INTERNATIONAL FEDERATION

1919-2019

THE COST OF DOING NOTHING

THE HUMANITARIAN PRICE OF CLIMATE CHANGE AND HOW IT CAN BE AVOIDED

Hurricane Dorian, Abaco, Northern Bahamas, September 2019
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The International Federation of Red Cross and Red Crescent Societies (IFRC) is the world's largest volunteer–based humanitarian network. With our 190 member National Red Cross and Red Crescent Societies worldwide, we are in every community reaching 160.7 million people annually through long–term services and development programmes, as well as 110 million people through disaster response and early recovery programmes. We act before, during and after disasters and health emergencies to meet the needs and improve the lives of vulnerable people. We do so with impartiality as to nationality, race, gender, religious beliefs, class and political opinions.

Our strength lies in our volunteer network, our community–based expertise and our independence and neutrality. We work to improve humanitarian standards, as partners in development, and in response to disasters. We persuade decision-makers to act at all times in the interests of vulnerable people. The result: we enable healthy and safe communities, reduce vulnerabilities, strengthen resilience and foster a culture of peace around the world.

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The cost of doing nothing – 2019

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Drought, Afghanistan, 2019
© Meer Abdullah, Afghan Red Crescent Society.

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Flooding, Norway, 2018
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Typhoon Yutu (Rosita), Philippines, 2018
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FOREWORD

Every day, I hear stories of the suffering caused by the humanitarian impacts of climate change in communities across the world. Red Cross and Red Crescent volunteers speak of parched landscapes after recurrent droughts, and families' crops, homes and livelihoods washed away by floods and cyclones. I hear of island communities under threat. Of needless deaths during heatwaves in major world cities.

Looking at this IFRC report, I think of this suffering, and I picture it rising by 50 per cent just over ten years from now. And then I picture it doubling by 2050.

> "There is clearly a very high cost of doing nothing. But there is no clear reason why 200 million people should be forced to pay it in 2050"

This is alarming enough. What is truly shocking is that the findings presented here do not include considerations of how the climate crisis may affect the drivers of conflict, or the potential future risk of increased epidemics and heatwaves. The true cost of doing nothing will likely be much higher than the estimates presented here.

There is clearly a very high cost of doing nothing. But there is no clear reason why 200 million people should be forced to pay it in 2050 – because these projections also show that there is a chance to do something powerful, today. This possible future – one of escalating suffering, shattered communities, ballooning costs and thwarted potential – does not have to come to pass.

No one organization, network or government can end the climate crisis overnight, but we can act together to stop a climate catastrophe from engulfing hundreds of millions of lives in disaster after disaster. We can do this by ensuring that resources and expertise are put where they are needed most – into adaptation measures that extend to the communities most at risk.

We all know the cost of doing nothing is far, far too high. So now is the time to act, knowing that through doing something we can save the lives, livelihoods and dignity of millions of people.

Francesco Rocca, President
International Federation of Red Cross
and Red Crescent Societies

Cyclone Idai, Mozambique, 2019
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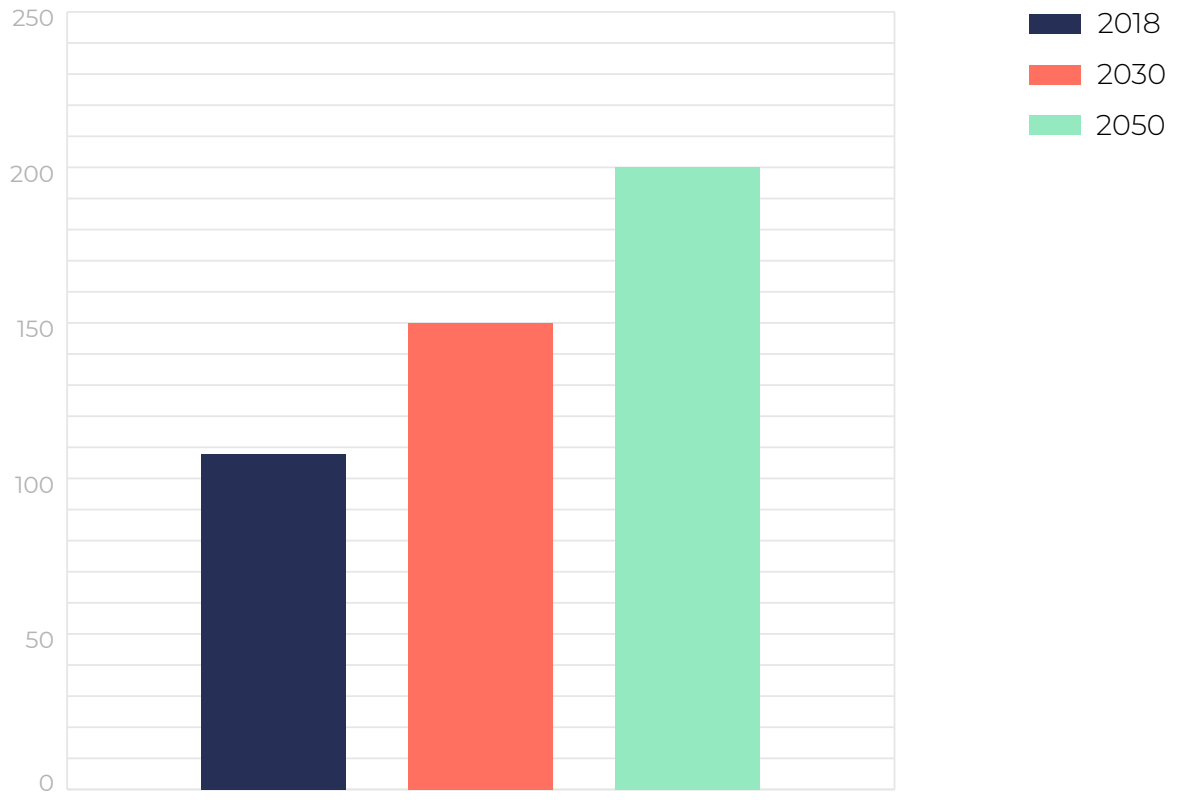
EXECUTIVE SUMMARY

Figure 1. **Increase of population in need of humanitarian assistance as a result of climate-related disasters by 2030 and 2050 (under pessimistic scenario)**



By 2050, 200 million people every year could need international humanitarian aid as a result of a cruel combination 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 per cent.

If we let the number of people in need increase, there will be a hefty price tag. Today, resources are already insufficient to provide very basic support to everyone who needs assistance after climate-related disasters. Depending on the amount of support provided and the source of cost estimates, meeting current needs costs international funders $3.5 to $12 billion per year. **By 2030, this funding requirement could balloon to $20 billion per year.**

These figures are the result of an analysis by the International Federation of Red Cross and Red Crescent Societies (IFRC) and leading climate scientists and economists. They illustrate a potential **cost of doing nothing** to help societies adapt to climate change.

While there is a clear cost of doing nothing, there is also a chance to do something. While we cannot prevent storms, cyclones, heat waves and other climate and weather-related hazards from happening, we can do something about the impacts they have. There are measures that can be introduced to make development more inclusive, and to better reduce the risk of and manage climate-related disasters. It is crucial to invest in climate adaptation, and to build resilience in the communities, countries, and regions at risk. By helping communities and countries to prepare and adapt, the number of people in need of humanitarian assistance will drop, along with the amount of money needed by international humanitarian organizations. Mitigating climate change by reducing carbon emissions is critical. However, even if we were to cut our emissions to zero tomorrow, the world would continue to warm for decades, and sea levels will rise for many centuries. Therefore, as well as mitigating climate change, adapting to it is indispensable if we are to continue to thrive in a warming world.

With determined and ambitious action, **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 per cent compared to today**. These differences show that rapid, inclusive, and climate and disaster-risk informed development can significantly reduce both climate change impacts and the cost of humanitarian aid. More importantly, by protecting people from the predictable and severe consequences of climate change, unnecessary and unacceptable human suffering will be reduced, and countless lives will be saved.

This analysis is a first take on a complex issue. Its objective is to highlight the importance of the problem, but there is uncertainty around the precise numbers. In some ways they represent a pessimistic scenario of rapid climate change, insufficient investments in adaptation, and unequal development patterns.

The estimates produced are based on scenarios of how the world will evolve in the future, in terms of economic growth, inequality, demography, and climate change. Uncertainty on these changes, and on future policy choices, translates into uncertainty about future humanitarian needs.

However, even with these considerations taken into account, these estimates are also likely to be underestimates. This is because many factors that will contribute to future humanitarian needs and costs have been omitted. For example, the analysis omits the cost of long-term recovery from disasters, focusing instead only on immediate relief. It also does not account for the potential added cost of responding to climate shocks in areas affected by conflict. Furthermore, these estimates focus on international humanitarian assistance, and do not include the large financial and human costs of disasters which are managed domestically by governments, insurance companies and other resources. Consequently, **the real cost of doing nothing is likely to be even higher than the estimates presented here**.

KEY FINDINGS

ESCALATING SUFFERING

The number of people affected by climate change and needing international humanitarian assistance could **almost double** by 2050.

BALLOONING COSTS

Under the most pessimistic scenario presented in this report, the price of responding to rising needs as a result of climate change will rise from between 3.5-12 billion US dollars today to 20 billion US dollars per year by 2030.

CLIMATE CHANGE IS A DOUBLE THREAT

Climate change poses a unique double threat to vulnerable communities:
It leads to more frequent, intense and unpredictable extreme weather events like floods, droughts and extreme heat
Its macroeconomic impacts could reduce incomes and resilience among the world's poorest, leaving them less able to manage shocks and more reliant on international assistance.
The findings presented here are likely to be underestimates. This report does not consider how climate change may affect the drivers of conflict, or the potential future impacts and cost of epidemics or heatwaves. **The true cost of doing nothing could be much higher.**
There is still time to do something. This report shows that investment in climate adaptation can greatly reduce the impacts of climate change, especially when adaptation measures prioritize the poorest and most vulnerable. The report proposes actions in three areas:

- ## REDUCE LONG-TERM VULNERABILITY AND EXPOSURE

  Stronger buildings, more resilient infrastructure, and dedicated infrastructure like dikes and pumping stations can protect people and economies and reduce the likelihood of a climate hazard becoming a climate disaster.

- ## ANTICIPATE DISASTERS, IMPROVE EARLY WARNING AND STRENGTHEN EMERGENCY RESPONSE

  There will continue to be a need to respond to disasters, but the way aid groups and governments do this can be drastically improved. Two points are crucial: more emphasis on early warning systems that reach vulnerable communities, and new, creative mechanisms for financing humanitarian response before a disaster strikes.

- ## REBUILD AND REPAIR WITH THE NEXT EMERGENCY IN MIND

  The steps that are taken after a climate emergency can greatly reduce the impact of future hazards. Taken together, **these measures will save money and, most importantly, save lives and reduce suffering for millions of people**.

Flooding, Bangladesh, 2017
© Aminul Shawon – Bangladesh Red Crescent Society

CLIMATE CHANGE IS A HUMANITARIAN PROBLEM

The climate of our planet is warming rapidly as a result of greenhouse gas emissions from fossil fuel burning, deforestation and other human activities. The global temperature is estimated to have risen 1.1 °C since 1850, and by 2100 the temperature rise could well be 4 °C or more.

The warming has knock-on effects for every aspect of our weather, which impinges on society. Most obviously, the weather is getting hotter. On 25 July 2019, Paris experienced a record-breaking temperature of 42.6 °C.[1] The Greenland ice sheet and parts of the Antarctic ice sheet are melting, a trend with global consequences including sea level rise. A warmer world is also a world with greater climactic extremes, so many regions are seeing more frequent and intense rainfall as well as drought, sometimes in close succession or proximity. When heat and dry weather combine, wildfires become more frequent and more intense.

Climate change is also affecting extreme weather events like hurricanes. The most dangerous events are becoming more likely and recurring more often. For example, at the beginning of September 2019, Hurricane Dorian devastated communities across the northern Bahamas. Within days, scientists were linking this storm – the strongest to ever make landfall – with climate change.[2] In 2017, Hurricane Harvey caused widespread and catastrophic flooding in Houston, Texas. A subsequent analysis by the World Weather Attribution partnership found that climate change had made this severe storm three times more likely, compared to the early 1900s.[3] Similarly, the Peru floods of 2017 affected over 1.2 million people.[4] It has been estimated that they were made at least 1.5 times more likely by climate change.[5]

A more extreme and unstable climate increases the urgency of inclusive development and effective humanitarian relief, as many events pose a direct risk to life and limb, to food and water sources and to livelihoods. More insidiously, climate change also threatens agriculture and thus food security. Droughts, heatwaves and violent storms can all destroy crops and kill livestock, potentially causing food shortages and loss of livelihoods that can exacerbate malnutrition, political insecurity, and the risk of famine. In the long term, cultivation of traditional crops may become untenable in some areas, for instance if a region becomes more prone to storms and hurricanes, or the soil becomes salty due to rising seas.

All together, these weather events create an obstacle to the provision of basic services such as health care, electricity, water and sanitation.[6] They affect people's health, productivity, and well-being, and they slow down development and the sustainable eradication of poverty.[7]

However, severe hunger, collapsed buildings, and lost livelihoods are not "natural disasters". Instead, they represent our failure as a global community to prepare for extreme weather events and to adapt to the changing environment. Well-adapted and resilient societies regularly come through extreme weather events with minimal deaths and property damage. For example, while a major drought is always a challenge, even the most severe drought need not lead to severe hunger, let alone famine, in a resilient society. In most cases, people with access to adequate support – either from friends and family, financial tools, or social protection systems – can recover quickly from disasters.

The challenge is for societies to adapt to the changing climate, so that when the next climate-driven threat arrives they are prepared for it. Governments and aid agencies can play a crucial role by saving lives in the immediate aftermath of a disaster, and by distributing food, water and medical assistance. But in the face of the humanitarian toll of climate change, this is only a band-aid. What is needed is a cost-effective long-term solution. Investing in adaptation measures now could save billions on humanitarian aid later.

THE RED CROSS RED CRESCENT NETWORK AND CLIMATE CHANGE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The International Federation of Red Cross and Red Crescent Societies (IFRC) is the world's largest humanitarian network. Comprised of 190 National Red Cross and Red Crescent Societies, the IFRC carries out relief operations to assist people affected by disasters and crises.

The IFRC cannot help everyone affected by a disaster, so it focuses on the most vulnerable people: those who cannot help themselves and are unlikely to receive help from other sources. This typically includes women and children, people with disabilities, elderly people, marginalized groups such as migrants, people living in extreme poverty, and communities that are difficult to reach. In 2017 alone, National Red Cross and Red Crescent Societies supported nearly 49 million people with disaster response and early recovery assistance.[8]

Alongside this rapid-response aid, the IFRC's members help countries prepare for and respond to climate change, including adapting to, and reducing risk, in the long term. In 2017, an estimated 52 million people were reached with programmes designed to reduce climate-related risks.[9]

To support these efforts, the IFRC has established a Climate Centre to provide knowledge and advice on climate-smart practices to the entire Red Cross and Red Crescent network.

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Tornadoes in Ottawa-Gatineau, Canada, 2018
© Canadian Red Cross

AID WILL COST MORE IN A WARMER WORLD

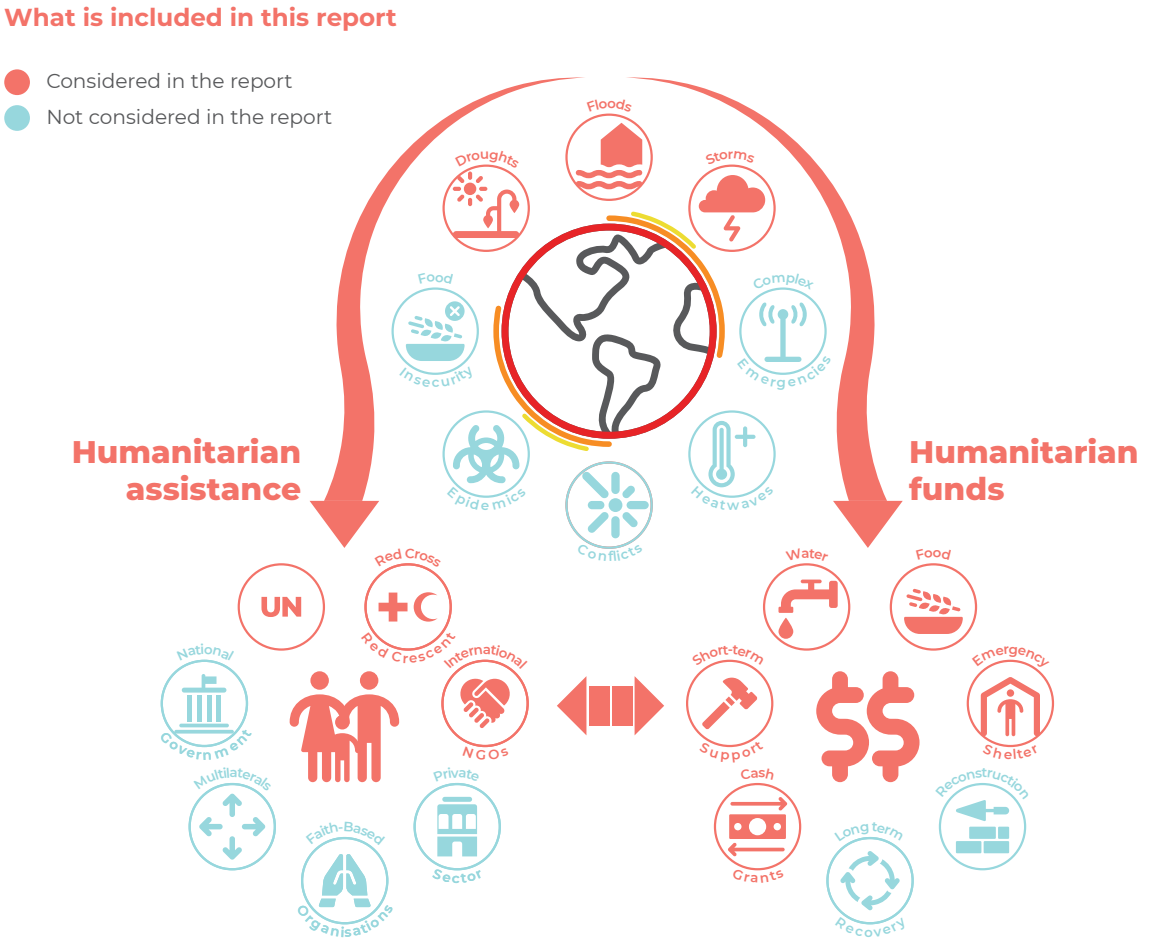
While not all people negatively affected by climate shocks will need international humanitarian assistance, many will. The many harmful effects of climate change will mean more people around the world will need international humanitarian aid every year. There is also a risk that intensifying shocks push affected people into poverty or trap them in poverty when they may otherwise have escaped. As a result, the amount of money needed by aid agencies like the IFRC will increase.

To estimate the increased costs, the IFRC and the Red Cross Red Crescent Climate Centre have used the methodology and data from the World Bank's *Shock Waves* report into the effects of climate change on poverty.[1] This 2015 report demonstrated both that climate change is a significant obstacle to the eradication of poverty, and that effective, inclusive development helps people to escape poverty even as climate change bites.

UNDERLYING ASSUMPTIONS

The new analysis examines three time periods: today (represented by 2018), 2030 and 2050. It assumes a business-as-usual climate future in which greenhouse gas emissions continue rising, temperatures keep going up, and the other impacts of climate change continue to increase. The analysis also assumes that demographic and economic trends will continue but uses two different scenarios for how things will change in the future.

One scenario (SSP5) assumes rapid and inclusive growth in income and slow population growth, while the other (SSP4) assumes slower growth and higher inequality, and faster population growth. A larger population implies that there will be more people living in disaster-prone areas, so more at risk from any given disaster. However, alleviating global poverty partially mitigates the increased risk: people with greater economic resources are at reduced risk in disasters.



PER-CAPITA COST OF ASSISTANCE

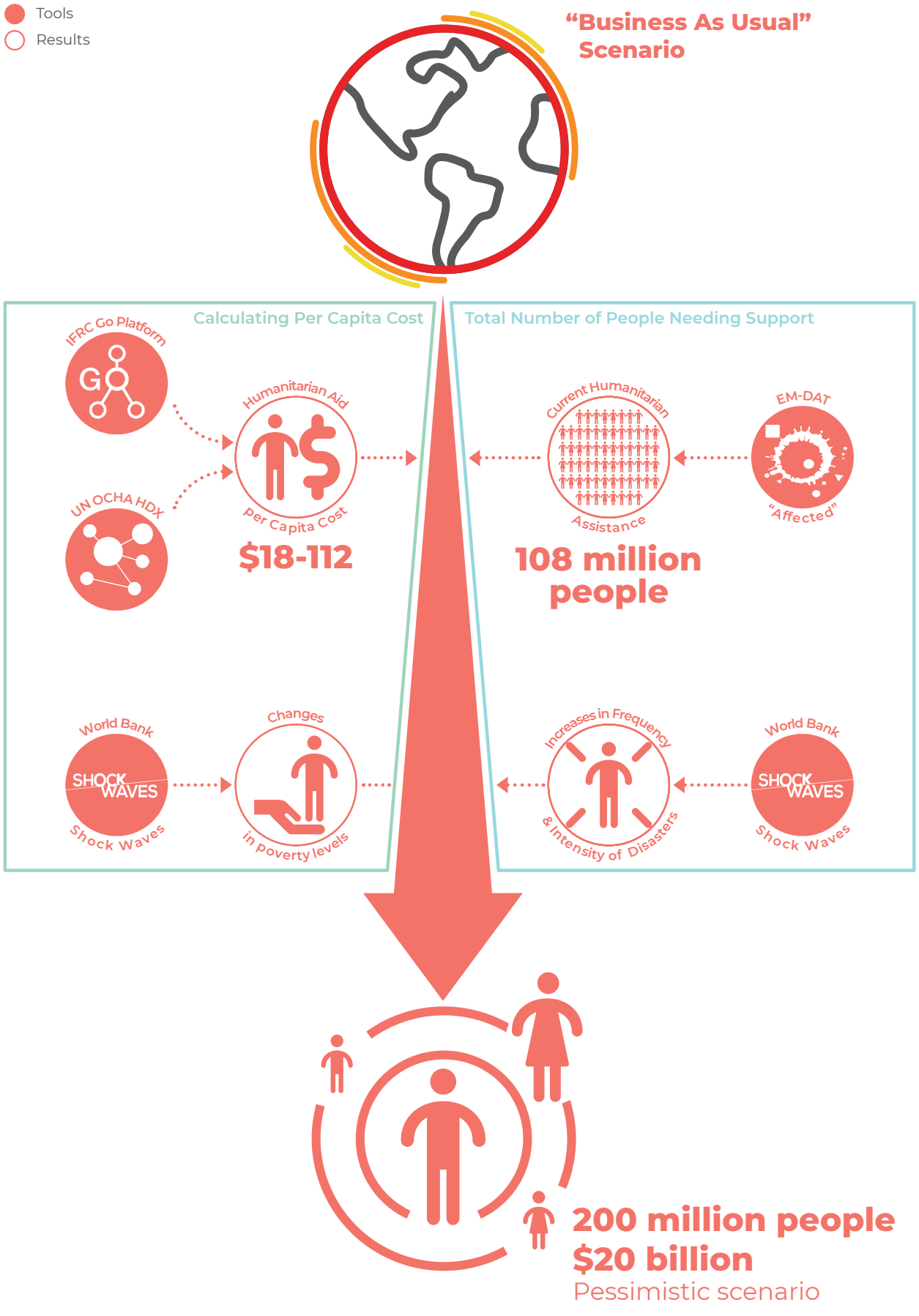
The analysis first estimates the per-capita cost to international funders of supplying basic emergency humanitarian aid to people affected by climate-related disasters. Unfortunately, there is not yet a central, standardized database that records how the humanitarian sector spends money for individual disaster events. Our analysis identified two ways to estimate the per-capita cost.

First, the most complete data set is the IFRC's GO Platform, which tracks how the IFRC and its member National Societies respond to different emergencies. Based on IFRC data, **it costs between 18 US dollars and 61 US dollars in 2018 prices to help each affected person**, depending on the income level of the affected country. However, this is likely an underestimate, as the dataset has only limited data on high-income countries.

Furthermore, most IFRC-backed humanitarian support focuses on addressing only the most pressing, short-term emergency needs. Estimates of full costs at the household level are available in the World Bank's 2017 *Unbreakable* report.[2] They tend to be many times larger than this value but extend beyond the remit of most definitions of humanitarian aid.

Second, this study modelled the per-capita amount spent by the UN and other agencies that work under the Consolidated Appeal process. Our analysis suggests a **per-capita cost of closer to 112 US dollars** (see methodology appendix for more details). Given the constraints of this analysis, it is not possible to make a direct comparison between Red Cross and UN per-capita costs.

Calculating the Cost of Doing Nothing



NUMBER OF PEOPLE AFFECTED BY CLIMATE-RELATED DISASTERS

To determine the annual humanitarian funding need, the two estimates of per-capita cost of aid were then combined with an estimate of the number of people in need of emergency aid every year due to climate-related disasters: both now and in the future.

An estimate of the number of people affected by climate-related disasters every year was obtained from the EMergency events DATabase (EM-DAT), run by the Centre for Research on the Epidemiology of Disasters (CRED)[3]. Over the past decade, **an average of 206 million people were affected annually by storms, floods, droughts and wildfires**.

To understand how many of these people likely need humanitarian assistance, the total was reduced to only include people who have an income lower than 10 US dollars per day. Multiple studies suggest that people below 10 US dollars per day are vulnerable to falling back in poverty in the event of a shock.[4] Therefore, it was assumed that people below this threshold do not have the resources needed to cope with a shock, such as savings and insurance, or sufficient support from friends, family or governments. People above the threshold are less likely to fall into poverty, although of course they may still be severely affected in other ways.

The number of people below 10 US dolars per day is estimated using the Global Monitoring Database, a harmonized collection of the latest income and expenditures surveys from some 140 countries.[5] This leads to an estimate of **108 million people in need of external support every year**. Because the $10/day threshold is a source of uncertainty, the methodological annex provides a sensitivity analysis using a $6/day threshold. While this lower threshold reduces the number of people in need, it makes little difference to the relative increase in need due to climate change.

NUMBER OF PEOPLE NEEDING INTERNATIONAL HUMANITARIAN ASSISTANCE

The analysis then models how many more people will be affected by natural disasters in the future, and how many of them will be unable to cope and recover without external assistance, beyond what their governments, community and local organizations can provide.[6] There are two factors that will drive the need for humanitarian aid in the future.

First, low-income people are the most vulnerable to disasters – yet change will affect people's incomes and thus the number of vulnerable people. For example, increased heat will limit people's ability to work. While economic growth will reduce the number of people who need external humanitarian assistance, climate change is expected to increase this number by slowing economic growth and poverty reduction.[7]

Second, climate change will affect the number of people exposed to natural hazards every year, by making certain kinds of climate- and weather-related hazards more

likely. In particular, it makes extreme weather events like storms and hurricanes variously more frequent, more intense, or both. If a region experiences more frequent floods or finds that its hurricanes are on average more intense, the people living there are more likely to be affected. The result is that a greater fraction of the global population will be affected by climate-related disasters every year.

CREATING SCENARIOS: THE COST OF DOING NOTHING

We combine these two processes into a set of scenarios, so that we can explore different possibilities for how humanitarian needs will evolve in the future, depending on socioeconomic trends and policy choices. We use these scenarios to estimate how many people will be affected by a climate-related disaster each year, and how many of them will be vulnerable enough to require humanitarian assistance. The results offer a range of drastically different futures, depending largely on our choices today.

In the two most optimistic scenarios, the need for external, international humanitarian assistance virtually disappears by 2050. This occurs even if the number of people affected by disasters increases, because households and economies become more self-sufficient as their income increases. Of course, this is based on extreme assumptions: rapid and inclusive economic growth, with a parallel improvement in the capacity and willingness of government and local actors to provide support to affected populations, and limited climate change. Furthermore, if countries are constantly dealing with disasters due to climate change, that is still a form of harm. Nevertheless, scenarios can be built in which almost all countries can manage climate-related disasters on their own by 2050, even with climate change.

In the most pessimistic scenario, the picture is very different. **The number of people in need annually increases considerably by 2030 (an increase of 66 per cent) and almost doubles by 2050 (an increase of 85 per cent)**. In this scenario, economic growth is not fast enough to compensate for the effect of climate change on the number of people affected by natural hazards every year. This result highlights that the impacts of climate change on human well-being depend as much on the socioeconomic context as on the physical impacts of climate change themselves.

These changes lead to significant changes in the relative cost of humanitarian aid. Total annual costs decrease in most scenarios due to economic growth lifting people out of poverty. However, **in the pessimistic scenario there is a large increase in cost: by 35 per cent in 2030 and over 50 per cent in 2050**. Most of the increase takes place in low-income countries, where the increase in cost exceeds 350 per cent in the pessimistic scenario (see appendix for more on income distributions).

Figure 1 isolates the expected impact of climate change on the number of people in need of humanitarian assistance due to climate-related disasters, and the corresponding increase in humanitarian cost (relative to present need). Climate change is expected to increase both the need for and the cost of aid in all baseline scenarios. However, the size of the increase depends greatly on our societal choices. **In 2030, in the optimistic scenario,** which assumes rapid and inclusive economic growth, **climate change increases the number of people in need of assistance annually by 21 million, with total additional cost equal to 15 per cent of current needs.**

In the most pessimistic scenario, by contrast, climate change increases the population in need of humanitarian aid every year by over 50 million, with expected costs equal to **40 per cent** of present needs. The most significant factor driving up the cost is the rise in the frequency and intensity of disasters, in interaction with slow and unequal development.

Figure 2. **Impact of climate change on population in need of humanitarian assistance (millions of people)**

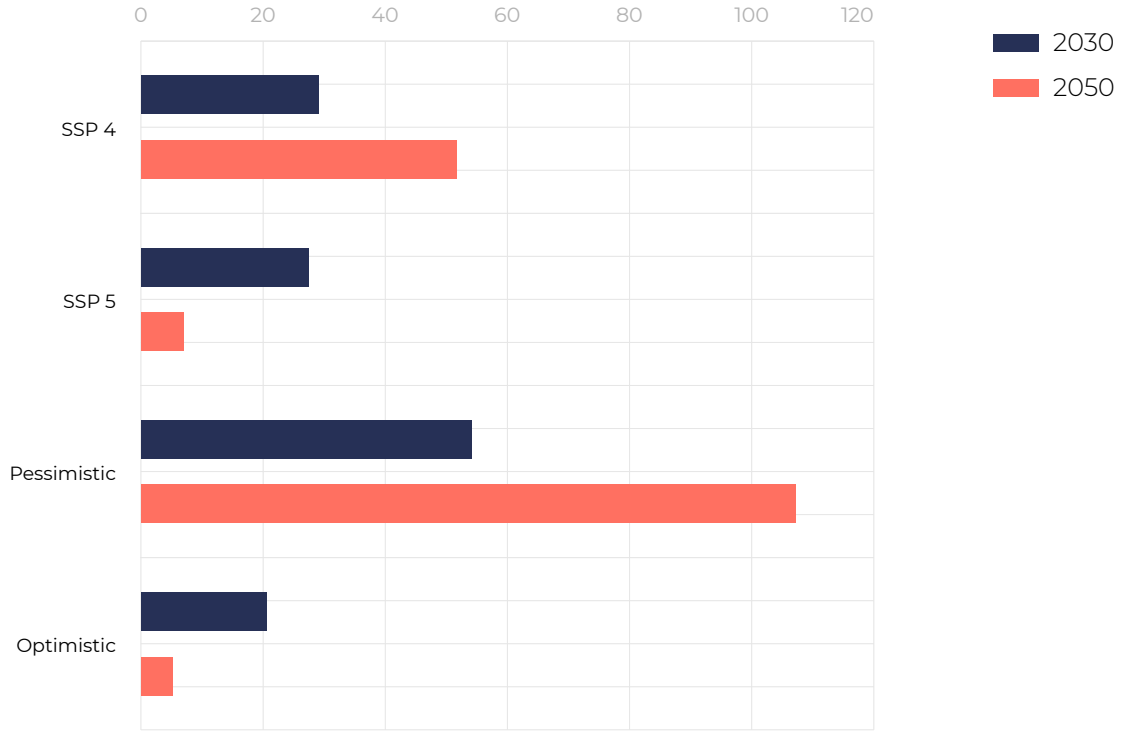
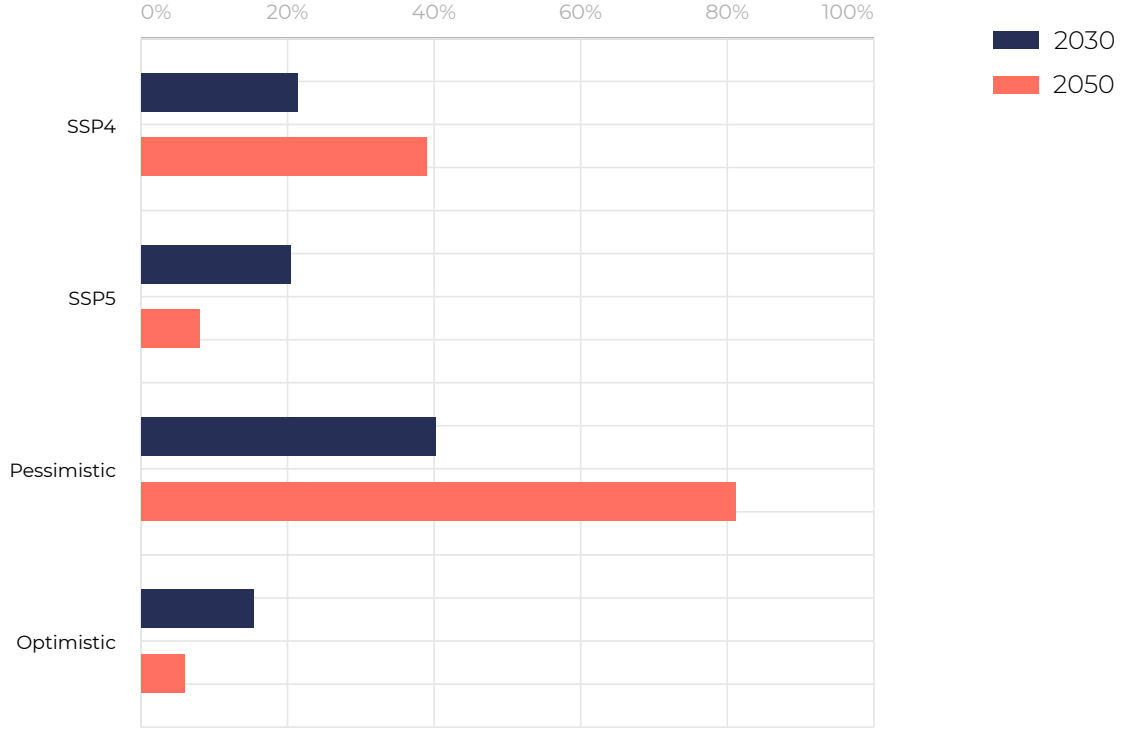


Figure 3. **Impact of climate change on annual humanitarian costs (expressed as a percentage of present need) in 2030 and 2050 in the four scenarios**



Finally, the total annual cost of delivering emergency humanitarian aid to the affected populations is estimated in US dollars (against 2018 values). Translating the relative increase shown in Figure 1 into a dollar amount is not straightforward, due to the large uncertainty in the unit cost of helping one individual. Based on the IFRC and UN estimates made earlier, the additional needs due to climate change in 2030 could range between **$500 million** (optimistic scenario and IFRC costs) and **$6 billion** (pessimistic scenario and $112 unit cost).

Crucially, these estimates of high future costs are likely to be highly conservative, for four reasons.

First, it was not possible to factor in many disasters that are exacerbated by climate change, as the causal relationships are extremely complex (see chapter 1). These omitted disasters include heatwaves, landslides, tsunamis (exacerbated by sea level rise) and epidemics of insect-borne disease (some of which are temperature-dependent). The analysis also does not include tipping points in the climate system. Rather than attempt a rough estimate of the significance of these effects, they have simply been omitted.

Second, conflicts in places like Syria and Yemen are significant contributors to the overall numbers affected by humanitarian crises. These crises are not directly caused by climate change, but climate impacts like drought can act as a threat multiplier by reducing people's ability to cope with the conflict. Furthermore, climate change related impacts may exacerbate conflict, for example by displacing populations. Perhaps most importantly, responding to climate shocks in areas affected by conflict is complex and costly. None of these effects are simulated here, so the impacts of conflict have simply been omitted. Future studies will need to clarify the size of its impacts on the funding required for humanitarian aid.

Third, as discussed, there is a question mark over the per-capita cost of humanitarian aid. There are major gaps in the data collected by the broader humanitarian sector: a problem aid agencies urgently need to address. There is also evidence that even now many more people should receive more substantial forms of assistance.[8] Future studies will need to clarify the degree of aid required by different people affected by different disasters. This analysis uses lower-end estimates of the per-capita cost, so the resulting estimates of future humanitarian cost are likely to be highly conservative.

Fourth, these numbers have focused on international humanitarian need. However, the true humanitarian cost of doing nothing also includes the costs borne by individuals, communities and national governments. Although these costs never reach an international appeal, they are still significant in their own right and *en masse*. They occur in high, middle and low-income countries and include both quantifiable impacts, economic impact and infrastructure damage, as well as unquantifiable costs such as loss of life.

Nevertheless, even with these caveats, climate change has the potential to significantly increase both the number of people at risk from disasters and the international cost of helping them. The good news is that much of this harm can be avoided by acting now.

HEATWAVES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Climate change is causing more frequent intense heatwaves.[9] These spells of abnormally hot weather can lead to excess deaths due to exacerbation of underlying health conditions like heart disease and respiratory illness, particularly among vulnerable groups such as the elderly. For example, it is believed that more than 70,000 people died as a result of historic heatwaves that affected large swathes of Europe in 2003.[10] In 2019, the French health ministry estimated 1,435 excess deaths resulting from two heatwaves in June-July and the Dutch national statistics agency estimated more than 400 excess deaths in a July 2019 heatwave.[11] Despite efforts to reduce heatwave risks in both countries, which have led to far fewer deaths overall, the humanitarian impacts of heatwaves remain high. Cities are especially prone because they are built of materials like concrete that retain heat, making them hotter than the surrounding countryside.

The costs incurred by events like those summarized here are primarily born by national governments and domestic responders. As a result, it is not yet possible to quantify the humanitarian aid required to handle the escalating heatwave threat. For this reason, heatwaves have been omitted from the model used for this report. The estimated costs of humanitarian aid in 2030 and 2050 are thus conservative figures.

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2 Hallegatte, Stephane; Vogt-Schilb, Adrien; Bangalore, Mook; Rozenberg, Julie. 2017. *Unbreakable: Building the Resilience of the Poor in the Face of Natural Disasters*. Change and Development; Washington, DC: World Bank. © World Bank. https://openknowledge.worldbank.org/handle/10986/25335 License: CC BY 3.0 IGO.

3 https://emdat.be/

4 World Bank. 2015. A Measured Approach to Ending Poverty and Boosting Shared Prosperity: Concepts, Data, and the Twin Goals. World Bank Publications

5 http://povertydata.worldbank.org/poverty/home/

6 The ability to cope with and recover from a disaster is the definition of socioeconomic resilience used in the *Unbreakable* report, which quantifies this resilience in 117 countries. However, it is only one of many definitions of resilience.

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Typhoon Mangkhut, the Philippines, September 2018
© Patrick Mongaya, Philippine Red Cross

THERE IS STILL TIME TO DO SOMETHING

This study sets out the potential humanitarian price – in terms of needs and financial cost – of climate change over the coming decades. The high costs outlined under the pessimistic scenario represent the possible **cost of doing nothing.** However, as can be seen under the most optimistic scenarios, if we act with urgency, there is still **time to do something**.

The solution to the problem of increasing harm from climate-related disasters is to invest now in better – more resilient – development, disaster risk reduction and in climate adaptation. By helping vulnerable societies develop in a more resilient way, reduce their vulnerability and exposure, and create new, climate-adapted ways of living, the international community can reduce the number of people at risk from climate-related disasters. This will protect lives and livelihoods and reduce the need for emergency humanitarian aid.

> *“Organizations and donors must prioritize preventive measures to save lives”*
>
> *Norwegian Red Cross*[1]

Adaptation and disaster risk reduction need to be mainstreamed into broader development efforts. While adaptation has been on the international political agenda for over 20 years, this has not yet led to the **transformative actions** needed in a world in the grip of rapid and potentially destructive climate change. This is partly because adaptation is usually addressed as a standalone priority, delivered by dedicated and often siloed departments and organizations. This needs to change. Climate adaptation must become a central part of all disaster risk reduction, development and humanitarian efforts, and be integrated into legal, policy, planning and regulatory frameworks.[2]

As the recent report of the Global Commission for Adaptation has stressed, adaptation and resilience have large financial and economic benefits, because they can prevent large economic losses and help maintain economic growth.[3]

However, financial and economic considerations alone cannot guide the allocation of adaptation efforts. Otherwise, the efforts will go primarily toward the richer areas of cities, at the expense of poorer and more sparsely populated areas, or the urban poor. While such projects obviously have considerable value, adaptation efforts are just as essential in the most vulnerable communities, such as those living in smaller communities in coastal areas exposed to sea-level rise

Heavy rains, Cox's Bazar, Bangladesh, 2017
© Michael Drost-Hansen – IFRC

and storm surges, or those living in informal settlements, even if the financial amounts at stake are much lower. The most vulnerable people are often those who are both directly affected by climate impacts like increased storms, and who are also poor and marginalized. **Adaptation and disaster risk reduction measures must be designed so that they benefit those most at risk and most in need.**

So, what needs to happen? This report proposes actions in three areas:

- **Reduce** long-term vulnerability and exposure
- Anticipate disasters, improve **early warning and strengthen emergency response**
- **Rebuild and repair** with the next emergency in mind

FIRST PRIORITY: REDUCE LONG-TERM VULNERABILITY AND EXPOSURE

Investment in risk reduction – through stronger buildings, more resilient infrastructure and dedicated infrastructure like dikes and pumping stations – has been shown globally to be effective and cost-effective with benefits typically three to twelve times the invested cost.[4] However, progress on building resilience will be limited unless new construction projects are resilient and risk-informed, and existing assets are upgraded through national programmes that reflect latest risk information.

To reduce future risks, high-resolution disaster and climate risk information needs to be available to all actors, and these actors need to have the skills and tools to use them. However, improved data alone is not enough. Decision makers need to be equipped to understand what the data is telling them, for example, in terms of the frequency and intensity of natural hazards, and then to use this information to take decisions in the design of new building and infrastructure. Some of this information already exists and is increasingly in an open-source format that makes it available to all.[5] However, it is not always available to all stakeholders, like local authorities and citizens, in formats for easy integration into geospatial and web-based tools.

It will be necessary for people, businesses, and even socioeconomic sectors like transport and energy, to design more resilient systems. They will need to access funding to do this. National strategies, investment programmes or risk-informed land-use plans can support them in this. In low-income countries where cities and infrastructure systems will largely be designed and built in the next decades**, there is a unique opportunity to build resilient systems, possibly savings trillions of dollars in unnecessary repairs and maintenance and other economic losses**.[6]

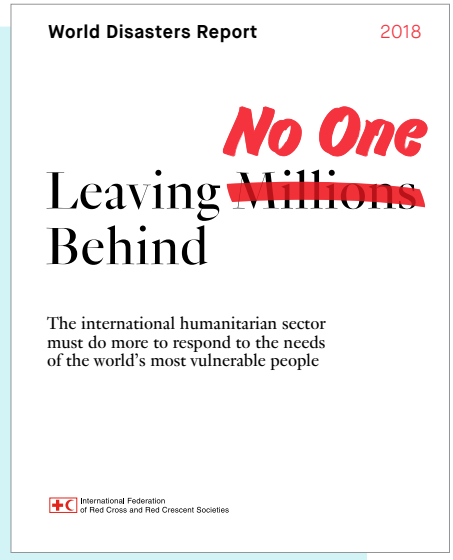
In the long term, it may be necessary for some communities to relocate entirely as rising seas make their current locations uninhabitable. Low-lying islands and some coastal regions are particularly at risk. Less dramatically but still crucially, farmers may need to switch to different and weather-resistant crops that grow better in the new conditions than their previous staple crops. Many cities are adding more and bigger green spaces, which take the edge off the extreme temperatures expected in a warmer world.

Nature-based solutions and conservation can often provide large reduction in risks, while providing co-benefits through higher agricultural productivity and better livelihoods. Planting coastal mangrove forests can protect cities from the worst impacts of hurricanes. The mangroves absorb some of the storm surge from the hurricane, reducing the extent and severity of flooding. Similarly, the Mexican state of Tabasco spent about 750 US dollars million on flood protection measures like planting trees on riverbanks – avoiding losses that would likely have cost four times as much to repair. Finally, water conservation in general makes communities less vulnerable to droughts.

LEFT BEHIND BY THE HUMANITARIAN AID SECTOR

This report estimates how much it may cost to reach all people who need humanitarian assistance as a result of climate-related disasters. However, the reality is that the humanitarian sector today already struggles to reach all those in need – those affected by conflict, by natural hazards related disasters or by complex emergencies. Despite ever-increasing efforts, many people are being left unaided by the humanitarian system. For example, in 2018 the UN appeals system aided 90.6 million people of the 124.6 million it had identified as in need and expects to help 113.5 million in 2019 out of 161.6 million in need.

The gap between those in need of assistance and those selected for assistance by the UN is only partially met by domestic authorities or other organizations, including the International Red Cross and Red Crescent network. Furthermore, the UN figures are weighted towards conflicts and complex emergencies. They do not capture everyone in need of humanitarian assistance, in particular those affected by smaller disasters.[7]



SECOND PRIORITY: ANTICIPATE DISASTERS, IMPROVE EARLY WARNING AND STRENGTHEN EMERGENCY RESPONSE

Even with large efforts to reduce risks, some disasters will occur. Therefore, it is critical to also improve public awareness, early warning mechanisms, and disaster response systems. Because they save lives and reduce economic losses, investments in early warning systems are very attractive. **One study estimates the cost of upgrading early warning systems in developing countries at around 4 billion US dollars over 5 years, with a benefit-cost ratio ranging between 4 and 36.**[8] Increasing threats from climate change – for instance from wildfires or heatwaves – make these systems even more necessary.

However, these systems must be designed with at-risk populations in mind. The information needs to promptly reach those most directly affected, in the correct language and in a form that can be understood. This includes ensuring that the unique needs of people with disabilities, for example, are considered. It must also come from a trusted source so that it is acted upon. To ensure this, these systems should be co-designed by the communities that will rely on them, and by the local groups that will help deliver them. Furthermore, the warnings must be combined with other preparations, such as constructing storm shelters so that when a warning arrives people have somewhere to go.

Civil protection and first responders need to be well trained and equipped before disasters occur. This requires investments in civil protection and first-responder services, both in government and civil society organizations, including National Red Cross and Red Crescent Societies and their volunteers, as well as groups that consist of representatives from particularly vulnerable groups, such as disabled persons organizations. It also requires improved access to *ex-ante* funding for organizations to respond to forecasts of extreme weather events, or to disasters as soon as they occur, if not before.

Delays in providing support to affected populations magnify losses.[9] This means the timeliness of support is one of the most important drivers of a successful response, even more than precise targeting. One study estimates that the cost of not getting a response in place in time to meet the consumption needs of those suffering from drought is 3.9% lower income (GDP) per-capita in the long-run.[10] The gain from an emergency response that is one month quicker is 0.8% of income per-capita in the long run. Of course, a faster response also reduces suffering.

Responding faster is important but responding even *before* a disaster strikes is most effective. One tool to ensure support is mobilized ahead of the impacts of extreme weather is Forecast-based Financing (FbF).[11] The IFRC has embraced this anticipatory approach, which uses in-depth forecasting and risk analysis to anticipate disasters such as floods, bringing together advanced weather forecasting and knowledge of at-risk areas. When a disaster is forecast, humanitarian funding is agreed in advance and activated when needed. By acting ahead of time, FbF is designed to prevent the impact of disasters wherever possible, and otherwise to reduce human suffering and losses.

THIRD PRIORITY: REBUILD AND REPAIR WITH THE NEXT EMERGENCY IN MIND

Since damages and destructions cannot always be avoided, it is critical to provide people and communities with the tools and instruments they need to cope with and recover from natural shocks. While an immediate crisis may be successfully managed through emergency response and recovery operations, the underlying vulnerability of those living in poverty, and other

Hurricanes Irma and Maria, Dominican Republic, 2017
© Catalina-Martin-Chico – IFRC

marginalized groups, may be exacerbated for months or years after the disaster.

The impacts of disasters can be reduced by financial inclusion, such as savings accounts and access to emergency borrowing; social protection systems, such as cash transfers and public work programmes; and access to quality health care. Furthermore, social safety nets can be made more inclusive and responsive to shocks. With the right data on beneficiaries, existing social protection systems can be modified to either provide top-up benefits in emergencies ("vertical expansion") or reach a wider group of people in need ("horizontal expansion").

If governments and local authorities are to respond to emergencies and provide people with the support they need, they need to consider climate and disaster risk in their financial planning processes. This can be done by building on the many instruments now available, from reserve funds to contingent credit and insurance contracts.[12]

It has been estimated that **if all countries had a contingent financing plan, broad social protection coverage of their vulnerable population, and improve financial inclusion, the annual cost of disasters could be reduced by 100 billion US dollars per year**. There are particularly large benefits in highly vulnerable countries, such as small island and Sub-Saharan African countries.[13]

Too often, it is only in the aftermath of disasters that the mechanisms for reconstruction are considered. Key decisions include whether to create a dedicated reconstruction system or to use existing administrative frameworks, and the extent to which public finances will be used to support recovery in the private sector and/or to assist citizens to rebuild homes. All these decisions take considerable time. A lack of advanced planning can substantially delay recovery and reconstruction, exacerbating disaster impacts through time. Resilient recovery requires government to carefully prepare contingency plans that enable building back stronger, faster, and more inclusively.[14]

Hurricane Irma, Saint Maarten, 2017
© Arie Kievit – The Netherlands Red Cross

PROTECTING LIVELIHOODS IN MONGOLIA

Before the worst of the 2017-18 winter season – the *Dzud* – hit herder communities across the country, the Mongolian Red Cross Society gave unrestricted cash grants and animal care kits to 2,000 herder households in most-at-risk areas (40 soums [districts] in 12 provinces).

The Red Cross used a Dzud Risk Map released by the Mongolian Government to decide which districts to target for early action. The aim of this anticipatory humanitarian work was to prevent the suffering caused by a loss of livestock and livelihoods in the event of a severe Dzud, which can lead to widespread animal deaths across Mongolia.

ENDNOTES

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4 (Rose et al. 2007; Hallegatte, Rentschler, and Rozenberg 2019; Kreibich et al. 2005; Mechler 2016)but every mitigation activity has a cost that must be considered in our world of limited resources. In principle, benefit-cost analysis (BCA

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6 (Hallegatte, Rentschler, and Rozenberg 2019)

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Three years of drought.
Afghanistan, 2019
© Afghan Red Crescent Society

CONCLUSION

The cost of doing nothing is clear. Without substantial investment in measures designed to protect vulnerable communities, and the societies they are a part of, we can expect more suffering, more death, and more costs as international humanitarian organizations scramble to provide help. But, as this report also shows, there is still time to do something.

There is growing evidence that boosting a society's resilience can significantly cut the amount of humanitarian aid required when a crisis strikes. In 2018, the US Agency for International Development (USAID) published *The Economics of Resilience to Drought*.[1] It found that a more proactive approach to drought in Kenya, Ethiopia and Somalia could save 30% of the cost of humanitarian aid.

It is not possible to precisely estimate the reduction in future humanitarian costs that would result from more resilient development and greater investment in adaptation. More work would be necessary to better understand the needs of different individuals in different countries, and to refine the crude definition of vulnerability used here. More analysis of past humanitarian interventions, by all actors in the sector, would also help better understand the cost of intervention and its determinants. It would also be useful to create more in-depth representations of the changes in natural hazards, focusing on their frequency, intensity and distribution. These further studies would make it possible to provide more precise estimates, with a better understanding of the uncertainty.

However, while the current study has limitations, it shows that taking actions like those identified in chapter 3 could dramatically reduce future humanitarian impacts and costs.

Of course, an essential component of reducing the impacts of climate change is mitigation: cutting our greenhouse gas emissions to net-zero, so that global temperatures can be stabilized as soon as possible. The IFRC is looking at ways of reducing the environmental impact of its own operations. Many other development organizations have made strong commitments to support climate actions, such as the World Bank Group that now has quantified targets set for the Group as a whole through 2025.[2]

However, a greater focus on adaptation and resilience is also essential. This is because the climate responds relatively slowly to changing greenhouse gas concentrations, so a certain amount of warming is now "baked in" as a result of our emissions to date. In other words, even if we were to cut our emissions to zero tomorrow, the world would continue to warm for decades, and sea levels will rise for many centuries. Therefore, as well as mitigating climate change, adapting to it is indispensable if we are to continue to thrive in a warming world.

Humanitarian agencies will play a critical role in helping the world's nations adapt to climate change. Some of this will inevitably be their "traditional" role of rendering aid to people affected by. However, it seems increasingly clear that **humanitarian organizations will not be able to cope with the demands of the future, unless the actions outlined in this section are prioritized and funded**. It is crucial to better integrate the work of aid organizations like IFRC and National Red Cross and Red Crescent Societies with the broader development community. In this

way, communities will be given the help they need to adapt ahead of time, so that they are resilient against disasters when they do strike. The aim of the development and humanitarian sector should be to build a more secure future for everyone, even as the climate changes around us.

COASTAL COMMUNITY RESILIENCE AND DISASTER RISK

Demak, Central Java

Erosion was putting coastal communities and the local ecology at increased risk, so the Indonesian Red Cross responded by deploying community-based action teams. The Red Cross teams worked with villagers to implement effective and low-cost adaptation measures to boost community resilience and livelihoods, while restoring the ecosystem by planting mangroves.

Under an integrated approach, the community is connected with village authorities and scientists from the Bogor Agricultural Institute to implement sustainable local action. The programme has succeeded in reducing the risks of tidal disasters, while eco-tourism and crab cultivation farming have increased the income of the communities, along with their heightened awareness and preparedness for disaster.

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ENDNOTES

1 https://www.usaid.gov/resilience/economics-resilience-drought

2 http://pubdocs.worldbank.org/en/368601543772742074/2025-Targets-to-Step-Up-Climate-Action.pdf

Protecting against coastal erosion. Indonesia, 2007
© Obed Wewo – Indonesian Red Cross

Floods, Kenya, 2018
© Kenya Red Cross Society

METHODOLOGY

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Flooding, Nigeria, 2018
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