

HUNGER IN A HEATING WORLD

How the climate crisis is fuelling hunger in an already hungry world



Over 1,000 dead and millions displaced since June amid heavy monsoon rains in Pakistan, Dadu - 30 Aug 2022.
Photo Credit: WAQAR HUSSEIN/EPA-EFE/Shutterstock (13353128d)

1. Executive Summary

One third of Pakistan has been flooded. Crops and topsoil washed away; farming infrastructure destroyed. On the other side of the Arabian Sea, Somalia is experiencing its worst drought for 40 years with crops failing and livestock dying. Our climate isn't just changing, it has changed.

Climate change is fuelling hunger for millions of people around the world. Extreme weather events have increased five-fold over the past 50 years¹, destroying homes, decimating livelihoods, fuelling conflict and displacement, and deepening inequality.

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The causes of global hunger are deeply complex and conflict and economic disruptions, including those from COVID-19, remaining key drivers.² However, these new and worsening weather extremes are increasingly peeling away the abilities of poor people particularly in low-income countries to stave off hunger and cope with next shock.

Oxfam has looked at 10 of the worst climate hotspots in the world which had the highest number of UN appeals related to major weather extremes since 2000: Afghanistan, Burkina Faso, Djibouti, Guatemala, Haiti, Kenya, Madagascar, Niger, Somalia and Zimbabwe.³ It found that acute hunger has more than doubled in those countries just over the past six years, from 21 million to 48 million people.⁴ Nearly 18 million people in these 10 countries are on the brink of starvation⁵. The correlation between weather-related crises and rising hunger in these countries, and others, is stark and undeniable.

Collectively, these 10 climate hotspots are responsible for just 0.13% of global carbon emissions⁶ and each of them sits in the bottom third of countries that are least prepared to cope with climate change and its damages.⁷ The carbon emissions of the G20 countries⁸ – which together hold over 80% of the world's economy⁹ - are 650 times higher than these ten.¹⁰

Addressing the complex drivers of hunger¹¹ along with underlying inequalities requires multiple collective measures to end the injustices that fuel the growing hunger crisis and to build more climate-resilient food systems that work for all people.

This brief focuses on how climate change acts as a threat multiplier, worsening the existing risks and vulnerabilities to hunger for already disadvantaged people, particularly women, agricultural workers, and small-scale farmers. It explores major climatic events across seven regions where people are being worst affected: Asia's typhoons, East Africa's drought, South Africa's cyclones, the Sahel's drought, Latin America's dry corridor, the Pacific sea-level rise, and water scarcity in the Euphrates and Tigris River basins.

It argues that the failure to tackle the climate crisis is now perpetuating a system of reliance on a humanitarian aid system that was not designed nor resourced to respond to cyclical shocks of such scale and frequency. It warns that unless we tackle the underlying climate injustices, the situation will get much worse.

As humanity faces this existential crisis, the biggest polluting companies continue to amass extraordinary wealth: the oil and gas industry has amassed around \$2.8 billion per day in profits (or more than \$1 trillion per year) for each of the last 50 years.¹² Less than 18 days of those profits would cover the entire \$48.82 billion UN humanitarian appeal for 2022.¹³

At the UN General Assembly and ahead of COP27, Oxfam is calling for leaders to take urgent action to:

- Provide lifesaving aid to address the immediate hunger crisis in these climate hotspots
- Guarantee adequate climate and anticipatory financing to help impacted people adapt, prepare for and cope with the next disaster
- Compensate countries most impacted for what they have already lost in the climate crisis
- Reduce future climate impacts by submitting realistic climate plans that reduce emissions to limit warming under 1.5C

2. Climate-fuelled hunger on the rise

The climate crisis is accelerating all over the world, rapidly altering our weather patterns and creating crises from the droughts and wildfires in the United States and Australia, to the summer heatwaves in Europe, and East Africa’s worst drought in nearly half a century.¹⁴ Climate change is causing more frequent and intense droughts, floods, heatwaves, and other extreme weather events, and these in turn have contributed to widespread and worsening food insecurity.¹⁵ The number of climate disasters has increased five-fold over the past 50 years.¹⁶

Oxfam research looked at 10 of the worst affected “climate hotspots” – those countries with the most recurring UN humanitarian appeals in response to major extreme weather events since 2000¹⁷: are Afghanistan, Burkina Faso, Djibouti, Guatemala, Haiti, Kenya, Madagascar, Niger, Somalia, and Zimbabwe. The research found that these countries experiencing hotter, wetter or drier weather, are also plunging into deeper hunger.

While it is extremely difficult to measure the exact direct impact of climate change on hunger, given the complex nature of hunger crises,¹⁸ as extreme weather becomes more fierce and more frequent, it is devastating the lives of millions of already disadvantaged people battered by other crises, ridding them of their homes, crops, and their next meal.

As Table 1 illustrates, the total number of people suffering acute hunger¹⁹ across these 10 climate hotspots has more than doubled over the last six years from 21.3 million to 47.5 million²⁰. Four of these ten countries have also consistently topped the list of countries hit by acute hunger primarily due to weather extremes, according to the Global Report for Food Crisis^{21,22}. Nearly 18 million people in these 10 countries are currently on the brink of starvation.²³

Table 1 Ten of the worst climate hotspots in the world

Country	Number of UN appeals with weather extremes as a major factor 2000-2021	Population in acute hunger (IPC 3+) 2016	Population in acute hunger (IPC 3+) 2021	Rise in acute hunger (IPC3+) 2016-2021
Somalia*	16	2.9	3.5	21%
Haiti	12	1.5	4.4	193%
Djibouti	9	0.2	0.2	0%
Kenya*	9	1.3	2.4	85%
Niger	8	0.3	2.6	767%
Afghanistan	7	8.5	22.8	168%
Guatemala	6	1.5	3.7	147%
Madagascar*	6	0.8	1.6	100%
Burkina Faso	6	0.2	2.9	1350%
Zimbabwe*	6	4.1	3.4	-17%
Totals	85	21.3	47.5	123%

Note: Due to changes in geographic coverage of these assessments between 2016 and 2021, numbers should be seen as indicative of the change over time.

* Countries where weather extremes were the primary driver of acute hunger in 2021.²⁴

These 10 countries are already seeing the impacts of the climate crisis, being hit by repeated extreme weather at the same time as more and more people are pushed into poverty and hunger. As we move deeper into the climate crisis, shocks from extreme

weather will increase further, debilitating these countries' resilience and the ability to meet the needs of their people. If current trends continue, the number of disasters each year globally may increase by 40% from approximately 400 in 2015 to 560 by 2030.²⁵

Unless deep reductions in greenhouse gas emissions occur in less than eight years, global warming will exceed 1.5°C during the 21st century. At 2°C, 720 million people – about the same number that exited extreme poverty in the past two decades – will be plunged into extreme poverty by 2050.²⁶ Currently we are on a path to 2.7C warming.²⁷

3. Climate crisis worsening vulnerabilities, widening inequality

The climate crisis is increasingly becoming a threat multiplier that conspires with other major drivers of hunger, such as conflict, economic shocks, displacement, poverty and widening inequalities. It is adding pressure on food production systems, undermining food security²⁸; and increasing security risks²⁹.

Decimating livelihoods & worsening a broken food system

Extreme weather events driven by climate change, such as droughts, fires, typhoons, floods, and cyclones, as well as slow-onset events such as sea-level rise, increasingly irregular and unpredictable weather patterns, and desertification can destroy a family's main source of income. They cause crop, livestock, and fishery losses, degrade soil and ecosystems, and disrupt local food chains, driving up food prices. Drought alone cost low- and middle-income countries an estimated US\$37 billion in crop and livestock losses between 2008 and 2018.³⁰

Table 2: How climate change is undermining food security³¹

Availability Food is consistently available on local markets, through household production, or via other sources.	Accessibility People must have economic and safe physical access to food.
The climate crisis is stressing agriculture systems around the world, reducing yields and productivity. ³² This affects food availability both through impacts on local food production, including food produced or harvested by families for their own consumption, and in countries highly dependent on importing food from major producing countries. For example, droughts in the northwest United States have resulted in less wheat available on international markets which translates into less food in local markets and higher food prices. More than eighty percent of yearly fluctuation in cereal production can be attributed to weather variability.	Grinding poverty and rising prices limit people's ability to afford healthy and nutritious food. Access is closely tied to availability and food prices, but also is tied to broader economic opportunity. People forced to migrate due to climate disasters, for example, lose employment opportunities, income and the ability to afford basic goods, including food. Increasing extreme weather events also reduce resilience, as people don't have time to rebuild their savings, for crops and livestock to recover, or for infrastructure to be replaced before the next crisis strikes. Conflict, exacerbated by climate change, can limit safe access to markets, farmland, and livestock routes.
Utilization: Impact on nutritional quality of food and sufficiency of diets	Stability: Food is sustainably accessible and available to people over time, without the risk of sudden shocks leading to hunger.
Climate change can impact the nutritional quality of key staples such as wheat and rice. ³³ Weather-driven losses of crops or livestock can limit a household's production of nutrient-rich foods. Families may also not be able to afford buying a diverse, high-quality diet. The result is fewer calories and consumption of less nutritious food. Women are often worst affected, eating less food with less variety, and pregnant or lactating women have additional nutrition needs. Clean water is particularly critical as drinking contaminated water can cause diarrhea and other water-borne diseases resulting in poor absorption of nutrients. An estimated one in four people do not have access to safe drinking water. ³⁴	Increasing extreme events associated with climate change can disrupt food stability. As the frequency, duration, and intensity of weather extremes increases in the coming decades global grain production will see rising instability which will impact prices, particularly affecting around 800 million people living in extreme poverty who are most vulnerable to food price spikes. ³⁵

People's livelihoods are particularly vulnerable to climate change when people practice farming, herding, fishing, or other activities that rely heavily on weather conditions and renewable natural resources³⁶. For farmers who rely on predictable seasonal weather patterns, for example, any climate changes directly hit agriculture and their source of income and food.³⁷

Climate change is increasingly affecting water resources, as it alters the rates of precipitation and evaporation as well as groundwater levels³⁸. Currently, nearly 1.8 billion people—almost one-quarter of the world population—live in water-stressed areas, and this number is expected to grow to about half of the world population by 2030³⁹. Lack of clean water directly impacts people's food from vital crops and livestock, their income, and their health.

Already, the growth rate of yields of major food crops such as maize and wheat is slowing due to declining water resources and epidemics of plant diseases. In semi-arid regions, 80 percent or more of year-to-year variation in cereal production can be attributed to climate variability⁴⁰.

The climate crisis is worsening and worsened by a fundamentally broken global food system – one that is deeply unequal and unsustainable for people and the planet. About 21-37 percent of the total greenhouse gas emissions are attributed to our food system. Our industrial model of agriculture production, heavily reliant on chemical inputs to grow vast monocrops, is failing to provide food security and alleviate poverty for millions of people. It is degrading soil and eroding biodiversity,⁴¹ depleting water resources, and impacting people's food security.

Fixing our food can help fix our climate. Innovative solutions already exist. Supporting sustainable local food production, such as agroecology and soil carbon management, could increase local food producers' income, improving their resilience to climate shocks, and reducing poverty and inequality.⁴² Also, strengthening local farmer seed systems, including developing community seed banks, can provide an important safety net for cash-strapped farmers and help them manage climate risks.⁴³

Fuelling conflict & forcing displacement

Globally, conflict remains the main driver of hunger, currently accounting for over 70% of populations living in acute hunger – that is, more than 139 million people.⁴⁴

Climate change is a threat multiplier, worsening the situation especially in already fragile states⁴⁵. By indirectly amplifying existing economic, social, and political risks⁴⁶, climate change fuels and elongates armed conflict and deepens humanitarian crises. Ninety-five percent of new conflict displacements in 2020 occurred in countries vulnerable to climate change⁴⁷.

In Afghanistan, for example, where conflict was the main factor that left nearly 23 million people in acute hunger in 2021, it is estimated that a severe drought the same year upended the livelihoods of 7.3 million Afghans and caused a 24 percent reduction in cereal harvests compared to the previous year.⁴⁸

Worsening global warming will lead to more frequent weather extremes, particularly drought, which in turn contribute to increase in violent intrastate conflict⁴⁹. With each additional 1 degree of temperature, interpersonal conflict is predicted to increase by 2.4% and inter-communal conflict by 11.3%.⁵⁰

Similarly, weather extremes are causing water and food shortages, forcing people to move⁵¹. Farmers and pastoralists are forced to leave their land when harsh weather – including locust invasions, droughts, and floods – cause their crops and animals to wither. Over 20

million people have been internally displaced annually by extreme weather since 2008.⁵² For example, in Somalia, the drought forced nearly one million people to flee their homes since January 2022.⁵³

In other regions, such as the Pacific islands, climate change is leading to a slow but deadly rise in sea-water levels. This results in decimation of agricultural land and killing of marine life, forcing fisherfolk and farmers to flee their homes and move to areas with better conditions.⁵⁴

Conflict can result in increased violence against women and girls, including arbitrary killings, torture, sexual violence and forced marriage. Women and girls are primarily and increasingly targets of sexual violence, including as a tactic of war.⁵⁵

Displaced groups, especially women and girls⁵⁶, are particularly vulnerable, as their survival depends on the availability of assistance provided by the authorities, hosting communities and humanitarian organisations. They often face threats to their safety and basic access to shelter, food and services⁵⁷. In the Democratic republic of Congo, for example, women saw almost 10% rise in violence from their intimate partner as a result of displacement.⁵⁸ Women also are often paid less, and their care work increases during this time of upheaval.⁵⁹

Overwhelming humanitarian response and aid

As climate change compounds existing drivers of hunger including economic shocks, displacements, and conflicts – it has pushed humanitarian and development needs to new levels, crippling poor countries' ability to cope, and overwhelming the ability of the wider global aid mechanisms to mount timely and sufficient responses.

The failure to tackle the climate crisis is now perpetuating a system of reliance on the humanitarian aid system that was not designed nor resourced to respond to cyclical and predictable shocks of such scale and frequency.

Recent research by Oxfam estimates that funding requirements for the UN humanitarian appeals linked to extreme weather are eight times higher than they were 20 years ago. Over the past five years nearly half of appeal requirements have gone unmet.⁶⁰

Despite their spiralling hunger levels, funding for the 10 worst climate hotspots in the world has been equally inadequate, revealing the increasing inability of the humanitarian system to respond to the scale and frequency of climate disasters. Oxfam research found that between 2000 and 2021, donors provided less than \$20 billion of the \$31.6 billion UN appeals linked to extreme weather in the 10 climate hotspots – that is a shortfall of nearly 40 percent.⁶¹

These shortfalls are symptomatic of larger failures of the humanitarian system to address urgent needs. In 2021, donors met a little over half (54 percent) of the \$37.64 billion UN appeal and provided just 44 percent (or \$6.2 billion out of \$14.1 billion) of the funds specifically needed for food security.⁶²

Anticipatory, preventive, and sustainable action will be the basic prerequisite in any humanitarian response, if we are to reduce the risks from climate-related shocks. This will require fundamental shifts in donors' willingness to ensure funding is not just sufficient and timely, but also flexible, long term, gender-sensitive, and prioritizing local communities at the forefront of response.

Disadvantaged people hit hardest

Not everyone is feeling the burn of this climate crisis equally. Climate shocks are perpetuating a vicious cycle of devastation and need for already disadvantaged groups and widening the global inequality gap.⁶³

Women, racial minorities, and small-scale farmers and agricultural workers in low-income countries, are the first and hardest hit by global warming, often losing their homes, income, and reliable access to food.⁶⁴ To them, climate change is the last blow, threatening their next meal.

Deep existing inequalities mean that small-scale producers, who produce more than 70% of the food consumed for people living in Asia and sub-Saharan Africa⁶⁵, and the more than 1.7 billion people working on farms, plantations, fishing boats and in processing factories⁶⁶, are often unable to produce enough food, or earn enough income, to escape hunger and poverty.



Women and girls often walk long distances to fetch water during droughts. Somali girls collect water from a well in Docoloha village, Somaliland. Photo credit: PabloTosco/Oxfam/19

Similarly, deeply rooted gender inequality often means that women eat least and eat last; and it limits their opportunities. On every continent the prevalence of food insecurity is already higher for women than for men – with the largest differences found in Latin America.⁶⁷ Systemic barriers such as patriarchal discrimination deny women the right to own land⁶⁸ and equal pay. For example, In Mali, where over 50% of women are involved in agriculture, just 5% are titled landholders.⁶⁹ Women's assets are also usually sold first when there is a shock, leaving them more vulnerable to hunger than men.⁷⁰

In West Africa, water shortage forces women and girls to travel increasingly long distances to fetch water, taking up to 20 hours or more every week. Across the region, girls were more likely than boys to be responsible for water collection (62 percent vs. 38 percent)⁷¹, often making them suffer early arthritis, and putting them at risk of sexual attacks.⁷² Many girls are also forced to drop from school to help the family with these kinds of household tasks.⁷³

The Food and Agriculture Organization of the United Nations (FAO) estimates that if women had the same access to productive resources as men, they could increase yields on their farms by up to 30% – reducing the number of hungry people in the world by up to 17%.⁷⁴

Even in wealthy nations, vulnerable groups are hardest hit by climate-fueled disasters. In the United States, inadequate responses to Hurricane Maria in Puerto Rico devastated already marginalized communities, deepening inequalities and hunger.⁷⁵ After the 2017 hurricane⁷⁶ devastated Puerto Rico, relief efforts failed to protect communities from food insecurity⁷⁷ caused by lack of potable water, energy blackouts that caused food to spoil, farming disruptions⁷⁸, and general limited ability to access food stores. In October 2017- one month after the hurricane-, close to 80% of people in Puerto Rico were facing food insecurity⁷⁹.

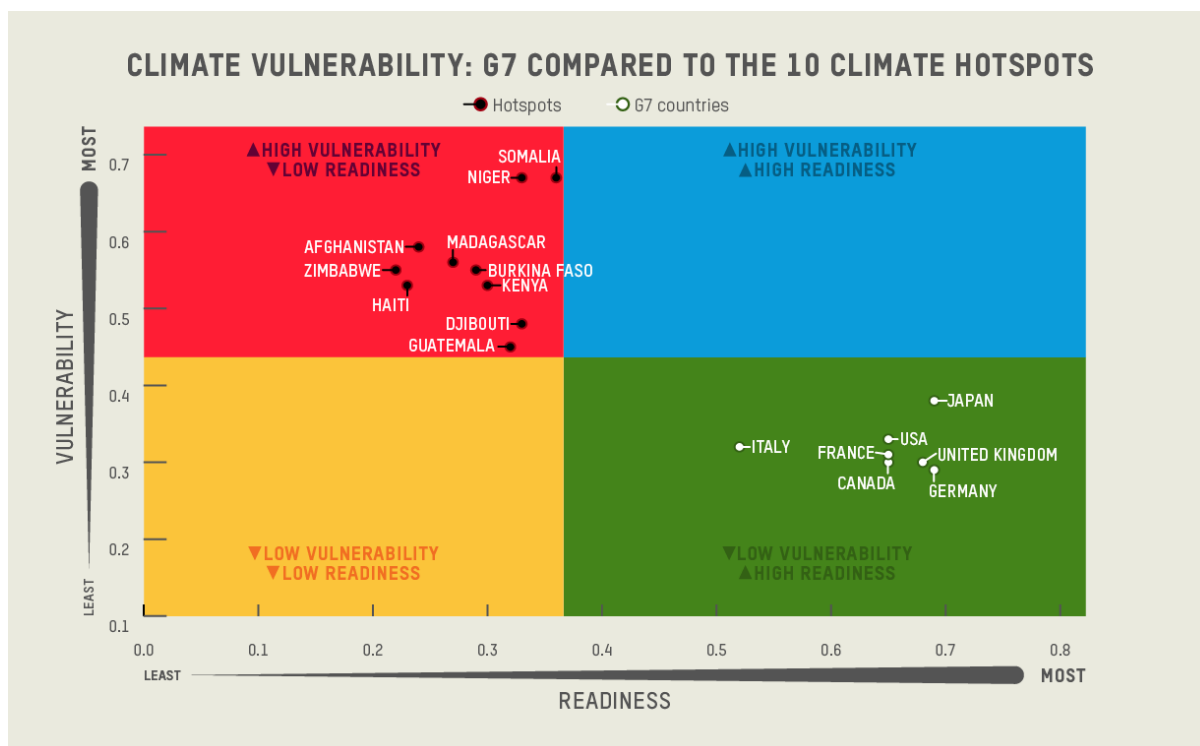
Similarly, the 2012-2016 drought in California, United States – the worst in the last 1200 years - has enormously impacted low-income farm workers, as over 40,000 small-scale farm workers – mostly Latino– lost their jobs.⁸⁰

Climate-fuelled hunger is also hitting hardest the next generation of children, whose malnutrition is not only affecting their health but their ability to get a good education and pursue future economic opportunities. In Africa, up to 44% of all child mortality is associated with undernutrition; and up to 18% of all school repetitions are associated with stunting, which is frequently the result of chronic malnutrition.⁸¹

4. Climate injustice

Climate-induced hunger is a stark demonstration of global inequality. Countries that are least resourced to cope with the climate crisis are also the least responsible for it. Meanwhile, rich countries, rich people and mega corporations build their wealth through emission intensive activities.

Figure 1: Vulnerability and readiness of the 10 climate hotspots compared to the G7 countries

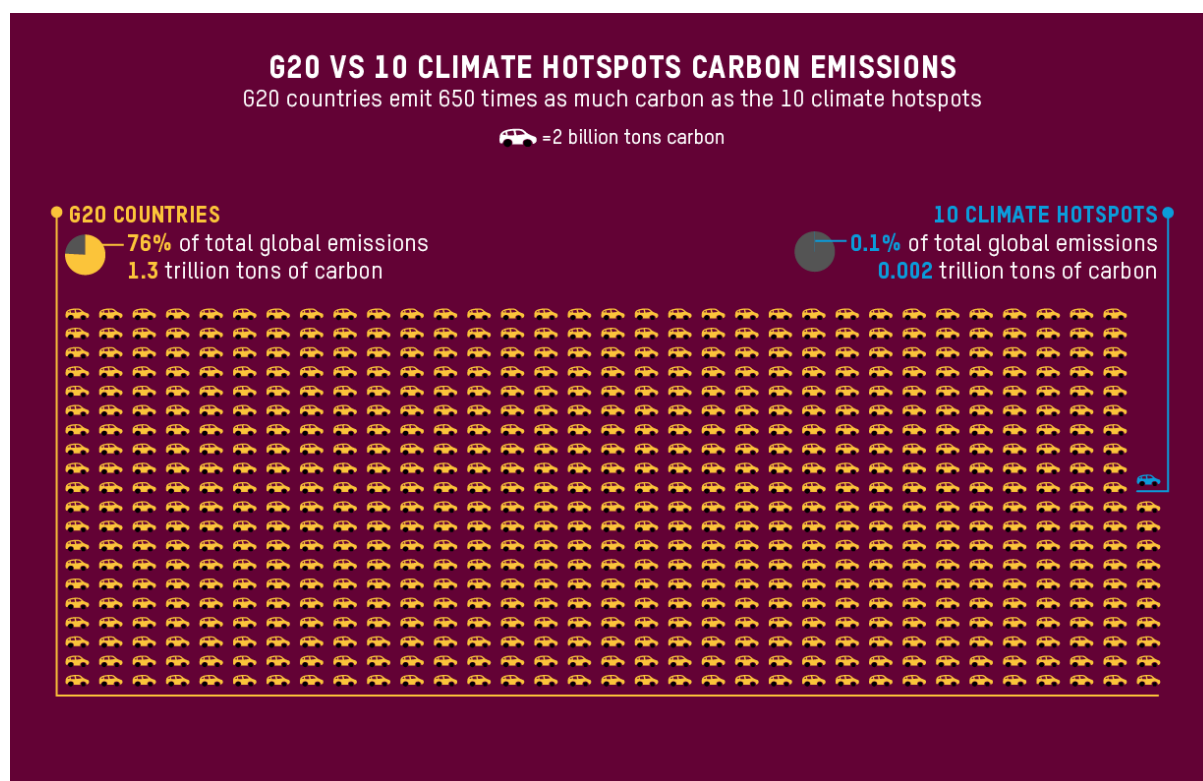


It is no surprise that the 10 top worst climate hotspots in the world are sitting in the bottom third of the world's countries in terms of preparedness for, and vulnerability to climate change⁸². In contrast, the G7 nations – largely responsible for the climate crisis - are quite ready to mitigate and adapt to climate risks – sitting in the top 20% of the world's countries most prepared for climate shocks⁸³. (See Figure 1)

At the backdrop of a worsening climate-hunger crisis, leaders of rich polluting countries, mostly in the global industrialized North, continue to support fossil-fuel companies that despoil the environment for a massive profit – one that often funds their election campaigns⁸⁴.

The oil and gas industry has enjoyed staggering profits as they wreak havoc on the planet – amassing \$2.8 billion a day (or more than \$1 trillion per year) for the last 50 years.⁸⁵ Less than 18 days of those profits would cover the entire \$48.82 billion UN humanitarian appeal for 2022.⁸⁶

Figure 2: Carbon Emissions for G20 Countries vs 10 Climate Hotspots



Governments must ensure companies and the rich are paying their fair share of taxes, not least those profiting from harming the planet. Just an extra 1% tax of the fossil fuel profits amassed last year would yield US \$10 billion, for example, would cover almost the entire UN global food security appeal funding.⁸⁷

The G20 countries – controlling 80% of the world's economy⁸⁸– together account for over three quarters of the world's emissions (76%)⁸⁹. This dwarfs by 650 times emissions from the ten worst climate hotspots - which contribute a negligible 0.1%⁹⁰ of global carbon emissions.⁹¹ (see Figure 2)

Countries hardest hit with climate change have incurred considerable losses. Africa, one of the most vulnerable continents to climate change, has incurred \$38.5 billion to disasters between 1970-2019.⁹²

A tale of two droughts: Somalia and USA

Not all climate change impacts are equal.

Since 2020, areas of the western US have been hit by the worst drought in centuries, mainly due to climate change.⁹³ Today, an estimated 64 percent of the US has been hit by extreme heat and water stress of different degrees.⁹⁴ Despite the severity of droughts –each costing nearly \$10 billion on average⁹⁵ - their impact on the wider US economy has been limited when compared to the climate hotspots. The US sits in the top 10 percent of countries most prepared for climate change, thanks to its economic might (including a \$23 trillion GDP).⁹⁶ This enables the government to support impacted small-scale farmers and disadvantaged people to adapt and quickly recover.⁹⁷

In contrast, Somalia ranks 172nd out of 182 countries in the world adaption index⁹⁸. The worst drought in nearly half a century has pushed over 7 million Somalis to hunger⁹⁹, with over 200,000 of them on the verge of famine. Around three million livestock have died, a terrible toll for Somali families who rely primarily on their herds for food, income, and savings. The country urgently needs 1.5 billion USD to provide lifesaving water and food to keep people from going hungry.¹⁰⁰ This is equivalent to 30 percent of the country's GDP¹⁰¹. Years of economic fallout, ongoing conflict, and growing external debt¹⁰² are crippling the government's ability to cope with climate disasters.

5. EXTREME WEATHER EVENTS

Asia's Typhoons

"We live here because our only livelihood comes from the sea. We pulled out all the boats for safety, but the waves still reached them and reached the roads. Typhoon Rai was bigger and stronger than the two previous ones. It turned our mountains bald."

Petronilo Bohl, Philippines

Asia stands out among the world's regions when it comes to food insecurity and is considered one of the most disaster-prone regions in the world due to the frequency and intensity of its extreme weather events. In 2020 it was home to over half of the world's population affected by chronic hunger, totaling 418 million people –that is 57 million more people since 2019.¹⁰³ Simply stated, nutritious food is out of economic reach for many, as 1.9 billion people in the Asia and Pacific regions cannot afford a healthy diet in 2020.¹⁰⁴

The region has already been vulnerable to economic shocks like COVID-19, which along with significant uncertainty of food systems and markets, caused food prices to soar, and led to worsening inequality and hunger¹⁰⁵. Poor families with dwindling incomes continue to alter their diets to choose cheaper, less nutritious foods just to have enough to eat.¹⁰⁶

Climate change has made it harder for people already reeling from these economic shocks to recover. This is especially true since nearly 70 percent of South Asia's population is employed in agriculture and live in rural communities making them more vulnerable to weather extremes¹⁰⁷.

Cyclones, typhoons, and monsoon floodings have wrought massive devastation to people's homes and incomes, deepening inequalities in Bangladesh, Nepal, Pakistan and India and major parts of Southeast Asia. Typhoon Haiyan in 2013 took 6,300 lives¹⁰⁸ and displaced over 4 million people in the Philippines¹⁰⁹ and another 880,000 in Vietnam¹¹⁰. Similarly, Cyclone Amphan of May 2020, one of the strongest cyclones ever recorded, which hit the Sundarbans region between India and Bangladesh, forced 2.4 million people in India and 2.5 million people in Bangladesh out of their homes¹¹¹.

Influence by heating oceans, tropical cyclones of east and southeast Asia have shown increasing destructive power since 1970s, and this is projected to double by the end of the

21st century.¹¹² Over the past 40 years, landfalling typhoons have already intensified by 12-15%, with specific storms of category 4 or 5 tripling in number.¹¹³

Rising ocean temperatures extend their reach and impact inland, amplifying their destructive power.¹¹⁴ El Niño was the worst in recent times, leading to water shortages in many parts of the region and harming the agricultural economy. ASEAN estimates around \$4.4 billion worth of damages on average – each year – due to disasters resulting from weather extremes.¹¹⁵

As temperatures continue to rise, and without new technological advancements, rice yields in Asia could be reduced by as much as 50% by 2100 compared to 1990.¹¹⁶ South Asia will see a 30% reduction in its wheat and maize crop yields by the end of this century, further fueling food prices.¹¹⁷ By 2030, 38 million more people in Asia and the Pacific are likely to be pushed to hunger¹¹⁸.

East Africa's Drought

"We have no income and have already lost our animals to the drought. Children have had to drop out of school as parents can no longer afford to pay school." Asli Duqow, Wajir, Kenya

Continued warming in the Indian Pacific Ocean due to climate change has contributed to more frequent and more prolonged East African droughts. Today the region suffers its worst drought in nearly half a century fuelling an already alarming hunger crisis.¹¹⁹

Today, Oxfam estimates that one person is likely dying of hunger every 48 seconds in drought-ravaged Ethiopia, Kenya and Somalia¹²⁰. Over 21 million people across Ethiopia, Kenya and Somalia face acute hunger¹²¹. That is more than double the number of people (9 million) who experienced acute hunger during the disastrous 2011 drought. Currently, 1.8 million children are severely malnourished in Kenya, Somalia and Ethiopia due to this ongoing drought.¹²²

Millions of vulnerable people were already reeling from ongoing conflict and economic shocks like global food price inflation and the COVID-19 pandemic. They already lost most of their income and savings to these shocks and have nothing to fall back on. For them, an additional climate shock with such severity and length, which is killing their remaining crops and livestock, could be lethal.¹²³

East Africa's food production is already among the world's most vulnerable to climate change as the region extensively relies on rain-fed crops. Recurrent droughts affect both crops and livestock, eroding people's capacity to adapt.¹²⁴ As the time between climate shocks increasingly shrink, preparing for the next shock becomes even more difficult.¹²⁵

Recurrent droughts will continue to aggravate the region's fragility causing further crop failures, food instability, losses of livelihoods, and large-scale internal displacement.¹²⁶ Currently, up to 85 percent of cropland in Ethiopia had been affected¹²⁷, and up to 60 percent of cereal production in Somalia is below average, as a result of this two year-drought.¹²⁸ Almost 10 million livestock have died in the region, including 3.8 million in southern Ethiopia, 2.4 million in Kenya, and over 3 million in Somalia.¹²⁹

Weather extremes are also fuelling conflict as both higher and lower rainfall has been associated with increased communal conflict¹³⁰ in the region. In Somalia, water shortage was the cause of most disputes in 40% of assessed settlements.¹³¹

Moreover, the Horn of Africa imports most of their cereals from abroad. This means global warming's harsh impact on crops will threaten the region's access to staple foods, forcing food prices to soar and making food even less affordable for millions of people.¹³²

Southern Africa's Cyclones

"The following morning [following Tropical Cyclone Ana], getting to the house was so difficult. There was mud everywhere that made it difficult to walk. Unfortunately, nothing was spared, our belongings were gone. We used to have chickens; we never found them, clothes and food all gone. Now we are trying to find some piecework to help us find food and other important needs."

-Martha Magombo, Malawi (2022)

The Southern Africa Region has over years been impacted by extreme weather events and limited climate adaptation strategies resulting in the suffering of communities across the region and increased inequality. Climate change affects the population's nutrition as well as stable access to food.¹³³

During droughts or floods, crop yield reductions lead to income losses for farmers due to reduced excess products to sell. For example, in Zimbabwe from 1986-2016 production losses accounted for an annual loss of US \$126 million on average and during the 2001 drought year crop losses were estimated at \$321 million.¹³⁴ While families face financial losses, they also cope with decreased savings because the price of products increases in Zimbabwe during droughts by 30-40%.¹³⁵

During the 2015–2016 drought, the price of cattle in high rainfall areas of Zimbabwe ranged from \$350–\$450, but communities in drought-affected districts were selling cattle for as little as \$20 - \$60 to buy food.¹³⁶

Southern Africa suffers widespread food and nutrition insecurity. This year, in the ten SADC Member States¹³⁷ that submitted data, an estimated 47.6 million people are food insecure, which is a 5.5% increase from last year and 34.3% above the 5-year average.¹³⁸

The region experiences annual and cyclic climatic shocks – patterns that present uncertain and uneven distributions – that leave little or no room for communities to cope. For example, the La Niña and El Niño phenomena often result in droughts and flooding, negatively impacting livelihoods. Climate change is also a long-term threat to food security and nutrition in Southern Africa, an area experiencing warming twice the rate of the global average¹³⁹. Climate change is expected to increase the frequency and intensity of floods¹⁴⁰, which can lead to enormous socio-economic losses.

For centuries, rain-fed agriculture has not only sustained food security for many Zimbabweans, but it has also contributed immensely to the country's industrialization. However, prolonged droughts and other shocks resulting from climate change and variability have impacted heavily on traditional farming practices such as extensive cattle ranching, semi-pastoralism, cultivating of rain-fed crops like maize, millet and sorghum, crop rotation and intercropping, minimum or no usage of commercial inputs like fertilizers and hybrid seed, and farmers cultivating their own seed, especially in the semi-arid districts of Gwanda, Matobo and Mangwe.¹⁴¹

In 2019, cyclones Idai – the deadliest cyclone to ever hit the continent – and Kenneth decimated schools and clinics across Mozambique, Malawi and Zimbabwe, interrupting access to services and education, and displacing millions of people. The cyclones also destroyed thousands of hectares of crops, seed stock, fisheries, and infrastructure, severely impacting livelihoods and access to food.¹⁴² According to the World Food Programme, if adaptation is not undertaken in the region, around 30% of the population will experience climate hazards by 2050.¹⁴³

Sahel's Drought

“Because of the lack of rain, last year the seeds did not really grow and we did not have much. This year I lost a lot. After the harvest I could have between 300,000 and 350,000 francs (457 EUR and 534 EUR), but this year I did not even have 25,000 francs (38 EUR)”—Ramata Sanfo, Burkina Faso

In West Africa, over 27 million people are living in acute food and nutrition insecurity.¹⁴⁴ This situation is unprecedented in terms of the scale of the increase it represents. For the current period (March-May 2022), estimates represent a 154% rise in hunger and lack of nutrition compared to the five-year average (2017-2021), and a 33% increase compared to 2021.¹⁴⁵

The Sahel countries¹⁴⁶ are the most affected, where 6.3 million global acute malnutrition¹⁴⁷ cases are expected, of which 1.4 million are severe acute malnutrition¹⁴⁸ cases, an increase of 27% as compared to 2021 estimates and a 62% increase as compared to 2018. If this occurs, it will be the fifth year in a row of a record high level.¹⁴⁹

The current catastrophic food and nutrition situation is due to multiple factors that are all interlinked, including climate change. In general, production is down in the most affected countries. The gaps are significant, especially in cereal production: Niger (-39%), Mali (-15%), and Burkina Faso (-10%)¹⁵⁰. These production deficits can be explained by increasingly frequent climatic shocks, but also by conflict (particularly in the Central Sahel), which make production and harvesting increasingly difficult.¹⁵¹

Under a “business as usual” scenario worldwide, climate change is projected to cause temperature to rise in the Sahel 1.5 times faster than the rest of the world^{152 153}. The Sahel is most likely to experience the largest changes with an increase of extreme weather events and the depletion of water resources. According to the IPCC, West Africa will get wetter in the east but drier in the west, with significant ramifications for agricultural productivity growth and food systems in the region.¹⁵⁴ Rising temperatures are expected to increase the frequency and intensity of droughts, and to affect the West African monsoon season.¹⁵⁵

Climate change is threatening already fragile livelihoods and having adverse impacts on security. The scarcity of natural resources exacerbates existing intercommunal tensions and conflicts between herders and farmers.¹⁵⁶ Droughts are becoming more recurrent and severe, and rainfall is irregular and increasingly unpredictable.¹⁵⁷

Global warming above 2°C will stress crops, potentially decreasing overall cereal yields by about 11%. Maize and rice will be especially affected throughout much of the Inland Forests subregion, while millet and sorghum yields could see decreases of 15–25% in places like Niger and Burkina Faso.¹⁵⁸ Climatic hazards have been characterized by rainfall deficits in many Sahelian countries and flooding in others. While future precipitation in the western Sahel is expected to decrease overall, more frequent storms and extreme rainfall in other parts could increase the risk of floods.¹⁵⁹

Central America’s Dry Corridor

“We spent almost eight days with hardly any food.” Mariana López, mother, living in Naranjo, Guatemala’s Dry Corridor, after being hit by persistent drought which forced her to sell her land.¹⁶⁰

Latin America has been witnessing rising hunger despite having a significant number of middle-income countries. Hunger in El Salvador, Guatemala, Honduras and Nicaragua has increased almost fourfold over the past two years – from 2.2 million people in 2018 to close to 8 million people in 2021 – a result of years of extreme climate events on top of the economic crisis caused by COVID-19.¹⁶¹

Inequality is one of the main drivers of hunger in the region. Latin America and the Caribbean is among the most unequal regions in the world and the most insecure outside of

war zones.¹⁶² This year, the effects of widespread inflation and soaring global food and energy prices are likely to worsen the situation for the most vulnerable people in the region.¹⁶³

Cumulative impacts of climate events have only made the situation worse. Latin America and the Caribbean is the second most disaster-prone region in the world.¹⁶⁴ Since 2012, the region has been affected more frequently by droughts and cyclones.¹⁶⁵ These weather extremes, on top of unstable political systems, the COVID-19 pandemic, have meant over 60 million more people were food insecure in 2020 than in 2019.¹⁶⁶

Women and indigenous people are especially hard hit by the impacts of weather extremes. Women manage only 8% of the land in Guatemala and only 30% in Peru, which means any environmental changes put their income more at risk.¹⁶⁷ Similarly, indigenous people of the high Andean areas are especially impacted by the effects of global warming and the retreat of glaciers.¹⁶⁸

The Dry Corridor is a strip of territory that stretches across Costa Rica, Nicaragua, Honduras, El Salvador and Guatemala, where more than 10 million people live, and many are engaged in agricultural activities, especially smallholder coffee production. The climate-driven reduced rains have impacted farming and compromised food security.¹⁶⁹ The drought has especially caused a “coffee crisis” in the region, hitting the income of vulnerable communities in Honduras and Guatemala and forcing many to migrate to the United States, leaving their land to others to take over.¹⁷⁰

In Guatemala, weather conditions have contributed to the loss of close to 80% of the maize harvest. In Mexico, the municipality of Cerritos suffered a 50% drop in harvests due to drought. Among the most affected crops were sorghum, sunflower and corn.¹⁷¹ Even the most optimistic climate change scenario is expected to result in a reduction in yields of around 20% across Central America.¹⁷²

In neighbouring Haiti, similar cycles of drought and storms in 2020 and 2021 significantly reduced food production. This was one of the key drivers of acute hunger for 4.4 million Haitians in the latter year.¹⁷³

6. SLOW ONSET EVENTS

The Pacific’s Sea-Level Rise

“People need certainty that governments will act to protect their fundamental and universal human rights from the adverse effects of climate change.” Noelene Nabulivou, Diverse Voices and Action for Equality (DIVA), Fiji

The Pacific islands – consisting of 14 nations – have long depended on the ocean for survival. About 70% of people in the region rely heavily on what can be grown or fished, despite growing urbanisation¹⁷⁴.

Over one third of the 11 million people in the island-nations currently live in poverty¹⁷⁵ making them even more vulnerable to the hunger and climate crises.¹⁷⁶ Both moderate and severe food insecurity has been increasing across the Pacific, with severe food insecurity rising from 2.5 percent in 2014 to 4.2 percent in 2019.¹⁷⁷

For Pacific people, climate change has delivered a severe blow to their staple foods and their livelihoods. Since 1990, global warming has slowly pushed sea levels to rise nearly three times the global average¹⁷⁸, and has made the ocean increasingly acidic¹⁷⁹. This has caused more frequent and longer-lasting coral bleaching and destabilization of the entire marine ecosystem is killing fish and shellfish that people rely on for food.

Most Pacific Island Countries could experience greater than 50% declines in maximum fish catch potential by 2100.¹⁸⁰ Sea-level rise is also infiltrating people's gardens and eroding land, decimating their crops.¹⁸¹

These changes have myriad impacts on fisheries and people's ability to grow and catch their food. For a population that relies on fish for up to 90% of its animal protein consumption¹⁸², declining fisheries mean severely compromised diet and growing malnutrition.¹⁸³ The slow rise of sea levels could mean a slow death to the Pacific countries' main source of food and income, literally leaving them underwater.

The most vulnerable people – including women and those already facing poverty –are taking the brunt of this climate impact. Many rely heavily on what they can grow or catch but are often unable to get productive land to grow food or afford the basic equipment to catch ever-dwindling fish or shellfish, such as a net, a fishing line, or a boat. And while rich people can still meet their needs by purchasing imported foods, the poor can only afford the least nutritionally valuable foods, such as white rice and two-minute noodles.¹⁸⁴

Similarly, while rich people afford to move to land on higher grounds or away from the sea intrusion, poor people cannot and end up staying on land that is less productive and more at-risk, with no ability to produce the food they need to eat or sell for income. This can also force people into deeper poverty and hunger.

The Euphrates & Tigris River basin's water scarcity

"I had to sell half of my land to grow crops in the other half. Low levels of groundwater make it very expensive to extract water." Adnan, 62, a Syrian farmer from Rural Damascus

The "Euphrates region" known for its two rivers¹⁸⁵- the Euphrates and Tigris - and lush fertile land, which includes Syria, Iraq, and Turkey, is now facing its worst water scarcity crisis in decades.¹⁸⁶ As a result, it is now suffering a severe food shortage and in some of its countries, a deep hunger crisis.

Conflict is the primary driver of hunger in the region. Syria has experienced over a decade of conflict, forcing millions of people out of their homes. Together with sanctions which impacted agriculture production, it caused food prices to soar¹⁸⁷ and left 60% of the population in acute hunger.¹⁸⁸ Meanwhile, Iraq has been in political turmoil for more than four decades, which has destroyed its agriculture and irrigation systems¹⁸⁹ and dealt a blow to its economic health.¹⁹⁰

Nonetheless, climate change has made a dire situation worse, having a knock-on effect on people's available food and income. Since 2007, the region has suffered rapid loss of groundwater resources, as a result of consecutive and more extreme droughts. In 2021, Syria, Iraq and Turkey were hit by one of their worst droughts in decades. As a result, Syria's wheat production dropped by 75%¹⁹¹ causing a bread crisis in the country¹⁹²; and at least 50%¹⁹³ of all crops in its Al-Hassakeh governorate were expected to die. Similarly, Turkey reportedly lost 70 to 90 percent of its Southeast region's grains.¹⁹⁴

Moreover, the Euphrates and Tigris basin has suffered a constant decline of water largely due to more frequent droughts and decreasing precipitation induced by climate change – losing 144 cubic kilometers of total stored freshwater between 2003 and 2010¹⁹⁵, posing serious threats to food security¹⁹⁶. In Iraq, over the past year, water supply from both the Tigris and Euphrates rivers had decreased by 50% by May 2021.¹⁹⁷

Small-scale farmers and seasonal agricultural workers, who make up a significant part of the agricultural sector in the region, are most impacted. In rural Damascus, many small-scale farmers reported being forced to irrigate less of their land, or purchase drip irrigation systems

at high costs to salvage their crops. The major fuel crisis in the country has also made groundwater pumping very costly, forcing small-scale farmers to either quit farming or abandon their land.¹⁹⁸ Oxfam has also witnessed cases of intercommunal tension amongst farmers because of water shortage.

Governments' lack of commitment to adhere to water agreements across borders and to manage existing water resources in sustainable and non-extractive ways, is also likely to become a cause for political unrest in the region.¹⁹⁹

The climate crisis has also contributed to a wave of rural migration to urban areas, or to areas with more access to water. Last year, around 20,000 individuals in Iraq were displaced due to water scarcity.²⁰⁰

Women, displaced people, and migrant workers bear the brunt of the climate crisis. They often get unpaid or underpaid for their agricultural work because of their status. Deep structural economic and social inequalities also limit their access to resources to withstand the impacts of climate change and food price inflation and push them to deeper poverty.

By 2050, a 1°C rise in temperature is expected to reduce 20% of available freshwater in Iraq, which means almost one-third of its irrigated land will have no water²⁰¹. In Turkey, water resources per capita are expected to decrease by 40% between 1998-2050.²⁰²

7. ACTION NEEDED

The climate crisis is here, and people are already dying from climate-fuelled hunger. While governments must take immediate action to save lives and control the impacts of the current climate crisis, urgent action is needed to prepare vulnerable countries for the next climate shocks. This includes securing climate financing to support the most impacted people and investing in gender just, resilient, and sustainable food systems that work for all people and the planet.

At the 77th UN General Assembly and ahead of COP27, Oxfam is calling on governments to take urgent actions to:

Drastically reduce emissions: All countries especially rich polluting nations must rise to their responsibilities and resubmit ambitious Nationally Determined Contributions (NDCs) in line with their fair share to limit global temperature rise to below 1.5C. This includes **drastic cuts to their overall emissions**, including addressing emissions from unsustainable agriculture, animal feeding, deforestation and the use of fossil fuel.²⁰³²⁰⁴

Provide emergency assistance to save lives now: To save lives now, donors especially from rich polluting nations, must immediately fill the UN humanitarian appeal gap to help impacted countries and people. To fill this gap, governments must ensure companies and the rich are paying their fair share of taxes, not least those profiting from harming the planet.

Fairly compensate those most impacted by the climate crisis: Beyond fulfilling the \$100bn climate finance target for climate mitigation and adaptation, rich polluting countries must compensate low-income countries for the damages and losses they caused them due to climate change.²⁰⁵ This is through establishing a **finance facility to address loss and damage** under the UNFCCC, as well as **cancelling debt** to help these countries prepare for and cope with climatic shocks.

Prepare poor countries and poor people for the next climate shock: Governments must commit to anticipatory action and early preparedness to climate shocks including securing funding to be readily dispatched ahead of climate disasters and mobilizing early warning

systems and ensure local communities and organisations impacted are at the heart of response. This also includes investing in social protection schemes to help people cope.

Build fairer, more resilient, and more sustainable food systems: Governments and the private sector must put fairer, gender just food systems at the heart of climate response, to help small-scale food producers recover, rebuild and respond to climate crises. This includes investing in sustainable agriculture that supports local food production and preserves the planet.

Provide safe and legal avenues for people forced to move due to climate change: to access safe countries for both short term climate disasters as well as long term climate shifts which make their places of origin unliveable.

Ensure a gender-sensitive climate response: Generate data to further understand the impact of the climate crisis on women, girls, and non-binary individuals, and ensure they can access basic social services.

References

¹ According to the World Meteorological Organization (WMO) Atlas of Mortality and Economic Losses from Weather, Climate and Water Extremes (1970–2019) (WMO-No. 1267), Geneva.

² Oxfam report: “[The hunger virus multiplies: deadly recipe of conflict, Covid-19 and climate accelerate world hunger](#)” (Jul 2021)

³ The 10 countries had the highest number of appeals linked to extreme weather, where climate was a major contributor to the appeal, according to the methodology outlined in the Oxfam (2022) Technical Note [UN Humanitarian Appeals linked to Extreme Weather, 2000-2021](#).

⁴ The FSIN began producing the Global Reports on Food Crises in 2017. Sum of the population in IPC3+ food insecurity in the ten countries in 2016 (See [GRFC 2017, p. 21](#)) was 21.3 million and in 2021 (See [GRFC 2022, pp. 30–33](#)) was 47.5. The percent rise is therefore 123%.

⁵ The number of people at IPC 4 level of food insecurity and above in 2021, according to [the GRFC 2022](#), see Understanding [IPC classification](#)

⁶ The sum of cumulative carbon emissions of the 10 climate hotspots for 2020 is 0.002 trillion tons of carbon – that is 0.13% of the world emissions (1.69 trillion tons of carbon) in same year. Source [Our World in Data](#).

⁷ The rank of 10 climate hotspots is 34% according to calculations of percentiles of the Notre Dame Global Adaptation Initiative (ND-GAIN) scores of the 10 climate hotspots. ND-GAIN scores for 2020 retrieved from the [ND-GAIN website](#).

⁸ The sum of cumulative carbon emissions of the G20 countries for 2020 is 1.299570755 trillion tons of carbon, which is 76.60% of global carbon emissions (1.696524177 trillion tons). Source [Our World in Data](#).

⁹ See [About the G20](#)

¹⁰ Calculation of the fraction of the emissions of the climate hotspots (0.002219819) trillion tons of carbon. This is 1/650 out of the emissions of the G20 countries (1.299570755 trillion tons of carbon). 2020 Emissions data from [Our World in Data](#).

¹¹ Oxfam reports “[The Hunger Virus: How COVID-19 is fuelling hunger](#)” (2020) and “[the Hunger Virus Multiplies](#)” (2021) address the multiple drivers of food insecurity.

¹² The Guardian (2022). [Revealed: oil sector’s staggering \\$3bn-a day profits for last 50 years](#).

¹³ For the daily average of \$2.8 billion in profits over the last 50 years, which is also an annual average of \$1.022 trillion, we used this 2022 article from the Guardian: [Revealed: oil sector’s ‘staggering’ \\$3bn-a-day profits for last 50 years](#). Based on the daily average, we calculated that less than 18 days of company profits would cover the full UN global humanitarian appeal for 2022 of \$48.82 billion. We used the annual average of \$1 trillion to calculate the returns from an extra 1% tax on fossil fuel profits (\$10 billion). Calculated from [OCHA Financial Tracking Service](#) as of 10 Aug 2022

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- ¹⁴ United Nations Framework Convention on Climate Change (2022). [Is Eastern Africa's Drought the Worst in Recent History? And are Worse Yet to Come?](#)
- ¹⁵ Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (2022). [Climate Change 2022: Impacts, Adaptation and Vulnerability](#), p. 9.
- ¹⁶ According to the World Meteorological Organization (WMO) Atlas of Mortality and Economic Losses from Weather, Climate and Water Extremes (1970–2019) (WMO-No. 1267), Geneva.
- ¹⁷ Oxfam Briefing Paper (June 2022). [Footing the bill. Fair finance for loss and damage in an era of escalating climate impacts](#), p. 13, Box 2.
- ¹⁸ For instance, despite the impacts of extreme weather in Zimbabwe and Djibouti, acute hunger decreased, whereas in Burkina Faso which had fewer extreme weather events than Djibouti, acute hunger increased by 1350%
- ¹⁹ We use the term 'acute hunger' to indicate populations experiencing acute food insecurity at Phases 3-5 of the Integrated Food Security Phase Classification (IPC) system. See [IPC Technical Manual version 3.1](#)
- ²⁰ [GRFC 2017 \(p. 21, Table 2\)](#); [GRFC 2022 \(pp. 30 – 33, Table 1.1\)](#).
- ²¹ The four countries are Kenya, Madagascar, Somalia and Zimbabwe, all of which appeared at least three times since 2016 in the GRFC category of countries “experiencing IPC3 or worse levels of food insecurity primarily due to weather-related disasters”. See Global Report on Food Crises 2016-2022.
- ²² The FSIN began producing the Global Reports on Food Crises in 2017. Sum of the population in IPC3+ food insecurity in the ten countries in 2016 (See [GRFC 2017, p. 21](#)) was 21.3 million and in 2021 (See [GRFC 2022, pp. 30 – 33](#)) was 47.5. The percent rise is therefore 123%.
- ²³ GRFC 2022; Djibouti data from <https://www.ipcinfo.org/ipc-country-analysis/details-map/en/c/1153027/?iso3=DJI>
- ²⁴ Source [GRFC 2022, p. 7](#).
- ²⁵ Global Assessment Report (GAR2022). [More than one disaster a day looming without action on risk reduction, UN warns](#).
- ²⁶ ODI (September 2015). [Zero poverty, zero emissions: Eradicating extreme poverty in the climate crisis](#).
- ²⁷ Climate Action Tracker (2021). [Temperatures](#).
- ²⁸ Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (2022). [Climate Change 2022: Impacts, Adaptation and Vulnerability](#) pp. 9, 14.
- ²⁹ German Advisory Council on Global Change (2007). [World in Transition: Climate Change as a Security Risk](#) and United Nations [Climate change recognized as 'threat multiplier', UN Security Council debates its impact on peace](#).
- ³⁰ FAO. 2021. *The impact of disasters and crises on agriculture and food security: 2021*. Rome. <https://doi.org/10.4060/cb3673en>, pp.32
- ³¹ Source: “[Impacts of climate change on food systems](#)” section 5.2
- ³² R. Mukerji. (2019). [Climate Change and Hunger](#). Global Hunger Index.
- ³³ <https://www.hsph.harvard.edu/c-change/subtopics/climate-change-nutrition/>
- ³⁴ <https://ourworldindata.org/water-access>
- ³⁵ Mbow, C., C. Rosenzweig, L.G. Barioni, T.G. Benton, M. Herrero, M. Krishnapillai, E. Liwenga, P. Pradhan, M.G. Rivera-Ferre, T. Sapkota, F.N. Tubiello, Y. Xu, 2019: Food Security. In: Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems [P.R. Shukla, J. Skea, E. Calvo Buendia, V. Masson-Delmotte, H.-O. Pörtner, D.C. Roberts, P. Zhai, R. Slade, S. Connors, R. van Diemen, M. Ferrat, E. Haughey, S. Luz, S. Neogi, M. Pathak, J. Petzold, J. Portugal Pereira, P. Vyas, E. Huntley, K. Kissick, M. Belkacemi, J. Malley, (eds.)], pp. 464, 514-516.
- ³⁶ Global Hunger Index. [Climate Change and Hunger - Issues in Focus](#).
- ³⁷ IFPRI report (2009) : [Climate change impact on agriculture and costs of adaptation](#).
- ³⁸ [IPCC Climate Change and Land. Summary for policy makers](#)
- ³⁹ The United Nations. [Water for Life Decade, Water Scarcity](#).
- ⁴⁰ FAO et al (2018). [The Future of Food and Agriculture: Alternative Pathways to 2050](#).
- ⁴¹ Intergovernmental Panel on Climate Change. (2020). An IPCC Special Report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems. <https://www.ipcc.ch/srccl/>

- ⁴² Oxfam' report "[Both Ends](#)" (2022).
- ⁴³ Oxfam and CTD (2016). <https://oi-files-d8-prod.s3.eu-west-2.amazonaws.com/s3fs-public/bn-our-seeds-food-security-zimbabwe-151216-en.pdf>
- ⁴⁴ [GRFC 2021 \(p. 22, Figure 1.14\)](#).
- ⁴⁵ The United Nations. [Climate change recognized as 'threat multiplier', UN Security Council debates its impact on peace](#)
- ⁴⁶ ICRC (2020). [Seven things you need to know about climate change and conflict](#)
- ⁴⁷ OCHA. [Internal Displacement](#).
- ⁴⁸ GRFC 2022, pp. 30, 62.
- ⁴⁹ Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (2022). [Summary for Policymakers](#).
- ⁵⁰ Annual Review of Economics (2015). [Climate and Conflict](#).
- ⁵¹ Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (2022). [Summary for Policymakers, p. 11, footnote B.1.7](#).
- ⁵² The UN Refugee Agency USA (2016). [Frequently asked questions on climate change and disaster displacement](#).
- ⁵³ Source: REACH: [Somalia Drought: key findings](#) (July 2022)
- ⁵⁴ Oppenheimer, M., B.C. Glavovic, J. Hinkel, R. van de Wal, A.K. Magnan, A. Abd-Elgawad, R. Cai, M. Cifuentes-Jara, R.M. DeConto, T. Ghosh, J. Hay, F. Isla, B. Marzeion, B. Meyssignac, and Z. Sebesvari, 2019: Sea Level Rise and Implications for Low-Lying Islands, Coasts and Communities. In: IPCC Special Report on the Ocean and Cryosphere in a Changing Climate [H.-O. Pörtner, D.C. Roberts, V. Masson-Delmotte, P. Zhai, M. Tignor, E. Poloczanska, K. Mintenbeck, A. Alegría, M. Nicolai, A. Okem, J. Petzold, B. Rama, N.M. Weyer (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 321–445. <https://doi.org/10.1017/9781009157964.006>, pp. 375-378.
- ⁵⁵ OHCHR [Women's human rights and gender-related concerns in situations of conflict and instability](#)
- ⁵⁶ The World Bank "[Gendered dimension of forced displacement](#)"
- ⁵⁷ European Civil Protection and Humanitarian Aid Operations (2022). [Forced displacement: refugees, asylum seekers and internally displaced persons \(IDPs\)](#).
- ⁵⁸ The World Bank (2021). [Conflict, Displacement and Overlapping Vulnerabilities: Understanding Risk Factors for Gender-Based Violence among Displaced Women in Eastern Democratic Republic of Congo](#).
- ⁵⁹ The World Bank. [Gender Dimensions of Forced Displacement: A Synthesis of New Research](#)
- ⁶⁰ Oxfam Briefing Paper (June 2022). [Footing the bill. Fair finance for loss and damage in an era of escalating climate impacts](#).
- ⁶¹ Oxfam calculations from data posted at <https://fts.unocha.org/>
- ⁶² Appeals and response plans 2021. [OCHA Financial Tracking Service](#), last visited 22 August 2022.
- ⁶³ Diffenbaugh, N. S. & Burke, M. [Global warming has increased global economic inequality](#). *Proc. Natl Acad. Sci. USA* 116, 9808–9813 (2019).
- ⁶⁴ IPCC 2022
- ⁶⁵ Leah H Samberg et al 2016 *Environ. Res. Lett.* 11 124010
- ⁶⁶ UN (2020) "[The Impact of COVID-19 on Food Security and Nutrition](#)" June 2020. <https://www.fao.org/3/ca5162en/ca5162en.pdf>
- ⁶⁷ *Ibid*
- ⁶⁸ The United Nations (2016). [Women grapple with harsh weather...but they can also help mitigate effects of climate change in Africa](#).
- ⁶⁹ H. Botreau and M.J. Cohen (2019). '[Gender inequalities and food insecurity](#)', Oxfam Briefing Paper.
- ⁷⁰ Graham JP, Hirai M, Kim S-S (2016). [An Analysis of Water Collection Labor among Women and Children in 24 Sub-Saharan African Countries](#). *PLoS ONE* 11(6): e0155981.
- ⁷¹ Sommer M, Ferron S, Cavill S, House S (2015). [Violence, gender and WASH: spurring action on a complex, under-documented and sensitive topic](#). *Environment and Urbanization* 27: 105–116.
- ⁷² Plan International. [How will the hunger crisis affect women and girls?](#)
- ⁷³ <https://www.fao.org/3/i2050e/i2050e01.pdf>
- ⁷⁴ Science (April 2019). [Climate change was the engine that powered Hurricane Maria's Devastating Rains](#).
- ⁷⁵ Oxfam (2018). [The weight of water on women. The long wake of hurricane María in Puerto Rico](#).
- ⁷⁶ Natural Hazards Center (2018). [Small-Scale Food Production and the Impact of Water Shortages in Puerto Rico after Hurricane Maria. An Early Status Assessment](#).

⁷⁸ Luis Alexis Rodríguez-Cruz et al 2022 Environ. Res. Lett. 17 044057. [Social-ecological interactions in a disaster context: Puerto Rican farmer households' food security after Hurricane Maria.](#)

⁷⁹ Bread for the World (2017). [Food Insecurity in Puerto Rico: The aftermath of the hurricanes.](#)

⁸⁰ Environmental Science & Policy (89), [Broadening understandings of drought – The climate vulnerability of farmworkers and rural communities in California](#) (USA) .Nov 2018, pp 283-291.

⁸¹ <https://www.wfp.org/publications/cost-hunger-africa-series>

⁸² Calculations of percentiles of the Notre Dame Global Adaptation Initiative (ND-GAIN) scores of the 10 climate hotspots. ND-GAIN scores for 2020 retrieved from the [ND-GAIN website](#). Guatemala, which has the highest score in the ND-GAIN Index among the 10 climate hotspots, is in the 19th (0.34) percentile of all the scores of all countries. Therefore, the 10 climate hotspots are in the bottom 34% of the countries ready for climate change globally.

⁸³ Calculations of percentiles of the ND-GAIN scores of the G7 countries. ND-GAIN scores for 2020 retrieved from the [ND-GAIN website](#).

⁸⁴ The Guardian (2022). [Revealed: oil sector's 'staggering' \\$3bn-a-day profits for last 50 years.](#)

⁸⁵ The Guardian (2022). [Revealed: oil sector's staggering \\$3bn-a day profits for last 50 years.](#)

⁸⁶ Calculated from [OCHA Financial Tracking Service](#) as of 31 August 2022.

⁸⁷ For the daily average of \$2.8 billion in profits over the last 50 years, which is also an annual average of \$1.022 trillion, we used this 2022 article from the Guardian: Revealed: oil sector's 'staggering' \$3bn-a-day profits for last 50 years. We used the annual average of \$1 trillion to calculate the returns from an extra 1% tax on fossil fuel profits (\$10 billion). The total UN food security appeal is \$14.9 billion for 2022. Only \$5 billion of that appeal is currently funded, thus \$10 billion would cover the gap in funding.

⁸⁸ See [About the G20](#)

⁸⁹ The sum of cumulative carbon emissions of the G20 countries for 2020 is 1.299570755 trillion tons of carbon, which is 76.60% of global carbon emissions (1.696524177 trillion tons). Source: [Our World in Data](#).

⁹⁰ The sum of cumulative carbon emissions of the 10 climate hotspots for 2020 is 0.002219819 trillion tons of carbon – that is 0.1308% of the world emissions (1.696524177 trillion tons of carbon) in same year. Source: [Our World in Data](#).

⁹¹ Sum of cumulative carbon emissions of the 10 climate hotspots for 2020 is 0.002219819 trillion tons of carbon; and that of the G7 countries is 0.750189498 trillion tons of carbon. Source: [Our World in Data](#).

⁹² This figure has likely increased in 2022. See “[Atlas of Mortality and Economic Losses from Weather, Climate and Water Extremes \(1970-2019\)](#).”

⁹³ The Guardian (2021). [‘Potentially the worst drought in 1,200 years’: scientists on the scorching US heatwave.](#)

⁹⁴ World Economic Forum (2022). [Climate Change. Persistent drought is gripping over half of the US.](#)

⁹⁵ Source: NIDIS – NOAA “[The High Cost of Drought](#)” (2020)

⁹⁶ USA ranks 18th among the 182 countries analysed in the index. Source: ND-GAIN Ranks for 2020 retrieved from the [ND-GAIN website](#).

⁹⁷ Oxfam (2022) [Footing the bill: Fair finance for loss & damage in an era of escalating climate impacts](#)

⁹⁸ Somalia ranks 172nd among the 182 countries analysed in the index. Source: ND-GAIN Ranks for 2020 retrieved from the [ND-GAIN website](#).

⁹⁹ IPCinfo: [Somalia: Acute Food Insecurity Situation May 2022 and Projection June to September 2022](#)

¹⁰⁰ The [UN Humanitarian Appeal](#) for Somalia for 2022 is \$1,022,008,420 (nearly 1.5 billion USD).

¹⁰¹ The World Bank (2020). Somalia’s GDP in 2020 was US\$ 4.918 billion.

¹⁰² Somalia’s total public debt is very high, at dollar 4.8 billion, or 101 percent of GDP at end-2018—and nearly all of which is external, according to the [World Bank-IMF debt sustainability analysis](#).

¹⁰³ Food and Agriculture Organization of the United Nations (2021). [The State of the Food Security and Nutrition in the World](#), p. xii.

¹⁰⁴ Food and Agriculture Organization of the United Nations et al. (2020). [The State of Food Security and Nutrition in the World 2020](#), p. 66.

¹⁰⁵ [Regional Overview of Food Security and Nutrition](#)

¹⁰⁶ Food and Agriculture Organization of the United Nations (2020). [Asia and the Pacific Regional Overview of Food Security and Nutrition](#), p. 13.

¹⁰⁷ International Food Policy Research Institute (2018). [Global Food Policy Report](#).

¹⁰⁸ National Disaster Risk Reduction and Management Council (2013). [Final Report re Effects of Typhoon “Yolanda” \(Haiyan\)](#).

-
- ¹⁰⁹ International Organization for Migration (2015). [Resolving Post-Disaster Displacement: Insights from the Philippines after Typhoon Haiyan \(Yolanda\)](#).
- ¹¹⁰ Time USA (2013). [Deadly Typhoon Haiyan Devastates the Philippines, Heads for Vietnam](#).
- ¹¹¹ See [State of the Climate in Asia 2020](#)
- ¹¹² See: [Tropical Cyclones in Asia could double in destructive power](#).
- ¹¹³ See [“Intensification of landfalling typhoons over the northwest Pacific since the late 1970s.”](#)
- ¹¹⁴ World Economic Forum (December 2021). [Future of the Environment. Tropical cyclones in Asia could double in destructive power](#).
- ¹¹⁵ Asian Development Bank (December 2021). [Strengthening Cooperation on Disaster Risk Management within the Association of Southeast Asian Nations](#). Form TECH-1 Description of Approach, Methodology, and Work Plan for Performing the Assignment.
- ¹¹⁶ International Monetary Fund (2018). Finance and Development. [Boiling Point](#).
- ¹¹⁷ Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2022). [AR5 Synthesis Report: Climate Change 2014](#).
- ¹¹⁸ Asian Development Bank (October 2019). [Ending Hunger in Asia and the Pacific by 2020. An Assessment of Investment Requirements in Agriculture. Requirements in Agriculture](#).
- ¹¹⁹ Williams and Funk (2011). [A westward extension of the warm pool leads to a westward extension of the Walker circulation, drying eastern Africa](#).
- ¹²⁰ Source: Oxfam report [“Dangerous Delay 2 : The Cost of Inaction”](#), May 2022.
- ¹²¹ Sum of the IPC 3+ population of the three countries, [GRFC 2022](#), p. 31 – 33; Food Security and Nutrition Working Group (2022). [FSNWG Drought Special Report July 2022](#).
- ¹²² Sum of the population of severely wasted children in Kenya (142, 800, p. 138), Somalia (213, 440, p. 188) and Ethiopia (1 million, p. 123), [GRFC 2022](#).
- ¹²³ [FAO and WFP warn of looming widespread food crisis as hunger threatens stability in dozens of countries](#) (June 2022)
- ¹²⁴ Boko et al. (2007). [Climate Change 2007: Impacts, Adaptation and Vulnerability](#).
- ¹²⁵ Source: ODI [“Climate risk report for the East Africa region”](#) July 2022
- ¹²⁶ Weathering Risk and PIK/adelphi (2022). [Climate Risk Profile Somalia](#).
- ¹²⁷ According to FAO’s [Agricultural Stress Index \(ASI\)](#).
- ¹²⁸ According to [Food Security and Nutrition Analysis Unit \(FSNAU\)](#) and [Famine Early Warning Systems Network \(FEWS NET\)](#).
- ¹²⁹ Food Security and Nutrition Working Group (2022). [FSNWG Drought Special Report July 2022](#).
- ¹³⁰ Hendrix and Salehyan (2012). [Climate change, rainfall, and social conflict in Africa](#); Raleigh and Kniveton (2012). [Come rain or shine: An analysis of conflict and climate variability in East Africa](#); Theisen (2012). [Climate clashes? Weather variability, land pressure, and organized violence in Kenya, 1989–2004](#).
- ¹³¹ Reach [“Key findings: Somalia drought”](#) brief. July 2022.
- ¹³² Source: IFRI (2013) [East African agriculture and climate change: A comprehensive analysis](#). Ch13 pp 385-387.
- ¹³³ World Food Programme (June 2021). [Climate Change in Southern Africa](#).
- ¹³⁴ World Bank Group (March 2019). [Zimbabwe: Agriculture Sector Disaster Risk Assessment](#).
- ¹³⁵ Government of Zimbabwe (2021). [Zimbabwe Revised Nationally Determined Contribution](#).
- ¹³⁶ *Ibid*
- ¹³⁷ Southern African Development Community (SADC) (2022). The [SADC](#) Member States are Angola, Botswana, Comoros, Democratic Republic of Congo, Eswatini, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, United Republic Tanzania, Zambia and Zimbabwe.
- ¹³⁸ Regional Vulnerability Assessment & Analysis Programme (RVAA) (2021). SADC RVAA Synthesis Report 2021. [The state of food and nutrition security and vulnerability in Southern Africa](#).
- ¹³⁹ IPCC (2018). Special Report: Global Warming of 1.5°C. [Chapter 1](#).
- ¹⁴⁰ IPCC (2022) [Sixth Assessment Report- Regional Fact Sheet](#)- Africa. p2
- ¹⁴¹ Ndlovu, E., Prinsloo, B., & Le Roux, T. (2020). [Impact of climate change and variability on traditional farming systems: Farmers' perceptions from south-west, semi-arid Zimbabwe](#). Jambá: Journal of Disaster Risk Studies, 12(1), 1-19.
- ¹⁴² Miller, K.A et al. (2020). [Greenpeace Africa: Weathering the storm: Extreme weather events and climate change in Africa](#).
- ¹⁴³ World Food Programme (June 2021). [Climate Change in Southern Africa](#).

- ¹⁴⁴ The Food Crisis Prevention Network (2022). [Analyses – RPCA](#). Countries included are: Benin, Burkina Faso, Cape Verde, Chad, Ivory Coast, Gambia, Guinea, Equatorial Guinea, Guinea-Bissau, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo.
- ¹⁴⁵ The Regional Food Security and Nutrition Working group (FSNWG) West Africa. [Sahel and West Africa: Unprecedented Food and Nutrition Insecurity, April 2022](#).
- ¹⁴⁶ Burkina Faso, Mali, Niger, Mauritania, Senegal and Chad.
- ¹⁴⁷ Global Acute Malnutrition (GAM) a measure of acute malnutrition in children aged between 6 and 59 months. GAM provides information on the percentage of all children in this age range who are classified with low weight-for-height and/or oedema. GAM is also often referred to as wasting. (Source: [UNHCR](#)).
- ¹⁴⁸ Severe Acute Malnutrition (SAM) is defined by a very low weight for height, by visible severe wasting, or by the presence of nutritional oedema. (Source: [UNICEF](#)).
- ¹⁴⁹ The Regional Food Security and Nutrition Working group (FSNWG) West Africa. [Sahel and West Africa: Unprecedented Food and Nutrition Insecurity, April 2022](#).
- ¹⁵⁰ RPCA (2022). [Avis sur la situation alimentaire et nutritionnelle du Sahel et l’Afrique de l’Ouest. Concertation technique du dispositif régional de prévention et gestion des crises alimentaires \(PREGEC\)](#). Dakar 28-30 Mars 2022.
- ¹⁵¹ OCHA West and Central Africa. [Food insecurity in the Sahel has increased significantly over the past year](#).
- ¹⁵² [The Sahel in the midst of climate change](#), Solidarités International, March 2020.
- ¹⁵³ USAID (April 2017). Climate Change Risk Profile – West Africa Sahel. [Regional Overview](#).
- ¹⁵⁴ World Politics Review (March 2022). [On Climate Change, Africa’s Nightmare Is Already Here](#).
- ¹⁵⁵ Douville, H. K. et al. (February 2022). [Water cycle changes](#); V. Masson-Delmotte et. al. (2021). [Climate Change 2021: The Physical Science Basis](#). Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change; SIPRI Insights on Peace and Security (February 2022). No. 2022/3. [Climate Change and Violent Conflict in West Africa: Assessing the Evidence](#).
- ¹⁵⁶ Resources scarcity is having a significant impact on grievances and insecurity of pastoralists. Pflaum, M. (2021), "[Pastoralist violence in North and West Africa](#)", West African Papers, No. 31, OECD Publishing, Paris.
- ¹⁵⁷ Depuis 40 ans, la superficie des terres cultivées a doublé, atteignant près de 25 % de la surface totale des terres. Une tendance que les scientifiques prévoient d’accélérer parallèlement à la croissance démographique. Bulletin De La Sécurité Africaine Une Publication Du Centre D’Etudes Stratégiques De L’Afrique. No. 39. Juillet 2021. [La complexité croissante des conflits entre agriculteurs et éleveurs en Afrique de l’Ouest et centrale](#).
- ¹⁵⁸ USAID (2018). [Climate Risk Profile in West Africa](#).
- ¹⁵⁹ Douville, H. K. et al. (February 2022). [Water cycle changes](#); V. Masson-Delmotte et. al. (2021). [Climate Change 2021: The Physical Science Basis](#). Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.
- ¹⁶⁰ Oxfam (2019). [En primera persona: obligadas a abandonar sus hogares por la crisis climática](#).
- ¹⁶¹ WFP [Battered by climate shocks and bruised by economic crisis millions more in Central America face hunger](#)
- ¹⁶² Oxfam (2015). [Privilegios que niegan derechos](#).
- ¹⁶³ FAO (2022). [FAO Food Price Index](#).
- ¹⁶⁴ OCHA (2020). [Desastres Naturales en America Latina 2000-2019](#).
- ¹⁶⁵ The WWF Global Organization. [El impacto del cambio climático en Latinoamérica](#).
- ¹⁶⁶ FAO, FIDA, OPS, WFP y UNICEF. 2021. [América Latina y el Caribe - Panorama regional de la seguridad alimentaria y nutricional 2021: estadísticas y tendencias](#). Santiago de Chile, FAO.
- ¹⁶⁷ Oxfam (2016). [Desterrados: Tierra, poder y desigualdad en América Latina](#).
- ¹⁶⁸ Somo Iberoamerica (2019). [Los pueblos indígenas son los más vulnerables al cambio climático](#).
- ¹⁶⁹ Source: [IPCC 6th Assessment Report \(2022\) WGII](#) , Ch12, Central and South America.
- ¹⁷⁰ See "[The Coffee Crisis in Central America](#)".
- ¹⁷¹ Naciones Unidas (Agosto 2021). [Cambio climático: América Latina será una de las regiones más afectadas](#).
- ¹⁷² Predictions are based on the assumption that IPCC climate scenario B2 would occur. For See [IPCC report](#)
- ¹⁷³ GRFC 2022, p. 129.
- ¹⁷⁴ World Food Programme and Pacific Community (SPC) (2018). [Food Security in Vulnerable Islands: A Regional food security atlas of the Pacific](#).
- ¹⁷⁵ *ibid*
- ¹⁷⁶ WFP (2021). [Asia and the Pacific Regional Overview of Food Security and Nutrition](#), p. 10.
- ¹⁷⁷ *ibid*

- ¹⁷⁸ USGS: [The Impact of Sea-Level Rise and Climate Change on Pacific Ocean Atolls](#) , June 27, 2022.
- ¹⁷⁹ IPCC [WGII Regional factsheet “small islands”](#). 2022
- ¹⁸⁰ IPCC [Sixth Assessment Report](#), WGII Chapter 12 “Regional climate changes”, p. 5.
- ¹⁸¹ World Food Programme and Pacific Community (SPC) (2018). [Food Security in Vulnerable Islands: A Regional food security atlas of the Pacific](#).
- ¹⁸² IPCC WGII Sixth Assessment Report, [Impacts report](#), Ch 15, p. 26.
- ¹⁸³ World Food Programme and Pacific Community (SPC) (2018). [Food Security in Vulnerable Islands: A Regional food security atlas of the Pacific](#).
- ¹⁸⁴ Australian Institute for International Affairs: “[Gendered \(In\) Security – A Pacific Reality](#)”
- ¹⁸⁵ National Geographic Resource Library. [Fertile Crescent](#); FAO. 2009. AQUASTAT [Transboundary River Basins – Jordan River Basin](#). Food and Agriculture Organization of the United Nations (FAO).
- ¹⁸⁶ Joint agencies press release (2021), [Water crisis and drought threaten more than 12 million in Syria and Iraq](#).
- ¹⁸⁷ Source: WFP : [12 million Syrians now in the grip of hunger, worn down by conflict and soaring food prices](#).
- ¹⁸⁸ More than 12 million people in Syria are food insecure today. Source: [World Food Programme](#).
- ¹⁸⁹ Source: [The reverberating effects of explosive violence on agriculture in Iraq](#) (2020)
- ¹⁹⁰ Source: FAO’s “[Iraq: Restoration of agriculture and irrigation water systems sub-programme](#) (2018–2020)”
- ¹⁹¹ Production dropped from 4.1 million tonnes to 1.05 million tonnes. FAO (2021), [Syrian Arab Republic Country Brief](#)
- ¹⁹² <https://www.washingtoninstitute.org/policy-analysis/facing-syrias-food-crisis#main-content>
- ¹⁹³ Middle East Institute (December 10, 2021). [Three signs of impending famine in Syria absent immediate action](#).
- ¹⁹⁴ BBC News Turckce (June 2021). [Agricultural areas have been severely damaged due to drought in the Southeast: 'Our field has been brain dead'](#).
- ¹⁹⁵ Voss, K. A., J. S. Famiglietti, M. Lo, C. de Linage, M. Rodell, and S. C. Swenson (2013), Groundwater depletion in the Middle East from GRACE with implications for transboundary water management in the Tigris-Euphrates-Western Iran region, *Water Resour. Res.*, 49, doi:10.1002/wrcr.20078.
- ¹⁹⁶ OCHA (2021). [Syrian Arab Republic: Euphrates water crisis & drought outlook, as of 17 June 2021](#).
- ¹⁹⁷ Arab Center Washington DC (December 2020). [Mitigating Conflict over Water in the Euphrates-Tigris Basin](#).
- ¹⁹⁸ Based on Oxfam interviews with farmers impacted by Euphrates water drop in Rural Damascus, May 2021.
- ¹⁹⁹ Source: Water International (2009) “[Water Scarcity Impacts and Potential Conflicts in the MENA Region](#)” p6.
- ²⁰⁰ Source: IOM: [Migration, Environment, and Climate Change in Iraq](#) (2022).
- ²⁰¹ The World Bank (November 2021). [Iraq Economic Monitor: The Slippery Road to Economic Recovery](#).
- ²⁰² Source: [Impacts of Climate Change on Water Resources in Turkey](#). pp 884.
- ²⁰³ Dabi, Nafkote and Sen, Aditi (2021) [Tightening the net: Net zero climate targets – implications for land and food equity](#). Oxfam, DOI 10.21201/2021.7796
- ²⁰⁴ https://www.ipcc.ch/site/assets/uploads/2019/08/4.-SPM_Approved_Microsite_FINAL.pdf
- ²⁰⁵ Food and Agriculture Organization (FAO) (2021). [The Impact of Disasters and Crises on Agriculture and Food Security, p.178](#). Least Development Countries (LDCs) and Low- and Middle-Income Countries (LMICs) lost an average of more than USD 10 billion per year (2008-2018) to crop and livestock production declines following disasters. [Actual quote “Cumulatively between 2008 and 2018, approximately USD 108.5 billion was lost as a result of declines and livestock production in LDCs and LMICs following disasters.”].