Venezuela 2022 *Heavy rains in Venezuela left more than 150,000 people affected by landslides and floods in multiple states. Authorities declared a state of emergency based on the damages on local infrastructure, loss of houses and crops in rural areas. Two Disaster Relief Emergency Fund operations were active with activities in rapid relief, shelter access, livelihoods and basic needs, health, mental health and psychosocial support, water, sanitation and hygiene, and protection, gender and inclusion. © Venezuelan Red Cross*

8 TRENDS IN DISASTERS

What the data tells us

Contents

INTRODUCTION
COVID-19 DWARFS ALL RECENT DISASTERS

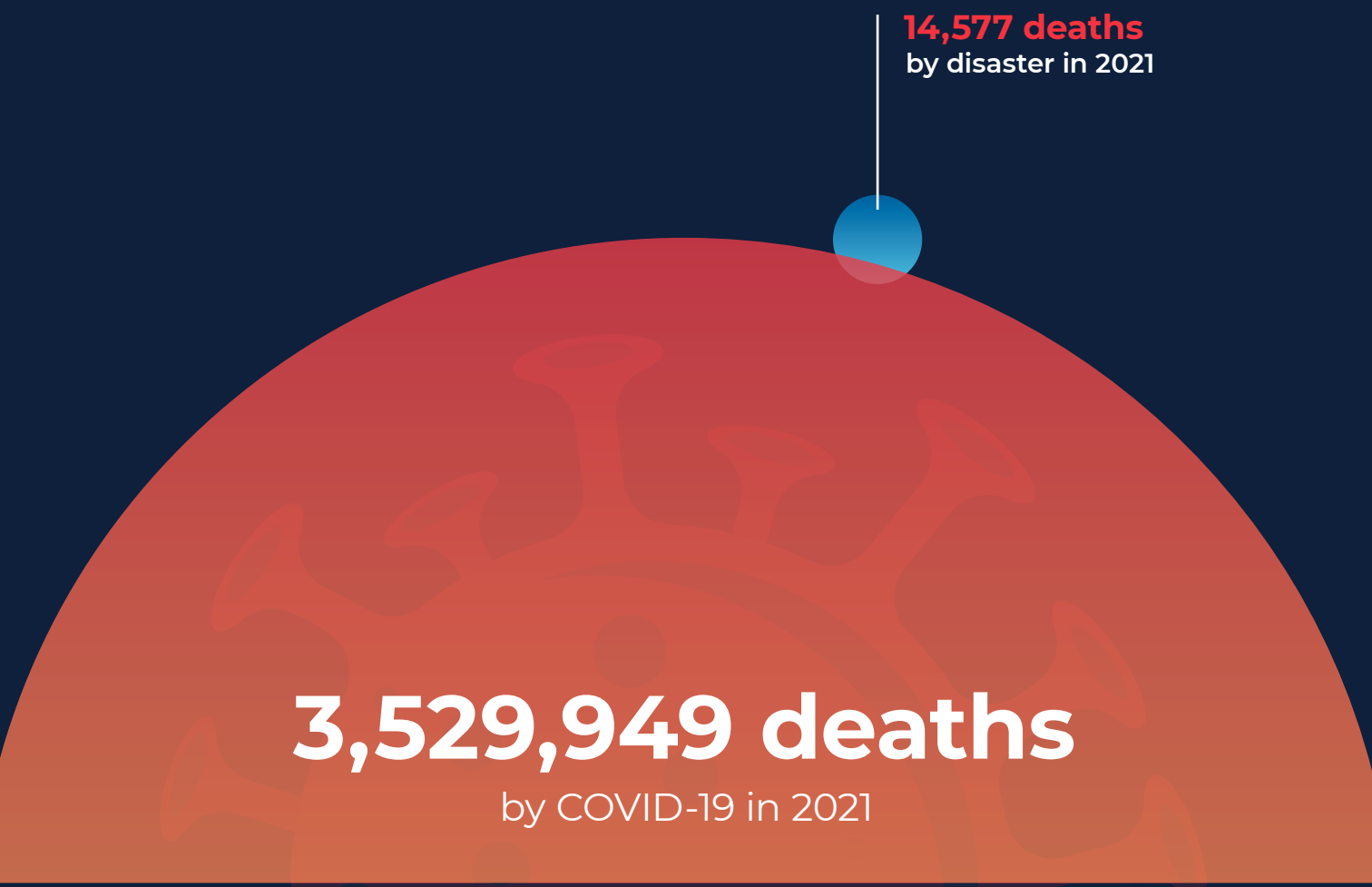
Based on the number of people affected, those killed – directly or indirectly – and the economic impacts, the COVID-19 pandemic stands out as an exceptional global disaster. As of 27 October 2022, there have been over 625 million cases of the disease and 6.5 million people confirmed dead (WHO, no date). These enormous losses have occurred within less than three years. Furthermore, the numbers are likely to be underestimates due to gaps in reporting data. Attempts have been made to estimate the true death toll by examining excess mortality figures, which are more comprehensive. These studies have a significant uncertainty, but they all point to a higher death toll. For example, the official death toll for 2020 was just over 1.8 million, but some estimates place it at 3 million (WHO, 2022). Similarly, a 2022 analysis estimates that between 1 January 2020 and 31 December 2021 there were 18.2 million deaths, compared to the official figure of 5.94 million (COVID-19 Excess Mortality Collaborators, 2022). It is not possible to state a final death count because the pandemic is ongoing.

The pandemic is taking place against a background of other hazards, many of which have also caused disasters. IFRC has analysed comprehensive disaster data for 2020–2021. During this period, there were 710 disasters triggered by natural hazards. These killed close to 30,000 people and affected over 220 million. In 2021 alone there were 378 disasters triggered by natural hazards. The majority of these were climate- and weather-related disasters (see section 8.2.1).

On all measures, the COVID-19 pandemic is vastly larger than any other single disaster that occurred in 2020 and 2021. The annual deaths from this one disease are two orders of magnitude greater than those caused by every other disaster around the world. Indeed, no other non-conflict disaster in the 21st century has been on the same scale (see Executive summary). Not since World War II have so many lives been lost (see Introduction).

In this chapter, we first examine the disasters that have occurred in 2020 and 2021. We then set them into the context of the long-term trends in disasters, in particular the rising proportion of disasters linked to climate and weather and the growing risk of disease outbreaks. These rising rates of disasters mean it is becoming increasingly common for disasters to overlap in time and/or space. Therefore, in the final section we explore what happens when multiple disasters occur simultaneously or in rapid succession.

The enormous COVID-19 death toll



3,529,949 deaths

by COVID-19 in 2021

COVID-19

83.0 million cases in 2020
1.9 million deaths in 2020

204.7 million cases in 2021
3.5 million deaths in 2021

Disasters

99.0 million people affected in 2020
15,396 deaths in 2020

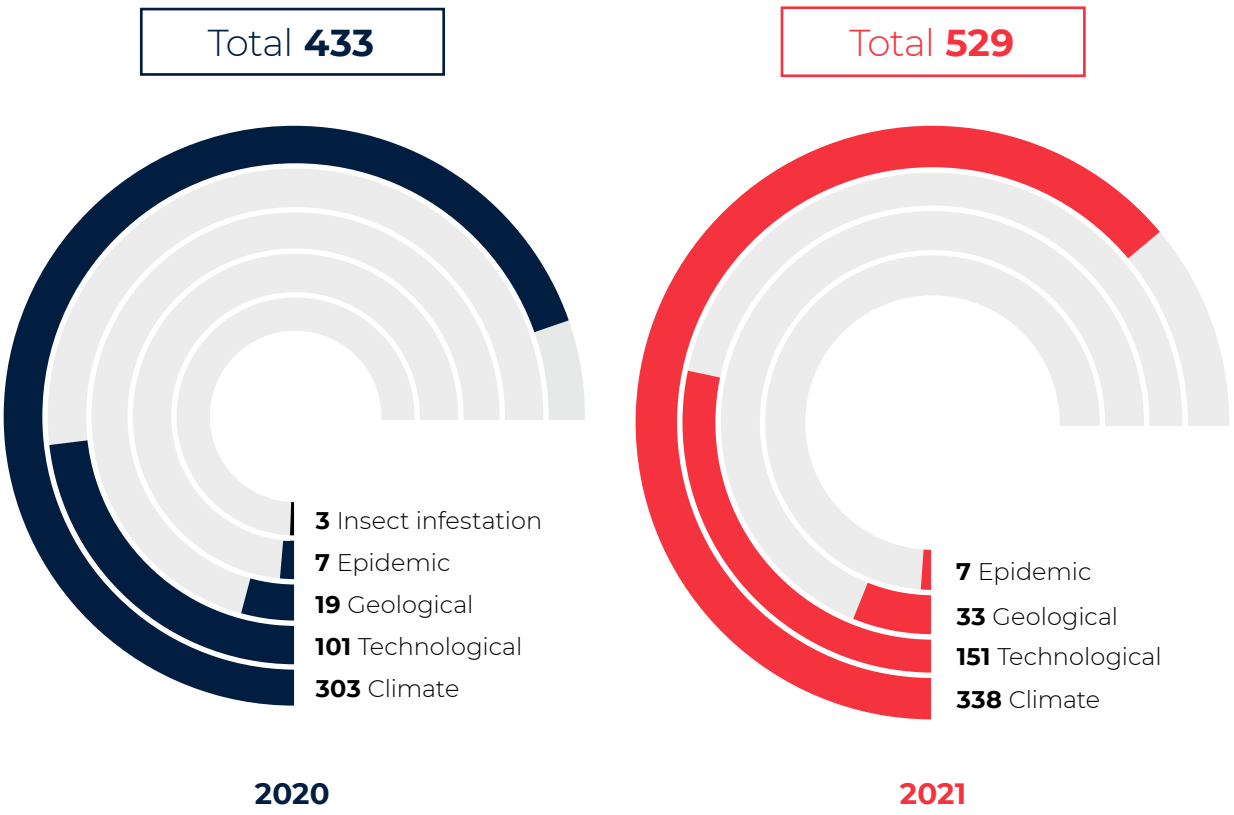
121.3 million people affected in 2021
14,577 deaths in 2021

Sources: EM-DAT, WHO
Notes: All disaster types recorded in EM-DAT are included. EM-DAT data also does not include conflicts.

8.1 DISASTERS IN 2020 AND 2021

The years 2020 and 2021 were dominated by the COVID-19 pandemic. However, the international disaster database EM-DAT does not include COVID-19 (and many other disease outbreaks). In numerical terms, climate-related disasters were the most frequent in both years, far outstripping geological disasters or those caused by human technology. This continues an ongoing trend (see section 8.2.1).

Figure 8.1: Disasters in 2020 and 2021, broken down by type

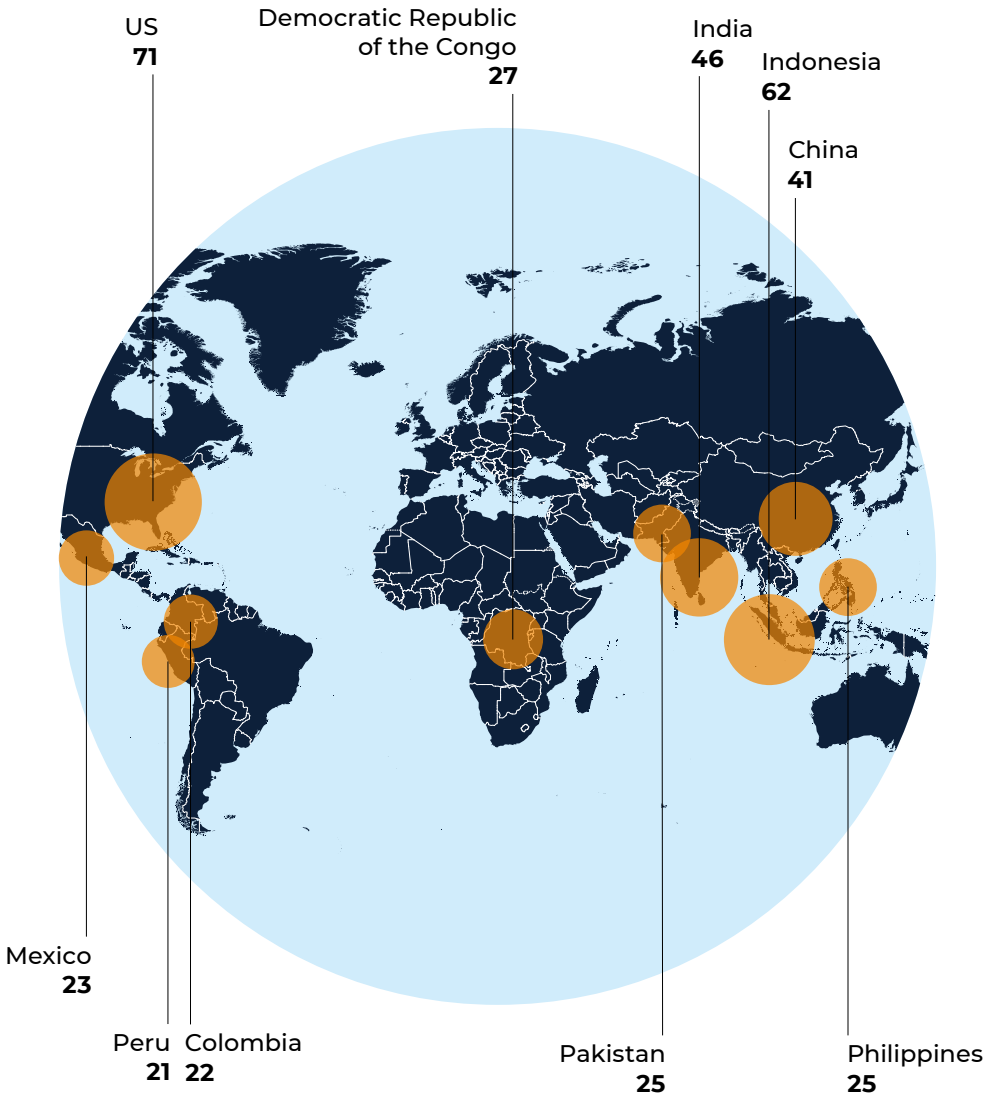


Source: EM-DAT

Notes: This analysis includes technological disasters, as well as disasters triggered by natural hazards. However, it does not include the COVID-19 pandemic.

The disasters that affected the world in 2020–2021 were not evenly spread. Some countries experienced significantly more disasters than others (see Figure 8.2). Others saw more people affected and/or killed (see Figures 8.3 and 8.4). In terms of numbers of disasters recorded, the US has the most; however, this is likely an artefact due to highly comprehensive reporting in that country compared to spotty data elsewhere. The majority of disasters are climate and weather related.

Figure 8.2: The 10 countries that experienced the greatest number of disasters in 2020–2021



Source: EM-DAT
Note: On the map, countries with larger circles experienced a greater number of disasters.

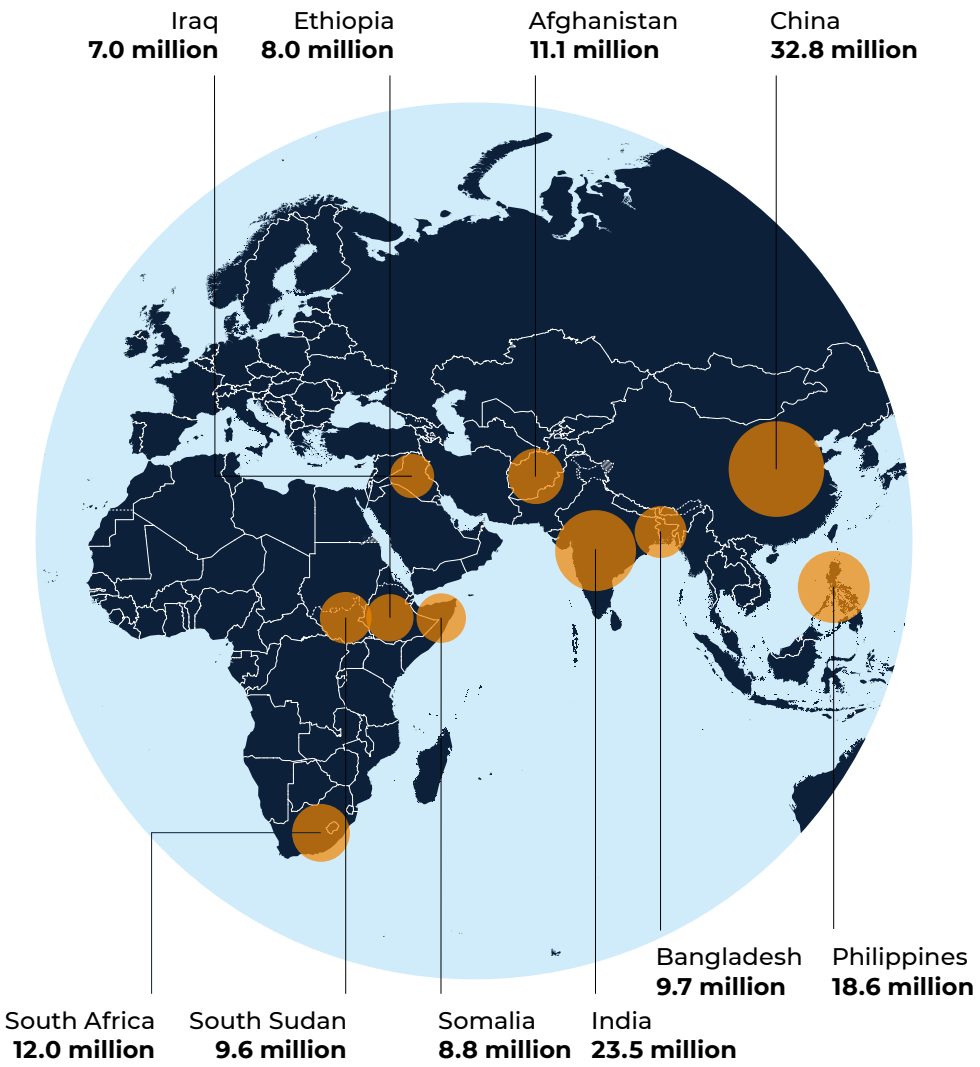
We can see a clearer picture of the impacts of disasters in 2020–2021 by looking at the countries with the most recorded disaster deaths. The 10 countries with the most deaths include some of the most populous nations, such as India and China. It is likely that the high death counts within these countries are due to the large number of people exposed and at risk, rather than the severity of the hazards. Meanwhile, Haiti was severely impacted by the magnitude 7.2 earthquake of 14 August 2021 (USGS EHP, no date). The tremor was the deadliest natural-hazard-induced disaster of 2021, partly due to the violence of the earthquake and partly due to the low resilience of many communities in Haiti. Elsewhere, three European countries (UK, France and Belgium) were all severely affected by heatwaves, although it is likely that heatwave deaths in many other countries are under-reported. Finally, Nigeria experienced an outbreak of cholera that lasted from August to December 2021 and resulted in 3,604 deaths (ReliefWeb, no date).

Figure 8.3: The 10 countries with the largest number of disaster-related fatalities in 2020–2021

Source: EM-DAT
Note: On the map, countries with larger circles saw more fatalities.

When we focus on countries with the most people affected, a somewhat different group of countries emerges. China and India had the most people affected in 2020–2021, due in part to their large hazard-exposed populations. Countries whose populations have been most affected have either been hit by multiple events (multiple floods for China, and multiple storms for India and the Philippines) or by one long-lasting event (drought for South Africa and Afghanistan). In none of these countries has a single sudden disaster produced the biggest impact on countries in terms of affected population.

Figure 8.4: The 10 countries with the most people affected by disasters in 2020–2021



Source: EM-DAT
Note: On the map, countries with larger circles saw more people affected.

8.1.1 In some countries, almost the entire population has been affected by disasters in 2020–2021

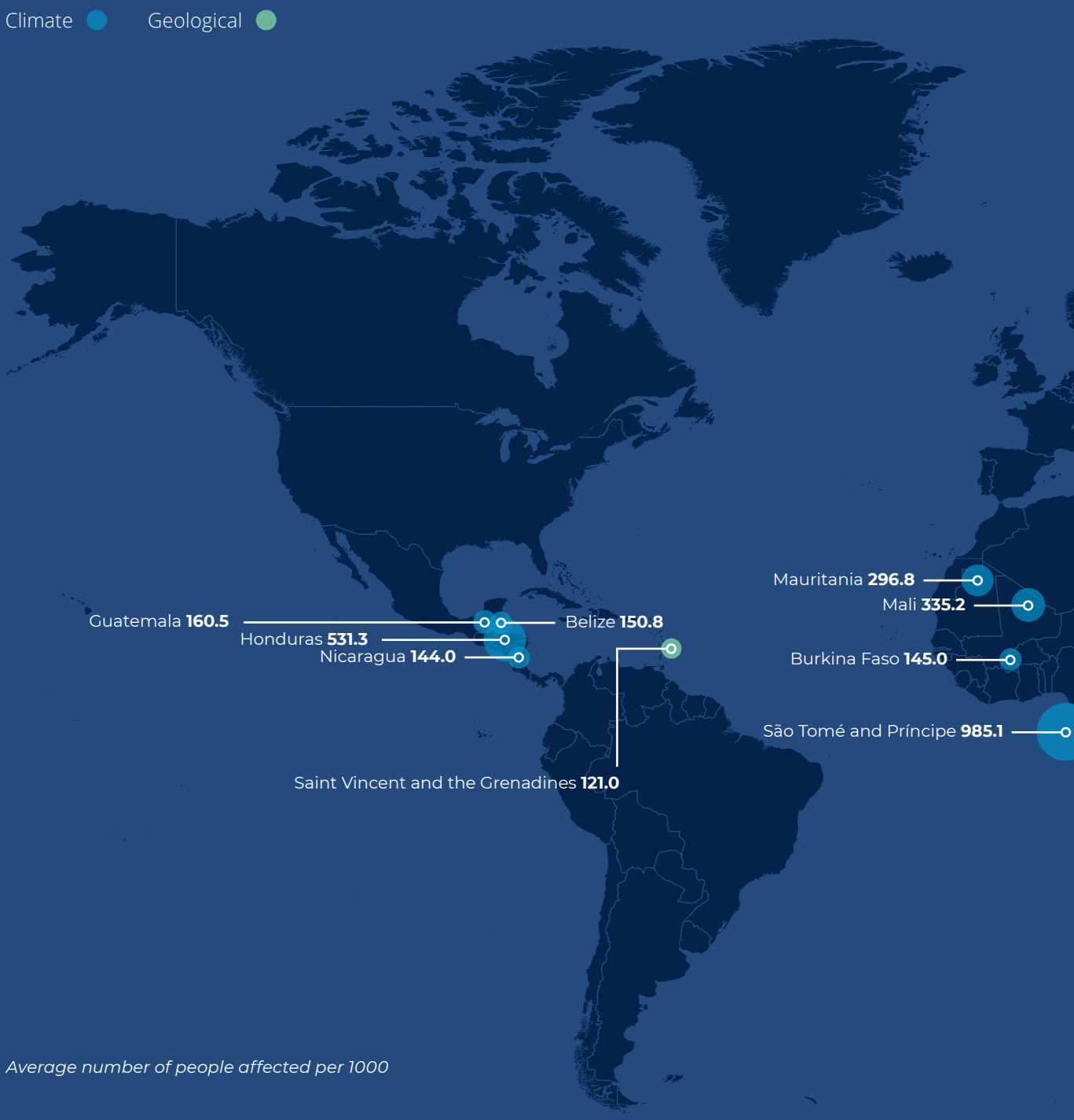
Some countries are disproportionately affected by disasters. This is revealed by the number of people affected per capita, i.e. the proportion of the total population affected in a given year. Almost everyone in São Tomé and Príncipe has been affected by climate- or weather-related disasters in 2020–2021.

There is some uncertainty around these numbers: where countries have encountered multiple disasters, some people may have been counted twice, artificially inflating the proportion of the population reported as affected.

Of the countries with the highest rate of affected population per capita, the most affected were small island developing states (UNESCO, no date), in particular those in the Pacific. Three of the top five most affected countries per capita were small island developing states, as were four of the top 10. All top 10 countries are affected due to climate-related disasters. Three of them are also suffering from conflict: Somalia, South Sudan and Mali, which are rated 2nd, 3rd and 14th respectively on the Fragile States Index (Fragile States Index, no date).

The majority of these countries have high rates of affected population per capita solely because of climate- and weather-related disasters. Only the 23rd country in the affected-per-capita ranking is in that position due to additional contributing factors: Saint Vincent and the Grenadines, which has also been affected by the 2021 La Souffrière volcanic eruptions.

Figure 8.5: The countries with the largest proportion of their populations affected by disasters in 2020–2021



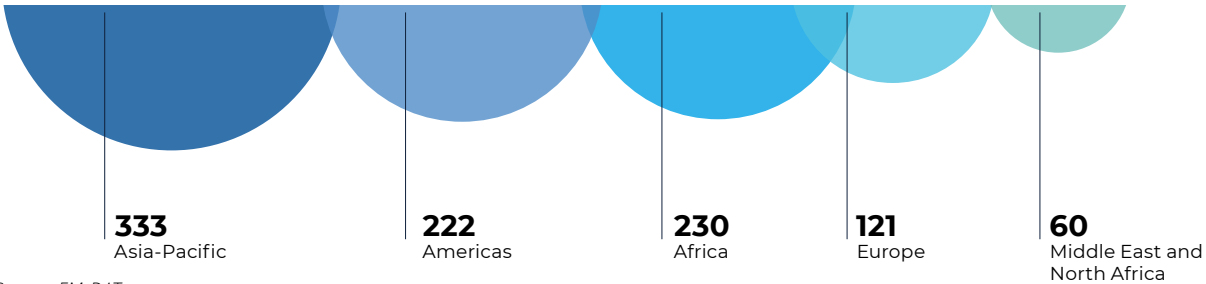
Note: The proportion affected is given per 1,000 people. On the map, countries with larger circles had a larger proportion of their population affected, while the colours of the circles reflect the predominant disaster type(s) per country.


Syrian Arab Republic 288.0
Afghanistan 283.6
Iraq 164.4
Niger 182.0
Djibouti 110.0
South Sudan 613.0
Somalia 452.1
Philippines 112.1
Palau 331.3
Solomon Islands 231.5
Tuvalu 85.1
Vanuatu 442.6
Fiji 222.0
Tonga 225.2
Lesotho 329.9
South Africa 202.3

8.1.2 Asia-Pacific has been the region worst affected by disasters

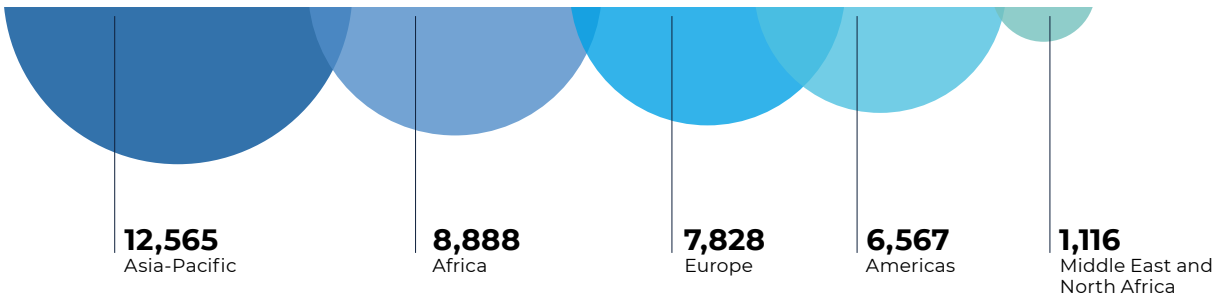
Of the five regions of the world recognised by IFRC, Asia-Pacific has been the worst affected by disasters in 2020–2021. This is true across three different measures: Asia-Pacific has seen the largest number of disasters, the largest number of deaths and the largest number of people affected.

Figure 8.6: Number of disasters in 2020–2021, by region



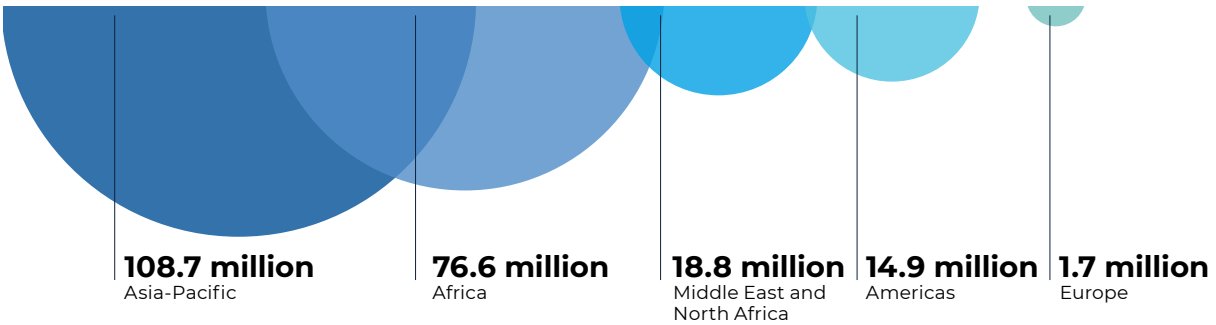
Source: EM-DAT

Figure 8.7: Number of deaths from disasters in 2020–2021, by region



Source: EM-DAT

Figure 8.8: Number of people affected by disasters in 2020–2021, by region



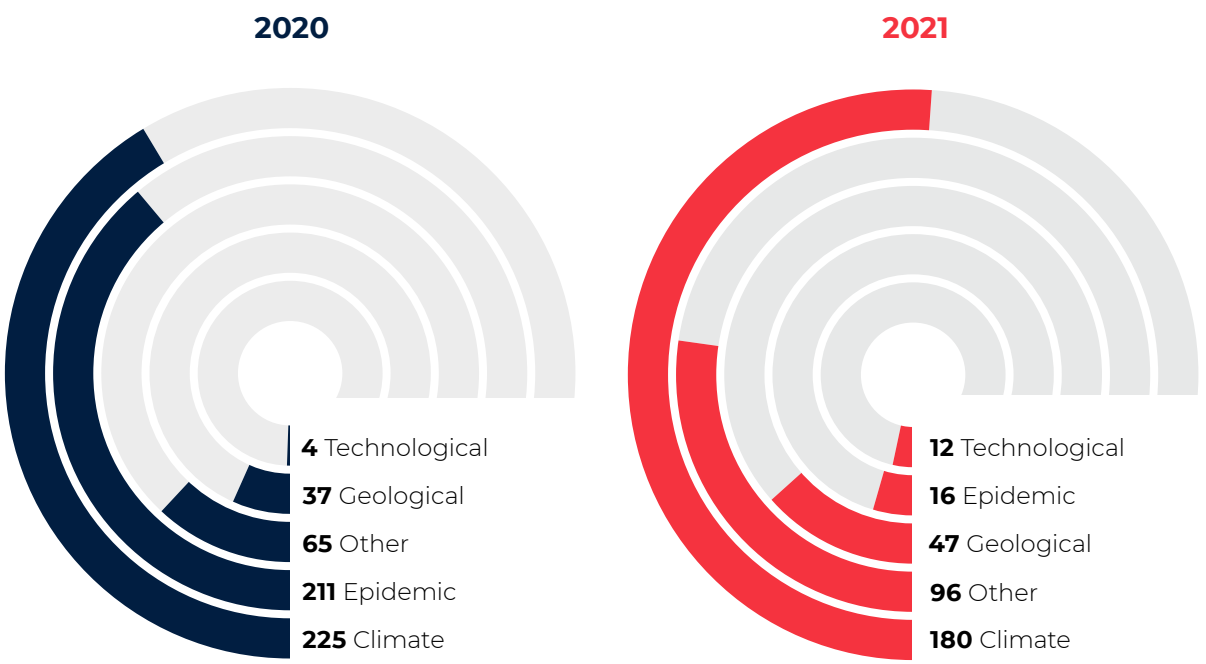
Source: EM-DAT

8.1.3 IFRC emergency responses in 2020 and 2021

In line with the large numbers of disasters recorded in EM-DAT for 2020 and 2021, National Red Cross and Red Crescent Societies also responded to large numbers of emergencies. These data come from IFRC's online GO database. While the categories do not precisely match those in EM-DAT, some similarities can be observed. In both EM-DAT disaster data and IFRC emergency data, there is a large number of climate-related hazards.

The number of emergencies responded to in 2021 was lower than in 2020. The fall was driven mainly by a decrease in the number of epidemic emergencies responded to. It is not clear why this has happened, but it cannot simply be attributed to COVID-19 being brought under a degree of control in 2021 by vaccination drives. Even when instances of COVID-19 are filtered out of the data, the fall remains. Regardless, there is no reason to think it represents the start of a long-term decline, as the number of disease outbreaks has always varied significantly year-on-year.

Figure 8.9: Emergencies to which the IFRC responded in 2020 and 2021 by disaster type



Source: IFRC GO

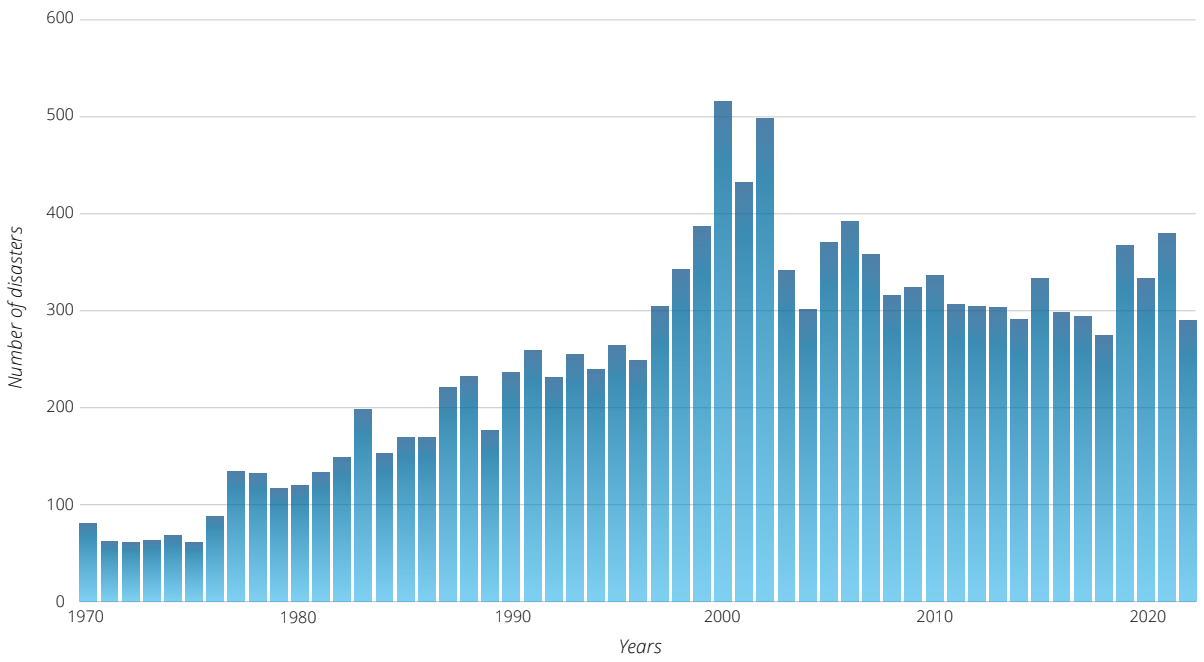
Notes: The 'climate' category includes cyclones, fires, heat waves, cold waves, droughts, floods, storm surges, pluvials and flash floods. The 'other' category includes food insecurity, population movement, civil unrest and complex emergencies.

8.2 GLOBALLY, DISASTERS ARE HAPPENING MORE FREQUENTLY

Since 1970 there has been an increase in the average annual number of disasters triggered by natural hazards. The trend is visible despite significant year-to-year variability.

Note that this dataset does not include the COVID-19 pandemic. Nor does it include a comprehensive list of other epidemiological disasters, as some are not recorded in EM-DAT. Disease outbreaks are difficult to compare to other disasters, particularly when they spread to the global scale as COVID-19 has done. For instance, if the pandemic was counted as a single prolonged disaster, it would not make a visible difference to the overall trends seen in the graph – when in fact it is the largest disaster humanity has experienced in the timespan.

Figure 8.10: Number of disasters triggered by natural hazards recorded globally per year, 1970–2021



Source: EM-DAT
Notes: Epidemics, including COVID-19, are not included in the dataset. Conflicts are also not included.

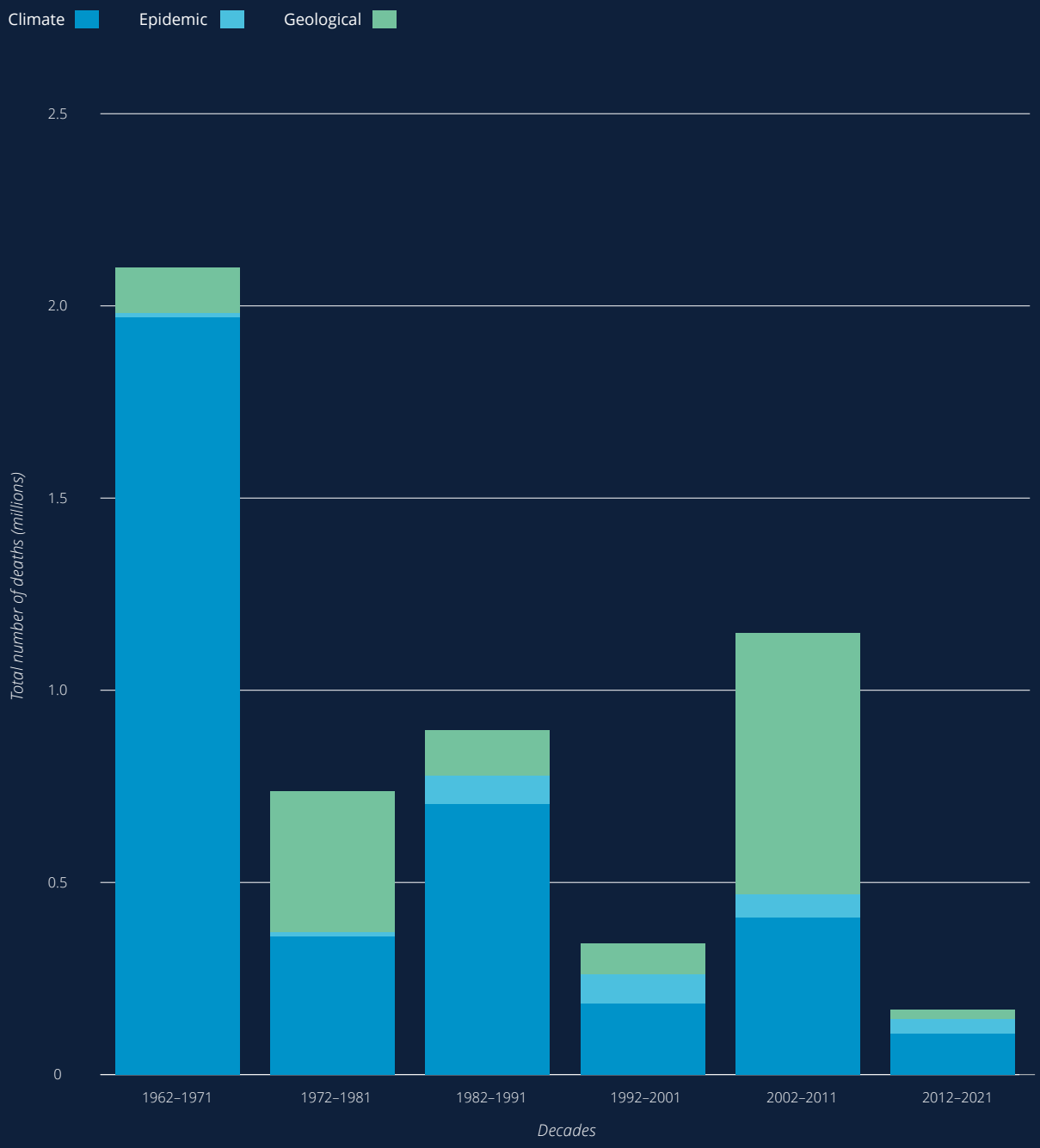
There may have been a slight drop in the average number of disasters in the last decade (2012–2021). It is unclear why this has happened and there are several possible explanations. It may be partly the result of improved disaster risk management, which has improved some communities' resilience to natural hazards (Formetta and Feyen, 2019). In line with this, the next section presents evidence of a similar decline in disaster-related deaths, which is also attributed to improved disaster risk management. While climate change and other factors are acting to increase the frequency and severity of certain natural hazards, improved disaster risk management may be reducing the number of those hazards that translate into disasters. This interpretation is appealing, but it is unlikely to be the whole explanation. Improved disaster management would reduce the impacts of events, but it would be unlikely to cause them not to be reported, except perhaps in the case of small events. Furthermore, other possibilities cannot be ruled out. For instance, the apparent decline in the number of disasters may be the result of reporting issues, such as under-reporting of small-scale disasters and bias towards events in high-income countries (see Chapter 5). Finally, stochastic effects and chance may be at work. With climate-related hazards the dominant cause of disasters, multi-year cycles in the climate system like the North Atlantic Oscillation and El Niño–Southern Oscillation are likely to impact the frequency of hazards like floods and droughts (Emerton et al, 2017; Najibi and Devineni, 2018). Conventionally, climatologists require data spanning multiple decades to demonstrate a true long-term trend; a fall from one decade to the next is not conclusive evidence of a genuine decline.

It is possible that all three factors (improved disaster risk management, gaps in reporting, and short-term climatic cycles) are at work. Regardless of the true explanation, the last decade has still seen a very high number of disasters compared to the last 60 years.

In contrast, the total number of global deaths from disasters has declined since the 1960s, according to EM-DAT. This has occurred despite a growing number of people being exposed to climate- and weather-related hazards and increases in the severity and frequency of hazards (Irfan, 2022). A major contributor to the decrease in mortality is improvements in weather forecasting and thus in early warning systems, alongside life-saving evacuations and rescue operations (WMO, 2021).

However, splitting the data by decade indicates that the largest decline was from the 1960s to the 1970s, due to a significant fall in the number of deaths from climate-related disasters. Since then, there has been no clear trend. Furthermore, the dataset does not include the 5.9 million confirmed deaths from COVID-19 in 2020 and 2021, which would significantly inflate the average for 2012–2021.

Figure 8.11: Total deaths from disasters recorded globally per decade, split by disaster type



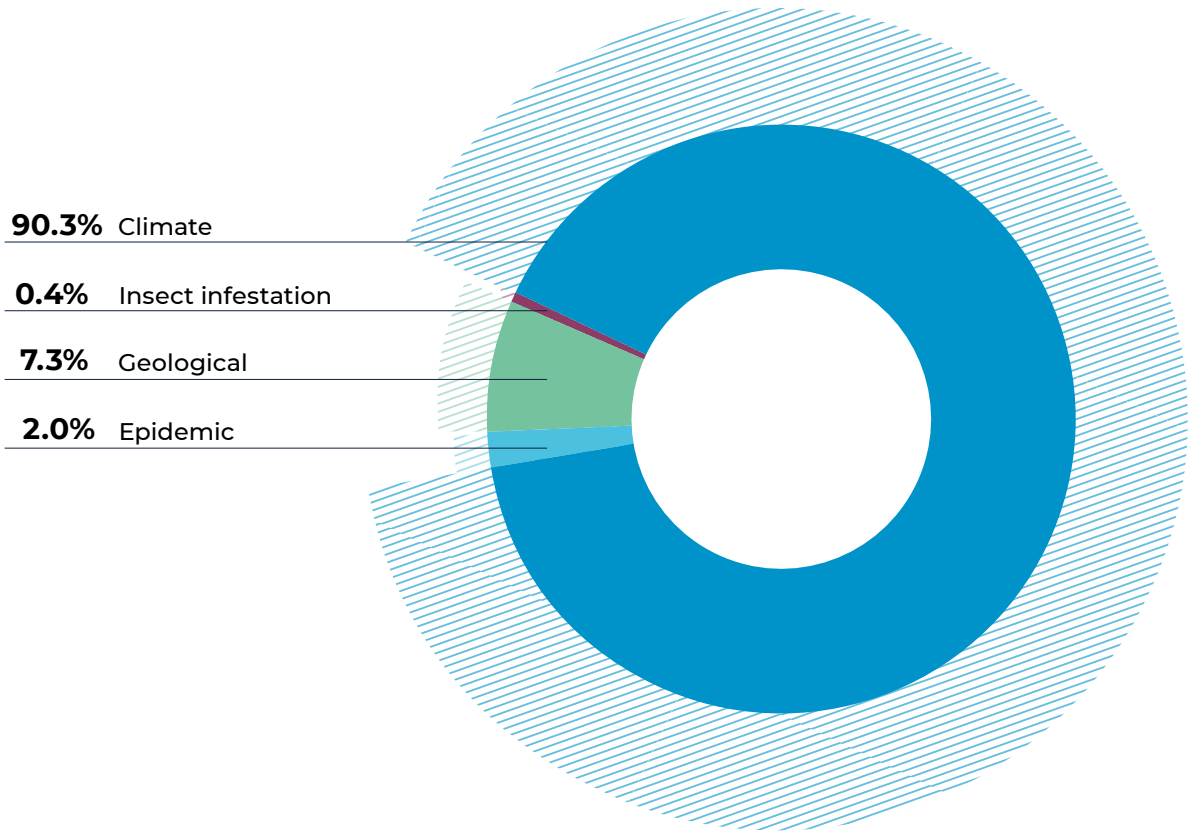
Source: EM-DAT
Note: COVID-19 deaths are not included in the 2012–2021 figures.

8.2.1 The share of disasters linked to climate continues to grow

Climate-related hazards continued to increase in prominence in 2020–2021. In those two years, 90.3% of recorded natural disasters were triggered by climate- and weather-related hazards. This compares to 7.3% by geological hazards like earthquakes and volcanic activity. The remainder were caused by epidemics (excluding COVID-19) and insect infestations such as locusts.

This adds to the evidence for increasing prominence of climate-related hazards. In the *World Disasters Report 2020*, IFRC reported that 76% of reported disasters in the 1960s were climate- and weather-related, but this proportion rose to 83% in 2010–2019 (IFRC, 2020). A re-analysis of updated EM-DAT data for this report shows that the proportion for that last decade was actually 84%. The data for 2020–2021 indicate that this trend is continuing.

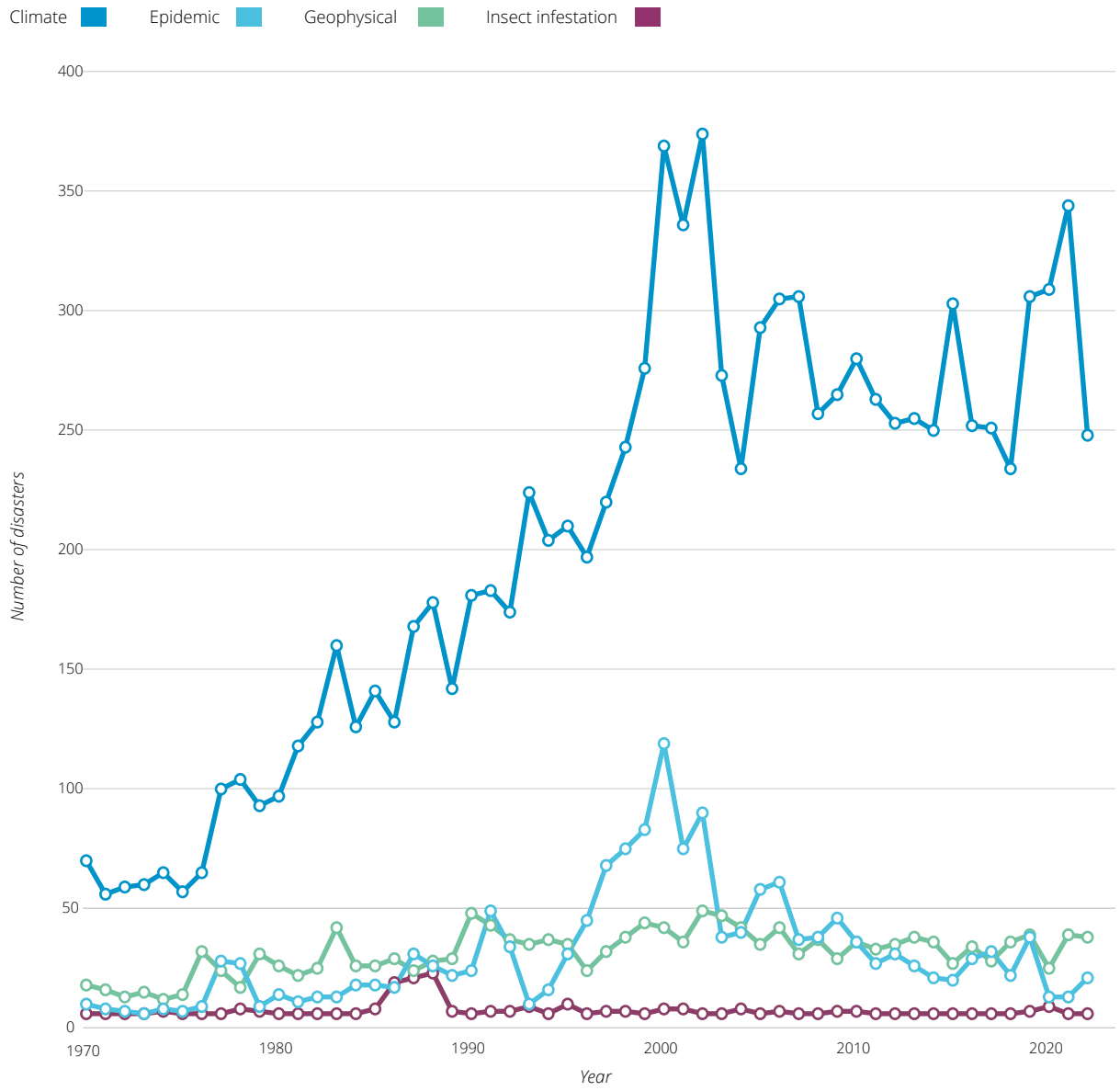
Figure 8.12: Recorded natural disasters in 2020–2021, broken down by disaster type



Source: EM-DAT
Note: Climate- and weather-related hazards were by far the largest source of disasters.

An analysis of the trends in disaster types over the last five decades clarifies what is happening. The number of climate- and weather-related disasters continues to grow, whilst geological hazards have remained stable. EM-DAT also shows no trend in epidemics or insect infestations. However, this is due to multiple omissions in its records of such biological hazards. Other lines of evidence indicate that disease outbreaks have become more frequent over the last few decades (see Chapter 1).

Figure 8.13: Number of disasters by type per year, 1970–2021

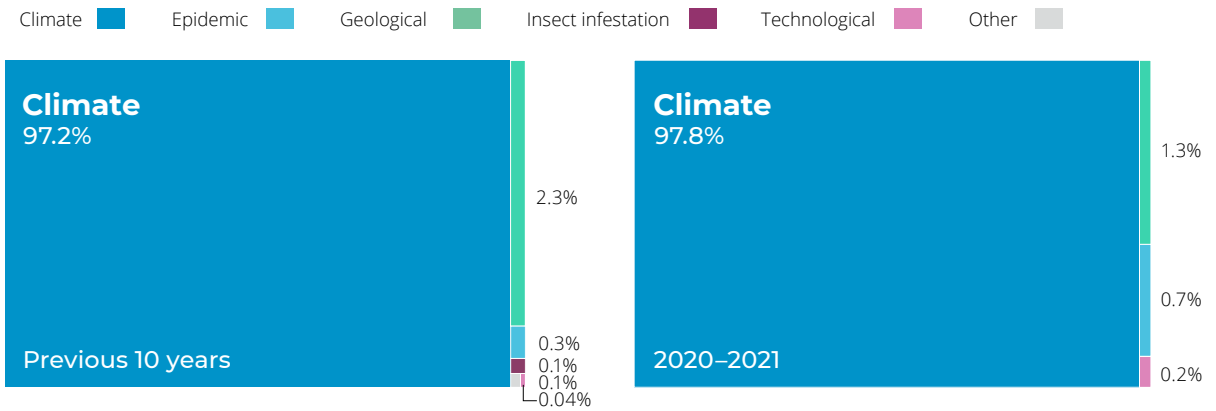


Source: EM-DAT

Notes: The number of climate- and weather-related disasters per year has increased over this period. Meanwhile the number of disasters linked to geological hazards has held steady.

A similar dominance of climate- and weather-related disasters can be seen in the people affected by disasters. Over the last 12 years, the proportion who were affected by a climate- or weather-related disaster has held steady between 97% and 98%. On average, about 100 million people are affected every year by climate- and weather-related disasters. Alongside this, disasters linked to geological hazards make up the next largest proportion of the people affected by disasters.

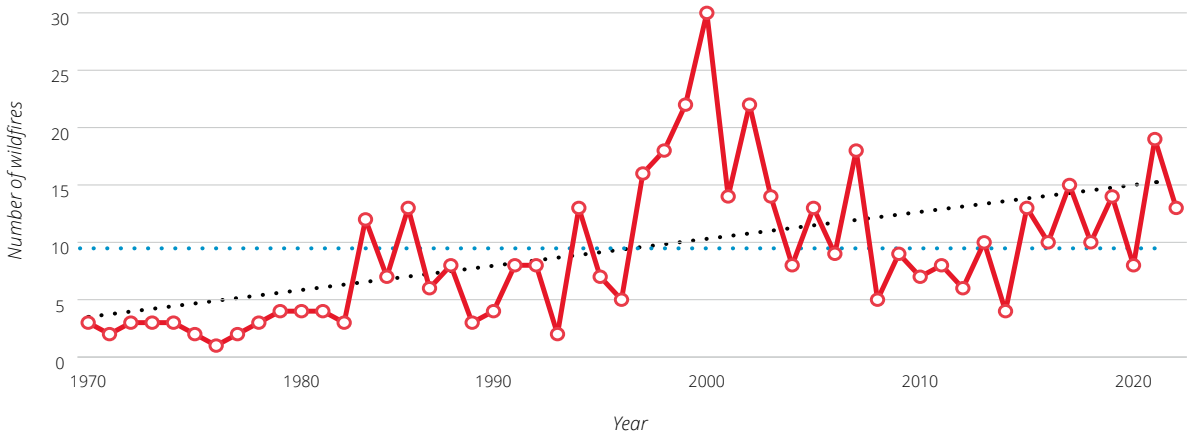
Figure 8.14: Percentage of the total number of people affected by disasters every year, by disaster type



Source: EM-DAT

In line with these analyses, over the last five decades there has been an upward trend in the number of disasters caused by wildfires, which are climate- and weather-related. This trend is visible despite high interannual variability. Current wildfire frequencies are above the levels observed from the 1960s to the 1990s.

Figure 8.15: Annual disasters caused by wildfires, 1970–2021



Source: EM-DAT
Note: The black dotted line is the trend since 1970. The blue dotted line is the average of the last 50 years.

8.2.2 Disease outbreaks are becoming more common

Over the last few decades, humanity has experienced an increasing risk of disease outbreaks (see definition in Chapter 1). The COVID-19 pandemic is the most dramatic example and stands out for the sheer number of cases and deaths. Nevertheless, it is part of a wider trend.

A 2014 study compiled disease data from 1980 to 2013 (Smith et al, 2014). This encompassed 12,102 outbreaks of 215 human infectious diseases. After controlling for confounds like improvements in disease surveillance, the researchers found significant increases in both the total number of outbreaks and the diversity of diseases. In the early 1980s there were fewer than 1,000 disease outbreaks per year, but by the late 2010s this had tripled to over 3,000. Zoonoses – diseases entering the human population from animals – were responsible for 56% of outbreaks.

Similarly, an analysis by the World Health Organization (WHO) said: "Epidemics of infectious diseases are occurring more often, and spreading faster and further than ever, in many different regions of the world". The analysis identified 1,307 epidemic events between 2011 and 2017. That equates to an average of 187 epidemic events per year (WHO, 2018).

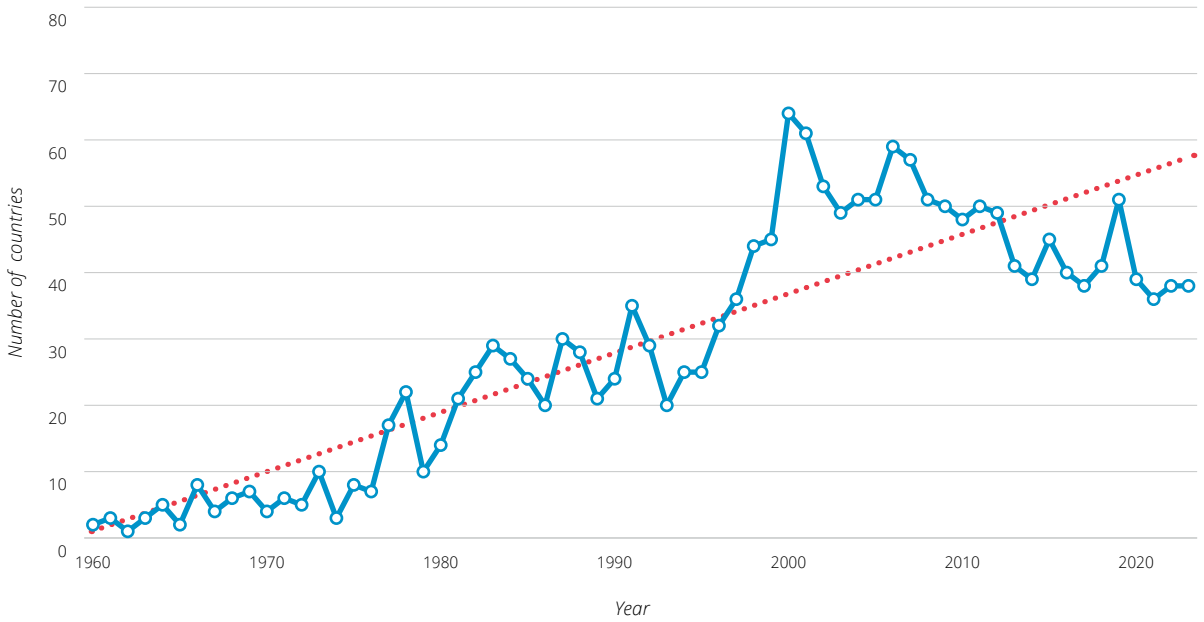
More recently, a review identified "a wave of severe infectious disease outbreaks" in the 21st century (Baker et al, 2021). These included the 2003 severe acute respiratory syndrome (SARS) coronavirus outbreak, the 2009 swine flu pandemic, the 2012 outbreak of Middle East respiratory syndrome (MERS) coronavirus, the 2013–2016 Ebola epidemic in West Africa and the 2015 Zika epidemic.

Experts cite various reasons for these epidemic trends. Baker et al, 2021 links it to dramatic changes in where people live and how much they travel. As of 2007, population density continues to increase and more people live in urban areas than rural. This creates ideal conditions for rapid spread. Meanwhile, airline flights have doubled since 2000, enabling rapid international spread. Other factors include climate change, which affects the emergence of new or modified pathogens and the re-emergence of older ones, as well as how vulnerable people are to them. Food production often favours large concentrations of animals in unsanitary conditions. Finally, other types of disasters affect people's vulnerability to pathogens, via poor sanitation, nutrition and access to health services.

8.3 DISASTERS ARE OVERLAPPING MORE AND MORE

Thanks to the increasing frequencies of disease outbreaks, and of climate- and weather-related disasters, countries are increasingly experiencing two or more disasters simultaneously. Over the last 60 years, the number of countries experiencing such overlapping disasters has steadily increased. We define overlapping disasters as instances when two disasters occur in the same country, with the second disaster starting before the first one has ended. These simultaneous disasters can take many forms: for example, wind damage from a storm combined with a separate flood event, or a heat wave combined with a wildfire.

Figure 8.16: Number of countries experiencing two or more overlapping disasters at least once in a year, 1970–2021

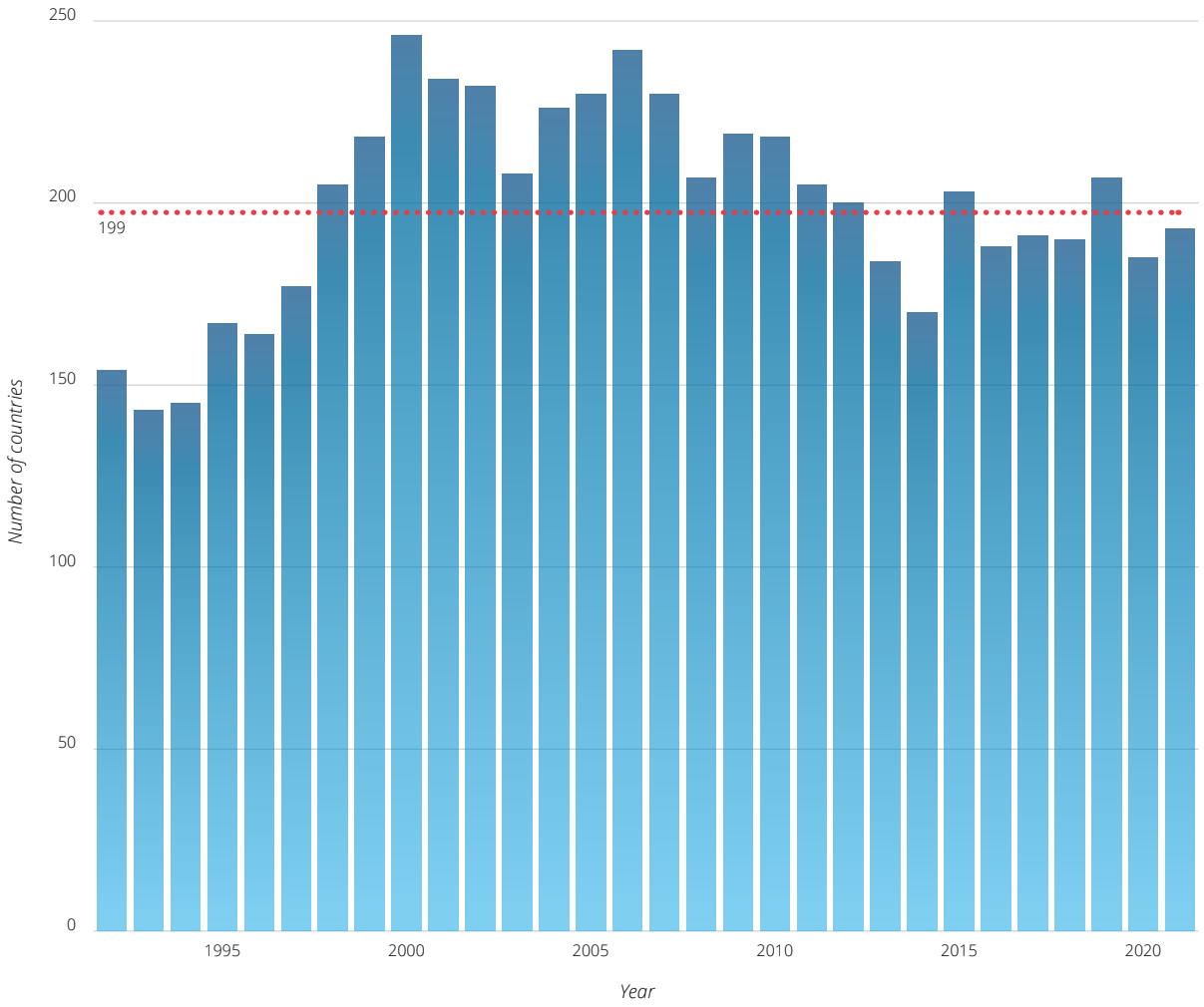


Source: EM-DAT

For the last 30 years, an average of 44 countries per year have been affected by simultaneous disasters at least once in that year. Similarly, the last 30 years have seen an average of 199 simultaneous disasters each year, much higher than previous decades. This high rate of simultaneous disasters remains clear despite considerable year-on-year variability.

This does not necessarily indicate the same population was affected, as disasters may occur in different regions of the country, particularly if its area is large. Nevertheless, simultaneous disasters are likely to impact a country's ability to respond.

Figure 8.17: Number of countries experiencing two or more simultaneous disasters at least once in a year, 1992–2021



Source: EM-DAT

This raises the question of whether the simultaneous disasters are hitting the same communities within each country. The data is often not detailed enough to make a determination, but there is some evidence. EM-DAT data indicates that, every year for the last 20 years, at least 20 of these countries were hit by two or more simultaneous disasters occuring in the same administrative sub-level. These pairs of disasters are likely to hit the same population, and to cause severe difficulties for humanitarian responders.

8.3.1 Overlapping disasters have more severe impacts

Intuitively, if two disasters occur simultaneously in the same place, each would be expected to have more impact than if they occurred in isolation. For example, response teams that were capable of handling the impacts of one disaster may find themselves overwhelmed by two. Likewise, communities with sufficient resilience to endure one disaster with minimal impacts may suffer severe harms when two disasters co-occur.

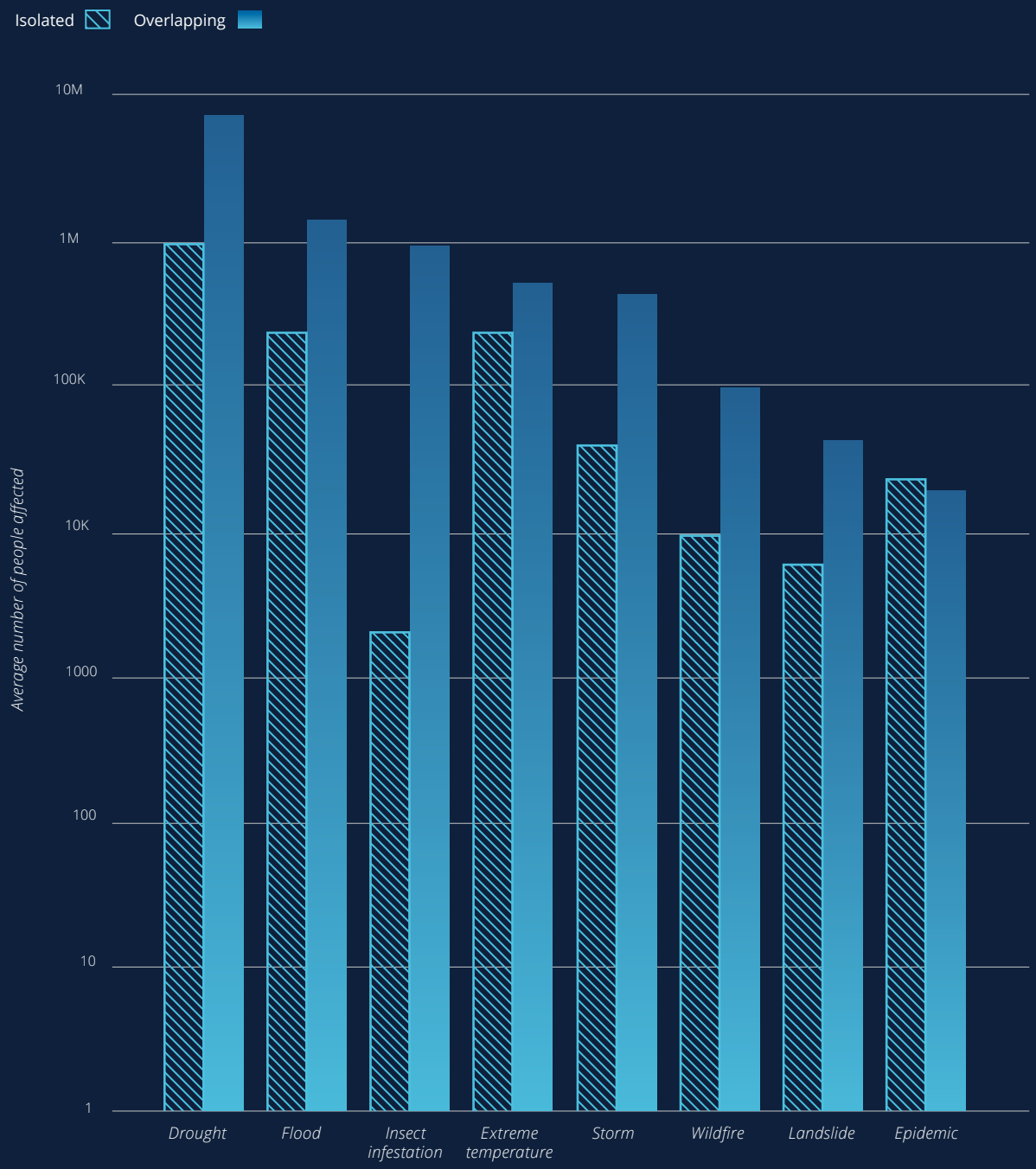
The disaster data offers some support for this. By looking over the last 60 years at the average number of affected people for any given disaster type, IFRC found that a disaster occurring simultaneously with another disaster in the same country often has more impact, both in terms of numbers of people affected and numbers of deaths.

In each analysis there is one exception: the data indicates that overlapping epidemics did not affect more people than isolated ones, and that overlapping storms did not kill more people than isolated ones. It is unclear why these two do not fit the pattern. However, it may be the result of incomplete data and/or statistical noise. The global disaster dataset is highly variable, so some unusual or contradictory results are to be expected from any analysis.

Furthermore, two caveats should be borne in mind. It has not been possible to control for these confounds using the available data.

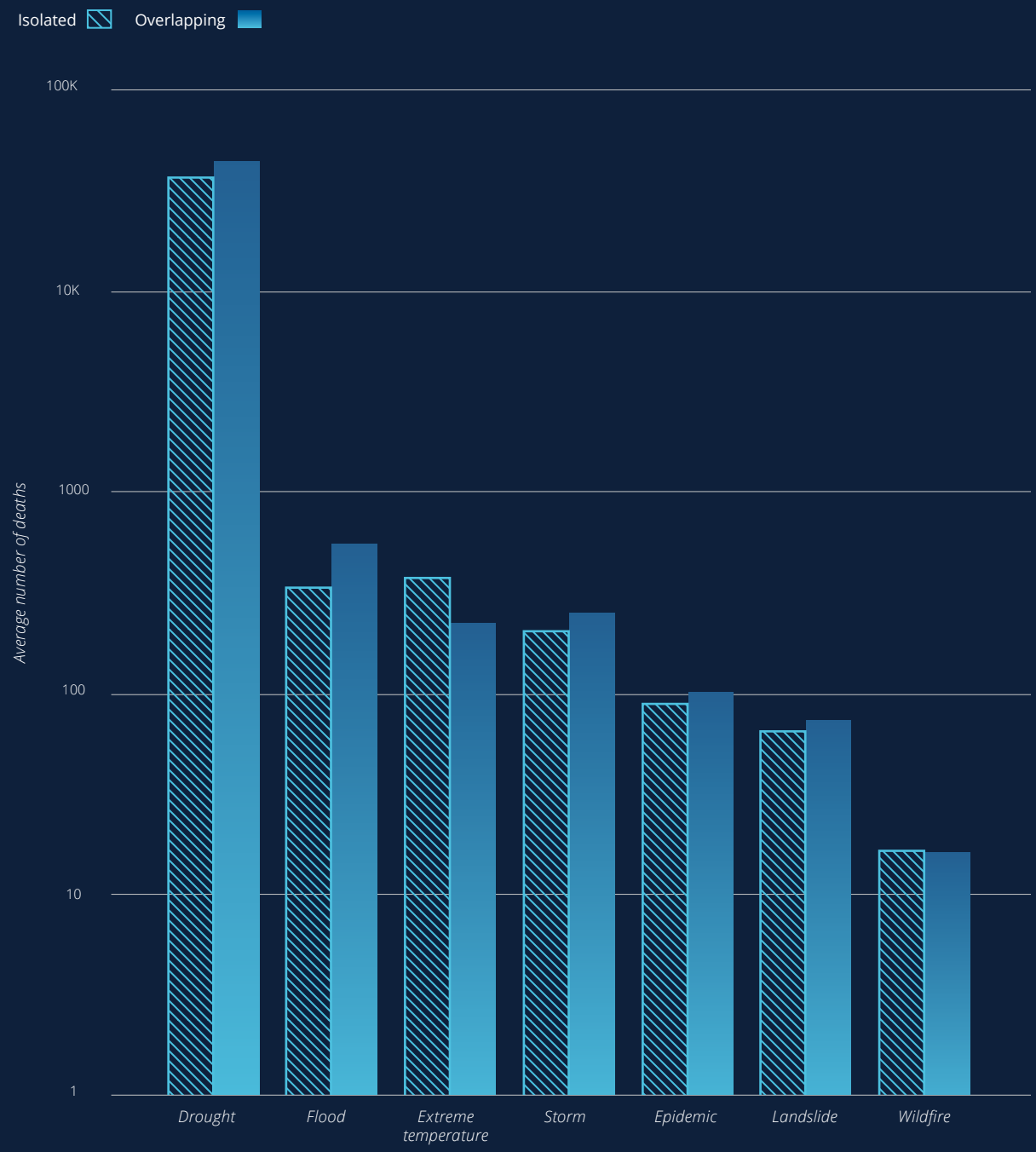
- First, disasters that occur over a longer period of time are more likely to overlap with other disasters, and are also more likely to affect a larger total number of people.
- Second, high-intensity events of the same type are also more likely to overlap due to seasonal fluctuations; for instance, the largest wildfires occur during summer and the largest storms following El Niño. In contrast, low-intensity events are more likely to be isolated.

Figure 8.18: Average number of people affected by different disaster types, isolated and overlapping with another disaster of any type



Source: EM-DAT
Note: Data is from the last 60 years.

Figure 8.19: Average number of people killed by different disaster types, isolated and overlapping with another disaster of any type



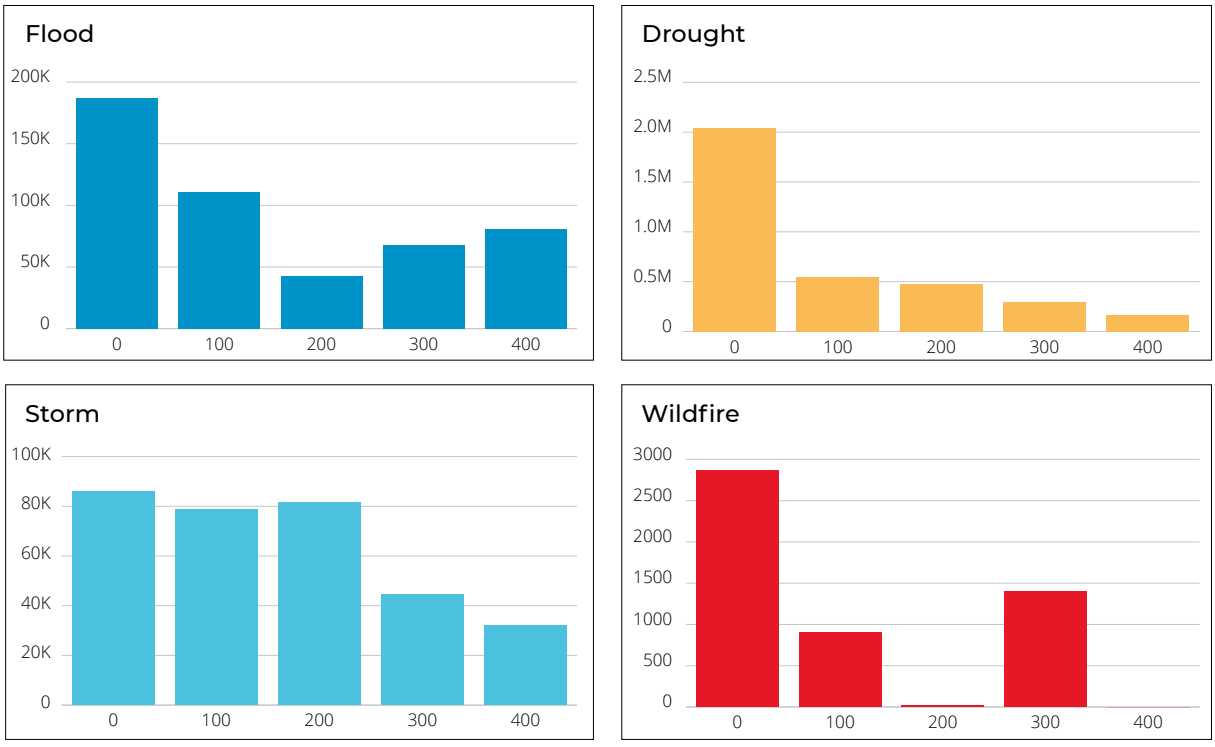
Source: EM-DAT
Note: Data is from the last 60 years.

8.3.2 Overlapping and sequential disasters in the same geographical area

We have seen that the impacts of disasters can be magnified if two or more occur in the same country at the same time, but that some countries have large geographical areas and therefore the disasters may not be physically close. In these analyses, we attempt to control for this confound. We do so by focusing on disasters that occur in the same first-level administrative division of a country, such as a province. Such disasters are more likely to be spatially close.

First, we look separately at climatic, hydrological and meteorological disasters. When these disasters occur in one first-level administrative division of a country, at the same time as another disaster or shortly after, more people are affected. This occurs regardless of the form the other disaster takes. The shorter the interval between the two disasters, the more significant the trend becomes. The analysis does not reveal why more people are affected.

Figure 8.20: Average number of people affected by flood, drought, storm and wildfire, by number of days since the previous disaster in the same first-level administrative region of a country

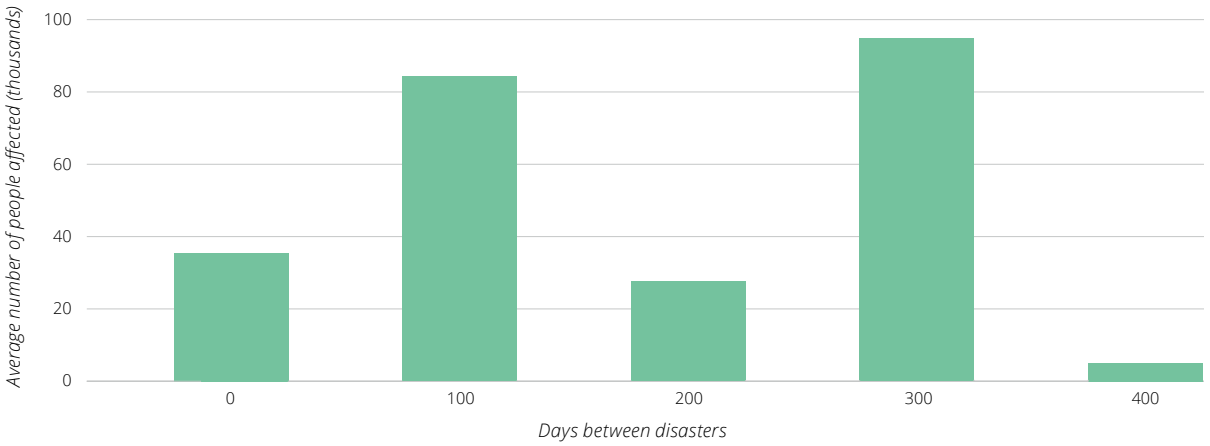


Source: EM-DAT

Notes: The analysis includes 2,452 disasters across 182 countries over 30 years. Time intervals are grouped by 100 days, with the right-most bar showing an interval of a full cycle of seasons. Disasters affect more people if they follow shortly after another disaster. The same pattern is seen for floods, droughts, storms and wildfires.

This trend is not universally observed. According to EM-DAT data, earthquakes do not affect the most people when they follow within 100 days of another disaster, but rather if the time interval is longer. At this time we do not have a clear explanation for this finding.

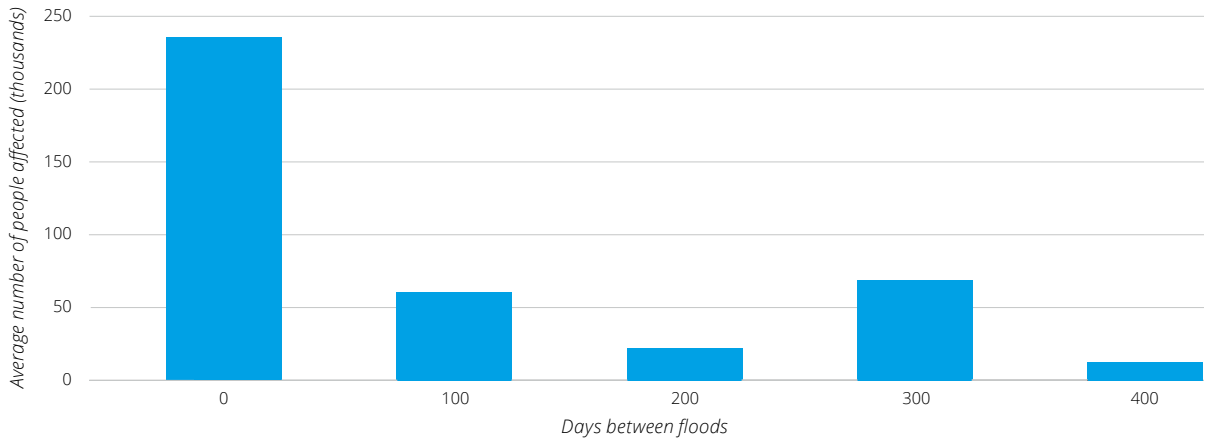
Figure 8.21: Average number of people affected by earthquake, by number of days since the previous disaster in the same first-level administrative region of a country



Source: EM-DAT
Note: Time intervals are grouped by 100 days, with the right-most bar showing an interval of a full cycle of seasons.

Finally, a follow-up analysis indicates that flood disasters are especially acute when they are preceded by another flood event, rather than any disaster type. This analysis suggests that floods occurring in rapid succession strongly potentiate each others' impacts.

Figure 8.22: Average number of people affected by flood, by duration since previous flood in the same first-level administrative region of a country



Source: EM-DAT

8.3.3 Disasters were associated with more people contracting COVID-19

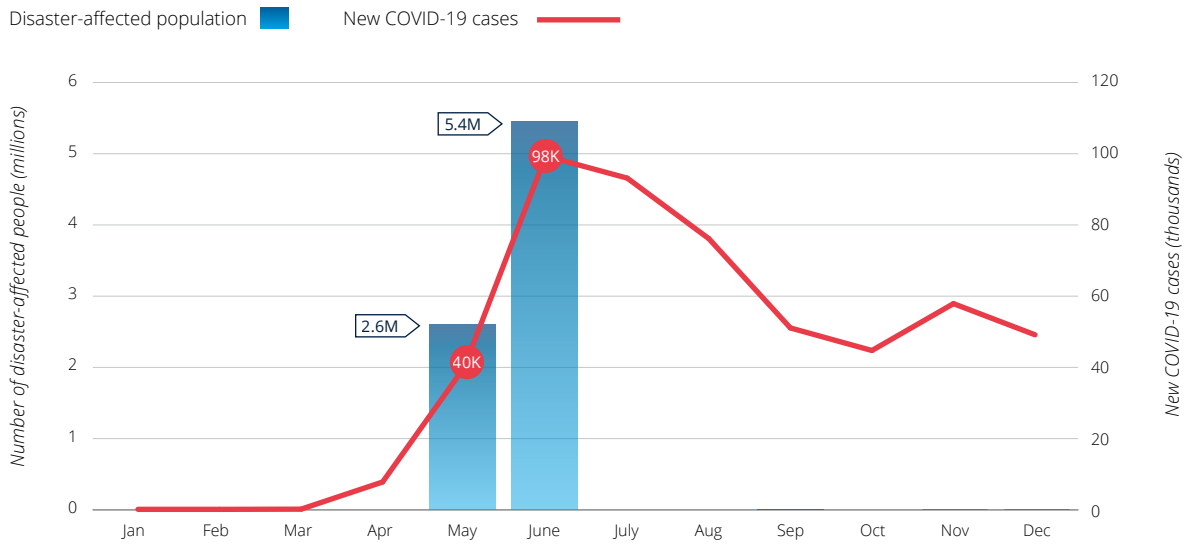
There is evidence that disasters sometimes exacerbated the COVID-19 pandemic. IFRC has identified multiple instances where the presence of a disaster was correlated with an increase in the number of people affected by COVID-19.

One such instance was observed in Bangladesh in 2020. The country was hit by Cyclone Amphan, a category 5 tropical cyclone, in May 2020 (Ellis-Petersen and Ratcliffe, 2020). There were also severe monsoon-related floods in June of that year (IFRC, 2021). The number of COVID-19 cases increased rapidly during this period, peaking in June before declining in the autumn.

A similar pattern was seen in India, where COVID-19 cases spiked in May 2021 at the time the country was struck by Cyclone Yaas (BBC News, 2021). Meanwhile, in Bolivia the pattern was observed twice. In January to February 2021, floods coincided with a rise in COVID-19 cases. A second flood in December of that year was followed by a peak in COVID-19 cases in January 2022 (ECPHAO, 2021). The Maldives and Tunisia also followed similar courses.

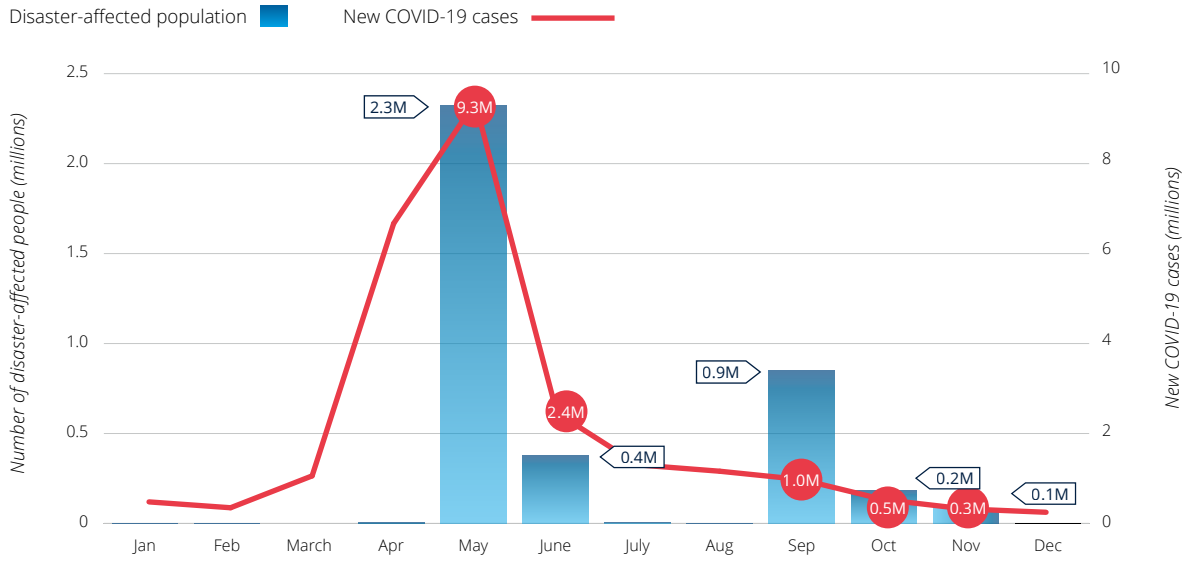
In contrast, the story played out differently in Tonga. The nation closed its borders in early 2020 to keep out the coronavirus. It was hit by Cyclone Harold on 6 April 2020, suffering significant damage, but remained free of COVID-19 throughout that year and the next. However, on 15 January 2022 the volcano Hunga Tonga-Hunga Ha'apai erupted explosively, causing widespread disruption. The country opened its borders to allow international aid to enter, and within weeks it saw a rapid rise in COVID-19 cases (BBC News, 2022).

Figure 8.23: Cases of COVID-19 spiked in Bangladesh in June 2020, when millions of people were affected by Cyclone Amphan in May and monsoon-related floods in June



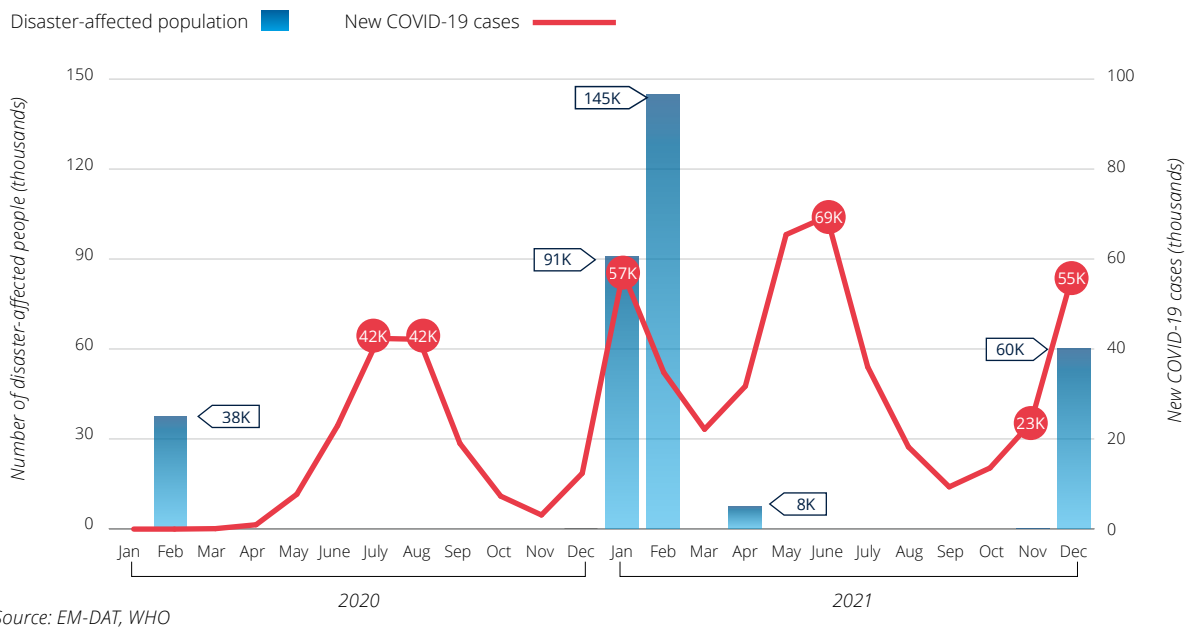
Source: EM-DAT, WHO

Figure 8.24: COVID-19 cases in India reached a peak when the country was impacted by Cyclone Yaas in May 2021



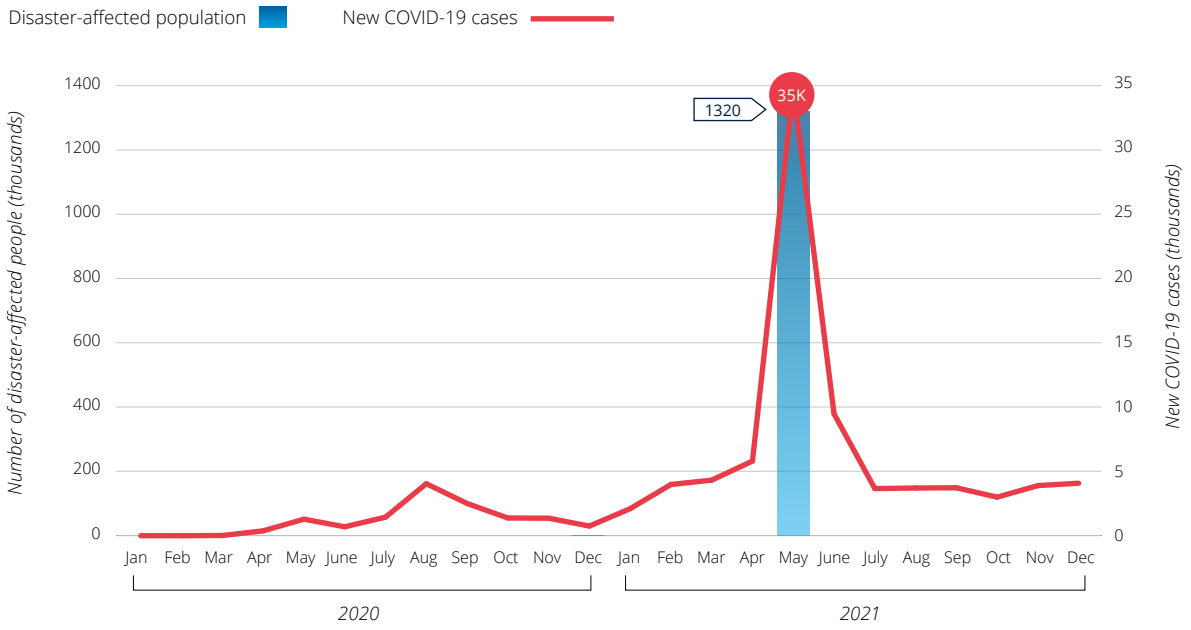
Source: EM-DAT, WHO

Figure 8.25: Repeated flooding events have struck Bolivia during the COVID-19 pandemic, in some cases coinciding with rises in COVID-19 case numbers



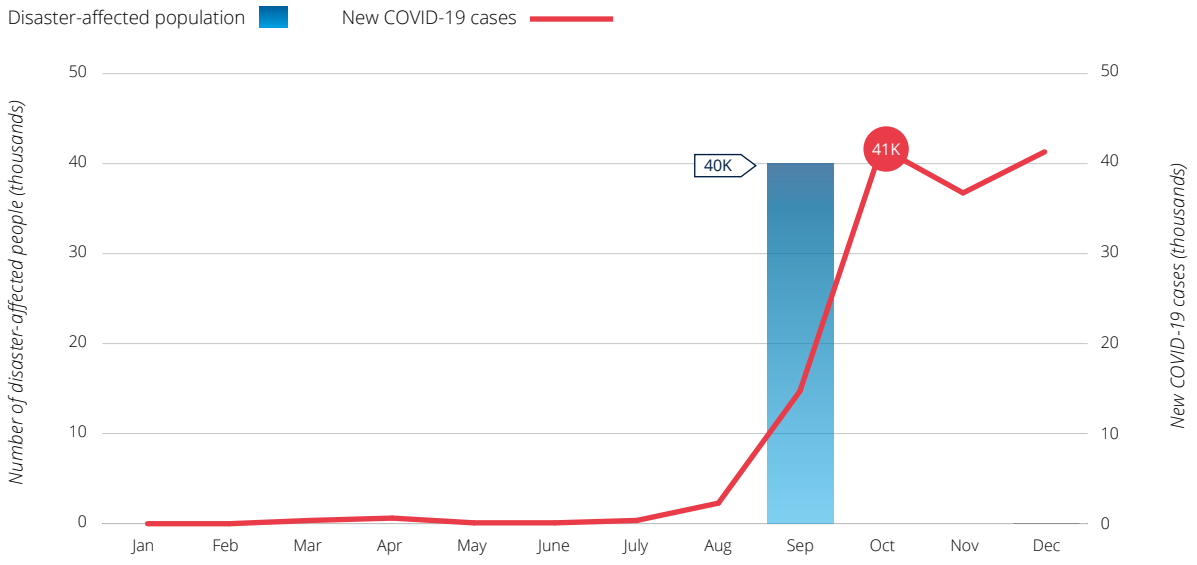
Source: EM-DAT, WHO

Figure 8.26: The Maldives saw its only spike in COVID-19 cases following Tropical Cyclone Tauktae on 16 May 2021



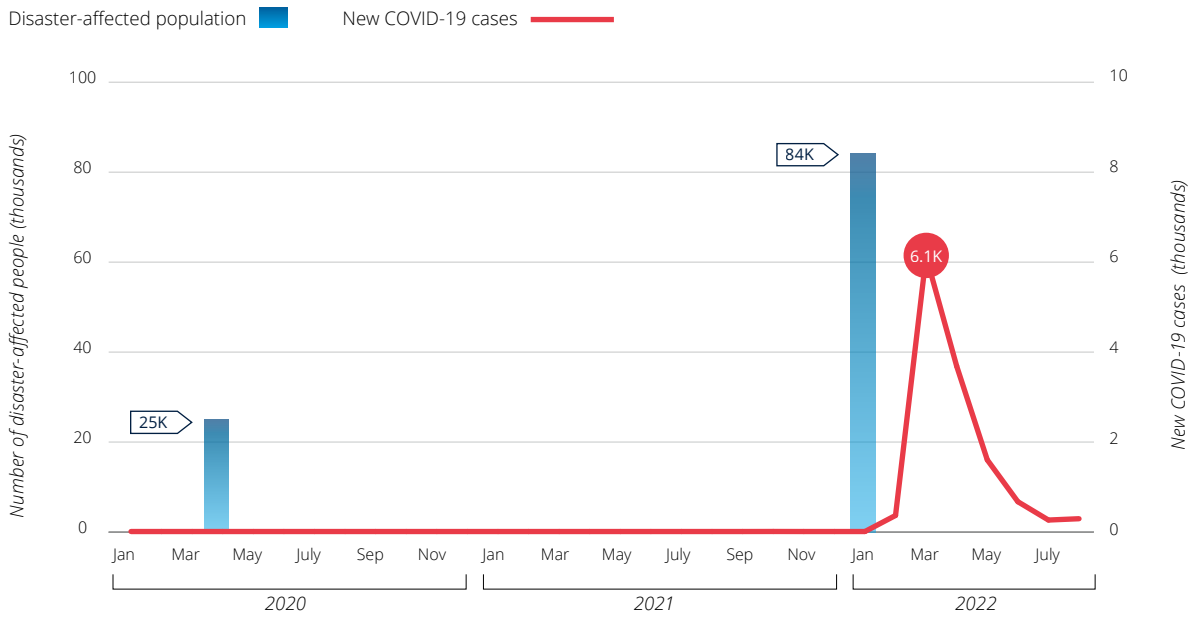
Source: EM-DAT, WHO

Figure 8.27: Tunisia only saw significant growth in COVID-19 cases after a flood on 5 September 2020



Source: EM-DAT, WHO

Figure 8.28: Tonga remained free of COVID-19 throughout 2020 and 2021, until international aid workers arrived in the wake of the eruption of Hunga Tonga-Hunga Ha'apai in January 2022



Source: EM-DAT, WHO

CONCLUSIONS

The COVID-19 pandemic stands out as the most severe disaster to strike humanity for many decades, and certainly in the 21st century. The number of deaths caused by COVID-19 since 2020 outstrips the fatalities from other non-conflict disasters from the last few decades by orders of magnitude.

Nevertheless, other disasters have continued to take place alongside COVID-19. In 2020–2021, Asia-Pacific was the most badly affected region on all measures: number of disasters, number of people affected, and number of deaths.

COVID-19 is also part of an overall trend in increasing hazards and more frequent disasters. The number of disasters occurring per year has increased over the last five decades. The proportion of these disasters caused by climate- and weather-related hazards has increased over the last few decades, based on those recorded in EM-DAT. There has also been an increase in the numbers of disease outbreaks and epidemics over the last 40 years, according to several studies. This increase is not observable in the EM-DAT data, but this is due to the database's limited representation of disease outbreaks. In contrast, the number of disasters caused by geological hazards has stayed broadly constant.

This rise in climate- and weather-related disasters, and in disease outbreaks, means disasters are increasingly overlapping in time and/or space, or occurring in rapid succession. Over the last 60 years there has been an increase in the number of instances of countries experiencing two or more disasters in the same year.

When disasters overlap or occur in rapid succession, they may exacerbate each other's impacts. There is evidence that disasters affect more people if they are closely preceded by another disaster, or if another disaster occurs at the same time in the same country – and especially if it occurs in the same first-level administrative region. Similarly, there are multiple instances where disasters triggered by natural hazards appear to have driven spikes in numbers of COVID-19 cases.

The sobering conclusion is that we now live in a multi-hazard world, in which communities will frequently be confronted with multiple hazards like disease outbreaks, floods and heatwaves. This poses a considerable preparedness challenge.

Main data sources used in this chapter

Hazard and impact data is taken mostly from EM-DAT (EM-DAT, no date). EM-DAT is the Emergency Events Database from the Centre for Research on the Epidemiology of Disasters at the Université Catholique de Louvain. It collects and compiles information on disasters from UN agencies, non-governmental organizations, insurance companies, research institutes as well as secondary data from press agencies. Using this data source facilitates a comparison of disasters through the same data collection methodology. EM-DAT data does not include war, conflict or conflict-related famine as disaster events. EM-DAT also does not include COVID-19 data.

Country populations were taken from the World Bank Databank, using the indicator 'Population, total' (World Bank Databank, no date). In all cases, we used 2021 populations. Population data was used to calculate ratios of affected people per capita.

Country income levels were taken from the World Bank's dataset on 'Lending Group (Income)' (World Bank Data Help Desk, no date).

COVID-19 numbers come from the World Health Organization (WHO) Coronavirus (COVID-19) Dashboard (WHO, no date). The dashboard presents official daily counts of COVID-19 cases, deaths and vaccine doses, as reported by countries, territories and areas.

Caution must be taken when interpreting all data presented. Differences are to be expected between information products published by WHO, national public health authorities, and other sources using different inclusion criteria and different data cut-off times. While steps are taken to ensure accuracy and reliability, all data are subject to continuous verification and change. All counts are subject to variations in case detection, definitions, laboratory testing, vaccination strategy, and reporting strategies.

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