 4 or 5. Accelerating sea level rise will combine with storm surges, tides and waves to affect flooding, shoreline changes and salinization of soils, groundwater and surface waters ([IPCC, 2019b](#), [Magnan et al., 2019](#)). Researchers estimate some atoll islands will become uninhabitable before the 2050s, due to wave-driven flooding compromising freshwater lenses³ and soil fertility, affecting drinking water supplies and livelihoods (see, for example, [Cheriton et al., 2016](#); [Storlazzi et al., 2018](#); [Wilbers et al., 2014](#)). Climate resilience needs to be built up where extreme droughts are projected, as evidenced by droughts in the Caribbean between 2009 and 2019, which brought bush fires, agricultural devastation, severe water shortages and social effects (Climate Studies Group, forthcoming 2020; [Peters, 2015](#)).

3 Atoll islands are those encircled by coral reefs. Some have fresh groundwater that floats above the denser saltwater known as a freshwater lens.

Figure 3.5: Number of disasters versus country size for small island developing states, 1960–2019



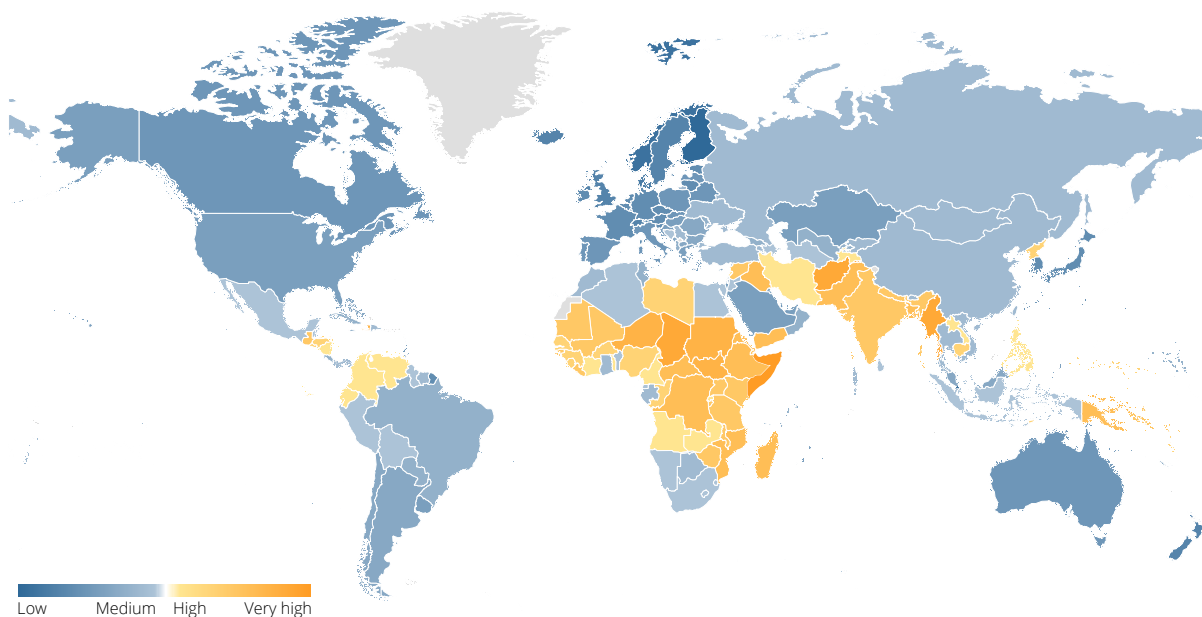
Sources: EM-DAT and World Bank, 2020

Notes: Surface area based on 2018 figures. Axes are log-scaled.

3.2.4 Differences within and between countries

Countries vary in the level in which they may be considered adapted, or ready, for climate- and weather-related threats, both slower-onset threats related to sea level rise and temperature change and extreme weather events. This depends on their risk and vulnerability as well as their ability to deal with these threats from an economic, governance and social components perspective. For example, 2012's Hurricane Sandy was one of the costliest storms in the history of the USA, with an estimated 74 billion US dollars (adjusted) worth of damage ([NOAA, 2020b](#)) but the impact was perhaps lower in terms of people in need after the disaster.

Figure 3.6: Map of climate vulnerability and readiness to adapt



Sources: Notre Dame Global Adaptation Initiative (ND-GAIN) Index, INFORM Index, OECD States of Fragility 2018

Notes: Overall climate vulnerability is calculated by combining measures of a country's disaster risk (INFORM) and its vulnerability to climate change (ND-GAIN). The INFORM index quantifies disaster risk based on historical exposure to hazards, vulnerability and coping capacity. The ND-GAIN index measures vulnerability to climate change based on exposure, readiness, governance and social factors. See Methodology for more details.

3.2.5 The impact of climate change on people living in countries affected by conflict

More than 1 billion people – 16% of the world's population – live in the 31 countries currently experiencing protracted humanitarian crises ([Development Initiatives, 2020](#)).

In recent years, concern has been growing about the consequences of climate change on global security, with warnings that a changing climate could provoke a succession of wars. Researchers generally agree that climate change does not directly cause armed conflict, but that it may indirectly increase the risk of conflict by exacerbating factors that can, in a complex interplay, ultimately lead to conflict ([Peters et al, 2020](#)). In situations of conflict, often characterized by the absence of strong governance and inclusive institutions, climate change may contribute to intensifying and prolonging instability by further weakening institutions, systems and people. It may also aggravate communal violence ([De Juan, 2015](#)).

While climate change may not directly cause conflicts, it creates serious challenges for people facing the hardship of conflict – threats to their security, homes and livelihoods. Access to food and water may be compromised, and essential services and systems, when they exist at all, may be dilapidated and overwhelmed.

The economy is depressed, social networks, protection and cohesion fray and parts of a country's territory or population may be neglected or inaccessible to the state. Disparities are aggravated and development is eroded. By harming the very assets that make people resilient, conflicts limit the capacity of people and communities to adapt and make them particularly vulnerable to shocks ([Adger et al, 2014](#)).

The convergence of climate risk and fragility is shown in Figure 3.6. Many of the most climate-vulnerable countries, and those with the highest rates of disaster risk, also face challenges of conflict and fragility. These include Afghanistan, Haiti, Myanmar and Somalia. Indeed eight of the ten most climate-vulnerable countries are extremely fragile. Similarly, five of the top ten countries most vulnerable to disaster risk (connected to climate- and weather-related events) are considered extremely fragile.

As conflict and climate risks converge, this can further worsen food and economic insecurity ([ICRC, 2020](#)) and health disparities and limit access to services. Meanwhile the capacity of institutions and governments to provide emergency or longer-term support, manage resources and mediate tensions is diminished. Conflicts can also cause long-term damage to the environment, harming people's livelihoods and resilience for decades ([ICRC, 2020](#)).

In southern Iraq, for instance, people attribute their water and farming problems to the cutting of emblematic date palms for military purposes during the Iran–Iraq war. Impacts are even more acute when conflict-induced insecurity limits the capacity of humanitarian and development organizations to respond to emergencies and support climate adaptation.

Adapting to a changing climate can require major social, cultural and economic transformation. Yet long-term concerted efforts tend to be limited in times of conflict, partly because authorities are weakened, but also because they concentrate on restoring national security and eventually on revitalizing the economy. Without adequate institutional support, people and communities try to cope by changing or diversifying their livelihoods, adapting their ways of life or moving away from their homes. Farmers may change the type of seeds they use or their irrigation methods. Herders may start farming a small plot of land or fishing. Some family members may move seasonally to find work – even to neighbouring countries.

Many people are forced to take bigger risks in search of basic livelihoods and thus engage in unsafe and dangerous work or find themselves exposed to high risks of exploitation or abuse such as trafficking in persons or child marriage. National Red Cross and Red Crescent Societies work to support displaced women who are at risk – particularly women-headed households – and face challenges in restarting their livelihoods in a new country or region. For example, the Jordan National Red Crescent Society offers Syrian and Jordanian women training in hair and beauty services, sewing, crafts and pastry making, with support from the British Red Cross and the IFRC. After the training, participants are given a starter kit, which helps them to expand their business and start making a living in Jordan ([IFRC, 2017](#)).

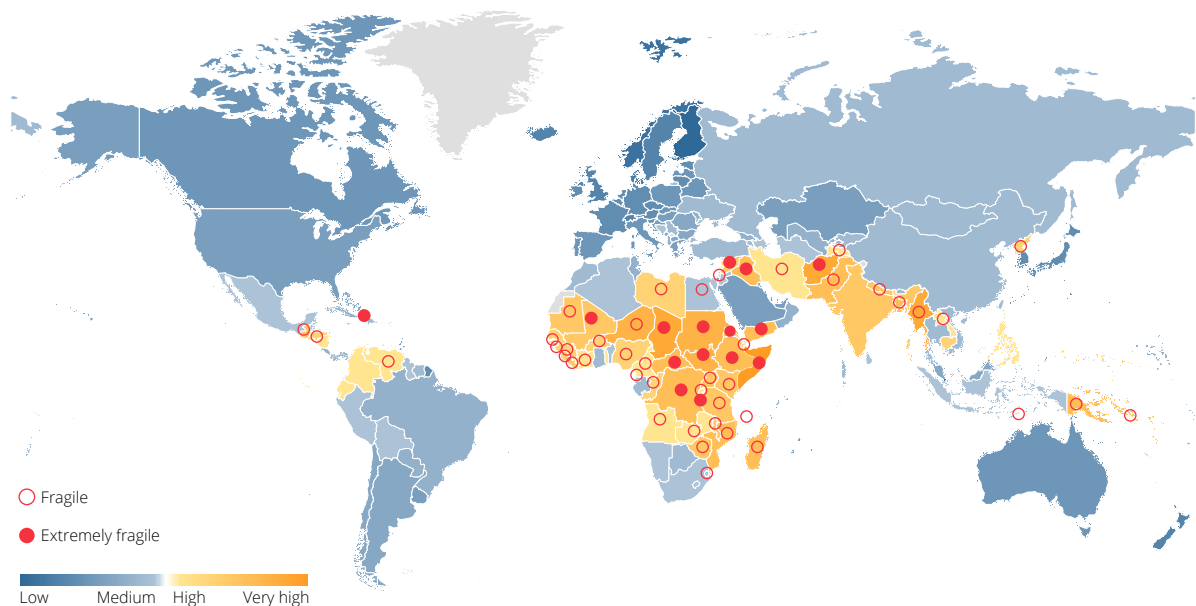
Although moving may not be people's primary method of adaptation, in the absence of viable options many people end up doing so, usually within their own country. Some move in a preventive manner. In southern Iraq, for instance, large numbers of farmers of a lower socioeconomic status decided to relocate because their livelihoods were increasingly unreliable. Others react to a direct threat to their safety triggered by conflict, extreme weather or a combination of both. People often end up in precarious urban situations where they continue to be exposed to hazards ([Cardona, 2012](#)). In the Central African Republic, for example,

people who fled the violence and settled in temporary settlements on the outskirts of urban areas endured intense rains that, in some cases, destroyed their shelters.

The impacts of conflicts and climate change are uneven and especially dire for people who are already at risk. For example people of a lower economic status, and notably women, are often less able to withstand the socioeconomic impacts of shocks as they tend to lack the financial resources, social capital and assets needed to cope, recover and adapt ([Buvinic, 2013](#)).

Figure 3.7: Map of climate vulnerability and fragility

46 out of 60 high-vulnerability countries are fragile or extremely fragile.



Sources: ND-GAIN 2017, INFORM Index 2017, OECD 2018

Notes: The INFORM data is screened to only look at disaster risk (connected to climate- and weather-related hazards), so does not also include conflict-related risk. The OECD classifies contexts as 'fragile' or 'extremely fragile' using fragility score thresholds of -1.2 and -2.5, respectively.

BOX 3.2: THE LAKE CHAD BASIN: THE INTERSECTION BETWEEN CLIMATE, CONFLICT AND DISASTERS

The Lake Chad Basin is a vast area of land that covers around 8% of the African continent and spreads across Algeria, Cameroon, the Central African Republic, Chad, Libya, Niger and Nigeria. The area is affected by conflict between herders and farmers, trafficking in persons, abductions and other challenges. There are almost 11 million people in the area whose survival depends on humanitarian assistance; 5 million people are targeted for emergency food assistance; and just over 1 million people are displaced and mostly living in host communities.

The lake is a key resource that underpins the livelihoods of people in the area, and is at the heart of the area's humanitarian, security and development challenges. Lake Chad has contracted in size by 90% since 1972 while its population has expanded from around 7 million people to 30 million today. This population does not all live alongside the lake but relies on it for drinking water, irrigation and livelihood opportunities.

Climate change is a major contributor to the diminished water resources triggering conflict between pastoralists and farmers in the area and creating tension between farmers and fishermen.

The impact of climate change on the lake, combined with the population growth, has exacerbated community conflict and led to humanitarian and development challenges. Some of the pressure points of the crisis could have been reduced if more attention and resources were provided to protecting vital natural resources that are being diminished by climate change.



Chad, 2020. Like many herders in the region, Ali's way of life is under threat due to the combined impacts of armed violence and climate change.

© ICRC

3.2.6 What climate change has in store for each region

In Africa, the IPCC has indicated that flood hazards are likely to rise, particularly in tropical parts of Africa, while Southern Africa is expected to be increasingly affected by wildfires and droughts (medium confidence) (IPCC, 2014). These hazards are likely to lead to increased exposure for vulnerable communities and the IPCC has predicted large rises in the number of people at risk from floods, due in part to population increases (from 850,000 people in 1970 to 3.6 million people in 2030) (Handmer et al, 2012). African populations will also be increasingly affected by extreme high temperatures, in some cases above physiological limits for thermal comfort (high confidence). At the same time populations are predicted to rise in highly exposed urban centres which have not undertaken adaptation measures for extreme heat (IPCC, 2019a).

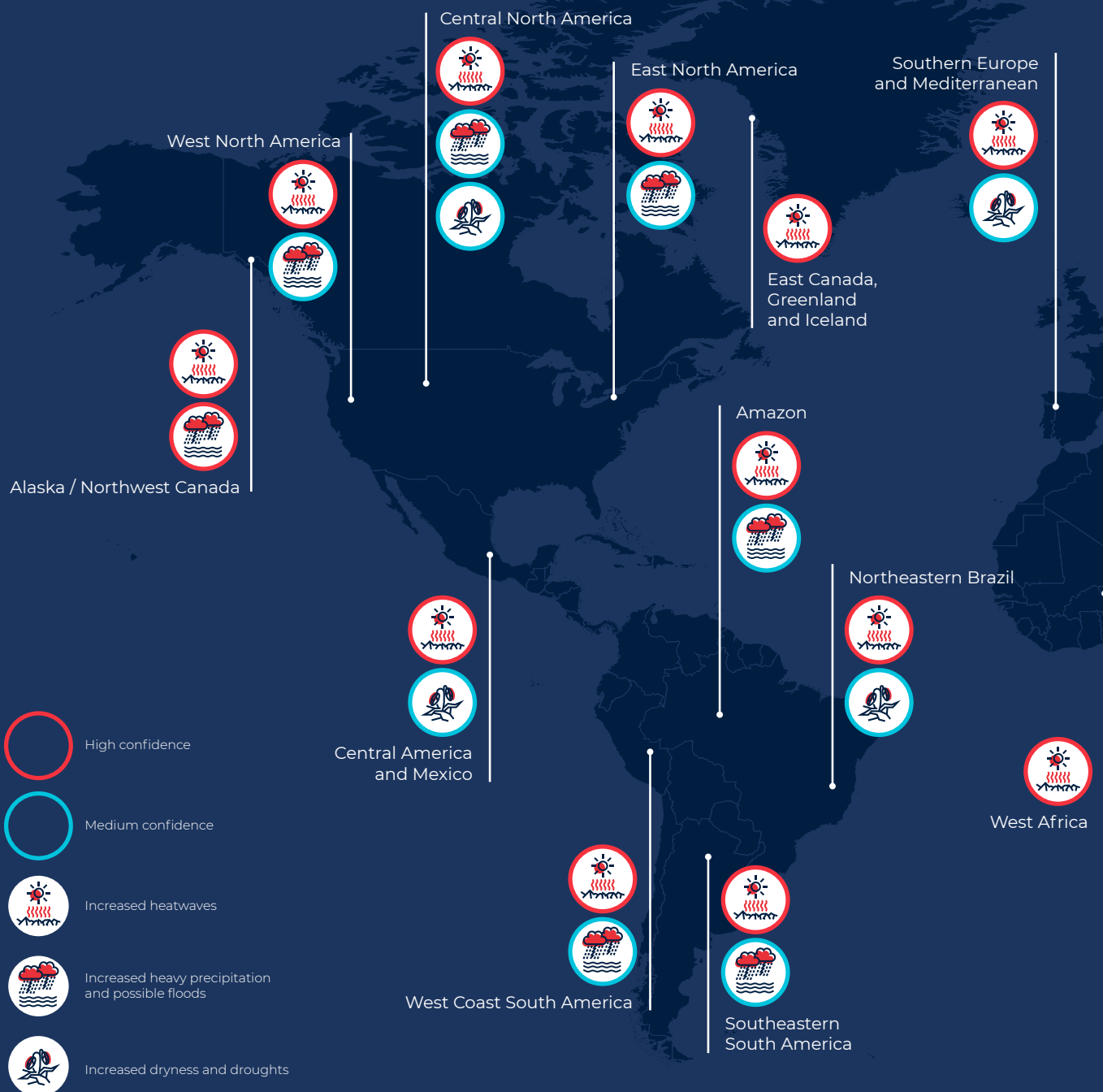
In Asia, flood hazards are likely to increase in parts of South and Southeast Asia (medium confidence), and the population across Asia vulnerable to flooding could rise from 29.7 million people in 1970 to 77.6 million in 2030 (Handmer et al, 2012). A number of regions are expected to be increasingly vulnerable to, and affected by, wildfires, including North and Central Asia; while grassland fires are in particular expected in China. Increased risk of peatland fires is predicted in tropical parts of Asia (IPCC, 2014). Advances in development, growth of mega and secondary cities in Asia, and changes in poverty (which vary between subregions) will all affect how climate change impacts people across Asia.

In the Americas, flood hazards are likely to increase in South America (medium confidence), while the population at risk of flooding is predicted to rise significantly in North and South America (from 640,000 people in 1970 to 1.19 million in 2030 in North America and from 550,000 people in 1970 to 1.3 million in 2030 in South America) (Handmer et al, 2012). Risks associated with glacial melt will also increase, including flooding and glacial lake flood outburst events (IPCC, 2019a). Extreme waves and storm surges are projected to increase due to the heightened sea level across the Southern Ocean (high confidence). The population at risk of flooding in the Caribbean is predicted to rise, with annual coastal flood damage expected to increase, affecting island communities (IPCC, 2019a). The Americas are also expected to be increasingly vulnerable to, and affected by, wildfires (low to medium confidence).

In Oceania, extreme waves and storm surges are projected to increase due to the heightened sea level across the tropical eastern Pacific (high confidence). Annual coastal flood damage is also expected to increase, and communities in island atolls will be particularly affected (IPCC, 2019a).

In Europe, flood hazards are likely to increase in northeast Eurasia (high confidence). Extreme waves and storm surges are projected to increase due to the heightened sea level Baltic Sea (medium confidence) (IPCC, 2014; IPCC, 2019a). Arctic locations can expect increased annual coastal flood damage (IPCC, 2019a). The IPCC projects that the frequency and intensity of droughts will continue to increase, particularly across the Mediterranean region, which is also expected to be increasingly vulnerable to, and affected by, wildfires (medium confidence). Heatwaves have already increased in frequency and intensity and will continue to in the future (high confidence) (IPCC, 2014).

CLIMATE-VULNERABLE REGIONS



Source: [IPCC, 2014](#)

Notes: Increased precipitation refers to either increased heavy precipitation, increased intensity and frequency of heavy precipitation or increased 20-year return value of annual maximum daily precipitation (or a combination). Updated projections are expected in the IPCC's Sixth Assessment Report, due to be published in 2021. Wildfires are often associated with increased heat and dryness, and increased wildfires are predicted in some regions. However this was not systematically recorded in the Fifth Assessment Report so have not been included in this map.

Regions are defined for the purpose of this map only according to the 26 sub-continental regions used by the IPCC (IPCC, 2012).



Northern Europe



Central Asia



Tibetan Plateau



North Asia



East Asia



North Australia



South Australia /
New Zealand



South Asia



West Asia



Southeast Asia



East Africa



Central Europe



Southern Africa



3.3 IMPACTS OF DISASTERS AND CLIMATE CHANGE ON DIFFERENT GROUPS

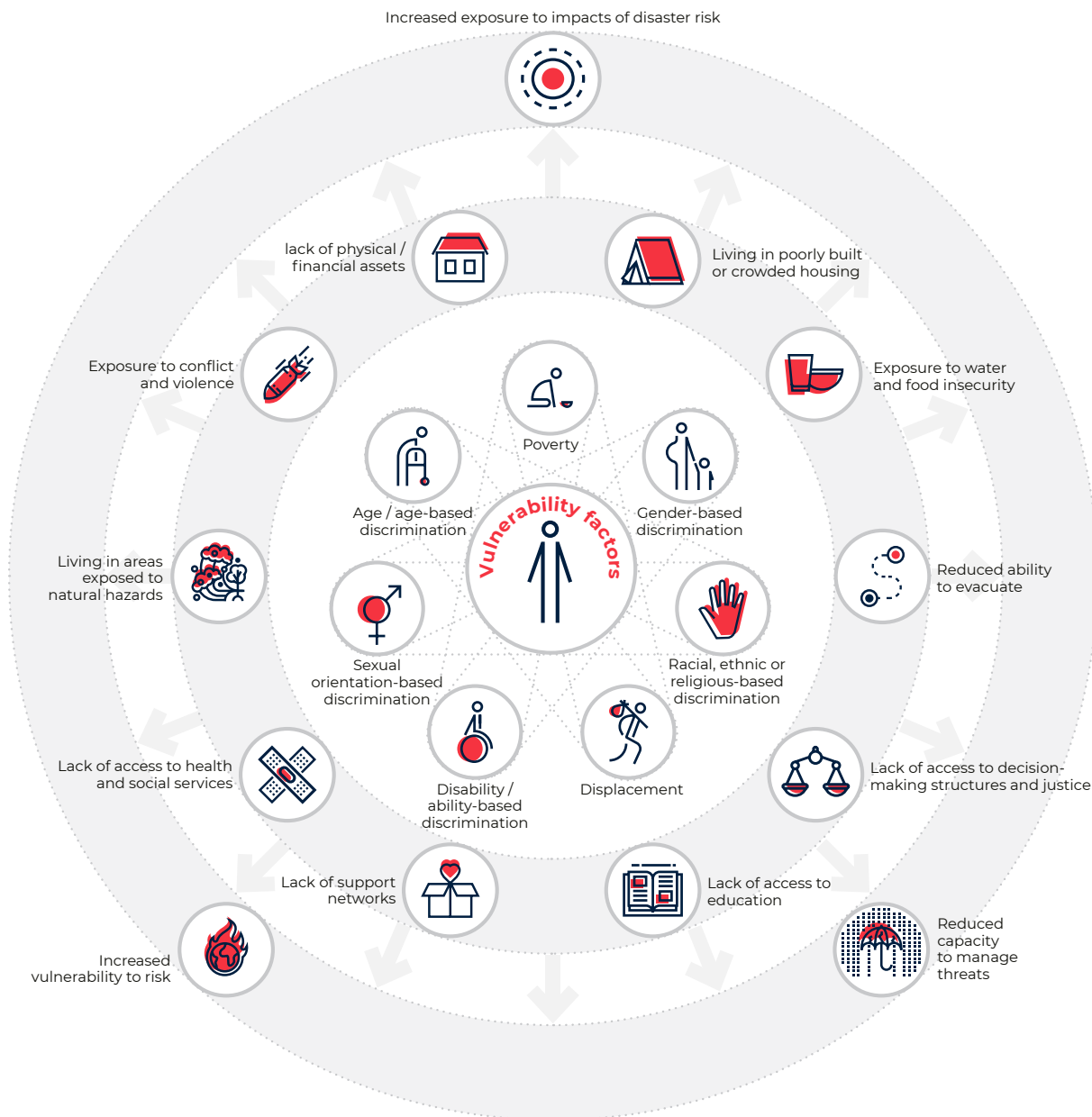
All communities are different and people within communities have diverse capacities, experiences and barriers. Yet certain factors make certain groups structurally and systematically more vulnerable or exposed to disasters, putting them at a higher risk.

3.3.1 Children and young people

In 2013, the UN High Commissioner for Refugees (UNHCR) found that children are the group most affected by disasters each year. This has not changed since and IFRC research shows that “children are at higher risk than other age groups of encountering violence, abuse, neglect and exploitation in disaster settings, including those disasters driven by climate change” ([IFRC, 2020](#)). More than half a billion children worldwide live in areas with extremely high flood occurrence and 160 million children live in high or extremely high drought severity zones. Around 1.6 million children across Malawi, Mozambique and Zimbabwe were in need of assistance after Cyclone Idai swept away their schools and homes, and separated them from their families ([UNICEF, 2019](#)).

Besides the direct risk, children also tend to be affected by some of the more long-term, indirect consequences of disasters. Extreme weather events disrupt education, directly and indirectly. They often destroy or damage infrastructures such as bridges, roads, schools and classrooms, thereby rendering facilities unusable or preventing (safe) access to them. Disasters affect livelihoods, result in food scarcity and malnutrition, reduce the availability of safe drinking water and compromise sanitation (with subsequent consequences on girls’ school attendance during menstruation). They can also increase the incidence of diseases such as malaria and cholera, and disrupt the treatment of chronic diseases, which in turn leads to absenteeism and impairs learning performance. COVID-19 is having – and will have – clear effects on children’s education, social life and physical and mental health ([Ramchandani, 2020](#)).

Figure 3.8: Impacts of disasters and climate change on different groups







Dominican Republic, 2017 Rosa Nuñez and her family survived Hurricane Maria but she is scared that where they live is too dangerous for her children. More than half a billion children worldwide live in areas with extremely high flood occurrence and 160 million children live in high or extremely high drought severity zones.

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BOX 3.3: ENGAGING YOUTH TO BRING CLIMATE ACTION TO SCALE

Today's children and youth will be disproportionately affected by the impacts of the changing climate. At the same time, youth are actively promoting action on climate change. In 2019 millions of young people in over 150 countries took to the streets to demand climate action. Protests were organized at an unprecedented scale and youth activism pushed climate change to the top of global agendas. As Sir David Attenborough highlighted, “young people have achieved things that many of us who have been working on the issue for 20 years have failed to do.” ([Bradley, 2019](#))

The humanitarian, development and climate sectors can and should help make sure that the perspectives of children and youth are heard at local, national and global levels.

Coalitions such as the newly reinvigorated Children in a Changing Climate are striving to advance this agenda through innovative approaches – including supporting the ongoing development of global ‘Children’s Climate Cards’ to promote collective children’s voices. Creating enabling environments, alongside education and empowerment, are also central to the Red Cross and Red Crescent Climate Centre’s youth engagement strategy on climate change.

The Red Cross and Red Crescent Climate Centre’s flagship curriculum, Y-Adapt, has been used to inspire youth-led action and advocacy on adaptation in communities around the world. Examples of youth-led action include clearing drains to reduce flood risk in Haiti and promoting dengue awareness campaigns in Guatemala. Y-Adapt also demonstrates how empowering youth at the local level can open national and global advocacy opportunities. Shadwig Edward, a 19-year-old volunteer with the Micronesia Red Cross Society, shared his Y-Adapt experiences at a UN Global Climate Summit in New York and called for the international community to “imagine themselves facing what the people of small islands are facing”.



3.3.2 Urban poor people

Climate change and urbanization are two of the most transformative trends of the 20th and 21st centuries. More than half of the world's population lives in cities and two-thirds are projected to do so by 2050 ([UN, 2018a](#)).

Poverty is a key cause of vulnerability. The World Bank's report *Unbreakable* found that “When poor people are affected, the share of their wealth lost is two to three times that of the nonpoor, largely because of the nature and vulnerability of their assets and livelihoods” ([Hallegate et al, 2016](#)).

Urban poor people, especially people living in slums and informal settlements, face marginalization, insecure accommodation, limited access to life-sustaining services, higher proportionate costs of living, food insecurity, and greater health risks. Without concerted effort to mitigate or eliminate its impacts, climate change will exacerbate all of these challenges.

Communities at risk are often living in the most exposed places within countries. In Medellin, Colombia, people living in informal settlements, many of them displaced by conflict ([Albuja and Adarve, 2011](#); [Wisner et al, 2004](#)), are perched on steep slopes and near water bodies at the periphery of the city ([Cadavid, 2011](#)). These informal settlements are more exposed to either floods or landslides because of their location. The often-weak structure of the housing, lack of sufficient drainage in the communities, and challenges in accessing basic services among other socioeconomic conditions place these communities at greater risk of natural hazards.

In the future cities will be at increased risk of severe water shortages due to climate change and population pressure. We are already witnessing the first glimpses of this in recent instances in Cape Town – where the 2018–2019 water shortage brought the city dangerously close to ‘Day Zero’, where it would run out of water – and in Chennai and Karachi. Globally, urban poor people already face limited access to safe, reliable and affordable water, with many facing exorbitant costs when purchasing water from vendors ([Mitlin et al, 2019](#)). Urban poor people will also be the first and most acutely affected by municipal water shortages.

As the world continues to warm, the risk of extreme heat is also on the rise. Heatwaves are most acutely felt in cities, where construction materials retain heat causing ambient temperatures to be significantly higher than surrounding rural areas. Extreme heat is even more acutely felt in slums and informal settlements where micro-heat islands often exist and indoor air temperatures have been documented higher still. Older residents and people with pre-existing medical conditions will be more vulnerable to the threat the rise in temperature poses to their health. They may also face barriers to emergency healthcare due to cost, proximity or stigma.

Although many of these risks are already experienced today, climate change coupled with rapid unplanned urbanization will exacerbate the scale and scope of their impacts. Equitable, forward-looking actions to reduce risk must be invested in *today*.

3.3.3 Indigenous communities

Indigenous communities around the world are feeling the effects of climate change.

For example, around 10% of the four million people living permanently in the Arctic region are indigenous people who are already experiencing the impacts of climate change and will face a growing threat not only to their health and livelihoods, but to their traditional ways of life and culture ([UN-DESA, 2008](#)). The IPCC reports that changes in Arctic sea, lake and river ice, and to permafrost, are disrupting traditional hunting, herding and fishing practices, and leading to heightened risk of diseases, malnutrition, injury and mental health challenges among indigenous peoples. Marine ecosystems are also increasingly affected, with negative consequences for the communities who depend on fisheries for their livelihoods (high confidence). These changes risk not only economic losses, but also “potentially rapid and irreversible loss of culture and local knowledge and indigenous knowledge”, as communities adapt to shifts in distribution of harvested species, or reduced access to fishing or hunting grounds ([IPCC, 2019a](#)).

In Colombia, the Waayu indigenous people who live in the Guajira desert region in the far north near the Venezuelan border were seriously affected by the El Niño phenomenon between 2010 and 2016. This led to difficulties in accessing safe water, due to the loss of surface water sources (ponds and streams) during the drought; increased incidence of acute diarrhoeal and respiratory diseases associated with malnutrition and limited access to water; and losses of subsistence agriculture and death of animals (goats and sheep). It also exposed a lack of emergency or response strategies by communities during times of drought.

In Australia, indigenous communities are facing increased hardship in the Top End, a geographical region that encompasses the northernmost part of the country's Northern Territory and is said to be on the front line of the continent's most severe climate change. Indigenous people in remote areas are projected to be disproportionately affected by the impacts of climate change, particularly communities who rely on natural environment for hunting and fishing ([Australian Broadcasting Corporation, 2019](#); [Green et al, 2009](#); [Salleh, 2007](#)).

For example, indigenous artists from the Daly River (Naiyu) noted that traditional warning signs for flooding were changing in recent times. Artist Kieren Karripul said: “Now the older people in Naiyu say they are confused. The climate and the cycle is changing. This year we have had no ‘knock ‘em down rains’. The wind is coming from all directions. There was no juice in the stems of the spear grass.” (TRPPF, 2018).

3.3.4 Older people

Older people (people aged over 70) represented 8.26% of disaster-related deaths from 2000 to 2017 (about 4,700 per year) ([UN, 2019](#)). Older people tend to be disproportionately affected by disasters, in particular by extreme temperatures. As a percentage of the total population, they have the highest death rate of any age group ([IMHEI, 2020](#)).

Older people's vulnerability to disasters can come from age or age-related disabilities combined with other factors such as gender, ethnicity and social exclusion. Reduced mobility is likely one of the major factors rendering older people disproportionately impacted by disasters, as is the breakdown of family and other

support structures. In Japan, the country with the highest proportion of older people worldwide, torrential rains in the beginning of July 2020 flooded more than 50 nursing homes on the island of Kyushu, leading to several deaths. Although a warning was issued for the region, it can be difficult to evacuate older people during a disaster. Evacuation centres often do not provide the care needed and particularly in light of the COVID-19 pandemic, fears of the virus might discourage residents from leaving their nursing homes ([New York Times, 2020](#)). Similarly, the vast majority of people who died in Australian bushfires (apart from those involved in the fire-fighting effort) were over 60 ([Coates, 2020](#); [Wahlquist et al, 2020](#)).

3.3.5 Persons with disabilities

By 2018, there were an estimated one billion people in the world with some form of disability – around 15% of the global population ([OHCHR, 2020](#)). The share of people with a disability is higher in environmentally vulnerable countries, adding up to 177 million people, and is considerably higher for the poorest 20% of a given country's population ([IFRC, 2018b](#)). People with intellectual and psychosocial disabilities often face multiple levels of discrimination and barriers to healthcare, support, education and inclusion ([UN, 2018b](#)).

According to OHCHR: “Persons with disabilities are disproportionately affected by the adverse impacts of disasters and are at greater risk of death, injury and additional impairments owing to their general exclusion from disaster risk reduction policies, plans and programmes. Emergency-related information and warnings are often not accessible to persons with disabilities” ([OHCHR, 2020](#)).

Persons with disabilities may be excluded from processes to design disaster management plans. If left out of decision-making, persons with disabilities are left unable to contribute by identifying risk reduction and adaptation measures they might otherwise carry out ([Turnbull et al, 2013](#)). Engaging disabled persons' organizations in the design of relevant strategies and programmes and to share important information widely is essential to reduce the impact of disasters on persons with disabilities.

3.3.6 Women and girls

The effects of disasters are not gender neutral. Women and girls are often severely limited by gendered systems, laws, structures and social expectations. This means they are underrepresented in decision-making processes, and marginalized and excluded in their efforts to ensure they and their families can live with dignity, development, safety and overall preparedness and capacity to manage shocks and stresses.

Challenges for women and girls include lack of access to nutrition, clean water, menstrual hygiene management, sexual and reproductive health services and education. The socioeconomic and food security-related impacts of disasters can be particularly problematic for women and girls. They are overrepresented in low-paid or unpaid work and more exposed to protection risks such as sexual and gender-based violence including abuse and child marriage, and to exploitation and trafficking in persons ([Plan International, 2019](#)).

Women and girls are at higher risk of the direct health impacts of epidemics, as they are more likely than men to be first response care providers – both at home and professionally – and may face increased exposure to infectious diseases.

BOX 3.4: FOSTERING WOMEN'S ENGAGEMENT TO ADDRESS CLIMATE IMPACTS IN MYANMAR

Climate change impacts in Myanmar are being experienced through intensified rains and storms that affect local communities, further aggravating the divide between ethnicities and between rich and poor people, and increasing existing gender inequalities and vulnerabilities. In the urban areas of Hinthada, a 4.5-year programme of the Myanmar Red Cross Society called Urban Risk Resilience focuses on changing attitudes, behaviours and gender norms to enhance an inclusive community-based disaster risk management (DRM) system.

The practical work focused on training women as fire-fighters, while promoting their inclusion in community-based disaster management led to transformative changes in how women are seen in the community, thus promoting women's leadership in disaster management. Women have reported that they are now seen as part of the DRM team and acknowledged as active members of their community. This not only contributes to enhanced preparedness and resilience for the community to shocks and hazards, but also to addressing more structural gender inequalities (Myanmar Red Cross Society, 2020).



Myanmar, 2020. Myanmar Red Cross Society volunteers spread flood warning messages in Manpin and Kone Khar villages.

© Myanmar Red Cross Society

3.3.7 People with diverse sexual orientation, gender identity and expression, and sex characteristics

Disasters and climate change disproportionately affect people who are already marginalized across the world, including people of diverse sexual orientation, gender identity and expression, and sex characteristics.

During and after disasters, people of diverse sexual orientation or gender identity are often affected by heightened social discrimination and may be excluded from accessing aid due to proscriptive laws and structures surrounding sexual orientation and gender identity and expression.

Systemic institutional and societal discrimination in accessing justice, health, education, employment, housing and other services does not go away after a disaster, neither does marginalization due to exclusion from families, communities and religious and other organizations. This can undermine attempts to build secure livelihoods and to access health, water and sanitation services, increasing vulnerability to shocks and stresses and reducing capacity for recovery.

Disasters which destroy homes and community structures can force people with diverse sexual orientation or gender identity into high-tension public spaces where pre-existing stigma is often exacerbated, producing overt harassment and violence. This intolerance frequently results in increased violence towards known diverse sexual orientation or gender identity communities.

People of diverse sexual orientation or gender identity may avoid seeking help from government centres after disasters. Thus, they are unable to access formal aid, and are more vulnerable to violence from others affected by the disaster.

3.3.8 Migrants and people who are already displaced

Displaced people may be particularly vulnerable to disasters, due to poor standards of housing, location of camps and limited access to assistance. Although not in the direct path of Cyclone Amphan which hit parts of coastal India and Bangladesh in May 2020, displaced persons living in camps in Bangladesh endured heavy rain and winds that flooded parts of the displaced settlements and caused further displacement. At least 60 shelters were destroyed. Relocations from high-risk areas were delayed, and site development work, like clearing drainage and emergency shelter repairs, was suspended or reduced due to COVID-19 lockdowns. UNHCR has warned of life-threatening consequences if annual monsoon preparations cannot be completed on time.

Migrants are regularly left out of disaster response plans and the actual response. Migrants, in particular irregular migrants, face multiple barriers to services, from fear of arrest to lack of information to not having the right identity document to access services. These restrictions apply consistently in the context of disaster response – from the USA to Belize to Thailand. Sometimes migrants may be excluded, and sometimes they are structurally excluded in ways that authorities and service providers may be unaware of. For example, the

Maldives experienced a water crisis when the desalination plant – the only source of potable water for the capital Malé – broke down. The Maldivian Red Crescent was asked to distribute water, however the initial process followed by the government was to provide water when people showed their national identification card. When Red Crescent staff explained that this would deny access to water to many migrant workers, a policy decision was taken not to check for identification at the distribution points to ensure access to water for all.

Migration and human mobility can also influence the ability of communities in areas of destination to cope and adapt to a changing climate. While migrants can make a very positive contribution to receiving societies, mobile populations may not be aware of local environmental conditions, or may contribute to environmental degradation through increased use of land and natural resources. For example, deforestation can be a consequence of establishing displacement sites. At the same time, when land is abandoned, ecosystems may degrade.



Bangladesh, 2019. Since August 2017, more than 700,000 people have fled Rakhine State, Myanmar, to seek safety in Cox's Bazar. Displaced persons living in camps may be particularly vulnerable to disasters. In 2020 some settlements for displaced persons in Bangladesh were flooded, causing further displacement.

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Displaced people may be particularly vulnerable to disasters, due to poor standards of housing, location of camps and limited access to assistance. Migrants are regularly left out of disaster response plans and the actual response.

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3.4 HUMANITARIAN RESPONSE NEEDS AND COSTS

Some people affected by disasters will have access to savings or social protection schemes to enable them to cope and recover. But many people cannot rely on support from others. Families, neighbours and communities are always the first responders, and the vast majority of disaster response is local – local organizations with their own capacities and funding.

Tracking what is spent on domestic humanitarian assistance in response to disasters, including climate- and weather-related disasters, is extremely challenging. However, the data for international humanitarian assistance is a little easier to track or estimate.

In 2019, UN and partner response (based on humanitarian response plans) to disasters totalled almost 707 million US dollars (approximately 693 million Swiss francs), not including response to conflicts, nor situations of mass displacement where reasons may have been mixed – see Figure 3.9. The IFRC and National Red Cross and Red Crescent Societies were involved in 109 internationally supported disaster response operations during 2019 (based on appeals for international assistance), spending over 153 million Swiss francs and targeting around 15 million people in need. The top ten are shown in Figure 3.9. Note these numbers are based on actual assistance provided, not on aiding all who needed it, which would have cost substantially more.

Figure 3.9: Global humanitarian response to disasters in 2019

UN and partner humanitarian response to disasters in 2019

Country – crisis	Expenditure (Swiss francs, millions)
DRC – Ebola virus disease outbreak, 2018–2019	342.2
Mozambique – Cyclones Idai and Kenneth, April 2019	295.5
Bahamas – Hurricane Dorian, September 2019	28.5
Iran – Floods, March 2019	13.9
Bangladesh – Floods and landslides, June 2019	6.2
Indonesia – Tsunami, December 2018	5.4
Indonesia – Tsunami/earthquake, September 2018	1.0
Djibouti – Floods, November 2019	0.2
Total	692.8

IFRC-supported response to disasters in 2019 – largest 10 (based on international appeals)

Country – crisis	Expenditure (Swiss francs, millions)
DRC – Ebola virus disease outbreak	16.8
Indonesia – Earthquakes and tsunamis	11.5
Mozambique – Tropical Cyclone Idai	8.3
Bahamas – Hurricane Dorian	7.9
Afghanistan – Drought and flash floods	3.3
Syria – Floods	1.2
Laos – Flash floods	1.0
Bangladesh – Monsoon floods	0.9
Malawi – Floods	0.6
Cuba – Hurricane Irma	0.5
Total	52.0

Sources: OCHA FTS and IFRC GO

Taking the average number of people affected over the past decade to get a slightly more accurate estimate of costs of international humanitarian response, around 130 million people each year have needed international humanitarian assistance due to the impacts of disasters triggered by natural hazards, and some 108 million people have been affected by climatological disasters. This can be estimated to cost between 6 and 19.3 billion Swiss francs per year in humanitarian response for all disasters triggered by natural hazards, or between 5 and 16 billion Swiss francs per year for climatological disasters.

BOX 3.5: IFRC RESPONSE TO DISASTERS (2019)

While only the major disasters make the headlines and trigger a substantial international humanitarian response, National Red Cross and Red Crescent Societies respond to a range of disasters in their own countries. These range from severe disasters affecting many hundreds of thousands of people, to smaller disasters that are not recorded on EM-DAT as fewer than 10 people are killed or less than 100 affected.

In 2019, the IFRC and National Red Cross and Red Crescent Societies were involved in 109 internationally supported disaster response operations (based on appeals for international assistance), of which 70 were connected to climatological events, and many more were supported using in-country resources. If we consider the more minor disasters, some National Societies are responding all the time, with more than one disaster a day recorded in some countries.

In 2018, the IFRC and National Red Cross and Red Crescent Societies invested significantly not only in responding to disasters, but also in disaster risk reduction (DRR), spending 207 million Swiss francs on DRR projects across 160 countries and reaching 52 million people ([IFRC, 2018a](#); note 2019 DRR mapping results are not yet available) (see Chapter 7 for more on global DRR and climate change adaptation spending). Also, in 2019, the IFRC and National Red Cross and Red Crescent Societies invested over 5.18 million Swiss francs in epidemic and pandemic preparedness, integrating a multi-hazard approach to disaster preparedness and preparedness for infectious disease outbreaks and response.



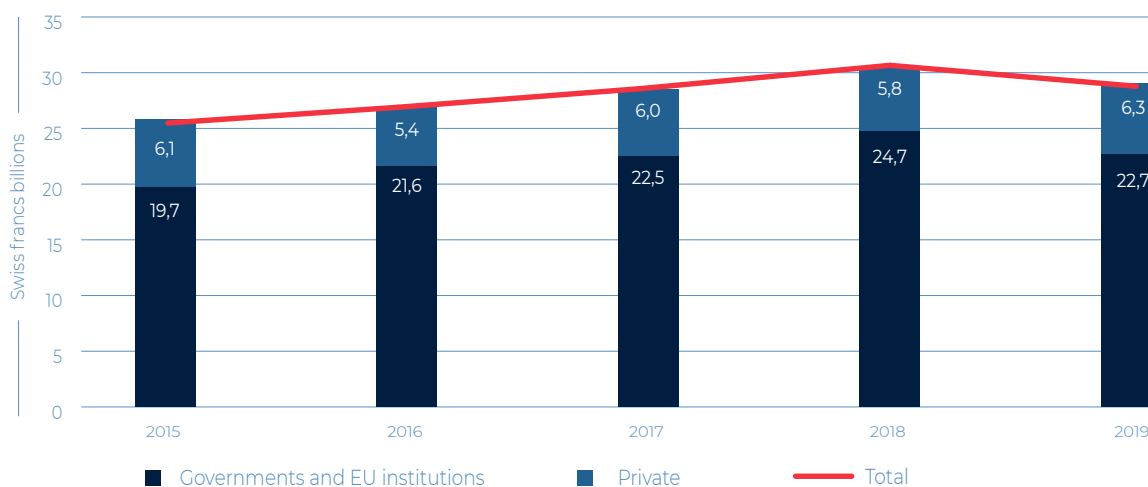
3.5 CAN THE SYSTEMS COPE – NOW AND IN THE FUTURE?

3.5.1 Falling funds

The humanitarian system is already facing challenges in raising enough resources to help the most vulnerable people to anticipate, absorb and adapt to shocks and crises, and in ensuring that nobody is left behind ([IFRC, 2018b](#)). Even before the extra stresses of the COVID-19 pandemic, national and international humanitarian organizations and systems were struggling to do more with less as a result of an increase in the number and intensity of climate-related disasters and no corresponding rise in the resources available to prevent, respond and support recovery ([International Red Cross and Red Crescent Movement, 2020](#)).

In 2019, the total amount of international humanitarian assistance dropped for the first time since 2012, with Development Initiatives noting that the COVID-19 pandemic “places additional demands on a strained humanitarian system, it is also eroding the capacity of governments and institutions to respond, with the risk that already limited sources of humanitarian and development finance could decline further and faster. The combination of these factors presents a perfect storm for a humanitarian system that is already under immense stress” ([Development Initiatives, 2020](#)).

Figure 3.10: Volume of international humanitarian assistance, 2015-2019



Source: Development Initiatives (2020) based on OECD Development Assistance Committee, UN Office for the Coordination of Humanitarian Affairs (OCHA) Financial Tracking Service (FTS), UN Central Emergency Response Fund (CERF) and Development Initiatives' unique dataset for private contributions.

Notes: Figures for 2019 are preliminary estimates. Data is in constant 2018 prices.

This is not projected to improve in 2020, indeed, according to Development Initiatives, all resources are set to fall, including official development assistance (ODA). Its analysis suggests revenues of some countries could fall 7%, while worst-case scenarios indicate a 19 billion US dollar (18.5 billion Swiss franc) drop in ODA by 2021.

And as funds are going down, needs are going up, and these gaps will be worsened by the impact of the COVID-19 crisis. A changing climate will put even greater strain on systems and donors alike, and – as with COVID-19 – the world is not prepared. As IPCC notes: “At 2°C of global warming it will become even harder to effectively help people in need, with implications in terms of both human and financial costs. Already today, humanitarian needs far outpace available funding, even as the latter has increased” ([IPCC, 2018](#)).

3.5.2 Costs are going up

In 2019, climate and disaster experts from the IFRC and the Red Cross and Red Crescent Climate Centre worked with leading climate economists to highlight the human and financial cost of continued poor investment in adaptation.

The IFRC's report *The Cost of Doing Nothing* ([IFRC, 2019](#)) put forward optimistic and pessimistic scenarios for what the international humanitarian response to climate-related disasters and crises could be in 2030 and 2050.

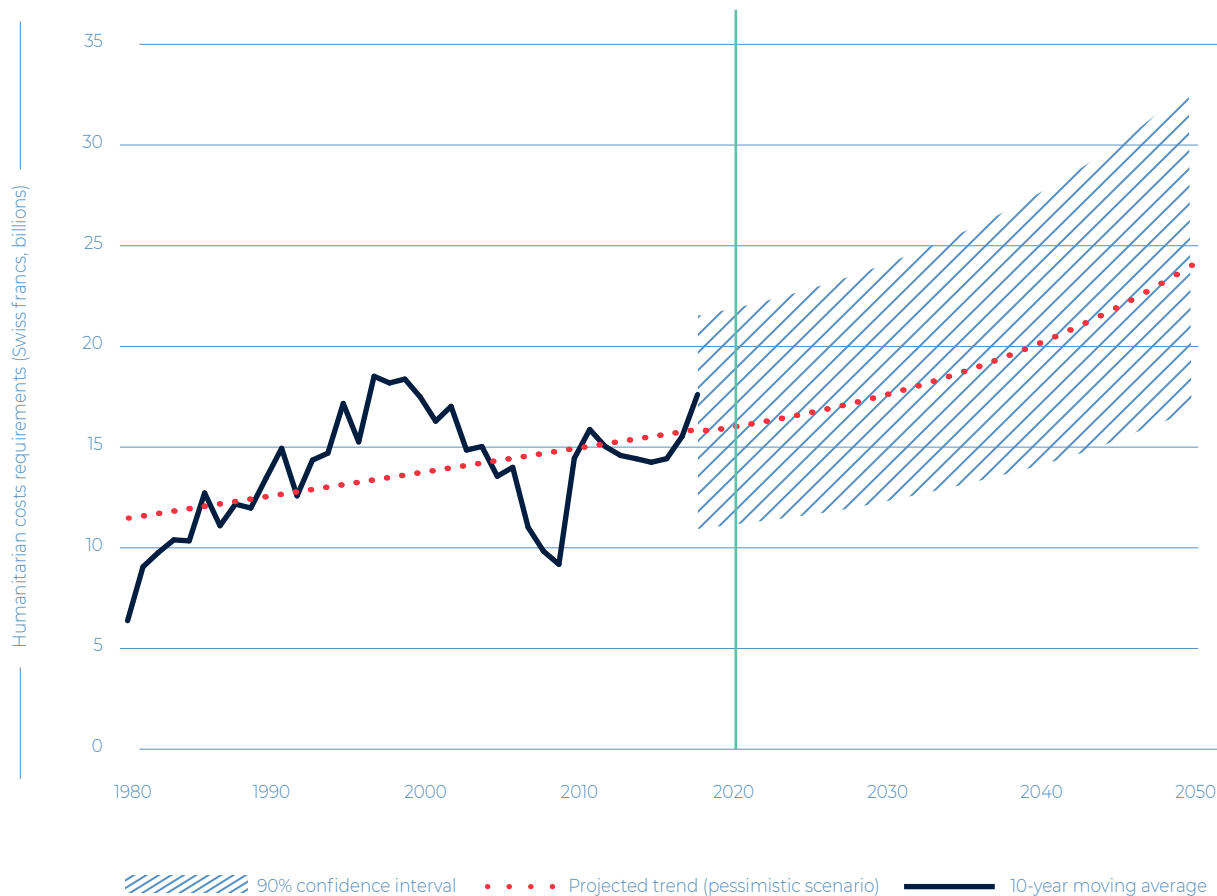
In the pessimistic scenario, it suggested that by 2050, 200 million people every year could need international humanitarian aid as a result of climate-related disasters and the socioeconomic impact of climate change. This is nearly twice the estimated 108 million people who need help today from the international humanitarian system because of floods, storms, droughts and wildfires. Even by 2030, which is only a decade away, this number could increase almost 50%.

Depending on the amount of support provided and the source of cost estimates, meeting current needs would cost international funders 5 to 16 billion Swiss francs per year (based on a ten-year average, and noting that all needs are not generally met by international funders, or indeed at all). By 2050, this funding need could rise to over 24 billion Swiss francs per year.

The Cost of Doing Nothing indicates that the pessimistic outcomes can still be avoided if there is immediate and substantial investment in climate adaptation measures for the poorest and most at-risk populations. The number of people in need of international humanitarian assistance as a result of climate-related disasters annually could also be as low as 68 million by 2030, and even drop to 10 million by 2050 – a decrease of 90% from today.

The scope of the study was limited to immediate life-saving aid and support provided by the international humanitarian system, and did not take into account the costs of long-term recovery or the multiplier effects of conflict. As a result the true cost of doing nothing is likely to be considerably higher than the figures presented in the report ([IFRC, 2019](#)).

Figure 3.11 Humanitarian costs of climate disasters – past and future



Sources: EM-DAT, OCHA FTS, World Bank and IFRC (2019)

Notes: Projection shown for 2019–2050 is the pessimistic scenario from the IFRC's *Cost of Doing Nothing* report (2019). The pessimistic scenario is based on SSP4 with unbalanced growth and an increase in the share of global population affected by disasters. For more information, see [IFRC, 2019](#). Values are in 2018 prices. Chart shows 10-year moving average of the estimated annual humanitarian cost requirement associated with climate-related disasters. Shaded area denotes 90% confidence interval of the pessimistic scenario projection.

3.6 CONCLUSIONS AND RECOMMENDATIONS

Climate change is a major threat, but it is how it interacts with vulnerability and exposure that produces disasters. Therefore, a critical part of our adaptation to climate-related disasters is not about the climate itself, but about the causes and circumstances that place people in harm's way.

This chapter has explored the causes of vulnerability and how climate change is affecting people in different geographical regions, and looked in depth at the numbers and types of disasters that have affected people in recent years. It has also described how different hazards can have a disproportionate effect on children, older people, urban poor people, women and girls, indigenous communities, migrants and displaced people, persons with disabilities, and people of diverse sexual orientation, gender identity and expression, and sex characteristics.

What we need to do now

Tailor support to at-risk groups

- No person, group, community or society is inherently vulnerable, and the risks they face change over time depending on circumstances, interventions, access to social services and structures, and compounding shocks. Concerted efforts must be made to tailor support to at-risk groups while dismantling the systemic and cultural barriers that place them at higher risk.
- There are many steps that countries and communities can take in light of the knowledge we have about current and future exposure, and to address the particular needs of the people and groups most at risk of climate-related hazards now and in the future.
- But these steps must be based on an understanding of why some communities and some people have less capacity to cope with a hazard than others, and careful analysis of the differing experiences of risk. Without this, humanitarian work to reduce risks will fail to reach the people who need it most.

Reduce emissions and invest in climate adaptation measures

- In 2019, the Global Commission on Adaptation asked a stark question: "Will we delay and pay more or plan ahead and prosper?" The challenges are immense and, if the worst impacts are to be avoided, concerted efforts must be made to reduce emissions and invest in climate adaptation measures. This is not only for the most poor and marginalized people in the world, but for everyone, and for the ecosystems, goods and services that life on Earth depends on.

Design a new approach to prepare for rising risk

- As we have seen, humanitarian needs will continue to rise. The resources available to meet those needs were falling even before the global shock of the novel coronavirus. There is a risk that these gaps will be worsened by the COVID-19 crisis, putting even greater strain on systems and donors alike, and leaving the world unprepared for the rising risks of climate change.
- A new approach is needed to help humanity prepare for the next global shock – climate change – while it is managing the COVID-19 pandemic. Chapters 4 and 5 outline some of the practical measures that humanitarian, development and climate actors can take to reduce the impact of disasters, through acting to reduce exposure and vulnerability, anticipate hazards and act faster, and ensure the response is sustainable and really does build back better.

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